K. Water Quality Supporting Documentation

This appendix provides detailed information in support of Chapter 9, *Water Quality*:

K.1 Stormwater Outfall Reporting

Table K-1 Logan Airport National Pollutant Discharge Elimination System (NPDES) Permit (No. MA0000787) Stormwater Outfall Monitoring Requirements (2007)

Monitoring Event	North Outfall 001		West Outfall 002		Maverick Outfall 003	
	Field Measurement	Laboratory Analysis	Field Measurement	Laboratory Analysis	Field Measurement	Laboratory Analysis
Monthly Dry Weather	Not Required	Oil and Grease TSS[1] Benzene Surfactant Fecal Coliform *Enterococcus*	Not Required	Oil and Grease TSS[1] Benzene Surfactant Fecal Coliform *Enterococcus*	Not Required	Oil and Grease TSS[1] Benzene Surfactant Fecal Coliform *Enterococcus*
Monthly Wet Weather	pH Flow Rate[6]	Oil and Grease TSS[1] Benzene[2] Surfactant Fecal Coliform *Enterococcus*	pH Flow Rate[6]	Oil and Grease TSS[1] Benzene[2] Surfactant Fecal Coliform *Enterococcus*	pH Flow Rate[6]	Oil and Grease TSS[1] Benzene[2] Surfactant Fecal Coliform *Enterococcus*
Quarterly Wet Weather	pH Flow Rate[6]	PAHs[3]: - Benzo(a)anthracene - Benzo(a)pyrene - Benzo(b)fluoranthene - Benzo(k)fluoranthene - Chrysene -Dibenzo(a,h)anthracene - Indeno(1,2,3-cd)pyrene - Naphthalene	pH Flow Rate[6]	PAHs[3]: - Benzo(a)anthracene - Benzo(a)pyrene - Benzo(b)fluoranthene - Benzo(k)fluoranthene - Chrysene -Dibenzo(a,h)anthracene - Indeno(1,2,3-cd)pyrene - Naphthalene	pH Flow Rate[6]	PAHs[3]: - Benzo(a)anthracene - Benzo(a)pyrene - Benzo(b)fluoranthene - Benzo(k)fluoranthene - Chrysene -Dibenzo(a,h)anthracene - Indeno(1,2,3-cd)pyrene - Naphthalene
Deicing Episode (2/Deicing Season)	Not Required	Ethylene Glycol Propylene Glycol BOD5[4] COD[5] Total Ammonia Nitrogen Nonylphenol Tolyltriazole	Not Required	Ethylene Glycol Propylene Glycol BOD5[4] COD[5] Total Ammonia Nitrogen Nonylphenol Tolyltriazole	Not Required	Not Required
Whole Effluent Toxicity (1st and 3rd Year Deicing Season)	Not Required	Menidia beryllina Arbacia punctulata	Not Required	Menidia beryllina Arbacia punctulata	Not Required	Not Required

Table K-1 Logan Airport National Pollutant Discharge Elimination System (NPDES) Permit (No. MA0000787) Stormwater Outfall Monitoring Requirements (2007)

Monitoring Event	North Outfall 001		West Outfall 002		Maverick Outfall 003	
	Field Measurement	Laboratory Analysis	Field Measurement	Laboratory Analysis	Field Measurement	Laboratory Analysis
Treatment System Sampling (Internal Outfalls)[7]	pH Quantity, Gallons	Oil and Grease TSS[1] Benzene[2]	Not Required	Not Required	Not Required	Not Required
Monthly Dry Weather	Not Required	Not Required	Not Required	Oil and Grease TSS[1] Benzene Surfactant Fecal Coliform *Enterococcus*	Not Required	Not Required
Monthly Wet Weather	Not Required	Not Required	pH Flow Rate	Oil and Grease TSS[1] Benzene[2] Surfactant Fecal Coliform *Enterococcus*	Not Required	Not Required
Quarterly Wet Weather	pH Flow Rate[6]	Oil and Grease TSS[1] Benzene[2]	pH Flow Rate[6]	PAHs[3]: - Benzo(a)anthracene - Benzo(a)pyrene - Benzo(b)fluoranthene - Benzo(k)fluoranthene - Chrysene -Dibenzo(a,h)anthracene - Indeno(1,2,3-cd)pyrene - Naphthalene	pH	Oil and Grease TSS[1] Benzene[2]
Deicing Episode (2/Deicing Season)	Not Required	Not Required	Not Required	Ethylene Glycol Propylene Glycol BOD5[4] COD[5] Total Ammonia Nitrogen Nonylphenol Tolytriazole	Not Required	Ethylene Glycol Propylene Glycol BOD5[4] COD[5] Total Ammonia Nitrogen Nonylphenol Tolytriazole
Whole Effluent Toxicity (1st and 3rd Year Deicing Season)	Not Required	Not Required	Not Required	Menidia beryllina Arbacia punctulata	Not Required	Not Required

Table K-1 Logan Airport National Pollutant Discharge Elimination System (NPDES) Permit (No. MA0000787) Stormwater Outfall Monitoring Requirements (2007)

Monitoring Event	North Outfall 001		West Outfall 002		Maverick Outfall 003	
	Field Measurement	Laboratory Analysis	Field Measurement	Laboratory Analysis	Field Measurement	Laboratory Analysis
Treatment System Sampling (Internal Outfalls)[7]	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required

Source: Massport

Notes: Requirements are from NPDES Permit MA0000787, issued July 31, 2007.

1 TSS - Total Suspended Solids

2 Benzene must be collected with HDPE bailer.

3 PAH - Polycyclic Aromatic Hydrocarbons

4 BOD - Biological Oxygen Demand

5 COD - Chemical Oxygen Demand

6 Flow Rate will be estimated based on measured precipitation and the hydraulic model developed for the Logan Airport drainage system.

7 Outfalls 001D and 001E samples collected by Swissport.

Table K-2 Fire Training Facility NPDES Permit (No. MA0032751) Stormwater Outfall Monitoring Requirements (2014)

Monitoring Event	Outfall Serial Number 001	
	Field Measurement	Laboratory Analysis
Each Discharge Event[1]	Flow Rate[2] pH	TSS[3] Oil and Grease[4] Total BTEX[5] - Toluene - Benzene - Ethylbenzene - Xylene PAHs[5,6]
Whole Effluent Toxicity (once per permit terms during discharge event)	Not Required	Acute Toxicity[7]

Source: Massport

Notes: Requirements are from NPDES Permit MA0032751, issued August 15, 2014.

All samples, except for wet testing, shall be collected after treatment and prior to discharge from above ground holding tank.

1 Flows from more than one training session may be held in treatment train for several weeks. Treatment and subsequent discharge through Outfall 001 is usually triggered by tank levels. Sampling will be conducted during each discharge event with the sampling point after the GAC unit and prior to discharge from the above ground holding tank. Each sample shall be a composite of three equally weighted (same volume) grab samples taken at the bottom, middle, and top of the above ground tank.

2 Total flow volume shall be reported monthly in gallons and the maximum flow rate in gallons per minute shall be reported for each month.

3 TSS - Total Suspended Solids

4 Oil and grease is measured using EPA Method 1664.

5 BTEX and PAH compounds shall be analyzed using EPA approved methods. Testing method used and method detection level for each parameter will be included in each DMR submittal.

6 PAH - Polycyclic Aromatic Hydrocarbons

7 The permittee shall conduct one acute toxicity test per year. The test results shall be submitted by the last day of the full month following completion of the test in accordance with protocols defined in the permit.

Table K-3 Fire Training Facility NPDES Permit (No. MA0032751) Stormwater Outfall Monitoring Requirements (2021)

Monitoring Event	Outfall Serial Number 001		
	Field Measurement	Laboratory Analysis	
Each Discharge Event[1]	Flow Rate[2] pH	TSS[3] Fecal Coliform Bacteria *Enterococcus Bacteria* Oil and Grease[4] Total BTEX[5] - Toluene - Benzene - Ethylbenzene - Xylene PAHs,Total,Group I[5,6] - Benzo(a)anthracene - Benzo(a)pyrene - Benzo(b)fluoranthene - Benzo(k)fluoranthene - Chrysene - Dibenzo(a,h)anthracene - Indeno(1,2,3-cd)pyrene	PAHs, Total, Group II[5,6] - Acenaphthylene - Anthracene - Benzo(g,h,i)perylene - Fluoranthene - Fluorene - Naphthalene - Phenanthrene - Pyrene Perfluorohexanesulfonic acid (PFHxS)[7] Perfluoroheptanoic acid (PFHpA) Perfluoranonanoic acid (PFNA) Perfluorooctanesulfonic acid (PFOS) Perfluorooctanoic acid (PFOA) Perfluorodecanoic acid (PFDA)
Whole Effluent Toxicity (once per permit terms during discharge event)	Not Required	Acute Toxicity[8]	

Source: Massport

Notes: Requirements are from NPDES Permit MA0032751, issued January 27, 2021.

All samples, except for wet testing, shall be collected after treatment and prior to discharge from above ground holding tank.

1 Flows from more than one training session may be held in treatment train for several weeks. Treatment and subsequent discharge through Outfall 001 is usually triggered by tank levels. Except for WET samples, sampling will be conducted during each discharge event with the sampling point after the GAC unit and prior to discharge from the above ground holding tank. Each sample shall be a grab sample collected from the above ground tank. WET sampling shall occur from the outfall discharge.

2 Total flow volume shall be reported monthly in average gallons per day and the maximum flow rate in gallons per day shall be reported for each month.

3 TSS - Total Suspended Solids

4 Oil and grease is measured using EPA Method 1664.

5 BTEX and PAH compounds shall be analyzed using EPA approved methods. Testing method used and method detection level for each parameter will be included in each DMR submittal.

6 PAH - Polycyclic Aromatic Hydrocarbons

7 The reporting requirements for the listed PAH parameters takes effect six months after EPA's multi-lab validated method for wastewater is made available to the public on EPA's CWA methods program website.

8 The permittee shall conduct one acute toxicity test per year. The test results shall be submitted by the last day of the full month following completion of the test in accordance with protocols defined in the permit.

Table K-4 Logan Airport 2022 Monthly Monitoring Results for First Quarter — North, West, and Maverick Street Stormwater Outfalls

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (ug/L)	Surfactant (mg/L)	Fecal Coliform (cfu/100mL)	Enterococcus (cfu/100mL)	Klebsiella (cfu/100mL)
001A - North Outfall	1/7/2022	Wet Weather	2.461	0.366	6.34	<4.0	15	<1.0	0.110	130	10	NA
002A - West Outfall	1/7/2022	Wet Weather	8.551	0.804	7.16	<4.0	15	<1.0	0.050	180	50	NA
004A - Maverick Street Outfall	1/7/2022	Wet Weather	0.518	0.014	7.03	<4.0	20	<1.0	0.050	400	110	NA
001C- North Outfall	1/13/2022	Dry Weather	--	--	--	<4.0	<5.0	<1.0	0.060	<10	<10	NA
002C - West Outfall	1/13/2022	Dry Weather	--	--	--	<4.0	12	<1.0	0.080	<10	<10	NA
004C - Maverick Street Outfall	1/13/2022	Dry Weather	--	--	--	<4.0	24	<1.0	0.070	810	340	NA
001C- North Outfall	2/11/2022	Dry Weather	--	--	--	<4.0	9.1	<1.0	0.080	<10	150	NA
002C - West Outfall	2/11/2022	Dry Weather	--	--	--	<3.6	9.0	<1.0	0.090	130	160	NA
004C - Maverick Street Outfall	2/11/2022	Dry Weather	--	--	--	<4.0	15	<1.0	0.060	160	100	NA
001A - North Outfall	2/18/2022	Wet Weather	3.960	1.259	7.57	<4.0	9.8	<1.0	0.160	180	60	NA
002A - West Outfall	2/18/2022	Wet Weather	15.765	1.947	7.38	<4.0	43	<1.0	0.200	150	260	NA
004A - Maverick Street Outfall	2/18/2022	Wet Weather	0.798	0.083	6.94	<4.0	56	<1.0	0.110	180	460	NA
001C- North Outfall	3/7/2022	Dry Weather	--	--	--	<4.0	17.0	<1.0	0.060	30	20	NA
002C - West Outfall	3/7/2022	Dry Weather	--	--	--	<4.0	16.0	<1.0	0.070	4,400	1,800	NA
004C - Maverick Street Outfall	3/7/2022	Dry Weather	--	--	--	<4.0	13	<1.0	0.060	<10	80	NA

Table K-4 Logan Airport 2022 Monthly Monitoring Results for First Quarter — North, West, and Maverick Street Stormwater Outfalls

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (ug/L)	Surfactant (mg/L)	Fecal Coliform (cfu/100mL)	Enterococcus (cfu/100mL)	Klebsiella (cfu/100mL)
001A - North Outfall	3/24/2022	Wet Weather	1.990	0.532	7.14	<4.0	11.0	<1.0	0.110	330	90	NA
002A - West Outfall	3/24/2022	Wet Weather	5.852	0.990	7.45	<4.0	120	<1.0	0.150	1,900	3,400	NA
004A - Maverick Street Outfall	3/24/2022	Wet Weather	0.471	0.039	7.05	<3.6	16	<1.0	0.150	470	200	NA
Discharge Limitations*	Maximum Daily		Report	Report	6.0 to 8.5	15 mg/L	100 mg/L	Report	Report	Report	Report	---
	Average Monthly		Report	Report	6.0 to 8.5	----	Report	Report	Report	Report	Report	---

Notes:

*Discharge limitations for Porter Street Outfall are Report only.

Flow rates were estimated for outfalls 001, 002, and 004 by using the SWMM model developed for Logan Airport.

For averaging calculations, the reporting limit was employed for those results measured below the laboratory detection limit.

For geometric mean calculations (fecal coliform and enterococcus), the reporting limit was employed for those results measured below the laboratory detection limit.

The North Outfall, West Outfall, and Maverick Street Outfall samples were analyzed for klebsiella on a case-by-case basis if high fecal coliform concentrations were observed.

Refer to respective monthly DMR for specifics on those events.

Bold values exceed maximum daily discharge limitation.

Dry: Sampling location dry. No sample collected.

NA: Not Analyzed

NM Not Measured

G: Equipment failure

NS: Not Sampled.

TSS: Total Suspended Solids

Table K-5 Logan Airport 2022 Monthly Monitoring Results for First Quarter — Porter Street Stormwater Outfall

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)	Surfactants (mg/L)	Fecal Coliform (cfu/100mL)	*Enterococcus* (cfu/100mL)
003- Porter Street Outfall 1	1/7/2022	Wet Weather	---	---	6.77	<4.0	72	<1.0	0.220	260	230
003- Porter Street Outfall 2	1/7/2022	Wet Weather	---	---	5.88	<4.0	5.6	<1.0	0.140	10	10
003- Porter Street Outfall 3	1/7/2022	Wet Weather	---	---	7.36	<4.0	5	<1.0	0.060	10	<10
003- Porter Street Outfall Average		Wet Weather	1.715	0.148	6.67	4.0	28	1.0	0.140	30	28
003- Porter Street Outfall 1	1/13/2022	Dry Weather	---	---	---	<4.0	24	<1.0	0.110	50	10
003- Porter Street Outfall 2	1/13/2022	Dry Weather	---	---	---	<4.0	22	<1.0	0.080	<10	<10
003- Porter Street Outfall 3	1/13/2022	Dry Weather	---	---	---	<3.6	17	<1.0	0.080	<10	<10
003- Porter Street Outfall Average		Dry Weather	---	---	---	3.9	15.5	1.0	0.090	17	10
003- Porter Street Outfall 1	2/18/2022	Wet Weather	---	---	7.29	<4.0	110	<1.0	0.280	600	1,600
003- Porter Street Outfall 2	2/18/2022	Wet Weather	---	---	7.63	23	10	<2.0	0.090	<10	20
003- Porter Street Outfall 3	2/18/2022	Wet Weather	---	---	8.08	<4.0	6	<1.0	0.110	10	45
003- Porter Street Outfall Average		Wet Weather	1.851	0.283	7.67	10.3	42	1.3	0.160	39	113
003- Porter Street Outfall 1	2/11/2022	Dry Weather	---	---	---	<3.6	16	<1.0	0.090	<10	110
003- Porter Street Outfall 2	2/11/2022	Dry Weather	---	---	---	<4.0	13	<1.0	0.240	<10	<10
003- Porter Street Outfall 3	2/11/2022	Dry Weather	---	---	---	<4.0	5.2	<1.0	0.060	40	10
003- Porter Street Outfall Average		Dry Weather	---	---	---	3.9	11.4	1.0	0.130	16	22

Table K-5 Logan Airport 2022 Monthly Monitoring Results for First Quarter — Porter Street Stormwater Outfall

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)	Surfactants (mg/L)	Fecal Coliform (cfu/100mL)	*Enterococcus* (cfu/100mL)
003- Porter Street Outfall 1	3/24/2022	Wet Weather	---	---	7.15	<4.0	40	<1.0	0.160	3,600	2,100
003- Porter Street Outfall 2	3/24/2022	Wet Weather	---	---	7.07	<4.0	<5.0	<1.0	0.100	10	30
003- Porter Street Outfall 3	3/24/2022	Wet Weather	---	---	7.22	<3.6	26	<1.0	<0.050	20	170
003- Porter Street Outfall Average		Wet Weather	1.425	0.191	7.15	3.9	24	1.0	0.103	90	220
003- Porter Street Outfall 1	3/7/2022	Dry Weather	---	---	---	<3.6	18	<1.0	0.080	200	430
003- Porter Street Outfall 2	3/7/2022	Dry Weather	---	---	---	4.3	7.4	<1.0	0.190	10	150
003- Porter Street Outfall 3	3/7/2022	Dry Weather	---	---	---	<3.6	5	<1.0	0.100	<10	<10
003- Porter Street Outfall Average		Dry Weather	---	---	---	3.8	10.1	1.0	0.123	27	86
Requirements are from NPDES Permit MA0000787, issued July 31, 2007.											
Discharge Limitations	Maximum Daily		Report	Report	6.0 to 8.5	Report	Report	Report	Report	Report	Report
	Average Monthly		Report	Report	6.0 to 8.5	—	Report	Report	Report	Report	Report

Source: Massport.

Notes:

Flow rates were estimated for outfalls 001, 002, 003 and 004 by using the SWMM model developed for Logan Airport.

For averaging calculations, a value of zero was employed for those results measured below the laboratory detection limit. For geometric mean calculations (fecal coliform and Enterococcus) a value of 1 was employed for those results measured below the laboratory detection limit.

1 January 2020 wet weather bacteria samples were collected on 1/25/2020.

TSS Total Suspended Solids

NA Not Analyzed

NS Not Sampled

Table K-6 Logan Airport 2022 Monthly Monitoring Results for Second Quarter — North, West, and Maverick Street Stormwater Outfalls

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)	Surfactants (mg/L)	Fecal Coliform (cfu/100mL)	Enterococcus (cfu/100mL)	Klebsiella1 (cfu/100mL)
001A - North Outfall	4/1/2022	Wet Weather	1.813	0.272	7.23	<4.0	16	< 1.0	0.140	250	230	NA
002A - West Outfall	4/1/2022	Wet Weather	6.016	0.846	6.31	6.6	100	< 1.0	0.170	450	1300	NA
004A - Maverick Street Outfall	4/1/2022	Wet Weather	0.450	0.042	6.48	<4.0	22	< 1.0	0.170	600	1700	NA
001C- North Outfall	4/22/2022	Dry Weather	--	--	--	<4.0	8.9	< 1.0	0.080	20	30	NA
002C - West Outfall	4/22/2022	Dry Weather	--	--	--	<4.0	23	< 1.0	0.080	20	10	NA
004C - Maverick Street Outfall	4/22/2022	Dry Weather	--	--	--	<4.0	37	< 1.0	0.050	56,000	1,500	NA
001A - North Outfall	5/2022	Wet Weather	2.019	0.128	NS	NS	NS	NS	NS	NS	NS	NS
002A - West Outfall	5/2022	Wet Weather	5.552	0.406	NS	NS	NS	NS	NS	NS	NS	NS
004A - Maverick Street Outfall	5/2022	Wet Weather	0.417	0.014	NS	NS	NS	NS	NS	NS	NS	NS
001C- North Outfall	5/20/2022	Dry Weather	--	--	--	< 4.0	< 5.0	< 1.0	0.190	2,400	20	NA
002C - West Outfall	5/20/2022	Dry Weather	--	--	--	< 4.0	24	< 1.0	0.130	16,000	1,300	NA
004C - Maverick Street Outfall	5/20/2022	Dry Weather	--	--	--	<4.0	7.3	<1.0	0.070	430	170	NA
001A - North Outfall	6/8/2022	Wet Weather	2.838	0.230	6.82	<4.0	8.0	<1.0	0.220	890	700	NA
002A - West Outfall	6/8/2022	Wet Weather	9.845	0.779	7.31	<3.6	8.2	<1.0	0.230	2,700	3,200	NA
004A - Maverick Street Outfall	6/8/2022	Wet Weather	0.692	0.038	6.95	<4.0	15	<1.0	0.160	430	560	NA

Table K-6 Logan Airport 2022 Monthly Monitoring Results for Second Quarter — North, West, and Maverick Street Stormwater Outfalls

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)	Surfactants (mg/L)	Fecal Coliform (cfu/100mL)	Enterococcus (cfu/100mL)	Klebsiella1 (cfu/100mL)
001C- North Outfall	6/7/2022	Dry Weather	--	--	--	<4.0	10	<1.0	0.100	80	10	NA
002C - West Outfall	6/7/2022	Dry Weather	--	--	--	<4.0	15	<1.0	0.120	150	110	NA
004C - Maverick Street Outfall	6/7/2022	Dry Weather	--	--	--	<4.0	8.9	<1.0	0.050	560	340	NA
Requirements are from NPDES Permit MA0000787, issued July 31, 2007.												
Discharge Limitations	Maximum Daily		Report	Report	6.0 to 8.5	15 mg/L	100 mg/L	Report	Report	Report	Report	
	Average Monthly		Report	Report	6.0 to 8.5	—	Report	Report	Report	Report	Report	

Source: Massport.

Notes: Flow rates were estimated for outfalls 001, 002, 003 and 004 by using the SWMM model developed for Logan Airport.

1 Klebsiella is an indication of non-fecal coliform bacteria and is tested for at the North Outfall when fecal coliform concentration exceeds 5,000 cfu/100ml.

TSS Total Suspended Solids

NA Not Analyzed

NS Not Sampled

Table K-7 Logan Airport 2022 Monthly Monitoring Results for Second Quarter — Porter Street Stormwater Outfall

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)	Surfactants (mg/L)	Fecal Coliform (cfu/100mL)	*Enterococcus* (cfu/100mL)
003- Porter Street Outfall 1	4/1/2022	Wet Weather			6.96	< 4.0	29	< 1.0	0.080	1,100	1,500
003- Porter Street Outfall 2	4/1/2022	Wet Weather			7.02	5.7	22	< 1.0	0.170	20	160
003- Porter Street Outfall 3	4/1/2022	Wet Weather			6.98	< 4.0	< 5.0	< 1.0	0.070	50	60
003- Porter Street Outfall Average		Wet Weather	1.086	0.168	6.99	4.7	19	1.0	0.100	103	243
003- Porter Street Outfall 1	5/2022	Wet Weather	---	---	NS	NS	NS	NS	NS	NS	NS
003- Porter Street Outfall 2	5/2022	Wet Weather	---	---	NS	NS	NS	NS	NS	NS	NS
003- Porter Street Outfall 3	5/2022	Wet Weather	---	---	NS	NS	NS	NS	NS	NS	NS
003- Porter Street Outfall Average		Wet Weather	0.895	0.087	NS	NS	NS	NS	NS	NS	NS
003- Porter Street Outfall 1	6/8/2022	Wet Weather			6.80	<4.0	8.0	<1.0	0.150	3,200	4,300
003- Porter Street Outfall 2	6/8/2022	Wet Weather			7.27	<4.0	<5.0	<1.0	0.130	4,000	2,200
003- Porter Street Outfall 3	6/8/2022	Wet Weather			6.16	<4.0	<5.0	<1.0	0.090	170	490
003- Porter Street Outfall Average		Wet Weather	2.120	0.166	6.74	4.0	6.0	1.0	0.120	1,296	1,667
003- Porter Street Outfall 1	04/22/2022	Dry Weather	---	---	---	< 4.0	13	< 1.0	0.100	< 10	< 10
003- Porter Street Outfall 2	04/22/2022	Dry Weather	---	---	---	< 4.0	7.3	< 1.0	0.100	< 10	170
003- Porter Street Outfall 3	04/22/2022	Dry Weather	---	---	---	< 3.6	< 5.5	< 1.0	0.140	< 10	< 10
003- Porter Street Outfall Average		Dry Weather				3.9	8.6	1.0	0.113	10	26

Table K-7 Logan Airport 2022 Monthly Monitoring Results for Second Quarter — Porter Street Stormwater Outfall

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)	Surfactants (mg/L)	Fecal Coliform (cfu/100mL)	*Enterococcus* (cfu/100mL)
003- Porter Street Outfall 1	5/20/2022	Dry Weather	---	---	---	< 4.0	28	< 1.0	0.140	< 10	30
003- Porter Street Outfall 2	5/20/2022	Dry Weather	---	---	---	23.0	25	< 1.0	0.760	30	490
003- Porter Street Outfall 3	5/20/2022	Dry Weather	---	---	---	< 4.0	5.5	< 1.0	0.130	50	50
003- Porter Street Outfall Average		Dry Weather				10.3	19.5	1.0	0.343	25	90
003- Porter Street Outfall 1	6/7/2022	Dry Weather	---	---	---	<4.0	28	<1.0	0.080	<10	45
003- Porter Street Outfall 2	6/7/2022	Dry Weather	---	---	---	<3.6	5.3	<1.0	0.120	30	<10
003- Porter Street Outfall 3	6/7/2022	Dry Weather	---	---	---	<4.0	9.7	<1.0	0.110	<10	<10
003- Porter Street Outfall Average		Dry Weather				3.9	14.3	1.0	0.100	14	17
Requirements are from NPDES Permit MA0000787, issued July 31, 2007.											
Discharge Limitations	Maximum Daily		Report	Report	6.0 to 8.5	Report	Report	Report	Report	Report	Report
	Average Monthly		Report	Report	6.0 to 8.5	—	Report	Report	Report	Report	Report

Source: Massport.

Notes: Flow rates were estimated for outfalls 001, 002, 003, and 0034 by using the SWMM model developed for Logan Airport.
For averaging calculations, a value of zero was employed for those results measured below the laboratory detection limit. For geometric mean calculations (fecal coliform and Enterococcus) a value of 1 was employed for those results measured below the laboratory detection limit.

TSS Total Suspended Solids

NS Not Sampled

Table K-8 Logan Airport 2022 Monthly Monitoring Results for Third Quarter — North, West, and Maverick Street Stormwater Outfalls

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)	Surfactants (mg/L)	Fecal Coliform (cfu/100mL)	*Enterococcus* (cfu/100mL)	*Klebsiella*[1] (cfu/100mL)
001A - North Outfall	7/2022	Wet Weather	0.343	0.049	NS	NS	NS	NS	NS	NS	NS	NA
002A - West Outfall	7/2022	Wet Weather	1.012	0.155	NS	NS	NS	NS	NS	NS	NS	NA
004A - Maverick Street Outfall	7/2022	Wet Weather	0.088	0.012	NS	NS	NS	NS	NS	NS	NS	NA
001C- North Outfall	7/13/2022	Dry Weather	--	--	--	<4.0	9.2	<1.0	0.100	200	10	NA
002C - West Outfall	7/13/2022	Dry Weather	--	--	--	<4.0	19	<1.0	0.080	110	40	NA
004C - Maverick Street Outfall	7/13/2022	Dry Weather	--	--	--	<4.0	14	<1.0	0.060	600	140	NA
001A - North Outfall	8/22/2022	Wet Weather	1.136	0.126	7.82	4.3	26	<1.0	0.080	14,000	3,500	NA
002A - West Outfall	8/22/2022	Wet Weather	3.063	0.438	6.42	<3.6	36	<1.0	0.250	11,000	3,400	NA
004A - Maverick Street Outfall	8/22/2022	Wet Weather	0.263	0.031	6.84	<4.0	59	<1.0	0.270	27,000	3,300	NA
001C- North Outfall	8/5/2022	Dry Weather	--	--	--	<4.0	<5.0	<1.0	0.090	540	<10	NA
002C - West Outfall	8/5/2022	Dry Weather	--	--	--	<4.0	9.5	<1.0	0.090	110	20	NA
004C - Maverick Street Outfall	8/5/2022	Dry Weather	--	--	--	<4.0	14	<1.0	0.060	380	30	NA
001A - North Outfall	9/2022	Wet Weather	2.263	0.245	NS	NS	NS	NS	NS	NS	NS	NA

Table K-8 Logan Airport 2022 Monthly Monitoring Results for Third Quarter — North, West, and Maverick Street Stormwater Outfalls

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)	Surfactants (mg/L)	Fecal Coliform (cfu/100mL)	*Enterococcus* (cfu/100mL)	*Klebsiella*[1] (cfu/100mL)
002A - West Outfall	9/2022	Wet Weather	6.801	0.867	NS	NS	NS	NS	NS	NS	NS	NA
004A - Maverick Street Outfall	9/2022	Wet Weather	0.566	0.059	NS	NS	NS	NS	NS	NS	NS	NA
001C- North Outfall	9/19/2022	Dry Weather	--	--	--	<4.0	15.0	<1.0	<0.250	220	<10	NA
002C - West Outfall	9/19/2022	Dry Weather	--	--	--	<4.0	9.4	<1.0	<0.250	1,900	120	NA
004C - Maverick Street Outfall	9/19/2022	Dry Weather	--	--	--	<3.6	12	<1.0	<0.050	8.0	3.0	NA
Requirements are from NPDES Permit MA0000787, issued July 31, 2007.												
Discharge Limitations	Maximum Daily		Report	Report	6.0 to 8.5	15 mg/L	100 mg/L	Report	Report	Report	Report	
	Average Monthly		Report	Report	6.0 to 8.5	—	Report	Report	Report	Report	Report	

Source: Massport

Notes: Flow rates were estimated for outfalls 001, 002, and 004 by using the SWMM model developed for Logan Airport.

1 Klebsiella is an indication of non-fecal coliform bacteria and is tested for at the North Outfall when fecal coliform concentration exceeds 5,000 cfu/100ml.

TSS Total Suspended Solids

NA Not Analyzed

NS Not Sampled

Table K-9 Logan Airport 2022 Monthly Monitoring Results for Third Quarter — Porter Street Stormwater Outfall

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)	Surfactants (mg/L)	Fecal Coliform (cfu/100mL)	*Enterococcus* (cfu/100mL)
003- Porter Street Outfall 1	7/2022	Wet Weather	---	---	NS	NS	NS	NS	NS	NS	NS
003- Porter Street Outfall 2	7/2022	Wet Weather	---	---	NS	NS	NS	NS	NS	NS	NS
003- Porter Street Outfall 3	7/2022	Wet Weather	---	---	NS	NS	NS	NS	NS	NS	NS
003- Porter Street Outfall Average		Wet Weather	0.305	0.053	NS	NS	NS	NS	NS	NS	NS
003- Porter Street Outfall 1	7/13/2022	Dry Weather	---	---	---	<4.0	6.1	<1.0	0.120	110	<10
003- Porter Street Outfall 2	7/13/2022	Dry Weather	---	---	---	<4.0	6.9	<1.0	0.160	100	<10
003- Porter Street Outfall 3	7/13/2022	Dry Weather	---	---	---	<3.6	<5.6	<1.0	0.190	10	110
003- Porter Street Outfall Average		Dry Weather	---	---	---	3.9	6.2	1.0	0.157	48	22
003- Porter Street Outfall 1	8/22/2022	Wet Weather	---	---	7.25	<4.0	35	<1.0	0.220	15,000	43,000
003- Porter Street Outfall 2	8/22/2022	Wet Weather	---	---	7.76	7.9	25	<1.0	0.140	14,000	5,500
003- Porter Street Outfall 33	8/22/2022	Wet Weather	---	---	7.53	<4.0	<5.0	<1.0	<0.050	1000	27,00
003- Porter Street Outfall Average		Wet Weather	0.961	0.059	7.51	5.3	22	1.0	0.137	5,944	8,611
003- Porter Street Outfall 1	8/5/2022	Dry Weather	---	---	---	<4.0	82	<1.0	0.320	27,000	180
003- Porter Street Outfall 2	8/5/2022	Dry Weather	---	---	---	<4.0	<5.0	<1.0	0.360	10	50
003- Porter Street Outfall 3	8/5/2022	Dry Weather	---	---	---	NS	NS	NS	NS	NS	NS
003- Porter Street Outfall Average		Dry Weather	---	---	---	4.0	43.5	1.0	0.340	520	520

Table K-9 Logan Airport 2022 Monthly Monitoring Results for Third Quarter — Porter Street Stormwater Outfall

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)	Surfactants (mg/L)	Fecal Coliform (cfu/100mL)	*Enterococcus* (cfu/100mL)
003- Porter Street Outfall 1	9/2022	Wet Weather	---	---	NS	NS	NS	NS	NS	NS	NS
003- Porter Street Outfall 2	9/2022	Wet Weather	---	---	NS	NS	NS	NS	NS	NS	NS
003- Porter Street Outfall 3	9/2022	Wet Weather	---	---	NS	NS	NS	NS	NS	NS	NS
003- Porter Street Outfall Average		Wet Weather	1.349	0.201	NS	NS	NS	NS	NS	NS	NS
003- Porter Street Outfall 1	9/19/2022	Dry Weather	---	---	---	<4.0	7.0	<1.0	<0.250	480	<10
003- Porter Street Outfall 2	9/19/2022	Dry Weather	---	---	---	<4.0	5.8	<1.0	0.070	150	320
003- Porter Street Outfall 3	9/19/2022	Dry Weather	---	---	---	NS	NS	NS	NS	NS	NS
003- Porter Street Outfall Average		Dry Weather	---	---	---	6.4	4.0	1.0	0.160	268	57
Requirements are from NPDES Permit MA0000787, issued July 31, 2007.											
Discharge Limitations	Maximum Daily		Report	Report	6.0 to 8.5	Report	Report	Report	Report	Report	Report
	Average Monthly		Report	Report	6.0 to 8.5	—	Report	Report	Report	Report	Report

Source: Massport.

Notes: Flow rates were estimated for outfall 003 by using the SWMM model developed for Logan Airport.
For averaging calculations, a value of zero was employed for those results measured below the laboratory detection limit. For geometric mean calculations (fecal coliform and Enterococcus) a value of 1 was employed for those results measured below the laboratory detection limit.

TSS Total Suspended Solids

NS Not Sampled

Table K-10 Logan Airport 2022 Monthly Monitoring Results for Fourth Quarter — North, West, and Maverick Street Stormwater Outfalls

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)	Surfactants (mg/L)	Fecal Coliform (cfu/100mL)	*Enterococcus* (cfu/100mL)	*Klebsiella*[1] (cfu/100mL)
001A - North Outfall10/24/2022Wet Weather4.72 10.4278.11<4.015<1.00.29 04,600430N A002A - West Outfall	10/24/2022	Wet Weather	20.703	1.512	8.05	<4.0	20	<1.0	0.170	370	500	NA
004A - Maverick Street Outfall	10/24/2022	Wet Weather	1.228	0.104	7.69	<4.0	14	<1.0	<0.05	20	<10	NA
001C- North Outfall	10/13/2022	Dry Weather	--	--	--	<4.0	7.1	<1.0	0.090	560	90	NA
002C - West Outfall	10/13/2022	Dry Weather	--	--	--	<4.0	7	<1.0	0.060	30	<10	NA
004C - Maverick Street Outfall	10/13/2022	Dry Weather	--	--	--	<4.0	14	<1.0	<0.050	10	50	NA
001A - North Outfall	11/16/2022	Wet Weather	2.510	0.274	6.95	5.8	15	<1.0	0.100	1,500	12,000	NA
002A - West Outfall	11/16/2022	Wet Weather	8.712	0.953	7.17	<4.0	<5.0	<1.0	0.110	1,500	6,800	NA
004A - Maverick Street Outfall	11/16/2022	Wet Weather	0.624	0.071	6.28	<4.0	<5.0	<1.0	0.100	530	2,800	NA
001C- North Outfall	11/1/2022	Dry Weather	--	--	--	5.1	11	<1.0	0.310	300	120	NA
002C - West Outfall	11/1/2022	Dry Weather	--	--	--	<4.0	32	<1.0	0.110	10	110	NA

Table K-10 Logan Airport 2022 Monthly Monitoring Results for Fourth Quarter — North, West, and Maverick Street Stormwater Outfalls

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)	Surfactants (mg/L)	Fecal Coliform (cfu/100mL)	*Enterococcus* (cfu/100mL)	*Klebsiella*[1] (cfu/100mL)
004C - Maverick Street Outfall	11/1/2022	Dry Weather	--	--	--	<4.0	12	<1.0	<0.050	30	30	NA
001A - North Outfall	12/7/2022	Wet Weather	4.119	0.374	7.28	<4.0	12	<1.0	0.060	370	1,500	NA
002A - West Outfall	12/7/2022	Wet Weather	14.197	1.303	6.20	<3.6	7.7	<1.0	0.050	400	2,500	NA
004A - Maverick Street Outfall	12/7/2022	Wet Weather	1.043	0.095	6.35	7.6	13	<1.0	0.060	60	80	NA
001C- North Outfall	12/21/2022	Dry Weather	--	--	--	4.0	52	<5.0	0.090	10	<10	NA
002C - West Outfall	12/21/2022	Dry Weather	--	--	--	<4.0	26	<1.0	0.080	<10	<10	NA
004C - Maverick Street Outfall	12/21/2022	Dry Weather	--	--	--	<4.0	40	<1.0	0.060	45	100	NA
Requirements are from NPDES Permit MA0000787, issued July 31, 2007.												
Discharge Limitations	Maximum Daily		Report	Report	6.0 to 8.5	15 mg/L	100 mg/L	Report	Report	Report	Report	
	Average Monthly		Report	Report	6.0 to 8.5	—	Report	Report	Report	Report	Report	

Source: Massport

Notes: Flow rates were estimated for outfalls 001, 002, and 004 by using the SWMM model developed for Logan Airport.

1 *Klebsiella* is an indication of non-fecal coliform bacteria and is tested for at the North Outfall when fecal coliform concentration exceeds 5,000 cfu/100ml.

TSS Total Suspended Solids

NA Not Analyzed

NS Not Sampled

Table K-11 Logan Airport 2022 Monthly Monitoring Results for Fourth Quarter — Porter Street Stormwater Outfall

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)	Surfactants (mg/L)	Fecal Coliform (cfu/100mL)	*Enterococcus* (cfu/100mL)
003- Porter Street Outfall 1 (PSO-CB174)	10/24/2022	Wet Weather			7.90	<3.6	9.1	<1.0	0.180	2,800	800
003- Porter Street Outfall 2 (PSO-DMH102)	10/24/2022	Wet Weather			7.58	6.3	<5.0	<1.0	0.070	1,300	2,200
003- Porter Street Outfall 3	10/24/2022	Wet Weather			8.43	<4.0	<5.0	<1.0	0.070	20	670
003- Porter Street Outfall Average		Wet Weather	4.953	0.333	7.97	4.63	6.4	1.0	0.107	418	1,056
003- Porter Street Outfall 1	10/13/2022	Dry Weather	---	---		<4.0	<5.0	<1.0	0.120	40	30
003- Porter Street Outfall 2	10/13/2022	Dry Weather	---	---		<4.0	6.9	<1.0	0.210	150	300
003- Porter Street Outfall 3	10/13/2022	Dry Weather	---	---		<4.0	<5.0	<1.0	0.080	<10	20
003- Porter Street Outfall Average		Dry Weather				4.0	5.6	1.0	0.137	39	56
003- Porter Street Outfall 1	11/16/2022	Wet Weather			7.14	<4.0	31	<1.0	0.120	8,500	6,600
003- Porter Street Outfall 2	11/16/2022	Wet Weather			7.39	<4.0	5.20	<1.0	0.100	890	3,500
003- Porter Street Outfall 3	11/16/2022	Wet Weather			6.94	<4.0	<5.0	<1.0	0.060	180	1500
003- Porter Street Outfall Average		Wet Weather	1.605	0.199	7.16	4.0	13.7	1.0	0.093	1,108	3,260
003- Porter Street Outfall 1	11/01/2022	Dry Weather	---	---		<4.0	18	<1.0	<0.250	360	820
003- Porter Street Outfall 2	11/01/2022	Dry Weather	---	---		<4.0	5.0	<1.0	0.150	<10	4,500

Table K-11 Logan Airport 2022 Monthly Monitoring Results for Fourth Quarter — Porter Street Stormwater Outfall

Outfall	Date	Event	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (S.U.)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)	Surfactants (mg/L)	Fecal Coliform (cfu/100mL)	*Enterococcus* (cfu/100mL)
003- Porter Street Outfall 3	11/01/2022	Dry Weather	---	---		5.8	9.0	<1.0	0.090	110	1,700
003- Porter Street Outfall Average		Dry Weather				4.6	10.7	1.0	0.163	73	1,844
003- Porter Street Outfall 1	12/7/2022	Wet Weather			7.58	5.3	22	<1.0	0.070	2,300	3,800
003- Porter Street Outfall 2	12/7/2022	Wet Weather			7.82	<4.0	<5.0	<1.0	<0.050	100	180
003- Porter Street Outfall 3	12/7/2022	Wet Weather			8.01	<4.0	5.10	<1.0	<0.050	80	2800
003- Porter Street Outfall Average		Wet Weather	2.562	0.294	7.80	4.4	10.7	1.0	0.057	264	1,242
003- Porter Street Outfall 1	12/21/2022	Dry Weather	---	---		7.4	480	<1.0	0.100	<10	50
003- Porter Street Outfall 2	12/21/2022	Dry Weather	---	---		<4.0	<5.0	<1.0	0.050	<10	40
003- Porter Street Outfall 3	12/21/2022	Dry Weather	---	---		<4.0	100.0	<1.0	0.110	<10	60
003- Porter Street Outfall Average		Dry Weather				5.1	195.0	1.0	0.137	10	49
Requirements are from NPDES Permit MA0000787, issued July 31, 2007.											
Discharge Limitations	Maximum Daily		Report	Report	6.0 to 8.5	Report	Report	Report	Report	Report	Report
	Average Monthly		Report	Report	6.0 to 8.5	—	Report	Report	Report	Report	Report

Source: Massport.

Notes: Flow rates were estimated for outfall 003 by using the SWMM model developed for Logan Airport.
For averaging calculations, a value of zero was employed for those results measured below the laboratory detection limit. For geometric mean calculations (fecal coliform and Enterococcus) a value of 1 was employed for those results measured below the laboratory detection limit.

TSS Total Suspended Solids

NS Not Sampled

Table K-12 Logan Airport 2022 Quarterly Wet Weather Monitoring Results — North, West, Maverick Street, and Porter Street Stormwater Outfalls

Outfall	Date	pH (S.U.)	Benzo(a)-anthracene (µg/L)	Benzo(a)-pyrene (µg/L)	Benzo(b)-fluoranthene (µg/L)	Benzo(k)-fluoranthene (µg/L)	Chrysene (µg/L)	Dibenzo(a,h,)-anthracene (µg/L)	Indeno (1,2,3-cd)-pyrene (µg/L)	Naphthalene (µg/L)	Total PAHs (µg/L)
001Q - North Outfall	1/17/2022	8.05	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
002Q - West Outfall	1/17/2022	6.57	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
004Q - Maverick Street Outfall	1/17/2022	6.34	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
003Q- Porter Street Outfall 1	1/17/2022	6.88	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
003Q- Porter Street Outfall 2	1/17/2022	7.16	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
003Q- Porter Street Outfall 3	1/17/2022	7.55	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
003Q- Porter Street Outfall Average		7.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
001Q - North Outfall	4/6/2022	6.42	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
002Q - West Outfall	4/6/2022	7.40	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
004Q - Maverick Street Outfall	4/6/2022	7.54	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
003Q- Porter Street Outfall 1	4/6/2022	7.67	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
003Q- Porter Street Outfall 2	4/6/2022	8.12	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
003Q- Porter Street Outfall 3	4/6/2022	8.15	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
003Q- Porter Street Outfall Average		7.98	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00

Table K-12 Logan Airport 2022 Quarterly Wet Weather Monitoring Results — North, West, Maverick Street, and Porter Street Stormwater Outfalls

Outfall	Date	pH (S.U.)	Benzo(a)-anthracene (µg/L)	Benzo(a)-pyrene (µg/L)	Benzo(b)-fluoranthene (µg/L)	Benzo(k)-fluoranthene (µg/L)	Chrysene (µg/L)	Dibenzo(a,h,)-anthracene (µg/L)	Indeno (1,2,3-cd)-pyrene (µg/L)	Naphthalene (µg/L)	Total PAHs (µg/L)
001Q - North Outfall	8/22/2022	7.82	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
002Q - West Outfall	8/22/2022	6.42	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
004Q - Maverick Street Outfall	8/22/2022	6.84	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
003Q- Porter Street Outfall 1	8/22/2022	7.25	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
003Q- Porter Street Outfall 2	8/22/2022	7.76	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
003Q- Porter Street Outfall 3	8/22/2022	7.53	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
003Q- Porter Street Outfall Average		7.51	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
001Q - North Outfall	11/16/2022	6.95	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
002Q - West Outfall	11/16/2022	7.17	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
004Q - Maverick Street Outfall	11/16/2022	6.28	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
003Q - Porter Street Outfall 1	11/16/2022	7.14	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
003Q - Porter Street Outfall 2	11/16/2022	7.39	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
003Q - Porter Street Outfall 3	11/16/2022	6.95	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	<2.00
003Q - Porter Street Outfall Average		7.16	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00

Table K-12 Logan Airport 2022 Quarterly Wet Weather Monitoring Results — North, West, Maverick Street, and Porter Street Stormwater Outfalls

Outfall	Date	pH (S.U.)	Benzo(a)-anthracene (µg/L)	Benzo(a)-pyrene (µg/L)	Benzo(b)-fluoranthene (µg/L)	Benzo(k)-fluoranthene (µg/L)	Chrysene (µg/L)	Dibenzo(a,h,)-anthracene (µg/L)	Indeno (1,2,3-cd)-pyrene (µg/L)	Naphthalene (µg/L)	Total PAHs (µg/L)
Requirements are from NPDES Permit MA0000787, issued July 31, 2007.											
Discharge Limitations	Maximum Daily	6.0 to 8.5	Report	Report	Report	Report	Report	Report	Report	Report	Report
	Average Monthly	6.0 to 8.5	Report	Report	Report	Report	Report	Report	Report	Report	Report

Source: Massport

Notes: For averaging calculations, a value of zero was employed for those results measures below the laboratory detection limit.

PAHs Polynuclear Aromatic Hydrocarbons

ND Not Detected

NS Not Sampled

Table K-13 Logan Airport 2022 Quarterly Wet Weather Monitoring Results — Northwest and Runway/Perimeter Stormwater Outfalls

Outfall	Date	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (SU)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)
005Q - Northwest Outfall	1/17/2022	NS	NS	NS	NS	NS	NS
006Q- Runway/ Perimeter Outfall (A8)	1/17/2022	0.164	0.019	7.87	<4.0	5.2	<1.0
006Q- Runway/ Perimeter Outfall (A15)	1/17/2022	0.065	0.007	7.62	<4.0	<5.0	<1.0
006Q- Runway/ Perimeter Outfall (A20)	1/17/2022	0.097	0.009	8.17	<4.0	<5.0	<1.0
006Q- Runway/ Perimeter Outfall (A25)	1/17/2022	0.151	0.013	7.22	<4.0	83	<1.0
006Q- Runway/ Perimeter Outfall (A28)	1/17/2022	0.072	0.014	6.95	<4.0	13	<1.0
006Q- Runway/ Perimeter Outfall (A34)	1/17/2022	0.408	0.071	8.07	<4.0	11	<1.0
006Q- Runway/ Perimeter Outfall (A38)	1/17/2022	0.154	0.020	7.73	<4.0	14	<1.0
006Q- Runway/Perimeter Outfall Average		0.159	0.022	7.66	4.0	19.5	1.0
005Q - Northwest Outfall	04/06/2022	0.033	0.236	7.09	<4.0	21	< 1.0
006Q- Runway/ Perimeter Outfall (A8)	04/06/2022	0.025	0.120	7.07	<4.0	5.2	< 1.0
006Q- Runway/ Perimeter Outfall (A15)	04/06/2022	0.010	0.048	7.09	<4.0	33	< 1.0
006Q- Runway/ Perimeter Outfall (A19)	04/06/2022	0.003	0.020	6.93	<4.0	52	< 1.0
006Q- Runway/ Perimeter Outfall (A21)	04/06/2022	0.204	0.880	6.91	<4.0	5.8	< 1.0
006Q- Runway/ Perimeter Outfall (A23)	04/06/2022	0.023	0.116	7.19	<4.0	440	< 1.0
006Q- Runway/ Perimeter Outfall (A34)	04/06/2022	0.087	0.285	7.10	<4.0	14	< 1.0
006Q- Runway/ Perimeter Outfall (A38)	04/06/2022	0.025	0.105	7.20	<4.0	< 5.0	< 1.0
006Q- Runway/Perimeter Outfall Average		0.054	0.225	7.07	4.0	79.3	1.0
005Q - Northwest Outfall	NS	NS	NS	NS	NS	NS	NS
006Q- Runway/ Perimeter Outfall (A8)	NS	NS	NS	NS	NS	NS	NS
006Q- Runway/ Perimeter Outfall (A15)	NS	NS	NS	NS	NS	NS	NS
006Q- Runway/ Perimeter Outfall (A19)	NS	NS	NS	NS	NS	NS	NS
006Q- Runway/ Perimeter Outfall (A21)	NS	NS	NS	NS	NS	NS	NS
006Q- Runway/ Perimeter Outfall (A23)	NS	NS	NS	NS	NS	NS	NS
006Q- Runway/ Perimeter Outfall (A34)	NS	NS	NS	NS	NS	NS	NS
006Q- Runway/ Perimeter Outfall (A38)	NS	NS	NS	NS	NS	NS	NS
006Q- Runway/Perimeter Outfall Average		NS	NS	NS	NS	NS	NS

Table K-13 Logan Airport 2022 Quarterly Wet Weather Monitoring Results — Northwest and Runway/Perimeter Stormwater Outfalls

Outfall	Date	Maximum Daily Flow (MGD)	Average Monthly Flow (MGD)	pH (SU)	Oil and Grease (mg/L)	TSS (mg/L)	Benzene (µg/L)
005Q - Northwest Outfall	11/16/2022	0.037	0.331	6.64	<4.0	9.4	<1.0
006Q- Runway/ Perimeter Outfall (A9)	11/16/2022	0.021	0.164	6.95	<4.0	<5.0	<1.0
006Q- Runway/ Perimeter Outfall (A15)	11/16/2022	0.007	0.057	6.82	<4.0	<5.0	<1.0
006Q- Runway/ Perimeter Outfall (A19)	11/16/2022	0.003	0.026	6.97	<4.0	<5.0	<1.0
006Q- Runway/ Perimeter Outfall (A21)	11/16/2022	0.109	1.147	7.19	<4.0	<5.0	<1.0
006Q- Runway/ Perimeter Outfall (A23)	11/16/2022	0.017	0.140	7.47	4.5	<5.0	<1.0
006Q- Runway/ Perimeter Outfall (A33)	11/16/2022	0.014	0.117	7.96	<4.0	<5.0	<1.0
006Q- Runway/ Perimeter Outfall (A38)	11/16/2022	0.013	0.131	7.18	<4.0	<5.0	<1.0
006Q- Runway/Perimeter Outfall Average		0.026	0.255	7.22	4.1	5.0	1.0
Discharge Limitations		Report	Report	Report	Report	Report	Report

Source: Massport

Notes: For averaging calculations, a value of zero was employed for those results measures below the laboratory detection limit.
Requirements are from NPDES Permit MA 0000787, issued July 31, 2007.

TSS Total Suspended Solids

NS Not Sampled

Table K-14 Logan Airport February 2022 Wet Weather Deicing Monitoring Results — North, West, Porter Street, and Runway/Perimeter Stormwater Outfalls

Outfall	Date	Ethylene Glycol, Total (mg/L)	Propylene Glycol, Total (mg/L)	BOD5 (mg/L)	COD (mg/L)	Ammonia Nitrogen (mg/L)	Nonylphenol (µg/L)	4-Methyl-1-H-benzotriazole (µg/L)	5-Methyl-1-H-benzotriazole (µg/L)	Tolytriazole (µg/L)
001B - North Outfall	1/7/2022	<2.00	4.43	200	240	1.04	<51	NA	NA	NA[6]
002B - West Outfall	1/7/2022	<2.00	245	210	700	0.845	<5.0	NA	NA	<50,000
003B - Porter Street Outfall 1	1/7/2022	<2.00	33.4	150	2,100	1.62	<48	NA	NA	<50,000
003B - Porter Street Outfall 2	1/7/2022	<2.00	4.39	9.8	47	0.097	<5.0	NA	NA	<50,000
003B - Porter Street Outfall 3	1/7/2022	<2.00	<2.00	4.1	27	0.275	<5.0	NA	NA	<50,000
003B - Porter Street Outfall Average		2.00	13	55	725	0.664	19	NA	NA	50,000
006B - Runway/Perimeter (A9)	1/7/2022	NS	NS	NS	NS	NS	NS	NS	NS	NS
006B - Runway/Perimeter (A17)	1/7/2022	NS	NS	NS	NS	NS	NS	NS	NS	NS
006B - Runway/Perimeter (A20)	1/7/2022	NS	NS	NS	NS	NS	NS	NS	NS	NS
006B - Runway/Perimeter (A21)	1/7/2022	NS	NS	NS	NS	NS	NS	NS	NS	NS
006B - Runway/Perimeter (A24)	1/7/2022	NS	NS	NS	NS	NS	NS	NS	NS	NS
006B - Runway/Perimeter (A33)	1/7/2022	NS	NS	NS	NS	NS	NS	NS	NS	NS
006B - Runway/Perimeter (A40)	1/7/2022	NS	NS	NS	NS	NS	NS	NS	NS	NS
Requirements are from NPDES Permit MA0000787, issued July 31, 2007.										
Discharge Limitations	Average Monthly	Report	Report	Report	Report	Report	Report	Report	Report	Report
	Maximum Daily	Report	Report	Report	Report	Report	Report	Report	Report	Report

Source: Massport
Notes: For averaging calculations, a value of zero was employed for those results measured below the laboratory detection limit.
J = value is an estimate calculated by the lab from the response factors of the other two triazole compounds.
Tolytriazole concentrations calculated as sum of 4-Methly-1-H-benzotriazole and 5-Methyl-1-H-benzotriazole.
BOD5 Five-day Biochemical Oxygen Demand
COD Chemical Oxygen Demand
NA Not Analyzed

Table K-15 Logan Airport Stormwater Outfall NPDES Water Quality Monitoring Results — 1993 to 2022

Year	Oil and Grease (mg/L)			Settable Solids[2] (mg/L)		TSS (mg/L)			pH			
	North Outfall	West Outfall	Maverick Street Outfall	North Outfall	West Outfall	North Outfall	West Outfall	Maverick Street Outfall	North Outfall	West Outfall	Porter Street Outfall	Maverick Street Outfall
# / # = Number of samples at or below NPDES limits / Total number of samples taken[1]												
1993	30/31	29/30	29/29	19/19	19/19	-	-	-	34/35	34/34	35/35	35/35
1994	35/36	36/36	36/36	34/35	32/36	-	-	-	33/36	28/36	30/36	35/36
1995	33/35	34/34	35/35	34/35	34/34	-	-	-	35/35	33/34	34/34	35/35
1996	29/35	36/36	36/36	32/35	35/36	-	-	-	35/35	35/36	36/36	36/36
1997	30/35	34/35	35/35	31/34	34/34	-	-	-	35/35	35/35	35/35	34/35
1998	35/36	36/36	35/36	34/36	35/36	-	-	-	36/36	36/36	36/36	36/36
1999	29/30	30/30	30/30	30/30	29/30	-	-	-	30/30	30/30	30/30	30/30
2000	34/36	35/35	34/34	34/36	36/36	-	-	-	36/36	36/36	36/36	35/35
2001	28/28	27/28	26/28	29/29	27/28	-	-	-	29/29	29/29	28/28	28/28
2002	36/36	36/36	35/36	32/36	36/36	-	-	-	36/36	36/36	36/36	36/36
2003	30/32	31/32	32/32	32/32	31/32	-	-	-	32/32	32/32	32/32	32/32
2004	32/34	33/34	34/34	34/34	34/34	-	-	-	34/34	34/34	34/34	34/34
2005	33/35	35/35	35/35	33/35	32/35	-	-	-	35/35	35/35	35/35	35/35
2006	33/33	32/33	32/33	32/34	33/33	-	-	-	34/34	33/33	33/33	33/33
2007	29/29	28/28	29/29	22/22	22/22	6/6	5/6	4/6	26/26	26/26	22/22	26/26
2008	23/23	22/23	22/23	N/A	N/A	24/24	24/24	22/24	12/12	12/12	21/21	10/10
2009	24/24	24/24	20/21	N/A	N/A	24/24	24/24	20/21	16/16	16/16	48/48	16/16
2010	24/24	24/24	19/19	N/A	N/A	22/23	23/23	18/19	11/11	11/11	24/24	10/10
2011	24/24	22/24	23/23	N/A	N/A	24/24	22/24	20/23	12/12	12/12	23/23	11/11
2012	21/21	21/21	15/15	N/A	N/A	21/21	20/22	14/15	9/9	9/9	26/27	6/6
2013	20/20	21/21	4/4	N/A	N/A	20/21	21/21	4/4	8/8	9/9	24/27	2/2
2014	21/21	21/21	20/20	N/A	N/A	21/21	20/21	19/20	8/8	8/8	24/24	7/7

Table K-15 Logan Airport Stormwater Outfall NPDES Water Quality Monitoring Results — 1993 to 2022

Year	Oil and Grease (mg/L)			Settable Solids[2] (mg/L)		TSS (mg/L)			pH			
	North Outfall	West Outfall	Maverick Street Outfall	North Outfall	West Outfall	North Outfall	West Outfall	Maverick Street Outfall	North Outfall	West Outfall	Porter Street Outfall	Maverick Street Outfall
2015	19/20	19/19	18/18	N/A	N/A	20/20	18/19	18/18	8/8	8/8	19/23	7/7
2016	23/23	23/23	23/23	N/A	N/A	23/23	23/23	22/23	10/11	11/11	33/33	10/11
2017	23/23	22/22	23/23	N/A	N/A	23/23	22/22	23/23	8/8	7/7	33/33	8/8
2018	21/21	20/21	21/21	N/A	N/A	19/21	21/21	19/21	9/9	10/10	27/27	10/10
2019	21/21	19/20	21/21	N/A	N/A	21/21	20/21	21/21	9/9	10/10	28/28	10/10
2020	12/12	12/12	12/12	N/A	N/A	12/12	12/12	12/12	4/4	4/4	12/12	4/4
2021	23/23	23/23	23/23	N/A	N/A	22/23	22/23	22/23	11/11	11/11	31/31	11/11
2022	21/21	21/21	21/21	N/A	N/A	21/21	20/21	21/21	9/9	9/9	26/27	9/9

Source: Massport

Notes: Sampling requirements changed in 2007 with the issuance of a new NPDES permit. Results through 2007 are based on NPDES Permit MA0000787, issued March 1, 1978. Stormwater outfall water quality monitoring results collected in accordance with the requirements of former NPDES permit. A portion of the Porter Street Drainage Area was incorporated into the West Drainage Area as part of roadway construction projects at Logan Airport.

N/A Not Analyzed

1 The total number of samples at each outfall varies year to year. In some years, fewer samples are taken due to factors such as construction, weather, and/or tidal conditions.

2 Settleable solids analyses were replaced with TSS in 2008.

Table K-16 Logan Airport Oil and Hazardous Material Spills1 and Jet Fuel Handling — 1990 to 2022

Year	Total Number of all Spills	Total Number of all Spills >10 gallons	Total Volume of all Spills (Gallons)	Estimated Volume of Jet Fuel Handled (Gallons)	Total Volume of Jet Fuel Spilled (Gallons)
1990	173	N/A	N/A	438,100,000	3,745
1991	186	N/A	N/A	N/A	2,471
1992	195	N/A	N/A	N/A	4,355
1993	188	N/A	N/A	451,900,000	3,131
1994	217	N/A	N/A	476,700,000	4,046
1995	161	N/A	N/A	309,200,000	21,4122
1996	159	N/A	N/A	346,700,000	1,321
1997	147	N/A	N/A	377,488,161	2,0293
1998	191	N/A	N/A	387,224,004	10,0474
1999	196	43	7,151	425,937,051	7,0125
2000	136	20	1,318	441,901,932	1,227
2001	139	37	1,924	416,748,819	1,771
2002	101	16	653	358,190,362	559
2003	128	19	10,364	319,439,910	10,1886
2004	126	18	894	373,996,141	574
2005	97	15	2,319	368,645,932	585
2006	92	11	752	364,450,864	644
2007	108	7	604	367,585,187	361
2008	99	20	944	345,631,788	662
2009	95	6	1004	327,358,619	915
2010	87	15	476	335,693,997	360

Table K-16 Logan Airport Oil and Hazardous Material Spills1 and Jet Fuel Handling — 1990 to 2022

Year	Total Number of all Spills	Total Number of all Spills >10 gallons	Total Volume of all Spills (Gallons)	Estimated Volume of Jet Fuel Handled (Gallons)	Total Volume of Jet Fuel Spilled (Gallons)
2011	108	12	572	340,421,373	337
2012	132	5	593	343,731,127	439
2013	94	6	452	349,397,940	351
2014	129	17	2,785	370,222,342	785
2015	196	16	1,278	374,985,216	885
2016	231	14	1,158	456,003,328	558
2017	176	8	2,3107	472,229,047	315
2018	189	8	7,660	521,056,895	7,383
2019	152	22	799	542,314,657	514
2020	67	4	352	220,004,260	179
2021	152	4	787	302,650,342	514
2022	119	3	303	443,381,606	200

Source: Massport Fire-Rescue Department.

Notes:

N/A Not available.

1 Materials include: jet fuel, hydraulic oil, diesel fuel, gasoline, and other materials such as glycol and paint.

2 One tenant spill, which occurred on October 15, 1995, totaled 18,000 gallons (84 percent of the annual spill total). The spill did not enter the Airport's storm drain system.

3 On October 23, 1997, a fuel line on an aircraft failed, resulting in the release of approximately 2,500 gallons, all but 60 gallons of which were recovered in drums before reaching the ground. Only the 60 gallons is included in the 1997 total.

4 Includes a 7,200-gallon spill that was discovered on September 2, 1998, and a 1,300-gallon spill that occurred on June 3, 1998. Neither spill entered the Airport's storm drain system.

5 2018 fuel spilled includes 7,000 gallons of jet fuel released during a construction related incident involving a fuel hydrant installation project.

6 In 2003, one fuel spill comprised 9,460 gallons or 94 percent of the total volume of the MassDEP/MCP reportable spills that year. The fuel spill was contained and did not enter the drainage system.

7 2017 total volume spilled includes 1,750 gallons of deicing fluid

K.2 Oil and Hazardous Materials Spills

Table K-17 Type and Quantity of Oil and Hazardous Material Spills at Logan Airport — 1999 to 2022

Year	Jet Fuel			Hydraulic Oil			Diesel Fuel			Gasoline			Other		
	No. of Spills	Quantity (Gallons)	No. of Spills ≥ 10 Gallons	No. of Spills	Quantity (Gallons)	No. of Spills ≥ 10 Gallons	No. of Spills	Quantity (Gallons)	No. of Spills ≥ 10 Gallons	No. of Spills	Quantity (Gallons)	No. of Spills ≥ 10 Gallons	No. of Spills	Quantity (Gallons)	No. of Spills ≥ 10 Gallons
1999	151	7,012	40	24	67	1	13	49	2	5	7	0	3	16	0
2000	115	1,227	18	8	59	2	3	11	0	8	16	0	2	5	0
2001	104	1,771	32	21	92	3	5	30	1	6	26	1	3	5	0
2002	79	559	15	7	38	0	8	37	18	4	8	0	3	11	0
2003	89	10,188	15	15	91	3	15	30	0	7	24	0	2	31	1
2004	82	574	12	17	189	4	14	52	0	7	26	0	6[1]	53[2]	2[3]
2005	66	585	12	14	78	1	7	1,610	2	7	45	0	3[4]	1	0
2006	65	644	9	10	25	0	6	57	1	4	9	0	7	17	1
2007	66	361	4	16	37	0	16	57	1	3	8	0	7	141[5]	2
2008	74	662	19	15	56	2	5	14	0	1	7	0	4	205[6]	1
2009	95	915	6	21	51	0	9	20	0	3	3	0	11	15	0
2010	54	360	12	17	50	1	5	56	2	2	3	0	7	7	0
2011	69	337	10	21	149	1	7	55	1	4	16	0	7	15	0
2012	80	439	4	25	79	1	17	38	0	2	12	0	8	25	0
2013	56	351	5	15	51	0	13	32	0	2	<2	0	7	10	0
2014	81	785	13	24	98	1	17	1,810	2	4	9	0	3	83	1
2015	110	885	10	43	149	3	16	151	2	7	46	1	20	47	0
2016	94	558	8	73	224	4	30	300	2	6	12	0	28	64	0
2017	103	315	5	36	101	1	13	59	2	4	14	0	20	1,821[7]	0
2018	111	7,383[8]	6	39	93	0	14	127	2	2	5	0	23	52	0
2019	77	514	17	41	156	3	13	57	1	9	41	1	12	31	0

Table K-17 Type and Quantity of Oil and Hazardous Material Spills at Logan Airport — 1999 to 2022

Year	Jet Fuel			Hydraulic Oil			Diesel Fuel			Gasoline			Other		
	No. of Spills	Quantity (Gallons)	No. of Spills ≥ 10 Gallons	No. of Spills	Quantity (Gallons)	No. of Spills ≥ 10 Gallons	No. of Spills	Quantity (Gallons)	No. of Spills ≥ 10 Gallons	No. of Spills	Quantity (Gallons)	No. of Spills ≥ 10 Gallons	No. of Spills	Quantity (Gallons)	No. of Spills ≥ 10 Gallons
2020	35	179	3	13	66	1	9	34	0	4	25	0	6	48[9]	0
2021	77	514	3	18	35	1	13	48	0	9	41	0	35	149	0
2022	57	200	3	23	39	0	6	19	0	20	22	0	13	12	0

Source: Massport

1 Includes two Unknown spills (14 gallons), plus one spill of each of the following: Ethylene Glycol, Propylene Glycol, AVGAS, and Paint.

2 Ethylene Glycol (25 gallons), Propylene Glycol (10 gallons), AVGAS (1 gallon) and Paint (3 gallons).

3 One spill of Ethylene Glycol; one spill of Propylene Glycol.

4 Includes two spills of an unknown substance and volume.

5 Includes one spill of motor oil (4 gallons); one spill of kerosene (5 gallons); one spill of cooking oil (120 gallons); one spill of fuel oil (10 gallons); one spill from a battery (1 gallon); two spills of an unknown substance (1 gallon).

6 Includes one spill of transformer oil (200 gallons).

7 Includes 1,750 gallons of deicing fluid (vehicle accident).

8 7,000 gallons of jet fuel were released during a construction related incident involving a fuel hydrant installation project.

9 Includes one spill of AvGas (2 gallons); two spills of motor oil (2 gallons); one spill not otherwise specified (two gallons); one spill of deicing fluid (40 gallons); one spill of transmission fluid (3 gallons).

K.3 Massachusetts Contingency Plan Active Sites

Table K-18 Status of Massachusetts Contingency Plan (MCP) Active Sites at Logan Airport

Location (RTN) and MassDEP Reporting Status	Action/Status
1. Fuel Distribution System (FDS) RTN: 3-1287 - OPEN	
2011	A Periodic Review of the Temporary Solution for the FDS was submitted in April 2011. Three Post-Class C Response Action Outcome (RAO) Status Reports were submitted for the FDS in February, June, and December 2011, summarizing the routine inspection and monitoring activities.
2012	Post-Class C RAO Status Reports were submitted in May and November 2012, summarizing the routine inspection and monitoring activities.
2013	Post-Class C RAO Status Reports were submitted in May and November 2013, summarizing the routine inspection and monitoring activities.
2014	Post-Class C RAO Status Reports were submitted in May and November 2014, summarizing the routine inspection and monitoring activities. In addition, a Release Abatement Measure (RAM) Plan was submitted in April 2014 to address construction in the area of the FDS followed by a RAM Completion Report submitted in August 2014.
2015	Post-Temporary Solution Status Reports were submitted in May and November 2015, summarizing the routine inspection and monitoring activities.
2016	RAO-C 5-year periodic review submitted in July 2016. Two Post-Temporary Solution Status Reports were submitted in 2016 summarizing the routine inspection, monitoring, and product recovery activities.
2017	Tier II Extension transmitted in August 2017 for response actions conducted at Terminal B subsequent to filing a Temporary Solution. A Final Permanent Solution Statement was submitted for Areas 3 and 5 in December 2017.
2018	A Post-temporary Solution Status Report submitted in February, 2018; a RAM Plan submitted for Terminal C in February 2018; RAO-C Inspection Report Submitted March, 2018; a RAM Plan Modification #2 submitted for Terminal B; a RAM Status Report submitted for Terminal C; Final RAM Status Report submitted in July, 2018; Post temporary Solution Status Report submitted in July, 2018; and a RAM Plan Modification #1 for Terminal C submitted in December, 2018.
2019	A Post-temporary Solution Status Report submitted in January, 2019; Terminal B RAM Status Report submitted in January, 2019; a RAM Completion Report submitted for Terminal B Pier B in August, 2019; a Terminal C Pier B RAM Completion Report submitted in September, 2019; and a RAM Plan for the Terminal B-C Connector Project was submitted in November, 2019.
2020	RAM Plan Status Report #1 for the Terminal B-C Connector Project was submitted in March 2020; RAM Plan Status Report #2 for the Terminal B-C Connector Project was submitted in September 2020.
2021	RAM Plan Status Report #3 for the Terminal B-C Connector Project was submitted in March 2021; RAM Plan Status Report #4 for the Terminal B-C Connector Project was submitted in September 2021.

Table K-18 Status of Massachusetts Contingency Plan (MCP) Active Sites at Logan Airport

Location (RTN) and MassDEP Reporting Status	Action/Status
2022	RAM Plan Status Report for the B to C Connector was submitted in March 2022 and the RAM Completion Report was submitted in December 2022.
2. Fire Training Facility RTN: 3-28199 – OPEN	
2011	A RAM Completion Statement was submitted on April 25, 2011. A Phase II Scope of Work was prepared and submitted to MassDEP on January 18, 2011. Phase II and Phase III Reports were submitted on December 8, 2011. A RAM Completion Statement was submitted on April 25, 2011.
2012	Phase IV Status Report transmitted in June 2012; the Phase IV Remedy Implementation Plan was submitted in December 2012.
2013	Phase IV Status Report transmitted in June 2013; the Phase IV Completion Report was transmitted in December 2013.
2014	Phase V Remedy Operation Status Reports submitted in June and December 2014.
2015	Phase V Remedy Operation Status Reports submitted in June and December 2015.
2016	Phase V Remedy Operation Status Reports submitted in June and December 2016.
2017	Phase V Remedy Operation Status Reports submitted in June and December 2017.
2018	Phase V Remedy Operation Status Reports submitted in June and December 2018.
2019	Phase V Remedy Operation Status Reports submitted in June and December 2019.
2020	Phase V Remedy Operation Status Reports submitted in June and December 2020.
2021	Phase V Remedy Operation Status Reports submitted in June and December 2021.
2022	Phase V Remedy Operation Status Reports submitted in June and December 2022.
3. Former American Airlines – North Cargo RTN: 3-35030 - OPEN	
2018	Release Notification made on June 29, 2018 due to presence of Non-Aqueous Petroleum Liquid in a monitoring well at a thickness not consistent with the previously submitted Response Action Outcome. Immediate Response Action (IRA) Plan submitted in August 2018; IRA Status Report submitted December 2018.
2019	Phase I and Tier Classification submitted in July 2019 A RAM Plan submitted in August 2019; a RAM Plan Status Report No. 1 was submitted in December 2019. Construction is ongoing with the Terminal E Modernization Project and subsequent reports will be filed.
2020	RAM Plan Status Report No. 2 was submitted in June 2020. RAM Plan Status Report No. 3 was submitted in December 2020.
2021	RAM Plan Status Report No. 4 was submitted in June 2021. RAM Plan Status Report No. 5 was submitted in December 2021.
2022	RAM Status Report No. 6 was submitted in June 2022. Phase II Comprehensive Site Assessment was submitted in July 2022. RAM Status Report No. 7 was submitted in December 2022.

Table K-18 Status of Massachusetts Contingency Plan (MCP) Active Sites at Logan Airport

Location (RTN) and MassDEP Reporting Status	Action/Status
4. Terminal B Gate 5 (formerly Gate 7) RTN: 3-35047 - OPEN	
2018	Release Notification in July 2018 regarding a release of jet fuel from a hydrant line during the Terminal B Optimization construction project; an IRA Plan was submitted in September 2018; and an IRA Status Report was submitted in November 2018;
2019	A final IRA Status Report was submitted in May 2019; a Phase I, Tier Classification and a Conceptual Phase II Scope of Work were submitted in July 2019, and an IRA Completion Report was submitted in November 2019.
2020	Preparation for a Phase II Comprehensive Site Assessment is underway for submission in July 2022.
2022	Phase II Comprehensive Site Assessment submitted in July 2022.
5. Former Building 6 (RTN 3-37749) - OPEN	
2022	In October 2022 a Release Notification Form was filed for this release site due to the discovery of PCBs in soil. The site is being developed for the construction of an additional fuel tank at the fuel farm facility. Excavation and management of PCB-impacted soil along with site investigations under the MCP are ongoing.

Source: Massport.

Notes: RTN = Release Tracking Number. This list includes active Massport MCP sites only. Additional sites are the responsibility of Logan Airport tenants. Refer to Figure 8-2 for location of active MCP sites. Complete information dating back to 1997 on closed sites is included in Appendix J, Environmental Compliance and Management/Water Quality.

Phase I Initial Site Investigation

Phase II Comprehensive Site Assessment

Phase III Identification, Evaluation, and Selection of Comprehensive Remedial Actions

Phase IV Implementation of Selected Remediation Action

Phase V Operation, Maintenance, and/or Monitoring

K.4 Massachusetts Contingency Plan Closed Sites

Table K-19 Massport Contingency Plan (MCP) Closed Sites at Logan Airport

Location (RTN) and MassDEP Reporting Status	Action/Status
1. North Outfall (3-4837) – CLOSED 12/27/2012	
Phase II and Phase III Reports filed in March 1997	Indicated petroleum contamination present at the site was likely the result of decades of airport operation; risk assessment reported no significant risk to human health, or to the aquatic and avian community.
RAO submitted in March 1998	Class C RAO using a Temporary Solution (periodic site monitoring and assessment); remediation steps included (not limited to) installation of a new fuel distribution system and decommissioning of certain fuel lines, and natural biodegradation processes; goal is to have petroleum contamination reduced to an area less than 1,000 square feet. Installation of the new fuel distribution system and decommissioning of sections of the old system were completed. Massport initiated site evaluation to document the reduction of petroleum contamination following the decommissioning of the North Fuel Farm and fuel distribution system.
Post Class C RAO evaluation report submitted in December 2002	Massport has eliminated substantial hazards at this site and submitted a Class C RAO statement. In accordance with applicable regulations, Massport will conduct a periodic evaluation at five-year intervals until a Permanent Solution has been achieved. The next periodic evaluation was scheduled for 2007.
2004	Evaluation report indicated that a "Condition of No Significant Risk" has not been achieved at this site. Massport scheduled another assessment in 2007.
2005	No change in status for 2005.
2006	Massport prepared the five-year review of the Class C RAO for this site, which was due in December 2007.
2007	Massport completed its five-year review of the Class C RAO and transmitted it to MassDEP in December 2007. It was determined that a "Condition of No Significant Risk" has not been achieved at this site at this time. The next five-year re-evaluation will be conducted in 2012.
2008	No change in status.
2009	No change in status.
2010	No change in status.
2011	No change in status. Massport provided updated data for the MassDEP website.
2012	Response Action Outcome submitted to MassDEP on December 27, 2012. No further MCP response action is required.
2. Former Robie Park (3-10027) - CLOSED 09/21/2016	
2005	A Phase I was completed in 2005 with a RAO retraction. The RAO had been completed by the former property owner.
2006	No change in status for 2006.
2007	No change in status for 2007.
2008	A Phase II Scope of Work was prepared on May 9, 2008. A RAM Plan was submitted to MassDEP on September 16, 2008.

Table K-19 Massport Contingency Plan (MCP) Closed Sites at Logan Airport

Location (RTN) and MassDEP Reporting Status	Action/Status
2009	A Phase V Remedy Operation Status Plan was submitted on March 31, 2010.
2010	Two Remedy Operation Status Reports were submitted on September 29, 2010 and March 28, 2011. The next status report was scheduled for September 30, 2011.
2011	Phase IV Project Status Reports 2 and 3 were submitted in March and September 2011, respectively.
2012	Phase V Status Reports 4 and 5 were submitted in March and September 2012, respectively.
2013	Phase V Status Reports 6 and 7 were submitted in March and September 2013, respectively.
2014	Phase V Status Reports 8 and 9 were submitted in March and September 2014, respectively.
2015	Phase V Reports 10 and 11 were submitted in March and September 2015, respectively.
2016	A Permanent Solution Statement was submitted in 2016.
3. Former Robie Property (3-23493) - CLOSED 01/04/2010	
2005	A Phase I was completed in 2005.
2006	No change in status for 2006.
2007	No change in status for 2007.
2008	A Phase II was submitted to MassDEP on October 21, 2008.
2009	An Activity and Use Limitation (AUL) was recorded with the Suffolk County Registry of Deeds for the site on December 16, 2009.
2010	A Class A-3 RAO was submitted on January 4, 2010, corresponding with the recording of an AUL. On May 21, 2010, a RAM Plan for the Economy Parking Structure was submitted. The first RAM Status Report was submitted on September 21, 2010. An AUL Amendment was recorded on December 9, 2010.
2011	A RAM Completion Statement was submitted on March 15, 2011. Regulatory closure has been achieved. No further response actions are required.
4. Tomahawk Drive (3-27068) - CLOSED 08/20/2008	
2007	Release notification form submitted in August 2007.
2008	A Class B-1 RAO was submitted to MassDEP on January 9, 2009. No further response actions were required.
2009	No further response actions were required.
2011	No further response actions required.

Table K-19 Massport Contingency Plan (MCP) Closed Sites at Logan Airport

Location (RTN) and MassDEP Reporting Status	Action/Status
5. Southwest Service Area Overflow Lot/Tomahawk Drive (3-28792) – CLOSED 10/18/2018	
2009	Release notification form was submitted to MassDEP/BWSC on October 8, 2009.
2010	A Class B-1 RAO was submitted to MassDEP on October 18, 2010. No further response actions required.
2011	No further response actions required.
6. Taxiway D (3-29716) – CLOSED 12/21/2011	
2010	Release notification form was submitted on December 22, 2010.
2011	A Class A-1 RAO was submitted on December 23, 2011. No further response actions required.
7. West Outfall Release (3-29792) – CLOSED 02/07/2012	
2011	Release notification form was submitted on April 8, 2011. Two IRA Status Reports were submitted to MassDEP on June 9 and December 5, 2011. A RAO was submitted on February 13, 2012. No further response actions required.
8. Hertz Parking Lot Site (3-30260) – CLOSED 09/05/2012	
2011	Release notification form was submitted on August 29, 2011. A RAM Plan was submitted to MassDEP on September 1, 2011.
2012	A Class A-2 RAO was submitted on September 10, 2012. No Further response actions required.
9. Former Butler Aviation Hangar (3-30654) – CLOSED 11/12/2014	
2012	Verbal notification of a release was provided to MassDEP on February 14, 2012, when Rental Car Center construction encountered an unidentified underground storage, and a Release Notification Form was submitted on April 23, 2012. An IRA Plan was submitted May 21, 2012 and IRA Status Reports were submitted on June 18 and December 26, 2012.
2013	Phase I Report and Tier Classification submitted February 21, 2013 and IRA Completion Report submitted on July 11, 2013.
2014	A Permanent Solution Statement was submitted in October 2014. No further response actions required.
10. Southwest Service Area/Porter Street @ Harborside Drive (3-32022) – CLOSED 11/20/2017	
2014	MassDEP notified of 72-hour Reportable Condition on March 10, 2014
2015	Phase I Report and Tier Classification submitted March 9, 2015.
2016	Permanent Solution Statement scheduled to be submitted in 2017
2017	A Permanent Solution Statement and AUL were submitted November 2017.

Table K-19 Massport Contingency Plan (MCP) Closed Sites at Logan Airport

Location (RTN) and MassDEP Reporting Status	Action/Status
11. Former Hangar Building 16 (3-32351) – CLOSED 01/21/2016	
2014	Release Notification Form Submitted August 4, 2014.
2015	A RAM Plan was submitted on January 29, 2015; a Phase I Report and Tier Classification were submitted on August 3, 2015; a RAM Completion Report was submitted November 16, 2015.
2016	A Permanent Solution Statement was submitted on January 21, 2016. No further response actions are required.
12. Terminal B Gate 29 RTN (3-35608) – CLOSED 05/07/2020	
2019	Release Notification in May 2019 due to elevated vapors during removal of an underground storage tank; IRA Plan submitted in July 2019; IRA Status Report submitted in September 2019.
2020	A Permanent Solution Statement was submitted in May 2020 so the site is now closed.

Source: Massport

Notes: RTN = Release Tracking Number. This list includes Massport MCP sites only. Additional sites are the responsibility of Logan Airport tenants. Refer to Figure J-1 in Chapter 9, *Environmental Compliance and Management/Water Quality,* for location of closed MCP sites.

AUL Activity and Use Limitation
FDS Fuel Distribution System
IRA Immediate Response Action
MCP Massachusetts Contingency Plan
Phase I Initial Site Investigation
Phase II Comprehensive Site Assessment
Phase III Identification, Evaluation, and Selection of Comprehensive Remedial Actions
Phase IV Implementation of Selected Remediation Action
Phase V Operation, Maintenance and/or Monitoring
RAM Release Abatement Measure
RAO Response Action Outcome

Figure K-1 Massachusetts Contingency Plan Sites (Closed)

2022 Environmental Status and Planning Report

1. North Outfall (3-4837)
2. Former Robie Park (3-10027)
3. Former Robie Property (3-23493)
4. Tomahawk Drive (3-27068)
5. Southwest Service Area Overflow (3-28792)
6. Taxiway D (3-29716)
7. West Outfall Release (3-29792)
8. Hertz Parking Lot Site (3-30260)
9. Former Butler Aviation Hangar (3-30654)
10. Southwest Service Area/Porter Street at Harborside Drive (3-32022)
11. Former Hangar Building 16 (3-32351)
12. Terminal B Gate 29 (3-35608)

0 450 900 1800 Feet