NPDES compliance summary report, fiscal year 1997

Massachusetts Water Resources Authority

Environmental Quality Department
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NPDES COMPLIANCE SUMMARY REPORT
Fiscal Year 1997

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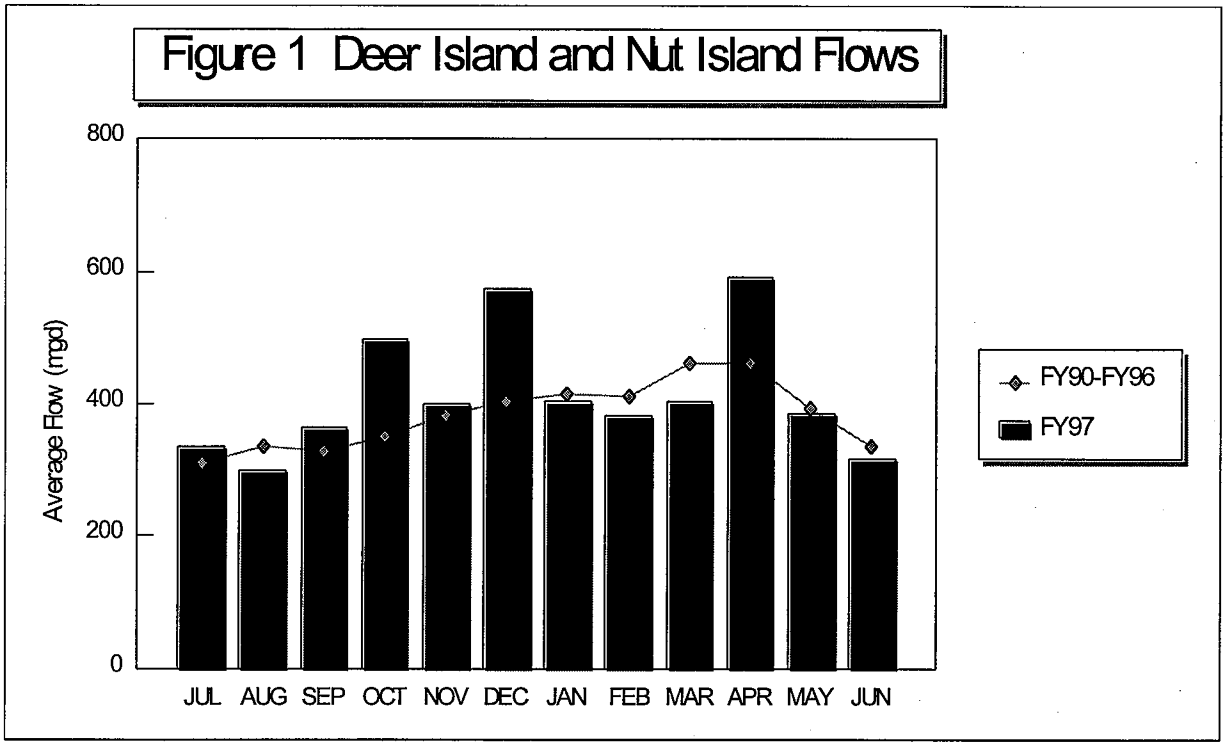
Executive Summary

This report presents and summarizes monitoring and compliance data collected and analyzed by the Massachusetts Water Resources Authority (MWRA) NPDES Compliance Unit from July 1996 to June 1997. The Fiscal Year Summary Report, while not a regulatory requirement, provides a useful documentation of influent and effluent quality trends over the course of a full year.

Treatment Plants

MWRA is required under its NPDES permit to monitor its two wastewater treatment plants, Deer Island and Nut Island, for a variety of parameters. The permit calls for secondary treatment, but both plants are currently regulated under interim limits while the secondary treatment facilities are completed at Deer Island. By FY99 the Nut Island plant will have been decommissioned and all flows will be receiving secondary treatment at Deer Island, which will be operating under a new permit.

Flows through both plants were higher than average this year, especially in October, December, and April, when there were large storm events. The worst of these storms was the October storm, which was a 100-year storm event. December and April, however, experienced the highest monthly flows because each of these months had a number of storm events.



The influent entering both plants could be classified as weak to medium with regard to conventional parameters.[1] At Deer Island, the results of the improved treatment being offered by the new primary treatment plant that came on line in FY95 are becoming apparent. Since the new plant was brought on line, the removal rates for both TSS and BOD have improved significantly (Figure 2). Removal efficiencies in FY97 compared favorably to theoretical removal efficiencies for primary treatment, with TSS removal above the theoretical range and the BOD removal rate within the theoretical range.[2]

Table 1 Classification of Deer Island and Nut Island Influent

Parameter	Deer Island	Nut Island	Weak	Medium	Strong
TSS	144	126	100	200	350
BOD	136	109	100	200	300
TKN	24.2	28.0	20	40	85
Ammonia	13.3	17.3	12	25	50

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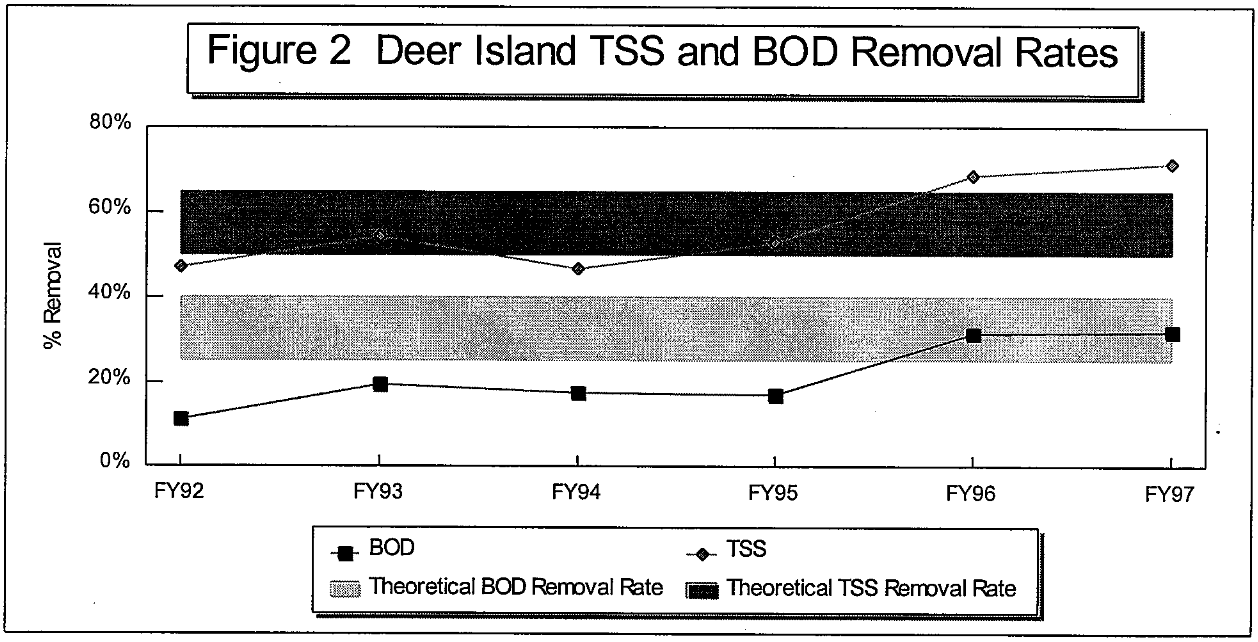
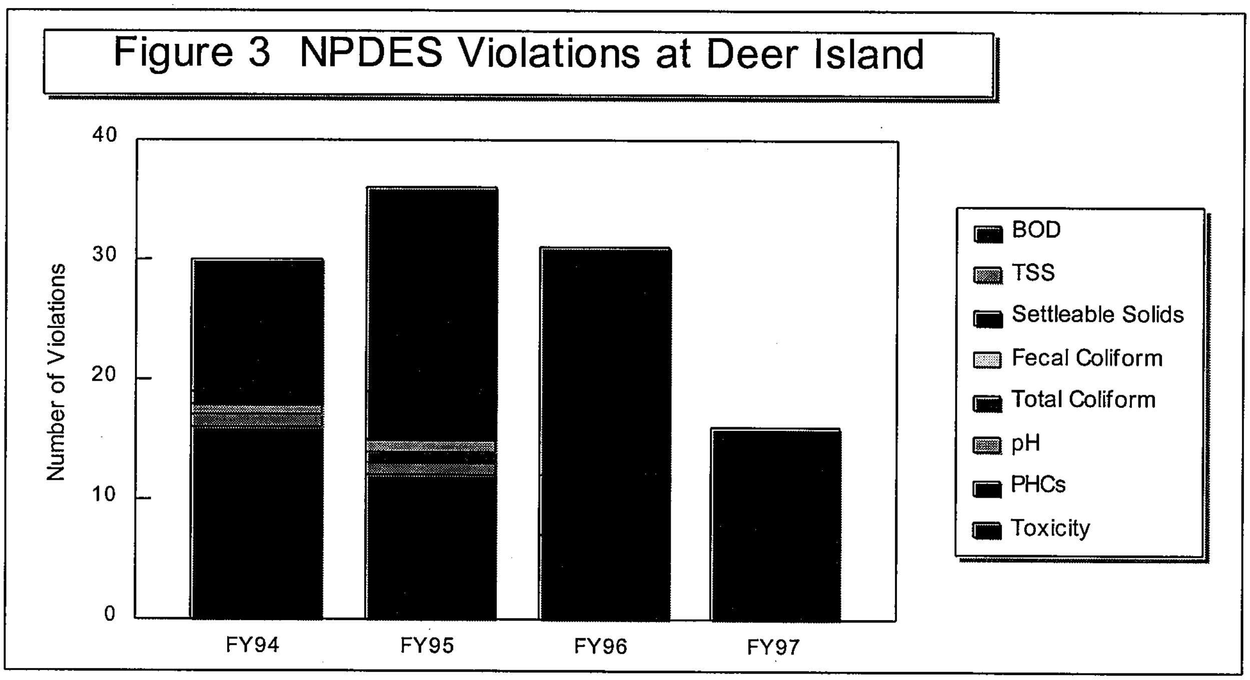
[1]Metcalf &Eddy, Inc. 1972. Wastewater Engineering: Collection, Treatment, Disposal. New York: McGraw-Hill Book Company. Page 231.

[2]Ibid. Page 446.



The impact of improved treatment at Deer Island can also be seen in the number of NPDES violations, which has decreased dramatically since the introduction of the new plant. Figure 3 compares the number of violations of the NPDES permit at Deer Island in FY97 to previous years. There were no non-toxicity NPDES violations in FY97, while there were 12 in FY96 and 19 in each of the previous two years. There were 16 toxicity violations this year, but



ten of them involved the red algae test, which the EPA plans to stop using in future permits due to the extreme sensitivity of the species. Some of the reduction in number of violations can be attributed to a change in testing methods for PHCs, but much of it has resulted from improved treatment.

Deer Island also saw improvements in priority pollutant loadings. Decreases in influent metals loadings may be partly due to corrosion control activities. Some of the reduction in the effluent may also be caused by better capture of metals by the new plant. The only priority pollutants for which concentrations were high enough to exceed water quality standards, given the expected dilution of the effluent, were copper and cyanide.

The Nut Island primary treatment plant is expected to be brought off-line by early FY99, when work is finished on the Nut Island Headworks, the Inter-Island Tunnel, and the South System Pump Station. At that time, all South System flows will be sent to Deer Island for treatment and the Nut Island primary plant will be shut down.

Removal efficiencies at Nut Island were within the expected theoretical range for conventional parameters in FY97. Increases in metals and nutrients were found in both influent and effluent at Nut Island, possibly because of increasing use of the sludge pelletizing plant at Fore River, which discharges to Nut Island. As at Deer Island, copper and cyanide were the only priority pollutants with concentrations that were cause for concern.

Nut Island had twenty NPDES violations, which are summarized in Table 2. Four involved low pH levels, one was a violation of the daily maximum limit for PHCs, and fifteen were toxicity violations. Ten of the fifteen toxicity violations were caused by the suspect red algae test.

Table 2 NPDES Violations at Nut Island

	FY94	FY95	FY96	FY97
BOD	8	9	7	0
TSS	1	3	0	0
Settleable Solids	0	0	0	0
Fecal Coliform	0	0	0	0
Total Coliform	0	0	0	0
pH	7	9	0	4
PHCs	0	4	5	1
Toxicity	20	19	19	15
Non-Toxicity Violation	16	25	12	5
Total Violations	36	44	31	20

A graphical presentation of Nut Island performance is not included in this report because the plant is being taken off line next year, so the trend in performance is not as important as it is at Deer Island, which will receive all flows starting in FY99.

Combined Sewer Overflow Facilities

MWRA has three Combined Sewer Overflow (CSO) Facilities, Cottage Farm, Prison Point, and Somerville Marginal, which are required to be monitored under the NPDES permit. In addition, MWRA performs monitoring at three other CSO facilities, Constitution Beach, Fox Point, and Commercial Point, which are currently included in the Boston Water and Sewer Commission NPDES permit.

The number of activations and the volume treated at the CSO facilities increased in FY97, due to several factors. The main reason for the increase was probably the fact that FY97 was a wet year with a number of intense rainfall events. The correlation between rainfall and CSO activation can be seen in Figures 4 and 5.

Figure 4 CSO Activations, FY92-FY97

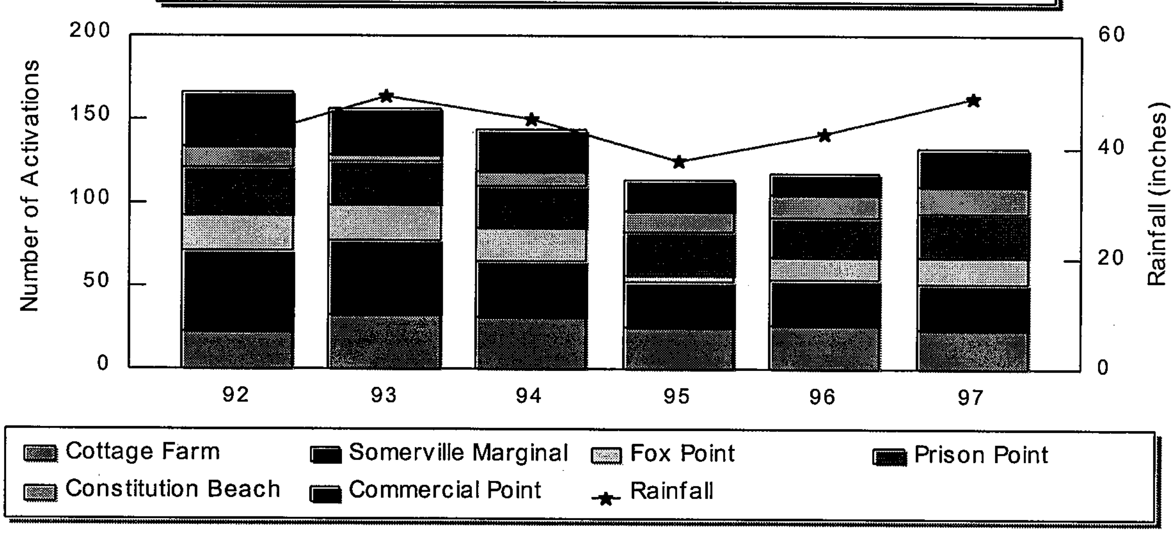
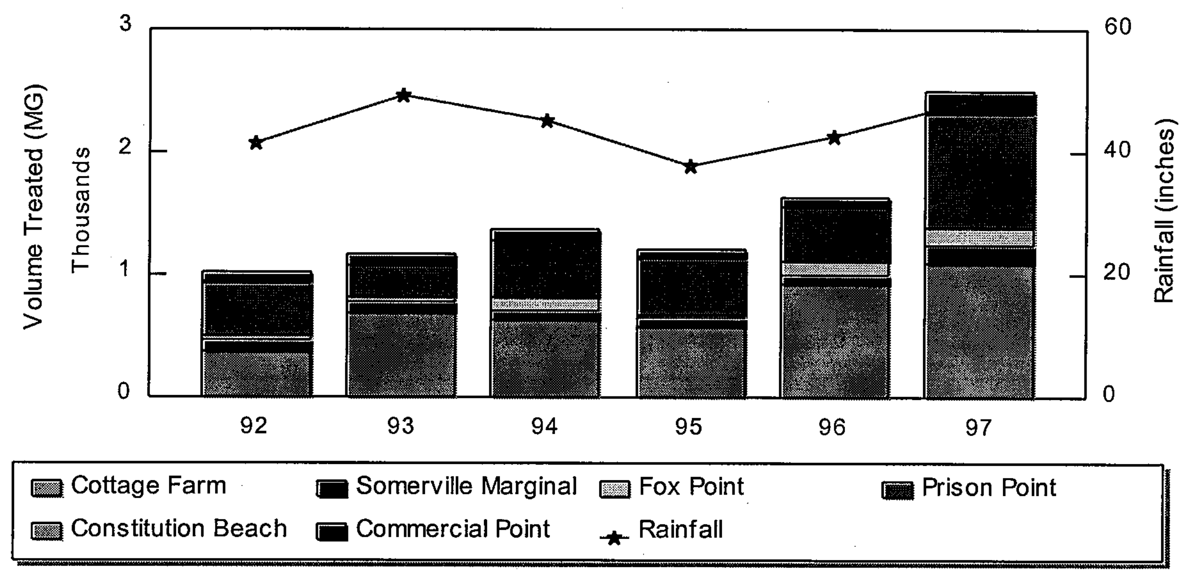


Figure 5 CSO Volume Treated, FY92-FY97



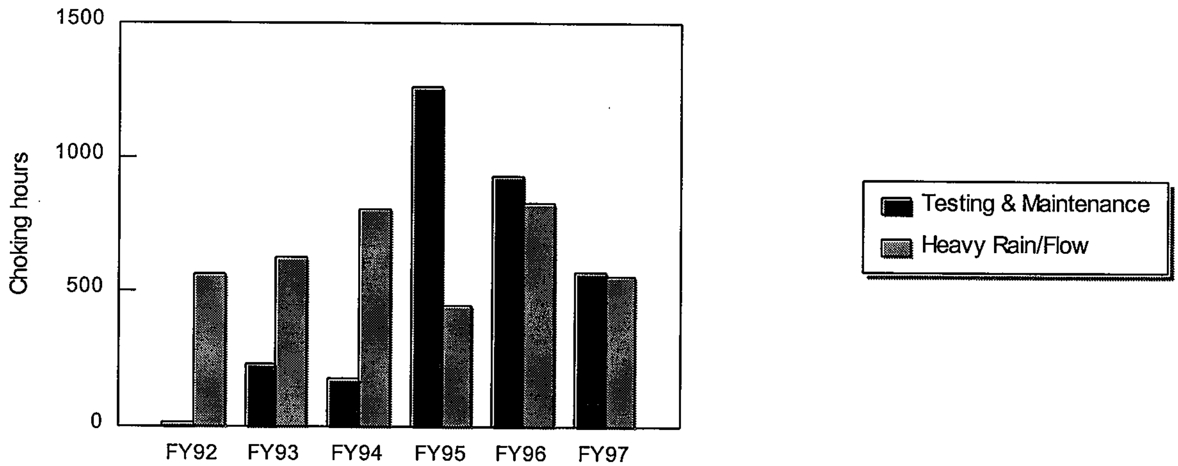
System Capacity

Some of the monitoring performed by MWRA relates to the capacity of the transport and treatment 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 the flow to Deer Island either when heavy flow becomes too much for the capacity of the treatment plant or when maintenance is performed on the plant. As Figure 6 shows, the hours of choking at the headworks decreased from FY96 to FY97.

The majority of choking in FY97, as in FY95 and FY96, was for maintenance purposes and for system testing of the new facilities as they came on line. Maintenance and testing-related choking is performed at off-peak times and thus does not cause any overflow at the CSOs upstream.

Rain-related choking also decreased from FY96 to FY97, but CSO activations, as mentioned in the previous section, saw an increase.

Figure 6 Choking, FY92-FY97



Another system capacity parameter monitored by MWRA is the occurrence of Sewer System Overflows, or SSOs. These overflows occur in areas where the collection system becomes overloaded by heavy flows. In FY95 the Transport Department started to locate and visually monitor these SSOs in the North and South Systems. Table 3 summarizes the SSOs observed in FY97.

Table 3 Sanitary Sewer Overflows, FY97

Location	**Number of Overflows**
North System	
Section C Medford	3
Section 107 Medford	3
Section 91B Medford (Siphon)	1
Section 43.5 Medford	1
Section B Cambridge	1
Section 113 Winchester	1
Section 80 Arlington	1
South System	
Section 126 Weymouth Smelt Brook	8
Section 126 Weymouth (Manhole)	5
Section 128 Braintree (Siphon)	1

Future Outlook

The startup of the new primary treatment plant at Deer Island was just the first of several changes and improvements in MWRA's facilities. In FY98, Deer Island will see the introduction of secondary treatment for the first time. In FY99 the Nut Island facility will be decommissioned and South System flows will transported to Deer Island for treatment at the new plant. The final phase in the introduction of the new treatment system will be the opening of the new outfall into Massachusetts Bay near the beginning of Fiscal Year 1999.

This new set of facilities will be regulated under a new NPDES permit that will take effect in FY99. This comprehensive permit, the first of its kind, will include several new concepts. In addition to the usual monitoring, an ambient monitoring plan will be put into place for the new outfall site, as well as a contingency plan to ensure that discharge to Massachusetts Bay does not impact the endangered right whale. Other requirements will include water conservation measures, pollution prevention plans, and best management practices to stop pollution before it reaches the treatment facility. A stepped up industrial waste program will help industry meet local limits for pollutants. Intensified sampling at CSOs will better characterize CSO effluent quality. As MWRA completes its new facilities, the next challenge will be to implement these new programs and provide the Authority-wide coordination needed to meet the new reporting requirements.

I. Introduction

This report presents and summarizes the National Pollutant Discharge Elimination System (NPDES) monitoring and compliance data compiled and analyzed by the Massachusetts Water Resources Authority (MWRA) NPDES Unit during the period of July 1996 to June 1997. MWRA's treatment plants and Combined Sewer Overflow (CSO) facilities serve large communities' needs for sewer systems while maintaining healthy water environments for recreation and wildlife.

The monitoring results for the new Deer Island Treatment Plant are presented and discussed in Chapter II and the results for the Nut Island plant appear in Chapter III. Chapter IV describes the results for the six Combined Sewer Overflow Facilities. Chapter V discusses sewer system capacity. Appendices A-H provide detailed monthly data, while Appendices I-M provide background information.

II Deer Island Treatment Plant

This chapter presents and discusses monitoring information for the Deer Island Treatment Plant. The characteristics examined include flow, conventional parameters, nutrients, priority pollutants (metals, cyanide, pesticides/PCBs, and organic compounds), whole effluent toxicity, and bioaccumulation.

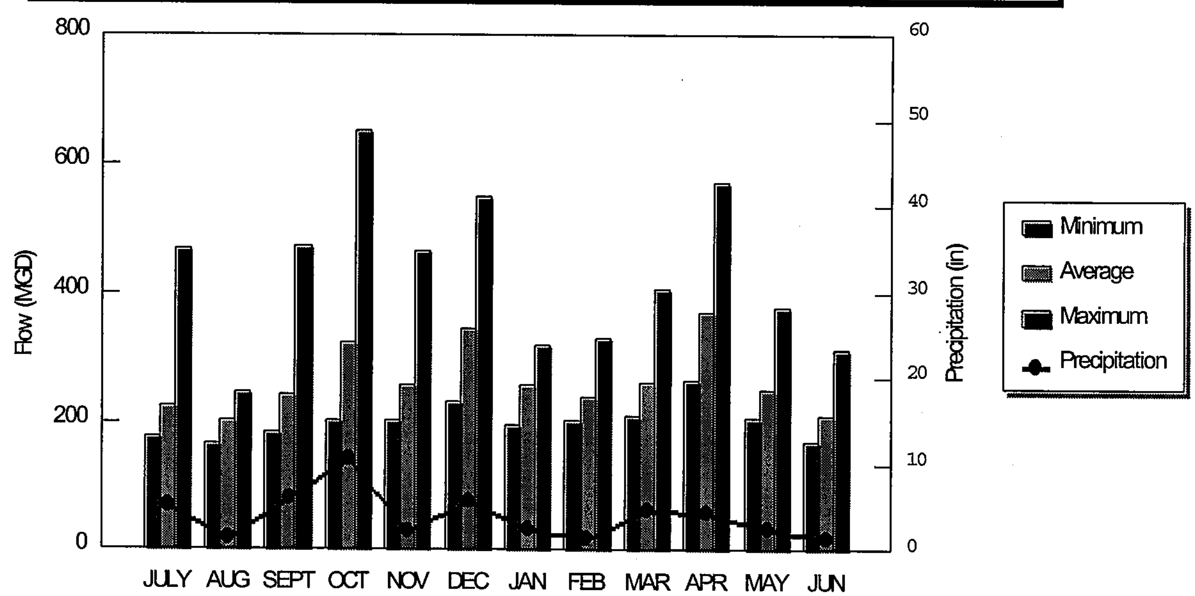
II.A. Monitoring Results

II.A.1. Influent Characteristics

II.A.1.a. Flow

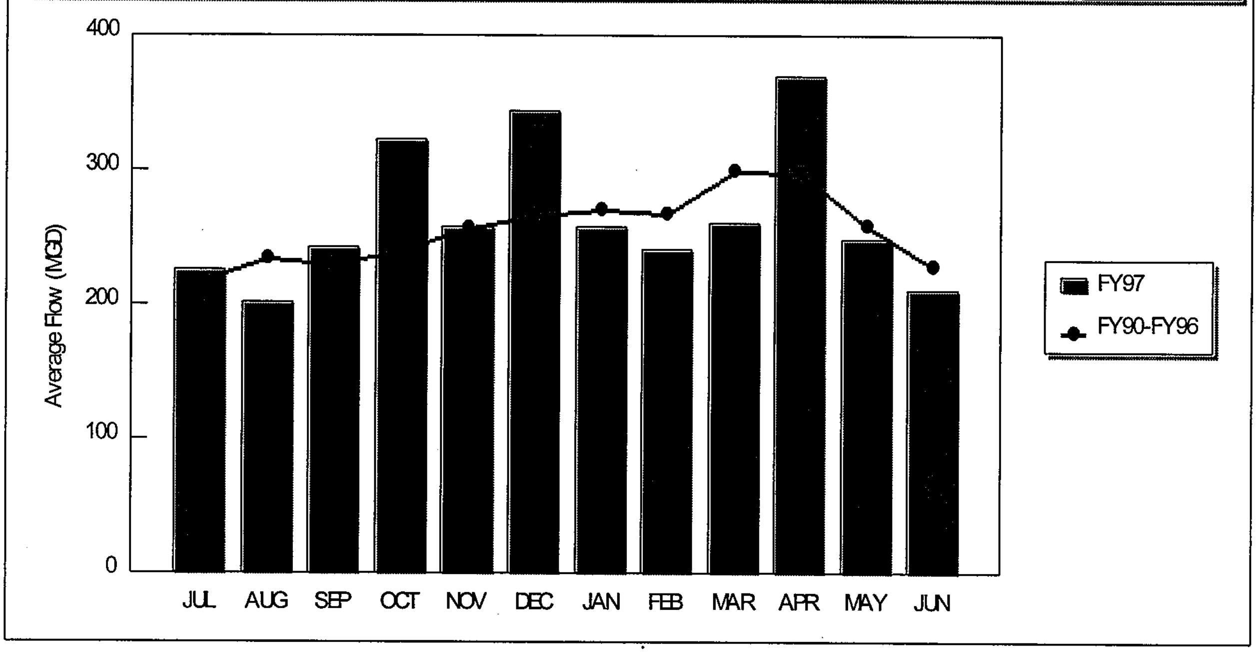
The average flow to the Deer Island plant in FY97 was 265 mgd. Figure II.A.1 shows that the amount of flow to the plant is influenced by precipitation. This occurs because some towns in the North System have combined sewers. The particularly large maximum flows in October, December, and April were caused by extreme storm events during those months.

Figure II.A 1 Deer Island Flows Compared to Precipitation, FY97



This influence causes the treatment plant's flow to follow a seasonal pattern. Figure II.A.2 indicates that FY97 flows followed the same pattern as previous years, with some higher-than average peaks because of the storm events mentioned earlier.

Figure II.A.2 Deer Island FY97 Average Flows Compared to Historical Data



The impact of rainfall on flows can also be seen in Figure II.A.3, which tracks average flow and precipitation over the past 10 years. While yearly flows during this period have stayed essentially at the same level, they have followed the same general trend as the variations in yearly rainfall.

Figure II.A.3 Deer Island Average Daily Flow Compared to Precipitation, FY88-FY97

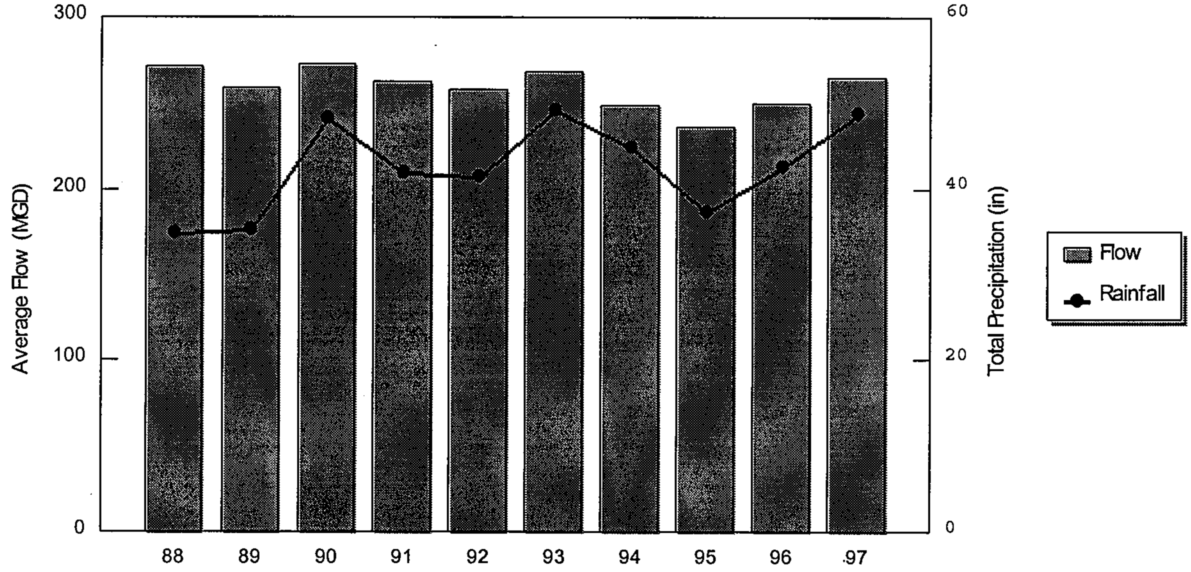
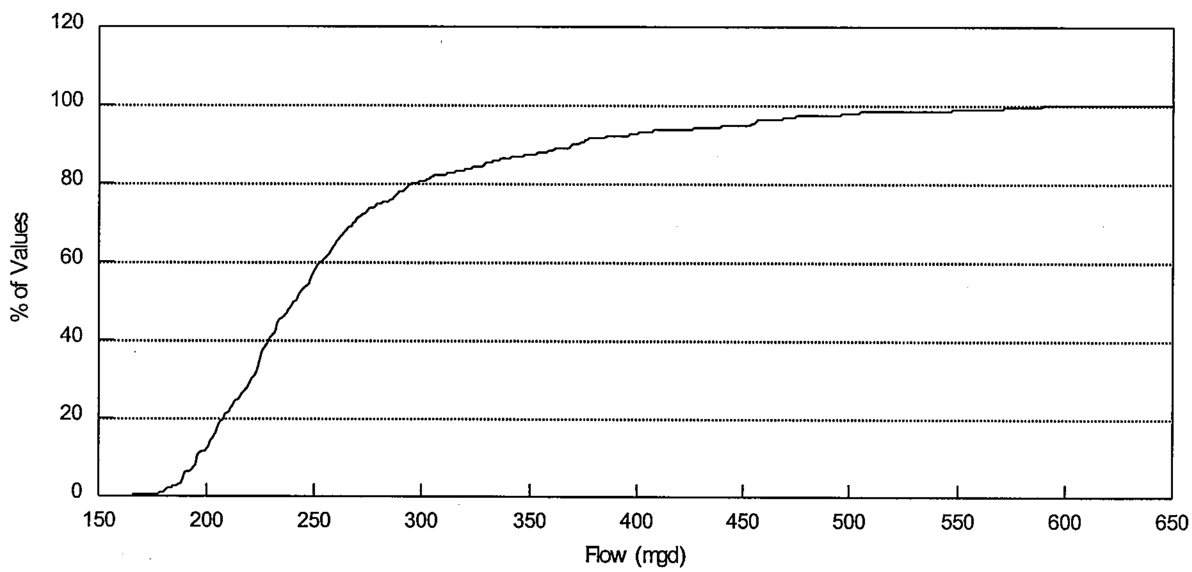


Figure II.A.4 provides a frequency distribution of Deer Island flow in FY97. Flow through the plant was less than 454 mgd 95% of the time.

Figure II.A.4 Frequency Distribution of Deer Island Flow in FY97



II.A.1.b. Conventional Parameters and Nutrients

As Table II.A.1 indicates, the FY97 Deer Island influent can be classified as weak/moderate.[1] A summary of conventional and nutrient concentrations and loadings in Deer Island influent from FY93-FY97 is provided in Table II.A.2.

Table II.A.1 Classification of Deer Island Influent

Parameter	Value	Weak	Medium	Strong
TSS	144	100	200	350
BOD	136	100	200	300
TKN	24.2	20	40	85
Ammonia	13.3	12	25	50

There has been little change in influent characteristics over the past few years. The increase in settleable solids in recent times may have been caused by an increase in the number of heavy storm events. The apparent changes in nutrient concentrations may be caused by a change in sampling location which took place in FY95. It is also questionable how representative the samples and analytical processes were prior to FY95.

II.A.1.c. Priority Pollutants

The results of a complete priority pollutant scan of Deer Island influent can be found in Table A-2 (concentrations) and Table A-3 (loadings) of Appendix A.

For levels below detection limits, one tenth of the quantitation limit was substituted. A discussion of detection and quantitation limits can be found in Appendix K.

FY97 influent loadings for several key metals are compared to historical values in Figure II.A.5. Metals loadings have decreased over the past several years. Causes for the decrease include toxics control measures and corrosion control efforts involving both water supply and wastewater transport.

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

Table II.A.2 Deer Island Influent Characterization, FY93-FY97

PARAMETER	FY97	FY96	FY95	FY94	FY93
Flow (mgd)					
Minimum	167	147	167	171	174
Average	265	250	236	249	266
Maximum	649	526	565	528	628
Total Suspended Solids					
Min Conc (mg/L)	50	56	102	93	121
Ave Conc (mg/L)	144	140	138	137	153
Max Conc (mg/L)	284	432	160	175	193
Average Loading (tons/d)	159	146	136	142	170
Biochemical Oxygen Demand					
Min Conc (mg/L)	39	61	99	99	123
Ave Conc (mg/L)	136	143	140	149	159
Max Conc (mg/L)	311	246	173	175	190
Average Loading (tons/d)	151	149	138	155	176
Settleable Solids					
Min Conc (ml/L)	1.5	0.1	3.5	1.9	1.4
Ave Conc (ml/L)	6.9	7.0	5.6	3.9	3.7
Max Conc (ml/L)	17.0	18.0	7.3	5.6	5.0
Average Loading (tons/d)	7.7	7.3	5.5	4.0	4.1
Oil and Grease					
Min Conc (mg/L)	12	10	17	14	20
Ave Conc (mg/L)	29	34	31	36	43
Max Conc (mg/L)	136	67	37	64	84
Average Loading (tons/d)	33	35	31	37	48

Table II.A.2 Deer Island Influent Characterization, FY93-FY97, cont.

PARAMETER	FY97	FY96	FY95	FY94	FY93
Total Kjeldahl Nitrogen					
Min Conc (mg/L)	8.7	11.6	14.0	11.2	13.9
Ave Conc (mg/L)	24.2	26.3	21.9	21.9	26.9
Max Conc (mg/L)	48.1	56.3	29.1	29.3	44.7
Average Loading (tons/d)	26.8	27.4	21.5	22.7	29.8
Ammonia-Nitrogen					
Min Conc (mg/L)	2.5	6.8	7.3	5.6	6.8
Ave Conc (mg/L)	13.3	15.0	13.7	12.3	13.4
Max Conc (mg/L)	18.6	24.0	18.0	17.9	17.9
Average Loading (tons/d)	14.6	15.6	13.5	12.8	14.9
Nitrates					
Min Conc (mg/L)	0.01	0.01	0.02	0.10	0.13
Ave Conc (mg/L)	0.22	0.14	0.15	0.80	0.70
Max Conc (mg/L)	2.31	1.42	0.59	2.70	2.15
Average Loading (lbs/d)	486	292	295	1661	1553
Nitrites					
Min Conc (mg/L)	0.01	0.01	0.02	0.00	0.02
Ave Conc (mg/L)	0.09	0.07	0.06	0.10	0.06
Max Conc (mg/L)	0.35	1.66	0.19	0.20	0.13
Average Loading (lbs/d)	208	146	118	208	133
Orthophosphorus					
Min Conc (mg/L)	0.13	0.29	1.00	0.40	2.04
Ave Conc (mg/L)	1.49	1.53	2.20	2.30	2.04
Max Conc (mg/L)	2.62	3.19	5.66	5.10	2.04
Average Loading (lbs/d)	3285	3190	4330	4776	4519
Total phosphorus					
Min Conc (mg/L)	1.21	1.54	2.11	0.60	2.63
Ave Conc (mg/L)	3.19	3.42	3.63	4.00	6.04
Max Conc (mg/L)	5.00	4.85	4.79	8.30	9.07
Average Loading (lbs/d)	7051	7131	7145	8307	13399

Figure II.A.5 Deer Island Influent Metals Loadings, FY92-FY97

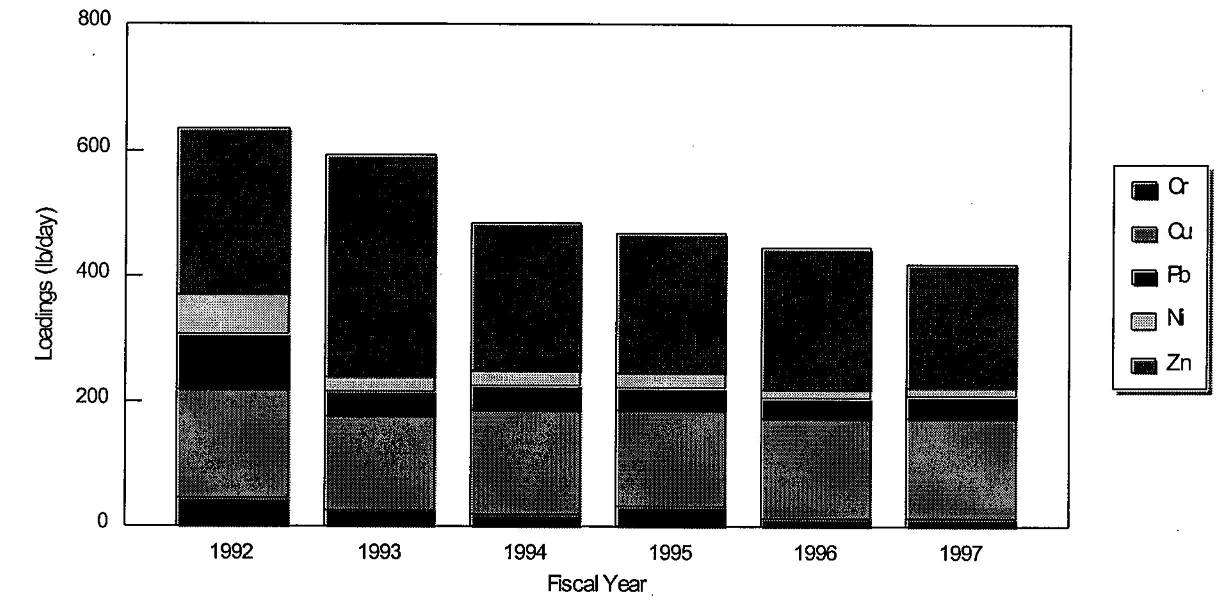
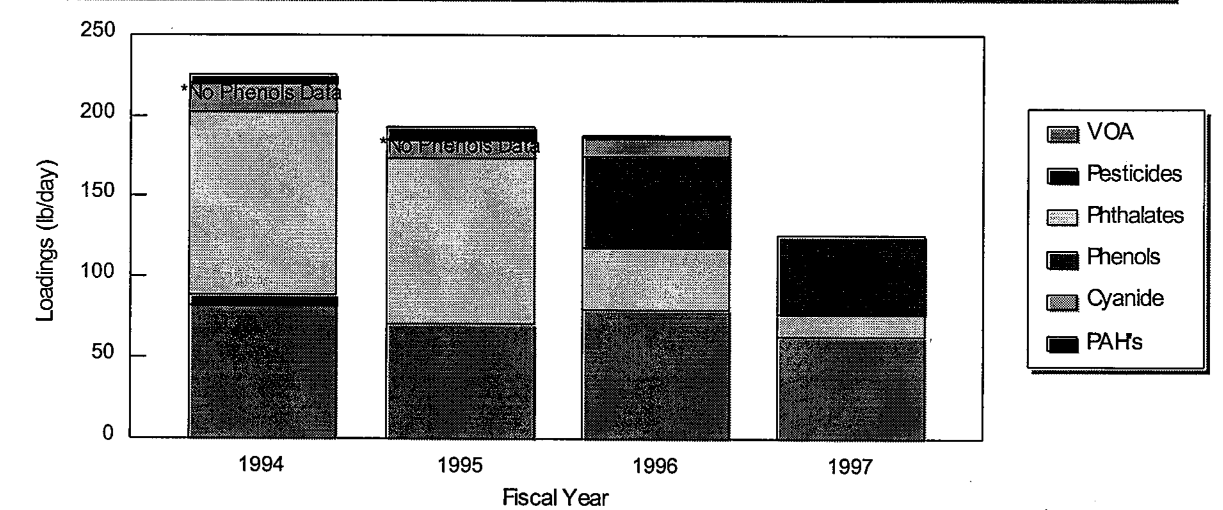


Figure II.A.6 compares influent loadings of organic priority pollutants to previous years. Overall, organics loadings have decreased over the past several years. This may be a result of pollution prevention measures taken by MWRA's Toxics Reduction and Control program and other state programs.

Figure II.A.6 Deer Island Influent Organics Loadings, FY94-FY97



II.A.2. Effluent Characteristics

II.A.2.a. Conventional Parameters

As can be seen in Table II.A.3, the TSS and BOD removal efficiencies of the new treatment plant at Deer Island compare favorably to theoretical removal efficiencies for primary sedimentation.[2] Table II.A.4 summarizes conventional parameters and nutrients in Deer Island effluent over the past five years. A significant drop in several parameters occurred between FY95 and FY96, due to the improved removal efficiency of the new primary treatment plant.

Table II.A.3 Deer Island Removal Efficiency, FY97

	Removal Efficiency	
Parameter	Deer Island	Theoretical
TSS	72%	50-65%
BOD	32%	25-40%

No significant changes in concentrations and loadings of conventional parameters occurred between FY96 and FY97.

[2] Ibid. Page 446.

Table II.A.4 Deer Island Effluent Characterization, FY93-FY97

PARAMETER	FY97	FY96	FY95	FY94	FY93
Flow (mgd)					
Minimum	167	147	167	171	174
Average	265	250	236	249	266
Maximum	649	526	565	528	628
Total Suspended Solids					
Min Conc (mg/L)	16	17	52	65	58
Ave Conc (mg/L)	41	44	65	73	70
Max Conc (mg/L)	100	136	90	86	77
Average Loading (tons/d)	46	46	64	76	78
Biochemical Oxygen Demand					
Min Conc (mg/L)	29	42	85	87	89
Ave Conc (mg/L)	93	98	116	123	128
Max Conc (mg/L)	191	147	138	142	152
Average Loading (tons/d)	103	102	114	128	142
Settleable Solids					
Min Conc (ml/L)	0.1	0.1	0.1	0.1	0.1
Ave Conc (ml/L)	0.2	0.2	0.4	0.5	0.3
Max Conc (ml/L)	1.6	2.0	0.7	0.9	0.5
Average Loading (lbs/d)	460	417	787	1038	666
Oil and Grease					
Min Conc (mg/L)	7	7	17	12	15
Ave Conc (mg/L)	23	24	25	25	27
Max Conc (mg/L)	47	42	30	36	37
Average Loading (tons/d)	26	25	25	26	30

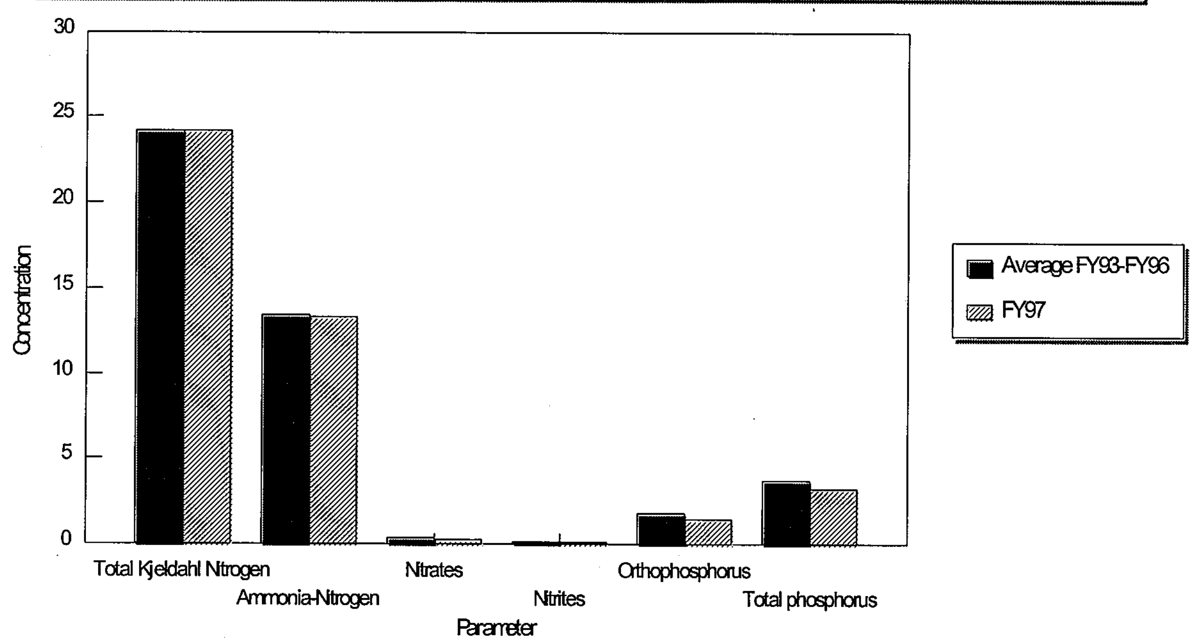
Table II.A.4 Deer Island Effluent Characterization, FY93-FY97 cont.

PARAMETER	FY97	FY96	FY95	FY94	FY93
Total Kjeldahl Nitrogen					
Min Conc (mg/L)	10.9	10.6	13.7	12.8	14.9
Ave Conc (mg/L)	21.9	22.5	23.0	21.7	22.2
Max Conc (mg/L)	27.6	32.5	28.6	32.8	26.2
Average Loading (tons/d)	24	23	23	23	25
Ammonia-Nitrogen					
Min Conc (mg/L)	4.43	5.55	7.28	6.08	7.59
Ave Conc (mg/L)	13.07	14.48	14.43	12.58	12.35
Max Conc (mg/L)	18.00	21.90	19.60	18.51	15.70
Average Loading (tons/d)	14	15	14	13	14
Nitrates					
Min Conc (mg/L)	0.01	0.01	0.03	0.13	0.05
Ave Conc (mg/L)	0.34	0.30	0.08	1.04	0.66
Max Conc (mg/L)	2.58	1.95	0.28	5.98	1.63
Average Loading (lbs/d)	742	626	157	2160	1464
Nitrites					
Min Conc (mg/L)	0.01	0.01	0.02	0.01	0.02
Ave Conc (mg/L)	0.11	0.63	0.08	0.10	0.16
Max Conc (mg/L)	0.62	1.90	0.22	0.26	0.48
Average Loading (lbs/d)	247	1314	157	208	355
Orthophosphorus					
Min Conc (mg/L)	0.48	0.37	0.90	0.48	0.98
Ave Conc (mg/L)	1.68	1.71	2.22	2.15	2.27
Max Conc (mg/L)	2.71	3.01	3.39	4.09	3.59
Average Loading (lbs/d)	3709	3565	4369	4465	5036
Total phosphorus					
Min Conc (mg/L)	1.12	1.43	2.11	1.19	2.03
Ave Conc (mg/L)	2.94	2.92	3.35	2.92	3.64
Max Conc (mg/L)	3.98	4.13	4.35	5.18	4.71
Average Loading (tons/d)	3	3	3	3	4

II.A.2.b. Nutrients

A summary of nutrient concentrations in Deer Island effluent from FY90-FY97 is provided in Figure II.A.7. There have not been any major changes in nutrient concentrations over the past several years. The introduction of the new treatment plant did not affect nutrient concentrations because primary treatment does not remove nutrients.

Figure II.A.7 Deer Island Effluent Nutrient Concentrations, FY93-FY97



II.A.2.c. Priority Pollutants

A summary of priority pollutant concentrations and loadings in Deer Island effluent for FY97 is provided in Appendix A, Tables A-4 and A-5. Metals loadings over the past eight years are summarized in Figure II.A.8, while organic pollutants from FY94-FY97 are graphed in Figure II.A.9. As can be expected with primary treatment, generally the same metals and other priority pollutants were detected in the effluent as were found in the influent. The gradual decrease in loadings over the past few years reflects the decrease in loadings in the influent during the same time period.

Figure II.A.8 Deer Island Effluent Mean Metals Loadings, FY89-FY97

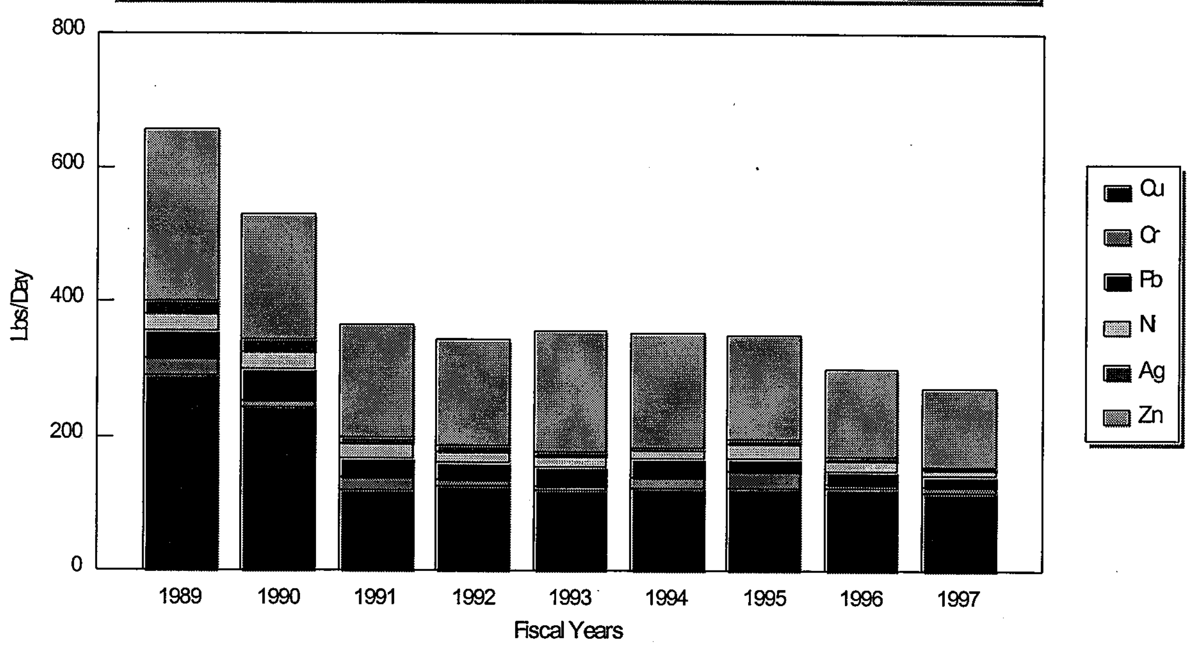
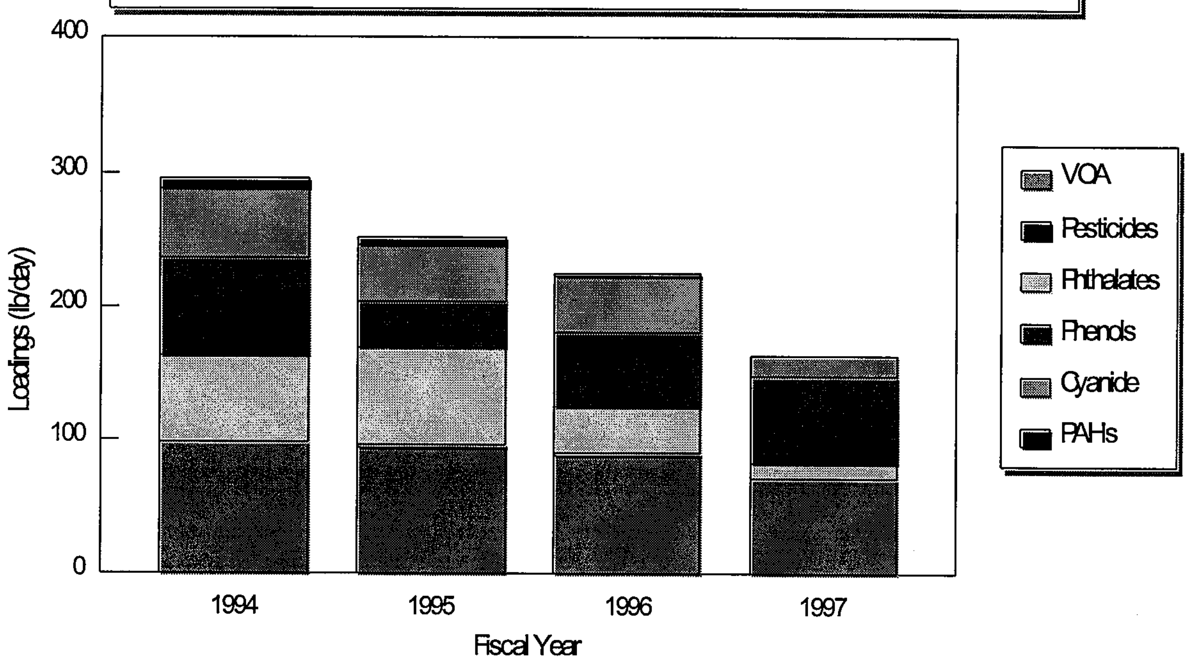


Figure II.A.9 Deer Island Effluent Organics Loadings, FY94-FY97



II.A.2.d. Whole Effluent Toxicity

MWRA tests effluent toxicity every month at the Deer Island and Nut Island treatment plants. Effluent toxicity provides an overall view of the quality of the effluent. Beginning in March of 1997, a new laboratory took over the toxicity testing contract. Changes in toxicity results since then do not reflect changes in toxicity; they reflect inter-laboratory variation. In 1989 the EPA found that the probable cause of most acute toxicity in Deer Island's wastestream was the presence of surfactants. Surfactants remain the primary source of toxicity in the wastestream.

Surfactants are most commonly used in household detergents to improve cleansing power. They are highly biodegradable and will be broken down quickly during secondary treatment. No acute toxicity could be attributed to metals or pesticides.

MWRA is required to use three tests for effluent toxicity. An acute static toxicity test is performed using mysid shrimp *(Mysidopsis bahia)*. A chronic survival and growth test uses the sheepshead minnow *(Cyprinodon variegatus)* and a chronic reproduction test uses red algae *(Champia parvula)*. The results of these tests can be found in Table II.A.5.

The results for the sheepshead minnow *(Cyprinodon)* test were in compliance with the NPDES permit limits 83% of the time at Deer Island. The mysid acute test was in compliance 75% of the time. Concentrations of surfactants in the effluent from the plant are consistent with concentrations which could cause mysid toxicity. The results of the red algae *(Champia)* test were in compliance 9% of the time. Due to questions regarding the sensitivity and reliability of the red algae test, EPA Region I is withdrawing it as a test species in future permits.

Table II.A.5 Deer Island, Results of Toxicity Testing, FY97					
	Mysid acute		Cyprinodon chronic		Champia chronic
			Survival	Growth	
	LC50	NOEC	NOEC	NOEC	NOEC
Limits (%)	None	20	10	10	10
July	30	10	60	60	0.2
August	29	10	40	40	2
September	26	10	20	20	0.7
October	41	20	40	40	2
November	35	20	40	40	7
December	65	50	60	60	2
January	32	20	20	20	2
February	49	20	20	20	0.7
March	85	20	20	20	*
April	76	50	60	60	2
May	72	50	60	<5	10
June	71	20	<5	<5	<0.2
Average	51	25	37	33	2.4
Violations		3	1	2	10

II.A.2.e. Bioaccumulation

Bioaccumulation studies measure the potential for long-term build up of pollutants in aquatic species. In the summer of 1996 MWRA conducted a mussel bioaccumulation study for Deer Island effluent designed to be comparable to studies conducted in 1987 and 1991 to 1995. The results of this study, which can be found in Table II.A.6, indicate substantially higher tissue concentrations of numerous contaminants than recently observed.

Mussels were collected in Gloucester for organics analyses and Barnstable for metals analyses and deployed at the Deer Island effluent discharge, at the proposed offshore discharge site in Massachusetts Bay (for pre-discharge baseline data), and at the New England Aquarium in Boston's Inner Harbor (dirty control). Mussels from two locations were used because historical data suggest that metals in Gloucester mussels and organics in Barnstable mussels are higher than background levels should be for this type of testing. At the start of the study, tissue from the Gloucester mussels was analyzed for PAHs, PCBs, and organochlorine pesticides.

Barnstable mussels were analyzed for mercury and lead. After 60 days, mussels deployed at Deer Island showed significant bioaccumulation of PAHs, PCBs, DDTs, dieldrin, alpha-chlordane, trans-nonachlor, and lead. The increase in contaminant levels observed at Deer Island in 1996 may reflect the higher lipid content of the mussels as compared to recent years. Organic contaminants are lipophilic, meaning they preferentially bioaccumulate in lipid-rich tissue. A concentrated effort is currently underway in order to better understand the 1996 increases. Only low molecular weight PAHs, which make up 90% of the PAHs in the Deer Island discharge, have shown a steady decrease since 1987. As in earlier years, mussels deployed at the Aquarium in FY96 had body burdens of contaminants which were significantly greater than those at Deer Island.

Table II.A.6 Concentrations of Contaminants Bioaccumulating in Boston Harbor Mussels

	Pre-Deployment*	Clean Control*	Dirty Control*	Deer Island	Nut Island
Lead (ug/g)					
1987	2.8	3.1		6.7**	8.3**
1991	6.5	5	6.4	5.9	
1993	5.1	3.7**		5.9	
1994	8.6	4.8**	6.7	9.1	
1995	6.1	DL	8.5**	8	
1996	2.9	1.6	9.4**	6.3**	
Mercury (ug/g)					
1993	0.39	0.10**		0.18**	
1994	0.26	0.13	0.16	0.21	
1995	0.064	DL	0.068	0.056	
1996	0.13	0.15	0.13	0.15	
Total PCB's (ng/g)					
1987	317	227		630**	604**
1991	77	77	477**	199**	
1992	65	44**	652**	133**	
1993	AP	110	596**	321**	
1994	107	89	500**	161**	
1995	94	dl	441**	172**	
1996	160	102	538**	273**	
Total DDT's (ng/g)					
1987	52	30		63	51
1991	28	28	94**	48**	
1992	15	12	103**	25**	
1993	AP	30	130**	63**	
1994	27	19	86**	50**	
1995	29	DL	92**	45**	
1996	58	30	119**	85**	
Alpha - Chlordane (ng/g)					
1987	8.7	6.7		21.5**	19.5**
1991	2.4	2.5	19.0**	10.3**	
1992	1.9	1.7	19.0**	6.9**	
1993	2.9	3.8	10.5**	8.2**	
1994	3.5	3.6	12.8**	13.8**	
1995	2.6	DL	11.7**	7.5**	
1996	4.8	3	15.8**	20.0**	
Dieldrin (ng/g)					
1987	6.6	3.6		11.4	7.6
1991	<1.4	2.3	9.0**	2.9	
1992	<1.0	1.2	6.7**	2.7	
1993	<2.9	2.2	4.5**	34	
1994	<1.2	2	15.6**	10.4**	
1995	1.5	DL	6.9**	3.2**	
1996	0.5	1.7	9.3**	5.6**	

Table II.A.6 Concentrations of Contaminants Bioaccumulating in Boston Harbor Mussels, cont.

	Pre-Deployment*	Clean Control*	Dirty Control*	Deer Island	Nut Island
Lindane (ng/g)					
1987	1.8	0.8		5.5	0.8
1991	<1.5	<2.2	<3.2	<2.5	
1992	<1.0	<1.0	<1.9	<1.3	
1993	AP	<1.7	2.3	2.7	
1994	<.9	<0.6	<2.2	1.6	
1995	0.7	DL	1.3	1	
1996	0.3	0.6	0.3	0.3	
Trans-Nonachlor (ng/g)					
1987	7.7	6.2		18.0**	
1991	<1.4	<1.5	<2.5	8.9**	
1992	2.1	2.5	21.3**	8.3**	
1993	4.8	4.0	11.0**	10.7**	
1994	4.0	3.8	11.0**	11.2**	
1995	0.6	DL	9.0**	4.2**	
1996	5	4.0	13.8**	17.0**	
Total PAH's (ng/g)					
1987	581	465		2344**	683
1991	217	228	2570**	1207**	
1992	216	129**	3545**	1934**	
1993	188	166	1321**	665**	
1994	264	122	2255**	848**	
1995	214	DL	1444**	761**	
1996	402	142**	2500**	1230**	
LMW PAH's (ng/g)					
1987				1221	
1991	113	74	239**	516**	
1992	80	61	199**	427**	
1993	66	66	110	169**	
1994	106	61	79	217**	
1995	105	DL	206**	340**	
1996	195	70	268	431**	
HMW PAH's (ng/g)					
1987				1123	
1991	104	154	2330**	691**	
1992	136	69	3347**	1507**	
1993	122	101	1210**	496**	
1994	158	61	2174**	631**	
1995	109	DL	1238**	421**	
1996	207	70	2233**	799**	

Hexachlorobenzene, heptachlor, aldrin, heptachlor epoxide, and mirex not detected or detected near detection limit.

* Mussels collected from Barnstable in 1987 and Gloucester in 1991 to 1995. Clean Control in proposed offshore discharge in 1987, 1992, to 1995 and in Gloucester in 1991. Dirty control at New England Aquarium. In 1987 mussells deploy for 30 days; in 1992-1994 for 60 days and in 1995 for 50 days

** Statistically different (p<.05) from pre-deployment
DL - Deployment lost to entanglement with fishing gear
AP Analytical Problems - No Data

II.B. Discussion

II.B.1. Compliance with Regulatory Limits

MWRA currently operates under a court order which provides interim discharge limits for the existing Deer and Nut Island treatment plants. Plant performance at Deer Island is compared to regulatory limits in Table II.B.1 and Figures II.B.1 through II.B.6. The only violations of regulatory limits in FY97 were for toxicity testing (see Table II.A.5).

Table II.B.1 Deer Island Effluent Quality Compared to Regulatory Limits

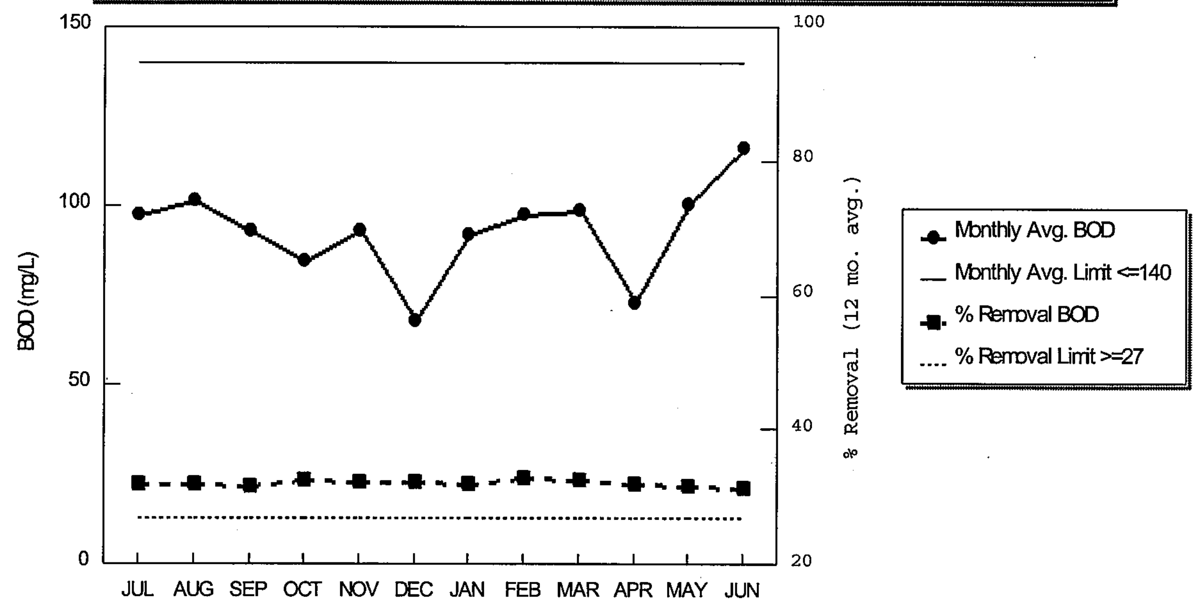
Parameter	Regulatory Limits*	Range of Values Exceeding Limits	No of Violations
Biochemical Oxygen Demand			
Mo Ave (mg/L)	140		0
Dly Max (mg/L)	200		0
12-mo running removal rate (%)	27		0
Total Suspended Solids			
Mo Ave (mg/L)	110		0
Dly Max (mg/L)	180		0
12-mo running removal rate (%)	38		0
Settleable Solids (ml/L)	2.8		0
Fecal Coliform (#/100 mL)	200		0
Total Coliform (#/100 mL)	1000		0
pH	6.5 - 8.5		0
PHCs Effluent Dly. Max (mg/L)	15		0
Toxicity	@		16
	Total Number of Violations		16

* Except for removal rates, the effluent quality must be equal or less than limits. Removal rates must be equal or greater than limits

@ See Table II.A.5

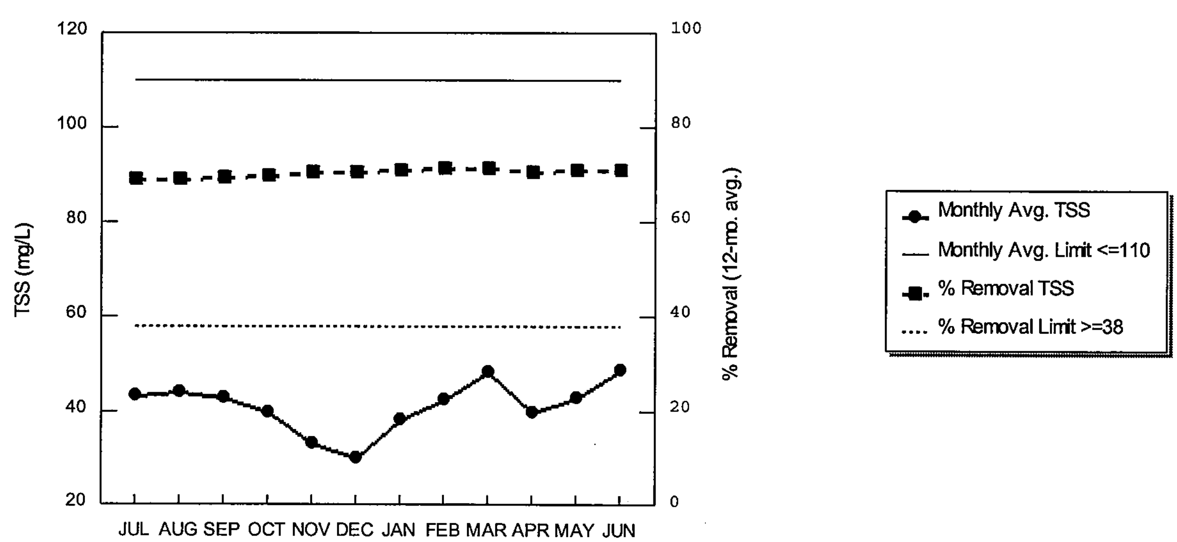
For biochemical oxygen demand (BOD), limits are placed on the monthly average concentration and on the removal rate. The removal rate limit is for a 12-month running average of removal rates, rather than for the individual month's removal rate.

Figure II.B.1 Deer Island Treatment Plant Effluent BOD Trend Analysis, FY97



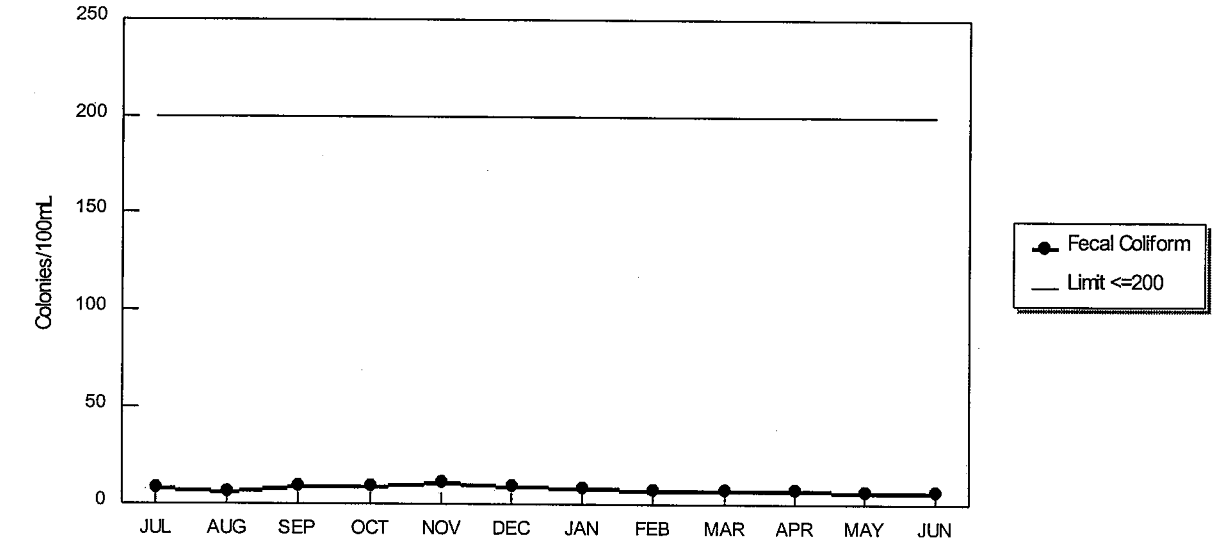
Total suspended solids, or TSS, are also limited for both average concentration and 12-month removal rate.

Figure II.B.2 Deer Island Treatment Plant Effluent TSS Trend Analysis, FY97



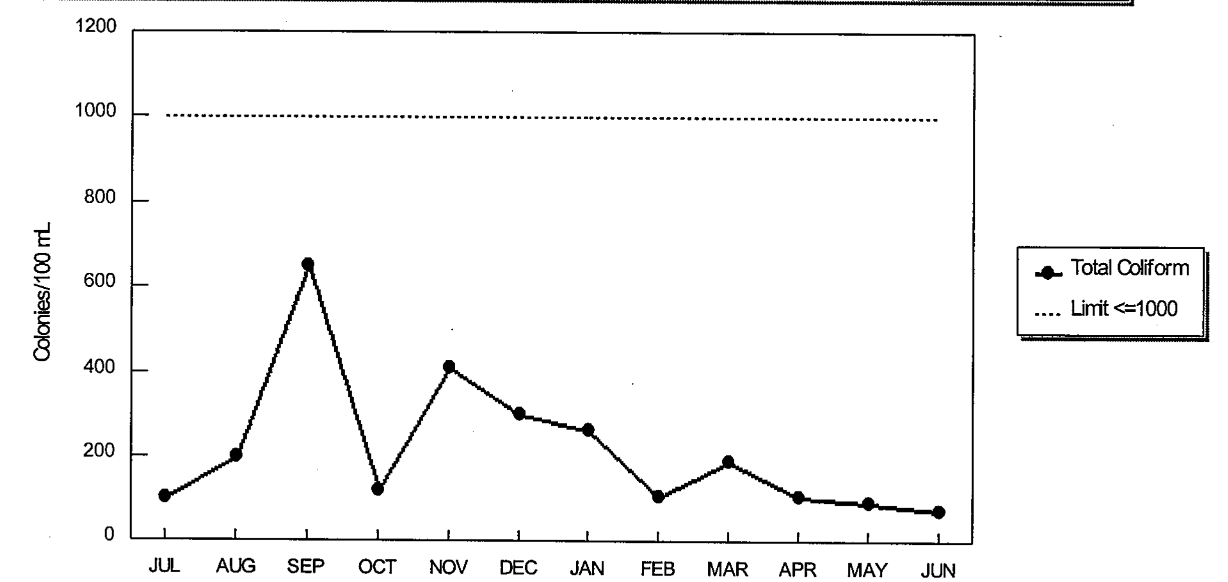
For fecal coliform, the monthly geometric mean of the count has a limit of 200 colonies/100 ml. The results for Deer Island were far below this limit.

Figure II.B.3 Deer Island Treatment Plant Effluent Fecal ColiformTrend Analysis, FY97



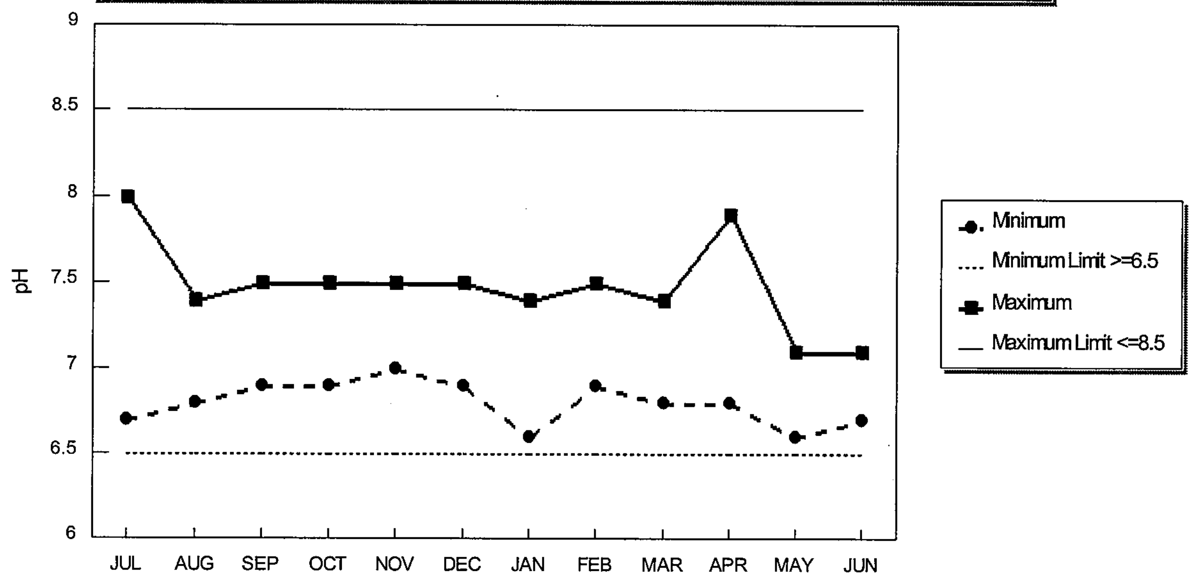
Likewise, total coliform counts were well below the limit of 1000 colonies/100 ml.

Figure II.B.4 Deer Island Treatment Plant Effluent Total Coliform Trend Analysis, FY97



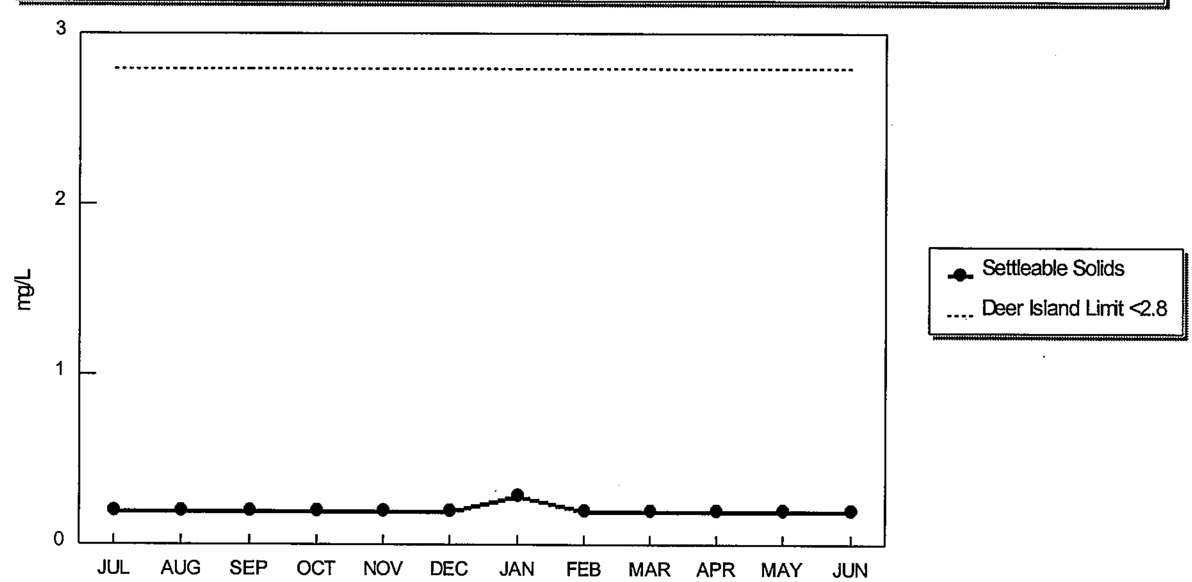
The limits for pH are based on the maximum and minimum values for each month, with pH required to always fall between 6.5 and 8.5.

Figure II.B.5 Deer Island Treatment Plant Effluent pH Trend Analysis, FY97



There is also a maximum limit for settleable solids. Concentrations in Deer Island effluent were well below this limit.

Figure II.B.6 Deer Island Treatment Plant Effluent Settleable SolidsTrend Analysis, FY97



II.B.2. Effluent Quality Compared to Water Quality Standards

Concentrations of priority pollutants in Deer Island effluent are compared to water quality criteria in Table II.B.2. The majority of priority pollutant parameters were found to be below detection levels. Those that were detected had relatively low concentrations. Of the priority pollutant metals detected, all except chromium in Deer Island's effluent decreased from FY96 levels. The increase in the average chromium concentration was the result of one high value in January 1997. The atypical result was an order of magnitude higher than the yearly average result. Although a laboratory quality assurance review verified that the sample was analyzed correctly, it is likely that the sample did not accurately represent average effluent conditions -- especially since the influent result for chromium was less than the effluent result on the day in question. Since nickel and zinc were also elevated in the effluent on this day, it is possible that the sample and/or the effluent was contaminated as a result of ongoing construction activities.

Table II.B.2 Comparison of Deer Island Treatment Plant with Water Quality Criteria, FY97

Parameter	Effluent Max. Conc. (ug/L)	Effluent Avg. Conc. (ug/L)	Times Detected	Acute Criterion (ug/L)	Max. Conc.: Acute Criterion	Chronic Criterion (UG/L)	Avg. Conc.: Chronic Criterion
Arsenic	3.2	1.18	4 of 86	69.00	<1	36	<1
Copper	93.2	50.21	70 of 70	2.90	32	2.9	17
Cyanide	25.3	7.4	6 of 36	1.00	25	1	7
Heptachlor	0.01	0.003	1 of 76	0.05	<1	0.0036	<1
Lead	16.9	7.38	86 of 92	220.00	<1	8.5	<1
Mercury	0.621	0.1006	72 of 86	2.10	<1	0.03	3
Nickel	38	4.46	62 of 87	75.00	<1	8.3	<1
Silver	4.2	2.04	78 of 88	2.30	1	NA	NA
Zinc	97.8	52.11	89 of 89	95.00	2	86	<1

II.B.3. Pollutants of Concern

While the majority of priority pollutants measured had concentrations below detection levels, the concentrations of copper and cyanide were high enough to violate water quality criteria.

Copper

Copper concentrations were high enough to cause concern. The dilution required to meet the acute criterion was 32, while the critical dilution needed to meet the chronic criterion was 17. It is believed that most of the copper entering the sewer system comes from households where an acidic water supply leaches copper from copper pipes.

Cyanide

The critical dilutions to meet the acute and chronic criteria for cyanide were 25 and 7. Past issues regarding the accuracy of cyanide results appear to have been resolved. After a thorough investigation, staff at MWRA's Central Laboratory determined that dechlorinating effluent samples with ascorbic acid occasionally results in positive interferences for cyanide. EPA laboratory specialists concur with this assessment. In the past, MWRA staff were puzzled because cyanide was rarely detected in the influent to the treatment plants, but it was often detected in significant concentrations in the effluent. When cyanide is detected in the influent, it is usually during periods of pre-chlorination. Samples are now dechlorinated with an agent other than ascorbic acid.

III. Nut Island Treatment Plant

This chapter presents and discusses monitoring information for the Nut Island Treatment Plant. The characteristics examined include flow, conventional parameters, nutrients, priority pollutants (metals, cyanide, pesticides/PCBs, and organic compounds), and whole effluent toxicity.

III.A. Monitoring Results

III.A.1. Influent Characteristics

III.A.1.a. Flow

The average flow to the Nut Island treatment plant in FY97 was 148 mgd.

Figure III.A.1, which compares flow to precipitation, shows the influence of precipitation on the monthly average flow. As at Deer Island, the maximum flows were large in October, December, and April due to the storm events during those months.

Figure III.A.1 Nut Island Flows Compared to Precipitation, FY97

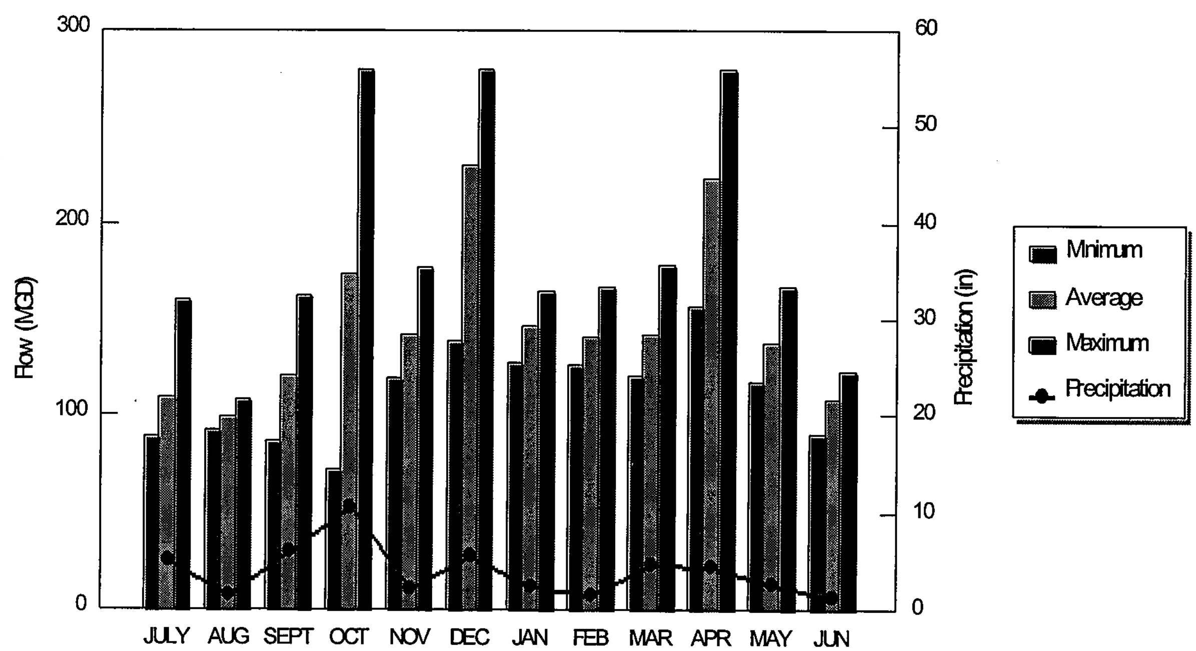


Figure III.A.2 compares monthly Nut Island flows in FY97 with historical averages. As was the case with Deer Island, flows followed the same seasonal pattern as previous years, but were higher than average in October, December, and April because of the storms.

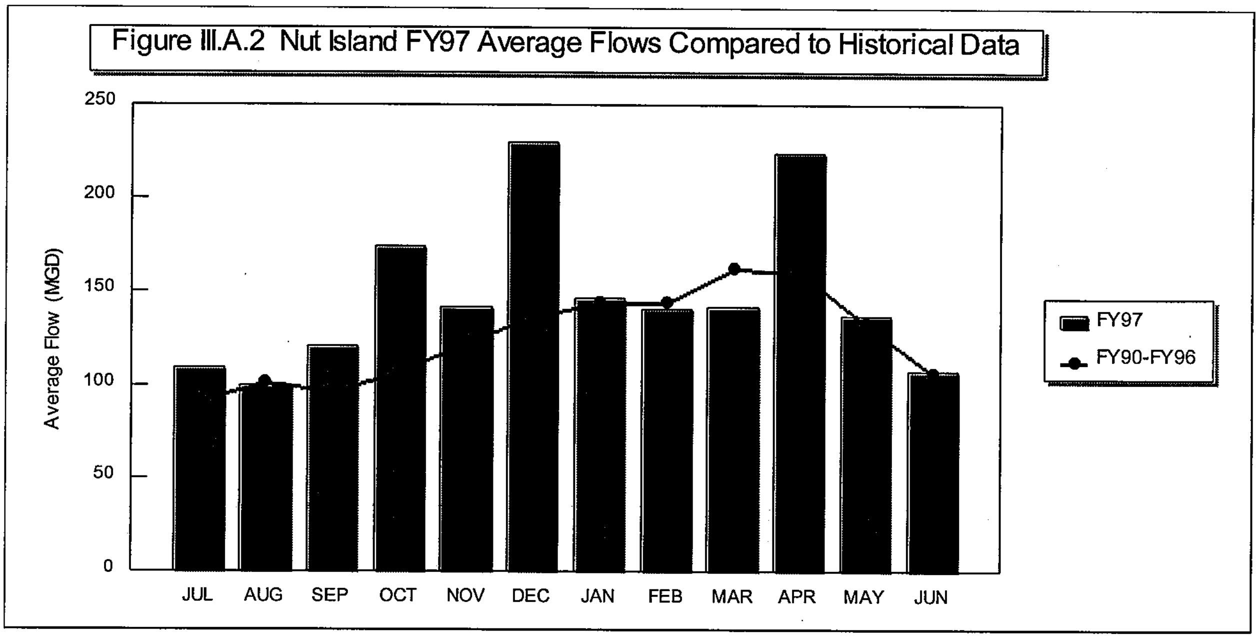
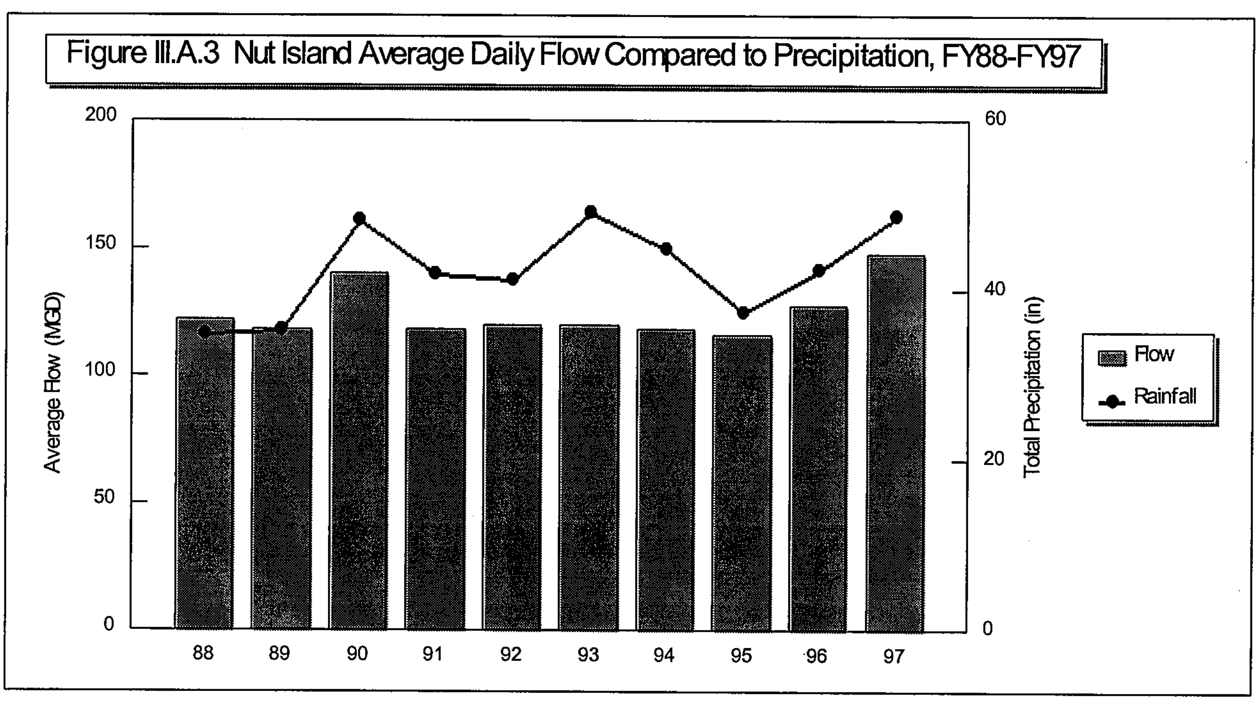


Figure III.A.3 tracks average flow and precipitation over the past 10 years. Yearly flows have followed the same general trend as the variations in rainfall during this period.



III.A.1.b. Conventional Parameters and Nutrients

As can be seen in Table III.A.1, Nut Island influent can be classified as weak to medium. A summary of conventional and nutrient concentrations and loadings in Nut Island influent from FY93-FY97 is provided in Table III.A.2. There has been little change in influent characteristics over the past few years.

Table III.A.1 Classification of Nut Island Influent

Parameter	Value	Weak	Medium	Strong
TSS	126	100	200	350
BOD	109	100	200	300
TKN	28	20	40	85
Ammonia	17	12	25	50

III.A.1.c. Priority Pollutants

Priority pollutant concentrations in Nut Island effluent can be found in Table B-2 of Appendix B, while loadings are in Table B-3.

As with the Deer Island results, for levels below detection limits one tenth of the quantitation limit was substituted. A discussion of detection and quantitation limits can be found in Appendix K.

FY97 influent metals loadings for several key metals are compared to historical values in Figure III.A.4. While metals loadings have decreased since FY92, there was a slight increase in loadings from FY96 to FY97, possibly caused by discharge from the Fore River pelletizing plant.

Figure III.A.4 Nut Island Influent Metals Loadings, FY92-FY97

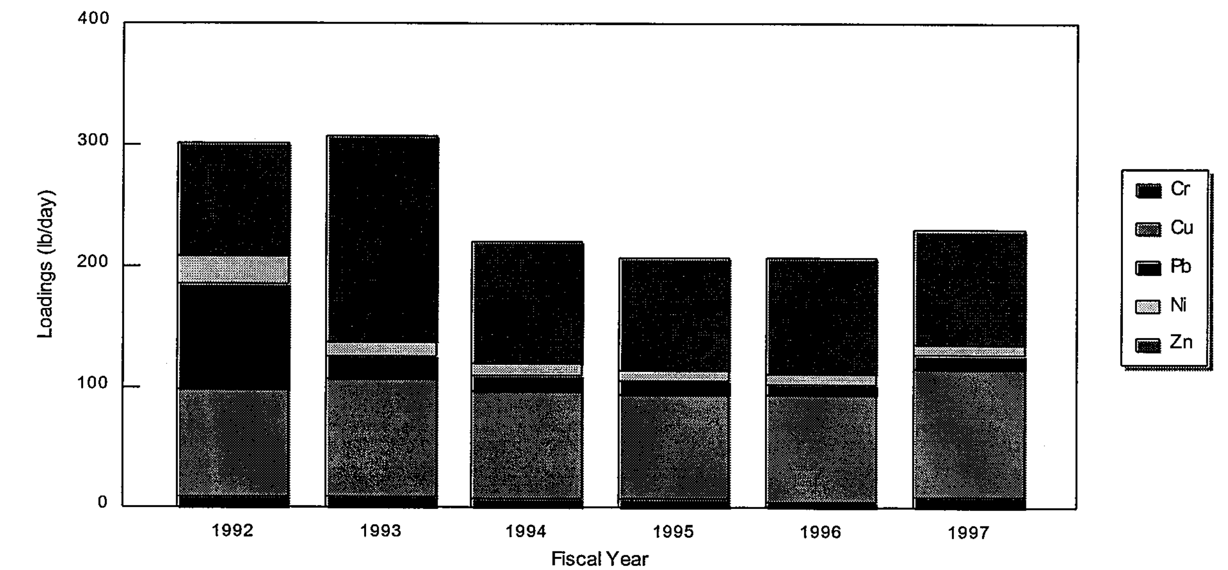


Figure III.A.5 compares influent loadings of organic priority pollutants to previous years. Organics loadings decreased from FY96 to FY97. There was probably a decrease in the preceding two years as well, but that cannot be seen in this graph because there were no data available on phenols in FY94 and FY95.

Figure III.A.5 Nut Island Influent Organics Loadings, FY94-FY97

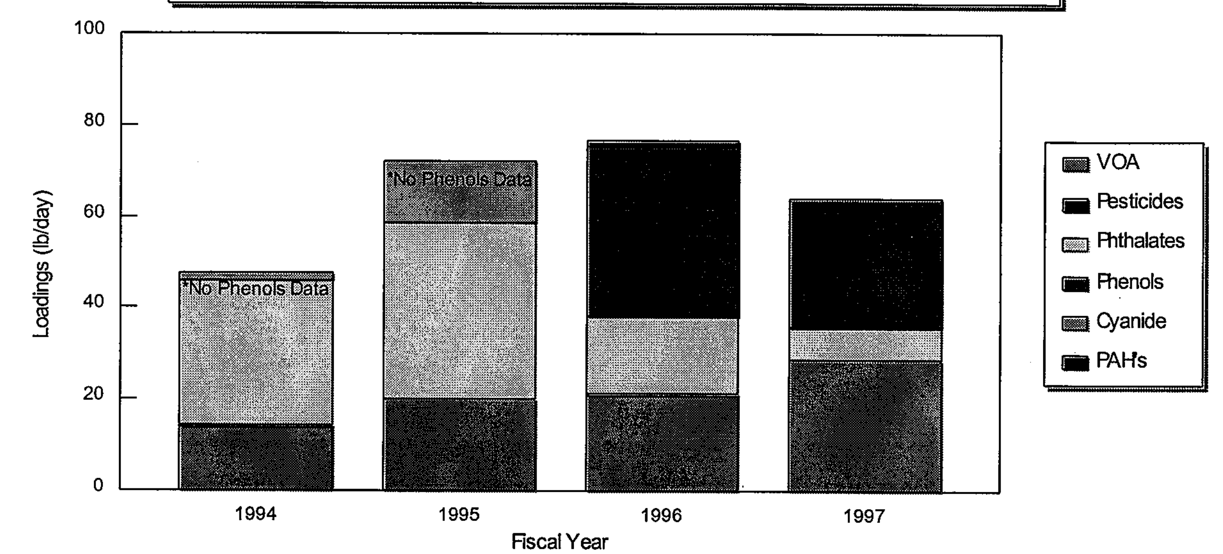


Table III.A.2 Nut Island Influent Characterization, FY93-FY97

PARAMETER	FY97	FY96	FY95	FY94	FY93
Flow (MGD)					
Minimum	73	40	70	47	50
Average	148	127	111	123	129
Maximum	280	260	211	315	262
Total Suspended Solids					
Minimum (mg/L)	12	18	111	122	112
Average (mg/L)	126	154	158	227	174
Maximum (mg/L)	450	496	209	354	206
Average Loading (tons/d)	78	82	73	116	94
Biochemical Oxygen Demand					
Minimum (mg/L)	28	22	100	97	122
Average (mg/L)	109	131	148	171	177
Maximum (mg/L)	263	256	212	247	251
Average Loading (tons/d)	67	69	69	88	95
Settleable Solids (ml/L)					
Minimum	1.0	2.0	3.8	2.7	5.1
Average	6.2	8.8	6.2	7.5	8.0
Maximum	12.0	40.0	11.1	19.8	10.5
Average Loading (tons/d)	4	5	3	4	4
Oil and Grease (mg/L)					
Minimum	14	23	15	6	11
Average	30	32	28	31	35
Maximum	57	40	38	115	59
Average Loading (tons/d)	18	17	13	16	19
Total Kjeldahl Nitrogen					
Min Conc (mg/L)	14.20	9.38	9.80	10.08	10.57
Ave Conc (mg/L)	28.03	25.27	24.45	22.84	19.40
Max Conc (mg/L)	42.60	44.80	33.80	34.79	25.20
Average Loading (tons/d)	17	13	11	12	10

Table III.A.2 Nut Island Influent Characterization, FY93-FY97 cont.

PARAMETER	FY97	FY96	FY95	FY94	FY93
Ammonia-Nitrogen					
Min Conc (mg/L)	9.22	4.28	5.32	2.24	5.01
Ave Conc (mg/L)	17.28	15.73	14.52	10.06	13.66
Max Conc (mg/L)	28.00	34.10	23.10	20.44	20.07
Average Loading (tons/d)	11	8	7	5	7
Nitrates					
Min Conc (mg/L)	<.01	< 0.01	0.03	0.00	0.00
Ave Conc (mg/L)	0.02	0.52	0.23	0.20	0.21
Max Conc (mg/L)	0.19	1.93	0.91	0.51	0.58
Average Loading (lbs/d)	30	551	213	205	230
Nitrites					
Min Conc (mg/L)	<.01	< 0.01	0.03	0.00	*
Ave Conc (mg/L)	0.02	0.37	0.06	0.05	*
Max Conc (mg/L)	0.15	1.31	0.15	0.09	*
Average Loading (lbs/d)	27	392	56	51	
Orthophosphorus					
Min Conc (mg/L)	0.78	0.29	0.85	0.10	*
Ave Conc (mg/L)	1.39	1.39	2.16	1.64	*
Max Conc (mg/L)	1.98	3.30	3.93	2.70	*
Average Loading (lbs/d)	1717	1472	2000	1682	
Total phosphorus					
Min Conc (mg/L)	1.37	1.22	2.20	0.90	1.83
Ave Conc (mg/L)	3.63	3.59	4.60	2.97	3.22
Max Conc (mg/L)	5.28	6.85	13.57	4.60	3.99
Average Loading (tons/d)	2	2	2	2	2

* Not Analyzed

III.A.2. Effluent Characteristics

III.A.2.a. Conventional Parameters

Nut Island removal efficiencies were compatible with theoretical removal efficiencies for primary treatment, as indicated in Table III.A.3. Monitoring results for Nut Island conventional parameters and nutrients over the past five years are summarized in Table III.A.4. There were no significant changes in conventional parameters compared to past years.

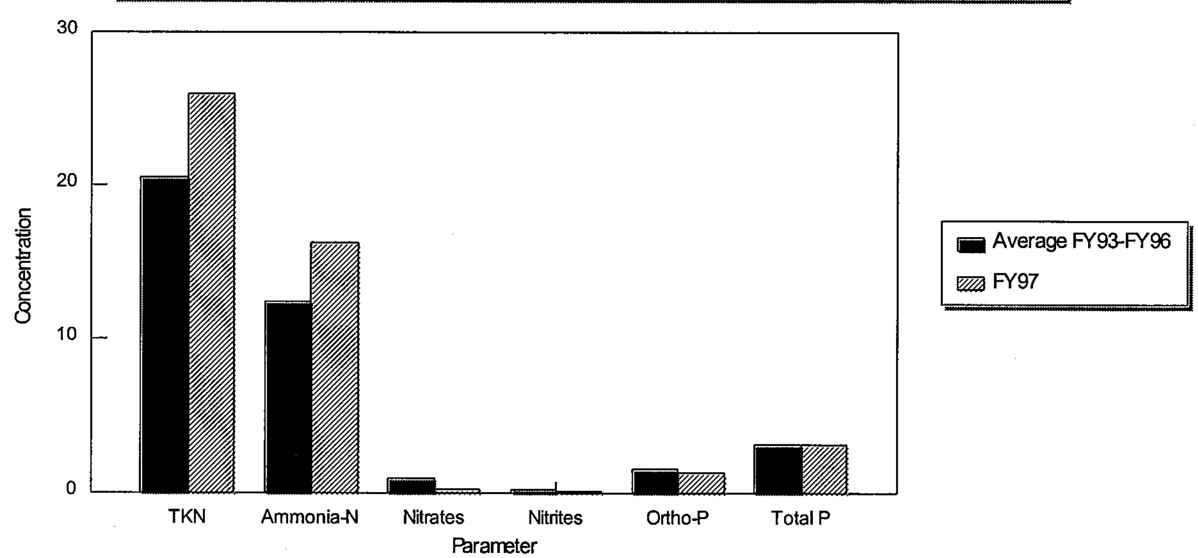
Table III.A.3 Nut Island Removal Efficiency, FY97

	Removal Efficiency	
Parameter	Nut Island	Theoretical
TSS	51%	50-65%
BOD	28%	25-40%

III.A.2.b. Nutrients

A comparison of nutrient concentrations in Nut Island effluent in FY97 to previous years is presented in Figure III.A.6. While most nutrients have shown little change in the past few years, ammonia has increased significantly. This increase has been gradual, with concentrations going up 1-3% per year. This has most likely been caused by increasing use of the Fore River pelletizing plant, which discharges wastewater containing ammonia to the Nut Island treatment facility.

Figure III.A.6 Nut Island Effluent Nutrient Concentrations, FY93-FY97



III.A.2.c. Priority Pollutants

Tables B-4 and B-5 in Appendix B summarize priority pollutant concentrations and loadings in Nut Island effluent for FY97 . Metals loadings over the past eight years are plotted in Figure III.A.7. Figure III.A.8 contains information on organic priority pollutants from FY94-FY97. As in the Deer Island results, generally the same metals and other priority pollutants were detected in the effluent as were found in the influent. The slight rise in effluent metals in recent years reflects changes in the influent, as does the decrease in organics loadings.

Figure III.A.7 Nut Island Effluent Mean Metals Loadings FY89-FY97

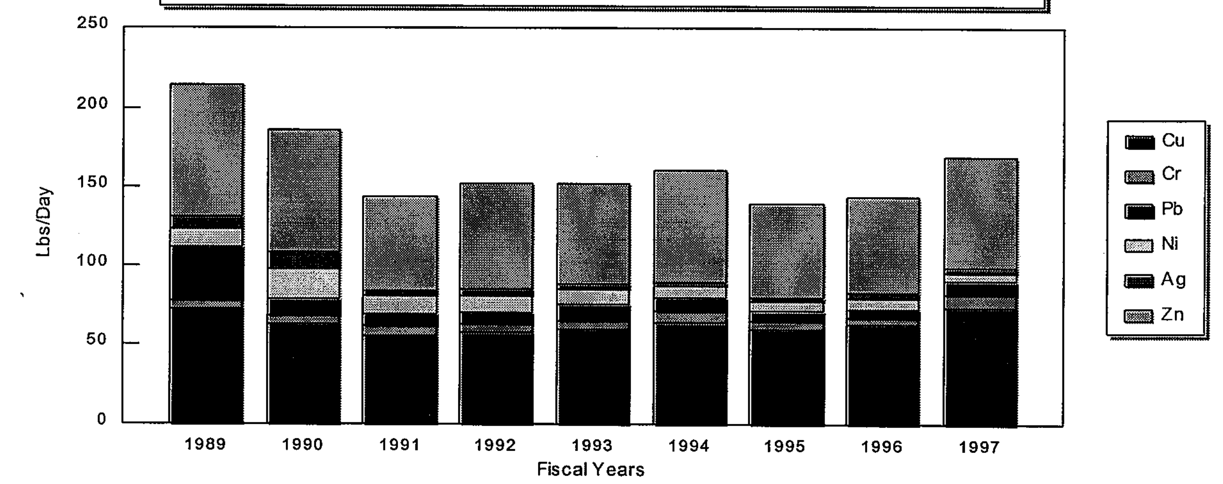


Figure III.A.8 Nut Island Effluent Organics Loadings, FY94-FY97

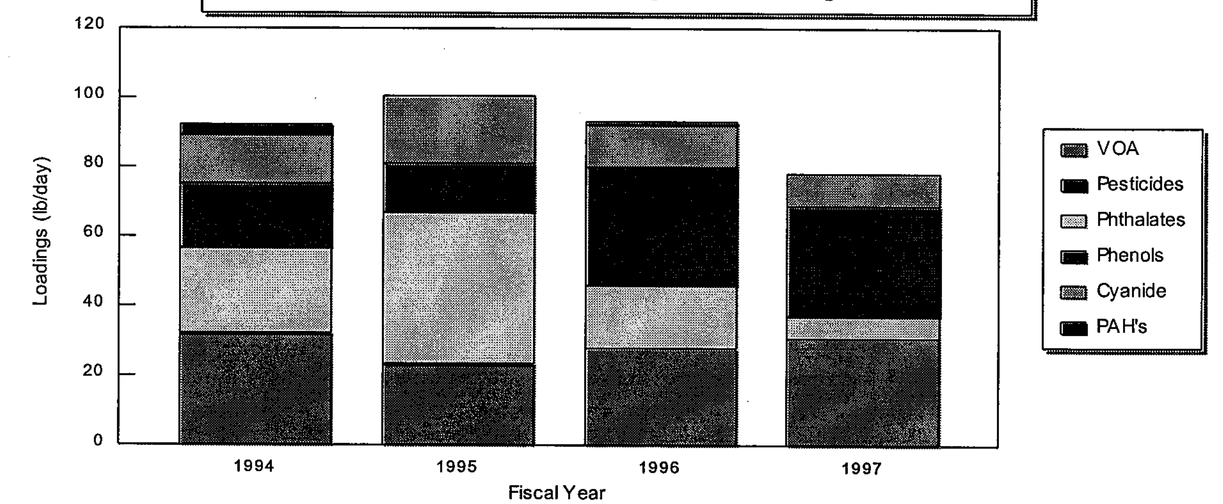


Table III.A.4 Nut Island Effluent Characterization, FY93-FY97

Parameter	FY97	FY96	FY95	FY94	FY93
Flow (MGD)					
Minimum	73	40	70	47	50
Average	148	127	111	123	129
Maximum	280	260	211	315	262
Total Suspended Solids					
Minimum (mg/L)	14	24	48	53	44
Average (mg/L)	62	68	75	78	66
Maximum (mg/L)	162	200	94	100	80
Average Loading (tons/d)	38	36	35	40	36
Biochemical Oxygen Demand					
Minimum (mg/L)	25	22	65	74	64
Average (mg/L)	78	84	108	108	103
Maximum (mg/L)	158	210	143	136	142
Average Loading (tons/d)	48	44	50	55	55
Settleable Solids (ml/L)					
Minimum	0.1	0.1	0.5	0.5	0.8
Average	1.3	1.0	6.2	0.9	1.1
Maximum	3.0	5.5	11.1	1.1	1.3
Average Loading (tons/d)	1	1	3	0	1
Oil and Grease (mg/L)					
Minimum	14.4	20.8	13.9	2.1	8.0
Average	23.0	26.8	24.0	16.4	22.7
Maximum	31.4	31.8	33.7	25.3	37.2
Average Loading (tons/d)	14	14	11	8	12
Total Kjeldahl Nitrogen					
Min Conc (mg/L)	15.80	10.10	11.20	11.90	7.14
Ave Conc (mg/L)	26.02	23.98	21.86	19.97	16.41
Max Conc (mg/L)	39.20	44.20	30.30	26.39	24.58
Average Loading (tons/d)	16	13	10	10	9

Table III.A.4 Nut Island Effluent Characterization, FY93-FY97, cont.

Parameter	FY97	FY96	FY95	FY94	FY93
Ammonia-Nitrogen					
Min Conc (mg/L)	8.48	3.96	6.09	2.80	2.45
Ave Conc (mg/L)	16.27	14.73	13.51	10.24	11.25
Max Conc (mg/L)	26.50	23.70	19.60	17.78	17.35
Average Loading (tons/d)	10	8	6	5	6
Nitrates					
Min Conc (mg/L)	< 0.01	< 0.01	0.03	0.09	0.03
Ave Conc (mg/L)	0.17	0.88	1.25	0.80	0.82
Max Conc (mg/L)	0.52	2.48	1.79	1.79	1.50
Average Loading (lbs/d)	214	932	1157	821	887
Nitrites					
Min Conc (mg/L)	< 0.01	< 0.01	0.07	0.01	0.06
Ave Conc (mg/L)	0.08	0.22	0.25	0.07	0.24
Max Conc (mg/L)	0.25	0.32	0.52	0.16	0.76
Average Loading (lbs/d)	99	233	231	72	258
Orthophosphorus					
Min Conc (mg/L)	0.86	0.32	0.85	0.49	0.24
Ave Conc (mg/L)	1.35	1.13	1.92	1.69	1.32
Max Conc (mg/L)	1.96	2.51	3.05	2.50	2.83
Average Loading (lbs/d)	1662	1197	1777	1734	1424
Total phosphorus					
Min Conc (mg/L)	1.23	1.15	0.27	0.26	1.50
Ave Conc (mg/L)	3.08	3.05	3.38	2.57	3.50
Max Conc (mg/L)	4.17	4.64	4.75	3.85	9.13
Average Loading (tons/d)	2	2	2	1	2

III.A.2.d. Whole Effluent Toxicity

The same three toxicity tests were used for Nut Island as for Deer Island (see Section II.A.2.d). The results of these tests are presented in Table III.A.5.

Table III.A.5 Nut Island, Results of Toxicity Testing, FY97

	Mysid acute		Cyprinodon chronic		
			Survival	Growth	Champia chronic
	LC50	NOEC	NOEC	NOEC	NOEC
Limits (%)	None	20	10	10	10
July	36	20	40	40	2
August	31	20	20	20	2
September	23	10	20	20	2
October	46	20	20	20	0.7
November	14	5	20	20	2
December	73	50	60	60	10
January	37	20	60	60	2
February	38	20	40	40	0.7
March	84	50	20	20	*
April	100	50	100	100	<0.2
May	100	20	40	40	10
June	48	20	<5	<5	0.2
Average	53	25	37	37	2.6
Violations		3	1	1	10

The sheepshead minnow test results were in compliance 92% of the time at Nut Island, and the mysid acute test was in compliance 83% of the time. Concentrations of surfactants in the effluent are consistent with concentrations which could cause mysid toxicity. The results of the red algae test were in compliance 18% of the time.

III.B. Discussion

III.B.1. Compliance with Regulatory Limits

Nut Island, like Deer Island, is regulated by court-ordered interim limits. Plant performance at Nut Island is compared to regulatory limits in Table III.B.1 and Figures III.B.1 through III.B.6. In addition to the thirteen toxicity violations, there were five other violations of regulatory limits at Nut Island in FY97, four times when the minimum pH fell below the limit and one violation of the daily maximum limit for PHCs.

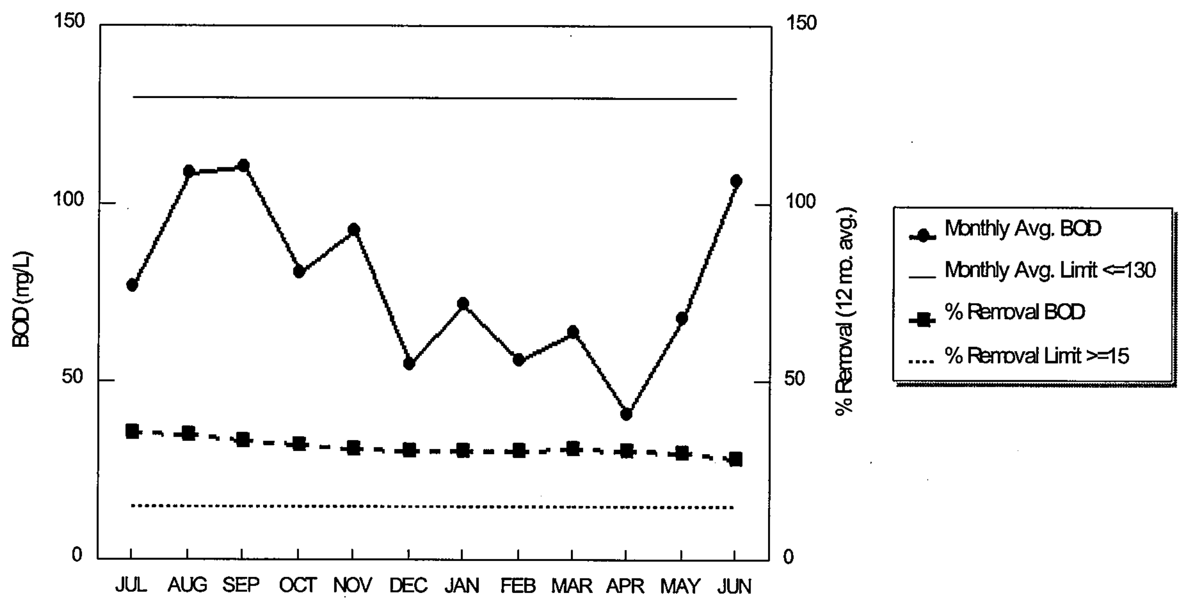
Table III.B.1 Nut Island Effluent Quality Compared to Interim Limits

Parameter	Interim Limits*	Range of Values Exceeding Limits	No of Violations
Biochemical Oxygen Demand			
Mo Ave (mg/L)	130		0
Dly Max (mg/L)	185		0
12-mo running removal rate (%)	15		0
Total Suspended Solids			
Mo Ave (mg/L)	110		0
Dly Max (mg/L)	195		0
12-mo running removal rate (%)	43		0
Settleable Solids (ml/L)	1.8		0
Fecal Coliform (#/100 mL)	200		0
Total Coliform (#/100 mL)	1000		0
pH	6.5 - 8.5	6.3-6.4	4
PHCs Effluent Dly. Max (mg/L)	15	22.6	1
Toxicity	@		15
	Total Number of Violations		20

* Except for removal rates, the effluent quality must be less than or equal to limits. Removal rates must be equal to or greater than limits.
See Table III.A.5

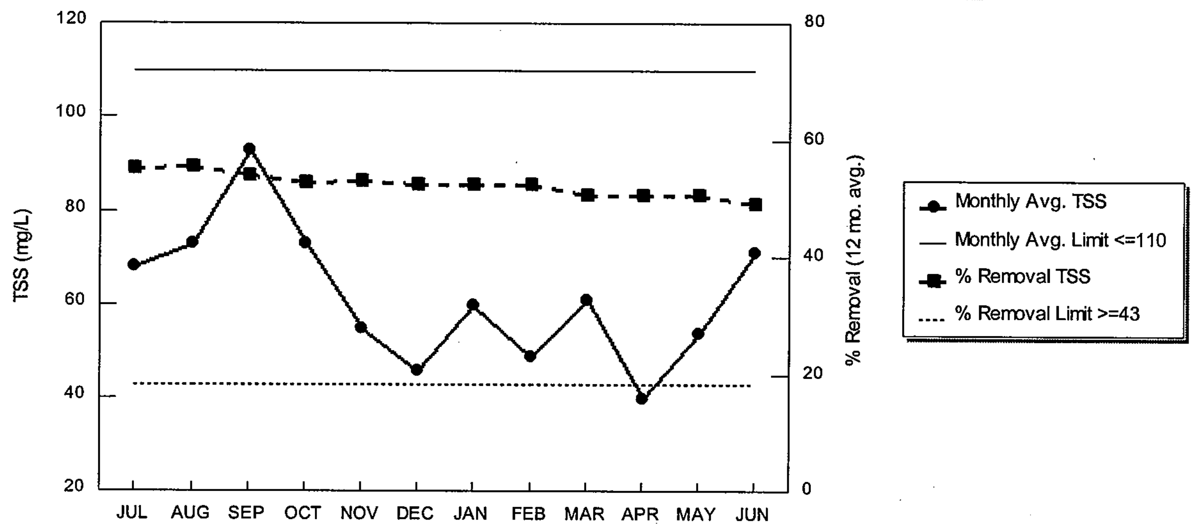
For biochemical oxygen demand (BOD), limits are placed on the monthly average concentration and on the removal rate. The removal rate limit is for a 12-month running average of removal rates, rather than for the individual month's removal rate.

Figure III.B.1 Nut Island Treatment Plant Effluent BOD Trend Analysis, FY97



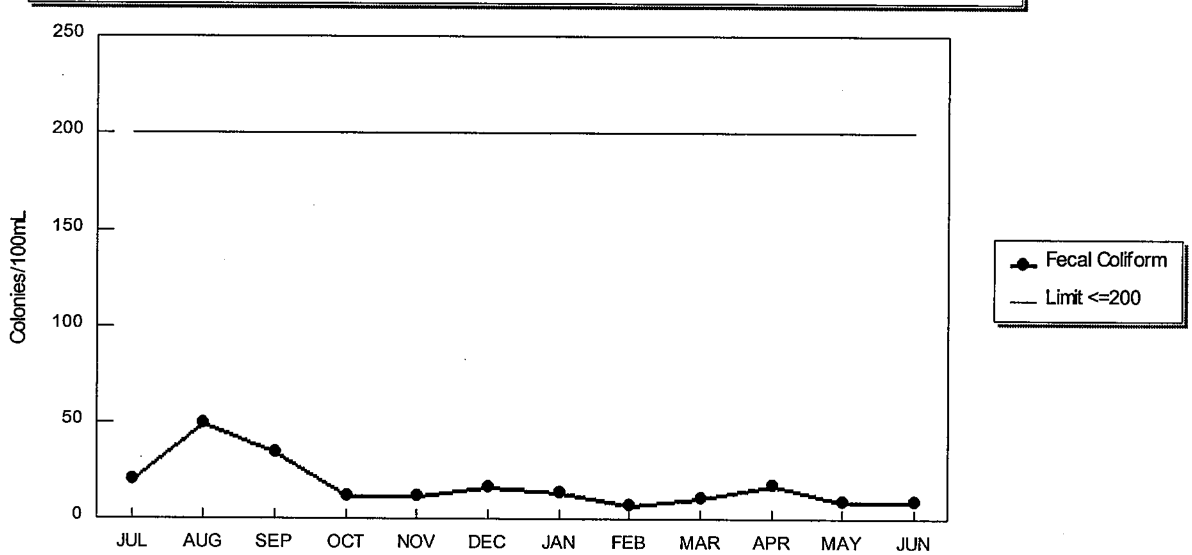
Total suspended solids, or TSS, are also limited for both average concentration and 12-month removal rate.

Figure III.B.2 Nut Island Treatment Plant Effluent TSS Trend Analysis, FY97



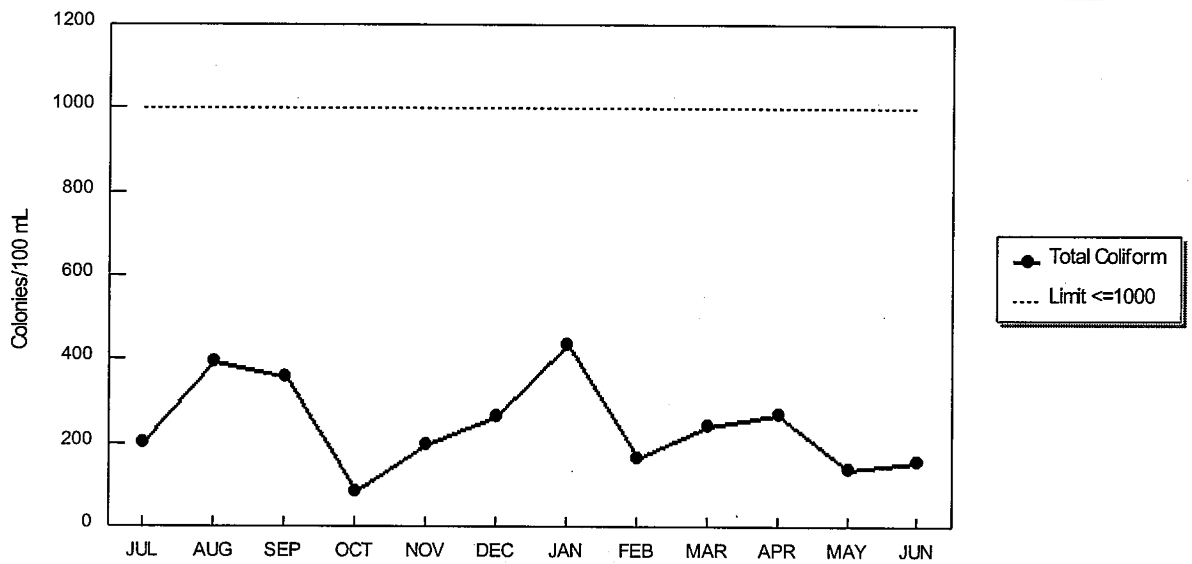
For fecal coliform, the monthly geometric mean of the count has a limit of 200 colonies/100 ml. The results for Nut Island, like the Deer Island results, were far below this limit.

Figure III.B.3 Nut Island Treatment Plant Effluent Fecal ColiformTrend Analysis



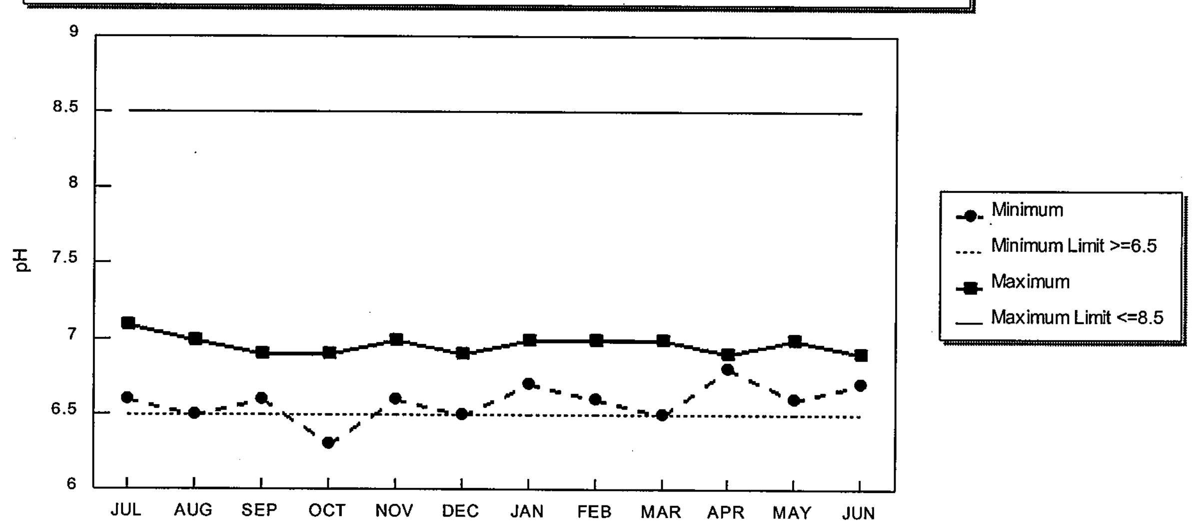
Likewise, total coliform counts were well below the limit of 1000 colonies/100 ml.

Figure III.B.4 Nut Island Treatment Plant Effluent Total Coliform Trend Analysis, FY97



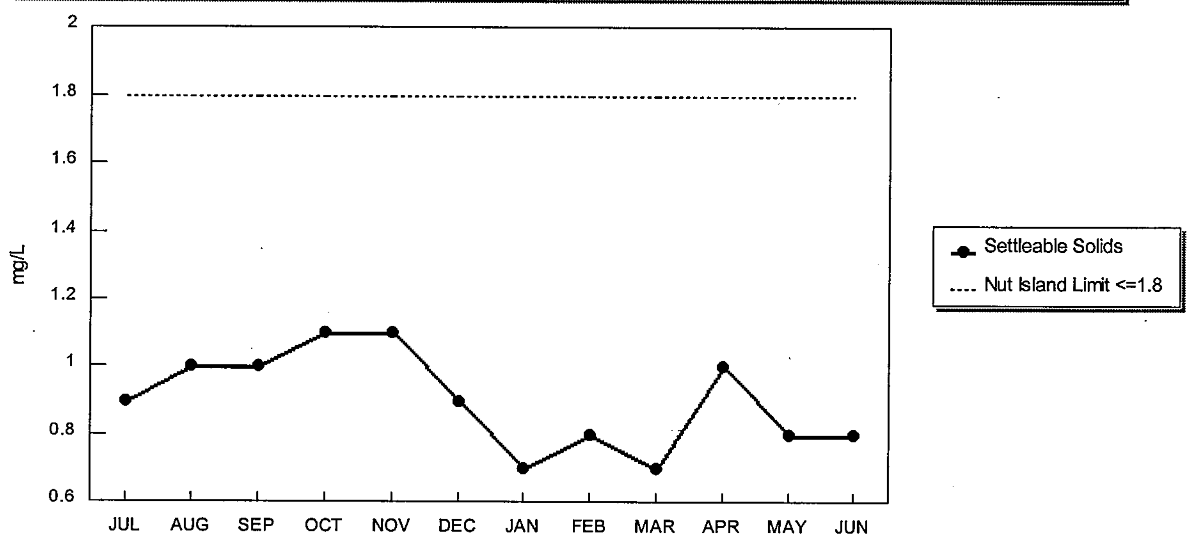
The limits for pH are based on the maximum and minimum values for each month, with pH required to always fall between 6.5 and 8.5. Effluent pH fell below the minimum value required four times in FY97, probably as a result of the effects of acid rain.

Figure III.B.5 Nut Island Treatment Plant Effluent pH Trend Analysis, FY97



There is also a maximum limit for settleable solids. Concentrations in Deer Island effluent were well below this limit.

Figure III.B.6 Nut Island Treatment Plant Effluent Settleable SolidsTrend Analysis, FY97



III.B.2. Effluent Quality Compared to Water Quality Standards

Table III.B.2 presents a comparison of pollutant concentrations in Nut Island effluent to water quality standards for those pollutants. As at Deer Island, most priority pollutant parameters were found to be below detection levels and those that were detected had relatively low concentrations. The only substances found to have high enough concentrations to exceed water quality standards given the expected dilution were copper and cyanide.

Table III.B.2 Comparison of Nut Island Treatment Plant with Water Quality Criteria, FY97

Parameter	Effluent Max. Conc. (ug/L)	Effluent Avg. Conc. (ug/L)	Times Detected	Acute Criterion (ug/L)	Max. Conc.: Acute Criterion	Chronic Criterion (ug/L)	Avg. Conc.: Chronic Criterion
Arsenic	2.5	1.1	2 of 87	69.0	<1	36	<1
Copper	137.0	59.1	85 of 85	2.9	47	2.9	20
Cyanide	32.1	7.4	6 of 36	1.0	32	1	7
Lead	19.5	4.7	82 of 83	220.0	<1	8.5	<1
Mercury	0.5	0.1	66 of 87	2.1	<1	0.03	3
Nickel	33.8	6.2.007	52 of 87	75.0	<1	8.3	<1
Silver	5.6	2.0	70 of 86	2.3	3	NA	NA
Zinc	383.0	56.6	87 of 87	95.0	4	86	<1

III.B.3. Pollutants of Concern

As stated in section III.B.2, only copper and cyanide had concentrations high enough to violate water quality criteria.

Copper

The dilution required to meet the acute criterion for copper was 47, while the critical dilution needed to meet the chronic criterion was 20. It is believed that most of the copper entering the sewer system comes from households where an acidic water supply leaches copper from copper pipes.

Cyanide

Cyanide was also present in high enough concentrations to be a cause for concern, with the critical dilutions to meet the acute and chronic criteria at 32 and 7.

As discussed in Chapter 2, past issues regarding the accuracy of cyanide results appear to have been resolved. After a thorough investigation, staff at MWRA's Central Laboratory determined that dechlorinating effluent samples with ascorbic acid occasionally results in positive interferences for cyanide. EPA laboratory specialists concur with this assessment. In the past, MWRA staff were puzzled because cyanide was rarely detected in the influent to the treatment plants, but it was often detected in significant concentrations in the effluent. When cyanide is detected in the influent, it is usually during periods of pre-chlorination. Samples are now dechlorinated with an agent other than ascorbic acid.

IV. Combined Sewer Overflow Facilities

MWRA monitors six Combined Sewer Overflow (CSO) facilities in the North System. The monitoring results vary significantly between facilities because of differences in the type and location of the facilities. A detailed description of the six CSO facilities can be found in Appendix J.

IV.A. Cottage Farm Combined Sewer Overflow Facility

IV.A.1. Activations

Table IV.A.1 and Figures IV.A.1 and IV.A.2 summarize activation data for the Cottage Farm CSO Facility from FY92-FY97. There was a slight increase in total volume treated from FY96 to FY97, probably because of the higher level of rainfall in FY97.

Table IV.A.1 Cottage Farm CSO Activations Summary

	FY97	FY96	FY95	FY94	FY93	FY92
Number of Activations	24	26	25	32	33	23
Total Volume Treated (mg)	1092	918	574	621	677	361
Maximum Flow (mgd)	199	94	100	123	145	64
Minimum Flow (mgd)	0.63	1.88	0.09	0.08	0.69	0.01
Average Flow (mgd)	37.66	26.24	22.08	18.26	20.52	15.70
Total Rainfall (in/year)	48.79	42.55	37.40	45.00	48.82	41.18

Average flow is calculated by dividing the total volume treated by the number of days the facility activated in the fiscal year.

Even more significant is the large increase in volume treated over the previous few years. Figure IV.A.2, which compares total volume to precipitation over the same time period, indicates that the volume treated in FY96 and FY97 was much larger than a few years earlier even though rainfall was essentially the same. For example, the rainfall levels in FY93 and FY97 were about the same but the volume treated in FY97 was 60% higher. Meanwhile, the number of activations has essentially stayed the same or decreased over the past several years.

One reason for this trend is the fact that much of the rainfall in FY97 came in a few intense storms, which are more likely to cause CSO activations than a larger number of smaller events. Another is that Deer Island experienced reduced pumping capacity in FY96 and FY97 because of repairs being performed on the pumps. This combination of factors explains the increase in flow at Cottage Farm while the number of activations decreased.

Figure IV.A.1 Cottage Farm CSO Activations, FY89-FY97

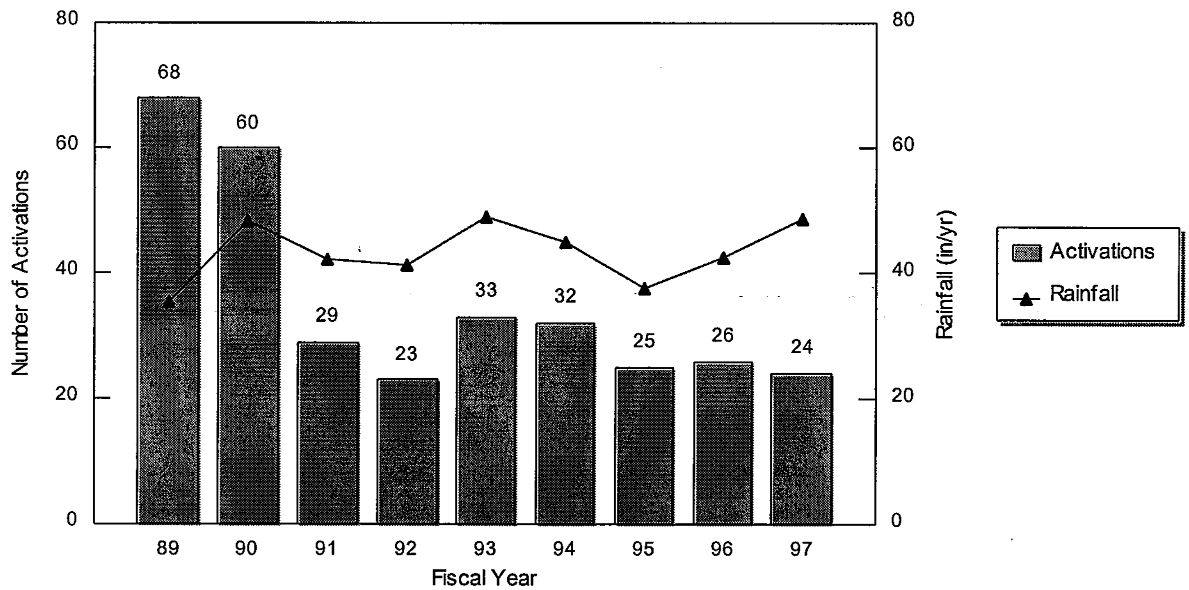
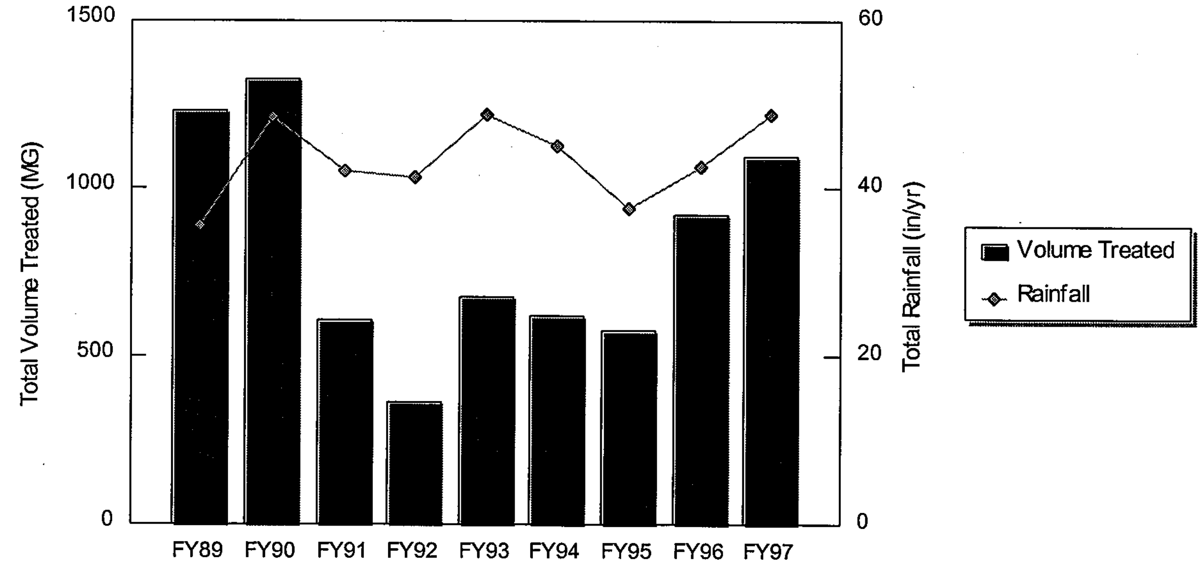


Figure IV.A.2 Cottage Farm Total Volume Treated Compared to Precipitation, FY89-FY97



IV.A.2. Conventional Parameters

Tables C-1 and C-2 of Appendix C contain data on conventional parameters in Cottage Farm influent and effluent and Table IV.A.2 summarizes the data. Because this kind of treatment facility is not designed to remove such contaminants, and because of variability in the characteristics of combined sewage, there were times when the BOD and TSS loadings of the effluent measured higher than those of the influent.

There were five violations of the NPDES permit for Cottage Farm in FY97. In four months (November, March, April, and June), the minimum pH was 6.0, violating the limit of 6.5. In June there was also a violation of the average monthly fecal coliform limit of 1000 colonies/100 ml, because there was just one activation with a fecal coliform count of 1450.

Table IV.A.2 Cottage Farm CSO Influent and Effluent Characteristics, FY97						
	Concentration (1)					
Parameter	Influent			Effluent		
	Min	Ave	Max	Min	Ave	Max
TSS	8	202	3540	5	61	126
BOD	< 21	67	197	13	40	80
Fecal Coliform (#/100 ml)				< 10	19	1450
pH (units)				6.0		7.2

(1) Concentration expressed in mg/L except for pH and Fecal Coliform

IV.A.3. Priority Pollutants

All Cottage Farm activations were also tested for priority pollutants. The results of that testing are presented in Appendix C, Tables C-3 and C-4. Metals were the most common priority pollutants, with copper, mercury, nickel, lead, and zinc detected in all samples. Several other priority pollutants were detected in some but not all samples.

Table IV.A.3 summarizes average metals concentrations in Cottage Farm effluent in FY97.

Table IV.A.3 Cottage Farm Metals, FY97

	Average Concentration (ug/L)	Times Detected
Cadmium	1.17	1 of 9
Copper	78.66	9 of 9
Mercury	0.53	9 of 9
Nickel	14.19	8 of 8
Lead	65.39	9 of 9
Zinc	125.27	9 of 9

IV.B. Prison Point Combined Sewer Overflow Facility

IV.B.1. Activations

Activation data for the Prison Point CSO Facility from FY92-FY97 are summarized in Table IV.B.1 and Figures IV.B.1 and IV.B.2.

Table IV.B.1 Prison Point CSO Activations Summary

	FY97	FY96	FY95	FY94	FY93	FY92
Number of Activations	26	24	26	26	26	29
Total Volume Treated (mg)	926	445	460	466	269	429
Maximum Flow (mgd)	228	63	127	80	28	63
Minimum Flow (mgd)	1.50	1.24	1.63	3.01	1.63	1.00
Average Flow (mgd)	30.86	14.83	17.69	17.92	10.34	14.79
Total Rainfall (in/year)	48.79	42.55	37.40	45.00	48.82	41.18

Average flow is calculated by dividing the total volume treated by the number of days the facility activated in the fiscal year.

As can be seen in Figure IV.B.2, there was a drastic increase in volume treated from FY96 to FY97. This increase can be attributed to the high-intensity rainstorms that occurred in FY97. The large difference in number of activations between FY97 and FY93, which had a similar amount of rainfall, can be attributed both to the intensity of the rainfall in FY97 and to the elevation of the weir at the facility in 1994. This operations change caused more water to be retained at the facility before activation occurred. Because of this, the flow through the facility has increased while the number of activations has remained steady over the past several years.

Figure IV.B.1 Prison Point CSO Activations, FY89-FY97

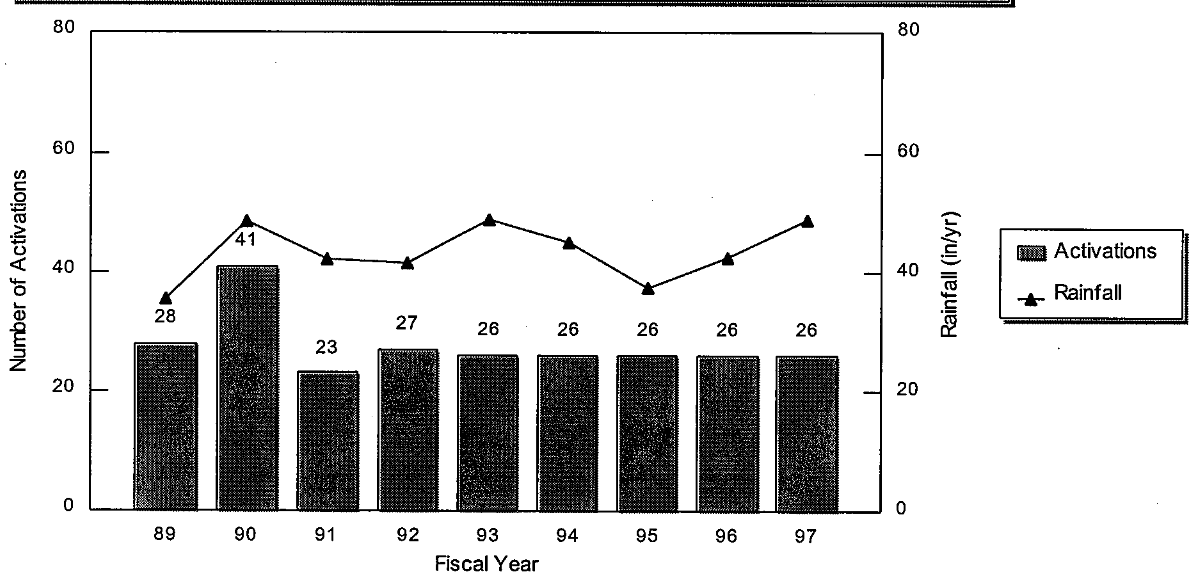
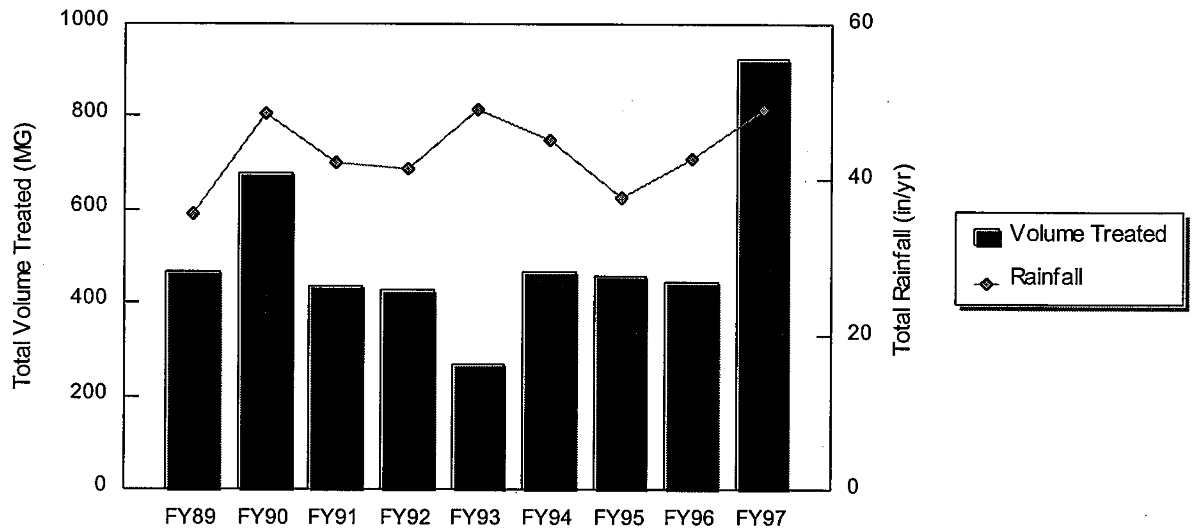


Figure IV.B.2 Prison Point Total Volume Treated Compared to Precipitation, FY89-FY97



IV.B.2. Conventional Parameters

Conventional parameter data for Prison Point influent and effluent are provided in Appendix D Tables D-1 and D-2. Like the one at Cottage Farm, this treatment facility is not designed to remove such contaminants, so the removal rates listed vary widely and are even sometimes negative.

Prison Point had one NPDES violation in July, when the pH was 6.0

Table IV.B.2 Prison Point CSO Influent and Effluent Characteristics, FY97						
	Concentration (1)					
Parameter	Influent			Effluent		
	Min	Ave	Max	Min	Ave	Max
TSS	44	323	1540	17	96	288
BOD	< 5	107	673	7	41	153
Fecal Coliform (#/100 ml)				< 10	13	320
pH (units)				6.0		7.5

(1) Concentration expressed in mg/L except for pH and Fecal Coliform

IV.B.3. Priority Pollutants

The results of priority pollutant testing for Prison Point can be found in Tables D-3 and D-4 of Appendix D. As at Cottage Farm, metals were the most common priority pollutants, with copper, mercury, lead, and zinc detected in all samples. Other priority pollutants were detected in some but not all samples.

Table IV.B.3 summarizes average metals concentrations in Prison Point effluent in FY97.

Table IV.B.3 Prison Point Metals, FY97

	Average Concentration (ug/L)	Times Detected
Copper	90.34	10 of 10
Mercury	0.35	10 of 10
Nickel	6.41	7 of 9
Lead	144.89	10 of 10
Zinc	219.80	10 of 10

IV.C. Somerville Marginal Combined Sewer Overflow Facility

IV.C.1. Activations

Table IV.C.1 and Figures IV.C.1 and IV.C.2 summarize activation information for the Somerville Marginal facility for FY92-FY97.

Table IV.C.1 Somerville Marginal CSO Activations Summary						
	FY97	**FY96**	**FY95**	**FY94**	**FY93**	**FY92**
Number of Activations	28	28	28	34	45	48
Total Volume Treated (mg)	142	80	67	74	90	89
Maximum Flow (mgd)	64	9	14	11	8	9
Minimum Flow (mgd)	0.13	0.25	0.16	0.01	0.10	0.00
Average Flow (mgd)	4.90	2.67	2.39	2.18	2.00	1.85
Total Rainfall (in/year)	48.79	42.55	37.40	45.00	48.82	41.18

Average flow is calculated by dividing the total volume treated by the number of days the facility activated in the fiscal year.

The volume treated at Somerville Marginal has increased significantly over the past few years, while the number of activations has decreased. These changes are a result of increasing rainfall amount and intensity as well as changes in the operating procedures to allow for more in-line storage of flow before release.

Figure IV.C.1 Somerville Marginal CSO Activations, FY89-FY97

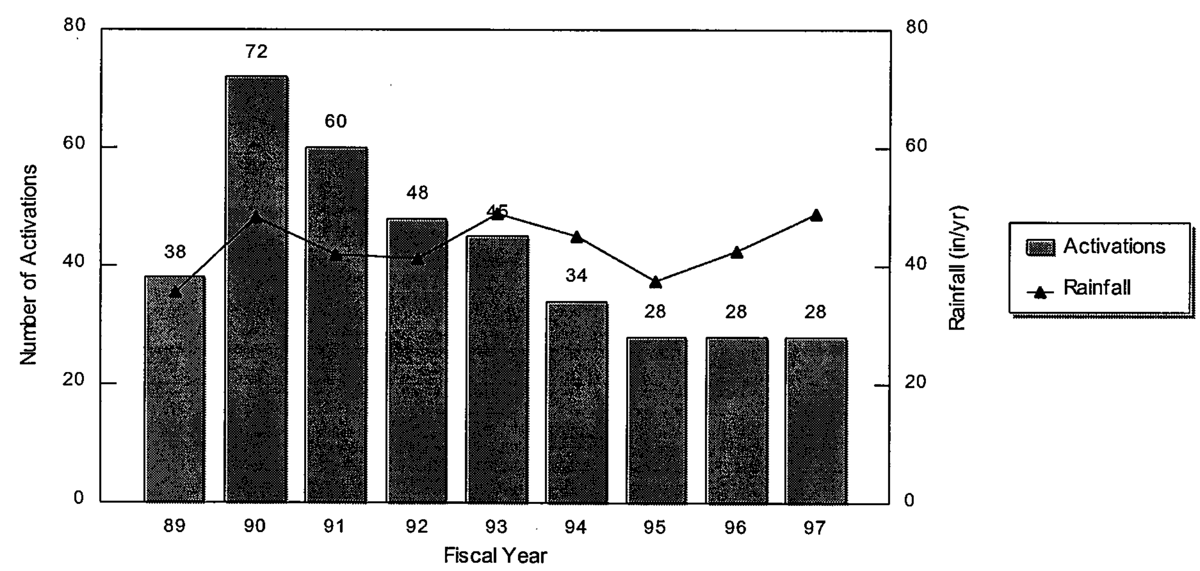
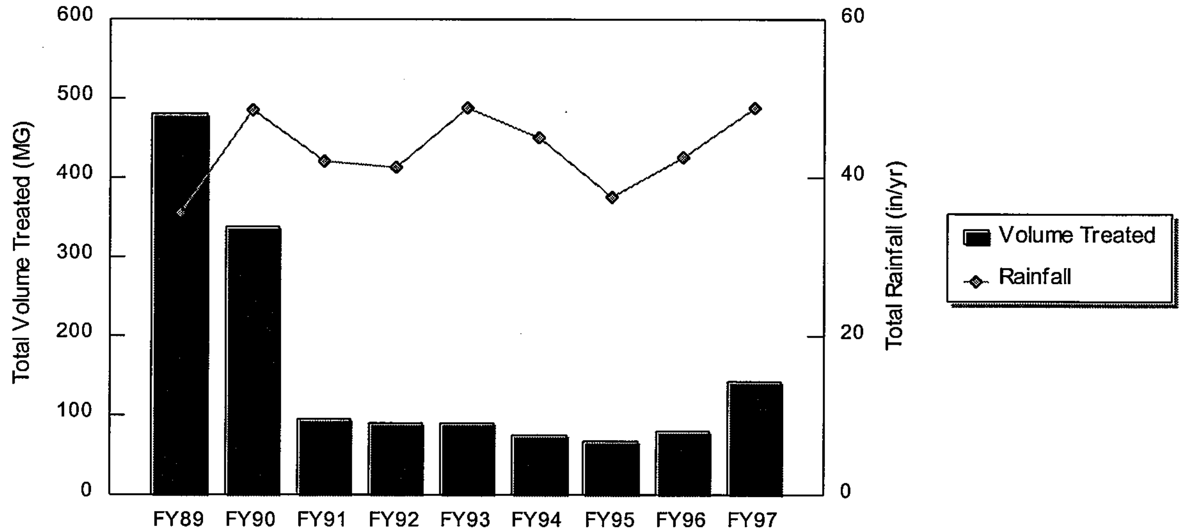


Figure IV.C.2 Somerville Marginal Total Volume Treated Compared to Precipitation, FY89-FY97



IV.C.2. Conventional Parameters

Somerville Marginal conventional parameter data are provided in Appendix E Tables E-1 and E-2 and summarized in Table IV.C.2. The Somerville Marginal treatment facility, like Cottage Farm and Prison Point, is not designed to remove such contaminants, so the removal rates listed vary widely and are even sometimes negative.

There were no violations of the NPDES permit at Somerville Marginal in FY97.

Table IV.C.2 Somerville Marginal CSO Influent and Effluent Characteristics, FY97

Concentration (1)

Parameter	Influent Min	Influent Ave	Influent Max	Effluent Min	Effluent Ave	Effluent Max
TSS	6	105	368	5	80	278
BOD	< 5	45	331	< 5	32	128
Fecal Coliform (#/100 ml)				< 10	11	30
pH (units)				6.5		7.7

(1) Concentration expressed in mg/L except for pH and Fecal Coliform

IV.C.3. Priority Pollutants

The results of Somerville Marginal priority pollutant testing can be found in Appendix E, Tables E-3 and E-4. As at Prison Point, copper, mercury, lead, zinc, and surfactants were detected in all samples, while several other priority pollutants were detected in some but not all samples.

Table IV.C.3 summarizes average metals concentrations in Somerville Marginal effluent in FY97.

Table IV.C.3 Somerville Marginal Metals, FY97

	Average Concentration (ug/L)	Times Detected
Copper	19.51	6 of 6
Mercury	0.07	6 of 6
Nickel	4.10	5 of 6
Lead	76.00	6 of 6
Zinc	65.95	6 of 6

IV.D. Constitution Beach Combined Sewer Overflow Facility

IV.D.1. Activations

Activation data for the Constitution Beach facility are summarized in Table IV.D.1 and Figures IV.D.1 and IV.D.2.

Table IV.D.1 Constitution Beach CSO Activations Summary

	FY97	FY96	FY95	FY94	FY93	FY92
Number of Activations	16	13	12	8	4	12
Total Volume Treated (mg)	11.32	7.94	6.80	0.69	1.57	11.00
Maximum Flow (mgd)	2.35	1.20	1.30	0.20	1.22	5.70
Minimum Flow (mgd)	0.14	0.21	0.20	0.01	0.10	0.23
Average Flow (mgd)	0.71	0.61	0.57	0.09	0.39	0.92
Total Rainfall (in/year)	48.79	42.55	37.40	45.00	48.82	41.18

Average flow is calculated by dividing the total volume treated by the number of days the facility activated in the fiscal year.

The amount of flow passing through the Constitution Beach facility has increased over the past few years, as has the number of activations. The particularly low numbers in FY93-FY94 resulted from meter malfunctions. The increase in flows and activations during the years since then has been caused by increasing rainfall intensity and by changes in in-line storage practices . Some flow data for Constitution Beach may be inaccurate because the flow meters are affected by tidal flow.

Figure IV.D.1 Constitution Beach CSO Activations, FY90-FY97

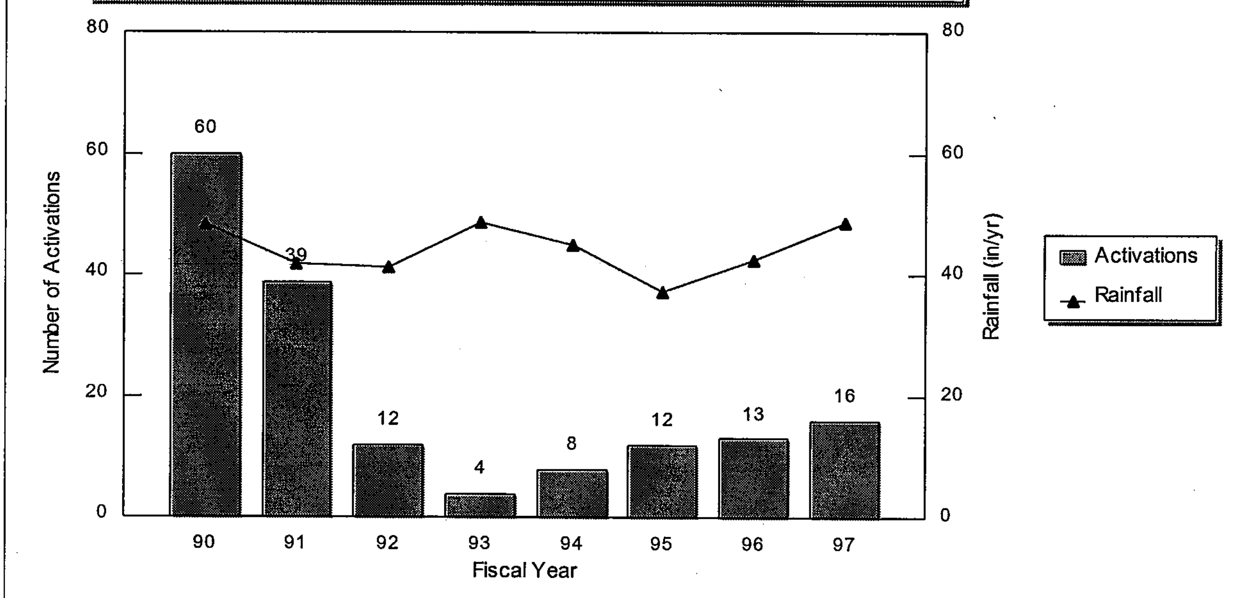
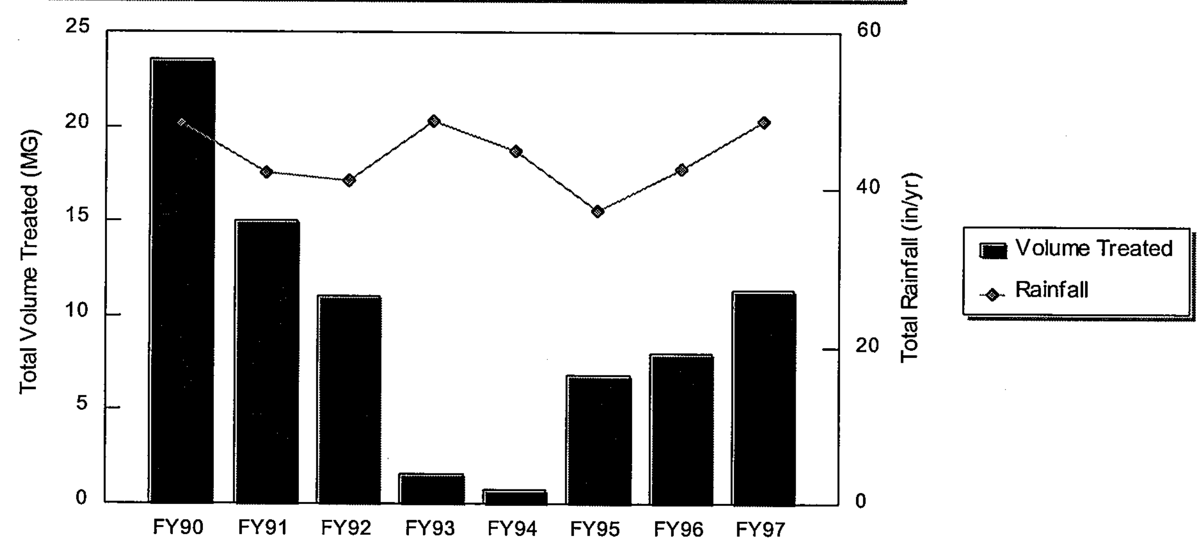


Figure IV.D.2 Constitution Beach Total Volume Treated Compared to Precipitation, FY90-FY97



IV.D.2. Conventional Parameters

Conventional parameter data for Constitution Beach are provided in Appendix F Tables F-1 and F-2 and summarized in Table IV.D.2. As with the other CSO facilities, concentrations fluctuated a good deal in both influent and effluent.

Table IV.D.2 Constitution Beach CSO Influent and Effluent Characteristics, FY97

	Concentration (1)					
Parameter	Influent			Effluent		
	Min	Ave	Max	Min	Ave	Max
TSS	12	84	217	11	62	146
BOD	7	25	107	5	13	19
Fecal Coliform (#/100 ml)				< 10	22	1460
pH (units)				6.5		7.3

(1) Concentration expressed in mg/L except for pH and Fecal Coliform

IV.E. Fox Point Combined Sewer Overflow Facility

IV.E.1. Activations

Activation data for Fox Point are summarized in Table IV.E.1 and Figures IV.E.1 and IV.E.2.

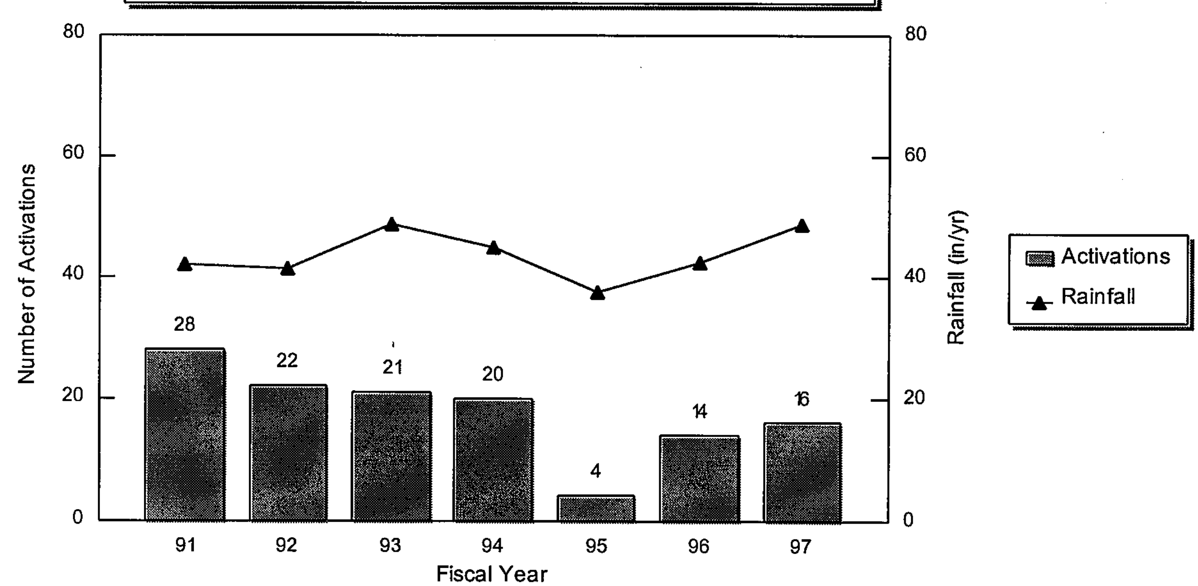
Table IV.E.1 Fox Point CSO Activations Summary

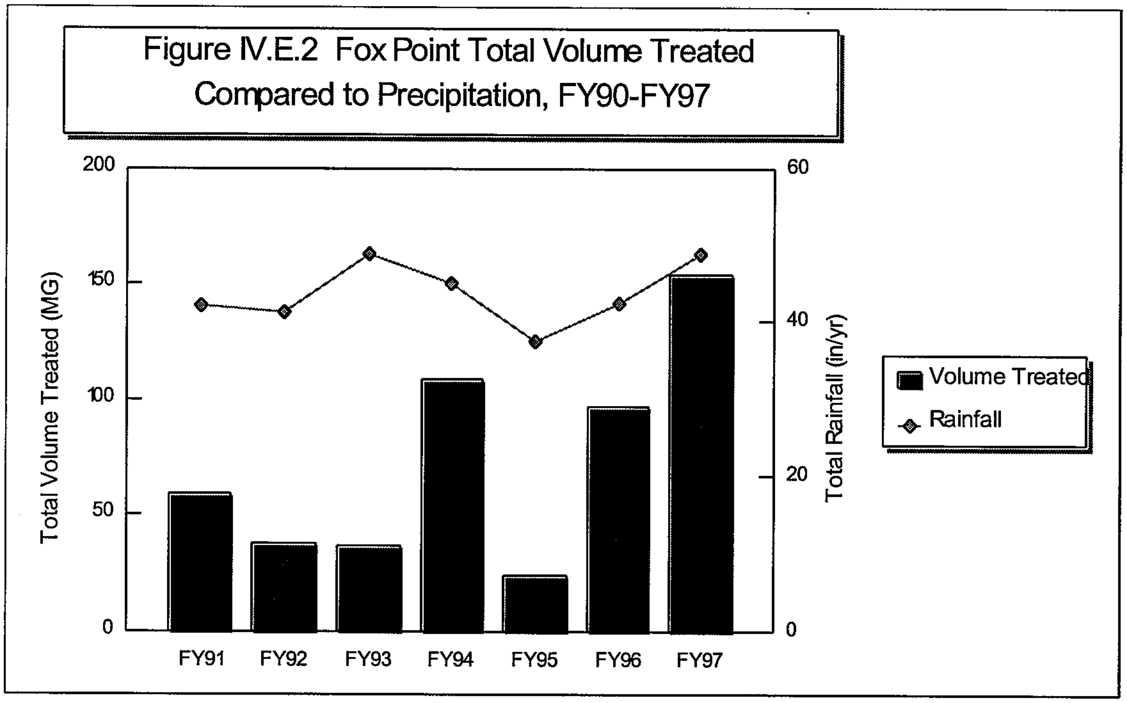
	FY97	FY96	FY95	FY94	FY93	FY92
Number of Activations	16	14	4	20	21	22
Total Volume Treated (mg)	154	97	24	109	37	38
Maximum Flow (mgd)	45	17	10	12	8	5
Minimum Flow (mgd)	0.26	1.09	1.50	0.40	0.40	0.40
Average Flow (mgd)	8.55	6.90	6.00	5.19	1.76	1.73
Total Rainfall (in/year)	48.79	42.55	37.40	45.00	48.82	41.18

Average flow is calculated by dividing the total volume treated by the number of days the facility activated in the fiscal year.

The volume treated at Fox Point increased in FY93 and has stayed at a higher level since then, except for FY95, when use of the facility was decreased due to repair work which required rerouting of flows. The number of activations has been fairly steady except for the temporary drop in FY95.

Figure IV.E.1 Fox Point CSO Activations, FY91-FY97





IV.E.2. Conventional Parameters

Conventional parameter data for Fox Point are provided in Appendix G Tables G-1 and G-2 and summarized in Table IV.E.2. Again, a wide range of values was reported for both influent and effluent.

Table IV.E.2 Fox Point CSO Influent and Effluent Characteristics, FY97

Parameter	Influent Min	Influent Ave	Influent Max	Effluent Min	Effluent Ave	Effluent Max
TSS	9	115	745	11	65	284
BOD	< 5	26	70	< 5	21	63
Fecal Coliform (#/100 ml)				< 10	11	30
pH (units)				6.4		7.3

Concentration (1)

(1) Concentration expressed in mg/L except for pH and Fecal Coliform

IV.F. Commercial Point Combined Sewer Overflow Facility

IV.F.1. Activations

Commercial Point activation data are summarized in Table IV.F.1 and Figures IV.F.1 and IV.F.2.

Table IV.F.1 Commercial Point CSO Activations Summary

	FY97	FY96	FY95	FY94	FY93	FY92
Number of Activations	23	13	19	25	28	33
Total Volume Treated (mg)	158	70	56	96	77	80
Maximum Flow (mgd)	54	18	17	17	10	11
Minimum Flow (mgd)	0.19	0.06	0.15	0.21	0.10	1.00
Average Flow (mgd)	6.59	4.68	2.94	3.85	2.76	2.42
Total Rainfall (in/year)	48.79	42.55	37.47	45.00	48.82	41.18

Average flow is calculated by dividing the total volume treated by the number of days the facility activated in the fiscal year.

The volume treated at Commercial Point, like some of the other facilities, showed a large increase from FY96 to FY97.

Figure IV.F.1 Commercial Point CSO Activations, FY92-FY97

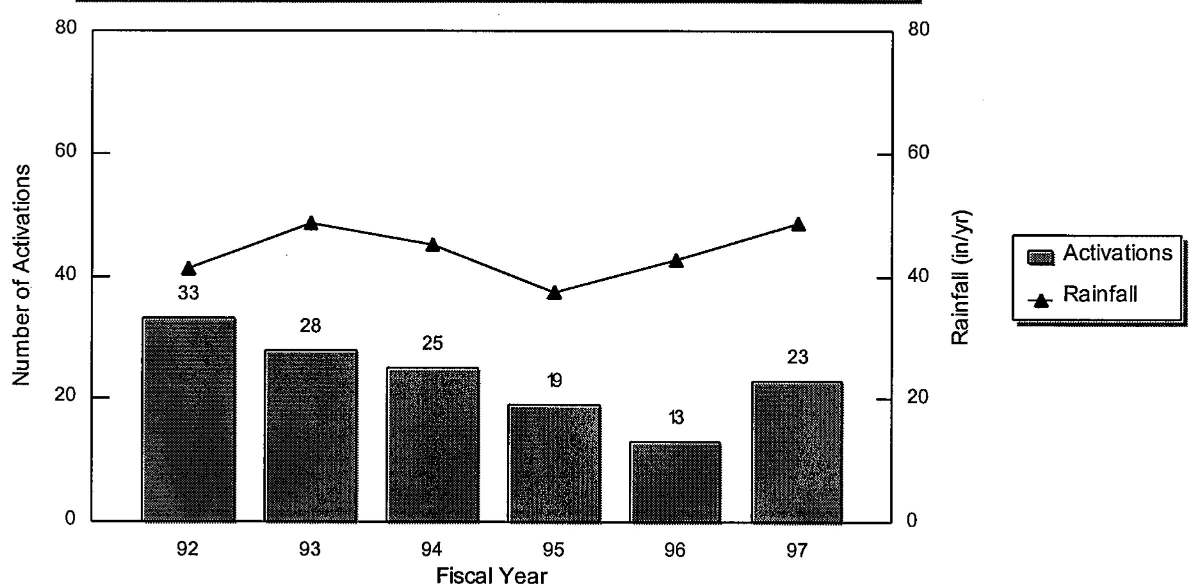
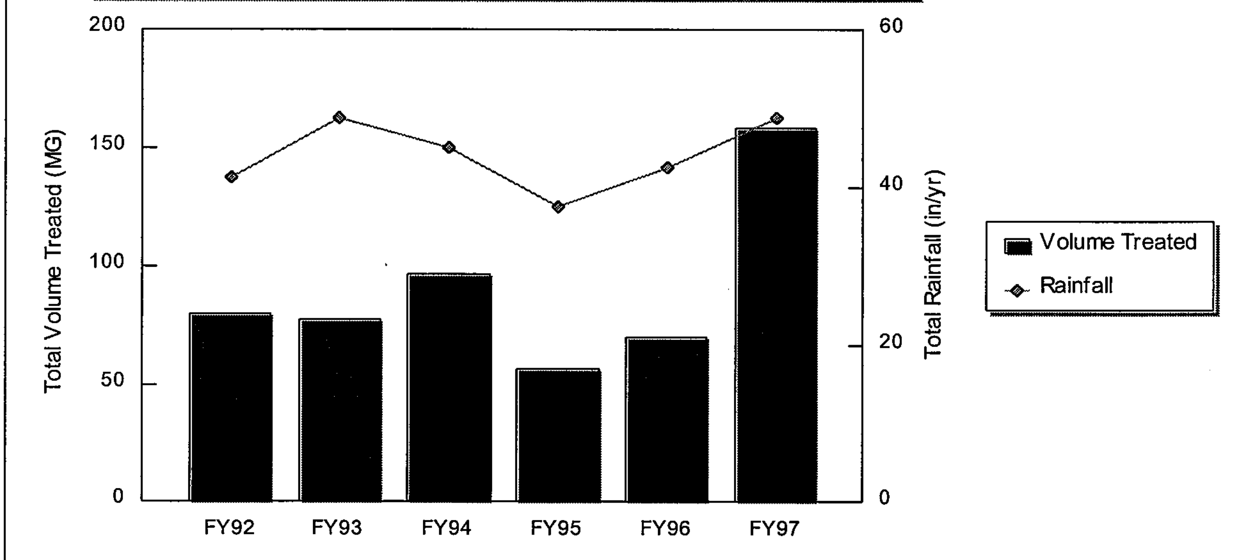


Figure IV.F.2 Commercial Point Total Volume Treated Compared to Precipitation, FY92-FY97



IV.F.2. Conventional Parameters

Commercial Point conventional parameter data are provided in Appendix H Tables H-1 and H-2. Again, a wide range of values was reported for both influent and effluent.

Table IV.F.2 Commercial Point CSO Influent and Effluent Characteristics, FY97

	Concentration (1)					
Parameter	Influent			Effluent		
	Min	Ave	Max	Min	Ave	Max
TSS	9	155	1040	9	174	1440
BOD	4	25	121	5	21.4	51
Fecal Coliform (#/100 ml)				< 10	13	230
pH (units)				6.5		7.4

(1) Concentration expressed in mg/L except for pH and Fecal Coliform

V. Transport Systems

V.A. North System

V.A.1 Headworks Choking

As can be seen in Figure V.A.1, the number of hours of choking at the remote headworks decreased significantly from FY96 to FY97. There were decreases in both maintenance-related and rain-related choking.

Figure V.A.1 Choking, FY92-FY97

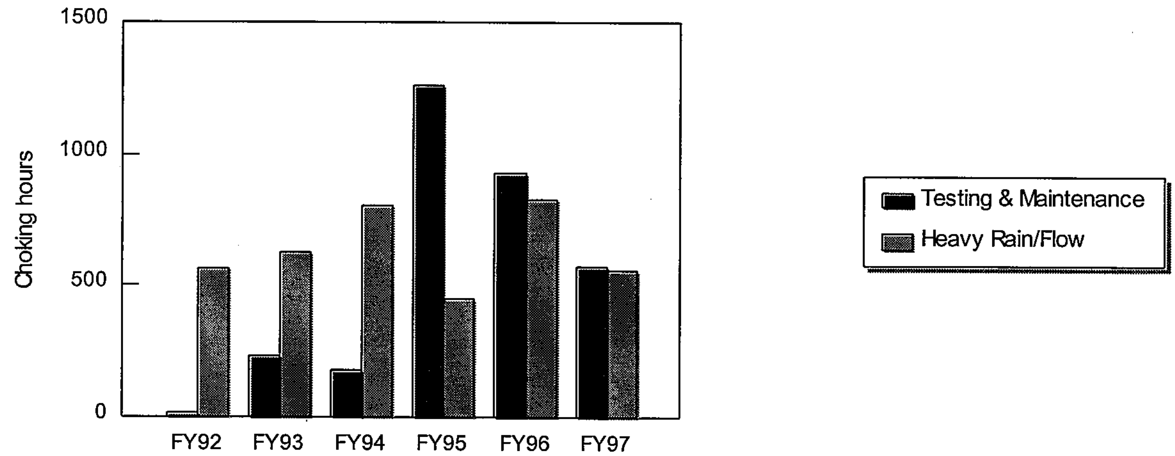
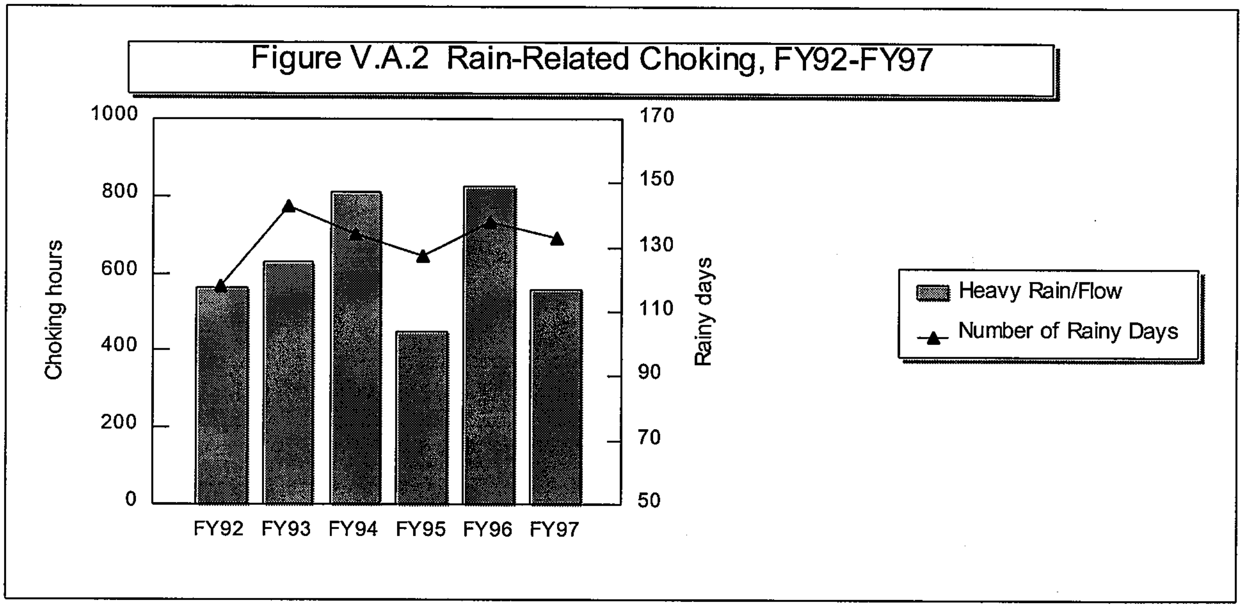
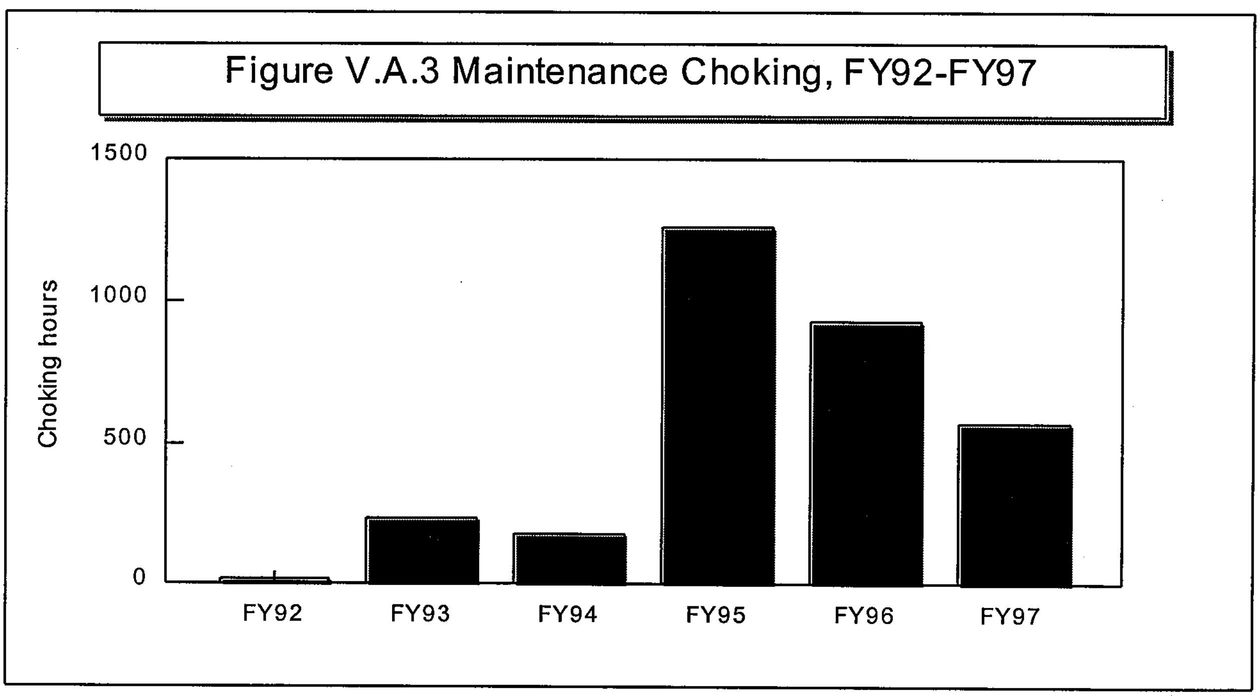


Figure V.A.2 shows the influence of the number of rainy days in a year on the hours of rain-related choking in that year. As this figure shows, FY97 had fewer rainy days than FY96, despite the fact that there was more rainfall in FY97. Consequently there was less rain-related choking in FY97.



Choking for maintenance purposes is plotted in Figure V.A.3. Maintenance choking peaked in FY95 due to the maintenance and testing involved in bringing the new primary treatment plant on line. The number of hours of maintenance-related choking has continued to be fairly high in the past few years because of maintenance and testing related to the startup of the new primary and secondary treatment plants. That number can be expected to decrease significantly once both primary and secondary treatment are fully operational.



V.A.2 Sanitary Sewer Overflows

Sanitary sewer overflows, places where the transport system is overwhelmed during extreme rainfall events, are monitored visually by MWRA in both the North System and the South System. Table V.A.1 lists the number of recorded overflows at several locations in the North System. This list includes only overflows at MWRA-owned overflow areas. There are also overflows for which the local municipalities are responsible, and which are monitored less frequently by MWRA. A list of all the known overflows monitored by MWRA, including both MWRA and municipal overflows, is provided in Appendix J.

Table V.A.1 Sanitary Sewer Overflows, North System, FY97

Location	Number of Overflows
Section C Medford	3
Section 107 Medford	3
Section 91B Medford (Siphin)	1
Section 43.5 Medford	1
Section B Cambridge	1
Section 113 Winchester	1
Section 80 Arlington	1

V.B. South System

V.B.1 Sanitary Sewer Overflows

Table V.B.1 lists the observed overflows in the South System.

Table V.B.1 Sanitary Sewer Overflows, South System, FY97

Location	Number of Overflows
Section 126 Weymouth Smelt Brook	8
Section 126 Weymouth (Manhole)	5
Section 128 Braintree (Siphon)	1

Appendix A

Table A-1 Deer Island Treatment Plant Operations Summary, Fiscal Year 1997

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	MIN VALUE	AVE VALUE	MAX VALUE
INFLUENT															
FLOW (MGD)															
AVERAGE	225.5	201.5	242.0	322.5	257.5	344.6	257.6	240.4	260.5	369.6	248.1	211		265	
MINIMUM	178.5	167.2	184.5	202.9	203.7	231.9	194.3	200.9	209.0	265.3	205.8	169	167		
MAXIMUM	468.8	247.2	471.7	649.3	466.2	547.6	320.3	329.1	406.3	571.0	375.7	312			649
TEMP (DEG F)															
AVERAGE	67.9	70.8	67.3	66.6	63.1	58.6	56.6	56.8	57.3	58.2	60.7	65.9		62.5	
MINIMUM	20.5	68.4	21.5	63.1	59.2	51	50	47	52.9	53.1	53.8	62.8	20.5		68.4
MAXIMUM	72.7	72.4	72	70.1	66	64.2	59.7	63	62.8	64.6	66	71			
pH (units)															
MINIMUM	6.4	6.6	6.7	6.7	6.5	6.7	6.7	6.8	6.7	6.6	6.5	6.5	6.4		
MAXIMUM	7.0	7.1	7.1	7.1	7.1	7.1	7.1	7.2	7.1	7.2	7.1	7.2			7.2
CONVENTIONAL PARAMETERS (mg/L)															
TOTAL SOLIDS															
AVERAGE	ND	ND	ND	1329	1341	1014	1270	1305	1296	1037	1201	1564		946	
MINIMUM	ND	ND	ND	496	664	632	812	912	860	784	760	1030	496		
MAXIMUM	ND	ND	ND	1860	1910	1990	2210	2170	2530	1520	1840	2460			2530
VOLATILE SOLIDS															
AVERAGE	ND	ND	ND	317	302	228	301	318	304	228	301	418		226	
MINIMUM	ND	ND	ND	144	176	128	196	208	148	120	180	264	120		
MAXIMUM	ND	ND	ND	540	440	400	408	524	424	336	436	576			576
SETTLEABLE SOLIDS (ml/L)															
AVERAGE	7	8	7	8	7	6	7.3	8	7	6	7	7		7	
MINIMUM	2	6	4	2	4	3	4.0	5	5	3	2	4	2		
MAXIMUM	12	17	12	16	11	9	11.0	15	11	12	11	11			17
TVSS															
AVERAGE	136	138	131	115	121	81	113	127	121	95	133	13		110	
MINIMUM	88	106	52	42	68	40	89	96	86	50	74	86	40		
MAXIMUM	216	195	202	178	178	126	154	164	160	126	186	190			216
TSS															
AVERAGE	162	159	160	134	141	97	134	147	142	111	157	185		144	
MINIMUM	100	122	87	50	76	50	98	114	106	60	86	102	50		
MAXIMUM	270	235	284	202	220	180	212	190	186	150	236	262			284
BOD															
AVERAGE	136	148	127	130	133	98	141	161	145	105	148	164		136	
MINIMUM	95	110	65	45	91	39	94	126	100	57	106	122	39		
MAXIMUM	166	205	184	244	171	137	177	311	207	188	186	206			311
CBOD															
AVERAGE	97.1	103.0	88.6	82.8	105.4	69.8	106.0	129.0	114.0	80.0	125.0	132.0		102.7	
MINIMUM	70.3	83.0	47.8	15.7	74.1	38.0	79.8	85.0	68.3	55.1	84.7	83.7	15.7		
MAXIMUM	118.0	147.0	142.0	161.0	124.0	101.0	134.0	154.0	155.0	112.0	176.0	185.0			185.0

Table A-1 Deer Island Treatment Plant Operations Summary, Fiscal Year 1997, cont.

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	MIN VALUE	AVE VALUE	MAX VALUE
COD															
AVERAGE	334.9	378.2	329.8	282	320	218	327	355	327	240	347	380		320	
MINIMUM	243	217.5	180	90	237	97	210	250	172	149	236	315	90		
MAXIMUM	403	538	422	486	402	313	544	473	424	394	576	478			576
TOC															
AVERAGE	86.12	70.83	69.36	49.63	62.28	35.25	74.30	74.00	65.20	42.10	69.20	85.60		65.32	
MINIMUM	60.10	60.90	52.40	18.70	46.00	12.50	68.80	63.70	45.30	32.20	63.90	79.90	12.50		
MAXIMUM	115.00	78.70	81.00	71.00	86.20	56.50	79.40	95.70	77.30	50.50	72.50	97.80			115.00
FOG															
AVERAGE	32.9	35.6	39.2	12.1	28.8	18	26.7	24.2	40.2	14.6	46.7	34.6		29.5	
MINIMUM	23.7	28.7	21.7	7	16.5	8.1	20.9	13.7	25.4	7.6	13.5	29.8	12.1		
MAXIMUM	45.6	40.5	56.2	21.6	40.1	26.9	32	36.3	60.1	23.1	136	40.3			136.0
CHLORIDE															
AVERAGE	586.4	638.0	702.5	548.0	562.0	415.0	538.0	526.0	577.0	436.0	474.0	647.0		554.2	
MINIMUM	240.0	289.0	219.0	151.0	217.0	238.0	262.0	301.0	326.0	285.0	259.0	414.0	151.0		
MAXIMUM	1020.0	1280.0	1359.0	869.0	839.0	947.0	1080.0	911.0	1490.0	693.0	795.0	1090.0			1490.0
T COLIFORM (col/100mL)															
GEO MEAN	61.2	55.4	59.1	38.9	40.4	25.0	31.9	20.1	27.4	12.0	26.3	51.8		37.5	
MINIMUM (	40.0	20.0	39.0	12.0	23.0	7.0	21.0	15.0	5.0	4.5	12.0	37.0	4.5		
MAXIMUM (	92.0	87.0	80.0	68.0	53.5	47.0	50.5	29.0	37.0	22.0	38.0	94.0			94.0
F COLIFORM (col/100mL)															
GEO MEAN	5.06	4.24	3.71	2.76	2.24	0.833	1.422	1.3	1.14	0.6944	1.54	3.03		2.33	
MINIMUM (	3.45	3.00	1.70	0.60	1.10	0.20	0.90	0.80	0.40	0.20	0.20	1.50	0.20		
MAXIMUM (	6.60	8.70	5.10	5.60	3.80	1.70	2.40	1.90	1.90	1.30	2.40	7.40			8.70
NUTRIENTS (mg/L)															
TKN															
AVERAGE	26.20	29.40	22.97	21.44	23.63	17.68	29.12	27.58	21.23	19.48	23.73	28.13		24.21	
MINIMUM	20.70	24.90	8.68	14.70	14.40	14.90	19.40	22.20	13.30	18.20	19.60	19.60	8.68		
MAXIMUM	31.90	34.60	29.70	28.30	30.30	22.60	48.10	30.80	26.40	20.80	27.10	27.10			48.10
AMMONIA															
AVERAGE	14.74	17.90	13.13	11.49	11.82	9.32	12.85	13.16	12.60	9.54	15.17	17.33		13.25	
MINIMUM	13.50	17.60	2.52	4.53	5.86	7.87	9.75	8.85	11.50	7.08	13.50	16.40	2.52		
MAXIMUM	16.20	18.40	18.30	17.00	15.10	11.50	15.40	15.10	13.70	11.30	17.80	18.60			18.60
NITRATES															
AVERAGE	0.06	0.01	0.50	0.49	0.20	0.40	0.06	0.17	0.14	0.56	0.02	0.01		0.22	
MINIMUM	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.01	0.01	0.01		
MAXIMUM	0.21	0.01	1.97	2.31	0.76	1.06	0.27	0.47	0.41	1.29	0.05	0.01			2.31
NITRITES															
AVERAGE	0.01	0.01	0.04	0.16	0.05	0.13	0.08	0.14	0.14	0.23	0.13	0.01		0.09	
MINIMUM	0.01	0.01	0.01	0.01	0.01	0.06	0.01	0.05	0.01	0.18	0.01	0.01	0.01		
MAXIMUM	0.01	0.01	0.14	0.25	0.13	0.24	0.35	0.23	0.29	0.26	0.33	0.01			0.35

Table A-1 Deer Island Treatment Plant Operations Summary, Fiscal Year 1997, cont.

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	MIN VALUE	AVE VALUE	MAX VALUE
ORTHOPHOSPHORUS															
AVERAGE	1.36	2.39	1.59	1.28	1.39	0.81	1.32	1.49	1.38	0.90	1.68	2.25		1.49	
MINIMUM	0.86	2.20	0.13	0.41	0.53	0.67	1.13	0.92	1.33	0.68	1.41	2.11	0.13		
MAXIMUM	1.89	2.62	2.45	2.24	1.83	1.06	1.72	1.88	1.44	1.06	2.16	2.36			2.62
TOTAL PHOSPHORUS															
AVERAGE	3.48	4.01	2.72	3.19	ND	2.53	3.38	3.85	3.58	2.74	4.14	4.66		3.19	
MINIMUM	3.30	3.63	1.21	1.86	ND	2.11	3.00	2.78	3.22	1.44	3.38	4.31	1.21		
MAXIMUM	3.70	4.40	3.58	4.18	ND	3.12	3.72	4.66	3.79	3.77	4.57	5.00			5.00
TPH (GCFID)															
AVERAGE	1.45	5.50	2.89	1.61	1.74	1.17	3.37	3.62	21.59	2.41	4.96	2.85		4.43	
MINIMUM	1.03	3.93	1.00	1.29	1.00	1.04	1.22	1.66	8.60	1.37	1.20	2.32	1.00		
MAXIMUM	2.08	8.20	3.91	1.86	2.52	1.25	5.42	6.74	46.70	4.37	8.39	3.61			46.70
EFFLUENT															
TEMP (DEG F)															
AVERAGE	68.3	70.2	69	66.4	65.2	61.2	58.1	57.6	57.2	57.2	60.3	66.5		63.1	
MINIMUM	58	64.4	65	61	59	48	54.9	53	52.7	52.9	56.3	63	48.0		
MAXIMUM	71.2	74.0	73.0	71.8	71.0	72.1	63.0	67.0	66.0	63.5	64.0	77.0			77.0
pH (units)															
MINIMUM	6.7	6.8	6.9	6.9	7	6.9	6.6	6.9	6.8	6.8	6.6	6.7		6.8	
MAXIMUM	8	7	8	8	8	8	7	8	7	8	7	7	7.1		8.0
CONVENTIONAL PARAMETERS (mg/L)															
TOTAL SOLIDS															
AVERAGE	1687	1715	1829	1351	1461	1019	1270	1383	1245	1103	1331	1476		1406	
MINIMUM	684	1080	986	488	748	704	844	952	904	772	660	1110	488		
MAXIMUM	2590	2970	2420	2050	2080	1460	2460	2940	2590	1640	3180	1860			3180
VOLATILE SOLIDS															
AVERAGE	386	396	405	266	261	193	224	308	231	209	283	315		290	
MINIMUM	156	220	248	128	128	128	64	120	124	144	128	25	25		
MAXIMUM	672	736	592	412	392	300	352	1830	440	296	1370	636			1830
SETTLEABLE SOLIDS (ml/L)															
AVERAGE	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2		0.2	
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	0.2	1.0	0.5	0.8	1.0	0.5	1.6	0.2	0.3	0.3	1.5	1.0			1.6
TVSS															
AVERAGE	33.6	36.0	34.3	31.2	27.1	24.4	31.5	35.1	39.2	32.1	35.0	40.1		33.3	
MINIMUM	22.0	19.0	20.0	14.0	15.0	13.0	19.0	21.0	26.0	18.0	19.0	30.0	13.0		
MAXIMUM	48.0	56.5	46.0	70.0	44.0	46.0	60.0	78.0	76.0	50.0	58.0	58.0			78.0
TSS															
AVERAGE	43	44	43	40	33	30	38	43	48	40	43	49		41	
MINIMUM	28	24	20	20	16	16	22	26	28	22	20	36	16		
MAXIMUM	62	68	56	94	50	58	82	100	90	59	77	69			100

Table A-1 Deer Island Treatment Plant Operations Summary, Fiscal Year 1997, cont.

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	MIN VALUE	AVE VALUE	MAX VALUE
BOD															
AVERAGE	98	102	93	85	93	68	93	98	99	73	101	116		93.2	
MINIMUM	47	56	39	29	58	29	71	70	78	36	74	93	29		
MAXIMUM	182	132	129	154	122	152	134	120	127	102	144	191			191
CBOD															
AVERAGE	63	73	41	52	70	55	72	90	85	68	78	106		71	
MINIMUM	33	55	37	34	66	41	55	77	80	55	42	86	33		
MAXIMUM	94	95	45	68	75	62	94	100	87	88	92	135			135
COD															
AVERAGE	241	255	240	216	225	166	224	235	240	195	239	270		229	
MINIMUM	139	191	108	74	179	107	165	207	298	131	195	220	74		
MAXIMUM	300	310	299	352	272	327	432	272	194	336	310	351			432
TOC															
AVERAGE	71.2	70.4	63.8	45.9	56.0	49.2	67.2	58.5	60.6	41.8	67.1	78.0		60.8	
MINIMUM	65.0	68.0	48.1	19.1	48.0	31.6	51.5	53.3	55.1	38.6	78.2	62.6	19.1		
MAXIMUM	74.3	72.8	83.7	65.9	74.3	82.6	94.6	63.6	64.9	46.4	57.8	89.5			94.6
FOG															
AVERAGE	19.7	28.6	32.1	18.4	25.3	17.4	27.1	22.6	23.6	12.8	25.4	27.4		23.4	
MINIMUM	14.5	26.5	13.3	7.0	12.1	9.5	7.0	16.0	15.4	9.6	19.7	23.2	7.0		
MAXIMUM	26.0	30.0	43.5	30.1	34.9	31.6	46.5	29.0	29.0	14.8	30.7	30.8			46.5
CHLORIDE															
AVERAGE	787	744	810	596	660	454	578	576	559	501	549	654			
MINIMUM	279	459	406	197	306	298	342	412	380	331	359	441		351	
MAXIMUM	1200	1270	1060	953	947	641	1270	960	1280	805	916	846	<0.01		1280
T COLIFORM (col/100mL)															
GEO MEAN	101	198	651	122	410	299	265	109	191	107	96	76			
MINIMUM	5	16	6	9	58	40	44	23	10	11	10	6		20	
MAXIMUM	2E+07	42656	1151000	82504	8811	5255	14924	661	5308	6256	3057	699	661		2E+07
F COLIFORM (col/100mL)															
GEO MEAN	8	6	9	9	11	9	8	7	7	7	6	6			
MINIMUM	5	5	5	5	5	5	5	5	5	5	5	5		5	
MAXIMUM	1205	249	1366	410	293	48	25	72	31	48	45	11	11		1366
NUTRIENTS (mg/L)															
TKN															
AVERAGE	21.56	25.23	27.20	18.96	19.73	16.10	23.62	24.60	21.43	18.70	22.40	23.80		21.94	
MINIMUM	17.10	21.80	12.00	12.00	23.10	10.90	21.60	23.20	17.70	18.70	22.40	23.80	10.90		
MAXIMUM	27.20	27.60	19.25	26.00	13.70	18.40	26.20	27.50	24.30	18.70	22.40	23.80			27.60
AMMONIA															
AVERAGE	11.67	17.15	13.17	11.10	12.91	8.70	14.30	13.67	13.83	11.10	15.30	15.30		13.18	
MINIMUM	5.36	15.30	4.80	4.43	7.02	7.36	12.10	9.19	12.20	11.10	15.30	15.30	4.43		
MAXIMUM	15.40	18.00	17.90	17.20	16.00	9.93	15.80	16.30	15.40	11.10	15.30	15.30			18.00

Table A-1 Deer Island Treatment Plant Operations Summary, Fiscal Year 1997, cont.

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	MIN VALUE	AVE VALUE	MAX VALUE
NITRATES															
AVERAGE	0.14	0.03	0.77	0.62	0.17	0.73	0.05	0.19	0.11	1.12	0.05	0.04		0.34	
MINIMUM	0.02	0.02	0.03	0.04	0.01	0.44	0.02	0.02	0.04	1.12	0.05	0.04	0.01		
MAXIMUM	0.38	0.04	2.58	2.50	0.62	1.11	0.19	0.52	0.26	1.12	0.05	0.04			2.58
NITRITES															
AVERAGE	1.7E-02	4.1E-02	3.4E-01	5.7E-02	2.7E-02	1.2E-01	5.9E-02	1.6E-01	1.5E-01	3.1E-01	4.4E-02	1.9E-02		1.1E-01	
MINIMUM	1.0E-02	1.1E-02	4.9E-02	1.0E-02	1.0E-02	1.0E-02	3.1E-02	1.4E-01	6.2E-02	3.1E-01	4.4E-02	1.9E-02	1.0E-02		
MAXIMUM	2.4E-02	1.1E-01	6.2E-01	1.4E-01	6.8E-02	2.0E-01	1.5E-01	1.9E-01	2.1E-02	3.1E-01	4.4E-02	1.9E-02			6.2E-01
ORTHOPHOSPHORUS															
AVERAGE	1.25	2.13	1.77	1.45	1.63	1.12	1.77	1.89	1.79	1.25	1.88	2.20		1.68	
MINIMUM	0.70	0.90	0.48	0.48	0.85	0.87	1.46	1.24	1.61	1.25	1.88	2.20	0.48		
MAXIMUM	1.60	2.61	2.71	2.35	2.06	1.43	2.02	2.32	2.08	1.25	1.88	2.20			2.71
TOTAL PHOSPHORUS															
AVERAGE	3.1	3.3	2.5	3.0	2.6	2.2	3.1	2.7	3.3	2.7	3.0	3.7		2.9	
MINIMUM	2.8	2.6	1.1	2.3	1.8	1.7	2.6	3.4	3.0	2.7	3.0	3.7	1.1		
MAXIMUM	4.0	3.7	3.3	3.6	3.2	3.0	3.6	4.0	3.5	2.7	3.0	3.7			4.0
TPH (GCFID)															
AVERAGE	2.68	3.79	4.21	1.67	2.30	1.48	3.15	4.22	3.43	1.63	4.15	2.50		2.93	
MINIMUM	1.34	2.36	2.31	1.00	1.02	1.01	1.60	2.00	2.61	1.47	1.34	2.31	1.00		
MAXIMUM	5.30	5.90	6.50	3.72	5.96	3.05	6.46	7.55	4.15	1.94	9.56	2.68			9.56

NOTES:
1. Data reduced from Deer Island Treatment Plant Monthly Operation Logs. All chemical analyses were conducted by Deer Island Central Laboratory.
2. Concentration expressed in mg/L unless otherwise noted
3. ND No data
4. NR No removal observed

Table A-2 Deer Island Influent Characterization, Fiscal Year 1997

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (ug/L)															
ANTIMONY	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	0 of 88
ARSENIC	1.28	1.10	1.36	1.25	1.10	1.50	1.10	1.56	1.10	1.30	1.69	1.10	1.30	4.10	9 of 88
BERYLLIUM	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 88
BORON	276.47	150.00	238.00	188.05	174.93	265.41	179.46	201.41	173.54	150.00	186.66	264.43	205.70	742.00	22 of 88
CADMIUM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0 of 88
CHROMIUM	8.70	4.86	5.85	5.36	4.51	6.35	4.14	3.62	4.18	8.03	5.30	3.93	5.57	27.70	80 of 88
COPPER	90.93	106.59	88.53	68.27	69.93	55.82	71.33	81.77	66.18	47.67	68.87	90.67	72.14	136.00	95 of 95
HEXAVALENT CHROMIUM	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	0 of 35
IRON	2349.33	1311.98	1424.45	1805.01	1208.41	1358.89	1283.30	1309.88	1338.52	1122.02	1809.76	1450.81	1476.70	5890.00	86 of 86
LEAD	14.55	16.13	20.78	20.34	10.42	16.74	10.47	11.55	13.75	11.12	32.07	13.45	16.03	130.00	91 of 92
MERCURY	0.19	0.18	0.38	0.44	0.61	0.20	0.27	0.25	0.18	0.18	0.29	0.30	0.28	1.26	88 of 89
MOLYBDENUM	20.53	13.38	14.25	6.58	4.77	5.85	6.17	6.21	6.64	3.50	5.79	14.06	8.37	31.60	49 of 87
NICKEL	4.42	5.14	5.12	5.81	5.45	4.06	3.53	4.55	6.53	5.97	3.55	5.21	4.96	16.20	72 of 87
SELENIUM	1.10	1.10	1.10	1.26	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.12	2.70	1 of 88
SILVER	12.45	3.63	4.06	3.05	3.39	2.35	3.11	3.87	3.03	1.96	2.78	4.23	3.81	81.70	79 of 87
THALLIUM	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	0 of 88
ZINC	78.39	79.27	99.22	91.51	72.73	107.05	75.52	88.12	83.40	67.92	104.29	87.89	87.12	313.00	88 of 88
Cyanide and Phenols (ug/L)															
CYANIDE	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	0 of 36
PHENOL	23.08	30.99	33.18	17.64	31.49	1.00	20.22	33.90	19.73	1.00	50.91	17.53	21.02	119.00	29 of 36
Oil and Grease, Petroleum Hydrocarbons, and Surfactants (mg/L)															
FATS OIL AND GREASE	32.51	35.60	39.35	6.95	28.65	17.62	26.79	23.69	39.10	13.98	44.15	34.61	27.46	136.00	74 of 76
PETROLEUM HYDROCARBON	0.64	2.09	2.07	0.28	1.00	0.21	0.76	1.67	1.11	0.49	1.52	2.63	1.12	3.40	32 of 35
TOTAL PETROLEUM HYDROCA	1.44	5.55	2.49	1.63	1.37	1.17	3.38	3.95	20.82	2.26	4.99	2.85	4.06	46.70	34 of 36
SURFACTANTS	4.2731	4.2545	4.8284	3.1706	3.4123	1.7967	3.6757	4.3398	4.5109	2.1554	4.1160	4.8875	3.5563	6.0000	36 of 36
Organochlorine Pesticides and PCBs (ug/L)															
4,4'-DDD	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0 of 76
4,4'-DDE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	1 of 76
4,4'-DDT	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	2 of 76
ALDRIN	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 76
ALPHA-BHC	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 76
ALPHA-CHLORDANE	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	6 of 76
AROCLOR-1016	0.11	0.10	0.12	0.12	0.09	0.05	0.05	0.06	0.08	0.06	0.05	0.05	0.08	0.20	0 of 76
AROCLOR-1221	0.21	0.21	0.24	0.23	0.17	0.11	0.10	0.12	0.16	0.11	0.11	0.09	0.15	0.40	0 of 76
AROCLOR-1232	0.11	0.10	0.12	0.12	0.09	0.05	0.05	0.06	0.08	0.06	0.05	0.05	0.08	0.20	0 of 76
AROCLOR-1242	0.11	0.10	0.12	0.12	0.09	0.05	0.05	0.06	0.08	0.06	0.05	0.05	0.08	0.20	0 of 76
AROCLOR-1248	0.11	0.10	0.12	0.12	0.09	0.05	0.05	0.06	0.08	0.06	0.05	0.05	0.08	0.20	0 of 76
AROCLOR-1254	0.11	0.10	0.12	0.12	0.09	0.05	0.05	0.06	0.08	0.06	0.05	0.05	0.08	0.20	0 of 76
AROCLOR-1260	0.11	0.10	0.12	0.12	0.09	0.05	0.05	0.06	0.08	0.06	0.05	0.05	0.08	0.20	0 of 76
BETA-BHC	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 76
CHLORDANE (TECHNICAL)	0.11	0.10	0.12	0.12	0.09	0.05	0.05	0.06	0.08	0.06	0.05	0.05	0.08	0.20	0 of 76
DELTA-BHC	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 76
DIELDRIN	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	1 of 76

Table A-2 Deer Island Influent Characterization, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Organochlorine Pesticides and PCBs (ug/L)															
ENDOSULFAN I	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 76
ENDOSULFAN II	*0.01*	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	1 of 76
ENDOSULFAN SULFATE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0 of 76
ENDRIN	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0 of 76
ENDRIN ALDEHYDE	0.01	0.01	0.01	*0.01*	*0.01*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	2 of 76
ENDRIN KETONE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0 of 76
GAMMA-BHC (LINDANE)	*0.01*	0.01	0.01	*0.01*	0.00	0.00	*0.00*	0.00	0.00	0.00	0.00	0.00	0.00	0.03	3 of 76
GAMMA-CHLORDANE	0.01	*0.01*	0.01	*0.01*	0.00	*0.00*	0.00	*0.00*	0.00	*0.00*	0.00	*0.01*	0.00	0.05	7 of 76
HEPTACHLOR	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 76
HEPTACHLOR EPOXIDE	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 76
METHOXYCHLOR	0.05	*0.06*	0.06	0.06	0.04	0.02	0.02	0.02	0.02	0.02	0.02	*0.04*	0.04	0.13	2 of 76
TOXAPHENE	0.11	0.10	0.12	0.12	0.09	0.05	0.05	0.06	0.08	0.06	0.05	0.07	0.08	0.20	0 of 76
Semivolatile Organics (ug/L)															
1,2,4-TRICHLOROBENZENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
1,2-DICHLOROBENZENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
1,2-DIPHENYLHYDRAZINE (AS	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
1,3-DICHLOROBENZENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
1,4-DICHLOROBENZENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
2,2'-OXYBIS(1-CHLOROPROPAN	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
2,4,5-TRICHLOROPHENOL	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
2,4,6-TRICHLOROPHENOL	1.08	1.06	1.07	1.03	1.07	1.04	1.05	2.64	2.09	1.17	1.11	1.08	1.27	5.35	0 of 37
2,4-DICHLOROPHENOL	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
2,4-DIMETHYLPHENOL	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
2,4-DINITROPHENOL	2.16	2.11	2.13	2.06	2.13	2.09	2.10	2.08	4.18	2.35	2.21	2.15	2.29	6.18	0 of 37
2,4-DINITROTOLUENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
2,6-DINITROTOLUENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
2-CHLORONAPHTHALENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
2-CHLOROPHENOL	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
2-METHYL-4,6-DINITROPHENOL	1.08	1.06	1.07	1.03	1.07	10.43	10.50	10.42	20.91	11.73	11.07	10.77	7.96	30.90	0 of 37
2-METHYLNAPHTHALENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
2-METHYLPHENOL	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
2-NITROANILINE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
2-NITROPHENOL	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
3,3'-DICHLOROBENZIDINE	1.08	1.06	1.07	1.03	1.07	2.09	2.10	2.08	4.18	2.35	2.21	2.15	1.90	6.18	0 of 37
3-NITROANILINE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
4-BROMOPHENYL PHENYL ETH	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
4-CHLORO-3-METHYLPHENOL	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
4-CHLOROANILINE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
4-CHLOROPHENYL PHENYL ET	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
4-METHYLPHENOL (INCLUDES	1.08	*16.35*	*25.71*	*7.22*	*12.56*	1.04	*10.56*	*14.06*	*18.21*	1.17	*13.25*	*17.61*	10.12	39.40	24 of 37
4-NITROANILINE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
4-NITROPHENOL	2.16	2.11	2.13	2.06	2.13	2.09	2.10	2.08	4.18	2.35	2.21	2.15	2.29	6.18	0 of 37
ACENAPHTHENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
ACENAPHTHYLENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37

Table A-2 Deer Island Influent Characterization, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Semivolatile Organics (ug/L)															
ANILINE	2.16	2.11	2.13	2.06	2.13	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.54	3.09	0 of 37
ANTHRACENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
BENZIDINE	10.79	10.56	10.67	10.32	10.67	5.21	5.25	5.21	10.45	5.87	5.54	5.38	7.68	15.45	0 of 37
BENZO(A)ANTHRACENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
BENZO(A)PYRENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
BENZO(B)FLUORANTHENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
BENZO(GHI)PERYLENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
BENZO(K)FLUORANTHENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
BENZOIC ACID	2.16	2.11	***17.90***	***4.14***	***6.01***	2.09	***6.87***	***12.29***	***51.52***	2.35	***6.42***	***5.60***	8.86	66.00	14 of 37
BENZYL ALCOHOL	***5.54***	***3.51***	***8.73***	***9.26***	***9.48***	1.04	***7.06***	***10.52***	***11.48***	1.17	***12.76***	***9.25***	6.91	21.00	23 of 37
BIS(2-CHLOROETHOXY)METHA	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
BIS(2-CHLOROETHYL)ETHER	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
BIS(2-ETHYLHEXYL)PHTHALAT	1.08	***4.01***	***5.44***	***6.86***	***5.97***	1.04	***5.06***	***7.02***	***8.55***	***2.80***	***3.05***	***4.97***	4.38	16.60	20 of 37
BUTYL BENZYL PHTHALATE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
CHRYSENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
DI-N-BUTYLPHTHALATE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
DI-N-OCTYLPHTHALATE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
DIBENZO(A,H)ANTHRACENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
DIBENZOFURAN	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
DIETHYL PHTHALATE	1.08	***4.21***	***3.83***	1.03	1.07	1.04	1.05	1.04	***3.70***	1.17	***3.13***	***2.62***	1.90	6.90	7 of 37
DIMETHYL PHTHALATE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
FLUORANTHENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
FLUORENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
HEXACHLOROBENZENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
HEXACHLOROBUTADIENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
HEXACHLOROCYCLOPENTADI	1.08	1.06	1.07	1.03	1.07	5.21	5.25	3.61	10.45	5.87	5.54	5.38	4.05	15.45	0 of 37
HEXACHLOROETHANE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
INDENO(1,2,3-CD)PYRENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
ISOPHORONE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
N-NITROSODI-N-PROPYLAMINE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
N-NITROSODIMETHYLAMINE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
N-NITROSODIPHENYLAMINE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
NAPHTHALENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
NITROBENZENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
PENTACHLOROPHENOL	1.08	1.06	1.07	1.03	1.07	5.21	4.14	5.21	10.45	5.87	5.54	5.38	4.09	15.45	0 of 37
PHENANTHRENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37
PHENOL	1.08	1.06	1.07	1.03	1.07	2.09	2.10	2.08	4.18	2.35	2.21	2.15	1.90	6.18	0 of 37
PYRENE	1.08	1.06	1.07	1.03	1.07	1.04	1.05	1.04	2.09	1.17	1.11	1.08	1.15	3.09	0 of 37

Table A-2 Deer Island Influent Characterization, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Volatile Organics (ug/L)															
1,1,1-TRICHLOROETHANE	0.50	0.50	0.50	0.60	1.06	0.50	0.60	0.59	0.50	0.64	0.70	0.50	0.60	2.09	9 of 79
1,1,2,2-TETRACHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
1,1,2-TRICHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
1,1-DICHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
1,1-DICHLOROETHENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
1,2-DICHLOROBENZENE	0.50	0.50	0.59	0.76	0.50	0.50	0.50	0.50	0.50	0.63	0.50	0.50	0.55	2.85	3 of 79
1,2-DICHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
1,2-DICHLOROPROPANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
1,3-DICHLOROBENZENE	0.50	0.50	0.61	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.51	1.27	1 of 79
1,4-DICHLOROBENZENE	1.77	1.97	1.87	0.91	1.47	1.11	1.25	1.37	1.46	1.18	1.39	1.89	1.42	3.02	69 of 79
2-BUTANONE	0.50	0.50	0.50	1.47	1.82	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.69	5.00	4 of 79
2-CHLOROETHYL VINYL ETHE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
2-HEXANONE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
4-METHYL-2-PENTANONE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
ACETONE	129.32	146.59	163.42	90.14	157.87	121.20	148.75	115.90	143.37	143.94	106.74	139.31	132.44	344.00	79 of 79
ACROLEIN	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
ACRYLONITRILE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
BENZENE	0.50	0.50	0.50	0.50	0.74	1.00	0.94	0.73	0.81	1.19	1.26	1.28	0.85	1.95	31 of 79
BROMODICHLOROMETHANE	0.59	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.51	1.07	1 of 79
BROMOFORM	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
BROMOMETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
CARBON DISULFIDE	11.70	2.99	2.11	3.23	4.10	0.59	1.70	1.63	1.20	0.50	2.95	1.44	2.64	62.60	37 of 79
CARBON TETRACHLORIDE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
CHLOROBENZENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
CHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
CHLOROFORM	4.84	5.19	4.53	2.08	4.26	2.33	3.76	3.88	4.52	3.11	4.11	5.54	3.85	7.52	78 of 79
CHLOROMETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
CIS-1,2-DICHLOROETHENE	2.43	2.64	2.42	1.52	3.24	2.15	2.40	2.55	2.35	2.20	2.28	2.60	2.35	4.91	77 of 79
CIS-1,3-DICHLOROPROPENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
DIBROMOCHLOROMETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
ETHYLBENZENE	0.50	0.93	1.12	0.50	0.50	0.63	1.07	0.91	0.50	0.93	0.50	0.90	0.74	4.11	15 of 79
M,P-XYLENE	1.67	1.86	3.57	1.12	2.14	2.49	2.30	2.40	2.25	3.56	2.14	3.18	2.41	15.00	76 of 79
METHYLENE CHLORIDE	2.81	3.89	3.25	2.71	4.20	1.82	6.31	2.21	3.98	2.32	2.68	4.12	3.24	11.80	73 of 79
O-XYLENE	0.50	0.90	1.09	0.63	0.74	1.15	0.90	0.89	0.83	1.58	0.79	1.52	0.98	4.30	39 of 79
STYRENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
TETRACHLOROETHENE	3.05	4.25	5.49	2.20	4.18	3.05	3.54	4.24	4.48	5.62	4.54	6.26	4.18	17.90	78 of 79
TOLUENE	4.90	6.27	7.47	1.73	3.95	2.48	3.88	4.39	5.15	3.63	4.39	7.73	4.44	19.00	77 of 79
TRANS-1,2-DICHLOROETHENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
TRANS-1,3-DICHLOROPROPENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
TRICHLOROETHENE	3.22	3.26	2.72	1.98	5.12	3.73	4.33	4.33	4.13	4.89	4.56	4.39	3.88	7.88	77 of 79
TRICHLOROFLUOROMETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
VINYL ACETATE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
VINYL CHLORIDE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79

Table A-3 Deer Island Influent Loadings, Fiscal Year 1997

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (lb/day)															
ANTIMONY	23.38	20.64	22.98	35.00	26.53	39.06	26.22	25.66	27.54	40.26	28.33	22.21	28.19	61.57	0 of 88
ARSENIC	2.40	1.82	2.50	3.50	2.33	4.70	2.31	3.20	2.42	4.19	3.84	1.95	2.94	12.85	9 of 88
BERYLLIUM	0.94	0.83	0.92	1.40	1.06	1.56	1.05	1.03	1.10	1.61	1.13	0.89	1.13	2.46	0 of 88
BORON	517.19	247.66	437.48	526.55	371.24	829.40	376.43	413.52	382.34	483.06	423.09	469.78	463.93	2284.75	22 of 88
CADMIUM	1.87	1.65	1.84	2.80	2.12	3.12	2.10	2.05	2.20	3.22	2.27	1.78	2.26	4.93	0 of 88
CHROMIUM	16.28	8.02	10.75	15.00	9.58	19.85	8.69	7.44	9.21	25.87	12.02	6.98	12.57	68.05	80 of 88
COPPER	170.11	175.98	162.73	174.09	148.40	174.45	149.63	167.88	145.81	153.52	156.09	161.08	162.25	391.91	95 of 95
HEXAVALENT CHROMIUM	10.66	9.01	9.25	12.26	11.29	17.99	11.82	12.40	10.99	17.34	11.31	10.29	12.13	20.99	0 of 35
IRON	4394.83	2166.20	2618.32	5329.08	2502.94	4246.45	2691.80	2689.38	2949.05	3613.35	4102.12	2577.42	3334.72	12384.36	86 of 86
LEAD	27.22	26.64	38.20	56.96	22.12	52.32	21.96	23.71	30.30	35.79	72.69	23.90	36.16	407.59	91 of 92
MERCURY	0.35	0.29	0.69	1.24	1.29	0.61	0.56	0.51	0.40	0.57	0.66	0.54	0.63	2.65	88 of 89
MOLYBDENUM	38.41	22.09	26.19	18.43	10.13	18.27	12.94	12.74	14.62	11.27	13.11	24.98	18.91	51.98	49 of 87
NICKEL	8.27	8.48	9.42	17.16	11.56	12.68	7.41	9.33	14.39	19.23	8.05	9.25	11.20	42.85	72 of 87
SELENIUM	2.06	1.82	2.02	3.51	2.33	3.44	2.31	2.26	2.42	3.54	2.49	1.95	2.52	5.42	1 of 88
SILVER	23.29	5.99	7.47	8.53	7.30	7.33	6.53	7.94	6.67	6.32	6.31	7.51	8.60	139.16	79 of 87
THALLIUM	2.06	1.82	2.02	3.08	2.33	3.44	2.31	2.26	2.42	3.54	2.49	1.95	2.48	5.42	0 of 88
ZINC	146.64	130.88	182.38	256.24	154.35	334.52	158.41	180.92	183.75	218.73	236.39	156.14	196.48	880.78	88 of 88
Cyanide and Phenols (lb/day)															
CYANIDE	9.69	8.19	8.74	11.15	10.27	16.36	10.74	11.27	9.99	15.77	10.28	9.35	10.98	19.08	0 of 36
PHENOL	47.52	51.88	57.77	44.69	68.50	3.62	43.01	74.16	38.32	3.43	115.07	33.20	48.43	274.09	29 of 36
Oil and Grease, Petroleum Hydrocarbons, and Surfactants (lb/day)															
FATS OIL AND GREASE	58403.04	58089.56	73376.19	20800.36	58241.21	51188.87	56889.23	49838.06	88903.53	41722.02	96206.14	60767.97	60505.21	255816.18	74 of 76
PETROLEUM HYDROCARBON	1248.58	3414.98	3618.33	681.65	2048.68	692.24	1638.50	3756.78	2220.19	1556.61	3131.55	4927.45	2460.71	7140.63	32 of 35
TOTAL PETROLEUM HYDROCA	2789.61	9083.08	4356.95	3638.07	2821.36	3833.49	7252.81	8900.40	41627.42	7122.55	10261.69	5336.69	8918.68	87803.79	34 of 36
SURFACTANTS	8797.34	7122.20	8405.29	8032.91	7422.72	6511.05	7819.17	9494.72	8758.50	7386.27	9302.79	9255.17	8192.34	11968.98	36 of 36
Organochlorine Pesticides and PCBs (lb/day)															
4,4'-DDD	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0 of 76
4,4'-DDE	0.02	0.02	0.02	0.03	0.02	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.05	1 of 76
4,4'-DDT	0.03	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.09	2 of 76
ALDRIN	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 76
ALPHA-BHC	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 76
ALPHA-CHLORDANE	0.01	0.02	0.01	0.02	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.07	6 of 76
AROCLOR-1016	0.19	0.17	0.22	0.33	0.18	0.16	0.11	0.12	0.16	0.17	0.11	0.10	0.17	0.49	0 of 76
AROCLOR-1221	0.38	0.34	0.44	0.67	0.36	0.32	0.22	0.24	0.31	0.34	0.23	0.16	0.33	0.98	0 of 76
AROCLOR-1232	0.19	0.17	0.22	0.33	0.18	0.16	0.11	0.12	0.16	0.17	0.11	0.10	0.17	0.49	0 of 76
AROCLOR-1242	0.19	0.17	0.22	0.33	0.18	0.16	0.11	0.12	0.16	0.17	0.11	0.10	0.17	0.49	0 of 76
AROCLOR-1248	0.19	0.17	0.22	0.33	0.18	0.16	0.11	0.12	0.16	0.17	0.11	0.10	0.17	0.49	0 of 76
AROCLOR-1254	0.19	0.17	0.22	0.33	0.18	0.16	0.11	0.12	0.16	0.17	0.11	0.10	0.17	0.49	0 of 76
AROCLOR-1260	0.19	0.17	0.22	0.33	0.18	0.16	0.11	0.12	0.16	0.17	0.11	0.10	0.17	0.49	0 of 76
BETA-BHC	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 76
CHLORDANE (TECHNICAL)	0.19	0.17	0.22	0.33	0.18	0.16	0.11	0.12	0.16	0.17	0.11	0.10	0.17	0.49	0 of 76
DELTA-BHC	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 76
DIELDRIN	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.05	1 of 76

Table A-3 Deer Island Influent Loadings, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Organochlorine Pesticides and PCBs (lb/day)															
ENDOSULFAN I	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 76
ENDOSULFAN II	***0.02***	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	1 of 76
ENDOSULFAN SULFATE	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0 of 76
ENDRIN	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0 of 76
ENDRIN ALDEHYDE	0.02	0.02	0.02	***0.04***	***0.02***	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	2 of 76
ENDRIN KETONE	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0 of 76
GAMMA-BHC (LINDANE)	***0.02***	0.01	0.01	***0.02***	0.01	0.01	***0.01***	0.00	0.00	0.01	0.00	0.00	0.01	0.05	3 of 76
GAMMA-CHLORDANE	0.01	***0.02***	0.01	***0.02***	0.01	***0.01***	0.00	***0.01***	0.00	***0.01***	0.00	***0.01***	0.01	0.07	7 of 76
HEPTACHLOR	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 76
HEPTACHLOR EPOXIDE	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 76
METHOXYCHLOR	0.10	***0.10***	0.11	0.17	0.09	0.06	0.04	0.04	0.04	0.07	0.05	***0.06***	0.08	0.25	2 of 76
TOXAPHENE	0.19	0.17	0.22	0.33	0.18	0.16	0.11	0.12	0.16	0.17	0.11	0.12	0.17	0.49	0 of 76
Semivolatile Organics (lb/day)															
1,2,4-TRICHLOROBENZENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
1,2-DICHLOROBENZENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
1,2-DIPHENYLHYDRAZINE (AS	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
1,3-DICHLOROBENZENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
1,4-DICHLOROBENZENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
2,2'-OXYBIS(1-CHLOROPROPAN	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
2,4,5-TRICHLOROPHENOL	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
2,4,6-TRICHLOROPHENOL	2.22	1.77	1.86	2.61	2.32	3.78	2.23	5.78	4.06	4.02	2.50	2.04	2.93	13.14	0 of 37
2,4-DICHLOROPHENOL	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
2,4-DIMETHYLPHENOL	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
2,4-DINITROPHENOL	4.44	3.53	3.71	5.23	4.64	7.56	4.47	4.56	8.12	8.04	5.00	4.08	5.28	11.42	0 of 37
2,4-DINITROTOLUENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
2,6-DINITROTOLUENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
2-CHLORONAPHTHALENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
2-CHLOROPHENOL	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
2-METHYL-4,6-DINITROPHENOL	2.22	1.77	1.86	2.61	2.32	37.79	22.34	22.80	40.59	40.21	25.02	20.39	18.33	57.09	0 of 37
2-METHYLNAPHTHALENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
2-METHYLPHENOL	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
2-NITROANILINE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
2-NITROPHENOL	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
3,3'-DICHLOROBENZIDINE	2.22	1.77	1.86	2.61	2.32	7.56	4.47	4.56	8.12	8.04	5.00	4.08	4.38	11.42	0 of 37
3-NITROANILINE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
4-BROMOPHENYL PHENYL ETH	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
4-CHLORO-3-METHYLPHENOL	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
4-CHLOROANILINE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
4-CHLOROPHENYL PHENYL ET	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
4-METHYLPHENOL (INCLUDES	2.22	***27.37***	***44.76***	***18.30***	***27.32***	3.78	***22.46***	***30.76***	***35.36***	4.02	***29.95***	***33.35***	23.31	63.46	24 of 37
4-NITROANILINE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
4-NITROPHENOL	4.44	3.53	3.71	5.23	4.64	7.56	4.47	4.56	8.12	8.04	5.00	4.08	5.28	11.42	0 of 37
ACENAPHTHENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
ACENAPHTHYLENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37

Table A-3 Deer Island Influent Loadings, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Semivolatile Organics (lb/day)															
ANILINE	4.44	3.53	3.71	5.23	4.64	3.78	2.23	2.28	4.06	4.02	2.50	2.04	3.54	7.36	0 of 37
ANTHRACENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
BENZIDINE	22.21	17.67	18.57	26.14	23.22	18.90	11.17	11.40	20.30	20.11	12.51	10.19	17.70	36.80	0 of 37
BENZO(A)ANTHRACENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
BENZO(A)PYRENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
BENZO(B)FLUORANTHENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
BENZO(GHI)PERYLENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
BENZO(K)FLUORANTHENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
BENZOIC ACID	4.44	3.53	***31.15***	***10.49***	***13.07***	7.56	***14.62***	***26.88***	***100.03***	8.04	***14.51***	***10.60***	20.41	115.11	14 of 37
BENZYL ALCOHOL	***11.40***	***5.87***	***15.20***	***23.45***	***20.61***	3.78	***15.03***	***23.02***	***22.28***	4.02	***28.83***	***17.52***	15.92	48.37	23 of 37
BIS(2-CHLOROETHOXY)METHA	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
BIS(2-CHLOROETHYL)ETHER	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
BIS(2-ETHYLHEXYL)PHTHALAT	2.22	***6.71***	***9.48***	***17.38***	***12.98***	3.78	***10.77***	***15.36***	***16.60***	***9.61***	***6.90***	***9.42***	10.10	37.51	20 of 37
BUTYL BENZYL PHTHALATE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
CHRYSENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
DI-N-BUTYLPHTHALATE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
DI-N-OCTYLPHTHALATE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
DIBENZO(A,H)ANTHRACENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
DIBENZOFURAN	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
DIETHYL PHTHALATE	2.22	***7.04***	***6.67***	2.61	2.32	3.78	2.23	2.28	***7.19***	4.02	***7.08***	***4.96***	4.37	16.17	7 of 37
DIMETHYL PHTHALATE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
FLUORANTHENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
FLUORENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
HEXACHLOROBENZENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
HEXACHLOROBUTADIENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
HEXACHLOROCYCLOPENTADI	2.22	1.77	1.86	2.61	2.32	18.90	11.17	7.90	20.30	20.11	12.51	10.19	9.32	28.55	0 of 37
HEXACHLOROETHANE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
INDENO(1,2,3-CD)PYRENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
ISOPHORONE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
N-NITROSODI-N-PROPYLAMINE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
N-NITROSODIMETHYLAMINE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
N-NITROSODIPHENYLAMINE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
NAPHTHALENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
NITROBENZENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
PENTACHLOROPHENOL	2.22	1.77	1.86	2.61	2.32	18.90	8.81	11.40	20.30	20.11	12.51	10.19	9.42	28.55	0 of 37
PHENANTHRENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37
PHENOL	2.22	1.77	1.86	2.61	2.32	7.56	4.47	4.56	8.12	8.04	5.00	4.08	4.38	11.42	0 of 37
PYRENE	2.22	1.77	1.86	2.61	2.32	3.78	2.23	2.28	4.06	4.02	2.50	2.04	2.64	5.71	0 of 37

Table A-3 Deer Island Influent Loadings, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Volatile Organics (lb/day)															
1,1,1-TRICHLOROETHANE	0.90	0.82	0.93	***1.69***	***2.16***	1.45	***1.27***	***1.24***	1.14	***1.92***	***1.53***	0.88	1.31	4.71	9 of 79
1,1,2,2-TETRACHLOROETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
1,1,2-TRICHLOROETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
1,1-DICHLOROETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
1,1-DICHLOROETHENE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
1,2-DICHLOROBENZENE	0.90	0.82	***1.10***	***2.14***	1.02	1.45	1.06	1.05	1.14	***1.89***	1.09	0.88	1.20	5.38	3 of 79
1,2-DICHLOROETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
1,2-DICHLOROPROPANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
1,3-DICHLOROBENZENE	0.90	0.82	***1.13***	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.12	2.46	1 of 79
1,4-DICHLOROBENZENE	***3.18***	***3.22***	***3.49***	***2.56***	***2.99***	***3.24***	***2.65***	***2.89***	***3.33***	***3.52***	***3.02***	***3.31***	3.13	5.77	69 of 79
2-BUTANONE	0.90	0.82	0.93	***4.12***	***3.69***	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.52	11.13	4 of 79
2-CHLOROETHYL VINYL ETHE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
2-HEXANONE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
4-METHYL-2-PENTANONE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
ACETONE	***232.30***	***239.21***	***304.73***	***253.12***	***320.90***	***352.07***	***315.90***	***243.83***	***326.01***	***429.56***	***232.59***	***244.60***	291.28	670.03	79 of 79
ACROLEIN	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
ACRYLONITRILE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
BENZENE	0.90	0.82	0.93	1.40	***1.51***	***2.91***	***1.99***	***1.54***	***1.85***	***3.54***	***2.74***	***2.24***	1.86	4.66	31 of 79
BROMODICHLOROMETHANE	***1.06***	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.11	2.46	1 of 79
BROMOFORM	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
BROMOMETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
CARBON DISULFIDE	***21.02***	***4.88***	***3.93***	***9.08***	***8.33***	***1.71***	***3.62***	***3.43***	***2.74***	1.49	***6.43***	***2.53***	5.81	116.65	37 of 79
CARBON TETRACHLORIDE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
CHLOROBENZENE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
CHLOROETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
CHLOROFORM	***8.69***	***8.47***	***8.44***	***5.83***	***8.65***	***6.76***	***7.99***	***8.16***	***10.27***	***9.27***	***8.96***	***9.73***	8.46	15.68	78 of 79
CHLOROMETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
CIS-1,2-DICHLOROETHENE	***4.36***	***4.30***	***4.51***	***4.28***	***6.59***	***6.24***	***5.09***	***5.35***	***5.35***	***6.55***	***4.97***	***4.56***	5.17	11.08	77 of 79
CIS-1,3-DICHLOROPROPENE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
DIBROMOCHLOROMETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
ETHYLBENZENE	0.90	***1.52***	***2.08***	1.40	1.02	***1.84***	***2.27***	***1.91***	1.14	***2.78***	1.09	***1.58***	1.62	8.24	15 of 79
M,P-XYLENE	***3.01***	***3.03***	***6.65***	***3.13***	***4.36***	***7.23***	***4.88***	***5.05***	***5.11***	***10.62***	***4.66***	***5.59***	5.29	25.12	76 of 79
METHYLENE CHLORIDE	***5.04***	***6.35***	***6.06***	***7.60***	***8.53***	***5.30***	***13.41***	***4.66***	***9.05***	***6.91***	***5.83***	***7.23***	7.12	26.41	73 of 79
O-XYLENE	0.90	***1.47***	***2.03***	***1.76***	***1.50***	***3.33***	***1.92***	***1.86***	***1.90***	***4.70***	***1.72***	***2.67***	2.15	8.74	39 of 79
STYRENE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
TETRACHLOROETHENE	***5.48***	***6.94***	***10.24***	***6.17***	***8.50***	***8.86***	***7.51***	***8.93***	***10.19***	***16.76***	***9.88***	***10.99***	9.20	40.07	78 of 79
TOLUENE	***8.80***	***10.23***	***13.93***	***4.85***	***8.02***	***7.20***	***8.24***	***9.22***	***11.71***	***10.84***	***9.56***	***13.57***	9.77	40.88	77 of 79
TRANS-1,2-DICHLOROETHENE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
TRANS-1,3-DICHLOROPROPENE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
TRICHLOROETHENE	***5.78***	***5.32***	***5.08***	***5.55***	***10.42***	***10.83***	***9.20***	***9.11***	***9.40***	***14.61***	***9.94***	***7.70***	8.52	17.77	77 of 79
TRICHLOROFLUOROMETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
VINYL ACETATE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
VINYL CHLORIDE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79

Table A-4 Deer Island Effluent Characterization, Fiscal Year 1997

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (ug/L)															
ANTIMONY	12.50	12.50	12.50	12.50	12.50	14.36	12.50	12.50	12.50	12.50	12.50	14.65	12.91	31.30	2 of 89
ARSENIC	1.10	1.10	1.27	1.10	1.10	1.10	1.10	1.67	1.10	1.10	1.42	1.10	1.18	3.20	4 of 86
BERYLLIUM	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 89
BORON	252.01	190.60	306.72	168.57	179.30	167.75	201.68	175.16	150.00	150.00	197.84	216.95	193.67	611.00	23 of 88
CADMIUM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0 of 89
CHROMIUM	5.31	3.63	3.77	4.03	2.56	2.99	10.82	2.26	2.50	4.59	2.76	3.33	4.04	55.80	76 of 90
COPPER	90.80			52.76	57.80	39.99	51.62	61.16	52.43	36.70	36.34	68.20	50.21	93.20	70 of 70
HEXAVALENT CHROMIUM	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	0 of 35
IRON	2168.54	947.07	901.46	1041.39	918.24	801.17	944.86	861.15	903.49	991.68	965.81	1019.70	1050.56	7600.00	88 of 88
LEAD	8.13	8.38	9.80	9.63	4.86	6.13	5.64	5.56	7.80	7.18	8.39	7.03	7.38	16.90	86 of 92
MERCURY	0.17	0.09	0.09	0.11	0.18	0.06	0.08	0.06	0.08	0.09	0.08	0.14	0.10	0.62	72 of 86
MOLYBDENUM	17.33	11.12	9.71	3.86	6.49	4.07	6.37	4.88	7.21	4.17	6.08	9.08	7.16	21.20	48 of 88
NICKEL	5.01	4.05	4.44	5.89	3.02	3.23	8.70	4.04	5.91	4.81	1.87	2.95	4.46	38.00	62 of 87
SELENIUM	1.10	1.10	1.26	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.11	2.30	1 of 86
SILVER	2.41	2.16	2.06	1.30	2.50	1.73	1.79	2.74	2.04	1.80	1.72	2.91	2.04	4.20	78 of 88
THALLIUM	1.18	1.23	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.11	2.00	2 of 88
ZINC	50.75	44.90	47.78	52.55	44.18	54.25	55.68	54.73	57.00	57.75	51.87	48.97	52.11	97.80	89 of 89
Cyanide and Phenols (ug/L)															
CYANIDE	10.55	5.00	5.00	5.00	7.89	15.13	5.00	5.00	5.00	5.00	8.26	8.55	7.40	25.30	6 of 36
PHENOL	173.19	33.31	25.81	11.17	26.37	4.22	25.06	30.15	12.73	1.00	14.10	24.56	28.36	421.00	29 of 36
Oil and Grease, Petroleum Hydrocarbons, and Surfactants (mg/L)															
FATS OIL AND GREASE	22.21	28.59	31.81	12.60	25.05	17.27	25.82	23.57	24.58	19.69	26.42	27.47	22.78	46.50	77 of 79
PETROLEUM HYDROCARBON	1.11	2.00	2.18	0.32	1.18	0.44	1.09	1.25	1.29	0.90	1.56	1.83	1.18	4.20	73 of 75
TOTAL PETROLEUM HYDROCA	2.67	3.77	4.28	1.01	2.39	1.49	3.15	4.07	3.47	1.87	4.59	3.20	2.85	9.56	74 of 76
SURFACTANTS	3.89	4.25	4.66	3.62	3.83	2.41	3.59	4.32	4.60	2.88	4.50	5.10	3.80	6.31	35 of 35
Organochlorine Pesticides and PCBs (ug/L)															
4,4'-DDD	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 76
4,4'-DDE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 76
4,4'-DDT	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 76
ALDRIN	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 76
ALPHA-BHC	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 76
ALPHA-CHLORDANE	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2 of 76
AROCLOR-1016	0.11	0.10	0.10	0.10	0.09	0.05	0.05	0.06	0.07	0.05	0.06	0.05	0.07	0.12	0 of 76
AROCLOR-1221	0.22	0.20	0.21	0.20	0.17	0.10	0.11	0.12	0.15	0.11	0.11	0.09	0.15	0.23	0 of 76
AROCLOR-1232	0.11	0.10	0.10	0.10	0.09	0.05	0.05	0.06	0.07	0.05	0.06	0.05	0.07	0.12	0 of 76
AROCLOR-1242	0.11	0.10	0.10	0.10	0.09	0.05	0.05	0.06	0.07	0.05	0.06	0.05	0.07	0.12	0 of 76
AROCLOR-1248	0.11	0.10	0.10	0.10	0.09	0.05	0.05	0.06	0.07	0.05	0.06	0.05	0.07	0.12	0 of 76
AROCLOR-1254	0.11	0.10	0.10	0.10	0.09	0.05	0.05	0.06	0.07	0.05	0.06	0.05	0.07	0.12	0 of 76
AROCLOR-1260	0.11	0.10	0.10	0.10	0.09	0.05	0.05	0.06	0.07	0.05	0.06	0.05	0.07	0.12	0 of 76
BETA-BHC	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 76
CHLORDANE (TECHNICAL)	0.11	0.10	0.10	0.10	0.09	0.05	0.05	0.06	0.07	0.05	0.06	0.05	0.07	0.12	0 of 76
DELTA-BHC	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 76
DIELDRIN	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 76

Table A-4 Deer Island Effluent Characterization, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Organochlorine Pesticides and PCBs (ug/L)															
ENDOSULFAN I	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 76
ENDOSULFAN II	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 76
ENDOSULFAN SULFATE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 76
ENDRIN	0.01	0.01	0.01	***0.01***	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	1 of 76
ENDRIN ALDEHYDE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 76
ENDRIN KETONE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 76
GAMMA-BHC (LINDANE)	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 76
GAMMA-CHLORDANE	0.01	***0.01***	0.01	0.01	0.00	0.00	0.00	0.00	0.00	***0.00***	0.00	0.00	0.00	0.05	2 of 76
HEPTACHLOR	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	***0.00***	0.00	0.00	0.00	0.00	0.01	1 of 76
HEPTACHLOR EPOXIDE	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 76
METHOXYCHLOR	0.05	0.05	0.05	0.05	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.06	0 of 76
TOXAPHENE	0.11	0.10	0.10	0.10	0.09	0.05	0.05	0.06	0.07	0.05	0.06	0.07	0.07	0.12	0 of 76
Semivolatile Organics (ug/L)															
1,2,4-TRICHLOROBENZENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
1,2-DICHLOROBENZENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
1,2-DIPHENYLHYDRAZINE (AS	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
1,3-DICHLOROBENZENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
1,4-DICHLOROBENZENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
2,2'-OXYBIS(1-CHLOROPROPAN	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
2,4,5-TRICHLOROPHENOL	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
2,4,6-TRICHLOROPHENOL	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
2,4-DICHLOROPHENOL	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
2,4-DIMETHYLPHENOL	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
2,4-DINITROPHENOL	2.10	2.04	2.06	2.11	2.03	2.21	2.05	2.08	2.18	2.05	2.30	2.21	2.12	2.70	0 of 36
2,4-DINITROTOLUENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
2,6-DINITROTOLUENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
2-CHLORONAPHTHALENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
2-CHLOROPHENOL	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
2-METHYL-4,6-DINITROPHENOL	1.05	1.02	1.03	1.05	1.01	11.04	10.23	10.39	10.88	10.25	11.52	11.06	7.17	13.50	0 of 36
2-METHYLNAPHTHALENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
2-METHYLPHENOL	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
2-NITROANILINE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
2-NITROPHENOL	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
3,3'-DICHLOROBENZIDINE	1.05	1.02	1.03	1.05	1.01	2.21	2.05	2.08	2.18	2.05	2.30	2.21	1.74	2.70	0 of 36
3-NITROANILINE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
4-BROMOPHENYL PHENYL ETH	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
4-CHLORO-3-METHYLPHENOL	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
4-CHLOROANILINE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
4-CHLOROPHENYL PHENYL ET	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
4-METHYLPHENOL (INCLUDES	1.05	***21.95***	***31.65***	***13.96***	***22.23***	***5.51***	***23.75***	***13.80***	***31.43***	***6.31***	***27.46***	***33.09***	17.57	45.80	29 of 36
4-NITROANILINE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
4-NITROPHENOL	2.10	2.04	2.06	2.11	2.03	2.21	2.05	2.08	2.18	2.05	2.30	2.21	2.12	2.70	0 of 36
ACENAPHTHENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
ACENAPHTHYLENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36

Table A-4 Deer Island Effluent Characterization, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Semivolatile Organics (ug/L)															
ANILINE	2.10	2.04	2.06	2.11	2.03	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.44	2.20	0 of 36
ANTHRACENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
BENZIDINE	10.50	10.22	10.32	10.54	10.13	5.52	5.12	5.20	5.44	5.13	5.76	5.53	7.21	11.00	0 of 36
BENZO(A)ANTHRACENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
BENZO(A)PYRENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
BENZO(B)FLUORANTHENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
BENZO(GHI)PERYLENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
BENZO(K)FLUORANTHENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
BENZOIC ACID	***16.88***	1.73	***18.82***	***6.55***	***21.75***	***7.95***	2.05	***32.85***	2.18	***5.58***	***18.15***	***7.54***	11.50	52.90	16 of 36
BENZYL ALCOHOL	***13.14***	***10.78***	***11.19***	***10.51***	***11.47***	***4.41***	***11.55***	***16.57***	***18.00***	***9.70***	***16.38***	***12.21***	11.62	24.70	32 of 36
BIS(2-CHLOROETHOXY)METHA	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
BIS(2-CHLOROETHYL)ETHER	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
BIS(2-ETHYLHEXYL)PHTHALAT	1.05	***2.28***	***2.58***	***4.76***	1.01	1.10	1.02	***2.77***	***2.55***	1.03	1.15	***2.61***	1.92	15.80	6 of 36
BUTYL BENZYL PHTHALATE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
CHRYSENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
DI-N-BUTYLPHTHALATE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
DI-N-OCTYLPHTHALATE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
DIBENZO(A,H)ANTHRACENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
DIBENZOFURAN	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
DIETHYL PHTHALATE	***2.44***	***5.57***	***2.35***	***4.56***	1.01	1.10	1.02	***2.99***	***4.12***	1.03	***3.06***	***2.68***	2.47	15.00	11 of 36
DIMETHYL PHTHALATE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
FLUORANTHENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
FLUORENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
HEXACHLOROBENZENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
HEXACHLOROBUTADIENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
HEXACHLOROCYCLOPENTADI	1.05	1.02	1.03	1.05	1.01	5.52	5.12	5.20	5.44	5.13	5.76	5.53	3.78	6.75	0 of 36
HEXACHLOROETHANE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
INDENO(1,2,3-CD)PYRENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
ISOPHORONE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
N-NITROSODI-N-PROPYLAMINE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
N-NITROSODIMETHYLAMINE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
N-NITROSODIPHENYLAMINE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
NAPHTHALENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
NITROBENZENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36
PENTACHLOROPHENOL	1.05	1.02	1.03	1.05	1.01	5.52	5.12	5.20	5.44	5.13	5.76	5.53	3.78	6.75	0 of 36
PHENANTHRENE	1.05	1.02	1.03	1.05	1.01	1.10	***0.75***	1.04	1.09	1.03	1.15	1.11	1.04	1.35	1 of 36
PHENOL	1.05	1.02	1.03	1.05	1.01	2.21	2.05	2.08	2.18	2.05	1.89	2.21	1.71	2.44	0 of 36
PYRENE	1.05	1.02	1.03	1.05	1.01	1.10	1.02	1.04	1.09	1.03	1.15	1.11	1.06	1.35	0 of 36

Table A-4 Deer Island Effluent Characterization, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Volatile Organics (ug/L)															
1,1,1-TRICHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	*0.62*	0.50	0.51	1.32	1 of 79
1,1,2,2-TETRACHLOROETHANE	0.50	0.50	0.50	*0.60*	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.51	0.84	1 of 79
1,1,2-TRICHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
1,1-DICHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
1,1-DICHLOROETHENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
1,2-DICHLOROBENZENE	0.50	*0.77*	0.50	0.50	0.50	0.50	0.50	*0.66*	0.50	0.50	0.50	*0.63*	0.54	2.21	3 of 79
1,2-DICHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
1,2-DICHLOROPROPANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
1,3-DICHLOROBENZENE	0.50	*0.64*	0.50	0.50	0.50	0.50	0.50	*0.58*	0.50	0.50	0.50	0.50	0.51	1.36	2 of 79
1,4-DICHLOROBENZENE	*1.45*	*1.82*	*1.62*	*0.97*	*1.42*	*0.93*	*1.19*	*1.19*	*1.38*	*0.99*	*1.46*	*1.92*	1.31	2.32	67 of 79
2-BUTANONE	*2.70*	*2.92*	0.50	*0.92*	*3.68*	*2.59*	0.50	0.50	0.50	0.50	0.50	0.50	1.33	16.80	8 of 79
2-CHLOROETHYL VINYL ETHE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
2-HEXANONE	*0.76*	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.52	2.43	1 of 79
4-METHYL-2-PENTANONE	0.50	*1.26*	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.54	4.91	1 of 79
ACETONE	*146.69*	*194.43*	*186.15*	*95.77*	*162.24*	*118.63*	*167.98*	*152.91*	*143.61*	*121.84*	*138.30*	*183.02*	146.31	343.00	78 of 79
ACROLEIN	*0.67*	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	*0.61*	*0.71*	*0.88*	0.57	3.34	4 of 79
ACRYLONITRILE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
BENZENE	0.50	0.50	0.50	0.50	*0.59*	*0.74*	*0.68*	0.50	*0.79*	*1.09*	*0.90*	*0.79*	0.69	1.65	20 of 79
BROMODICHLOROMETHANE	*0.60*	*0.63*	*1.14*	*4.50*	*0.61*	*0.68*	0.50	*0.72*	0.50	*0.73*	0.50	*0.64*	1.04	13.95	14 of 79
BROMOFORM	0.50	0.50	0.50	*0.68*	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.52	1.13	2 of 79
BROMOMETHANE	0.50	0.50	*0.66*	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	*0.57*	0.52	1.73	2 of 79
CARBON DISULFIDE	*3.93*	*2.55*	*3.73*	*1.28*	*3.00*	*0.75*	*1.09*	*1.44*	*2.74*	*0.88*	*2.28*	*3.06*	2.10	12.70	59 of 79
CARBON TETRACHLORIDE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
CHLOROBENZENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
CHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	*0.63*	0.51	1.49	1 of 79
CHLOROFORM	*6.52*	*7.83*	*8.43*	*9.57*	*6.23*	*4.33*	*6.22*	*8.04*	*7.29*	*4.87*	*6.93*	*9.50*	7.00	19.30	79 of 79
CHLOROMETHANE	*0.68*	*1.17*	*1.35*	0.50	*1.12*	0.50	0.50	0.50	0.50	0.50	*0.66*	*1.98*	0.78	9.28	14 of 79
CIS-1,2-DICHLOROETHENE	*1.50*	*1.62*	*1.50*	*1.29*	*2.24*	*1.95*	*1.80*	*1.65*	*1.71*	*1.76*	*1.88*	*2.03*	1.74	2.92	74 of 79
CIS-1,3-DICHLOROPROPENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
DIBROMOCHLOROMETHANE	0.50	0.50	0.50	*1.86*	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.64	5.15	2 of 79
ETHYLBENZENE	*0.58*	*1.48*	*0.82*	0.50	*0.70*	*0.63*	*1.15*	*1.64*	0.50	*0.95*	0.50	*0.74*	0.82	4.62	17 of 79
M,P-XYLENE	*2.05*	*3.27*	*2.74*	*1.25*	*1.91*	*2.73*	*2.23*	*2.68*	*1.97*	*3.05*	*2.52*	*2.41*	2.39	12.20	75 of 79
METHYLENE CHLORIDE	*3.47*	*2.76*	*3.72*	*2.44*	*6.01*	*1.95*	*4.02*	*3.43*	*4.03*	*2.61*	*3.43*	*4.73*	3.43	10.60	74 of 79
O-XYLENE	*0.83*	*1.17*	*0.92*	*0.64*	*0.80*	*1.20*	*0.85*	*1.10*	*0.58*	*1.33*	*1.04*	*1.09*	0.97	3.80	33 of 79
STYRENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	*0.74*	0.50	0.52	1.96	1 of 79
TETRACHLOROETHENE	*2.97*	*2.84*	*5.58*	*2.77*	*3.08*	*2.70*	*2.84*	*2.77*	*3.54*	*4.06*	*3.95*	*6.26*	3.58	25.00	77 of 79
TOLUENE	*4.27*	*7.79*	*4.10*	*2.97*	*3.66*	*3.42*	*3.93*	*4.38*	*4.23*	*4.16*	*5.07*	*7.13*	4.42	22.90	78 of 79
TRANS-1,2-DICHLOROETHENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
TRANS-1,3-DICHLOROPROPENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
TRICHLOROETHENE	*1.63*	*1.64*	*1.35*	*1.52*	*2.97*	*3.32*	*2.73*	*2.87*	*2.82*	*3.59*	*3.16*	*3.18*	2.62	4.70	74 of 79
TRICHLOROFLUOROMETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
VINYL ACETATE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79
VINYL CHLORIDE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 79

Table A-5 Deer Island Effluent Loadings, Fiscal Year 1997

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (lb/day)															
ANTIMONY	23.38	20.41	22.98	35.00	26.53	44.86	26.22	25.66	25.42	39.01	28.51	26.03	28.51	86.65	2 of 89
ARSENIC	2.06	1.80	2.33	3.08	2.33	3.44	2.31	3.44	2.24	3.43	3.24	1.95	2.62	7.84	4 of 86
BERYLLIUM	0.94	0.82	0.92	1.40	1.06	1.56	1.05	1.03	1.02	1.56	1.14	0.89	1.10	2.46	0 of 89
BORON	471.44	311.18	563.79	472.01	386.10	524.21	423.04	359.62	305.04	468.16	451.31	385.41	428.39	1220.68	23 of 88
CADMIUM	1.87	1.63	1.84	2.80	2.12	3.12	2.10	2.05	2.03	3.12	2.28	1.78	2.21	4.93	0 of 89
CHROMIUM	9.92	5.93	6.93	11.30	5.43	9.35	22.70	4.65	5.07	14.33	6.29	5.92	8.92	111.91	76 of 90
COPPER	154.35			126.09	122.66	124.98	108.29	125.56	106.63	114.54	82.89	121.15	116.63	273.36	70 of 70
HEXAVALENT CHROMIUM	10.66	9.01	9.25	12.26	11.29	17.99	11.82	12.40	10.99	17.34	11.31	10.29	12.13	20.99	0 of 35
IRON	3947.28	1546.22	1656.99	2973.20	1901.92	2503.60	1981.90	1768.07	1837.32	3095.11	2203.15	1811.55	2292.89	13147.65	88 of 88
LEAD	15.21	13.68	18.02	26.97	10.32	19.14	11.83	11.42	15.87	22.40	19.15	12.49	16.30	66.49	86 of 92
MERCURY	0.31	0.15	0.17	0.30	0.39	0.18	0.18	0.13	0.17	0.28	0.18	0.25	0.22	1.31	72 of 86
MOLYBDENUM	32.42	18.15	17.86	10.81	13.78	12.73	13.35	10.01	14.65	13.02	13.87	16.13	15.84	43.03	48 of 88
NICKEL	9.37	6.61	8.16	16.81	6.41	10.11	18.25	8.30	12.03	15.01	4.26	5.25	9.81	76.21	62 of 87
SELENIUM	2.06	1.80	2.32	3.08	2.33	3.44	2.31	2.26	2.24	3.43	2.51	1.95	2.47	5.42	1 of 86
SILVER	4.51	3.53	3.79	3.64	5.38	5.40	3.74	5.63	4.15	5.61	3.92	5.17	4.51	10.82	78 of 88
THALLIUM	2.21	2.02	2.02	3.08	2.33	3.44	2.31	2.26	2.24	3.43	2.51	1.95	2.47	5.42	2 of 88
ZINC	94.93	73.30	87.83	147.13	93.76	169.53	116.80	112.37	115.92	180.26	118.33	87.00	115.12	358.56	89 of 89
Cyanide and Phenols (lb/day)															
CYANIDE	20.45	8.19	8.74	11.15	16.20	49.51	10.74	11.27	9.99	15.77	16.99	16.00	16.25	74.95	6 of 36
PHENOL	356.56	55.76	44.92	28.30	57.37	15.30	53.32	65.95	24.72	3.43	31.87	46.50	65.33	967.22	29 of 36
Oil and Grease, Petroleum Hydrocarbons, and Surfactants (lb/day)															
FATS OIL AND GREASE	39892.06	46627.22	59318.65	35373.81	50916.32	50152.47	54841.28	48582.96	55894.33	63174.48	57565.11	48238.42	51041.03	185937.73	77 of 79
PETROLEUM HYDROCARBON	1985.34	3260.92	4075.62	965.42	2389.52	1274.70	2323.30	2627.90	2924.62	2696.17	3406.58	3219.03	2604.44	7574.24	73 of 75
TOTAL PETROLEUM HYDROCA	4743.02	6154.86	7978.70	2835.35	4854.98	4332.94	6696.69	8525.48	7887.99	5568.53	10011.52	5612.81	6276.70	18615.14	74 of 76
SURFACTANTS	8348.29	7117.43	8115.28	9162.12	8325.01	8735.95	7637.78	9444.08	8925.87	9879.62	10172.36	9652.29	8805.71	13435.06	35 of 35
Organochlorine Pesticides and PCBs (lb/day)															
4,4'-DDD	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0 of 76
4,4'-DDE	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0 of 76
4,4'-DDT	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0 of 76
ALDRIN	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 76
ALPHA-BHC	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 76
ALPHA-CHLORDANE	0.01	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.07	2 of 76
AROCLOR-1016	0.20	0.16	0.19	0.29	0.18	0.16	0.11	0.13	0.14	0.17	0.12	0.10	0.16	0.49	0 of 76
AROCLOR-1221	0.40	0.33	0.38	0.59	0.36	0.32	0.22	0.25	0.29	0.33	0.23	0.16	0.32	0.98	0 of 76
AROCLOR-1232	0.20	0.16	0.19	0.29	0.18	0.16	0.11	0.13	0.14	0.17	0.12	0.10	0.16	0.49	0 of 76
AROCLOR-1242	0.20	0.16	0.19	0.29	0.18	0.16	0.11	0.13	0.14	0.17	0.12	0.10	0.16	0.49	0 of 76
AROCLOR-1248	0.20	0.16	0.19	0.29	0.18	0.16	0.11	0.13	0.14	0.17	0.12	0.10	0.16	0.49	0 of 76
AROCLOR-1254	0.20	0.16	0.19	0.29	0.18	0.16	0.11	0.13	0.14	0.17	0.12	0.10	0.16	0.49	0 of 76
AROCLOR-1260	0.20	0.16	0.19	0.29	0.18	0.16	0.11	0.13	0.14	0.17	0.12	0.10	0.16	0.49	0 of 76
BETA-BHC	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 76
CHLORDANE (TECHNICAL)	0.20	0.16	0.19	0.29	0.18	0.16	0.11	0.13	0.14	0.17	0.12	0.10	0.16	0.49	0 of 76
DELTA-BHC	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 76
DIELDRIN	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0 of 76

Table A-5 Deer Island Effluent Loadings, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Organochlorine Pesticides and PCBs (lb/day)															
ENDOSULFAN I	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 76
ENDOSULFAN II	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0 of 76
ENDOSULFAN SULFATE	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0 of 76
ENDRIN	0.02	0.02	0.02	***0.03***	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	1 of 76
ENDRIN ALDEHYDE	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0 of 76
ENDRIN KETONE	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0 of 76
GAMMA-BHC (LINDANE)	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 76
GAMMA-CHLORDANE	0.01	***0.02***	0.01	0.01	0.01	0.01	0.00	0.00	0.00	***0.01***	0.00	0.00	0.01	0.07	2 of 76
HEPTACHLOR	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	***0.01***	0.01	0.00	0.00	0.01	0.02	1 of 76
HEPTACHLOR EPOXIDE	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 76
METHOXYCHLOR	0.10	0.08	0.10	0.15	0.09	0.06	0.04	0.04	0.04	0.07	0.05	0.04	0.07	0.25	0 of 76
TOXAPHENE	0.20	0.16	0.19	0.29	0.18	0.16	0.11	0.13	0.14	0.17	0.12	0.12	0.16	0.49	0 of 76
Semivolatile Organics (lb/day)															
1,2,4-TRICHLOROBENZENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
1,2-DICHLOROBENZENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
1,2-DIPHENYLHYDRAZINE (AS	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
1,3-DICHLOROBENZENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
1,4-DICHLOROBENZENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
2,2'-OXYBIS(1-CHLOROPROPAN	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
2,4,5-TRICHLOROPHENOL	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
2,4,6-TRICHLOROPHENOL	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
2,4-DICHLOROPHENOL	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
2,4-DIMETHYLPHENOL	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
2,4-DINITROPHENOL	4.32	3.42	3.59	5.34	4.41	8.00	4.35	4.55	4.23	7.03	5.21	4.19	4.89	10.14	0 of 36
2,4-DINITROTOLUENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
2,6-DINITROTOLUENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
2-CHLORONAPHTHALENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
2-CHLOROPHENOL	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
2-METHYL-4,6-DINITROPHENOL	2.16	1.71	1.80	2.67	2.20	40.01	21.76	22.74	21.13	35.13	26.03	20.94	16.52	50.72	0 of 36
2-METHYLNAPHTHALENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
2-METHYLPHENOL	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
2-NITROANILINE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
2-NITROPHENOL	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
3,3'-DICHLOROBENZIDINE	2.16	1.71	1.80	2.67	2.20	8.00	4.35	4.55	4.23	7.03	5.21	4.19	4.01	10.14	0 of 36
3-NITROANILINE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
4-BROMOPHENYL PHENYL ETH	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
4-CHLORO-3-METHYLPHENOL	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
4-CHLOROANILINE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
4-CHLOROPHENYL PHENYL ET	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
4-METHYLPHENOL (INCLUDES	2.16	***36.74***	***55.10***	***35.37***	***48.36***	***19.98***	***50.53***	***30.19***	***61.02***	***21.63***	***62.07***	***62.67***	40.49	84.62	29 of 36
4-NITROANILINE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
4-NITROPHENOL	4.32	3.42	3.59	5.34	4.41	8.00	4.35	4.55	4.23	7.03	5.21	4.19	4.89	10.14	0 of 36
ACENAPHTHENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
ACENAPHTHYLENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36

Table A-5 Deer Island Effluent Loadings, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Semivolatile Organics (lb/day)															
ANILINE	4.32	3.42	3.59	5.34	4.41	4.00	2.18	2.27	2.11	3.51	2.60	2.09	3.32	7.57	0 of 36
ANTHRACENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
BENZIDINE	21.61	17.10	17.96	26.71	22.03	20.01	10.88	11.37	10.57	17.56	13.01	10.47	16.61	37.83	0 of 36
BENZO(A)ANTHRACENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
BENZO(A)PYRENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
BENZO(B)FLUORANTHENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
BENZO(GHI)PERYLENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
BENZO(K)FLUORANTHENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
BENZOIC ACID	***34.74***	2.89	***32.76***	***16.60***	***47.32***	***28.79***	4.35	***71.86***	4.23	***19.11***	***41.01***	***14.29***	26.50	107.93	16 of 36
BENZYL ALCOHOL	***27.05***	***18.04***	***19.49***	***26.62***	***24.95***	***15.99***	***24.57***	***36.25***	***34.96***	***33.24***	***37.01***	***23.12***	26.78	56.66	32 of 36
BIS(2-CHLOROETHOXY)METHA	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
BIS(2-CHLOROETHYL)ETHER	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
BIS(2-ETHYLHEXYL)PHTHALAT	2.16	***3.83***	***4.50***	***12.05***	2.20	4.00	2.18	***6.06***	***4.95***	3.51	2.60	***4.94***	4.42	30.05	6 of 36
BUTYL BENZYL PHTHALATE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
CHRYSENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
DI-N-BUTYLPHTHALATE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
DI-N-OCTYLPHTHALATE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
DIBENZO(A,H)ANTHRACENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
DIBENZOFURAN	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
DIETHYL PHTHALATE	***5.02***	***9.32***	***4.09***	***11.55***	2.20	4.00	2.18	***6.55***	***8.01***	3.51	***6.91***	***5.07***	5.70	28.53	11 of 36
DIMETHYL PHTHALATE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
FLUORANTHENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
FLUORENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
HEXACHLOROBENZENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
HEXACHLOROBUTADIENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
HEXACHLOROCYCLOPENTADI	2.16	1.71	1.80	2.67	2.20	20.01	10.88	11.37	10.57	17.56	13.01	10.47	8.70	25.36	0 of 36
HEXACHLOROETHANE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
INDENO(1,2,3-CD)PYRENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
ISOPHORONE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
N-NITROSODI-N-PROPYLAMINE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
N-NITROSODIMETHYLAMINE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
N-NITROSODIPHENYLAMINE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
NAPHTHALENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
NITROBENZENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36
PENTACHLOROPHENOL	2.16	1.71	1.80	2.67	2.20	20.01	10.88	11.37	10.57	17.56	13.01	10.47	8.70	25.36	0 of 36
PHENANTHRENE	2.16	1.71	1.80	2.67	2.20	4.00	***1.59***	2.27	2.11	3.51	2.60	2.09	2.39	5.07	1 of 36
PHENOL	2.16	1.71	1.80	2.67	2.20	8.00	4.35	4.55	4.23	7.03	4.27	4.19	3.93	10.14	0 of 36
PYRENE	2.16	1.71	1.80	2.67	2.20	4.00	2.18	2.27	2.11	3.51	2.60	2.09	2.44	5.07	0 of 36

Table A-5 Deer Island Effluent Loadings, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Volatile Organics (lb/day)															
1,1,1-TRICHLOROETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.35	0.88	1.12	2.50	1 of 79
1,1,2,2-TETRACHLOROETHANE	0.90	0.82	0.93	1.68	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.12	4.14	1 of 79
1,1,2-TRICHLOROETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
1,1-DICHLOROETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
1,1-DICHLOROETHENE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
1,2-DICHLOROBENZENE	0.90	1.26	0.93	1.40	1.02	1.45	1.06	1.39	1.14	1.49	1.09	1.10	1.18	3.48	3 of 79
1,2-DICHLOROETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
1,2-DICHLOROPROPANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
1,3-DICHLOROBENZENE	0.90	1.05	0.93	1.40	1.02	1.45	1.06	1.21	1.14	1.49	1.09	0.88	1.13	2.46	2 of 79
1,4-DICHLOROBENZENE	2.61	2.97	3.02	2.71	2.89	2.69	2.53	2.50	3.14	2.95	3.18	3.37	2.89	5.36	67 of 79
2-BUTANONE	4.86	4.77	0.93	2.58	7.47	7.52	1.06	1.05	1.14	1.49	1.09	0.88	2.91	44.12	8 of 79
2-CHLOROETHYL VINYL ETHE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
2-HEXANONE	1.37	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.14	4.13	1 of 79
4-METHYL-2-PENTANONE	0.90	2.06	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.20	8.33	1 of 79
ACETONE	263.51	317.28	347.10	268.91	329.77	344.59	356.72	321.68	326.56	363.62	301.34	321.34	321.79	604.54	78 of 79
ACROLEIN	1.20	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.83	1.55	1.54	1.25	5.44	4 of 79
ACRYLONITRILE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
BENZENE	0.90	0.82	0.93	1.40	1.20	2.14	1.45	1.05	1.79	3.24	1.95	1.39	1.52	5.08	20 of 79
BROMODICHLOROMETHANE	1.07	1.03	2.13	12.64	1.23	1.98	1.06	1.51	1.14	2.18	1.09	1.13	2.29	68.71	14 of 79
BROMOFORM	0.90	0.82	0.93	1.92	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.14	5.57	2 of 79
BROMOMETHANE	0.90	0.82	1.23	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	1.00	1.14	2.90	2 of 79
CARBON DISULFIDE	7.05	4.16	6.96	3.60	6.09	2.17	2.31	3.03	6.24	2.62	4.96	5.37	4.61	21.45	59 of 79
CARBON TETRACHLORIDE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
CHLOROBENZENE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
CHLOROETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	1.11	1.12	2.46	1 of 79
CHLOROFORM	11.71	12.78	15.73	26.88	12.67	12.59	13.22	16.91	16.58	14.54	15.10	16.68	15.40	95.06	79 of 79
CHLOROMETHANE	1.21	1.91	2.52	1.40	2.27	1.45	1.06	1.05	1.14	1.49	1.44	3.48	1.72	15.11	14 of 79
CIS-1,2-DICHLOROETHENE	2.70	2.64	2.80	3.61	4.55	5.67	3.82	3.48	3.88	5.26	4.10	3.56	3.83	7.33	74 of 79
CIS-1,3-DICHLOROPROPENE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
DIBROMOCHLOROMETHANE	0.90	0.82	0.93	5.22	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.40	25.34	2 of 79
ETHYLBENZENE	1.04	2.42	1.54	1.40	1.41	1.84	2.44	3.46	1.14	2.84	1.09	1.29	1.80	9.27	17 of 79
M,P-XYLENE	3.68	5.34	5.12	3.50	3.87	7.94	4.74	5.65	4.48	9.11	5.48	4.22	5.25	20.43	75 of 79
METHYLENE CHLORIDE	6.23	4.51	6.94	6.85	12.21	5.66	8.53	7.22	9.17	7.79	7.47	8.30	7.55	20.96	74 of 79
O-XYLENE	1.50	1.91	1.72	1.81	1.63	3.50	1.81	2.31	1.32	3.97	2.28	1.92	2.13	7.79	33 of 79
STYRENE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.60	0.88	1.14	4.13	1 of 79
TETRACHLOROETHENE	5.33	4.64	10.40	7.77	6.26	7.85	6.03	5.82	8.06	12.11	8.61	10.99	7.87	47.03	77 of 79
TOLUENE	7.66	12.72	7.64	8.34	7.44	9.94	8.35	9.20	9.63	12.43	11.05	12.52	9.73	38.83	78 of 79
TRANS-1,2-DICHLOROETHENE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
TRANS-1,3-DICHLOROPROPENE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
TRICHLOROETHENE	2.93	2.67	2.51	4.26	6.04	9.65	5.79	6.03	6.40	10.72	6.90	5.58	5.77	13.89	74 of 79
TRICHLOROFLUOROMETHANE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
VINYL ACETATE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79
VINYL CHLORIDE	0.90	0.82	0.93	1.40	1.02	1.45	1.06	1.05	1.14	1.49	1.09	0.88	1.10	2.46	0 of 79

Appendix B

Table B-1 Nut Island Treatment Plant Operations Summary, Fiscal Year 1997

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	MIN VALUE	AVE VALUE	MAX VALUE
INFLUENT															
FLOW (MGD)															
AVERAGE	109	99	121	174	142	230	146	141	142	224	137	108		148	
MINIMUM	89	93	87	73	119	139	128	126	121	156	117	91	73		
MAXIMUM	160	108	163	280	177	280	165	167	178	280	167	123			280.00
TEMP (DEG F)	61	63	65	65	62	56	52	52	53	53	54	56	52	57.67	65.00
CONVENTIONAL PARAMETERS (mg/L)															
SETTLEABLE SOLIDS (ml/L)															
AVERAGE	7.5	8.5	7.8	5.5	5.9	4.3	5.6	5.8	5.8	4.5	6	7.1		6.19	
MINIMUM	4.5	7	4	1	4.5	2.5	3.5	4.5	4	1.9	4.5	5	1.00		
MAXIMUM	10	11	11	12	10	5.5	9	8.5	7.5	7	8	10			12.00
TSS															
AVERAGE	177	208	148	117	113	81	95	99	114	82	127	151		126	
MINIMUM	126	127	78	24	80	16	43	38	68	20	12	47	12		
MAXIMUM	276	450	225	208	226	158	148	348	174	282	272	262			450
BOD															
AVERAGE	135	165	129	102	109	70	93	92	106	62	107	140		109	
MINIMUM	82	111	54	37	87	41	53	36	59	28	40	67	28		
MAXIMUM	223	263	198	150	145	129	163	214	156	146	164	208			263
OIL & GREASE															
AVERAGE	30	57	40	26	29	20	31	28	25	14	27	31	14	29.723	57
CHLORIDE															
AVERAGE	621	526	601	385	362	274	354	375	372	322	389	575		430	
MINIMUM	291	138	138	164	233	439	231	238	244	208	234	340	138		
MAXIMUM	1280	978	1700	700	686	176	702	824	660	486	658	999			1700
T COLIFORM (col/100mL)															
GEO MEAN (E+06)	53.1	52.6	52.5	33.8	18.9	9.6	21.4	13.9	19.3	9.3	18.7	37.8		28.4	
MINIMUM (E+06)	24.0	0.1	7.0	12.0	4.0	2.0	10.0	7.0	8.0	2.0	2.0	4.0	0.1		
MAXIMUM (E+06)	103.0	117.0	104.0	57.0	43.0	32.3	43.0	26.0	37.0	29.0	38.0	86.0			117.0
F COLIFORM (col/100mL)															
GEO MEAN (E+06)	5.9	7.6	6.3	2.0	1.3	4.2	1.1	7.8	1.0	0.4	1.3	2.5		3.5	
MINIMUM (E+06)	3.3	0.3	0.7	0.2	0.1	0.1	0.2	0.1	0.5	0.1	0.1	0.1	0.1		
MAXIMUM (E+06)	10.4	59.7	21.6	9.7	5.5	1.4	2.4	1.7	1.8	1.2	3.7	8.8			59.7
NUTRIENTS															
TKN (mg/L)															
AVERAGE	30.50	29.60	42.60	32.40	31.20	29.90	34.90	14.20	18.70	15.50	23.70	33.20	14.20	28.03	42.60
AMMONIA															
AVERAGE	19.90	23.80	25.80	15.60	19.10	10.90	28.00	9.98	12.40	9.22	15.50	17.10	9.22	17.28	28.00

Table B-1 Nut Island Treatment Plant Operations Summary, Fiscal Year 1997, cont.

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	MIN VALUE	AVE VALUE	MAX VALUE
NITRATES															
AVERAGE	0.01	<0.01	<0.01	0.03	0.19	0.01	<0.0100	0.05	<0.01	<0.01	<.010	<0.010	<.01	0.02	0.19
NITRITES															
AVERAGE	<0.0100	<0.01	,0.01	0.05	0.07	<0.0100	<0.0100	0.15	<0.01	<0.01	<0.010	<0.010	<.01	0.02	0.15
ORTHOPHOSPHORUS															
AVERAGE	1.70	1.67	1.98	0.92	1.53	0.78	1.79	1.05	1.11	0.88	1.35	1.95	0.78	1.39	1.98
TOTAL PHOSPHORUS															
AVERAGE	3.97	4.46	4.65	4.08	3.96	2.59	4.04	2.97	2.78	1.37	3.41	5.28	1.37	3.63	5.28
TPH (GCFID)															
AVERAGE	3.41	5.29	8.46	4.97	4.16	1.07	2.36	3.07	12.96	1.51	4.04	3.58		4.68	
MINIMUM	2.8	5.22	5.66	1.71	1.82	<1.00	1.01	2.00	2.73	1.12	1.12	2.09	0.00		
MAXIMUM	4.33	5.33	13.20	10.70	6.73	1.20	3.34	4.88	26.80	1.78	8.11	4.42			26.80
EFFLUENT															
pH (units)															
MINIMUM	6.6	6.5	6.6	6.3	6.6	6.5	6.7	6.6	6.5	6.4	6.6	6.5	6.30		
MAXIMUM	7.1	7.0	6.9	6.9	7.0	6.9	7.0	7.0	7.0	6.9	7	6.9			7.10
CONVENTIONAL PARAMETERS (mg/L)															
SETTLEABLE SOLIDS (ml/L)															
AVERAGE	0.9	1	1	5.5	1.1	0.9	0.7	0.8	0.7	1	0.8	0.8		1.27	
MINIMUM	0.2	0.5	0.3	0.5	0.3	0.4	0.3	0.4	0.1	0.4	0.2	0.3	0.10		
MAXIMUM	2	1.6	2.0	1.8	2.5	1.5	1.5	1.5	1.5	2.5	3.0	2.0			3.00
TSS															
AVERAGE	68	73	93	73	55	46	60	49	61	40	54	71		62	
MINIMUM	30	50	62	36	42	15	110	15	33	23	14	36	14		
MAXIMUM	136	100	162	126	76	132	27	94	118	72	96	104			162
BOD															
AVERAGE	77	109	111	81	93	55	72	56	64	41	68	107		78	
MINIMUM	40	57	57	40	50	29	37	31	36	25	33	83	25		
MAXIMUM	111	137	155	127	145	97	122	110	133	66	95	158			158
OIL & GREASE															
AVERAGE	23.46	29.00	31.38	17.36	24.70	15.74	25.65	25.13	21.64	14.35	20.30	27.72	14.35	23.04	31.38
T COLIFORM (col/100mL)															
GEO MEAN	203	397	361	86	201	267	439	167	246	270	141	159		245	
MINIMUM	16	14	16	10	23	20	40	29	16	32	17	20	10		
MAXIMUM	104479	7595681	18714951	7319	1136	5566	16067	1942	4899	9131	1014	23664			18714951
F COLIFORM (col/100mL)															
GEO MEAN	21	50	35	12	12	17	14	8	11	18	9	9		18	
MINIMUM	5	5	4	4	4	5	5	5	4	5	5	4	4		
MAXIMUM	3942	3313394	979801	2813	57	1135	380	64	819	656	299	106			3313394

Table B-1 Nut Island Treatment Plant Operations Summary, Fiscal Year 1997, cont.

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	MIN VALUE	AVE VALUE	MAX VALUE
CHLORINE RESIDUAL															
AVERAGE	2.5	2.1	2.2	3.3	3.3	3.2	3.2	3.1	3.0	3.4	3.7	4.1		3.08	
MINIMUM	0.7	0.0	0.0	0.9	2.1	1.5	2.0	1.9	1.5	1.9	2.3	2.6	0.02		
MAXIMUM	5.9	5.0	5.0	5.9	5.1	4.5	5.1	4.5	5.4	4.6	5.4	6.8			6.80
NUTRIENTS															
TKN															
AVERAGE	27.30	29.45	36.40	39.20	27.80	18.50	28.80	20.00	19.20	15.80	20.30	24.20	15.80	25.58	39.20
AMMONIA															
AVERAGE	17.40	24.80	26.50	16.40	19.60	10.20	18.50	10.60	11.40	8.48	15.00	16.30	8.48	16.27	26.50
NITRATES															
AVERAGE	0.02	<0.01	<0.01	0.28	0.25	0.52	0.24	0.12	0.33	0.33	<0.01	<0.010	<.01	0.17	0.52
NITRITES															
AVERAGE	<0.0100	<0.01	<0.01	0.12	0.18	0.25	0.06	0.08	0.11	0.17	<0.01	<0.010	<.01	0.08	0.25
ORTHOPHOSPHORUS															
AVERAGE	1.70	1.45	1.77	1.06	1.50	1.00	1.42	0.88	1.07	0.86	1.48	1.96	0.86	1.35	1.96
TOTAL PHOSPHORUS															
AVERAGE	3.63	3.14	4.07	3.32	3.19	1.96	4.12	2.34	3.05	1.23	2.73	4.17	1.23	3.08	4.17
REMOVAL EFFICIENCIES (%)															
SS	88.0	88.2	87.2	0.0	81.4	79.1	87.5	86.2	87.9	77.8	86.7	88.7	0.00	78.22	88.73
TSS	61.6	64.9	37.2	37.6	51.3	43.2	36.8	50.5	46.5	51.2	57.5	53.0	36.84	49.28	64.90
BOD	43	34	14	21	15	21	23	39	40	34	36	24	13.95	28.56	42.96
OIL & GREASE	21.3	49.3	21.4	33.4	13.3	20.2	18.1	0.0	12.0	-3.6	24.8	10.4	0.0	18.38	49.30
TKN	10.5	0.5	14.6	-21.0	10.9	0.0	17.5	0.0	-2.7	0.0	14.3	27.1	0.0	5.98	27.11
TOTAL PHOSPHORUS	8.6	29.6	12.5	0.0	19.4	0.0	-2.0	0.0	-9.7	0.0	19.9	21.0	0.0	8.28	29.60

NOTES:

1. Data reduced from Nut Island Treatment Plant Monthly Operation Logs.

Concentration expressed in mg/L inless otherwise noted

ND No data

Table B-2 Nut Island Influent Characterization, Fiscal Year 1997

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (ug/L)															
ANTIMONY	12.50	***14.47***	12.50	***13.96***	***15.09***	12.50	***15.00***	12.50	***13.94***	12.50	12.50	12.50	13.24	29.60	5 of 88
ARSENIC	1.10	***1.56***	1.10	1.10	1.10	1.10	1.10	1.10	***1.22***	1.10	1.10	1.10	1.13	4.30	2 of 88
BERYLLIUM	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 88
BORON	***173.43***	***287.14***	***363.89***	***164.22***	150.00	***166.64***	150.00	150.00	150.00	150.00	***223.53***	***238.13***	185.10	775.00	21 of 88
CADMIUM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0 of 88
CHROMIUM	***15.66***	***11.23***	***9.52***	***14.79***	***6.09***	***6.11***	***3.87***	***3.25***	***4.16***	***4.77***	***6.95***	***2.96***	7.21	58.30	75 of 88
COPPER	***148.21***	***137.98***	***127.53***	***99.76***	***125.12***	***56.33***	***62.31***	***65.35***	***63.90***	***42.48***	***80.32***	***101.45***	84.65	358.00	87 of 87
HEXAVALENT CHROMIUM	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	0 of 36
IRON	***3791.20***	***1908.80***	***3718.87***	***3276.20***	***1674.37***	***1171.98***	***1203.71***	***1167.99***	***1251.29***	***1007.25***	***1571.12***	***1622.83***	1822.62	14100.00	88 of 88
LEAD	***15.86***	***13.86***	***20.98***	***12.55***	***7.29***	***6.88***	***6.20***	***5.97***	***5.82***	***4.86***	***8.70***	***6.97***	8.87	36.60	85 of 90
MERCURY	***0.31***	***0.36***	***0.47***	***0.59***	***0.43***	***0.17***	***0.23***	***0.14***	***0.40***	***0.13***	***0.28***	***0.24***	0.30	1.39	84 of 88
MOLYBDENUM	***7.17***	***4.24***	***5.47***	***4.05***	3.50	***4.14***	***4.73***	3.50	3.50	3.50	***4.30***	***4.12***	4.25	12.10	14 of 88
NICKEL	***15.94***	***10.20***	***14.05***	***14.20***	***5.62***	***7.05***	***4.70***	***2.03***	***2.92***	***4.73***	***6.63***	***4.12***	7.35	49.80	62 of 88
SELENIUM	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	0 of 88
SILVER	***5.27***	***3.73***	***5.26***	***4.31***	***3.67***	***2.45***	***1.99***	***2.24***	***1.96***	***2.21***	***2.17***	***2.96***	3.02	11.40	83 of 88
THALLIUM	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	0 of 88
ZINC	***109.88***	***99.85***	***112.31***	***88.58***	***75.97***	***59.87***	***56.96***	***63.24***	***66.49***	***55.11***	***86.72***	***81.82***	75.77	262.00	88 of 88
Cyanide and Phenols (ug/L)															
CYANIDE	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	0 of 36
PHENOL	***35.42***	***66.28***	***48.31***	***26.11***	***12.95***	1.00	***24.11***	***31.22***	***38.65***	1.00	***14.86***	***27.89***	21.92	84.10	27 of 36
Oil and Grease, Petroleum Hydrocarbons, and Surfactants (mg/L)															
FATS OIL AND GREASE	***28.31***	***49.38***	***36.46***	***23.47***	***29.08***	***14.17***	***27.33***	***29.26***	***23.60***	***12.64***	***23.66***	***30.84***	24.74	103.10	86 of 88
PETROLEUM HYDROCARBON	***1.66***	***2.72***	***3.90***	***4.29***	***1.20***	***0.63***	***1.73***	***1.07***	***0.98***	***1.09***	***1.16***	***2.17***	1.63	8.60	35 of 35
TOTAL PETROLEUM HYDROCA	***3.37***	***5.29***	***8.42***	***5.00***	***4.19***	***0.77***	***2.37***	***3.10***	***12.97***	***1.51***	***4.13***	***3.55***	3.89	26.80	35 of 36
SURFACTANTS	***3.77***	***5.30***	***5.65***	***4.46***	***3.77***	***2.02***	***3.66***	***3.73***	***4.59***	***1.92***	***4.11***	***5.40***	3.64	7.10	35 of 35
Organochlorine Pesticides and PCBs (ug/L)															
4,4'-DDD	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 36
4,4'-DDE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 36
4,4'-DDT	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 36
ALDRIN	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
ALPHA-BHC	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
ALPHA-CHLORDANE	0.01	0.01	0.01	***0.00***	0.01	***0.01***	0.00	***0.01***	***0.00***	***0.01***	0.00	0.00	0.01	0.03	9 of 36
AROCLOR-1016	0.11	0.11	0.11	0.11	0.10	0.05	0.07	0.05	0.07	0.05	0.05	0.05	0.07	0.13	0 of 36
AROCLOR-1221	0.22	0.21	0.22	0.21	0.21	0.11	0.14	0.10	0.14	0.11	0.11	0.07	0.15	0.27	0 of 36
AROCLOR-1232	0.11	0.11	0.11	0.11	0.10	0.05	0.07	0.05	0.07	0.05	0.05	0.05	0.07	0.13	0 of 36
AROCLOR-1242	0.11	0.11	0.11	0.11	0.10	0.05	0.07	0.05	0.07	0.05	0.05	0.05	0.07	0.13	0 of 36
AROCLOR-1248	0.11	0.11	0.11	0.11	0.10	0.05	0.07	0.05	0.07	0.05	0.05	0.05	0.07	0.13	0 of 36
AROCLOR-1254	0.11	0.11	0.11	0.11	0.10	0.05	0.07	0.05	0.07	0.05	0.05	0.05	0.07	0.13	0 of 36
AROCLOR-1260	0.11	0.11	0.11	0.11	0.10	0.05	0.07	0.05	0.07	0.05	0.05	0.05	0.07	0.13	0 of 36
BETA-BHC	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
CHLORDANE (TECHNICAL)	0.11	0.11	0.11	0.11	0.10	0.05	0.07	0.05	0.07	0.05	0.05	0.05	0.07	0.13	0 of 36
DELTA-BHC	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
DIELDRIN	0.01	0.01	0.01	0.01	0.01	0.00	0.00	***0.01***	0.00	0.00	0.00	0.00	0.01	0.01	1 of 36

Table B-2 Nut Island Influent Characterization, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum			
Organochlorine Pesticides and PCBs (ug/L)																	
ENDOSULFAN I	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0	of	36
ENDOSULFAN II	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0	of	36
ENDOSULFAN SULFATE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0	of	36
ENDRIN	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0	of	36
ENDRIN ALDEHYDE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0	of	36
ENDRIN KETONE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0	of	36
GAMMA-BHC (LINDANE)	0.01	***0.01***	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1	of	36
GAMMA-CHLORDANE	0.01	0.01	0.01	***0.01***	0.01	***0.01***	0.00	***0.02***	***0.01***	***0.01***	***0.00***	0.00	0.01	0.04	10	of	36
HEPTACHLOR	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0	of	36
HEPTACHLOR EPOXIDE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0	of	36
METHOXYCHLOR	0.06	0.05	0.06	0.05	0.05	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.07	0	of	36
TOXAPHENE	0.11	0.11	0.11	0.11	0.10	0.05	0.07	0.05	0.07	0.05	0.05	0.09	0.08	0.13	0	of	36
Semivolatile Organics (ug/L)																	
1,2,4-TRICHLOROBENZENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
1,2-DICHLOROBENZENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
1,2-DIPHENYLHYDRAZINE (AS	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
1,3-DICHLOROBENZENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
1,4-DICHLOROBENZENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
2,2'-OXYBIS(1-CHLOROPROPAN	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
2,4,5-TRICHLOROPHENOL	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
2,4,6-TRICHLOROPHENOL	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
2,4-DICHLOROPHENOL	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
2,4-DIMETHYLPHENOL	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
2,4-DINITROPHENOL	2.03	2.07	2.24	2.07	2.27	2.19	2.08	2.04	2.72	2.27	2.15	2.12	2.19	4.04	0	of	36
2,4-DINITROTOLUENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
2,6-DINITROTOLUENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
2-CHLORONAPHTHALENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
2-CHLOROPHENOL	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
2-METHYL-4,6-DINITROPHENOL	1.02	1.03	1.12	1.03	1.13	7.87	10.40	10.20	13.60	7.97	10.77	10.61	6.82	20.20	0	of	36
2-METHYLNAPHTHALENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
2-METHYLPHENOL	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
2-NITROANILINE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
2-NITROPHENOL	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
3,3'-DICHLOROBENZIDINE	1.02	1.03	1.12	1.03	1.13	2.19	2.08	2.04	2.72	2.27	2.15	2.12	1.84	4.04	0	of	36
3-NITROANILINE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
4-BROMOPHENYL PHENYL ETH	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
4-CHLORO-3-METHYLPHENOL	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
4-CHLOROANILINE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
4-CHLOROPHENYL PHENYL ET	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
4-METHYLPHENOL (INCLUDES	1.02	***21.16***	***17.06***	***12.96***	***3.15***	1.09	***14.98***	***21.73***	***21.76***	1.13	***13.21***	***27.65***	10.83	38.50	22	of	36
4-NITROANILINE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
4-NITROPHENOL	2.03	2.07	2.24	2.07	2.27	2.19	2.08	2.04	2.72	2.27	2.15	2.12	2.19	4.04	0	of	36
ACENAPHTHENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
ACENAPHTHYLENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36

Table B-2 Nut Island Influent Characterization, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum			
Semivolatile Organics (ug/L)																	
ANILINE	2.03	2.07	2.24	2.07	2.27	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.45	2.50	0	of	36
ANTHRACENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
BENZIDINE	10.16	10.33	11.22	10.26	11.34	5.47	5.20	5.10	6.80	5.67	***21.11***	5.30	8.47	52.00	1	of	36
BENZO(A)ANTHRACENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
BENZO(A)PYRENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
BENZO(B)FLUORANTHENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
BENZO(GHI)PERYLENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
BENZO(K)FLUORANTHENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
BENZOIC ACID	2.03	2.07	2.24	2.07	2.27	2.19	***15.24***	***28.32***	***11.78***	2.27	***12.73***	2.12	6.79	34.60	8	of	36
BENZYL ALCOHOL	***8.08***	***3.40***	***17.74***	***10.61***	***8.51***	1.09	***5.39***	***18.39***	***10.99***	1.13	***10.92***	***16.92***	8.09	32.40	26	of	36
BIS(2-CHLOROETHOXY)METHA	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
BIS(2-CHLOROETHYL)ETHER	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
BIS(2-ETHYLHEXYL)PHTHALAT	***4.30***	***4.10***	***3.49***	1.03	***3.37***	1.09	1.04	***4.73***	1.36	1.13	***6.64***	***3.12***	2.67	8.50	12	of	36
BUTYL BENZYL PHTHALATE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
CHRYSENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
DI-N-BUTYLPHTHALATE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
DI-N-OCTYLPHTHALATE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
DIBENZO(A,H)ANTHRACENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
DIBENZOFURAN	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
DIETHYL PHTHALATE	***2.56***	***6.83***	***2.74***	1.03	1.13	1.09	1.04	***5.14***	***3.04***	1.13	***5.79***	***3.08***	2.54	7.86	12	of	36
DIMETHYL PHTHALATE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
FLUORANTHENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
FLUORENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
HEXACHLOROBENZENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
HEXACHLOROBUTADIENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
HEXACHLOROCYCLOPENTADI	1.02	1.03	1.12	1.03	1.13	5.47	5.20	5.10	6.80	5.67	5.38	5.30	4.07	10.10	0	of	36
HEXACHLOROETHANE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
INDENO(1,2,3-CD)PYRENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
ISOPHORONE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
N-NITROSODI-N-PROPYLAMINE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
N-NITROSODIMETHYLAMINE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
N-NITROSODIPHENYLAMINE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
NAPHTHALENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
NITROBENZENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36
PENTACHLOROPHENOL	1.02	1.03	1.12	1.03	1.13	5.47	5.20	5.10	6.80	5.67	5.38	5.30	4.07	10.10	0	of	36
PHENANTHRENE	1.02	1.03	1.12	1.03	***1.18***	1.09	***0.66***	1.02	1.36	1.13	1.08	1.06	1.07	2.02	3	of	36
PHENOL	1.02	***4.40***	1.12	1.03	1.13	2.19	***8.91***	2.04	***10.90***	2.27	***3.93***	***8.76***	3.68	15.70	8	of	36
PYRENE	1.02	1.03	1.12	1.03	1.13	1.09	1.04	1.02	1.36	1.13	1.08	1.06	1.10	2.02	0	of	36

Table B-2 Nut Island Influent Characterization, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	
Volatile Organics (ug/L)															
1,1,1-TRICHLOROETHANE	0.50	***0.82***	0.50	0.50	***0.67***	***0.87***	***0.88***	0.50	***0.87***	0.50	0.50	***0.97***	0.67	1.60	9 of 36
1,1,2,2-TETRACHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
1,1,2-TRICHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
1,1-DICHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
1,1-DICHLOROETHENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
1,2-DICHLOROBENZENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
1,2-DICHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
1,2-DICHLOROPROPANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
1,3-DICHLOROBENZENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
1,4-DICHLOROBENZENE	***2.30***	***3.10***	***2.54***	***1.63***	***1.41***	***2.05***	***1.16***	***0.94***	***1.51***	***0.73***	0.50	***1.18***	1.49	3.38	30 of 36
2-BUTANONE	0.50	0.50	0.50	***65.25***	***4.36***	***28.57***	***169.01***	0.50	***153.80***	0.50	***95.71***	0.50	41.35	274.00	12 of 36
2-CHLOROETHYL VINYL ETHE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
2-HEXANONE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
4-METHYL-2-PENTANONE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
ACETONE	***106.41***	***162.69***	***130.24***	***174.42***	***108.41***	***207.33***	***211.75***	***118.60***	***109.47***	***172.33***	***119.45***	***168.69***	155.44	316.00	36 of 36
ACROLEIN	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
ACRYLONITRILE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
BENZENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	***1.47***	0.56	3.33	1 of 36
BROMODICHLOROMETHANE	0.50	0.50	0.50	***0.74***	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.52	1.48	1 of 36
BROMOFORM	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
BROMOMETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
CARBON DISULFIDE	0.50	0.50	***3.30***	0.50	***1.03***	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.69	9.04	2 of 36
CARBON TETRACHLORIDE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
CHLOROBENZENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
CHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
CHLOROFORM	***3.06***	***3.73***	***4.63***	***4.02***	***3.03***	***2.90***	***4.40***	***3.99***	***4.46***	***2.53***	***3.41***	***4.93***	3.57	9.08	36 of 36
CHLOROMETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
CIS-1,2-DICHLOROETHENE	0.50	0.50	0.50	0.50	0.50	***0.71***	0.50	0.50	0.50	0.50	0.50	0.50	0.53	1.14	1 of 36
CIS-1,3-DICHLOROPROPENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
DIBROMOCHLOROMETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
ETHYLBENZENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	***0.72***	***2.71***	0.65	6.92	2 of 36
M,P-XYLENE	0.50	***1.26***	***1.16***	***1.50***	***1.67***	***1.57***	0.50	***0.69***	***0.68***	***1.46***	0.50	***10.79***	1.70	30.40	15 of 36
METHYLENE CHLORIDE	***2.74***	***2.72***	***2.77***	***3.61***	***1.48***	***1.26***	***3.42***	***1.87***	***1.36***	***0.69***	***1.13***	***2.88***	1.95	8.12	31 of 36
O-XYLENE	0.50	***0.86***	***0.75***	***0.93***	***0.78***	0.50	0.50	0.50	0.50	0.50	0.50	***5.90***	0.91	16.20	5 of 36
STYRENE	0.50	***3.62***	0.50	***1.73***	***0.87***	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.80	7.48	6 of 36
TETRACHLOROETHENE	***3.49***	***3.05***	***2.00***	***2.12***	***5.32***	***5.45***	***4.22***	***7.79***	***3.29***	***12.19***	***4.59***	***4.61***	5.57	25.40	36 of 36
TOLUENE	***3.33***	***4.45***	***5.05***	***3.05***	***2.37***	***1.61***	***3.27***	***2.61***	***5.28***	***2.19***	***2.56***	***15.33***	3.68	35.80	36 of 36
TRANS-1,2-DICHLOROETHENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
TRANS-1,3-DICHLOROPROPENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
TRICHLOROETHENE	0.50	0.50	***0.77***	0.50	0.50	0.50	***1.36***	***0.99***	0.50	0.50	0.50	0.50	0.62	1.48	6 of 36
TRICHLOROFLUOROMETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
VINYL ACETATE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
VINYL CHLORIDE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36

Table B-3 Nut Island Influent Loadings, Fiscal Year 1997

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (lb/day)															
ANTIMONY	12.52	***11.78***	11.29	***18.49***	***17.64***	25.32	***18.29***	15.31	***16.25***	26.04	14.68	11.67	16.57	36.95	5 of 88
ARSENIC	1.10	***1.27***	0.99	1.46	1.29	2.23	1.34	1.35	***1.42***	2.29	1.29	1.03	1.42	3.49	2 of 88
BERYLLIUM	0.50	0.41	0.45	0.66	0.58	1.01	0.61	0.61	0.58	1.04	0.59	0.47	0.63	1.17	0 of 88
BORON	***173.69***	***233.92***	***328.53***	***217.51***	175.37	***337.61***	182.85	183.72	174.83	312.50	***262.49***	***222.29***	231.65	625.41	21 of 88
CADMIUM	1.00	0.81	0.90	1.32	1.17	2.03	1.22	1.22	1.17	2.08	1.17	0.93	1.25	2.34	0 of 88
CHROMIUM	***15.68***	***9.15***	***8.60***	***19.59***	***7.12***	***12.37***	***4.72***	***3.98***	***4.85***	***9.95***	***8.16***	***2.76***	9.02	60.22	75 of 88
COPPER	***148.44***	***112.41***	***115.14***	***138.51***	***146.28***	***114.11***	***75.96***	***80.04***	***74.48***	***88.50***	***94.32***	***94.71***	106.31	317.07	87 of 87
HEXAVALENT CHROMIUM	5.77	4.59	4.51	6.94	7.06	12.85	6.80	7.11	5.90	12.85	6.65	5.18	7.18	12.85	0 of 36
IRON	***3797.05***	***1555.03***	***3357.53***	***4339.20***	***1957.51***	***2374.38***	***1467.30***	***1430.59***	***1458.39***	***2098.40***	***1844.90***	***1514.89***	2280.94	12487.99	88 of 88
LEAD	***15.88***	***11.29***	***18.94***	***16.63***	***8.52***	***13.93***	***7.56***	***7.31***	***6.78***	***10.11***	***10.21***	***6.50***	11.09	42.53	85 of 90
MERCURY	***0.31***	***0.29***	***0.42***	***0.78***	***0.50***	***0.35***	***0.27***	***0.17***	***0.47***	***0.28***	***0.33***	***0.23***	0.37	1.61	84 of 88
MOLYBDENUM	***7.18***	***3.45***	***4.94***	***5.36***	4.09	***8.39***	***5.76***	4.29	4.08	7.29	***5.05***	***3.85***	5.32	17.29	14 of 88
NICKEL	***15.96***	***8.31***	***12.68***	***18.81***	***6.58***	***14.29***	***5.73***	***2.49***	***3.41***	***9.86***	***7.78***	***3.84***	9.20	44.13	62 of 88
SELENIUM	1.10	0.90	0.99	1.46	1.29	2.23	1.34	1.35	1.28	2.29	1.29	1.03	1.38	2.57	0 of 88
SILVER	***5.28***	***3.04***	***4.75***	***5.71***	***4.28***	***4.96***	***2.43***	***2.74***	***2.28***	***4.61***	***2.54***	***2.76***	3.78	11.94	83 of 88
THALLIUM	1.10	0.90	0.99	1.46	1.29	2.23	1.34	1.35	1.28	2.29	1.29	1.03	1.38	2.57	0 of 88
ZINC	***110.05***	***81.35***	***101.40***	***117.32***	***88.82***	***121.30***	***69.44***	***77.46***	***77.49***	***114.81***	***101.83***	***76.37***	94.82	289.62	88 of 88
Cyanide and Phenols (lb/day)															
CYANIDE	5.24	4.17	4.10	6.31	6.42	11.68	6.18	6.46	5.37	11.68	6.04	4.71	6.53	11.68	0 of 36
PHENOL	***40.07***	***54.03***	***42.72***	***28.22***	***16.10***	2.34	***29.83***	***38.90***	***41.61***	2.34	***17.98***	***27.16***	28.44	72.46	27 of 36
Oil and Grease, Petroleum Hydrocarbons, and Surfactants (lb/day)															
FATS OIL AND GREASE	***26732.12***	***40740.58***	***33270.38***	***34970.18***	***34436.84***	***28267.29***	***33307.20***	***36560.32***	***27728.50***	***25808.05***	***27417.71***	***28951.43***	31382.97	83732.87	86 of 88
PETROLEUM HYDROCARBON	***1740.64***	***2274.19***	***3153.00***	***5417.69***	***1541.83***	***1479.88***	***2142.27***	***1384.03***	***1054.84***	***2546.95***	***1401.91***	***2042.33***	2153.88	11157.84	35 of 35
TOTAL PETROLEUM HYDROCA	***3529.22***	***4417.77***	***6899.33***	***6309.04***	***5378.56***	***1791.43***	***2928.91***	***4003.79***	***13925.52***	***3528.34***	***4989.41***	***3348.20***	5087.46	29208.76	35 of 36
SURFACTANTS	***4601.93***	***4317.00***	***4994.08***	***4821.32***	***4690.44***	***4727.82***	***4532.88***	***4651.69***	***4941.38***	***4486.36***	***4969.99***	***5262.71***	4754.03	6221.32	35 of 35
Organochlorine Pesticides and PCBs (lb/day)															
4,4'-DDD	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 36
4,4'-DDE	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 36
4,4'-DDT	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 36
ALDRIN	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0 of 36
ALPHA-BHC	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0 of 36
ALPHA-CHLORDANE	0.01	0.00	0.00	***0.00***	0.01	***0.03***	0.00	***0.02***	***0.01***	***0.02***	0.00	0.00	0.01	0.04	9 of 36
AROCLOR-1016	0.13	0.09	0.10	0.12	0.13	0.13	0.08	0.06	0.07	0.13	0.06	0.05	0.10	0.16	0 of 36
AROCLOR-1221	0.25	0.17	0.20	0.23	0.26	0.25	0.17	0.13	0.15	0.25	0.13	0.07	0.19	0.33	0 of 36
AROCLOR-1232	0.13	0.09	0.10	0.12	0.13	0.13	0.08	0.06	0.07	0.13	0.06	0.05	0.10	0.16	0 of 36
AROCLOR-1242	0.13	0.09	0.10	0.12	0.13	0.13	0.08	0.06	0.07	0.13	0.06	0.05	0.10	0.16	0 of 36
AROCLOR-1248	0.13	0.09	0.10	0.12	0.13	0.13	0.08	0.06	0.07	0.13	0.06	0.05	0.10	0.16	0 of 36
AROCLOR-1254	0.13	0.09	0.10	0.12	0.13	0.13	0.08	0.06	0.07	0.13	0.06	0.05	0.10	0.16	0 of 36
AROCLOR-1260	0.13	0.09	0.10	0.12	0.13	0.13	0.08	0.06	0.07	0.13	0.06	0.05	0.10	0.16	0 of 36
BETA-BHC	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0 of 36
CHLORDANE (TECHNICAL)	0.13	0.09	0.10	0.12	0.13	0.13	0.08	0.06	0.07	0.13	0.06	0.05	0.10	0.16	0 of 36
DELTA-BHC	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0 of 36
DIELDRIN	0.01	0.01	0.01	0.01	0.01	0.01	0.00	***0.01***	0.00	0.01	0.00	0.00	0.01	0.02	1 of 36

Table B-3 Nut Island Influent Loadings, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Organochlorine Pesticides and PCBs (lb/day)															
ENDOSULFAN I	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0 of 36
ENDOSULFAN II	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 36
ENDOSULFAN SULFATE	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 36
ENDRIN	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 36
ENDRIN ALDEHYDE	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 36
ENDRIN KETONE	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0 of 36
GAMMA-BHC (LINDANE)	0.01	*0.01*	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	1 of 36
GAMMA-CHLORDANE	0.01	0.00	0.00	*0.01*	0.01	*0.03*	0.00	*0.02*	*0.01*	*0.03*	*0.01*	0.00	0.01	0.05	10 of 36
HEPTACHLOR	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0 of 36
HEPTACHLOR EPOXIDE	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0 of 36
METHOXYCHLOR	0.06	0.04	0.05	0.06	0.07	0.05	0.03	0.03	0.02	0.05	0.03	0.02	0.04	0.08	0 of 36
TOXAPHENE	0.13	0.09	0.10	0.12	0.13	0.13	0.08	0.06	0.07	0.13	0.06	0.09	0.10	0.16	0 of 36
Semivolatile Organics (lb/day)															
1,2,4-TRICHLOROBENZENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
1,2-DICHLOROBENZENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
1,2-DIPHENYLHYDRAZINE (AS	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
1,3-DICHLOROBENZENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
1,4-DICHLOROBENZENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
2,2'-OXYBIS(1-CHLOROPROPAN	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
2,4,5-TRICHLOROPHENOL	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
2,4,6-TRICHLOROPHENOL	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
2,4-DICHLOROPHENOL	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
2,4-DIMETHYLPHENOL	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
2,4-DINITROPHENOL	2.30	1.68	1.98	2.24	2.82	5.11	2.57	2.54	2.93	5.30	2.60	2.07	2.85	5.56	0 of 36
2,4-DINITROTOLUENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
2,6-DINITROTOLUENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
2-CHLORONAPHTHALENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
2-CHLOROPHENOL	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
2-METHYL-4,6-DINITROPHENOL	1.15	0.84	0.99	1.12	1.41	18.40	12.87	12.71	14.65	18.63	13.02	10.33	8.84	27.81	0 of 36
2-METHYLNAPHTHALENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
2-METHYLPHENOL	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
2-NITROANILINE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
2-NITROPHENOL	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
3,3'-DICHLOROBENZIDINE	1.15	0.84	0.99	1.11	1.41	5.11	2.57	2.54	2.93	5.30	2.60	2.07	2.39	5.56	0 of 36
3-NITROANILINE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
4-BROMOPHENYL PHENYL ETH	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
4-CHLORO-3-METHYLPHENOL	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
4-CHLOROANILINE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
4-CHLOROPHENYL PHENYL ET	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
4-METHYLPHENOL (INCLUDES	1.15	*17.25*	*15.09*	*14.01*	*3.92*	2.55	*18.53*	*27.07*	*23.43*	2.65	*15.99*	*26.93*	14.05	39.62	22 of 36
4-NITROANILINE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
4-NITROPHENOL	2.30	1.68	1.98	2.24	2.82	5.11	2.57	2.54	2.93	5.30	2.60	2.07	2.85	5.56	0 of 36
ACENAPHTHENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
ACENAPHTHYLENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36

Table B-3 Nut Island Influent Loadings, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Semivolatile Organics (lb/day)															
ANILINE	2.30	1.68	1.98	2.24	2.82	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.88	3.02	0 of 36
ANTHRACENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
BENZIDINE	11.49	8.42	9.92	11.09	14.11	12.77	6.43	6.36	7.32	13.24	***25.54***	5.17	10.99	63.44	1 of 36
BENZO(A)ANTHRACENE	1.15	0.84	0.99	1.11	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
BENZO(A)PYRENE	1.15	0.84	0.99	1.11	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
BENZO(B)FLUORANTHENE	1.15	0.84	0.99	1.11	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
BENZO(GHI)PERYLENE	1.15	0.84	0.99	1.11	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
BENZO(K)FLUORANTHENE	1.15	0.84	0.99	1.11	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
BENZOIC ACID	2.30	1.68	1.98	2.24	2.82	5.11	***18.86***	***35.28***	***12.68***	5.30	***15.40***	2.07	8.81	41.40	8 of 36
BENZYL ALCOHOL	***9.14***	***2.77***	***15.69***	***11.47***	***10.58***	2.55	***6.66***	***22.91***	***11.83***	2.65	***13.22***	***16.48***	10.50	37.32	26 of 36
BIS(2-CHLOROETHOXY)METHA	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
BIS(2-CHLOROETHYL)ETHER	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
BIS(2-ETHYLHEXYL)PHTHALAT	***4.87***	***3.34***	***3.09***	1.11	***4.19***	2.55	1.29	***5.89***	1.46	2.65	***8.03***	***3.04***	3.46	9.71	12 of 36
BUTYL BENZYL PHTHALATE	1.15	0.84	0.99	1.11	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
CHRYSENE	1.15	0.84	0.99	1.11	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
DI-N-BUTYLPHTHALATE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
DI-N-OCTYLPHTHALATE	1.15	0.84	0.99	1.11	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
DIBENZO(A,H)ANTHRACENE	1.15	0.84	0.99	1.11	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
DIBENZOFURAN	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
DIETHYL PHTHALATE	***2.89***	***5.57***	***2.42***	1.12	1.41	2.55	1.29	***6.41***	***3.28***	2.65	***7.01***	***3.00***	3.30	9.26	12 of 36
DIMETHYL PHTHALATE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
FLUORANTHENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
FLUORENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
HEXACHLOROBENZENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
HEXACHLOROBUTADIENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
HEXACHLOROCYCLOPENTADI	1.15	0.84	0.99	1.12	1.41	12.77	6.43	6.36	7.32	13.24	6.51	5.17	5.28	13.90	0 of 36
HEXACHLOROETHANE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
INDENO(1,2,3-CD)PYRENE	1.15	0.84	0.99	1.11	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
ISOPHORONE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
N-NITROSODI-N-PROPYLAMINE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
N-NITROSODIMETHYLAMINE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
N-NITROSODIPHENYLAMINE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
NAPHTHALENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
NITROBENZENE	1.15	0.84	0.99	1.12	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36
PENTACHLOROPHENOL	1.15	0.84	0.99	1.12	1.41	12.77	6.43	6.36	7.32	13.24	6.51	5.17	5.28	13.90	0 of 36
PHENANTHRENE	1.15	0.84	0.99	1.12	***1.46***	2.55	***0.82***	1.27	1.46	2.65	1.30	1.03	1.39	2.78	3 of 36
PHENOL	1.15	***3.58***	0.99	1.12	1.41	5.11	***11.03***	2.54	***11.73***	5.30	***4.76***	***8.53***	4.77	17.27	8 of 36
PYRENE	1.15	0.84	0.99	1.11	1.41	2.55	1.29	1.27	1.46	2.65	1.30	1.03	1.42	2.78	0 of 36

Table B-3 Nut Island Influent Loadings, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Volatile Organics (lb/day)															
1,1,1-TRICHLOROETHANE	0.52	***0.68***	0.41	0.63	***0.86***	***2.03***	***1.08***	0.65	***0.93***	1.17	0.60	***0.92***	0.87	3.74	9 of 36
1,1,2,2-TETRACHLOROETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
1,1,2-TRICHLOROETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
1,1-DICHLOROETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
1,1-DICHLOROETHENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
1,2-DICHLOROBENZENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
1,2-DICHLOROETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
1,2-DICHLOROPROPANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
1,3-DICHLOROBENZENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
1,4-DICHLOROBENZENE	***2.41***	***2.59***	***2.08***	***2.05***	***1.82***	***4.80***	***1.43***	***1.21***	***1.62***	***1.71***	0.60	***1.11***	1.95	6.54	30 of 36
2-BUTANONE	0.52	0.42	0.41	***82.34***	***5.60***	***66.75***	***209.03***	0.65	***165.08***	1.17	***115.68***	0.47	54.01	345.84	12 of 36
2-CHLOROETHYL VINYL ETHE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
2-HEXANONE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
4-METHYL-2-PENTANONE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
ACETONE	***111.56***	***135.84***	***106.70***	***220.11***	***139.20***	***484.46***	***261.90***	***153.23***	***117.50***	***402.68***	***144.37***	***158.97***	203.04	651.92	36 of 36
ACROLEIN	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
ACRYLONITRILE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
BENZENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	***1.39***	0.73	3.24	1 of 36
BROMODICHLOROMETHANE	0.52	0.42	0.41	***0.93***	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.68	1.36	1 of 36
BROMOFORM	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
BROMOMETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
CARBON DISULFIDE	0.52	0.42	***2.71***	0.63	***1.32***	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.90	7.29	2 of 36
CARBON TETRACHLORIDE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
CHLOROBENZENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
CHLOROETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
CHLOROFORM	***3.20***	***3.11***	***3.80***	***5.08***	***3.89***	***6.77***	***5.44***	***5.16***	***4.79***	***5.92***	***4.12***	***4.65***	4.66	9.14	36 of 36
CHLOROMETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
CIS-1,2-DICHLOROETHENE	0.52	0.42	0.41	0.63	0.64	***1.67***	0.62	0.65	0.54	1.17	0.60	0.47	0.69	2.66	1 of 36
CIS-1,3-DICHLOROPROPENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
DIBROMOCHLOROMETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
ETHYLBENZENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	***0.87***	***2.55***	0.85	6.73	2 of 36
M,P-XYLENE	0.52	***1.05***	***0.95***	***1.89***	***2.15***	***3.67***	0.62	***0.89***	***0.73***	***3.42***	0.60	***10.17***	2.22	29.57	15 of 36
METHYLENE CHLORIDE	***2.88***	***2.27***	***2.27***	***4.56***	***1.90***	***2.94***	***4.23***	***2.41***	***1.46***	***1.60***	***1.36***	***2.72***	2.55	10.09	31 of 36
O-XYLENE	0.52	***0.72***	***0.62***	***1.17***	***1.00***	1.17	0.62	0.65	0.54	1.17	0.60	***5.56***	1.19	15.76	5 of 36
STYRENE	0.52	***3.02***	0.41	***2.18***	***1.11***	1.17	0.62	0.65	0.54	1.17	0.60	0.47	1.04	6.38	6 of 36
TETRACHLOROETHENE	***3.66***	***2.54***	***1.64***	***2.68***	***6.83***	***12.74***	***5.22***	***10.07***	***3.53***	***28.48***	***5.54***	***4.34***	7.27	59.35	36 of 36
TOLUENE	***3.49***	***3.71***	***4.14***	***3.85***	***3.04***	***3.76***	***4.04***	***3.37***	***5.67***	***5.13***	***3.09***	***14.44***	4.81	34.82	36 of 36
TRANS-1,2-DICHLOROETHENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
TRANS-1,3-DICHLOROPROPENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
TRICHLOROETHENE	0.52	0.42	***0.63***	0.63	0.64	1.17	***1.68***	***1.28***	0.54	1.17	0.60	0.47	0.81	1.81	6 of 36
TRICHLOROFLUOROMETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
VINYL ACETATE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
VINYL CHLORIDE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36

Table B-4 Nut Island Effluent Characterization, Fiscal Year 1997

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (ug/L)															
ANTIMONY	12.50	***14.51***	12.50	12.50	12.50	12.50	***14.59***	12.50	12.50	***14.62***	12.50	12.50	13.07	26.80	3 of 87
ARSENIC	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	***1.28***	***1.21***	1.10	1.10	1.13	2.50	2 of 87
BERYLLIUM	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 87
BORON	***188.58***	***303.18***	***318.00***	150.00	150.00	150.00	***172.23***	150.00	***182.77***	150.00	***174.11***	***244.42***	185.42	417.00	22 of 87
CADMIUM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0 of 87
CHROMIUM	***7.00***	***16.03***	***15.09***	***18.73***	***6.22***	***8.01***	***3.97***	***2.00***	***4.00***	***3.05***	***2.44***	***2.83***	7.02	52.90	62 of 87
COPPER	***78.87***	***104.61***	***90.47***	***76.08***	***66.28***	***41.14***	***55.23***	***49.17***	***47.59***	***31.94***	***47.36***	***70.56***	59.06	137.00	85 of 85
HEXAVALENT CHROMIUM	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	0 of 36
IRON	***1603.37***	***1351.44***	***3052.40***	***2346.70***	***1110.95***	***908.86***	***977.62***	***850.68***	***924.52***	***706.80***	***1026.17***	***1281.02***	1271.88	4590.00	87 of 87
LEAD	***6.63***	***8.46***	***6.81***	***6.46***	***4.58***	***4.83***	***3.37***	***3.00***	***3.16***	***2.76***	***4.68***	***4.69***	4.72	19.50	83 of 89
MERCURY	***0.17***	***0.14***	***0.22***	***0.14***	***0.08***	***0.10***	***0.06***	***0.05***	***0.07***	***0.03***	***0.08***	***0.12***	0.10	0.53	66 of 87
MOLYBDENUM	***5.53***	3.50	***6.00***	***4.68***	***5.31***	3.50	***4.08***	3.50	3.50	3.50	3.50	3.50	4.09	12.40	10 of 87
NICKEL	***9.80***	***12.01***	***14.62***	***15.49***	***6.07***	***5.14***	***4.58***	***2.18***	***3.19***	***3.18***	1.50	***1.87***	6.20	33.80	52 of 87
SELENIUM	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	0 of 87
SILVER	***2.69***	***2.30***	***3.63***	***2.33***	***2.63***	***1.95***	***1.76***	***2.08***	***1.33***	***1.10***	***1.45***	***2.18***	2.02	5.60	70 of 86
THALLIUM	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	0 of 87
ZINC	***95.14***	***54.87***	***59.27***	***66.78***	***65.99***	***60.99***	***43.01***	***47.31***	***38.76***	***51.50***	***45.94***	***51.72***	56.58	383.00	87 of 87
Cyanide and Phenols (ug/L)															
CYANIDE	5.00	5.00	5.00	***12.48***	5.00	***8.00***	5.00	***21.26***	5.00	5.00	5.00	5.00	7.39	32.10	6 of 36
PHENOL	***46.78***	***60.10***	***29.35***	***27.20***	***25.99***	***9.07***	***14.21***	***24.46***	***46.12***	1.00	***25.28***	***41.06***	24.49	68.30	30 of 36
Oil and Grease, Petroleum Hydrocarbons, and Surfactants (mg/L)															
FATS OIL AND GREASE	***21.36***	***28.95***	***30.42***	***17.79***	***24.19***	***13.80***	***22.30***	***20.85***	***18.80***	***10.32***	***18.65***	***27.84***	19.74	44.20	86 of 89
PETROLEUM HYDROCARBON	***1.31***	***2.68***	***1.14***	***0.54***	***0.98***	***0.46***	***0.84***	***0.90***	***0.87***	***0.67***	***0.96***	***2.04***	0.99	3.40	85 of 85
TOTAL PETROLEUM HYDROCA	***2.94***	***3.92***	***4.13***	***2.06***	***2.83***	***1.47***	***2.10***	***2.35***	***4.98***	***2.26***	***3.39***	***3.43***	2.80	22.60	81 of 85
SURFACTANTS	***3.92***	***5.36***	***5.65***	***4.64***	***4.04***	***2.13***	***3.84***	***4.25***	***4.71***	***1.99***	***4.09***	***5.49***	3.70	7.13	36 of 36
Organochlorine Pesticides and PCBs (ug/L)															
4,4'-DDD	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
4,4'-DDE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
4,4'-DDT	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
ALDRIN	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
ALPHA-BHC	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
ALPHA-CHLORDANE	0.01	0.01	0.01	***0.01***	0.01	***0.01***	0.00	***0.01***	0.00	***0.01***	***0.00***	0.00	0.01	0.02	8 of 36
AROCLOR-1016	0.11	0.10	0.10	0.10	0.11	0.05	0.05	0.05	0.07	0.05	0.05	0.05	0.07	0.13	0 of 36
AROCLOR-1221	0.23	0.21	0.20	0.21	0.22	0.11	0.11	0.10	0.14	0.11	0.11	0.07	0.14	0.26	0 of 36
AROCLOR-1232	0.11	0.10	0.10	0.10	0.11	0.05	0.05	0.05	0.07	0.05	0.05	0.05	0.07	0.13	0 of 36
AROCLOR-1242	0.11	0.10	0.10	0.10	0.11	0.05	0.05	0.05	0.07	0.05	0.05	0.05	0.07	0.13	0 of 36
AROCLOR-1248	0.11	0.10	0.10	0.10	0.11	0.05	0.05	0.05	0.07	0.05	0.05	0.05	0.07	0.13	0 of 36
AROCLOR-1254	0.11	0.10	0.10	0.10	0.11	0.05	0.05	0.05	0.07	0.05	0.05	0.05	0.07	0.13	0 of 36
AROCLOR-1260	0.11	0.10	0.10	0.10	0.11	0.05	0.05	0.05	0.07	0.05	0.05	0.05	0.07	0.13	0 of 36
BETA-BHC	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
CHLORDANE (TECHNICAL)	0.11	0.10	0.10	0.10	0.11	0.05	0.05	0.05	0.07	0.05	0.05	0.05	0.07	0.13	0 of 36
DELTA-BHC	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
DIELDRIN	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36

Table B-4 Nut Island Effluent Characterization, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Organochlorine Pesticides and PCBs (ug/L)															
ENDOSULFAN I	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
ENDOSULFAN II	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
ENDOSULFAN SULFATE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
ENDRIN	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
ENDRIN ALDEHYDE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
ENDRIN KETONE	0.01	0.01	0.01	0.01	0.01	***0.01***	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	1 of 36
GAMMA-BHC (LINDANE)	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
GAMMA-CHLORDANE	0.01	0.01	0.01	0.01	0.01	***0.01***	0.00	***0.01***	***0.00***	***0.01***	***0.01***	0.00	0.01	0.03	9 of 36
HEPTACHLOR	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
HEPTACHLOR EPOXIDE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
METHOXYCHLOR	0.06	0.05	0.05	0.05	0.05	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.07	0 of 36
TOXAPHENE	0.11	0.10	0.10	0.10	0.11	0.05	0.05	0.05	0.07	0.05	0.05	0.09	0.07	0.13	0 of 36
Semivolatile Organics (ug/L)															
1,2,4-TRICHLOROBENZENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
1,2-DICHLOROBENZENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
1,2-DIPHENYLHYDRAZINE (AS	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
1,3-DICHLOROBENZENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
1,4-DICHLOROBENZENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
2,2'-OXYBIS(1-CHLOROPROPAN	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
2,4,5-TRICHLOROPHENOL	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
2,4,6-TRICHLOROPHENOL	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
2,4-DICHLOROPHENOL	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
2,4-DIMETHYLPHENOL	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
2,4-DINITROPHENOL	2.18	2.09	2.23	2.08	2.22	2.06	2.11	2.03	4.11	3.66	2.13	2.14	2.49	8.40	0 of 36
2,4-DINITROTOLUENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
2,6-DINITROTOLUENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
2-CHLORONAPHTHALENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
2-CHLOROPHENOL	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
2-METHYL-4,6-DINITROPHENOL	1.09	1.05	1.11	1.04	1.11	10.30	10.53	10.17	20.56	18.30	10.64	10.70	9.22	42.00	0 of 36
2-METHYLNAPHTHALENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
2-METHYLPHENOL	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
2-NITROANILINE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
2-NITROPHENOL	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
3,3'-DICHLOROBENZIDINE	1.09	1.05	1.11	1.04	1.11	2.06	2.11	2.03	4.11	3.66	2.13	2.14	2.13	8.40	0 of 36
3-NITROANILINE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
4-BROMOPHENYL PHENYL ETH	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
4-CHLORO-3-METHYLPHENOL	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
4-CHLOROANILINE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
4-CHLOROPHENYL PHENYL ET	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
4-METHYLPHENOL (INCLUDES	1.09	***37.28***	***17.04***	***11.39***	***13.04***	***2.90***	***20.20***	***20.39***	***30.50***	1.83	***18.60***	***31.30***	14.29	39.50	27 of 36
4-NITROANILINE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
4-NITROPHENOL	2.18	2.09	2.23	2.08	2.22	2.06	2.11	2.03	4.11	3.66	2.13	2.14	2.49	8.40	0 of 36
ACENAPHTHENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
ACENAPHTHYLENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36

Table B-4 Nut Island Effluent Characterization, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Semivolatile Organics (ug/L)															
ANILINE	2.18	2.09	2.23	2.08	2.22	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.60	4.20	0 of 36
ANTHRACENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
BENZIDINE	10.90	10.47	11.14	10.39	11.13	5.15	5.27	5.08	10.28	9.15	5.32	5.35	8.01	21.00	0 of 36
BENZO(A)ANTHRACENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
BENZO(A)PYRENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
BENZO(B)FLUORANTHENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
BENZO(GHI)PERYLENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
BENZO(K)FLUORANTHENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
BENZOIC ACID	2.18	2.09	2.23	***11.27***	***8.45***	***19.72***	***12.71***	***40.54***	***54.23***	***9.17***	***31.97***	2.14	16.81	126.00	18 of 36
BENZYL ALCOHOL	***5.62***	***9.39***	***20.56***	***9.86***	***8.66***	***5.97***	***7.03***	***22.60***	***9.01***	1.83	***13.02***	***17.51***	9.71	40.80	28 of 36
BIS(2-CHLOROETHOXY)METHA	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
BIS(2-CHLOROETHYL)ETHER	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
BIS(2-ETHYLHEXYL)PHTHALAT	***2.67***	1.05	***4.06***	1.04	1.11	1.03	***3.33***	***2.60***	***3.87***	1.83	1.06	1.07	1.96	8.00	6 of 36
BUTYL BENZYL PHTHALATE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
CHRYSENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
DI-N-BUTYLPHTHALATE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
DI-N-OCTYLPHTHALATE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
DIBENZO(A,H)ANTHRACENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
DIBENZOFURAN	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
DIETHYL PHTHALATE	1.09	***10.34***	***5.22***	1.04	1.11	1.03	***3.93***	***4.60***	***3.81***	1.83	***2.76***	***2.89***	2.85	10.70	12 of 36
DIMETHYL PHTHALATE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
FLUORANTHENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
FLUORENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
HEXACHLOROBENZENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
HEXACHLOROBUTADIENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
HEXACHLOROCYCLOPENTADI	1.09	1.05	1.11	1.04	1.11	5.15	5.27	5.08	10.28	9.15	5.32	5.35	4.79	21.00	0 of 36
HEXACHLOROETHANE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
INDENO(1,2,3-CD)PYRENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
ISOPHORONE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
N-NITROSODI-N-PROPYLAMINE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
N-NITROSODIMETHYLAMINE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
N-NITROSODIPHENYLAMINE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
NAPHTHALENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
NITROBENZENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
PENTACHLOROPHENOL	1.09	1.05	1.11	1.04	1.11	5.15	5.27	5.08	10.28	9.15	5.32	5.35	4.79	21.00	0 of 36
PHENANTHRENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36
PHENOL	1.09	***16.57***	1.11	1.04	1.11	2.06	***5.19***	***6.80***	***11.00***	3.66	***8.30***	***9.09***	4.96	21.50	11 of 36
PYRENE	1.09	1.05	1.11	1.04	1.11	1.03	1.05	1.02	2.06	1.83	1.06	1.07	1.24	4.20	0 of 36

Table B-4 Nut Island Effluent Characterization, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Volatile Organics (ug/L)															
1,1,1-TRICHLOROETHANE	0.50	***0.75***	0.50	0.50	***0.94***	0.50	***0.90***	0.50	***0.66***	0.50	0.50	***0.68***	0.60	1.76	6 of 36
1,1,2,2-TETRACHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
1,1,2-TRICHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
1,1-DICHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
1,1-DICHLOROETHENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
1,2-DICHLOROBENZENE	***0.72***	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	***0.93***	0.54	1.80	2 of 36
1,2-DICHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
1,2-DICHLOROPROPANE	0.50	0.50	0.50	0.50	***1.49***	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.58	3.36	1 of 36
1,3-DICHLOROBENZENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
1,4-DICHLOROBENZENE	***1.81***	***2.42***	***2.02***	***1.29***	***1.23***	***1.15***	0.50	***0.74***	***0.97***	0.50	***0.90***	***1.43***	1.13	2.72	25 of 36
2-BUTANONE	0.50	0.50	0.50	***66.70***	***6.77***	0.50	***247.95***	0.50	***242.38***	0.50	***52.20***	0.50	46.42	397.00	11 of 36
2-CHLOROETHYL VINYL ETHE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
2-HEXANONE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
4-METHYL-2-PENTANONE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
ACETONE	***104.21***	***155.87***	***131.46***	***137.79***	***102.54***	***117.00***	***159.24***	***174.67***	***155.40***	***96.07***	***145.82***	***230.95***	136.13	296.00	36 of 36
ACROLEIN	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
ACRYLONITRILE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
BENZENE	0.50	0.50	0.50	0.50	0.50	0.50	***0.68***	0.50	0.50	0.50	0.50	0.50	0.51	1.05	1 of 36
BROMODICHLOROMETHANE	***0.86***	***2.32***	***1.87***	***0.75***	***1.01***	***0.99***	***1.04***	***0.72***	***0.76***	***0.75***	0.50	***1.05***	0.98	2.71	20 of 36
BROMOFORM	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
BROMOMETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
CARBON DISULFIDE	***1.94***	***0.69***	***3.48***	0.50	***1.33***	***1.55***	0.50	0.50	***0.75***	0.50	0.50	***1.24***	1.05	7.74	10 of 36
CARBON TETRACHLORIDE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
CHLOROBENZENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
CHLOROETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
CHLOROFORM	***6.47***	***8.95***	***9.65***	***6.37***	***6.29***	***5.10***	***9.30***	***5.88***	***6.77***	***4.90***	***6.33***	***8.07***	6.59	12.50	36 of 36
CHLOROMETHANE	0.50	0.50	***2.74***	0.50	0.50	0.50	***0.68***	0.50	0.50	0.50	0.50	0.50	0.63	3.15	4 of 36
CIS-1,2-DICHLOROETHENE	***1.24***	0.50	0.50	0.50	***1.63***	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.64	3.76	2 of 36
CIS-1,3-DICHLOROPROPENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
DIBROMOCHLOROMETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
ETHYLBENZENE	0.50	0.50	0.50	0.50	0.50	0.50	***0.71***	0.50	0.50	0.50	0.50	0.50	0.52	1.13	1 of 36
M,P-XYLENE	***1.06***	***1.15***	0.50	0.50	***1.31***	***1.42***	***0.89***	0.50	0.50	***1.50***	***1.13***	0.50	1.00	2.44	14 of 36
METHYLENE CHLORIDE	***2.70***	***3.35***	***3.54***	***2.57***	***2.09***	***1.49***	***2.64***	***3.13***	***1.93***	***0.74***	***0.78***	***2.69***	2.08	5.17	31 of 36
O-XYLENE	0.50	***1.03***	0.50	0.50	***0.71***	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.55	2.07	2 of 36
STYRENE	0.50	***4.88***	0.50	***2.16***	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.87	12.10	5 of 36
TETRACHLOROETHENE	***2.92***	***2.21***	***2.09***	***2.17***	***3.85***	***3.62***	***3.77***	***3.30***	***2.66***	***12.12***	***2.99***	***3.84***	4.47	25.00	36 of 36
TOLUENE	***4.34***	***4.49***	***4.30***	***2.91***	***1.65***	***1.52***	***3.66***	***2.35***	***5.38***	***2.73***	***2.54***	***4.05***	3.05	6.35	35 of 36
TRANS-1,2-DICHLOROETHENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
TRANS-1,3-DICHLOROPROPENE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
TRICHLOROETHENE	***1.73***	0.50	***0.72***	0.50	***2.51***	0.50	***1.31***	0.50	0.50	0.50	0.50	0.50	0.82	6.29	6 of 36
TRICHLOROFLUOROMETHANE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
VINYL ACETATE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36
VINYL CHLORIDE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0 of 36

Table B-5 Nut Island Effluent Loadings, Fiscal Year 1997

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Metals (lb/day)															
ANTIMONY	12.52	***11.82***	11.39	18.01	14.61	25.32	***17.78***	15.31	14.31	***30.45***	14.68	11.67	16.33	60.05	3 of 87
ARSENIC	1.10	0.90	1.00	1.58	1.29	2.23	1.34	1.35	***1.46***	***2.52***	1.29	1.03	1.41	3.13	2 of 87
BERYLLIUM	0.50	0.41	0.46	0.72	0.58	1.01	0.61	0.61	0.57	1.04	0.59	0.47	0.62	1.17	0 of 87
BORON	***188.87***	***246.99***	***289.65***	216.12	175.37	303.89	***209.95***	183.72	***209.26***	312.50	***204.45***	***228.17***	231.74	438.54	22 of 87
CADMIUM	1.00	0.81	0.91	1.44	1.17	2.03	1.22	1.22	1.14	2.08	1.17	0.93	1.25	2.34	0 of 87
CHROMIUM	***7.01***	***13.06***	***13.75***	***26.98***	***7.27***	***16.22***	***4.84***	***2.45***	***4.58***	***6.35***	***2.86***	***2.64***	8.77	91.51	62 of 87
COPPER	***78.99***	***85.22***	***82.40***	***109.61***	***77.49***	***87.94***	***67.33***	***60.22***	***54.49***	***66.55***	***55.61***	***65.86***	73.74	217.97	85 of 85
HEXAVALENT CHROMIUM	5.77	4.59	4.51	6.94	7.06	12.85	6.80	7.11	5.90	12.85	6.65	5.18	7.18	12.85	0 of 36
IRON	***1605.85***	***1100.97***	***2780.20***	***3381.14***	***1298.81***	***1841.32***	***1191.71***	***1041.93***	***1058.47***	***1472.48***	***1204.98***	***1195.82***	1589.62	5224.46	87 of 87
LEAD	***6.64***	***6.89***	***6.20***	***9.30***	***5.35***	***9.79***	***4.11***	***3.67***	***3.62***	***5.76***	***5.49***	***4.38***	5.89	27.57	83 of 89
MERCURY	***0.17***	***0.11***	***0.20***	***0.20***	***0.09***	***0.21***	***0.08***	***0.06***	***0.08***	***0.07***	***0.10***	***0.11***	0.13	0.81	66 of 87
MOLYBDENUM	***5.53***	2.85	***5.47***	***6.74***	***6.21***	7.09	***4.98***	4.29	4.01	7.29	4.11	3.27	5.11	16.26	10 of 87
NICKEL	***9.81***	***9.79***	***13.32***	***22.31***	***7.09***	***10.41***	***5.58***	***2.67***	***3.65***	***6.62***	1.76	***1.74***	7.75	52.42	52 of 87
SELENIUM	1.10	0.90	1.00	1.58	1.29	2.23	1.34	1.35	1.26	2.29	1.29	1.03	1.37	2.57	0 of 87
SILVER	***2.70***	***1.87***	***3.30***	***3.36***	***3.11***	***3.94***	***2.15***	***2.55***	***1.53***	***2.30***	***1.70***	***2.03***	2.53	7.01	70 of 86
THALLIUM	1.10	0.90	1.00	1.58	1.29	2.23	1.34	1.35	1.26	2.29	1.29	1.03	1.37	2.57	0 of 87
ZINC	***95.29***	***44.70***	***53.99***	***96.22***	***77.14***	***123.57***	***52.43***	***57.94***	***44.38***	***107.28***	***53.94***	***48.28***	70.71	325.96	87 of 87
Cyanide and Phenols (lb/day)															
CYANIDE	5.24	4.17	4.10	***15.76***	6.42	***18.69***	6.18	***27.46***	5.37	11.68	6.04	4.71	9.65	42.54	6 of 36
PHENOL	***52.91***	***48.99***	***25.95***	***29.41***	***32.31***	***21.19***	***17.58***	***30.47***	***49.65***	2.34	***30.58***	***40.00***	31.78	74.95	30 of 36
Oil and Grease, Petroleum Hydrocarbons, and Surfactants (lb/day)															
FATS OIL AND GREASE	***20173.50***	***23886.96***	***27758.36***	***26497.92***	***28644.11***	***27516.26***	***27181.11***	***26051.72***	***22086.88***	***21070.43***	***21619.75***	***25658.65***	24924.96	40574.22	86 of 89
PETROLEUM HYDROCARBON	***1275.55***	***2214.69***	***1177.79***	***855.47***	***1165.19***	***978.23***	***1039.50***	***1087.86***	***1010.23***	***1355.91***	***1128.96***	***1883.35***	1263.36	3183.98	85 of 85
TOTAL PETROLEUM HYDROCA	***2859.47***	***3248.15***	***4265.75***	***2926.99***	***3362.91***	***3144.21***	***2597.36***	***2825.66***	***5767.63***	***4536.32***	***3996.62***	***3165.34***	3576.83	24631.27	81 of 85
SURFACTANTS	***4775.11***	***4368.53***	***4998.70***	***5020.88***	***5020.69***	***4982.90***	***4751.60***	***5299.96***	***5073.60***	***4657.72***	***4950.69***	***5351.80***	4943.45	6747.96	36 of 36
Organochlorine Pesticides and PCBs (lb/day)															
4,4'-DDD	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 36
4,4'-DDE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 36
4,4'-DDT	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 36
ALDRIN	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
ALPHA-BHC	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
ALPHA-CHLORDANE	0.01	0.00	0.00	***0.01***	0.01	***0.03***	0.00	***0.01***	0.00	***0.02***	***0.01***	0.00	0.01	0.04	8 of 36
AROCLOR-1016	0.13	0.08	0.09	0.11	0.13	0.12	0.07	0.06	0.07	0.12	0.07	0.05	0.09	0.15	0 of 36
AROCLOR-1221	0.26	0.17	0.18	0.22	0.27	0.25	0.13	0.13	0.15	0.25	0.13	0.07	0.18	0.29	0 of 36
AROCLOR-1232	0.13	0.08	0.09	0.11	0.13	0.12	0.07	0.06	0.07	0.12	0.07	0.05	0.09	0.15	0 of 36
AROCLOR-1242	0.13	0.08	0.09	0.11	0.13	0.12	0.07	0.06	0.07	0.12	0.07	0.05	0.09	0.15	0 of 36
AROCLOR-1248	0.13	0.08	0.09	0.11	0.13	0.12	0.07	0.06	0.07	0.12	0.07	0.05	0.09	0.15	0 of 36
AROCLOR-1254	0.13	0.08	0.09	0.11	0.13	0.12	0.07	0.06	0.07	0.12	0.07	0.05	0.09	0.15	0 of 36
AROCLOR-1260	0.13	0.08	0.09	0.11	0.13	0.12	0.07	0.06	0.07	0.12	0.07	0.05	0.09	0.15	0 of 36
BETA-BHC	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
CHLORDANE (TECHNICAL)	0.13	0.08	0.09	0.11	0.13	0.12	0.07	0.06	0.07	0.12	0.07	0.05	0.09	0.15	0 of 36
DELTA-BHC	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
DIELDRIN	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 36

Table B-5 Nut Island Effluent Loadings, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Organochlorine Pesticides and PCBs (lb/day)															
ENDOSULFAN I	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
ENDOSULFAN II	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 36
ENDOSULFAN SULFATE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 36
ENDRIN	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 36
ENDRIN ALDEHYDE	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0 of 36
ENDRIN KETONE	0.01	0.01	0.01	0.01	0.01	***0.02***	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	1 of 36
GAMMA-BHC (LINDANE)	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
GAMMA-CHLORDANE	0.01	0.00	0.00	0.01	0.01	***0.03***	0.00	***0.01***	***0.01***	***0.02***	***0.01***	0.00	0.01	0.03	9 of 36
HEPTACHLOR	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
HEPTACHLOR EPOXIDE	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0 of 36
METHOXYCHLOR	0.06	0.04	0.04	0.06	0.07	0.05	0.03	0.03	0.02	0.05	0.03	0.02	0.04	0.07	0 of 36
TOXAPHENE	0.13	0.08	0.09	0.11	0.13	0.12	0.07	0.06	0.07	0.12	0.07	0.09	0.10	0.15	0 of 36
Semivolatile Organics (lb/day)															
1,2,4-TRICHLOROBENZENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
1,2-DICHLOROBENZENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
1,2-DIPHENYLHYDRAZINE (AS	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
1,3-DICHLOROBENZENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
1,4-DICHLOROBENZENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
2,2'-OXYBIS(1-CHLOROPROPAN	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
2,4,5-TRICHLOROPHENOL	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
2,4,6-TRICHLOROPHENOL	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
2,4-DICHLOROPHENOL	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
2,4-DIMETHYLPHENOL	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
2,4-DINITROPHENOL	2.46	1.71	1.97	2.25	2.76	4.81	2.61	2.53	4.43	8.55	2.57	2.08	3.23	11.03	0 of 36
2,4-DINITROTOLUENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
2,6-DINITROTOLUENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
2-CHLORONAPHTHALENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
2-CHLOROPHENOL	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
2-METHYL-4,6-DINITROPHENOL	1.23	0.85	0.99	1.12	1.38	24.07	13.03	12.67	22.13	42.76	12.87	10.42	11.96	55.14	0 of 36
2-METHYLNAPHTHALENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
2-METHYLPHENOL	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
2-NITROANILINE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
2-NITROPHENOL	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
3,3'-DICHLOROBENZIDINE	1.23	0.85	0.99	1.12	1.38	4.81	2.61	2.53	4.43	8.55	2.57	2.08	2.76	11.03	0 of 36
3-NITROANILINE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
4-BROMOPHENYL PHENYL ETH	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
4-CHLORO-3-METHYLPHENOL	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
4-CHLOROANILINE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
4-CHLOROPHENYL PHENYL ET	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
4-METHYLPHENOL (INCLUDES	1.23	***30.39***	***15.06***	***12.31***	***16.22***	***6.78***	***24.99***	***25.40***	***32.83***	4.28	***22.50***	***30.48***	18.54	36.62	27 of 36
4-NITROANILINE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
4-NITROPHENOL	2.46	1.71	1.97	2.25	2.76	4.81	2.61	2.53	4.43	8.55	2.57	2.08	3.23	11.03	0 of 36
ACENAPHTHENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
ACENAPHTHYLENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36

Table B-5 Nut Island Effluent Loadings, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Semivolatile Organics (lb/day)															
ANILINE	2.46	1.71	1.97	2.25	2.76	2.41	1.30	1.27	2.21	4.28	1.29	1.04	2.08	5.51	0 of 36
ANTHRACENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
BENZIDINE	12.32	8.53	9.85	11.24	13.84	12.03	6.52	6.33	11.07	21.38	6.43	5.21	10.40	27.57	0 of 36
BENZO(A)ANTHRACENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
BENZO(A)PYRENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
BENZO(B)FLUORANTHENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
BENZO(GHI)PERYLENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
BENZO(K)FLUORANTHENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
BENZOIC ACID	2.46	1.71	1.97	***12.18***	***10.51***	***46.09***	***15.73***	***50.51***	***58.38***	***21.43***	***38.68***	2.08	21.81	128.22	18 of 36
BENZYL ALCOHOL	***6.36***	***7.66***	***18.18***	***10.66***	***10.77***	***13.94***	***8.70***	***28.16***	***9.70***	4.28	***15.76***	***17.05***	12.60	46.99	28 of 36
BIS(2-CHLOROETHOXY)METHA	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
BIS(2-CHLOROETHYL)ETHER	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
BIS(2-ETHYLHEXYL)PHTHALAT	***3.02***	0.85	***3.59***	1.12	1.38	2.41	***4.12***	***3.24***	***4.17***	4.28	1.29	1.04	2.54	9.77	6 of 36
BUTYL BENZYL PHTHALATE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
CHRYSENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
DI-N-BUTYLPHTHALATE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
DI-N-OCTYLPHTHALATE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
DIBENZO(A,H)ANTHRACENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
DIBENZOFURAN	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
DIETHYL PHTHALATE	1.23	***8.43***	***4.61***	1.12	1.38	2.41	***4.86***	***5.74***	***4.10***	4.28	***3.33***	***2.82***	3.69	8.94	12 of 36
DIMETHYL PHTHALATE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
FLUORANTHENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
FLUORENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
HEXACHLOROBENZENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
HEXACHLOROBUTADIENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
HEXACHLOROCYCLOPENTADI	1.23	0.85	0.99	1.12	1.38	12.03	6.52	6.33	11.07	21.38	6.43	5.21	6.21	27.57	0 of 36
HEXACHLOROETHANE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
INDENO(1,2,3-CD)PYRENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
ISOPHORONE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
N-NITROSODI-N-PROPYLAMINE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
N-NITROSODIMETHYLAMINE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
N-NITROSODIPHENYLAMINE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
NAPHTHALENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
NITROBENZENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
PENTACHLOROPHENOL	1.23	0.85	0.99	1.12	1.38	12.03	6.52	6.33	11.07	21.38	6.43	5.21	6.21	27.57	0 of 36
PHENANTHRENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36
PHENOL	1.23	***13.51***	0.99	1.12	1.38	4.81	***6.42***	***8.48***	***11.84***	8.55	***10.04***	***8.85***	6.44	24.65	11 of 36
PYRENE	1.23	0.85	0.99	1.12	1.38	2.41	1.30	1.27	2.21	4.28	1.29	1.04	1.61	5.51	0 of 36

Table B-5 Nut Island Effluent Loadings, Fiscal Year 1997, cont.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average	Maximum	Times Detected
Volatile Organics (lb/day)															
1,1,1-TRICHLOROETHANE	0.52	*0.62*	0.41	0.63	*1.20*	1.17	*1.11*	0.65	*0.71*	1.17	0.60	*0.64*	0.79	2.35	6 of 36
1,1,2,2-TETRACHLOROETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
1,1,2-TRICHLOROETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
1,1-DICHLOROETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
1,1-DICHLOROETHENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
1,2-DICHLOROBENZENE	*0.75*	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	*0.87*	0.71	1.67	2 of 36
1,2-DICHLOROETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
1,2-DICHLOROPROPANE	0.52	0.42	0.41	0.63	*1.91*	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.76	4.48	1 of 36
1,3-DICHLOROBENZENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
1,4-DICHLOROBENZENE	*1.90*	*2.02*	*1.65*	*1.62*	*1.57*	*2.69*	0.62	*0.95*	*1.04*	1.17	*1.09*	*1.35*	1.47	4.51	25 of 36
2-BUTANONE	0.52	0.42	0.41	*84.17*	*8.69*	1.17	*306.67*	0.65	*260.15*	1.17	*63.08*	0.47	60.63	432.68	11 of 36
2-CHLOROETHYL VINYL ETHE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
2-HEXANONE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
4-METHYL-2-PENTANONE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
ACETONE	*109.26*	*130.15*	*107.70*	*173.88*	*131.67*	*273.39*	*196.95*	*225.67*	*166.79*	*224.47*	*176.24*	*217.65*	177.82	390.22	36 of 36
ACROLEIN	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
ACRYLONITRILE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
BENZENE	0.52	0.42	0.41	0.63	0.64	1.17	*0.85*	0.65	0.54	1.17	0.60	0.47	0.67	1.30	1 of 36
BROMODICHLOROMETHANE	*0.91*	*1.94*	*1.54*	*0.95*	*1.29*	*2.31*	*1.28*	*0.93*	*0.82*	*1.74*	0.60	*0.99*	1.28	3.01	20 of 36
BROMOFORM	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
BROMOMETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
CARBON DISULFIDE	*2.03*	*0.57*	*2.85*	0.63	*1.71*	*3.63*	0.62	0.65	*0.81*	1.17	0.60	*1.17*	1.37	8.55	10 of 36
CARBON TETRACHLORIDE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
CHLOROBENZENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
CHLOROETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
CHLOROFORM	*6.78*	*7.47*	*7.90*	*8.04*	*8.08*	*11.92*	*11.50*	*7.59*	*7.26*	*11.45*	*7.65*	*7.61*	8.61	15.87	36 of 36
CHLOROMETHANE	0.52	0.42	*2.25*	0.63	0.64	1.17	*0.84*	0.65	0.54	1.17	0.60	0.47	0.82	2.60	4 of 36
CIS-1,2-DICHLOROETHENE	*1.30*	0.42	0.41	0.63	*2.09*	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.84	5.02	2 of 36
CIS-1,3-DICHLOROPROPENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
DIBROMOCHLOROMETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
ETHYLBENZENE	0.52	0.42	0.41	0.63	0.64	1.17	*0.88*	0.65	0.54	1.17	0.60	0.47	0.67	1.40	1 of 36
M,P-XYLENE	*1.11*	*0.96*	0.41	0.63	*1.69*	*3.32*	*1.10*	0.65	0.54	*3.51*	*1.36*	0.47	1.31	4.35	14 of 36
METHYLENE CHLORIDE	*2.83*	*2.79*	*2.90*	*3.24*	*2.69*	*3.49*	*3.27*	*4.04*	*2.07*	*1.74*	*0.95*	*2.53*	2.71	6.22	31 of 36
O-XYLENE	0.52	*0.86*	0.41	0.63	*0.91*	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.71	1.74	2 of 36
STYRENE	0.52	*4.08*	0.41	*2.72*	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	1.13	10.33	5 of 36
TETRACHLOROETHENE	*3.06*	*1.84*	*1.71*	*2.74*	*4.94*	*8.46*	*4.66*	*4.27*	*2.85*	*28.32*	*3.61*	*3.62*	5.84	58.42	36 of 36
TOLUENE	*4.55*	*3.75*	*3.52*	*3.67*	*2.12*	*3.56*	*4.53*	*3.04*	*5.78*	*6.39*	*3.06*	*3.82*	3.98	10.44	35 of 36
TRANS-1,2-DICHLOROETHENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
TRANS-1,3-DICHLOROPROPENE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
TRICHLOROETHENE	*1.82*	0.42	*0.59*	0.63	*3.22*	1.17	*1.62*	0.65	0.54	1.17	0.60	0.47	1.07	8.39	6 of 36
TRICHLOROFLUOROMETHANE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
VINYL ACETATE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36
VINYL CHLORIDE	0.52	0.42	0.41	0.63	0.64	1.17	0.62	0.65	0.54	1.17	0.60	0.47	0.65	1.17	0 of 36

Appendix C

Table C-1 Cottage Farm CSO Facility Operations Summary, Fiscal Year 1997

DATE		RAINFALL (INCHES)	DISCHARGE DURATION (HOURS)	TOTAL FLOW (MG)	PH (SU)	BOD INFLUENT (MG/L)	BOD EFFLUENT (MG/L)	TSS INFLUENT (MG/L)	TSS EFFLUENT (MG/L)	SETTL. SOLIDS (ML/L)	FECAL COLIFORM (#/100 ml)	CHLORINE RESIDUAL (MG/L)
July												
	13	3.36	20.50	120.67	6.8	< 35.1	27	50	96	0.4	< 10	2.39
	**				7.1	90	31	58	36	< 0.20	< 10	
	**				7.1	197	40	322	42	< 0.20	< 10	
	23	0.76	7.00	4.40	6.8	86	74	62	50	1.2	< 10	2.37
	31	0.31	5.00	2.05	7.1	118	68	188	94	1.6	< 10	3.00
Sep												
	8	0.03	4.50	10.09	7.0	73	79	110	112	3.0	150	3.00
	17	0.97	4.00	6.66	6.8	70	80	90	76	2.0	60	2.70
	18	1.83	16.00	93.09	7.0	28	20	26	120	2.0	< 10	2.55
	**					50	32	3540	34	< 0.4	10	1.33
	29	0.58	5.00	24.79	6.9	<22.5	49	8	126	2.4	< 10	2.50
Oct.												
	8*	1.40	4.75	25.22	6.5	< 88.6	< 69.2	114	102	3.2	10	2.60
	9	0.83	9.00	67.57	7.1	< 40.0	< 41.8	34	72	2.0	< 10	2.33
	20*	6.11	18.00	158.25	ND	100	20	138	100	6.8	360	2.63
	**				6.9	37	36	96	95	6.0	< 10	2.67
	21*	1.78	24.00	199.23	7.2	33	23	113	57	4.0	< 10	2.24
	**				6.9	146	22	47	30	< 1.0	60	2.43
	22*	0.10	24.00	84.66	7.0	< 20.5	13	31	30	0.8	< 10	2.71
	**				6.5	23	18	29	41	0.8	< 10	2.54
	23*	0.08	24.00	30.90	6.8	47	13	38	30	0.4	< 10	1.87
	24	0.00	24.00	12.21	6.5	72	22	44	72	4.0	< 10	1.41
Nov.												
	9	0.21	5.25	10.66	6.0	119	35	126	50	1.0	< 10	1.50
	26	1.75	12.00	32.51	7.0	78	43	248	5	< 0.4	< 10	2.79
Dec.												
	2	1.09	10.00	28.42	7.0	61	17	126	70	< 0.4	50	2.67
	8	0.54	10.00	39.22	7.0	< 25.5	34	62	60	2.0	< 10	2.69
	20	0.00	9.00	47.63	6.8	< 90.4	< 64.7	106	< 10	< 1.0	< 10	2.75

Table C-1 Cottage Farm CSO Facility Operations Summary, Fiscal Year 1997, cont.

DATE		RAINFALL (INCHES)	DISCHARGE DURATION (HOURS)	TOTAL FLOW (MG)	PH (SU)	BOD INFLUENT (MG/L)	BOD EFFLUENT (MG/L)	TSS INFLUENT (MG/L)	TSS EFFLUENT (MG/L)	SETTL. SOLIDS (ML/L)	FECAL COLIFORM (#/100 ml)	CHLORINE RESIDUAL (MG/L)
Jan.												
	16	0.71	3.00	10.06	7.0	< 94.0	57	176	96	2.0	< 10	2.75
	25	0.64	5.00	4.69	6.9	< 29.9	< 43.4	128	104	1.2	< 10	2.10
Feb.												
	5	0.64	5.00	0.87	6.5	76	20	146	50	< 0.4	< 10	3.10
March												
	6	0.39	2.00	1.50								
	15	0.49	6.00	24.22	6.8	55	42	126	36	< 0.2	380	2.80
	29	0.54	4.50	0.63	6.0	73	33	101	44	0.4	30	3.30
April												
	4	0.00	8.00	4.29	6.0	72	62	84	40	0.2	< 10	2.21
	19	0.49	8.00	7.33	7.0	35	38	51	22	< 0.4	< 10	3.13
May												
	20	0.36	3.00	1.17	7.0	83	22	122	43	< 0.4	< 10	3.00
June												
	13	0.71	4.50	39.11	6.0	23	79	132	20	3.6	1450	2.08
TOTAL		26.70	285.00	1092.10								
AVERAGE		0.92	9.83	37.66		67	40	202	61	1.6	19	2.50
MINIMUM		0.00	2.00	0.63	6.0	<20.5	13	8	5	< 0.2	< 10	1.33
MAXIMUM		6.11	24.00	199.23	7.2	197	80	3540	126	6.8	1450	3.30
No. of Times CSO Activated					24							
No. of Days CSO Activated					29							

** Multiple samples taken in one day
* Continued on to the following day

Table C-2 Cottage Farm CSO BOD and TSS Loadings, Fiscal Year 1997

DATE		TOTAL FLOW (MG)	BOD INFLUENT (lbs/d)	BOD EFFLUENT (lbs/d)	BOD REMOVAL %	TSS INFLUENT (lbs/d)	TSS EFFLUENT (lbs/d)	TSS REMOVAL %
July								
	13	120.67	35324	26871	24	50319	96613	-92
	**							
	**							
	23	4.40	3138	2697	14	2275	1835	19
	31	2.05	2017	1157	43	3214	1607	50
Sep								
	8	10.09	6168	6682	-8	9257	9425	-2
	17	6.66	3905	4421	-13	4999	4221	16
	18	93.09	21894	15527	29	20186	93164	-362
	29	24.79	4652	10069	-116	1654	26050	-1475
Oct.								
	8*	25.22	18636	14555	22	23978	21454	11
	9	67.57	22541	23556	-4	19160	40574	-112
	20*	158.25	131717	26132	80	182133	131981	28
	**							
	21*	199.23	55497	38715	30	187758	94710	50
	**							
	22*	84.66	14474	8967	38	21888	21182	3
	**							
	23*	30.90	12112	3402	72	9793	7731	21
	24	12.21	7332	2240	69	4481	7332	-64
Nov.								
	9	10.66	10580	3103	71	11202	4445	60
	26	32.51	21093	11685	45	67237	1220	98
Dec.								
	2	28.42	14458	3935	73	29865	16592	44
	8	39.22	8341	11187	-34	20280	19626	3
	20	47.63	35910	25701	28	42107	3972	91
Jan.								
	16	10.06	7887	4791	39	14766	8054	45
	25	4.69	1170	1698	-45	5007	4068	19

Table C-2 Cottage Farm CSO BOD and TSS Loadings, Fiscal Year 1997, cont.

DATE		TOTAL FLOW (MG)	BOD INFLUENT (lbs/d)	BOD EFFLUENT (lbs/d)	BOD REMOVAL %	TSS INFLUENT (lbs/d)	TSS EFFLUENT (lbs/d)	TSS REMOVAL %
Feb.								
	5	0.87	554	148	73	1059	363	66
March								
	6	1.50						
	15	24.22	11130	8565	23	25451	7272	71
	29	0.63	381	175	54	531	231	56
April								
	4	4.29	2576	2200	15	3005	1431	52
	19	7.33	2152	2317	-8	3118	1345	57
May								
	20	1.17	812	212	74	1190	420	65
June								
	13	39.11	11449	25898	-126	43055	6524	85
TOTAL		1092.10						
AVERAGE		37.66	16711	10236	20	28892	22623	-39
MINIMUM		0.63	381	148	-126	531	231	-1475
MAXIMUM		199.23	131717	38715	80	187758	131981	98
No. of Times CSO Activated			24					
No. of Days CSO Activated			29					

** Multiple samples taken in one day, values reported based on average of concentrations

* Continued on to the following day

Table C-3 Cottage Farm CSO Facility, Effluent Characterization , Fiscal Year 1997

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb**	Mar	Apr	May*	Jun	MIN	AVE	MAX	Times Detected
Metals (ug/L)																
Cadmium	<2.00	**N**	<2.00	<2.00	<2.00	<2.00	<2.00	**N**	<2.00	2.50	**N**	<2.00	1.00	1.17	2.50	1 of 9
Copper	70.80	**O**	77.60	88.70	52.70	69.80	128.00	**O**	42.40	40.90	**O**	137.00	40.90	78.66	137.00	9 of 9
Mercury	0.21		0.23	0.45	0.54	0.46	1.52		0.16	0.11		1.12	0.11	180.51	1620.00	9 of 9
Nickel	71.90		5.00	ND	7.00	5.90	10.70		5.20	7.30		14.70	5.00	14.19	71.90	8 of 8
Lead	62.10	**A**	29.90	67.50	59.30	44.60	140.00	**S**	21.60	11.00	**S**	152.50	11.00	65.39	152.50	9 of 9
Zinc	122.50	**C**	100.00	130.00	79.80	98.50	231.00	**A**	77.40	55.20	**A**	233.00	77.40	125.27	233.00	9 of 9
		T						**M**			**M**					
Cyanide and Phenol (mg/L)		**I**						**P**			**P**					
Cyanide	<10.00	**V**	<10.00	<10.00	<10.00	<10.00	45.40	**L**	18.10	<10.00	**L**	<10.00	1.00	7.83	45.40	2 of 9
Phenol	13.40	**A**	11.30	15.00	52.20	13.90	22.70	**E**	<10.00	<10.00	**E**	<200.00	1.00	16.72	52.20	6 of 9
		T						**S**			**S**					
Oil & Grease, Petroleum Hydrocarbons, and Surfactants (mg/L)																
Surfactants	0.65	**I**	1.41	2.23	0.66	1.45	2.04		1.47	2.43		2.40	0.65	1.64	2.43	9 of 9
		O						**T**			**T**					
Organochlorine, Pesticides, and PCB's (ug/L)								**A**			**A**					
ALPHA-CHLORDANE	<0.0562	**N**	0.0625	<0.0549	<0.0575	0.09	<0.0217	**K**	0.0217	0.02	**K**	0.01	0.01	0.02	0.09	3 of 9
4,4'-DDE	<0.1120		<0.125	<0.110	<0.1150	<0.0217	<0.0217	**E**	0.0217	<0.0208	**E**	0.03	<0.110	0.01	0.03	1 of 9
GAMMA-CHLORDANE	<0.0562		<0.0625	<0.0549	<0.0575	0.01	<0.0217	**N**	0.0217	0.02	**N**	0.02	0.01	0.01	0.02	3 of 9
METHOXYCHLOR	0.31		<0.6250	<0.5490	<0.575	<0.2170	<0.2170		<0.2170	<0.0208		<0.2530	<0.0208	0.06	0.31	1 of 9
Semivolatile Organics (ug/L)																
4-METHYLPHENOL (INCL	<11.20		<11.90	<11.60	14.80	<10.9	10.30		8.10	<10.3		<11.50	8.10	4.44	14.80	3 of 9
BENZOIC ACID	<22.40		<23.90	<23.2	<24.0	19.00	20.80		15.40	18.50		<23.000	15.40	9.48	20.80	4 of 9
BIS(2-ETHYLHEXYL)PHTH	6.07		9.03	8.10	<12.00	7.00	18.40		<10.50	<10.30		10.60	6.07	6.94	18.40	6 of 9
DIETHYL PHTHALATE	<11.20		6.10	<11.60	<12.00	<10.90	<10.50		<10.50	<10.30		<11.50	6.10	1.66	6.10	1 of 9
PHENOL	<11.20		<11.90	<11.60	17.10	<21.80	<21.00		<21.00	<20.60		23.00	<11.20	5.78	23.00	1 of 9

* Brief Activation, No Samples Taken
** Not A Continuous Activation, No Samples Taken
ND No Data

Table C-4 Cottage Farm CSO Facility, Effluent Loadings , Fiscal Year 1997

Loadings (lb/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb**	Mar	Apr	May*	Jun	MIN	AVE	MAX
Metals (mg/L)															
Cadmium	1.01	**N**	0.06	0.21	0.09	0.24	0.08	**N**	0.20	0.09	**N**	0.33	1.00	1.17	2.50
Copper	71.25	**O**	4.31	18.66	4.69	16.54	10.74	**O**	8.56	1.46	**O**	44.69	40.90	78.66	137.00
Mercury	0.21		0.01	0.09	0.05	0.11	0.13		327.23	0.00		0.37	0.11	180.51	1620.00
Nickel	72.36		0.28	ND	0.62	1.40	0.90		1.05	0.26		4.79	0.00	14.19	71.90
Lead	62.50	**A**	1.66	14.20	5.27	10.57	11.75	**S**	4.36	0.39	**S**	49.74	11.00	65.39	152.50
Zinic	123.28	**C**	5.55	27.34	7.09	23.35	19.38	**A**	15.63	1.97	**A**	76.00	55.20	125.27	233.00
		T						**M**			**M**				
Cyanide and Phenol		**I**						**P**			**P**				
Cyanide	1.01	**V**	0.06	0.21	0.09	0.24	3.81	**L**	3.66	0.04	**L**	0.33	1.00	7.83	45.40
Phenol	13.49	**A**	0.63	3.16	4.64	3.29	1.90	**E**	0.20	0.04	**E**	6.52	1.00	16.72	52.20
		T						**S**			**S**				
Oil & Grease, Petroleum Hydrocarbons, and Surfactants															
Surfactants	658.18	**I**	78.32	469.05	58.68	343.68	171.16		296.93	86.94		782.83	58.68	327.31	782.83
		O						**T**			**T**				
Organochlorine, Pesticides, and PCB's								**A**			**A**				
ALPHA-CHLORDANE	0.01	**N**	0.00	0.00	0.00	0.02	0.00	**K**	0.00	0.00	**K**	0.00	0.00	0.02	0.09
4,4'-DDE	0.01		0.00	0.00	0.00	0.00	0.00	**E**	0.00	0.00	**E**	0.01	0.00	0.01	0.03
GAMMA-CHLORDANE	0.01		0.00	0.00	0.00	0.00	0.00	**N**	0.00	0.00	**N**	0.01	0.00	0.01	0.02
METHOXYCHLOR	0.31		0.00	0.01	0.01	0.01	0.00		0.00	0.00		0.00	0.00	0.06	0.31
Semivolatile Organics (ug/L)															
4-METHYLPHENOL (INCLU	1.13		0.07	0.24	1.32	0.26	0.86		1.64	0.04		0.38	1.03	4.44	14.80
BENZOIC ACID	2.25		0.13	0.49	0.21	4.50	1.75		3.11	0.66		0.75	2.24	9.48	20.80
BIS(2-ETHYLHEXYL)PHTH	6.11		0.50	1.70	0.11	1.66	1.54		0.21	0.04		3.46	1.03	6.94	18.40
DIETHYL PHTHALATE	1.13		0.34	0.24	0.11	0.26	0.09		0.21	0.04		0.38	1.03	1.66	6.10
PHENOL	1.13		0.07	0.24	1.52	0.52	0.18		0.42	0.07		7.50	1.12	5.78	23.00
FLOW (mgd)	120.67		6.66	25.22	10.66	28.42	10.06		24.22	4.29		39.11			

* Brief Activation, No Samples Taken
** Not A Continuous Activation, No Samples Taken
ND - No Data

Appendix D

Table D-1 Prison Point CSO Facility Operations Summary, Fiscal Year 1997

DATE		RAINFALL (INCHES)	DISCHARGE DURATION (HOURS)	TOTAL FLOW (MG)	PH (SU)	BOD INFLUENT (MG/L)	BOD EFFLUENT (MG/L)	TSS INFLUENT (MG/L)	TSS EFFLUENT (MG/L)	SETTL. SOLIDS (ML/L)	FECAL COLIFORM (#/100ml)	CHLORINE RESIDUAL (MG/L)a
JULY												
	13	3.36	18.92	73.10	6.0	97.6	47.8	530	274	0.1	< 10	1.97
	**				6.0	28.2	14.5	258	78	< 0.30	< 10	
Sept.												
	8	0.03	2.75	1.71	6.8	< 466	34.5	1540	88	0.6	30	2.30
	17	0.97	9.50	5.50	7.1	60.9	34.4	255	48	< 0.4	< 10	1.96
	18	1.83	16.00	90.50	7.2	< 76.7	30	380	126	1.6	< 10	1.85
	**				7.2	43.1	50.5	142	98	2.0	< 10	1.33
	29	0.58	4.00	7.50	7.3	73.1	35.2	138	66	0.8	10	2.70
Oct.												
	8*	1.40	5.00	32.00	7.0	< 236.0	< 59	472	138	1.4	10	2.20
	9	0.83	8.50	20.00	6.9	< 15.9	< 16.7	55	61	< 0.4	< 10	2.30
	20*	6.11	18.00	186.75	7.0	< 32.7	< 18.3	240	123	2.0	< 10	1.45
	**				7.0	14.5	12.7	312	51	0.4	< 10	1.39
	21*	1.78	22.00	228.00	7.0	< 4.49	6.76	105	26	0.4	< 10	1.42
	**					38.9	28.1	234	41	< 0.4	< 10	1.77
	22	0.10	2.00	3.00	7.2	36.2	15	164	17	0.4	< 10	2.00
Nov.												
	9	0.21	7.00	3.00	6.9	66.2	48.1	230	78	< 0.2	< 10	1.50
	26	1.75	9.00	40.29	6.9	673	< 153	1490	80	0.4	80	2.01
Dec.												
	2	1.09	5.75	29.00	6.8	53.3	32.5	184	110	0.8	< 10	1.94
	6	0.67	1.25	2.00	7.4	41.1	81.2	90	40	< 0.4	< 10	3.20
	7	0.89	10.00	52.25	6.8	< 42.5	23.1	358	136	2.0	< 10	1.71
	17	0.57	2.50	2.50	7.1	48	30.6	125	58	< 0.4	320	1.05
	19	1.05	9.00	12.50	6.8	< 38.6	< 42.1	100	78	0.4	10	1.63
Jan.												
	16	0.71	4.50	6.88	7.1	< 470	< 94	250	150	0.6	< 10	1.95
	25	0.64	4.50	11.50	7.5	< 39.1	< 38.8	186	174	2.0	20	2.80
	28	0.44	2.50	3.50	7.2	63.8	46.4	79	57	< 0.4	10	2.55

Table D-1 Prison Point CSO Facility Operations Summary, Fiscal Year 1997,

DATE		RAINFALL (INCHES)	DISCHARGE DURATION (HOURS)	TOTAL FLOW (MG)	PH (SU)	BOD INFLUENT (MG/L)	BOD EFFLUENT (MG/L)	TSS INFLUENT (MG/L)	TSS EFFLUENT (MG/L)	SETTL. SOLIDS (ML/L)	FECAL COLIFORM (#/100ml)	CHLORINE RESIDUAL (MG/L)a
Feb.												
	5	0.64	4.75	6.50	7.2	54.5	48.7	246	136	1.2	< 10	2.28
March												
	6	0.39	2.00	1.50	7.4	44	35	108	46	< 0.4	< 10	1.20
	15	0.49	6.00	24.22	6.8	63	49.7	280	174	1.6	30	2.32
	29	0.54	3.75	4.25	6.8	76	46	362	146	0.8	< 10	2.80
	31	1.41	5.75	7.13	6.8	207	42.6	172	43	< 0.4	< 10	2.52
April												
	4	0.00	6.00	5.50	6.8	< 10.8	62.6	44	26	< 0.2	< 10	2.33
	13	0.28	3.50	6.63	6.9	70	33.2	175	80	0.8	10	2.73
	19	0.49	9.00	14.63	7.2	34.1	22.2	89	44	0.2	< 10	1.81
May												
	20	0.36	3.50	8.00	6.9	255	31	1240	78	< 0.4	10	2.03
June												
	13	0.71	6.50	36.00	6.8	60.6	< 31.9	336	288	1.6	< 10	1.74
TOTAL		30.32	213.42	925.82								
AVERAGE		1.01	7.11	30.86		106.9	41.1	323	96	0.8	13	2.02
MINIMUM		0.00	1.25	1.50	6.0	< 4.49	6.8	44	17	0.1	< 10	1.05
MAXIMUM		6.11	22.00	228.00	7.5	673.0	153.0	1540	288	2.0	320	3.20

No. of TIMES CSO ACTIVATED 26

No. of DAYS CSO ACTIVATED 30

** Multiple samples taken in one day

* Continued on to the following day

Table D-2 Prison Point CSO Facility TSS and BOD Loadings, Fiscal Year 1997

DATE		FLOW (MG)	BOD INFLUENT (MG/L)	BOD EFFLUENT (MG/L)	BOD REMOVAL %	TSS INFLUENT (MG/L)	TSS EFFLUENT (MG/L)	TSS REMOVAL %
JULY								
	13	73.10	59505	29143	51	323130	167052	48
Sept.								
	8	1.71	6634	491	93	21924	1253	94
	17	5.50	2793	1578	44	11697	2202	81
	18	90.50	57891	22643	61	286813	95101	67
	29	7.50	4572	2202	52	8632	4128	52
Oct.								
	8*	32.00	62984	15746	75	125967	36829	71
	9	20.00	2652	2786	-5	9174	10175	-11
	20* **	186.75	50930	28502	44	373799	191572	49
	21* **	228.00	8538	12854	-51	199660	49440	75
	22	3.00	906	375	59	4103	425	90
Nov.								
	9	3.00	1656	1203	27	5755	1952	66
	26	40.29	226135	51410	77	500655	26881	95
Dec.								
	2	29.00	12891	7860	39	44502	26605	40
	6	2.00	686	1354	-98	1501	667	56
	7	52.25	18520	10066	46	156004	59264	62
	17	2.50	1001	638	36	2606	1209	54
	19	12.50	4024	4389	-9	10425	8132	22

Table D-2 Prison Point CSO Facility TSS and BOD Loadings, Fiscal Year 1997, cont.

DATE		FLOW (MG)	BOD INFLUENT (MG/L)	BOD EFFLUENT (MG/L)	BOD REMOVAL %	TSS INFLUENT (MG/L)	TSS EFFLUENT (MG/L)	TSS REMOVAL %
Jan.								
	16	6.88						
	25	11.50	45078	9016	80	23978	14387	40
	28	3.50	1141	1133	1	5429	5079	6
Feb.								
	5	6.50	2954	2656	10	13336	7373	45
March								
	6	1.50						
	15	24.22	8888	7070	20	21815	9292	57
	29	4.25	2233	1762	21	9925	6167	38
	31	7.13	4516	2733	39	21511	8676	60
April								
	4	5.50	495	2871	-480	2018	1193	41
	13	6.63	597	1834	-207	9669	4420	54
	19	14.63	4147	2708	35	10856	5367	51
May								
	20	8.00	17014	2068	88	82733	5204	94
June								
	13	36.00	18195	11739	35	100881	86469	14
TOTAL		925.82						
AVERAGE		30.86	22413	8530	7	85303	29875	54
MINIMUM		1.50	495	375	-480	1501	425	-11
MAXIMUM		228.00	226135	51410	93	500655	191572	95
No. of Times CSO Activated			26					
No. of Days CSO Activated			30					

** Multiple samples taken in one day, values reported based on average of concentrations

* Continued on to the following day

Table D-3 Prison Point CSO Facility, Effluent Characterization, Fiscal Year 1997

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May*	Jun	MIN	AVE	MAX	Times Detected
Metals (ug/L)																
Copper	220.00	**N**	60.40	97.00	47.00	53.20	66.90	125.00	46.30	23.60	**N**	164.00	23.60	90.34	220.00	10 of 10
Mercury	0.45	**O**	0.20	0.31	0.09	0.70	0.81	0.36	0.12	0.01	**O**	0.45	0.01	0.35	0.81	10 of 10
Nickel	12.20		4.10	ND	4.30	<3.00	8.00	11.70	<3.00	3.70		17.10	0.00	6.41	17.10	7 of 9
Lead	398.50		85.20	136.00	38.70	91.90	176.00	161.00	83.90	45.70		232.00	38.70	144.89	398.50	10 of 10
Zinic	508.00	**A**	171.00	214.00	116.00	119.00	226.00	276.00	151.00	72.00	**S**	345.00	72.00	219.80	508.00	10 of 10
		C									**A**					
Cyanide and Phenol (ug/L)		**T**									**M**					
Cyanide	17.90	**I**	36.20	<10.00	<10.00	13.90	65.10	31.30	36.70	<10.00	**P**	68.10	1.00	27.22	68.10	7 of 10
Phenol	<10.00	**V**	17.00	<10.00	<10.00	12.90	<10.00	<10.00	<10.00	<10.00	**L**	<10.00	1.00	3.79	17.00	2 of 10
		A									**E**					
Oil & Grease, Petroleum Hydrocarbons, and Surfactants (mg/L)											**S**					
Surfactants	0.43	**T**	1.00	0.76	1.64	0.40	0.83	0.87	0.31	0.42		1.20	0.31	0.79	1.64	10 of 10
		I														
Organochlorine, Pesticides and PCB's (ug/L)											**T**					
4,4'-DDE	<0.102	**O**	<0.101	<0.119	<0.100	0.0206	0.0208	0.0210	0.0194	0.0196	**A**	0.02	0.00	0.01	0.02	1 of 10
		N									**K**					
Semivolatile Organics (ug/L)											**E**					
4-METHYLPHENOL (INCLUDES 3-	<10.00		<10.00	<10.80	13.20	<10.40	10.48	6.88	<10.40	<10.00	**N**	<20.2	1.00	4.87	13.20	4 of 11
BENZO(A)PYRENE	<10.00		<10.00	<10.80	<10.00	<10.40	5.05	<10.40	<10.40	<10.00		<20.2	1.00	1.53	5.05	2 of 11
BENZO(B)FLUORANTHENE	<10.00		<10.00	<10.80	<10.00	<10.40	5.55	<10.40	<10.40	<10.00		<20.2	1.00	1.58	5.55	2 of 11
BENZO(K)FLUORANTHENE	<10.00		<10.00	<10.80	<10.00	<10.40	5.28	<10.40	<10.40	<10.00		<20.2	1.00	1.55	5.28	2 of 11
BENZOIC ACID	<20.00		<20.00	<21.60	<20.00	<20.80	7.00	10.20	<20.80	6.00		<40.40	2.00	3.96	10.20	4 of 11
BIS(2-ETHYLHEXYL)PHTHALATE	9.57		6.73	6.27	<10.00	10.00	16.35	17.00	9.00	<10.00		17.60	1.00	9.45	17.60	8 of 11
CHRYSENE	<10.00		<10.00	<10.80	<10.00	<10.40	8.06	<10.40	<10.40	<10.00		<20.2	1.00	1.83	8.06	2 of 11
FLUORANTHENE	<10.00		<10.00	<10.80	<10.00	<10.40	16.95	9.76	<10.40	<10.00		<20.2	1.00	3.59	16.95	3 of 11
PHENANTHRENE	2.35		1.92	1.07	1.19	2.59	14.30	8.19	<10.40	<10.00		<20.2	1.00	3.57	14.30	8 of 11
PYRENE	<10.00		<10.00	<10.80	<10.00	<10.40	12.55	7.82	<10.40	<10.00		<20.2	1.00	2.96	12.55	3 of 11

* Brief Activation, No Samples Taken
ND No Data

Table D-4 Prison Point CSO Facility, Effluent Loadings, Fiscal Year 1997

Loadings (lb/day)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May*	Jun	MIN	AVE	MAX
Metals															
Copper	134.13	N	2.77	25.89	1.18	12.87	3.84	6.78	9.35	1.08	N	10.94	1.08	20.88	134.13
Mercury	0.27	O	0.01	0.08	0.00	0.17	0.05	0.02	0.02	0.00	O	0.03	0.00	0.07	0.27
Nickel	7.44		0.19	ND	0.11	0.36	0.46	0.63	0.30	0.17		1.14	0.11	1.08	7.44
Lead	242.96		3.91	36.30	0.97	22.23	10.09	8.73	16.95	2.10		15.48	0.97	35.97	242.96
Zinic	309.72	A	7.84	57.11	2.90	28.78	12.96	14.96	30.50	3.30	S	23.02	2.90	49.11	309.72
		C									A				
Cyanide and Phenol		T									M				
Cyanide	10.91	I	1.66	0.27	0.03	3.36	3.73	1.70	7.41	0.05	P	4.54	0.03	3.37	10.91
Phenol	0.61	V	0.78	0.27	0.03	3.12	0.06	0.05	0.20	0.05	L	0.07	0.03	0.52	3.12
		A									E				
Oil & Grease, Petroleum Hydrocarbons, and Surfactants											S				
Surfactants	262.16		45.87	203.90	41.03	96.26	47.76	47.16	62.82	19.08		80.06	19.08	90.61	262.2
		I													
Organochlorine, Pesticides and PCB's											T				
4,4'-DDE	0.01	O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	A	0.00	0.00	0.00	0.01
		N									K				
Semivolatile Organics											E				
4-METHYLPHENOL (INCLUDES 3-	6.71		0.05	0.29	0.33	0.25	0.60	0.37	0.21	0.05	N	0.13	0.05	0.90	6.71
BENZO(A)PYRENE	0.61		0.05	0.29	0.03	0.25	0.29	0.06	0.21	0.05		0.13	0.03	0.20	0.61
BENZO(B)FLUORANTHENE	0.61		0.05	0.29	0.03	0.25	0.32	0.06	0.21	0.05		0.13	0.03	0.20	0.61
BENZO(K)FLUORANTHENE	0.61		0.05	0.29	0.03	0.25	0.30	0.06	0.21	0.05		0.13	0.03	0.20	0.61
BENZOIC ACID	1.22		0.09	0.58	0.05	0.50	0.40	0.55	0.42	0.28		0.27	0.05	0.44	1.22
BIS(2-ETHYLHEXYL)PHTHALATE	5.83		0.31	1.67	0.03	2.42	0.94	0.92	1.82	0.05		1.17	0.03	1.52	5.83
CHRYSENE	0.61		0.05	0.29	0.03	0.25	0.46	0.06	0.21	0.05		0.13	0.03	0.21	0.61
FLUORANTHENE	0.61		0.05	0.29	0.03	0.25	0.97	0.53	0.21	0.05		0.13	0.03	0.31	0.97
PHENANTHRENE	1.43		0.09	0.29	0.03	0.63	0.82	0.44	0.21	0.05		0.13	0.03	0.41	1.43
PYRENE	0.61		0.05	0.29	0.03	0.25	0.72	0.42	0.21	0.05		0.13	0.03	0.28	0.72
FLOW	73.10		5.50	32.00	3.00	29.00	6.88	6.50	24.22	5.50	8.00	36.00			

* Brief Activation, No Samples Taken
ND - No Data

Appendix E

Table E-1 Somerville Marginal CSO Facility Operations Summary, Fiscal Year 1997

DATE		RAINFALL (INCHES)	DISCHARGE DURATION (HOURS)	TOTAL FLOW (MG)	PH (SU)	BOD INFLUENT (MG/L)	BOD EFFLUENT (MG/L)	TSS INFLUENT (MG/L)	TSS EFFLUENT (MG/L)	SETTL. SOLIDS (ML/L)	FECAL COLIFORM GEO MEAN	CHLORINE RESIDUAL (MG/L)
July												
	9	0.12	3.25	0.75	7.3	31	35	52	46	< 0.4	< 10	2.4
	13	3.36	21.17	4.53	7.0	58	35	212	54	0.2	< 10	3.5
	**				6.5	43	57	51	59	1.0	20	
	23	0.76	6.00	2.0@	6.5	46	35	34	80	1.2	30	4.2
	31	0.31	8.75	0.88	6.5	28	16	62	92	< 0.4	< 10	3.0
Sept												
	2	0.63	10.50	0.13	6.5	82	62	188	62	0.4	< 10	4.2
	7	0.67	2.00	0.15	7.0	8	10	12	14	< 0.2	< 10	3.0
	18	1.83	16.00	0.41	7.2	78	43	368	146	4.0	< 10	4.2
	**				6.8	< 26.8	< 17.9	68	108	< 0.4	10	
	29	0.58	5.50	1.00	7.3	13	64	18	12	< 0.4	< 10	4.0
Oct												
	8@*	1.40	5.00	3.26								
	9@	0.83	6.50	4.24	7.7	< 33.3	< 25.5	72	56	< 0.4	10	4.4
	20	6.11	18.50	64.18	6.8	9	6	34	21	< 0.4	< 10	3.9
	**				6.8	10	12	8	20	0.4	< 10	3.1
	21	1.78	4.75	18.21	7.0	< 4.49	< 4.49	6	5	< 0.4	< 10	3.8
Nov												
	26	1.75	12.50	8.24	6.8	42	22	66	66	< 0.4	< 10	3.5
Dec												
	2	1.09	6.00	7.00	6.8	15	52	64	40	< 0.4	< 10	2.8
	7	0.89	13.10	3.80	6.8	11	33	56	76	< 0.4	< 10	3.7
	17	0.57	4.00	2.17	6.8	82	128	220	190	1.2	< 10	2.8
	19	1.05	11.00	2.07	7.1	<12	<18.2	42	39	< 0.4	< 10	2.9
	24	0.29	6.50	0.96	7.2	<54.4	<12	84	40	0.8	< 10	4.5
Jan												
	16	0.71	6.75	1.05	7.0	331	64	296	278	4.0	< 10	3.7
	25	0.64	7.50	2.33	7.0	< 14.6	< 23.3	64	140	< 0.2	< 10	2.5
March												
	15	0.49	7.25	1.23	7.0	< 10.5	29	108	90	0.6	< 10	3.0
	26	0.31	2.17	2.88	7.0	110	29	276	120	1.2	< 10	4.2
	29	0.54	4.50	1.80	ND	< 48	38	196	244	1.6	< 10	3.3

Table E-1 Somerville Marginal CSO Facility Operations Summary, Fiscal Year 1997, cont.

DATE	RAINFALL (INCHES)	DISCHARGE DURATION (HOURS)	TOTAL FLOW (MG)	PH (SU)	BOD INFLUENT (MG/L)	BOD EFFLUENT (MG/L)	TSS INFLUENT (MG/L)	TSS EFFLUENT (MG/L)	SETTL. SOLIDS (ML/L)	FECAL COLIFORM GEO MEAN	CHLORINE RESIDUAL (MG/L)
April											
4	0.00	7.25	2.57	6.8	< 10.8	16	38	48	< 0.2	< 10	2.7
12	0.40	8.15	1.03	7.2	63	18	135	56	0.4	< 10	2.7
19	0.49	5.50	1.69	6.8	< 9.97	< 9.97	20	26	< 0.4	< 10	4.4
May											
20	0.36	2.50	1.63	6.8	47	14	190	39	< 0.4	< 10	3.0
June											
13	0.71	5.00	1.78	6.9	18	18	116	142	0.4	< 10	3.5
18~	0.27	3.50	0.30								
TOTAL	28.94	221.09	142.24								
AVERAGE	1.00	7.62	4.90		45	32	105	80	0.8	11	3.5
MINIMUM	0.00	2.00	0.13	6.5	< 4.49	< 4.49	6	5	< 0.2	< 10	2.4
MAXIMUM	6.11	21.17	64.18	7.7	331	128	368	278	4.0	30	4.5
NO. of Times CSO ACTIVATED			28								
NO. of DAYS CSO ACTIVATED			29								

** Multiple samples taken in one day
* Continued on to the following day
~ Samples not collected due to short activation or activation over before staff arrived
@ Flow meter not working; Flow estimated based on amount of chlorine used
ND No Data

Table E-2 Somerville Marginal CSO BOD and TSS Loadings, Fiscal Year 1997

DATE		TOTAL FLOW (MG)	BOD INFLUENT (lbs/d)	BOD EFFLUENT (lbs/d)	BOD REMOVAL (%)	TSS INFLUENT (lbs./d)	TSS EFFLUENT (lbs/d)	TSS REMOVAL (%)
July								
	9	0.75	196	216	-10	325	288	12
	13	4.53	1910	1738	9	4964	2133	57
	**							
	23	2.00	767	579	25	1885	1334	29
	31	0.88	201	116	42	452	671	-48
Sept								
	2	0.13	87	65	25	199	65	67
	7	0.15	9	12	-25	15	17	-17
	18	0.41	154	88	43	736	429	42
	**							
	29	1.00	107	534	-401	150	100	33
Oct								
	8@*	3.26						
	9@	4.24	1177	902	23	2546	1980	22
	20	64.18	5091	4676	8	11241	10973	2
	**							
	21	18.21	682	682	0	911	760	17
Nov								
	26	8.24	2860	1512	47	4537	4537	0
Dec								
	2	7.00	893	3030	-239	3737	2336	38
	7	3.80	358	1033	-188	1775	2409	-36
	17	2.17	1485	2318	-56	3983	3440	14
	19	2.07	207	314	-52	724	672	7
	24	0.96	433	96	78	669	319	52
Jan								
	16	1.05	2896	563	81	2590	2432	6
	25	2.33	283	452	-60	1241	2715	-119

Table E-2 Somerville Marginal CSO BOD and TSS Loadings, Fiscal Year 1997, cont.

DATE		TOTAL FLOW (MG)	BOD INFLUENT (lbs/d)	BOD EFFLUENT (lbs/d)	BOD REMOVAL (%)	TSS INFLUENT (lbs./d)	TSS EFFLUENT (lbs/d)	TSS REMOVAL (%)
March								
	15	1.23	107	299	-178	1104	920	17
	26	2.88	2643	697	74	6632	2883	57
	29	1.80	721	570	21	2942	3663	-24
April								
	4	2.57	232	337	-45	815	1030	-26
	12	1.03	539	150	72	1155	479	59
	19	1.69	140	140	0	282	366	-30
May								
	20	1.63	634	196	69	2586	531	79
June								
	13	1.78	272	263	3	1722	2108	-22
	18	0.27	ND	ND	ND	ND	ND	ND
TOTAL		142.24						
AVERAGE		4.90	927.89	723.50	-21.27	2608.21	1845.43	13.27
MINIMUM		0.13	9.49	11.84	-400.78	14.51	16.93	-118.75
MAXIMUM		64.18	4667.63	3030.35	80.54	18199.49	11240.86	79.47
No. of TIMES CSO ACTIVATED			28					
No. of DAYS CSO ACTIVATED			29					

**	Multiple samples taken in one day
*	Continued on to the following day
~	Samples not collected due to short activation or activation over before staff arrived
@	Flow meter not working; Flow estimated based on the amount of chlorine used
ND	No Data

Table E-3 Somerville Marginal CSO Facility, Effluent Characterization, Fiscal Year 1997

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	MIN	AVE	MAX	Times Detecte
Metals (ug/L)																
Copper	28.2	N	27.4	44	41.1	44.7	N	N	48.7	N	N	N	27.4	19.508	48.7	6 of 6
Mercury	0.109	O	0.069	0.172	0.214	0.111	O	O	0.107	O	O	O	0.069	0.0652	0.214	6 of 6
Nickel	5.8		<3.00	ND	6.7	3.3			8.8				<3.00	4.1	8.8	5 of 6
Lead	44.6		51.8	87.9	91.5	96			84.2				44.6	76	96	6 of 6
Zinc	96.5	A	94.9	139	128	159	S	S	174	S	S	S	94.9	65.95	174	6 of 6
		C					A	A		A	A	A				
Cyanide and Phenol (ug/L)		T					M	M		M	M	M				
Phenol	<10.00	I	<10.00	12.5	<10.00	10.3	P	P	17.5	P	P	P	<10.00	3.3583	17.5	3 of 6
		V					L	L		L	L	L				
Oil & Grease, Petroleum Hydrocarbons, and Surfactants (mg/L)							E	E		E	E	E				
Surfactants	1.02	A	1.14	0.695	0.644	0.549	S	S	1.72	S	S	S	0.549	0.4807	1.72	6 of 6
		T														
Organochlorine, Pesticides, and PCB's (ug/L)																
4,4'-DDE	<0.1040	I	<0.1260	<0.1040	<0.0208	<0.0213	T	T	0.0122	T	T	T	0.0122	0.001	0.0122	1 of 6
4,4'-DDT	<0.1040	O	<0.1260	<0.1040	<0.0208	<0.0213	A	A	0.0108	A	A	A	0.0108	0.0009	0.0108	1 of 6
		N					K	K		K	K	K				
Semivolatile Organics (ug/L)							E	E		E	E	E				
ANILINE	38.9		<22.00	<20.40	<11.00	<11.00	N	N	<10.20	N	N	N	<10.20	3.5364	38.9	1 of 7
BENZOIC ACID	20.65		<22.00	<20.40	<22.00	<22.00			6.32				6.32	4.495	20.65	2 of 7
BIS(2-ETHYLHEXYL)PHTHALATE	7.965		<11.00	<10.20	<11.00	7.03			12.8				7.03	4.6325	12.8	4 of 7
PHENANTHRENE	12.5		<11.00	<10.20	<11.00	1.35			<10.20				1.35	2.3083	12.5	1 of 7

ND - No Data

Table E-4 Somerville Marginal CSO Facility, Effluent Characterization, Fiscal Year 1997

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	MIN	AVE	MAX
Metals (mg/L)															
Copper	1.06	**N**	0.09	1.20	2.83	2.61	**N**	**N**	0.73	**N**	**N**	**N**	0.09	1.42	2.83
Mercury	0.00	**O**	0.00	0.00	0.01	0.01	**O**	**O**	0.00	**O**	**O**	**O**	0.00	0.01	0.01
Nickel	0.22		0.01	ND	0.46	0.19			0.13				0.00	0.17	0.46
Lead	1.68		0.17	2.39	6.29	5.61			1.26				0.17	2.90	6.29
Zinc	3.64	**A**	0.32	3.78	8.80	9.28	**S**	**S**	2.61	**S**	**S**	**S**	0.32	4.74	9.28
		C					**A**	**A**		**A**	**A**	**A**			
Cyanide and Phenol		**T**					**M**	**M**		**M**	**M**	**M**			
Phenol	0.04	**I**	0.00	0.34	0.07	0.60	**P**	**P**	0.26	**P**	**P**	**P**	0.00	0.22	0.60
		V					**L**	**L**		**L**	**L**	**L**			
Oil & Grease, Petroleum Hydrocarbons, and Surfactants							**E**	**E**		**E**	**E**	**E**			
Surfactants	38.50	**A**	3.85	18.90	44.27	32.06	**S**	**S**	25.82	**S**	**S**	**S**	3.85	27.23	44.27
		T													
Organochlorine, Pesticides, and PCB's															
4,4'-DDE	0.00	**I**	0.00	0.00	0.00	0.00	**T**	**T**	0.00	**T**	**T**	**T**	0.00	0.00	0.00
4,4'-DDT	0.00	**O**	0.00	0.00	0.00	0.00	**A**	**A**	0.00	**A**	**A**	**A**	0.00	0.00	0.00
		N					**K**	**K**		**K**	**K**	**K**			
Semivolatile Organics (ug/L)							**E**	**E**		**E**	**E**	**E**			
ANILINE	1.47		0.01	0.06	0.08	0.06	**N**	**N**	0.02	**N**	**N**	**N**	0.01	0.28	1.47
BENZOIC ACID	0.78		0.01	0.06	0.15	0.13			0.09				0.01	0.20	0.78
BIS(2-ETHYLHEXYL)PHTHALATE	0.30		0.00	0.03	0.08	0.41			0.19				0.00	0.17	0.41
PHENANTHRENE	0.47		0.00	0.03	0.08	0.08			0.02				0.00	0.11	0.47

ND - No Data

Appendix F

Table F-1 Constitution Beach CSO Facility Operations Summary, Fiscal Year 1997

DATE		RAINFALL (INCHES)	DISCHARGE DURATION (HOURS)	TOTAL FLOW (MG)	PH (SU)	BOD INFLUENT (MG/L)	BOD EFFLUENT (MG/L)	TSS INFLUENT (MG/L)	TSS EFFLUENT (MG/L)	SETTL. SOLIDS (ML/L)	FECAL COLIFORM GEO MEAN	CHLORINE RESIDUAL (MG/L)
July												
	13	3.36	6.75	0.75	6.5	27	5	ND	ND	0.8	< 10	3.6
Sept												
	18	1.83	9.50	0.64	7.3	<107	19	217	50	< 0.4	< 10	3.8
Oct.												
	8	1.4	3.00	0.43	6.5	< 12.1	< 18.6	25	56	< 0.4	100	2.5
	20*	6.11	18.50	2.35	6.8	16	< 6.52	50	50	< 0.4	< 10	3.4
	**				7.2	7	9	12	14	0.4	< 10	2.7
	21	1.78	16.50	2.10	7.2	7	16	12	11	< 0.4	< 10	4.6
Nov.												
	26	1.75	6.00	1.01	6.9	24	19	36	42	<1.0	<10	3.6
Dec.												
	2	1.09	6.00	0.74	7.0	29	18	120	96	< 0.4	80	3.2
	7	0.89	5.50	0.88	7.0	16	< 9.27	126	18	< 0.4	< 10	4.5
	17	0.57	1.00	0.22	6.5	23	< 15.40	57	90	< 0.4	1460	3.5
March												
	15	0.49	2.00	0.27	ND	16	< 10.5	97	123	0.2	20	2.7
	29	0.54	2.50	0.31	7.0	< 36.8	15	198	146	0.8	10	2.5
	31~	1.41	0.17	0.42	ND							
April												
	18~	0.87	0.17	0.14								
	19	0.49	4.75	0.39	7.2	< 9.97	< 9.97	56	46	< 0.4	10	2.8
May												
	20~	0.36	3.50	0.18								
June												
	13~	0.71	3.00	0.20								
	18~	0.27	0.15	0.30								
TOTAL		23.92	88.98	11.32								
AVERAGE		1.41	5.23	0.67		25	13	84	62	0.5	22	3.34
MINIMUM		0.27	0.15	0.14	6.5	7	5	12	11	0.2	< 10	2.50
MAXIMUM		6.11	18.50	2.35	7.3	107	19	217	146	1.0	1460	4.60
NO. of Times CSO ACTIVATED				16								
NO. of DAYS CSO ACTIVATED				17								

** Multiple samples taken in one day
* Continued on to the following day
~ Samples not collected due to short activation or activation over before staff arrived
ND No Data

Table F-2 Constitution Beach CSO BOD and TSS Loadings, Fiscal Year 1997

DATE		TOTAL FLOW (MG)	BOD INFLUENT (lbs/d)	BOD EFFLUENT (lbs/d)	BOD REMOVAL (%)	TSS INFLUENT (lbs./d)	TSS EFFLUENT lbs./d)	TSS REMOVAL (%)
July								
	13	0.75	166	34	80			
Sept								
	18	0.64	567	102	82	1149	265	77
Oct.								
	8	0.43	44	67	-54	90	202	-124
	20*	2.35	222	147	34	608	627	-3
	**							
	21	2.10	128	285	-123	210	192	8
Nov.								
	26	1.01	204	157	23	303	354	-17
Dec.								
	2	0.74	179	111	38	742	593	20
	7	0.88	118	68	42	924	132	86
	17	0.22	42	28	33	104	164	-58
March								
	15	0.27	35	24	32	218	277	-27
	29	0.31	95	39	59	512	377	26
	31	0.42						
April								
	18~	0.14						
	19	0.39	32	32	0	181	149	18
May								
	20~	0.18						
June								
	13~	0.20						
	18~	0.30						
TOTAL		11.32						
AVERAGE		0.67	159.38	89.53	22.58	492.06	334.98	0.89
MINIMUM		0.14	32.26	23.64	-122.68	90.07	131.96	-124.00
MAXIMUM		2.35	566.66	284.93	81.96	1149.21	979.96	85.71
No. of TIMES CSO ACTIVATED			16					
No. of DAYS CSO ACTIVATED			17					

** Multiple samples taken in one day, values reported based on average of concentrations
* Continued on to the following day
~ Samples not collected due to short activation or activation over before staff arrived

Appendix G

Table G-1 Fox Point CSO Facility Operations Summary, Fiscal Year 1997

DATE		RAINFALL (INCHES)	DISCHARGE DURATION (HOURS)	TOTAL FLOW (MG)	PH (SU)	BOD INFLUENT (MG/L)	BOD EFFLUENT (MG/L)	TSS INFLUENT (MG/L)	TSS EFFLUENT (MG/L)	SETTL. SOLIDS (ML/L)	FECAL COLIFORM GEO MEAN	CHLORINE RESIDUAL (MG/L)
July												
	13	3.36	15.00	7.02	6.7	70	24	745	162	1.4	<10	3.2
	**				6.4	20	19	71	43	< 0.10	<10	
Sept.												
	18	1.83	9.00	26.56	7.2	20	27	50	56	< 0.4	< 10	4.0
Oct.												
	9	0.83	3.50	3.66	7.3	< 26.2	< 20.6	49	36	< 0.4	30.00	4.6
	20*	6.11	18.50	41.77	6.8	18	18	48	70	1.2	<10	3.8
	**				6.9	12	18	16	14	< 0.4	<10	3.4
	21*	1.78	20.00	45.16	6.5	< 4.49	< 4.49	9	16	< 0.4	<10	3.0
	22	0.10		0.54	6.9	31	26	33	22	< 0.4	<10	3.9
Dec												
	7	0.89	4.00	12.08	6.9	17	14	50	64	1.4	<10	3.9
Jan												
	16	0.71	3.00	1.89	6.8	55	63	217	284	3.0	<10	3.2
	25	0.64	2.00	2.42	7.0	< 35.0	<29.1	94	94	1.2	<10	2.8
Feb												
	5	0.64	1.75	1.06	7.0	11	< 8.83	70	46.5	< 0.4	<10	3.2
March												
	15~	0.49	0.4 #	0.74								
April												
	4	0.00	1.75	2.92	7.0	26	22	56	48	0.8	<10	2.2
	13~	0.28	0.25	0.73								
	18	0.87	0.67	0.77	7.1	< 9.97	< 9.97	18	11	< 0.4	<10	3.9
	19	0.49	3.00	1.85	7.0	20	< 9.98	33	11	< 0.4	<10	2.9
May												
	19	0.92	0.42	0.50	7.0	23	7	66	43	< 0.4	<10	3.3
	20	0.36	2.00	3.89	6.9	36	29	328	86	< 0.4	<10	2.7
June												
	18~	0.27	0.50	0.26								
TOTAL		20.57	85.73	153.81								
AVERAGE		1.14	5.04	8.55		26	21	115	65	0.8	11	3.4
MINIMUM		0.00	0.25	0.26	6.40	< 4.49	< 4.49	9	11	< 0.1	< 10	2.2
MAXIMUM		6.11	20.00	45.16	7.30	70	63	745	284	3.0	30	4.6
NO. of Times CSO ACTIVATED				16								
NO. of DAYS CSO ACTIVATED				18								

** Multiple samples taken in one day
* Continued on to the following day
~ Samples not collected due to short activation or activation over before staff arrived

Table G-2 Fox Point CSO BOD and TSS Loadings, Fiscal Year 1997

DATE		TOTAL FLOW (MG)	BOD INFLUENT (lbs/d)	BOD EFFLUENT (lbs./d)	BOD REMOVAL (%)	TSS INFLUENT (lbs./d)	TSS EFFLUENT (lbs./d)	TSS REMOVAL (%)
July								
	13	7.02	4121	1405	66	43611	9483	78
Sept.								
	18	26.60	4437	5990	-35			
Oct.								
	9	3.66	799	628	21	1494	1098	27
	20*	41.77	5278	6219	-18	11148	14632	-31
	**							
	21*	45.16	1691	1691	0	3390	6027	-78
	22	0.54	137	116	15	147	98	33
Dec								
	7	12.08	1743	1431	18	5038	6448	-28
Jan								
	16	1.89	865	986	-14	3424	4481	-31
	25	2.42	705	586	17	1894	1894	0
Feb								
	5	1.06	99	78	21	616	410	34
March								
	15~	0.74						
April								
	4	2.92	642	542	16	1361	1167	14
	13~	0.73						
	18	0.77	64	64	0	116	71	39
	19	1.85	308	154	50	508	169	67
May								
	19	0.50	95	29	70	277	181	35
	20	3.89	224	1178	-426	934	10641	-1039
June								
	18~	0.26						
TOTAL		153.85						
AVERAGE		8.55	1413.82	1406.38	-13.26	5282.91	4057.17	-62.89
MINIMUM		0.26	64.03	28.58	-426.09	115.59	70.64	-1038.89
MAXIMUM		45.16	5278.06	6218.70	69.91	43611.15	14632.25	78.26
No. of TIMES CSO ACTIVATED				16				
No. of DAYS CSO ACTIVATED				18				

** Multiple samples taken in one day, values reported based on average of concentrations

* Continued on to the following day

~ Samples not collected due to short activation or activation over before staff arrived

Appendix H

Table H-1 Commercial Point CSO Facility Operations Summary, Fiscal Year 1997

DATE		RAINFALL (INCHES)	DISCHARGE DURATION (HOURS)	TOTAL FLOW (MG)	PH (SU)	BOD INFLUENT (MG/L)	BOD EFFLUENT (MG/L)	TSS INFLUENT (MG/L)	TSS EFFLUENT (MG/L)	SETTL. SOLIDS (ML/L)	FECAL COLIFORM GEO MEAN	CHLORINE RESIDUAL (MG/L)
July												
	13	3.36	13	7	7.4	121	51.0	1040	1440	13.0	230	3.3
	**				6.5	20.9	28.3	254	486	4.1	10	
Sept.												
	18	1.83	8.25	6.73	7.1	12.3	< 13.4	50	44	< 0.4	<10	4.5
Oct.												
	9	0.83	10	8.13	7.0	< 21.6	< 44.4	57	75	< 0.4	<10	3.4
	20*	6.11	18.5	46.21	6.8	< 26.5	<26.5	116	114	6.0	<10	3.2
	**				6.7	18.7	17.1	20	20	< 0.4	<10	2.5
	21	1.78	21	53.86	6.8	< 4.49	< 4.49	9	9	< 0.4	<10	3.6
	**				7.0	21.3	23.8	17	22	< 0.4	<10	2.8
Nov												
	26	1.75	11	5.33	6.8	11.3	14.9	47	44	<0.4	10	2.4
Dec.												
	6	0.67	1.5	1.27	6.8	10	10.7	36	70	<0.4	<10	4
	7	0.89	4	10.49	6.9	<25.5	10.8	82	70	<0.4	80	3.2
Jan.												
	16	0.71	2.25	2.620	7.0	<28.6	< 28.6	148	202	1.0	<10	2.7
	25	0.64	2.50	2.840	7.0	<17.3	< 38.3	162	288	2.6	<10	3.9
Feb.												
	5	0.64	1.75	1.300	7.3	10.3	9.3	70	100	<0.4	<10	3.1
March												
	15	0.49	9.25	4.670	6.8	29.3	35.6	142	180	1.8	<10	2.9
	29	0.54	0.17	0.190	6.9	72.5	28.3	762	214	2.0	<10	ND
	30	0.00	1.00									
	31	1.41	2.00	0.670	6.8	< 10.7	< 10.7	20	22	< 0.4	<10	3.2

Table H-1 Commercial Point CSO Facility Operations Summary, Fiscal Year 1997, cont.

DATE		RAINFALL (INCHES)	DISCHARGE DURATION (HOURS)	TOTAL FLOW (MG)	PH (SU)	BOD INFLUENT (MG/L)	EFFLUENT (MG/L)	TSS INFLUENT (MG/L)	EFFLUENT (MG/L)	SETTL. SOLIDS (ML/L)	FECAL COLIFORM GEO MEAN	CHLORINE RESIDUAL (MG/L)
April												
	1~	1.64	0.22	0.260								
	3~	0.00	0.37	0.230								
	4	0.00	0.75	0.530	7.1	< 10.8	< 10.8	24	34	< 0.2	<10	2.6
	13~	0.28	0.15	0.480								
	18	0.87	0.50	0.400	6.9	12.4	< 9.97	32	32	< 0.4	<10	4
	19	0.49	3.08	1.390	6.9	< 9.98	< 9.98	63	49	< 0.4	<10	3.5
	**		1.08	0.600	6.9	< 10.4	< 10.4	20	20	< 0.4	<10	3.3
May												
	19~	0.92	0.33	0.320								
	20	0.36	2.25	2.030	6.7	35.1	33.4	248	292	2.0	<10	3.5
June												
	18~	0.27	2.00	0.590								
TOTAL		26.48	116.90	158.14								
AVERAGE		1.10	4.68	6.59		24.59	21.4	155	174	2	13	3.3
MINIMUM		0.00	0.15	0.19	6.5	4.49	4.5	9	9	0	< 10	2.4
MAXIMUM		6.11	21.00	53.86	7.4	121.00	51.0	1040	1440	13	230	4.5

NO. of Times CSO ACTIVATED 23
NO. of DAYS CSO ACTIVATED 24

** Multiple Samples taken in One Day
* Contiuned on to the following day
~ Samples Not Collected Due to Short Activation or Activation Over Before Staff Arrived

Table H-2 Commercial Point CSO BOD and TSS LOADINGS, Fiscal Year 1997

DATE		TOTAL FLOW (MG)	BOD INFLUENT (lbs./d)	BOD EFFLUENT (lbs/d)	BOD REMOVAL (%)	TSS INFLUENT (lbs./d)	TSS EFFLUENT (lbs./d)	TSS REMOVAL (%)
July								
	13	7	7064	2977	58	60715	84067	-38
Sept.								
	18	6.73	690	752	-9	2806	2470	12
Oct.								
	9	8.13	1465	3011	-106	3865	5085	-32
	20*	46.21	10213	10213	0	44705	43935	2
	21	53.86	2017	2017	0	4043	4043	0
Nov								
	26	5.33	502	662	-32	2089	1956	6
Dec.								
	6	1.27	106	113	-7	381	741	-94
	7	10.49	2187	945	57	7174	6124	15
Jan.								
	16	2.620	625	625	0	3234	4414	-36
	25	2.840	410	907	-121	3837	6821	-78
Feb.								
	5	1.300	112	101	10	759	1084	-43
March								
	15	4.670	1141	1387	-22	5531	7011	-27
	29	0.190	115	45	61	1207	339	72
	30							
	31	0.670	60	60	0	112	123	-10

Table H-2 Commercial Point CSO BOD and TSS LOADINGS, Fiscal Year 1997, cont.

DATE		TOTAL FLOW (MG)	BOD INFLUENT (lbs./d)	BOD EFFLUENT (lbs/d)	BOD REMOVAL (%)	TSS INFLUENT (lbs./d)	TSS EFFLUENT (lbs./d)	TSS REMOVAL (%)
April								
	1~	0.260						
	3~	0.230						
	4	0.530	48	48	0	106	150	-42
	13~	0.480						
	18	0.400	41	33	20	107	107	0
	19	1.390	116	116	0	730	568	22
		0.600	52	52	0	100	100	0
May								
	19~	0.320						
	20	2.030	594	565	5	4199	4944	-18
June								
	18~	0.590						
TOTAL		158.14						
AVERAGE		6.59	1450.39	1296.24	-4.55	7668.46	9162.20	-15.21
MINIMUM		0.19	41.37	33.26	-121.39	100.08	100.08	-94.44
MAXIMUM		53.86	10212.87	10212.87	60.97	60715.20	84067.20	71.92
No. of Times CSO Activated			23					
No. of Days CSO Activated			24					

** Multiple samples taken in one day, values reported based on average of concentrations
* Continued on to the following day
~ Samples not collected due to short activation or activation over before staff arrived

Appendix I NPDES Monitoring Requirements

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 its two primary treatment plants, Deer Island and Nut Island, and three CSO treatment facilities, Cottage Farm, Prison Point, and Somerville Marginal. The MWRA also owns and operates three additional gravity CSO facilities, Constitution Beach, Fox Point, and Commercial Point. The effluent from these facilities discharges to the City of Boston sewer lines. Thus, the Boston Water and Sewer Commission (BWSC) NPDES Permit allows for the ultimate discharge of this effluent.

The limits set in the MWRA NPDES Permit are limitations for secondary treatment plants. Neither Deer Island nor Nut Island have secondary treatment capabilities. The MWRA currently operates under court-ordered interim limits while a secondary treatment plant is being built. The MWRA is now in negotiating stages for a new NPDES Permit for the soon-to-be-completed upgraded Deer Island Plant.

In addition, the MWRA, through the NPDES Pretreatment Program, 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 provide the basis for regulating discharge of toxic chemicals from industrial sources. Current Local Limits were enacted in FY94 and, under the Pretreatment Program requirements, must be re-evaluated every five years.

The MWRA not only monitors to comply with the NPDES requirements, but also has its own monitoring programs, including Plant Monitoring and Harbor Studies. 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 living in the receiving bodies of water.

I.1. Permits and Compliance Order

I.1.a. NPDES Permit

Under the NPDES, "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, § 266-53, the MWRA is permitted to discharge from (MWRA Publicly Owned Treatment Works, CSO Treatment Facilities, and CSO Outfalls), in accordance with effluent limitations, monitoring limitations, and other conditions..."

Monitoring Requirements and Effluent Limitations

The NPDES Permit establishes monitoring requirements for existing POTW outfalls as well as CSO treatment facility outfalls. In addition, the Permit mandates CSO outfall identification and receiving water monitoring. It also establishes numerical limitations for certain parameters as well as narrative limits for all authorized discharges.

Reporting Requirements

In addition to POTW and CSO monitoring requirements, the NPDES Permit requires certain reports on the state of the MWRA sewerage and operational systems. These include the Infiltration/Inflow Report, CSO Facilities and Systems Inspection, reports on Operational Upsets, Overflow Reports, Operations Bypass Reports, Maintenance Program, Monthly Discharge Monitoring Reports (DMRs), and reporting on the effects of discharges (Annual Bioaccumulation Study). Table I.1 presents a summary of the Permit limits and monitoring requirements for POTWs while Table I.2 presents permit limits for CSOs.

I.1.b. Court Order

The MWRA also operates under a court order issued in June, 1986. In addition to establishing interim discharge limits for existing treatment plants, the Court Order established a schedule for MWRA to upgrade the sewerage system and treatment plants. Table I.3 summarizes the court-ordered interim limits for both Deer Island and Nut Island.

Table I.1

NPDES PERMIT Numerical Effluent Limitations for POTW Outfalls Deer Island and Nut Island			
Effluent Characteristic	Discharge Limitation Average Monthly	Average Weekly	Max Daily
BOD	a	a	a
TSS	a	a	a
Settleable Solids	a	a	a
pH	Not less than 6.5 nor greater than 8.5 at any time to Boston Harbor, Quincy Bay, Hingham Bay, the Inner Harbor, and the Mystic River.		
Fecal Coliform	a	a	a
Total Coliform	a	a	a
Chlorine, Total Residual	(1) The total chlorine residual and other toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state of federal water quality standard which has been or may be promulgated. Upon promulgation of any such standards, this permit may be modified in accordance with such standards. (2) The permittee shall minimize the use of chlorine, still maintaining adequate bacterial control.		
Oil and Grease of Petroleum Origin (also called TPH or PHC)			15 mg/L

NPDES PERMIT Numerical Effluent Limitations for POTW Outfalls Deer Island and Nut Island			
NOEC[b]	10% or greater (Sample which is composed of 10% or greater effluent.)		
LOEC[c] ; MATC[d] ; LC50[e]	(1) Chronic Toxicity Tests to Establish the NOEC, LOEC, and MATC- Chronic toxicity tests on representative 24-hour composite samples of the discharge using each of the following organisms:(I) the sheepshead minnow, *Cyprinodon variegatus* (7-day tests to measure growth and survival); and (ii) the red marine alga, *Champia parvula* (2 to 4 day tests to evaluate the effects on sexual reproduction). The endpoints to be established in the chronic tests are the No Observed Effect Concentration (NOEC), the Lowest Observed Effect Concentration (LOEC), and the Maximum Acceptable Toxicant Concentration (MATC). (2) Acute Static Toxicity Tests to Establish the NOEL and LC50- 96-hour acute static toxicity tests on representative 24-hour composite samples of the discharge shall be conducted using one to five-day-old juvenile mysid shrimp, *Mysidopsis bahia*, to establish No Observed Acute Effect Levels (NOAEL) and LC50s of the effluents.		

NPDES PERMIT Numerical Effluent Limitations for POTW Outfalls Deer Island and Nut Island			
NOAEL[f]			20% or greater (Sample which is composed of 20% or greater effluent, the remainder being dilution water.)
Other Monitored Parameters			
Pollutants listed in Appendix D of 40 CFR Part 122.			

[a] Court Ordered Interim Limit applies to this parameter.

[b] 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 contains no adverse effects (on growth, survival, and reproduction).

[c] Lowest Observed Effect Concentration- is the lowest concentration of effluent to which organisms are exposed in a life cycle or partial life- cycle test which causes an adverse effect (on survival, growth, and reproduction).

[d] MATC is the Maximum Allowable Toxicant Concentration. It is the effluent concentration that may be present in a receiving water 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.

[e] LC50 is defined as the concentration effluent in a sample that causes mortality to 50% of the test population at a specific time of observation.

[f] No Observed Acute Level is 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.

Table I.2

NPDES PERMIT Effluent Limitations and Monitoring Requirements for CSO Treatment Facility Outfalls		
Characteristic	Discharge Limitation Average Monthly / Average Weekly Maximum Daily	
pH	The pH of the effluent shall not be less than (1) 6.5 nor greater than 8.5 at any time to the Inner Harbor and Mystic River (2) 6.5 nor greater than 9.0 at any time to the Charles River	
Fecal Coliform	1000 MPN/100mL	Not more than 10% of the total samples can exceed 2500 per 100mL during any monthly sampling period.
Chlorine, Total Residual	(1) The total chlorine residual and other toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been or may be promulgated. Upon promulgation of any such standard, this permit may be modified in accordance with such standard. (2) The permittee shall minimize the use of chlorine, still maintaining adequate bacterial control.	
Other Monitored Parameters		
Rainfall/Precipitation		
Flow		
BOD*		
TSS*		
Settleable Solids		

NPDES PERMIT Effluent Limitations and Monitoring Requirements for CSO Treatment Facility Outfalls	
NOAEL**	"No Observed Acute Effects Level" (NOAEL) is 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.
LC50**	"LC50" is defined as the concentration of effluent in a sample that causes mortality to 50% of the test population at a specific time of observation.
Cadmium**	
Chromium (Hexavalent)**	
Copper**	
Lead**	
Mercury**	
Nickel**	
Zinc**	
Chlorinated Hydrocarbons**	
Ammonia Nitrogen**	
Total Phosphorus**	
Pesticides**	
PAHs**	
VOCs**	

* Report both influent and effluent results for this parameter.

** Conducted only during the first and fifth year of the permit. Not required to be monitored this period.

Table I.3

COURT ORDERED SEWAGE TREATMENT PLANT INTERIM LIMITATIONS			
Effluent Characteristic	Effluent Limits		
	Average Monthly	Maximum Daily	Percent Removal*
Deer Island			
$BOD_{(5)}$	140 mg/L	200 mg/L	27%
$TSS_{(5)}$	110 mg/L	180 mg/L	38%
Settleable Solids	2.8 mL/L	N/A	N/A
Fecal Coliform	200/100 mL	N/A	N/A
Total Coliform	1000/100 mL	N/A	N/A
pH	The pH of the effluent shall not be less than 6.5 nor greater than 8.5 at any time unless these values are exceeded due to natural causes or as a result of approved modifications of treatment processes.		
Nut Island			
$BOD_{(5)}$	130 mg/L	185 mg/L	15%
$TSS_{(5)}$	110 mg/L	195 mg/L	43%
Settleable Solids	1.8 mL/L	N/A	N/A
Fecal Coliform	200/100 mL	N/A	N/A
Total Coliform	1000/100 mL	N/A	N/A
pH	The pH of the effluent shall not be less than 6.5 nor greater than 8.5 at any time unless these values are exceeded due to natural causes or as a result of approved modifications or treatment processes.		
Other Effluent Limitations			
Chlorine	The Authority shall minimize the use of chlorine consistent with maintaining adequate bacterial control.		

COURT ORDERED SEWAGE TREATMENT PLANT INTERIM LIMITATIONS	
Effluent Characteristic	Effluent Limits Average Monthly Maximum Daily Percent Removal*
Reduction of Suspended Solids	Volatile suspended solids shall be reduced through anaerobic digestion as follows, with percentage reductions to be computed as a two month rolling average: Deer Island 50%, Nut Island 61%.
Special Monitoring of Oil and Grease	The Authority shall separately measure the concentration of the following by means of a weekly grab sample: Influent oil and grease, effluent oil and grease, digester sludge influent oil and grease, and digester sludge effluent oil and grease.

* Percent Removal is based on a 12 month running average.

I.2. Monitoring Programs

In FY97, the MWRA conducted several monitoring programs. However, this report will present only the influent and effluent monitoring programs. The report will also include information on the "critical areas" in the MWRA and community sewer systems that have historically discharged during and after heavy rainstorms. These "critical areas" were monitored and inspected as part of the NPDES monitoring program.

I.2.a. Treatment Plant Monitoring Program

The Treatment Plant Monitoring Program has two main components: The Influent Monitoring Program and the Effluent Monitoring Program.

The Influent Monitoring Program characterizes the influent to the Deer Island and Nut Island Treatment Plants. Influent monitoring for conventional parameters, in addition to being mandated by the NPDES permit, is also necessary for process control. Data from the Influent Monitoring Program provide influent loading rates and the basis for determining treatment plant efficiency. In addition, influent monitoring for non-conventional parameters is mandated by the NPDES Permit Pretreatment Program.

The Effluent Monitoring Program characterizes the quality of the effluent discharged to a receiving body of water. Except for whole effluent toxicity (WET) testing, the parameters measured in the effluent are the same as those measured in the influent. The NPDES permit requires effluent monitoring and imposes permit limits to ensure the health of the receiving water.

Table I.4 lists the treatment plant monitoring program parameters, including sample type, sampling frequency, and analytical procedures used.

I.2.b. Combined Sewer Overflow Facilities Monitoring Program

The CSO Monitoring Program includes influent and effluent monitoring at the six CSO facilities, although only three of them are currently included in the MWRA NPDES permit. Influent and effluent samples are collected and tested for conventional parameters at all six CSO facilities. For the permitted facilities, in addition to conventional parameters, select priority pollutants are also analyzed in the effluent. Table I.5 lists the CSO monitoring program parameters, including sample type, sampling frequency, and analytical procedures used.

I.2.c. 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 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.

I.3. Treatment of Results

Sometimes it is hard to decipher analytical results and to be sure if the results of the analyses are truly reflecting what is in 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 was straightforward: The arithmetic average was taken. However, in dealing with metals, pesticides, and organics, where very frequently the analytical results were below method detection level, data were manipulated. Appendix K gives a brief description of method detection limits and how measurements below detection limits are treated in this report.

Daily loadings were calculated using the formula:

Loadings (lb/day) = Q*C*8.34

where Q= flow (mgd)

C = concentration (mg/L)

8.34 = unit conversion factor

Monthly average concentrations for priority pollutants (metals, cyanide, pesticides/PCBs, and organic compounds) were calculated by adding the loadings of the pollutant during each sampling event for that month and then dividing it by the total flow during those sampling 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 both Deer and Nut Island Treatment Plants, taking one small sample may 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 only analyzed two or three times per month.

Table I.4

POTW Monitoring Program

Parameter	**Sample Type[1]**	**Sampling Frequency** Influent	Effluent	**Analytical Method[2]**
Metals				
Antimony	Composite	3 x per month	3 x per month	204.2
Arsenic	Composite	3 x per month	3 x per month	206.2
Beryllium	Composite	3 x per month	3 x per month	200.7
Boron	Composite	3 x per month	3 x per month	200.7
Cadmium	Composite	3 x per month	3 x per month	213.1
Chromium	Composite	3 x per month	3 x per month	200.7
Lead	Composite	3 x per month	3 x per month	239.2
Mercury	Composite	3 x per month	3 x per month	245.1
Molybdenum	Composite	3 x per month	3 x per month	200.7
Nickel	Composite	3 x per month	3 x per month	200.7
Selenium	Composite	3 x per month	3 x per month	270.2
Silver	Composite	3 x per month	3 x per month	200.7
Thallium	Composite	3 x per month	3 x per month	279.2
Zinc	Composite	3 x per month	3 x per month	200.7
Cyanide	Grab	3 x per month	3 x per month	335.2
TPH	Grab	2 x per month	6-7 x per month	418.1
Pesticides/PCBs	Composite	2 x month	3 x per month	608
Semi-volatiles	Composite	2 x month	3 x per month	625
Volatiles	Grab	2 x month	3 x per month	624
Whole Effluent Toxicity[3]	Composite	1 x per month	WET Test Protocols	

[1] Influent and effluent composite samples are 24-hour time composite samples
[2] EPA Methods
[3] Effluent sample only

Table I.4 (Continued)

POTW Monitoring Program

Parameter	Sample Type[1]	Sampling Frequency		Analytical Method[2]
		Influent	Effluent	
Conventional				
pH		Grab	1 x per day	150.1
Settleable Solids		Grab	1 x per day	160.5
Biochemical Oxygen Demand		Composite	1 x per day	405.1
Total Suspended Solids		Composite	1 x per day	160.2
Total Coliform		Grab	3 x per day	9222 D [3]
Fecal Coliform		Grab	3 x per day	9222 B [3]
Oil and Grease		Grab	6-7 x per month	413.1
Total Chlorine Residual		Grab	3 x per day	330.5
Chlorides		Composite	1 x per day	4500 B [3]
Nutrients [4]				
Total Kjeldahl Nitrogen		Composite	1 x week	351.3
Ammonia		Composite	1 x week	350.2
Nitrates		Composite	1 x week	353.3
Nitrites		Composite	1 x week	354.1
Orthophosphorus		Composite	1 x week	365.2
Total Phosphorus		Composite	1 x week	365.2

[1] Influent and effluent composite samples are 24-hour time composite except for samples for metals analyses which are aliquot portions of the 24-hour daily composite sample

[2] EPA Methods

[3] Standard Methods

[4] Sampling frequency is once a week at Deer Island but once a month at Nut Island.

Table I.5
CSO Monitoring Program

Parameter	Sample Type	Sampling Frequency	Analytical Method [1]
pH	Grab	One/Discharge	150.1
Biochemical Oxygen Demand	Composite[2]	One/Discharge	405.1
Total Suspended Solids	Composite[2]	One/Discharge	160.2
Settleable Solids	Composite[2]	One/Discharge	160.5
Fecal Coliform	Grab	See Footnote[3]	9222 B [4]
Total Chlorine Residual	Grab	See Footnote[3]	330.5

[1] EPA Methods.
[2] Samples collected during first 4 hours of discharge or any portion thereof for discharges of less than 4 hours duration. Samples shall consist of grab samples collected at 15 minutes, 30 minutes, 45 minutes, 1 hour, 1 and ½ hours, 2 hours, 3 hours, and 4 hours from onset of discharge and combined as flow-weighted composite sample.
[3] Grab samples shall be collected once within the first 2 hours of each discharge from the CSO treatment facility and every eight hours thereafter
[4] Standard Methods.

Appendix J An Overview of the MWRA Sewerage System and Facilities

The MWRA is responsible for the collection, transport, pumping, treatment, and disposal of sewage in Boston and the greater Boston area. The MWRA also operates a third treatment plant. This plant serves the Town of Clinton and the Lancaster Sewer District under special arrangements originating at the time 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 will not be discussed in this report.

The MWRA serves 43 communities with a total population of over 2.0 million people, over 5,500 businesses, and over 1,400 industries. Over 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 nine pumping stations, four headworks, over 80 combined sewer overflows, six CSO treatment facilities and two treatment plants. Table J.1 lists the MWRA treatment facilities and relevant information pertaining to each facility.

The two plants, Deer Island in Winthrop and Nut Island in Quincy, serve the 43 communities in the metropolitan Boston sewerage system and are allowed to discharge under the Boston NPDES Permit. The sewerage system is divided into two major regions: the North and the South. Deer Island provides primary treatment to sewage flows from the North System while Nut Island provides primary treatment to sewage flows from the South System. Table J.2 lists the sewerage service area population by community.

J.1. North System

The North System serves a population of about 1.3 million and is located to the north and west of Boston. Most of the North System is a separate system in which sanitary wastewater and stormwater are carried in different conduits. However, portions of Boston, Cambridge, Somerville, and Chelsea still have combined sewers. Community sewer lines tie into the MWRA system through interceptor lines that feed into remote headwork facilities.

Table J.1 List of Treatment Facilities and Discharge Locations

Facility Name	Location	First year of Operation	Treatment Process	Design Flow (MGD)	Conduit Size At Facility In	Conduit Size At Facility Out	Outfall Number	Receiving Water
POTW								
Deer Island	Deer Island Boston, MA (North System)	1968	Screening Sedimentation Chlorination	343		9'x 10' 6'x 6.5' BLOCKED 9' Dia 9' Dia	MWR001 MWR002 MWR003 MWR004 MWR005	Boston Harbor
Nut Island	147 Sea St. Quincy, MA (South System)	1952	Screening Sedimentation Chlorination	112		5'Dia 5'Dia 5'Dia 5'Dia	MWR101 MWR102 MWR103 MWR104	Boston Harbor
CSO FACILITIES								
Cottage Farm	Memorial Dr. near Boston University Bridge, Cambridge	1971	Screening Settling Chlorination Detention	233	72" N. Charles Relief 42" S. Charles Relief 54" Brookline	96" Outfall	MWR201	Charles River
Prison Point	Near Museum of Science Bridge, Cambridge	1980	Screening Settling Chlorination Detention	385	10' Conduit	8' Conduit	MWR203	Inner Harbor
Somerville Marginal	McGrath Highway under Route I-93, Somerville	1973*	Screening Chlorination	245	7' x 7.5' Conduit 84" Conduit	6' x 8' Conduit	MWR205	Mystic River
Constitution Beach	Off Shore St. East Boston	1987	Screening Chlorination	20	36" Conduit	36" Conduit	BOS002	Boston Harbor
Fox Point	Freeport Street near Southeast Expressway, Dorchester	1989	Screening Chlorination	119	10' x 12' Conduit	10' x 12' Conduit	BOS089	Dorchester Bay
Commercial Point	Victory Road Dorcester	1991	Screening Chlorination	194	15' x 11' Conduit	15' x 11' Conduit	BOS090	Dorchester Bay

* Rehabilitated in 1988
MWR refers to MWRA
BOS refers to BWSC

TABLE J.2 SEWERAGE SERVICE AREA POPULATION BY COMMUNITY

March 16, 1995

TOWN	COMMUNITY N. SYSTEM	COMMUNITY S. SYSTEM	SEWERED N. SYSTEM	SEWERED S. SYSTEM	COMMUNITY TOTAL	SEWERED TOTAL
Arlington	44,126		44,082		44,126	44,082
Ashland		12,355		7,166	12,355	7,166
Bedford	12,942		10,095		12,942	10,095
Belmont	24,367		23,855		24,367	23,855
Boston	415,727	135,948	415,311	135,812	551,675	551,123
Braintree		33,840		32,994	33,840	32,994
Brookline	21,240	31,823	21,155	31,696	53,063	52,851
Burlington	23,301		21,903		23,301	21,903
Cambridge	93,554		93,460		93,554	93,460
Canton		19,112		13,570	19,112	13,570
Chelsea	26,786		26,759		26,786	26,759
Dedham		23,662		21,532	23,662	21,532
Everett	35,087		35,052		35,087	35,052
Framingham		63,352		58,258	63,352	58,258
Hingham		6,098		5,061	6,098	5,061
Holbrook		11,050		6,630	11,050	6,630
Lexington	28,998		26,968		28,998	26,968
Malden	53,709		53,655		53,709	53,655
Medford	56,702		56,645		56,702	56,645
Melrose	27,777		27,749		27,777	27,749
Milton	1,902	23,999	1,750	22,079	25,901	23,829
Natick		30,428		24,738	30,428	24,738
Needham		27,674		24,353	27,674	24,353
Newton	30,537	51,589	29,713	50,196	82,126	79,909
Norwood		28,654		28,147	28,654	28,147
Quincy		84,457		84,373	84,457	84,373
Randolph		30,372		29,765	30,372	29,765
Reading	22,671		20,404		22,671	20,404
Revere	42,751		42,708		42,751	42,708
Somerville	72,303		72,231		72,303	72,231
Stoneham	22,183		21,628		22,183	21,628
Stoughton		26,979		15,888	26,979	15,888
Wakefield	25,118		24,038		25,118	24,038
Walpole		20,545		12,163	20,545	12,163
Waltham	56,698		56,641		56,698	56,641
Watertown	32,443		32,411		32,443	32,411
Wellesley		26,655		24,549	26,655	24,549
Westwood		12,940		10,352	12,940	10,352
Weymouth		54,584		49,671	54,584	49,671
Wilmington	18,488		1,997		18,488	1,997
Winchester	20,504		20,483		20,504	20,483
Winthrop	17,980		17,962		17,980	17,962
Woburn	36,407		34,951		36,407	34,951
TOTALS	1,264,302	756,115	1,233,607	688,992	2,020,417	1,922,599

Data are from Federal Census Bureau estimates of 1992 population. Hingham population reflects only the Hingham Sewer District.

Population ratios for cross-over communities calculated from following sources: Boston - I/I annual questionnaire; Newton - Facilities Plan; Brookline & Milton - community flow estimates.

Three remote headworks connect to the North Main Pumping Station (NMPS) at Deer Island by two deep rock tunnels, the Boston Main Drainage Tunnel (BMDT) and the North Facilities Metropolitan Relief Tunnel (North Metro Relief). The seven-mile BMDT originates from the Ward Street Headworks and runs under Boston Harbor to the NMPS. Columbus Park Headworks empties into the BMDT. The four-mile North Metro Relief 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 headwork, the Winthrop Terminal, is located on Deer Island and receives flows from the City of Winthrop and the Caruso Pump Station through the North Metro Trunk Sewer. Figure J.1 shows the North System schematics.

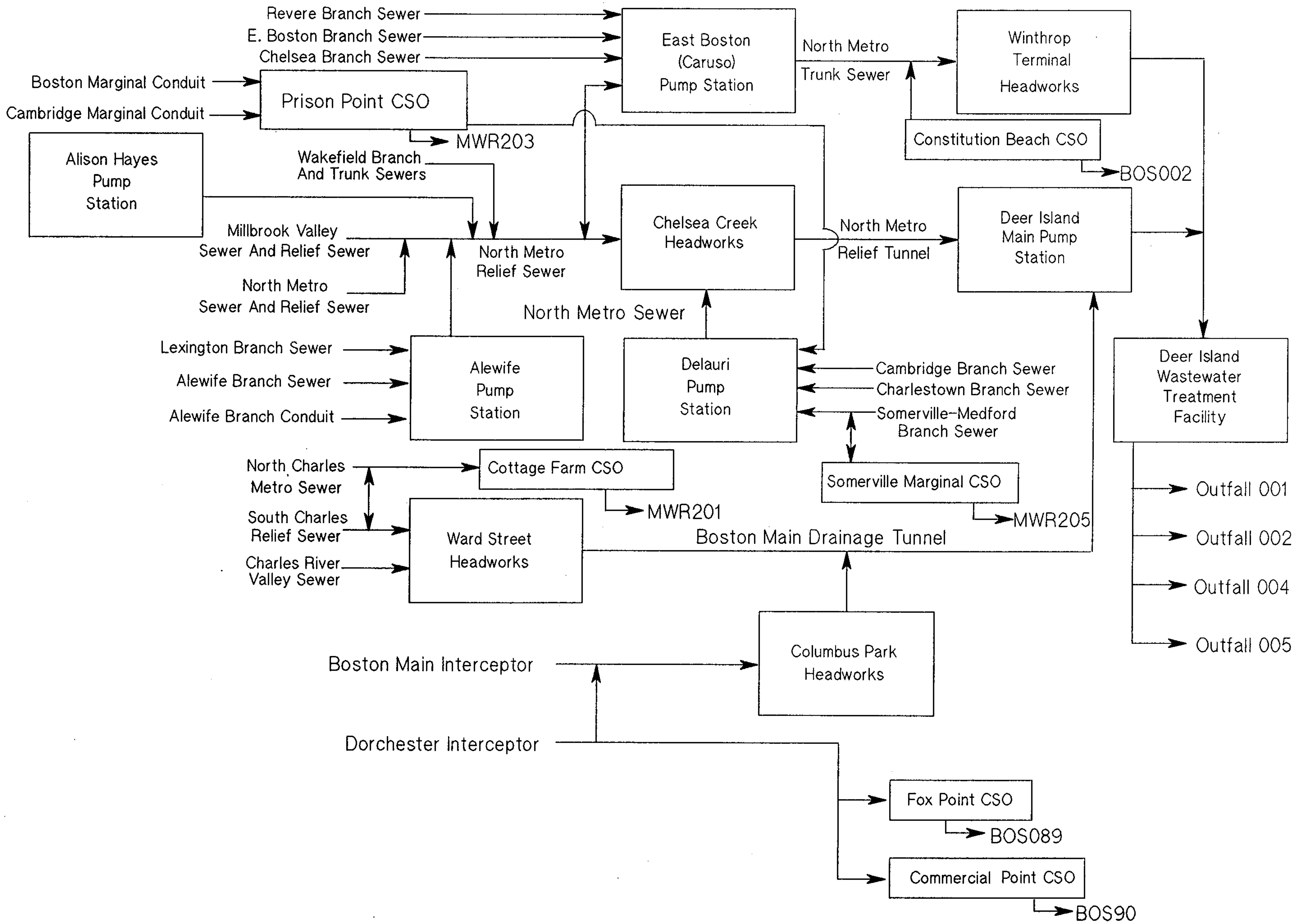
J.1.a. Pump Stations

Four pump stations are located throughout the MWRA North System. Alewife Brook (64 Mgd), Caruso (110 mgd), DeLauri (90 mgd), and Allison Hayes (11 Mgd) convey wastewater to the headwork facilities. The four pump stations receive flow from interceptor lines as follows:

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

*When flow to the Chelsea Headworks is held back, wastewater is diverted to the Caruso 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 J.1 North System Pump Stations, Headworks, CSO's and Tunnel Hydraulic Schematic



J.1.b. Headworks

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

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

* During low-intensity rainfall when line or holding capacity are 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.

J.1.c. Deer Island Treatment Plant

Deer Island Plant receives wastewater at the NMPS and the Winthrop Terminal. The NMPS consists of ten pumps, each rated at 110 Mgd. Currently, five pumps are in service while the other five are being overhauled. Once these pumps are put in service, which is expected in FY98, the NMPS will have a total rated pumping capacity of 1100 Mgd.

The Deer Island Treatment Plant, in operation since June of 1968, serves 22 communities and portions of Boston, Brookline, Newton, and Milton. The service area encompasses approximately 168 square miles. Grit removal and screening is provided at the remote headworks. Flow from the City of Winthrop is degritted at the Winthrop Terminal. Grit chambers and screens remove heavy particles and debris from the wastewater. Grit and screenings are landfilled off-site.

The new primary treatment plant came on line on January 21, 1995. The new primary plant has new grit chambers (16 units) and two batteries of primary sedimentation tanks (24 tanks). Two other batteries of primary tanks, sludge gravity thickeners (3), two modules of anaerobic sludge digesters (8 units), and other components of the new Deer Island plant are scheduled to be put in service within the next fiscal year. The remaining units are scheduled on-line in FY98 and FY99. Figure J.2 presents the new Deer Island plant process flow diagram.

Wastewater flows through the grit chambers for additional grit removal. It then flows to the sedimentation tanks where floatables, consisting mainly of oil, grease, and plastics, rise to the surface while the sludge, consisting of heavy solid particles, settles to the bottom. Effluent from the sedimentation tanks is disinfected with sodium hypochlorite prior to discharge. The scum (floatables) is skimmed off the top while the sludge (settled solids) is scraped from the bottom of the sedimentation tanks. Scum is pumped to the scum concentrator while the sludge is pumped to the sludge thickeners. After the scum and sludge are concentrated and thickened, they are conveyed to the anaerobic digesters for further treatment. The digested sludge is barged to the Fore River Pelletizing Plant, where it is converted into fertilizer.

Effluent is channeled through a common conduit to four potential outfall pipes, 001, 002, 004, and 005. Figure J.3 illustrates the Deer Island outfall schematics while Table J.3 presents the specifics of each outfall. Outfalls 001, 002 and 004 connect to Chamber C while 005 connects to Chamber A. A sluice gate in Chamber A controls discharge from 005. Likewise, a sluice gate in Chamber C isolates discharge from 004. Of the five permitted outfalls, only outfalls 001 and 002 are used regularly. Outfall 004 is used only during high flow conditions, while relief outfall 005, although not used, can be activated during extremely high flows or emergency situations. Outfall 003 is permanently blocked and out of service.

The amount of wastewater that can be pumped to the plant is not only limited by sewer line capacity, treatment plant capacity, and pumping capacity, but also by the outfall pipe capacity. The approximate amounts of treatment plant effluent that can be discharged through the outfalls are as follows:

Outfalls 001 & 002
High tide 400 Mgd
Low tide 735 Mgd

Outfalls 001 & 002 & 004
High tide 635 Mgd
Low tide 900 Mgd

Outfalls 001 & 002 & 004 & 005
High tide 900 Mgd
Low tide 1,270 Mgd

Table J.3 Deer Island Outfall Characteristics

	Outfall Number			
	No. 001	No. 002	No. 004	No. 005
Length, ft	2260	2565	500	135
Discharge Elevation, ft	54.7	54.7	97.8	98
Number of Open Ports	14	47	1	1
Port Diameter, ft	1.67	1.69	9	9
Chamber Invert Elevation, ft	98.1	98.1	98.1	103.2
Chamber Overflow Elevation, ft	120	120	120	125
Pipe Size, in.	16 x 12 to 12 x 10 to 10 (diam)	6 x 6.25 to 9 (diam)	9 (diam)	9 (diam)
Pipe Material	Concrete to Concrete to RC	Brick with Concrete Encasing	Reinforced Concrete (RC)	RC
Year Built	1896	1959	1959	1959

Figure J.2 Deer Island Treatment Facility Flow Diagram

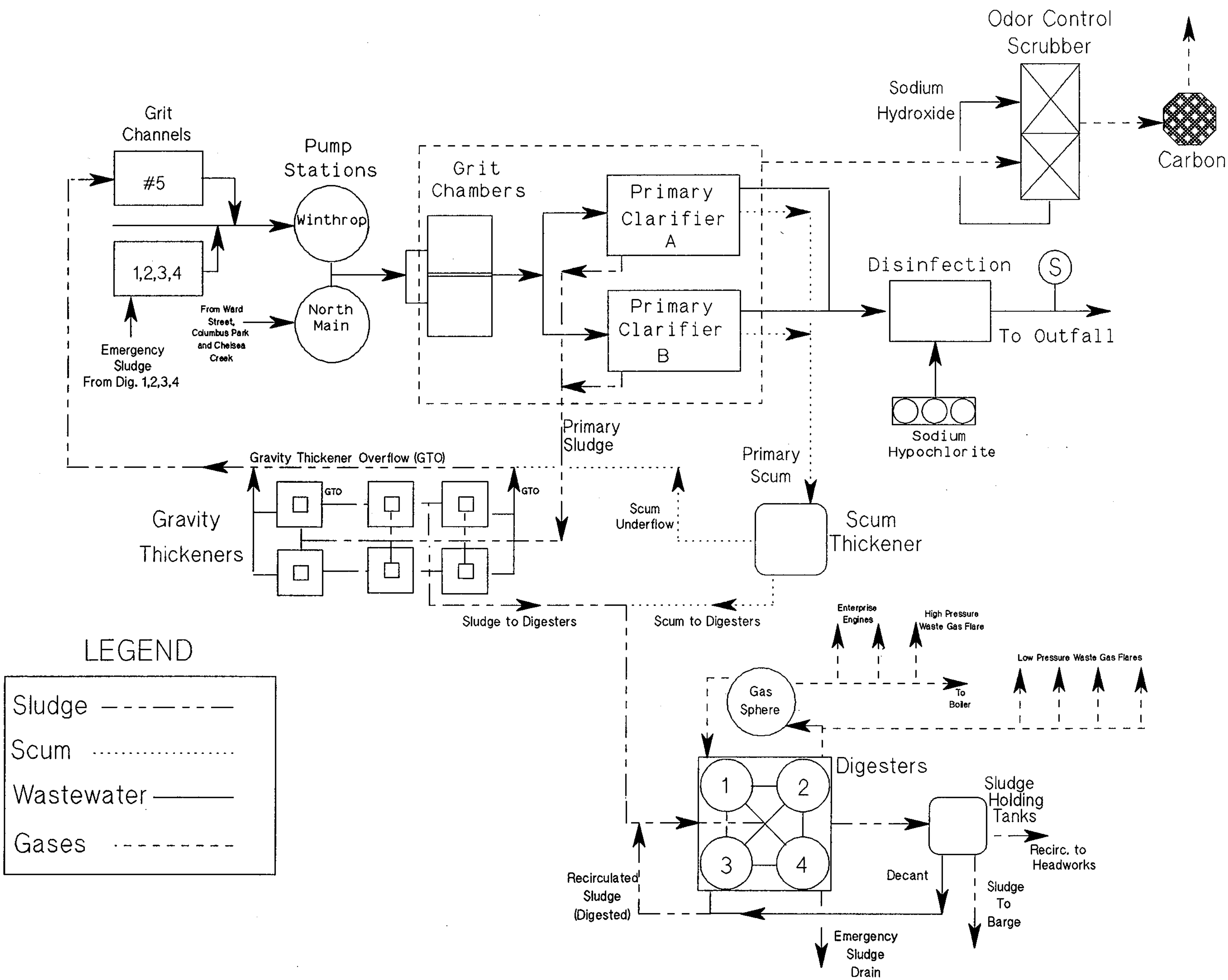
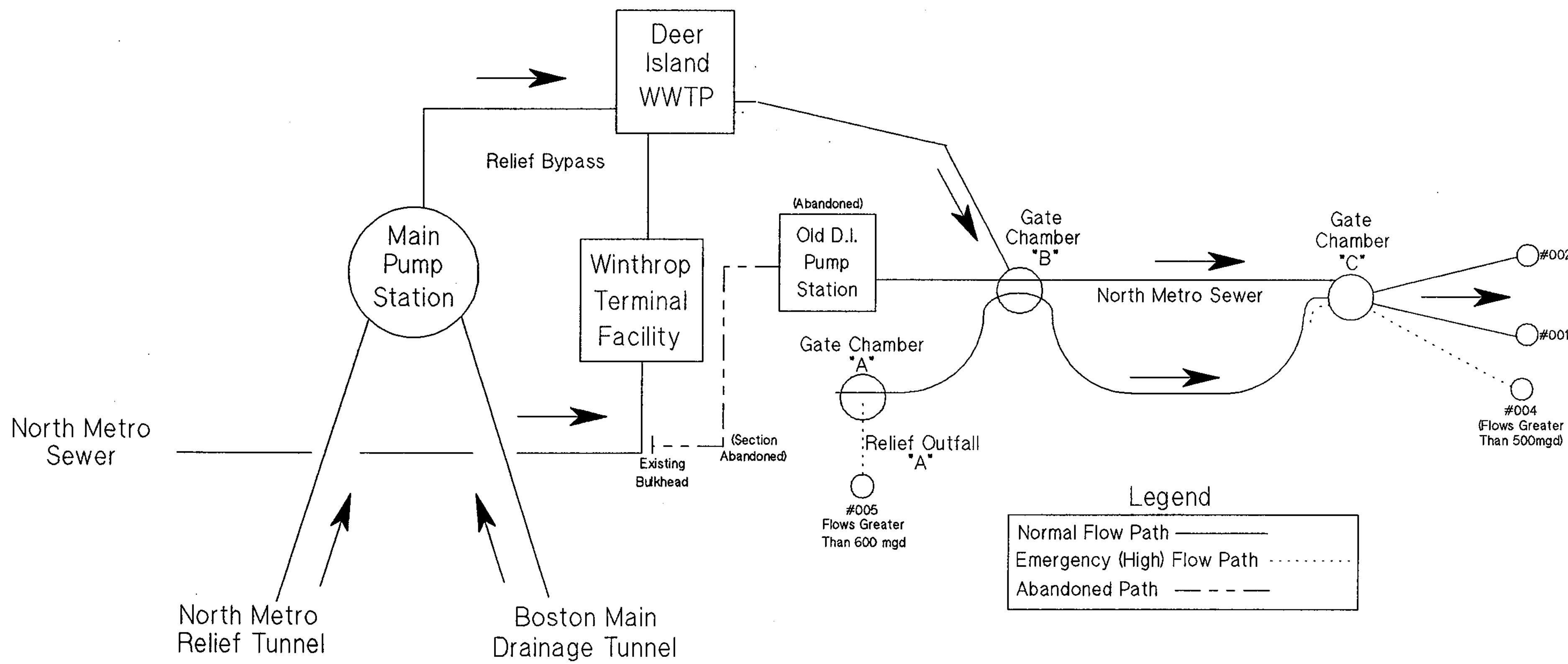


Figure J.3 Deer Island Outfall System Schematic



J.1.d. Combined Sewer Overflow Facilities

The conditions for discharge of effluent from three CSO chlorination facilities are also included in the Boston NPDES Permit. These three CSO chlorination facilities, Cottage Farm in Cambridge, Prison Point in Cambridge, and Somerville Marginal in Somerville, discharge to the Charles River, the Inner Harbor, and the Mystic River respectively. Three other CSO chlorination facilities, Constitution Beach in East Boston, Fox Point in Dorchester, and Commercial Point in Dorchester, are owned and operated by the MWRA. Effluent from these facilities discharges to BWSC lines and is included in the BWSC NPDES permit.

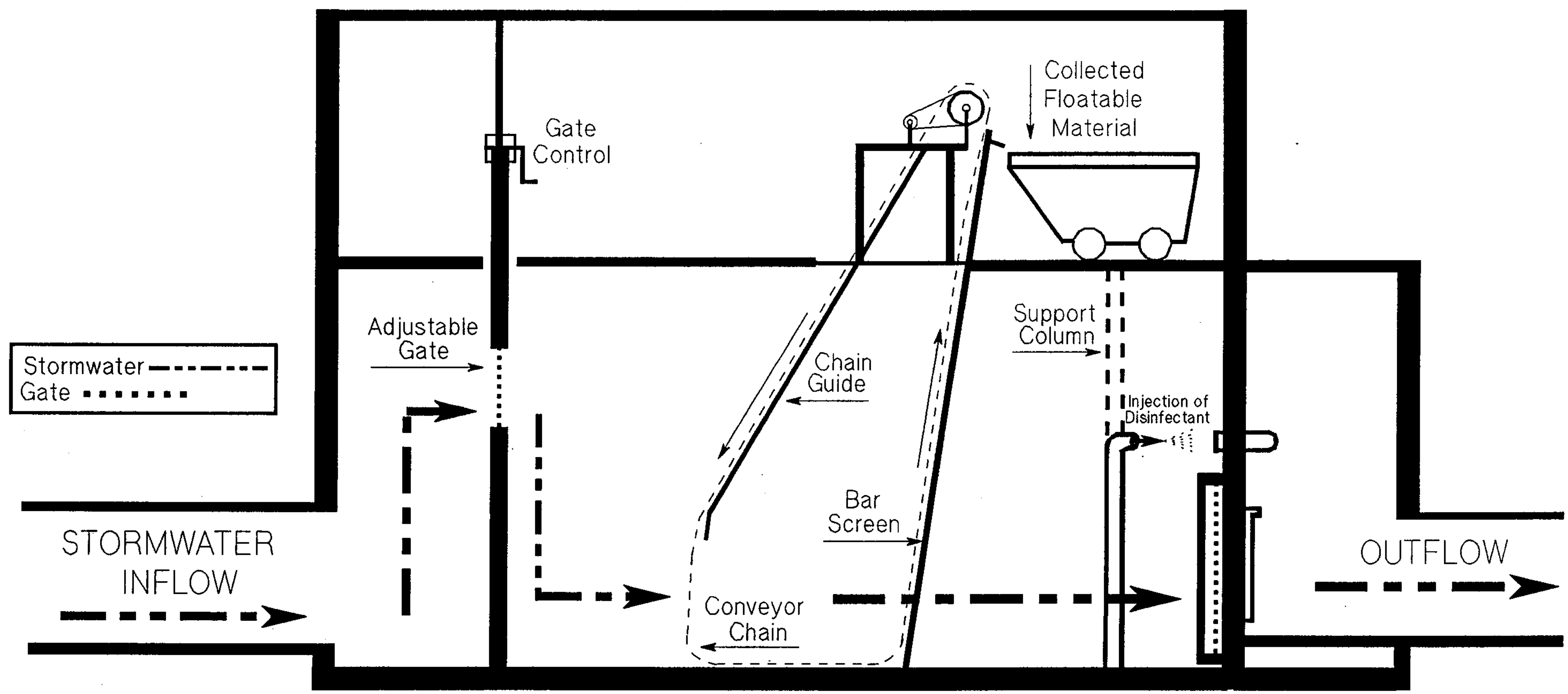
Discharge of combined wastewater from a CSO treatment facility to a receiving body of water is defined in this report as a CSO activation. Discharge of combined wastewater to a CSO outfall pipe is defined as a CSO overflow. CSO overflows will not be discussed in this report. In general, CSO activations 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 "chokes" the flow and holds 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 CSO outfall pipes, resulting in potential CSO activations and overflow.

In addition to choking in response to hydraulic demand on the system, the headworks may choke to perform emergency repairs, system testing, or maintenance work at the treatment plant. Most of the choking that occurred in FY97 was for these reasons and did not result in any CSO activations. Choking at Ward Street and Columbus Park Headworks influences Cottage Farm activations. Choking at the Columbus Park Headworks influences activations at Fox Point and Commercial Point CSOs. Backups at the DeLauri Pumping Station brought about by choking at the Chelsea Headworks activate the Somerville Marginal CSO.

At the CSO facility, the combined wastewater is chlorinated prior to discharge. Of the six CSO facilities, only Cottage Farm and Prison Point have pumping and tank storage capacities. This allows for chlorinated wastewater to be held at these facilities up to their storage capacities. Any wastewater exceeding that storage capacity overflows and is discharged to the river. The four other CSO facilities are gravity CSO facilities, which means 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. Figure J.4 is a schematic of a typical CSO treatment facility.

The six CSO facilities provide treatment for approximately 50% of the CSO volume while the other half overflows in any of the 85 permitted CSO overflow structures of the sewerage system without the benefit of any type of treatment. Of the 85 permitted CSO overflow structures, 53 are located in Boston, 15 in Cambridge, 5 in Chelsea, and 12 in Somerville. These outfalls discharge into Boston Harbor, the Alewife Brook, the Mystic River, the Charles River, and the Neponset River.

Figure J.4 Combined Sewer Overflow Treatment Facility



Prison Point Combined Sewer Overflow Facility

Prison Point is a both dry weather and stormwater 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 stormwater phase has a maximum pumping capacity of 385 Mgd. Treatment includes screening, detention, and disinfection. 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 new Charles River Dam at outfall MWR203. Combined wastewater volume that is held back (up to 1.2 Mgd) is pumped back to the DeLauri Station. This facility came on line in 1980.

Cottage Farm Combined Sewer Overflow Facility

Cottage Farm, like Prison Point, is a two-phase 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.

Somerville Marginal Combined Sewer Overflow 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 detention capacity during storm conditions. Treatment consists of screening and chlorination. Effluent is discharged to the lower Mystic River basin at outfall number 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 1988.

Constitution Beach Combined Sewer Overflow Facility

Constitution Beach is an unmanned gravity facility with a design capacity of 20 Mgd. It receives flows from the North Metro Trunk sewer. Treatment consists of screening and disinfection. Effluent is discharged to a BWSC line that ultimately discharges to Boston Harbor through BOS002. This outfall is included in the BWSC permit. Since the issuance of that permit, full ownership of Constitution Beach CSO Facility has been transferred to MWRA. This facility came on line in 1987.

Fox Point Combined Sewer Overflow Facility

Fox Point has a design capacity of 119 Mgd. It receives wet weather flows from the Dorchester Interceptor sewer line. Operation of this facility parallels that of the Constitution Beach CSO; treatment includes screening and disinfection. Effluent is discharged to a BWSC sewer line that discharges to Dorchester Bay through BOS089. This outfall is included in the BWSC permit. This facility came on line in 1989.

Commercial Point Combined Sewer Overflow Facility

Commercial Point is an unmanned gravity CSO with a design capacity of 194 Mgd. This facility also receives wet weather backups from the Dorchester Interceptor. Treatment includes screening and disinfection. Effluent is discharged to a BWSC line that ultimately discharges to Dorchester Bay through BOS090. This outfall is included in the BWSC permit. This facility came on line in 1991.

J.2 South System

The South System serves a population of about 0.70 million and is located to the south and southwest of Boston. The South System is all separate. Figure J.5 illustrates the South System schematics. 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 High Level Sewer. Five pump stations move the wastewater through the High Level Sewer to Nut Island Treatment Plant.

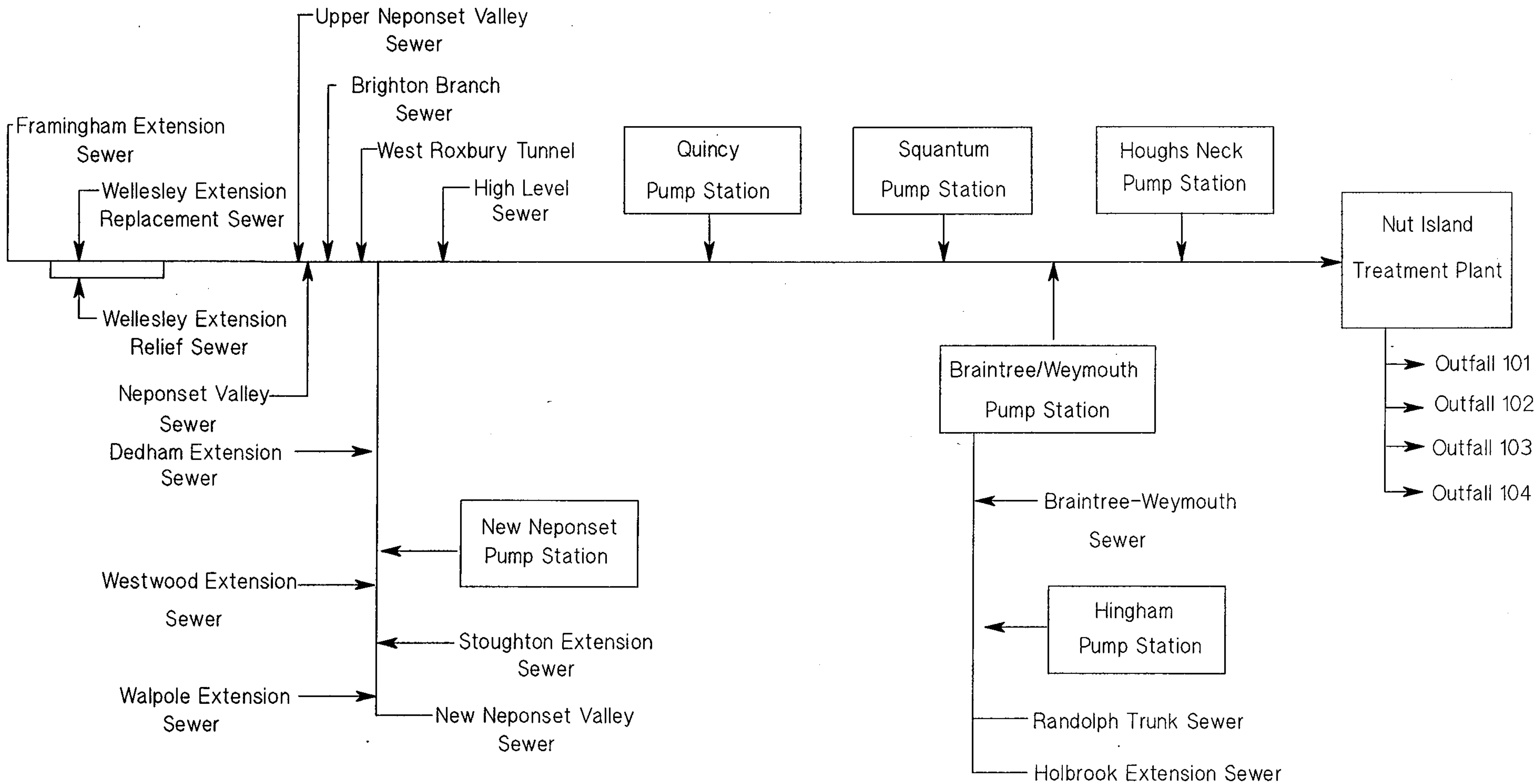
J.2.a. Pump Stations

Six 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), Quincy Pump Station (52 mgd), Squantum Pump Station (12 mgd), Houghs Neck Pump Station (2.8 mgd), and Neponset Pump Station (90 mgd). The high level sewer conveys wastewater to the Nut Island Plant.

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

Hingham Pump Station	Weymouth-Hingham Sewer Lines
Braintree-Weymouth Pump Station	Braintree-Randolph Trunk Sewer Braintree-Weymouth Extension Sewer Holbrook Extension Sewer Hingham Pumping Station
Quincy Pump Station	Quincy Sewers
Squantum Pumping Station	Squantum Sewers
Houghs Neck Lift Station	Houghs Neck Sewer
Neponset Pump Station	Neponset Valley Sewer

Figure J.5 South System Hydraulic Schematic



J.2.b. Nut Island Treatment Plant

The Nut Island Treatment Plant, in operation since 1952, serves 17 communities in the southern portion of the sewerage system and parts of Boston, Brookline, Newton, and Milton, a total of 21 communities. The area served by Nut Island is approximately 238 square miles. Nut Island plant was designed to provide primary treatment for an average daily flow of 112 Mgd and a peak flow of 230 Mgd. Figure J.6 presents the Nut Island process flow diagram.

Current treatment processes include:

- screening and grit removal
- preaeration
- primary settling
- disinfection
- anaerobic digestion.

Nut Island consists of two bar screens, six grit chambers, five preaeration tanks, six sedimentation tanks, and four digesters. Wastewater entering Nut Island passes through bar screens and grit chambers. Grit and screenings are sent to a landfill. Wastewater is pumped to the preaeration channels and then flows by gravity through the sedimentation tanks. Scum is skimmed off the top and sent to a landfill. Sludge is scraped from the bottom and pumped to the anaerobic digesters for further treatment. The digested sludge is barged to the Fore River Pelletizing Plant where it is converted to fertilizer. Effluent is disinfected with chlorine gas prior to discharge through outfalls that discharge to Nantasket Roads Channel in Boston Harbor and Hingham Bay.

The Nut Island outfall system consists of four outfalls. The three main outfalls, designated 101, 102, and 103 are each five feet in diameter but of varying lengths. Outfalls 101 and 102 are used on a daily basis while outfall 104 is used only during extreme high tide conditions (el. 115.7) and plant inflows approaching 230 Mgd. Outfalls 101, 102, and 103 discharge to Boston Harbor. Outfall 104, used to handle flow in excess of the capacity of the three main outfalls, discharges to Hingham Bay.

The amount of wastewater that can be pumped to the plant is not only limited by sewer line capacity, treatment plant capacity, and pumping capacity, but also by the outfall pipe capacity. Figure J.7 shows the Nut Island outfall system schematic while Table J.4 lists pertinent information about the Nut Island outfalls.

The approximate amounts of treatment plant effluent that can be discharged through the outfalls are estimated as follows:

Outfalls 101 & 102
High tide 105 Mgd
Low tide 150 Mgd

Outfalls 101, 102, & 103
High tide 166 Mgd
Low tide 245 Mgd

Outfalls 101, 102, 103 & 104
High tide 245 Mgd
Low tide 260 Mgd

Table J.4 Nut Island Outfall Characteristics

	Outfall Number			
	No. 101	No. 102	No. 103	No. 104
Length, ft	5830	5545	1412	663
Pipe Size, in.	60 (diam)	60 (diam)	60 (diam)	60 (diam)
Pipe Material	Cast Iron	Cast Iron	Cast Iron	Reinforced Concrete (RC)
Year Built	1904		1904	

Figure J.6 Nut Island
Wastewater Treatment Plant Flow Diagram

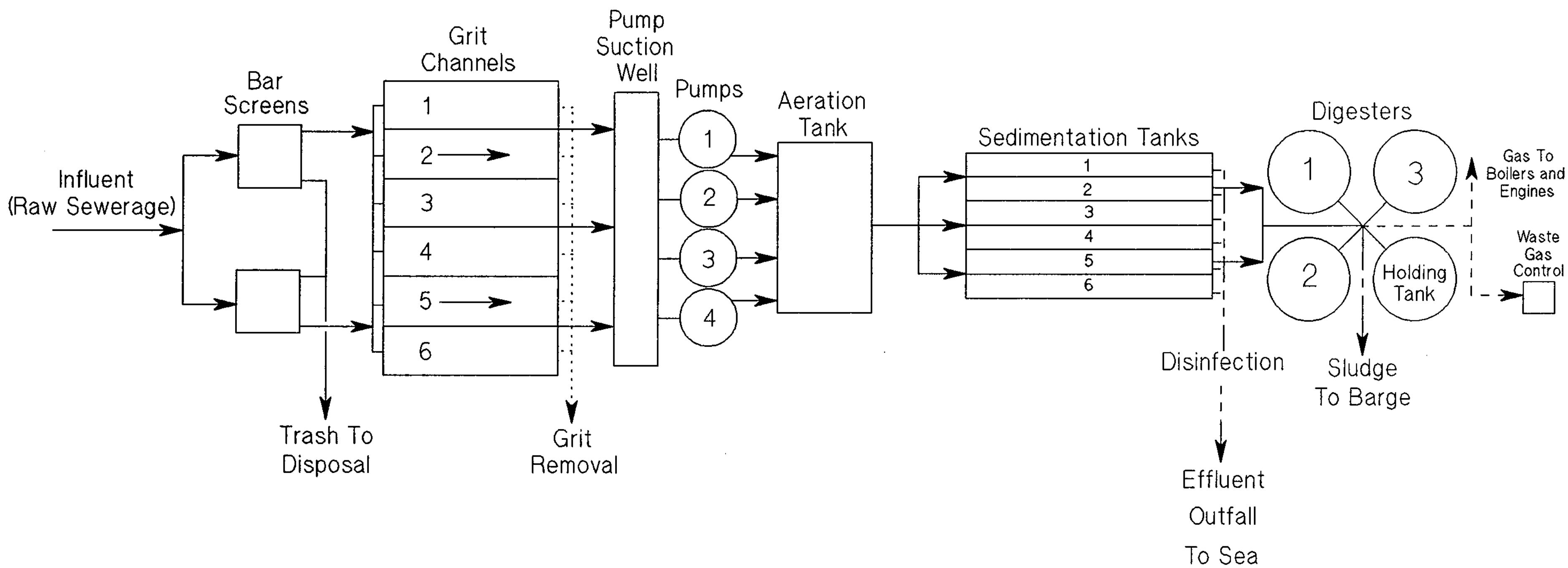
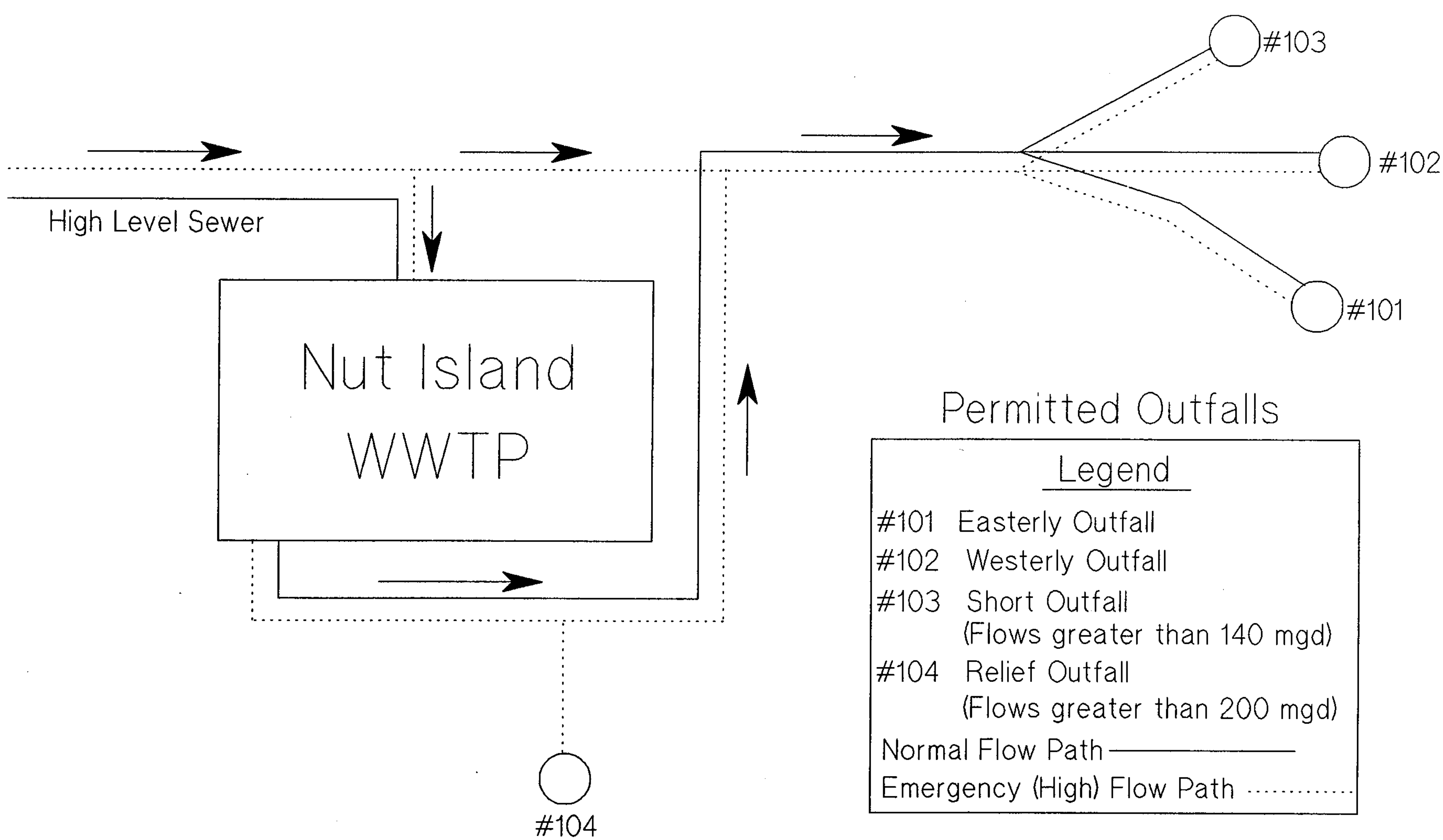


Figure J.7 Nut Island Outfall System Schematic



J.3 Sanitary Sewer Overflows

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 the combined wastewater and stormwater flows exceed the capacity of the pipes and cause certain areas to become inundated. As a matter of course, whenever there is a high amount of rainfall, a crew from the Transport Department investigates a number of critical areas to visually monitor overflows. 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 and who is responsible for them is included in Table J.5. Not all of these areas are checked during every rainfall, and some are monitored by the MWRA only during extreme storm events.

Table J.5 MWRA Sewer System Overflow Locations

Number	Owner	Location and Description
1	MWRA[1,3]	Section 107 (Overflow Relief Point) Medford, On Median Strip Of On Ramp To Rt. 16
2	MWRA[1]	Section C (Overflow Relief Point) Medford, Auburn St. At Rt. 16
3	MWRA[1]	Section 91B (Siphon) Medford, Lakeview Ter. At Mystic Valley Pkwy
4	MWRA[1,3]	Section 91B (Manhole) Medford, Lakeview Ter.
5	MWRA[2,3]	Section 126 (Siphon) Braintree, Easement Between Commercial St. & Quincy Ave.
6	MWRA[2,3]	Section 126 (Manhole) Braintree, Idlewell Blvd.
7	MWRA[2]	Section 128 (Siphon) Braintree, Pearl St.
8	MWRA[2]	Norwood, Manhole
9	MWRA[2]	Weymouth, Manhole, Regina Rd.
10	Newton	Manhole, 100 Peregrine Rd.
11A	Roslindale	Manhole, Florence St. Sycamore St.
11B	Roslindale	Manhole, Sammett Ave. Mt. Hope Rd. Holly St.
11C	Roslindale	Manhole, Archdale St.
12	Everett	Manhole, Preston St.
13	Malden	Manhole, Taylor St.
14	Medford	Manhole, Roosevelt St.
15	Medford	Manhole, Mystic Ave.
16	Arlington	Manhole, Kimball Rd.
17	Arlington	Manhole, Summer St.
18	Quincy	Manhole, 40 Willard St.
19	W. Roxbury	Manhole, 307 V.F.W. Parkway
20	Hyde Park	Manhole, Clark Ave. American Legion Hwy.
21	Arlington	Manhole, 22 Grove St.
22	Weymouth	Manhole, 159 Spring Way
23	Hyde Park	Manhole, 46 Collins St.
24	Hyde Park	Manhole, 45 Sierra St.
25	Braintree	Manhole, 16 Allen St.
26	Newton	Manhole, 183 Old Farm Rd.
27	Arlington	Section 80 (Overflow Relief Point) Behind Brattle Court Pumping Station
28	Arlington	Section 80 (Overflow Relief Point) Hobbs Court Plug- Temporary

29	Medford	Section 43.5 (Overflow Relief Point) Boston Ave. At Rt. 16
30	Cambridge	Section B (Overflow Relief Point) Alewife Brook at T-Station
31	Malden	Section 19 (Overflow Relief Point) Off Commercial Street at Malden River
32	Winchester	Section 113 (Siphon) Wedgemere Siphon
33	Natick	Section 132 (Siphon) Eliot St.
34	Norwood	Section 117 (Siphon and Manhole) Wooded Area at Neponset River
35	Canton	Section 121 (Manhole) Wooded Area at Steep Hill Brook Neponset River 36
	Norwood	Manhole, New Walpole Extension Sewer Behind Overlook Dr.

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1 North System

2 South System

3 Active during severe storms in conjunction with high ground water and limited capacity

Appendix K Instrument Detection Limits, Method Detection Limits, and Quantitation Limits- A Brief Description

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 (IDL) reflect only the capability of the Gas Chromatograph (GC), or any other instrument, used to conduct the analysis. This 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 (MDL) are the smallest amount of a substance that can be detected above background noise by following 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 what the MDLs are for most priority pollutants using their detailed methods. These are published in the 40 CFR and some are listed in Appendix J, Table J-1 of this report.

In general, if a plot is made of pollutant concentration versus instrument response, it will generate a linear relationship. As the pollutant concentration approaches zero, the linearity of the relationship is lost. At the point where the linearity is lost is 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 can be thought of as about five times the MDL. Quantitative limits only come into play on GC/MS analyses, that is, methods 608, 624, and 625. Specific limits are highly matrix dependent .

The EPA has developed **Contract Required Quantitation Limits (CRQL)**, which serve as a guideline for selecting contract laboratories to perform analyses. Some CRQLs are listed in Appendix J, Table J-1 of this report.

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 a MDL of 1.6 and a QL of 10 ug/L. If the concentration from an analysis is reported as 5 ug/L then what can be inferred is "A very low concentration of chloroform was detected. We are not sure what the concentration present in the wastewater really is, but our best guess is 5 ug/L." 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 either assuming the concentration is zero, or the MDL itself. It is also accepted by the EPA and DEP as a standard practice that can be applied to any series of tests.

This technique is utilized in this report. For all metals, cyanide, petroleum hydrocarbons, etc., half the MDL was assumed for all non-detects (i.e. values below MDL). For the 608, 624, and 625 analyses, 1/2 the MDL, which is the same as 1/10 the QL, was assumed for all non-detects (i.e. values below QL).

In Appendix J, Table J-1 is a list of the parameters regularly tested for in the MWRA 's effluent. The required EPA method is referenced by its number and the recommended EPA detection limit is given. The CRQL is also provided when applicable. These limits are then compared to the detection levels normally attained by the contract laboratory analyzing MWRA effluent.

Appendix L Priority Pollutants List and Other Parameters

Table L.1 List of Parameters Tested

Table L.2 EPA List of 126 Priority Pollutants

Table L.3 NPDES Permit Testing Requirements, 40 CFR 122, Appendix D, Tables I and II

Table L-1 List of Parameters Tested

'(Influent and Effluent)*

	EPA Method Number	EPA MDL	CRQL	Contract Lab MDL	Contract Lab QL
METALS					
Antimony	204.2	3.0	NA	5.0	NA
Arsenic	206.2	1.0	NA	2.0	NA
Beryllium	200.7	0.3	NA	1.0	NA
Cadmium	213.2	0.1	NA	1.0	NA
Chromium	218.2	1.0	NA	5.0	NA
Copper	200.7	6.0	NA	4.0	NA
Lead	239.2	1.0	NA	1.5	NA
Mercury	245.1	0.2	NA	0.2	NA
Nickel	200.7	15.0	NA	12.0	NA
Selenium	270.2	2.0	NA	2.0	NA
Thallium	279.2	1.0	NA	2.0	NA
Zinc	200.7	2.0	NA	10.0	NA
Boron	200.7	5.0	NA	30.0	NA
Molybdenum	246.2	1.0	NA	8.0	NA
Silver	272.2	0.2	NA	3.0	NA
OTHER INORGANIC CHEMICALS					
Cyanide	335.2	20.0	NA	10.0	NA
Hexavalent Chromium	307 B	10.0	NA	5.0	NA
Oil & Grease (mg/L)	413.1	5.0	NA	5.0	NA
Petroleum Hydrocarbons (mg/L)		1.0	NA	1.0	NA
Surfactants (mg/L)		25.0	NA	25.0	NA
PESTICIDES	608			NA	
alpha-BHC		0.003	0.05		0.05
beta-BHC		0.006	0.05		0.05
delta-BHC		0.009	0.05		0.05
gamma-BHC (Lindane)		0.004	0.05		0.05
Heptachlor		0.003	0.05		0.05
Aldrin		0.004	0.05		0.05
Heptachlor epoxide		0.083	0.05		0.05
Endosulfan I		0.014	0.05		0.05
Endrin aldehyde		0.023	0.10		0.10
Dieldrin		0.002	0.10		0.10
4,4'-DDE		0.004	0.10		0.10
Endrin		0.006	0.10		0.10
Endosulfan II		0.004	0.10		0.10
4,4'-DDD		0.011	0.10		0.10
Endosulfan sulfate		0.066	0.10		0.10
4,4'-DDT		0.012	0.10		0.10
Methoxychlor			0.50		0.50
Toxaphene		0.240	0.50		5.00

Table L-1 List of Parameters Tested, cont.

'(Influent and Effluent)*

	EPA Method Number	EPA MDL	CRQL	Contract Lab MDL	Contract Lab QL
Chlordane		0.014	1.00		1.00
PCBs					
Aroclor-1016		ND	2.00		2.00
Aroclor-1221		ND	1.00		1.00
Aroclor-1232		ND	1.00		1.00
Aroclor-1242		0.065	1.00		1.00
Aroclor-1248		ND	1.00		1.00
Aroclor-1254		ND	1.00		1.00
Aroclor-1260		ND	0.05		0.20
VOLATILE ORGANICS	624				
Chloromethane		ND	10		10
Bromomethane		ND	10		10
Vinyl chloride		ND	10		10
Chloroethane		ND	10		10
Methylene chloride		2.8	10		10
Acetone			10		10
Carbon disulfide			10		10
1,1-dichloroethylene		2.8	10		10
1,1-dichloroethane		4.7	10		10
1,2-dichloroethylene		1.6	10		10
Chloroform		1.6	10		10
Methylethyl ketone (2-butanone)			10		10
1,2-dichloroethane		2.8	10		10
1,1,1-trichloroethane		3.8	10		10
Carbon tetrachloride		2.8	10		10
Vinyl acetate			10		10
Bromodichloromethane		2.2	10		10
1,2-dichloropropane		6.0			
Cis 1,3 dichloropropene		5.0	10		10
Trichloroethylene		1.9	10		10
Chlorodibromomethane		3.1	10		10
1,1,2-trichloroethane		5.0	10		10
Benzene		4.4	10		10
Trans-1,3-dichloropropene		ND	10		10
Bromoform		4.7	10		10
4-methyl-2-pentanone			10		10
2-hexanone			10		10
Tetrachloroethylene		4.1	10		10
1,1,2,2-tetrachloroethane		6.9	10		10
Toluene		6.0	10		10
Chlorobenzene		6.0	10		10
Ethlybenzene		7.2	10		10

Table L-1 List of Parameters Tested, cont.

'(Influent and Effluent)*

	EPA Method Number	EPA MDL	CRQL	Contract Lab MDL	Contract Lab QL
Styrene			10		10
Xylene (Total)			10		10
2-chloroethylvinylether			10		10
Volatile Organics (cont)					
Trichlorofluoromethane			10		10
Acrolein			10		10
Acrylontrile			10		10
SEMI-VOLATILES	625				
Phenol		1.5	10		10
Bis (2-chloroethyl) ether		5.7	10		10
2-chlorophenol		3.3	10		10
m-dichlorobenzene		1.9	10		10
p-dichlorobenzene		1.9	10		10
o-dichlorobenzene		1.9	10		10
o-cresol			10		10
2,2'oxybis (1-chloropropane)		5.7	10		10
p-cresol			10		10
N-nitroso-di-n-propylamine		ND	10		10
Hexachloroethane		1.6	10		10
Nitrobenzene		1.9	10		10
Isophrone		2.2	10		10
o-nitrophenol		3.6	10		10
2,4-dimethylphenol		2.7	10		10
Bis (2-chloroethoxy)methane		5.3	10		10
2,4-dichlorophenol		2.7	10		25
1,2,4-trichlorobenzene		1.9	10		10
Naphthalene		1.6	10		10
p-chloroaniline			10		10
Hexachlorobutadiene			10		10
p-chloro-m-cresol			10		10
2-methylnaphthalene			10		10
Hexachlorocyclopentadiene		ND	10		10
2,4,6-trichlorophenol		2.7	10		10
2,4,5-trichlorophenol			25		25
2-chloronaphthalene		1.9	10		10
o-nitroaniline			25		25
Dimethyl phthalate		1.6	10		10
Acenaphthylene		3.5	10		10
2,6-dinitrotoluene		1.9	10		10
m-nitroaniline			25		25
Acenaphthene		1.9	10		10

Table L-1 List of Parameters Tested, cont.

(Influent and Effluent)*

	EPA Method Number	EPA MDL	CRQL	Contract Lab MDL	Contract Lab QL
2,4-dinitrophenol		42.0	25		25
p-nitrophenol		3.6	25		25
Dibenzofuran			10		10
2,4-dinitrotoluene		5.7	10		10
Diethyl phthalate		1.9	10		10
4-chlorophenyl phenyl ether		4.2	10		10
Fluorene		1.9	10		10
Semivolatiles (Cont)					
p-nitroaniline			25		25
4,6-dinitro-o-cresol			10		10
N-nitrosodiphenylamine		1.9	10		10
4-bromopheyl phenyl ether		1.9	10		10
Hexacholobenzene		1.9	10		10
Pentachlorophenol		3.6	25		10
Phenanthrene		5.4	10		10
Anthracene		1.9	10		10
Di-n-butyl phthalate		2.5	10		10
Fluoranthene		2.2	10		10
Pyrene		1.9	10		10
Butyl benzyl phthalate		2.5	10		10
3,3'dichlorobenzidiene		16.5	10		10
Benzo(a)anthracene		7.8	10		10
Chrysene		2.5	10		10
Bis (2-ethylhexyl) phthalate		2.5	10		10
Di-n-octyl phthalate		2.5	10		10
Benzo(b)fluoranthene		4.8	10		10
Benzo(k)fluoranthene		2.5	10		10
Benzo(a)pyrene		2.5	10		10
Indeno(1,2,3-cd)pyrene		3.7	10		10
Dibenz(a,h)anthracene		2.5	10		10
Benzo(ghi)perylene		4.1	10		10
Benzoic acid			10		10
Benzyl alcohol		ND	10		10
Benzidene		44	10		10
1,2-diphenylhydrazine			10		10
N-nitrosodimethylamine		ND	10		10

* Pollutants analyzed in addition to influent and effluent analyses of conventional pollutants listed in Appen
All units expressed in ug/L unless otherwise noted.

$ Units expressed in mg/L

ND Not determined by EPA

NA Not Applicable

Table L-2 EPA List of 126 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)

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)

Haloethers
- 4-chlorophenyl phenyl ether
- 2-bromophenyl phenyl ether
- Bis(2-chloroisopropyl) ether

Halomethanes
- Mehthylene chloride (dichloromethane)
- Methyl chloride (chloromethane)
- Methyl bromide (bromomethane)
- Bromoform (tribromomethane)
- Dichlorobromomethane
- Chlorodibromomethane

Nitroamines
- N-nitrosodimethylamine
- N-nitrosodiphenylamine
- N-nitrosodi-n-propylamine

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

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
Acenphthalene
Anthracene
1,12-benzoperylene (bonze(ghi) perylene)
Fluorene
Fluoranthene
Phenanthrene

PAHs cont.

1,2,5,6-dibenzanthracene (dibenzo(a,h)anthracene)
Indeno (1,2,3-cd) pyrene (2,3-o-phenylene pyrene)
Pyrene

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

DDT and Metabolites

4,4-DDT
4,4-DDE (p,p-DDX)

Appendix M: Glossary, Abbreviations/Acronyms, and Units

GLOSSARY

ABNs- See Acid Base Neutrals
Acid Base Neutrals (ABNs)- Also called semivolatile organics. A category of organic chemical pollutants. See Appendix J, Table J.3.
Acute- A stimulus severe enough to rapidly induce an effect; in aquatic toxicity tests, an effect observed in 96 hours or less typically is 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 one hour 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 exceeds 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.
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 Quantification Limit. For a further explanation see Appendix I.
Bioaccumulation- The process by which a compound is taken up by an aquatic organism, both from water and through food.
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- The amount certain water bodies are able to resist changes in pH from addition of an acidic or caustic substances.
CFR- See Code of Federal Regulations
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 lists the Permit Application Requirements.
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 can not 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 four days over three years without showing long term, short of mortality, harmful effects. Chronic criteria involve the growth, reproductivity, fertility, and sublethal effects on 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 organism has 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.§1251 et 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 storm water 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 coliforms, 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 does 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 either with oxygen (aerobically) or without oxygen (anaerobically).
Disinfection- The destruction of pathogens (e.g. fecal 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. Effluent high in nutrient loadings 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 no pumping is required.
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.
Headwork- 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).
Hypoxia- The state of very low oxygen concentration.
IDL- See Instrument Detection Limit.
I/I- Infiltration and Inflow.
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 I for a further explanation.
Interceptor- A large sewerage line collecting water from smaller sewerage pipes.
J values- Values between the Method Detection Limit and the Quantification (or Reporting) Limit. See Appendix I for further explanation.
LC50- See Lethal Concentration 50%
Lethal Concentration 50% (LC50)- The concentration of effluent in a sample that causes mortality to 50% of the test population at a specific tim 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 acceleration eutrophication of fresh water bodies caused by phosphorus in wastewater effluent).
Local Limits- The development of specific limits as part of the 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."
LOEC- See Lowest Observed Effect Concentration
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).
MATC- See Maximum Acceptable Toxicant Concentration
Maximum Acceptable Toxicant Concentration (MATC)- The effluent concentration that may be present in a receiving water 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 J, Table J.2 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 I for a further explanation.
Methylene Blue Anion 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 and "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, and
9) Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.
Nitrification- The conversion of ammonia and nitrite to nitrate.
NOAL- See No Observed Acute Level
NOEC- See No Observed Effect Concentration
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 of 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 of CWA Section 307(a). See Appendix I, Table J.3 for a complete list.
Ortho-Phosphorus- 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 J, Table J.2 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 spoil, 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 semivolatile organic. Also know as polycyclic aromatic hydrocarbon.

POTW- See Publicly Owned Treatment Works
Preaeration- The process by which air is added to primary influent to help in the removal of gases, addition of oxygen, flotation of grease, 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 J, Table J.2 for a the complete list.
Priority Pollutant Scan- A series of chemical analyses to identify the presence of priority pollutants.
Publicly Owned Treatment Works (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 "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.
Quantification Limit- See Reporting Limit.
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 Quantification Limit. See Appendix I for a 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 a 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 J, Table J.3 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.
SOPs- See System Optimization Plans or Standard Operating Procedures
Stratification- The separation of water into layers characterized by thermal differences.
Standard Operating Procedures- 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 Plans (SOPs)- Hydraulic improvements that, in conjunction with ongoing programs of municipal sewerage agencies, might promote a balanced hydraulic system, including 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.
Thickeners- 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

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Thickeners- 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. A component of Total Coliform is Fecal Coliform.
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 CWA Section 307(a) "priority pollutants" 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 either wind, and/or density and/or temperature differences.
VOA- See Volatile Organic Acid. Same as Volatile Organic Compound (VOC).
VOC- See Volatile Organic Compound
Volatile Organic Compound (VOC)- Same as Volatile Organic Acid (VOA).
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.
WET- See Whole-Effluent Toxicity
Whole-Effluent Toxicity (WET)- The total toxic effect of effluent, not chemical specific but rather the cumulative effect - whether it be synergic or antagonsitic, of the chemicals found in the effluent.

ABBREVIATIONS, ACRONYMS, AND UNITS

Abbreviations, Acronyms

ABNs- Acids Bases Neutrals
BDL- Below Detection Limit
BOD- Biochemical Oxygen Demand
BWSC- Boston Water and Sewer Commission
CFR- Code of Federal Regulations
CSO- Combined Sewer Overflow
CWA- Clean Water Act
DEP- Department of Environmental Protection
DI- Deer Island
ENQUAD- Environmental Quality Department
EPA- 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
NI- Nut Island
NOAL- No Observed Acute Level
NOEC- No Obeserved Effect Concentration
NPDES- National Pollutant Discharge Elimination System
PAH- Polycyclic (or Polynuclear) Aromatic Hydrocarbon
PCB- Polychlorinated Biphenyl
PHC- Petroleum Hydrocarbon
POTW- Publicly Owned Treatment Works
SD- Standard Deviation
SOP- Standard Operating Procedure or System Optimization Plan (CSO)
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

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
ug/L- micrograms per liter