NPDES compliance summary report, fiscal year 2015

Massachusetts Water Resources Authority

Environmental Quality, Water and Wastewater
Report 2015-12

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NPDES COMPLIANCE SUMMARY REPORT
Fiscal Year 2015

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Executive Summary

Overview

This report presents and summarizes monitoring and compliance data collected and analyzed by the Massachusetts Water Resources Authority's (MWRA) Environmental Quality, Water and Wastewater department (EnQual) from July 1, 2014 to June 30, 2015. This report, while not a regulatory requirement, provides a useful documentation of influent and effluent quality trends over the course of a fiscal year for the MWRA's Deer Island Treatment Plant (DITP) and Combined Sewer Overflow (CSO) facilities.

Deer Island Treatment Plant

The MWRA's NPDES permit requires the Authority to monitor its wastewater treatment plant at Deer Island for specific parameters. The MWRA currently operates under a permit issued in July 10, 2000 and effective August 9, 2000. The permit calls for secondary treatment of wastewater and monitoring of the effects of the outfall in the Massachusetts Bay. Secondary treatment began at DITP in August 1997 with the start-up of the first battery of secondary treatment (Battery A). In March 1998, Battery B was brought on-line. The final battery, Battery C, became operational in March 2001. DITP was designed for an average design flow of 361 million gallons a day, a maximum secondary treatment capacity of 700 million gallons a day, and a hydraulic capacity of 1.2 billion gallons a day.

In addition to the completion of secondary treatment facilities, the MWRA opened on September 6, 2000 a new 9.5-mile outfall tunnel that carries treated wastewater from DITP to Massachusetts Bay. The permit requires extensive monitoring of Massachusetts Bay to determine the effects of the outfall, if any exist.

Figure 1, on the following page, shows the Deer Island flow during each month of FY15, comparing the flow with the monthly averages of the previous twenty one years – FY92 to FY14. From FY99 to FY02 all flows were treated at Deer Island, while from FY92 to FY98 flows were treated at DITP and the former Nut Island Treatment Plant, now the headworks for South System influent to DITP.

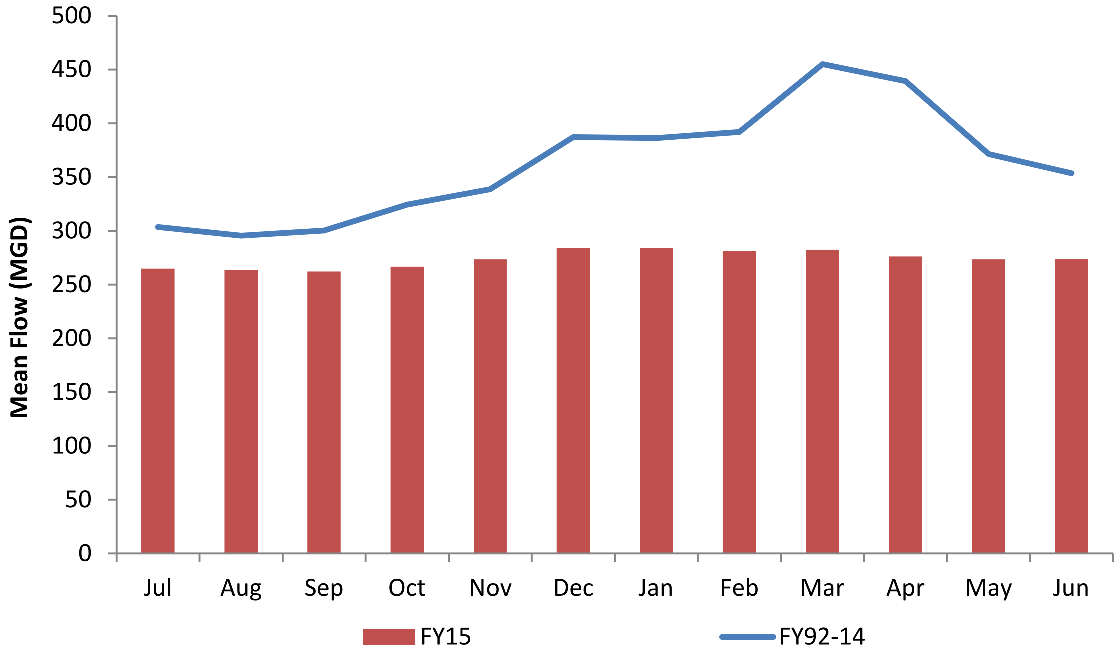


Figure 1. MWRA Flows, FY92-FY15

Restrictions on dry day flow are also part of the permit. These restrictions act to control new connections, ensuring that the collection system and the new treatment plant retain adequate capacity. Monthly dry day flows are calculated by averaging the flows on dry days over the previous year. A dry day is defined as a day with 0.09 inches of precipitation or less and no snow melt with the following restrictions: the precipitation on the previous day is less than 0.3 inches, the precipitation two days prior is less than 1.0 inch, and the precipitation three days prior is less than 2.0 inches. A day with snowmelt is defined as a day when there is snow on the ground and the air temperature is above 32°F. Figure 2 shows the dry day flow for Deer Island during each month of FY15. The solid line represents the dry day flow limit of 436 mgd for the permit. In FY15, no violations of the dry day flow limit occurred.

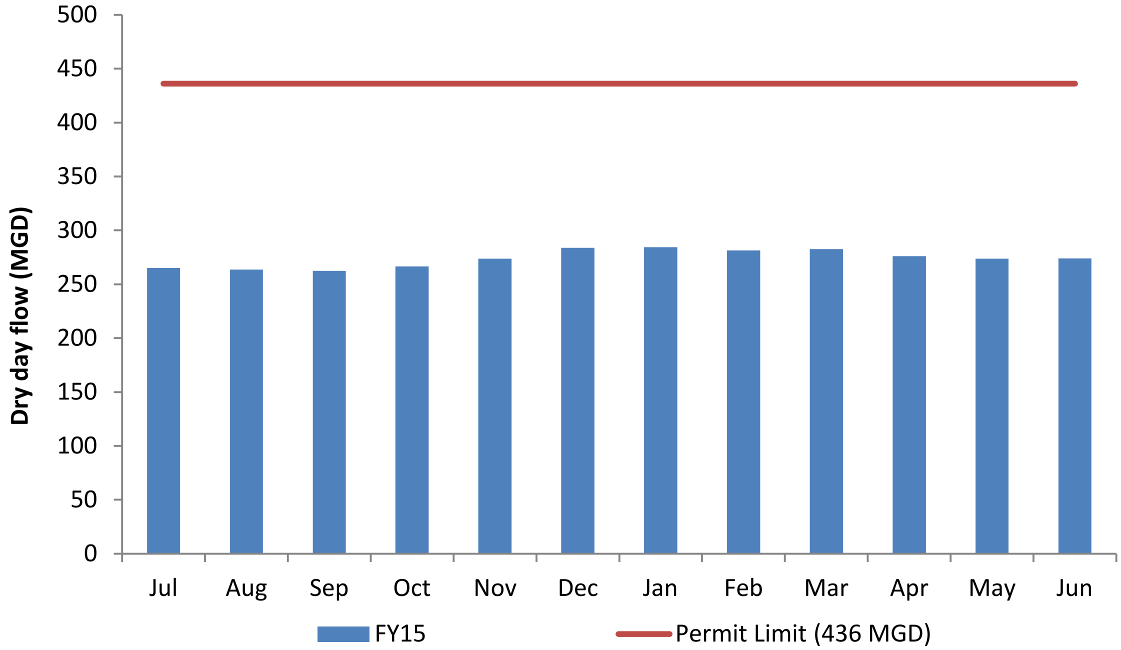


Figure 2. DITP Dry Day Flows, FY15

Since the new primary treatment plant came on-line on January 21, 1995, appreciable improvements have been seen in effluent quality. The removal rates for both TSS and BOD or cBOD (cBOD has replaced BOD in the current permit as the measure of oxygen demand) have improved significantly (see Figures 3 and 4, respectively). In FY96 and FY97, removal efficiencies compared favorably to theoretical removal efficiencies for primary treatment. In FY98, efficiencies continued to improve, especially for BOD, with a removal rate well above the theoretical range.[1] This coincided with the start-up of Batteries A and B of secondary treatment. Since FY00, removal rates for both TSS and cBOD have essentially leveled off as DITP has reached its optimal efficiency level.

[1] Metcalf & Eddy, Inc. 1972. *Wastewater Engineering: Collection, Treatment, Disposal*. New York: McGraw-Hill Book Company. p. 446.

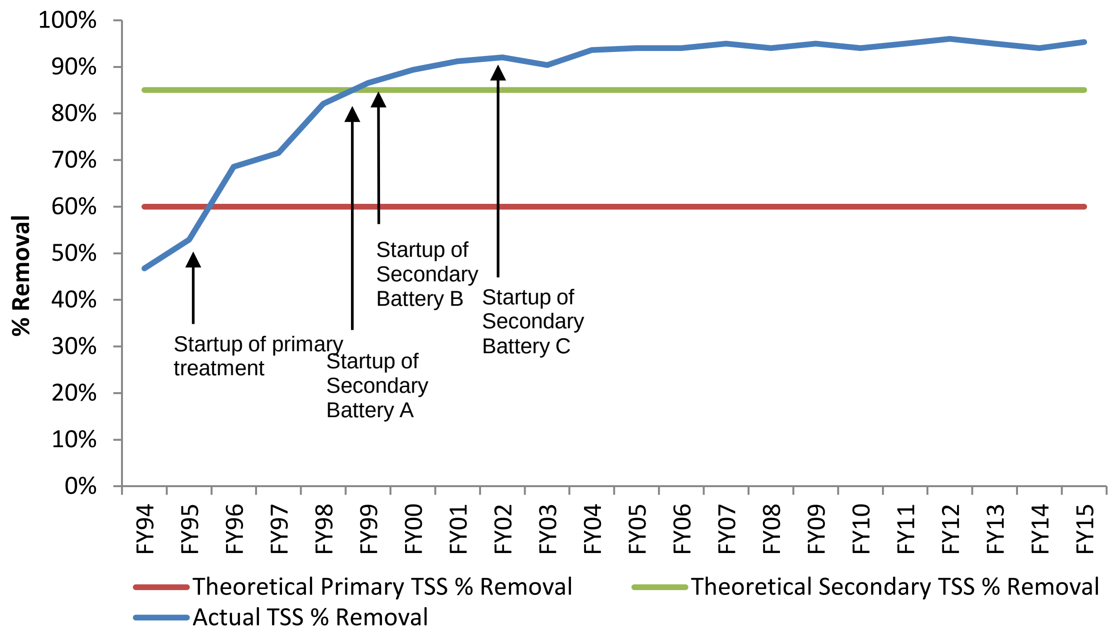


Figure 3. DITP Effluent TSS Removal Rate, FY94-FY15

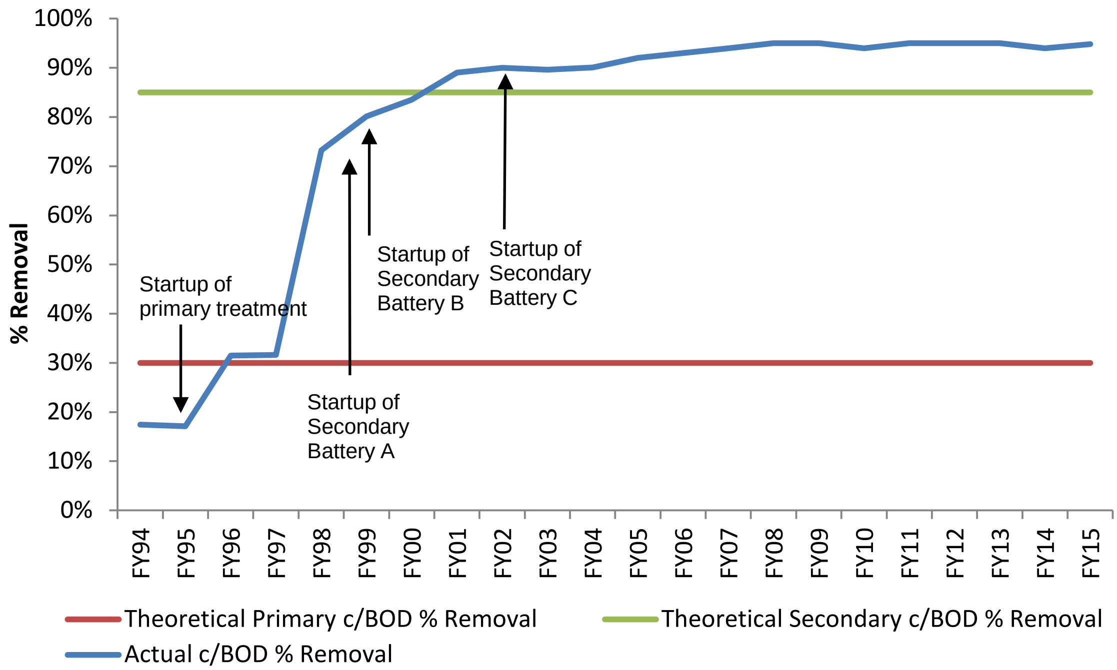


Figure 4. DITP Effluent BOD/cBOD Removal Rate, FY94-FY15

Annual numbers of NPDES violations have decreased dramatically due to improved treatment at DITP. Figure 5 compares the number of NPDES permit violations at Deer Island in FY15 to previous years. No non-toxicity NPDES violations occurred in between FY15 and FY05 or in FY00, FY99 or. One non-toxicity violation occurred in FY04, FY02 and FY98, three in FY03, and four in FY01, compared to 12 in FY96 and 19 in both FY95 and FY94. In FY15, there were also no toxicity violations at DITP.

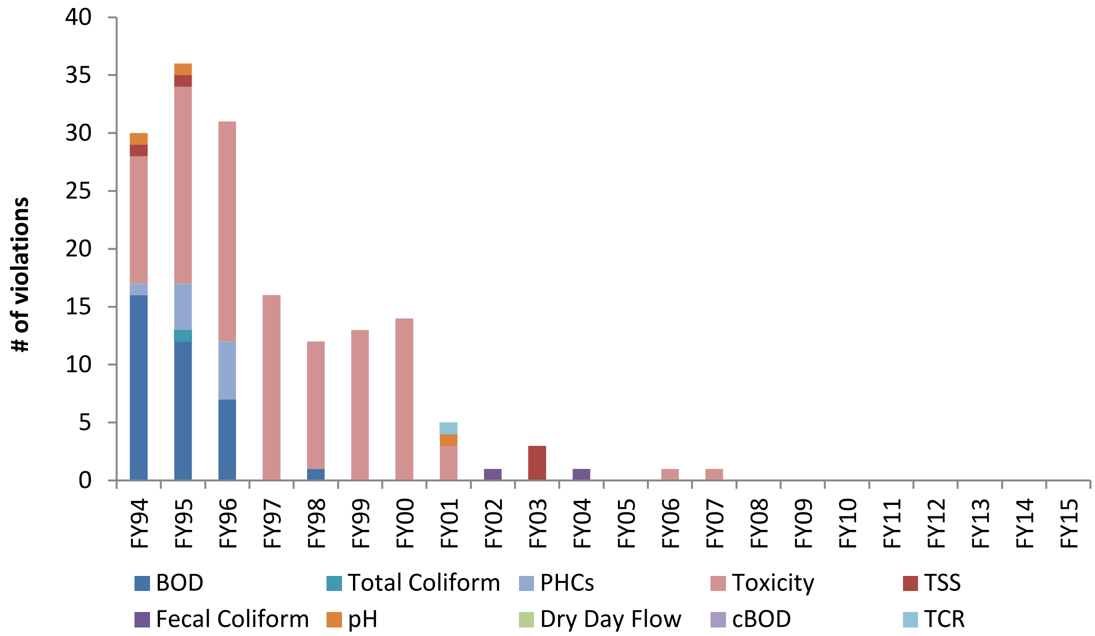


Figure 5. NPDES Violations at DITP, FY94-FY15

Since the opening of the new plant, Deer Island has seen significant reductions in loadings of metals and organic compounds in the effluent – see Chapter 2 for more details. These improvements are probably due to two factors: first, corrosion control activities and source reduction programs have helped to lower these pollutants in the incoming influent. Second, the plant is able to better capture both metals and organics in the treatment process.

Combined Sewer Overflow Facilities

MWRA monitored three CSO facilities – Cottage Farm, Prison Point, and Somerville Marginal – under the permit at the beginning of FY15. The Fox Point, Commercial Point, and Constitution Beach facilities are also included under the permit. However, MWRA decommissioned the Constitution Beach facility in September 2000 following the completion of a sewer separation project in East Boston. In November 2007, the Fox Point and Commercial Point facilities were decommissioned after a sewer separation project was finished in Dorchester. A separate permit issued jointly to the MWRA and the Boston Water and Sewer Commission covers a fourth monitored facility, Union Park, which started operations at the beginning of FY08.

Figures 6 and 7 on the next page show the number of activations and the total volume treated, respectively, at the CSO facilities since FY92. The MWRA's CSO Long Term Control Plan has reduced the volume and number of activations. Note that although total rainfall is correlated to CSO activations, the intensity of the rainfall and frequency of storms will have an important effect. These characteristics influence the degree of ground saturation, affecting the volume treated at the CSO facilities during a storm.

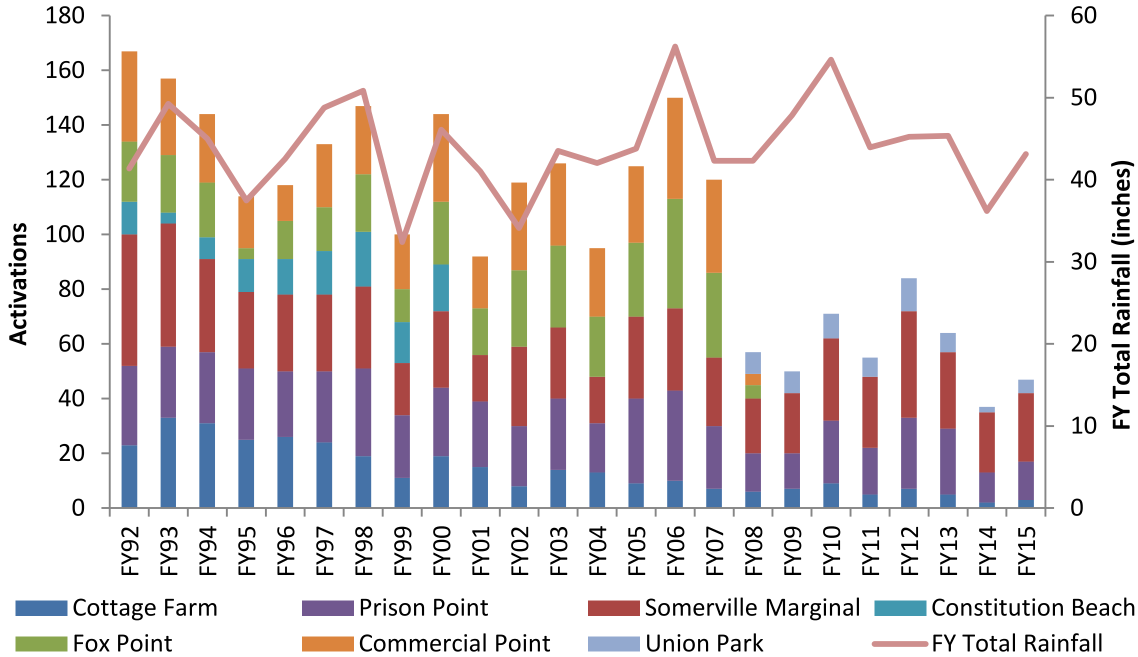


Figure 6. CSO Activations, FY92-FY15

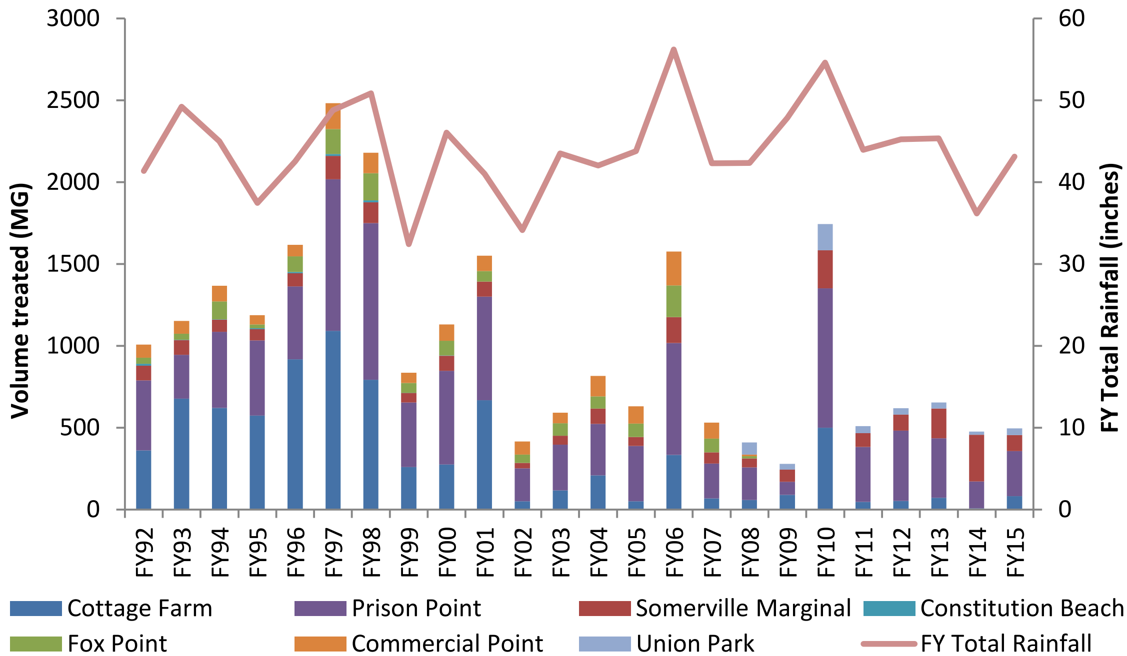


Figure 7. CSO Volume Treated, FY92-FY15

Collection and Transport System

The MWRA monitors the capacity of the wastewater collection and transport system. One of the system capacity parameters in the North System is choking, which occurs at the remote headworks. Choking is a reduction or stopping of flow to Deer Island at the remote headworks, either when heavy flow exceeds the capacity of the treatment plant or when maintenance or system upgrades are performed at the plant.

As Figure 8 on the following page shows, the number of hours of choking has fallen to very low levels since FY01, mainly due to the completion of the Deer Island plant. To minimize choking related to testing and maintenance, MWRA performs maintenance and testing at off-peak times so not to cause any backups in the system upstream of the headworks.

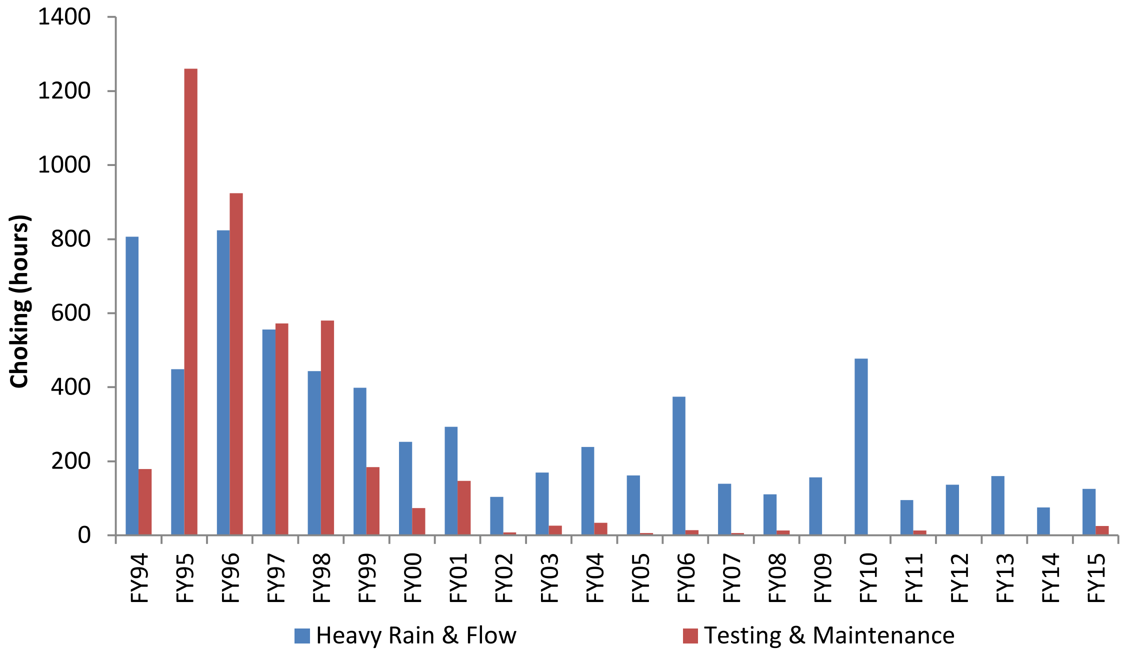


Figure 8. Headworks Choking, FY92-FY15

The MWRA also monitors the occurrence of Sanitary Sewer Overflows, or SSOs, associated with MWRA-owned sewer lines. These overflows occur in areas where the collection system becomes overloaded by heavy flows. In FY95, the MWRA's Field Operations Department started to locate and visually monitor these SSOs in the North and South Systems. Table 1 on the page lists the SSOs observed by MWRA personnel in FY15.

Table 1. Sanitary Sewer Overflows, FY15

Location	Number of Overflows
North System	
Section 27, Station 17+03, Somerville (Near Railroad Tracks)	1
Section 50, Station 26+50, Melrose (Melrose St Manhole)	1
Section 60, Station 19+18, Melrose (Tremont St Manhole)	1
Section 69, Station 48+53, Winchester (Upstream Headhouse at Aberjona River)	1
Section 107, Station 1+00, Medford (Mystic Valley Pkwy (Rte 16) near James St)	1
Section 113, Station 3+24, Winchester (Wedgemere Siphon)	1
Section 152, Station 31+24, Medford (Lakeview Ave)	1
Section 152, Station 59+29, Arlington (Mystic Valley Pkwy Manhole)	1
Section 155, Station 9+12, Somerville (Boston Ave)	1

Location	Number of Overflows
Section 176A, Station 131+21, Medford (Auburn St Manhole)	1
Section 176C, Station 00+35, Somerville (Alewife Brook Pump Station)	1
South System	
Section 570, Station 00+00, Boston/Roslindale (Bradeen St North Gate)	1
Section 570, Station 00+00, Boston/Roslindale (Bradeen St South Gate)	1
Section 626, Station 54+06, Braintree (Smelt Brook Upstream Headhouse)	2
Section 626, Station 53+23, Weymouth (Smelt Brook Downstream Headhouse)	1
Section 628, Station 16+30, Braintree (Manhole Downstream of Pearl St Siphon)	1

Future Outlook

The startup of the new primary treatment plant at Deer Island in January 1995 was just the first of several changes and improvements in the MWRA's facilities, including full secondary treatment, the Inter-Island Tunnel linking the South System to DITP, and the new outfall tunnel to Massachusetts Bay. The MWRA no longer discharges effluent into Boston Harbor and the Authority is currently monitoring the effects of these changes on water quality in the Harbor and Massachusetts Bay, as required by the NPDES permit issued in July 2000. In addition, a contingency plan ensures that the discharge does not adversely impact Massachusetts Bay.

Starting in April 2005, digested sludge was sent to the MWRA's Fore River facility via the Inter-Island Tunnel, eliminating the need to centrifuge the sludge at DITP. Eliminating this step has stopped the return of sludge centrate to the head of the plant, enabling better process control in the secondary treatment plant.

In March 2006, as a result of the sludge transfer noted above, the secondary process limit was raised from 630 to 660 million gallons per day. Further experiments conducted between March 2006 and June 2007 have set the secondary process limit to 700 million gallons a day.

Major upgrades were made to all the operational CSO facilities, and construction of an additional facility, Union Park, was completed in April 2007. Several upgrades were also finished at the Quincy, Braintree-Weymouth, and Squantum pump stations in 2002, 2002, and 2003, respectively. The Intermediate Pump Station was brought on-line in 2004, increasing pumping capacity to DITP. This increased capacity should reduce sanitary sewer overflows to Smelt Brook. Taken as a whole, these upgrades have modernized MWRA facilities and reduced pollutants discharged to receiving waters. The initial discharge from Union Park was in the first month of FY08. Finally, the Fox Point and Commercial Point CSO facilities were decommissioned in November 2007 after the completion of a sewer separation project in the Dorchester area.

In January 2012, the Primary and Secondary Clarifier Rehabilitation Project was completed after 33 months of work. The primary aim was to replace all the longitudinal and cross-collector chains and sprockets in both the primary and secondary clarifiers. Additionally, a number of other smaller maintenance projects were undertaken on the primary clarifiers as well as the replacement of headshafts on Battery C of the secondary clarifiers.

In May 2014, two major maintenance projects began at DITP – the Scum Tip Tube Replacement Project and the Valve and Piping Replacement Project. The former will replace the scum tip tubes in both the primary and secondary clarifiers. The latter will replace a number of valves, pipes, and flow meters in the pump stations, headworks, primary and secondary clarifiers, and gravity thickeners at the treatment plant. The work continued through FY15.

Introduction

This report presents and summarizes the NPDES monitoring and compliance data compiled and analyzed by the MWRA Environmental Quality Department during the period of July 2014 to June 2015. MWRA's DITP and CSO facilities serve large communities' needs for sewer systems while maintaining healthy water environments for recreation and wildlife.

The balance of this report contains the following sections. First, the next section presents and discusses the monitoring results for DITP, along with Contingency Plan and Ambient Monitoring Plan requirements. The following section describes the results for the four CSO facilities. Subsequent sections discuss sludge processing operations at DITP and the MWRA's Fore River pelletizing facility, transport and sewer system capacity issues, and finally, miscellaneous topics introduced by the permit. Appendices A-E provide detailed monthly data for the Deer Island plants and for the four CSO facilities. Appendix F provides background information about MWRA's regulatory requirements, and Appendix G describes the MWRA sewer system and facilities. Appendix H defines the types of detection limits encountered in chemical analyses. Appendix I lists pollutants of concern. Finally, Appendix J is a glossary of the terms and phrases used throughout this report.

Deer Island Treatment Plant

Overview

This chapter presents and discusses monitoring information for DITP. The characteristics examined include flow, conventional parameters, nutrients, priority pollutants (metals, cyanide, pesticides/PCBs, and organic compounds), fecal coliform bacteria, and whole effluent toxicity. Since a number of limits in the Contingency Plan set forth by the NPDES permit deal with effluent quality, this section finishes up with a description of the Contingency Plan and the closely related Ambient Monitoring Plan.

Influent Flow

The average flow to DITP in FY15 was 322 million gallons per day (mgd). Figure 9 shows that flow generally rises and falls with the amount of precipitation. This occurs because several of the larger communities in the North System (Boston, Cambridge, Somerville, and Chelsea) have combined sewers.

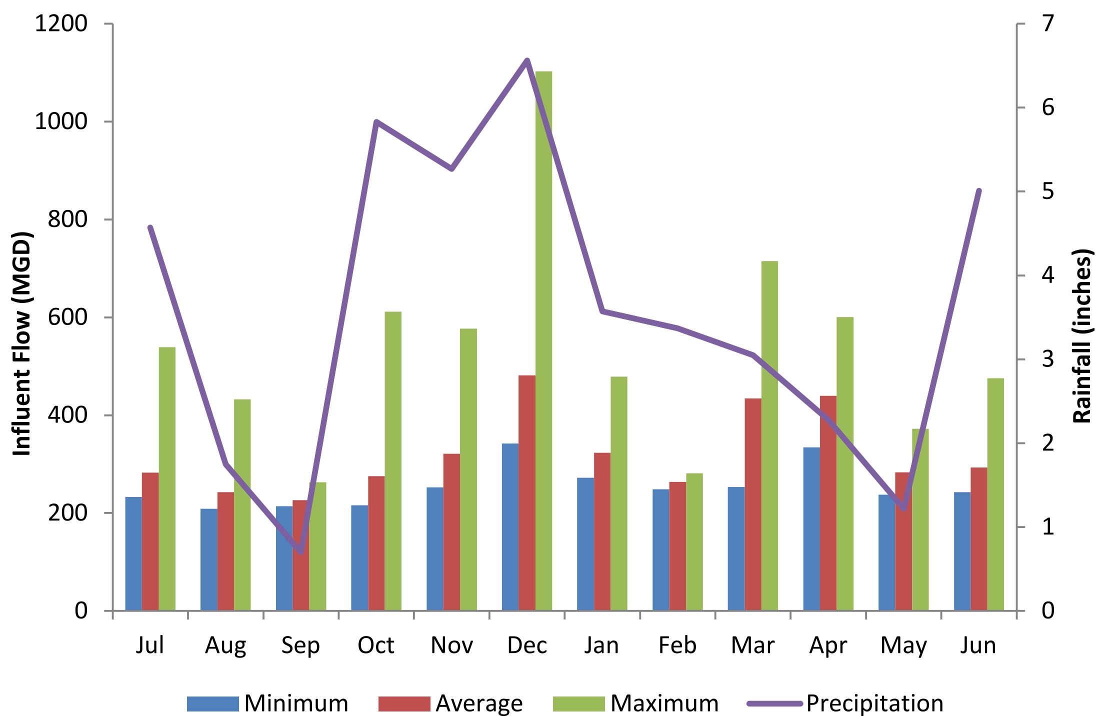


Figure 9. DITP Influent Flow Compared to Precipitation, FY15

The impact of rainfall on flows can also be seen in Figure 10 on the following page, which tracks average flow and precipitation over the past twenty-three fiscal years. The completion of the Inter-Island Tunnel from Nut Island to Deer Island in early FY99 resulted in increased flow to DITP, as DITP treated South System sewage previously treated at the Nut Island Treatment Plant. An increase in rain may lead to slightly higher average flows to DITP. Conversely, decreases in rainfall may lead to lower average flows to DITP.

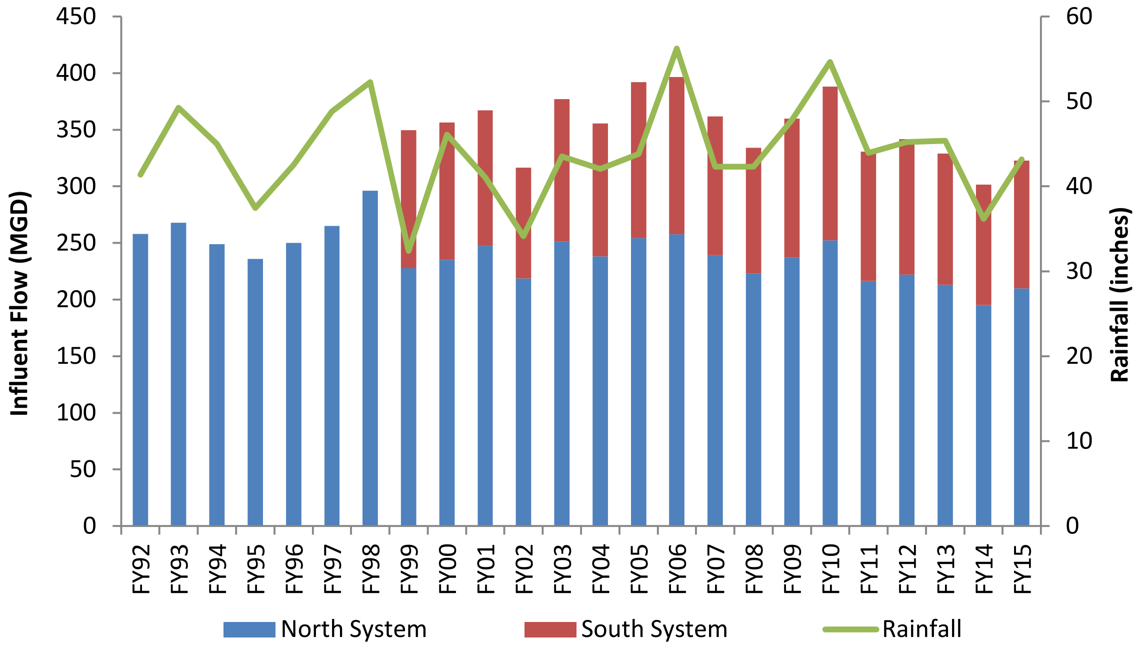


Figure 10. DITP Influent Flow Compared to Precipitation, FY92-FY15

Influent Conventional Parameters and Nutrients

As Table 2 indicates, Deer Island influent in FY15 can be classified as medium.[2]

Table 2. Classification of DITP Influent, FY15

Parameter	Value	Weak	Medium	Strong
TSS (mg/L)	192	100	200	350
TKN (mg/L)	41.5	20	40	85
Ammonia (mg/L)	31.4	12	25	50

A summary of Deer Island influent characteristics from FY99-FY15 is provided in Table 3 on page 12. Note that cBOD only became a measured parameter in August 2000, so no historical data are available previous to FY01.

[2] Metcalf & Eddy, Inc. 1972. *Wastewater Engineering: Collection, Treatment, Disposal*. New York: McGraw-Hill Book Company, p. 231.

Table 3. Deer Island Influent Characterization, FY99-FY15

Parameter	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	**FY15**
Flow (mgd)																	
Minimum	233	219	260	222.7	237.6	247	243	229.5	237	214.3	235	243	201	230	214	202	209
Average	350	356	367	316.6	378	356	392	396.5	361.9	334	360	388	331	342	329	301	323
Maximum	824	901	1136	773	897.4	1132	871	1203	1023	963.1	1031	1262	833	818	939	939	1102
Total Suspended Solids (TSS)																	
Min Conc (mg/L)	43	86	63	157	140	129	145	124	109	118	108	102.5	114	139	131	138	139
Avg Conc (mg/L)	160	167	176	200	188	234	237	171	174	187	156	165.9	170	181	209	181	192
Max Conc (mg/L)	564	379	336	255	230	281	329	224	224	231	186	200.1	206	216	285	216	264
Average Loading (tons/d)	234	248	269	264	296	347	387	283	263	260	234	269	235	258	287	227	259
Carbonaceous Biochemical Oxygen Demand (cBOD)																	
Min Conc (mg/L)	*	*	29	93	80	75	86	65	58	69	76	51.97	67	73	75	75	78
Avg Conc (mg/L)	*	*	111	124	106	126	118	99	101	115	101	94	109	99	120	116	111
Max Conc (mg/L)	*	*	242	162	131	146	141	132	133	156	123	115.3	126	129	146	158	145
Average Loading (tons/d)	*	*	170	164	167	187	193	164	152	160	152	152	150	141	165	146	150
Settleable Solids																	
Min Conc (mL/L)	0.1	0.7	0.3	4.5	4.7	3.6	5.3	3.9	4.0	3.9	4.3	3.5	4.5	4.7	3.8	4.6	4.7
Avg Conc (mL/L)	5.9	5.3	5.8	6.5	7.4	9.2	10.2	6.4	6.6	6.9	6.3	6.8	7.4	7.4	8.1	7.4	7.2
Max Conc (mL/L)	34.2	24.6	15.5	9.5	11.1	14.0	16.7	8.8	9.1	10.8	8.5	8.9	9.8	10.4	13.6	10.4	9.8
Average Loading (tons/d)	8.6	7.9	8.9	8.6	11.7	13.7	16.7	10.6	10.0	9.6	9.5	11.0	10.2	10.6	11.1	9.3	9.6
Total Kjeldahl Nitrogen																	
Min Conc (mg/L)	14.6	13.2	16.3	26.0	23.3	18.7	21.7	20.5	21.9	18.5	25.6	17.62	23.4	28.1	27.7	27.7	24.8
Avg Conc (mg/L)	29.2	27.7	30.1	35.2	29.3	31.0	31.6	32.5	34.4	39.4	36.1	35.34	36.7	38.0	40.8	41.2	41.5
Max Conc (mg/L)	45.6	46.5	46.5	44.5	38.1	37.0	39.4	44.8	41.3	51.1	47.0	44.93	44.5	47.4	51.8	51.2	53.0
Average Loading (tons/d)	42.7	41.1	46.1	46.5	46.2	46.0	51.7	53.7	51.9	54.9	54.2	57.2	50.7	54.2	56.0	51.8	55.9
Ammonia-Nitrogen																	
Min Conc (mg/L)	6.0	6.1	6.8	14.2	12.4	10.8	13.8	13.7	16.0	13.3	18.1	11.41	18.4	18.8	18.7	20.0	18.5
Avg Conc (mg/L)	16.6	16.3	17.8	20.5	17.0	19.0	19.6	23.0	25.4	29.2	27.7	27.1	28.4	27.4	29.1	31.0	31.4
Max Conc (mg/L)	30.8	25.0	24.2	28.6	23.7	22.7	25.7	31.3	31.9	38.1	35.6	36.28	37.5	34.7	37.6	41.3	43.5
Average Loading (tons/d)	24.2	24.2	27.2	27.1	26.8	28.2	32.0	38.0	38.3	40.7	41.6	43.9	39.2	39.1	39.9	38.9	42.2
Nitrates																	
Min Conc (mg/L)	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.026	0.04	0.05	0.01	0.05	0.01
Avg Conc (mg/L)	0.06	0.13	0.17	0.05	0.10	0.13	0.16	0.13	0.14	0.14	0.06	0.227	0.3	0.25	0.20	0.50	0.24
Max Conc (mg/L)	1.21	1.56	1.53	0.26	0.37	0.81	0.7	0.54	0.59	0.72	0.27	1.126	0.9	0.48	0.66	0.90	1.02
Average Loading (tons/d)	0.09	0.19	0.26	0.07	0.16	0.19	0.26	0.21	0.21	0.19	0.09	0.37	0.41	0.36	0.27	0.63	0.32
Nitrites																	
Min Conc (mg/L)	0.01	0.01	0.00	0.01	0.07	0.01	0.01	0.01	0.01	0.01	0.01	0.053	0.1	0.1	0.01	0.20	0.09
Avg Conc (mg/L)	0.05	0.14	0.15	0.11	0.22	0.13	0.23	0.19	0.09	0.17	0.07	0.231	0.28	0.3	0.15	0.43	0.34
Max Conc (mg/L)	0.45	0.72	0.47	0.35	0.55	0.41	0.62	0.72	0.21	0.4	0.15	0.545	0.55	0.54	0.38	0.62	0.55
Average Loading (tons/d)	0.07	0.21	0.23	0.15	0.35	0.19	0.38	0.31	0.14	0.24	0.11	0.37	0.39	0.43	0.21	0.54	0.46

* Samples not collected.

Influent Priority Pollutants

The results of a complete priority pollutant scan of Deer Island influent can be found in Tables A-2 and A-3 of Appendix A. For levels below detection limits, one half of the method detection limit for inorganic compounds or one tenth of the quantitation limit for organic compounds was substituted to calculate concentrations and loadings. Appendix J provides a detailed discussion of detection and quantitation limits.

A pollutant is included whether it was detected just once or throughout the year. Figures 11 and 12 below show annual averages of the daily loads; however, they do not truly reflect how often the pollutant was detected during the year. Typically, a pollutant that is detected at a concentration below the detection limit is reported as non-detect (zero). However, if that concentration is converted to a loading, it is recorded as a non-zero value, even though the constituent may not have been present in the sample. Note that these caveats apply to both metals and organics loadings. However, since metals are commonly detected in almost every sample, the notes raised above are less of an issue.

Figure 11 compares FY15 average influent loadings for several key metals to historical values. The MWRA samples for these pollutants a few times a month. Using the measured concentration and the flow on the day on which the sample was taken, daily loads can be calculated. Data from FY98 and earlier is from the North System only.

Before 1999, metals loadings in the North System decreased steadily, as MWRA made strides in toxic and corrosion control efforts involving both water supply and wastewater transport.

Since the South System flow was transferred from Nut Island to Deer Island at the start of FY99, the data after FY99 includes the South System flow. This larger, combined flow explains the increase in metals loadings from FY92-98 compared to FY99-15. Since loadings are calculated using flow, which in turn is affected by rainfall, loadings can also rise and fall with rainfall amounts.

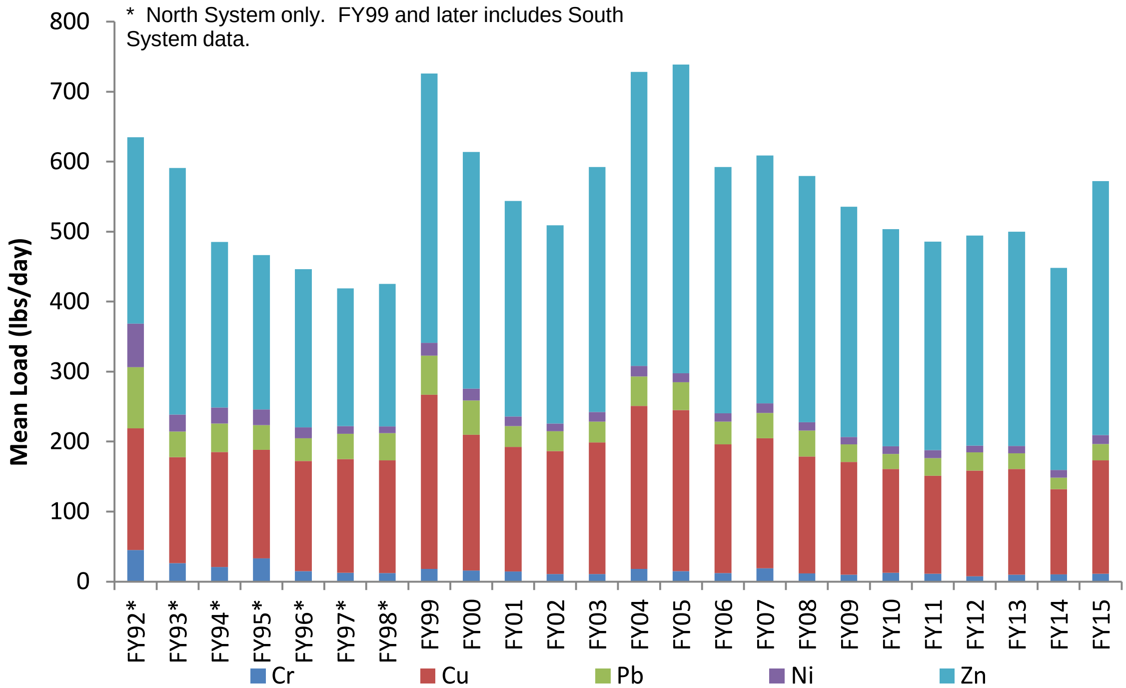


Figure 11. DITP Mean Influent Metals Loadings, FY92-FY15

Figures 12a and 12b on the following page compares influent loadings of certain representative organic priority pollutants to the loadings in previous years (see Appendix A, Table A-3). The opening of the Inter-Island Tunnel in FY99 had an identical effect on organics loadings at Deer Island as it did on metals loadings; they increased due to the added flow from the South System.

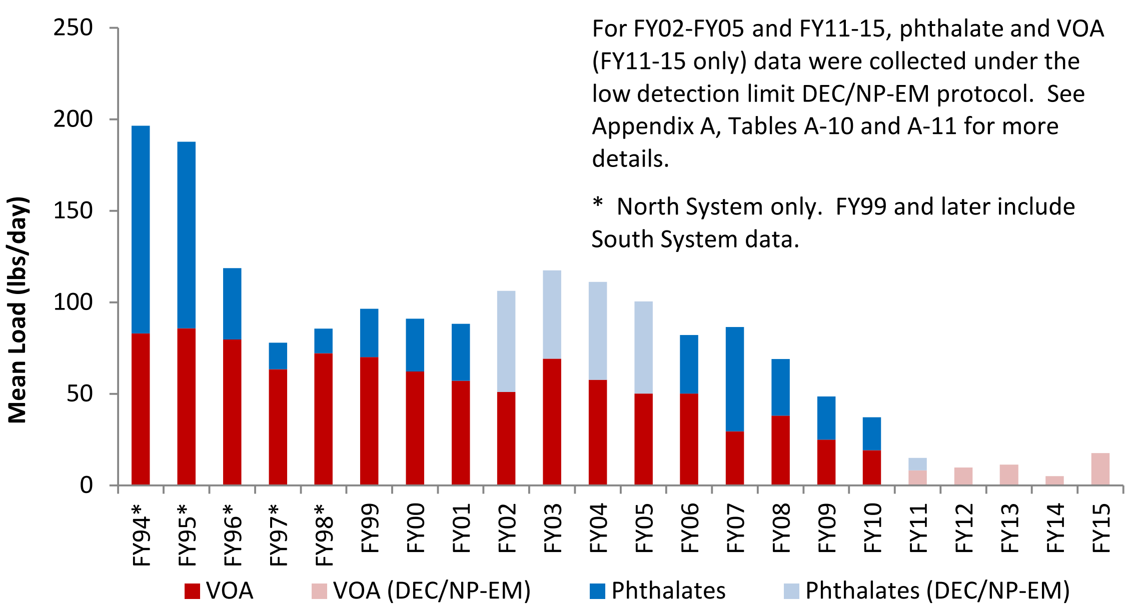


Figure 12a. DITP Mean Influent Organics Loadings, FY94-FY15

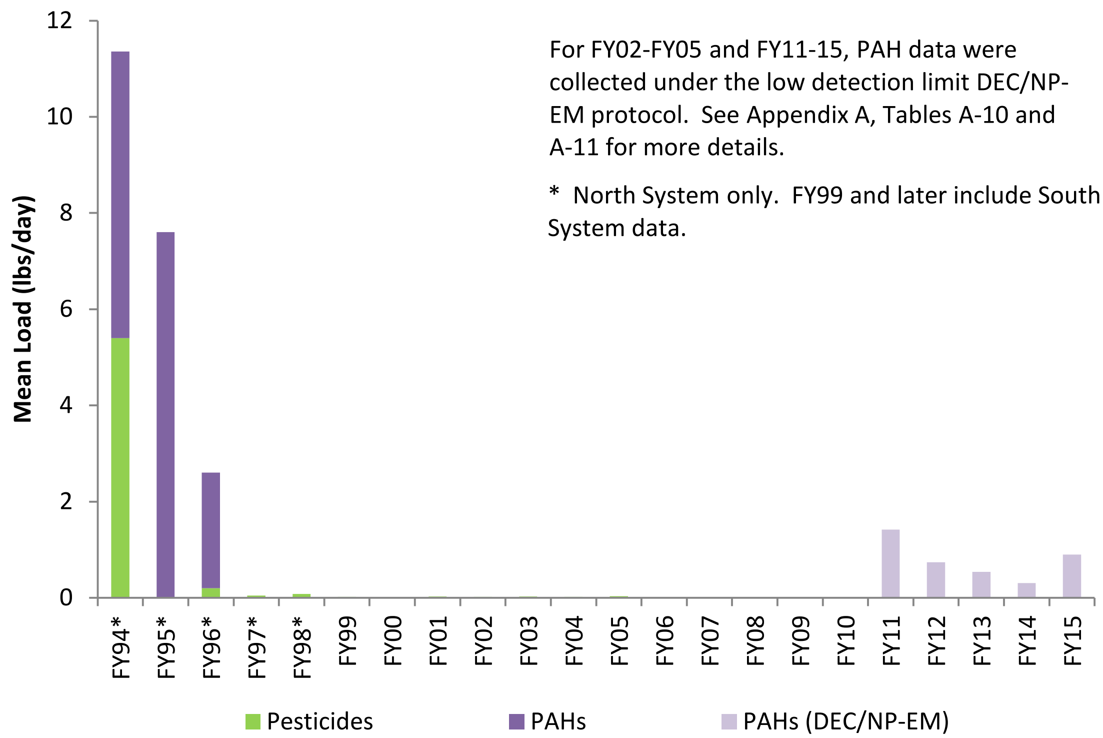


Figure 12b. DITP Mean Influent Organics Loadings, FY94-FY15

Effluent Conventional Parameters and Nutrients

Table 4 compares DITP's removal efficiencies for TSS and cBOD with theoretical removal efficiencies.[3] The removal efficiencies are determined from the average effluent and influent concentrations for TSS and cBOD as reported in Table A-1 of Appendix A.

Table 4. Deer Island Removal Efficiency, FY15

Parameter	DITP % Removal*	Theoretical % Removal for Secondary Treatment
TSS	94%	85%
cBOD	94%	85%
* Removal efficiencies were determined using the average influent and effluent concentration values as reported in Table A-1, Appendix A. Note that only a portion of the total flow each month went through secondary treatment. See Table 5 for more information.		

For the fiscal year, 99.6% of DITP flow went through secondary treatment and removal efficiency for TSS was 94%. For cBOD, the plant also achieved 94% removal efficiency.

Table 5 summarizes the conventional parameters and nutrients in Deer Island effluent since FY99.

[3] Metcalf & Eddy, Inc. 1972. *Wastewater Engineering Collection, Treatment, Disposal*. New York. McGraw-Hill Book Company, p. 446.

Table 5. Deer Island Effluent Characterization, FY99-FY15

Parameter	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	**FY15**
Flow (mgd)																	
Minimum	237	219	260	222	238	246	243	229.4	237	214.2	236	243	201	230	214	202	209
Average	350	356	367	317	377	356	392	396	362	334	360	388	331	342	329	302	322
Maximum	757	900	1136	773	898	1132	871	1203	1023	963	1031	1262	833	819	939	939	1102
Total Suspended Solids (TSS)																	
Min Conc (mg/L)	3	5	4	3	5	5	5	5	5	2	2	2	2	2	3	2	2
Avg Conc (mg/L)	22	18	15	16	18	17	15	9	8	9.1	8	8.4	8.1	7.1	9.0	10.2	9.1
Max Conc (mg/L)	69	62	47	43	132	78	62	61	49	60.8	51	49	31.6	26.3	42.0	74.0	50.5
Average Loading (tons/d)	31	26	24	21	28	25	25	16	12	13	12	14	11	10	12	13	12
Carbonaceous Biochemical Oxygen Demand (cBOD)																	
Min Conc (mg/L)	*	*	4	3	3	3	2	2	2	1.6	1.6	1.5	1.7	1.7	1.1	2.0	1.7
Avg Conc (mg/L)	*	*	12	13	11	12	10	7	5	5.5	5.1	5.2	5.4	4.6	5.8	6.2	5.8
Max Conc (mg/L)	*	*	36	40	40	50	38	66	19	22.6	22.7	21.8	28.6	16.8	20.6	19.3	21.7
Average Loading (tons/d)	*	*	19	17	17	18	16	11	8	8	8	8	7	7	8	8	8
Settleable Solids																	
Min Conc (mL/L)	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Avg Conc (mL/L)	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Max Conc (mL/L)	3.0	3.1	1.9	3.0	3.0	6.0	1.2	1.0	0.4	1.0	0.2	0.2	0.7	0.2	3.8	0.3	1
Average Loading (tons/d)	0.3	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1
Total Kjeldahl Nitrogen																	
Min Conc (mg/L)	11.2	8.2	12.2	15.1	9.7	11.0	6.6	5.8	7.8	7.8	7.5	6.2	8.3	11.3	10.7	5.0	9.9
Avg Conc (mg/L)	23.4	21.8	23.6	25.9	21.2	21.4	18.2	19.6	20.4	24.6	22.1	21.8	24.3	24.1	25.8	28.3	27.5
Max Conc (mg/L)	34.3	32.4	33.3	35.0	32.3	33.3	30.9	35.3	31.9	72.0	34.8	34.5	36.2	38.1	40.0	41.6	44.1
Average Loading (tons/d)	34.2	32.4	36.1	34.2	33.3	31.8	29.8	32.4	30.8	34.3	33.2	35.3	33.5	34.4	35.5	35.7	37.0
Ammonia-Nitrogen																	
Min Conc (mg/L)	5.4	5.0	5.1	9.4	7.0	7.5	4.5	4.6	7.0	6.7	6.9	4.9	7.4	6.7	7.2	9.6	7.2
Avg Conc (mg/L)	18.0	17.6	17.6	21.2	17.5	18.6	16.6	18.8	20.1	22.4	21.1	21.6	24	22.9	25.8	28.2	27.0
Max Conc (mg/L)	26.4	25.2	24.9	32.0	28.0	28.0	28.7	45.2	31.4	36.8	36.4	36.4	39.9	35.9	38.5	45.1	46.6
Average Loading (tons/d)	26.2	26.1	27.0	28.0	27.5	27.6	27.1	31.0	30.3	31.2	31.7	34.9	33.1	32.7	35.4	35.5	36.3
Nitrates																	
Min Conc (mg/L)	0.01	0.00	0.0	0.01	0.01	0.01	0.01	0.02	0.06	0.15	0.03	0.43	0.04	0.01	0.01	0.01	0.01
Avg Conc (mg/L)	0.22	0.69	0.7	0.89	1.50	1.93	2.24	1.25	0.98	1.49	1.25	1.25	1.07	0.76	0.88	0.98	0.84
Max Conc (mg/L)	1.93	2.96	4.2	2.86	5.07	3.88	5.77	4.8	3.2	3.48	2.78	3.18	3.08	3.72	3.31	4.26	8.86
Average Loading (tons/d)	0.3	1.0	1.1	1.2	2.4	2.9	3.7	2.1	1.5	2.1	1.9	2.0	1.5	1.1	1.2	1.2	1.1
Nitrites																	
Min Conc (mg/L)	0.01	0.04	0.0	0.01	0.01	0.01	0.03	0.27	0.35	0.08	0.35	0.09	0.07	0.02	0.03	0.02	0.01
Avg Conc (mg/L)	0.30	0.95	0.2	0.34	0.28	0.21	0.54	1.42	1.42	0.79	1.11	0.84	0.62	0.30	0.44	0.32	0.41
Max Conc (mg/L)	1.99	3.06	1.1	1.26	0.91	0.69	0.71	2.74	2.96	2.59	2.46	1.61	2.19	0.98	1.65	2.04	1.49
Average Loading (tons/d)	0.4	1.4	0.3	0.4	0.4	0.3	0.9	2.3	2.1	1.1	1.7	1.4	0.9	0.4	0.6	0.4	0.6

* Samples not collected.

A summary of nutrient concentrations in Deer Island effluent from FY94-FY15 is provided in Figure 13 on the following page. The introduction of the new primary treatment plant in FY95 did not affect nutrient concentrations, as primary treatment has no effect on nutrients.

However, the activated sludge process used in DITP's secondary treatment does change nutrient concentrations. The activated sludge process uses bacteria to promote efficient and rapid breakdown of wastes. This bacterial breakdown results in changes in the proportions of nitrogen species. For example, total Kjeldahl nitrogen (TKN) consists of NH_3-N plus organic nitrogen. Effluent NH_3-N concentrations have risen while total Kjeldahl nitrogen (TKN) concentrations have remained relatively stable. Therefore, the proportion of NH_3-N as a TKN component has increased. Elevated levels of NH_3-N are characteristic of the activated sludge process.

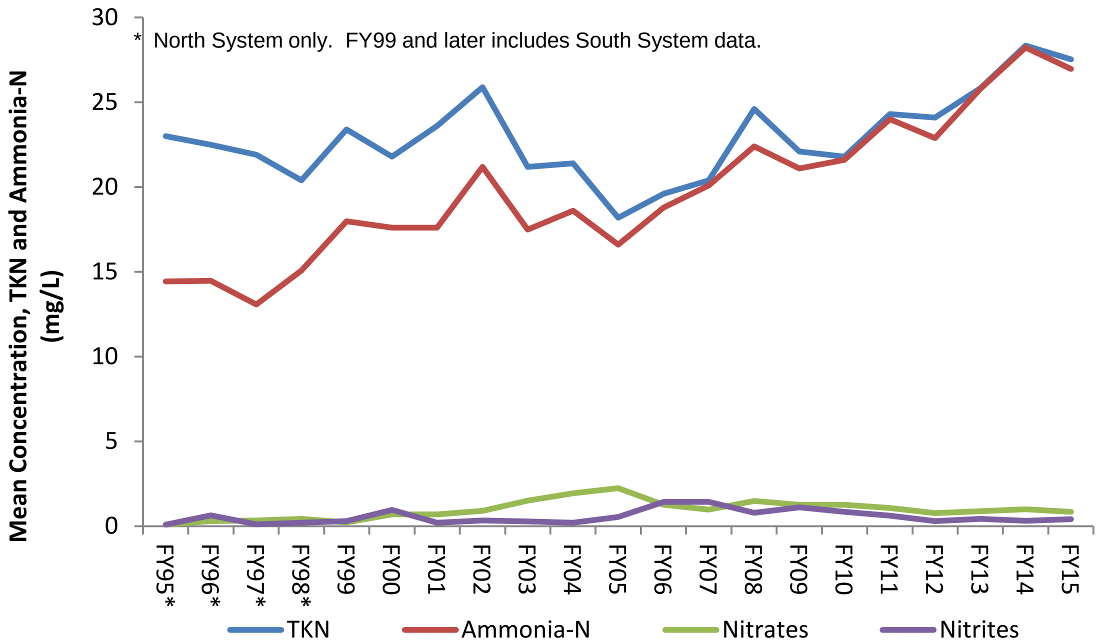


Figure 13. DITP Mean Effluent Nutrients Concentrations, FY94-FY15

Effluent Priority Pollutants

Appendix A, Tables A-8 and A-9 provide a summary of priority pollutant concentrations and loadings in DITP effluent for FY15. For a discussion of the importance of detection limits in loading calculations, see the section on influent priority pollutants above, and Appendix H. Metals loadings over the past 27 years are summarized in Figure 14, while Figure 15 on the next page graphs organic pollutants from FY94-FY15. Two factors may explain the long-term decrease in loadings. First, the MWRA has instituted a more aggressive industrial pre-treatment program coupled with stricter enforcement of local limits. Second, the decrease may also be attributed to better capture of metals and organics at the plant.

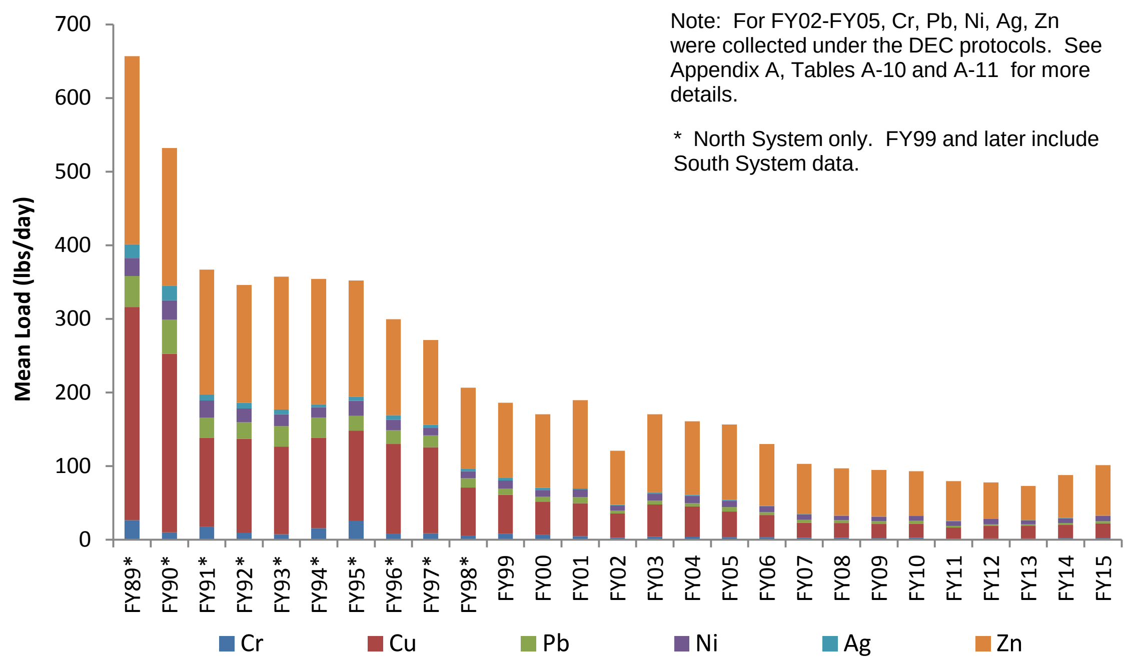


Figure 14. DITP Mean Effluent Metals Loadings, FY89-FY15

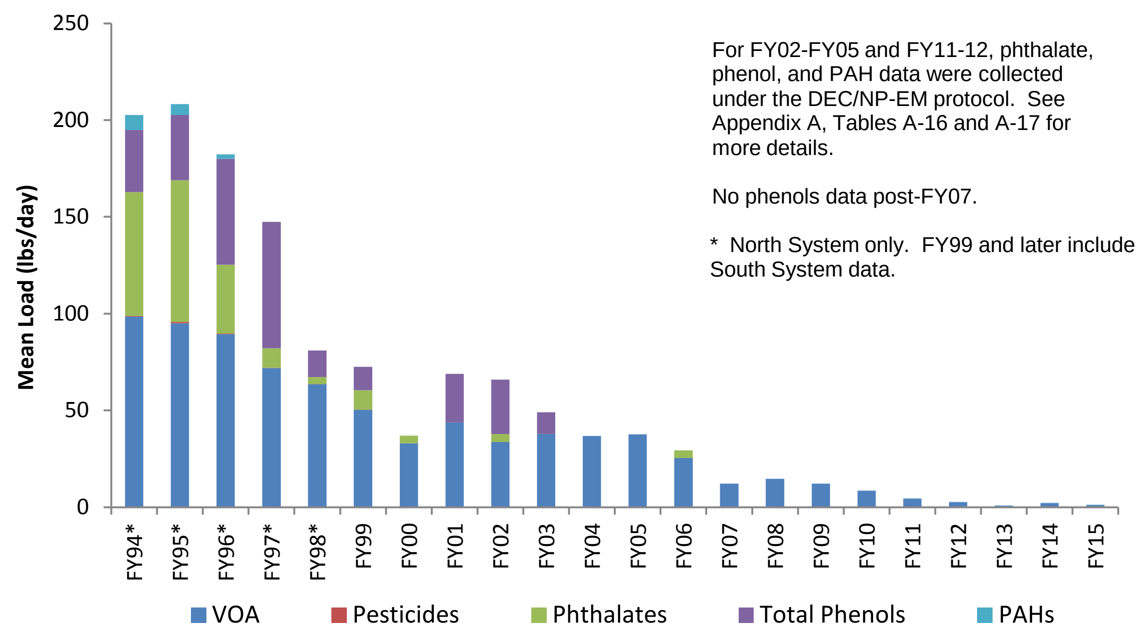


Figure 15. DITP Mean Effluent Organics Loadings, FY94-FY15

Whole Effluent Toxicity

The MWRA tests effluent toxicity every month at DITP. Effluent toxicity provides an overall view of effluent quality, ensuring that the effluent does not adversely affect the environment. In 1989, the EPA found that surfactants were the probable cause of most acute toxicity in DITP's effluent. Surfactants are most commonly used in household detergents to improve cleansing power. No acute toxicity could be attributed to metals or pesticides.

The MWRA permit requires four tests for effluent toxicity testing. 48 hour acute static toxicity tests using the mysid shrimp (*Americamysis bahia*) and the silversides fish (*Menidia beryllina*) measure the short-term lethal effects caused by the effluent. A chronic survival and growth test using *Menidia* and a chronic fertilization test using the sea urchin (*Arbacia punctulata*) both measure subtle toxic impacts over a longer period of time. The results of these tests for FY15, for which there were no violations, can be found in Table 6 on the following page.

The LC50 (Lethal Concentration 50%) is the concentration of effluent in a sample that causes mortality to 50% of the test population during the duration of the test. The two acute tests use LC50.

The NOEC (No Observed Effect Concentration) used in the chronic tests is the concentration of effluent in a sample to which organisms are exposed in a life cycle or partial life cycle test that has no adverse effects. An NOEC limit of 1.5% means that 1.5% of the sample is effluent, and the remainder dilution water. Any acute LC50 below 50% or chronic NOEC below 1.5% would violate the NPDES limit.

Table 6. Deer Island Effluent, Results of Toxicity Testing, FY15

	Mysid acute LC50	*Menidia* acute LC50	*Arbacia* chronic NOEC	*Menidia* chronic NOEC
Limits (%)	50	50	1.5	1.5
July	> 100	> 100	50	50
August	> 100	> 100	100	100
September	> 100	> 100	100	50
October	> 100	> 100	50	50
November	> 100	> 100	50	100
December	> 100	> 100	25	100
January	> 100	> 100	50	100
February	> 100	> 100	50	100
March	> 100	> 100	25	50
April	> 100	> 100	50	100
May	> 100	> 100	50	25
June	> 100	> 100	100	50
# of Violations	0	0	0	0
Results in **bold** indicate a violation of the regulatory limits. * indicates an invalid test.				

Compliance with Regulatory Limits

Plant performance at Deer Island is compared to permit limits in Table 7 and Figures 16 to 24 on the following pages. There were no permit violations in FY15.

Table 7. Deer Island Effluent Quality Compared to Permit Limits, FY15

Parameter		Permit Limits	Range of Values Exceeding Limits	Number of Violations
Carbonaceous Biochemical Oxygen Demand (mg/L)				
	Monthly Average	25	--	0
	Weekly Average	40	--	0

Parameter		Permit Limits	Range of Values Exceeding Limits	Number of Violations
Total Suspended Solids (mg/L)				
	Monthly Average	30	--	0
	Weekly Average	45	--	0
Total Chlorine Residual (µg/L)				
	Monthly Average	456	--	0
	Daily Maximum	631	--	0
Fecal Coliform				
	Daily Geometric Mean (col/100mL)	14,000	--	0
	% of samples > 14,000 col/100mL	10	--	0
	Consecutive samples > 14,000col/100mL	3	--	0
pH (S.U.)		6.0-9.0	--	0
PCB, Aroclors (µg/L)		0.000045	--	0
Acute Toxicity				
	Mysid shrimp (%)	≥50	--	0
	Inland silverside (%)	≥50	--	0
Chronic Toxicity				
	Inland silverside (%)	≥1.5	--	0
	Sea urchin (%)	≥1.5	--	0
Dry Day Flow (MGD)		436	--	0
Total Number of Violations				**0**

Table 8 on the next page compares the number of NPDES violations in FY15 to previous years.

Table 8. NPDES Violations at Deer Island, FY94-FY15

	BOD	PHCs	Settleable solids	Total Coliform	TSS	Fecal coliform	pH	cBOD	Dry day flow	TCR	Toxicity	Non-toxicity violations	Total violations
FY94	16	1	0	0	1	0	1	--	--	--	11	19	30
FY95	12	4	0	1	1	0	1	--	--	--	17	19	36
FY96	7	5	0	0	0	0	0	--	--	--	19	12	31
FY97	0	0	0	0	0	0	0	--	--	--	16	0	16
FY98	1	0	0	0	0	0	0	--	--	--	11	1	12
FY99	0	0	0	0	0	0	0	--	--	--	13	0	13
FY00	0	0	0	0	0	0	0	--	--	--	14	0	14
FY01	--	--	--	--	0	0	1	0	0	1	3	2	5
FY02	--	--	--	--	0	1	0	0	0	0	0	1	1
FY03	--	--	--	--	3	0	0	0	0	0	0	3	3
FY04	--	--	--	--	0	1	0	0	0	0	0	1	1
FY05	--	--	--	--	0	0	0	0	0	0	0	0	0
FY06	--	--	--	--	0	0	0	0	0	0	1	0	1
FY07	--	--	--	--	0	0	0	0	0	0	1	0	1
FY08	--	--	--	--	0	0	0	0	0	0	0	0	0
FY09	--	--	--	--	0	0	0	0	0	0	0	0	0
FY10	--	--	--	--	0	0	0	0	0	0	0	0	0
FY11	--	--	--	--	0	0	0	0	0	0	0	0	0
FY12	--	--	--	--	0	0	0	0	0	0	0	0	0
FY13	--	--	--	--	0	0	0	0	0	0	0	0	0
FY14	--	--	--	--	0	0	0	0	0	0	0	0	0
FY15	--	--	--	--	0	0	0	0	0	0	0	0	0

--: Not a permit limit at that particular time.

The following figures track trends in effluent over FY15. All of the effluent parameters were well under permit limits.

For carbonaceous biochemical oxygen demand (cBOD) and total suspended solids (TSS), the permit limits monthly and weekly average concentrations. Figure 16 shows that the monthly averages for cBOD never exceeded the regulatory discharge limit of 25 mg/L, and track the averages of the previous five fiscal years.

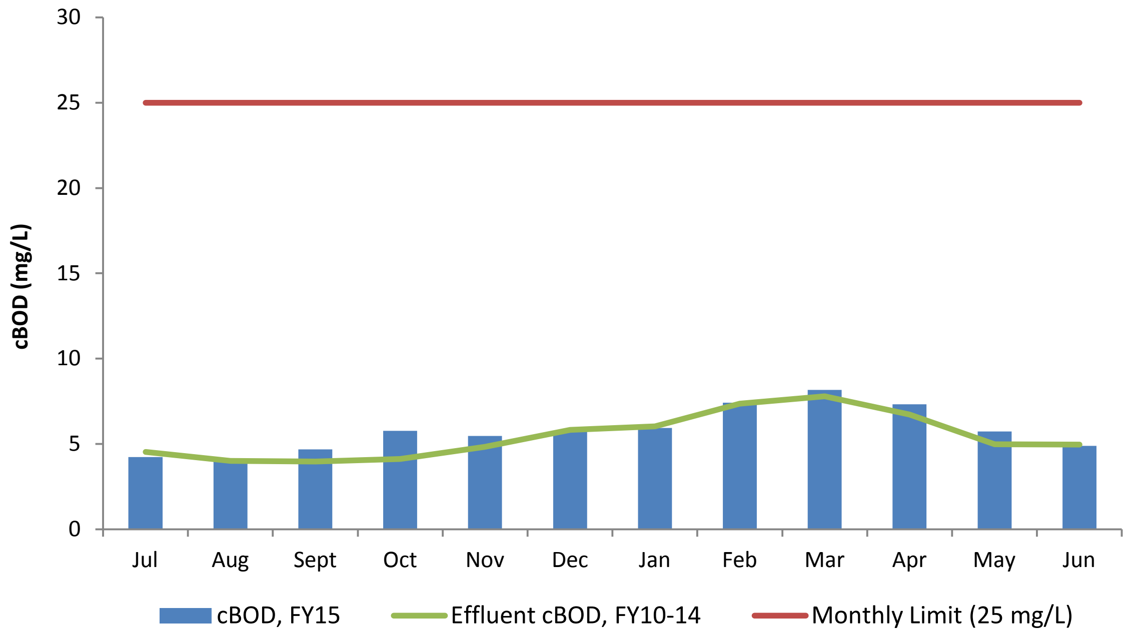


Figure 16. DITP Effluent cBOD (Monthly Average), FY15

Figure 17 shows there were no violations of the cBOD weekly limit (40 mg/L).

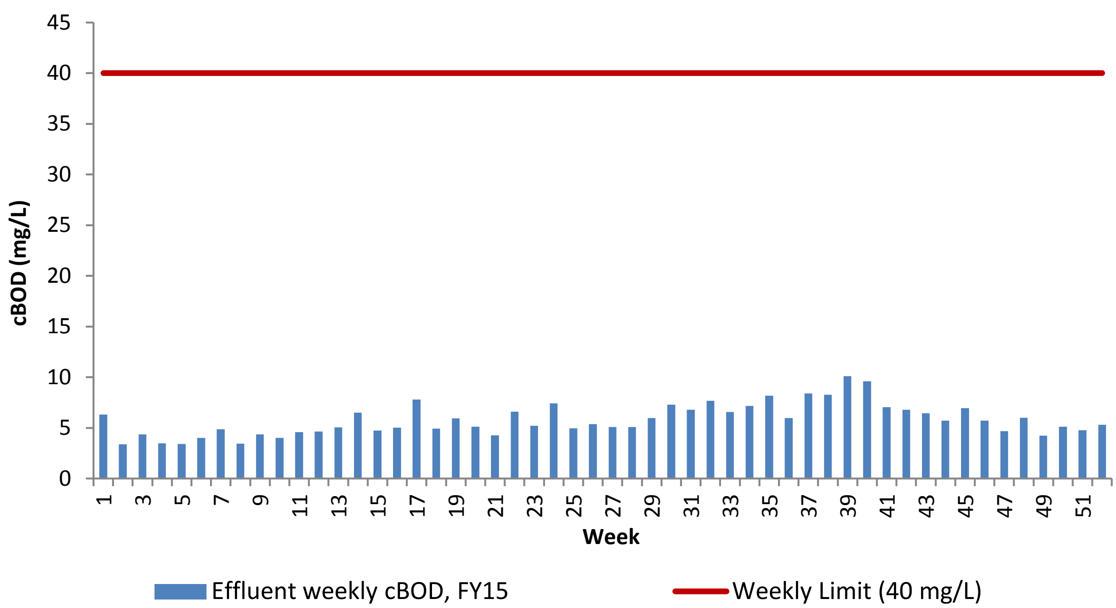


Figure 17. DITP Effluent cBOD (Weekly Average), FY15

Figure 18 shows FY15 monthly averages for TSS never exceeded the regulatory discharge limit of 30 mg/L. For the fiscal year, effluent TSS was comparable to the average of the previous five fiscal years.

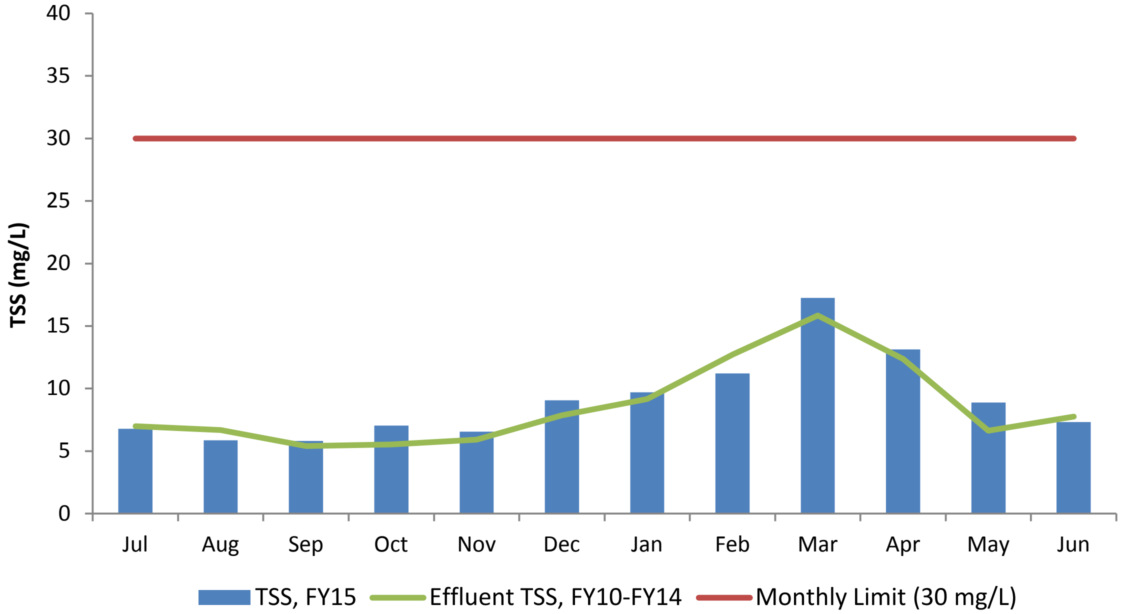


Figure 18. DITP Effluent TSS (Monthly Average), FY15

Figure 19 graphs the weekly averages for effluent TSS in FY15. The regulatory limit for weekly TSS averages is 45 mg/L. In FY15 values remained well below this limit.

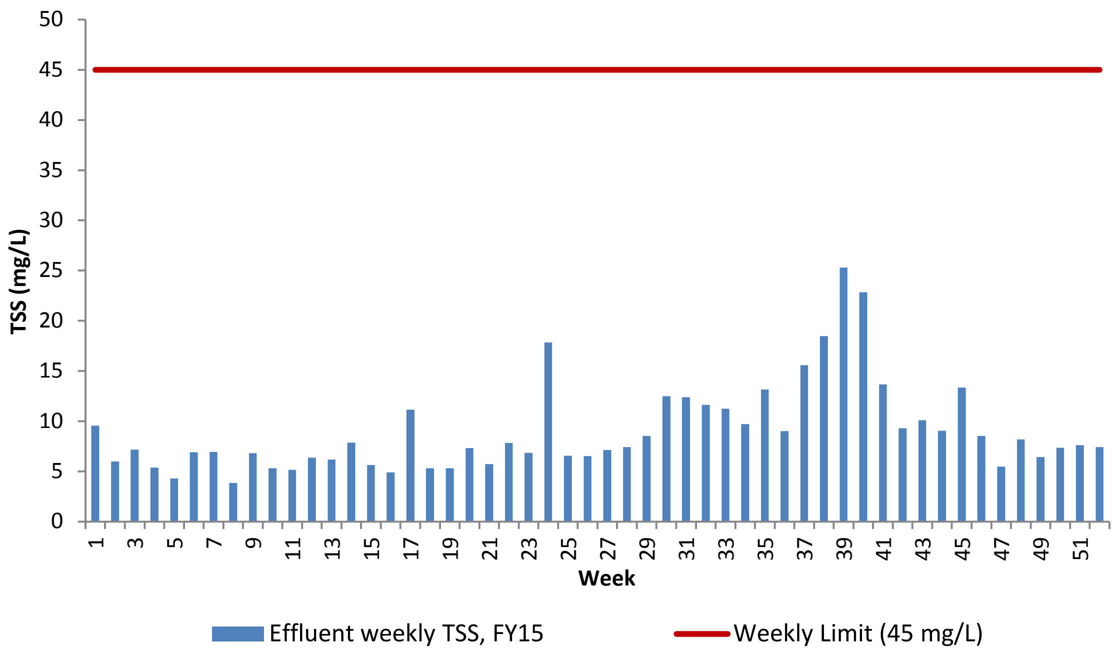


Figure 19. DITP Effluent TSS (Weekly Average), FY15

Fecal coliform has a daily discharge limit of 14,000 colonies/100mL, as calculated by the daily geometric mean of three samples per day. Figure 20 shows the daily effluent trends of fecal coliform in FY15. Note that 5 colonies/100mL is the detection limit for the fecal coliform test so there will not be results below that number.

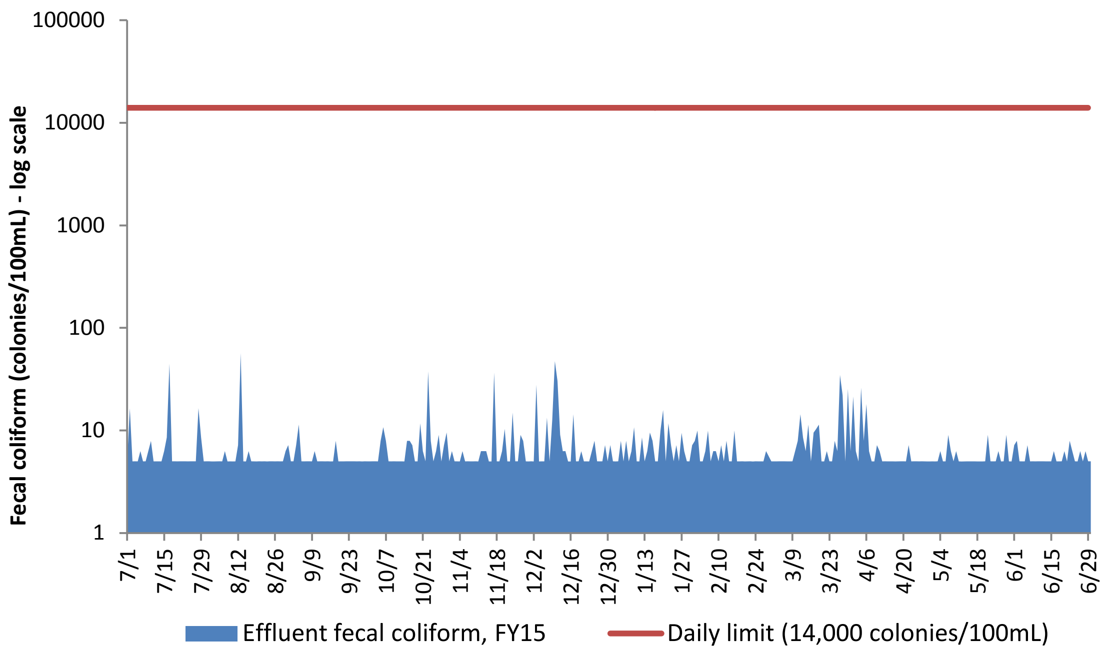


Figure 20. DITP Effluent Fecal Coliform (Daily Geometric Mean), FY15

Additional limits for fecal coliform include: not more than three consecutive samples measuring over 14,000 colonies/100mL, and no more than 10% of the samples in a month measuring over 14,000 colonies/100 mL. These latter two limits were not approached. Figure 21 shows the percentage of high sample counts (>14,000 colonies/100mL) by month – there were no violations of this limit either.

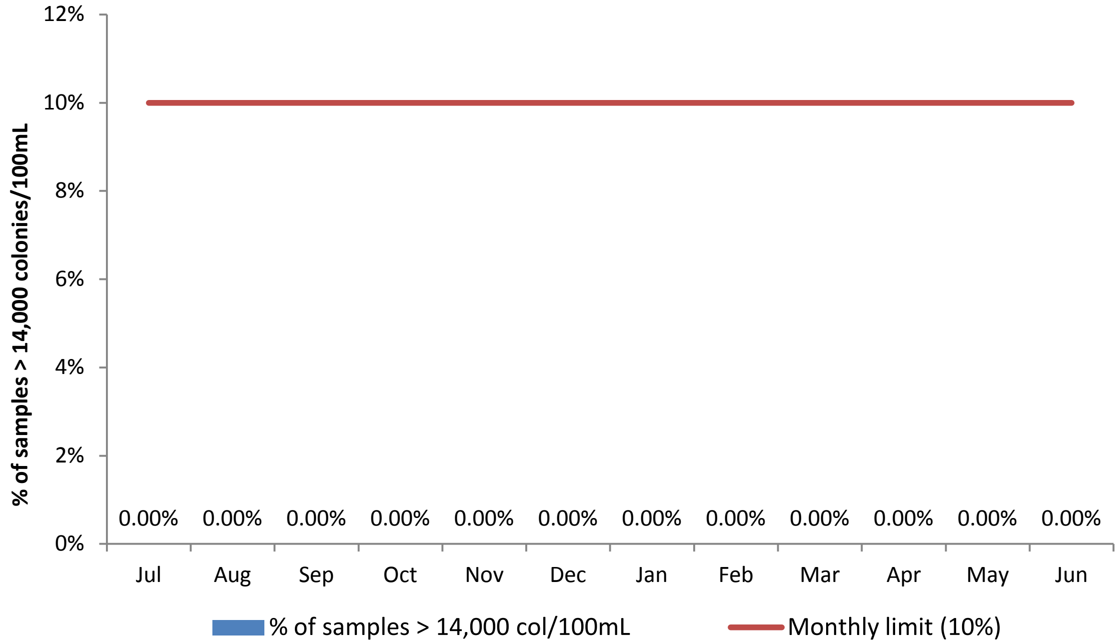


Figure 21. DITP Effluent Fecal Coliform (High Sample Counts), FY15

The limits for pH are based on the maximum and minimum values for each month, with pH required to fall between 6.0 and 9.0. In FY15, the pH of the effluent was always within this range. Figure 22 shows the monthly minimums and maximums throughout FY15.

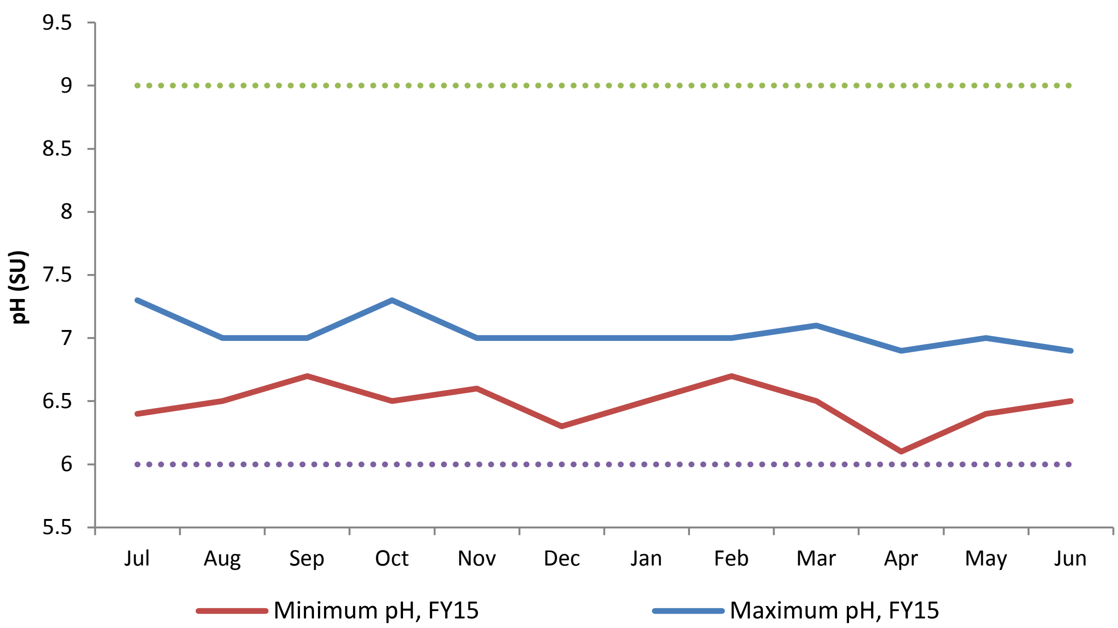


Figure 22. DITP Effluent pH (Monthly Min and Max), FY15

The permit regulates total chlorine residual through two limits: a monthly average of 456 μg/L and a daily maximum of 631 μg/L. Figure 23 shows monthly average chlorine residual results versus the regulatory limit. The following figure, Figure 24, shows the daily results against the permit limit. Neither limit was violated, or even approached, in FY15.

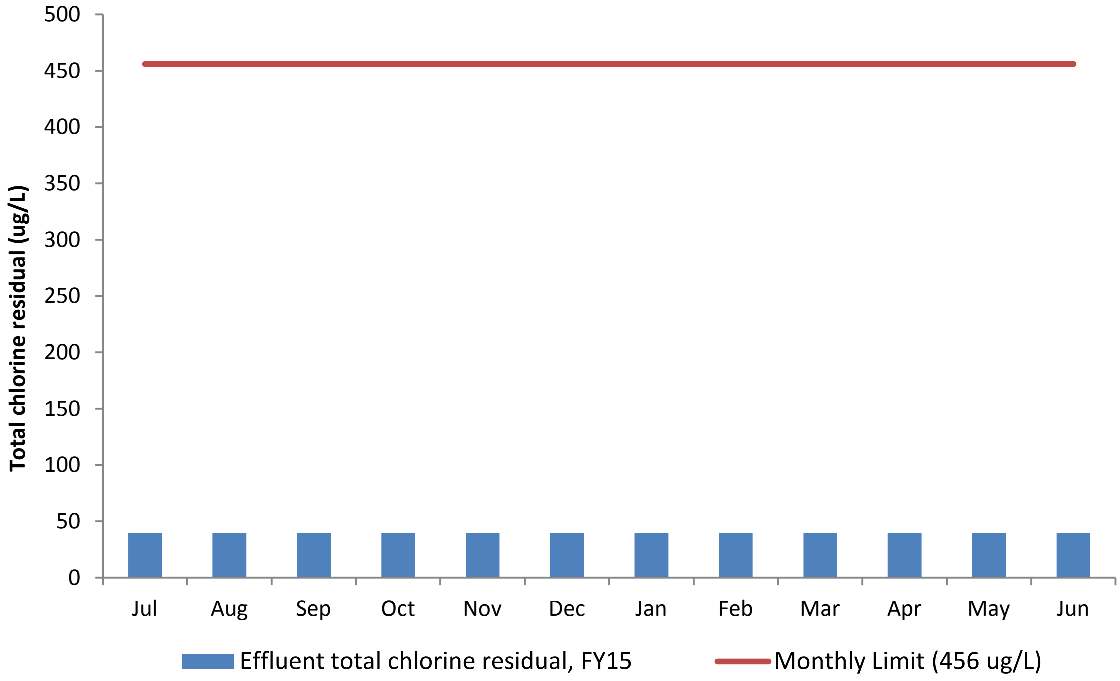


Figure 23. DITP Effluent Total Chlorine Residual (Monthly Average), FY15

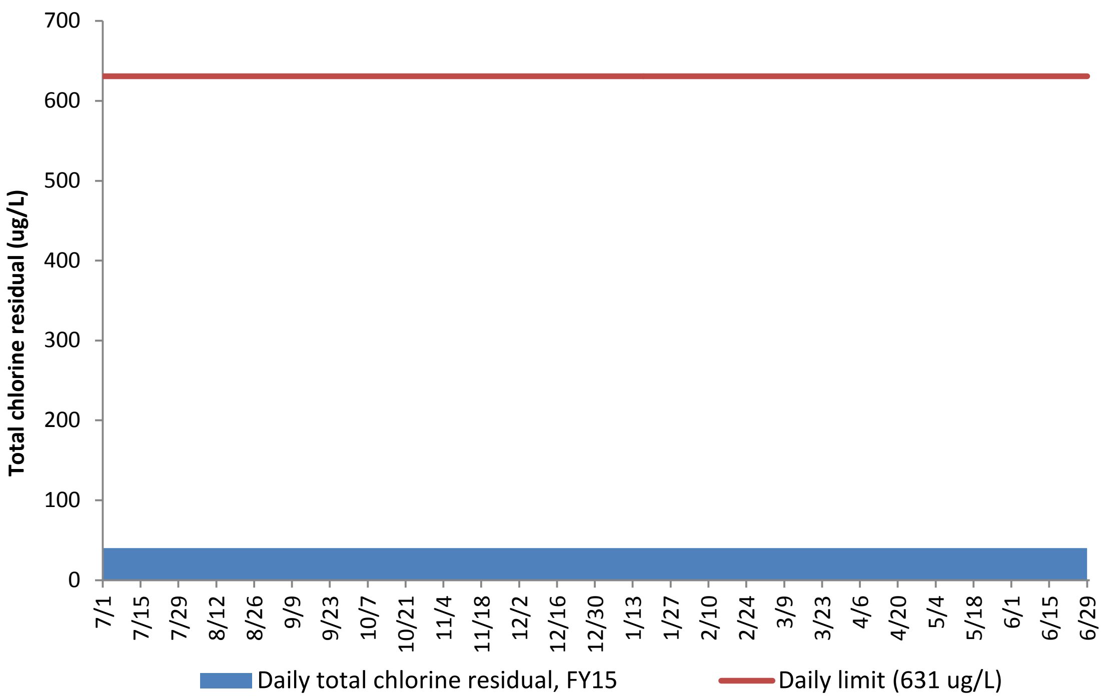


Figure 24. DITP Effluent Total Chlorine Residual (Daily Average), FY15

In addition to the limits mentioned above, the permit sets forth two more effluent limits. Arochlors 1016, 1221, 1232, 1242, 1248, 1254, and 1260 have a 0.000045 μg/L limit. However, none of these compounds were detected in FY15. The limit on dry day flow was covered in the Executive Summary (Figure 2).

MWRA must also report a number of other effluent components, such as metals and nutrients, although they have no discharge limit. These are listed in Appendix H, Table H-1.

Effluent Quality Compared to Water Quality Standards

Table 9 compares concentrations of priority pollutants in DITP effluent to water quality criteria, both acute and chronic. Even before the dilution provided by the outfall, all the pollutants except for copper were below both the acute and chronic criteria. After dilution, all the pollutants were below the acute and chronic criteria.

Table 9. Comparison of DITP Effluent with Water Quality Criteria, FY15

Acute	FY15 Effluent Maximum (ug/L)	Dilution†	Concentration at ZID (ug/L)‡	Acute Dissolved Criteria (ug/L)*	Acute Recoverable Criteria (ug/L)**	Times Detected
Arsenic	0.8	50	0.022	69.0	69.0	
Copper	14.9	50	0.246	4.8	5.8	
Lead	4.68	50	0.048	210.0	220.8	
Mercury	0.0279	50	0.0002	1.8	2.1	
Nickel	4.47	50	0.115	74.0	74.7	
Silver	0.135	50	0.003	1.9	2.2	
Zinc	46.3	50	0.960	90.0	95.1	
Chronic	**FY15 Effluent Average (ug/L)**	**Dilution†**	**Concentration at ZID (ug/L)‡**	**Chronic Dissolved Criteria (ug/L)***	**Chronic Recoverable Criteria (ug/L)****	**Times Detected**
Arsenic	0.422	70	0.006	36.0	36.0	
Copper	7.19	70	0.104	3.1	3.7	
Lead	0.951	70	0.011	8.1	8.5	
Mercury	0.00761	70	0.0001	0.9	1.1	
Nickel	2.75	70	0.039	8.2	8.3	
Zinc	24.4	70	0.333	81.0	85.6	

No conversion factor or chronic criteria exist for silver.

† Permit estimate from Attachment S.

‡ ZID is Zone of Initial Dilution, the area directly around the outfall.

* National Recommended Water Quality Criteria for Priority Toxic Pollutants, Federal Register, 12/10/98.

** Calculated using the conversion factors in Appendix A of the Federal Register, 12/10/98.

Ambient Monitoring Plan

The permit requires ambient monitoring of the Harbor and Massachusetts Bay. The ambient monitoring plan has three main components: the Harbor and Bay monitoring plan; the maintenance of the Bays Eutrophication Model; and plume tracking. Table 10 summarizes the first and third components of the monitoring plan. Note that the plume tracking component of the plan is completed and results are available from EnQual.

The Bays Eutrophication Model is a three-dimensional hydrographic and water quality model that is run annually to provide information on whether new limits are needed on the effluent discharge. The Model is designed primarily to examine the effects of nutrient inputs.

The ambient monitoring plan was revised in 2004 and in 2010. Copies of the revised plan are available online at the web address on the following page.

The Outfall Monitoring Science Advisory panel (OMSAP), a panel of scientific experts convened by the EPA and MA DEP, oversees the monitoring plan and examines scientific data produced by the MWRA and MWRA consultants. OMSAP also serves as a peer review board for technical reports, and advises EPA and MA DEP on the implications of monitoring observations. Finally, OMSAP evaluates any exceedances under the Contingency Plan, described in the next section.

Much more information on the ambient monitoring plan is available on the Internet. Documents directly associated with the permit, including Revision 2 of the ambient monitoring plan, can be found at: http://www.mwra.state.ma.us/harbor/html/ambient.htm

Associated information and synthesis reports generated by ambient monitoring results can be found at http://www.mwra.state.ma.us/harbor/html/wklyintr.htm for Boston Harbor and at http://www.mwra.state.ma.us/harbor/html/mbmon.htm for Massachusetts Bay.

The OMSAP web page, including announcements for public meetings, is at: http://www.epa.gov/region1/omsap/index.html

Table 10. Post-Discharge Ambient Monitoring Plan Summary

Task	Objective	Sampling Protocol	Analyses
Effluent sampling	Characterize wastewater discharge from Deer Island Treatment Plant	3x/daily Daily Weekly Several times monthly	Nutrients Solids and organic material Toxic contaminants Bacterial indicators Chlorine
Water Column			
Water column	Collect water quality data throughout Massachusetts and Cape Cod bays (Not all analyses are performed at every station)	9 surveys/year 14 stations	Temperature Salinity Dissolved oxygen Nutrients Solids Chlorophyll Water clarity Plankton Marine mammal observations
Plume-track surveys	Track discharge plume, measure discharge dilution	Completed	Completed
Mooring (GoMOOS)	Provides continuous oceanographic data for Massachusetts Bay	Continuous monitoring One to four depths near Cape Ann	Temperature Salinity Dissolved oxygen Chlorophyll and turbidity
Remote sensing	Provides oceanographic data on a regional scale through satellite imagery	Available daily (cloud-cover permitting)	Surface temperature Chlorophyll
Sea Floor			
Soft-bottom studies	Evaluate sediment quality and benthos in Boston Harbor and Massachusetts Bay	1 survey/year 23 nearfield stations 4 farfield stations	Sediment chemistry (triennially) Sediment profile imagery (23 stations) Community composition (10 near field and far field stations)
Hard-bottom studies	Characterize marine benthic communities in rock and cobble areas	1 survey/3 years 23 stations	Topography Substrate Community composition
Fish and Shellfish			
Winter flounder	Determine contaminant body burden and population health	1 survey/year 3 stations	Tissue contaminant concentrations (triennial) Physical abnormalities Liver histopathology
American lobster	Determine contaminant body burden	1 survey/3 years 3 stations	Tissue contaminant concentrations Physical abnormalities
Blue mussel	Evaluate biological condition and potential contaminant bioaccumulation	1 survey/3 years 3 stations	Tissue contaminant concentrations

Adapted from Werme, C, Rex, Ac, Hunt, CD. 2012. 2002 *Outfall Monitoring Overview Background: 2012 update*. EnQual report 2012-02.

Updated from MWRA. 2010. *MWRA Effluent Outfall Ambient Monitoring Plan, rev. 2, 7/10*. EnQual report #2010-04.

The Contingency Plan

The permit requires a contingency plan that defines a response plan when a parameter threshold is exceeded. Reponses may include changes in laboratory procedures, changes in treatment plant process, or, in a worst case scenario, examining the feasibility of re-opening the Deer Island harbor outfalls. Tables 11, 12, and 13 show the thresholds for the parameters. The effluent and toxicity thresholds are set to be equal to the NPDES permit limits. However, the Contingency Plan includes a number of new thresholds related to parameters monitored under the Ambient Monitoring Plan in Massachusetts Bay.

Table 11. Contingency Plan Thresholds – Toxic Contaminants

Parameter	Caution Level	Warning Level
Effluent chlorine	--	456 ug/L average monthly 631 ug/L maximum daily
Effluent PCBs	0.000045 ug/L monthly limit (as Arochlors)	--
Effluent toxicity	--	Acute: effluent LC50 < 50% for shrimp and fish Chronic: effluent NOEC for fish growth and sea urchin fertilization < 1.5%
Water column initial dilution of effluent	--	Effluent dilution predicted by EPA as basis for NPDES permit
Nearfield sediment toxics	--	NOAA Effects Range Median sediment guideline
Nearfield sediment toxics	90% EPA sediment criteria	EPA sediment criteria
Fish tissue mercury, near outfall	0.5 ug/g wet	0.8 ug/g wet
Fish tissue PCB, near outfall	1 ug/g wet	1.6 ug/g wet
Mussel tissue lead, near outfall	2 ug/g wet	3 ug/g wet
Fish tissue lipid-normalized toxics, near outfall	2 x baseline	--
Flounder liver disease incidence	Greater than harbor prevalence over time	--

Table 12. Contingency Plan Thresholds - Nutrients

Parameter	Caution Level	Warning Level
Effluent total nitrogen	12,500 mtons/year	14,000 mtons/year
Dissolved oxygen concentration, nearfield water column bottom, Stellwagen bottom	6.5 mg/L for any survey during stratification (June-Oct.) unless background conditions are lower	6 mg/L for any survey during stratification (June-Oct.) unless background conditions are lower
Dissolved oxygen percent saturation, nearfield water column bottom, Stellwagen bottom	80% saturation for any survey during stratification (June-Oct.) unless background conditions are lower	75% saturation for any survey during stratification (June-Oct.) unless background conditions are lower
Oxygen depletion rate, nearfield water column bottom	1.5 x baseline	2 x baseline
Nearfield water column chlorophyll	1.5 x baseline annual mean	2 x baseline annual mean
Nearfield water column chlorophyll	95th percentile of the baseline seasonal distribution	--
Nearfield water column nuisance algae (except *Alexandrium*)	95th percentile of the baseline seasonal mean	--
Nearfield water column zooplankton (1)	--	--
Nearfield water column *Alexandrium tamarense*	100 cells/L	--
Farfield water column PSP extent (2)	New incidence	--
Redox potential discontinuity, nearfield sediments	0.5 x baseline	--

(1) The MWRA will report annually on appreciable changes to the zooplankton community in its Annual Water Column Report and in the Outfall Monitoring Overview. The MWRA also makes every effort to participate in workshops to investigate food web pathways in Massachusetts and Cape Cod Bays sponsored by NOAA Fisheries.

(2) The MWRA is continuing to work on improvements to the calculation of this threshold as proposed in its October 13, 2000 letter to the EPA and MADEP.

Table 13. Contingency Plan Thresholds – Other Parameters

Parameter	Caution Level	Warning Level
Effluent cBOD	--	40 mg/L weekly 25 mg/L monthly
Effluent fecal coliform	--	14,000 fecal coliforms/100 ml
Effluent TSS	--	45 mg/L weekly 30 mg/L monthly
Nearfield benthic diversity	Appreciable change	--
Nearfield benthic opportunists	10%	25%
Effluent oil and grease (petroleum)	--	15 mg/L weekly
Plant performance	5 violations/year	Noncompliance 5% of the time pH <6 or >9 at any time Flow >436 MGD for an annual average dry day

Under the Contingency Plan, two types of thresholds exist: a caution level and a warning level. Figure 25 on the following page details the processes required by the Contingency Plan in case of a threshold exceedance. Table 14 details the Contingency Plan exceedances in FY15, of which there was one. For more information on pre-FY15 exceedances, please refer to the web site listed below.

Table 14. Contingency Plan Exceedances, FY15

Date*	Threshold Level Exceeded	Threshold Exceeded
September 5, 2014	Caution	Phaeocystis
December 5, 2014	Caution	Infaunal diversity: Shannon-Wiener H' and Pielou's J'

* Notification date; typically within 5 days of knowing of the violation.

In addition to the thresholds, the Contingency Plan also requires several other unrelated items. First, the MWRA must update annually a technical survey regarding tertiary treatment systems designed to remove nutrients. Second, the Authority must maintain a nitrogen monitoring program at DITP to examine the need for tertiary treatment. Both of these efforts are ongoing. Third, there must be a “dry run” of a Contingency Plan violation to assess the validity of the Contingency Plan structure. Fourth, $81 million must be held in reserve for emergency use. Finally, the old Boston Harbor outfalls must be maintained in case diversion of the effluent back to the Harbor is deemed necessary. These last three options have been successfully completed.

More information on Contingency Plan topics is on the Internet at:
http://www.mwra.state.ma.us/harbor/html/contingency.htm

Exceedance reports are posted at:
http://www.mwra.state.ma.us/harbor/html/exceed.htm

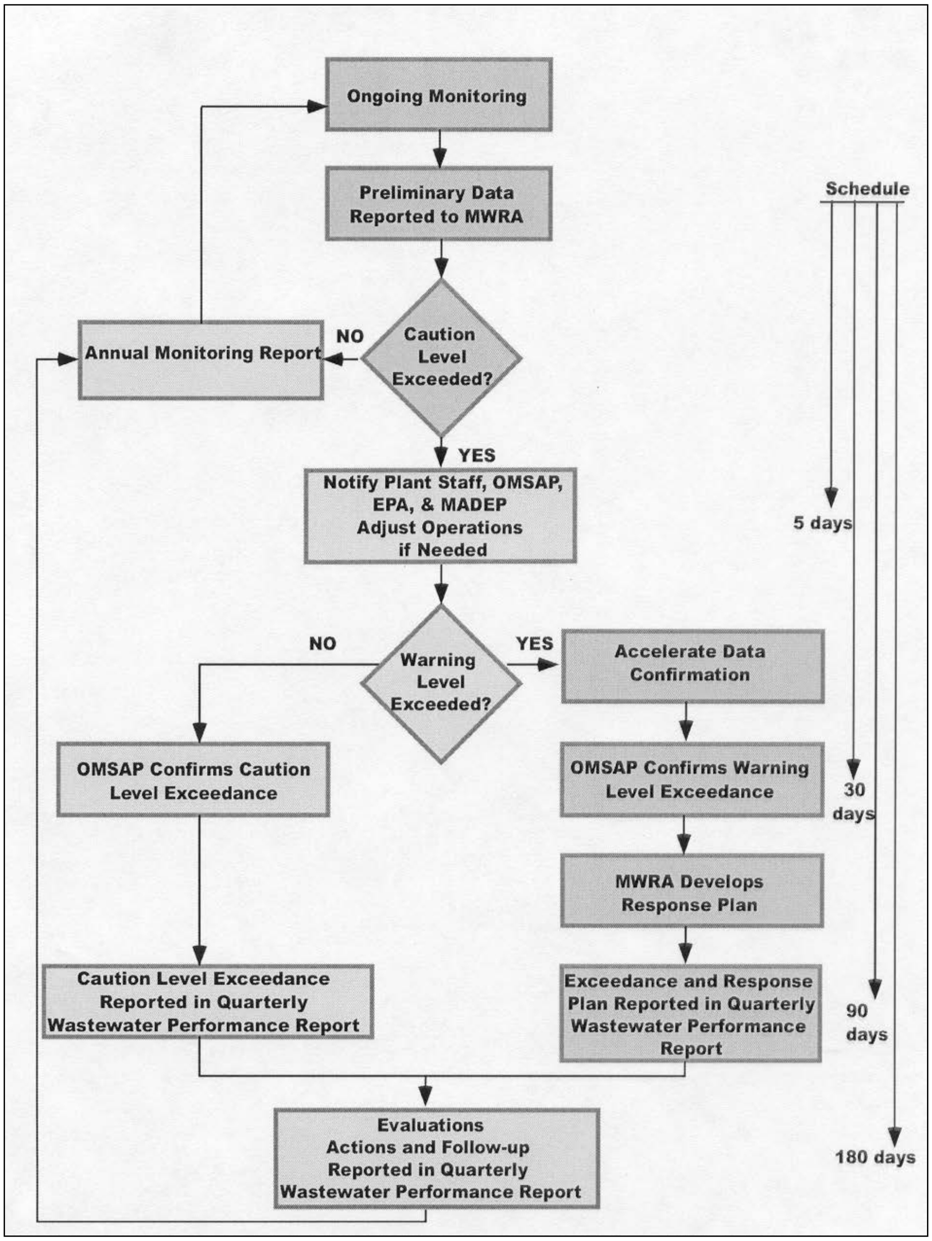


Figure 25. Contingency Plan Flow Chart

Combined Sewer Overflows

Overview

MWRA monitored four CSO facilities in the North System at the beginning of FY15. Three of the facilities – Cottage Farm, Prison Point, and Somerville Marginal – are included in the same NPDES permit as DITP. The fourth facility is the Union Park CSO facility, located in Boston and discharging to the Fort Point Channel. Union Park operates under a different NPDES permit than the other CSO facilities. Details of the Union Park facility can be found in Appendix G. There are no CSO facilities in the South System. Three CSO facilities in the North System have been closed following sewer separation projects. In November 2007, the Fox Point and Commercial Point facilities were decommissioned and will no longer discharge due to the completion of a separation project in the Dorchester area. The Constitution Beach facility was deactivated in September 2000.

The monitoring results vary significantly between facilities because of differences in type and location. Location is especially important since storms can be highly localized, affecting the level and intensity of rainfall at the CSO facility and the area that the facility serves. Improvements to the transport system (such as sewer separation projects) and the CSO facilities themselves have improved the capture of combined sewage. This has resulted in having fewer activations and less untreated CSO but a greater treated discharge volume.

Each CSO facility screens, chlorinates, and dechlorinates combined wastewater (sewage and storm water) prior to discharge. The Cottage Farm, Prison Point, and Union Park facilities also have pumping and tank storage capacity. Pumping and tank storage allows screened and chlorinated wastewater to be held at these facilities up to their storage capacities prior to discharge. Stored wastewater can eventually be pumped back into the system and processed at Deer Island. Any wastewater exceeding the storage capacity will overflow and discharge through the CSO outfalls. All of this discharge is disinfected.

The remaining CSO facility – Somerville Marginal – is a gravity CSO facility, meaning that combined wastewater both arrives and leaves the CSO facility by gravity instead of pumping. The disinfected wastewater overflows to the receiving water as quickly as it arrives at the facility. A detailed description of the CSO facilities, including the decommissioned facilities, can be found in Appendix G.

Cottage Farm CSO Facility

Table 15 and Figures 26 and 27 summarize activation data for the Cottage Farm CSO facility. Releases from FY14 to FY15 increased as the amount of rainfall also increased.

Table 15. Cottage Farm CSO Activations Summary

	Activations	Days activated	Total volume treated (MG)	Min flow (MGD)	Mean flow (MGD)	Max flow (MGD)	Total rainfall (inches)
FY99	11	13	259	1.35	19.9	47	32.4
FY00	19	24	440	0.56	18.7	86	46.1
FY01	15	18	667	0.22	37.1	223	41.0
FY02	8	10	51	0.63	5.1	13	34.1
FY03	14	16	117	0.91	7.3	21	43.5
FY04	13	15	209	0.61	14.0	62	42.0
FY05	8	9	51	1.36	5.6	12	43.8
FY06	10	13	335	0.71	27.9	85	56.2
FY07	7	7	73	1.6	10.4	28	42.3
FY08	6	6	59	1.26	9.8	31	42.3
FY09	7	7	89	0.9	12.8	48	47.8
FY10	9	14	499	0.9	35.6	188	54.6
FY11	5	6	47	2.7	9.3	22	44.0
FY12	7	7	52	1.9	7.5	15	45.2
FY13	5	5	73	6.4	21.4	26.4	45.4
FY14	2	2	8	3.2	3.9	4.5	36.2
FY15	3	3	81.41	7.7	27.14	63.21	43.13
Average flow = Total volume treated divided by the number of days activated.							

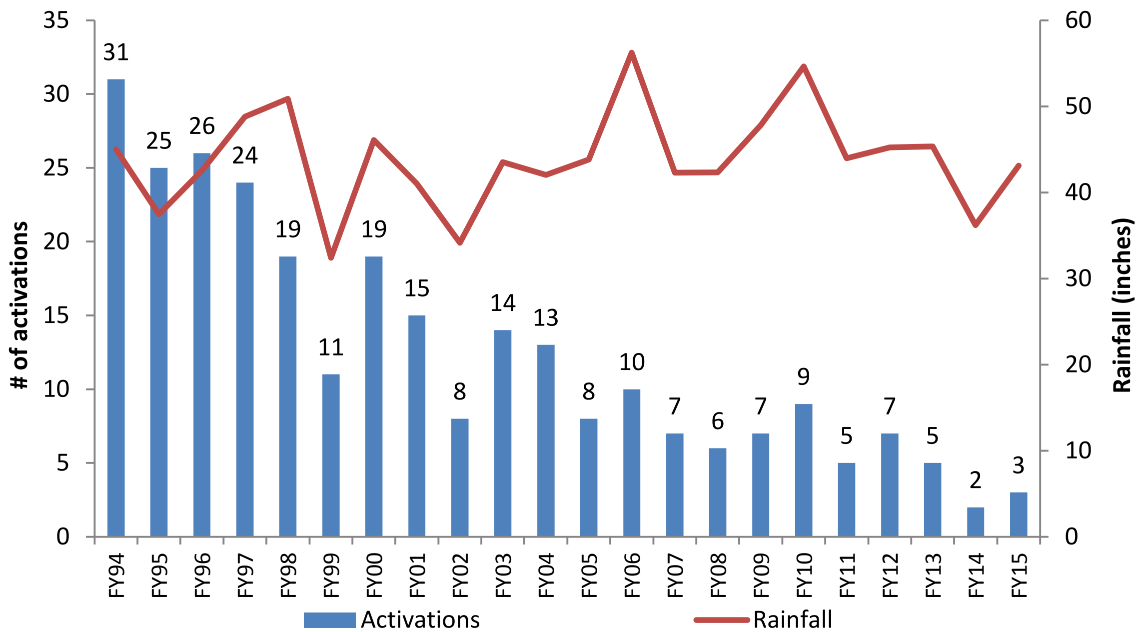


Figure 26. Cottage Farm CSO Activations Compared to Precipitation, FY94-FY15

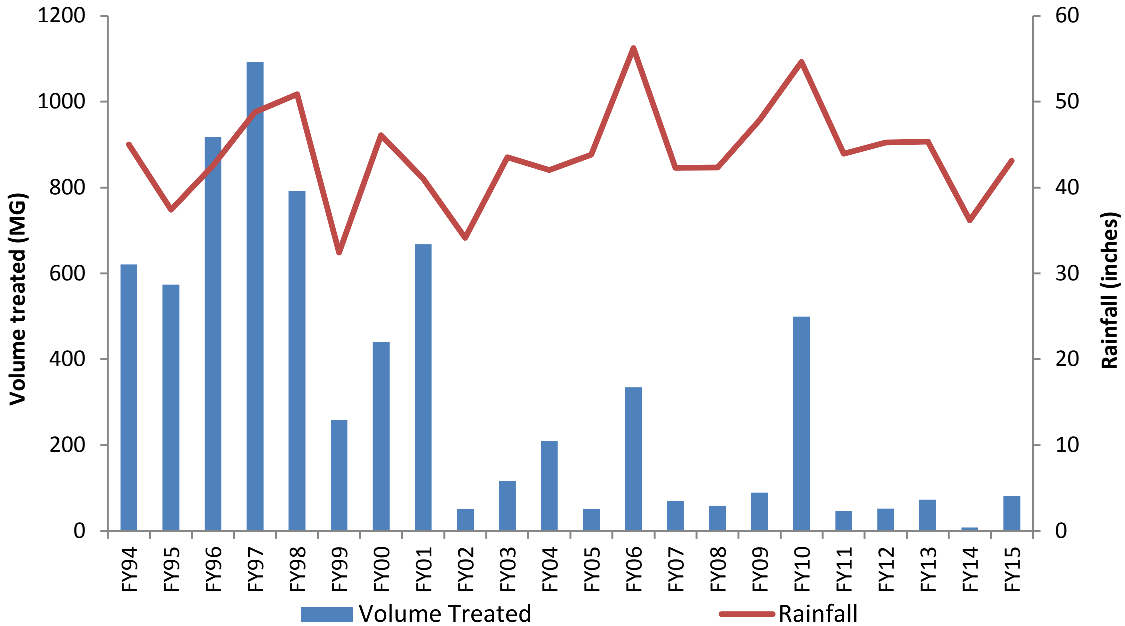


Figure 27. Cottage Farm CSO Volume Treated Compared to Precipitation, FY94-FY15

Table B-1 of Appendix B contains detailed data on conventional parameters in Cottage Farm effluent. Table 16 below summarizes this data. As is the case with all four facilities covered in this chapter, Cottage Farm is a CSO facility that provides floatables control, chlorination, and dechlorination. Such a facility cannot provide the same level of effluent treatment as a full-fledged treatment plant such as Deer Island. CSO effluent pH is often rather low in comparison to effluent from Deer Island or other treatment plants as CSO facilities cannot correct for sewage and/or stormwater that enters the facility with an already low pH.

Table 16. Cottage Farm CSO Effluent Characteristics, FY15

Parameter	Minimum	Average	Maximum	N
TSS (mg/L)	45.43	98.7	163	3
BOD (mg/L)	26	48.5	64.3	3
Fecal Coliform (col/100 mL)	73.8	547.9	880.7	3
pH (SU)	6.2	6.7	7.0	3

MWRA also tests CSO effluent for metals whenever the CSO facility is sampled. The results of these tests are presented in Appendix B, Tables B-2 and B-3 as well as Table 17 below.

Table 17. Cottage Farm CSO Effluent Metals, FY15

Parameter	Average Concentration	Times Detected
Aluminum (ug/L)	1242.33	3 of 3
Cadmium (ug/L)	0.31	3 of 3
Calcium (ug/L)	14306.67	3 of 3
Chromium (ug/L)	8.73	3 of 4
Copper (ug/L)	40.30	3 of 3
Lead (ug/L)	26.93	3 of 5
Magnesium (ug/L)	2703.33	3 of 3
Mercury (ug/L)	0.15	3 of 3
Nickel (ug/L)	3.82	3 of 5

Parameter	Average Concentration	Times Detected
Zinc (ug/L)	103.93	3 of 3

Prison Point CSO Facility

Activation data for the Prison Point CSO facility are summarized in Table 18 and Figures 28 and 29. Unlike the Cottage Farm facility, Prison Point is not hydraulically connected to the Deer Island Treatment Plant, so choking at the headworks will not affect Prison Point activations; hence they have remained relatively constant since FY94, primarily dependent on rainfall. As expected, activations and total volume increased from FY14 to FY15 due to the increase in rainfall.

Table 18. Prison Point CSO Activations Summary

	Activations	Days activated	Total volume treated (MG)	Min flow (MGD)	Mean flow (MGD)	Max flow (MGD)	Total rainfall (inches)
FY99	23	23	396	1.4	17.2	51	32.4
FY00	25	30	740	2.5	24.7	149	46.1
FY01	24	26	634	1	24.4	188	41.0
FY02	22	27	201	0.41	7.5	25	34.1
FY03	26	27	281	0.47	10.4	31	43.5
FY04	18	21	315	0.79	15.0	98	42.0
FY05	24	31	338	1	11.0	38	43.8
FY06	33	36	683	1.08	19.0	126	56.2
FY07	23	25	261	1.35	10.4	46	42.3
FY08	14	14	199	0.97	14.2	54	42.3
FY09	13	14	356	3.33	25.5	92	47.8
FY10	23	30	853	1.06	28.4	337	54.6
FY11	17	18	337	1.7	19.8	68.8	43.0
FY12	26	27	429	4.1	16.5	44.4	45.2
FY13	24	24	363	0.6	15.1	69.8	45.4
FY14	11	11	165	2.67	15.0	37.4	36.18
FY15	14	14	276.65	3.19	19.8	103.7	43.18
Average flow = Total volume treated divided by the number of days activated.							

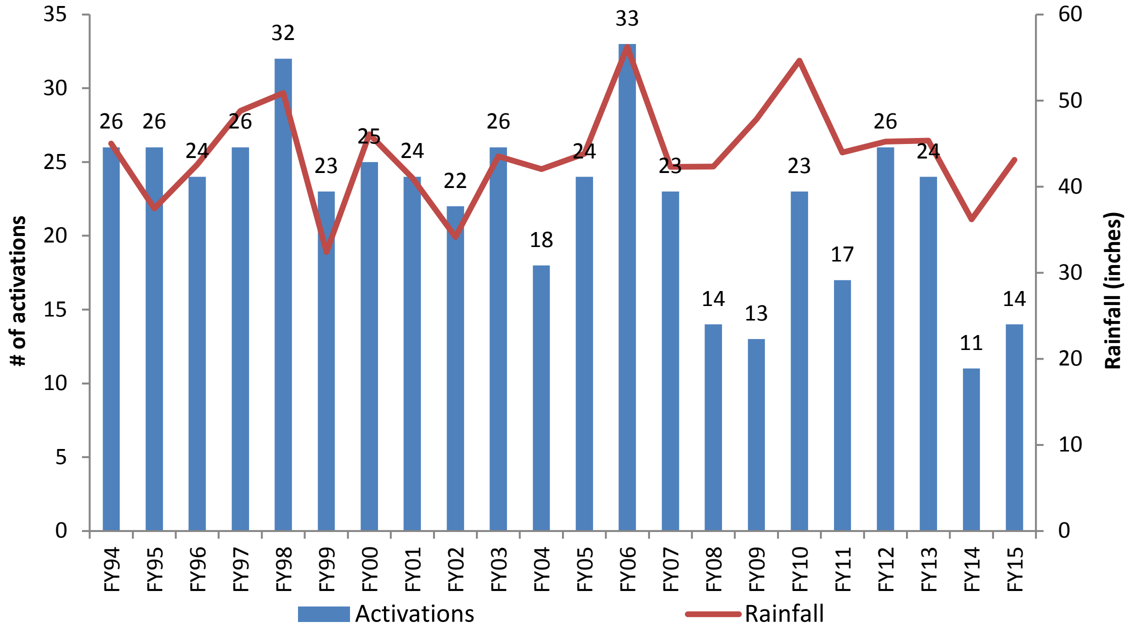


Figure 28. Prison Point CSO Activation Compared to Precipitation, FY94-FY15

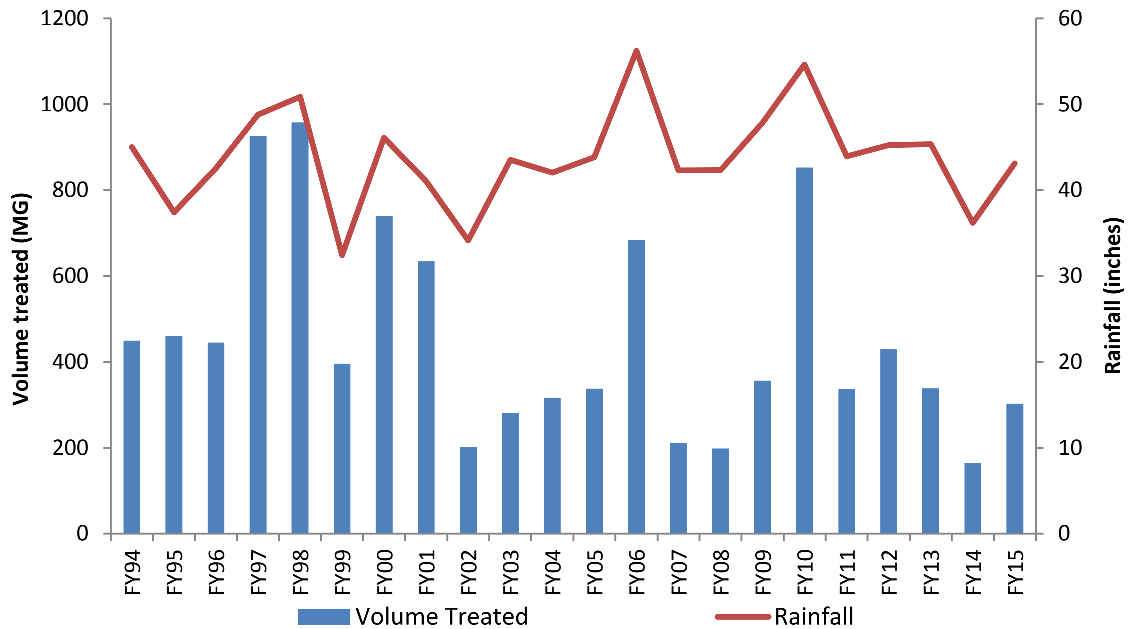


Figure 29. Prison Point CSO Volume Treated Compared to Precipitation, FY94-FY15

Conventional parameter data for Prison Point effluent are provided in Appendix C, Tables C-1 and C-2. Table 19 summarizes that data.

Table 19. Prison Point CSO Effluent Characteristics, FY15

Parameter	Minimum	Average	Maximum	N
TSS (mg/L)	49.0	73.0	130.0	5
BOD (mg/L)	13.2	29.3	45.1	5

Parameter	Minimum	Average	Maximum	N
Fecal Coliform (col/100 mL)	171	814	15258	5
pH (SU)	6.3	6.5	6.9	5

The results of priority pollutant testing for Prison Point can be found in Tables C-2 and C-3 of Appendix C. The target metals were detected in most of the samples. Table 20 summarizes average metals concentrations in FY15 Prison Point effluent.

Table 20. Prison Point CSO Effluent Metals, FY15

Parameter	Average Concentration	Times Detected
Aluminum (ug/L)	890	2 of 2
Cadmium (ug/L)	0.27	2 of 2
Chromium (ug/L)	7.3	2 of 2
Copper (ug/L)	39.2	2 of 2
Lead (ug/L)	26.8	2 of 3
Magnesium (ug/L)	1885	2 of 2
Mercury (ug/L)	0.06	2 of 2
Nickel (ug/L)	4.17	2 of 4
Zinc (ug/L)	133.2	2 of 2

Somerville Marginal CSO Facility

Table 21 and Figures 30 and 31 summarize activation information for the Somerville Marginal facility. Somerville Marginal in FY15 shows a similar pattern to the other facilities – a slight increase in activations and volume discharged due to the increased rainfall in FY15.

Table 21. Somerville Marginal CSO Activations Summary

	Activations	**Days activated**	**Total volume treated (MG)**	**Min flow (MGD)**	**Mean flow (MGD)**	**Max flow (MGD)**	**Total rainfall (inches)**
FY99	19	19	57	0.04	3.0	10	32.4
FY00	28	34	114	0.01	3.4	25	46.1
FY01	17	21	91	0.09	4.3	33	41.0
FY02	29	30	34	0.02	1.2	5	34.1
FY03	26	28	54	0.05	1.9	7	43.5
FY04	17	17	93	0.51	5.5	27	42.0
FY05	25	30	56	0.18	1.9	6	43.8
FY06	30	34	159	0.12	4.7	29	56.2
FY07	25	28	69	0.27	2.5	11	42.3
FY08	20	20	56	0.25	2.8	13	42.3
FY09	22	22	106	0.08	4.8	25	47.8
FY10	30	37	232	0.4	6.3	91	54.6
FY11	26	27	84	0.2	3.3	15.7	43.0
FY12	39	40	100	0.1	2.6	13	45.2
FY13	28	28	180	0.5	6.4	95.2	45.4
FY14	21	21	42	0.04	2.0	9.2	36.2
FY15	25	25	98	0.05	3.92	35.1	43.13
Average flow = Total volume treated divided by the number of days activated.							

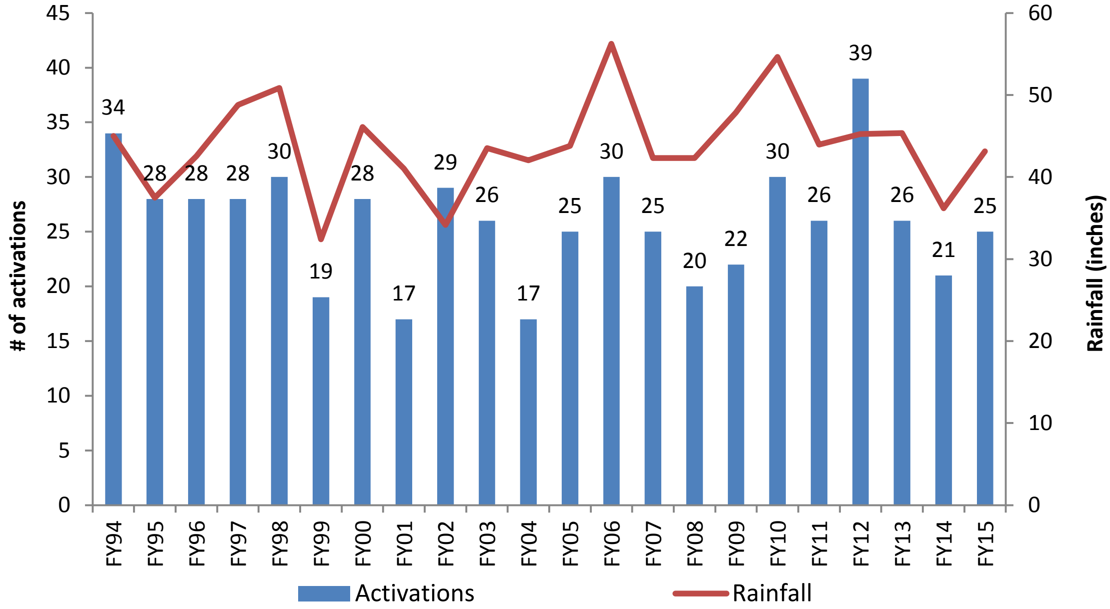


Figure 30. Somerville Marginal CSO Activations Compared to Precipitation, FY94-FY15

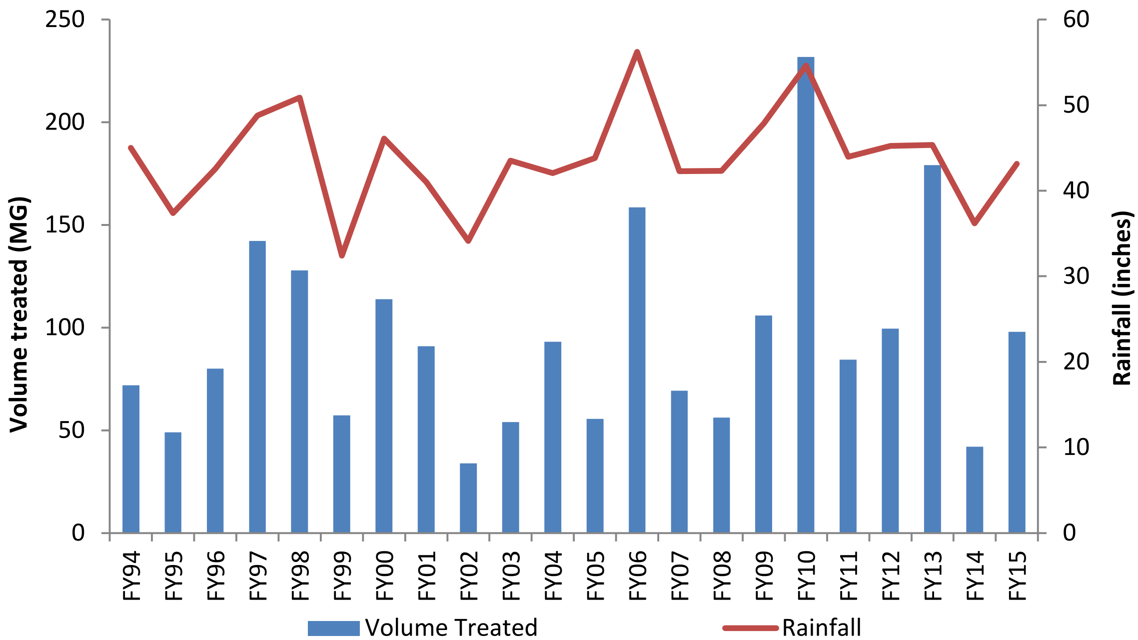


Figure 31. Somerville Marginal CSO Volume Treated Compared to Precipitation, FY94-FY15

Somerville Marginal conventional parameter data is provided in Appendix D, and summarized below in Table 22.

Table 22. Somerville Marginal CSO Effluent Characteristics, FY15

Parameter	Minimum	Average	Maximum	N
TSS (mg/L)	46.5	132.4	332.7	4
BOD (mg/L)	14.6	22.6	30.2	4
Fecal Coliform (col/100 mL)	1.0	4.6	27.3	4

Parameter	Minimum	Average	Maximum	N
pH (SU)	7.0	7.7	8.2	4

The results of Somerville Marginal priority pollutant testing can be found in Appendix D, Tables D-2 and D-3. As with the other CSO facilities, the target metals were detected in most of the samples. Table 23 summarizes the average metals concentration in FY15.

Table 23. Somerville Marginal CSO Effluent Metals, FY15

Parameter	Average Concentration	Times Detected
Aluminum (ug/L)	2849	3 of 3
Cadmium (ug/L)	0.41	3 of 4
Calcium (ug/L)	8403	3 of 3
Chromium (ug/L)	18.18	3 of3
Copper (ug/L)	37.7	3 of3
Lead (ug/L)	96.9	3 of 3
Magnesium (ug/L)	2859	3 of 3
Mercury (ug/L)	0.47	3 of 3
Nickel (ug/L)	6.6	3 of 3
Zinc (ug/L)	168	3 of 3

Union Park CSO Facility

The Union Park CSO facility is a CSO pumping and storage facility in Boston. Physical details of the station can be found in Appendix E. It operates under a different permit than the previous CSO facilities, but is included in this report for completeness purposes. The Union Park CSO facility had its first discharge in FY08. The following table describes activations at Union Park in FY15. The number of activations stayed the same, however the volume discharged increased due to more rainfall in FY15 than FY14.

Table 24. Union Park CSO Activations Summary

	Activations	Days activated	Total volume treated (MG)	Min flow (MGD)	Mean flow (MGD)	Max flow (MGD)	Total rainfall (inches)
FY08	8	8	73	2.2	9.1	26	42.3
FY09	8	8	62	1.12	7.8	21	47.8
FY10	9	15	161	1.4	10.7	84.1	54.6
FY11	7	7	42	0.9	6.0	17.6	43.0
FY12	12	12	39	0.3	3.3	9.9	45.24
FY13	7	7	36.8	0.9	5.3	17.8	45.4
FY14	5	5	20.6	0.8	4.1	6.3	36.2
FY15	5	5	41.08	0.5	8.22	20.4	43.13
Average flow = Total volume treated divided by the number of days activated.							

Table 25 lists conventional parameters measured in samples of Union Park effluent. More detailed results can be found in Appendix E-1.

Table 25. Union Park CSO Effluent Characteristics, FY15

Parameter	Minimum	Average	Maximum
TSS (mg/L)	22	46.7	71.7
BOD (mg/L)	16	25.9	37
Fecal Coliform (col/100 mL)	1.0	10.1	29.3
pH (SU)	5.4	5.7	5.9

Table 26 shows the results of tests for various metals in Union Park effluent. Detailed results on concentrations and loadings can be found in Appendices E-2 and E-3 respectively.

Table 26. Union Park CSO Effluent Metals, FY15

Parameter	Average Concentration	Times Detected
Aluminum (ug/L)	650	4 of 4
Antimony (ug/L)	1	0 of 4
Arsenic (ug/L)	3.5	4 of 4
Beryllium (ug/L)	0.6	0 of 4
Cadmium (ug/L)	0.25	0 of 8
Calcium (ug/L)	7825	4 of 4
Chromium (ug/L)	3.5	7 of 7
Copper (ug/L)	32.3	8 of 8
Lead (ug/L)	20.8	8 of 8
Magnesium (ug/L)	4775	4 of 4
Mercury (ug/L)	0.017	2 of 4
Nickel (ug/L)	1.9	5 of 8
Selenium (ug/L)	1	0 of 4
Silver (ug/L)	0.5	0 of 4
Thallium (ug/L)	0.5	0 of 4
Zinc (ug/L)	68.5	7 of 7

Sludge Processing

Overview

In December 1991, the MWRA ceased discharge of sludge into Boston Harbor. The digested sludge is now sent to a plant located on the Fore River in Quincy for processing into fertilizer pellets.

Pelletizing Process

The pelletizing process begins at the Deer Island Treatment Plant, where gravity thickeners handle sludge and scum from the plant's primary batteries. Centrifuges thicken secondary sludge and scum, with the help of added polymers. Centrate, or the liquid produced by these processes, is sent back to the head of the plant for treatment.

The thickened product is then transferred to Deer Island's most distinctive feature, the egg-shaped anaerobic digesters. In the digesters, bacteria break down the sludge into methane, carbon dioxide, organic material, and water. The methane is tapped, stored, and used later to generate electrical power or heat for Deer Island. The digested sludge is pumped via a small pipe in the Inter-Island Tunnel across the Harbor to the Fore River Pelletizing facility. This tunnel connection became fully operational in April 2005.

At the biosolids processing plant, centrifuges dewater the sludge into "cake," and dryers further process the sludge into the fertilizer pellets. The centrate from the centrifuges is transferred back to Deer Island for treatment via a second small pipe in the Inter-Island Tunnel by way of the Braintree-Weymouth Intermediate Pump Station. The tunnel replaced the earlier barge service on December 16, 2004. The pellets, marketed as "Bay State Fertilizer," are stored at the facility after production. They can either be packaged on-site, or loaded and shipped out in bulk by rail.

Bay State Fertilizer is available in limited quantities to the general public, and is more widely available to local municipalities and for wholesale purchase.

Sludge Pellet Regulations

Both the federal government and the Commonwealth of Massachusetts have regulations for the composition of fertilizer pellets. The federal government regulates copper, molybdenum, nickel, zinc, arsenic, cadmium, lead, mercury, and selenium. Massachusetts sets limits for all of the above except arsenic and selenium, while adding limits for boron and chromium. In most cases the Massachusetts standards are tougher than the federal standards. Meeting these regulations has generally not been a problem for the MWRA. Table 27 (next page) summarizes the applicable standards.

Table 27. Federal and State Limits for Sludge Pellet Metals

Parameter	Federal Limit (ppm)	Massachusetts Type 1* Limit (ppm)
Arsenic	41	NR
Boron	NR	300
Cadmium	39	14
Chromium	NR	1000
Copper	1500	1000
Lead	300	300
Mercury	17	10
Molybdenum	75	25
Nickel	420	200
Selenium	100	NR
Zinc	2800	2500
NR: Not regulated		
*: Type 1 pellets are certified for marketing and distribution in Massacusetts by MADEP		

Due to the February 19 annual submittal date for sludge data, sludge data is compiled by calendar year. In calendar year 2014 there were no violations of federal standards for sludge pellets, but there were four violations of the molybdenum state standard. In calendar year 2015 there were no violations of federal standards, but there were five violations of the molybdenum state standard. Tables 28 and 29 summarize the analytical results. The plant processed 36,501 tons in CY14 and 36,300 tons in CY15.

Table 28. Summary of Sludge Pellet Analysis, Calendar Year 2014

Parameter	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Arsenic (mg/kg, dry weight)	3.6	3.9	3.7	2.7	2.8	2.8	3.7	4.1	4.4	4.4	4.3	4.0
Boron (mg/kg, dry weight)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium (mg/kg, dry weight)	2.5	2.1	3.2	3.6	3.3	2.1	1.8	1.8	1.9	1.7	2.1	2.7
Chromium (mg/kg, dry weight)	72.1	71.0	62.5	78.3	63.4	61.7	67.5	65.8	61.5	61.2	63.8	68.5
Copper (mg/kg, dry weight)	560.0	619.8	540.3	550.4	527.8	519.0	599.2	615.0	634.8	605.2	569.5	579.8
Lead (mg/kg, dry weight)	113.5	111.7	95.2	101.0	95.8	103.3	116.0	141.5	127.5	111.6	116.8	121.4
Mercury (mg/kg, dry weight)	1.4	1.4	1.4	1.3	1.3	1.4	1.5	1.6	1.5	2.2	1.8	1.8
Molybdenum (mg/kg, dry weight)	19.1	14.0	12.6	11.4	11.1	12.5	20.2	**25.6**	**31.9**	**33.3**	**28.3**	20.7
Nickel (mg/kg, dry weight)	25.7	23.2	24.9	23.9	20.2	15.8	22.4	22.2	21.4	20.3	23.1	23.0
Selenium (mg/kg, dry weight)	3.8	3.9	3.1	3.9	3.4	3.9	4.1	3.6	3.9	4.0	4.1	3.6
Zinc (mg/kg, dry weight)	1227.5	1303.8	1167.5	1158.0	1055.0	1157.5	1252.0	1367.3	1382.5	1308.0	1177.5	1146.0

ND: No data

Bold indicates violations of the MADEP (state) limits for Type 1 sludge or federal limits.

Table 29. Summary of Sludge Pellet Analysis, Calendar Year 2015

Parameter	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15
Arsenic (mg/kg, dry weight)	4.0	3.5	3.5	4.5	3.4	3.1	3.7	2.7	3.9	3.3	3.7	3.7
Boron (mg/kg, dry weight)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium (mg/kg, dry weight)	3.4	3.4	3.2	5.0	4.7	3.0	2.8	2.6	2.3	2.3	2.4	2.4
Chromium (mg/kg, dry weight)	70.0	60.3	72.6	69.7	69.9	67.2	66.3	68.8	70.9	71.5	65.5	73.6
Copper (mg/kg, dry weight)	563.3	563.0	590.3	552.4	551.5	562.3	581.2	634.5	637.0	598.0	587.0	565.4
Lead (mg/kg, dry weight)	113.0	92.5	80.4	107.0	106.5	105.4	112.2	116.0	120.8	123.5	115.3	104.8
Mercury (mg/kg, dry weight)	1.6	1.5	1.3	1.7	1.5	1.6	2.0	1.4	1.5	1.9	1.9	1.7
Molybdenum (mg/kg, dry weight)	13.8	11.8	12.1	10.7	12.6	18.9	20.8	**28.9**	**32.8**	**34.2**	**30.9**	**31.9**
Nickel (mg/kg, dry weight)	23.9	23.1	23.3	24.3	23.3	21.9	23.5	23.6	22.4	21.4	25.6	24.6
Selenium (mg/kg, dry weight)	3.6	3.5	3.8	3.3	3.1	3.5	4.0	4.5	3.7	4.3	5.0	4.6
Zinc (mg/kg, dry weight)	1145.0	1150.0	1177.5	1156.0	1157.5	1172.5	1196.0	1285.0	1342.0	1282.5	1257.5	1208.0

ND: No data

Bold indicates violations of the MADEP (state) limits for Type 1 sludge or federal limits.

Transport Systems

North System Headworks Choking

Figure 32 below shows the number of hours of maintenance- and rain-related choking at the remote headworks since FY94.

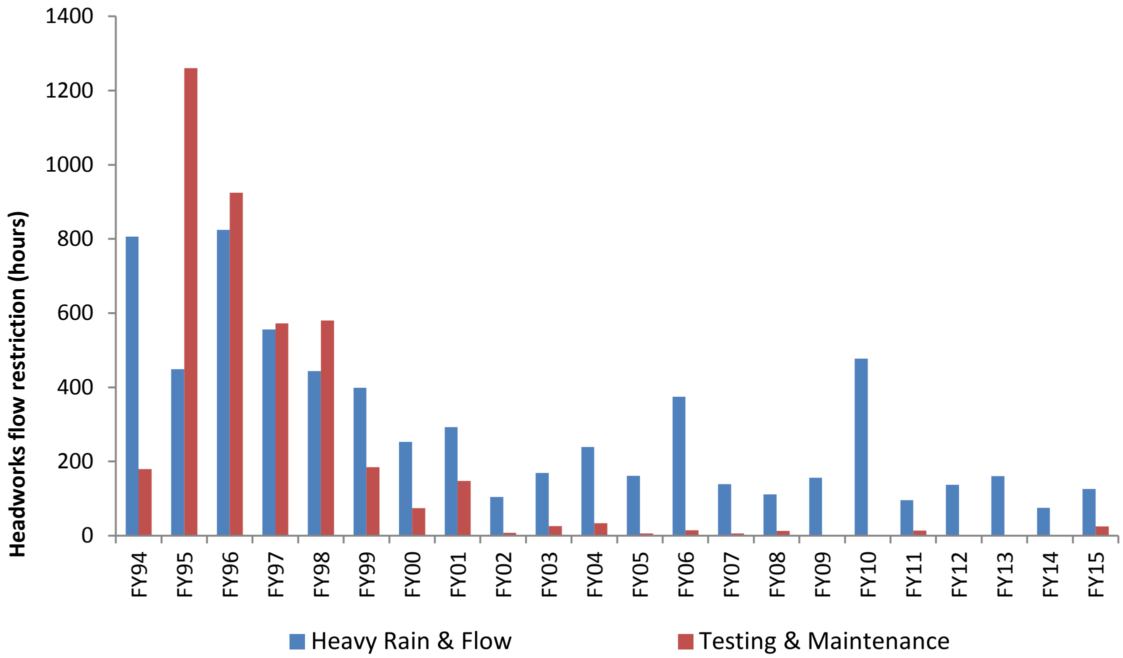


Figure 32. Choking, FY94-FY15

Figure 33 shows the influence of the number of rainy days in a year on the hours of rain-related choking. A rainy day is defined as a day with greater than 0.09 inches of rainfall. Differences in storm intensity between the years can explain years that have similar amounts of rainy days yet vastly different choking hours (i.e., FY96 versus FY98 and FY02-FY05, which have similar levels of rainfall but differing amounts of choking).

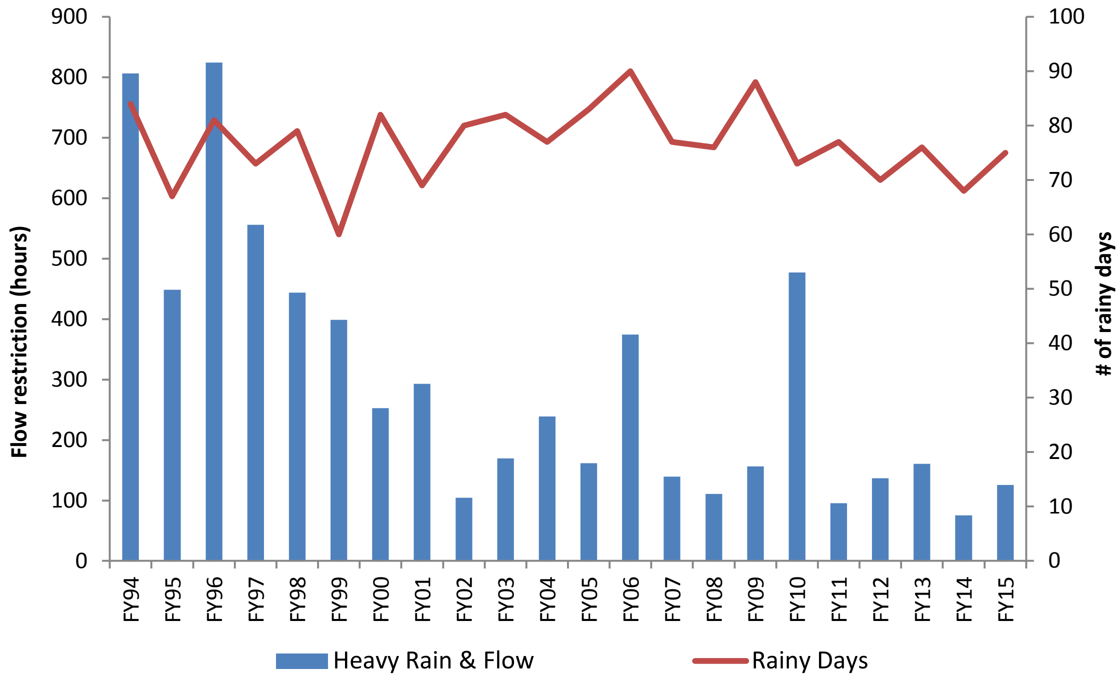


Figure 33. Rain-Related Choking, FY94-FY15

Choking for maintenance purposes is plotted in Figure 34. Maintenance choking peaked in FY95 due to the maintenance and testing involved in bringing the new primary treatment plant on-line. From FY96 to FY98 the number of hours of maintenance-related choking continued to be fairly high because of maintenance and testing related to the startup of the new primary and secondary treatment plants. For example, in FY98, of the approximately 580 choking hours related to testing and maintenance, 442 hours were due to testing. Since there were no new systems to test in FY99, there was a significant decrease in the testing/maintenance choking hours from FY98 to FY99. Testing and maintenance increased in FY01 due to the finishing of both secondary Battery C and the outfall tunnel. With no new systems post-FY02, choking due to testing and maintenance fell to minimal levels.

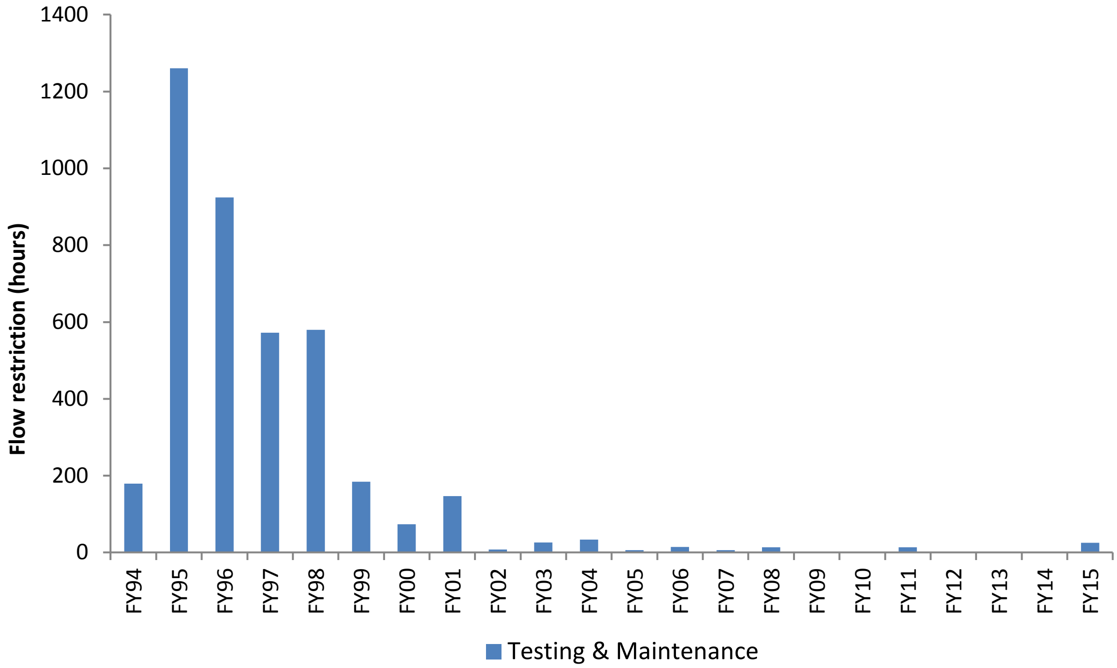


Figure 34. Testing and Maintenance-Related Choking, FY94-FY15

North System Sanitary Sewer Overflows

MWRA monitors sanitary sewer overflows (SSOs) visually and with meters in both the North and South Systems. SSOs occur when extreme rainfall overwhelms the transport system. Note that SSOs differ from CSOs (combined sewer overflows) in that CSO relief points are pipes that were specifically designed to relieve the combined sewer system. When the system becomes overloaded, these CSOs discharge combined sewage and storm water into a receiving body of water, such as the Charles River. SSOs, on the other hand, are weak points in the separate system, such as manholes, which will overflow during or shortly after heavy rain events.

Reported overflows in FY15 for the North System increased from none in FY14 to eleven in FY15 (see Table 30). However, this count includes only overflows at MWRA-owned overflow areas. There may be overflows for which the local municipalities are responsible. MWRA monitors these local overflows less frequently, and only when notified by municipalities or concerned citizens. A list of all the known overflow locations in MWRA lines is provided in Appendix G, Table G-6.

Table 30. Sanitary Sewer Overflows, North System, FY14-FY15

	Number of Overflows	
Location	FY14	FY15
Section 27, Station 17+03, Somerville (Near Railroad Tracks)		1
Section 50, Station 26+50, Melrose (Melrose St Manhole)		1
Section 60, Station 19+18, Melrose (Tremont St Manhole)		1
Section 69, Station 48+53, Winchester (Upstream Headhouse at Aberjona River)		1
Section 107, Station 1+00, Medford (Mystic Valley Pkwy (Rte 16) near James St)		1
Section 113, Station 3+24, Winchester (Wedgemere Siphon)		1

Section 152, Station 31+24, Medford (Lakeview Ave)		1
Section 152, Station 59+29, Arlington (Mystic Valley Pkwy Manhole)		1
Section 155, Station 9+12, Somerville (Boston Ave)		1
Section 176A, Station 131+21, Medford (Auburn St Manhole)		1
Section 176C, Station 00+35, Somerville (Alewife Brook Pump Station)		1

South System Sanitary Sewer Overflows

There were no reported overflow in the South System in FY14, but six in FY15 (see Table 31).

Table 31. Sanitary Sewer Overflows, South System, FY14-FY15

	Number of Overflows	
Location	FY14	FY15
Section 570, Station 00+00, Boston/Roslindale (Bradeen St North Gate)		1
Section 570, Station 00+00, Boston/Roslindale (Bradeen St South Gate)		1
Section 626, Station 54+06, Braintree (Smelt Brook Upstream Headhouse)		2
Section 626, Station 53+23, Weymouth (Smelt Brook Downstream Headhouse)		1
Section 628, Station 16+30, Braintree (Manhole Downstream of Pearl St Siphon)		1

Inflow and Infiltration

Inflow and infiltration (I/I) is a potentially serious problem that affects all sewerage systems. The NPDES permit requires the MWRA to address issues associated with I/I. Inflow is defined as the introduction of non-sanitary sewer water such as stormwater, residential basement pump-out, and industrial cooling water, into sanitary sewers. Infiltration is the leakage of groundwater into sewage lines through cracks, inadequately sealed joints, etc. In both cases, this additional load decreases system capacity, potentially leading to SSOs. I/I poses both a wet and dry weather problem; however, wet weather exacerbates I/I problems.

A summary of all actions minimizing I/I is prepared annually by MWRA. In addition, the MWRA participates in a Regional I/I Task Force responsible for creating a Regional I/I Reduction Plan for both MWRA and local community collection systems. The I/I Task Force includes MWRA staff, state regulators, and representatives from local communities. To reduce I/I, the MWRA "may consider incentive programs, rate structures, grant and loan programs, technical assistance and public education efforts as well as regulatory and enforcement mechanisms…" (permit section 18.bb.iv) At the end of FY03, MWRA submitted the Regional I/I Reduction Plan for regulatory review.

Find permit-related I/I materials at:
http://www.mwra.state.ma.us/harbor/html/operations.htm

Miscellaneous NPDES Permit Requirements

Overview

The MWRA's NPDES permit includes a number of sections other than effluent quality for Deer Island and the CSO facilities, making it one of the most comprehensive permits ever issued by EPA.

Facility Best Management Practices Plans

Best Management Practices Plans (BMPs) are designed to minimize the environmental impact of MWRA facilities. The MWRA has developed plans for the following facilities:

- Deer Island Treatment Plant
- Nut Island Headworks
- Ward Street Headworks
- Columbus Park Headworks
- Chelsea Creek Headworks
- Cottage Farm CSO facility
- Prison Point CSO facility
- Somerville Marginal CSO facility
- Biosolids Processing Plant
- Alewife Brook Pump Station
- Allison Hayes Pump Station
- Braintree-Weymouth Pump Station
- Caruso Pump Station
- Delauri Pump Station
- Framingham Pump Station
- Hingham Pump Station
- Houghs Neck Lift Station
- Intermediate Pump Station
- Neponset Pump Station
- Quincy Pump Station
- Squantum Pump Station

The objectives of BMPs are "(1) minimize the potential for violations of the permit, (2) protect the designated water uses of the surrounding water bodies, and (3) mitigate pollution from materials storage areas, site runoff, improper use of waste disposal system, accidental spillage, etc." (permit section 9.a)

BMPs are available at the above facilities or at the MWRA offices in Charlestown.

Water Conservation and Dry Day Flow Limits

As described in the Executive Summary, one of the requirements of the permit is the adherence to a 436 MGD dry day flow limit. In FY15, the MWRA was well within compliance for this limit. See Figure 2 in the Executive Summary for details. If dry day flow reaches 415 MGD, MWRA cannot accept new connections larger than 1.4 MGD. An annual report documents the MWRA's demand management program. The demand management program, run with the cooperation of member communities, reviews historical water and wastewater use, and looks at the effectiveness of past and future conservation programs.

Find permit-related water conservation and dry day flow limit materials at:
http://www.mwra.state.ma.us/harbor/html/flow.htm

Pollution Prevention Program

The pollution prevention requirement of the permit requires MWRA to develop strategies to reduce pollutant loadings from households and permitted industries in the service area. The main target of the program is polychlorinated biphenyls, or PCBs, a known human carcinogen. Manufacture of PCBs has been banned for several decades; however, quantities remain in the environment. The other main aspect of the program is the development of educational materials regarding domestic household hazardous waste, with the aim of preventing those materials from entering the MWRA sewerage system through proper disposal techniques.

For more information on the MWRA's pollution prevention program, visit:
http://www.mwra.state.ma.us/harbor/html/pollution.htm

Groundwater Remediation

Currently, groundwater remediation site waters cannot be discharged into the MWRA sewer system. If this prohibition is ever relaxed, a comprehensive assessment of its effects on the sewage system and treatment process is required. As of the end of FY15, no action has been taken on this section.

Local Limits and Industrial Pretreatment Program

These two related programs deal exclusively with non-domestic users, which are primarily industry. Under the local limits program, the MWRA develops and enforces specific limits on effluent from industrial users.

The industrial pretreatment program requires the MWRA to inspect and sample industrial users as specified by 40 CFR (Code of Federal Regulations) Part 403. 40 CFR Part 403 is designed as a source reduction program to limit the amount of pollutants in treatment plant influent.

Both programs result in cleaner influent to Deer Island, reducing stress on the plant, improving the efficiency of the treatment process, and reducing "pass-through" of contaminants to the effluent. Additionally, the sludge produced is cleaner and more amenable to safe fertilizer production.

More information on local limits and the pretreatment program is on-line at:
http://www.mwra.state.ma.us/harbor/html/local.htm

Reporting

Finally, the permit also requires the MWRA to provide the public with easy access to permit compliance reports and other information.

MWRA maintains a NPDES permit website at:
http://www.mwra.state.ma.us/harbor/html/ditp_performance.htm

EPA maintains an electronic mailing list for permit-related announcements:
https://www3.epa.gov/region1/npdes/mwra/listserv.html

Finally, there are two library repositories for permit documents:

MWRA Library
Charlestown Navy Yard
100 First Avenue
Boston, MA 02129

Hyannis Public Library
401 Main Street
Hyannis, MA 02601

Appendix A. Deer Island Treatment Plant

Table A-1. Deer Island Treatment Plant Operations Summary, FY15

North System Influent

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Annual Average	Max
Flow (mgd)															
Average	197.1	169.6	159.0	189.5	208.3	303.3	206.9	173.3	267.2	259.1	181.8	198.7		209.5	
Minimum	157.1	145.9	149.2	146.9	166.4	207.6	178.5	162.4	163.2	204.9	152.1	160.6	145.9		
Maximum	430.4	335.4	194.4	417.3	411.1	786.1	311.2	187.0	436.2	352.4	271.4	349.9			786.1
Temperature (deg F)															
Average	69.9	70.4	70.6	65.8	62.3	64.4	59.3	57.7	57.6	59.9	62.5	65.4		63.8	
Minimum	56.5	68.9	68.2	57.6	57.0	57.2	55.0	54.5	52.2	54.1	56.8	56.8	52.2		
Maximum	73.2	73.8	74.3	71.1	69.8	72.0	65.8	61.3	60.8	67.8	67.6	68.9			74.3
pH (SU)															
Average	6.9	6.9	6.9	6.9	6.9	6.9	7.0	7.0	7.0	6.9	6.8	6.9		6.9	
Minimum	6.6	6.5	6.6	6.6	6.7	6.8	6.8	6.9	6.9	6.6	6.7	6.7	6.5		
Maximum	7.4	7.2	7.0	7.0	7.2	7.1	7.1	7.1	7.2	7.0	7.0	7.1			7.4

North System Influent: Conventional Parameters (mg/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Annual Average	Max
Total Suspended Solids															
Average	161	188	204	196	176	140	185	198	181	173	266	235		192	
Minimum	86	102	106	134	126	67	96	100	67	53	92	50	50		
Maximum	271	290	286	334	244	202	518	466	420	384	746	652			746
cBOD															
Average	90	101	147	118	101	83	120	135	101	101	161	117		115	
Minimum	53	60	96	73	62	29	67	91	54	60	91	51	29		
Maximum	157	170	199	159	194	154	203	204	143	147	284	181			284
Settleable Solids (mL/L)															
Average	6.1	6.4	7.6	7.6	6.3	4.3	5.5	7.5	4.9	5.9	7.3	9.4		6.6	
Minimum	2.0	3.6	2.0	1.0	2.0	0.2	1.5	4.6	1.0	2.0	3.4	1.5	0.2		
Maximum	9.0	11.0	19.0	25.0	12.6	10.2	12.0	14.4	15.0	30.0	13.0	78.0			78.0
Total Solids															
Average	1557	1676	1805	1755	1529	1296	1656	1962	1882	1540	1746	1605		1667	
Minimum	820	1270	1140	1160	920	896	1120	1380	1390	1290	1070	1030	820		
Maximum	2350	2440	2660	3220	3090	1730	3390	2880	2850	2180	2300	2110			3390
Volatile Solids															
Average	414	432	452	433	346	294	353	397	361	359	524	469		403	
Minimum	248	276	288	312	240	200	232	260	244	228	260	228	200		
Maximum	752	580	588	764	448	444	712	592	648	552	956	896			956
Volatile Suspended Solids															
Average	142	167	184	176	157	124	167	179	159	154	242	211		172	
Minimum	74	95	98	114	114	59	87	90	63	50	85	46	46		
Maximum	227	252	262	278	222	166	474	417	380	322	680	594			680

Table A-1. Deer Island Treatment Plant Operations Summary, FY15 (cont.)

North System Influent: Conventional Parameters (mg/L; cont.)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Annual Average	Max
BOD															
Average	150	164	209	188	166	129	196	205	180	186	302	206		190	
Minimum	89	114	144	116	115	53	134	145	82	93	158	83	53		
Maximum	208	227	295	283	239	211	525	367	318	372	719	445			719
COD															
Average	339	353	462	415	354	265	431	469	360	336	545	459		399	
Minimum	181	270	333	236	255	126	261	322	190	149	316	198	126		
Maximum	885	510	596	684	604	386	967	949	539	579	1170	1080			1170
Chloride															
Average	590	642	689	681	577	499	668	819	844	602	611	564		649	
Minimum	293	476	402	374	251	309	387	531	562	465	362	306	251		
Maximum	852	965	1140	1340	724	709	1510	1350	1450	875	803	765			1510

North System Influent: Nutrients (mg/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Annual Average	Max
Ammonia															
Average	20.4	20.4	30.2	22.8	20.7	12.9	21.9	24.8	17.0	17.2	26.9	24.1		21.6	
Minimum	13.4	13.1	26.3	15.1	18.0	6.1	15.9	24.2	12.8	13.0	25.9	21.4	6.1		
Maximum	25.3	25.8	32.1	29.3	24.0	17.1	29.2	25.4	21.7	23.6	27.8	26.1			32.1
Nitrite															
Average	0.46	0.60	0.25	0.52	0.68	0.54	0.04	0.05	0.30	0.19	0.01	0.09		0.31	
Minimum	0.27	0.55	0.17	0.22	0.59	0.18	0.01	0.01	0.02	0.01	0.01	0.01	0.01		
Maximum	0.64	0.69	0.39	0.75	0.84	1.41	0.16	0.17	0.67	0.27	0.01	0.24			1.41
Nitrate															
Average	0.14	0.19	0.13	0.19	0.45	1.20	0.01	0.01	0.17	0.49	0.01	0.01		0.25	
Minimum	0.12	0.10	0.01	0.04	0.30	0.46	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
Maximum	0.18	0.29	0.28	0.35	0.58	3.31	0.01	0.01	0.42	0.71	0.01	0.03			3.31
Total Kjeldahl Nitrogen															
Average	28.8	29.3	39.0	33.9	41.2	20.1	32.1	35.5	28.1	25.0	38.6	38.1		32.5	
Minimum	22.2	22.8	34.9	27.8	29.8	10.0	29.2	33.8	24.0	21.9	32.9	31.4	10.0		
Maximum	34.7	34.2	41.5	37.8	66.0	26.6	37.3	37.8	32.6	31.1	49.6	50.7			66.0
Orthophosphates															
Average	1.9	2.0	2.9	2.2	1.8	1.0	2.0	2.1	1.4	1.4	2.7	2.2		2.0	
Minimum	1.2	1.1	2.5	1.1	1.4	0.5	1.5	2.0	1.0	0.9	2.4	1.7	0.5		
Maximum	2.5	2.6	3.1	3.2	2.3	1.5	2.7	2.2	1.9	2.1	3.0	2.8			3.2
Total Phosphorus															
Average	4.0	4.5	5.3	5.0	5.1	3.0	4.3	4.7	4.5	3.8	5.6	5.7		4.6	
Minimum	3.3	3.8	5.0	4.4	4.2	1.3	4.1	4.5	3.5	2.9	4.8	4.3	1.3		
Maximum	4.7	5.1	5.7	5.8	5.8	3.8	4.8	5.0	5.2	5.1	7.8	8.1			8.1

Table A-1. Deer Island Treatment Plant Operations Summary, FY15 (cont.)

South System Influent	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Min**	**Annual Average**	**Max**
Flow (mgd)															
Average	85.7	73.2	67.7	85.8	113.2	178.2	116.4	90.6	167.2	180.1	101.6	94.1		112.8	
Minimum	76.1	63.0	64.9	67.2	86.5	125.7	93.4	86.6	89.9	129.5	85.2	80.8	63.0		
Maximum	108.5	97.0	72.3	194.5	175.4	364.7	167.4	94.5	309.9	261.7	126.4	125.6			364.7
Temperature (deg F)															
Average	67.5	68.9	69.8	66.4	61.8	58.0	55.2	54.8	51.6	54.5	58.9	63.3		60.9	
Minimum	64.9	67.8	67.3	61.7	57.4	55.4	53.2	52.5	48.9	49.8	55.6	60.4	48.9		
Maximum	72.0	70.7	83.5	69.3	64.6	62.1	59.7	66.2	55.6	74.1	62.6	69.4			83.5
pH (SU)															
Average	6.9	7.0	6.9	7.0	6.9	6.9	7.0	7.0	6.9	6.9	6.9	6.9		6.9	
Minimum	6.7	6.7	6.7	6.5	6.7	6.6	6.8	6.8	6.7	6.5	6.7	6.7	6.5		
Maximum	7.0	7.1	7.1	7.2	7.1	7.0	7.2	7.2	7.2	7.1	7.2	7.0			7.2

South System Influent: Conventional Parameters (mg/L)	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Min**	**Annual Average**	**Max**
Total Suspended Solids															
Average	222	150	186	234	185	137	170	220	161	150	258	256		194	
Minimum	72	84	111	137	104	52	88	132	59	70	113	152	52		
Maximum	492	244	388	722	268	441	256	305	334	252	442	492			722
cBOD															
Average	119	117	140	141	101	68	96	119	80	67	114	116		107	
Minimum	91	79	86	78	58	28	57	86	31	31	77	86	28		
Maximum	198	168	212	310	146	113	136	173	130	126	189	173			310
Settleable Solids (mL/L)															
Average	9.0	4.4	7.8	9.0	7.5	5.6	7.8	10.0	7.8	5.7	13.7	10.8		8.3	
Minimum	3.0	2.0	2.2	3.0	1.6	1.5	4.6	6.0	2.0	3.0	6.0	8.0	1.5		
Maximum	20.0	12.0	60.0	41.0	11.0	9.0	13.5	14.0	20.0	15.0	26.0	19.0			60.0
Total Solids															
Average	1627	1783	1794	1819	1330	1050	1261	1451	1514	1184	1468	1590		1489	
Minimum	1100	1320	1440	1360	1000	800	896	1160	1120	960	1250	1390	800		
Maximum	2240	2480	2560	2540	2070	1300	2820	2050	2640	1610	1900	1950			2820
Volatile Solids															
Average	521	485	470	507	351	256	303	390	300	285	494	531		408	
Minimum	336	324	364	300	192	132	200	264	180	180	352	348	132		
Maximum	760	712	584	840	484	436	472	580	428	404	952	720			952
Volatile Suspended Solids															
Average	195	134	168	206	164	121	150	195	144	130	229	226		172	
Minimum	62	78	99	120	92	48	82	118	52	58	100	140	48		
Maximum	402	216	348	612	236	378	218	250	292	220	384	444			612

Table A-1. Deer Island Treatment Plant Operations Summary, FY15 (cont.)

South System Influent: Conventional Parameters (mg/L; cont.)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Annual Average	Max
BOD															
Average	199	168	202	206	159	103	149	199	144	121	211	206		172	
Minimum	136	121	141	107	81	51	66	158	62	53	114	156	51		
Maximum	337	247	289	443	201	161	201	251	247	267	323	308			443
COD															
Average	477	390	451	486	364	242	360	456	313	270	476	485		397	
Minimum	290	299	344	307	217	131	244	341	136	146	257	340	131		
Maximum	856	695	614	925	500	324	541	548	546	551	676	638			925
Chloride															
Average	581	685	685	679	506	382	466	552	629	453	490	528		553	
Minimum	379	474	506	501	336	307	298	415	423	393	399	384	298		
Maximum	849	1030	1070	1020	925	464	1280	881	880	590	699	639			1280

South System Influent: Nutrients (mg/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Annual Average	Max
Ammonia															
Average	57.6	58.3	74.7	70.1	46.5	28.0	44.6	55.6	38.7	31.4	50.3	56.7		51.0	
Minimum	48.0	45.7	70.9	48.1	33.9	13.9	29.7	46.9	24.1	23.5	47.1	52.9	13.9		
Maximum	63.9	69.0	77.8	77.1	56.3	37.2	51.1	61.2	55.7	43.0	57.7	62.5			77.8
Nitrite															
Average	0.70	0.21	0.91	0.10	0.30	0.37	0.18	0.29	0.55	0.46	0.53	0.27		0.41	
Minimum	0.11	0.01	0.75	0.02	0.28	0.05	0.01	0.01	0.01	0.05	0.13	0.04	0.01		
Maximum	1.22	0.65	1.00	0.25	0.32	0.86	0.66	0.73	1.06	0.95	1.21	0.71			1.22
Nitrate															
Average	0.15	0.05	0.13	0.03	0.23	0.70	0.11	0.02	0.32	0.45	0.15	0.16		0.21	
Minimum	0.04	0.01	0.07	0.01	0.01	0.01	0.01	0.01	0.01	0.14	0.01	0.14	0.01		
Maximum	0.34	0.14	0.17	0.11	0.43	2.79	0.42	0.07	1.13	0.88	0.33	0.18			2.79
Total Kjeldahl Nitrogen															
Average	68.7	68.7	85.9	73.4	51.9	32.9	54.6	68.3	47.2	37.4	60.5	69.0		59.9	
Minimum	56.1	63.1	81.7	37.0	45.2	16.6	42.8	60.3	30.1	27.8	53.5	68.0	16.6		
Maximum	79.5	74.6	91.4	97.2	68.3	44.4	61.8	75.9	63.8	47.2	65.0	70.4			97.2
Orthophosphates															
Average	3.0	3.4	4.5	4.4	2.8	1.4	2.5	3.4	2.0	1.6	3.7	3.6		3.0	
Minimum	2.5	2.9	4.2	3.1	2.1	0.6	2.0	3.3	1.1	0.9	3.5	3.2	0.6		
Maximum	3.7	3.9	4.9	5.0	3.7	1.8	2.8	3.5	3.1	2.5	4.1	3.9			5.0
Total Phosphorus															
Average	5.8	6.5	7.4	8.3	6.8	3.8	5.6	7.9	5.2	4.3	7.4	8.2		6.4	
Minimum	5.0	6.1	5.1	7.2	5.6	1.8	4.6	7.5	3.0	2.8	7.3	8.1	1.8		
Maximum	7.1	7.2	9.3	9.7	8.1	5.0	6.5	8.3	7.1	6.5	7.5	8.4			9.7

Table A-1. Deer Island Treatment Plant Operations Summary, FY15 (cont.)

Flow-Weighted Influent (North+South Systems): Conventional Parameters (mg/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Annual Average	Max
Total Suspended Solids															
Average	180	177	199	208	179	139	179	206	173	163	264	242	139	192	264
cBOD															
Average	99	106	145	125	101	78	112	129	93	87	144	117	78	111	145
Settleable Solids (mL/L)															
Average	7.0	5.8	7.6	8.0	6.7	4.7	6.3	8.4	6.0	5.8	9.6	9.8	4.7	7.2	9.8
Total Solids															
Average	1578	1708	1802	1775	1459	1205	1513	1787	1740	1394	1646	1600	1205	1601	1802
Volatile Solids															
Average	446	448	458	456	348	280	335	395	338	328	514	489	280	403	514
Volatile Suspended Solids															
Average	158	157	179	185	159	123	161	184	153	144	237	215	123	171	237
BOD															
Average	165	165	207	193	163	120	179	203	166	159	269	206	120	183	269
COD															
Average	381	364	458	437	358	257	405	464	342	309	520	467	257	397	520
Chloride															
Average	587	655	688	681	552	456	595	727	761	541	568	553	456	614	761

Flow-Weighted Influent (North+South Systems): Nutrients (mg/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Annual Average	Max
Ammonia															
Average	31.7	31.8	43.5	37.5	29.8	18.5	30.1	35.4	25.3	23.0	35.3	34.5	18.5	31.4	43.5
Nitrite															
Average	0.54	0.48	0.45	0.39	0.55	0.48	0.09	0.13	0.40	0.30	0.19	0.15	0.09	0.34	0.55
Nitrate															
Average	0.14	0.15	0.13	0.14	0.37	1.02	0.04	0.01	0.23	0.47	0.06	0.06	0.01	0.24	1.02
Total Kjeldahl Nitrogen															
Average	40.9	41.2	53.0	46.2	44.9	24.8	40.2	46.7	35.5	30.1	46.5	48.1	24.8	41.5	53.0
Orthophosphates															
Average	2.2	2.4	3.3	2.9	2.2	1.1	2.2	2.5	1.6	1.5	3.1	2.7	1.1	2.3	3.3
Total Phosphorus															
Average	4.6	5.1	5.9	6.0	5.7	3.3	4.8	5.8	4.7	4.0	6.3	6.5	3.3	5.2	6.5

Table A-1. Deer Island Treatment Plant Operations Summary, FY15 (cont.)

Final Effluent	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Annual Average	Max
Flow (mgd)															
Average	282.8	242.8	226.7	275.3	321.5	481.5	323.3	263.9	434.3	439.3	283.4	292.8		322.3	
Minimum	233.2	208.9	214.2	216.1	252.9	342.5	272.0	249.0	253.1	334.4	237.3	242.9	208.9		
Maximum	538.9	432.5	263.3	611.8	577.2	1102.4	478.6	281.3	714.8	600.3	372.0	475.4			1102.4
Temperature (deg F)															
Average	69.7	70.6	70.7	67.6	63.7	60.1	58.1	55.9	55.1	57.0	61.8	65.6		63.0	
Minimum	64.4	69.1	67.6	62.1	57.2	55.6	55.4	53.8	52.7	53.2	58.5	61.7	52.7		
Maximum	71.6	71.8	73.2	70.5	66.4	63.1	60.3	57.7	57.7	59.9	65.5	67.1			73.2
pH (SU)*															
Average	6.8	6.8	6.9	6.8	6.8	6.8	6.8	6.8	6.8	6.7	6.8	6.8		6.8	
Minimum	6.4	6.5	6.7	6.5	6.6	6.3	6.5	6.7	6.5	6.1	6.4	6.5	6.1		
Maximum	7.3	7.0	7.0	7.3	7.0	7.0	7.0	7.0	7.1	6.9	7.0	6.9			7.3

Final Effluent: Conventional Parameters (mg/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Annual Average	Max
Total Suspended Solids															
Average	6.8	5.9	5.8	7.0	6.5	9.1	9.7	11.2	17.2	13.1	8.9	7.3		9.1	
Minimum	3.0	2.6	2.7	2.4	3.4	3.8	4.8	8.2	6.4	3.7	4.0	3.8	2.4		
Maximum	28.8	18.8	8.0	33.6	22.6	29.2	19.4	15.3	50.5	26.2	24.0	16.6			50.5
cBOD															
Average	4.2	4.1	4.7	5.8	5.5	5.7	5.9	7.4	8.2	7.3	5.7	4.9		5.8	
Minimum	1.7	2.7	2.9	2.2	3.0	3.1	3.4	5.8	4.9	4.7	2.9	3.2	1.7		
Maximum	13.7	9.1	8.1	18.0	15.3	13.2	14.2	9.9	21.7	12.9	9.3	9.8			21.7
Settleable Solids (mL/L)															
Average	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		0.1	
Minimum	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		
Maximum	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	1.0	0.2	0.5			1.0
Total Chlorine Residual*															
Average	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04		0.04	
Minimum	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04		
Maximum	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04			0.04
Fecal Coliform (colonies/100mL)*															
Geometric Mean	6	6	5	7	6	7	7	6	7	6	5	5		6	
Minimum	5	5	5	5	5	5	5	5	5	5	5	5	5		
Maximum	45	57	11	38	37	47	16	10	35	26	9	8			57
Total Solids															
Average	1387	1553	1551	1544	1251	1068	1367	1657	1556	1205	1279	1299		1393	
Minimum	716	1200	1140	968	804	772	840	1270	1170	1010	1000	820	716		
Maximum	2100	2140	2290	2280	1660	1310	2860	2310	2050	1460	1680	1640			2860

Table A-1. Deer Island Treatment Plant Operations Summary, FY15 (cont.)

Final Effluent: Conventional Parameters (mg/L; cont.)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Annual Average	Max
Volatile Solids															
Average	281	282	254	258	189	150	167	200	191	178	231	253		219	
Minimum	132	196	144	136	120	64	92	96	128	80	132	128	64		
Maximum	584	396	360	400	308	256	312	300	280	268	356	420			584
Volatile Suspended Solids															
Average	6.2	5.3	5.2	6.3	5.9	8.0	8.7	10.2	15.1	11.5	8.1	6.8		8.1	
Minimum	2.6	2.4	2.3	2.2	3.0	3.4	5.2	7.6	5.6	3.4	3.7	3.7	2.2		
Maximum	25.6	16.4	7.4	29.6	20.5	24.8	16.8	13.7	43.5	22.4	21.2	14.8			43.5
BOD															
Average	10.6	12.8	12.6	17.6	14.2	20.2	17.0	17.7	20.3	19.7	14.7	15.7		16.1	
Minimum	4.6	6.7	6.1	4.4	7.0	9.8	7.0	12.3	10.8	9.7	7.3	8.6	4.4		
Maximum	26.8	24.3	21.0	47.3	27.9	48.0	38.6	32.9	42.0	36.2	37.3	30.3			48.0
COD															
Average	70	82	91	87	70	66	86	100	89	77	77	78		81	
Minimum	39	61	64	59	49	43	50	73	67	56	63	52	39		
Maximum	198	174	121	180	106	104	140	148	124	115	97	96			198
Total Organic Carbon															
Average	14.2	16.0	14.7	17.6	16.7	16.6	12.1	17.9	15.6	12.3	12.7	16.4		15.2	
Minimum	12.9	13.1	14.4	17.2	16.0	16.2	10.8	16.9	14.9	12.2	12.0	14.5	10.8		
Maximum	15.4	18.8	15.0	18.0	17.4	16.9	13.4	18.9	16.3	12.3	13.4	18.3			18.9
Chloride															
Average	582	673	673	676	563	463	623	787	768	530	535	542		618	
Minimum	279	517	492	379	344	329	372	580	528	474	429	339	279		
Maximum	841	971	993	1020	727	576	1360	1100	1070	633	706	688			1360
Fats, Oils, and Grease															
Average	6.9	7.1	7.1	7.1	6.9	7.1	7.7	7.3	7.2	7.3	7.0	7.0		7.1	
Minimum	6.7	6.8	6.9	6.7	6.8	6.9	6.9	7.0	6.9	6.9	6.8	6.9	6.7		
Maximum	7.1	7.8	7.9	7.6	7.0	7.5	9.1	7.6	7.7	7.8	7.3	7.1			9.1

Table A-1. Deer Island Treatment Plant Operations Summary, FY15 (cont.)

Final Effluent: Nutrients (mg/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Annual Average	Max
Ammonia															
Average	28.7	30.6	37.8	32.7	26.8	15.0	22.4	31.3	25.8	17.9	27.0	27.8		27.0	
Minimum	21.2	21.4	22.5	19.0	19.4	7.2	13.6	22.2	16.1	11.1	18.6	19.0	7.2		
Maximum	35.1	38.0	46.6	39.5	35.2	23.4	30.7	35.8	33.1	26.2	32.2	32.3			46.6
Nitrite															
Average	0.06	0.16	0.04	0.23	0.16	1.02	0.60	0.13	0.60	1.23	0.35	0.36		0.41	
Minimum	0.02	0.02	0.01	0.01	0.02	0.66	0.29	0.04	0.08	0.81	0.13	0.20	0.01		
Maximum	0.12	0.61	0.09	0.91	0.55	1.27	1.08	0.29	1.21	1.49	0.64	0.60			1.49
Nitrate															
Average	0.44	0.21	0.09	0.38	0.38	1.02	1.00	0.41	0.44	0.67	2.79	2.27		0.84	
Minimum	0.02	0.02	0.01	0.01	0.04	0.15	0.16	0.03	0.11	0.11	0.09	0.66	0.01		
Maximum	1.61	0.64	0.27	1.24	0.69	3.13	1.65	0.92	0.86	1.74	8.86	4.70			8.86
Total Kjeldahl Nitrogen															
Average	29.2	31.1	36.9	34.7	27.1	16.0	24.5	32.0	25.8	19.0	27.1	27.0		27.5	
Minimum	21.0	22.4	23.0	20.8	19.8	9.9	15.2	22.2	18.0	13.4	17.7	20.8	9.9		
Maximum	35.0	37.9	44.1	43.0	34.8	22.8	30.8	36.5	34.7	25.0	33.7	30.2			44.1
Orthophosphates															
Average	2.0	2.3	2.7	2.6	1.7	0.9	1.5	2.0	1.3	0.7	1.8	2.0		1.8	
Minimum	1.8	1.9	2.1	2.0	1.3	0.3	1.3	1.9	0.6	0.5	1.5	1.3	0.3		
Maximum	2.4	2.7	3.0	3.1	2.3	1.2	1.7	2.1	2.0	1.1	2.1	2.5			3.1
Total Phosphorus															
Average	2.3	3.2	3.7	3.7	2.6	1.4	2.1	2.9	2.0	1.4	2.2	2.5		2.5	
Minimum	1.8	2.9	2.9	3.1	1.9	0.9	1.8	2.6	1.2	1.1	2.0	1.7	0.9		
Maximum	2.9	3.4	4.1	4.0	3.3	1.9	2.3	3.1	2.9	1.8	2.4	3.1			4.1

~: No data collected

*: Effluent pH, TCR, and fecal coliform are sampled multiple times daily. The minimum and maximum are the minimum and maximum daily averages, not single sample minimums and maximums.

Table A-2. Deer Island Influent Characterization (North & South Systems), FY15

Metals (ug/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Aluminum	**574**	**596**	**318**	**347**	**596**	**994**	**453**	**664**	**713**	**690**	**600**	**548**	627	994	46 of 46
Antimony	25	25	25	25	25	25	25	25	25	25	25	25	25	25	0 of 46
Arsenic	**0.684**	0.4	0.4	0.4	0.4	**1.19**	0.4	0.4	0.4	**0.685**	0.4	0.4	0.573	1.19	3 of 46
Beryllium	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0 of 46
Boron	125	125	**354**	**315**	125	125	125	**171**	125	125	125	125	153	363	9 of 46
Cadmium	**0.39**	**0.388**	**0.272**	**0.302**	**0.433**	**0.592**	**0.391**	**0.423**	**0.609**	**1.07**	**0.579**	**0.45**	0.536	1.57	46 of 46
Chromium	**3.44**	**2.56**	**1.85**	**2.48**	**2.81**	**6.64**	**4.18**	**3**	**4.4**	**4.83**	**3.4**	**4.19**	3.99	6.64	46 of 46
Copper	**64.8**	**57.9**	**46.5**	**59.5**	**46.8**	**43.4**	**41.8**	**58.3**	**62.5**	**70.5**	**78.6**	**77.3**	58.4	100	46 of 46
Iron	**2150**	**1830**	**1330**	**1260**	**1840**	**2580**	**1870**	**1980**	**2060**	**3070**	**2310**	**2470**	2170	4380	46 of 46
Lead	**10.6**	**5.62**	**4.71**	**6.33**	**5.15**	**16.1**	**4.62**	**3.99**	**5.34**	**10.2**	**10.2**	**9.17**	8.46	16.1	46 of 46
Mercury	**0.101**	**0.136**	**0.0539**	**0.108**	**0.0929**	**0.276**	**0.0954**	**0.0676**	**0.137**	**0.407**	**0.184**	**0.138**	0.174	0.43	47 of 47
Molybdenum	**5.37**	**4.4**	**6.82**	**7.71**	**6.01**	**5.04**	**5.13**	**3.55**	**4.95**	**7.98**	**11.1**	**13.5**	6.74	14.3	46 of 46
Nickel	**4.52**	**2.4**	**3**	**3.05**	**5.31**	**4.18**	**4.13**	**5.34**	**6.17**	**6.07**	**4.1**	**5.07**	4.55	7.1	46 of 46
Selenium	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	**0.594**	0.45	0.45	0.469	0.743	1 of 46
Silver	**0.355**	**0.4**	**0.0662**	**0.229**	**0.286**	**0.425**	**0.525**	**0.234**	**0.215**	**0.571**	**0.593**	**0.428**	0.39	0.93	41 of 46
Thallium	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 46
Zinc	**119**	**114**	**93**	**97.8**	**102**	**120**	**90**	**128**	**127**	**195**	**173**	**164**	130	290	46 of 46

Cyanide (ug/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Cyanide	5	**22.3**	**22.2**	**26.3**	**28.7**	**26.3**	**13.5**	**18.6**	**35.3**	10	10	**22.1**	20.3	40.7	28 of 48

Oil and Grease and Petroleum Hydrocarbons (mg/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Fats Oil and Grease	**29100**	**29500**	**35600**	**37100**	**23800**	**9140**	**17100**	**30900**	**32200**	**15200**	**30400**	**35200**	22800	38800	45 of 48
Petroleum Hydrocarbons	70.8	73.1	**1380**	**314**	**344**	**308**	70.3	**414**	**519**	68.4	72.8	**1490**	371	1710	14 of 42

Organochlorine Pesticides and PCBs (ug/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
4,4'-DDD	0.00226	0.00213	0.00208	0.00211	0.00206	0.00304	0.00266	0.0021	0.0022	0.00212	0.00209	0.00204	0.00232	0.00326	0 of 42
4,4'-DDE	0.00226	0.00213	0.00208	0.00211	0.00206	0.00304	0.00266	0.0021	0.0022	0.00212	0.00209	0.00204	0.00232	0.00326	0 of 42
4,4'-DDT	0.00226	0.00213	0.00208	0.00211	0.00206	0.00304	0.00266	0.0021	0.0022	0.00212	0.00209	0.00204	0.00232	0.00326	0 of 42
Aldrin	0.00113	0.00106	0.00104	0.00106	0.00103	0.00152	0.00133	0.00105	0.0011	0.00106	0.00105	0.00102	0.00116	0.00163	0 of 42
Alpha-BHC	0.00113	0.00106	0.00104	0.00106	0.00103	0.00152	0.00133	0.00105	0.0011	0.00106	0.00105	0.00102	0.00116	0.00163	0 of 42
Alpha-Chlordane	0.00113	0.00106	**0.0122**	**0.0111**	0.00103	0.00152	0.00133	0.00105	0.0011	**0.00342**	0.00105	0.00102	0.00288	0.0235	3 of 42
Aroclor-1016	0.0565	0.0532	0.0521	0.0529	0.0514	0.076	0.0664	0.0525	0.055	0.053	0.0523	0.0511	0.058	0.0815	0 of 42
Aroclor-1221	0.113	0.106	0.104	0.106	0.103	0.152	0.133	0.105	0.11	0.106	0.105	0.102	0.116	0.163	0 of 42
Aroclor-1232	0.0565	0.0532	0.0521	0.0529	0.0514	0.076	0.0664	0.0525	0.055	0.053	0.0523	0.0511	0.058	0.0815	0 of 42
Aroclor-1242	0.0565	0.0532	0.0521	0.0529	0.0514	0.076	0.0664	0.0525	0.055	0.053	0.0523	0.0511	0.058	0.0815	0 of 42
Aroclor-1248	0.0565	0.0532	0.0521	0.0529	0.0514	0.076	0.0664	0.0525	0.055	0.053	0.0523	0.0511	0.058	0.0815	0 of 42
Aroclor-1254	0.0565	0.0532	0.0521	0.0529	0.0514	0.076	0.0664	0.0525	0.055	0.053	0.0523	0.0511	0.058	0.0815	0 of 42
Aroclor-1260	0.0565	0.0532	0.0521	0.0529	0.0514	0.076	0.0664	0.0525	0.055	0.053	0.0523	0.0511	0.058	0.0815	0 of 42
Beta-BHC	0.00113	0.00106	0.00104	0.00106	0.00103	0.00152	0.00133	0.00105	0.0011	0.00106	0.00105	0.00102	0.00116	0.00163	0 of 42
Chlordane (Technical)	0.113	0.106	0.104	0.106	0.103	0.152	0.133	0.105	0.11	0.106	0.105	0.102	0.116	0.163	0 of 42
Delta-BHC	0.00113	0.00106	0.00104	0.00106	0.00103	0.00152	0.00133	0.00105	0.0011	0.00106	0.00105	0.00102	0.00116	0.00163	0 of 42
Dieldrin	0.00226	0.00213	0.00208	0.00211	0.00206	0.00304	0.00266	0.0021	0.0022	0.00212	0.00209	0.00204	0.00232	0.00326	0 of 42
Endosulfan I	0.00113	0.00106	0.00104	0.00106	0.00103	0.00152	0.00133	0.00105	0.0011	0.00106	0.00105	0.00102	0.00116	0.00163	0 of 42
Endosulfan II	0.00226	0.00213	0.00208	0.00211	0.00206	0.00304	0.00266	0.0021	0.0022	0.00212	0.00209	0.00204	0.00232	0.00326	0 of 42
Endosulfan Sulfate	0.00226	0.00213	0.00208	0.00211	0.00206	0.00304	0.00266	0.0021	0.0022	0.00212	0.00209	0.00204	0.00232	0.00326	0 of 42
Endrin	0.00226	0.00213	0.00208	0.00211	0.00206	0.00304	0.00266	0.0021	0.0022	0.00212	0.00209	0.00204	0.00232	0.00326	0 of 42
Endrin Aldehyde	0.00226	0.00213	0.00208	0.00211	0.00206	0.00304	0.00266	0.0021	0.0022	0.00212	0.00209	0.00204	0.00232	0.00326	0 of 42
Endrin Ketone	0.00226	0.00213	0.00208	0.00211	0.00206	0.00304	0.00266	0.0021	0.0022	0.00212	0.00209	0.00204	0.00232	0.00326	0 of 42
Gamma-BHC	0.00113	0.00106	0.00104	0.00106	0.00103	0.00152	0.00133	0.00105	0.0011	0.00106	0.00105	0.00102	0.00116	0.00163	0 of 42
Gamma-Chlordane	0.00113	0.00106	**0.0145**	**0.0152**	0.00103	0.00152	0.00133	0.00105	0.0011	**0.00338**	0.00105	0.00102	0.00329	0.0292	3 of 42
Heptachlor	0.00113	0.00106	0.00104	**0.00843**	0.00103	0.00152	0.00133	0.00105	0.0011	0.00106	0.00105	0.00102	0.00164	0.0157	1 of 42
Heptachlor Epoxide	0.00113	0.00106	0.00104	0.00106	0.00103	0.00152	0.00133	0.00105	0.0011	0.00106	0.00105	0.00102	0.00116	0.00163	0 of 42
Hexachlorobenzene	0.0113	0.0106	0.0104	0.0106	0.0103	0.0152	0.0133	0.0105	0.011	0.0106	0.0105	0.0102	0.0116	0.0163	0 of 42
Methoxychlor	~	**0.00419**	~	**0.00483**	~	**0.0215**	~	**0.0022**	~	**0.0102**	~	**0.0109**	0.011	0.0215	20 of 20
Toxaphene	0.113	0.106	0.104	0.106	0.103	0.152	0.133	0.105	0.11	0.106	0.105	0.102	0.116	0.163	0 of 42

Notes

~: No data or no samples taken; results in **bold** indicate one or more detects that month.

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-3. Deer Island Influent Loadings (North & South Systems), FY15

Metals (lbs/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Aluminum	**1380**	**1230**	**613**	**665**	**1380**	**9150**	**1460**	**1490**	**1550**	**2880**	**1570**	**1250**	1740	9150	46 of 46
Antimony	60.1	51.5	48.2	47.9	57.9	230	80.7	56.1	54.4	104	65.6	56.9	69.5	230	0 of 46
Arsenic	**1.64**	0.825	0.772	0.767	0.927	**11**	1.29	0.898	0.871	**2.86**	1.05	0.91	1.59	11	3 of 46
Beryllium	0.601	0.515	0.482	0.479	0.579	2.3	0.807	0.561	0.544	1.04	0.656	0.569	0.695	2.3	0 of 46
Boron	301	258	**683**	**604**	290	1150	404	**385**	272	521	328	284	426	1150	9 of 46
Cadmium	**0.937**	**0.799**	**0.526**	**0.58**	**1**	**5.45**	**1.26**	**0.95**	**1.33**	**4.48**	**1.52**	**1.02**	1.49	6.41	46 of 46
Chromium	**8.27**	**5.29**	**3.56**	**4.76**	**6.51**	**61.1**	**13.5**	**6.74**	**9.57**	**20.1**	**8.92**	**9.52**	11.1	61.1	46 of 46
Copper	**156**	**119**	**89.7**	**114**	**108**	**399**	**135**	**131**	**136**	**294**	**206**	**176**	162	410	46 of 46
Iron	**5160**	**3770**	**2570**	**2410**	**4260**	**23800**	**6020**	**4440**	**4490**	**12800**	**6070**	**5610**	6040	23800	46 of 46
Lead	**25.6**	**11.6**	**9.08**	**12.1**	**11.9**	**149**	**14.9**	**8.95**	**11.6**	**42.6**	**26.8**	**20.9**	23.5	149	46 of 46
Mercury	**0.242**	**0.28**	**0.104**	**0.208**	**0.215**	**2.54**	**0.308**	**0.152**	**0.298**	**1.7**	**0.484**	**0.313**	0.485	2.54	47 of 47
Molybdenum	**12.9**	**9.08**	**13.2**	**14.8**	**13.9**	**46.3**	**16.6**	**7.98**	**10.8**	**33.3**	**29.1**	**30.7**	18.7	47	46 of 46
Nickel	**10.9**	**4.94**	**5.79**	**5.84**	**12.3**	**38.5**	**13.3**	**12**	**13.4**	**25.3**	**10.8**	**11.5**	12.6	38.5	46 of 46
Selenium	1.08	0.928	0.868	0.863	1.04	4.14	1.45	1.01	0.98	**2.48**	1.18	1.02	1.3	4.14	1 of 46
Silver	**0.853**	**0.825**	**0.128**	**0.44**	**0.664**	**3.91**	**1.69**	**0.525**	**0.469**	**2.38**	**1.56**	**0.974**	1.08	3.91	41 of 46
Thallium	1.2	1.03	0.965	0.959	1.16	4.6	1.61	1.12	1.09	2.09	1.31	1.14	1.39	4.6	0 of 46
Zinc	**287**	**234**	**179**	**187**	**237**	**1100**	**291**	**288**	**276**	**814**	**454**	**372**	363	1180	46 of 46

Cyanide (lbs/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Cyanide	11.5	**45.7**	**42.5**	**50.6**	**64.6**	**232**	**41.9**	**42.3**	**84.1**	42	25.8	**49.7**	61	325	28 of 48

Oil and Grease and Petroleum Hydrocarbons (lbs/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Fats Oil and Grease	**67000**	**60600**	**68200**	**71500**	**53600**	**80500**	**53100**	**70400**	**76700**	**63700**	**78400**	**79200**	68600	155000	45 of 48
Petroleum Hydrocarbons	163	150	**2650**	**606**	**769**	**2830**	219	**944**	**1150**	287	188	**3360**	1040	3920	14 of 42

Organochlorine Pesticides and PCBs (lbs/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
4,4'-DDD	0.00526	0.00438	0.00402	0.00405	0.00477	0.028	0.00858	0.00471	0.00479	0.00884	0.00543	0.00465	0.00649	0.028	0 of 42
4,4'-DDE	0.00526	0.00438	0.00402	0.00405	0.00477	0.028	0.00858	0.00471	0.00479	0.00884	0.00543	0.00465	0.00649	0.028	0 of 42
4,4'-DDT	0.00526	0.00438	0.00402	0.00405	0.00477	0.028	0.00858	0.00471	0.00479	0.00884	0.00543	0.00465	0.00649	0.028	0 of 42
Aldrin	0.00263	0.00219	0.00201	0.00203	0.00238	0.014	0.00429	0.00236	0.00239	0.00442	0.00272	0.00232	0.00324	0.014	0 of 42
Alpha-BHC	0.00263	0.00219	0.00201	0.00203	0.00238	0.014	0.00429	0.00236	0.00239	0.00442	0.00272	0.00232	0.00324	0.014	0 of 42
Alpha-Chlordane	0.00263	0.00219	**0.0235**	**0.0214**	0.00238	0.014	0.00429	0.00236	0.00239	**0.0143**	0.00272	0.00232	0.00807	0.045	3 of 42
Aroclor-1016	0.132	0.11	0.101	0.101	0.119	0.699	0.214	0.118	0.12	0.221	0.136	0.116	0.162	0.699	0 of 42
Aroclor-1221	0.263	0.219	0.201	0.203	0.238	1.4	0.429	0.236	0.239	0.442	0.272	0.232	0.324	1.4	0 of 42
Aroclor-1232	0.132	0.11	0.101	0.101	0.119	0.699	0.214	0.118	0.12	0.221	0.136	0.116	0.162	0.699	0 of 42
Aroclor-1242	0.132	0.11	0.101	0.101	0.119	0.699	0.214	0.118	0.12	0.221	0.136	0.116	0.162	0.699	0 of 42
Aroclor-1248	0.132	0.11	0.101	0.101	0.119	0.699	0.214	0.118	0.12	0.221	0.136	0.116	0.162	0.699	0 of 42
Aroclor-1254	0.132	0.11	0.101	0.101	0.119	0.699	0.214	0.118	0.12	0.221	0.136	0.116	0.162	0.699	0 of 42
Aroclor-1260	0.132	0.11	0.101	0.101	0.119	0.699	0.214	0.118	0.12	0.221	0.136	0.116	0.162	0.699	0 of 42
Beta-BHC	0.00263	0.00219	0.00201	0.00203	0.00238	0.014	0.00429	0.00236	0.00239	0.00442	0.00272	0.00232	0.00324	0.014	0 of 42
Chlordane (Technical)	0.263	0.219	0.201	0.203	0.238	1.4	0.429	0.236	0.239	0.442	0.272	0.232	0.324	1.4	0 of 42
Delta-BHC	0.00263	0.00219	0.00201	0.00203	0.00238	0.014	0.00429	0.00236	0.00239	0.00442	0.00272	0.00232	0.00324	0.014	0 of 42
Dieldrin	0.00526	0.00438	0.00402	0.00405	0.00477	0.028	0.00858	0.00471	0.00479	0.00884	0.00543	0.00465	0.00649	0.028	0 of 42
Endosulfan I	0.00263	0.00219	0.00201	0.00203	0.00238	0.014	0.00429	0.00236	0.00239	0.00442	0.00272	0.00232	0.00324	0.014	0 of 42
Endosulfan II	0.00526	0.00438	0.00402	0.00405	0.00477	0.028	0.00858	0.00471	0.00479	0.00884	0.00543	0.00465	0.00649	0.028	0 of 42
Endosulfan Sulfate	0.00526	0.00438	0.00402	0.00405	0.00477	0.028	0.00858	0.00471	0.00479	0.00884	0.00543	0.00465	0.00649	0.028	0 of 42
Endrin	0.00526	0.00438	0.00402	0.00405	0.00477	0.028	0.00858	0.00471	0.00479	0.00884	0.00543	0.00465	0.00649	0.028	0 of 42
Endrin Aldehyde	0.00526	0.00438	0.00402	0.00405	0.00477	0.028	0.00858	0.00471	0.00479	0.00884	0.00543	0.00465	0.00649	0.028	0 of 42
Endrin Ketone	0.00526	0.00438	0.00402	0.00405	0.00477	0.028	0.00858	0.00471	0.00479	0.00884	0.00543	0.00465	0.00649	0.028	0 of 42
Gamma-BHC	0.00263	0.00219	0.00201	0.00203	0.00238	0.014	0.00429	0.00236	0.00239	0.00442	0.00272	0.00232	0.00324	0.014	0 of 42
Gamma-Chlordane	0.00263	0.00219	**0.0279**	**0.0291**	0.00238	0.014	0.00429	0.00236	0.00239	**0.0141**	0.00272	0.00232	0.00921	0.0562	3 of 42
Heptachlor	0.00263	0.00219	0.00201	**0.0162**	0.00238	0.014	0.00429	0.00236	0.00239	0.00442	0.00272	0.00232	0.00459	0.0303	1 of 42
Heptachlor Epoxide	0.00263	0.00219	0.00201	0.00203	0.00238	0.014	0.00429	0.00236	0.00239	0.00442	0.00272	0.00232	0.00324	0.014	0 of 42
Hexachlorobenzene	0.0263	0.0219	0.0201	0.0203	0.0238	0.14	0.0429	0.0236	0.0239	0.0442	0.0272	0.0232	0.0324	0.14	0 of 42
Methoxychlor	~	**0.00864**	~	**0.00926**	~	**0.197**	~	**0.00494**	~	**0.0427**	~	**0.0226**	0.0351	0.197	20 of 20
Toxaphene	0.263	0.219	0.201	0.203	0.238	1.4	0.429	0.236	0.239	0.442	0.272	0.232	0.324	1.4	0 of 42

Notes

~: No data or no samples taken; results in **bold** indicate one or more detects that month.

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-4. Deer Island Influent Characterization (North System), FY15

Metals (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Aluminum	**609**	**598**	**340**	**362**	**495**	**810**	**478**	**607**	**673**	**443**	**550**	**479**	586	1120	24 of 24
Antimony	25	25	25	25	25	25	25	25	25	25	25	25	25	25	0 of 24
Arsenic	**0.811**	0.4	0.4	0.4	0.4	**1.01**	0.4	0.4	0.4	0.4	0.4	0.4	0.583	1.51	2 of 24
Beryllium	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0 of 24
Boron	125	125	**358**	**309**	125	125	125	**196**	125	125	125	125	153	368	5 of 24
Cadmium	**0.444**	**0.464**	**0.338**	**0.357**	**0.484**	**0.56**	**0.436**	**0.399**	**0.737**	**0.552**	**0.562**	**0.438**	0.499	0.999	24 of 24
Chromium	**3.16**	**2.12**	**2.02**	**1.65**	**2.58**	**5.99**	**4.37**	**2.14**	**4.61**	**3.19**	**3.11**	**3.23**	3.75	7.98	24 of 24
Copper	**46.7**	**51**	**47.9**	**56.1**	**36.1**	**37.6**	**40.1**	**50**	**54.3**	**44.8**	**77.6**	**70.2**	48.1	79.7	24 of 24
Iron	**1650**	**1420**	**1240**	**1070**	**1270**	**2070**	**1570**	**1390**	**1700**	**1820**	**2000**	**1850**	1700	2690	24 of 24
Lead	**12.2**	**5.52**	**5.16**	**7.26**	**4.51**	**13**	**4.51**	**3.52**	**6.14**	**8.36**	**11.6**	**9.51**	8.69	18.9	24 of 24
Mercury	**0.082**	**0.137**	**0.0552**	**0.0964**	**0.0655**	**0.152**	**0.0941**	**0.0478**	**0.158**	**0.37**	**0.155**	**0.143**	0.142	0.615	24 of 24
Molybdenum	**5.94**	**4.92**	**8.31**	**9.89**	**6.87**	**5.42**	**6.35**	**4.05**	**5.99**	**7.04**	**16.4**	**17.1**	7.64	18.4	24 of 24
Nickel	**4.4**	**2.16**	**3.28**	**2.65**	**5.36**	**4.19**	**4.65**	**5.58**	**6.45**	**4.27**	**4.09**	**4.17**	4.28	7.07	24 of 24
Selenium	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0 of 24
Silver	**0.286**	**0.331**	**0.0752**	**0.222**	**0.202**	**0.242**	**0.59**	**0.173**	**0.21**	**0.301**	**0.561**	**0.383**	0.297	0.752	22 of 24
Thallium	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Zinc	**99.2**	**101**	**94.8**	**93.2**	**82.8**	**103**	**82.3**	**115**	**118**	**110**	**168**	**148**	108	177	24 of 24

Cyanide (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Cyanide	5	**18.8**	**22.6**	**25.5**	**30.1**	**22.4**	10	**16.6**	**37.4**	10	10	**25.2**	19.4	46.5	13 of 24

Oil and Grease and Petroleum Hydrocarbons (mg/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Fats Oil and Grease	**35800**	**33400**	**38900**	**41100**	**21100**	**10500**	**17300**	**33700**	**35900**	**17100**	**28100**	**36600**	24800	43400	22 of 24
Petroleum Hydrocarbons	72.3	72.4	**1340**	**424**	**413**	70.2	73.1	72.4	**591**	69	75.1	**1290**	312	1690	7 of 24

Organochlorine Pesticides and PCBs (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
4,4'-DDD	0.00236	0.00206	0.00204	0.00205	0.00205	0.00266	0.00288	0.00213	0.00226	0.00211	0.00212	0.00205	0.00233	0.00374	0 of 22
4,4'-DDE	0.00236	0.00206	0.00204	0.00205	0.00205	0.00266	0.00288	0.00213	0.00226	0.00211	0.00212	0.00205	0.00233	0.00374	0 of 22
4,4'-DDT	0.00236	0.00206	0.00204	0.00205	0.00205	0.00266	0.00288	0.00213	0.00226	0.00211	0.00212	0.00205	0.00233	0.00374	0 of 22
Aldrin	0.00118	0.00103	0.00102	0.00102	0.00102	0.00133	0.00144	0.00107	0.00113	0.00105	0.00106	0.00103	0.00116	0.00187	0 of 22
Alpha-BHC	0.00118	0.00103	0.00102	0.00102	0.00102	0.00133	0.00144	0.00107	0.00113	0.00105	0.00106	0.00103	0.00116	0.00187	0 of 22
Alpha-Chlordane	0.00118	0.00103	0.00102	**0.0156**	0.00102	**0.00877**	0.00144	0.00107	0.00113	0.00105	0.00106	0.00103	0.00408	0.03	2 of 22
Aroclor-1016	0.059	0.0515	0.051	0.0512	0.0512	0.0665	0.0719	0.0533	0.0564	0.0527	0.053	0.0513	0.0582	0.0935	0 of 22
Aroclor-1221	0.118	0.103	0.102	0.102	0.102	0.133	0.144	0.107	0.113	0.105	0.106	0.103	0.116	0.187	0 of 22
Aroclor-1232	0.059	0.0515	0.051	0.0512	0.0512	0.0665	0.0719	0.0533	0.0564	0.0527	0.053	0.0513	0.0582	0.0935	0 of 22
Aroclor-1242	0.059	0.0515	0.051	0.0512	0.0512	0.0665	0.0719	0.0533	0.0564	0.0527	0.053	0.0513	0.0582	0.0935	0 of 22
Aroclor-1248	0.059	0.0515	0.051	0.0512	0.0512	0.0665	0.0719	0.0533	0.0564	0.0527	0.053	0.0513	0.0582	0.0935	0 of 22
Aroclor-1254	0.059	0.0515	0.051	0.0512	0.0512	0.0665	0.0719	0.0533	0.0564	0.0527	0.053	0.0513	0.0582	0.0935	0 of 22
Aroclor-1260	0.059	0.0515	0.051	0.0512	0.0512	0.0665	0.0719	0.0533	0.0564	0.0527	0.053	0.0513	0.0582	0.0935	0 of 22
Beta-BHC	0.00118	0.00103	0.00102	0.00102	0.00102	0.00133	0.00144	0.00107	0.00113	0.00105	0.00106	0.00103	0.00116	0.00187	0 of 22
Chlordane (Technical)	0.118	0.103	0.102	0.102	0.102	0.133	0.144	0.107	0.113	0.105	0.106	0.103	0.116	0.187	0 of 22
Delta-BHC	0.00118	0.00103	0.00102	0.00102	0.00102	0.00133	0.00144	0.00107	0.00113	0.00105	0.00106	0.00103	0.00116	0.00187	0 of 22
Dieldrin	0.00236	0.00206	0.00204	0.00205	0.00205	0.00266	0.00288	0.00213	0.00226	0.00211	0.00212	0.00205	0.00233	0.00374	0 of 22
Endosulfan I	0.00118	0.00103	0.00102	0.00102	0.00102	0.00133	0.00144	0.00107	0.00113	0.00105	0.00106	0.00103	0.00116	0.00187	0 of 22
Endosulfan II	0.00236	0.00206	0.00204	0.00205	0.00205	0.00266	0.00288	0.00213	0.00226	0.00211	0.00212	0.00205	0.00233	0.00374	0 of 22
Endosulfan Sulfate	0.00236	0.00206	0.00204	0.00205	0.00205	0.00266	0.00288	0.00213	0.00226	0.00211	0.00212	0.00205	0.00233	0.00374	0 of 22
Endrin	0.00236	0.00206	0.00204	0.00205	0.00205	0.00266	0.00288	0.00213	0.00226	0.00211	0.00212	0.00205	0.00233	0.00374	0 of 22
Endrin Aldehyde	0.00236	0.00206	0.00204	0.00205	0.00205	0.00266	0.00288	0.00213	0.00226	0.00211	0.00212	0.00205	0.00233	0.00374	0 of 22
Endrin Ketone	0.00236	0.00206	0.00204	0.00205	0.00205	0.00266	0.00288	0.00213	0.00226	0.00211	0.00212	0.00205	0.00233	0.00374	0 of 22
Gamma-BHC	0.00118	0.00103	0.00102	0.00102	0.00102	0.00133	0.00144	0.00107	0.00113	0.00105	0.00106	0.00103	0.00116	0.00187	0 of 22
Gamma-Chlordane	0.00118	0.00103	0.00102	**0.0214**	0.00102	0.00133	0.00144	0.00107	0.00113	0.00105	0.00106	0.00103	0.0024	0.0416	1 of 22
Heptachlor	0.00118	0.00103	0.00102	**0.0116**	0.00102	0.00133	0.00144	0.00107	0.00113	0.00105	0.00106	0.00103	0.00181	0.0222	1 of 22
Heptachlor Epoxide	0.00118	0.00103	0.00102	0.00102	0.00102	0.00133	0.00144	0.00107	0.00113	0.00105	0.00106	0.00103	0.00116	0.00187	0 of 22
Hexachlorobenzene	0.0118	0.0103	0.0102	0.0102	0.0102	0.0133	0.0144	0.0107	0.0113	0.0105	0.0106	0.0103	0.0116	0.0187	0 of 22
Methoxychlor	~	**0.00409**	~	**0.00518**	~	**0.0176**	~	**0.00146**	~	**0.0164**	~	**0.00964**	0.0125	0.0313	11 of 11
Toxaphene	0.118	0.103	0.102	0.102	0.102	0.133	0.144	0.107	0.113	0.105	0.106	0.103	0.116	0.187	0 of 22

Notes

~: No data or no samples taken; results in **bold** indicate one or more detects that month.

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-5. Deer Island Influent Loadings (North System), FY15

Metals (lbs/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Aluminum	**1010**	**842**	**461**	**482**	**742**	**4830**	**940**	**893**	**957**	**1040**	**901**	**726**	1150	7350	24 of 24
Antimony	41.5	35.2	33.9	33.3	37.5	149	49.1	36.8	35.6	58.6	41	37.9	49.1	164	0 of 24
Arsenic	**1.35**	0.563	0.542	0.532	0.6	**6.03**	0.786	0.588	0.569	0.937	0.656	0.606	1.15	9.91	2 of 24
Beryllium	0.415	0.352	0.339	0.333	0.375	1.49	0.491	0.368	0.356	0.586	0.41	0.379	0.491	1.64	0 of 24
Boron	207	176	**485**	**411**	187	745	246	**288**	178	293	205	189	301	820	5 of 24
Cadmium	**0.737**	**0.654**	**0.459**	**0.476**	**0.726**	**3.34**	**0.856**	**0.587**	**1.05**	**1.29**	**0.922**	**0.663**	0.98	4.61	24 of 24
Chromium	**5.24**	**2.99**	**2.74**	**2.2**	**3.87**	**35.7**	**8.58**	**3.15**	**6.55**	**7.48**	**5.11**	**4.9**	7.38	52.4	24 of 24
Copper	**77.4**	**71.8**	**64.9**	**74.7**	**54.2**	**224**	**78.7**	**73.6**	**77.3**	**105**	**127**	**106**	94.6	302	24 of 24
Iron	**2740**	**2010**	**1690**	**1430**	**1910**	**12300**	**3090**	**2040**	**2420**	**4270**	**3290**	**2800**	3330	17600	24 of 24
Lead	**20.3**	**7.77**	**7**	**9.67**	**6.77**	**77.5**	**8.87**	**5.18**	**8.74**	**19.6**	**19.1**	**14.4**	17.1	124	24 of 24
Mercury	**0.136**	**0.193**	**0.0749**	**0.128**	**0.0982**	**0.906**	**0.185**	**0.0703**	**0.225**	**0.868**	**0.254**	**0.217**	0.28	1.47	24 of 24
Molybdenum	**9.85**	**6.93**	**11.3**	**13.2**	**10.3**	**32.3**	**12.5**	**5.96**	**8.52**	**16.5**	**26.9**	**25.9**	15	38	24 of 24
Nickel	**7.29**	**3.04**	**4.45**	**3.53**	**8.04**	**25**	**9.14**	**8.21**	**9.17**	**10**	**6.71**	**6.32**	8.41	28.7	24 of 24
Selenium	0.747	0.634	0.61	0.599	0.675	2.68	0.884	0.662	0.64	1.05	0.738	0.682	0.884	2.95	0 of 24
Silver	**0.474**	**0.467**	**0.102**	**0.295**	**0.304**	**1.44**	**1.16**	**0.254**	**0.299**	**0.705**	**0.92**	**0.581**	0.583	2.17	22 of 24
Thallium	0.83	0.704	0.678	0.666	0.75	2.98	0.983	0.736	0.711	1.17	0.82	0.758	0.982	3.28	0 of 24
Zinc	**165**	**142**	**129**	**124**	**124**	**611**	**162**	**169**	**168**	**257**	**276**	**224**	213	833	24 of 24

Cyanide (lbs/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Cyanide	7.82	**26.2**	**30.6**	**34**	**43.9**	**133**	19	**24.9**	**59.2**	24.4	16.2	**37.7**	38.1	213	13 of 24

Oil and Grease and Petroleum Hydrocarbons (lbs/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Fats Oil and Grease	**55900**	**46600**	**52500**	**54800**	**30800**	**62400**	**32900**	**50600**	**56900**	**41800**	**45600**	**54600**	48800	121000	22 of 24
Petroleum Hydrocarbons	113	101	**1810**	**566**	**601**	319	139	109	**937**	169	122	**1930**	577	2290	7 of 24

Organochlorine Pesticides and PCBs (lbs/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
4,4'-DDD	0.00375	0.0029	0.00277	0.00273	0.00307	0.0159	0.00565	0.00313	0.00321	0.00494	0.00346	0.00311	0.00464	0.0205	0 of 22
4,4'-DDE	0.00375	0.0029	0.00277	0.00273	0.00307	0.0159	0.00565	0.00313	0.00321	0.00494	0.00346	0.00311	0.00464	0.0205	0 of 22
4,4'-DDT	0.00375	0.0029	0.00277	0.00273	0.00307	0.0159	0.00565	0.00313	0.00321	0.00494	0.00346	0.00311	0.00464	0.0205	0 of 22
Aldrin	0.00188	0.00145	0.00138	0.00136	0.00154	0.00793	0.00283	0.00157	0.00161	0.00247	0.00173	0.00155	0.00232	0.0102	0 of 22
Alpha-BHC	0.00188	0.00145	0.00138	0.00136	0.00154	0.00793	0.00283	0.00157	0.00161	0.00247	0.00173	0.00155	0.00232	0.0102	0 of 22
Alpha-Chlordane	0.00188	0.00145	0.00138	**0.0207**	0.00154	**0.0523**	0.00283	0.00157	0.00161	0.00247	0.00173	0.00155	0.00811	0.0943	2 of 22
Aroclor-1016	0.0938	0.0725	0.0692	0.0682	0.0768	0.397	0.141	0.0783	0.0803	0.124	0.0865	0.0777	0.116	0.512	0 of 22
Aroclor-1221	0.188	0.145	0.138	0.136	0.154	0.793	0.283	0.157	0.161	0.247	0.173	0.155	0.232	1.02	0 of 22
Aroclor-1232	0.0938	0.0725	0.0692	0.0682	0.0768	0.397	0.141	0.0783	0.0803	0.124	0.0865	0.0777	0.116	0.512	0 of 22
Aroclor-1242	0.0938	0.0725	0.0692	0.0682	0.0768	0.397	0.141	0.0783	0.0803	0.124	0.0865	0.0777	0.116	0.512	0 of 22
Aroclor-1248	0.0938	0.0725	0.0692	0.0682	0.0768	0.397	0.141	0.0783	0.0803	0.124	0.0865	0.0777	0.116	0.512	0 of 22
Aroclor-1254	0.0938	0.0725	0.0692	0.0682	0.0768	0.397	0.141	0.0783	0.0803	0.124	0.0865	0.0777	0.116	0.512	0 of 22
Aroclor-1260	0.0938	0.0725	0.0692	0.0682	0.0768	0.397	0.141	0.0783	0.0803	0.124	0.0865	0.0777	0.116	0.512	0 of 22
Beta-BHC	0.00188	0.00145	0.00138	0.00136	0.00154	0.00793	0.00283	0.00157	0.00161	0.00247	0.00173	0.00155	0.00232	0.0102	0 of 22
Chlordane (Technical)	0.188	0.145	0.138	0.136	0.154	0.793	0.283	0.157	0.161	0.247	0.173	0.155	0.232	1.02	0 of 22
Delta-BHC	0.00188	0.00145	0.00138	0.00136	0.00154	0.00793	0.00283	0.00157	0.00161	0.00247	0.00173	0.00155	0.00232	0.0102	0 of 22
Dieldrin	0.00375	0.0029	0.00277	0.00273	0.00307	0.0159	0.00565	0.00313	0.00321	0.00494	0.00346	0.00311	0.00464	0.0205	0 of 22
Endosulfan I	0.00188	0.00145	0.00138	0.00136	0.00154	0.00793	0.00283	0.00157	0.00161	0.00247	0.00173	0.00155	0.00232	0.0102	0 of 22
Endosulfan II	0.00375	0.0029	0.00277	0.00273	0.00307	0.0159	0.00565	0.00313	0.00321	0.00494	0.00346	0.00311	0.00464	0.0205	0 of 22
Endosulfan Sulfate	0.00375	0.0029	0.00277	0.00273	0.00307	0.0159	0.00565	0.00313	0.00321	0.00494	0.00346	0.00311	0.00464	0.0205	0 of 22
Endrin	0.00375	0.0029	0.00277	0.00273	0.00307	0.0159	0.00565	0.00313	0.00321	0.00494	0.00346	0.00311	0.00464	0.0205	0 of 22
Endrin Aldehyde	0.00375	0.0029	0.00277	0.00273	0.00307	0.0159	0.00565	0.00313	0.00321	0.00494	0.00346	0.00311	0.00464	0.0205	0 of 22
Endrin Ketone	0.00375	0.0029	0.00277	0.00273	0.00307	0.0159	0.00565	0.00313	0.00321	0.00494	0.00346	0.00311	0.00464	0.0205	0 of 22
Gamma-BHC	0.00188	0.00145	0.00138	0.00136	0.00154	0.00793	0.00283	0.00157	0.00161	0.00247	0.00173	0.00155	0.00232	0.0102	0 of 22
Gamma-Chlordane	0.00188	0.00145	0.00138	**0.0284**	0.00154	0.00793	0.00283	0.00157	0.00161	0.00247	0.00173	0.00155	0.00478	0.0555	1 of 22
Heptachlor	0.00188	0.00145	0.00138	**0.0155**	0.00154	0.00793	0.00283	0.00157	0.00161	0.00247	0.00173	0.00155	0.0036	0.0296	1 of 22
Heptachlor Epoxide	0.00188	0.00145	0.00138	0.00136	0.00154	0.00793	0.00283	0.00157	0.00161	0.00247	0.00173	0.00155	0.00232	0.0102	0 of 22
Hexachlorobenzene	0.0188	0.0145	0.0138	0.0136	0.0154	0.0793	0.0283	0.0157	0.0161	0.0247	0.0173	0.0155	0.0232	0.102	0 of 22
Methoxychlor	~	**0.00576**	~	**0.0069**	~	**0.105**	~	**0.00215**	~	**0.0383**	~	**0.0132**	0.0299	0.171	11 of 11
Toxaphene	0.188	0.145	0.138	0.136	0.154	0.793	0.283	0.157	0.161	0.247	0.173	0.155	0.232	1.02	0 of 22

Notes

~: No data or no samples taken; results in **bold** indicate one or more detects that month.

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-6. Deer Island Influent Characterization (South System), FY15

Metals (ug/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Aluminum	**494**	**591**	**264**	**312**	**783**	**602**	**414**	**773**	**789**	**1010**	**683**	**686**	655	1750	24 of 24
Antimony	25	25	25	25	25	25	25	25	25	25	25	25	25	25	0 of 24
Arsenic	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	**1.05**	0.4	0.4	0.502	1.73	1 of 24
Beryllium	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0 of 24
Boron	125	125	**345**	**328**	125	125	125	125	125	125	125	125	146	350	4 of 24
Cadmium	**0.269**	**0.223**	**0.116**	**0.177**	**0.34**	**0.287**	**0.322**	**0.468**	**0.367**	**1.74**	**0.607**	**0.474**	0.559	3.01	24 of 24
Chromium	**4.07**	**3.52**	**1.44**	**4.37**	**3.24**	**2.79**	**3.88**	**4.65**	**4**	**6.92**	**3.88**	**6.08**	4.23	11.6	24 of 24
Copper	**105**	**72.9**	**43.2**	**67.2**	**66.3**	**29.9**	**44.6**	**74.1**	**78**	**104**	**80.2**	**91.5**	69.5	177	24 of 24
Iron	**3250**	**2690**	**1540**	**1670**	**2870**	**2100**	**2320**	**3100**	**2740**	**4670**	**2830**	**3710**	2910	7800	24 of 24
Lead	**7.09**	**5.85**	**3.62**	**4.21**	**6.33**	**7.16**	**4.8**	**4.88**	**3.83**	**12.6**	**7.84**	**8.51**	7.07	21.6	24 of 24
Mercury	**0.143**	**0.133**	**0.0509**	**0.136**	**0.143**	**0.333**	**0.0974**	**0.105**	**0.0962**	**0.454**	**0.234**	**0.127**	0.214	0.833	25 of 25
Molybdenum	**4.09**	**3.28**	**3.32**	**2.75**	**4.43**	**2.63**	**3.24**	**2.6**	**3**	**9.19**	**2.25**	**6.31**	4.24	17.2	24 of 24
Nickel	**4.8**	**2.91**	**2.34**	**3.93**	**5.23**	**3.49**	**3.32**	**4.87**	**5.64**	**8.39**	**4.12**	**6.87**	4.88	11.6	24 of 24
Selenium	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	**0.778**	0.45	0.45	0.501	1.12	1 of 24
Silver	**0.509**	**0.548**	**0.045**	**0.247**	**0.441**	**0.51**	**0.424**	**0.351**	**0.225**	**0.917**	**0.647**	**0.517**	0.509	1.65	21 of 24
Thallium	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Zinc	**164**	**141**	**88.5**	**108**	**138**	**95.1**	**102**	**153**	**142**	**305**	**181**	**195**	159	531	24 of 24

Cyanide (ug/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Cyanide	5	**29.8**	**21.1**	**27.9**	**26**	**34.6**	**18.9**	**22.4**	**31.3**	10	10	**15.9**	22.1	42.4	15 of 24

Oil and Grease and Petroleum Hydrocarbons (mg/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Fats Oil and Grease	**15000**	**21300**	**27900**	**28200**	**28700**	**6370**	**16600**	**25400**	**25000**	**12400**	**34200**	**32600**	19100	40000	23 of 24
Petroleum Hydrocarbons	67.6	74.6	**1490**	67.4	**854**	**459**	66	**1080**	**1320**	67.4	69	**1890**	517	2310	10 of 23

Organochlorine Pesticides and PCBs (ug/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
4,4'-DDD	0.00204	0.00227	0.00219	0.00226	0.00207	0.00264	0.00232	0.00204	0.00209	0.00213	0.00206	0.00203	0.00222	0.00284	0 of 24
4,4'-DDE	0.00204	0.00227	0.00219	0.00226	0.00207	0.00264	0.00232	0.00204	0.00209	0.00213	0.00206	0.00203	0.00222	0.00284	0 of 24
4,4'-DDT	0.00204	0.00227	0.00219	0.00226	0.00207	0.00264	0.00232	0.00204	0.00209	0.00213	0.00206	0.00203	0.00222	0.00284	0 of 24
Aldrin	0.00102	0.00114	0.00109	0.00113	0.00103	0.00132	0.00116	0.00102	0.00104	0.00106	0.00103	0.00102	0.00111	0.00142	0 of 24
Alpha-BHC	0.00102	0.00114	0.00109	0.00113	0.00103	0.00132	0.00116	0.00102	0.00104	0.00106	0.00103	0.00102	0.00111	0.00142	0 of 24
Alpha-Chlordane	0.00102	0.00114	**0.0386**	0.00113	0.00103	0.00132	0.00116	0.00102	0.00104	**0.00646**	0.00103	0.00102	0.00379	0.077	2 of 24
Aroclor-1016	0.051	0.0568	0.0547	0.0565	0.0517	0.066	0.0579	0.051	0.0522	0.0532	0.0515	0.0508	0.0556	0.071	0 of 24
Aroclor-1221	0.102	0.114	0.109	0.113	0.103	0.132	0.116	0.102	0.104	0.106	0.103	0.102	0.111	0.142	0 of 24
Aroclor-1232	0.051	0.0568	0.0547	0.0565	0.0517	0.066	0.0579	0.051	0.0522	0.0532	0.0515	0.0508	0.0556	0.071	0 of 24
Aroclor-1242	0.051	0.0568	0.0547	0.0565	0.0517	0.066	0.0579	0.051	0.0522	0.0532	0.0515	0.0508	0.0556	0.071	0 of 24
Aroclor-1248	0.051	0.0568	0.0547	0.0565	0.0517	0.066	0.0579	0.051	0.0522	0.0532	0.0515	0.0508	0.0556	0.071	0 of 24
Aroclor-1254	0.051	0.0568	0.0547	0.0565	0.0517	0.066	0.0579	0.051	0.0522	0.0532	0.0515	0.0508	0.0556	0.071	0 of 24
Aroclor-1260	0.051	0.0568	0.0547	0.0565	0.0517	0.066	0.0579	0.051	0.0522	0.0532	0.0515	0.0508	0.0556	0.071	0 of 24
Beta-BHC	0.00102	0.00114	0.00109	0.00113	0.00103	0.00132	0.00116	0.00102	0.00104	0.00106	0.00103	0.00102	0.00111	0.00142	0 of 24
Chlordane (Technical)	0.102	0.114	0.109	0.113	0.103	0.132	0.116	0.102	0.104	0.106	0.103	0.102	0.111	0.142	0 of 24
Delta-BHC	0.00102	0.00114	0.00109	0.00113	0.00103	0.00132	0.00116	0.00102	0.00104	0.00106	0.00103	0.00102	0.00111	0.00142	0 of 24
Dieldrin	0.00204	0.00227	0.00219	0.00226	0.00207	0.00264	0.00232	0.00204	0.00209	0.00213	0.00206	0.00203	0.00222	0.00284	0 of 24
Endosulfan I	0.00102	0.00114	0.00109	0.00113	0.00103	0.00132	0.00116	0.00102	0.00104	0.00106	0.00103	0.00102	0.00111	0.00142	0 of 24
Endosulfan II	0.00204	0.00227	0.00219	0.00226	0.00207	0.00264	0.00232	0.00204	0.00209	0.00213	0.00206	0.00203	0.00222	0.00284	0 of 24
Endosulfan Sulfate	0.00204	0.00227	0.00219	0.00226	0.00207	0.00264	0.00232	0.00204	0.00209	0.00213	0.00206	0.00203	0.00222	0.00284	0 of 24
Endrin	0.00204	0.00227	0.00219	0.00226	0.00207	0.00264	0.00232	0.00204	0.00209	0.00213	0.00206	0.00203	0.00222	0.00284	0 of 24
Endrin Aldehyde	0.00204	0.00227	0.00219	0.00226	0.00207	0.00264	0.00232	0.00204	0.00209	0.00213	0.00206	0.00203	0.00222	0.00284	0 of 24
Endrin Ketone	0.00204	0.00227	0.00219	0.00226	0.00207	0.00264	0.00232	0.00204	0.00209	0.00213	0.00206	0.00203	0.00222	0.00284	0 of 24
Gamma-BHC	0.00102	0.00114	0.00109	0.00113	0.00103	0.00132	0.00116	0.00102	0.00104	0.00106	0.00103	0.00102	0.00111	0.00142	0 of 24
Gamma-Chlordane	0.00102	0.00114	**0.0463**	0.00113	0.00103	0.00132	0.00116	0.00102	0.00104	**0.00636**	0.00103	0.00102	0.00415	0.0926	2 of 24
Heptachlor	0.00102	0.00114	0.00109	0.00113	0.00103	0.00132	0.00116	0.00102	0.00104	0.00106	0.00103	0.00102	0.00111	0.00142	0 of 24
Heptachlor Epoxide	0.00102	0.00114	0.00109	0.00113	0.00103	0.00132	0.00116	0.00102	0.00104	0.00106	0.00103	0.00102	0.00111	0.00142	0 of 24
Hexachlorobenzene	0.0102	0.0114	0.0109	0.0113	0.0103	0.0132	0.0116	0.0102	0.0104	0.0106	0.0103	0.0102	0.0111	0.0142	0 of 24
Methoxychlor	~	**0.00441**	~	**0.00404**	~	**0.00929**	~	**0.0036**	~	**0.00242**	~	**0.0136**	0.00621	0.0139	12 of 12
Toxaphene	0.102	0.114	0.109	0.113	0.103	0.132	0.116	0.102	0.104	0.106	0.103	0.102	0.111	0.142	0 of 24

Notes

~: No data or no samples taken; results in **bold** indicate one or more detects that month.

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-7. Deer Island Influent Loadings (South System), FY15

Metals (lbs/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Aluminum	**368**	**386**	**152**	**183**	**640**	**1190**	**523**	**598**	**596**	**1840**	**672**	**521**	639	3130	24 of 24
Antimony	18.6	16.3	14.3	14.6	20.4	49.3	31.6	19.3	18.9	45.7	24.6	19	24.4	66	0 of 24
Arsenic	0.298	0.261	0.229	0.234	0.327	0.789	0.505	0.31	0.302	**1.92**	0.394	0.304	0.489	3.09	1 of 24
Beryllium	0.186	0.163	0.143	0.146	0.204	0.493	0.316	0.193	0.189	0.457	0.246	0.19	0.244	0.66	0 of 24
Boron	93.1	81.7	**198**	**192**	102	246	158	96.7	94.4	228	123	95	142	330	4 of 24
Cadmium	**0.2**	**0.146**	**0.0668**	**0.104**	**0.278**	**0.566**	**0.406**	**0.362**	**0.277**	**3.18**	**0.597**	**0.36**	0.546	5.38	24 of 24
Chromium	**3.03**	**2.3**	**0.826**	**2.56**	**2.65**	**5.5**	**4.91**	**3.59**	**3.02**	**12.7**	**3.82**	**4.62**	4.12	20.8	24 of 24
Copper	**78.3**	**47.7**	**24.7**	**39.3**	**54.2**	**58.9**	**56.3**	**57.3**	**58.9**	**189**	**78.9**	**69.5**	67.8	317	24 of 24
Iron	**2420**	**1760**	**886**	**977**	**2340**	**4130**	**2930**	**2400**	**2070**	**8530**	**2780**	**2820**	2840	14000	24 of 24
Lead	**5.28**	**3.82**	**2.08**	**2.47**	**5.18**	**14.1**	**6.06**	**3.78**	**2.89**	**23**	**7.72**	**6.46**	6.9	38.6	24 of 24
Mercury	**0.106**	**0.087**	**0.0292**	**0.0794**	**0.117**	**0.657**	**0.123**	**0.0814**	**0.0727**	**0.829**	**0.23**	**0.0965**	0.209	1.49	25 of 25
Molybdenum	**3.05**	**2.15**	**1.9**	**1.61**	**3.62**	**5.18**	**4.09**	**2.02**	**2.26**	**16.8**	**2.22**	**4.79**	4.14	30.8	24 of 24
Nickel	**3.57**	**1.9**	**1.34**	**2.3**	**4.27**	**6.87**	**4.19**	**3.77**	**4.26**	**15.3**	**4.05**	**5.22**	4.76	20.8	24 of 24
Selenium	0.335	0.294	0.258	0.264	0.368	0.887	0.568	0.348	0.34	**1.42**	0.443	0.342	0.489	2	1 of 24
Silver	**0.379**	**0.358**	**0.0258**	**0.144**	**0.36**	**1.01**	**0.536**	**0.271**	**0.17**	**1.68**	**0.637**	**0.393**	0.496	2.95	21 of 24
Thallium	0.373	0.327	0.287	0.293	0.409	0.986	0.632	0.387	0.378	0.914	0.492	0.38	0.488	1.32	0 of 24
Zinc	**122**	**92.2**	**50.7**	**63.3**	**113**	**187**	**129**	**118**	**107**	**557**	**178**	**148**	155	950	24 of 24

Cyanide (lbs/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Cyanide	3.67	**19.5**	**11.9**	**16.6**	**20.7**	**98.4**	**22.9**	**17.4**	**24.9**	17.6	9.58	**11.9**	22.9	112	15 of 24

Oil and Grease and Petroleum Hydrocarbons (lbs/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Fats Oil and Grease	**11000**	**14000**	**15800**	**16700**	**22800**	**18100**	**20200**	**19700**	**19800**	**21900**	**32800**	**24600**	19800	34000	23 of 24
Petroleum Hydrocarbons	49.6	48.9	**841**	40	**673**	**1300**	80.3	**835**	**1110**	118	66.1	**1420**	544	2400	10 of 23

Organochlorine Pesticides and PCBs (lbs/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
4,4'-DDD	0.00152	0.00148	0.00126	0.00132	0.00169	0.00521	0.00292	0.00158	0.00158	0.00389	0.00203	0.00154	0.00217	0.0075	0 of 24
4,4'-DDE	0.00152	0.00148	0.00126	0.00132	0.00169	0.00521	0.00292	0.00158	0.00158	0.00389	0.00203	0.00154	0.00217	0.0075	0 of 24
4,4'-DDT	0.00152	0.00148	0.00126	0.00132	0.00169	0.00521	0.00292	0.00158	0.00158	0.00389	0.00203	0.00154	0.00217	0.0075	0 of 24
Aldrin	0.00076	0.000742	0.000628	0.000662	0.000846	0.0026	0.00146	0.000789	0.000789	0.00195	0.00101	0.000771	0.00108	0.00375	0 of 24
Alpha-BHC	0.00076	0.000742	0.000628	0.000662	0.000846	0.0026	0.00146	0.000789	0.000789	0.00195	0.00101	0.000771	0.00108	0.00375	0 of 24
Alpha-Chlordane	0.00076	0.000742	**0.0221**	0.000662	0.000846	0.0026	0.00146	0.000789	0.000789	**0.0118**	0.00101	0.000771	0.0037	0.0436	2 of 24
Aroclor-1016	0.038	0.0371	0.0314	0.0331	0.0423	0.13	0.0731	0.0395	0.0395	0.0973	0.0507	0.0386	0.0542	0.187	0 of 24
Aroclor-1221	0.076	0.0742	0.0628	0.0662	0.0846	0.26	0.146	0.0789	0.0789	0.195	0.101	0.0771	0.108	0.375	0 of 24
Aroclor-1232	0.038	0.0371	0.0314	0.0331	0.0423	0.13	0.0731	0.0395	0.0395	0.0973	0.0507	0.0386	0.0542	0.187	0 of 24
Aroclor-1242	0.038	0.0371	0.0314	0.0331	0.0423	0.13	0.0731	0.0395	0.0395	0.0973	0.0507	0.0386	0.0542	0.187	0 of 24
Aroclor-1248	0.038	0.0371	0.0314	0.0331	0.0423	0.13	0.0731	0.0395	0.0395	0.0973	0.0507	0.0386	0.0542	0.187	0 of 24
Aroclor-1254	0.038	0.0371	0.0314	0.0331	0.0423	0.13	0.0731	0.0395	0.0395	0.0973	0.0507	0.0386	0.0542	0.187	0 of 24
Aroclor-1260	0.038	0.0371	0.0314	0.0331	0.0423	0.13	0.0731	0.0395	0.0395	0.0973	0.0507	0.0386	0.0542	0.187	0 of 24
Beta-BHC	0.00076	0.000742	0.000628	0.000662	0.000846	0.0026	0.00146	0.000789	0.000789	0.00195	0.00101	0.000771	0.00108	0.00375	0 of 24
Chlordane (Technical)	0.076	0.0742	0.0628	0.0662	0.0846	0.26	0.146	0.0789	0.0789	0.195	0.101	0.0771	0.108	0.375	0 of 24
Delta-BHC	0.00076	0.000742	0.000628	0.000662	0.000846	0.0026	0.00146	0.000789	0.000789	0.00195	0.00101	0.000771	0.00108	0.00375	0 of 24
Dieldrin	0.00152	0.00148	0.00126	0.00132	0.00169	0.00521	0.00292	0.00158	0.00158	0.00389	0.00203	0.00154	0.00217	0.0075	0 of 24
Endosulfan I	0.00076	0.000742	0.000628	0.000662	0.000846	0.0026	0.00146	0.000789	0.000789	0.00195	0.00101	0.000771	0.00108	0.00375	0 of 24
Endosulfan II	0.00152	0.00148	0.00126	0.00132	0.00169	0.00521	0.00292	0.00158	0.00158	0.00389	0.00203	0.00154	0.00217	0.0075	0 of 24
Endosulfan Sulfate	0.00152	0.00148	0.00126	0.00132	0.00169	0.00521	0.00292	0.00158	0.00158	0.00389	0.00203	0.00154	0.00217	0.0075	0 of 24
Endrin	0.00152	0.00148	0.00126	0.00132	0.00169	0.00521	0.00292	0.00158	0.00158	0.00389	0.00203	0.00154	0.00217	0.0075	0 of 24
Endrin Aldehyde	0.00152	0.00148	0.00126	0.00132	0.00169	0.00521	0.00292	0.00158	0.00158	0.00389	0.00203	0.00154	0.00217	0.0075	0 of 24
Endrin Ketone	0.00152	0.00148	0.00126	0.00132	0.00169	0.00521	0.00292	0.00158	0.00158	0.00389	0.00203	0.00154	0.00217	0.0075	0 of 24
Gamma-BHC	0.00076	0.000742	0.000628	0.000662	0.000846	0.0026	0.00146	0.000789	0.000789	0.00195	0.00101	0.000771	0.00108	0.00375	0 of 24
Gamma-Chlordane	0.00076	0.000742	**0.0265**	0.000662	0.000846	0.0026	0.00146	0.000789	0.000789	**0.0116**	0.00101	0.000771	0.00405	0.0524	2 of 24
Heptachlor	0.00076	0.000742	0.000628	0.000662	0.000846	0.0026	0.00146	0.000789	0.000789	0.00195	0.00101	0.000771	0.00108	0.00375	0 of 24
Heptachlor Epoxide	0.00076	0.000742	0.000628	0.000662	0.000846	0.0026	0.00146	0.000789	0.000789	0.00195	0.00101	0.000771	0.00108	0.00375	0 of 24
Hexachlorobenzene	0.0076	0.00742	0.00628	0.00662	0.00846	0.026	0.0146	0.00789	0.00789	0.0195	0.0101	0.00771	0.0108	0.0375	0 of 24
Methoxychlor	~	**0.00288**	~	**0.00237**	~	**0.0183**	~	**0.00278**	~	**0.00442**	~	**0.00975**	0.00675	0.0269	12 of 12
Toxaphene	0.076	0.0742	0.0628	0.0662	0.0846	0.26	0.146	0.0789	0.0789	0.195	0.101	0.0771	0.108	0.375	0 of 24

Notes

~: No data or no samples taken; results in **bold** indicate one or more detects that month.

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-8. Deer Island Effluent Characterization, FY15

Metals (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Aluminum	**72.7**	**37.6**	**158**	**30**	**33.5**	**194**	**35.1**	**31.4**	**42.7**	**53.2**	**55.2**	**68.1**	80.7	530	49 of 87
Antimony	25	25	25	25	25	25	25	25	25	25	25	25	25	25	0 of 25
Arsenic	0.4	0.601	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.422	0.8	0 of 24
Beryllium	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0 of 25
Boron	125	125	**308**	**239**	125	125	125	125	125	125	125	125	144	312	4 of 25
Cadmium	**0.0261**	0.015	0.015	0.015	**0.0303**	**0.0888**	**0.0417**	**0.0322**	**0.0291**	**0.107**	**0.0309**	**0.0187**	0.0474	0.131	22 of 51
Chromium	0.444	**2.32**	**0.496**	0.35	0.35	**1.29**	**1.39**	0.35	**0.946**	**0.793**	**0.544**	0.35	0.85	4.84	17 of 51
Copper	**4.73**	**5.62**	**4.01**	**5.01**	**4.82**	**10.3**	**7.31**	**7.58**	**9.53**	**8.21**	**7.92**	**4.41**	7.19	14.9	51 of 51
Iron	**201**	**291**	**315**	**225**	**224**	**649**	**146**	**329**	**233**	**378**	**250**	**225**	351	747	25 of 25
Lead	**0.552**	**0.562**	**0.52**	**0.533**	**0.54**	**2.41**	**0.648**	**0.558**	**0.587**	**0.747**	**0.607**	**0.549**	0.951	4.68	14 of 51
Mercury	**0.00273**	**0.00367**	**0.00258**	**0.00287**	**0.0033**	**0.0173**	**0.00462**	**0.00452**	**0.00586**	**0.00905**	**0.00681**	**0.0039**	0.00761	0.0279	47 of 47
Molybdenum	**5.57**	**5.13**	**5.07**	**5.1**	**5.44**	**3.51**	**4.35**	**3.4**	**3.81**	**4.2**	**4.69**	**6.39**	4.53	7.16	51 of 51
Nickel	**2.4**	**2.15**	**2.14**	**2.66**	**3.87**	**2.16**	**2.42**	**3.19**	**3.86**	**3.28**	**2.74**	**2.79**	2.75	4.47	51 of 51
Selenium	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0 of 25
Silver	0.0554	0.0556	0.0563	0.0823	0.09	0.09	0.09	0.101	0.114	0.045	0.045	0.09	0.0772	0.135	0 of 51
Thallium	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 25
Zinc	**14.8**	**13.9**	**14.1**	**15.9**	**14.5**	**37.5**	**21.5**	**23**	**28.6**	**34.1**	**27**	**16.8**	24.4	46.3	51 of 51

Cyanide (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Cyanide	5	10	10	10	10	10	10	10	10	10	10	10	9.68	10	0 of 24

Oil and Grease and Petroleum Hydrocarbons (mg/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Fats Oil and Grease	688	710	715	706	690	700	779	727	709	726	700	695	709	909	0 of 62
Petroleum Hydrocarbons	64	65.3	67.3	67.6	63.5	64.1	66.4	65.3	64.3	66	65	58.6	64.6	81.1	0 of 63

Organochlorine Pesticides and PCBs (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
4,4'-DDD	0.00206	0.00222	0.00204	0.0022	0.00212	0.00206	0.00218	0.00224	0.00202	0.0021	0.00206	0.00222	0.00211	0.00224	0 of 12
4,4'-DDE	0.00206	0.00222	0.00204	0.0022	0.00212	0.00206	0.00218	0.00224	0.00202	0.0021	0.00206	0.00222	0.00211	0.00224	0 of 12
4,4'-DDT	0.00206	0.00222	0.00204	0.0022	0.00212	0.00206	0.00218	0.00224	0.00202	0.0021	0.00206	0.00222	0.00211	0.00224	0 of 12
Aldrin	0.00103	0.00111	0.00102	0.0011	0.00106	0.00103	0.00109	0.00112	0.00101	0.00105	0.00103	0.00111	0.00106	0.00112	0 of 12
Alpha-BHC	0.00103	0.00111	0.00102	0.0011	0.00106	0.00103	0.00109	0.00112	0.00101	0.00105	0.00103	0.00111	0.00106	0.00112	0 of 12
Alpha-Chlordane	0.00103	0.00111	0.00102	0.0011	0.00106	0.00103	0.00109	0.00112	0.00101	0.00105	0.00103	0.00111	0.00106	0.00112	0 of 12
Aroclor-1016	0.0515	0.0555	0.051	0.055	0.053	0.0515	0.0545	0.056	0.0505	0.0525	0.0515	0.0555	0.0528	0.056	0 of 12
Aroclor-1221	0.103	0.111	0.102	0.11	0.106	0.103	0.109	0.112	0.101	0.105	0.103	0.111	0.106	0.112	0 of 12
Aroclor-1232	0.0515	0.0555	0.051	0.055	0.053	0.0515	0.0545	0.056	0.0505	0.0525	0.0515	0.0555	0.0528	0.056	0 of 12
Aroclor-1242	0.0515	0.0555	0.051	0.055	0.053	0.0515	0.0545	0.056	0.0505	0.0525	0.0515	0.0555	0.0528	0.056	0 of 12
Aroclor-1248	0.0515	0.0555	0.051	0.055	0.053	0.0515	0.0545	0.056	0.0505	0.0525	0.0515	0.0555	0.0528	0.056	0 of 12
Aroclor-1254	0.0515	0.0555	0.051	0.055	0.053	0.0515	0.0545	0.056	0.0505	0.0525	0.0515	0.0555	0.0528	0.056	0 of 12
Aroclor-1260	0.0515	0.0555	0.051	0.055	0.053	0.0515	0.0545	0.056	0.0505	0.0525	0.0515	0.0555	0.0528	0.056	0 of 12
Beta-BHC	0.00103	0.00111	0.00102	0.0011	0.00106	0.00103	0.00109	0.00112	0.00101	0.00105	0.00103	0.00111	0.00106	0.00112	0 of 12
Chlordane (Technical)	0.103	0.111	0.102	0.11	0.106	0.103	0.109	0.112	0.101	0.105	0.103	0.111	0.106	0.112	0 of 12
Delta-BHC	0.00103	0.00111	0.00102	0.0011	0.00106	0.00103	0.00109	0.00112	0.00101	0.00105	0.00103	0.00111	0.00106	0.00112	0 of 12
Dieldrin	0.00206	0.00222	0.00204	0.0022	0.00212	0.00206	0.00218	0.00224	0.00202	0.0021	0.00206	0.00222	0.00211	0.00224	0 of 12
Endosulfan I	0.00103	0.00111	0.00102	0.0011	0.00106	0.00103	0.00109	0.00112	0.00101	0.00105	0.00103	0.00111	0.00106	0.00112	0 of 12
Endosulfan II	0.00206	0.00222	0.00204	0.0022	0.00212	0.00206	0.00218	0.00224	0.00202	0.0021	0.00206	0.00222	0.00211	0.00224	0 of 12
Endosulfan Sulfate	0.00206	0.00222	0.00204	0.0022	0.00212	0.00206	0.00218	0.00224	0.00202	0.0021	0.00206	0.00222	0.00211	0.00224	0 of 12
Endrin	0.00206	0.00222	0.00204	0.0022	0.00212	0.00206	0.00218	0.00224	0.00202	0.0021	0.00206	0.00222	0.00211	0.00224	0 of 12
Endrin Aldehyde	0.00206	0.00222	0.00204	0.0022	0.00212	0.00206	0.00218	0.00224	0.00202	0.0021	0.00206	0.00222	0.00211	0.00224	0 of 12
Endrin Ketone	0.00206	0.00222	0.00204	0.0022	0.00212	0.00206	0.00218	0.00224	0.00202	0.0021	0.00206	0.00222	0.00211	0.00224	0 of 12
Gamma-BHC	0.00103	0.00111	0.00102	0.0011	0.00106	0.00103	0.00109	0.00112	0.00101	0.00105	0.00103	0.00111	0.00106	0.00112	0 of 12
Gamma-Chlordane	0.00103	0.00111	0.00102	0.0011	0.00106	0.00103	0.00109	0.00112	0.00101	0.00105	0.00103	0.00111	0.00106	0.00112	0 of 12
Heptachlor	0.00103	0.00111	0.00102	0.0011	0.00106	0.00103	0.00109	0.00112	0.00101	0.00105	0.00103	0.00111	0.00106	0.00112	0 of 12
Heptachlor Epoxide	0.00103	0.00111	0.00102	0.0011	0.00106	0.00103	0.00109	0.00112	0.00101	0.00105	0.00103	0.00111	0.00106	0.00112	0 of 12
Hexachlorobenzene	0.00103	0.00111	**0.125**	0.0011	0.00106	0.00103	0.00109	0.00112	**0.0258**	0.00105	0.00103	0.00111	0.0091	0.125	2 of 12
Methoxychlor	0.0103	0.0111	0.0102	0.011	0.0106	0.0103	0.0109	0.0112	0.0101	0.0105	0.0103	0.0111	0.0106	0.0112	0 of 12
Total AMP PCBs	**0.000387**	**0.000238**	**0.00113**	**0.00118**	**0.000221**	**0.00243**	**0.000581**	**0.000489**	**0.000484**	**0.000503**	**0.0000965**	**0.000343**	0.0009	0.00483	48 of 48
Toxaphene	0.103	0.111	0.102	0.11	0.106	0.103	0.109	0.112	0.101	0.105	0.103	0.111	0.106	0.112	0 of 12

Table A-8. Deer Island Effluent Characterization, FY15 (cont.)

Volatile Organics (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,1,1-Trichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,1,2,2-Tetrachloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,1,2-Trichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,1-Dichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,1-Dichloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,2-Dichlorobenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,2-Dichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,2-Dichloropropane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,3-Dichlorobenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,4-Dichlorobenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
2-Butanone	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
2-Chloroethyl Vinyl Ether	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
2-Hexanone	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
4-Methyl-2-Pentanone	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Acetone	1	1	1	1	1	**14.3**	1	1	1	1	1	1	3.85	16.6	2 of 24
Acrolein	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0 of 24
Acrylonitrile	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0 of 24
Benzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Bromodichloromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Bromoform	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Bromomethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Carbon Disulfide	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Carbon Tetrachloride	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Chlorobenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Chloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Chloroform	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Chloromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Cis-1,2-Dichloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Cis-1,3-Dichloropropene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Dibromochloromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Ethylbenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
M,P-Xylene	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0 of 24
Methylene Chloride	0.5	0.5	0.5	0.5	0.5	**0.5**	0.5	0.5	0.5	0.5	**0.5**	0.5	0.5	0.5	0 of 24
O-Xylene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Styrene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Tetrachloroethene	0.5	0.5	0.5	0.5	**5.51**	0.5	0.5	0.5	**3.41**	0.5	0.5	0.5	1.08	6.69	3 of 24
Toluene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Trans-1,2-Dichloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Trans-1,3-Dichloropropene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Trichloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Trichlorofluoromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Vinyl Acetate	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Vinyl Chloride	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0 of 24

Notes

~: No data or no samples taken; results in **bold** indicate one or more detects that month.

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-9. Deer Island Effluent Loadings, FY15

Metals (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Aluminum	**160**	**75.6**	**303**	**63.2**	**81.4**	**1360**	**104**	**71.1**	**97.7**	**217**	**139**	**152**	225	3070	49 of 87
Antimony	57.4	51.3	47.9	51.6	56.3	220	77.8	57	59.5	105	64.5	56.2	74.4	230	0 of 25
Arsenic	0.919	1.23	1.15	0.771	0.901	3.52	1.25	0.912	0.952	1.68	1.03	0.899	1.27	3.68	0 of 24
Beryllium	0.574	0.513	0.479	0.516	0.563	2.2	0.778	0.57	0.595	1.05	0.645	0.562	0.744	2.3	0 of 25
Boron	287	257	**590**	**492**	282	1100	389	285	297	525	323	281	428	1150	4 of 25
Cadmium	**0.0574**	0.0301	0.0288	0.0316	**0.0738**	**0.622**	**0.124**	**0.073**	**0.0665**	**0.437**	**0.0781**	**0.0417**	0.132	0.975	22 of 51
Chromium	0.976	**4.66**	**0.952**	0.737	0.852	**9.07**	**4.12**	0.793	**2.16**	**3.24**	**1.37**	0.782	2.37	24.7	17 of 51
Copper	**10.4**	**11.3**	**7.71**	**10.5**	**11.7**	**72.4**	**21.7**	**17.2**	**21.8**	**33.6**	**20**	**9.85**	20.1	113	51 of 51
Iron	**462**	**597**	**602**	**464**	**505**	**5710**	**454**	**751**	**555**	**1590**	**646**	**506**	1050	6870	25 of 25
Lead	**1.21**	**1.13**	**0.999**	**1.12**	**1.31**	**16.9**	**1.92**	**1.26**	**1.34**	**3.06**	**1.53**	**1.23**	2.66	43.1	14 of 51
Mercury	**0.006**	**0.00738**	**0.00495**	**0.0055**	**0.00822**	**0.121**	**0.0137**	**0.0102**	**0.0134**	**0.037**	**0.0172**	**0.00871**	0.0216	0.257	47 of 47
Molybdenum	**12.2**	**10.3**	**9.75**	**10.7**	**13.2**	**24.6**	**12.9**	**7.7**	**8.71**	**17.2**	**11.8**	**14.3**	12.7	38.5	51 of 51
Nickel	**5.28**	**4.31**	**4.11**	**5.6**	**9.4**	**15.2**	**7.17**	**7.23**	**8.82**	**13.4**	**6.91**	**6.24**	7.68	21.5	51 of 51
Selenium	1.03	0.923	0.862	0.928	1.01	3.96	1.4	1.03	1.07	1.89	1.16	1.01	1.34	4.14	0 of 25
Silver	0.122	0.112	0.108	0.173	0.219	0.631	0.267	0.229	0.26	0.184	0.114	0.201	0.216	0.828	0 of 51
Thallium	1.15	1.03	0.957	1.03	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.49	4.6	0 of 25
Zinc	**32.5**	**27.9**	**27**	**33.5**	**35.2**	**263**	**63.8**	**52**	**65.3**	**140**	**68.2**	**37.6**	68.3	426	51 of 51

Cyanide (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Cyanide	11.1	20.5	19.3	19.1	26.3	75.4	30.2	23.1	24.1	42.8	25.4	22	28.3	84	0 of 24

Oil and Grease and Petroleum Hydrocarbons (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Fats Oil and Grease	1720	1420	1350	1400	2040	3300	2110	1620	2320	2830	1660	1770	1970	5770	0 of 62
Petroleum Hydrocarbons	160	130	127	134	188	302	185	145	193	257	154	149	178	536	0 of 63

Organochlorine Pesticides and PCBs (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
4,4'-DDD	0.0048	0.00457	0.0039	0.00424	0.00481	0.019	0.00685	0.00507	0.00446	0.00859	0.00535	0.0051	0.00639	0.019	0 of 12
4,4'-DDE	0.0048	0.00457	0.0039	0.00424	0.00481	0.019	0.00685	0.00507	0.00446	0.00859	0.00535	0.0051	0.00639	0.019	0 of 12
4,4'-DDT	0.0048	0.00457	0.0039	0.00424	0.00481	0.019	0.00685	0.00507	0.00446	0.00859	0.00535	0.0051	0.00639	0.019	0 of 12
Aldrin	0.0024	0.00229	0.00195	0.00212	0.00241	0.00948	0.00343	0.00253	0.00223	0.00429	0.00268	0.00255	0.0032	0.00948	0 of 12
Alpha-BHC	0.0024	0.00229	0.00195	0.00212	0.00241	0.00948	0.00343	0.00253	0.00223	0.00429	0.00268	0.00255	0.0032	0.00948	0 of 12
Alpha-Chlordane	0.0024	0.00229	0.00195	0.00212	0.00241	0.00948	0.00343	0.00253	0.00223	0.00429	0.00268	0.00255	0.0032	0.00948	0 of 12
Aroclor-1016	0.12	0.114	0.0976	0.106	0.12	0.474	0.171	0.127	0.111	0.215	0.134	0.127	0.16	0.474	0 of 12
Aroclor-1221	0.24	0.229	0.195	0.212	0.241	0.948	0.343	0.253	0.223	0.429	0.268	0.255	0.32	0.948	0 of 12
Aroclor-1232	0.12	0.114	0.0976	0.106	0.12	0.474	0.171	0.127	0.111	0.215	0.134	0.127	0.16	0.474	0 of 12
Aroclor-1242	0.12	0.114	0.0976	0.106	0.12	0.474	0.171	0.127	0.111	0.215	0.134	0.127	0.16	0.474	0 of 12
Aroclor-1248	0.12	0.114	0.0976	0.106	0.12	0.474	0.171	0.127	0.111	0.215	0.134	0.127	0.16	0.474	0 of 12
Aroclor-1254	0.12	0.114	0.0976	0.106	0.12	0.474	0.171	0.127	0.111	0.215	0.134	0.127	0.16	0.474	0 of 12
Aroclor-1260	0.12	0.114	0.0976	0.106	0.12	0.474	0.171	0.127	0.111	0.215	0.134	0.127	0.16	0.474	0 of 12
Beta-BHC	0.0024	0.00229	0.00195	0.00212	0.00241	0.00948	0.00343	0.00253	0.00223	0.00429	0.00268	0.00255	0.0032	0.00948	0 of 12
Chlordane (Technical)	0.24	0.229	0.195	0.212	0.241	0.948	0.343	0.253	0.223	0.429	0.268	0.255	0.32	0.948	0 of 12
Delta-BHC	0.0024	0.00229	0.00195	0.00212	0.00241	0.00948	0.00343	0.00253	0.00223	0.00429	0.00268	0.00255	0.0032	0.00948	0 of 12
Dieldrin	0.0048	0.00457	0.0039	0.00424	0.00481	0.019	0.00685	0.00507	0.00446	0.00859	0.00535	0.0051	0.00639	0.019	0 of 12
Endosulfan I	0.0024	0.00229	0.00195	0.00212	0.00241	0.00948	0.00343	0.00253	0.00223	0.00429	0.00268	0.00255	0.0032	0.00948	0 of 12
Endosulfan II	0.0048	0.00457	0.0039	0.00424	0.00481	0.019	0.00685	0.00507	0.00446	0.00859	0.00535	0.0051	0.00639	0.019	0 of 12
Endosulfan Sulfate	0.0048	0.00457	0.0039	0.00424	0.00481	0.019	0.00685	0.00507	0.00446	0.00859	0.00535	0.0051	0.00639	0.019	0 of 12
Endrin	0.0048	0.00457	0.0039	0.00424	0.00481	0.019	0.00685	0.00507	0.00446	0.00859	0.00535	0.0051	0.00639	0.019	0 of 12
Endrin Aldehyde	0.0048	0.00457	0.0039	0.00424	0.00481	0.019	0.00685	0.00507	0.00446	0.00859	0.00535	0.0051	0.00639	0.019	0 of 12
Endrin Ketone	0.0048	0.00457	0.0039	0.00424	0.00481	0.019	0.00685	0.00507	0.00446	0.00859	0.00535	0.0051	0.00639	0.019	0 of 12
Gamma-BHC	0.0024	0.00229	0.00195	0.00212	0.00241	0.00948	0.00343	0.00253	0.00223	0.00429	0.00268	0.00255	0.0032	0.00948	0 of 12
Gamma-Chlordane	0.0024	0.00229	0.00195	0.00212	0.00241	0.00948	0.00343	0.00253	0.00223	0.00429	0.00268	0.00255	0.0032	0.00948	0 of 12
Heptachlor	0.0024	0.00229	0.00195	0.00212	0.00241	0.00948	0.00343	0.00253	0.00223	0.00429	0.00268	0.00255	0.0032	0.00948	0 of 12
Heptachlor Epoxide	0.0024	0.00229	0.00195	0.00212	0.00241	0.00948	0.00343	0.00253	0.00223	0.00429	0.00268	0.00255	0.0032	0.00948	0 of 12
Hexachlorobenzene	0.0024	0.00229	**0.239**	0.00212	0.00241	0.00948	0.00343	0.00253	**0.057**	0.00429	0.00268	0.00255	0.0275	0.239	2 of 12
Methoxychlor	0.024	0.0229	0.0195	0.0212	0.0241	0.0948	0.0343	0.0253	0.0223	0.0429	0.0268	0.0255	0.032	0.0948	0 of 12
Total AMP PCBs	**0.000852**	**0.000478**	**0.00216**	**0.00226**	**0.000537**	**0.017**	**0.00172**	**0.00111**	**0.00111**	**0.00206**	**0.000225**	**0.000767**	0.00252	0.0444	48 of 48
Toxaphene	0.24	0.229	0.195	0.212	0.241	0.948	0.343	0.253	0.223	0.429	0.268	0.255	0.32	0.948	0 of 12

Table A-9. Deer Island Effluent Loadings, FY15 (cont.)

Volatile Organics (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,1,1-Trichloroethane	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
1,1,2,2-Tetrachloroethane	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
1,1,2-Trichloroethane	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
1,1-Dichloroethane	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
1,1-Dichloroethene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
1,2-Dichlorobenzene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
1,2-Dichloroethane	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
1,2-Dichloropropane	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
1,3-Dichlorobenzene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
1,4-Dichlorobenzene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
2-Butanone	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
2-Chloroethyl Vinyl Ether	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
2-Hexanone	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
4-Methyl-2-Pentanone	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Acetone	2.22	2.05	1.93	1.91	2.63	**108**	3.02	2.31	2.41	4.28	2.54	2.2	11.2	140	2 of 24
Acrolein	2.22	2.05	1.93	1.91	2.63	7.54	3.02	2.31	2.41	4.28	2.54	2.2	2.92	8.4	0 of 24
Acrylonitrile	2.22	2.05	1.93	1.91	2.63	7.54	3.02	2.31	2.41	4.28	2.54	2.2	2.92	8.4	0 of 24
Benzene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Bromodichloromethane	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Bromoform	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Bromomethane	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Carbon Disulfide	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Carbon Tetrachloride	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Chlorobenzene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Chloroethane	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Chloroform	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Chloromethane	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Cis-1,2-Dichloroethene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Cis-1,3-Dichloropropene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Dibromochloromethane	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Ethylbenzene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
M,P-Xylene	2.22	2.05	1.93	1.91	2.63	7.54	3.02	2.31	2.41	4.28	2.54	2.2	2.92	8.4	0 of 24
Methylene Chloride	1.11	1.02	0.963	0.953	1.31	**3.77**	1.51	1.16	1.21	2.14	**1.27**	1.1	1.46	4.2	0 of 24
O-Xylene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Styrene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Tetrachloroethene	1.11	1.02	0.963	0.953	**14.5**	3.77	1.51	1.16	**8.23**	2.14	1.27	1.1	3.14	17.1	3 of 24
Toluene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Trans-1,2-Dichloroethene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Trans-1,3-Dichloropropene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Trichloroethene	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Trichlorofluoromethane	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Vinyl Acetate	1.11	1.02	0.963	0.953	1.31	3.77	1.51	1.16	1.21	2.14	1.27	1.1	1.46	4.2	0 of 24
Vinyl Chloride	0.443	0.409	0.385	0.381	0.526	1.51	0.604	0.463	0.482	0.855	0.509	0.439	0.584	1.68	0 of 24

Notes

~: No data or no samples taken; results in **bold** indicate one or more detects that month.

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-10. Deer Island Influent Characterization (Low detection limit analyses; North & South Systems), FY15

Semivolatile Organics (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,2,4-Trichlorobenzene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
1,2-Dichlorobenzene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
1,2-Diphenylhydrazine (as Azobenzene)	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
1,3-Dichlorobenzene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
1,4-Dichlorobenzene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
2,2'-Oxybis(1-Chloropropane)	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
2,4,5-Trichlorophenol	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
2,4,6-Trichlorophenol	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
2,4-Dichlorophenol	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
2,4-Dimethylphenol	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
2,4-Dinitrophenol	5.2	5.19	5.3	5.21	5.2	7	6.31	5.49	5.28	5.17	5.29	5.53	5.63	7.52	0 of 46
2,4-Dinitrotoluene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
2,6-Dinitrotoluene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
2-Chloronaphthalene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
2-Chlorophenol	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
2-Methyl-4,6-Dinitrophenol	5.2	5.19	5.3	5.21	5.2	7	6.31	5.49	5.28	5.17	5.29	5.53	5.63	7.52	0 of 46
2-Methylnaphthalene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
2-Methylphenol	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
2-Nitroaniline	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
2-Nitrophenol	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
3,3'-Dichlorobenzidine	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
3-Nitroaniline	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
4-Bromophenyl Phenyl Ether	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
4-Chloro-3-Methylphenol	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
4-Chloroaniline	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
4-Chlorophenyl Phenyl Ether	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
4-Methylphenol (includes 3-Methylphenol)	2.08	**11.4**	**30.9**	**21.1**	2.08	2.8	2.53	**46.9**	**55.1**	2.07	**32.4**	**30.1**	17	56.6	23 of 46
4-Nitroaniline	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
4-Nitrophenol	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Acenaphthene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Acenaphthylene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Aniline	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Anthracene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Benzidine	5.2	5.19	5.3	5.21	5.2	7	6.31	5.49	5.28	5.17	5.29	5.53	5.63	7.52	0 of 46
Benzo(a)anthracene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Benzo(a)pyrene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Benzo(b)fluoranthene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Benzo(g,h,i)perylene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Benzo(k)fluoranthene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Benzoic Acid	5.2	5.19	5.3	5.21	5.2	7	6.31	**27.4**	**74.8**	5.17	**23.4**	5.53	13.4	106	5 of 46
Benzyl Alcohol	2.08	**7**	2.12	2.08	2.08	2.8	2.53	**9.12**	**8.89**	2.07	**32.9**	2.21	6.05	37.2	7 of 46
Bis(2-Chloroethoxy)methane	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Bis(2-Chloroethyl)ether	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Bis(2-Ethylhexyl)phthalate	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Butylbenzylphthalate	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Carbazole	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Chrysene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Dibenzo(a,h)anthracene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Dibenzofuran	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Diethylphthalate	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Dimethylphthalate	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Di-N-Butylphthalate	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Di-N-Octylphthalate	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Fluoranthene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Fluorene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Hexachlorobenzene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Hexachlorobutadiene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Hexachlorocyclopentadiene	5.2	5.19	5.3	5.21	5.2	7	6.31	5.49	5.28	5.17	5.29	5.53	5.63	7.52	0 of 46
Hexachloroethane	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Indeno(1,2,3-CD)pyrene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Isophorone	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Naphthalene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
n-Decane	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46

Table A-10. Deer Island Influent Characterization (Low detection limit analyses; North & South Systems), FY15 (cont.)

Semivolatile Organics (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Nitrobenzene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
N-Nitrosodimethylamine (NDMA)	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
N-Nitrosodi-N-Propylamine (NDPA)	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
N-Nitrosodiphenylamine	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
N-Octadecane	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Pentachlorophenol	5.2	5.19	5.3	5.21	5.2	7	6.31	5.49	5.28	5.17	5.29	5.53	5.63	7.52	0 of 46
Phenanthrene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Phenol	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46
Pyrene	2.08	2.08	2.12	2.08	2.08	2.8	2.53	2.2	2.12	2.07	2.12	2.21	2.25	3.01	0 of 46

Polycyclic Aromatic Hydrocarbons (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1-Methylnaphthalene	~	**17.2**	~	**0.118**	~	**0.112**	~	**0.047**	~	0.0709	~	**0.0617**	2.28	34.3	20 of 20
1-Methylphenanthrene	~	**4.17**	~	**0.0319**	~	**0.0689**	~	**0.0419**	~	0.0262	~	**0.0364**	0.575	8.32	19 of 20
2,3,5-Trimethylnaphthylene	~	**6.31**	~	**0.0391**	~	**0.0644**	~	**0.0198**	~	0.0446	~	**0.0672**	0.854	12.6	20 of 20
2,6-Dimethylnaphthalene	~	**9.02**	~	**0.0635**	~	**0.119**	~	**0.0397**	~	0.0753	~	**0.0444**	1.23	18	20 of 20
2-Methylnaphthalene	~	**13.9**	~	**0.0889**	~	**0.0898**	~	**0.0476**	~	0.077	~	**0.0537**	1.86	27.8	20 of 20
Acenaphthene	~	**13.6**	~	**0.0928**	~	**0.0917**	~	**0.0438**	~	0.0642	~	**0.0496**	1.81	27.1	20 of 20
Acenaphthylene	~	**1.4**	~	**0.0131**	~	**0.0266**	~	**0.00563**	~	0.0256	~	**0.00437**	0.196	2.78	14 of 20
Anthracene	~	**7.85**	~	**0.0626**	~	**0.126**	~	**0.0183**	~	0.0377	~	**0.0402**	1.07	15.7	20 of 20
Benzo(a)anthracene	~	**11.8**	~	**0.0708**	~	**0.342**	~	**0.0254**	~	0.0763	~	**0.102**	1.65	23.5	20 of 20
Benzo(a)pyrene	~	**8.82**	~	**0.0574**	~	**0.339**	~	**0.0175**	~	0.0845	~	**0.0899**	1.27	17.6	19 of 20
Benzo(b)fluoranthene	~	**15.5**	~	**0.0799**	~	**0.551**	~	**0.0272**	~	0.125	~	**0.155**	2.21	30.9	20 of 20
Benzo(e)pyrene	~	**7.31**	~	**0.0211**	~	**0.237**	~	**0.015**	~	0.0663	~	**0.0657**	1.03	14.6	18 of 20
Benzo(g,h,i)perylene	~	**6.05**	~	0.000515	~	**0.248**	~	**0.0136**	~	**0.0923**	~	0.000532	0.875	12.1	12 of 20
Benzo(k)fluoranthene	~	**4.37**	~	**0.0243**	~	**0.151**	~	**0.0114**	~	0.0475	~	**0.0636**	0.627	8.73	20 of 20
Benzothiazole	~	**41.2**	~	**0.0215**	~	**0.302**	~	**0.113**	~	0.197	~	**0.0891**	5.47	82.5	20 of 20
Biphenyl	~	**16**	~	**0.0114**	~	**0.0217**	~	0.000529	~	**0.0164**	~	**0.0164**	2.07	32	16 of 20
C1-Chrysenes	~	**10.5**	~	**0.0143**	~	**0.148**	~	**0.0146**	~	0.0676	~	**0.0533**	1.42	20.9	17 of 20
C1-Dibenzothiophenes	~	**0.193**	~	0.000515	~	0.000719	~	0.000529	~	0.000511	~	**0.0316**	0.0274	0.386	3 of 20
C1-Flyoranthenes/Pyrenes	~	**18.4**	~	**0.0793**	~	**0.222**	~	**0.028**	~	0.0957	~	**0.101**	2.48	36.8	20 of 20
C1-Fluorenes	~	**22.5**	~	0.000515	~	**0.0568**	~	**0.0212**	~	**0.0502**	~	**0.0646**	2.94	45	16 of 20
C1-Naphthalenes	~	**32.6**	~	**0.133**	~	**0.249**	~	**0.117**	~	0.206	~	**0.0761**	4.35	65.1	20 of 20
C1-Phenanthrenes/Anthracenes	~	**44.4**	~	**0.148**	~	**1.25**	~	**0.256**	~	0.536	~	**0.156**	6.27	88.6	20 of 20
C2-Chrysenes	~	**72.5**	~	**0.351**	~	**0.131**	~	**0.0401**	~	**0.374**	~	0.000532	9.51	145	13 of 20
C2-Dibenzothiophenes	~	**0.198**	~	0.000515	~	0.000719	~	0.000529	~	0.000511	~	0.0801	0.0311	0.382	3 of 20
C2-Fluoranthenes/Pyrenes	~	**6.66**	~	0.000515	~	0.000719	~	0.000529	~	0.000511	~	0.0557	0.861	13.3	6 of 20
C2-Fluorenes	~	0.191	~	0.000515	~	**0.0651**	~	0.000529	~	**0.0888**	~	0.0834	0.0718	0.382	8 of 20
C2-Naphthalenes	~	**49.5**	~	**0.125**	~	**1.12**	~	**0.252**	~	0.532	~	**0.156**	6.88	98.8	20 of 20
C2-Phenanthrenes/Anthracenes	~	**0.262**	~	**0.0896**	~	**0.21**	~	**0.0394**	~	0.108	~	**0.11**	0.146	0.433	18 of 20
C3-Chrysenes	~	0.191	~	0.000515	~	0.000719	~	0.000529	~	0.000511	~	0.000532	0.0251	0.382	0 of 20
C3-Dibenzothiophenes	~	0.191	~	0.000515	~	0.000719	~	0.000529	~	0.000511	~	0.000532	0.0251	0.382	0 of 20
C3-Fluoranthenes/Pyrenes	~	0.191	~	0.000515	~	0.000719	~	0.000529	~	**0.0055**	~	0.000532	0.0264	0.382	1 of 20
C3-Fluorenes	~	0.191	~	0.000515	~	0.000719	~	0.000529	~	0.000511	~	0.000532	0.0251	0.382	0 of 20
C3-Naphthalenes	~	**51.5**	~	**0.09**	~	**0.201**	~	**0.0528**	~	**0.144**	~	**0.178**	6.74	103	18 of 20
C3-Phenanthrenes/Anthracenes	~	0.191	~	0.000515	~	0.000719	~	0.000529	~	0.000511	~	0.000532	0.0251	0.382	0 of 20
C4-Chrysenes	~	0.191	~	0.000515	~	0.000719	~	0.000529	~	0.000511	~	0.000532	0.0251	0.382	0 of 20
C4-Naphthalenes	~	**25.9**	~	0.000515	~	**0.125**	~	**0.028**	~	**0.143**	~	**0.133**	3.42	51.8	16 of 20
C4-Phenanthrenes/Anthracenes	~	0.191	~	0.000515	~	0.000719	~	0.000529	~	0.000511	~	0.000532	0.0251	0.382	0 of 20
Chrysene	~	**12.4**	~	**0.0662**	~	**0.362**	~	**0.0266**	~	**0.112**	~	**0.13**	1.74	24.7	20 of 20
Dibenzo(a,h)anthracene	~	0.191	~	0.000515	~	**0.0598**	~	0.000529	~	0.000511	~	0.000532	0.042	0.382	2 of 20
Dibenzofuran	~	**6.22**	~	**0.0435**	~	**0.0521**	~	**0.0176**	~	**0.03**	~	**0.0352**	0.832	12.4	18 of 20
Dibenzothiophene	~	**5.43**	~	**0.0306**	~	**0.05**	~	**0.0113**	~	**0.0237**	~	**0.0248**	0.725	10.8	20 of 20
Fluoranthene	~	**25.6**	~	**0.167**	~	**0.641**	~	**0.0546**	~	**0.252**	~	**0.236**	3.59	51.2	20 of 20
Fluorene	~	**10.4**	~	**0.0779**	~	**0.08**	~	**0.0254**	~	**0.0484**	~	**0.0552**	1.39	20.9	20 of 20
Indeno(1,2,3-CD)pyrene	~	**0.268**	~	**0.149**	~	**0.183**	~	**0.0401**	~	**0.171**	~	0.000532	0.155	0.454	16 of 20
Naphthalene	~	**37.5**	~	**0.305**	~	**0.125**	~	**0.139**	~	**0.183**	~	**0.0996**	4.97	75	20 of 20
Perylene	~	**2.91**	~	**0.0547**	~	**0.0724**	~	**0.00345**	~	**0.0417**	~	**0.0164**	0.414	5.81	20 of 20
Phenanthrene	~	**38.9**	~	**0.278**	~	**0.554**	~	**0.0882**	~	**0.214**	~	**0.208**	5.28	77.7	20 of 20
Pyrene	~	**22.2**	~	**0.148**	~	**0.556**	~	**0.0495**	~	**0.21**	~	**0.2**	3.1	44.2	20 of 20

Table A-10. Deer Island Influent Characterization (Low detection limit analyses; North & South Systems), FY15 (cont.)

Organochlorine Pesticides and PCBs (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
2,4'-DDD	~	**0.000555**	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000275	0.000889	1 of 20
2,4'-DDE	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
2,4'-DDT	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
4,4'-DDD	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
4,4'-DDE	~	**0.000524**	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000271	0.000827	1 of 20
4,4'-DDT	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
Aldrin	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
Alpha-Chlordane	~	**0.00161**	~	**0.0148**	~	**0.00965**	~	**0.00247**	~	**0.00978**	~	**0.00548**	0.00799	0.0279	20 of 20
BZ 101 Pentachlorobiphenyl	~	**0.000835**	~	**0.00109**	~	**0.00395**	~	**0.000659**	~	**0.00157**	~	**0.00155**	0.00197	0.00395	14 of 20
BZ 105 Pentachlorobiphenyl	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
BZ 118 Pentachlorobiphenyl	~	**0.000511**	~	**0.000386**	~	**0.00195**	~	0.000212	~	0.000205	~	0.000213	0.000768	0.00195	7 of 20
BZ 126 Pentachlorobiphenyl	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
BZ 128 Hexachlorobiphenyl	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	**0.000875**	0.000274	0.000875	1 of 20
BZ 138 Hexachlorobiphenyl	~	**0.00124**	~	**0.00107**	~	**0.00386**	~	**0.0007**	~	**0.00119**	~	**0.0033**	0.00202	0.00386	16 of 20
BZ 153 Hexachlorobiphenyl	~	**0.00115**	~	**0.0016**	~	**0.00629**	~	**0.00067**	~	**0.00366**	~	**0.00291**	0.00338	0.00636	20 of 20
BZ 170 Heptachlorobiphenyl	~	0.000215	~	0.000206	~	**0.00135**	~	0.000212	~	0.000205	~	0.000213	0.000536	0.00135	1 of 20
BZ 18 Trichlorobiphenyl	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
BZ 180 Heptachlorobiphenyl	~	**0.000352**	~	**0.000798**	~	**0.00366**	~	**0.000417**	~	**0.00108**	~	**0.00246**	0.00169	0.00366	14 of 20
BZ 187 Heptachlorobiphenyl	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	**0.000917**	~	0.000213	0.000417	0.00166	1 of 20
BZ 195 Octachlorobiphenyl	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
BZ 206 Nonachlorobiphenyl	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
BZ 209 Decachlorobiphenyl	~	0.000215	~	0.000206	~	**0.000457**	~	0.000212	~	**0.000327**	~	0.000213	0.000312	0.000457	5 of 20
BZ 28 Trichlorobiphenyl	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
BZ 44 Tetrachlorobiphenyl	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
BZ 52 Tetrachlorobiphenyl	~	**0.000391**	~	0.000206	~	0.000288	~	0.000212	~	**0.00226**	~	0.000213	0.000788	0.00439	3 of 20
BZ 66 Tetrachlorobiphenyl	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
BZ 77 Tetrachlorobiphenyl	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
BZ 8 Dichlorobiphenyl	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
Cis-Nonachlor	~	**0.000274**	~	**0.00244**	~	**0.00231**	~	**0.000337**	~	**0.00152**	~	0.000213	0.00144	0.00462	12 of 20
DDMU	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
Dieldrin	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
Endrin	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
Gamma-BHC	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	**0.000311**	~	0.000213	0.000259	0.000413	1 of 20
Gamma-Chlordane	~	**0.00153**	~	**0.017**	~	**0.0101**	~	**0.00258**	~	**0.0115**	~	**0.00639**	0.0089	0.0324	20 of 20
Heptachlor	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
Heptachlor Epoxide	~	0.000215	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000231	0.000288	0 of 20
Hexachlorobenzene	~	**0.000321**	~	**0.000588**	~	**0.00174**	~	**0.00137**	~	**0.00179**	~	**0.00191**	0.00139	0.00344	18 of 20
Mirex	~	0.000215	~	**0.000594**	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000278	0.000634	2 of 20
Oxychlordane	~	**0.0068**	~	**0.0149**	~	**0.0187**	~	**0.119**	~	0.000205	~	0.000213	0.0248	0.223	14 of 20
Total Chlordane	~	**0.00253**	~	**0.0241**	~	**0.0156**	~	**0.00374**	~	**0.0147**	~	**0.00865**	0.0126	0.0454	20 of 20
Total DDT	~	**0.000935**	~	0.000206	~	0.000288	~	0.000212	~	0.000205	~	0.000213	0.000324	0.00165	1 of 20
Trans-Nonachlor	~	**0.000916**	~	**0.00929**	~	**0.00593**	~	**0.00127**	~	**0.00488**	~	**0.00316**	0.00458	0.0175	20 of 20

Table A-10. Deer Island Influent Characterization (Low detection limit analyses; North & South Systems), FY15 (cont.)

Volatile Organics (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,1,1-Trichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
1,1,2,2-Tetrachloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
1,1,2-Trichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
1,1-Dichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
1,1-Dichloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
1,2-Dichlorobenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
1,2-Dichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
1,2-Dichloropropane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
1,3-Dichlorobenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
1,4-Dichlorobenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
2-Butanone	**3.3**	**2.66**	**8.43**	**5.6**	**2.88**	0.5	0.5	0.5	**1.49**	0.5	**1.47**	**6.65**	2.16	8.89	19 of 48
2-Chloroethyl Vinyl Ether	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
2-Hexanone	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
4-Methyl-2-Pentanone	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Acetone	**94.1**	**97.1**	**143**	**123**	**136**	**56**	**180**	**61.3**	**92.5**	**121**	**64.5**	**118**	99.5	210	48 of 48
Acrolein	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0 of 48
Acrylonitrile	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0 of 48
Benzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Bromodichloromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Bromoform	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Bromomethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Carbon Disulfide	0.5	**8.34**	**4.66**	**3.88**	0.5	0.5	0.5	0.5	0.5	0.5	**5.21**	0.5	1.69	11.2	5 of 48
Carbon Tetrachloride	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Chlorobezene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Chloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Chloroform	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Chloromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Cis-1,2-Dichloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Cis-1,3-Dichloropropene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Dibromochloromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Ethylbenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
M,P-Xylene	1	1	1	1	**4.05**	1	1	1	1	1	1	1	1.19	7.15	1 of 48
Methylene Chloride	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
O-Xylene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Styrene	0.5	**10.2**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.05	19.9	1 of 48
Tetrachloroethene	0.5	0.5	0.5	**1.25**	**6.93**	0.5	0.5	0.5	0.5	**1.7**	**1.39**	**3.66**	1.34	7.44	7 of 48
Toluene	0.5	0.5	0.5	0.5	**6.76**	0.5	0.5	0.5	0.5	0.5	0.5	**2.66**	1.03	13.1	3 of 48
Trans-1,2-Dichloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Trans-1,3-Dichloropropene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Trichloroethene	0.5	0.5	0.5	0.5	**2.76**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.641	2.96	2 of 48
Trichlorofluoromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Vinyl Acetate	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 48
Vinyl Chloride	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0 of 48

Notes

DEC is the now-defunct Detailed Effluent Characterization project, which includes low-detection limit methods not approved by the EPA. DEC sampling is now carried out under the NP-EM project.

~: No data or no samples taken

Results in **bold** indicate one or more detects that month

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-11. Deer Island Influent loadings (Low detection limit analyses; North & South Systems), FY15

Semivolatile Organics (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,2,4-Trichlorobenzene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
1,2-Dichlorobenzene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
1,2-Diphenylhydrazine (as Azobenzene)	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
1,3-Dichlorobenzene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
1,4-Dichlorobenzene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
2,2'-Oxybis(1-Chloropropane)	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
2,4,5-Trichlorophenol	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
2,4,6-Trichlorophenol	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
2,4-Dichlorophenol	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
2,4-Dimethylphenol	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
2,4-Dinitrophenol	12.5	10.7	10.2	9.98	12	64.4	20.4	12.3	11.5	21.6	13.9	12.6	15.6	64.4	0 of 46
2,4-Dinitrotoluene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
2,6-Dinitrotoluene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
2-Chloronaphthalene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
2-Chlorophenol	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
2-Methyl-4,6-Dinitrophenol	12.5	10.7	10.2	9.98	12	64.4	20.4	12.3	11.5	21.6	13.9	12.6	15.6	64.4	0 of 46
2-Methylnaphthalene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
2-Methylphenol	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
2-Nitroaniline	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
2-Nitrophenol	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
3,3'-Dichlorobenzidine	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
3-Nitroaniline	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
4-Bromophenyl Phenyl Ether	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
4-Chloro-3-Methylphenol	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
4-Chloroaniline	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
4-Chlorophenyl Phenyl Ether	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
4-Methylphenol (includes 3-Methylphenol)	5	**23.5**	**59.7**	**40.4**	4.82	25.7	8.15	**105**	**120**	8.63	**85.1**	**68.6**	47.1	125	23 of 46
4-Nitroaniline	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
4-Nitrophenol	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Acenaphthene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Acenaphthylene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Aniline	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Anthracene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Benzidine	12.5	10.7	10.2	9.98	12	64.4	20.4	12.3	11.5	21.6	13.9	12.6	15.6	64.4	0 of 46
Benzo(a)anthracene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Benzo(a)pyrene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Benzo(b)fluoranthene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Benzo(g,h,i)perylene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Benzo(k)fluoranthene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Benzoic Acid	12.5	10.7	10.2	9.98	12	64.4	20.4	**61.6**	**163**	21.6	**61.4**	12.6	37.2	227	5 of 46
Benzyl Alcohol	5	**14.4**	4.09	3.99	4.82	25.7	8.15	**20.5**	**19.4**	8.63	**86.4**	5.04	16.8	96.6	7 of 46
Bis(2-Chloroethoxy)methane	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Bis(2-Chloroethyl)ether	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Bis(2-Ethylhexyl)phthalate	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Butylbenzylphthalate	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Carbazole	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Chrysene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Dibenzo(a,h)anthracene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Dibenzofuran	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Diethylphthalate	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Dimethylphthalate	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Di-N-Butylphthalate	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Di-N-Octylphthalate	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Fluoranthene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Fluorene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Hexachlorobenzene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Hexachlorobutadiene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Hexachlorocyclopentadiene	12.5	10.7	10.2	9.98	12	64.4	20.4	12.3	11.5	21.6	13.9	12.6	15.6	64.4	0 of 46
Hexachloroethane	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Indeno(1,2,3-CD)pyrene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Isophorone	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Naphthalene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
n-Decane	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46

Table A-11. Deer Island Influent loadings (Low detection limit analyses; North & South Systems), FY15 (cont.)

Semivolatile Organics (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Nitrobenzene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
N-Nitrosodimethylamine (NDMA)	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
N-Nitrosodi-N-Propylamine (NDPA)	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
N-Nitrosodiphenylamine	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
N-Octadecane	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Pentachlorophenol	12.5	10.7	10.2	9.98	12	64.4	20.4	12.3	11.5	21.6	13.9	12.6	15.6	64.4	0 of 46
Phenanthrene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Phenol	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46
Pyrene	5	4.28	4.09	3.99	4.82	25.7	8.15	4.94	4.61	8.63	5.55	5.04	6.26	25.7	0 of 46

Polycyclic Aromatic Hydrocarbons (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1-Methylnaphthalene	~	**35.4**	~	**0.226**	~	**1.03**	~	**0.105**	~	0.296	~	**0.128**	7.31	70.6	20 of 20
1-Methylphenanthrene	~	**8.59**	~	**0.0611**	~	**0.634**	~	**0.0941**	~	0.109	~	**0.0753**	1.84	17.1	19 of 20
2,3,5-Trimethylnaphthylene	~	**13**	~	**0.075**	~	**0.592**	~	**0.0445**	~	0.186	~	**0.139**	2.74	26	20 of 20
2,6-Dimethylnaphthalene	~	**18.6**	~	**0.122**	~	**1.09**	~	**0.0891**	~	0.314	~	**0.092**	3.94	37.1	20 of 20
2-Methylnaphthalene	~	**28.7**	~	**0.17**	~	**0.826**	~	**0.107**	~	0.321	~	**0.111**	5.95	57.3	20 of 20
Acenaphthene	~	**28**	~	**0.178**	~	**0.844**	~	**0.0983**	~	0.268	~	**0.103**	5.8	55.9	20 of 20
Acenaphthylene	~	**2.88**	~	**0.0252**	~	**0.245**	~	**0.0126**	~	0.107	~	**0.00904**	0.63	5.73	14 of 20
Anthracene	~	**16.2**	~	**0.12**	~	**1.16**	~	**0.041**	~	0.157	~	**0.0832**	3.42	32.3	20 of 20
Benzo(a)anthracene	~	**24.3**	~	**0.136**	~	**3.15**	~	**0.0571**	~	0.318	~	**0.211**	5.3	48.4	20 of 20
Benzo(a)pyrene	~	**18.2**	~	**0.11**	~	**3.12**	~	**0.0394**	~	0.353	~	**0.186**	4.07	36.2	19 of 20
Benzo(b)fluoranthene	~	**31.9**	~	**0.153**	~	**5.07**	~	**0.061**	~	0.522	~	**0.321**	7.07	63.6	20 of 20
Benzo(e)pyrene	~	**15.1**	~	**0.0404**	~	**2.18**	~	**0.0336**	~	0.277	~	**0.136**	3.32	30.1	18 of 20
Benzo(g,h,i)perylene	~	**12.5**	~	0.000988	~	**2.28**	~	**0.0305**	~	**0.385**	~	0.0011	2.8	24.8	12 of 20
Benzo(k)fluoranthene	~	**9.02**	~	**0.0466**	~	**1.38**	~	**0.0255**	~	0.198	~	**0.132**	2.01	18	20 of 20
Benzothiazole	~	**85**	~	**0.0413**	~	**2.78**	~	**0.253**	~	0.824	~	**0.185**	17.5	170	20 of 20
Biphenyl	~	**33**	~	**0.0218**	~	**0.2**	~	0.00119	~	**0.0683**	~	**0.0341**	6.64	65.9	16 of 20
C1-Chrysenes	~	**21.6**	~	**0.0274**	~	**1.36**	~	**0.0329**	~	0.282	~	**0.11**	4.54	43.1	17 of 20
C1-Dibenzothiophenes	~	**0.398**	~	0.000988	~	0.00662	~	0.00119	~	0.00213	~	**0.0654**	0.0877	0.796	3 of 20
C1-Flyoranthenes/Pyrenes	~	**38**	~	**0.152**	~	**2.04**	~	**0.0629**	~	0.399	~	**0.21**	7.94	75.7	20 of 20
C1-Fluorenes	~	**46.5**	~	0.000988	~	**0.523**	~	**0.0476**	~	**0.21**	~	**0.134**	9.41	92.8	16 of 20
C1-Naphthalenes	~	**67.1**	~	**0.255**	~	**2.29**	~	**0.262**	~	0.86	~	**0.158**	13.9	134	20 of 20
C1-Phenanthrenes/Anthracenes	~	**91.5**	~	**0.283**	~	**11.5**	~	**0.575**	~	2.23	~	**0.322**	20.1	183	20 of 20
C2-Chrysenes	~	**149**	~	**0.672**	~	**1.21**	~	**0.0899**	~	**1.56**	~	0.0011	30.5	299	13 of 20
C2-Dibenzothiophenes	~	**0.407**	~	0.000988	~	0.00662	~	0.00119	~	0.00213	~	0.166	0.0996	0.786	3 of 20
C2-Fluoranthenes/Pyrenes	~	**13.7**	~	0.000988	~	0.00662	~	0.00119	~	0.00213	~	0.115	2.76	27.4	6 of 20
C2-Fluorenes	~	0.394	~	0.000988	~	**0.599**	~	0.00119	~	**0.37**	~	0.173	0.23	0.786	8 of 20
C2-Naphthalenes	~	**102**	~	**0.24**	~	**10.3**	~	**0.566**	~	2.22	~	**0.323**	22.1	204	20 of 20
C2-Phenanthrenes/Anthracenes	~	**0.541**	~	**0.172**	~	**1.94**	~	**0.0885**	~	0.451	~	**0.228**	0.467	1.94	18 of 20
C3-Chrysenes	~	0.394	~	0.000988	~	0.00662	~	0.00119	~	0.00213	~	0.0011	0.0804	0.786	0 of 20
C3-Dibenzothiophenes	~	0.394	~	0.000988	~	0.00662	~	0.00119	~	0.00213	~	0.0011	0.0804	0.786	0 of 20
C3-Fluoranthenes/Pyrenes	~	0.394	~	0.000988	~	0.00662	~	0.00119	~	**0.0229**	~	0.0011	0.0845	0.786	1 of 20
C3-Fluorenes	~	0.394	~	0.000988	~	0.00662	~	0.00119	~	0.00213	~	0.0011	0.0804	0.786	0 of 20
C3-Naphthalenes	~	**106**	~	**0.173**	~	**1.85**	~	**0.119**	~	**0.599**	~	**0.369**	21.6	212	18 of 20
C3-Phenanthrenes/Anthracenes	~	0.394	~	0.000988	~	0.00662	~	0.00119	~	0.00213	~	0.0011	0.0804	0.786	0 of 20
C4-Chrysenes	~	0.394	~	0.000988	~	0.00662	~	0.00119	~	0.00213	~	0.0011	0.0804	0.786	0 of 20
C4-Naphthalenes	~	**53.5**	~	0.000988	~	**1.15**	~	**0.0628**	~	**0.594**	~	**0.275**	11	107	16 of 20
C4-Phenanthrenes/Anthracenes	~	0.394	~	0.000988	~	0.00662	~	0.00119	~	0.00213	~	0.0011	0.0804	0.786	0 of 20
Chrysene	~	**25.5**	~	**0.127**	~	**3.33**	~	**0.0596**	~	**0.467**	~	**0.269**	5.59	50.8	20 of 20
Dibenzo(a,h)anthracene	~	0.394	~	0.000988	~	**0.551**	~	0.00119	~	0.00213	~	0.0011	0.135	0.786	2 of 20
Dibenzofuran	~	**12.8**	~	**0.0835**	~	**0.479**	~	**0.0396**	~	**0.125**	~	**0.0729**	2.67	25.6	18 of 20
Dibenzothiophene	~	**11.2**	~	**0.0586**	~	**0.46**	~	**0.0253**	~	**0.0987**	~	**0.0513**	2.32	22.3	20 of 20
Fluoranthene	~	**52.8**	~	**0.32**	~	**5.9**	~	**0.122**	~	**1.05**	~	**0.489**	11.5	105	20 of 20
Fluorene	~	**21.5**	~	**0.149**	~	**0.736**	~	**0.057**	~	**0.202**	~	**0.114**	4.47	43	20 of 20
Indeno(1,2,3-CD)pyrene	~	**0.553**	~	**0.286**	~	**1.68**	~	**0.0901**	~	**0.711**	~	0.0011	0.496	1.68	16 of 20
Naphthalene	~	**77.3**	~	**0.585**	~	**1.15**	~	**0.312**	~	**0.764**	~	**0.206**	15.9	154	20 of 20
Perylene	~	**6**	~	**0.105**	~	**0.666**	~	**0.00774**	~	**0.174**	~	**0.034**	1.33	12	20 of 20
Phenanthrene	~	**80.2**	~	**0.533**	~	**5.09**	~	**0.198**	~	**0.894**	~	**0.43**	16.9	160	20 of 20
Pyrene	~	**45.7**	~	**0.283**	~	**5.11**	~	**0.111**	~	**0.876**	~	**0.414**	9.94	91.1	20 of 20

Table A-11. Deer Island Influent loadings (Low detection limit analyses; North & South Systems), FY15 (cont.)

Organochlorine Pesticides and PCBs (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
2,4'-DDD	~	0.00114	~	0.000395	~	**0.00265**	~	0.000475	~	0.000853	~	**0.000441**	0.000882	0.00265	1 of 20
2,4'-DDE	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000742	0.00265	0 of 20
2,4'-DDT	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000742	0.00265	0 of 20
4,4'-DDD	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000742	0.00265	0 of 20
4,4'-DDE	~	**0.00108**	~	**0.000395**	~	**0.00265**	~	**0.000475**	~	**0.000853**	~	**0.000441**	0.000869	0.00265	1 of 20
4,4'-DDT	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000742	0.00265	0 of 20
Aldrin	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000742	0.00265	0 of 20
Alpha-Chlordane	~	**0.00332**	~	**0.0283**	~	**0.0888**	~	**0.00554**	~	**0.0408**	~	**0.0113**	0.0256	0.0888	20 of 20
BZ 101 Pentachlorobiphenyl	~	**0.000443**	~	0.000395	~	**0.00265**	~	**0.000475**	~	**0.000853**	~	**0.000441**	0.000742	0.00265	0 of 20
BZ 105 Pentachlorobiphenyl	~	0.000443	~	0.000395	~	0.00265	~	**0.000475**	~	0.000853	~	**0.000441**	0.000742	0.00265	0 of 20
BZ 118 Pentachlorobiphenyl	~	**0.000443**	~	0.000395	~	**0.00265**	~	**0.000475**	~	**0.000853**	~	**0.000441**	0.000742	0.00265	0 of 20
BZ 126 Pentachlorobiphenyl	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000742	0.00265	0 of 20
BZ 128 Hexachlorobiphenyl	~	0.000806	~	0.000395	~	0.00265	~	0.000475	~	0.00942	~	0.000441	0.00253	0.018	3 of 20
BZ 138 Hexachlorobiphenyl	~	**0.000443**	~	**0.000395**	~	**0.00265**	~	**0.000475**	~	**0.000853**	~	**0.000441**	0.000742	0.00265	0 of 20
BZ 153 Hexachlorobiphenyl	~	**0.000443**	~	**0.000395**	~	**0.00265**	~	**0.000475**	~	**0.000853**	~	**0.000441**	0.000742	0.00265	0 of 20
BZ 170 Heptachlorobiphenyl	~	0.00172	~	0.00208	~	0.0363	~	0.00148	~	0.00657	~	**0.00321**	0.00632	0.0363	14 of 20
BZ 18 Trichlorobiphenyl	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000742	0.00265	0 of 20
BZ 180 Heptachlorobiphenyl	~	**0.00105**	~	0.000739	~	**0.0179**	~	**0.000475**	~	**0.000853**	~	**0.000441**	0.00246	0.0179	7 of 20
BZ 187 Heptachlorobiphenyl	~	**0.000443**	~	0.000395	~	**0.00265**	~	**0.000475**	~	**0.000853**	~	**0.000441**	0.000742	0.00265	0 of 20
BZ 195 Octachlorobiphenyl	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.00181	0.000879	0.00265	1 of 20
BZ 206 Nonachlorobiphenyl	~	0.00255	~	0.00205	~	0.0355	~	0.00157	~	0.00495	~	0.00685	0.00646	0.0355	16 of 20
BZ 209 Decachlorobiphenyl	~	0.00237	~	0.00306	~	0.0578	~	0.0015	~	0.0153	~	0.00603	0.0108	0.0578	20 of 20
BZ 28 Trichlorobiphenyl	~	0.000443	~	0.000395	~	0.0124	~	**0.000475**	~	0.000853	~	0.000441	0.00172	0.0124	1 of 20
BZ 44 Tetrachlorobiphenyl	~	0.000725	~	0.00153	~	0.0337	~	**0.000937**	~	0.00452	~	0.0051	0.00542	0.0337	14 of 20
BZ 52 Tetrachlorobiphenyl	~	**0.000443**	~	0.000395	~	**0.00265**	~	**0.000475**	~	**0.00383**	~	**0.000441**	0.00134	0.00678	1 of 20
BZ 66 Tetrachlorobiphenyl	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000742	0.00265	0 of 20
BZ 77 Tetrachlorobiphenyl	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000742	0.00265	0 of 20
BZ 8 Dichlorobiphenyl	~	0.000443	~	0.000395	~	0.00421	~	0.000475	~	0.00136	~	0.000441	0.001	0.00421	5 of 20
Cis-Nonachlor	~	0.000564	~	0.00468	~	**0.0212**	~	**0.000757**	~	**0.00634**	~	**0.000441**	0.00463	0.0212	12 of 20
DDMU	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000742	0.00265	0 of 20
Dieldrin	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000742	0.00265	0 of 20
Endrin	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000742	0.00265	0 of 20
Gamma-BHC	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.0013	~	0.000441	0.00083	0.00265	1 of 20
Gamma-Chlordane	~	**0.00315**	~	**0.0327**	~	**0.0926**	~	**0.00579**	~	**0.0482**	~	**0.0132**	0.0285	0.0926	20 of 20
Heptachlor	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000742	0.00265	0 of 20
Heptachlor Epoxide	~	0.000443	~	0.000395	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000742	0.00265	0 of 20
Hexachlorobenzene	~	0.000661	~	**0.00113**	~	**0.016**	~	**0.00308**	~	**0.00746**	~	**0.00397**	0.00446	0.016	18 of 20
Mirex	~	0.000443	~	0.00114	~	0.00265	~	0.000475	~	0.000853	~	0.000441	0.000891	0.00265	2 of 20
Oxychlordane	~	0.014	~	0.0287	~	0.172	~	0.267	~	0.000853	~	0.000441	0.0794	0.495	14 of 20
Total Chlordane	~	**0.00521**	~	**0.0461**	~	**0.144**	~	0.00839	~	0.0612	~	0.0179	0.0403	0.144	20 of 20
Total DDT	~	**0.00193**	~	**0.000395**	~	**0.00265**	~	**0.000475**	~	**0.000853**	~	**0.000441**	0.00104	0.0034	1 of 20
Trans-Nonachlor	~	**0.00189**	~	**0.0178**	~	**0.0546**	~	**0.00285**	~	**0.0204**	~	**0.00654**	0.0147	0.0546	20 of 20

Table A-11. Deer Island Influent loadings (Low detection limit analyses; North & South Systems), FY15 (cont.)

Volatile Organics (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,1,1-Trichloroethane	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
1,1,2,2-Tetrachloroethane	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
1,1,2-Trichloroethane	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
1,1-Dichloroethane	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
1,1-Dichloroethene	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
1,2-Dichlorobenzene	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
1,2-Dichloroethane	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
1,2-Dichloropropane	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
1,3-Dichlorobenzene	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
1,4-Dichlorobenzene	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
2-Butanone	**7.58**	**5.46**	**16.1**	**10.8**	**6.5**	4.4	1.56	1.14	**3.54**	2.1	**3.8**	**15**	6.5	17	19 of 48
2-Chloroethyl Vinyl Ether	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
2-Hexanone	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
4-Methyl-2-Pentanone	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Acetone	**216**	**199**	**275**	**237**	**305**	**493**	**561**	**140**	**220**	**507**	**167**	**266**	299	767	48 of 48
Acrolein	2.3	2.05	1.91	1.93	2.25	8.8	3.11	2.28	2.38	4.2	2.58	2.25	3	9.2	0 of 48
Acrylonitrile	2.3	2.05	1.91	1.93	2.25	8.8	3.11	2.28	2.38	4.2	2.58	2.25	3	9.2	0 of 48
Benzene	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Bromodichloromethane	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Bromoform	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Bromomethane	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Carbon Disulfide	1.15	**17.1**	**8.91**	**7.49**	1.13	4.4	1.56	1.14	1.19	2.1	**13.4**	1.12	5.06	25.6	5 of 48
Carbon Tetrachloride	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Chlorobezene	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Chloroethane	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Chloroform	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Chloromethane	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Cis-1,2-Dichloroethene	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Cis-1,3-Dichloropropene	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Dibromochloromethane	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Ethylbenzene	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
M,P-Xylene	2.3	2.05	1.91	1.93	**9.12**	8.8	3.11	2.28	2.38	4.2	2.58	2.25	3.58	16	1 of 48
Methylene Chloride	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
O-Xylene	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Styrene	1.15	**20.9**	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	3.15	40.7	1 of 48
Tetrachloroethene	1.15	1.03	0.957	**2.41**	**15.6**	4.4	1.56	1.14	1.19	**7.13**	**3.58**	**8.24**	4.03	16.6	7 of 48
Toluene	1.15	1.03	0.957	0.964	**15.2**	4.4	1.56	1.14	1.19	2.1	1.29	**5.98**	3.08	29.3	3 of 48
Trans-1,2-Dichloroethene	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Trans-1,3-Dichloropropene	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Trichloroethene	1.15	1.03	0.957	0.964	**6.21**	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.93	6.61	2 of 48
Trichlorofluoromethane	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Vinyl Acetate	1.15	1.03	0.957	0.964	1.13	4.4	1.56	1.14	1.19	2.1	1.29	1.12	1.5	4.6	0 of 48
Vinyl Chloride	0.46	0.41	0.383	0.386	0.45	1.76	0.623	0.456	0.476	0.84	0.516	0.45	0.601	1.84	0 of 48

Notes

DEC is the now-defunct Detailed Effluent Characterization project, which includes low-detection limit methods not approved by the EPA. DEC sampling is now carried out under the NP-EM project.

~: No data or no samples taken

Results in **bold** indicate one or more detects that month

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-12. Deer Island Influent Characterization (Low detection limit analyses; North System), FY15

Semivolatile Organics (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,2,4-Trichlorobenzene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
1,2-Dichlorobenzene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
1,2-Diphenylhydrazine (as Azobenzene)	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
1,3-Dichlorobenzene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
1,4-Dichlorobenzene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
2,2'-Oxybis(1-Chloropropane)	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
2,4,5-Trichlorophenol	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
2,4,6-Trichlorophenol	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
2,4-Dichlorophenol	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
2,4-Dimethylphenol	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
2,4-Dinitrophenol	5.2	5.1	5.27	5.14	5.21	6.46	6.87	5.56	5.18	5.21	5.12	5.77	5.71	8.62	0 of 24
2,4-Dinitrotoluene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
2,6-Dinitrotoluene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
2-Chloronaphthalene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
2-Chlorophenol	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
2-Methyl-4,6-Dinitrophenol	5.2	5.1	5.27	5.14	5.21	6.46	6.87	5.56	5.18	5.21	5.12	5.77	5.71	8.62	0 of 24
2-Methylnaphthalene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
2-Methylphenol	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
2-Nitroaniline	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
2-Nitrophenol	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
3,3'-Dichlorobenzidine	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
3-Nitroaniline	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
4-Bromophenyl Phenyl Ether	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
4-Chloro-3-Methylphenol	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
4-Chloroaniline	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
4-Chlorophenyl Phenyl Ether	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
4-Methylphenol (includes 3-Methylphenol)	2.08	2.04	**31.6**	**23.8**	2.08	2.58	2.75	**53.5**	**57.9**	2.09	**50.5**	**30**	16.9	59.4	12 of 24
4-Nitroaniline	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
4-Nitrophenol	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Acenaphthene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Acenaphthylene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Aniline	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Anthracene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Benzidine	5.2	5.1	5.27	5.14	5.21	6.46	6.87	5.56	5.18	5.21	5.12	5.77	5.71	8.62	0 of 24
Benzo(a)anthracene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Benzo(a)pyrene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Benzo(b)fluoranthene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Benzo(g,h,i)perylene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Benzo(k)fluoranthene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Benzoic Acid	5.2	5.1	5.27	5.14	5.21	6.46	6.87	**39**	**90.7**	5.21	**34.1**	5.77	15	117	4 of 24
Benzyl Alcohol	2.08	2.04	2.11	2.05	2.08	2.58	2.75	**12.8**	**12.5**	2.09	**38.4**	2.31	6.1	46.9	4 of 24
Bis(2-Chloroethoxy)methane	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Bis(2-Chloroethyl)ether	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Bis(2-Ethylhexyl)phthalate	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Butylbenzylphthalate	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Carbazole	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Chrysene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Dibenzo(a,h)anthracene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Dibenzofuran	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Diethylphthalate	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Dimethylphthalate	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Di-N-Butylphthalate	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Di-N-Octylphthalate	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Fluoranthene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Fluorene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Hexachlorobenzene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Hexachlorobutadiene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Hexachlorocyclopentadiene	5.2	5.1	5.27	5.14	5.21	6.46	6.87	5.56	5.18	5.21	5.12	5.77	5.71	8.62	0 of 24
Hexachloroethane	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Indeno(1,2,3-CD)pyrene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Isophorone	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Naphthalene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
n-Decane	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24

Table A-12. Deer Island Influent Characterization (Low detection limit analyses; North System), FY15 (cont.)

Semivolatile Organics (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Nitrobenzene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
N-Nitrosodimethylamine (NDMA)	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
N-Nitrosodi-N-Propylamine (NDPA)	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
N-Nitrosodiphenylamine	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
N-Octadecane	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Pentachlorophenol	5.2	5.1	5.27	5.14	5.21	6.46	6.87	5.56	5.18	5.21	5.12	5.77	5.71	8.62	0 of 24
Phenanthrene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Phenol	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24
Pyrene	2.08	2.04	2.11	2.05	2.08	2.58	2.75	2.22	2.08	2.09	2.05	2.31	2.28	3.45	0 of 24

Polycyclic Aromatic Hydrocarbons (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1-Methylnaphthalene	~	**0.0656**	~	**0.146**	~	**0.0896**	~	**0.0514**	~	**0.0936**	~	**0.0802**	0.0886	0.169	11 of 11
1-Methylphenanthrene	~	**0.0218**	~	**0.0411**	~	**0.0533**	~	**0.0113**	~	**0.0236**	~	**0.0322**	0.0376	0.0733	11 of 11
2,3,5-Trimethylnaphthylene	~	**0.0241**	~	**0.0416**	~	**0.0488**	~	**0.0142**	~	**0.0474**	~	**0.0657**	0.0422	0.0657	11 of 11
2,6-Dimethylnaphthalene	~	**0.0368**	~	**0.0723**	~	**0.0758**	~	**0.0321**	~	**0.0816**	~	**0.0453**	0.0659	0.0933	11 of 11
2-Methylnaphthalene	~	**0.0529**	~	**0.111**	~	**0.0795**	~	**0.0546**	~	**0.101**	~	**0.0718**	0.0805	0.127	11 of 11
Acenaphthene	~	**0.0496**	~	**0.11**	~	**0.0916**	~	**0.0472**	~	**0.0761**	~	**0.061**	0.0797	0.126	11 of 11
Acenaphthylene	~	**0.0101**	~	**0.0187**	~	**0.0213**	~	**0.00832**	~	**0.0314**	~	**0.00442**	0.0193	0.0344	10 of 11
Anthracene	~	**0.0368**	~	**0.08**	~	**0.102**	~	**0.0176**	~	**0.0389**	~	**0.0444**	0.0692	0.145	11 of 11
Benzo(a)anthracene	~	**0.0672**	~	**0.0881**	~	**0.244**	~	**0.0205**	~	**0.0791**	~	**0.1**	0.148	0.395	11 of 11
Benzo(a)pyrene	~	**0.0612**	~	**0.0781**	~	**0.248**	~	**0.0151**	~	**0.0914**	~	**0.0882**	0.149	0.409	11 of 11
Benzo(b)fluoranthene	~	**0.0888**	~	**0.1**	~	**0.399**	~	**0.0219**	~	**0.126**	~	**0.148**	0.232	0.663	11 of 11
Benzo(e)pyrene	~	**0.045**	~	**0.0277**	~	**0.172**	~	**0.0116**	~	**0.0674**	~	**0.0632**	0.102	0.285	10 of 11
Benzo(g,h,i)perylene	~	**0.042**	~	0.000507	~	**0.181**	~	**0.0105**	~	**0.0838**	~	0.000525	0.102	0.301	8 of 11
Benzo(k)fluoranthene	~	**0.0265**	~	**0.0308**	~	**0.108**	~	**0.00946**	~	**0.0475**	~	**0.0613**	0.0674	0.177	11 of 11
Benzothiazole	~	**0.114**	~	**0.0194**	~	**0.287**	~	**0.112**	~	**0.186**	~	**0.0793**	0.194	0.307	11 of 11
Biphenyl	~	**0.0625**	~	**0.0121**	~	**0.0178**	~	0.000535	~	**0.0181**	~	**0.0176**	0.0201	0.0779	9 of 11
C1-Chrysenes	~	**0.07**	~	**0.0204**	~	**0.111**	~	**0.01**	~	**0.0601**	~	**0.0455**	0.074	0.181	10 of 11
C1-Dibenzothiophenes	~	0.00054	~	0.000507	~	0.000635	~	0.000535	~	0.000512	~	**0.0303**	0.00211	0.0303	1 of 11
C1-Flyoranthenes/Pyrenes	~	**0.101**	~	**0.0968**	~	**0.162**	~	**0.0227**	~	**0.0887**	~	**0.0916**	0.117	0.246	11 of 11
C1-Fluorenes	~	**0.0886**	~	0.000507	~	**0.0448**	~	**0.0167**	~	**0.0537**	~	**0.0627**	0.0444	0.111	9 of 11
C1-Naphthalenes	~	**0.122**	~	**0.165**	~	**0.212**	~	**0.13**	~	**0.272**	~	**0.0967**	0.193	0.311	11 of 11
C1-Phenanthrenes/Anthracenes	~	**0.179**	~	**0.173**	~	**0.971**	~	**0.212**	~	**0.488**	~	**0.144**	0.593	1.25	11 of 11
C2-Chrysenes	~	**0.106**	~	**0.323**	~	**0.0684**	~	0.000535	~	**0.443**	~	0.000525	0.154	0.533	7 of 11
C2-Dibenzothiophenes	~	0.00054	~	0.000507	~	0.000635	~	0.000535	~	0.000512	~	**0.0736**	0.00435	0.0736	1 of 11
C2-Fluoranthenes/Pyrenes	~	**0.0371**	~	0.000507	~	0.000635	~	0.000535	~	0.000512	~	**0.0527**	0.00718	0.0546	3 of 11
C2-Fluorenes	~	0.00054	~	0.000507	~	**0.0391**	~	0.000535	~	**0.0693**	~	**0.0798**	0.0343	0.0798	5 of 11
C2-Naphthalenes	~	**0.183**	~	**0.155**	~	**0.782**	~	**0.216**	~	**0.607**	~	**0.165**	0.529	0.847	11 of 11
C2-Phenanthrenes/Anthracenes	~	**0.068**	~	**0.0953**	~	**0.14**	~	**0.0265**	~	**0.0994**	~	**0.0901**	0.106	0.198	10 of 11
C3-Chrysenes	~	0.00054	~	0.000507	~	0.000635	~	0.000535	~	0.000512	~	0.000525	0.000573	0.000725	0 of 11
C3-Dibenzothiophenes	~	0.00054	~	0.000507	~	0.000635	~	0.000535	~	0.000512	~	0.000525	0.000573	0.000725	0 of 11
C3-Fluoranthenes/Pyrenes	~	0.00054	~	0.000507	~	0.000635	~	0.000535	~	0.000512	~	0.000525	0.000573	0.000725	0 of 11
C3-Fluorenes	~	0.00054	~	0.000507	~	0.000635	~	0.000535	~	0.000512	~	0.000525	0.000573	0.000725	0 of 11
C3-Naphthalenes	~	**0.179**	~	**0.0894**	~	**0.126**	~	**0.0404**	~	**0.151**	~	**0.18**	0.126	0.207	11 of 11
C3-Phenanthrenes/Anthracenes	~	0.00054	~	0.000507	~	0.000635	~	0.000535	~	0.000512	~	0.000525	0.000573	0.000725	0 of 11
C4-Chrysenes	~	0.00054	~	0.000507	~	0.000635	~	0.000535	~	0.000512	~	0.000525	0.000573	0.000725	0 of 11
C4-Naphthalenes	~	**0.0931**	~	0.000507	~	**0.0788**	~	**0.0171**	~	**0.144**	~	**0.124**	0.0794	0.171	9 of 11
C4-Phenanthrenes/Anthracenes	~	0.00054	~	0.000507	~	0.000635	~	0.000535	~	0.000512	~	0.000525	0.000573	0.000725	0 of 11
Chrysene	~	**0.0649**	~	**0.0812**	~	**0.265**	~	**0.0212**	~	**0.109**	~	**0.126**	0.163	0.434	11 of 11
Dibenzo(a,h)anthracene	~	0.00054	~	0.000507	~	**0.043**	~	0.000535	~	0.000512	~	0.000525	0.0197	0.0706	2 of 11
Dibenzofuran	~	**0.0204**	~	**0.0625**	~	**0.0457**	~	**0.0174**	~	**0.0358**	~	**0.039**	0.0394	0.0743	11 of 11
Dibenzothiophene	~	**0.0227**	~	**0.0366**	~	**0.0399**	~	**0.0103**	~	**0.0242**	~	**0.0262**	0.0309	0.0551	11 of 11
Fluoranthene	~	**0.109**	~	**0.204**	~	**0.473**	~	**0.0434**	~	**0.237**	~	**0.241**	0.305	0.767	11 of 11
Fluorene	~	**0.0383**	~	**0.0953**	~	**0.0701**	~	**0.0258**	~	**0.0546**	~	**0.0601**	0.0611	0.117	11 of 11
Indeno(1,2,3-CD)pyrene	~	**0.061**	~	**0.153**	~	**0.107**	~	**0.0332**	~	**0.117**	~	0.000525	0.0945	0.164	9 of 11
Naphthalene	~	**0.131**	~	**0.386**	~	**0.155**	~	**0.188**	~	**0.277**	~	**0.141**	0.2	0.449	11 of 11
Perylene	~	**0.00997**	~	**0.0576**	~	**0.0516**	~	**0.00338**	~	**0.0219**	~	**0.0167**	0.0353	0.0853	11 of 11
Phenanthrene	~	**0.158**	~	**0.342**	~	**0.443**	~	**0.0816**	~	**0.223**	~	**0.227**	0.312	0.65	11 of 11
Pyrene	~	**0.102**	~	**0.181**	~	**0.414**	~	**0.0391**	~	**0.194**	~	**0.198**	0.265	0.662	11 of 11

Table A-12. Deer Island Influent Characterization (Low detection limit analyses; North System), FY15 (cont.)

Organochlorine Pesticides and PCBs (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
2,4'-DDD	~	**0.000714**	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000283	0.0012	1 of 11
2,4'-DDE	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
2,4'-DDT	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
4,4'-DDD	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
4,4'-DDE	~	**0.000669**	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000278	0.00111	1 of 11
4,4'-DDT	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
Aldrin	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
Alpha-Chlordane	~	**0.00102**	~	**0.0199**	~	**0.00727**	~	**0.00149**	~	**0.00433**	~	**0.00394**	0.00653	0.0386	11 of 11
BZ 101 Pentachlorobiphenyl	~	**0.000713**	~	**0.0011**	~	**0.00293**	~	**0.000493**	~	**0.00264**	~	**0.00224**	0.00215	0.00517	9 of 11
BZ 105 Pentachlorobiphenyl	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
BZ 118 Pentachlorobiphenyl	~	**0.000495**	~	**0.000396**	~	**0.00165**	~	0.000214	~	0.000205	~	0.00021	0.000911	0.00204	5 of 11
BZ 126 Pentachlorobiphenyl	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
BZ 128 Hexachlorobiphenyl	~	0.000216	~	0.000203	~	**0.000428**	~	0.000214	~	0.000205	~	0.00021	0.000308	0.000598	1 of 11
BZ 138 Hexachlorobiphenyl	~	**0.00118**	~	**0.00114**	~	**0.00306**	~	**0.000502**	~	**0.00195**	~	**0.00294**	0.00218	0.0046	9 of 11
BZ 153 Hexachlorobiphenyl	~	**0.00118**	~	**0.00169**	~	**0.00483**	~	**0.000511**	~	**0.00547**	~	**0.0026**	0.00364	0.00961	11 of 11
BZ 170 Heptachlorobiphenyl	~	0.000216	~	0.000203	~	**0.00133**	~	0.000214	~	0.000205	~	0.00021	0.000717	0.00178	2 of 11
BZ 18 Trichlorobiphenyl	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
BZ 180 Heptachlorobiphenyl	~	**0.000417**	~	**0.000956**	~	**0.00296**	~	**0.000281**	~	**0.00125**	~	**0.00186**	0.00183	0.00457	8 of 11
BZ 187 Heptachlorobiphenyl	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	**0.00147**	~	0.00021	0.000455	0.00279	1 of 11
BZ 195 Octachlorobiphenyl	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
BZ 206 Nonachlorobiphenyl	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
BZ 209 Decachlorobiphenyl	~	0.000216	~	0.000203	~	**0.000514**	~	0.000214	~	**0.00034**	~	0.00021	0.000371	0.000522	3 of 11
BZ 28 Trichlorobiphenyl	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
BZ 44 Tetrachlorobiphenyl	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
BZ 52 Tetrachlorobiphenyl	~	**0.000325**	~	0.000203	~	0.000254	~	0.000214	~	**0.00386**	~	0.00021	0.00089	0.00765	2 of 11
BZ 66 Tetrachlorobiphenyl	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
BZ 77 Tetrachlorobiphenyl	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
BZ 8 Dichlorobiphenyl	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
Cis-Nonachlor	~	0.000216	~	**0.00333**	~	**0.00186**	~	0.000214	~	**0.000699**	~	0.00021	0.00136	0.00643	5 of 11
DDMU	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
Dieldrin	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
Endrin	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
Gamma-BHC	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
Gamma-Chlordane	~	**0.00103**	~	**0.0232**	~	**0.00777**	~	**0.0017**	~	**0.00561**	~	**0.00506**	0.00741	0.0453	11 of 11
Heptachlor	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
Heptachlor Epoxide	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
Hexachlorobenzene	~	**0.000317**	~	**0.000614**	~	**0.00159**	~	**0.00137**	~	**0.000649**	~	**0.000924**	0.00113	0.00206	10 of 11
Mirex	~	0.000216	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000229	0.00029	0 of 11
Oxychlordane	~	**0.0053**	~	**0.0162**	~	**0.0206**	~	**0.177**	~	0.000205	~	0.00021	0.0313	0.336	8 of 11
Total AMP PCBs	~	**0.00164**	~	**0.0325**	~	**0.0115**	~	**0.00231**	~	**0.00644**	~	**0.0064**	0.0104	0.0631	11 of 11
Total Chlordane	~	**0.00127**	~	0.000203	~	0.000254	~	0.000214	~	0.000205	~	0.00021	0.000342	0.00231	1 of 11
Total DDT	~	**0.000617**	~	**0.0127**	~	**0.00424**	~	**0.000827**	~	**0.00211**	~	**0.00246**	0.00385	0.0245	11 of 11
Trans-Nonachlor															

Table A-12. Deer Island Influent Characterization (Low detection limit analyses; North System), FY15 (cont.)

Volatile Organics (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,1,1-Trichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,1,2,2-Tetrachloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,1,2-Trichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,1-Dichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,1-Dichloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,2-Dichlorobenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,2-Dichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,2-Dichloropropane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,3-Dichlorobenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,4-Dichlorobenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
2-Butanone	0.5	0.5	**6.07**	**3.27**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	**5.66**	1.3	6.71	5 of 24
2-Chloroethyl Vinyl Ether	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
2-Hexanone	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
4-Methyl-2-Pentanone	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Acetone	**83.6**	**109**	**139**	**122**	**98.4**	**64.5**	**240**	**70.6**	**106**	**164**	**69.7**	**85.8**	107	271	24 of 24
Acrolein	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0 of 24
Acrylonitrile	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0 of 24
Benzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Bromodichloromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Bromoform	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Bromomethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Carbon Disulfide	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	**7.99**	0.5	1.01	15.4	1 of 24
Carbon Tetrachloride	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Chlorobezene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Chloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Chloroform	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Chloromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Cis-1,2-Dichloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Cis-1,3-Dichloropropene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Dibromochloromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Ethylbenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
M,P-Xylene	1	1	1	1	**5.71**	1	1	1	1	1	1	1	1.29	10.5	1 of 24
Methylene Chloride	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
O-Xylene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Styrene	0.5	**14.7**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.34	29	1 of 24
Tetrachloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Toluene	0.5	0.5	0.5	0.5	**10.2**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.1	20	1 of 24
Trans-1,2-Dichloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Trans-1,3-Dichloropropene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Trichloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Trichlorofluoromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Vinyl Acetate	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Vinyl Chloride	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0 of 24

Notes

DEC is the now-defunct Detailed Effluent Characterization project, which includes low-detection limit methods not approved by the EPA. DEC sampling is now carried out under the NP-EM project.

~: No data or no samples taken

Results in **bold** indicate one or more detects that month

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-13. Deer Island Influent Loadings (Low detection limit analyses; North System), FY15

Semivolatile Organics (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,2,4-Trichlorobenzene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
1,2-Dichlorobenzene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
1,2-Diphenylhydrazine (as Azobenzene)	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
1,3-Dichlorobenzene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
1,4-Dichlorobenzene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
2,2'-Oxybis(1-Chloropropane)	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
2,4,5-Trichlorophenol	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
2,4,6-Trichlorophenol	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
2,4-Dichlorophenol	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
2,4-Dimethylphenol	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
2,4-Dinitrophenol	8.62	7.18	7.14	6.84	7.82	38.5	13.5	8.18	7.37	12.2	8.4	8.74	11.2	49.7	0 of 24
2,4-Dinitrotoluene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
2,6-Dinitrotoluene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
2-Chloronaphthalene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
2-Chlorophenol	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
2-Methyl-4,6-Dinitrophenol	8.62	7.18	7.14	6.84	7.82	38.5	13.5	8.18	7.37	12.2	8.4	8.74	11.2	49.7	0 of 24
2-Methylnaphthalene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
2-Methylphenol	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
2-Nitroaniline	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
2-Nitrophenol	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
3,3'-Dichlorobenzidine	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
3-Nitroaniline	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
4-Bromophenyl Phenyl Ether	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
4-Chloro-3-Methylphenol	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
4-Chloroaniline	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
4-Chlorophenyl Phenyl Ether	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
4-Methylphenol (includes 3-Methylphenol)	3.45	2.87	**42.8**	**31.7**	3.13	15.4	5.4	**78.7**	**82.4**	4.89	**82.9**	**45.5**	33.3	87.1	12 of 24
4-Nitroaniline	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
4-Nitrophenol	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Acenaphthene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Acenaphthylene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Aniline	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Anthracene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Benzidine	8.62	7.18	7.14	6.84	7.82	38.5	13.5	8.18	7.37	12.2	8.4	8.74	11.2	49.7	0 of 24
Benzo(a)anthracene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Benzo(a)pyrene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Benzo(b)fluoranthene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Benzo(g,h,i)perylene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Benzo(k)fluoranthene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Benzoic Acid	8.62	7.18	7.14	6.84	7.82	38.5	13.5	**57.4**	**129**	12.2	**55.9**	8.74	29.4	163	4 of 24
Benzyl Alcohol	3.45	2.87	2.85	2.74	3.13	15.4	5.4	**18.8**	**17.7**	4.89	**63**	3.5	12	76.5	4 of 24
Bis(2-Chloroethoxy)methane	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Bis(2-Chloroethyl)ether	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Bis(2-Ethylhexyl)phthalate	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Butylbenzylphthalate	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Carbazole	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Chrysene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Dibenzo(a,h)anthracene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Dibenzofuran	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Diethylphthalate	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Dimethylphthalate	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Di-N-Butylphthalate	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Di-N-Octylphthalate	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Fluoranthene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Fluorene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Hexachlorobenzene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Hexachlorobutadiene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Hexachlorocyclopentadiene	8.62	7.18	7.14	6.84	7.82	38.5	13.5	8.18	7.37	12.2	8.4	8.74	11.2	49.7	0 of 24
Hexachloroethane	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Indeno(1,2,3-CD)pyrene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Isophorone	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Naphthalene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
n-Decane	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24

Table A-13. Deer Island Influent Loadings (Low detection limit analyses; North System), FY15 (cont.)

Semivolatile Organics (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Nitrobenzene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
N-Nitrosodimethylamine (NDMA)	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
N-Nitrosodi-N-Propylamine (NDPA)	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
N-Nitrosodiphenylamine	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
N-Octadecane	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Pentachlorophenol	8.62	7.18	7.14	6.84	7.82	38.5	13.5	8.18	7.37	12.2	8.4	8.74	11.2	49.7	0 of 24
Phenanthrene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Phenol	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24
Pyrene	3.45	2.87	2.85	2.74	3.13	15.4	5.4	3.27	2.95	4.89	3.36	3.5	4.48	19.9	0 of 24

Polycyclic Aromatic Hydrocarbons (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1-Methylnaphthalene	~	**0.0924**	~	**0.194**	~	**0.534**	~	**0.0756**	~	**0.219**	~	**0.109**	0.213	0.607	11 of 11
1-Methylphenanthrene	~	**0.0307**	~	**0.0547**	~	**0.318**	~	**0.0166**	~	**0.0552**	~	**0.044**	0.0903	0.481	11 of 11
2,3,5-Trimethylnaphthylene	~	**0.0339**	~	**0.0553**	~	**0.291**	~	**0.0209**	~	**0.111**	~	**0.0897**	0.101	0.297	11 of 11
2,6-Dimethylnaphthalene	~	**0.0519**	~	**0.0963**	~	**0.452**	~	**0.0472**	~	**0.191**	~	**0.0618**	0.158	0.538	11 of 11
2-Methylnaphthalene	~	**0.0745**	~	**0.147**	~	**0.474**	~	**0.0804**	~	**0.238**	~	**0.098**	0.193	0.518	11 of 11
Acenaphthene	~	**0.0698**	~	**0.146**	~	**0.546**	~	**0.0695**	~	**0.178**	~	**0.0833**	0.191	0.689	11 of 11
Acenaphthylene	~	**0.0142**	~	**0.0248**	~	**0.127**	~	**0.0122**	~	**0.0735**	~	**0.00603**	0.0463	0.218	10 of 11
Anthracene	~	**0.0518**	~	**0.107**	~	**0.608**	~	**0.0259**	~	**0.0911**	~	**0.0606**	0.166	0.951	11 of 11
Benzo(a)anthracene	~	**0.0946**	~	**0.117**	~	**1.45**	~	**0.0301**	~	**0.185**	~	**0.137**	0.354	2.59	11 of 11
Benzo(a)pyrene	~	**0.0862**	~	**0.104**	~	**1.48**	~	**0.0222**	~	**0.214**	~	**0.12**	0.357	2.68	11 of 11
Benzo(b)fluoranthene	~	**0.125**	~	**0.133**	~	**2.38**	~	**0.0322**	~	**0.295**	~	**0.202**	0.558	4.35	11 of 11
Benzo(e)pyrene	~	**0.0634**	~	**0.0368**	~	**1.03**	~	**0.0171**	~	**0.158**	~	**0.0863**	0.244	1.87	10 of 11
Benzo(g,h,i)perylene	~	**0.0591**	~	0.000676	~	**1.08**	~	**0.0155**	~	**0.196**	~	0.000717	0.246	1.97	8 of 11
Benzo(k)fluoranthene	~	**0.0373**	~	**0.041**	~	**0.645**	~	**0.0139**	~	**0.111**	~	**0.0837**	0.162	1.16	11 of 11
Benzothiazole	~	**0.161**	~	**0.0258**	~	**1.71**	~	**0.165**	~	**0.437**	~	**0.108**	0.465	2.01	11 of 11
Biphenyl	~	**0.088**	~	**0.0161**	~	**0.106**	~	0.000787	~	**0.0424**	~	**0.024**	0.0482	0.133	9 of 11
C1-Chrysenes	~	**0.0986**	~	**0.0271**	~	**0.664**	~	**0.0147**	~	**0.141**	~	**0.0621**	0.177	1.19	10 of 11
C1-Dibenzothiophenes	~	0.00076	~	0.000676	~	0.00379	~	0.000787	~	0.0012	~	**0.0414**	0.00507	0.0414	1 of 11
C1-Flyoranthenes/Pyrenes	~	**0.142**	~	**0.129**	~	**0.967**	~	**0.0334**	~	**0.208**	~	**0.125**	0.28	1.61	11 of 11
C1-Fluorenes	~	**0.125**	~	0.000676	~	**0.267**	~	**0.0245**	~	**0.126**	~	**0.0856**	0.106	0.34	9 of 11
C1-Naphthalenes	~	**0.172**	~	**0.219**	~	**1.26**	~	**0.191**	~	**0.638**	~	**0.132**	0.463	1.42	11 of 11
C1-Phenanthrenes/Anthracenes	~	**0.252**	~	**0.23**	~	**5.79**	~	**0.312**	~	**1.14**	~	**0.197**	1.42	8.2	11 of 11
C2-Chrysenes	~	**0.15**	~	**0.43**	~	**0.408**	~	0.000787	~	**1.04**	~	0.000717	0.369	1.27	7 of 11
C2-Dibenzothiophenes	~	0.00076	~	0.000676	~	0.00379	~	0.000787	~	0.0012	~	**0.1**	0.0104	0.1	1 of 11
C2-Fluoranthenes/Pyrenes	~	**0.0523**	~	0.000676	~	0.00379	~	0.000787	~	0.0012	~	**0.072**	0.0172	0.0772	3 of 11
C2-Fluorenes	~	0.00076	~	0.000676	~	**0.233**	~	0.000787	~	**0.162**	~	**0.109**	0.0822	0.329	5 of 11
C2-Naphthalenes	~	**0.258**	~	**0.206**	~	**4.66**	~	**0.318**	~	**1.42**	~	**0.225**	1.27	5.56	11 of 11
C2-Phenanthrenes/Anthracenes	~	**0.0958**	~	**0.127**	~	**0.837**	~	**0.0389**	~	**0.233**	~	**0.123**	0.253	1.3	10 of 11
C3-Chrysenes	~	0.00076	~	0.000676	~	0.00379	~	0.000787	~	0.0012	~	0.000717	0.00138	0.00476	0 of 11
C3-Dibenzothiophenes	~	0.00076	~	0.000676	~	0.00379	~	0.000787	~	0.0012	~	0.000717	0.00138	0.00476	0 of 11
C3-Fluoranthenes/Pyrenes	~	0.00076	~	0.000676	~	0.00379	~	0.000787	~	0.0012	~	0.000717	0.00138	0.00476	0 of 11
C3-Fluorenes	~	0.00076	~	0.000676	~	0.00379	~	0.000787	~	0.0012	~	0.000717	0.00138	0.00476	0 of 11
C3-Naphthalenes	~	**0.252**	~	**0.119**	~	**0.753**	~	**0.0594**	~	**0.353**	~	**0.246**	0.302	0.912	11 of 11
C3-Phenanthrenes/Anthracenes	~	0.00076	~	0.000676	~	0.00379	~	0.000787	~	0.0012	~	0.000717	0.00138	0.00476	0 of 11
C4-Chrysenes	~	0.00076	~	0.000676	~	0.00379	~	0.000787	~	0.0012	~	0.000717	0.00138	0.00476	0 of 11
C4-Naphthalenes	~	**0.131**	~	0.000676	~	**0.47**	~	**0.0251**	~	**0.337**	~	**0.169**	0.191	0.624	9 of 11
C4-Phenanthrenes/Anthracenes	~	0.00076	~	0.000676	~	0.00379	~	0.000787	~	0.0012	~	0.000717	0.00138	0.00476	0 of 11
Chrysene	~	**0.0913**	~	**0.108**	~	**1.58**	~	**0.0311**	~	**0.254**	~	**0.172**	0.391	2.85	11 of 11
Dibenzo(a,h)anthracene	~	0.00076	~	0.000676	~	**0.257**	~	0.000787	~	0.0012	~	0.000717	0.0473	0.463	2 of 11
Dibenzofuran	~	**0.0287**	~	**0.0832**	~	**0.273**	~	**0.0256**	~	**0.0839**	~	**0.0532**	0.0947	0.396	11 of 11
Dibenzothiophene	~	**0.0319**	~	**0.0487**	~	**0.238**	~	**0.0152**	~	**0.0567**	~	**0.0358**	0.0742	0.361	11 of 11
Fluoranthene	~	**0.153**	~	**0.271**	~	**2.82**	~	**0.0638**	~	**0.556**	~	**0.329**	0.732	5.03	11 of 11
Fluorene	~	**0.0539**	~	**0.127**	~	**0.418**	~	**0.038**	~	**0.128**	~	**0.0821**	0.146	0.585	11 of 11
Indeno(1,2,3-CD)pyrene	~	**0.0859**	~	**0.203**	~	**0.636**	~	**0.0488**	~	**0.273**	~	0.000717	0.227	0.958	9 of 11
Naphthalene	~	**0.185**	~	**0.513**	~	**0.923**	~	**0.277**	~	**0.648**	~	**0.193**	0.48	0.927	11 of 11
Perylene	~	**0.014**	~	**0.0767**	~	**0.308**	~	**0.00497**	~	**0.0513**	~	**0.0228**	0.0847	0.56	11 of 11
Phenanthrene	~	**0.223**	~	**0.455**	~	**2.64**	~	**0.12**	~	**0.523**	~	**0.31**	0.749	4.26	11 of 11
Pyrene	~	**0.143**	~	**0.241**	~	**2.47**	~	**0.0575**	~	**0.456**	~	**0.27**	0.636	4.34	11 of 11

Table A-13. Deer Island Influent Loadings (Low detection limit analyses; North System), FY14 (cont.)

Organochlorine Pesticides and PCBs (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
2,4'-DDD	~	**0.00101**	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.000678	0.0019	1 of 11
2,4'-DDE	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
2,4'-DDT	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
4,4'-DDD	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
4,4'-DDE	~	**0.000942**	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.000666	0.0019	1 of 11
4,4'-DDT	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
Aldrin	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
Alpha-Chlordane	~	**0.00144**	~	**0.0264**	~	**0.0433**	~	**0.00219**	~	**0.0101**	~	**0.00538**	0.0157	0.0515	11 of 11
BZ 101 Pentachlorobiphenyl	~	**0.001**	~	**0.00146**	~	**0.0174**	~	**0.000725**	~	**0.00619**	~	**0.00306**	0.00516	0.03	9 of 11
BZ 105 Pentachlorobiphenyl	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
BZ 118 Pentachlorobiphenyl	~	**0.000697**	~	**0.000527**	~	**0.00985**	~	0.000315	~	0.00048	~	0.000287	0.00218	0.0134	5 of 11
BZ 126 Pentachlorobiphenyl	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
BZ 128 Hexachlorobiphenyl	~	0.000304	~	0.00027	~	**0.00255**	~	0.000315	~	0.00048	~	0.000287	0.000739	0.00321	1 of 11
BZ 138 Hexachlorobiphenyl	~	**0.00166**	~	**0.00152**	~	**0.0183**	~	**0.000739**	~	**0.00458**	~	**0.00401**	0.00523	0.0302	9 of 11
BZ 153 Hexachlorobiphenyl	~	**0.00166**	~	**0.00225**	~	**0.0288**	~	**0.000752**	~	**0.0128**	~	**0.00355**	0.00874	0.0516	11 of 11
BZ 170 Heptachlorobiphenyl	~	0.000304	~	0.00027	~	**0.00795**	~	0.000315	~	0.00048	~	0.000287	0.00172	0.0117	2 of 11
BZ 18 Trichlorobiphenyl	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
BZ 180 Heptachlorobiphenyl	~	**0.000587**	~	**0.00127**	~	**0.0176**	~	**0.000413**	~	**0.00292**	~	**0.00254**	0.00438	0.03	8 of 11
BZ 187 Heptachlorobiphenyl	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	**0.00345**	~	0.000287	0.00109	0.00642	1 of 11
BZ 195 Octachlorobiphenyl	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
BZ 206 Nonachlorobiphenyl	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
BZ 209 Decachlorobiphenyl	~	0.000304	~	0.00027	~	**0.00306**	~	0.000315	~	**0.000796**	~	0.000287	0.000889	0.00342	3 of 11
BZ 28 Trichlorobiphenyl	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
BZ 44 Tetrachlorobiphenyl	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
BZ 52 Tetrachlorobiphenyl	~	**0.000458**	~	0.00027	~	0.00151	~	0.000315	~	**0.00905**	~	0.000287	0.00214	0.0176	2 of 11
BZ 66 Tetrachlorobiphenyl	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
BZ 77 Tetrachlorobiphenyl	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
BZ 8 Dichlorobiphenyl	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
Cis-Nonachlor	~	0.000304	~	**0.00443**	~	**0.0111**	~	0.000315	~	**0.00164**	~	0.000287	0.00326	0.0125	5 of 11
DDMU	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
Dieldrin	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
Endrin	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
Gamma-BHC	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
Gamma-Chlordane	~	**0.00145**	~	**0.0309**	~	**0.0463**	~	**0.0025**	~	**0.0132**	~	**0.00691**	0.0178	0.0605	11 of 11
Heptachlor	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
Heptachlor Epoxide	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
Hexachlorobenzene	~	**0.000446**	~	**0.000817**	~	**0.00949**	~	**0.00202**	~	**0.00152**	~	**0.00126**	0.00271	0.0135	10 of 11
Mirex	~	0.000304	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.00055	0.0019	0 of 11
Oxychlordane	~	**0.00746**	~	**0.0215**	~	**0.123**	~	**0.261**	~	0.00048	~	0.000287	0.0751	0.49	8 of 11
Total Chlordane	~	**0.00231**	~	**0.0433**	~	**0.0686**	~	**0.0034**	~	**0.0151**	~	**0.00874**	0.0249	0.0842	11 of 11
Total DDT	~	**0.00179**	~	0.00027	~	0.00151	~	0.000315	~	0.00048	~	0.000287	0.000821	0.00327	1 of 11
Trans-Nonachlor	~	**0.000869**	~	**0.0169**	~	**0.0253**	~	**0.00122**	~	**0.00494**	~	**0.00336**	0.00925	0.0327	11 of 11

Table A-13. Deer Island Influent Loadings (Low detection limit analyses; North System), FY15 (cont.)

Volatile Organics (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,1,1-Trichloroethane	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
1,1,2,2-Tetrachloroethane	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
1,1,2-Trichloroethane	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
1,1-Dichloroethane	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
1,1-Dichloroethene	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
1,2-Dichlorobenzene	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
1,2-Dichloroethane	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
1,2-Dichloropropane	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
1,3-Dichlorobenzene	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
1,4-Dichlorobenzene	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
2-Butanone	0.782	0.699	**8.2**	**4.36**	0.729	2.98	0.948	0.752	0.793	1.22	0.811	**8.46**	2.56	9.08	5 of 24
2-Chloroethyl Vinyl Ether	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
2-Hexanone	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
4-Methyl-2-Pentanone	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Acetone	**131**	**152**	**187**	**163**	**144**	**385**	**456**	**106**	**167**	**400**	**113**	**128**	211	644	24 of 24
Acrolein	1.56	1.4	1.35	1.34	1.46	5.96	1.9	1.5	1.59	2.44	1.62	1.49	1.97	6.56	0 of 24
Acrylonitrile	1.56	1.4	1.35	1.34	1.46	5.96	1.9	1.5	1.59	2.44	1.62	1.49	1.97	6.56	0 of 24
Benzene	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Bromodichloromethane	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Bromoform	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Bromomethane	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Carbon Disulfide	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	**13**	0.747	2	25.1	1 of 24
Carbon Tetrachloride	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Chlorobezene	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Chloroethane	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Chloroform	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Chloromethane	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Cis-1,2-Dichloroethene	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Cis-1,3-Dichloropropene	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Dibromochloromethane	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Ethylbenzene	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
M,P-Xylene	1.56	1.4	1.35	1.34	**8.33**	5.96	1.9	1.5	1.59	2.44	1.62	1.49	2.54	15.2	1 of 24
Methylene Chloride	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
O-Xylene	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Styrene	0.782	**20.5**	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	2.64	40.4	1 of 24
Tetrachloroethene	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Toluene	0.782	0.699	0.675	0.668	**14.8**	2.98	0.948	0.752	0.793	1.22	0.811	0.747	2.16	28.9	1 of 24
Trans-1,2-Dichloroethene	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Trans-1,3-Dichloropropene	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Trichloroethene	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Trichlorofluoromethane	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Vinyl Acetate	0.782	0.699	0.675	0.668	0.729	2.98	0.948	0.752	0.793	1.22	0.811	0.747	0.984	3.28	0 of 24
Vinyl Chloride	0.313	0.28	0.27	0.267	0.292	1.19	0.379	0.301	0.317	0.488	0.324	0.299	0.394	1.31	0 of 24

Notes

DEC is the now-defunct Detailed Effluent Characterization project, which includes low-detection limit methods not approved by the EPA. DEC sampling is now carried out under the NP-EM project.

~: No data or no samples taken

Results in **bold** indicate one or more detects that month

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-14. Deer Island Influent Characterization (Low detection limit analyses; South System), FY15

Semivolatile Organics (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,2,4-Trichlorobenzene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
1,2-Dichlorobenzene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
1,2-Diphenylhydrazine (as Azobenzene)	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
1,3-Dichlorobenzene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
1,4-Dichlorobenzene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
2,2'-Oxybis(1-Chloropropane)	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
2,4,5-Trichlorophenol	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
2,4,6-Trichlorophenol	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
2,4-Dichlorophenol	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
2,4-Dimethylphenol	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
2,4-Dinitrophenol	5.21	5.38	5.38	5.36	5.18	5.62	5.45	5.36	5.47	5.13	5.57	5.07	5.36	6.02	0 of 24
2,4-Dinitrotoluene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
2,6-Dinitrotoluene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
2-Chloronaphthalene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
2-Chlorophenol	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
2-Methyl-4,6-Dinitrophenol	5.21	5.38	5.38	5.36	5.18	5.62	5.45	5.36	5.47	5.13	5.57	5.07	5.36	6.02	0 of 24
2-Methylnaphthalene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
2-Methylphenol	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
2-Nitroaniline	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
2-Nitrophenol	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
3,3'-Dichlorobenzidine	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
3-Nitroaniline	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
4-Bromophenyl Phenyl Ether	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
4-Chloro-3-Methylphenol	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
4-Chloroaniline	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
4-Chlorophenyl Phenyl Ether	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
4-Methylphenol (includes 3-Methylphenol)	2.08	**31.5**	**29.5**	**14.9**	2.07	2.25	2.18	**34.2**	**49.7**	2.05	2.23	**30.3**	12.8	51.2	11 of 24
4-Nitroaniline	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
4-Nitrophenol	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Acenaphthene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Acenaphthylene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Aniline	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Anthracene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Benzidine	5.21	5.38	5.38	5.36	5.18	5.62	5.45	5.36	5.47	5.13	5.57	5.07	5.36	6.02	0 of 24
Benzo(a)anthracene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Benzo(a)pyrene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Benzo(b)fluoranthene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Benzo(g,h,i)perylene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Benzo(k)fluoranthene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Benzoic Acid	5.21	5.38	5.38	5.36	5.18	5.62	5.45	5.36	**44.8**	5.13	5.57	5.07	7.9	84.5	1 of 24
Benzyl Alcohol	2.08	**17.7**	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	**23.9**	2.03	4.83	33.1	3 of 24
Bis(2-Chloroethoxy)methane	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Bis(2-Chloroethyl)ether	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Bis(2-Ethylhexyl)phthalate	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Butylbenzylphthalate	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Carbazole	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Chrysene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Dibenzo(a,h)anthracene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Dibenzofuran	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Diethylphthalate	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Dimethylphthalate	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Di-N-Butylphthalate	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Di-N-Octylphthalate	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Fluoranthene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Fluorene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Hexachlorobenzene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Hexachlorobutadiene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Hexachlorocyclopentadiene	5.21	5.38	5.38	5.36	5.18	5.62	5.45	5.36	5.47	5.13	5.57	5.07	5.36	6.02	0 of 24
Hexachloroethane	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Indeno(1,2,3-CD)pyrene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Isophorone	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Naphthalene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
n-Decane	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24

Table A-14. Deer Island Influent Characterization (Low detection limit analyses; South System), FY15 (cont.)

Semivolatile Organics (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Nitrobenzene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
N-Nitrosodimethylamine (NDMA)	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
N-Nitrosodi-N-Propylamine (NDPA)	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
N-Nitrosodiphenylamine	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
N-Octadecane	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Pentachlorophenol	5.21	5.38	5.38	5.36	5.18	5.62	5.45	5.36	5.47	5.13	5.57	5.07	5.36	6.02	0 of 24
Phenanthrene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Phenol	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24
Pyrene	2.08	2.16	2.15	2.14	2.07	2.25	2.18	2.15	2.19	2.05	2.23	2.03	2.15	2.41	0 of 24

Polycyclic Aromatic Hydrocarbons (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1-Methylnaphthalene	~	**0.0296**	~	**0.0556**	~	**0.126**	~	**0.0386**	~	**0.0418**	~	**0.0539**	0.0683	0.16	12 of 12
1-Methylphenanthrene	~	**0.018**	~	**0.011**	~	**0.0425**	~	**0.1**	~	**0.0295**	~	**0.0633**	0.0427	0.188	11 of 12
2,3,5-Trimethylnaphthylene	~	**0.0273**	~	**0.0336**	~	**0.0923**	~	**0.0304**	~	**0.0411**	~	**0.122**	0.0621	0.172	12 of 12
2,6-Dimethylnaphthalene	~	**0.0499**	~	**0.0433**	~	**0.166**	~	**0.0541**	~	**0.0674**	~	**0.0916**	0.0945	0.211	12 of 12
2-Methylnaphthalene	~	**0.0223**	~	**0.0395**	~	**0.0936**	~	**0.0342**	~	**0.0457**	~	**0.04**	0.0553	0.117	12 of 12
Acenaphthene	~	**0.0271**	~	**0.0544**	~	**0.0514**	~	**0.0372**	~	**0.0489**	~	**0.0398**	0.0456	0.0659	12 of 12
Acenaphthylene	~	**0.00478**	~	0.000533	~	**0.00771**	~	0.000517	~	**0.0181**	~	**0.00238**	0.00825	0.0236	6 of 12
Anthracene	~	**0.0207**	~	**0.0229**	~	**0.0597**	~	**0.0196**	~	**0.0361**	~	**0.0415**	0.0391	0.078	12 of 12
Benzo(a)anthracene	~	**0.0431**	~	**0.0314**	~	**0.154**	~	**0.0349**	~	**0.0726**	~	**0.114**	0.0907	0.21	12 of 12
Benzo(a)pyrene	~	**0.0314**	~	**0.0105**	~	**0.122**	~	**0.0222**	~	**0.0758**	~	**0.0997**	0.0756	0.166	11 of 12
Benzo(b)fluoranthene	~	**0.0632**	~	**0.0341**	~	**0.2**	~	**0.0372**	~	**0.124**	~	**0.183**	0.129	0.274	12 of 12
Benzo(e)pyrene	~	**0.0292**	~	**0.00607**	~	**0.0859**	~	**0.0214**	~	**0.065**	~	**0.0769**	0.0586	0.116	11 of 12
Benzo(g,h,i)perylene	~	0.00053	~	0.000533	~	**0.0865**	~	**0.0194**	~	**0.103**	~	0.000553	0.0575	0.174	6 of 12
Benzo(k)fluoranthene	~	**0.0169**	~	**0.00957**	~	**0.0618**	~	**0.015**	~	**0.0476**	~	**0.0737**	0.0444	0.0847	12 of 12
Benzothiazole	~	**0.0912**	~	**0.0264**	~	**0.273**	~	**0.114**	~	**0.212**	~	**0.113**	0.179	0.29	12 of 12
Biphenyl	~	**0.0754**	~	**0.00967**	~	**0.022**	~	0.000517	~	**0.0142**	~	**0.0218**	0.0215	0.0936	10 of 12
C1-Chrysenes	~	**0.0451**	~	0.000533	~	**0.0501**	~	**0.0235**	~	**0.0771**	~	**0.0792**	0.0527	0.123	10 of 12
C1-Dibenzothiophenes	~	**0.0078**	~	0.000533	~	0.000662	~	0.000517	~	0.00051	~	**0.0459**	0.00627	0.0574	3 of 12
C1-Flyoranthenes/Pyrenes	~	**0.0736**	~	**0.0395**	~	**0.123**	~	**0.0382**	~	**0.105**	~	**0.142**	0.0976	0.165	12 of 12
C1-Fluorenes	~	**0.159**	~	0.000533	~	**0.0579**	~	**0.0298**	~	**0.0459**	~	**0.0925**	0.06	0.222	10 of 12
C1-Naphthalenes	~	**0.0598**	~	**0.0609**	~	**0.264**	~	**0.0923**	~	**0.121**	~	**0.0691**	0.144	0.331	12 of 12
C1-Phenanthrenes/Anthracenes	~	**0.142**	~	**0.0895**	~	**0.951**	~	**0.34**	~	**0.597**	~	**0.264**	0.546	1.26	12 of 12
C2-Chrysenes	~	**0.0409**	~	**0.413**	~	**0.239**	~	**0.115**	~	**0.285**	~	0.000553	0.207	0.46	8 of 12
C2-Dibenzothiophenes	~	**0.0214**	~	0.000533	~	0.000662	~	0.000517	~	0.00051	~	**0.138**	0.0177	0.181	3 of 12
C2-Fluoranthenes/Pyrenes	~	**0.0278**	~	0.000533	~	0.000662	~	0.000517	~	0.00051	~	**0.0786**	0.0119	0.0951	4 of 12
C2-Fluorenes	~	0.00053	~	0.000533	~	**0.0803**	~	0.000517	~	**0.114**	~	**0.127**	0.0702	0.188	6 of 12
C2-Naphthalenes	~	**0.171**	~	**0.0576**	~	**1.34**	~	**0.32**	~	**0.437**	~	**0.287**	0.617	1.81	12 of 12
C2-Phenanthrenes/Anthracenes	~	**0.0806**	~	**0.0766**	~	**0.193**	~	**0.064**	~	**0.119**	~	**0.219**	0.138	0.287	11 of 12
C3-Chrysenes	~	0.00053	~	0.000533	~	0.000662	~	0.000517	~	0.00051	~	0.000553	0.000566	0.000705	0 of 12
C3-Dibenzothiophenes	~	0.00053	~	0.000533	~	0.000662	~	0.000517	~	0.00051	~	0.000553	0.000566	0.000705	0 of 12
C3-Fluoranthenes/Pyrenes	~	**0.00053**	~	**0.000533**	~	**0.000662**	~	**0.000517**	~	0.0119	~	**0.000553**	0.00375	0.0228	1 of 12
C3-Fluorenes	~	0.00053	~	0.000533	~	0.000662	~	0.000517	~	0.00051	~	0.000553	0.000566	0.000705	0 of 12
C3-Naphthalenes	~	0.00053	~	**0.0915**	~	**0.278**	~	**0.0766**	~	**0.135**	~	**0.304**	0.172	0.431	10 of 12
C3-Phenanthrenes/Anthracenes	~	0.00053	~	0.000533	~	0.000662	~	0.000517	~	0.00051	~	0.000553	0.000566	0.000705	0 of 12
C4-Chrysenes	~	0.00053	~	0.000533	~	0.000662	~	0.000517	~	0.00051	~	0.000553	0.000566	0.000705	0 of 12
C4-Naphthalenes	~	**0.101**	~	0.000533	~	**0.159**	~	**0.0487**	~	**0.141**	~	**0.251**	0.131	0.35	10 of 12
C4-Phenanthrenes/Anthracenes	~	0.00053	~	0.000533	~	0.000662	~	0.000517	~	0.00051	~	0.000553	0.000566	0.000705	0 of 12
Chrysene	~	**0.0502**	~	**0.0319**	~	**0.136**	~	**0.0368**	~	**0.116**	~	**0.154**	0.103	0.191	12 of 12
Dibenzo(a,h)anthracene	~	0.00053	~	0.000533	~	**0.0223**	~	0.000517	~	0.00051	~	0.000553	0.00711	0.0331	1 of 12
Dibenzofuran	~	**0.053**	~	0.000533	~	**0.0276**	~	**0.018**	~	**0.0225**	~	**0.0352**	0.026	0.0575	10 of 12
Dibenzothiophene	~	**0.0147**	~	**0.0169**	~	**0.03**	~	**0.0131**	~	**0.023**	~	**0.0299**	0.0233	0.0376	12 of 12
Fluoranthene	~	**0.0895**	~	**0.084**	~	**0.244**	~	**0.0759**	~	**0.27**	~	**0.261**	0.203	0.446	12 of 12
Fluorene	~	**0.0249**	~	**0.0385**	~	**0.0475**	~	**0.0247**	~	**0.0405**	~	**0.062**	0.0414	0.0777	12 of 12
Indeno(1,2,3-CD)pyrene	~	**0.114**	~	**0.142**	~	**0.244**	~	**0.0534**	~	**0.24**	~	0.000553	0.171	0.376	9 of 12
Naphthalene	~	**0.0432**	~	**0.123**	~	**0.0781**	~	**0.0445**	~	**0.0635**	~	**0.0237**	0.0646	0.157	12 of 12
Perylene	~	**0.0179**	~	**0.0481**	~	**0.0292**	~	**0.00359**	~	**0.0671**	~	**0.0162**	0.0359	0.131	12 of 12
Phenanthrene	~	**0.108**	~	**0.133**	~	**0.244**	~	**0.101**	~	**0.203**	~	**0.227**	0.19	0.314	12 of 12
Pyrene	~	**0.0783**	~	**0.0724**	~	**0.219**	~	**0.0693**	~	**0.23**	~	**0.234**	0.179	0.379	12 of 12

Table A-14. Deer Island Influent Characterization (Low detection limit analyses; South System), FY15 (cont.)

Organochlorine Pesticides and PCBs (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
2,4'-DDD	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
2,4'-DDE	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
2,4'-DDT	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
4,4'-DDD	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
4,4'-DDE	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
4,4'-DDT	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
Aldrin	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
Alpha-Chlordane	~	**0.00287**	~	**0.00321**	~	**0.0152**	~	**0.00433**	~	**0.0168**	~	**0.00919**	0.0114	0.0249	12 of 12
BZ 101 Pentachlorobiphenyl	~	0.0011	~	0.00106	~	0.00222	~	0.000976	~	**0.000204**	~	**0.000221**	0.00107	0.0024	7 of 12
BZ 105 Pentachlorobiphenyl	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
BZ 118 Pentachlorobiphenyl	~	**0.000548**	~	**0.000363**	~	**0.00123**	~	0.000207	~	0.000204	~	0.000221	0.000564	0.00172	3 of 12
BZ 126 Pentachlorobiphenyl	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
BZ 128 Hexachlorobiphenyl	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	**0.00254**	0.00048	0.0029	2 of 12
BZ 138 Hexachlorobiphenyl	~	**0.00136**	~	**0.000908**	~	**0.00186**	~	**0.00108**	~	0.000204	~	**0.0045**	0.00146	0.00498	10 of 12
BZ 153 Hexachlorobiphenyl	~	**0.00109**	~	**0.00138**	~	**0.00215**	~	**0.000972**	~	**0.00134**	~	**0.00391**	0.0018	0.00428	12 of 12
BZ 170 Heptachlorobiphenyl	~	0.000212	~	0.000213	~	**0.000402**	~	0.000207	~	0.000204	~	0.000221	0.000268	0.000644	1 of 12
BZ 18 Trichlorobiphenyl	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
BZ 180 Heptachlorobiphenyl	~	0.000212	~	**0.00044**	~	**0.00139**	~	**0.000677**	~	**0.000874**	~	**0.00266**	0.0011	0.00362	9 of 12
BZ 187 Heptachlorobiphenyl	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
BZ 195 Octachlorobiphenyl	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
BZ 206 Nonachlorobiphenyl	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
BZ 209 Decachlorobiphenyl	~	0.000212	~	0.000213	~	**0.000301**	~	0.000207	~	**0.000311**	~	0.000221	0.000267	0.000323	4 of 12
BZ 28 Trichlorobiphenyl	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
BZ 44 Tetrachlorobiphenyl	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
BZ 52 Tetrachlorobiphenyl	~	**0.000531**	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000258	0.000848	1 of 12
BZ 66 Tetrachlorobiphenyl	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
BZ 77 Tetrachlorobiphenyl	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
BZ 8 Dichlorobiphenyl	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
Cis-Nonachlor	~	**0.000398**	~	**0.00043**	~	**0.00275**	~	**0.000572**	~	**0.00257**	~	0.000221	0.00172	0.00398	9 of 12
DDMU	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
Dieldrin	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
Endrin	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
Gamma-BHC	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	**0.000446**	~	0.000221	0.000294	0.00068	1 of 12
Gamma-Chlordane	~	**0.0026**	~	**0.00301**	~	**0.0157**	~	**0.00426**	~	**0.0192**	~	**0.00959**	0.0122	0.0283	12 of 12
Heptachlor	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
Heptachlor Epoxide	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
Hexachlorobenzene	~	**0.000329**	~	**0.00053**	~	**0.0011**	~	**0.00137**	~	**0.00325**	~	**0.00457**	0.00199	0.00643	11 of 12
Mirex	~	0.000212	~	**0.00148**	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.00034	0.00162	2 of 12
Oxychlordane	~	**0.01**	~	**0.0122**	~	**0.0207**	~	**0.00822**	~	0.000204	~	0.000221	0.00939	0.0237	8 of 12
Total Chlordane	~	**0.00443**	~	**0.00483**	~	**0.0241**	~	**0.00644**	~	**0.0252**	~	**0.0139**	0.0175	0.0384	12 of 12
Total DDT	~	0.000212	~	0.000213	~	0.000265	~	0.000207	~	0.000204	~	0.000221	0.000226	0.000282	0 of 12
Trans-Nonachlor	~	**0.00156**	~	**0.00161**	~	**0.00889**	~	**0.00211**	~	**0.00844**	~	**0.00469**	0.00611	0.0135	12 of 12

Table A-14. Deer Island Influent Characterization (Low detection limit analyses; South System), FY15 (cont.)

Volatile Organics (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,1,1-Trichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,1,2,2-Tetrachloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,1,2-Trichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,1-Dichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,1-Dichloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,2-Dichlorobenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,2-Dichloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,2-Dichloropropane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,3-Dichlorobenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
1,4-Dichlorobenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
2-Butanone	**9.27**	**7.26**	**14.1**	**10.8**	**7.26**	0.5	0.5	0.5	**3.47**	0.5	**3.12**	**8.63**	3.8	17.1	14 of 24
2-Chloroethyl Vinyl Ether	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
2-Hexanone	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
4-Methyl-2-Pentanone	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Acetone	**117**	**71.5**	**155**	**125**	**204**	**38.2**	**86.9**	**43.2**	**66.6**	**60.9**	**55.8**	**183**	84.8	278	24 of 24
Acrolein	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0 of 24
Acrylonitrile	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0 of 24
Benzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Bromodichloromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Bromoform	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Bromomethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Carbon Disulfide	0.5	**25.1**	**14.6**	**11.5**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2.96	34.1	4 of 24
Carbon Tetrachloride	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Chlorobezene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Chloroethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Chloroform	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Chloromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Cis-1,2-Dichloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Cis-1,3-Dichloropropene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Dibromochloromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Ethylbenzene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
M,P-Xylene	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0 of 24
Methylene Chloride	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
O-Xylene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Styrene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Tetrachloroethene	0.5	0.5	0.5	**2.93**	**18.7**	0.5	0.5	0.5	0.5	**3.36**	**2.89**	**9.94**	2.94	20.2	7 of 24
Toluene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	**6.94**	0.89	7.47	2 of 24
Trans-1,2-Dichloroethene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Trans-1,3-Dichloropropene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Trichloroethene	0.5	0.5	0.5	0.5	**6.91**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.909	7.47	2 of 24
Trichlorofluoromethane	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Vinyl Acetate	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0 of 24
Vinyl Chloride	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0 of 24

Notes

DEC is the now-defunct Detailed Effluent Characterization project, which includes low-detection limit methods not approved by the EPA. DEC sampling is now carried out under the NP-EM project.

~: No data or no samples taken

Results in **bold** indicate one or more detects that month

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-15. Deer Island Influent Loadings (Low detection limit analyses; South System), FY15

Semivolatile Organics (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,2,4-Trichlorobenzene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
1,2-Dichlorobenzene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
1,2-Diphenylhydrazine (as Azobenzene)	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
1,3-Dichlorobenzene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
1,4-Dichlorobenzene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
2,2'-Oxybis(1-Chloropropane)	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
2,4,5-Trichlorophenol	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
2,4,6-Trichlorophenol	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
2,4-Dichlorophenol	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
2,4-Dimethylphenol	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
2,4-Dinitrophenol	3.88	3.51	3.09	3.14	4.23	11.1	6.88	4.15	4.13	9.37	5.48	3.85	5.23	14.7	0 of 24
2,4-Dinitrotoluene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
2,6-Dinitrotoluene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
2-Chloronaphthalene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
2-Chlorophenol	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
2-Methyl-4,6-Dinitrophenol	3.88	3.51	3.09	3.14	4.23	11.1	6.88	4.15	4.13	9.37	5.48	3.85	5.23	14.7	0 of 24
2-Methylnaphthalene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
2-Methylphenol	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
2-Nitroaniline	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
2-Nitrophenol	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
3,3'-Dichlorobenzidine	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
3-Nitroaniline	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
4-Bromophenyl Phenyl Ether	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
4-Chloro-3-Methylphenol	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
4-Chloroaniline	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
4-Chlorophenyl Phenyl Ether	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
4-Methylphenol (includes 3-Methylphenol)	1.55	**20.6**	**16.9**	**8.72**	1.7	4.43	2.76	**26.5**	**37.5**	3.75	2.19	**23.1**	12.5	38.7	11 of 24
4-Nitroaniline	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
4-Nitrophenol	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Acenaphthene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Acenaphthylene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Aniline	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Anthracene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Benzidine	3.88	3.51	3.09	3.14	4.23	11.1	6.88	4.15	4.13	9.37	5.48	3.85	5.23	14.7	0 of 24
Benzo(a)anthracene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Benzo(a)pyrene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Benzo(b)fluoranthene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Benzo(g,h,i)perylene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Benzo(k)fluoranthene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Benzoic Acid	3.88	3.51	3.09	3.14	4.23	11.1	6.88	4.15	**33.8**	9.37	5.48	3.85	7.71	63.7	1 of 24
Benzyl Alcohol	1.55	**11.6**	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	**23.5**	1.54	4.71	26.8	3 of 24
Bis(2-Chloroethoxy)methane	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Bis(2-Chloroethyl)ether	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Bis(2-Ethylhexyl)phthalate	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Butylbenzylphthalate	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Carbazole	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Chrysene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Dibenzo(a,h)anthracene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Dibenzofuran	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Diethylphthalate	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Dimethylphthalate	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Di-N-Butylphthalate	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Di-N-Octylphthalate	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Fluoranthene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Fluorene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Hexachlorobenzene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Hexachlorobutadiene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Hexachlorocyclopentadiene	3.88	3.51	3.09	3.14	4.23	11.1	6.88	4.15	4.13	9.37	5.48	3.85	5.23	14.7	0 of 24
Hexachloroethane	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Indeno(1,2,3-CD)pyrene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Isophorone	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Naphthalene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
n-Decane	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24

Table A-15. Deer Island Influent Loadings (Low detection limit analyses; South System), FY15 (cont.)

Semivolatile Organics (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Nitrobenzene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
N-Nitrosodimethylamine (NDMA)	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
N-Nitrosodi-N-Propylamine (NDPA)	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
N-Nitrosodiphenylamine	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
N-Octadecane	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Pentachlorophenol	3.88	3.51	3.09	3.14	4.23	11.1	6.88	4.15	4.13	9.37	5.48	3.85	5.23	14.7	0 of 24
Phenanthrene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Phenol	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24
Pyrene	1.55	1.41	1.23	1.25	1.7	4.43	2.76	1.66	1.65	3.75	2.19	1.54	2.09	5.86	0 of 24

Polycyclic Aromatic Hydrocarbons (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1-Methylnaphthalene	~	**0.0193**	~	**0.0326**	~	**0.249**	~	**0.0299**	~	**0.0764**	~	**0.0386**	0.0743	0.422	12 of 12
1-Methylphenanthrene	~	**0.0118**	~	**0.00643**	~	**0.0838**	~	**0.0775**	~	**0.054**	~	**0.0454**	0.0465	0.153	11 of 12
2,3,5-Trimethylnaphthylene	~	**0.0178**	~	**0.0197**	~	**0.182**	~	**0.0236**	~	**0.0751**	~	**0.0873**	0.0676	0.296	12 of 12
2,6-Dimethylnaphthalene	~	**0.0326**	~	**0.0254**	~	**0.328**	~	**0.0418**	~	**0.123**	~	**0.0656**	0.103	0.557	12 of 12
2-Methylnaphthalene	~	**0.0146**	~	**0.0232**	~	**0.185**	~	**0.0264**	~	**0.0836**	~	**0.0287**	0.0602	0.309	12 of 12
Acenaphthene	~	**0.0177**	~	**0.0319**	~	**0.101**	~	**0.0288**	~	**0.0894**	~	**0.0285**	0.0496	0.155	12 of 12
Acenaphthylene	~	**0.00312**	~	0.000312	~	**0.0152**	~	0.0004	~	**0.0331**	~	**0.00171**	0.00898	0.0422	6 of 12
Anthracene	~	**0.0135**	~	**0.0134**	~	**0.118**	~	**0.0151**	~	**0.066**	~	**0.0297**	0.0426	0.206	12 of 12
Benzo(a)anthracene	~	**0.0282**	~	**0.0184**	~	**0.304**	~	**0.027**	~	**0.133**	~	**0.0818**	0.0987	0.554	12 of 12
Benzo(a)pyrene	~	**0.0205**	~	**0.00614**	~	**0.24**	~	**0.0172**	~	**0.139**	~	**0.0715**	0.0822	0.438	11 of 12
Benzo(b)fluoranthene	~	**0.0413**	~	**0.02**	~	**0.394**	~	**0.0288**	~	**0.227**	~	**0.131**	0.14	0.723	12 of 12
Benzo(e)pyrene	~	**0.0191**	~	**0.00356**	~	**0.169**	~	**0.0165**	~	**0.119**	~	**0.0551**	0.0638	0.306	11 of 12
Benzo(g,h,i)perylene	~	0.000346	~	0.000312	~	**0.171**	~	**0.015**	~	**0.189**	~	0.000396	0.0626	0.311	6 of 12
Benzo(k)fluoranthene	~	**0.0111**	~	**0.00561**	~	**0.122**	~	**0.0116**	~	**0.087**	~	**0.0528**	0.0483	0.224	12 of 12
Benzothiazole	~	**0.0596**	~	**0.0155**	~	**0.539**	~	**0.088**	~	**0.387**	~	**0.0807**	0.195	0.765	12 of 12
Biphenyl	~	**0.0493**	~	**0.00567**	~	**0.0434**	~	0.0004	~	**0.0259**	~	**0.0156**	0.0234	0.0676	10 of 12
C1-Chrysenes	~	**0.0295**	~	0.000312	~	**0.0987**	~	**0.0181**	~	**0.141**	~	**0.0567**	0.0574	0.22	10 of 12
C1-Dibenzothiophenes	~	**0.0051**	~	0.000312	~	0.00131	~	0.0004	~	0.000932	~	**0.0329**	0.00683	0.0418	3 of 12
C1-Flyoranthenes/Pyrenes	~	**0.0481**	~	**0.0231**	~	**0.243**	~	**0.0295**	~	**0.192**	~	**0.102**	0.106	0.43	12 of 12
C1-Fluorenes	~	**0.104**	~	0.000312	~	**0.114**	~	**0.0231**	~	**0.0839**	~	**0.0663**	0.0653	0.183	10 of 12
C1-Naphthalenes	~	**0.0391**	~	**0.0357**	~	**0.52**	~	**0.0714**	~	**0.222**	~	**0.0495**	0.156	0.874	12 of 12
C1-Phenanthrenes/Anthracenes	~	**0.0925**	~	**0.0524**	~	**1.87**	~	**0.263**	~	**1.09**	~	**0.189**	0.594	3.33	12 of 12
C2-Chrysenes	~	**0.0267**	~	**0.242**	~	**0.471**	~	**0.0891**	~	**0.521**	~	0.000396	0.225	0.665	8 of 12
C2-Dibenzothiophenes	~	**0.014**	~	0.000312	~	0.00131	~	0.0004	~	0.000932	~	**0.0986**	0.0192	0.132	3 of 12
C2-Fluoranthenes/Pyrenes	~	**0.0182**	~	0.000312	~	0.00131	~	0.0004	~	0.000932	~	**0.0563**	0.0129	0.0692	4 of 12
C2-Fluorenes	~	0.000346	~	0.000312	~	**0.158**	~	0.0004	~	**0.208**	~	**0.0908**	0.0763	0.336	6 of 12
C2-Naphthalenes	~	**0.112**	~	**0.0337**	~	**2.63**	~	**0.248**	~	**0.798**	~	**0.206**	0.672	4.78	12 of 12
C2-Phenanthrenes/Anthracenes	~	**0.0527**	~	**0.0449**	~	**0.381**	~	**0.0495**	~	**0.218**	~	**0.157**	0.151	0.636	11 of 12
C3-Chrysenes	~	0.000346	~	0.000312	~	0.00131	~	0.0004	~	0.000932	~	0.000396	0.000615	0.00186	0 of 12
C3-Dibenzothiophenes	~	0.000346	~	0.000312	~	0.00131	~	0.0004	~	0.000932	~	0.000396	0.000615	0.00186	0 of 12
C3-Fluoranthenes/Pyrenes	~	**0.000346**	~	**0.000312**	~	**0.00131**	~	**0.0004**	~	0.0217	~	**0.000396**	0.00408	0.0426	1 of 12
C3-Fluorenes	~	0.000346	~	0.000312	~	0.00131	~	0.0004	~	0.000932	~	0.000396	0.000615	0.00186	0 of 12
C3-Naphthalenes	~	0.000346	~	**0.0536**	~	**0.547**	~	**0.0592**	~	**0.246**	~	**0.218**	0.188	0.937	10 of 12
C3-Phenanthrenes/Anthracenes	~	0.000346	~	0.000312	~	0.00131	~	0.0004	~	0.000932	~	0.000396	0.000615	0.00186	0 of 12
C4-Chrysenes	~	0.000346	~	0.000312	~	0.00131	~	0.0004	~	0.000932	~	0.000396	0.000615	0.00186	0 of 12
C4-Naphthalenes	~	**0.0657**	~	0.000312	~	**0.314**	~	**0.0377**	~	**0.257**	~	**0.18**	0.142	0.523	10 of 12
C4-Phenanthrenes/Anthracenes	~	0.000346	~	0.000312	~	0.00131	~	0.0004	~	0.000932	~	0.000396	0.000615	0.00186	0 of 12
Chrysene	~	**0.0328**	~	**0.0187**	~	**0.268**	~	**0.0285**	~	**0.213**	~	**0.11**	0.112	0.48	12 of 12
Dibenzo(a,h)anthracene	~	0.000346	~	0.000312	~	**0.0441**	~	0.0004	~	0.000932	~	0.000396	0.00774	0.0874	1 of 12
Dibenzofuran	~	**0.0346**	~	0.000312	~	**0.0544**	~	**0.0139**	~	**0.0412**	~	**0.0252**	0.0283	0.0834	10 of 12
Dibenzothiophene	~	**0.00961**	~	**0.0099**	~	**0.0591**	~	**0.0101**	~	**0.042**	~	**0.0214**	0.0254	0.0982	12 of 12
Fluoranthene	~	**0.0585**	~	**0.0492**	~	**0.481**	~	**0.0587**	~	**0.494**	~	**0.187**	0.221	0.863	12 of 12
Fluorene	~	**0.0162**	~	**0.0225**	~	**0.0937**	~	**0.0191**	~	**0.074**	~	**0.0444**	0.045	0.151	12 of 12
Indeno(1,2,3-CD)pyrene	~	**0.0743**	~	**0.0834**	~	**0.48**	~	**0.0413**	~	**0.438**	~	0.000396	0.186	0.723	9 of 12
Naphthalene	~	**0.0282**	~	**0.0719**	~	**0.154**	~	**0.0344**	~	**0.116**	~	**0.017**	0.0702	0.233	12 of 12
Perylene	~	**0.0117**	~	**0.0282**	~	**0.0575**	~	**0.00278**	~	**0.123**	~	**0.0116**	0.0391	0.234	12 of 12
Phenanthrene	~	**0.0707**	~	**0.0779**	~	**0.481**	~	**0.078**	~	**0.371**	~	**0.163**	0.207	0.829	12 of 12
Pyrene	~	**0.0512**	~	**0.0424**	~	**0.432**	~	**0.0536**	~	**0.42**	~	**0.168**	0.194	0.768	12 of 12

Table A-15. Deer Island Influent Loadings (Low detection limit analyses; South System), FY15 (cont.)

Organochlorine Pesticides and PCBs (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
2,4'-DDD	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
2,4'-DDE	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
2,4'-DDT	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
4,4'-DDD	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
4,4'-DDE	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
4,4'-DDT	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
Aldrin	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
Alpha-Chlordane	~	**0.00188**	~	**0.00188**	~	**0.0301**	~	**0.00335**	~	**0.0306**	~	**0.00658**	0.0124	0.0475	12 of 12
BZ 101 Pentachlorobiphenyl	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	**0.000373**	~	**0.000158**	0.000246	0.000744	0 of 12
BZ 105 Pentachlorobiphenyl	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
BZ 118 Pentachlorobiphenyl	~	**0.000139**	~	**0.000125**	~	**0.000522**	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
BZ 126 Pentachlorobiphenyl	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
BZ 128 Hexachlorobiphenyl	~	0.000347	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	**0.000158**	0.000281	0.000744	1 of 12
BZ 138 Hexachlorobiphenyl	~	**0.000139**	~	**0.000125**	~	**0.000522**	~	**0.00016**	~	0.000373	~	**0.000158**	0.000246	0.000744	0 of 12
BZ 153 Hexachlorobiphenyl	~	**0.000139**	~	**0.000125**	~	**0.000522**	~	**0.00016**	~	**0.000373**	~	**0.000158**	0.000246	0.000744	0 of 12
BZ 170 Heptachlorobiphenyl	~	0.000716	~	0.000621	~	**0.00439**	~	0.000755	~	0.000373	~	0.000158	0.00117	0.00633	7 of 12
BZ 18 Trichlorobiphenyl	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
BZ 180 Heptachlorobiphenyl	~	0.000358	~	**0.000213**	~	**0.00242**	~	**0.00016**	~	**0.000373**	~	**0.000158**	0.000614	0.00454	3 of 12
BZ 187 Heptachlorobiphenyl	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
BZ 195 Octachlorobiphenyl	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.00182	0.000523	0.00211	2 of 12
BZ 206 Nonachlorobiphenyl	~	0.000886	~	0.000532	~	0.00367	~	0.000833	~	0.000373	~	0.00323	0.00159	0.00536	10 of 12
BZ 209 Decachlorobiphenyl	~	0.00071	~	0.000806	~	**0.00425**	~	0.000752	~	**0.00245**	~	0.0028	0.00196	0.0062	12 of 12
BZ 28 Trichlorobiphenyl	~	0.000139	~	0.000125	~	0.000792	~	0.00016	~	0.000373	~	0.000158	0.000291	0.00084	1 of 12
BZ 44 Tetrachlorobiphenyl	~	0.000139	~	0.000258	~	0.00275	~	0.000524	~	0.0016	~	0.0019	0.00119	0.00372	9 of 12
BZ 52 Tetrachlorobiphenyl	~	**0.000139**	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
BZ 66 Tetrachlorobiphenyl	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
BZ 77 Tetrachlorobiphenyl	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
BZ 8 Dichlorobiphenyl	~	0.000139	~	0.000125	~	0.000593	~	0.00016	~	0.000568	~	0.000158	0.00029	0.000781	4 of 12
Cis-Nonachlor	~	**0.00026**	~	**0.000252**	~	**0.00543**	~	**0.000443**	~	**0.0047**	~	0.000158	0.00187	0.00868	9 of 12
DDMU	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
Dieldrin	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
Endrin	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
Gamma-BHC	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	**0.000815**	~	0.000158	0.00032	0.00127	1 of 12
Gamma-Chlordane	~	**0.0017**	~	**0.00176**	~	**0.031**	~	**0.0033**	~	**0.035**	~	**0.00687**	0.0133	0.0506	12 of 12
Heptachlor	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
Heptachlor Epoxide	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
Hexachlorobenzene	~	**0.000215**	~	**0.000311**	~	**0.00217**	~	**0.00106**	~	**0.00594**	~	**0.00327**	0.00216	0.0115	11 of 12
Mirex	~	0.000139	~	**0.000869**	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.00037	0.000938	2 of 12
Oxychlordane	~	**0.00656**	~	**0.00714**	~	**0.0407**	~	**0.00636**	~	0.000373	~	0.000158	0.0102	0.0626	8 of 12
Total Chlordane	~	**0.0029**	~	**0.00283**	~	**0.0476**	~	**0.00499**	~	**0.0461**	~	**0.00997**	0.0191	0.076	12 of 12
Total DDT	~	0.000139	~	0.000125	~	0.000522	~	0.00016	~	0.000373	~	0.000158	0.000246	0.000744	0 of 12
Trans-Nonachlor	~	**0.00102**	~	**0.000945**	~	**0.0175**	~	**0.00163**	~	**0.0154**	~	**0.00336**	0.00665	0.0285	12 of 12

Table A-15. Deer Island Influent Loadings (Low detection limit analyses; South System), FY15 (cont.)

Volatile Organics (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,1,1-Trichloroethane	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
1,1,2,2-Tetrachloroethane	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
1,1,2-Trichloroethane	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
1,1-Dichloroethane	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
1,1-Dichloroethene	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
1,2-Dichlorobenzene	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
1,2-Dichloroethane	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
1,2-Dichloropropane	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
1,3-Dichlorobenzene	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
1,4-Dichlorobenzene	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
2-Butanone	**6.8**	**4.76**	**7.94**	**6.43**	**5.77**	1.42	0.608	0.388	**2.75**	0.878	**2.99**	**6.5**	3.94	9.68	14 of 24
2-Chloroethyl Vinyl Ether	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
2-Hexanone	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
4-Methyl-2-Pentanone	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Acetone	**85.5**	**46.8**	**87.5**	**74.5**	**162**	**109**	**106**	**33.6**	**52.8**	**107**	**53.4**	**138**	87.9	208	24 of 24
Acrolein	0.733	0.655	0.565	0.593	0.794	2.84	1.22	0.776	0.794	1.76	0.958	0.753	1.04	3.04	0 of 24
Acrylonitrile	0.733	0.655	0.565	0.593	0.794	2.84	1.22	0.776	0.794	1.76	0.958	0.753	1.04	3.04	0 of 24
Benzene	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Bromodichloromethane	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Bromoform	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Bromomethane	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Carbon Disulfide	0.367	**16.4**	**8.24**	**6.82**	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	3.07	22.3	4 of 24
Carbon Tetrachloride	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Chlorobezene	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Chloroethane	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Chloroform	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Chloromethane	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Cis-1,2-Dichloroethene	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Cis-1,3-Dichloropropene	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Dibromochloromethane	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Ethylbenzene	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
M,P-Xylene	0.733	0.655	0.565	0.593	0.794	2.84	1.22	0.776	0.794	1.76	0.958	0.753	1.04	3.04	0 of 24
Methylene Chloride	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
O-Xylene	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Styrene	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Tetrachloroethene	0.367	0.327	0.282	**1.74**	**14.9**	1.42	0.608	0.388	0.397	**5.91**	**2.77**	**7.49**	3.05	15.9	7 of 24
Toluene	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	**5.23**	0.923	5.67	2 of 24
Trans-1,2-Dichloroethene	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Trans-1,3-Dichloropropene	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Trichloroethene	0.367	0.327	0.282	0.297	**5.48**	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.942	5.88	2 of 24
Trichlorofluoromethane	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Vinyl Acetate	0.367	0.327	0.282	0.297	0.397	1.42	0.608	0.388	0.397	0.878	0.479	0.377	0.518	1.52	0 of 24
Vinyl Chloride	0.147	0.131	0.113	0.119	0.159	0.568	0.243	0.155	0.159	0.351	0.192	0.151	0.207	0.609	0 of 24

Notes

DEC is the now-defunct Detailed Effluent Characterization project, which includes low-detection limit methods not approved by the EPA. DEC sampling is now carried out under the NP-EM project.

~: No data or no samples taken

Results in **bold** indicate one or more detects that month

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-16. Deer Island Effluent Characterization (Low detection limit analyses), FY15

Organochlorine Pesticides and PCBs (ug/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
2,4'-DDD	0.000107	0.000107	0.000104	0.000109	**0.000109**	0.000104	0.000112	0.00011	0.000106	**0.000108**	0.000104	0.000106	0.000107	0.00012	0 of 48
2,4'-DDE	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
2,4'-DDT	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
4,4'-DDD	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
4,4'-DDE	0.000107	0.000107	0.000104	0.000109	0.000109	**0.000585**	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000207	0.00157	1 of 48
4,4'-DDT	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
Aldrin	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
Alpha-Chlordane	**0.000476**	**0.000281**	**0.000736**	**0.000608**	**0.000576**	**0.00338**	**0.000887**	**0.000669**	**0.00107**	**0.00178**	**0.000468**	**0.000474**	0.00135	0.00425	48 of 48
BZ 101 Pentachlorobiphenyl	0.000107	0.000107	**0.00022**	**0.000243**	0.000109	**0.000544**	0.000112	**0.000115**	0.000106	0.000108	0.000104	0.000106	0.000213	0.000889	12 of 48
BZ 105 Pentachlorobiphenyl	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
BZ 118 Pentachlorobiphenyl	0.000107	0.000107	0.0000934	0.000112	0.000109	0.000355	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000159	0.000647	10 of 48
BZ 126 Pentachlorobiphenyl	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
BZ 128 Hexachlorobiphenyl	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
BZ 138 Hexachlorobiphenyl	0.000178	0.0000967	0.00018	0.000178	0.000107	0.000484	0.000149	0.00016	0.000217	0.000108	0.000104	0.000187	0.000218	0.000852	38 of 48
BZ 153 Hexachlorobiphenyl	0.000171	0.0000996	0.00026	0.000347	0.000114	0.000492	0.000154	0.00013	0.000172	0.00028	0.0000965	0.000157	0.000247	0.000863	47 of 48
BZ 170 Heptachlorobiphenyl	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
BZ 18 Trichlorobiphenyl	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
BZ 180 Heptachlorobiphenyl	0.0000963	0.000107	0.000104	0.000109	0.000109	0.000341	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000155	0.000826	2 of 48
BZ 187 Heptachlorobiphenyl	0.0000948	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000106	0.00012	1 of 48
BZ 195 Octachlorobiphenyl	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
BZ 206 Nonachlorobiphenyl	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
BZ 209 Decachlorobiphenyl	0.000107	0.000107	0.000104	0.000109	0.000109	0.000137	0.000279	0.000171	0.000144	0.000223	0.000104	0.000106	0.000149	0.000377	18 of 48
BZ 28 Trichlorobiphenyl	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
BZ 44 Tetrachlorobiphenyl	0.000107	0.000107	0.000117	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000108	0.000132	2 of 48
BZ 52 Tetrachlorobiphenyl	0.000107	0.0000933	0.000261	0.000299	0.000109	0.00027	0.000112	0.000164	0.000106	0.000108	0.000104	0.000106	0.000164	0.00061	12 of 48
BZ 66 Tetrachlorobiphenyl	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
BZ 77 Tetrachlorobiphenyl	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
BZ 8 Dichlorobiphenyl	0.000107	0.000107	0.000124	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000108	0.000181	1 of 48
Cis-Nonachlor	0.000107	0.000107	0.000129	0.000132	0.000109	0.000516	0.000112	0.00011	0.000224	0.000251	0.000104	0.000106	0.000221	0.000626	14 of 48
DDMU	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
Dieldrin	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
Endrin	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
Gamma-BHC	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
Gamma-Chlordane	0.000447	0.00022	0.000707	0.000637	0.000472	0.0032	0.000921	0.000537	0.000671	0.00178	0.000562	0.000509	0.00127	0.00418	48 of 48
Heptachlor	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
Heptachlor Epoxide	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
Hexachlorobenzene	0.000107	0.0000876	0.0000753	0.0000895	0.000165	0.00044	0.00136	0.000652	0.000454	0.000346	0.000218	0.0035	0.00061	0.0049	42 of 48
Mirex	0.000107	0.000107	0.000104	0.000109	0.000109	0.000104	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000107	0.00012	0 of 48
Oxychlordane	0.000107	0.000107	0.000104	0.000109	0.000109	0.00445	0.00566	0.00815	0.0123	0.000108	0.000104	0.000106	0.00287	0.0135	16 of 48
Total Chlordane	0.000665	0.000411	0.00108	0.000926	0.000808	0.00482	0.00126	0.000924	0.0014	0.00249	0.000648	0.000762	0.00191	0.00592	48 of 48
Total DDT	0.000107	0.000107	0.000104	0.000109	0.000109	0.000585	0.000112	0.00011	0.000106	0.000108	0.000104	0.000106	0.000207	0.00157	1 of 48
Trans-Nonachlor	0.000189	0.00013	0.000349	0.000318	0.000232	0.00144	0.000375	0.000256	0.000333	0.000707	0.00018	0.000288	0.000566	0.00183	48 of 48

Semivolatile Organics (ug/L)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,2,4-Trichlorobenzene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
1,2-Dichlorobenzene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
1,2-Diphenylhydrazine (as Azobenzene)	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
1,3-Dichlorobenzene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
1,4-Dichlorobenzene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
2,2'-Oxybis(1-Chloropropane)	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
2,4,5-Trichlorophenol	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
2,4,6-Trichlorophenol	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
2,4-Dichlorophenol	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
2,4-Dimethylphenol	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
2,4-Dinitrophenol	5.69	6.38	5.46	5.87	5.46	5.53	5.8	5.49	5.56	5.57	5.66	6.62	5.7	7.58	0 of 24
2,4-Dinitrotoluene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
2,6-Dinitrotoluene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
2-Chloronaphthalene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
2-Chlorophenol	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24

Table A-16. Deer Island Effluent Characterization (Low detection limit analyses), FY15 (cont.)

Semivolatile Organics (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
2-Methyl-4,6-Dinitrophenol	5.69	6.38	5.46	5.87	5.46	5.53	5.8	5.49	5.56	5.57	5.66	6.62	5.7	7.58	0 of 24
2-Methylnaphthalene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
2-Methylphenol	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
2-Nitroaniline	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
2-Nitrophenol	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
3,3'-Dichlorobenzidine	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
3-Nitroaniline	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
4-Bromophenyl Phenyl Ether	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
4-Chloro-3-Methylphenol	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
4-Chloroaniline	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
4-Chlorophenyl Phenyl Ether	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
4-Methylphenol (includes 3-Methylphenol)	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
4-Nitroaniline	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
4-Nitrophenol	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Acenaphthene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Acenaphthylene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Aniline	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Anthracene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Benzidine	5.69	6.38	5.46	5.87	5.46	5.53	5.8	5.49	5.56	5.57	5.66	6.62	5.7	7.58	0 of 24
Benzo(a)anthracene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Benzo(a)pyrene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Benzo(b)fluoranthene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Benzo(g,h,i)perylene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Benzo(k)fluoranthene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Benzoic Acid	5.69	6.38	5.46	5.87	5.46	5.53	5.8	5.49	5.56	5.57	5.66	6.62	5.7	7.58	0 of 24
Benzyl Alcohol	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Bis(2-Chloroethoxy)methane	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Bis(2-Chloroethyl)ether	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Bis(2-Ethylhexyl)phthalate	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Butylbenzylphthalate	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Carbazole	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Chrysene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Dibenzo(a,h)anthracene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Dibenzofuran	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Diethylphthalate	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Dimethylphthalate	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Di-N-Butylphthalate	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Di-N-Octylphthalate	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Fluoranthene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Fluorene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Hexachlorobenzene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Hexachlorobutadiene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Hexachlorocyclopentadiene	5.69	6.38	5.46	5.87	5.46	5.53	5.8	5.49	5.56	5.57	5.66	6.62	5.7	7.58	0 of 24
Hexachloroethane	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Indeno(1,2,3-CD)pyrene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Isophorone	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Naphthalene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
n-Decane	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Nitrobenzene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
N-Nitrosodimethylamine (NDMA)	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
N-Nitrosodi-N-Propylamine (NDPA)	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
N-Nitrosodiphenylamine	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
N-Octadecane	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Pentachlorophenol	5.69	6.38	5.46	5.87	5.46	5.53	5.8	5.49	5.56	5.57	5.66	6.62	5.7	7.58	0 of 24
Phenanthrene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Phenol	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24
Pyrene	2.28	2.56	2.19	2.35	2.18	2.21	2.32	2.19	2.22	2.23	2.27	2.65	2.28	3.03	0 of 24

Table A-16. Deer Island Effluent Characterization (Low detection limit analyses), FY15 (cont.)

Polycyclic Aromatic Hydrocarbons (ug/L)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1-Methylnaphthalene	**0.00276**	**0.00138**	**0.00173**	**0.00473**	**0.00481**	**0.0202**	**0.00529**	**0.00401**	**0.0135**	**0.00583**	**0.00304**	**0.00383**	0.00811	0.0345	47 of 47
1-Methylphenanthrene	**0.00114**	**0.0025**	**0.00311**	**0.0051**	**0.00241**	**0.013**	**0.00358**	**0.00279**	**0.00603**	**0.0019**	**0.00145**	**0.00339**	0.00508	0.0246	46 of 47
2,3,5-Trimethylnaphthylene	0.000267	**0.00436**	**0.00239**	**0.00963**	**0.00816**	**0.0211**	**0.00545**	**0.00648**	**0.0143**	**0.00529**	**0.00389**	**0.00985**	0.0095	0.0301	40 of 47
2,6-Dimethylnaphthalene	**0.00225**	**0.0032**	**0.00426**	**0.00736**	**0.00387**	**0.0211**	**0.00636**	**0.00574**	**0.0185**	**0.00697**	**0.00147**	**0.00174**	0.009	0.0388	45 of 47
2-Methylnaphthalene	**0.00177**	**0.00111**	**0.00314**	**0.00688**	**0.00375**	**0.0199**	**0.00329**	**0.0113**	**0.0572**	**0.00683**	**0.00369**	**0.00768**	0.0118	0.114	47 of 47
Acenaphthene	**0.00217**	**0.00407**	**0.00682**	**0.0166**	**0.00872**	**0.022**	**0.0103**	**0.0142**	**0.0468**	**0.0106**	**0.00282**	**0.00987**	0.0142	0.078	44 of 47
Acenaphthylene	**0.00173**	**0.00124**	**0.000553**	**0.00195**	0.000272	**0.00333**	**0.00165**	0.000276	**0.00215**	**0.00118**	**0.00058**	**0.00284**	0.00174	0.00693	27 of 47
Anthacene	**0.00132**	**0.00304**	**0.00484**	**0.00868**	**0.00279**	**0.014**	**0.00352**	**0.00301**	**0.00621**	**0.00311**	**0.00207**	**0.00578**	0.006	0.0272	45 of 47
Benzo(a)anthracene	**0.00344**	**0.00411**	**0.00455**	**0.00679**	**0.00321**	**0.0292**	**0.00505**	**0.00378**	**0.00655**	**0.00738**	**0.00628**	**0.0122**	0.0108	0.0655	47 of 47
Benzo(a)pyrene	0.000267	**0.00237**	**0.0026**	0.000272	**0.00223**	**0.0259**	**0.00338**	**0.00202**	**0.0055**	**0.00961**	**0.00376**	**0.00791**	0.00873	0.061	39 of 47
Benzo(b)fluoranthene	**0.00274**	**0.00432**	**0.00415**	0.000272	**0.00303**	**0.0488**	**0.00575**	**0.00382**	**0.0085**	**0.013**	**0.01**	**0.012**	0.0156	0.116	41 of 47
Benzo(e)pyrene	**0.000708**	**0.00153**	**0.00213**	0.000272	**0.0015**	**0.0214**	**0.00266**	**0.00219**	**0.00467**	**0.00951**	**0.00216**	**0.00296**	0.00712	0.0507	40 of 47
Benzo(g,h,i)perylene	0.000267	**0.00192**	**0.00164**	**0.00165**	**0.00152**	**0.0216**	**0.0026**	**0.00144**	**0.00387**	**0.00711**	**0.00446**	**0.0076**	0.00727	0.051	42 of 47
Benzo(k)fluoranthene	0.000267	**0.00159**	**0.00197**	0.000272	**0.00175**	**0.0149**	**0.00328**	**0.00192**	**0.00335**	**0.00594**	**0.00662**	**0.00931**	0.00597	0.032	39 of 47
Benzothiazole	**0.0877**	**0.08**	**0.0315**	**0.039**	**0.0934**	**0.106**	**0.0846**	**0.113**	**0.128**	**0.129**	**0.135**	**0.319**	0.114	0.455	47 of 47
Biphenyl	**0.00156**	0.000268	**0.00207**	**0.00132**	**0.00113**	**0.00605**	**0.000848**	0.000276	**0.00543**	**0.00261**	**0.00119**	**0.00126**	0.0026	0.0119	34 of 47
C1-Chrysenes	**0.00121**	**0.00332**	**0.00245**	0.000272	0.000272	**0.0139**	0.000279	**0.000865**	**0.00311**	**0.00508**	**0.00158**	**0.00384**	0.00465	0.0297	31 of 47
C1-Dibenzothiophenes	**0.000692**	0.000268	0.000258	0.000272	0.000272	0.000261	0.000279	0.000276	0.000208	0.000268	0.000259	**0.00682**	0.000732	0.0076	5 of 47
C1-Fluoranthenes/Pyrenes	**0.00337**	**0.00792**	**0.00591**	**0.0124**	**0.00499**	**0.0261**	**0.00715**	**0.00523**	**0.0131**	**0.0149**	**0.00656**	**0.0101**	0.0124	0.0538	46 of 47
C1-Fluorenes	0.000267	**0.0157**	**0.00753**	0.000272	0.000272	**0.0166**	0.000279	**0.00597**	**0.0135**	**0.0071**	**0.0464**	**0.0178**	0.0115	0.0518	28 of 47
C1-Naphthalenes	**0.0058**	**0.00394**	**0.00757**	**0.00899**	**0.0148**	**0.0501**	**0.0141**	**0.0197**	**0.0937**	**0.0185**	**0.00622**	**0.0099**	0.0256	0.196	47 of 47
C1-Phenanthrenes/Anthracenes	**0.014**	**0.0167**	**0.0463**	**0.0238**	**0.0487**	**0.185**	**0.0498**	**0.0571**	**0.103**	**0.0563**	**0.00754**	**0.0171**	0.072	0.33	47 of 47
C2-Chrysenes	0.000267	0.000268	0.000258	0.000272	0.000272	0.000261	0.000279	0.000276	0.000208	**0.0173**	0.000259	0.000264	0.00237	0.0201	4 of 47
C2-Dibenzothiophenes	0.000267	0.000268	0.000258	0.000272	0.000272	0.000261	0.000279	0.000276	0.000208	0.000268	0.000259	**0.0126**	0.00109	0.0155	4 of 47
C2-Fluoranthenes/Pyrenes	0.000267	**0.00331**	**0.00359**	0.000272	0.000272	0.000261	0.000279	0.000276	0.000208	0.000268	0.000259	**0.0107**	0.00129	0.0156	11 of 47
C2-Fluorenes	0.000267	**0.013**	0.000258	**0.00272**	**0.0135**	**0.015**	**0.00835**	0.000276	**0.00779**	**0.0109**	**0.00623**	**0.0114**	0.00899	0.0207	31 of 47
C2-Naphthalenes	**0.00848**	**0.0106**	**0.0264**	**0.0176**	**0.0374**	**0.134**	**0.0357**	**0.0579**	**0.2**	**0.046**	**0.01**	**0.0198**	0.0632	0.381	47 of 47
C2-Phenanthrenes/Anthracenes	**0.00744**	**0.0135**	**0.0103**	**0.0116**	**0.0164**	**0.0377**	**0.0131**	**0.00954**	**0.0179**	**0.0122**	**0.00684**	**0.015**	0.0176	0.0657	42 of 47
C3-Chrysenes	0.000267	0.000268	0.000258	0.000272	0.000272	0.000261	0.000279	0.000276	0.000208	0.000268	0.000259	0.000264	0.000263	0.000301	0 of 47
C3-Dibenzothiophenes	0.000267	0.000268	0.000258	0.000272	0.000272	0.000261	0.000279	0.000276	0.000208	0.000268	0.000259	0.000264	0.000263	0.000301	0 of 47
C3-Fluoranthenes/Pyrenes	0.000267	0.000268	0.000258	0.000272	0.000272	0.000261	0.000279	0.000276	0.000208	0.000268	0.000259	0.000264	0.000263	0.000301	0 of 47
C3-Fluorenes	0.000267	0.000268	0.000258	0.000272	**0.0303**	0.000261	**0.0185**	**0.000456**	0.000208	0.000268	0.000259	0.000264	0.0041	0.0361	9 of 47
C3-Naphthalenes	0.000267	**0.0468**	**0.0055**	**0.0228**	**0.0267**	**0.048**	**0.0197**	**0.0143**	**0.04**	**0.0181**	**0.0114**	**0.0341**	0.0273	0.0698	42 of 47
C3-Phenanthrenes/Anthracenes	0.000267	0.000268	0.000258	0.000272	0.000272	**0.0226**	0.000279	0.000276	**0.00559**	0.000268	**0.0016**	**0.0113**	0.00618	0.0322	13 of 47
C4-Chrysenes	0.000267	0.000268	0.000258	0.000272	0.000272	0.000261	0.000279	0.000276	0.000208	0.000268	0.000259	0.000264	0.000263	0.000301	0 of 47
C4-Naphthalenes	0.000267	**0.0234**	0.000258	0.000272	**0.0461**	**0.0327**	**0.0319**	**0.0181**	**0.0247**	**0.0345**	**0.0303**	**0.0453**	0.027	0.0539	36 of 47
C4-Phenanthrenes/Anthracenes	0.000267	0.000268	0.000258	0.000272	0.000272	0.000261	0.000279	0.000276	0.000208	0.000268	0.000259	0.000264	0.000263	0.000301	0 of 47
Chrysene	**0.00465**	**0.00489**	**0.00567**	**0.00827**	**0.00426**	**0.0351**	**0.00649**	**0.00463**	**0.0095**	**0.0152**	**0.00909**	**0.0159**	0.0142	0.0796	47 of 47
Dibenzo(a,h)anthracene	0.000267	**0.00115**	**0.000339**	0.000272	**0.00072**	**0.00482**	**0.00137**	0.000276	**0.00108**	**0.000726**	**0.00396**	**0.00732**	0.00227	0.0118	31 of 47
Dibenzofuran	**0.00293**	**0.00682**	**0.0139**	**0.026**	**0.00676**	**0.015**	**0.0116**	**0.00817**	**0.0128**	**0.00792**	**0.00467**	**0.0129**	0.011	0.0306	45 of 47
Dibenzothiophene	**0.00114**	**0.00203**	**0.00358**	**0.00649**	**0.00367**	**0.00773**	**0.00234**	**0.00342**	**0.00646**	**0.00285**	**0.00125**	**0.00291**	0.00415	0.013	45 of 47
Fluoranthene	**0.00905**	**0.011**	**0.0184**	**0.0291**	**0.0105**	**0.0672**	**0.014**	**0.0132**	**0.0286**	**0.036**	**0.0118**	**0.0218**	0.0296	0.146	47 of 47
Fluorene	**0.000832**	**0.00691**	**0.0138**	**0.0219**	**0.00674**	**0.0171**	**0.00705**	**0.00825**	**0.018**	**0.00687**	**0.00397**	**0.0106**	0.0107	0.0285	44 of 47
Indeno(1,2,3-CD)pyrene	0.000267	0.000268	**0.00199**	0.000272	**0.00303**	**0.0231**	**0.00343**	**0.00283**	**0.00344**	**0.0108**	**0.00435**	**0.00651**	0.00804	0.0375	34 of 47
Naphthalene	**0.0067**	**0.00463**	**0.00958**	**0.0161**	**0.00841**	**0.0358**	**0.00777**	**0.0165**	**0.0612**	**0.0162**	**0.00831**	**0.0103**	0.0196	0.127	47 of 47
Perylene	0.000267	0.000268	0.000258	0.000272	0.000272	**0.00288**	0.000279	0.000276	**0.00111**	**0.00171**	0.000259	0.000264	0.00106	0.0056	12 of 47
Phenanthrene	**0.00672**	**0.00786**	**0.0168**	**0.0299**	**0.00811**	**0.0633**	**0.0139**	**0.0176**	**0.0406**	**0.0193**	**0.00551**	**0.015**	0.0264	0.128	47 of 47
Pyrene	**0.0103**	**0.0124**	**0.0186**	**0.0283**	**0.0111**	**0.0597**	**0.0146**	**0.0116**	**0.0256**	**0.0306**	**0.0122**	**0.0209**	0.0272	0.127	47 of 47

Notes

DEC is the now-defunct Detailed Effluent Characterization project, which includes low-detection limit methods not approved by the EPA. DEC sampling is now carried out under the NP-EM project.

~: No data or no samples taken

Results in **bold** indicate one or more detects that month

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Table A-17. Deer Island Effluent Loadings (Low detection limit analyses), FY15

Organochlorine Pesticides and PCBs (lbs/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
2,4'-DDD	0.000236	0.000216	0.000199	0.000209	**0.000265**	0.000731	0.000332	0.00025	0.000242	**0.00044**	0.000242	0.000237	0.0003	0.000966	0 of 48
2,4'-DDE	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
2,4'-DDT	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
4,4'-DDD	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
4,4'-DDE	0.000236	0.000216	0.000199	0.000209	0.000265	**0.0041**	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.000581	0.0144	1 of 48
4,4'-DDT	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
Aldrin	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
Alpha-Chlordane	**0.00105**	**0.000565**	**0.00141**	**0.00117**	**0.0014**	**0.0237**	**0.00263**	**0.00151**	**0.00245**	**0.00728**	**0.00109**	**0.00106**	0.00377	0.0358	48 of 48
BZ 101 Pentachlorobiphenyl	0.000236	0.000216	**0.000238**	**0.000209**	0.000265	**0.000731**	0.000332	**0.00025**	0.000242	0.00044	0.000242	0.000237	0.000303	0.000966	1 of 48
BZ 105 Pentachlorobiphenyl	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
BZ 118 Pentachlorobiphenyl	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
BZ 126 Pentachlorobiphenyl	0.000236	0.000216	0.000225	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.000302	0.000966	2 of 48
BZ 128 Hexachlorobiphenyl	0.000236	0.000187	0.000501	0.000574	0.000265	0.00189	0.000332	0.00037	0.000242	0.00044	0.000242	0.000237	0.00046	0.00561	12 of 48
BZ 138 Hexachlorobiphenyl	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
BZ 153 Hexachlorobiphenyl	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
BZ 170 Heptachlorobiphenyl	0.000236	0.000216	0.000423	0.000466	0.000265	0.00381	0.000332	0.00026	0.000242	0.00044	0.000242	0.000237	0.000597	0.00818	12 of 48
BZ 18 Trichlorobiphenyl	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
BZ 180 Heptachlorobiphenyl	0.000236	0.000216	0.000179	0.000214	0.000265	0.00249	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.000445	0.00595	10 of 48
BZ 187 Heptachlorobiphenyl	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
BZ 195 Octachlorobiphenyl	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
BZ 206 Nonachlorobiphenyl	0.00039	0.000194	0.000346	0.000341	0.000261	0.00339	0.000442	0.000363	0.000496	0.00044	0.000242	0.000417	0.00061	0.00784	38 of 48
BZ 209 Decachlorobiphenyl	0.000377	0.0002	0.0005	0.000666	0.000277	0.00345	0.000456	0.000294	0.000394	0.00114	0.000225	0.00035	0.000694	0.00794	47 of 48
BZ 28 Trichlorobiphenyl	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
BZ 44 Tetrachlorobiphenyl	0.000212	0.000216	0.000199	0.000209	0.000265	0.00239	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.000436	0.0076	2 of 48
BZ 52 Tetrachlorobiphenyl	0.000208	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.000298	0.000966	1 of 48
BZ 66 Tetrachlorobiphenyl	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
BZ 77 Tetrachlorobiphenyl	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
BZ 8 Dichlorobiphenyl	0.000236	0.000216	0.000199	0.000209	0.000265	0.000958	0.000827	0.000387	0.000329	0.000912	0.000242	0.000237	0.000418	0.00144	18 of 48
Cis-Nonachlor	0.000236	0.000216	0.000247	0.000253	0.000265	0.00361	0.000332	0.00025	0.000512	0.00103	0.000242	0.000237	0.000619	0.00557	14 of 48
DDMU	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
Dieldrin	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
Endrin	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
Gamma-BHC	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
Gamma-Chlordane	0.000983	0.000441	0.00136	0.00122	0.00115	0.0225	0.00273	0.00122	0.00153	0.00727	0.00131	0.00114	0.00357	0.0351	48 of 48
Heptachlor	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
Heptachlor Epoxide	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
Hexachlorobenzene	0.000236	0.000176	0.000145	0.000172	0.000402	0.00309	0.00404	0.00148	0.00104	0.00142	0.000508	0.00783	0.00171	0.0113	42 of 48
Mirex	0.000236	0.000216	0.000199	0.000209	0.000265	0.000731	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.0003	0.000966	0 of 48
Oxychlordane	0.000236	0.000216	0.000199	0.000209	0.000265	0.0312	0.0168	0.0185	0.0281	0.00044	0.000242	0.000237	0.00805	0.0538	16 of 48
Total Chlordane	0.00146	0.000826	0.00208	0.00178	0.00197	0.0338	0.00375	0.00209	0.00321	0.0102	0.00151	0.0017	0.00536	0.0526	48 of 48
Total DDT	0.000236	0.000216	0.000199	0.000209	0.000265	0.0041	0.000332	0.00025	0.000242	0.00044	0.000242	0.000237	0.000581	0.0144	1 of 48
Trans-Nonachlor	0.000415	0.000261	0.00067	0.00061	0.000564	0.0101	0.00111	0.000579	0.00076	0.00289	0.000421	0.000643	0.00159	0.0168	48 of 48

Semivolatile Organics (lbs/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1,2,4-Trichlorobenzene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
1,2-Dichlorobenzene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
1,2-Diphenylhydrazine (as Azobenzene)	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
1,3-Dichlorobenzene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
1,4-Dichlorobenzene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
2,2'-Oxybis(1-Chloropropane)	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
2,4,5-Trichlorophenol	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
2,4,6-Trichlorophenol	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
2,4-Dichlorophenol	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
2,4-Dimethylphenol	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
2,4-Dinitrophenol	13.1	13.1	10.5	11.3	12.3	48.7	18.1	12.5	13.2	23.4	14.6	14.9	17.1	51.7	0 of 24
2,4-Dinitrotoluene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
2,6-Dinitrotoluene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
2-Chloronaphthalene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
2-Chlorophenol	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24

Table A-17. Deer Island Effluent Loadings (Low detection limit analyses), FY15 (cont.)

Semivolatile Organics (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
2-Methyl-4,6-Dinitrophenol	13.1	13.1	10.5	11.3	12.3	48.7	18.1	12.5	13.2	23.4	14.6	14.9	17.1	51.7	0 of 24
2-Methylnaphthalene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
2-Methylphenol	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
2-Nitroaniline	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
2-Nitrophenol	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
3,3'-Dichlorobenzidine	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
3-Nitroaniline	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
4-Bromophenyl Phenyl Ether	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
4-Chloro-3-Methylphenol	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
4-Chloroaniline	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
4-Chlorophenyl Phenyl Ether	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
4-Methylphenol (includes 3-Methylphenol)	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
4-Nitroaniline	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
4-Nitrophenol	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Acenaphthene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Acenaphthylene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Aniline	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Anthracene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Benzidine	13.1	13.1	10.5	11.3	12.3	48.7	18.1	12.5	13.2	23.4	14.6	14.9	17.1	51.7	0 of 24
Benzo(a)anthracene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Benzo(a)pyrene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Benzo(b)fluoranthene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Benzo(g,h,i)perylene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Benzo(k)fluoranthene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Benzoic Acid	13.1	13.1	10.5	11.3	12.3	48.7	18.1	12.5	13.2	23.4	14.6	14.9	17.1	51.7	0 of 24
Benzyl Alcohol	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Bis(2-Chloroethoxy)methane	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Bis(2-Chloroethyl)ether	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Bis(2-Ethylhexyl)phthalate	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Butylbenzylphthalate	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Carbazole	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Chrysene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Dibenzo(a,h)anthracene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Dibenzofuran	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Diethylphthalate	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Dimethylphthalate	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Di-N-Butylphthalate	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Di-N-Octylphthalate	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Fluoranthene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Fluorene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Hexachlorobenzene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Hexachlorobutadiene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Hexachlorocyclopentadiene	13.1	13.1	10.5	11.3	12.3	48.7	18.1	12.5	13.2	23.4	14.6	14.9	17.1	51.7	0 of 24
Hexachloroethane	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Indeno(1,2,3-CD)pyrene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Isophorone	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Naphthalene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
n-Decane	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Nitrobenzene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
N-Nitrosodimethylamine (NDMA)	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
N-Nitrosodi-N-Propylamine (NDPA)	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
N-Nitrosodiphenylamine	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
N-Octadecane	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Pentachlorophenol	13.1	13.1	10.5	11.3	12.3	48.7	18.1	12.5	13.2	23.4	14.6	14.9	17.1	51.7	0 of 24
Phenanthrene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Phenol	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24
Pyrene	5.23	5.25	4.18	4.53	4.92	19.5	7.23	5	5.29	9.36	5.85	5.95	6.86	20.7	0 of 24

Table A-17. Deer Island Effluent Loadings (Low detection limit analyses), FY15 (cont.)

Polycyclic Aromatic Hydrocarbons (lbs/day)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
1-Methylnaphthalene	**0.00606**	**0.00278**	**0.00331**	**0.00907**	**0.0117**	**0.142**	**0.0157**	**0.00908**	**0.0308**	**0.0238**	**0.00708**	**0.00855**	0.0229	0.293	47 of 47
1-Methylphenanthrene	**0.00251**	**0.00502**	**0.00595**	**0.00978**	**0.00587**	**0.0913**	**0.0106**	**0.00632**	**0.0138**	**0.00778**	**0.00338**	**0.00757**	0.0143	0.226	46 of 47
2,3,5-Trimethylnaphthylene	0.000588	**0.00876**	**0.00458**	**0.0185**	**0.0199**	**0.148**	**0.0162**	**0.0147**	**0.0328**	**0.0216**	**0.00907**	**0.022**	0.0268	0.277	40 of 47
2,6-Dimethylnaphthalene	**0.00495**	**0.00643**	**0.00816**	**0.0141**	**0.00941**	**0.148**	**0.0189**	**0.013**	**0.0423**	**0.0285**	**0.00342**	**0.00389**	0.0254	0.344	45 of 47
2-Methylnaphthalene	**0.00389**	**0.00224**	**0.00601**	**0.0132**	**0.00912**	**0.14**	**0.00977**	**0.0255**	**0.131**	**0.028**	**0.0086**	**0.0172**	0.0334	0.291	47 of 47
Acenaphthene	**0.00478**	**0.00818**	**0.0131**	**0.0318**	**0.0212**	**0.154**	**0.0307**	**0.0321**	**0.107**	**0.0432**	**0.00659**	**0.022**	0.0401	0.301	44 of 47
Acenaphthylene	**0.0038**	**0.0025**	**0.00106**	**0.00374**	0.000662	**0.0233**	**0.00488**	0.000625	**0.00492**	**0.00483**	**0.00135**	**0.00634**	0.00492	0.0558	27 of 47
Anthacene	**0.00289**	**0.0061**	**0.00926**	**0.0167**	**0.00679**	**0.0979**	**0.0104**	**0.00681**	**0.0142**	**0.0127**	**0.00483**	**0.0129**	0.017	0.25	45 of 47
Benzo(a)anthracene	**0.00755**	**0.00825**	**0.00872**	**0.013**	**0.00782**	**0.205**	**0.015**	**0.00856**	**0.015**	**0.0302**	**0.0146**	**0.0272**	0.0305	0.603	47 of 47
Benzo(a)pyrene	0.000588	**0.00477**	**0.00498**	0.000521	**0.00543**	**0.182**	**0.01**	**0.00457**	**0.0126**	**0.0393**	**0.00878**	**0.0177**	0.0247	0.561	39 of 47
Benzo(b)fluoranthene	**0.00603**	**0.00868**	**0.00794**	0.000521	**0.00738**	**0.342**	**0.0171**	**0.00865**	**0.0194**	**0.0531**	**0.0233**	**0.0268**	0.0441	1.07	41 of 47
Benzo(e)pyrene	**0.00156**	**0.00306**	**0.00407**	0.000521	**0.00365**	**0.15**	**0.0079**	**0.00495**	**0.0107**	**0.0389**	**0.00505**	**0.00661**	0.0201	0.466	40 of 47
Benzo(g,h,i)perylene	0.000588	**0.00385**	**0.00315**	**0.00317**	**0.0037**	**0.151**	**0.00771**	**0.00326**	**0.00884**	**0.0291**	**0.0104**	**0.017**	0.0205	0.469	42 of 47
Benzo(k)fluoranthene	0.000588	**0.0032**	**0.00378**	0.000521	**0.00425**	**0.104**	**0.00972**	**0.00436**	**0.00765**	**0.0243**	**0.0154**	**0.0208**	0.0169	0.294	39 of 47
Benzothiazole	**0.193**	**0.161**	**0.0603**	**0.0749**	**0.227**	**0.741**	**0.251**	**0.255**	**0.293**	**0.527**	**0.315**	**0.713**	0.323	1.15	47 of 47
Biphenyl	**0.00343**	0.000539	**0.00396**	**0.00253**	**0.00275**	**0.0424**	**0.00252**	0.000625	**0.0124**	**0.0107**	**0.00277**	**0.0028**	0.00735	0.0834	34 of 47
C1-Chrysenes	**0.00267**	**0.00668**	**0.0047**	0.000521	0.000662	**0.0972**	0.000829	**0.00196**	**0.00711**	**0.0208**	**0.00368**	**0.00858**	0.0131	0.273	31 of 47
C1-Dibenzothiophenes	**0.00152**	0.000539	0.000495	0.000521	0.000662	0.00183	0.000829	0.000625	0.000476	0.0011	0.000603	**0.0152**	0.00207	0.0171	5 of 47
C1-Fluoranthenes/Pyrenes	**0.00741**	**0.0159**	**0.0113**	**0.0238**	**0.0121**	**0.183**	**0.0212**	**0.0118**	**0.0299**	**0.0609**	**0.0153**	**0.0225**	0.0351	0.495	46 of 47
C1-Fluorenes	0.000588	**0.0315**	**0.0144**	0.000521	0.000662	**0.116**	0.000829	**0.0135**	**0.0308**	**0.0291**	**0.108**	**0.0397**	0.0325	0.218	28 of 47
C1-Naphthalenes	**0.0128**	**0.00791**	**0.0145**	**0.0172**	**0.0361**	**0.351**	**0.0418**	**0.0447**	**0.214**	**0.0755**	**0.0145**	**0.0221**	0.0722	0.712	47 of 47
C1-Phenanthrenes/Anthracenes	**0.0308**	**0.0336**	**0.0888**	**0.0457**	**0.118**	**1.29**	**0.148**	**0.129**	**0.236**	**0.23**	**0.0176**	**0.0381**	0.203	3.04	47 of 47
C2-Chrysenes	0.000588	0.000539	0.000495	0.000521	0.000662	0.00183	0.000829	0.000625	0.000476	**0.0709**	0.000603	0.000589	0.00669	0.0835	4 of 47
C2-Dibenzothiophenes	0.000588	0.000539	0.000495	0.000521	0.000662	0.00183	0.000829	0.000625	0.000476	0.0011	0.000603	**0.0281**	0.00309	0.0341	4 of 47
C2-Fluoranthenes/Pyrenes	0.000588	**0.00665**	**0.00687**	0.000521	0.000662	0.00183	0.000829	0.000625	0.000476	0.0011	0.000603	**0.0239**	0.00365	0.0343	11 of 47
C2-Fluorenes	0.000588	**0.0261**	0.000495	**0.00522**	**0.0329**	**0.105**	**0.0248**	0.000625	**0.0178**	**0.0447**	**0.0145**	**0.0254**	0.0254	0.19	31 of 47
C2-Naphthalenes	**0.0187**	**0.0213**	**0.0505**	**0.0338**	**0.091**	**0.942**	**0.106**	**0.131**	**0.458**	**0.188**	**0.0234**	**0.0443**	0.178	1.87	47 of 47
C2-Phenanthrenes/Anthracenes	**0.0164**	**0.0272**	**0.0196**	**0.0223**	**0.0398**	**0.264**	**0.0389**	**0.0216**	**0.041**	**0.0499**	**0.016**	**0.0334**	0.0498	0.604	42 of 47
C3-Chrysenes	0.000588	0.000539	0.000495	0.000521	0.000662	0.00183	0.000829	0.000625	0.000476	0.0011	0.000603	0.000589	0.000743	0.00242	0 of 47
C3-Dibenzothiophenes	0.000588	0.000539	0.000495	0.000521	0.000662	0.00183	0.000829	0.000625	0.000476	0.0011	0.000603	0.000589	0.000743	0.00242	0 of 47
C3-Fluoranthenes/Pyrenes	0.000588	0.000539	0.000495	0.000521	0.000662	0.00183	0.000829	0.000625	0.000476	0.0011	0.000603	0.000589	0.000743	0.00242	0 of 47
C3-Fluorenes	0.000588	0.000539	0.000495	0.000521	**0.0737**	0.00183	**0.0549**	**0.00103**	0.000476	0.0011	0.000603	0.000589	0.0116	0.109	9 of 47
C3-Naphthalenes	0.000588	**0.0939**	**0.0105**	**0.0437**	**0.065**	**0.336**	**0.0584**	**0.0324**	**0.0913**	**0.0741**	**0.0265**	**0.0761**	0.0771	0.554	42 of 47
C3-Phenanthrenes/Anthracenes	0.000588	0.000539	0.000495	0.000521	0.000662	**0.158**	0.000829	0.000625	**0.0128**	0.0011	**0.00372**	**0.0253**	0.0175	0.296	13 of 47
C4-Chrysenes	0.000588	0.000539	0.000495	0.000521	0.000662	0.00183	0.000829	0.000625	0.000476	0.0011	0.000603	0.000589	0.000743	0.00242	0 of 47
C4-Naphthalenes	0.000588	**0.0471**	0.000495	0.000521	**0.112**	**0.229**	**0.0946**	**0.0411**	**0.0565**	**0.141**	**0.0707**	**0.101**	0.0762	0.496	36 of 47
C4-Phenanthrenes/Anthracenes	0.000588	0.000539	0.000495	0.000521	0.000662	0.00183	0.000829	0.000625	0.000476	0.0011	0.000603	0.000589	0.000743	0.00242	0 of 47
Chrysene	**0.0102**	**0.00982**	**0.0109**	**0.0159**	**0.0104**	**0.246**	**0.0193**	**0.0105**	**0.0217**	**0.0621**	**0.0212**	**0.0356**	0.0401	0.732	47 of 47
Dibenzo(a,h)anthracene	0.000588	**0.00231**	**0.000649**	0.000521	**0.00175**	**0.0338**	**0.00406**	0.000625	**0.00247**	**0.00297**	**0.00924**	**0.0163**	0.0064	0.109	31 of 47
Dibenzofuran	**0.00644**	**0.0137**	**0.0266**	**0.0499**	**0.0164**	**0.105**	**0.0343**	**0.0185**	**0.0292**	**0.0324**	**0.0109**	**0.0288**	0.0311	0.19	45 of 47
Dibenzothiophene	**0.0025**	**0.00407**	**0.00685**	**0.0124**	**0.00893**	**0.0542**	**0.00693**	**0.00775**	**0.0148**	**0.0117**	**0.00292**	**0.0065**	0.0117	0.12	45 of 47
Fluoranthene	**0.0199**	**0.0221**	**0.0352**	**0.0559**	**0.0256**	**0.471**	**0.0415**	**0.0298**	**0.0654**	**0.147**	**0.0276**	**0.0487**	0.0835	1.34	47 of 47
Fluorene	**0.00183**	**0.0139**	**0.0265**	**0.042**	**0.0164**	**0.12**	**0.0209**	**0.0187**	**0.0412**	**0.0281**	**0.00925**	**0.0236**	0.0303	0.248	44 of 47
Indeno(1,2,3-CD)pyrene	0.000588	0.000539	**0.00382**	0.000521	**0.00737**	**0.162**	**0.0102**	**0.00641**	**0.00787**	**0.0441**	**0.0101**	**0.0145**	0.0227	0.345	34 of 47
Naphthalene	**0.0147**	**0.00929**	**0.0184**	**0.0308**	**0.0205**	**0.251**	**0.0231**	**0.0373**	**0.14**	**0.0663**	**0.0194**	**0.0231**	0.0553	0.475	47 of 47
Perylene	0.000588	0.000539	0.000495	0.000521	0.000662	**0.0202**	0.000829	0.000625	**0.00254**	**0.00699**	0.000603	0.000589	0.00298	0.0515	12 of 47
Phenanthrene	**0.0148**	**0.0158**	**0.0323**	**0.0574**	**0.0197**	**0.444**	**0.0412**	**0.0398**	**0.0929**	**0.079**	**0.0129**	**0.0335**	0.0744	1.18	47 of 47
Pyrene	**0.0225**	**0.0249**	**0.0356**	**0.0543**	**0.027**	**0.418**	**0.0432**	**0.0263**	**0.0585**	**0.125**	**0.0284**	**0.0467**	0.0768	1.17	47 of 47

Notes

DEC is the now-defunct Detailed Effluent Characterization project, which includes low-detection limit methods not approved by the EPA. DEC sampling is now carried out under the NP-EM project.

~: No data or no samples taken

Results in **bold** indicate one or more detects that month

Yearly averages are calculated from individual results collected during the fiscal year and are flow-weighted.

Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Appendix B. Cottage Farm CSO Facility

Table B-1. Cottage Farm CSO Facility Operations Summary, FY15

Date	Rainfall (inches)	Discharge Duration (hrs)	Total Volume (MG)	Peak Flow (MG)	pH (SU)	EFFLUENT BOD (mg/L)	TSS (mg/L)	Fecal coliform (col/100mL)	Chlorine residual (mg/L)
July									
28	0.11	2.08	7.70	70.7	7	64.3	190	1180	1.17
							179	667	<.02
							177	874	<.02
							106	36	<.02
August									
	NA								
September									
	NA								
October									
23	2.25	3.96	10.5	70	6.17	26.0	44	54.1	<.02
							49.5	144	<.02
							46.5	108	<.02
							50	54.1	<.02
							43.5	9.01	<.02
							38	<10	<.02
November									
	NA								
December									
9	2.9	10.86	63.21	224	6.75	55.1	84	1030	<0.02
							88	580	<0.02
							98	490	<0.02
							89	460	<0.02
							78	820	0.03
							110	450	<0.02
							102	390	<0.02
							94	200	<0.02
							94	430	<0.02
							74	300	<0.02
							82	410	<0.02
							110	802	<0.02
							92	703	<0.02
							104	5300	<0.02
							98	1520	<0.02
							110	2400	<0.02
							84	510	<0.02
							74	450	<0.02
							52	350	<0.02
							40	18	
January									
	NA								
February									
	NA								
March									
	NA								
April									
	NA								
May									
	NA								
June									
	NA								
Total		16.9	81.41						
Average	1.75	5.63	27.14	121.6	6.6	48.47	98.70	278	0.11
Minimum	0.11	2.08	7.70	70.0	6.2	26.00	45.25	62	0.01
Maximum*	2.9	10.86	63.21	224.0	7.0	64.30	163.00	881	0.30

Number of CSO events 3

NA = No activation
~ = No data or no sample taken
† = Flow data taken from 15 minute discharge data from meter tag #
* = Per the NPDES permit, maximum chlorine residual is the highest single sample.
Boxed dates indicate a single event spread out over multiple days.

Table B-2. Cottage Farm CSO Facility Effluent Characterization, FY15

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (ug/L)															
ALUMINUM	**2110**	NA	NA	**577**	NA	**1040**	NA	NA	NA	NA	NA	NA	1242.33	2110	3 of 3
CADMIUM	**0.538**	NA	NA	**0.137**	NA	**0.257**	NA	NA	NA	NA	NA	NA	0.31	0.538	3 of 3
CALCIUM	**15200**	NA	NA	**9120**	NA	**18600**	NA	NA	NA	NA	NA	NA	14306.67	18600	3 of 3
CHROMIUM	**11.1**	NA	NA	**2.6**	NA	**12.5**	NA	NA	NA	NA	NA	NA	8.73	12.5	3 of 4
COPPER	**64.2**	NA	NA	**21**	NA	**35.7**	NA	NA	NA	NA	NA	NA	40.30	64.2	3 of 3
LEAD	**49.30**	NA	NA	**12.85**	NA	**18.65**	NA	NA	NA	NA	NA	NA	26.93	49.3	3 of 5
MAGNESIUM	**3110**	NA	NA	**1720**	NA	**3280**	NA	NA	NA	NA	NA	NA	2703.33	3280	3 of 3
MERCURY	**0.307**	NA	NA	**0.050**	NA	**0.0977**	NA	NA	NA	NA	NA	NA	0.15	0.307	3 of 3
NICKEL	**5.99**	NA	NA	**2.51**	NA	**2.965**	NA	NA	NA	NA	NA	NA	3.82	5.99	3 of 5
ZINC	**163**	NA	NA	**59**	NA	**89.8**	NA	NA	NA	NA	NA	NA	103.93	163	3 of 3
TOTAL ORGANIC CARBON	**25.7**	NA	NA	**15**	NA	**22.4**	NA	NA	NA	NA	NA	NA	20.87	25.7	3 of 3

Table B-3. Cottage Farm CSO Facility Effluent Loadings, FY15

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (lbs/day)															
ALUMINUM	**136**	NA	NA	**51**	NA	**548**	NA	NA	NA	NA	NA	NA	245	548	3 of 3
CADMIUM	**0.035**	NA	NA	**0.012**	NA	**0.135**	NA	NA	NA	NA	NA	NA	0.061	0.135	3 of 3
CALCIUM	**977**	NA	NA	**799**	NA	**9805**	NA	NA	NA	NA	NA	NA	3860	9805	3 of 3
CHROMIUM	**0.7**	NA	NA	**0.2**	NA	**6.6**	NA	NA	NA	NA	NA	NA	2.5	6.6	3 of 4
COPPER	**4.1**	NA	NA	**1.8**	NA	**18.8**	NA	NA	NA	NA	NA	NA	8.3	18.8	3 of 3
LEAD	**3.17**	NA	NA	**1.13**	NA	**9.83**	NA	NA	NA	NA	NA	NA	4.71	9.83	3 of 5
MAGNESIUM	**200**	NA	NA	**151**	NA	**1729**	NA	NA	NA	NA	NA	NA	693	1729	3 of 3
MERCURY	**0.020**	NA	NA	**0.004**	NA	**0.052**	NA	NA	NA	NA	NA	NA	0.025	0.052	3 of 3
NICKEL	**0.39**	NA	NA	**0.22**	NA	**1.56**	NA	NA	NA	NA	NA	NA	0.72	1.56	3 of 5
ZINC	**10**	NA	NA	**5**	NA	**47**	NA	NA	NA	NA	NA	NA	21	47	3 of 3
Total Organic Carbon (lbs/day)															
TOTAL ORGANIC CARBON	**1.7**	NA	NA	**1.3**	NA	**11.8**	NA	NA	NA	NA	NA	NA	4.9	11.8	3 of 3

NA = No activation
~ = Activation that month, but no data or no sample taken
Results in bold indicate one or more detects in the month.
Yearly averages are calculated from individual results collected in the fiscal year.
Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Appendix C. Prison Point CSO Facility

Table C-1. Prison Point CSO Facility Operations Summary, FY15

							EFFLUENT		
Date	**Rainfall (inches)**	**Discharge Duration (hrs)**	**Total Volume (MG)**	**Peak Flow (MG)**	**pH (SU)**	**BOD (mg/L)**	**TSS (mg/L)**	**Fecal coliform (col/100mL)**	**Chlorine residual (mg/L)**
July									
4	1.88	8.36	27.97	170	6.38	28	153	766	<.02
							148	420	<.02
							78	220	<.02
							48	230	<.02
							45.5	81.1	<.02
							32	72.1	<.02
							28.5	90.1	<.02
							24	27	<.02
							21.5	36	<.02
							17	180	<.02
							15	45	<.02
							13.5	18	<.02
							13.5	36	<.02
August									
13	1.06	2.61	7.98	111.2	~	~	~	~	~
September									
	NA								
October									
1	1.16	2.75	4.66	124.9	~	~	~	~	~
23	2.25	10.78	52.77	255.98	~	~	~	~	~
November									
17	1.64	2.7	8	141	6.57	45.1	122	10000	<0.02
							74	910	0.06
							58	90.1	<0.02
							60	9.01	<0.02
							56	45	<0.02
26	1.44	3.85	13.71	119.4	6.30	23.6	135	171	<0.02
							48	290	<0.02
							40	135	<0.02
							35	200	<0.02
							42	230	<0.02
December									
9	2.9	14.16	103.72	323	6.4	13.2	74	667	<0.02
							68	530	<0.02
							64	775	<0.02
							60	550	0.29
							99	410	<0.02
							55	703	<0.02
							44	510	<0.02
							65	937	<0.02
							52	590	<0.02
							48	766	<0.02
							64	793	<0.02
							45	510	<0.02
							50	1070	<0.02
							82	901	<0.02
							62	802	<0.02
							50	748	<0.02
							40	712	<0.02
							52	420	<0.02
							36	1340	<0.02
							31	240	<0.02
							36	2000	<0.02
							30	25000	<0.02
							66	57000	<0.02
							28	48000	<0.02
							36	84000	<0.02
							30	93000	<0.02
							34	89000	<0.02
January									
4	0.57	1.51	3.73	88	~	~	~	~	~
February									
	NA								
March									
26	0.8	3.56	5.3	61	~	~	~	~	~
April									
21	0.54	2.41	7.54	213.39	~	~	~	~	~
May									
31	0.91	4	3.91	49.4	6.87	36.4	160	162	<0.02
					6.71		139	739	<0.02
							150	982	<0.02
							133	216	<0.02
							108	9.01	<0.02
							125	<10	<0.02
							95	<10	<0.02
									<0.02
June									
2	0.74	1.25	3.19	117	~	~	~	~	~
21	1.72	4.63	13.8	185	~	~	~	~	~
28	1.43	5.11	20.37	213	~	~	~	~	~
Total		67.68	276.65						
Average	1.36	4.83	19.76	155.16	6.5	29.3	73.0	814	0.01
Minimum	0.54	1.25	3.19	49.40	6.3	13.2	49.0	171	0.01
Maximum*	2.90	14.16	103.72	323.00	6.9	45.1	130.0	15258	0.02

Number of CSO events 14

NA = No activation
~ = No data or no sample taken
SR = Sample rejected
* = Per the NPDES permit, maximum chlorine residual is the highest single sample.
Boxed dates indicate a single event spread out over multiple days.

Table C-2. Prison Point CSO Facility Effluent Characterization, FY15

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (ug/L)															
ALUMINUM	~	~	NA	~	890	~	~	NA	~	~	~	~	890	890	2 of 2
CADMIUM	~	~	NA	~	0.274	~	~	NA	~	~	~	~	0.274	0.274	2 of 2
CHROMIUM	~	~	NA	~	7.345	~	~	NA	~	~	~	~	7.3	7.3	2 of 2
COPPER	~	~	NA	~	39.150	~	~	NA	~	~	~	~	39.2	39.2	2 of 2
LEAD	~	~	NA	~	26.750	~	~	NA	~	~	~	~	26.8	26.8	2 of 3
MAGNESIUM	~	~	NA	~	1885	~	~	NA	~	~	~	~	1885	1885	2 of 2
MERCURY	~	~	NA	~	0.057	~	~	NA	~	~	~	~	0.06	0.06	2 of 2
NICKEL	~	~	NA	~	2.913	~	~	NA	~	~	~	~	4.17	5.67	2 of 4
ZINC	~	~	NA	~	133.200	~	~	NA	~	~	~	~	133.20	133	2 of 2
Total Organic Carbon (mg/L)															
TOTAL ORGANIC CARBON	~	~	NA	~	15.2	~	~	NA	~	~	~	~	15.2	15.2	2 of 2

Table C-3. Prison Point CSO Facility Effluent Loadings, FY15

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (lbs/day)															
ALUMINUM	~	~	NA	~	**76**	~	~	NA	~	~	~	~	76	76	2 of 2
CADMIUM	~	~	NA	~	**0.023**	~	~	NA	~	~	~	~	0.023	0.023	2 of 2
CHROMIUM	~	~	NA	~	**0.6**	~	~	NA	~	~	~	~	0.6	0.6	2 of 2
COPPER	~	~	NA	~	**3.3**	~	~	NA	~	~	~	~	3.3	3.3	2 of 2
LEAD	~	~	NA	~	**2.2**	~	~	NA	~	~	~	~	2.2	2.2	2 of 3
MAGNESIUM	~	~	NA	~	**172**	~	~	NA	~	~	~	~	172	172	2 of 2
MERCURY	~	~	NA	~	**0.00**	~	~	NA	~	~	~	~	0.00	0.00	2 of 2
NICKEL	~	~	NA	~	**0.25**	~	~	NA	~	~	~	~	0.25	0.25	2 of 4
ZINC	~	~	NA	~	**11.2**	~	~	NA	~	~	~	~	11.2	11.2	2 of 2
Total Organic Carbon (lbs/day)															
TOTAL ORGANIC CARBON	~	~	NA	~	**1.3**	~	~	NA	~	~	~	~	1.3	1.3	2 of 2

NA = No activation
~ = Activation that month, but no data or no sample taken
Results in bold indicate one or more detects in the month.
Yearly averages are calculated from individual results collected in the fiscal year.
Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Appendix D. Somerville Marginal CSO Facility

Table D-1. Somerville Marginal CSO Facility Operations Summary, FY15

Date		Rainfall (inches)	Discharge Duration (hrs)	Total Volume (MG)	Peak Flow (MG)	EFFLUENT pH (SU)	BOD (mg/L)	TSS (mg/L)	Fecal coliform (col/100mL)	Chlorine residual (mg/L)
July										
	3	0.28	1.3	0.05	ND					
	4	1.88	7.816	4.84	57.0					
	7	0.08	0.86	0.38	62.0					
	16	0.85	2.16	1.95	65.9	7.23				
	28	0.11	2.83	5.4	175					
August										
	13	1.06	2.41	1.24	ND					
	31	0.54	1	0.42	36.36					
September										
	2	0.01	0.86	0.49	59.94					
	6	0.22	1.4	1.77	135.76					
October										
	1	1.16	1.916	0.43	30.57					
	23	2.25	10.016	12.84	91					
November										
	17	1.64	4.58	2.48	45					
	26	1.44	5.83	4.36	44.9					
December										
	6	1.09	1.1	0.41	51					
	9	2.9	17.15	35.11	136					
	24	0.56	1.06	0.91	ND					
January										
	4	0.57	3.28	2.79	56.24					
February										
		NA								
March										
	14	0.8	3.08	0.99	25					
	26	0.8	4.25	2.38	41.71					
April										
	20	0.61	1.11	0.99	ND					
	21	0.54	2.68	3.31	ND	7.58	30.2	507	45	0.18
						8.23		158	<10	<.02
								333	36	<.02
May										
	31	0.91	3.56	1.82	30	7.23	22.9	55	<10	<0.02
						6.79		52	<10	<0.02
								35	<10	<0.02
								77	<10	<0.02
June										
	2	0.74	4.1	2.02	44.7	8.24	<1.43	62	<10	2
								31	<10	
	21	1.72	5.68	4.71	89	7.99	14.6	72	<10	<0.02
								148	81.1	<0.02
								139	9.01	1.05
								121	<10	0.1
								60	<10	0.03
								33.5	<10	0.04
	28	1.43	5.66	5.91	32					
Total			95.688	98						
Average		0.97	3.83	3.92	65.45	7.7	22.6	132.4	4.6	0.6
Minimum		0.01	0.86	0.05	25.00	7.0	14.6	46.5	1.0	0.0
Maximum*		2.90	17.15	35.11	175.00	8.2	30.2	332.7	27.3	2.0

Number of CSO events 25

NA = No activation, ND = No data
* = Per the NPDES permit, maximum chlorine residual is the highest single sample.
Boxed dates indicate a single event spread out over multiple days.

Table D-2. Somerville Marginal CSO Facility Effluent Characterization, FY15

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (ug/L)															
ALUMINUM	~	~	~	~	~	~	~	NA	~	6780	1210	556	2849	6780	3 of 3
CADMIUM	~	~	~	~	~	~	~	NA	~	0.9335	0.184	0.113	0.410	0.934	3 of 4
CALCIUM	~	~	~	~	~	~	~	NA	~	14000	6190	5020	8403	14000	3 of 3
CHROMIUM	~	~	~	~	~	~	~	NA	~	31.00	16.90	6.63	18.18	31.00	3 of 3
COPPER	~	~	~	~	~	~	~	NA	~	66.8	31.8	14.6	37.7	66.8	3 of 3
LEAD	~	~	~	~	~	~	~	NA	~	222.0	50.6	18.0	96.9	222.0	3 of 3
MAGNESIUM	~	~	~	~	~	~	~	NA	~	6000	1600	978	2859	6000	3 of 3
MERCURY	~	~	~	~	~	~	~	NA	~	0.15	1.01	0.237	0.47	1.01	3 of 3
NICKEL	~	~	~	~	~	~	~	NA	~	14.8	3.71	1.4	6.6	14.8	3 of 3
ZINC	~	~	~	~	~	~	~	NA	~	342	109	51.6	168	342	3 of 3
Total Organic Carbon (mg/L)															
TOTAL ORGANIC CARBON	~	~	~	~	~	~	~	NA	~	19.8	24.6	11.1	18.5	24.6	3 of 3

Table D-3. Somerville Marginal CSO Facility Effluent Loadings, FY14

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (lbs/day)															
ALUMINUM	~	~	~	~	~	~	~	NA	~	187	18	22	76	187	3 of 3
CADMIUM	~	~	~	~	~	~	~	NA	~	0.026	0.003	0.004	0.011	0.026	3 of 4
CALCIUM	~	~	~	~	~	~	~	NA	~	386	94	197	226	386	3 of 3
CHROMIUM	~	~	~	~	~	~	~	NA	~	0.86	0.26	0.26	0.46	0.86	3 of 3
COPPER	~	~	~	~	~	~	~	NA	~	1.8	0.5	0.6	1.0	1.8	3 of 3
LEAD	~	~	~	~	~	~	~	NA	~	6.1	0.8	0.7	2.5	6.1	3 of 3
MAGNESIUM	~	~	~	~	~	~	~	NA	~	166	24	38	76	166	3 of 3
MERCURY	~	~	~	~	~	~	~	NA	~	0.00	0.02	0.01	0.01	0.02	3 of 3
NICKEL	~	~	~	~	~	~	~	NA	~	0.4	0.1	0.1	0.2	0.4	3 of 3
ZINC	~	~	~	~	~	~	~	NA	~	9.4	1.7	2.0	4.4	9.4	3 of 3
Total Organic Carbon (lbs/day)															
TOTAL ORGANIC CARBON	~	~	~	~	~	~	~	NA	~	0.5	0.4	0.4	0.5	0.5	3 of 3

NA = No activation
~ = Activation that month, but no data or no sample taken
Results in bold indicate one or more detects in the month.
Yearly averages are calculated from individual results collected in the fiscal year.
Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Appendix E. Union Park CSO Facility

Table E-1. Union Park CSO Facility Operations Summary, FY15

Date		Rainfall (inches)	Discharge Duration (hrs)	Total Volume (MG)	Peak Flow (MG)	EFFLUENT pH (SU)	BOD (mg/L)	TSS (mg/L)	Fecal coliform (col/100mL)	Enterococci (col/100mL)	Chlorine residual (mg/L)
July											
	4	1.88	5.6	7.71	105.9	5.18	24	22	<10	<10	0
						5.39			<10	<10	0
						5.45			<10	<10	0.02
						6.24			10	<10	0
						6.22			<10	<10	0.05
						5.1			<10	<10	0.02
August											
		NA									
September											
		NA									
October											
	23	2.25	9.25	10.5	93.9	5.02	35.4	62	<100	5100	0.0
						5.07			<100	2300	0.0
						5.36			<100	901	0.0
						4.9			<100	3600	0.0
						4.94			<100	3700	0.0
						5.23			<100	<100	0.0
						5.74			<100	<100	0.0
						5.86			<100	450	0.0
						6.2			<100	990	0.0
November											
		NA									
December											
	9	2.9	9.2	20.37	187	5.42	17	52	30	<10	0.0
						6.31			364	<10	0.0
						6			100	70	0.0
						5.89			145	145	0.0
						5.22			36	10	0.1
						5.43			280	100	0.0
						5.9			<10	20	0.0
						6.22			<10	<10	0.0
						6.69			10	<10	0.0
January											
		NA									
February											
		NA									
March											
		NA									
April											
		NA									
May											
		NA									
June											
	21	1.72	1.73	0.5	28.4	5.48	37	71	3	23	0.0
						5.87		74	73	56	0.0
								70			
	28	1.43	2.5	2	58.2	5.75	16	28	17	5	0.0
						5.95		24	<2	6	0
Total			28.28	41.08							
Average		2.04	5.66	8.22	94.68	5.7	25.9	46.7	10.1	78.4	0.0
Minimum		1.43	1.73	0.50	28.40	5.4	16.0	22.0	1.0	1.0	0.0
Maximum*		2.90	9.25	20.37	187.00	5.9	37.0	71.7	29.3	341.2	0.0

Number of CSO events 5

NA = No activation
* = Per the NPDES permit, maximum chlorine residual is the highest single sample.
Boxed dates indicate a single event spread out over multiple days.

Table E-2. Union Park CSO Facility Effluent Characterization, FY15

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (ug/L)															
ALUMINUM	350	NA	NA	890	NA	1000	NA	NA	NA	NA	NA	360	650	1000	4 of 4
ANTIMONY	1	NA	NA	1	NA	1	NA	NA	NA	NA	NA	1	1	1	0 of 4
ARSENIC	3	NA	NA	3	NA	4	NA	NA	NA	NA	NA	4	3.5	4	4 of 4
BERYLLIUM	1	NA	NA	0.5	NA	0.5	NA	NA	NA	NA	NA	0.5	0.6	1	0 of 4
CADMIUM	0.25	NA	NA	0.25	NA	0.25	NA	NA	NA	NA	NA	0.25	0.25	0.25	0 of 8
CALCIUM	7800	NA	NA	6300	NA	10000	NA	NA	NA	NA	NA	7200	7825	10000	4 of 4
CHROMIUM	3	NA	NA	4	NA	4	NA	NA	NA	NA	NA	3	3.5	4	7 of 7
COPPER	31	NA	NA	42	NA	26.5	NA	NA	NA	NA	NA	29.5	32.3	42	8 of 8
LEAD	14.5	NA	NA	27	NA	27	NA	NA	NA	NA	NA	14.5	20.8	27	8 of 8
MAGNESIUM	6000	NA	NA	3300	NA	4800	NA	NA	NA	NA	NA	5000	4775	6000	4 of 4
MERCURY	0.0025	NA	NA	0.039	NA	0.005	NA	NA	NA	NA	NA	0.02	0.017	0.039	2 of 4
NICKEL	2.5	NA	NA	2	NA	2	NA	NA	NA	NA	NA	1	1.9	2.5	5 of 8
SELENIUM	1	NA	NA	1	NA	1	NA	NA	NA	NA	NA	1	1	1	0 of 4
SILVER	0.5	NA	NA	0.5	NA	0.5	NA	NA	NA	NA	NA	0.5	0.5	0.5	0 of 4
THALLIUM	0.5	NA	NA	0.5	NA	0.5	NA	NA	NA	NA	NA	0.5	0.5	0.5	0 of 4
ZINC	55	NA	NA	89.5	NA	62.5	NA	NA	NA	NA	NA	67	68.5	89.5	7 of 7
Total Organic Carbon (mg/L)															
TOTAL ORGANIC CARBON	10.1	NA	NA	11	NA	5.55	NA	NA	NA	NA	NA	7.6	8.6	11	6 of 6

Table E-3. Union Park CSO Facility Effluent Loadings, FY15

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (lbs/day)															
ALUMINUM	23	NA	NA	78	NA	170	NA	NA	NA	NA	NA	6	69	170	4 of 4
ANTIMONY	0.064	NA	NA	0.088	NA	0.170	NA	NA	NA	NA	NA	0.017	0.085	0.170	0 of 4
ARSENIC	0.193	NA	NA	0.263	NA	0.680	NA	NA	NA	NA	NA	0.067	0.300	0.680	4 of 4
BERYLLIUM	0.064	NA	NA	0.044	NA	0.085	NA	NA	NA	NA	NA	0.008	0.050	0.085	0 of 4
CADMIUM	0.016	NA	NA	0.022	NA	0.042	NA	NA	NA	NA	NA	0.004	0.021	0.042	0 of 8
CALCIUM	502	NA	NA	552	NA	1699	NA	NA	NA	NA	NA	120	718	1699	4 of 4
CHROMIUM	0.193	NA	NA	0.350	NA	0.680	NA	NA	NA	NA	NA	0.050	0.318	0.680	7 of 7
COPPER	1.993	NA	NA	3.678	NA	4.502	NA	NA	NA	NA	NA	0.492	2.666	4.502	8 of 8
LEAD	0.932	NA	NA	2.364	NA	4.587	NA	NA	NA	NA	NA	0.242	2.031	4.587	8 of 8
MAGNESIUM	386	NA	NA	289	NA	815	NA	NA	NA	NA	NA	83	393	815	4 of 4
MERCURY	0.000	NA	NA	0.003	NA	0.001	NA	NA	NA	NA	NA	0.000	0.001	0.003	2 of 4
NICKEL	0.161	NA	NA	0.175	NA	0.340	NA	NA	NA	NA	NA	0.017	0.173	0.340	5 of 8
SELENIUM	0.064	NA	NA	0.088	NA	0.170	NA	NA	NA	NA	NA	0.017	0.085	0.170	0 of 4
SILVER	0.032	NA	NA	0.044	NA	0.085	NA	NA	NA	NA	NA	0.008	0.042	0.085	0 of 4
THALLIUM	0.032	NA	NA	0.044	NA	0.085	NA	NA	NA	NA	NA	0.008	0.042	0.085	0 of 4
ZINC	3.5	NA	NA	7.8	NA	10.6	NA	NA	NA	NA	NA	1.1	5.8	10.6	7 of 7
Total Organic Carbon (lbs/day)															
TOTAL ORGANIC CARBON	0.649	NA	NA	0.963	NA	0.943	NA	NA	NA	NA	NA	0.127	0.671	0.963	6 of 6

NA = No activation
~ = Activation that month, but no data or no sample taken
Results in bold indicate one or more detects in the month.
Yearly averages are calculated from individual results collected in the fiscal year.
Non-detected compounds are assumed to equal one half of the detection limit for metals and inorganics and one tenth of the reporting limit for organic compounds.

Appendix F. NPDES Monitoring Requirements

Overview

The Environmental Protection Agency (EPA) mandates that any discharge to a body of water must be permitted through the National Pollutant Discharge Elimination System (NPDES). The EPA and the Massachusetts Department of Environmental Protection (DEP) jointly issued a NPDES permit to MWRA for the Deer Island treatment plant and six CSO treatment facilities: Cottage Farm, Prison Point, Somerville Marginal, Constitution Beach, Fox Point, and Commercial Point. The Union Park CSO facility operates under a separate NPDES permit jointly issued to the MWRA and the Boston Water and Sewer Commission (BWSC).

The limits set in the MWRA NPDES permit are limitations for secondary treatment plants. In March 2001, secondary Battery C underwent start-up at Deer Island, substantially finishing the construction process at the plant. Before the completion of Battery C, though, plant effluent was already largely in compliance with the new permit. Additionally, in September of 2000, Constitution Beach, one of the CSO facilities, shut down, leaving five permitted and operational CSO facilities. Union Park came on-line at the beginning of FY08. In November 2007, the Fox Point and Commercial Point facilities were decommissioned following the completion of a sewer separation project in the Dorchester area.

In addition, MWRA monitors the influent quality of wastewater. Those monitoring results provide the basis for determining the adequacy of existing local limits to protect the treatment plants and Boston Harbor. Local Limits, enforced by MWRA's Toxic Reduction and Control (TRAC) department, allow the discharge of toxic chemicals from industrial sources to be regulated. The MWRA submitted proposed local limits in FY00 reflecting the new secondary treatment requirements. Regulators approved the new local limits and they became effective in June 2003, at the end of FY03. Under the pretreatment program requirements, local limits must be re-evaluated every five years.

MWRA not only monitors to comply with the NPDES effluent requirements, but also has its own monitoring programs, including monitoring at DITP, Boston Harbor, and Massachusetts Bay. These monitoring programs serve to assure appropriate control of discharges to the system, to assure the most cost-effective wastewater treatment while meeting water quality standards, and to assure the quality of life of the organisms and health of the animal communities living in the receiving waters.

MWRA's current NPDES permit for DITP and the non-Union Park CSO facilities expired in August 2005. MWRA has applied for a new permit. However, as of the end of FY15, EPA has not issued a new NPDES permit. In lieu of a new permit, the limits of the old permit remain in force.

NPDES Permit

Under the NPDES permit, "in compliance with the provisions of the Clean Water Act, as amended, 33 U.S.C. §§ 1251 et seq., and the Massachusetts Clean Water Act, as amended, Mass. Gen. Laws, ch. 21, §§ 26-53, Massachusetts Water Resources Authority is authorized to discharge from MWRA Publicly Owned Treatment Works, Deer Island Treatment Plant, Deer Island, Boston, MA 02152 (Discharge serial number T01), which discharges to receiving waters located in Massachusetts Bay, which is adjacent to Cape Cod Bay, and a part of the Gulf of Maine; and from Combined Sewer Overflow Outfalls, which discharge to the Charles River, Inner Harbor, Mystic River, Boston Harbor, Dorchester Bay, Alewife Brook; in accordance with effluent limitations, monitoring requirements and other conditions set in the permit…"

Monitoring Requirements and Effluent Limitations

The NPDES permit establishes monitoring requirements for the new Deer Island outfall tunnel (T01). The permit also regulates CSO treatment facility outfalls at Cottage Farm (MWR201), Prison Point (MWR203), Somerville Marginal (which has two outfalls from a single facility, the primary outfall, MWR205, and the relief outfall, MWR205A), Constitution Beach (MWR207, now closed), Fox Point (MWR209, now closed), and Commercial Point (MWR211, now closed). The permit also establishes a comprehensive receiving water monitoring plan, the Ambient Monitoring Plan, in Massachusetts Bay. MWRA's joint permit with BWSC for Union Park regulates the outfall for the Union Park CSO facility (MWR215).

Reporting Requirements

In addition to Deer Island and CSO monitoring requirements, the NPDES permit requires numerous reports on the state of MWRA sewerage and operational systems. These include reports on infiltration/inflow, CSO facilities and collection systems maintenance and inspection, operational upsets, dry weather and sanitary sewer overflows, operational bypasses, monthly Discharge Monitoring Reports (DMRs), and reporting on the effects of discharges through the Ambient Monitoring Plan. In addition, the Contingency Plan mandates a number of additional thresholds and stipulates actions needed if they are exceeded. Table F-1 presents a summary of the permit limits and monitoring requirements for Deer Island and Table F-2 does the same for the CSOs.

Table F-1. Effluent Limitations and Monitoring Requirements for DITP Outfall T01

	Discharge Limitation		
Effluent Characteristic	Average Monthly	Average Weekly	Maximum Daily
Flow	Report*	N/A	Report
Dry Day Flow	436 MGD	N/A	Report
cBOD	25 mg/L	40 mg/L	Report
TSS	30 mg/L	45 mg/L	Report
pH	Not less than 6.0 nor greater than 9.0 at any time.		
Fecal Coliform[a]	N/A	14,000 colonies/100mL	14,000 colonies/100mL
Chlorine, Total Residual	456 μg/L	N/A	631 μg/L
PCBs, Arochlors: 1016, 1221, 1232, 122, 1248, 1254, 1260	0.000045 μg/L	N/A	Report
Settleable Solids	N/A	Report	Report
Chlorides, Influent	N/A	N/A	Report
Mercury	Report	N/A	Report
Chlordane	Report	N/A	Report
4,4-DDT	Report	N/A	Report
Dieldrin	Report	N/A	Report
Heptachlor	Report	N/A	Report
Ammonia-Nitrogen	Report	N/A	N/A
Total Kjeldahl Nitrogen	Report	N/A	N/A
Total Nitrate	Report	N/A	N/A
Total Nitrite	Report	N/A	N/A
Cyanide, Total	Report	N/A	Report
Copper, Total	Report	N/A	Report
Arsenic, Total	Report	N/A	Report
Hexachlorobenzene	Report	N/A	Report
Aldrin	Report	N/A	Report
Heptachlor Epoxide	Report	N/A	Report
PCBs, Total	Report	N/A	Report
Volatile Organic Compounds	Report	N/A	Report
LC50[b]	Tests involve using mysid shrimp (*Mysidopsis bahia*) and inland silverside (*Menidia beryllina*) in 48 hour acute toxicity tests. LC50 must be achieved in a solution that is 50% effluent.		
C-NOEC[c]	C-NOEC tests involve larval inland silverside (*Menidia beryllina*) and sea urchin (*Arbacia punctulata*). *Menidia* tests involve a week's worth of exposure to various effluent concentrations. The *Arbacia* toxicity test tests fertilization in the test organism. In both cases, no chronic effects must be observed in a solution composed of 1.5% effluent.		
Footnotes *, a, b, and c are listed underneath Table G-2.			

Table F-2. Effluent Limitations and Monitoring Requirements for CSO Outfalls

Effluent Characteristic	Discharge Limitation Average Monthly	 Average Weekly
Rainfall	Report*	Report
Flow	Report	Report
TSS	Report	Report
BOD	Report	Report
Chlorine, Total Residual	0.1 mg/L	0.25 mg/L max hourly
pH	Not less than 6.5 nor greater than 8.3 or 8.5[†]	
Fecal Coliform	Must meet Massachusetts Water Quality Standards	
LC50[b]	Since Cottage Farm and Somerville Marginal's relief outfall both discharge in freshwater, acute toxicity tests are required with daphnids (Ceriodaphnia dubia) and fathead minnows (Pimpephales promelas). There is no limit to effluent concentration used to determine LC50, but results are reportable.	
	All other CSO facilities discharge to marine waters, so the acute test organisms are mysid shrimp (Mysidopsis bahia) and inland silverside (Menidia beryllina). LC50 results are reportable.	

* No limit, but values reported to EPA and DEP.
[†] 8.3 S.U. is the limit for facilities discharging to freshwater (Cottage Farm and the Somerville Marginal relief outfall). 8.5 S.U. is the limit for saltwater discharge (Prison Point, Somerville Marginal, and Union Park).
[a] There are two other fecal coliform limits. The first is that not more than 10% of the individual samples collected in a month can have a count higher than 14,000 colonies/100mL. Typically, given 3 samples a day, this means no more than 9 samples can have a count higher than 14,000 in a given month. The second limit is that no more than 3 consecutive samples can exceed 14,000 colonies/100mL.
[b] LC50: the concentration of effluent in a sample that causes mortality in 50% of the test population at a specific time of observation.
[c] C-NOEC: Chronic No Observed Effect Concentration is the highest concentration of effluent to which organisms are exposed in a life cycle or partial life cycle test which has no adverse effects (on growth, survival and reproduction).

Monitoring Programs

In FY15, MWRA conducted several monitoring programs. However, this report presents only the influent and effluent monitoring programs. The receiving water monitoring programs are too complex to cover in a single document. More information on monitoring in Massachusetts Bay and Boston Harbor can be found at: http://www.mwra.com/harbor/html/bhrecov.htm

Treatment Plant Monitoring

Monitoring at DITP has two main components: influent monitoring and effluent monitoring.

Influent monitoring characterizes the influent to the Deer Island Treatment Plant. Monitoring for conventional parameters is necessary for some parameters to meet NPDES reporting requirements, but monitoring many other parameters is critical for process control to ensure optimal plant functioning. Influent monitoring data provides influent loading rates and the basis for determining treatment plant efficiency. Influent monitoring for non-conventional parameters is an important part of MWRA's source reduction and Local Limits program run by TRAC.

Effluent monitoring characterizes the quality of the effluent discharged to Massachusetts Bay. With the addition of whole effluent toxicity (WET) testing, the parameters measured in the effluent are similar to those measured in the influent. The NPDES permit requires effluent monitoring and imposes permit limits on both conventional and priority pollutants to ensure the health of the receiving water. Additionally, the permit also requires the reporting of non-priority pollutants such as nutrients, although no limits are set on them.

Table F-3 lists the treatment plant monitoring program parameters, including sample type, sampling frequency and analytical procedures used.

Combined Sewer Overflow Facilities Monitoring Program

The CSO Monitoring Program includes influent and effluent monitoring at the three operational CSO facilities (Constitution Beach was closed in early FY01 and Fox Point and Commercial Point were closed in early FY08) as well as Union Park. Influent and effluent samples are collected and tested for conventional parameters at all CSO facilities. Selected priority pollutants and metals are also analyzed in the effluent. Table F-4 lists the CSO monitoring program parameters, including sample type, sampling frequency and analytical procedures used.

Sewer System Monitoring Program

The sewer system monitoring program, which attempts to identify Sanitary Sewer Overflows (SSOs), involves conducting visual inspections of areas in the separate sewer system that have a history of discharging during or shortly after a heavy rainfall event. Because of the hydraulics of the South System, discharges occur in manholes or other low-lying areas, while discharges in the North System are the result of combined sewage overwhelming sewage system capacity.

Treatment of Results

It can be difficult to interpret laboratory results to ensure that they are representative of the sample, especially when the results are at or below method detection levels. For the conventional parameters measured in these monitoring programs, calculating the average concentration of a particular parameter is straightforward: the arithmetic average is used. However, the concentrations of metals, pesticides and organics are frequently below method detection levels, and data are manipulated. Appendix H gives a brief description of method detection limits and how measurements below detection limits are treated in this report.

Daily loadings (in lbs/day) were calculated using the formula:

$$Loading = Q \times C \times 8.34$$

Q = flow (mgd)
C = concentration (mg/L)
8.34 = unit conversion factor

To calculate monthly average concentrations for priority pollutants (metals, cyanide, pesticides/PCBs and organic compounds), the loadings of the pollutant during each sampling event for that month were added and then divided by the total flow during those events.

Average annual concentrations were calculated using the same method, taking each individual sampling event into account in the calculation.

It should be kept in mind that with the large flows going through the Deer Island Treatment Plant, taking one small sample might not always be truly representative. It is also important to keep in mind that certain parameters (conventional) were analyzed daily while other parameters (priority pollutants) were analyzed only two or three times per month.

Table F-3. POTW Monitoring Program

Parameter	Sample Type[1]	Sampling Frequency Influent	Effluent	Analytical Method[2]
Metals				
Aluminum	Composite	2 x month	Weekly	200.7
Antimony	Composite	2 x month	2 x month	200.7
Arsenic	Composite	2 x month	2 x month	200.7, 206.2
Beryllium	Composite	2 x month	2 x month	200.7
Boron	Composite	2 x month	2 x month	200.7
Cadmium	Composite	2 x month	Weekly	200.7, 213.2
Chromium	Composite	2 x month	Weekly	200.7, 218.2
Chromium (Hexavalent)	Composite	2 x month	2 x month	3500-CRD3
Copper	Composite	2 x month	Weekly	200.7, 200.8, 220.2
Iron	Composite	2 x month	2 x month	200.7
Lead	Composite	2 x month	Weekly	200.7, 239.2
Mercury	Composite	2 x month	Weekly	245.2, 1631
Molybdenum	Composite	2 x month	Weekly	200.7, 246.2
Nickel	Composite	2 x month	Weekly	200.7, 249.2
Selenium	Composite	2 x month	2 x month	200.7, 270.2
Silver	Composite	2 x month	Weekly	200.7, 272.2
Thallium	Composite	2 x month	2 x month	200.7, 279.2
Zinc	Composite	2 x month	Weekly	200.7
Organics and Other Compounds				
Cyanide	Grab	2 x month	4 x month	335.2
Fats, Oils, and Grease	Grab	2 x month	Weekly	1664
MBAS	Composite	2 x month	2 x month	425.1
PAHs	Composite	2 x month	Weekly	
PCBs	Composite	2 x month	Weekly	8080 MOD
Pesticides	Composite	2 x month	Weekly	608
Petroleum Hydrocarbons	Grab	2 x month	Weekly	418.1
Phenol	Composite	2 x month	Weekly	420.2 MO
Semi-volatile Organics	Composite	2 x month	2 x month	625
Sulfate	Composite	2 x month	*	300.0
Total Organic Carbon	Composite	*	2 x month	415.1
Volatile Organics	Grab	2 x month	2 x month	624
Whole Effluent Toxicity	Composite	*	1 x month	WET Test Protocols
Conventional				
Biochemical O2 Demand	Composite	Daily	Daily	5210 B3
Carbonaceous BOD	Composite	Daily	Daily	5210 B3
Chemical O2 Demand	Composite	Daily	Daily	HACH 8000
Chlorides	Composite	Daily	Daily	300.0
Enterococci	Grab	*	Daily	9230 C3
Fecal Coliform	Grab	*	3 x Daily	9222 D3
pH	Grab	Daily	Daily	150.1
Settleable Solids	Grab	Daily	Daily	160.5
Temperature	Grab	Daily	Daily	170.1
Total Chlorine Residual	Grab	*	3 x Daily	330.5
Total Coliform	Grab	*	3 x Daily	9222 B[3]
Total Suspended Solids	Composite	Daily	Daily	160.2
Nutrients				
Alkalinity	Composite	Weekly	*	310.1
Ammonia	Composite	Weekly	Weekly	350.1
Nitrates	Composite	Weekly	Weekly	353.2
Nitrate/Nitrite	Composite	*	Weekly	353.2
Nitrites	Composite	Weekly	Weekly	353.2
Orthophosphorus	Composite	Weekly	*	365.1
Total Kjeldahl Nitrogen	Composite	Weekly	Weekly	351.2
Total Phosphorus	Composite	Weekly	*	365.1

* No sampling.
[1] Influent and effluent composite samples are 24-hour time composite samples.
[2] EPA Methods.
[3] Standard Methods.

Table F-4. CSO Monitoring Program

Parameter	Sample Type	Sampling Frequency	Analytical Method[1]
Biochemical O_2 Demand	Grab/Composite[3]	4 x year	5210 B[2]
Fecal Coliform	Grab[4]	4 x year	9222 D[2]
pH	Grab	4 x year	150.1
Total Chlorine Residual	Grab[3]	4 x year	330.5
Total Suspended Solids	Grab[3]	4 x year	160.2
Whole Effluent Toxicity	Composite[5]	2 x year	WET Test Protocols

[1] EPA Methods.
[2] Standard Methods.
[3] A grab sample must be collected within the first 2 hours of activation (30 minutes for Somerville Marginal in the first permit year) and then hourly samples are to be taken for the duration of the overflow, for not longer than 24 hours. All BOD samples are then composited.
[4] A grab sample must be collected within the first 2 hours of activation (30 minutes for Somerville Marginal in the first permit year) and then hourly samples are to be taken for the duration of the overflow, for not longer than 24 hours. During the first permit year, the first sample is held and subsampled hourly for fecal coliforms.
[5] Cottage Farm and the Somerville Marginal relief outfall discharge to freshwater so the organisms used for toxicity testing are the daphnid Ceriodaphnia dubia and the fathead minnow Pimpephales promelas. The other facilities discharge to marine waters, so the test organisms are the inland silverside Menidia beryllina and the mysid shrimp Mysidopsis bahia.

Appendix G. An Overview of the MWRA Sewerage System and Facilities

Overview

The MWRA is responsible for the collection, transport, pumping, treatment, and disposal of sewage in Boston and the greater Boston area. In addition to the Deer Island Treatment Plant, the MWRA operates another treatment plant, serving the town of Clinton and the Lancaster Sewer District, under special arrangements that originated when the Metropolitan District Commission (MDC) acquired land in Clinton for the Wachusett Reservoir. The Clinton Treatment Plant operates under a separate permit from the Boston NPDES permit and is not discussed in this report.

The MWRA serves 43 communities with a total population of about two million people, 5,500 businesses, and 1,400 industries. More than 5,400 miles of town- and city-owned local sewers connect at over 1,800 points to over 230 miles of MWRA interceptor sewers. Also included in the vast sewerage system are sixteen pumping stations, five headworks, over 80 combined sewer relief overflows and four operational CSO treatment facilities. Table G-1 lists the MWRA treatment facilities and relevant information pertaining to each facility.

The Deer Island Treatment Plant in Winthrop serves the 43 communities in the metropolitan Boston sewerage system and is allowed to discharge under the Boston NPDES Permit. The sewerage system is divided into two major regions: the North and the South Systems. Table G-2 lists the sewerage service area population by community.

Table G-1. List of CSO Treatment Facilities and Discharge Locations

Facility	Location	First Year of Operation	Treatment Process	Design Flow (mgd)	Interceptors / Sewer Lines In	Receiving Water	Outfall Number
Cottage Farm	Memorial Dr. near Boston University bridge, Cambridge, MA	1971	Screening Settling Chlorination	233	N. Charles Relief S. Charles Relief Brookline Connection	Charles River	MWR201
		2001	Dechlorination				
Prison Point	Near Museum of Science bridge, Cambridge, MA	1980	Screening Settling Chlorination	385	Cambridge Marginal	Boston Inner Harbor	MWR203
		2001	Dechlorination				
Somerville Marginal	McGrath Highway under I-93, Somerville, MA	1973	Screening Chlorination	245	Somerville-Medford Branch	Mystic River	MWR205
		2001	Dechlorination				
Union Park	Malden St., South End, Boston, MA	2007	Screening Settling Chlorination Dechlorination	330	BWSC New Albany St. BWSC Malden St.	Fort Point Channel, Boston Harbor	MWR215

Table G-2. Sewerage Service Area Population by Community

Town	Population[1] Total Community	Sewered	MWRA Sewerage System North	South
Arlington	43,711	43,274	x	
Ashland	16,993	13,255		x
Bedford	13,765	12,664	x	
Belmont	25,204	24,776	x	
Boston	636,479	635,843	x	x
Braintree	36,249	35,162		x
Brookline	59,115	59,056	x	x
Burlington	25,165	24,913	x	
Cambridge	106,471	106,365	x	
Canton	21,932	14,629		x
Chelsea	36,828	36,828	x	
Dedham	24,974	23,226		x
Everett	42,567	42,567	x	
Framingham	70,068	63,061		x
Hingham	7,279	6,720		x
Holbrook	10,899	9,599		x
Lexington	32,272	32,266	x	
Malden	60,374	60,314	x	
Medford	57,033	56,976	x	
Melrose	27,435	27,408	x	
Milton	27,158	25,257	x	x
Natick	33,760	30,013		x
Needham	29,366	28,426		x
Newton	86,307	85,271	x	x
Norwood	28,780	28,233		x
Quincy	93,027	93,027		x
Randolph	33,226	33,193		x
Reading	25,192	24,512	x	
Revere	53,179	53,126	x	
Somerville	77,104	77,104	x	
Stoneham	21,605	21,216	x	
Stoughton	27,849	18,937		x
Wakefield	25,613	25,101	x	
Walpole	24,562	17,685		x
Waltham	61,918	61,051	x	
Watertown	32,863	32,863	x	
Wellesley	28,748	28,029		x
Westwood	14,768	14,030		x
Weymouth	54,906	53,094		x
Wilmington	22,936	4,266	x	
Winchester	21,869	21,847	x	
Winthrop	17,940	17,940	x	
Woburn	38,949	37,781	x	
TOTAL	**2,236,438**	**2,160,904**		

[1] Community population data are from MWRA's I/I program, August 2015 report.

North System

The North System serves a population of about 1.3 million and is located to the north and west of Boston. It covers an area of about 168 square miles. Most of the North System is a separate system – different conduits carry sanitary wastewater and storm water. However, portions of Boston, Cambridge, Somerville, and Chelsea still have combined sewers, where the same conduits carry sanitary and storm water. Combined sewers serve about 20 percent of the North System service area. Community sewer lines tie into the MWRA system through interceptor lines that feed into the four headworks facilities in the North System.

Two deep rock tunnels, the Boston Main Drainage Tunnel (BMDT) and the North Facilities Metropolitan Relief Tunnel (North Metro Relief), connect the three remote headworks to the North Main Pump Station (NMPS) on Deer Island. The seven-mile BMDT originates at the Ward Street Headworks, continues to the Columbus Park Headworks, and runs under Boston Harbor to the NMPS. The four-mile North Metro Relief Tunnel connects the Chelsea Creek Headworks to the NMPS. The two tunnels combined can handle approximately 800 mgd, matching the combined peak flow capacity of 788 mgd from the three remote headworks.

A fourth headworks facility, the Winthrop Terminal, is located on Deer Island and receives flows from the city of Winthrop and the East Boston (Caruso) Pump Station through the North Metro Trunk Sewer. Figure G-1 on the next page shows the North System schematics.

North System Pump Stations

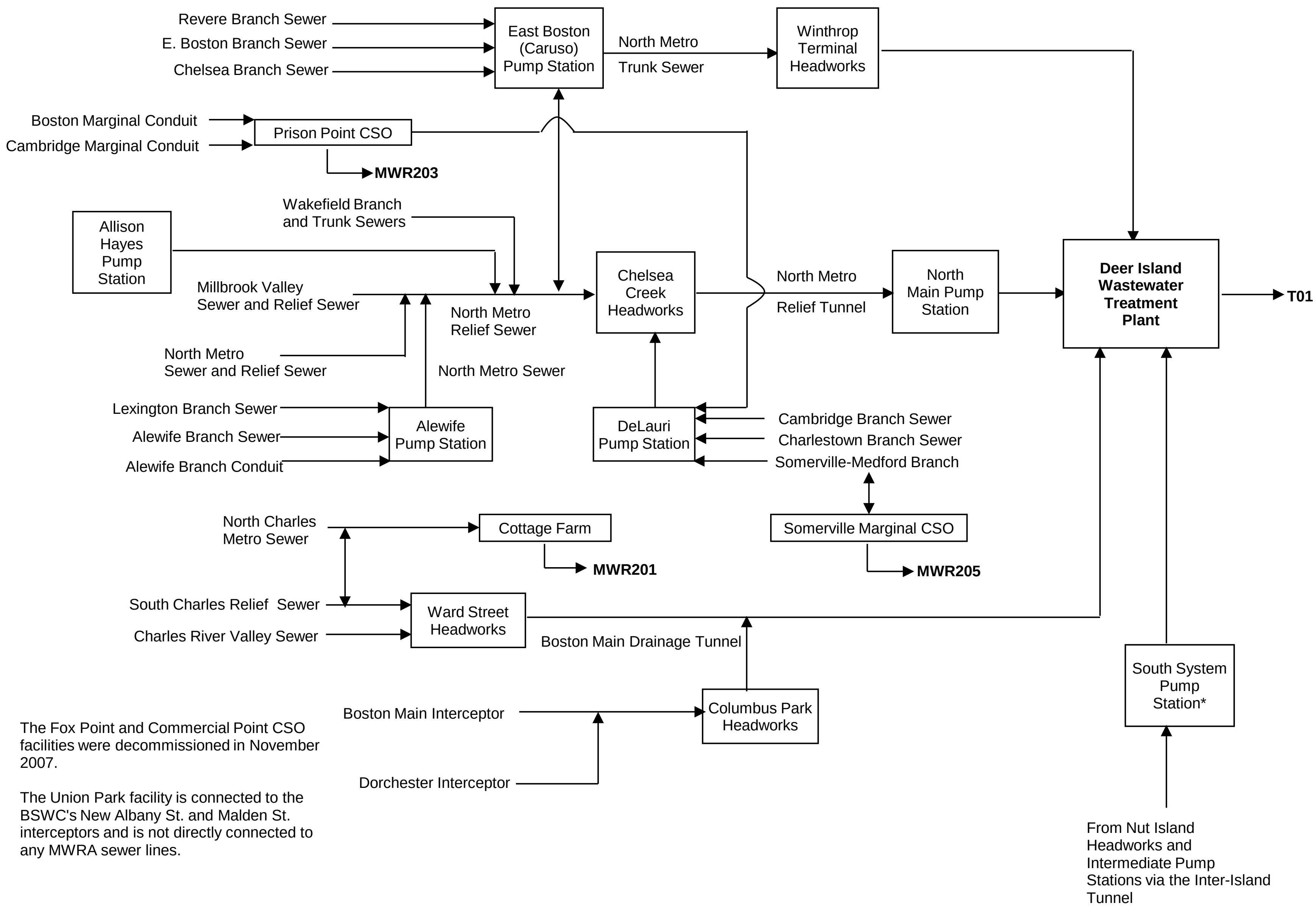
The MWRA North System has four pump stations. The Alewife Brook (64 mgd), Caruso (110 mgd), DeLauri (90 mgd), and Allison Hayes (11 mgd) pump stations convey wastewater to the headworks facilities. The four pump stations receive flow from interceptor lines as follows in Table G-3.

Table G-3. Relationship Between North System Pump Stations and Interceptors

Pump Station	Interceptor
Alewife Brook Pump Station	Lexington Branch Sewer Alewife Branch Sewer Alewife Branch Conduit
Caruso Pump Station	Revere Branch Sewer East Boston Branch Sewer North Metro Relief Sewer*
DeLauri Pump Station	Cambridge Branch Sewer Charlestown Branch Sewer Medford-Somerville Branch Sewer Prison Point Pump Station Somerville Marginal CSO Overflow**
Allison Hayes Pump Station	Wakefield Branch Sewer

*: When flow to the Chelsea Creek Headworks is held back, wastewater is diverted to the Caruso Pump Station.
**: During low-intensity rainfall when line capacity is not exceeded, the combined wastewater is pumped back to the trunk sewers and ultimately to the DeLauri station.

Figure G-1. North System Pump Stations, Headworks, CSOs and Tunnel Hydraulic Schematic



The Fox Point and Commercial Point CSO facilities were decommissioned in November 2007.

The Union Park facility is connected to the BSWC's New Albany St. and Malden St. interceptors and is not directly connected to any MWRA sewer lines.

* See Figure G-3 for South System hydraulics.

North System Headworks

The Deer Island Treatment Plant receives North System flow from three remote headworks and the Winthrop Terminal headworks. The three remote headworks: Ward Street Headworks (256 mgd) located in Roxbury, Columbus Park Headworks (182 mgd) in South Boston, and Chelsea Creek Headworks (350 mgd) in Chelsea, have a combined pumping capacity of 788 mgd. The Winthrop Terminal Headworks (125 mgd) is located on Deer Island. The four North System headworks receive flows from interceptor lines or pump stations as follows:

Table G-4. Sources of Flow for North System Headworks

Headworks	Source
Ward Street Headworks	South Charles Relief Sewer Charles River Valley Sewer North Charles Metro Sewer* Cottage Farm CSO*
Columbus Park Headworks	Boston Main Interceptor Dorchester Interceptor
Chelsea Creek Headworks	Alewife Pump Station North Metro Relief Sewer DeLauri Pump Station Caruso Pump Station Overflow
Winthrop Terminal Headworks	Winthrop Sewer Caruso Pump Station**

*: During low intensity rainfall when line or holding capacity is not exceeded, the combined wastewater is pumped back to the trunk sewers and ultimately to the Ward Street Headworks.
**: Overflow from the Caruso Pump Station.

Combined Sewer Overflow Facilities

The conditions for discharge of effluent from six CSO chlorination facilities are also included in MWRA's Boston NPDES permit. Over time, some of these facilities have been closed due to improvement projects in the MWRA system. Constitution Beach in East Boston, was closed in September 2000, and Fox Point and Commercial Point in Boston, were closed in autumn 2007, leaving three active permitted CSO facilities. These three facilities, Cottage Farm and Prison Point in Cambridge, and Somerville Marginal in Somerville, discharge to the Charles River, the Inner Harbor, and the Mystic River, respectively.

Also included in this section is the Union Park CSO facility, which opened at the beginning of FY08. The Union Park facility is permitted jointly with the Boston Water and Sewer Commission and discharges to the Fort Point Channel in Boston.

Discharge of combined wastewater from a CSO treatment facility outfall to a receiving body of water is defined in this report as a CSO activation. Discharge of combined wastewater to a non-facility CSO outfall pipe is defined as a CSO overflow. CSO overflows will not be discussed in this report. In general, CSO activations occur as a result of heavy rain, snowmelt, or choking at the headworks.

Choking is the process by which the headworks restrict the flow to Deer Island. During wet weather, when the wastewater volume exceeds the hydraulic capacity of the treatment plant, the headworks "choke" the flow and hold the wastewater in the lines. As a result, the combined wastewater backs up into the system, forcing the combined wastewater to overflow to CSO treatment facilities and non-facility CSO outfall pipes, resulting in potential CSO activations and overflow as well as potential SSOs. In addition to choking in response to hydraulic demand on the system, the headworks may choke so that emergency repairs, system testing, or maintenance work can be performed at the treatment plant. Choking at Ward Street and Columbus Park Headworks influences Cottage Farm activations. Backups at the DeLauri Pumping Station brought about by choking at the Chelsea Headworks can activate the Somerville Marginal CSO.

At the CSO facilities, the combined wastewater is screened and chlorinated prior to discharge. Of the four active (as of the end of FY15) CSO facilities, Cottage Farm, Prison Point, and Union Park have tank storage capacity. This allows the wastewater to be held at these facilities. The facility only discharges when the storage capacity is exceeded; when that happens, the treated wastewater overflows and is discharged to the river. Somerville Marginal is a gravity CSO facility, which means that combined wastewater arrives and leaves the CSO facility by gravity. This type of facility provides disinfection and allows the chlorinated combined wastewater to overflow to the receiving water as quickly as the wastewater arrives at the facility.

The CSO facilities provide treatment for approximately 73% of the CSO volume.

Cottage Farm CSO Facility

During dry weather conditions, wastewater arrives at the Ward Street Headworks where it is pumped to the Deer Island Plant. Under storm conditions, wastewater backs up into sewer lines and into the Cottage Farm CSO facility. Cottage Farm detains wastewater up to a volume of 1.3 MG. Any excess flow is screened, settled, chlorinated, and discharged to the Charles River through outfall MWR201. Combined wastewater that is held back is pumped back to the Ward Street Headworks. This facility, on-line since 1971, has a design pumping capacity of 233 mgd. An upgrade completed in FY01 added a dechlorination system for the effluent.

Prison Point CSO Facility

Prison Point is both a dry weather and storm water pumping station. The dry weather phase is a five-mgd capacity sewer pumping station that receives flow from the Boston Marginal Conduit and the Cambridge Marginal Conduit. Prison Point feeds into the DeLauri Pumping Station.

The storm water phase has a maximum pumping capacity of 385 mgd. Treatment includes screening, disinfection, and detention. During wet weather, if the dry pumping capacity is exceeded, the combined flow is screened, chlorinated, and held in detention basins. Once the basins fill, treated flow is discharged downstream below the Charles River Dam at outfall MWR203. Combined wastewater volume that is held back, up to 1.2 MG, is pumped back to the DeLauri Station. This facility came on-line in 1980 and was upgraded with a dechlorination system in 2001.

Somerville Marginal CSO Facility

Somerville Marginal CSO is an unmanned gravity facility with a design capacity of 245 mgd. It receives wet weather flow from the northeast portion of Somerville and part of Medford. Normally, dry weather flow from these areas arrives at the DeLauri Station via the Somerville-Medford trunk sewers. During wet weather, combined sewer flow backs up to the Somerville CSO facility. Unlike Cottage Farm or Prison Point, this facility does not provide any large-scale detention capacity during storm conditions. Treatment consists of screening and chlorination. Effluent is discharged to the lower Mystic River basin at outfall numbers MWR205. The relief outfall, MWR205A, discharges to freshwater above the dam. MWR205A only activates under specific conditions and the vast majority of discharges are released through MWR205. During low-intensity rainfall when line capacity is not exceeded, the combined wastewater is pumped back from a wet well to the DeLauri Station. This facility came on-line in 1973 and was upgraded in 2001 with a dechlorination system.

Figure G-2 on the following page shows a representative gravity CSO schematic applicable to Somerville Marginal as well as the now decommissioned Fox Point and Commercial Point facilities.

Fox Point CSO Facility

Fox Point was an unmanned gravity facility with a design capacity of 119 mgd. It received wet weather flows from the Dorchester Interceptor sewer line. Operation of this facility paralleled that of the Somerville Marginal CSO; treatment included screening and disinfection. Effluent was discharged to Dorchester Bay through outfall number MWR209. This facility came on-line in 1989, and a dechlorination system was added in 2001. Fox Point was decommissioned in December 2008 following the completion of a sewer separation project in the south Dorchester tributary area.

Commercial Point CSO Facility

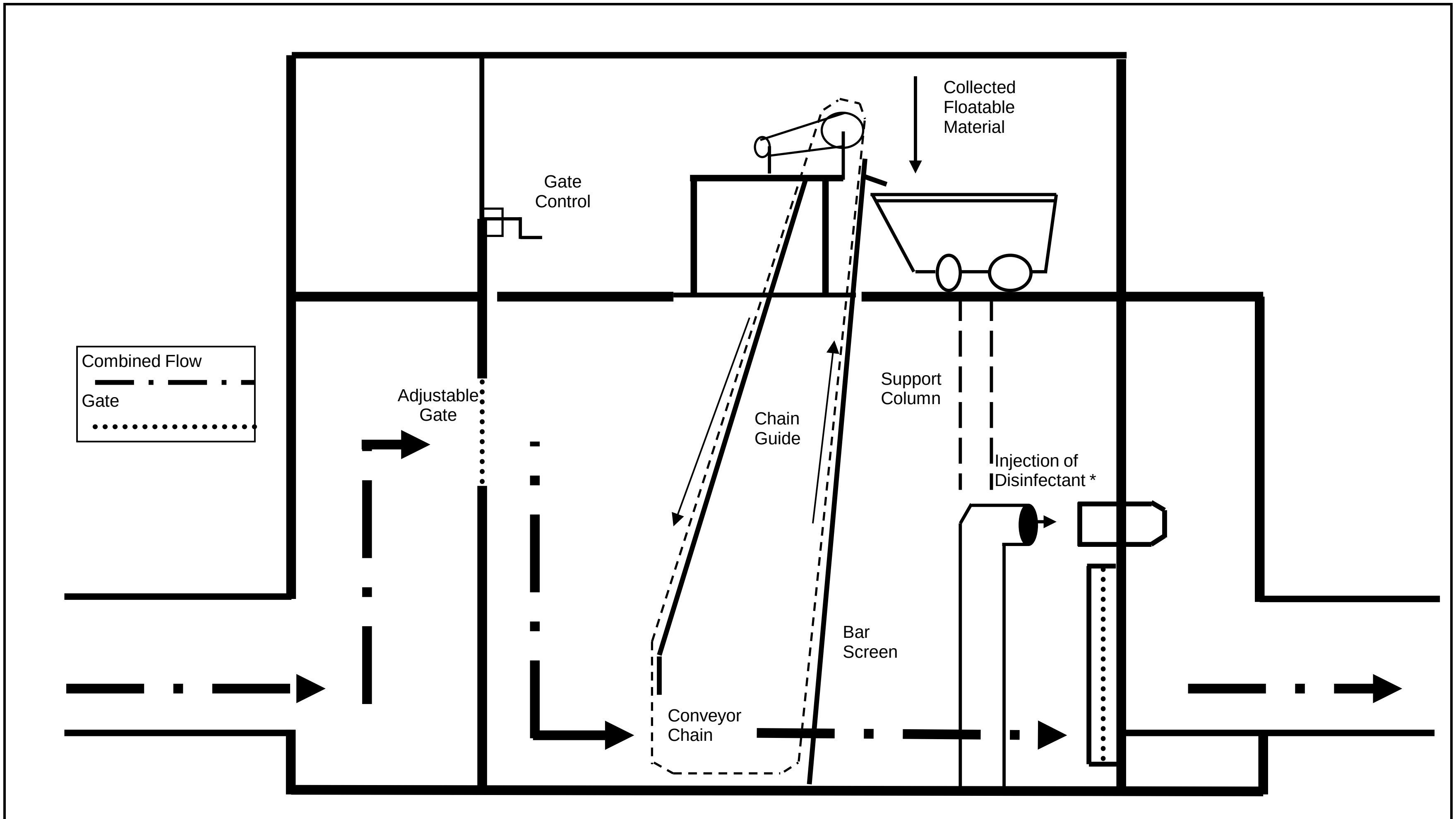
Commercial Point was an unmanned gravity CSO with a design capacity of 194 mgd. This facility also receiveed wet weather backups from the Dorchester Interceptor. Treatment included screening and disinfection. Effluent was discharged to Dorchester Bay through outfall number MWR211. This facility came on-line in 1991 and was upgraded in 2001 with a dechlorination system. Like Fox Point, Commercial Point was also decommissioned in December 2008 following the completion of a sewer separation project in the south Dorchester tributary area.

Union Park CSO Facility

The Union Park Facility enables flow which was previously discharged untreated to outfall BOS070 (a CSO overflow) and the Fort Point Channel to be routed to a 2.2 million gallon detention/treatment facility. Flow is treated by high-rate sedimentation, screening, and disinfection followed by dechlorination. Any stored volume is pumped back to the interceptor system at the end of the storm. This project was completed in April 2007, and the first recorded discharge was in June 2007.

The operation and maintenance of the Union Park CSO facility at present is contracted to Woodard & Curran. MWRA is ultimately responsible for permit compliance and thus reviews operational data, and retains the authority to conduct facility inspections and environmental audits.

Figure G-2. Typical Gravity Combined Sewer Overflow Treatment Facility



* At Somerville Marginal, injection occurs at the influent gate.

South System

The South System serves a population of about 700,000 people and is located to the south and southwest of Boston. The South System covers an area of approximately 237 square miles. Figure G-3 on the following page illustrates the South System hydraulic schematic. Community sewer lines tie into the South System through MWRA interceptor lines. The Framingham Extension Sewer, Wellesley Extension Sewer, Upper Neponset Valley Sewer, Wellesley Extension Relief Sewer, Neponset Valley Sewer, Walpole Extension Sewer, Stoughton Extension Sewer, Braintree-Randolph Trunk Sewer, and several other branch sewers discharge to the South System High Level Sewer. The High Level Sewer has a capacity of 360 mgd. Pump stations move the wastewater through the High Level Sewer to the Nut Island Headworks for preliminary treatment and grit removal. The South System flows are then conveyed to the South System Pump Station at Deer Island through the 4.7-mile Inter-Island Tunnel for treatment at the Deer Island Treatment Plant.

In 2004 the MWRA completed the Braintree-Weymouth Intermediate Pump Station (IPS) in North Weymouth. The IPS pumps sewage from the North Weymouth Relief Interceptor directly into the Inter-Island Tunnel, bypassing Nut Island. The IPS also acts as a headworks with bar screens and grit collectors. The IPS was designed to increase South System capacity, helping to alleviate some of the overflows in the South System. Additionally, the IPS will pump by-products between the fertilizer pelletizing plant in Quincy and Deer Island. Sewage sludge will flow from Deer Island to Quincy for conversion to fertilizer and centrate from the fertilizer production process will return to Deer Island via the IPS and Inter-Island Tunnel.

Once at Deer Island, the South System flow can be pumped to one of two locations. The South System flow is normally discharged to the effluent channel of the Grit Facility, where it is combined with the North System and recycle flows, then split between Primary Clarifier Batteries A through D. The alternate discharge location is directly to the Primary Clarifier Battery D influent channel, which allows the South System flow to be isolated.

South System Pump Stations

Eight MWRA pump stations move wastewater from low-lying areas to the High Level Sewer: Hingham Pump Station (16.5 mgd), Braintree-Weymouth Pump Station (60 mgd), Braintree-Weymouth IPS (45 mgd), Squantum Pump Station (12 mgd), Houghs Neck Lift Station (2.8 mgd), Neponset Pump Station (90 mgd), Framingham Pump Station (48 mgd) and Quincy Pump Station (52 mgd).

The eight pumping stations receive flow from interceptor or community lines as follows:

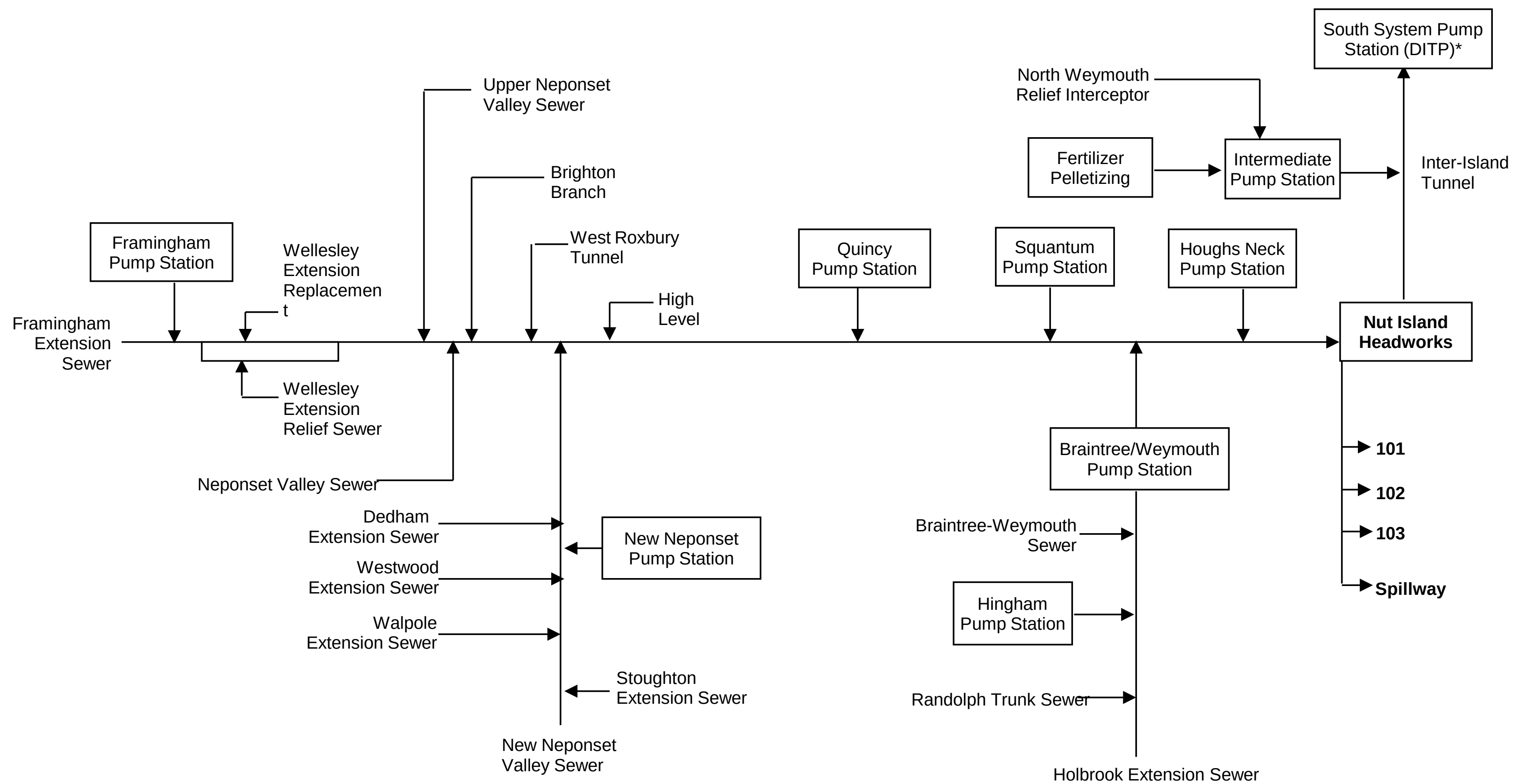
Table G-5. Relationship Between North System Pump Stations and Interceptors

Pump Station	Interceptor
Hingham Pump Station	Weymouth-Hingham Sewer Lines
Braintree-Weymouth Pump Station	Braintree-Randolph Trunk Sewer Braintree-Weymouth Extension Sewer Holbrook Extension Sewer Hingham Pump Station
Braintree-Weymouth IPS	North Weymouth Relief Interceptor Quincy Pelletizing Plant (see Chapter 4)
Squantum Pump Station	Squantum Sewers
Houghs Neck Lift Station	Houghs Neck Sewer
Neponset Pump Station	Neponset Valley Sewer
Framingham Pump Station	Framingham Sewers
Quincy Pump Station	Quincy and Upstream Sewers

South System Headworks

The Deer Island Treatment Plant receives South System flow from the Nut Island Headworks. The Nut Island Headworks went on-line on July 7, 1998. It is located in Quincy and has a capacity of 360 mgd. Vortex grit separators similar to those used on Deer Island in the North System Grit Facility provide grit removal for South System flows.

Figure G-3. South System Pump Station, Headworks, and Tunnel Hydraulic Schematic



* See Figure G-1 for North System hydraulics.

Deer Island Treatment Plant

Until July 8, 1998, wastewater flows from the North System were treated at the Deer Island Treatment Plant and flows from the South System were treated at the Nut Island Treatment Plant. In July 1998, the Nut Island Treatment Plant was decommissioned and all flows were treated at Deer Island.

Four lines convey sewage to the Deer Island Treatment Plant. North System wastewater is delivered to the plant via the Boston Main Drainage Tunnel (from the Ward Street and Columbus Park Headworks), the North Metropolitan Relief Tunnel (from the Chelsea Creek Headworks), and the North Metropolitan Trunk Sewer. South System wastewater is transferred to the plant from the Nut Island Headworks and Braintree-Weymouth Intermediate Pump Station via the Inter-Island Tunnel.

The Deer Island Treatment Plant receives wastewater at the North Main Pump Station (NMPS), the Winthrop Terminal, and the South System Pump Station (SSPS). The North Metro Relief Tunnel and the Boston Main Drainage Tunnel connect to the NMPS, which consists of ten pumps, each rated at 110 mgd, for a total pumping capacity of 1,100 mgd. The North Metro Trunk Sewer connects to the Winthrop Terminal. The Inter-Island Tunnel connects to the SSPS, which consists of eight pumps, each rated at 66.7 mgd, for a total capacity of 534 mgd.

Grit removal and screening (preliminary treatment), which remove heavy particles and debris, is provided at the remote headworks and on-site at Deer Island. Flow from the South System receives preliminary treatment at the Nut Island Headworks. Grit and screenings are landfilled off-site.

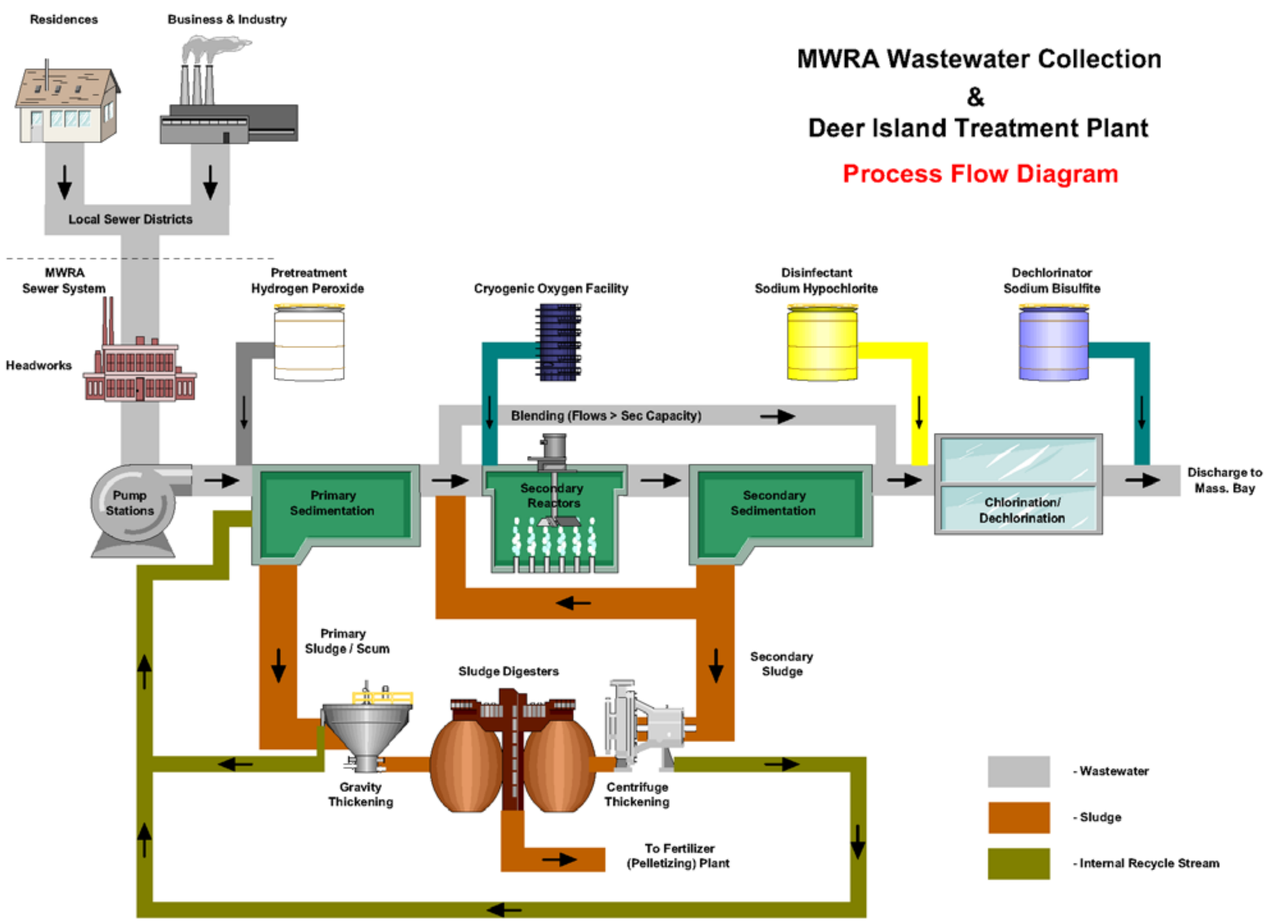
The upgraded primary treatment plant came on-line on January 21, 1995. The first battery of secondary treatment was initiated at Deer Island on August 1, 1997. Battery B came on-line on March 1, 1998, and the third and final secondary treatment battery, Battery C, started up on March 8, 2001.

Wastewater from the North System flows through the grit chambers for additional grit removal. It, along with South System wastewater, then flows to the primary settling tanks where floatables, consisting mainly of oil, grease, and plastics rise to the surface while the sludge of heavy solid particles settles to the bottom. The majority of the primary effluent (the allowable capacity for secondary treatment) is sent to secondary treatment, while any remaining portion from high flow conditions due to rainfall bypasses secondary and is sent directly to the disinfection basins to be treated with sodium hypochlorite. Effluent from secondary treatment is then, if necessary, blended with primary effluent that bypassed secondary, and then sent to the disinfection basins, where it is chlorinated, detained, and then dechlorinated before discharge.

The scum (floatables) is skimmed off the top of the primary and secondary settling tanks while the sludge (settled solids) is scraped from the bottom of the tanks. Primary scum is pumped to the scum concentrator while the primary sludge is pumped to the gravity sludge thickeners. Scum and sludge from the secondary batteries are concentrated using centrifuges. After the scum and sludge are concentrated and thickened, they are conveyed to the anaerobic digesters for further treatment. The digested sludge/scum is sent via the Inter-Island Tunnel to the Fore River Pelletizing Plant, where it is converted into fertilizer. Methane from the digestion process is stored and used to generate power and heat for DITP.

Figure G-4 on the following page presents the Deer Island plant process flow diagram.

Figure G-4. Deer Island Treatment Plant Process Flow



Deer Island Treatment Plant Outfalls

On September 6, 2000, effluent from Deer Island was diverted to the new 9.5 mile outfall tunnel into Massachusetts Bay. Effluent is discharged through 53 operational risers over the last 1.25 miles of the tunnel. The tunnel has a capacity of 1,270 mgd, slightly greater than the old harbor outfall system. Before the effluent enters the outfall it is used to run a hydroelectric facility linked to the Deer Island power grid. Although sealed and non-operational, the old Deer Island harbor outfalls are subject to periodic inspections and remain available for emergency use. If opened for emergency use, effluent would be channeled through a common conduit to four potential outfall pipes: 001, 002, 004, and 005

Nut Island Outfalls

The former Nut Island Treatment Plant discharged treated wastewater through four outfalls. Although the Nut Island Treatment Plant no longer exists, outfalls 101, 102 and 103 remain operational in case of emergency at the Nut Island Headworks. These outfalls discharge to Boston Harbor; the new emergency spillway built concurrently with the new headworks discharges to Hingham Bay.

Collection and Transport Systems

An issue of concern in both the North System and the South System is the occurrence of Sanitary Sewer Overflows (SSOs). These occur during extreme rainfall events, when inflow and infiltration from heavy rains exceeds the capacity of the pipes, causing certain areas to become inundated. Whenever there is a high amount of rainfall, a crew from the Transport Department investigates a number of critical areas to visually monitor potential overflow sites. While some of these critical areas are the MWRA's responsibility, most of them are the responsibility of the local communities. A list of these areas belonging to the MWRA is included in Table G-6. Not all of these areas are checked during every rainfall, and some are monitored by the MWRA only during extreme storm events. Table G-7 shows areas identified by MWRA staff as having the potential to overflow under certain conditions. SSOs have not, as of yet, occurred in these areas.

Table G-6. Known MWRA Sanitary Sewer Overflow Locations*

System	Location	Description
North	Arlington, Section 80 (Station 3+89)	Dudley St., Manual Plug
	Arlington, Section 80 (Station 19+73)	Brattle Court, Manual Plug
	Arlington, Section 152 (Station 37+06)	Upstream Headhouse at Mystic Valley Pkwy
	Arlington, Section 152 (Station 47+49)	Manhole off Mystic Valley Pkwy
	Arlington, Section 152 (Station 51+30)	Manhole off Mystic Valley Pkwy
	Arlington, Section 152 (Station 56+54)	Manhole on Mystic Valley Pkwy, Mt. Pleasant Cemetary
	Arlington, Section 152 (Station 59+29)	Manhole on Mystic Valley Pkwy
	Cambridge, Section 43 (Station 79+84)	MBTA Red Line Parking Garage
	Cambridge, Section 81, (Station 29+19)	Mooney St
	Cambridge Section 177 (Station 31+05)	Turnpike Exit Ramp
	Cambridge Section 179 (Station 207+53)	Mooney St
	Charlestown, Section 25.5 (Station 0+61)	Manhole
	East Boston, 477 Meridian Street	
	Hyde Park, Section 519 (Station 22+00)	Manhole
	Hyde Park, Section 519 (Station 25+02)	Manhole
	Malden, Section 20A (Station 15+22)	20 Pearl St., Edgeworth Branch Upstream Manhole
	Malden, Section 40	Unknown, Likely Near Charles St
	Malden, Section 41	Unknown, Likely Near Charles St
	Malden, Section 64 (Station 1+26)	Charles St at New England Coffee
	Medford, Section 19 (Station 4+25)	Malden River Siphon, Upstream Headhouse
	Medford, Section 78 (Station 0+34)	Downstream Headhouse High St
	Medford, Section 107 (Station 1+00)	Overflow Weir, Mystic River Pkwy Near James St.
	Medford, Section 151 (Station 25+79)	Lakeview Terrace Manhole at Mystic Valley Pkwy
	Medford, Section 152 (Station 31+24)	Downstream Headhouse Off Lakeview Rd.
	Medford, Section C/176A (Station 131+21)	Auburn St Manhole
	Melrose, Section 50 (Station 5+81)	Tremont St at Ell Pond
	Melrose, Section 50 (Station 12+56)	Tremont St N of Lynn Fells Pkwy
	Melrose, Section 50 (Station 26+50)	Manhole on Melrose St
	Melrose, Section 51 (Station 3+60)	Roosevelt School
	Melrose, Section 51 (Station 10+75)	Brunswick Park, Roosevelt School
	Melrose, Section 51 (Station 21+20)	Melrose St
	Melrose, Section 60 (Station 15+91)	Tremont St. @ Ell Pond, West Side
	Somerville, Section 27 (Station 17+03)	Near Railroad Tracks
	Somerville, Section 155 (Station 9+12)	Boston Ave/Upstream Headhouse
	Somerville, Section 176A (131+21)	Auburn St Manhole
	Somerville, Section 176C (00+35)	Alewife Brook Pump Station Discharge Side
	South Boston, Massport Wiggins Terminal	Massport Wiggins Terminal
	Stoneham, Section 46 (Station 57+46)	Montvale Ave
	Stoneham, Section 73 (Station 23+08)	Montvale Ave
	Stoneham, Section 168 (Station 82+68)	In Woods Off Linwood Rd
	Wakefield, 59 Brook St	59 Brook St
	Wakefield, Section 204A (Section 1+23)	Manhole Upstream of Hayes PS At Putnam St
	Waltham, Section 212 (Station 393+77)	W of Newton St at Wall St
	Winchester, Section 45 (Station 48+45)	Brookside Ave Manhole in Park Behind Houses
	Winchester, Section 69 (Station 48+53)	Upstream Headhouse at Aberjona River
	Winchester, Section 71 (Station 27+61)	Brookside Place Manhole in Parking Area
	Winchester, Section 113B (Station 2+06)	Wedgemere Siphon Downstream Headhouse
	Winchester, Section 113B (Station 3+24)	Wedgemere Siphon Upstream Headhouse
	Winchester, Section 150 (Station 53+54)	Wedgemere Siphon Upstream Headhouse
	Woburn, Section 46 (Station 25+15)	Erie Street, Upstream of Sandcatcher
	Woburn, Section 72 (Station 25+42)	Erie Street, Upstream of Sandcatcher
	Woburn, Section 169 (Station 41+79)	Henshaw St - Upstream of Sandcatcher
South	Boston/Roslindale, Section 570 (Station 0+00)	Bradeen St North/South Gate
	Boston/Roslindale, Section 570 (Station 10+89)	Bradeen St South Gate
	Boston/Roslindale, Section 571 (Station 13+51)	High Level Sewer at Arboretum (South Street)
	Braintree, Section 626 (Station 53+23)	Smelt Brook Siphon, Downstream Headhouse
	Braintree, Section 626 (Station 54+06)	Smelt Brook Siphon, Upstream Headhouse
	Braintree, Section 628 (Station 13+73)	Downstream Manhole
	Braintree, Section 628 (Station 16+30)	Manhole Downstream of Pearl St. Siphon
	Braintree, Section 628 (Station 17+07)	Downstream Headhouse
	Braintree, Section 628 (Station 17+64)	Upstream Headhouse
	Braintree, Section 655 (Station 84+28)	Randolph Trunk siphon, downstream headhouse
	Canton, Section 619 (Station 10+06)	Manhole
	Canton, Section 670 (Station 26+83)	Business Park South of Neponset St

System	Location	Description
	Canton, Section 670 (Station 42+79)	Riverview Rd Manhole
	Milton, Section 561	Brook Road
	Newton, Section 530 (Station 52+13)	Upper Neponset Valley Sewer at Vine and Hollywood Sts.
	Newton, Section 530 (Station 58+16)	Wayne Rd Easement
	Newton, Section 530 (Station 64+32)	Wayne Rd Easement, Manhole Downstream of Brookline
	Norwood, Section 669 (Station 42+55)	Overlook Dr Easement
	Quincy, Section 544H (Station 0+38)	Nut Island Headworks Emergency Outfall: Gates 17//18
	Quincy, Section 551	Greenleaf St near Quincy PS Discharge
	Quincy, Section 680 (Station 0+40)	Nut Island Headworks Emergency Spillway
	Randolph, Section 655 (Station 85+14)	Randolph Trunk Siphon (Upstream Headhouse)
	Squantum, Section 539A	Force Main
	Section 669 (Station 42+55)	Manhole
	Weymouth, Section 662 (Station 9+81)	Hingham Pump Station Force Main Air Relief Valve Near Back River Bridge
	Weymouth, Section 626 (Station 0+06)	Idlewell Blvd
	Weymouth, Section 626 (Station 29+99)	Regina Road
	Weymouth, Section 626 (Station 52+23)	Downstream Headhouse

* Known SSOs occurring in MWRA lines from January 1, 1996 onwards.

Table G-7. Potential MWRA Sanitary Sewer Overflow Locations

System	Location	Description
South	Boston, Section 564	High Level Sewer, Neponset River at Monponset St.
	Canton, Section 614	New Neponset Valley Relief Sewer Pump Station
	Hingham, Section 562	Hingham Pump Station
	Quincy, Section 543	Nut Island emergency outfall
	Quincy, Section 543	Nut Island emergency spillway
	Quincy, Section 551B	Quincy Pump Station
	Quincy, Section 621	Braintree-Weymouth Pump Station influent
	Squantum, Section 550B	Squantum Pump Station
	West Roxbury, Section 637A	West Roxbury Tunnel and High Level Sewer junction
	West Roxbury, Section 637A	West Roxbury Tunnel and High Level Sewer junction

Appendix H. Instrument Detection Limits, Method Detection Limits, and Quantitation Limits

Overview

An understanding of the detection limits of analysis is essential to reviewing the data from chemical analyses. There are three different types of detection limits that are most often encountered:

- Instrument Detection Limits
- Method Detection Limits
- Quantitation Limits, also known as Reporting Limits.

Instrument Detection Limits

Instrument detection limits (IDL) reflect the capability of the instrument. This limit will be the lowest of the three detection limits. The IDL will not take into account the losses of the pollutant associated with the matrix (soil or wastewater) and extraction procedure. This discrepancy is known as matrix interference.

Method Detection Limits

Method detection limits (MDL) are the smallest amount of a substance that can be detected above background noise using a particular method. The MDL is statistically determined by running a series of analyses using various low concentrations of a pollutant. Using a Student's "T" test, the smallest concentration that has a 99% probability of being detected above the background is designated the MDL for that pollutant. The EPA, using several private laboratories, has determined the MDLs for most priority pollutants using their approved methods. These are published in the 40 CFR.

Quantitation Limits

In general, if a plot is made of pollutant concentration versus instrument response, it will show a linear relationship. As the pollutant concentration approaches zero, the linearity of the relationship is lost. The point where the linearity is lost is called the Quantitation Limit (QL) or sometimes the Reporting Limit. In other words, the smallest concentration where the linear relationship holds is the smallest concentration that can be quantified. Generally, the QL is about five times the MDL. Quantitative limits are relevant to GC/MS analyses, that is, methods 608 (for pesticides), 624 (for volatile organics), and 625 (for semi-volatile organics). Specific limits are highly matrix-dependent.

Detection limits, Non-Detects, and Reporting

In short, the IDL is the lowest concentration that a particular instrument can detect. The MDL is the lowest concentration that can be detected using a particular method. The QL is the smallest concentration that can be confidently considered to be accurate.

Reported concentrations that are between the MDL and the QL indicate that a pollutant is present, but at a concentration too low to be accurately quantified. For example, using EPA method 624, chloroform has an MDL of 1.6 μg/L and a QL of 10 μg/L. If the concentration from an analysis is reported as 5 μg/L then it can be inferred that although the actual chloroform concentration in the wastewater is uncertain, 5 μg/L is a best guess. The EPA requires that these intermediate values be flagged with a "J" on any reports submitted to them. Therefore, these are sometimes simply called "J-values."

For non-detects in analyses of metals, cyanide, petroleum hydrocarbons, etc., it is customary for "less than the MDL" to be listed as a result. For a non-detect in the 608, 624, and 625 analyses, "less than the QL" is typically listed.

Often it becomes necessary to estimate a concentration for below detection limit values, specifically when calculating the average yearly concentration of a pollutant. A well-established method is to assume the actual concentration of a non-detected pollutant is simply one half of the MDL. While no scientific theory supports this assumption, it is more reasonable than assuming that the concentration is zero, or the MDL itself. The EPA and DEP also accept it as a standard practice that can be applied to any series of tests.

This technique is utilized in this report. For the organic compounds – methods 608, 624, and 625 – one tenth of the QL, or half the MDL, was assumed for all non-detects (i.e. values below QL). For all metals, cyanide, petroleum hydrocarbons, etc., half the MDL was assumed for all non-detects (i.e. values below MDL).

In Table H-1 is a list of the parameters regularly tested for in MWRA effluent. The required EPA method number, and the MDLs and reporting limits attained by the MWRA's Central Laboratory are included.

Table H-1. List of Parameters Tested

Parameter	EPA Method Number	MWRA MDL (µg/L)	MWRA QL (µg/L)
Metals			
Aluminum	200.7	90	<90
Antimony	200.7	0.8	<0.9
Arsenic	206.2	0.8	<0.8
	200.7	43.8	<45
Beryllium	200.7	0.3	<0.5
Boron	200.7	9.5	<250
Cadmium	200.7	1.1	<2
	213.2	.03	<0.03
Chromium	200.7	4.0	<4
	218.2	0.7	<0.7
Copper	200.7	10.5	<10
	220.2	0.6	<1
	200.8	[1]	[1]
Hexavalent Chromium	SM 3500-CR D[2]	1.8	<5
Iron	200.7	[3]	<30
Lead	200.7	12.0	<15
	239.2	2.4	<2.4
Mercury	245.2	0.01	<0.01
	1631	[1]	[1]
Molybdenum	200.7	3.4	<5
	246.2	1.2	<1
Nickel	200.7	3.0	<3
	249.2	0.7	<0.7
Selenium	200.7	48.2	<50
	270.2	0.9	<0.9
Silver	200.7	1.4	<2
	272.2	0.09	<0.09
Thallium	200.7	58.3	<60
	279.2	1.0	<1
Zinc	200.7	5.7	<6
Other Inorganic Chemicals[4]			
Cyanide	335.2	0.004	<0.01
Fats, Oil, and Grease (mg/L)	1664A	2.0	<7
Petroleum hydrocarbons (mg/L)		[1]	[1]
Phenol (mg/L)	420.2 MO	0.003	<0.01
Sulfate (mg/L)	300.0	0.2	<1
Total Organic Carbon (mg/L)	415.1	0.06	<0.3
Surfactants (mg/L)	425.1	0.03	<0.03
Pesticides (ng/L)			
4,4'-DDD	608	6.8	<20
4-4'-DDE	608	8.8	<20
4-4'-DDT	608	15.8	<20
Aldrin	608	3.5	<20
alpha-BHC	608	6.3	<20
alpha-Chlordane	608	3.6	<20
beta-BHC	608	6.3	<20
Chlordane (Technical)	608	[1]	[1]
delta-BHC	608	6.7	<20
Dieldrin	608	5.5	<20
Endosulfan I	608	5.3	<20
Endosulfan II	608	4.0	<20
Endosulfan sulfate	608	16.7	<20
Endrin	608	13.7	<20
Endrin aldehyde	608	9.1	<20
Endrin ketone	608	5.4	<20
gamma-BHC (Lindane)	608	4.2	<20
Heptachlor	608	9.7	<20
Heptachlor epoxide	608	8.8	<20
Hexachlorobenzene	612	[1]	[1]
Methoxychlor	608	52.0	<200
Toxaphene	608	[1]	[1]

Table H-1. List of Parameters Tested (cont.)

PCBs (all in ng/L)			
Arochlor-1016	608	31.0	<500
Arochlor-1221	608	21.0	<1000
Arochlor-1232	608	14.0	<500
Arochlor-1242	608	[1]	[1]
Arochlor-1248	608	[1]	[1]
Arochlor-1254	608	10.0	<500
Arochlor-1260	608	32.0	<500
Volatile Organics			
1,1,1-trichloroethane	624	1.0	<5
1,1,2,2-tetrachloroethane	624	1.3	<5
1,1,2-trichloroethane	624	0.6	<5
1,1-dichloroethane	624	0.8	<5
1,1-dichloroethene	624	1.3	<5
1,2-dichlorobenzene	624	0.4	<5
1,2-dichloroethane	624	0.6	<5
1,2-dichloropropane	624	0.4	<5
1,3-dichlorobenzene	624	0.5	<5
1,4-dichlorobenzene	624	0.4	<5
2-butanone	624	1.8	<5
2-chloroethylvinylether	624	0.8	<5
2-hexanone	624	1.5	<5
4-methyl-2-pentanone	624	1.3	<5
Acetone	624	16	<5
Acrolein	624	5.4	<5
Acrylonitrile	624	4.2	<5
Benzene	624	0.5	<5
Bromodichloromethane	624	0.4	<5
Bromoform	624	0.4	<5
Bromomethane	624	1.1	<5
Carbon disulfide	624	1.4	<5
Carbon tetrachloride	624	1.0	<5
Chlorobenzene	624	0.4	<5
Chloroethane	624	1.0	<5
Chloroform	624	0.5	<5
Chloromethane	624	0.7	<5
cis-1,2-dichloroethene	624	0.5	<5
cis-1,3-dichloropropane	624	0.3	<5
Dibromochloromethane	624	0.6	<5
Ethylbenzene	624	0.5	<5
m,p-xylene	624	1.4	<5
Methylene chloride	624	0.6	<5
o-xylene	624	0.5	<5
Styrene	624	0.4	<5
Tetrachloroethene	624	0.8	<5
Toluene	624	0.5	<5
trans-1,2-dichloroethene	624	1.1	<5
trans-1,3-dichloropropene	624	0.3	<5
Trichloroethene	624	1.0	<5
Trichlorofluoromethane	624	0.8	<5
Vinyl acetate	624	0.8	<5
Vinyl chloride	624	1.0	<5
Semi-Volatiles			
1,2,4-trichlorobenzene	625	6.1	<10
1,2-dichlorobenzene	625	3.7	<10
1,2-diphenylhydrazine	625	8.7	<10
1,3-dichlorobenzene	625	2.9	<10
1,4-dichlorobenzene	625	3.2	<10
2,2'-oxybis(1-chloropropane)	625	3.9	<10
2,4,5-trichlorophenol	625	8.4	<10
2,4,6-trichlorophenol	625	9.6	<10
2,4-dichlorophenol	625	9.0	<10
2,4-dimethylphenol	625	8.1	<10
2,4-dinitrophenol	625	12.4	<20

Table H-1. List of Parameters Tested (cont.)

Semi-Volatiles (cont.)			
2,4-dinitrotoluene	625	7.6	<10
2,6-dinitrotoluene	625	10.0	<10
2-chloronaphthalene	625	9.2	<10
2-chlorophenol	625	4.2	<10
2-methyl-4,6-dinitrophenol	625	7.9	<100
2-methylnaphthalene	625	4.5	<10
2-methylphenol	625	7.5	<10
2-nitroaniline	625	6.9	<10
2-nitrophenol	625	6.2	<10
3-3'-dichlorobenzidine	625	8.4	<20
3-nitroaniline	625	8.6	<10
4-bromophenyl phenyl ether	625	7.8	<10
4-chloro-3-methylphenol	625	7.4	<10
4-chloroaniline	625	8.2	<10
4-chlorophenyl phenyl ether	625	9.0	<10
4-methylohenol (includes 3-methylphenol)	625	7.2	<10
4-nitroaniline	625	8.0	<10
4-nitrophenol	625	6.3	<20
Acenaphthene	625	6.8	<10
Acenaphthylene	625	7.2	<10
Aniline	625	6.6	<10
Anthracene	625	5.8	<10
Benzindine	625	0.5	<10
Benzo(a)anthracene	625	5.4	<10
Benzo(a)pyrene	625	5.4	<10
Benzo(b)fluoranthene	625	7.8	<10
Benzo(ghi)perylene	625	5.2	<10
Benzo(k)fluoranthene	625	4.1	<10
Benzoic acid	625	7.2	<20
Benzyl alcohol	625	5.8	<10
bis(2-chloroethoxy) methane	625	6.7	<10
bis(2-chloroethyl) ether	625	4.1	<10
bis(2-ethylhexyl) phthalate	625	4.9	<10
Butyl benzyl phthalate	625	6.6	<10
Chrysene	625	6.2	<10
di-n-butylphthalate	625	5.4	<10
di-n-octylphthalate	625	4.6	<10
Dibenzo(a,h)anthracene	625	5.2	<10
Dibenzofuran	625	6.8	<10
Diethyl phthalate	625	9.1	<10
Dimethyl phthalate	625	9.9	<10
Fluoranthene	625	5.1	<10
Fluorene	625	8.1	<10
Hexachlorobenzene	625	8.8	<10
Hexachlorobutadiene	625	6.2	<10
Hexachlorocyclopentadiene	625	10.7	<50
Hexachoroethane	625	3.5	<10
Indeno(1,2,3-cd) pyrene	625	6.4	<10
Isophrone	625	7.5	<10
n-nitroso-di-n-propylamine	625	3.1	<10
n-nitrosodimethylamine	625	4.3	<10
n-nitrosodiphenylamine	625	7.9	<10
Naphthalene	625	5.7	<10
Nitrobenzene	625	6.3	<10
Pentachlorophenol	625	6.9	<30
Phenanthrene	625	5.8	<1
Phenol	625	2.2	<20
Pyrene	625	6.0	<10

[1] Data unavailable.
[2] Standard Methods.
[3] Native concentration too high for MDL determination.
[4] Some expressed in mg/L as noted.

Appendix I. Priority Pollutant List and Other Parameters

Table I-1. EPA List of 128 Priority Pollutants

Chlorinated Benzenes Chlorobenzene 1,2-dichlorobenzene 1,3-dichlorobenzene 1,4-dichlorobenzene 1,2,4-trichlorobenzene Hexachlorobenzene	**Chlorinated Ethanes** Chloroethane 1,1-dichloroethane 1,2-dichloroethane 1,1,1-trichloroethane 1,1,2,2-tetrachloroethane Hexachloroethane	**Chlorinated Phenols** 2-chlorophenol 2,4-dichlorophenol 2,4,6-trichlorophenol Parametachlorocresol (4-chloro-3-methyl phenol)
DDT and Metabolites 4,4-DDT 4,4-DDE (p,p-DDX) 4,4-DDD (p,p-DDE)	**Haloethers** 4-chlorophenyl phenyl ether 2-bromophenyl phenyl ether Bis(2-chloroisopropyl) ether	**Halomethanes** Methylene chloride (dichloromethane) Methyl chloride (chloromethane) Methyl bromide (bromomethane) Bromoform (tribromomethane) Dichlorobromomethane Chlorodibromomethane
Inorganics Antimony Arsenic Asbestos Beryllium Cadmium Chromium (III) Chromium (VI) Copper Cyanide, total Lead Mercury Nickel Selenium Silver Thallium Zinc	**Nitroamines** N-nitrosodimethylamine N-nitrosodiphenylamine N-nitrosodi-n-propylamine	**Pesticides and Metabolites** Aldrin Dieldrin Chlordane (technical mixture and metabolites) Alpha-endosulfan Beta-endosulfan Endosulfan sulfate Endrin Endrin aldehyde Heptachlor Heptachlor epoxide (BHC-hexachlorocyclohexane) Alpha-BHC Beta-BHC Gamma-BHC (Lindane) Delta-BHC Toxaphene
Phenols (other than chlorinated) 2-nitrophenol 4-nitrophenol 2,4-dinitrophenol 4,6-dinitro-o-cresol (4,6-dinitro-2-methylphenol) Pentachlorophenol Phenol 2,4-dimethylphenol	**Phthalate Esters** Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Dimethyl phthalate	**Polychlorinated Biphenyls (PCBs)** PCB-1242 (Aroclor 1242) PCB-1254 (Aroclor 1254) PCB-1221 (Aroclor 1221) PCB-1232 (Aroclor 1232) PCB-1248 (Aroclor 1248) PCB-1260 (Aroclor 1260) PCB-1016 (Aroclor 1016)
Polynuclear Aromatic Hydrocarbons (PAHs) Acenaphthene 1,2-benzanthracene (benzo(a)anthracene) Benzo(a)pyrene (3,4-benzo-pyrene) 3,4-benzofluoranthene (benzo(b)fluoranthene) 11,12-benzofluoranthene (benzo(k)fluoranthene) Chrysene Acenaphthylene Anthracene 1,12-benzoperylene (benzo(ghi)perylene) Fluorene Fluoranthene Phenanthrene 1,2,5,6-dibenzanthracene (dibenzo(a,h)anthracene) Indeno (1,2,3-cd) pyrene (2,3-o-phenylene pyrene) Pyrene	**Other Chlorinated Organics** Chloroform (trichloromethane) Carbon tetrachloride (tetrachloromethane) Bis(2-chloroethoxy)methane Bis(2-chloroethyl)ether 2-chloroethyl vinyl ether (mixed) 2-chloronaphthalene 3,3'-dichlorobenzidine 1,1-dichlorethylene 1,2-trans-dichloroethylene 1,2-dichloropropane 1,2-dichloropropylene (1,3-dichloropropene) Tetrachloroethylene Trichloroethylene Vinyl chloride (chloroethylene) Hexachlorobutadiene Hexachlorocyclopentadiene 2,3,7,8-tetrachloro-dibenzo-p-dioxin (TCDD)	**Other Organics** Acrolein Acrylonitrile Benzene Benzidine 2,4-dinitrotolulene 2,6-dinitrotolulene Ethylbenzene Isophrone Naphthalene Nitrobenzene Tolulene

Table I-2. NPDES Permit Application Testing Requirements
(40 CFR 122, Appendix D, Tables II and III)

Volatile Organics	Organic Pesticides	Organic Base/Neutrals
acrolein	aldrin	acenaphthene
acrylonitrile	alpha-BHC	acenaphthylene
benzene	beta-BHC	anthracene
bromoform	gamma-BHC	benzidine
carbon tetrachloride	delta-BHC	benzo(a)anthracene
chlorobenzene	chlordane	benzo(a)pyrene
chlorodibromomethane	4,4'-DDT	3,4-benzofluoranthracene
chloroethane	4,4'-DDE	benzo(ghi)perylene
2-chloroethylvinyl ether	4,4'-DDD	benzo(k)fluoranthene
chloroform	dieldrin	bis(2-chloroethoxy)methane
dichlorobromomethane	alpha-endosulfan	bis(2-chloroethyl)ether
1,1-dichloroethane	beta-endosulfan	bis(2-ethylhexyl)phthalate
1,2-dichloroethane	endosulfan sulfate	4-bromophenyl phenyl ether
1,1-dichloroethylene	endrin	butylbenzyl phthalate
1,2-dichloropropane	endrin aldehyde	2-chloronaphthalene
1,3-dichloropropylene	heptachlor	4-chlorophenyl phenyl ether
ethyl benzene	heptachlor epoxide	chrysene
methyl bromide	PCB-1242	dibenzo(a,h)anthracene
methyl chloride	PCB-1254	1,2-dichlorobenzene
methylene chloride	PCB-1221	1,3-dichlorobenzene
1,1,2,2-tetrachloroethane	PCB-1232	1,4-dichlorobenzene
tetrachloroethylene	PCB-1248	3-3'-dichlorobenzidine
toluene	PCB-1260	diethyl phthalate
1,2-trans-dichloroethylene	PCB-1016	dimethyl phthalate
1,1,1-trichloroethane	toxaphene	di-n-butyl phthalate
1,1,2-trichloroethane		2,4-dinitrotoluene
trichloroethylene		2,6-dinitrotoluene
vinyl chloride		di-n-octyl phthalate
		1,2-diphenylhydrazine
		fluoranthene
		fluorene
		hexachlorobenzene
		hexachlorobutadiene
		hexachlorocyclopentadiene
		hexachloroethane
		indeno(1,2,3-cd)pyrene
		isophorone
		napthalene
		nitrobenzene
		N-nitrosodimethylamine
		N-nitrosodi-n-propylamine
		N-nitrosodiphenylamine
		phenanthrene
		pyrene
		1,2,4-trichlorobenzene
Organic Acids	**Metals**	**Cyanide and Phenols**
2-chlorophenol	antimony, total	cyanide, total
2,4-dichlorophenol	arsenic, total	phenol, total
2,4-dimethylphenol	beryllium, total	
4,6-dinitro-o-cresol (2-methyl-4,6-dinitrophenol)	cadmium, total	
2,4-dinitrophenol	chromium, total	
2-nitrophenol	copper, total	
4-nitrophenol	lead, total	
p-chloro-m-cresol (4-chloro-m-cresol)	mercury, total	
pentachlorophenol	nickel, total	
phenol	selenium, total	
2,4,6-trichlorophenol	silver, total	
	thallium, total	
	zinc, total	
	cyanide, total	
	phenols, total	

Appendix J. Glossary, Abbreviations/Acronyms, and Units

Glossary

40 CFR Part 122 - Code of Federal Regulations: Protection of the Environment. Part 122 is Administered Permit Programs: The National Pollutant Discharge Elimination System. (Appendix D of 40 CFR 122 lists the Permit Application Requirements.)
Acid Base Neutrals (ABNs) - A category of organic chemical pollutants also called semi-volatile organics. See Appendix I.
Acute - A stimulus severe enough to rapidly induce an effect; in aquatic toxicity tests, an effect observed in 96 hours or less is typically considered acute. When referring to aquatic toxicology or human health, an acute effect is not always measured in terms of lethality.
Acute Criteria- The maximum concentration of a constituent in water that an organism may be exposed to for a total of one hour, once over three years, without dying.
Acute Static Toxicity Test - Test designed to measure water quality effect on mortality. It measures the effect of the whole effluent sample on an organism. Animals are put in a vial with effluent, and the fatal effects are monitored. To calculate water quality standards, the test is run on sensitive animals. The concentration that shows a 95% mortality rate is then multiplied by two.
Activation - An event when the wastewater flow exceeds the holding capacity of the sewer lines and the hydraulic capacity of the treatment plant, causing a diversion of flow to the CSO facilities.
Aeration - The process of adding air to a liquid (e.g. wastewater).
Aliquot - A measured portion of a sample.
Anaerobic Digester - The structure where organic material is broken down by organisms in the absence of oxygen.
Anoxia - The absence of oxygen.
Average Monthly Discharge Limitation - The highest allowable average of "daily discharge" over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured.
Average Weekly Discharge Limitation - The highest allowable average of "daily discharge" over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.
Bar Screen - A screen made of bars designed to catch large debris (e.g. rags, wood, shoes) in waterways.
Below Detection Limit/Level (BDL) - Values below the Reporting or Quantitation Limit. For further explanation see Appendix H.
Bioaccumulation - The process in which industrial waste, toxic chemicals, and other pollutants gradually build up in living tissues and organs.
Biochemical - Having to do with a chemical change resulting from the metabolic activities of living organisms.
Biochemical Oxygen Demand (BOD) - The amount of oxygen needed to oxidize inorganic materials and to degrade organic materials by *biochemical reactions* in a certain time at a certain temperature. BOD is used as a measure of organic pollution.
Biomagnification - The process by which the concentration of a compound increases in species occupying successive trophic levels.
BDL - See Below Detection Limit
Bloom - A large mass of algae (microscopic and or macroscopic) in water.
BOD - See Biochemical Oxygen Demand.

Buffering Capacity - Measures the ability of certain water bodies to resist changes in pH from addition of acidic or caustic substances.
CFR- See Code of Federal Regulations
Chemical Oxygen Demand (COD) - The amount of oxygen needed for the *chemical oxidation* of chemicals in water. COD is used to measure the suitability of water for organisms that require oxygen.
Chlorination - The addition of chlorine or chlorine compounds to wastewater. Chlorination is most often done for disinfection purposes.
Choking - A process by which flows that cannot be handled by existing pumps are “choked back” into the sewer system, frequently leading to local overflows.
Chronic - A stimulus that lingers or continues for a relatively long period of time, often one-tenth of the life span or more. Chronic should be considered a relative term depending on the life span of an organism. The measurement of a chronic effect can be reduced growth, reduced reproduction, etc., in addition to lethality.
Chronic Criteria - The maximum concentration of a constituent in water that an organism may be exposed to for a total of four days over three years without showing long term, harmful effects, short of mortality. Chronic criteria involve sublethal effects on, among other things, the growth, reproductivity, and fertility of organisms.
Chronic Reproduction Test - A test designed to measure the chronic effects of wastewater on reproduction and fertility.
Chronic Survival and Growth Test - Test designed to see if any mortality occurs after the chronic criteria have been passed. After the organisms have survived, the size of the animals are measured after seven days and statistically compared to controls.
Clean Water Act (CWA) - Formally referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972. Pub. L. 92-500, as amended by Pub. L. 95-576, Pub. L. 96-483, and Pub. L. 97-117: 33 U.S.C.□1251et seq.
COD - See Chemical Oxygen Demand
Code of Federal Regulations (CFR) - Codification of the general and permanent rules of the federal government. CFR 40 covers environmental protection.
Combined Sewer - A sewer receiving both sanitary wastewater and stormwater runoff.
Combined Sewer Overflow Facility - A place where overflow from combined sewers is screened, settled, and chlorinated before being discharged.
Combined Sewer Overflow Pipe - A pipe that discharges overflow from combined sewers in order to prevent back-ups in the sewerage system.
Composite Sample - A sample consisting of a minimum of eight grab samples collected at equal intervals during a 24-hour period (or lesser period if specified) and combined proportional to flow, or a sample continuously collected proportionally to flow over that same time period.
Conventional Parameters/Pollutants - Those pollutants and constituents that are removed from wastewater by conventional treatment. Generally these constituents are settleable solids, biochemical oxygen demand, total suspended solids, oil and grease, total coliform, fecal coliform, residual chlorine, and chlorides.
Conventional Treatment - Well-known or well-established water or wastewater treatment methods, usually consisting of primary and secondary processes and may include advanced or tertiary treatment.
Criteria - The numerical and or narrative elements of water quality standards.
Critical Dilution - Dilution of the effluent required to meet Water Quality Standards.
CWA - See Clean Water Act.
Daily Discharge - The discharge of a pollutant measured during a calendar day or any 24-hours period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of

measurements, the daily discharge is calculated as the average measurement of the pollutant over the day.
Designated Use - Specified use of a body of water included in state water quality standards.
Digester - A place where organic matter is broken down either with oxygen (aerobically) or without oxygen (anaerobically).
Disinfection - The destruction of pathogens (e.g. fecal coliform bacteria) in a water source or wastewater.
Effluent - The wastewater or other water coming out of a treatment facility or process.
Effluent Limitation - Any restriction imposed by the Director (the person authorized to sign NPDES permits by EPA and/or the State) on quantities, discharge rates, and concentrations of "pollutants" which are "discharged" from "point sources" into "waters of the United States," the waters of the "contiguous zone," or the ocean.
Eutrophication - The natural process by which a body of water ages. Nutrients stimulate plant growth and lakes, estuaries, and bays evolve into bogs or marshes. Effluents high in nutrients cause excessive plant growth that accelerates eutrophication.
Fecal Coliform - Bacteria found in the wastes of warm-blooded animals. Fecal coliform is used as an indicator that disease causing bacteria and viruses are present. It is a component of Total Coliform.
Floatables - Constituents of wastewater that rise to the surface in the settling process, consisting mainly of oil, grease, and plastics.
Grab Sample - An individual sample collected in a period of less than 15 minutes.
Gravity Facility - A combined sewer overflow facility that receives flows by gravity (descending gradients from source to outfall) and requires no pumping.
Grit - Heavy suspended mineral matter in wastewater like sand and gravel.
Grit Chamber - A detention tank were grit is separated by sedimentation (grit settles to the bottom). The settling is controlled by the velocity of the water.
Headworks - A structure where wastewater are screened out and grit and other solids are trapped before the wastewater is pumped to a treatment facility.
Human Health Criteria - Estimated concentrations or quantities of chemicals that can be expected to occur in the environment in water, sediment, or food and that are not likely to pose a significant risk to the exposed human population. Human health criteria are published under section 304(a) of the CWA and are based on the latest scientific information. This information is updated and issued to the states to serve as guidance for the development of criteria.
Hydrocarbons - Chemical compounds only containing hydrogen and carbon.
Hypochlorite - The chemical used for chlorine disinfection of wastewater (either calcium, sodium, or lithium hypochlorite).
Hypoxia - The state of very low oxygen concentration.
IDL - See Instrument Detection Limit.
I/I - Infiltration and Inflow. See separate entries for each.
Infiltration - Groundwater that enters sewer pipes through cracks.
Inflow - Water that enters sewer pipes through illegal connections and storm water runoff.
Inorganic - Not containing carbon.
Influent - Wastewater or other water going into treatment facility or process.
Instrument Detection Limit (IDL) - The smallest amount of a substance a particular instrument is capable of detecting. See Appendix H for further explanation.
Interceptor - A large sewerage line collecting water from smaller sewerage pipes.
J values - Values between the Method Detection Limit and the Quantitation (or Reporting) Limit. See Appendix H for further explanation.
Lethal Concentration 50% (LC50) - The concentration of effluent in a sample that causes mortality to 50% of the test population at a specific time of observation.

Limiting Nutrient - In a given ecosystem, the limiting nutritional factor that controls the growth of plants or animals. Usually the limiting nutrient for plant growth is nitrogen in the marine environment and phosphorus in the fresh water environment. The limiting nutrient can also be thought of as the specific nutrient that will have the most impact on a receiving body of water (for example, the accelerated eutrophication of fresh water bodies caused by phosphorus in wastewater effluent).

Local Limits - The development of specific limits as part of MWRA's General Pretreatment Program: "The permittee shall develop and enforce specific effluent limits for industrial users, and all other users, as appropriate, pursuant to 40 CFR 403.5."

Lowest Observed Effect Concentration (LOEC) - The lowest concentration of effluent to which organisms are exposed in a life cycle or partial life cycle test which contains an adverse effect (on survival, growth, and reproduction).

Maximum Acceptable Toxicant Concentration (MATC)- The effluent concentration that may be present in a receiving water body without causing significant harm to productivity or other uses. The MATC is determined by the results of chronic tests of either a partial life cycle with sensitive life stages or a full life cycle of the test organism. The MATC is the geometric mean of the No Observed Effect Concentration and the Lowest Observed Effect Concentration.

Maximum Daily Discharge Limitation - The highest allowable daily discharge.

MBAS - See Methylene Blue Anion Surfactant

MDL - See Method Detection Limit

Metals - A group of priority pollutants. See Appendix I for a complete list.

Method Detection Limit (MDL) - The smallest amount of a substance that can be detected above background noise by following a particular method of analysis. See Appendix H for further explanation.

Methylene Blue Anion Surfactant - A specific type of surfactant. See surfactant.

Mixing Zone - Area where discharged effluent is first diluted. The area is extended to cover the secondary mixing in the ambient water body. A mixing zone is an allocated impact zone where water quality criteria can be exceeded as long as toxic conditions are prevented.

National Pollutant Discharge Elimination System (NPDES) - The national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, and 405 of the Clean Water Act (CWA). The term includes an "approved program."

Nine Minimum Controls - Part of the EPA's CSO Policy. The Nine Minimum Controls are:

1) Proper operation and regular maintenance (O&M) programs for the sewer system and combined sewer overflow points
2) Maximum use of the collection system for storage
3) Review and modification of the pretreatment programs to assure CSO impacts are minimized
4) Maximization of flow to the POTW for treatment
5) Prohibition of CSO discharges during dry weather
6) Control of solid and floatable materials in CSO discharges
7) Pollution prevention programs that focus on contaminant reduction activities
8) Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts
9) Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

Nitrification - The conversion of ammonia and nitrite to nitrate.

No Observed Acute Level (NOAL) - The highest concentration of effluent to which organisms are exposed in a short-term test in which at least 90% of the test organisms survive.

No Observed Effect Concentration (NOEC) - The highest concentration of effluent to which organisms are exposed in a life cycle or partial life cycle test which contains no adverse effects (on growth, survival, and reproduction).

NPDES - See National Pollutant Discharge Elimination System

Nutrient - Any element or compound essential as raw material for organism growth and development. Examples: phosphorus and nitrogen.
Oil and Grease - Fats, oils, and grease from animal and plant derivation. Also called FOGs.
Organic Compounds - Volatiles, Acid Compounds, Base/Neutral, and Pesticides. Organics are listed in 40 CFR Ch. 1 Appendix D under CWA Section 307(a). See Appendix I for a complete list.
Orthophosphorus - A form of phosphorus, included in nutrients.
Outfall - the site of initial discharge
PAH - See Polynuclear Aromatic Hydrocarbon
Pesticides/PCBs - Subdivision of priority pollutants. See Appendix I for a complete list.
Petroleum Hydrocarbon (PHC) - Oil and grease from petroleum derivation.
pH - The negative log of the hydrogen ion concentration used to express acidity (<7) and alkalinity (>7).
PHC - See Petroleum Hydrocarbon.
Pollutant - Dredged soil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemicals wastes, biological materials, radioactive materials, (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. □2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.
It does not mean: (a) Sewage from vessels; or (b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed or in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.
Polynuclear Aromatic Hydrocarbon (PAH) - A type of semi-volatile organic. Also known as polycyclic aromatic hydrocarbons.
POTW - See Publicly Owned Treatment Work.
Preaeration - The process by which air is added to primary influent to help in the removal of gases, floatation of grease, addition of oxygen, and in the settling or coagulation of wastewater.
Prechlorination - The addition of chlorine to primary influent at or near the beginning of the treatment facility/process.
Primary Settling - The detention of wastewater as part of primary treatment to settle out solids (sludge) and collect floatables (scum).
Primary Treatment - Screening and settling of wastewater.
Priority Pollutants - Refers to some of the chemicals listed in 40 CFR Ch. 1 Appendix D under Section 307(a) of the CWA. There are 65 compounds and families of compounds that are among the most persistent, prevalent, and toxic of chemicals know to man. These 65 compounds or families of compounds have been translated into 126 individual pollutants. See Appendix I, Table I-2 for the complete list.
Priority Pollutant Scan - A series of chemical analyses to identify the presence of priority pollutants.
Publicly Owned Treatment Work (POTW) - Any facility or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of liquid nature that is owned by a “State” or a “municipality.” This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.
Pumping Station - Structures where wastewater from low-lying areas is pumped.
Quantitation Limit - See Reporting Limit.
Removal Rate - or Percent Removal. Defined as the influent concentration minus the effluent concentration, divided by the influent concentration.

Reporting Limit - The smallest concentration that can be quantified. On a graph of pollutant concentration versus instrument response, the reporting limit is the smallest concentration where the linear relationship holds before starting to curve as the pollutant concentration goes to zero. Also called the Quantitation Limit. See Appendix H for further explanation.
Residuals - Matter left over by treatment processes including screenings, scum, and sludge.
Screening - The process by which sewage from interceptors first goes through headworks where grit and large objects like leaves, sticks, and hygiene products (like tampon applicators and condoms) are screened out.
Screenings - The objects that are collected by the process of screening.
Scum - Solids that float to the top of wastewater.
Secondary Treatment - The treatment of wastewater beyond solids and grit removal. The process decreases the organic load.
Sedimentation - The process by which solids are allowed to settle by gravity.
Sedimentation Tank - Tanks used to detain wastewater while the solids settle out.
Semi-Volatile Organics - Also known as Acid Base Neutrals (ABNs). A subcategory of organic pollutants. See Appendix I for a complete list.
Separate Sewer - A sewerage system divided into a storm sewer and a sanitary sewer.
Settleable Solids - The estimated amount of sludge that will settle by sedimentation. It is a fraction of the suspended-solids.
Settled Solids - Sludge. (See sludge.)
Sewage - Any wastes, including wastes from humans, households, commercial establishments, industries, and storm water runoff, that are discharged to or otherwise enter a POTW.
Sludge - Solids, residues, and precipitate separated from or created in sewage by the unit processes of a POTW.
SOP - See System Optimization Plan or Standard Operating Procedures
Stratification - The separation of water into layers characterized by thermal differences.
Standard Operating Procedures (SOP) - Documented protocols for plant operation, laboratory procedures, etc.
Surcharging - When the capacity of the sewer is insufficient and sewage escapes through a manhole.
Surfactant - Surface-active agent. Large organic molecules that cause foaming. They are usually found in detergents.
System Optimization Plan (SOP) - Hydraulic improvements that, in conjunction with ongoing programs of municipal sewerage agencies, might promote a balanced hydraulic system. The SOP may include optimization of the collector/interceptor system upstream of regulators, to ensure that the storage and transport capacity of the system is maximized within constraints unalterable except for major structural modifications.
Thickener - The structure where sludge is sent to be thickened by removing water.
TKN - See Total Kjeldahl Nitrogen.
Total Coliform - Bacteria found in decaying matter, feces, and soil. It used as an indicator of pathogens that are present in wastewater.
Total Kjeldahl Nitrogen (TKN) - The total organic and ammonia nitrogen.
Total Phosphorus - A measure of all the forms of phosphorus, a nutrient, found in water (orthophosphates, polyphosphates, and organic phosphates).
Total Suspended Solids (TSS) - The sum of insoluble solids that either float on the surface of, or are in suspension in water, wastewater, or other liquids.
Toxic Pollutant - Any pollutant listed as toxic in Appendix D of 40 CFR Part 122, under Section 307(a)(1) of CWA.
Toxics - Pollutants that have a toxic effect on living organisms. The “priority pollutants” of CWA Section 307(a) are a subset of this group of pollutants.

Toxicity Test - A procedure to determine the toxicity of a chemical or an effluent using living organisms. A toxicity test measures the degree of effect on exposed test organisms of a specific chemical or effluent.
TSS - See Total Suspended Solids.
Twelve Month Running Average - The monthly average computed using the specific month and the previous 11 months.
Unregulated Community - Dischargers not required to have Permits to discharge into MWRA sewerage system. They are not regulated or required to meet Local Limits, nor are they regulated under the Local Limits Discharge Program.
Vertical Mixing - The vertical movement of the water column caused by wind, and/or density and/or temperature differences.
Volatile Organic Acid (VOA) - Same as Volatile Organic Compound.
Volatile Organic Compound (VOC) - Same as Volatile Organic Acid.
Volatile Solids - Those solids of a suspended solid sample that are burned off in a muffle oven at 550±50 °C.
Water Quality - The chemical, biological, and physical conditions of a body of water.
Water Quality Criteria - Specific levels of pollutants that would make a body of water unsuitable for its designated use (i.e. harmful if used for drinking, swimming, farming, fishing, or industrial processes).
Water Quality Standard - A law or regulation that consists of: the beneficial designated use or uses of a water body; the numeric and narrative water quality criteria that are necessary to protect the use or uses of that particular water body; and an antidegradation statement.
Whole Effluent Toxicity (WET) - The total toxic effect of effluent, not chemical specific but rather the cumulative effect, whether it be synergistic or antagonistic, of the chemicals found in the effluent.

Abbreviations and Acronyms

ABNs - Acids Bases Neutrals
BDL - Below Detection Limit
BOD - Biochemical Oxygen Demand
BWSC - Boston Water and Sewer Commission
cBOD – Carbonaceous Biochemical Oxygen Demand
CFR - Code of Federal Regulations
CSO - Combined Sewer Overflow
CWA - Clean Water Act
DEP - Massachusetts Department of Environmental Protection
DITP - Deer Island Treatment Plant
EnQual - Environmental Quality, Water and Wastewater
EPA - United States Environmental Protection Agency
FY - Fiscal Year
IDL - Instrument Detection Level
I/I - Infiltration and Inflow
LC50 - Median Lethal Concentration
LD50 - Median Lethal Dose
LOAEL - Lowest Observed Adverse Effect Level
LOEC - Lowest Observed Effect Concentration
MATC - Maximum Acceptable Toxicant Concentration
MDC - Metropolitan District Commission
MDL - Method Detection Limit

MPN - Most Probable Number
MWRA - Massachusetts Water Resources Authority
NITP - Nut Island Treatment Plant
NOAL - No Observed Acute Level
NOEC - No Observed Effect Concentration
NPDES - National Pollutant Discharge Elimination System
PAH - Polycyclic (or Polynuclear) Aromatic Hydrocarbon
PCB - Polychlorinated Biphenyl
PHC - Petroleum Hydrocarbon
POTW - Publicly Owned Treatment Work
SD - Standard Deviation
SOP - Standard Operating Procedures or System Optimization Plan
SSO - Sanitary Sewer Overflow
TKN - Total Kjeldahl Nitrogen
TRAC - Toxic Reduction and Control Department
TSS - Total Suspended Solids
VOA - Volatile Organic Acid
VOC - Volatile Organic Compound
WET - Whole Effluent Toxicity [test]

Units of Measurement

in/yr - inches per year
L - liter
lbs - pounds
lbs/day - pounds per day
mL/L - milliliters per liter
MG - million gallons
mgd - million gallons per day
mg/L - milligrams per liter
μg/L (or ug/L) **-** micrograms per liter

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