TOBSWMF's Leachate Monitoring Program June 2019

Town of Babylon Department of Environmental Control

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Laboratory data and summary report from June 2019 sampling for Babylon's Leachate Monitoring Program.

TOBSWMF's Leachate Monitoring Program

June 2019

As part of its solid waste infrastructure the Town of Babylon maintains four ashfills, the Southern Ashfill (SA), the Old Northern U Ashfill (ONU), the New Northern U Ashfill (NNU) and the lateral expansion of the Southern Ashfill, also known as Cell 7 (NYSDEC Permit No. 1-4720-00778/00014). These ash facilities are located on the northern and southern face of the former Babylon Landfill located on Gleam Street in West Babylon, NY.

Babylon's leachate monitoring program (LMP) samples leachate from each of Babylon's ash facilities pursuant to the requirements of 6NYCRR part 363 (formerly part 360) and/or special condition attached to their NYSDEC solid waste management operating permits. Sampling procedures are described in detail within the 2018 Update Site Analytical Plan for the Town of Babylon Solid Waste Management Facilities (SAP) (TOBDEC, 2018).

Historically for the TOBSWMF's LMP, sampling at the SA, ONU and NNU ash facilities was limited to baseline parameters. In 2018 the NYSDEC required Babylon also sample for 1,4 dioxane when sampling these facilities for the LMP. Leachate at Cell 7 continues to be sampled for expanded parameters (the expanded parameters list was modified as part of the updated NYSDEC Solid Waste Management Facility regulations (appendix 2)). Sampling of the SA, ONU, NNU and Cell 7 were performed on December 10, 2018. The sampling protocol for the LMP is detailed in the Updated SAP for the Town of Babylon Solid Waste Management Facilities (TOBDEC, 2018). Sampling at the SA and ONU is limited to the Secondary Leachate Collection and Recovery System (SLCRS). Sampling at the NNU is performed for both the Primary Leachate Collection and Recovery System (PLCRS) and SLCRS. Sampling at Cell 7 was for the PLCRS. The complete laboratory report, case narrative and QA/QC package from Pace Analytical Services Inc has been attached as an appendix to this report. In addition to internal laboratory QA/QC, a trip blank for VOC's and equipment blank was obtained as part of the operational QA/QC requirements. The trip blank and equipment blank were clean. A field duplicate was obtained with the GMP at well GM 27I. The results of the duplicate were not notable. The case narrative for IC anions noted the laboratory duplicates as within method acceptance criteria.

Project narratives prepared by the laboratory for each category were reviewed. Notations and flagging qualifiers discussed in the narratives were noted. Each data package was certified by the laboratory as being in compliance with the laboratories quality assurance manual both technically and for completeness.

This section of the LMP report provides a brief summary of the June 2019 leachate sampling at the TOBSWMF's. The sections that follow provide a more detailed discussion of the results from each ash facility.

The following are notable observations from the June 2019 LMP sampling results:

- Manganese exceeded it MCL at the ONU (41.8 mg/l) and SA (8.44 mg/l). Manganese has exceeded its MCL at the ONU in 21 of the past 32 sampling events and for only the second time at the SA facility.
- pH of leachate at the ONU was 7.22, 8.0 at the SA, 7.77 at the NNU PLCRS, 6.94 at the NNU SLCRS and 7.81 at Cell 7.
- Baseline organics observed at each facility for the June 2019 LMP:
    - Baseline organics were not observed at the ONU facility.
    - Total baseline organics observed at the SA was .0873 mg/l.
    - Total baseline organics observed at the NNU facility; 0.1187 mg/l at the NNU P and 0.254 mg/l at the NNU S.
    - No individual organic compound from the baseline parameters list (SA, ONU and NNU), or summation of those compounds (TTO)[1] were observed at or above their MCL or TTO limits at any of these Babylon ash facilities during the June 2019 LMP.
- Total organics from the expanded parameters list (above mdl) observed at the Cell 7 facility is .474 mg/l. Total Toxic Organics (TTO) (>.01 mg/l) at the Cell 7 facility was .115 mg/l.
- BOD at the NNUP (861 mg/l) exceeded its MCL (300 mg/l) for June 2019.
- Barium did not exceed its mdl at the ONU, SA, NNU or Cell 7 for June 2019.
- Mercury was not detected at the ONU or NNU SLCRS for June 2019. Mercury was detected at the NNUP (.00013 mg/l), SA (.0012 mg/l) and Cell 7 (.00015 mg/l) for June 2019.
- Piper diagrams for the SA and ONU were updated with leachate sampled during the June 2019 LMP and conform to historical data.
- Chloride results at the NNU facility and Cell 7 reported values at <2 mg/l. TOBDEC maintains that these values are erroneous and the Lab has been contacted to explain or re-analyze the sample for chloride. A response from the laboratory has not yet been received. A Piper plot cannot be performed with erroneous chloride values.
- Project narratives were prepared by Pace Analytical Services Inc. for the June 2019 LMP laboratory results. Any issues, deficiencies or flagging of results were summarized in

[1] Suffolk County Department of Public Works Total Toxic Organics (TTO) limited to: VOC's 2.5 mg/l, Base Neutral Extractable Compounds 1.5 mg/l, Acid Extractable Compounds 1.5 mg/l and Pesticides and PCB's 1 mg/l.

these narratives, and can be found in the appendix of this report. Each data package was certified by the laboratory as being in compliance with its contract for Babylon's LMP both technically and for completeness.

TOBSWMF's Leachate Monitoring Program

Old Northern U

June 2019

Pursuant to NYSDEC 6NYCRR Part 363 requirements for the operation of the Town of Babylon's Old Northern U (ONU) Ashfill, leachate from that facility's secondary leachate collection and recovery system (SLCRS) was sampled in accordance with the procedures detailed in the TOBSWMF's SAP (TOBDEC, 2018). The ONU SLCRS is sampled semi-annually for baseline parameters. In 2018 the NYSDEC required sampling to be expanded to include 1,4 dioxane.

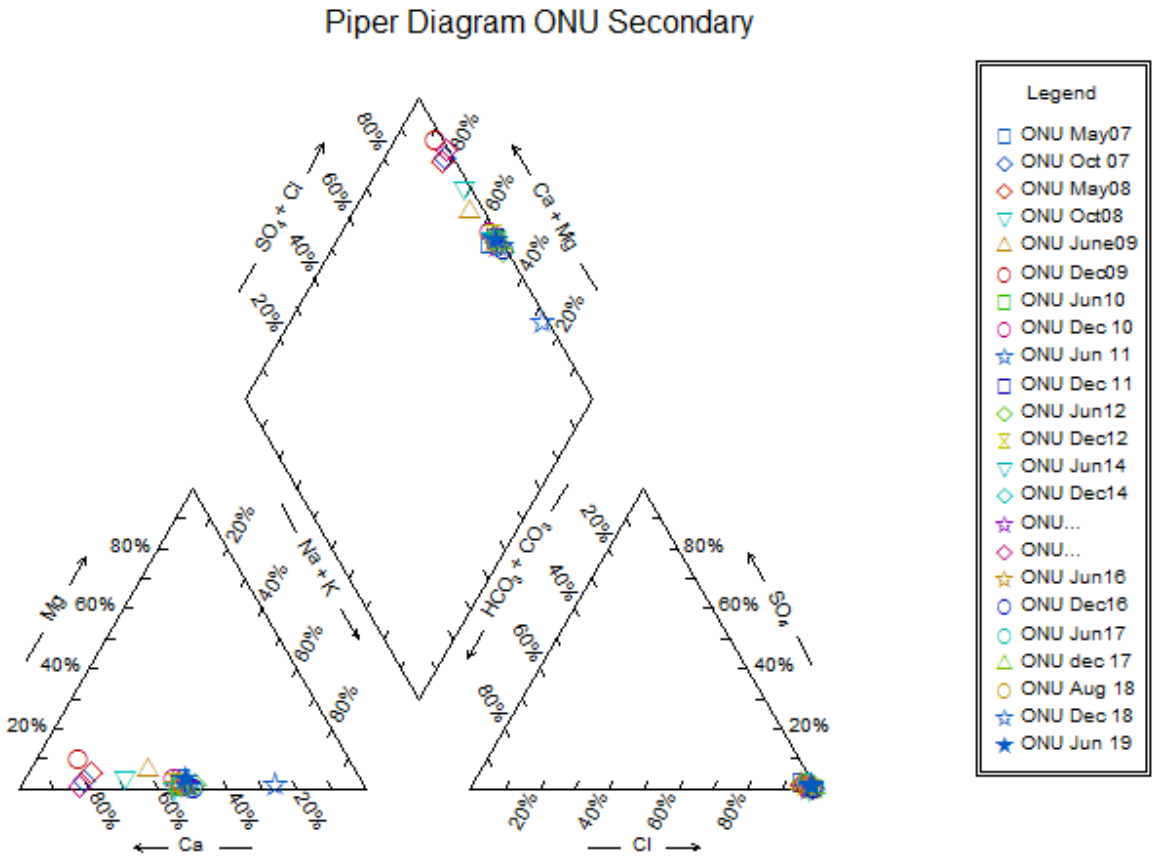
Ash has not been deposited in the ONU since it was capped in 2002 when the New Northern U (NNU) was constructed atop the facility. Leachate continues to be generated at the ONU despite the facility being capped and numerous attempts to locate the source. The LMP will continue at the ONU until there is a cessation of leachate generation. Included in this report is the August 2018 laboratory report from Pace Analytical Services, a spreadsheet summarizing parameters of concern dating back to 1995, a Piper diagram and a discussion of the laboratory results.

The attached spreadsheet provides a historical overview of leachate composition and any exceedance of MCL's at the ONU. The bullets below highlight notable observations from this round of sampling at the ONU and/or provide follow-up discussion/analysis of previous reports when appropriate.

- The chemical composition of leachate from the ONU for June 2019 generally conforms to historical data from the facility.
- pH measured in the field at the ONU SLCRS for June 2019 was 7.22.
- Manganese (41.8 mg/l) was observed above its MCL for June 2019. Manganese has been observed exceeding its MCL in 21 of the past 32 monitoring events at the ONU (last exceedance of MCL was December 2015).
- Barium (2.77 mg/l) was not observed above its MCL at the ONU for June 2019.
- Arsenic was not detected above its mdl at the ONU and lead was observed at .0031 mg/l for June 2019. Low values of arsenic and lead have been observed at this facility.
- Other metals observed at the ONU at values above their reporting limit and below their MCL (where one has been established) for June 2019 include boron (.494 mg/l), calcium (5140 mg/l), iron (31.8 mg/l), magnesium (192 mg/l), potassium (1560 mg/l), sodium (4560 mg/l) and thallium (.0798 mg/l).
- No organics on the baseline list were observed at the ONU for June 2019.
- 1,4 dioxane was observed at 21.0 ug/l for June 2019 at the ONU.

- Sulfide was detected at 8 mg/l the ONU facility for June 2019.

The next round of sampling at the ONU is scheduled for December 2019.



Note: Solid star = data point for June 2019.

PARAMETERS	03 MCL	Oct_08	June_09	Dec_09	June_10	Dec_10	Jun_11	Dec_11	12-Jun	DEC_12	Jun_13	Dec_13	Jun_14	DEC_14	June_15	Dec_15
CHLORIDE	na	10300	7450	11700	19000	16000	18000	29000	24000	32200	9610 D	39500 D	13600	32800 D	11400 D	54100 D
SULFATE	na	152	90.3	139	<	29	16	7	7	<250	**5130**	5.41	9.64	207 D	106 D	82 D
Alkalinity		250	402	400	210	310	380	260	250	319	339 D	136 D	330	148 D	183 D	186 D
Na	ppm	869	660	37.6	4100	3600	4200	4500	6000	6110	3170	7990	3930	6780 D	3120	566
K	ppm	878	684	352	2000	1500	**20000**	2100	3200	2480	1150	3790	1030 E	3060 D	1240	4470
Ca	ppm	2850	1580	1350	5200	4800	4800	5700	6600	7920	3760	9640	4810	7920 D	3550	12800
Mg	ppm	95.4	90.8	101	23	160	95	86	82	130	209	0.481 B	0.244	37.3	35.2	11.9
pH	5 - 12.5	8.02	7.55	7.78	6.5	6.24	7	6.7	6.2	6.25		Temp	3.96	6.43	6.97	5.72
TDS	na	25100	14200	19300	34000	25000	37000	38000	45000	49400	39800 D	80900 D	36400	64500	38500	122
PHENOL	1.5 mg/l															
PHENOLS		0.0137	0.0397	<.01	0.011	<	0.005	0.008	0.057	<.05	<.005	0.0488 D	<.005	<.005	<.005 U	<.005
IRON	na	9.75	21.7	34.2	33	74	60	86	46	83.6	62.9	0.416	63.3	13.6	17.9	11.6
MANGANESE	8 mg/l	16.9	15.5	21	5.5	36	20	21	18	34.5	41.2	0.0259	63.2	7.97	6.39	11.9
TKN	na	19.4	18.3	26.7	35	30	34	93	50	51.1	36.4 D	73.5 D	23.6	47.5 D	15.9 D	73.1
ALUMINUM	na	0.0146	0.245	0.038	<	0.37	0.45	<	0.79	0.0461 B	<.95	0.884	<	U	0.0329 B	<
ACETONE	50 mg/l				0.024	<	<	<	<	0.0049	0.005	0.036 Z	<	U	0.005	0.002 J
3+4 methylphenol								<	<	<						<
Methyl Ethyl Ketone	na						<	<	<	<	<	0.003 J	<	U	U	<
Arsenic	.400 mg/l				0.078	<	<	<	<	0.0049 B	<.28	0.0093 B	0.0124	U	U	<
Lead	.4 mg/l		0.0073 J	.00932J	<	<	<	<	<	0.0112	<.1	0.0135	0.0164	U	U	0.0031
Barium	8 mg/l	2	1.72	2.28	5.7	5	4.5	5.2	5.4	7.35	2.44 B	5.38	2.7	3.24	1.31	4.93
Xylene	ppb				<	<	<	<	<	<	<	<	<	U	U	<
Zinc	5 mg/l	0.0377	0.0608	0.102	<	0.17	0.14	0.22	<	0.0267	<.03	0.0096	<	0.207	0.017 B	0.0254
Beryllium					<	<	<	<	<	<.005	<.01	<	<	U	U	<
Nickel	8 mg/l	0.0119	0.0413	.0133J	<	<	<	<	<	<.04	0.03 B	0.002 B	<	U	0.002 B	<
Selenium	.4mg/l			.0171J	<	<	<	<	<	0.0171	<.23	<	<	U	U	<
Thallium		0.0249			<	<	<	<	<	<.01	<.19	<	0.123	U	U	0.0635
Silver	.4mg/l	0.0053			<	<	<	<	<	0.0039 B	0.0388 B	<	<	U	U	0.0029 B
Toluene					<	<	<	<	<	<	<	<	<	U	U	<
Carbon Disulfide					<	<	<	<	<	<	<	<	<	U	U	<
methylene chloride	2.5 mg/l	11 B	6.6 B		<	<	<	<	<	<	<	<	<	U	U	<
chromium										0.0071 B	0.09 B	<	0.0235	U	0.0027 B	<
Antimony										0.0055 B	<.12	0.0062 B	<	U	0.0028 B	<
4-Methyl-2-pentanone																0.003 J
Sulfide																
1,4 dioxane	ug/l															

PARAMETERS	Jun_16		Dec_16		17-Jun	Dec_17		Aug_18		Dec_18		Jun_19	
CHLORIDE	9630	D	44600		9970	348000		16400		19600		20400	D
SULFATE	165	D	58		282	93.8		264		257	D	197	D
Alkalinity	271		182		143	148		293		139		245	
Na	2390		8460		2500	6760		3720		3760	D	4560	D
K	945		3870		1030	3310		1320		1570	D	1560	D
Ca	2960		9220		3100	8040		4290		4220		5140	D
Mg	38.5		<10		19.4	0.293		19.2		11		192	
pH	5.74		9.59/7		6.49	9.8		7.49		7.52		7.22	
TDS	23900		52800		25200	69200		28600		24000		29900	
PHENOL													
PHENOLS	<.005		0.297		0.0264	0.0587		0.134		0.0059		<.00001	
IRON	4.79		<5		4.32	<.4		2.21		1.44		31.8	
MANGANESE	5.07		<.5		1.63	<.01		1.23		0.62		41.8	
TKN	13.7		64.3		12.6	52.2		37.3		13.3		27.1	
ALUMINUM	0.0704	J	<10		<.0134	1.13		<10		<.2		<.2	
ACETONE	<		0.0804		<.001	0.0514		0.0024	J	0.0029		<.005	
3+4 methylphenol													
Methyl Ethyl Ketone	<		<.005		<.0005	.0025	J	<.005		<.005		<.005	
Arsenic	<		<.5		<.0068	<.01		<.5		<.01		<.2	D
Lead	0.0051		<.25		<.0013	<.4		<.25		0.0085		0.031	
Barium	0.829		<10		1.32	4.9		1.34	J	1.13		2.77	
Xylene	<		<.005		<.0005	<.002		<.003		<.003		<.003	
Zinc	0.0358		<1		<.0012	<.02		<1		<.02		<.02	
Beryllium	0.0022	J	<.25		<.00057	.0036	J	<.25		<.005		<.005	
Nickel	<		<2		<.00088	<.04		<2		<.04		<.04	
Selenium	<		<.5		<.0062	<.01		<.5		<.01		<.2	D
Thallium	<		<.5		<.0036	<.01		<.5		0.0085	J	0.0798	
Silver	<		<.5		<.0036	<.01		<.5		<.01		0.0048	J
Toluene	<		<.005		<.0005	<.001		<.001		<.001		<.001	
Carbon Disulfide	<		<.005		<.0005	<.001		<.001		<.001		<.001	
methylene chloride	<		<.005		<.0005	<.001		<.001		<.01		<.001	
chromium	<		<.5		<.0016	<.01		<.5		<.01		0.0071	J
Antimony	<		<3		<.003	<.06		<3		<.06		0.06	
4-Methyl-2-pentanone	<		<.005		<.0005	<.005		<.005		<.005		<.005	
Sulfide	<20		<2		<.61	9.6		<2		<.002		8	
1,4 dioxane								0.21	JH	0.66		21	

TOBSWMF's Leachate Monitoring Program

Southern Ashfill

June 2019

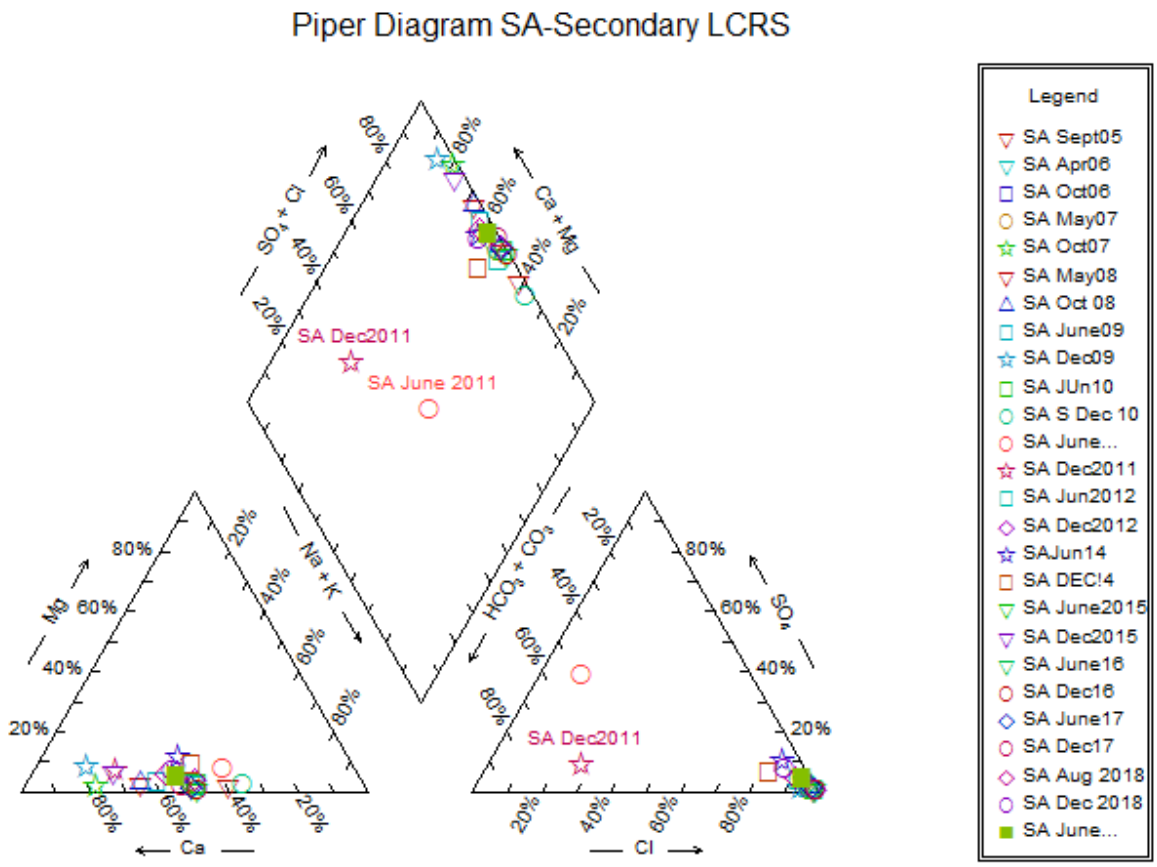
Pursuant to NYSDEC 6NYCRR Part 363 (formerly part 360) requirements for the operation of the Town of Babylon's Southern Ashfill (SA), leachate from that facility's Secondary Leachate Collection and Recovery System (SLCRS) was sampled in accordance with the procedures detailed in the TOBSWMF's SAP (TOBDEC, 2018). The SA facility requires semiannual sampling of leachate for baseline parameters from the facility's SLCRS. For 2018 NYSDEC required sampling at Babylon's leachate facilities to be expanded to include 1,4 dioxane. This report includes the laboratory report from Pace Analytical Services, a Piper diagram, a spreadsheet summarizing parameters of concern dating back to 1994, and a discussion of the results.

The attached spreadsheet provides a historical overview of leachate composition at the SA and any exeedance of the MCL's. The following bullets summarize any findings from this round of sampling at the SA and provide follow-up analysis or discussion when recommended from previous reports.

- Leachate indicators at the SA have been observed to be highly variable. Data from the June 2019 LMP at the SA generally fall within the range of historical data.
- A Piper diagram that includes SA data from June 2019 conforms to its established pattern.
- Lead was observed at .279 mg/l at the SA for June 2019. Low values of lead have been observed intermittently at the SA.
- Manganese was observed at 8.44 mg/l for June 2019 exceeding its MCL (8 mg/l). The only other sampling event where manganese exceeded its MCL at the SA facility was December 2013.
- Barium was observed at 0.481 mg/l at the SA for June 2019.
- Other metals observed at the SA at values above their reporting limit and below their MCL (where one has been established) for June 2019 include aluminum (13.5 mg/l), antimony (.077 mg/l), arsenic (.06 mg/l), boron (.494 mg/l), cadmium (.013 mg/l), chromium (.099 mg/l), calcium (1760 mg/l), copper (.36 mg/l), iron (210 mg/l), magnesium (103 mg/l), nickel (.069 mg/l), potassium (486 mg/l), sodium (1330 mg/l), and zinc (1.87 mg/l).
- Organics from the baseline parameters list detected at the SA facility for June 2019 were limited to 4 methyl-2 pentanone (.0857 mg/l) and acetone (.0016 mg/l).
- 1,4 dioxane was detected at 0.88 ug/l for June 2019.

- Mercury was detected at .0012 mg/l for the June 2019 at the SA facility.
- pH measured in the field was 8.0 at the SA facility.
- Sulfide was detected at 6.4 mg/l at the SA facility for June 2019.

The next round of sampling is scheduled for December 2019.



Note: Solid square indicates June 2019 data.

SA PARAMETERS	03 MCL	Aug '03	Mar '04	Sept '04	Mar '05	Sept '05	Apr'06	Oct '06	May'07	Oct'07	May_08	Oct_08	June_09	Dec_09	10-Jun
TKN	na	16.9000		21.1000	30.2000	22.3000	22.9000	19.8000	13.3000	14.2000	15.5000	20.0000	15.0000	16	8.6000
TDS	na	18800.0000	9000.0000	21000.0000	16000.0000		7000.0000	19700.0000	15700.0000	23700.0000	17000.0000	21700.0000	14200.0000	9560	13000.0000
Phenols	na	0.0170			0.0061				0.1170			0.0148	0.0103	<.01	<.01
Chloride	na	7000.0000	4750.0000	11200.0000	9250.0000	13500.0000	14700.0000	15400.0000	8400.0000	14000.0000	9500.0000	11000.0000	7500.0000	4900	21000.0000
Sulfide	na														
Iron	na	5.8900	0.0448	9.4100	7.9100	5.0600	11.6000	227.0000	6.0500	2.4700	2.3000	2.2300	9.7300	3.12	0.6700
Manganese	8 mg/l	5.6300	3.0900	4.6000	3.7400	4.3400	2.9100	6.7100	4.3700	2.4200	2.8600		2.37	1.61	2.6
Phenol	1.5 mg/l														
Xylene	2.5 mg/l *	1.5000													
1,2,4 Trimethylbenzen	na														
SULFATE	na	291.0000				56.0000	80.5000	51.3000	359.0000	314.0000	204.0000	126.0000	87.6000	77.7	130.0000
Arsenic	.4 mg/l	0.0034						0.2630							
Acetone	na ppm	49.5000													
pH	5 - 12.5		4.0000	6.0200		5.9800	6.0900	6.3200	6.7000	6.1500	5.8900	5.7600	6.1800	6.91	7.2000
Aluminum	na	0.0130	0.0415	0.0170 J	0.0475	0.0998	0.0647	6.1200	0.0620	0.0729	0.0293	0.0341	0.0962	0.0891	<.05
Barium	8 mg/l	0.9800	0.6440	1.9500	1.9400	4.5100	1.6400	2.5100	1.1500	1.4500	1.1400	1.2100	1.5700	1.3	0.9800
Lead		0.0017	0.0075			0.0180		0.2510	0.0040					.00427J	<
Zinc		0.0190		0.0140	0.0053 J		0.0136	0.8450		0.0225	0.0242	0.0368	0.0424	0.0853	<
Toluene	2.5 mg/l *														
Cadmium	.8 mg/l	0.0003													<
Vanadium		0.0005						0.0596							<
Tin															
Antimony		0.0210													<
Copper	1.6 mg/l	0.0029						0.1140			0.00515 J	0.0101		0.0443	<
Selenium	.4 mg/l	0.0270		0.0475											<
Silver	.4 mg/l	0.0010								0.0252					<
Berylium		0.0012													<
Chromium	8 mg/l	0.0027			0.0084 J	0.0111 J		0.0426							<
Nickel	8 mg/l	0.0035						0.2470							<
Thallium		0.0850						0.0343				0.0202			<
Carbon disulfide								0.004							<
Methylene Chloride	2.5 mg/l							0.0180 B	0.0047 B		0.0058 B		0.0058	.0042B	<
Alkalinity		320.0000			299	208	210	172.0000	284	193	259	230	290	318	230
Ammonia		10.7000	4.65	18.5	23.2	16.4	16.3	10.4000	9.75	24.8	0	14.9	13.2	13.1	7.6
Hardness		5710.0000	2340	7290	6190	9790	9570	6180.0000	5740	8110	595	5810	4450	1910	5300
1,4 dioxane	ug/l														

SA PARAMETERS	03 MCL	DEC_10	June_11	11-Dec	12-Jun	DEC_12	June_13	Dec_13	14-Jun	14-Dec	June_15	Dec_15	Jun_16	Dec_16
TKN	na	2.8000	1.4000	1.8000	39.0000	2.4600	3.3600 D	58.0000 D	1.9000 D	2.0000	54.9000	9.4700 D	3.8800	43.2000
TDS	na	9600.0000	1500.0000	320.0000	9100.0000	13800.0000	19500.0000 D	9000.0000 D	9230.0000	4520.0000	91100.0000	16600.0000	12.6000	39900
Phenols	na	0.003	<.001	<	<	<.05	<.005	0.0212	<.005	<.005	0.008	<.005	<.005	0.277
Chloride	na	6300.0000	110.0000	55.0000	6200.0000	34300.0000	3780.0000 D	44700.0000 D	3140.0000 D	1840.0000 D	33600.0000	6990.0000 D	########	31100.0000
Sulfide	na									<2	<2		<20	<2
Iron	na	1.8000	1.0000	26.0000	20.0000	3.4900	8.0100 B	21.2000	2.5900	1.9300	1.1500	17.8000	2.3500	<5
Manganese	8 mg/l	2.7	0.33	2.2	5.7	2.73	2.72	**12.8**	5.5	2.49	0.45	4.97	1.87	<.5
Phenol	1.5 mg/l													
Xylene	2.5 mg/l *		<		<	<	<	<		U	<		<	<.005
1,2,4 Trimethylbenzen	na		<		<			XXXXXX						
SULFATE	na	240.0000	450.0000	25.0000	320.0000	151.0000	5340.0000	11	515.0000	190.0000 D	124.0000	263.0000 D	182.0000 D	246
Arsenic	.4 mg/l		<	<		<.01	<.28	0.0051 B	<	U	U	0.0048 B	<.01	<.5
Acetone	na ppm		<	<		0.001	0.003 J	0.001 J	<	U	0.041	0.002 J	<	0.048
pH	5 - 12.5	6.8000	8.2000	7.8000	7.1000	7.1000		TEMP	4.9100	6.9500	7.1800	7.0100	6.5300	7.21/6.5
Aluminum	na	0.06	0.26	1	11	<.2	<.95	0.0228 B	<	0.332	0.0512 B	0.0527 B	<	<10
Barium	8 mg/l	0.5800	0.1100	0.0850	0.4900	0.8050	0.4900 B	4.5600	<	U	2.8300	0.6040	0.4350	<10
Lead		<	<	<	0.13	0.0078	<.1	0.0242	0.0086	U	0.0018 B	0.0042	0.0023 J	<.25
Zinc		<	0.1000	0.6200	1.6000	0.0240	<.03	0.1590	<	0.1440	0.0234	0.0109 B	0.1060	<1
Toluene	2.5 mg/l *	<	<	<	<	<	<	<	<	U	U		<	<.005
Cadmium	.8 mg/l	<	<	<	<	<.005	<.01	0.0016 B	<	U	U	0.0011 B	<	<.125
Vanadium		<	<	<	<	<.05	0.03 B	<	<	U	0.0029 B	<	<	<2.5
Tin														
Antimony		<	<	<	<	<.06	<.12	0.0067 B	<	U	0.0071 B	<	<	<3
Copper	1.6 mg/l	<	<	<	<	<.025	<.04	0.0082 B	<	0.0269	U	0.0073 B	0.0026 J	<1.25
Selenium	.4 mg/l	<	<	<	<	<.005	<.23	<	<	U	U	0.0026 B	<	<.5
Silver	.4 mg/l	<	<	<	<	<.01	<.02	0.0027 B	<	U	U	0.0035 B	<	<.5
Berylium		<	<	<	<	<.005	<.01	<	<	U	U	<	0.0009 J	<.25
Chromium	8 mg/l	<	<	<	<	<.01	0.07 B	0.003 B	<	U	0.0021 B	0.0016 B	0.0414	<.5
Nickel	8 mg/l	<	<	<	<	<.04	<.03	<	<	U	0.0018 B	0.0054 B	0.0243 J	<2
Thallium		<	<	<	<	<.01	<.19	0.0068 B	0.0133	U	U	0.0244	<	<.5
Carbon disulfide		<	<	<	<	<	<	<	<	U	U		<	<.005
Methylene Chloride	2.5 mg/l	<	<	<	<	<	<	<	<	U	U		<	<.005
Alkalinity		200	590	180	360	209	275 D	202 D	273 D	338 D	102	261 D	178	151
Ammonia		1.8	0.6	0.8	14	1.08	2.72	60 D	1.99	1.89	53.8 D	1.28	4.39 D	57.1000
Hardness		5100	570	220	2800	4500	4100 D	27000 D	3000 D	3100 D	20400 D	4700 D	3400 D	16400.0000
1,4 dioxane	ug/l													

SA PARAMETERS	03 MCL	17-Jun	Dec_17	Aug_18	Dec_18	June_19
TKN	na	28.4000	24.2000	0.5800	1.8000	17.0000 D
TDS	na	43000.0000	33200.0000	6130.0000	6300.0000	9360.0000
Phenols	na	0.0124	0.0103	0.0569 J	0.0028 J	<.01
Chloride	na	15400	57900.0000	3630.0000	2330	5830 D
Sulfide	na	<.61	<2	<2	<2	6.4
Iron	na	6.86	11.7000	0.4540	12.8	210
Manganese	8 mg/l	3.42	3.86	2.09	1.09	8.44
Phenol	1.5 mg/l					
Xylene	2.5 mg/l *	<.0005	<.002	<.003	<.003	<.003
1,2,4 Trimethylbenzen	na					
SULFATE	na	221.0000	423.0000	251.0000	267.0000 D	361.0000 D
Arsenic	.4 mg/l	<.0068	<.01	<.01	<.01	0.0599
Acetone	na ppm	0.0755	0.0264	0.0032 J	<.005	0.0016 J
pH	5 - 12.5	6.18	6.95	8.08	8.05	8
Aluminum	na	<.0134	.0823 J	0.0506 J	0.564	13.5
Barium	8 mg/l	1.62	1.08	0.205	0.17 J	0.481
Lead		<.0013	0.0058	0.0028 J	0.013	0.279
Zinc		0.0352	.0163 J	0.0097 J	0.0652	1.87
Toluene	2.5 mg/l *	<.0005	<.001	<.001	<.001	<.001
Cadmium	.8 mg/l	<.000063	<.0025	<.0025	<.0025	0.0125
Vanadium		<.0008	<.05	<.05	0.0016 J	0.0226 J
Tin						
Antimony		<.003	<.06	<.06	<.06	0.0765
Copper	1.6 mg/l	<.0025	.011 J	0.0042 J	0.0185 J	0.36
Selenium	.4 mg/l	<.0062	<.01	<.01	<.01	<.01
Silver	.4 mg/l	<.0036	<.01	<.01	<.01	0.0043 J
Berylium		0.0051	.0018 J	<.005	<.05	<.005
Chromium	8 mg/l	<.0016	<.01	0.003 J	0.0067	0.0989
Nickel	8 mg/l	<.00088	<.04	<.04	<.04	0.069
Thallium		<.0036	.0025 J	<.01	<.01	0.0276
Carbon disulfide		<.0005	<.001	<.001	<.001	<.001
Methylene Chloride	2.5 mg/l	<.0005	<.001	<.001	<.001	<.001
Alkalinity		206	149	225	223	183
Ammonia		11.8	26.9	0.05 J	0.75	4.7
Hardness		11800	9600	2500	2200	4000
1,4 dioxane	ug/l			0.37 JH	0.75	0.88

TOBSWMF's Leachate Monitoring Program

New Northern U Ashfill

June 2019

Pursuant to NYSDEC 6NYCRR Part 363 (formerly part 360) requirements for the operation of the Town of Babylon's New Northern U Ashfill (NNU), leachate from the NNU Primary and Secondary Leachate Collection and Recovery System (PLCRS and SLCRS) were sampled in accordance with the procedures detailed in the TOBSWMF's SAP (TOBDEC, 2018). These facilities are sampled semi-annually for baseline parameters as part of Babylon's Leachate Monitoring Program (LMP). For 2018 the NYSDEC required that sampling of the Babylon leachate facilities be expanded to include 1,4 dioxane. This document includes the laboratory report from Pace Analytical Services, Inc., a spreadsheet summarizing parameters of concern at the facility, a Piper diagram of leachate from each liner system, and a discussion of the results.

The NNU which began accepting ash in 2003 sits atop the ONU, separated by a double liner system, with each layer consisting of a bentonite blanket, liner and geocomposite. The NNU SLCRS is also separated from the ONU by the ONU cap. Both systems serve as near impermeable barriers. The elevation of the NNU system (approximately 25-30 feet above the water table) prevents groundwater infiltration from being considered a source of leachate to the system.

The attached spreadsheet provides a historical overview of leachate composition at the NNU, highlighting any exceedance of an MCL from the facility's PLCRS and SLCRS. The following discussion summarizes any noteworthy findings from the June 2019 sampling and provides follow-up analysis or discussion wherever necessary or recommended in previous reports.

- For the June 2019 LMP pH was 6.94 at the NNU SLCRS and 7.77 at the NNU PLCRS.
- The overall leachate characteristics of the NNU PLCRS and SLCRS largely conform to the historical dataset for this facility.
    - TOBDEC maintains that the chloride results (0.2 mg/l) at each NNU facility for June 2019 were erroneous. Prior results (August 2018) included a similar low value. In response to TOBDEC's inquiry, the lab responded stating " The instrument was over calibration for the chloride in the anion run and the software only integrated a small portion of the peak causing the software to flag the sample as a non-detect or a lower value that is actually present. The analyst did not catch that the software missed the peak in her review of the data". Pace Labs has not yet responded to TOBDEC's inquiry for this result.

- Arsenic was not observed above its reporting limit at the NNU SLCRS and NNU PLCRS for June 2019. Lead was observed at 71.6 ug/l (NNUP) and 61.8 ug/l (NNUS). Low values of arsenic and lead have been intermittently observed at this facility.
- Mercury was observed below its reporting limit at the NNU PLCRS (.00013 mg/l) and below its mdl at the NNU SLCRS (<.0002 mg/l) for June 2019.
- Organics from the baseline parameters list observed at the NNU for June 2019 were limited to low concentrations of acetone, MEK, 4 methyl 2 pentanone and carbon disulfide. Acetone was observed at .11 mg/l at the NNU PLCRS and .224 mg/l at the NNU SLCRS. Low concentrations of acetone have been observed at this facility since June 2010.

  MEK was detected at the NNU PLCRS at .0062 mg/l and .0241 mg/l at NNU-SLCRS during June 2019 sampling. Trace values of MEK have been intermittently observed at this facility.

  Carbon disulfide was not detected at the NNUP facility and was observed at .001 mg/l at the NNUS. Trace values of carbon disulfide have been observed intermittently at the NNU facility.

  4 methyl 2pentanone was detected at .0025 mg/l at the NNUP facility and .0049 mg/l at the NNUS. Trace values of 4 methyl 2 pentanone have been observed intermittently at the NNU facility.

  TTO (>.01 mg/l) as defined on the Town of Babylon discharge certificate issued by Suffolk County Department of Public Works is <.01 mg/l at the NNU facility.

  Total baseline organics for the NNU PLCRS was .1187 mg/l and .254 mg/l at the NNU SLCRS.

- 1,4 dioxane was observed at 4.8 ug/l at the NNU PLCRS and 2.1 ug/l at the NNU SLCRS.
- Barium was reported below its MCL at the NNU PLCRS (2.74 mg/l) and NNU SLCRS (2.07 mg/l) for June 2019. Barium has been observed exceeding its MCL at the NNU PLCRS 5 times over 32 sampling events through the life of the facility. Barium has exceeded its MCL at the NNU SLCRS 3 times over 32 sampling events through the life of the facility. The last exceedance for barium at each of the facilities was December 2012.
- Other metals observed at the NNU PLCRS for June 2019 include aluminum (.507 mg/l), boron (3.85 mg/l), chromium (.07 mg/l), cobalt (.0098 mg/l), calcium (12,400 mg/l), copper (.008 mg/l), iron (.452 mg/l), magnesium (3.49 mg/l), manganese (.136 mg/l), potassium (4900 mg/l), sodium (12600 mg/l), selenium (.167 mg/l), thallium (.024 mg/l)

and zinc (.121 mg/l). Copper and zinc were observed in excess of their MCL's in December 2017.

- Other metals observed at the NNU SLCRS for June 2019 include beryllium (.002 mg/l), boron (4.68 mg/l), chromium (.094 mg/l), cobalt (.0067 mg/l), calcium (11400 mg/l), iron (.204 mg/l), magnesium (3.63 mg/l), manganese (.425 mg/l), potassium (4340 mg/l), sodium (10700 mg/l), selenium ((.204), thallium (.029 mg/l) and zinc (.099 mg/l).
- Sulfide exceeded its MCL of 12 mg/l at the NNUS (72 mg/l) and NNUP (72 mg/l). Sulfide also exceeded its MCL at both facilities for December 2017 and August 2018 and at the NNUS for December 2018.
- BOD exceeded its MCL (300 mg/l) at the NNUP (861 mg/l) and was observed at the NNUS at 254 mg/l.
- A Piper diagram could not be prepared for June 2019 due to the questionable value for chloride in provided in the lab report.

The next round of sampling is scheduled for December 2019.

NNUP PARAMETERS	95 MCL	03 MCL	Aug_03	Mar_04	Sept_04	Mar_05	Sept_05	Apr_06	Oct_06	May_07	Oct_07	May_08	Oct_08	June_09	Dec_09	Jun_10	DEC_10	Jun_2011	DEC_11	June_12	Dec_12	
CHLORIDE	500mg/l	na	24800	6400	36100	31600	32100	18800	32600	17500	33000	30000	25300	34500	27800	51000	45000	46000	42000	55000	57800	
SULFATE	500mg/l	na		357	92.3	11.3	1.51	344	12.4	323	32.2	85.5	147	104	600	70	<	85	50	280	<5	
Alkalinity										211	130	169	128	143	157	360	230	280	220	240	270	
Na										3080	38.6	925	1800	1160	33.9	10000	9000	9200	8700	12000	17200	
K										2410	5310	3930	3410	2960	434	6600	6000	6000	5800	7400	8710	
Ca										4930	8190	6640	6660	6150	1380	12000	11000	11000	11000	14000	19800	
Mg										14.3	0.509	0.407	0.86	1.03	3.6	3.9	6.1	8.4	68	8.6	<5	
pH	6.5-8.5	5 - 12.5	5.34	7.89	8.96	9.07	8.87	8.91	8.78	7.12	8.37	9.01	9.2	8.29	6.95	6.6	6.57	6.6	6.7	6	6.15	
TDS	1000 mg/l	na	30700	11000	54000	46000	58000	11600	53700	30900	57000	52400	42700	50500	43300	81000	69000	88000	68000	94000	111000	
PHENOL	0.002mg/l	1.5 mg/l	0.01																			
PHENOLS				1.52		0.02	0.02		0.09	0.26		0.0888	0.0128		0.0935	0.19	0.066	0.16	0.16	0.1	0.089	
IRON	0.6mg/l	na	3.64	0.09	0.08	1.81	0.1	0.13	0.04	1.41	0.02	0.0289	0.0642	0.217	**5.27**	0.58	2.2	0.54	0.9	9.3	0.368	
MANGANESE	0.6mg/l	8 mg/l	19.7	0.06	0.82	0.69	0.26	0.11	0.09	0.72	0.14	0.0554	0.0848	0.168	0.528	2.1	1.1	0.88	0.94	4.6	1.01	
TKN	10 mg/l	na	18.2	5.2	36.4	70.2	88.4	11.4	42.2	14.2	42.9	83.8	77.8	66.2	52.4	78	87	78	130	98	72.8	
ALUMINUM	2mg/l	na		0.48	0.69	0.45	0.83	0.94	0.93	0.28	0.98	1.28	0.54	0.478	2.94	0.31	0.52	0.49	<	1.8	0.12	B
ACETONE	50 mg/l	50 mg/l	38.9													0.15	0.12	0.16	0.22	0.34	0.34	
Methyl Ethyl Ketone	5000 ppm	na														<	0.018	<	<	0.15	0.036	
Arsenic	50 ppb	400 ppb					20.9J									65	<	<	<	<	5.7	B
Lead	50 ppb	400 ppb		106	15.6	333	8.97J		0.06	.01J					193	<	<	<	<	<	28.7	
Barium		8 mg/l	3.52	1.31	9.82	11.5	18	3.1	7.11	2.7	6.6	4.96	5.34	4.1	2.73	0.64	7	4.5	**37**	5.7	11.7	
Cadmium		.8mg/l			.013J	0.01		73.1		.01J					0.0586	<	<	<	<	<	<	
Copper		1.6		0.16		0.05			.01J	0.1		0.00314J	0.0128	.0122J	0.652	0.19	<	<	<	0.1	<	
Selenium		.4mg/l	0.05			0.05										<	<	<	<	<	0.0154	
Zinc		5 mg/l	0.01	0.12		0.32	0.0097		0.19	0.19	0.04	0.0228	0.0341	0.0505	1.54	0.18	<	0.22	0.34	0.39	0.065	
Carbon disulfide	mg/l					0.0076										0.007	<	0.016	0.024	0.003	<	
BOD	300 mg/l					136			220	28.6	129	175	67	**630**	240	280		250	230	**310**	<	
Antimony			0.01												0.0802	0.03	<	<	<	<	0.0089	B
Beryillium																<	<	<	<	<	<	
Chromium		8 mg/l	0.01				0.0063							.0144J	0.0344	<	<	<	<	0.38	0.005	B
Nickel		8 mg/l	0.01								.01J	.01J	0.0094	.0103J	0.0247	<	<	<	<	0.27	<	
Thallium			0.1									0.308	0.0492	0.0358		<	<	<	<	<	0.0072	B
Vanadium					.008J		.00575J									<	<	<	<	<	0.0037	B
methylene chloride	2.5 mg/l								.02B	2.6B		.011B	11B	7B		<	<	<	<	<	<	
Toluene											.64J					<	<	<	<	<	<	
Mercury															0.0005	<	<	<	<	<	<	
4-Methyl-2-pentanone																					0.005	
sulfide mg/l	12 mg/l																					
1,4 Dioxane	ug/l																					

NNUP PARAMETERS	June_13		Dec_13		Jun_14		DEC_14		June_15		Dec_15		Jun_16		Dec_16		June_17	Dec_17	Aug_18		Dec_18		June_19	
CHLORIDE	56300		65100	D	55500	D	35300	D	59100		63300		49100		54500		43600	214000	<2		44400	D	<2	
SULFATE	**4730**		6.82		<5		256	D	<5	U	<5		<5		<5		11.4	18.3	0.68	J	15.5		15.6	
Alkalinity	255		269	D	276	D	73.5		258	D	333		285		272		245	181	296		154		327	
Na	10900		13400		15600	D	8740	D	14400		647		14400		13600		13700	13400	13200		13400	D	12600	D
K	5220		6180		7450	D	4340	D	6730		6910		5800		5820		5510	5190	4970		5320	D	4900	D
Ca	13400		16400		19100	D	11000	D	16600		17000		16600		15700		14300	15200	15100		12900	D	12400	D
Mg	20.5		7.24		13.4		12.2		6.62		4.75		6.58		<10		3.98	2.03	<10		4.08		3.49	
pH			6.45		3.69		6.83		6.23		5.83		6.31		6.38		6.09	7.17	6.78		6.85		7.77	
TDS	178000		148	D	114000		74600		175000		153000		139000		88500		125000	114000	86700		80900		79800	
PHENOL																								
PHENOLS	0.051		0.239	D	0.12		0.096	D	0.0664	D	0.284	D	0.352	D	0.339		0.0401	0.16	0.288		0.119		0.099	
IRON	0.77		0.143		0.176		0.36		0.105		0.942		0.296		<5		0.106	.0131	0.585	J	0.184		0.452	
MANGANESE	1.34		0.887		1.08		0.674		0.734		0.617		0.46		0.896		0.332	0.289	0.715		0.0761		0.136	
TKN	126		138	D	114	D	76.3	D	135	D	159	D	105	D	113		126	111	110		89.4	D	97.9	
ALUMINUM	0.95		0.0998	B	<.2			U	0.137	B	0.233		0.109	J	<10		<.0134	0.237	<10		0.323		0.507	
ACETONE	0.47	E	0.38	E	0.21	E	0.28	E	0.29	D	0.48	D	0.31	D	0.591		0.404	.184	0.555	D	0.116		0.11	
Methyl Ethyl Ketone	0.062		0.048	Z	0.03		0.031		0.041		0.047		0.034		0.0495		0.0193	0.0205	0.0442		0.0067		0.0062	J
Arsenic	<		3.7	B	58.3			U		U	9	B	8.6	J	<500		<6.8	<500	<500	D	<10		<200	
Lead	215		7.5		8.2			U		U	32		12.4		<250		<25.4	286	<250		21.8		71.6	
Barium	3.85	B	2.94		3.2		3.01		3.73		3.86		3.39		<10		3.14	2.57	2.84	J	2.57		2.74	
Cadmium	0.02	B	<		<			U		U	<		<		<.125		<.000063	<.0025	0.0176	J	<.0125	D	<.05	D
Copper	<		0.0061	B	<		0.035			U	<		0.004	J	<1.25		<.0025	**2.97**	<1.25		0.0298		0.0081	J
Selenium	<	<			0.0058			U	0.0029	B	0.0036	B	<		<.5		<.0062	<.01	<.5		0.149	D	0.167	JD
Zinc	0.15	B	0.0151	B	0.0223		0.236		0.0156	B	0.0557		0.01	J	<1		<.0012	**9.8**	0.547	J	<.1	D	0.121	JD
Carbon disulfide	<	<			<			U		U	<	<			<.005		<.0005	0.0021	0.0017		0.0032		<.001	
BOD	281		**405**		**328**		79		**402**		**623**		**412**		239	157	**356**	**363**			**310**	D	**861**	D
Antimony	<		<		<			U	0.0134	B	0.006	B	0.0136	J	<3		<.003	<.06	<3		<.06		<.06	
Beryillium	<		<		<			U		U	<		0.003	J	<.25		<.00057	0.006	<.25		<.025		0.0023	JD
Chromium	0.14	B	0.0042	B	0.012		0.0218		0.0092	B	0.0984		0.0593		<.5		0.0102	0.0215	<.5		0.0285		0.0698	
Nickel	<		<		<			U	0.0025	B	0.0168		0.0029	J	<2		<.00088	<.04	<2		0.0018	J	<.04	
Thallium	<		<		<			U	0.004	B	<	<			<.5		<.0036	<.01	<.5		0.0094	J	0.0235	
Vanadium	<		0.0022	B	<			U	0.003	B	0.0074	B	<		<2.5		<.0008	<.05	<2.5		<.05		<.05	
methylene chloride	<		<		<			U		U	<	<			<.005		<.0005	<.001	<.001		<.001		<.001	
Toluene	<		<		<			U		U	<	<			<.005		<.0005	<.001	<.001		<.001		<.001	
Mercury	0.00017	B	<		<			U		U	<	<			<.0002		<.000023	<.0002	<.0002		<.0002		0.00013	J
4-Methyl-2-pentanone	0.008		0.009		<			U	0.006		0.01		0.006		0.013		<.0005	.0046	0.0081	J	0.0014	J	0.0025	J
sulfide mg/l													**35.4**		<2	3	**88**	**147**			8		**72**	
1,4 Dioxane																			1	H	5.4		4.8	

NNUSPARAMETERS	95 MCL	03 MCL	Aug '03	Mar '04	Sept '04	Mar '05	Sept '05	April '06	oct '06	May '07	Oct'07	May_08	Oct_08	June_09	Dec_09	Jun_10	DEC_10	Jun_2011	DEC_11	Jun_12	Dec_12
CHLORIDE	500mg/l	na	11400.0	15800.0	5700.0	16500.0	12000.0	14900.0	16400.0	16700.0	22000.0	23600	13600	11300	31300	39000	51000	37000	52000	54000	48000
SULFATE	500mg/l	na		396.00	657.00	751.00	1070.00	1140.00	440.00	110.00	128.00	144	357	60.9	0	100	5	7	<5	5	<5
Alkalinity										144.00	227.00	204	140	145	157	140	180	180	130	180	153
Na										3710.00	42.30	933	1220	897	970	5200	12000	8700	8800	11000	13400
K										3430.00	3200.00	3450	1680	1490	2540	5200	7900	5600	5800	7100	7160
Ca										6890.00	5410.00	5890	3780	2760	7350	11000	14000	11000	11000	13000	16100
Mg										0.83	13.10	6.43	28.9	7.28	13.9	31	13	9.8	8.8	11	6.35
pH	6.5-8.5	5 - 12.5	5.52	7.33	7.17	6.76	7.36	7.96	6.99	9.93	9.58	9.2	9.11	6.77	7.28	6.6	6.4	6.8	6.7	6.3	6.26
TDS	1000 mg/l	na	24200.0	6200.0	16000.0	27000.0	18000.0	8810.0	31400.0	29700.0	36500.0	40000	30900	21500	51500	70000	82000	85000	70000	91000	106000
PHENOL	0.002mg/l	1.5 mg/l																			
PHENOLS				1.9		0.0			0.0	0.3		0.051	0.0173	0.0142		0.01	0.2	0.11	0.14	0.31	<.025
IRON	0.6mg/l	na	2.09	0.01	2.98	1.48	4.87	0.58	4.79		0.49	5.26	2.78	2.09	0.827	2.4	12	0.71	0.7	1.3	0.715
MANGANESE	0.6mg/l	8 mg/l	7.87	4.95	2.74	2.02	1.10	2.89	1.32	0.22	1.02	0.596	1.71	1.44	2.27	3.6	<	0.95	0.98	1.5	1.49
TKN	10 mg/l	na		4.64	13.40	6.65	7.06	4.20	5.20	32.20	22.00	20.8	16.2	35.4	78.8	64	96	78	140	110	126
ALUMINUM	2mg/l	na	1.53	0.05	0.13	0.35	7.71	0.59	9.41	0.65	0.05	0.908	0.0352	0.243		0.2	0.5	0.63	<.1	<	0.0426 B
ACETONE	5 ppb	50 mg/l														0.037	0.14	0.19	0.2	0.35	0.43
Methyl Ethyl Ketone	5 ppb	ppm														<	0.02	<	0.033	0.05	0.051
Arsenic	50 ppb	400 ppb		17.00 J					0.04							100	<	<	<	<	11
Lead	50 ppb	400 ppb				22.00	21.50		110.00	20.00	10.00 J	27.8	10.3	25	3.8	<	<	<	<	<	29.4
Barium		8 mg/l	2.36	1.26	0.96	2.15	1.33	0.58	2.02	6.13	5.45	3.84	1.94	3.53	7.62	**9.6**	**10**	5.3	5.4	6.2	9.29
Cadmium		.8mg/l	0.01	0.02		0.01	0.01 J	0.01	0.09			0.0107				<	<	<	<	<	<
Copper		1.6mg/l	0.01	0.02 J		0.03	0.04	0.02	0.33		0.00 J	0.12	0.115	0.176	0.0087	0.06	<	<	<	<	<
Zinc		5 mg/l	0.40	0.26	0.19	0.25	0.12	1.09	0.02	0.04	1.09	0.142	0.11	0.0323	0.37	0.12	0.1	0.33	0.21	0.0243	
Antimony			0.01	0.02 J											0.2	<	<	<	<	0.0061 B	
Beryillium			0.00												<	<	<	<	<	<	
Chromium		8 mg/l	0.01			0.04		0.06				0.184	0.00866 J	0.0279		<	<	<	<	<	<
Nickel		8 mg/l	0.02	0.02		0.07		0.03				0.244	0.0146 J	0.0204	0.00646	<	<	<	<	<	<
Selenium		.4mg/l	0.04					0.03								<	<	<	<	<	0.0169
Thallium			0.09									0.0277	0.0303	0.0189	0.0258	<	<	<	<	<	<
Vanadium			0.00	0.01 J												<	<	<	<	<	0.0038 B
Silver		.4mg/l		0.02 J											.00838J	<	<	<	<	<	<
methylene chloride		2.5 mg/l						0.02 B	3.70 B			0.026 B	11 B	11 B	10B	<	<	<	<	<	<
ammonia												34.8	7.33	31	77	61	93	64	72	98	72.3
hardness												762	9550	6930	18400	27000	36000	26000	27000	33000	32400
carbon disulfide																		0.012	0.007	<	<
4methyl2pentano	ppb																				0.006
2 hexanone																					
sulfide	12 mg/l																				
BOD	300 mg/l																				
1,4 dioxane	ug/l																				

NNUSPARAMETERS	95 MCL	June_13		13-Dec		Jun_14		DEC_14		June_15		Dec_15		Jun_16		Dec_16		June_17		Dec_17		Aug_18		Dec_18		June _19	
CHLORIDE	500mg/l	51600	D	99700	D	52600	D	38500	D	96800	D	58100		47900	D	63300		44500.0		48300	D	<2		47700	D	<2	
SULFATE	500mg/l	**4820**	D	<5		<5		191	D	<5	U	<5		337		<5		<.21		<5		0.32	J	2.4	J	<5	
Alkalinity		123	D	240	D	210	D	89.1		126		217		211		392		241		240		331		227		217	
Na		12100		13600		13800	D	9780	D	13900		597		14800		16000		10800.00		12800	D	13100		13800	D	10700	D
K		5680		6280		6820	D	4830	D	6220		6310		5970		6620		4540.00		5160	D	4990		5500	D	4340	D
Ca		14200		15400		16700	D	12100	D	16600		15900		17900		17600		12200.00		15200	D	14900		14600	D	11400	D
Mg		12.7	B	5.05		13		13.1		7.78		4.58		5.64		<10		7.67		3.46		4.02	J	4.65		3.63	
pH	6.5-8.5			6.06		3.96		6.76		6.31		5.82		6.35		6.37		5.74		7.42		6.63		6.65		6.94	
TDS	1000 mg/l	159000	D	138000		110000		79400		151000		141000		139000		94300		87000.00		112000		89400		78100		69700	
PHENOL	0.002mg/l																										
PHENOLS		0.105		0.27	D	0.109		0.0918	D	0.041		0.13	D	0.206	D	0.334		0.06		.15	D	0.416		0.247		0.16	
IRON	0.6mg/l	0.26	B	0.129		0.934		0.45		0.121		2.78		0.246		<5		0.12		<1	D	<1		0.0524		0.204	
MANGANESE	0.6mg/l	1.41	B	0.868		0.941		0.786		0.981		1.12		0.814		0.72		0.58		0.534		0.637		0.432		0.425	
TKN	10 mg/l	124	D	130	D	107	D	87.5	D	100	D	140		101	D	110		126.00		127		122		103	D	56.9	
ALUMINUM	2mg/l	<		0.0219	B	<		0.214			U	0.449		<		<10		<.0134		<.2		<10		0.0375	J	<.2	
ACETONE	5 ppb	0.46	E	0.61	EZ	0.23	E	0.33	E	0.31	D	0.43	D	0.34	D	0.494		0.59		.306	D	0.608		0.318	D	0.224	D
Methyl Ethyl Ketone	5 ppb	0.069		0.069		0.028	D	0.036		0.037		0.065		0.045		0.0446		0.02		0.0377		0.046		0.0487		0.0241	
Arsenic	50 ppb	<		6.2	B	57.7			U	1.9	B	3.2	B	10.1		<500		<6.8		<500	D	<500		<10		<200	D
Lead	50 ppb	126	B	37.9		20			U	1.8	B	6.1		14.4		<250		20.10		57		<250		24.1		61.8	
Barium		4.88	B	2.81		3.75		3.37		3.43		3.45		3.17		<10		2.59		2.64		2.79	J	2.52		2.07	
Cadmium		<		<		<			U		U	<		<		<.125		<.063		<.125	D	<.125		<.0125	D	<.05	D
Copper		<		<		<		0.0375			U	0.0064	B	0.0046	J	<1.25		0.11		0.455		<2.5		<.025		<.025	
Zinc		<		0.0184	B	0.0223		0.251		0.0196	B	0.0601		0.0146	J	<1		0.65		1.42		0.143	J	<.1	D	0.0988	JD
Antimony		<		0.0057	B	<			U	0.012	B	0.008	B	0.0189	J	<3		<.003		<.06		<3		<.06		<.06	
Beryillium		<		<		<			U		U	<		0.0022	J	<.25		<.00057		0.0058		<.25		<.025	D	0.0022	JD
Chromium		0.12	B	0.0133		0.136		0.0112		0.0114		0.192		0.0079	J	<.5		<.0016		.006	J	<.5		0.0082	J	0.094	
Nickel		<		<		<			U	0.0018	B	0.0468		<		<2		<.00088		<.04		<2		<.04		<.04	
Selenium		<		<		<			U	0.0061		<		<		<.5		<.0062		.0068	J	<.5		<.01		0.204	D
Thallium		<		0.0012	B	<			U	0.0049	B	0.0069	B	<		<.5		<.0036		<.01		<.5		0.0161		0.0289	
Vanadium		<		0.0032	B	<			U	0.0019	B	0.0084	B	0.0043	J	<2.5		<.0008		<.05		<2.5		<.05		<.05	
Silver		0.0288	B	<		<			U		U	<		<		<.5		<.0036		<.01		<.5		<.05	D	<.01	
methylene chloride		<		<		<			U		U	<		<		<.005		<.0005		<.001		<.001		<.001		<.001	
ammonia		124	D	139	D	120	D	95.7	D	124	D	157	D	149	D	154		120		121		20.1		96.2	D	93.7	D
hardness		36600	D	37600	D	32200	D	27500	D	38400	D	38600	D	37400	D	40000		31200		34400		8000		32000		29000	
carbon disulfide		<		<		<			U		U	<		<		<.005		0.0778		0.0051		<.001		0.0118		0.001	
4methyl2pentano	ppb	0.009		0.009		<			U	0.006		0.016		0.008		0.0139		<.0005		0.0079		0.0077		0.0074		0.0049	J
2 hexanone												0.002	J	<		<.005		<.0005		<.005		<.005		<.005		<.005	
sulfide	12 mg/l													**20.2**		<2		5.4		**126**		**170**		**64**		**72**	
BOD	300 mg/l																			**387**		**356**		294		254	D
1,4 dioxane	ug/l																					0.96	H	3.3		2.1	

TOBSWMF's Leachate Monitoring Program

Cell 7

June 2019

Pursuant to the NYSDEC operating permit for the operation of the Cell 7 Ashfill (Cell 7), leachate from that facility's PLCRS was sampled in accordance with the procedures detailed in the TOBSWMF's SAP (TOBDEC, 2018). The Cell 7 operating permit requires semiannual sampling of leachate for expanded parameters plus a scan for dioxins and furans from the facility's PLCRS. The expanded parameters list was modified and is now located within 6NYCRR part 363-4.6(h). The revised expanded parameters list includes 1,4 dioxane, fluorinated alkyl substances (PFOA's) and various other parameters (appendix 2). This report includes the laboratory report from Pace Analytical Services Inc., a spreadsheet summarizing the results, a Piper diagram and brief discussion.

- The overall leachate characteristics of the Cell 7 facility largely conform to the historical dataset for this facility.
    - TOBDEC maintains that the June 2019 chloride result (0.2 mg/l) reported for Cell 7 was erroneous. Prior results (August 2018 at the NNU facility) included a similar low value for chloride. In response to TOBDEC's inquiry, the lab responded stating " The instrument was over calibration for the chloride in the anion run and the software only integrated a small portion of the peak causing the software to flag the sample as a non-detect or a lower value that is actually present. The analyst did not catch that the software missed the peak in her review of the data". Pace Labs has not yet responded to TOBDEC's inquiry for the June 2019 result.
- A Piper diagram could not be prepared for June 2019 without a reliable value for chloride.
- For June 2019 pH at Cell 7 was measured at 7.81.
- Analysis for 2378 TCDD in June 2019 was ND (Reporting limit 10 pg/l).
- Analysis for 1,4 dioxane for June 2019 was reported at <100 ug/l using EPA Method 8260C and 2.4 ug/l using EPA Method 8270D by SIM.
- Analysis for fluorinated alkyl substances (PFAS) was not performed pursuant to the modified expanded parameters list. Inquiry to Pace labs as to why this analysis was not performed remains pending.
- Mercury was detected at (.00015 ug/l) at Cell 7 for June 2019.
- Organics from the revised expanded list observed during June 2019 included acetone (.103 mg/l), MEK (.011 mg/l), phenol (.115 mg/l), 4methyl-2pentanone (.0014 mg/l(est)), dinoseb

(.0003 (est)), 2,4 D (.0017 mg/l), Acetonitrile (.128 mg/l),3-4 methylphenol (.11 mg/l) and 2methylphenol (.001 mg/l). Total expanded organics observed for June 2019 was .474 mg/l.

- TTO (>.01 mg/l) observed at the Cell 7 facility for June 2019 is .115 mg/l. This is below the overall TTO limit of 10 mg/l, and below the limit for acid extractable organic compounds of 1.5 mg/l set forth in the Town of Babylon Discharge Certification issued by SCDPW.
- No metals were observed above their MCL. Metals observed above their RL include barium (6.45 mg/l), boron (.334 mg/l), calcium (9750 mg/l), iron (.15 mg/l), magnesium (4.42 mg/l), manganese (1.44 mg/l), potassium (6390 mg/l), selenium (.125 mg/l), sodium (9900 mg/l) and zinc (.132 mg/l).

The next round of sampling for leachate at the Cell 7 facility is scheduled for December 2019.

	CELL 7 PLCRS													
				07/01/13	3/13/2014	3/13/2014	06/25/14	12/12/14	06/16/15	12/14/2015				
				7/1/2013	13-Dec	DUP_1213	6/25/2014	12/12/2014	6/16/2015	12/14/2015	6/20/2016	Jan-17	Sept_17	Dec_17
TestNo	Analyte	CAS	Units											
	pH				7.88	1/30/2014	5.91	6.93	6.95		6.01	8.21	6.48	
	DO		mg/l		2.24	1/30/2014	1.31	0.86	1.77		0.87	1.87	0.53	
	Spec cond				61484		50900	45794	48822		56196	25443	65674	
	ORP						-256.4	-281.9	-276.2		-79.5	11.5	-326.5	
SW8270C	Pyrene	129-00-0	µg/L	10 U	10 U		ND U	ND U	ND U		10U	<2.5		<5.0
SW8270C	Safrole	94-59-7	µg/L	10 U	10 U		ND U	ND U	ND U	10 U	10U	<2.5		<5.0
SW9014	Cyanide	57-12-5	UG/L	10.0 U	10 U		50.0 U	10 U	20 U	10 U	10U	<2.9	<10	
SW9060	Total Organic Carbon		mg/L	51.6 D	108 D		35.2	88.0 D	21.3	2.5	22.6	<0.63	43.2	
E1613	Dioxin		Pg/L	1.0 U	10 U		ND	ND	ND U	10 U	10 U			
E300.0	Bromide	24959-67-9	mg/L	308 D	336 D			311 D	ND U	230 D	248D	117	373	
E300.0	Sulfate	14808-79-8	mg/L	5140 D	55 D		157 D	270 D	720 D	364 D	329D	338	375	
E351.2	Nitrogen, Kjeldahl, Total		mg/L	63.6 D	95 D		85.0 D	61.2 D	49.7 D	52.0 D	57.2D	17.1	67	
E353.2	Nitrate as N	14797-55-8	mg/L	2.50 U	2.00 U		2.00 U	0.100 U	0.100 U	0.10 U	.1U	<0.0050	<.05	
E353.2	Nitrite as N	14797-65-0	mg/L	0.100 U	0.100 U		0.100 U	0.100 U	0.100 U	0.10 U	.1U	<0.0050	<.05	
E410.4	Chemical Oxygen Demand		mg/L	517 D	1220 D		445 D	852 D	550 D	175 D	1400 D	560	1560	
E420.1	Phenolics, Total Recoverable		µg/L	49.4 D	309 D		66.6	47.5	54.8 D	5.0 U	41.9	76.2	110	
M3500-Cr D	Chromium, Hexavalent	18540-29-9	mg/L	0.0200 U	0.0200 U		0.0200 U	0.0200 U	0.0200 U	0.02 U	0.0200 U	<0.0030	<.1	
SM2120B	Color		units	75 D	150 D		200 D	150 D	75.0 D	15.0	25.0	40.0	25	
SM2320B	Alkalinity, Total (As CaCO3)		mg/L	181 D	266 D		223 D	273 D	175 D	119 D	122	78.6	160	
SM2340C	Hardness (As CaCO3)		mg/L	17200 D	13100 D		14200 D	17700 D	17800 D	13200 D	25800 D	6400	19600	
SM2540C	Total Dissolved Solids		mg/L	93900 D	39300 D		49400	51700	74000	55500	61100	2960	74800	
SM4500-CL-	Chloride	16887-00-6	mg/L	23500 D	21600 D		21800 D	27900 D	26500 D	18400 D	18600 D	**8320**	31600	
SM4500-NH	Nitrogen, Ammonia (As N)	7664-41-7	mg/L	55.8 D	89.5 D		79.0 D	58.1 D	63.9 D	46.3 D	66.5 D	16.3	56.4	
SM5210B	Biochemical Oxygen Demand		mg/L	42	101		30	266	25	10 U	4	<3.3	43.5	
SW6010B	Aluminum	7429-90-5	UG/L	190 U	28.0 B		43.9 B	200 U	17.6 BN	39.5 B	200 U	200 U		
SW6010B	Antimony	7440-36-0	UG/L	24.0 U	4.0 B		15.8 B	60.0 U	13.2 BN	10.9 B	15.7 J	20.3 J		
SW6010B	Arsenic	7440-38-2	UG/L	56.0 U	8.4 B		39.0	19.1	11.4 N	21.1	19.9	7.6 J		
SW6010B	Barium	7440-39-3	UG/L	3170 B	2430		3490	2750	3940	2790	4250	954		
SW6010B	Beryllium	7440-41-7	UG/L	2.0 U	0.14 U		0.091 U	5.00 U	0.15 U	0.20 U	1.4 J	0.61 J		
SW6010B	Boron	7440-42-8	UG/L	958 B	381		333	666	673	480	651	429		
SW6010B	Cadmium	7440-43-9	UG/L	2.0 U	0.11 U		0.14 U	5.00 U	0.16 U	0.10 U	2.5 U	2.8	<2.5	
SW6010B	Calcium	7440-70-2	UG/L	6610000	6300000		7460000	7100000 D	7360000	5490000 DE	8830000	2570000	7180000	
SW6010B	Chromium	7440-47-3	UG/L	8.0 U	3.2 B		3.8 B	10.0 U	2.8 B	41.9	10 U	10 U		
SW6010B	Cobalt	7440-48-4	UG/L	8.0 U	0.19 U		0.16 U	50.0 U	1.5 B	0.20 U	50 U	2.6 J		
SW6010B	Copper	7440-50-8	UG/L	90.0 B	13.1 B		4.3 B	28.9	0.37 U	4.0 B	10.4 J	25 U		
SW6010B	Iron	7439-89-6	UG/L	896 B	839		1560	1480	894	3110	1230	1680	260	
SW6010B	Lead	7439-92-1	UG/L	20.0 U	10.6		7.7	3.00 U	0.85 UN	1.3 UN	5.8	<50	<100	
SW6010B	Magnesium	7439-95-4	UG/L	9900 B	3710 B		4560 B	7160	8620	9510	10400	8040	24000	
SW6010B	Manganese	7439-96-5	UG/L	2640	1690		2300	852	2100	672	755	304	861	
SW6010B	Nickel	7440-02-0	UG/L	6.0 U	0.34 U		0.29 U	40.0 U	2.8 B	0.30 U	40 U	3.1 J		
SW6010B	Potassium	7440-09-7	UG/L	2990000	3570000		3910000	3990000 D	3860000	2900000 D	4170000	1270000	415000	
SW6010B	Selenium	7782-49-2	UG/L	46.0 U	2.2 B		1.7 B	5.00 U	2.7 UN	2.2 UN	10 U	10 U		
SW6010B	Silver	7440-22-4	UG/L	4.0 U	0.43 U		0.37 U	10.0 U	0.87 UN	0.50 U	10 U			
SW6010B	Sodium	7440-23-5	UG/L	6310000	5760000		6490000	6240000 D	6230000	4870000 DE	7100000	2190000	6730000	
SW6010B	Thallium	7440-28-0	UG/L	38.0 U	1.3 U		4.6 B	10.0 U	1.0 U	1.9 U	10 U	10 U		
SW6010B	Tin	7440-31-5	UG/L	14.0 U	3.7 B		7.7 B	40.0 U	6.6	3.4 B	3.2 J	50 U		
SW6010B	Vanadium	7440-62-2	UG/L	6.0 U	6.4 B		3.7 B	50.0 U	5.4 B	5.0 B	50 U	1.6 J		

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				07/01/13	3/13/2014	3/13/2014	06/25/14	12/12/14	06/16/15	12/14/2015				
				7/1/2013	13-Dec	DUP_1213	6/25/2014	12/12/2014	6/16/2015	12/14/2015	6/20/2016	Jan-17	Sept_17	Dec_17
SW6010B	Zinc	7440-66-6	UG/L	6.0 U	8.7 B		11.5 B	154	12.8 BN	1.6 U	4.2 J	20 U		
SW7470	Mercury	7439-97-6	UG/L	0.18 B	1.2 B		0.10 U	0.3	0.10 U	0.10 U	0.20 U	<0.2	.039J	
SW8081/808	4,4´-DDD	72-54-8	µg/L	ND U	ND U		ND U	ND U	0.10 U	0.10 U	0.10 U	.1 U		<0.10
SW8081/808	4,4´-DDE	72-55-9	µg/L	ND U	ND U		ND U	ND U	0.10 U	0.10 U	0.10 U	.1 U		<0.10
SW8081/808	4,4´-DDT	50-29-3	µg/L	ND U	ND U		ND U	ND U	0.10 U	0.10 U	0.10 U	.1 U		<0.10
SW8081/808	Aldrin	309-00-2	µg/L	ND U	ND U		ND U	ND U	0.050 U	0.050 U	0.050 U	.05 U		<0.050
SW8081/808	alpha-BHC	319-84-6	µg/L	ND U	ND U		ND U	ND U	0.050 U	0.050 U	0.050 U	.05 U		<0.050
SW8081/808	Aroclor 1016	12674-11-2	µg/L	ND U	ND U		ND U	ND U	1.0 U	1.0 U	1.0 U	1 U		<1.0
SW8081/808	Aroclor 1221	11104-28-2	µg/L	ND U	ND U		ND U	ND U	2.0 U	2.0 U	2.0 U	2 U		<2.0
SW8081/808	Aroclor 1232	11141-16-5	µg/L	ND U	ND U		ND U	ND U	1.0 U	1.0 U	1.0 U	1 U		<1.0
SW8081/808	Aroclor 1242	53469-21-9	µg/L	ND U	ND U		ND U	ND U	1.0 U	1.0 U	1.0 U	1 U		<1.0
SW8081/808	Aroclor 1248	12672-29-6	µg/L	ND U	ND U		ND U	ND U	1.0 U	1.0 U	1.0 U	1 U		<1.0
SW8081/808	Aroclor 1254	11097-69-1	µg/L	ND U	ND U		ND U	ND U	1.0 U	1.0 U	1.0 U	1 U		<1.0
SW8081/808	Aroclor 1260	11096-82-5	µg/L	ND U	ND U		ND U	ND U	1.0 U	1.0 U	1.0 U	1 U		<1.0
SW8081/808	beta-BHC	319-85-7	µg/L	ND U	ND U		ND U	ND U	0.050 U	0.050 U	0.050 U	.05 U		0.14
SW8081/808	Chlordane	57-74-9	µg/L	ND U	ND U		ND U	ND U	1.0 U	1.0 U	1.0 U			
SW8081/808	delta-BHC	319-86-8	µg/L	ND U	ND U		ND U	ND U	0.050 U	0.050 U	0.050 U	.05 U		<0.050
SW8081/808	Dieldrin	60-57-1	µg/L	ND U	ND U		ND U	ND U	0.10 U	0.10 U	0.10 U	.1 U		<0.10
SW8081/808	Endosulfan I	959-98-8	µg/L	ND U	ND U		ND U	ND U	0.050 U	0.050 U	0.050 U	.05 U		<0.050
SW8081/808	Endosulfan II	33213-65-9	µg/L	ND U	ND U		ND U	ND U	0.10 U	0.10 U	0.10 U	.1 U		<0.10
SW8081/808	Endosulfan sulfate	1031-07-8	µg/L	ND U	ND U		ND U	ND U	0.10 U	0.10 U	0.10 U	.1 U		<0.10
SW8081/808	Endrin	72-20-8	µg/L	ND U	ND U		ND U	ND U	0.10 U	0.10 U	0.10 U	.1 U		<0.10
SW8081/808	Endrin aldehyde	7421-93-4	µg/L	ND U	ND U		ND U	ND U	0.10 U	0.10 U	0.10 U	.1 U		<0.10
SW8081/808	gamma-BHC	58-89-9	µg/L	ND U	ND U		ND U	ND U	0.050 U	0.050 U	0.050 U	.05 U		<0.050
SW8081/808	Heptachlor	76-44-8	µg/L	ND U	ND U		ND U	ND U	0.050 U	0.050 U	0.050 U	.05 U		0.61
SW8081/808	Heptachlor epoxide	1024-57-3	µg/L	ND U	ND U		ND U	ND U	0.050 U	0.050 U	0.050 U	.05 U		<0.050
SW8081/808	Methoxychlor	72-43-5	µg/L	ND U	ND U		ND U	ND U	0.50 U	0.50 U	0.50 U	.5 U		<0.50
SW8081/808	Toxaphene	8001-35-2	µg/L	ND U	ND U		ND U	ND U	5.0 U	5.0 U	5.0 U	5 U		<5.0
SW8141A	Dimethoate	60-51-5	µg/L	ND U	ND U		ND U	ND U	1.0 U	1.0 U	1.0 U	.96 U		<.96
SW8141A	Disulfoton	298-04-4	µg/L	ND U	ND U		ND U	ND U	1.0 U	1.0 U	1.0 U	.96 U		<.96
SW8141A	Methyl parathion	298-00-0	µg/L	ND U	ND U		ND U	ND U	1.0 U	1.0 U	1.0 U	.96 U		<.96
SW8141A	Parathion	56-38-2	µg/L	ND U	ND U		ND U	ND U	1.0 U	1.0 U	1.0 U	.96 U		<.96
SW8141A	Phorate	298-02-2	µg/L	ND U	ND U		ND U	ND U	1.0 U	1.0 U	1.0 U	.96 U		
SW8141A	Thionazin	297-97-2	µg/L	ND U	10 U		ND U					<2.5		<5.0
SW8151	2,4,5-T	93-76-5	µg/L	ND U	ND U		ND U	0.25 U	0.25 U	0.25 U	0.25 U	.047 J		<0.25
SW8151	2,4,5-TP (Silvex)	93-72-1	µg/L	ND U	ND U		0.33 P	0.25 U	0.25 U	0.25 U	0.25 U	.25 U		<0.25
SW8151	2,4-D	94-75-7	µg/L	3.2 P	ND U		0.26 PJ	0.50 U	0.57 P	0.52 P	0.50 U	.5 U		0.28 J
SW8151	Dinoseb	88-85-7	µg/L	ND	ND U		ND U	1.3	0.37 P	0.76 P	0.20 U	.085 J		<0.20
SW8260B	1,1,1,2-Tetrachloroethane	630-20-6	µg/L	ND U	ND U		ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	1,1,1-Trichloroethane	71-55-6	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	1,1,2,2-Tetrachloroethane	79-34-5	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	1,1,2-Trichloroethane	79-00-5	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	1,1-Dichloroethane	75-34-3	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	1,1-Dichloroethene	75-35-4	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	1,1-Dichloropropene	563-58-6	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	1,2,3-Trichloropropane	96-18-4	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	1,2-Dibromo-3-chloropropane	96-12-8	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	1,2-Dibromoethane	106-93-4	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	1,2-Dichlorobenzene	95-50-1	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0

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SW8260B	1,2-Dichloroethane	107-06-2	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	1,2-Dichloropropane	78-87-5	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	1,3-Dichlorobenzene	541-73-1	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	1,3-Dichloropropane	142-28-9	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	1,4-Dichlorobenzene	106-46-7	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
	1,4-Dioxane (p-Dioxane)		ug/l											<100
SW8260B	2,2-Dichloropropane	594-20-7	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	2-Butanone	78-93-3	µg/L	17	41 Z	39 DZ	23	35	16	5 U	5.0 U	<0.50	15.3	9.2
SW8260B	2-Hexanone	591-78-6	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<5.0	<5.0
SW8260B	4-Methyl-2-pentanone	108-10-1	µg/L	1 J	3 J	3 DJ	2 J	2 J	1 J	5 U	5.0 U	<0.50	<5.0	1.3 J
SW8260B	Acetone	67-64-1	µg/L	120	260 E	270 D	110	300 E	110	5 U	5.0 U	15.6	209	77.1
SW8260B	Acetonitrile	75-05-8	µg/L	ND U	28	25 D	35	100	49	40	5.0 U	<2.5	<5.0	<5.0
SW8260B	Acrolein	107-02-8	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Acrylonitrile	107-13-1	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Allyl Chloride	107-05-1	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Benzene	71-43-2	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Bromochloromethane	74-97-5	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Bromodichloromethane	75-27-4	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Bromoform	75-25-2	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Bromomethane	74-83-9	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Carbon disulfide	75-15-0	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Carbon tetrachloride	56-23-5	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Chlorobenzene	108-90-7	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Chloroethane	75-00-3	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Chloroform	67-66-3	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Chloromethane	74-87-3	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Chloroprene	126-99-8	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	cis-1,2-Dichloroethene	156-59-2	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	cis-1,3-Dichloropropene	10061-01-5	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Dibromochloromethane	124-48-1	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Dibromomethane	74-95-3	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Dichlorodifluoromethane	75-71-8	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Ethyl Methacrylate	97-63-2	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Ethylbenzene	100-41-4	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Iodomethane	74-88-4	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	2 J	<0.50	<1.0	<1.0
SW8260B	Isobutyl alcohol	78-83-1	µg/L	ND U	ND U	ND U	14 J	ND U	25 U	25 U	25 U			
SW8260B	Methacrylonitrile	126-98-7	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Methyl Methacrylate	80-62-6	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Methylene chloride	75-09-2	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Propionitrile	107-12-0	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<2.0	<4.0	<4.0
SW8260B	Silane, methoxytrimethyl-		ug/L	5 JN										
SW8260B	Silanol, trimethyl-		ug/L	19 JN				15 JN		13 JN				
SW8260B	Styrene	100-42-5	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Tetrachloroethene	127-18-4	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Toluene	108-88-3	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	trans-1,2-Dichloroethene	156-60-5	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	trans-1,3-Dichloropropene	10061-02-6	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	trans-1,4-Dichloro-2-butene	110-57-6	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Trichloroethene	79-01-6	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0

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				7/1/2013	13-Dec	DUP_1213	6/25/2014	12/12/2014	6/16/2015	12/14/2015	6/20/2016	Jan-17	Sept_17	Dec_17
SW8260B	Trichlorofluoromethane	75-69-4	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Trimethylsilyl fluoride+Sulfur diox		ug/L	220 JN										
SW8260B	Vinyl acetate	108-05-4	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Vinyl chloride	75-01-4	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<1.0	<1.0
SW8260B	Xylene (total)	1330-20-7	µg/L	ND U	ND U	ND U	ND U	ND U	5.0 U	5 U	5.0 U	<0.50	<2.0	<2.0
SW8270C	1,2,4,5-Tetrachlorobenzene	95-94-3	µg/L	ND U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	1,2,4-Trichlorobenzene	120-82-1	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	1,2-Dichlorobenzene	95-50-1	µg/L	ND U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	1,3,5-Trinitrobenzene	99-35-4	µg/L	ND U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	1,3-Dichlorobenzene	541-73-1	µg/L	ND U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	1,3-Dinitrobenzene	99-65-0	µg/L	ND U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	1,4-Dichlorobenzene	106-46-7	µg/L	ND U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	1,4-Naphthoquinone	130-15-4	µg/L	ND U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	1-Naphthylamine	134-32-7	µg/L	ND U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	2,2´-oxybis(1-chloropropane)	108-60-1	µg/L	ND U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	2,3,4,6-Tetrachlorophenol	58-90-2	µg/L	ND U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	2,4,5-Trichlorophenol	95-95-4	µg/L	25 U	25 U	ND U	ND U	ND U	25 U	25 U	25 U	<2.5		<5.0
SW8270C	2,4,6-Trichlorophenol	88-06-2	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	2,4-Dichlorophenol	120-83-2	µg/L	ND U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	2,4-Dimethylphenol	105-67-9	µg/L	10 U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	2,4-Dinitrophenol	51-28-5	µg/L	ND U	25 U	ND U	ND U	ND U	25 U	25 U	25 U	<5.0		<10.0
SW8270C	2,4-Dinitrotoluene	121-14-2	µg/L	ND U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	2,6-Dichlorophenol	87-65-0	µg/L	10 U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	2,6-Dinitrotoluene	606-20-2	µg/L	10 U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	2-Acetylaminofluorene	53-96-3	µg/L	ND U	ND U	ND U	ND U	ND U	20 U	20 U	20 U	<2.5		<5.0
SW8270C	2-Chloronaphthalene	91-58-7	µg/L	10 U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	2-Chlorophenol	95-57-8	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	2-Methylnaphthalene	91-57-6	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<0.17		<5.0
SW8270C	2-Methylphenol	95-48-7	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	2-Naphthylamine	91-59-8	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	2-Nitroaniline	88-74-4	µg/L	25 U	25 U	100 U	ND U	ND U	25 U	25 U	25 U	<2.5		<5.0
SW8270C	2-Nitrophenol	88-75-5	µg/L	10 U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	3,3´-Dichlorobenzidine	91-94-1	µg/L	ND U	ND U	80 U	ND U	ND U	20 U	20 U	20 U	<2.5		<5.0
SW8270C	3,3´-Dimethylbenzidine	119-93-7	µg/L	10 U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	3-Methylcholanthrene	56-49-5	µg/L	ND U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	3-Methylphenol/4-Methylphenol	12-03-3	µg/L	9 J	150	170 D	ND U	9 J	41	10 U	10 U			16.8
SW8270C	3-Nitroaniline	99-09-2	µg/L	ND U	25 U	ND U	ND U	ND U	25 U	25 U	25 U	<2.5		<5.0
SW8270C	4,6-Dinitro-2-methylphenol	534-52-1	µg/L	ND U	ND U	ND U	ND U	ND U	25 U	25 U	25 U	<5.0		<10.0
SW8270C	4-Aminobiphenyl	92-67-1	µg/L	20 U	ND U	80 U	ND U	ND U	20 U	20 U	20 U	<2.5		<5.0
SW8270C	4-Bromophenyl-phenylether	101-55-3	µg/L	10 U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	4-Chloro-3-methylphenol	59-50-7	µg/L	10 U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	4-Chloroaniline	106-47-8	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	4-Chlorophenyl-phenylether	7005-72-3	µg/L	10 U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	4-Nitroaniline	100-01-6	µg/L	25 U	ND U	100 U	ND U	ND U	25 U	25 U	25 U	<2.5		<5.0
SW8270C	4-Nitrophenol	100-02-7	µg/L	25 U	ND U	100 U	ND U	ND U	25 U	25 U	25 U	<5.0		<10.0
SW8270C	5-Nitro-o-toluidine	99-55-8	µg/L	10 U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	7,12-Dimethylbenz(a)anthracene	57-97-6	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Acenaphthene	83-32-9	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<0.22		<5.0
SW8270C	Acenaphthylene	208-96-8	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<0.21		<5.0

	CELL 7 PLCRS													
				07/01/13	3/13/2014	3/13/2014	06/25/14	12/12/14	06/16/15	12/14/2015				
				7/1/2013	13-Dec	DUP_1213	6/25/2014	12/12/2014	6/16/2015	12/14/2015	6/20/2016	Jan-17	Sept_17	Dec_17
SW8270C	Acetophenone	98-86-2	µg/L	10 U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		1.2 J
SW8270C	Anthracene	120-12-7	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		0.61 J
SW8270C	Benzo(a)anthracene	56-55-3	µg/L	10 U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Benzo(a)pyrene	50-32-8	µg/L	10 U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Benzo(b)fluoranthene	205-99-2	µg/L	10 U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Benzo(g,h,i)perylene	191-24-2	µg/L	ND U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Benzo(k)fluoranthene	207-08-9	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Benzyl alcohol	100-51-6	µg/L	1	ND U	40 U	ND U	4 J	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Bis(2-chloroethoxy)methane	111-91-1	µg/L	ND U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Bis(2-chloroethyl)ether	111-44-4	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Bis(2-ethylhexyl)phthalate	117-81-7	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		1.0 J
SW8270C	Butyl benzyl phthalate	85-68-7	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Chlorobenzilate	510-15-6	µg/L	ND U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Chrysene	218-01-9	µg/L	ND U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Diallate	2303-16-4	µg/L	ND U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Dibenzo(a,h)anthracene	53-70-3	µg/L	ND U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Dibenzofuran	132-64-9	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Diethylphthalate	84-66-2	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		0.15 J
SW8270C	Dimethylphthalate	131-11-3	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Di-n-butyl phthalate	84-74-2	µg/L	10 U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Di-n-octyl phthalate	117-84-0	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Ethyl methanesulfonate	62-50-0	µg/L	ND U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Famphur	52-85-7	µg/L	10 U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<5.0		<10.0
SW8270C	Fluoranthene	206-44-0	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Fluorene	86-73-7	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<0.17		<5.0
SW8270C	Hexachlorobenzene	118-74-1	µg/L	ND U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Hexachlorobutadiene	87-68-3	µg/L	10 U	ND U	40 U	ND U	ND U	10 U	10 U	10 U			<5
SW8270C	Hexachlorocyclopentadiene	77-47-4	µg/L	ND U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Hexachloroethane	67-72-1	µg/L	ND U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Hexachloropropene	1888-71-7	µg/L	ND U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Indeno(1,2,3-cd)pyrene	193-39-5	µg/L	10 U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Isodrin	465-73-6	µg/L	10 U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Isophorone	78-59-1	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Isosafrole	120-58-1	µg/L	ND U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Kepone	143-50-0	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<5.0		<10.0
SW8270C	Methapyrilene	91-80-5	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Methyl methanesulfonate	66-27-3	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Naphthalene	91-20-3	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<0.18		<5.0
SW8270C	Nitrobenzene	98-95-3	µg/L	10 U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	N-Nitrosodiethylamine	55-18-5	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	N-Nitrosodimethylamine	62-75-9	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	N-Nitroso-di-n-butylamine	924-16-3	µg/L	ND U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5
SW8270C	N-Nitroso-di-n-propylamine	621-64-7	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5
SW8270C	N-Nitrosodiphenylamine	86-30-6	µg/L	10 U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	N-Nitrosomethylethylamine	10595-95-6	µg/L	10 U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	N-Nitrosopiperidine	100-75-4	µg/L	ND U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	N-Nitrosopyrrolidine	930-55-2	µg/L	10 U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	O,O,O-Triethylphosphorothioate	126-68-1	µg/L	ND U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	o-Toluidine	95-53-4	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0

	CELL 7 PLCRS													
				07/01/13	3/13/2014	3/13/2014	06/25/14	12/12/14	06/16/15	12/14/2015				
				7/1/2013	13-Dec	DUP_1213	6/25/2014	12/12/2014	6/16/2015	12/14/2015	6/20/2016	Jan-17	Sept_17	Dec_17
SW8270C	p-Dimethylaminoazobenzene	60-11-7	µg/L	10 U	ND U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Pentachlorobenzene	608-93-5	µg/L	ND U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Pentachloronitrobenzene	82-68-8	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Pentachlorophenol	87-86-5	µg/L	ND U	25 U	100 U	ND U	ND U	25 U	25 U	25 U	<5.0		<10.0
SW8270C	Phenacetin	62-44-2	µg/L	10 U	ND U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
SW8270C	Phenanthrene	85-01-8	µg/L	ND U	10 U	40 U	ND U	ND U	10 U	10 U	10 U	<0.17		<5.0
SW8270C	Phenol	108-95-2	µg/L	20	10 U	40 U	ND U	34	6 J	10 U	10 U	<2.5		19.4
SW8270C	p-Phenylenediamine	106-50-3	µg/L	10 U	10 U	ND U	ND U	ND U	10 U	10 U	10 U			<5.0
SW8270C	Pronamide	23950-58-5	µg/L	10 U	10 U	ND U	ND U	ND U	10 U	10 U	10 U	<2.5		<5.0
	Sulfide	18496-25-8	mg/L		2.00 U		2.00 U	25.3	2 U		20 U	<0.61	6.4	
EPA1613B	2378-TCDF		pg/l				ND		2 U					ND
EPA1613B	2378-TCDD		pg/l				ND		2 U		10 U			ND
ASTM D517	Total Uranium	7440-61-1	ng/l											1.07 ± 0.050 (0.193) C:NA T:NA
EPA 537	Perfluorobutanesulfonic acid PFBS	375-73-5	ng/l											<84
EPA 537	Perfluoroheptanoic acid PFHpA	375-85-9	ng/l											23
EPA 537	Perfluorohexanesulfonic acid PFHxS	355-46-4	ng/l											13 J
EPA 537	Perfluorononanoic acid PFNA	375-95-1	ng/l											<19
EPA 537	Perfluorooctanesulfonic acid PFOS	1763-23-1	ng/l											<38
EPA 537	Perfluorooctanoic acid PFOA	335-67-1	ng/l											29
EPA 903.1	Radium-226	13982-63-3	ng/l											3.02 ± 1.28 (1.13) C:NA T:33%
EPA 904.0	Radium-228	15262-20-1	ng/l											4.14 ± 1.79 (2.70) C:75% T:16%
	6:2 FTS		ng/l											
	8:2 FTS		ng/l											
	N-ethyl perfluorooctandsulfamidoacetic acidNEtFOSAA		ng/l											
	N-methylperflurooctansulfamicacetic acid NMeFOSAA		ng/l											
	perfluorobutanoic acid PFBA		ng/l											
	perfluorodecansulfonic acid PFDS		ng/l											
	perfluorodecanoic acid PFDA		ng/l											
	perfluorododecanoic acid PFDoA		ng/l											
	perfluoroheptanesulfonic acid PFHps		ng/l											
	perfluorohexanoic acid PFHxA		ng/l											
	perfluorooctane sulfonamide FOSA		ng/l											
	perfluoropentanoic acid PFPeA		ng/l											
	perfluorotetradecanoic acid PFTeA		ng/l											
	perfluorotridecnaoic acid PFTriA		ng/l											
	perfluoroundecanoic acid PFUnA		ng/l											
	n-Nitrosomorpholine													
	Dimethylbenz(A) Antracene													
	Bis(2-chloroisopropyl)ether													

CELL 7 PLCRS			
	Aug_18	Dec_18	Jun_19
Analyte			
pH	7.11	7.43	7.81
DO	0.05	2.01	0
Spec cond	788	1112	876
ORP	-55.8	-75.1	-96.3
Pyrene	U	<5	<5.0
Safrole	U	<5	<5.0
Cyanide	<10	21.3	4.6J
Total Organic Carbon	94.7	84.8	257 D
Dioxin			
Bromide	353	350	516
Sulfate	10.3	6.5	7.2
Nitrogen, Kjeldahl, Total	51.2	56.3	104 D
Nitrate as N	<.05	0.051	0.090
Nitrite as N	<.05	<.05	<0.050
Chemical Oxygen Demand	1810	1690	3870
Phenolics, Total Recoverable	236	177	
Chromium, Hexavalent	<.1D	<.02	<.02
Color		15	
Alkalinity, Total (As CaCO3)	275	216	336
Hardness (As CaCO3)	20400	20100	28800
Total Dissolved Solids	54000	54400	74600
Chloride	30500	29600	<2
Nitrogen, Ammonia (As N)	51.7D	29.8	93.3
Biochemical Oxygen Demand	137D	134	494
Aluminum	<10000 D	<200	<1000 D
Antimony	<3000 D	18.8J	<300 D
Arsenic	<500 D	<10.0	<50.0 D
Barium	3580J D	3130	6450 D
Beryllium	<250 D	<5.0	1.7J D
Boron	612J D	718	334 D
Cadmium	<125 D	14.4J D	<12.5 D
Calcium	8140000 D	7430000	9750000 D
Chromium	<500 D	<10.0	46.1J D
Cobalt	<2500 D	5.0J	<250 D
Copper	<1250 D	<25.0	59.0J D
Iron	10600 D	362	150 D
Lead	<250 D	<50.0 D	<25.0 D
Magnesium	18100 D	11400	4420 D
Manganese	3250 D	649	1440 D
Nickel	<2000 D	<40.0	<200 D
Potassium	3930000 D	4600000 D	6390000 D
Selenium	<500 D	<10.0	125 D
Silver	<500 D	<10.0	<50.0 D
Sodium	6910000 D	6870000 D	9900000 D
Thallium	<500 D	4.5J	<50.0 D
Tin	<2500 D	<50.0	<250 D
Vanadium	<2500 D	<50.0	<250 D

CELL 7 PLCRS			
	Aug_18	Dec_18	Jun_19
Zinc	<1000 D	16.8J D	132 D
Mercury	<.2	<0.20	0.15J
4,4´-DDD	<0.10	<0.10	<0.10
4,4´-DDE	<0.10	<0.10	<0.10
4,4´-DDT	<0.10	<0.10	<0.10
Aldrin	<0.050	<0.050	<0.050
alpha-BHC	<0.050	<.05	<0.050
Aroclor 1016	<1.0	<1.0	<1.0
Aroclor 1221	<2.0	<2.0	<2.0
Aroclor 1232	<1.0	<1.0	<1.0
Aroclor 1242	<1.0	<1.0	<1.0
Aroclor 1248	<1.0	<1.0	<1.0
Aroclor 1254	<1.0	<1.0	<1.0
Aroclor 1260	<1.0	<1.0	<1.0
beta-BHC	<.05	<.05	<0.050
Chlordane			
delta-BHC	<.05	<.05	<0.050
Dieldrin	<0.10	<0.10	<0.10
Endosulfan I	<0.050	<0.050	<0.050
Endosulfan II	<0.10	<0.10	<0.10
Endosulfan sulfate	<0.10	<0.10	<0.10
Endrin	<0.10	<0.10	<0.10
Endrin aldehyde	<0.10	<0.10	<0.10
gamma-BHC	<.05	<.05	<0.050
Heptachlor	<.05	<0.050	<0.050
Heptachlor epoxide	<0.050	<0.050	<0.050
Methoxychlor	<0.50	<0.50	<0.50
Toxaphene	<5.0	<5.0	<5.0
Dimethoate	<.95	<5	<5
Disulfoton	<.95	<5	<5.0
Methyl parathion	<.95	<5	<5.0
Parathion	<.95	<5	<5.0
Phorate			
Thionazin	U	<5	
2,4,5-T	0.055J	0.19J	<0.25
2,4,5-TP (Silvex)	<0.25	<0.25	<0.25
2,4-D	<0.50	1.4	1.7
Dinoseb	0.14J	0.16J	0.30
1,1,1,2-Tetrachloroethane	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	<1.0	<1.0	<1.0
1,1-Dichloroethane	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0
1,1-Dichloropropene	<1.0	<1.0	<1.0
1,2,3-Trichloropropane	<1.0	<1.0	<1.0
1,2-Dibromo-3-chloropropane	<1.0	<1.0	<1.0
1,2-Dibromoethane	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	<1.0	<1.0	<1.0

CELL 7 PLCRS			
	Aug_18	Dec_18	Jun_19
1,2-Dichloroethane	<1.0	<1.0	<1.0
1,2-Dichloropropane	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	<1.0	<1.0	<1.0
1,3-Dichloropropane	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	<1.0	<1.0	<1.0
1,4-Dioxane (p-Dioxane)	0.59	2.7	<100 SIM 2.4ug/l
2,2-Dichloropropane	<1.0	<1.0	<1.0
2-Butanone	16.7	14.4	10.8
2-Hexanone	<5.0	<5.0	<5.0
4-Methyl-2-pentanone	1.8J	1.6J	1.4J
Acetone	274 D	195	103
Acetonitrile	62.9	156	128
Acrolein	<1.0	<1.0	<1.0
Acrylonitrile	<1.0	<1.0	<1.0
Allyl Chloride	<1.0	<1.0	<1.0
Benzene	<1.0	<1.0	<1.0
Bromochloromethane	<1.0	<1.0	<1.0
Bromodichloromethane	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0
Carbon disulfide	<1.0	1.1	<1.0
Carbon tetrachloride	<1.0	<1.0	<1.0
Chlorobenzene	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0
Chloroprene	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0
cis-1,3-Dichloropropene	<1.0	<1.0	<1.0
Dibromochloromethane	<1.0	<1.0	<1.0
Dibromomethane	<1.0	<1.0	<1.0
Dichlorodifluoromethane	<1.0	<1.0	<1.0
Ethyl Methacrylate	<1.0	<1.0	<1.0
Ethylbenzene	<1.0	<1.0	<1.0
Iodomethane	<1.0	<1.0	<1.0
Isobutyl alcohol			
Methacrylonitrile	<1.0	<1.0	<1.0
Methyl Methacrylate	<1.0	<1.0	<1.0
Methylene chloride	<1.0	<1.0	<1.0
Propionitrile	<4.0	<4.0	<4.0
Silane, methoxytrimethyl-			<1.0
Silanol, trimethyl-			
Styrene	<1.0	<1.0	<1.0
Tetrachloroethene	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0
trans-1,3-Dichloropropene	<1.0	<1.0	<1.0
trans-1,4-Dichloro-2-butene	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0

CELL 7 PLCRS			
	Aug_18	Dec_18	Jun_19
Trichlorofluoromethane	<1.0	<1.0	<1.0
Trimethylsilyl fluoride+Sulfur diox			
Vinyl acetate	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0
Xylene (total)	<3.0	<3.0	<3.0
1,2,4,5-Tetrachlorobenzene	U	<5.0	<5.0
1,2,4-Trichlorobenzene	U	<5.0	<5.0
1,2-Dichlorobenzene	U	<5.0	<5.0
1,3,5-Trinitrobenzene	U	<5.0	<5.0
1,3-Dichlorobenzene	U	<5.0	<5.0
1,3-Dinitrobenzene	U	<5.0	<5.0
1,4-Dichlorobenzene	U	<5.0	<5.0
1,4-Naphthoquinone	U	<5.0	<5.0
1-Naphthylamine	U	<5.0	<5.0
2,2´-oxybis(1-chloropropane)		<5.0	<5.0
2,3,4,6-Tetrachlorophenol	U	<5.0	<5.0
2,4,5-Trichlorophenol	U	<5.0	<5.0
2,4,6-Trichlorophenol	U	<5.0	<5.0
2,4-Dichlorophenol	U	<5.0	<5.0
2,4-Dimethylphenol	U	<5.0	<5.0
2,4-Dinitrophenol	U	<10.0	<10.0
2,4-Dinitrotoluene	U	<5.0	<5.0
2,6-Dichlorophenol	U	<5.0	<5.0
2,6-Dinitrotoluene	U	<5.0	<5.0
2-Acetylaminofluorene	U	<5.0	<5.0
2-Chloronaphthalene	U	<5.0	<5.0
2-Chlorophenol	U	<5.0	<5.0
2-Methylnaphthalene	U	<5.0	<5.0
2-Methylphenol	0.328	<5.0	1.0J
2-Naphthylamine	U	<5.0	<5.0
2-Nitroaniline	U	<5.0	<5.0
2-Nitrophenol	U	<5.0	<5.0
3,3´-Dichlorobenzidine	U	<5.0	<5.0
3,3´-Dimethylbenzidine	U	<5.0	<5.0
3-Methylcholanthrene	U	<5.0	<5.0
3-Methylphenol/4-Methylphenol	46.8	39.1	110 D
3-Nitroaniline	U	<5.0	<5.0
4,6-Dinitro-2-methylphenol	U	<10.0	<10.0
4-Aminobiphenyl	U	<5.0	<5.0
4-Bromophenyl-phenylether	U	<5.0	<5.0
4-Chloro-3-methylphenol	U	<5.0	<5.0
4-Chloroaniline	U	<5.0	<5.0
4-Chlorophenyl-phenylether	U	<5.0	<5.0
4-Nitroaniline	U	<5.0	<5.0
4-Nitrophenol	U	<10.0	<10.0
5-Nitro-o-toluidine	U	<5.0	<5.0
7,12-Dimethylbenz(a)anthracene		<5.0	<5.0
Acenaphthene	U	<5.0	<5.0
Acenaphthylene	U	<5.0	<5.0

CELL 7 PLCRS			
	Aug_18	Dec_18	Jun_19
Acetophenone	U	<5.0	<5.0
Anthracene	U	<5.0	<5.0
Benzo(a)anthracene	U	<5.0	<5.0
Benzo(a)pyrene	U	<5.0	<5.0
Benzo(b)fluoranthene	U	<5.0	<5.0
Benzo(g,h,i)perylene	U	<5.0	<5.0
Benzo(k)fluoranthene	U	<5.0	<5.0
Benzyl alcohol	U	<5.0	<5.0
Bis(2-chloroethoxy)methane	U	<5.0	<5.0
Bis(2-chloroethyl)ether	U	<5.0	<5.0
Bis(2-ethylhexyl)phthalate	U	<5.0	<5.0
Butyl benzyl phthalate	U	<5.0	<5.0
Chlorobenzilate	U	<5.0	<5.0
Chrysene	U	<5.0	<5.0
Diallate	U	<5.0	<5.0
Dibenzo(a,h)anthracene	U	<5.0	<5.0
Dibenzofuran	U	<5.0	<5.0
Diethylphthalate	U	<5.0	<5.0
Dimethylphthalate	U	<5.0	<5.0
Di-n-butyl phthalate	U	<5.0	<5.0
Di-n-octyl phthalate	U	<5.0	<5.0
Ethyl methanesulfonate	U	<5.0	<5.0
Famphur	<.95	<10.0	<10.0
Fluoranthene	U	<5.0	<5.0
Fluorene	U	<5.0	<5.0
Hexachlorobenzene	U	<5.0	<5.0
Hexachlorobutadiene	U	<5	<5
Hexachlorocyclopentadiene	U	<5	<5.0
Hexachloroethane	U	<5.0	<5.0
Hexachloropropene	U	<5.0	<5.0
Indeno(1,2,3-cd)pyrene	U	<5.0	<5.0
Isodrin	U	<5.0	<5.0
Isophorone	U	<5.0	<5.0
Isosafrole	U	<5.0	<5.0
Kepone	U	<10.0	<10.0
Methapyrilene	U	<5.0	<5.0
Methyl methanesulfonate	U	<5	
Naphthalene	U	<5.0	<5.0
Nitrobenzene	U	<5.0	<5.0
N-Nitrosodiethylamine	U	<5	<5.0
N-Nitrosodimethylamine	U	<5	<5.0
N-Nitroso-di-n-butylamine	U	<5.0	<5.0
N-Nitroso-di-n-propylamine	U	<5.0	<5.0
N-Nitrosodiphenylamine	U	<5.0	<5.0
N-Nitrosomethylethylamine	U	<5.0	<5.0
N-Nitrosopiperidine	U	<5.0	<5.0
N-Nitrosopyrrolidine	U	<5.0	<5.0
O,O,O-Triethylphosphorothioate	U	<5.0	<5.0
o-Toluidine	U	<5.0	<5.0

CELL 7 PLCRS			
	Aug_18	Dec_18	Jun_19
p-Dimethylaminoazobenzene	U	<5.0	<5.0
Pentachlorobenzene	U	<5.0	<5.0
Pentachloronitrobenzene	U	<5.0	<5.0
Pentachlorophenol	2.37	<10.0	<10.0
Phenacetin	U	<5.0	<5.0
Phenanthrene	U	<5.0	<5.0
Phenol	52.2	31.4	115 D
p-Phenylenediamine	U	<5	<10.0
Pronamide	U	<5.0	<5.0
Sulfide	1.6J	8	8.0
2378-TCDF	ND	ND	
2378-TCDD	ND	ND	ND
Total Uranium	0.347 ± 0.013 (0.262) C:NA T:NA	.855+-.049 (2.62) C:NA T:NA	0.281 ± 0.014 (0.262) C:NA T:NA
Perfluorobutanesulfonic acid PFBS	130	130	
Perfluoroheptanoic acid PFHpA	19	18	
Perfluorohexanesulfonic acid PFHxS	4.7	4.2B	
Perfluorononanoic acid PFNA	1.7J	1.2 J	
Perfluorooctanesulfonic acid PFOS	3.3	2	
Perfluorooctanoic acid PFOA	22	22	
Radium-226	6.34 ± 2.29 (1.80) C:NA T:42%	15.7 ± 7.46 (2.36) C:NA T:88%	9.05 ± 2.77 (0.511) C:NA T:85%
Radium-228	10.2 ± 3.75 (5.39) C:72% T:85%	6.62 ± 2.38 (3.68) C:80% T:89%	6.45 ± 1.59 (1.46) C:78% T:52%
6:2 FTS	5.4J	6.6 J	
8:2 FTS	19U	ND	
N-ethyl perfluorooctandsulfamidoacetic acidNEtFOSAA	19U	ND	
N-methylperflurooctansulfamicacetic acid NMeFOSAA	19U	ND	
perfluorobutanoic acid PFBA	260	170 B	
perfluorodecansulfonic acid PFDS	19U	ND	
perfluorodecanoic acid PFDA	4.5J	.44 J	
perfluorododecanoic acid PFDoA	19U	ND	
perfluoroheptanesulfonic acid PFHps	19U	ND	
perfluorohexanoic acid PFHxA	210	250	
perfluorooctane sulfonamide FOSA	19U	ND	
perfluoropentanoic acid PFPeA	100	94	
perfluorotetradecanoic acid PFTeA	19U	ND	
perfluorotridecnaoic acid PFTriA	19U	ND	
perfluoroundecanoic acid PFUnA	19U	ND	
n-Nitrosomorpholine	U		
Dimethylbenz(A) Antracene	U		
Bis(2-chloroisopropyl)ether	U		

Appendix 1

June 2019 Pace Analytical Laboratory Report and QA/QC

(see attached CD)

BABYLON LANDFILL - FIELD DATA - JUNE - 2019

Leachate Sampling Data

WELL #	Date	Start Purge	Stop Purge	Gallons Purged	Well Notes For Sampling
NNU-PLCRS	6/10/2019	1309	1310	~ 40	Clear, grey tint, odors
NNU-SLCRS	6/10/2019	1321	1323	~ 40	Clear, grey tint, odors
ONU-SLCRS	6/10/2019	1343	1345	~ 60	Clear, no odors
SA-SLCRS	6/11/2019	Direct Sample	Direct Sample	0	Turbid, black particles, black in color
CELL - 7	6/11/2019	Direct Sample	Direct Sample	0	Clear, no odors

Leachate Parameters

WELL #	Sampling Time	pH (SU)	ORP (mv)	Conductivity (umhos/cm2)	Temp. (oC)	Turbidity (NTU)	Dissolved Oxygen (DO) mg/L
NNU-PLCRS	1310	7.77	-96.0	698	31.3	8.25	0.00
NNU-SLCRS	1323	6.94	-47.3	236	38.7	6.03	0.00
ONU-SLCRS	1345	7.22	-65.2	778	25.6	7.25	3.00
SA-SLCRS	1015	8.00	-106.4	298	16.8	224.00	0.42
CELL - 7	915	7.81	-96.3	876	21.1	6.49	0.00

NNU-PLCRS: New Northern U Primary * One Tap Location for Primary/Secondary (Top Road)

NNU-SLCRS: New Northern U Secondary * One Tap Location for Primary/Secondary (Top Road)

ONU-SLCRS: Old Northern U Secondary *One Tap Location for Primary/Secondary (Lower Road)

SA-SLCRS: Southern Ash Secondary *Use Bailer / Square Metal Door

CELL 7: Primary System * Use Bailer / First Round Black Cover (Left Cover)

Appendix 2

Baseline and Expanded Parameters List (6NYCRR Part 363-4.6(h))

(5) Data quality assessment. At the conclusion of each sampling event and analysis of the samples collected, data quality assessment must occur. A data quality assessment report must be submitted with the results from each sampling event. Data quality assessment must occur in two phases – data validation and data usability analysis.

(i) Data validation.

(a) For those sampling events for which only routine parameters are analyzed, the required data validation may be performed by the laboratory that performed the sample analyses.

(b) For those sampling events in which groundwater samples are analyzed for baseline or expanded parameters, the data validation must be performed by a person with experience with similar validation projects and who is not affiliated with the laboratory that performed the analyses and who is acceptable to the department.

(c) The data validation must be performed on all analytical data for the facility at a rate acceptable to the department, but not less than five percent of the data generated, and must consist, at a minimum, of the following:

(1) field records and analytical data are reviewed to determine whether the data are accurate and defensible. All AQA/AQC information must be reviewed along with any corrective actions taken during that sampling event; and

(2) all data summaries must be clearly marked to identify any data that are not representative of environmental conditions at the site, or that were not generated in accordance with the site analytical plan.

(ii) Data usability analysis.

(a) The data usability analysis must be performed on all analytical data generated by the requirements for this Part for the facility and must consist of the following:

(1) an assessment to determine if the data quality objectives were met;

(2) for consistency, comparison of the analytical data with the results from previous sampling events;

(3) evaluation of field duplicate results to indicate the samples are representative;

(4) comparison of the results of all field blanks, trip blanks, equipment rinstate blanks, and method blanks with full data sets to provide information concerning contaminants that may have been introduced during sampling, shipping, or analysis;

(5) evaluation of matrix effects to assess the performance of the analytical method with respect to the sample matrix, and determine whether the data have been biased high or low due to matrix effects;

(6) integration of the field and laboratory data with geological, hydrogeological, and meteorological data to provide information about the extent of contamination, if it occurs; and

(7) comparison of precision, accuracy, representativeness, comparability, completeness, and defensibility of the data generated with that required to meet the data quality objectives established in the site analytical plan.

(h) Water quality analysis tables.

The water quality analysis tables in this section list the routine, baseline, and expanded parameters for analysis of all monitoring samples. The department may modify the parameters for analysis based on the location of the landfill or site-specific characteristics of waste disposed at the landfill.

TABLE 1: ROUTINE PARAMETERS [1]

Common Name (and CAS number, as appropriate) [2]		
Field Parameters:	Leachate Indicators:	Inorganic Parameters (total):
Static water level (in wells and sumps)	Total Kjeldahl Nitrogen	Arsenic
Specific Conductance	Ammonia (7664-41-7)	Cadmium
Temperature	Nitrate	Calcium
Floaters or Sinkers [3]	Chemical Oxygen Demand	Iron
Temperature	Biochemical Oxygen Demand (BOD_5)	Lead
pH	Total Organic Carbon	Magnesium
Eh	Total Dissolved Solids	Manganese
Dissolved Oxygen [4]	Sulfate	Potassium
Field Observations [5]	Alkalinity	Sodium
Turbidity	Phenols (108-95-2)	
	Chloride	
	Bromide (24959-67-9)	
	Total hardness as $CaCO_3$	

TABLE 2A: BASELINE PARAMETERS: Field Parameters, Leachate Indicators, and Inorganic Parameters [6]

Common Name (and CAS number, as appropriate)[7]		
Field Parameters:	Leachate Indicators:	Inorganic Parameters (total unless otherwise noted):
Static water level (in wells and sumps)	Total Kjeldahl Nitrogen	Aluminum
Specific Conductance	Ammonia (7664-41-7)	Antimony
Temperature	Nitrate	Arsenic
Floaters or Sinkers[8]	Chemical Oxygen Demand	Barium
Temperature	Biochemical Oxygen Demand (BOD_5)	Beryllium
pH	Total Organic Carbon	Cadmium
Eh	Total Dissolved Solids	Calcium
Dissolved Oxygen[9]	Sulfate	Chromium
Field Observations[10]	Alkalinity	Chromium (Hexavalent)[11]
Turbidity	Phenols (108-95-2)	Cobalt
	Chloride	Copper
	Bromide (24959-67-9)	Cyanide
	Total hardness as $CaCO_3$	Iron
	Color	Lead
	Boron (7440-42-8)	Magnesium
		Manganese
		Mercury
		Nickel
		Potassium
		Selenium
		Silver
		Sodium
		Thallium
		Vanadium
		Zinc

TABLE 2B: BASELINE PARAMETERS: Organic Parameters[12]

Common Name (and CAS number, as appropriate)[13]		
Organic Parameters:		
Acetone (67-64-1)	1,1-Dichloroethane; Ethylidene chloride (75-34-3)	Styrene (100-42-5)
Acrylonitrile (107-13-1)	1,2-Dichloroethane; Ethylene dichloride (107-06-02)	1,1,1,2-Tetrachloroethane (630-20-6)
Benzene (71-43-2)	1,1-Dichloroethylene, 1,1-Dichloroethene; Vinylidene chloride (75-35-4)	1,1,2,2-Tetrachloroethane (79-34-5)
Bromochloromethane (74-97-5)	cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene (156-59-2)	Tetrachloroethylene; Tetrachloroethene; Perchloroethylene (127-18-4)
Bromodichloromethane (75-27-4)	trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene (156-60-2)	Toluene (108-88-3)
Bromoform; Tribromomethane (75-25-2)	1,2-Dichloropropane; Propylene dichloride (78-87-5)	1,1,1-Trichloroethane, Methylchloroform (71-55-6)
Carbon disulfide (75-15-0)	cis-1,3-Dichloropropene (10061-01-5)	1,1,2-Trichloroethane (79-00-5)
Carbon tetrachloride (56-23-5)	trans-1,3-Dichloropropene (10061-02-6)	Trichloroethylene, Trichloroethene (79-01-6)
Chlorobenzene (108-90-7)	Ethylbenzene (100-41-4)	Trichlorofluoromethane, CFC-11 (75-69-4)
Chloroethane; Ethyl chloride (75-00-3)	2-Hexanone; Methyl butyl ketone (591-78-6)	1,2,3-Trichloropropane (96-18-4)
Chloroform; Trichloromethane (67-66-3)	Methyl bromide; Bromomethane (74-83-9)	Vinyl acetate (108-05-4)
Dibromochloromethane; Chlorodibromomethane (124-48-1)	Methyl chloride; Chloromethane (74-87-3)	Vinyl chloride; Chloroethene (75-01-4)
1,2-Dibromo-3-chloropropane; DBCP (96-12-8)	Methylene bromide; Dibro- momethane (74-95-3)	Xylenes (1330-20-7)
1,2-Dibromoethane; Ethylene dibromide; EDB (106-93-4)	Methylene chloride; Dichloromethane (75-09-2)	
o-Dichlorobenzene; 1,2-Dichlorobenzene (95-50-1)	Methyl ethyl ketone; MEK; 2-Butanone (78-93-3)	
p-Dichlorobenzene; 1,4-Dichlorobenzene (106-46-7)	Methyl Iodide; Iodomethane (74-88-4)	
trans-1,4-Dichloro-2-butene (110-57-6)	4-Methyl-2-pentanone; Methyl isobutyl ketone (108-10-1)	

TABLE 3A: EXPANDED PARAMETERS: Field Parameters, Leachate Indicators, Radionuclides, and Inorganic Parameters[14]

Common Name (and CAS number, as appropriate)[15]			

Field Parameters:	Leachate Indicators:	Inorganic Parameters: (total unless otherwise noted)	Radionuclides [16]
Static water level (in wells and sumps)	Total Kjeldahl Nitrogen	Aluminum	Radium-226 per EPA 903.1
Specific Conductance	Ammonia (7664-41-7)	Antimony	Radium-228 per EPA 904.0
Temperature	Nitrate	Arsenic	Total Uranium per EPA 908.0
Floaters or Sinkers [17]	Chemical Oxygen Demand	Barium	
Temperature	Biochemical Oxygen Demand (BOD_5)	Beryllium	
pH	Total Organic Carbon	Cadmium	
Eh	Total Dissolved Solids	Calcium	
Dissolved Oxygen [18]	Sulfate	Chromium	
Field Observations [19]	Alkalinity	Chromium (Hexavalent) [20]	
Turbidity	Phenols (108-95-2)	Cobalt	
	Chloride	Copper	
	Bromide (24959-67-9)	Cyanide	
	Total hardness as $CaCO_3$	Iron	
	Color	Lead	
	Boron (7440-42-8)	Magnesium	
		Manganese	
		Mercury	
		Nickel	
		Potassium	
		Selenium	
		Silver	
		Sodium	
		Thallium	
		Tin	
		Vanadium	
		Zinc	

TABLE 3B: EXPANDED PARAMETERS: Organic Parameters [21]

Common Name (and CAS number, as appropriate) [22]		
Organic Parameters:		
Acenaphthene (83-32-9)	2,4-Dichlorophenol (120-83-2)	Naphthalene (91-20-3)
Acenaphthylene (208-96-8)	2,6-Dichlorophenol (87-65-0)	1,4-Naphthoquinone (130-15-4)
Acetone (67-64-1)	1,2-Dichloropropane; Propylene dichloride (78-87-5)	1-Naphthylamine (134-32-7)
Acetonitrile; Methyl cyanide (75-05-8)	1,3-Dichloropropane, Trimethylene dichloride (142-28-9)	2-Naphthylamine (91-59-8)
Acetophenone (98-86-2)	2,2-Dichloropropane, Isopropylidene chloride (594-20-7)	o-Nitroaniline; 2-Nitroaniline (88-74-4)
2-Acetylaminofluorene; 2-AAF (53-96-3)	1,1-Dichloropropene (563-58-6)	m-Nitroaniline; 3-Nitroaniline (99-09-2)
Acrolein (107-02-8)	cis-1,3-Dichloropropene (10061-01-5)	p-Nitroaniline; 4-Nitroaniline (100-01-6)
Acrylonitrile (107-13-1)	trans-1,3-Dichloropropene (10061-02-6)	Nitrobenzene (98-95-3)
Aldrin (309-00-2)	Dieldrin (60-57-1)	o-Nitrophenol 2-Nitrophenol (88-75-5)
Allyl chloride (107-05-1)	Diethyl phthalate (84-66-2)	p-Nitrophenol; 4-Nitrophenol (100-02-7)
4- aminobiphenyl (92-67-1)	0,0-Diethyl 0-2-pyrazinyl	N-Nitrosodi-n-butylamine (924-16-3)
Anthracene (120-12-7)	cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene (156-59-2)	
N-Nitrosodiethylamine (55-18-5)		
Benzene (71-43-2)	trans-1,2-Dichloroethylene (156-60-2)	N-Nitrosodimethylamine (62-75-9)
Benzo[a]anthracene; Benzanthracene (56-55-3)	Phosphorothioate; Thionazin (297-97-2)	N-Nitrosodiphenylamine (86-30-6)
Benzo[b]fluoranthene (205-99-2)	Dimethoate (60-51-5)	N-Nitrosodipropylamine; N-Nitroso-N-dipropyl-amine; Di-n-propylni-trosamine (621-64-7)
Benzo[k]fluoranthene (207-08-9)	p-(Dimethylamino)azobenzene (60-11-7)	N-Nitrosomethylethalamine (10595-95-6)
Benzo[ghi]perylene (191-24-2)	7,12-Dimethylbenz[a]anthracene (57-97-6)	N-Nitrosopiperidine (100-75-4)
Benzo[a]pyrene (50-32-8)	3,3 [21]-Dimethylbenzidine (119-93-7)	N-Nitrosopyrrolidine (930-55-2)
Benzyl alcohol (100-51-6)	2,4-Dimethylphenol, m-Xylenol (105-67-9)	5-Nitro-o-toluidine (99-55-8)
alpha-BHC (319-84-6)	Dimethyl phthalate (131-11-3)	Parathion (56-38-2)
beta-BHC (319-85-7)	m-Dinitrobenzene (99-65-0)	Pentachlorobenzene (608-93-5)
delta-BHC (319-86-8)	4,6-Dinitro-o-cresol 4,6- Dinitro-2-methylphenol (534-52-1)	Pentachloronitrobenzene (82-68-8)

gamma-BHC, Lindane (58-89-9)	2,4-Dinitrophenol (51-28-5)	Pentachlorophenol (87-86-5)
Bis(2-chloroethoxy)methane (111-91-1)	2,4-Dinitrotoluene (121-14-2)	Phenacetin (62-44-2)
Bis(2-chloroethyl) ether; Dichloroethyl ether (111-44-4)	2,6-Dinitrotoluene (606-20-2)	Phenanthrene (85-01-8)
Bis-(2-chloro-1-methyl-ethyl)ether; 2,2[21]-Dichlorodiisopropyl ether; DCIP[23]	Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol (88-85-7)	Phenol (108-95-2)
Bis(2-ethylhexyl)phthalate (117-81-7)	Di-n-octyl phthalate (117-84-0)	p-Phenylenediamine (106-50-9)
Bromochloromethane (74-97-5)	Diphenylamine (122-39-4)	Phorate (298-02-2)
Bromodichloromethane (75-27-4)	Disulfoton (298-04-4)	Polychlorinated biphenyls; PCBs; Aroclors[24]
Bromoform (75-25-2)	Endosulfan I (959-98-8)	Polychlorinated dibenzo-p- dioxins; PCDDs[25]
4-Bromophenyl phenyl ether (101-55-3)	Endosulfan II (33213-65-9)	Polychlorinated dibenzo- furans; PCDFs[26]
Butyl benzyl phthalate; Benzyl butyl phthalate (117-81-7)	Endosulfan sulfate (1031-07-8)	Pronamide (23950-58-5)
Carbon disulfide (75-15-0)	Endrin (72-20-8)	Propionitrile; Ethyl cyanide (107-12-0)
Carbon tetrachloride (56-23-5)	Endrin aldehyde (7421-93-4)	Pyrene (129-00-0)
Chlordane[27]	Ethylbenzene (100-41-4)	Safrole (94-59-7)
p-Chloroaniline (106-47-8)	Ethyl methacrylate (97-63-2)	Silvex, 2,4,5-TP (93-72-1)
Chlorobenzene (108-90-7)	Ethyl methanesulfonate (62-50-0)	Styrene (100-42-5)
Chlorobenzilate (510-15-6)	Famphur (52-85-7)	2,4,5-T, 2,4,5-trichloro- phenoxyacetic acid (93-76-5)
p-Chloro-m-cresol; 4-Chloro-3-methylphenol (59-50-7)	Fluoranthene (206-44-0)	1,2,4,5-Tetrachlorobenzene (95-94-3)
Chloroethane; Ethyl chloride (75-00-3)	Fluorene (86-73-7)	2,3,7,8-Tetrachlorodi- benzo-p-dioxin, 2,3,7,8-TCDD (1746-01-6)
Chloroform; Trichloromethane (67-66-3)	Heptachlor (76-44-8)	1,1,1,2-Tetrachloroethane (630-20-6)
2-Chloronaphthalene (91-58-7)	Heptachlor epoxide (1024-57-3)	1,1,2,2-Tetrachloroethane (79-34-5)
2-Chlorophenol (95-57-8)	Hexachlorobenzene (118-74-1)	Tetrachloroethylene; Tetrachloroethene; Perchloroethylene (127-18-4)
4-Chlorophenyl phenyl ether (7005-72-3)	Hexachlorobutadiene (87-68-3)	2,3,4,6-Tetrachlorophenol (58-90-2)
Chloroprene (126-99-8)	Hexachlorocyclopentadiene (77-47-4)	Toluene (108-88-3)
Chrysene (218-01-9)	Hexachloroethane (67-72-1)	o-Toluidine (95-53-4)
m-Cresol, 3-methylphenol (108-39-4)	Hexachloropropene (1888-71-7)	Toxaphene[28]
o-Cresol, 2-methylphenol (95-48-7)	2-Hexanone, Methyl butyl ketone (591-78-6)	1,2,4-Trichlorobenzene (120-82-1)
p-Cresol; 4-methylphenol (106-44-5)	Indeno(1,2,3-cd)pyrene (193-39-5)	1,1,1-Trichloroethane, Methylchloroform (71-55-6)
2,4-D; 2,4-Dichlorophen- oxyacetic acid (94-75-7)	Isobutyl alcohol (78-83-1)	1,1,2-Trichloroethane (79-00-5)
4,4[21]-DDD (72-54-8)	Isodrin (465-73-6)	Trichloroethylene, Trichloroethene (79-01-6)
4,4[21]-DDE (72-55-9)	Isophorone (78-59-1)	Trichlorofluoromethane, R-11 (75-69-4)
4,4[21]-DDT (50-29-3)	Isosafrole (120-58-1)	2,4,5-Trichlorophenol (95-95-4)
Diallate (2303-16-4)	Kepone (143-50-0)	2,4,6-Trichlorophenol (88-06-2)
Dibenz[a,h]anthracene (53-70-3)	Methacrylonitrile (126-98-7)	1,2,3-Trichloropropane (96-18-4)
Dibenzofuran (132-64-9)	Methapyrilene (91-80-5)	0,0,0-Triethyl phosphorothioate (126-68-1)
Dibromochloromethane; Chlorodibromomethane (124-48-1)	Methoxychlor (72-43-5)	sym-Trinitrobenzene (99-35-4)
1,2-Dibromo-3-chloro- propane; DBCP (96-12-8)	Methyl bromide; Bromomethane (74-83-9)	Vinyl acetate (108-05-4)
1,2-Dibromoethane; Ethylene dibromide; EDB (106-93-4)	Methyl chloride; Chloromethane (74-87-3)	Vinyl chloride; Chloroethene (75-01-4)
Di-n-butyl phthalate (84-74-2)	3-Methylcholanthrene (56-49-5)	Xylene (total)
o-Dichlorobenzene; 1,2-Dichlorobenzene (95-50-1)	Methyl ethyl ketone; MEK; 2-Butanone (78-93-3)	Per- and polyfluoroalkyl substances[29]
m-Dichlorobenzene; 1,3-Dichlorobenzene (541-73-1)	Methyl iodide; Iodomethane (74-88-4)	1,4-Dioxane (123-91-1)
p-Dichlorobenzene; 1,4-dichlorobenzene (106-46-7)	Methyl methacrylate (80-62-6)	
3,3[21]-Dichlorobenzidine (91-94-1)	Methyl methanesulfonate (66-27-3)	
trans-1,4-Dichloro- 2-butene (110-57-6)	2-Methylnaphthalene (91-57-6)	

Dichlorodifluoromethane, CFC 12 (75-71-8)	Methyl parathion; Parathion methyl (298-00-0)	
1,1-Dichloroethane; Ethyldidene chloride (75-34-3)	4-Methyl-2-pentanone; Methyl isobutyl ketone (108-10-1)	
1,2-Dichloroethane; Ethylene dichloride (107-06-2)	Methylene bromide; Dibromomethane (74-95-3)	
1,1-Dichloroethylene, 1,1-Dichloroethene; Vinylidene chloride (75-35-4)	Methylene chloride; Dichloromethane (75-09-2)	

(i) Leachate management plan.

The leachate management plan must include:

(1) a description of how the landfill will be constructed, operated, and closed in a manner that minimizes the generation of leachate, except in those cases where the department has approved the recirculation of leachate for waste mass stabilization enhancement, and how the migration of leachate into surface water or groundwater will be prevented;

(2) a description of operational methods to minimize the occurrence of perched leachate trapped above the leachate collection and removal system and surface seeps of leachate from above-grade landfill operations;

(3) a schedule for biennial video inspection and annual maintenance of the primary and secondary leachate collection and removal system;

(4) a schedule for the monitoring and recording of the secondary leachate collection and removal system flow data to determine the presence, quantity, nature and significance of any liquid detected;

(5) a discussion of the specific design and operational features related to the system, including leachate monitoring and sampling, locations of all leachate sampling points, alarm systems and maintenance, and any required back up equipment; and

(6) if leachate recirculation is proposed, the leachate management plan must include

(i) a supporting geotechnical analysis evaluating the effect of leachate recirculation on the structural integrity and stability of the landfill's liner system, leachate collection and removal system, and waste mass;

(ii) a description of how increased landfill gas emissions and associated odors will be controlled;

(iii) a description of the methods and rate of leachate recirculation and addition;

(iv) procedures for recording the date and volume of recirculated leachate;

(v) a description of the operation, which addresses:

(a) the use of permeable operating cover or alternative operating cover to facilitate leachate distribution throughout the waste mass; and

(b) operational controls such as monitoring of surface seeps, liner system performance and excessive leachate head buildup, prevention of subsurface fires, odor control, and instruction for cessation of leachate recirculation and remediation of these conditions.

(j) Odor control plan.

The odor control plan must include:

(1) identification of all potential sources for odors and a description of the operational procedures and strategies to be followed to effectively control odors at the facility;

(2) procedures to be taken in the event of proposed waste volume increases or changes in waste characterization that may increase landfill gas emissions or odors;

(3) identification of the landfill personnel who would be responsible for implementation of the odor control plan; and

(4) operational and design-related recommendations that can be implemented upon detection of odor control problems, including impervious membranes and interim covers in conjunction with other landfill gas control methods. The odor control plan may include but not be limited to, gas control systems that are appropriately connected to the landfill liner system's primary leachate collection and removal system (including the drainage area on the landfill's side slopes), use of a horizontal gas collection lines, which may include rejection or mitigation of odiferous wastes that are determined to be contributing to off-site odors.

(k) Gas monitoring and emission control plan.

The gas monitoring and emission control plan must include:

(1) a description of the day-to-day operation of the landfill gas management system with respect to operation of odor and emission controls;

(2) a description of any air quality monitoring, including monitoring for fugitive landfill odor and air emissions; and

(3) for a landfill with an appurtenant landfill gas-to-energy facility or other landfill gas recovery facility, a discussion of how the landfill's odor and air emission controls are integrated with a recovery facility.

(l) Winter and inclement weather operation plan.

A description of how winter and inclement weather operations will be conducted, including identification of the specific actions to be taken to prevent frost action on the liner system in places where waste will not be placed within one year of construction certification approval.

(m) Residential drop-off operation plan.

A description of the operation of a residential drop-off area, if applicable, for non-commercial vehicles to unload waste and recyclables at an area other than the landfill working face.

(n) A radioactive waste detection plan.

The radioactive waste detection plan must include procedures for detecting radioactive material; operation and maintenance documents for radiation detectors which address proper equipment placement for effective operation and include setting of investigation alarm setpoint settings and calibration methods; and response procedures to be implemented if radioactive waste is detected.

(o) Emergency response plan.

An emergency response plan must include a description of, at a minimum, the actions to be taken in response to:

(1) uncontrolled explosive landfill gases detected on-site or beyond the property boundary;

(2) unexpected events during the construction and operation of the landfill gas management system, including the equipment to be utilized to maintain proper landfill gas venting and control when normal operations cease; and

(3) unexpected events during the subsequent construction and/or daily operation of the landfill's leachate collection and removal system.

(p) Conceptual closure, post-closure care, custodial care, and end use plan.

The conceptual closure, post-closure care, custodial care, and end use plan must include:

(1) a site plan that shows proposed final contours, property lines, storm water drainage system, streams and water courses, roads, structures and, if applicable, the groundwater and leachate treatment system, air pollution control system and any active landfill gas collection system;

(2) typical details of final cover system components and facility structures;

(3) a description of how the sequential closure of areas of the landfill is expected to progress in concert with the fill progression schedule, including effects of landfill reclamation activities if proposed;

(4) an estimate of the greatest number of landfill cells which, at any given point during the lifetime of the facility, will have received waste but not undergone final closure;

(5) an estimate of the maximum volume of waste and alternative operating cover that will be contained within the landfill;

(6) sufficient information upon which to estimate closure costs and post-closure and custodial care monitoring and maintenance costs. This information must be based upon the requirements of Subpart 363-9 of this Part, including a rolling 30-year post-closure care period, and must include estimates of:

(i) quantities and costs for each component of the final cover system, including related construction costs;

(ii) the anticipated length of the post-closure care period based on the types of wastes disposed and the criteria provided in section 363-9.6(a) of this Part;

(iii) post-closure operational, monitoring and maintenance costs including costs to replace system components based on predicted service life; and

(iv) custodial care monitoring and maintenance costs including costs to replace system components based on predicted service life; and

(7) a conceptual end use for the site, if proposed.

Footnotes

1 This list contains parameters for which possible analytical procedures are provided in: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA Publication SW-846 (Third Edition, (November 1986), as amended by Updates I

(July 1992), II (September 1994), IIA (August 1993), IIB (January 1995), III (December 1996), IIIA (April 1998), document number 955-001-00000-1), incorporated by reference in section 360.3 of this Title. *Methods for Chemical Analysis of Water and Wastes*, USEPA-600/4-79-020, March, 1983, incorporated by reference in section 360.3 of this Title.

2 Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals. "Total" indicates all species in the groundwater that contain this element.

3 Any floaters or sinkers found must be analyzed separately for baseline parameters.

4 Surface water only.

5 Any unusual conditions (colors, odors, surface sheens, etc.) noticed during well development, purging, or sampling must be reported.

6 This list contains parameters for which possible analytical procedures are provided in: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA Publication SW-846 (Third Edition, (November 1986), as amended by Updates I (July 1992), II (September 1994), IIA (August 1993), IIB (January 1995), III (December 1996), IIIA (April 1998), document number 955-001-00000-1), incorporated by reference in section 360.3 of this Title. *Methods for Chemical Analysis of Water and Wastes*, USEPA-600/4-79-020, March, 1983, incorporated by reference in section 360.3 of this Title.

7 Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals. "Total" indicates all species in the groundwater that contain this element.

8 Any floaters or sinkers found must be analyzed separately for baseline parameters.

9 Surface water only.

10 Any unusual conditions (colors, odors, surface sheens, etc.) noticed during well development, purging, or sampling must be reported.

11 The department may waive the requirement to analyze hexavalent chromium provided that total and hexavalent and trivalent chromium values do not exceed 0.05 mg/l.

12 This list contains parameters for which possible analytical procedures are provided in: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA Publication SW-846 (Third Edition, (November 1986), as amended by Updates I (July 1992), II (September 1994), IIA (August 1993), IIB (January 1995), III (December 1996), and IIIA (April 1998) document number 955-001-00000-1), incorporated by reference in section 360.3 of this Title. *Methods for Chemical Analysis of Water and Wastes*, USEPA-600/4-79-020, March, 1983, incorporated by reference in 360.3 of this Title.

13 Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

14 This list contains parameters for which possible analytical procedures are provided in: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA Publication SW-846 (Third Edition, (November 1986), as amended by Updates I (July 1992), II (September 1994), IIA (August 1993), IIB (January 1995), III (December 1996), and IIIA (April 1998) document number 955-001-00000-1), incorporated by reference in section 360.3 of this Title. *Methods for Chemical Analysis of Water and Wastes*, USEPA-600/4-79-020, March 1983, incorporated by reference in 360.3 of this Title. *Prescribed Procedures for Measurement of Radioactivity in Drinking Water*, USEPA-600/4-80-032, August 1980, incorporated by reference in section 360.3 of this Title.

15 Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals. "Total" indicates all species in the groundwater that contain this element.

16 Two sets of samples must be collected: one filtered and one unfiltered. Filtered samples must be filtered using a 0.45 micron filter via standard techniques.

17 Any floaters or sinkers found must be analyzed separately for baseline parameters.

18 Surface water only.

19 Any unusual conditions (colors, odors, surface sheens, etc.) noticed during well development, purging, or sampling must be reported.

20 The department may waive the requirement to analyze hexavalent chromium provided that total and hexavalent and trivalent chromium values do not exceed 0.05 mg/l.

21 This list contains parameters for which possible analytical procedures are provided in: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA Publication SW-846 (Third Edition, (November 1986), as amended by Updates I (July 1992), II (September 1994), IIA (August 1993), IIB (January 1995), III (December 1996), and IIIA (April 1998) document number 955-001-00000-1), incorporated by reference in section 360.3 of this Title. *Methods for Chemical Analysis of Water and Wastes*, USEPA-600/4-79-020, March 1983, incorporated by reference in section 360.3 of this Title.

22

Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

23 This substance is often called Bis(2-chloroisopropyl) ether, the name Chemical Abstracts Service applies to its noncommercial isomer, Propane, 2,2"-oxybis[2]-chloro- (CAS RN 39638-32-9).

24 Polychlorinated biphenyls (1336-36-3): This category contains congener chemicals, including constituents of Aroclor 1016 (12674-11-2), Aroclor 1221 (11104-28-2), Aroclor 1232 (11097-69-1), and Aroclor 1260 (11096-82-5).

25 Polychlorinated dibenzo-p-dioxins: This category contains congener chemicals, including tetrachlorodibenzo-p-dioxins, pentachlorodibenzo-p-dioxins, and hexachlorodibenzo-p-dioxins.

26 Polychlorinated dibenzofurans: This category includes congener chemicals, including tetrachlorodibenzofurans, pentachlorodibenzofurans, and hexachlorodibenzofurans.

27 Chlordane: This entry includes alpha-chlordane (5103-71-9), beta-chlordane (5103-74-2), gamma-chlordane (5566-34-7), and constituents of chlordane (57-74-9; 12789-03-6).

28 Toxaphene: This entry includes congener chemicals contained in technical toxaphene (CAS RN 8001-35-2), *i.e.*, chlorinated camphene.

29 Per- and polyfluoroalkyl substances (PFAS): This category contains congener chemicals, including but not limited to perfluorooctanoic acid, perfluorooctanesulfonic acid, perfluorononanoic acid, perfluorohexanesulfonic acid, perfluoroheptanoic acid, perfluorobutanesulfonic acid.

6 CRR-NY 363-4.6
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