Progress/Inspection Report No. 7
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: November 2017

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this progress/inspection report on behalf of J&H Holding Company, LLC (the "Participant"). In accordance with Section 7.1 of the Site Management Plan (SMP), which was approved by the New York State Department of Environmental Conservation (NYSDEC) on June 28, 2017, this progress/inspection report summarizes work performed at the Former Watermark Designs Facility (the "Site") during November 2017. The Final Engineering Report (FER) was submitted to the NYSDEC on May 25, 2017, and in accordance with the Brownfield Cleanup Agreement (BCA) submission of Monthly Brownfield Cleanup Program (BCP) Progress Reports is no longer required for the Site.

The Site (Block 4384, Lots 31 & 36) is located at 491 Wortman Avenue in Brooklyn, New York (Figure 1) and consists of a rectangular shaped lot that is about 19,000 square feet (±0.44 acres). The Site is located in an area zoned for industrial/manufacturing use and is bound by Wortman Street to the south, Linwood Street to the west, Essex Street to the east, and a one-story building to the north. Currently, a one-story building with a partial basement covers the entire Site footprint. The one-story building is comprised of a warehouse (i.e., the western portion) and office space and a smaller warehouse (i.e. the eastern portion).

2. Remedial Actions Relative to the Site during this Reporting Period

On November 28, 2017, Langan recorded process and performance monitoring data for the air sparge and soil vapor extraction (AS/SVE) system. As part of the monthly inspection, vapor samples were collected prior to the lead vapor-phase granular activated carbon (vGAC) unit (i.e., influent) and after the lag vGAC unit (i.e., effluent). Routine equipment maintenance was performed as part of the annual maintenance event, which was conducted on November 29, 2017.

Langan conducted the annual maintenance of the AS/SVE system in accordance with the March 2016 Operations, Maintenance and Monitoring Plan. As part of the annual maintenance, mechanical system components were performance tested, cleaned, and calibrated, as necessary. The inside of the trailer was also tidied, and an inventory of stored equipment and supplies was taken. Electrical system components could not be performance tested because the variable frequency drive (VFD) failed during the maintenance event. The failure triggered the VFD alarm and the AS/SVE was shutdown.

On December 6, 2017, Langan and an electrician returned to the site to troubleshoot the VFD and blower connections, and it was determined that the previous issue was due to a faulty blower permissive start relay. The AS/SVE system was restarted, and the relay will be replaced

during the next monthly inspection. Before leaving the site, Langan completed annual performance testing of the electrical system components.

3. Actions Relative to the Site Anticipated for the Next Reporting Period

The following activities are planned:

- Continued operation, maintenance and monitoring (OM&M) of the AS/SVE system

4. Approved Activity Modifications (changes of work scope and/or schedule)

None

5. Results of Sampling, Testing and Other Relevant Data

OM&M sampling was performed as follows:

- An influent vapor sample was collected from the AS/SVE system and analyzed for volatile organic compounds (VOCs) via United States Environmental Protection Agency (USEPA) Method TO-15.
- An effluent vapor sample was collected from the AS/SVE system and analyzed for VOCs via USEPA Method TO-15.

Samples were analyzed by Alpha Analytical of Westborough, MA. Alpha is a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory.

Based on the results of the most recent OM&M sampling, the AS/SVE system is functioning in compliance with Policy DAR-1: Guidelines for the Control of Toxic Ambient Air Contaminants (DAR-1).

The following tables are attached to this progress report; analytical lab reports are available upon request. The tables summarize the data collected and the functionality of the AS/SVE system, including mass of VOCs removed from the subsurface based on photoionization detector (PID) readings and laboratory data, as well as, the alarm history.

- Table1: AS/SVE System Vapor Sampling Results
- Table 2: AS/SVE System Mass Removal – PID Data
- Table 3: AS/SVE System Mass Removal – Laboratory Data
- Table 4: AS/SVE System DAR-1 Compliance – November 1, 2017
- Table 5: AS/SVE System Alarm History

6. Deliverables Submitted During This Reporting Period

None

7. Information Regarding Percentage of Completion

OM&M of the AS/SVE system is ongoing.

As of December 8, 2017 and since inception, the SVE system operated for 17,136 hours (92% uptime), and the AS system operated for 16,666 hours (89% uptime).

8. Unresolved Delays Encountered or Anticipated That May Affect the Schedule and Mitigation Efforts

None

9. Citizen Participation Plan Activities during This Reporting Period

None

10. Activities Anticipated in Support of the CPP for the Next Reporting Period

None

11. Miscellaneous Information

The Recorded Notice of the Certificate of Completion (COC) was submitted to NYSDEC on November 22, 2017 by Katherine Ghilain of Sive, Paget & Riesel P.C.

TABLES

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION SAMPLE ID LAB SAMPLE ID SAMPLE DATE	vGAC INFLUENT INFLUENT_112817 11/28/2017 L1743456-01		vGAC EFFLUENT EFFLUENT_112817 11/28/2017 L1743456-02	
Volatile Organic Compounds (ug/m^3)				
1,1,1-Trichloroethane	1.76		1.09	U
1,1,2,2-Tetrachloroethane	1.37	U	1.37	U
1,1,2-Trichloroethane	1.09	U	1.09	U
1,1-Dichloroethane	0.809	U	0.809	U
1,1-Dichloroethene	0.793	U	0.793	U
1,2,4-Trichlorobenzene	1.48	U	1.48	U
1,2,4-Trimethylbenzene	0.983	U	0.983	U
1,2-Dibromoethane	1.54	U	1.54	U
1,2-Dichlorobenzene	1.2	U	1.2	U
1,2-Dichloroethane	0.809	U	0.809	U
1,2-Dichloropropane	3.81		0.924	U
1,3,5-Trimethylbenzene	0.983	U	0.983	U
1,3-Butadiene	0.442	U	0.442	U
1,3-Dichlorobenzene	1.2	U	1.2	U
1,4-Dichlorobenzene	1.2	U	1.2	U
1,4-Dioxane	0.721	U	0.721	U
2,2,4-Trimethylpentane	0.934	U	0.934	U
2-Butanone	1.47	U	1.47	U
2-Hexanone	0.82	U	0.82	U
3-Chloropropene	0.626	U	0.626	U
4-Ethyltoluene	0.983	U	0.983	U
4-Methyl-2-pentanone	2.05	U	2.05	U
Acetone	25.4		23.7	
Benzene	2.21		2.37	
Benzyl chloride	1.04	U	1.04	U
Bromodichloromethane	1.34	U	1.34	U
Bromoform	2.07	U	2.07	U
Bromomethane	0.777	U	0.777	U
Carbon disulfide	0.623	U	1.88	
Carbon tetrachloride	1.26	U	1.26	U
Chlorobenzene	0.921	U	0.921	U
Chloroethane	0.528	U	0.528	U
Chloroform	0.977	U	1.08	
Chloromethane	0.803		0.446	
cis-1,2-Dichloroethene	1.33		4.04	
cis-1,3-Dichloropropene	0.908	U	0.908	U
Cyclohexane	0.688	U	0.688	U
Dibromochloromethane	1.7	U	1.7	U
Dichlorodifluoromethane	1.62		1.62	
Ethanol	9.84		11.7	
Ethyl Acetate	6.92		1.8	U
Ethylbenzene	0.869	U	0.869	U
Freon-113	1.53	U	1.53	U
Freon-114	1.4	U	1.4	U
Heptane	0.82	U	0.82	U
Hexachlorobutadiene	2.13	U	2.13	U
Isopropanol	1.54		2.9	
Methyl tert butyl ether	0.721	U	0.721	U
Methylene chloride	15.3		1.74	U
n-Hexane	8.32		10.1	
o-Xylene	0.869	U	0.869	U
p/m-Xylene	1.74	U	1.74	U
Styrene	0.852	U	0.852	U
Tertiary butyl Alcohol	1.52	U	2.7	
Tetrachloroethene	65.5		1.36	U
Tetrahydrofuran	1.47	U	1.47	U
Toluene	13.9		1.68	
trans-1,2-Dichloroethene	0.793	U	0.793	U
trans-1,3-Dichloropropene	0.908	U	0.908	U
Trichloroethene	135		1.07	U
Trichlorofluoromethane	1.2		1.12	U
Vinyl bromide	0.874	U	0.874	U
Vinyl chloride	0.511	U	0.511	U

NOTES:
1. ug/m^3 = micrograms per cubic meter
2. vGAC = vapor-phase granular activated carbon
3. Samples collected at the "vGAC INFLUENT" were collected before to the lead vGAC vessel.
4. Samples collected at the "vGAC EFFLUENT" were collected after the lag vGAC vessel.

Q is the Qualifier Column with definitions as follows:
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM MASS REMOVAL - PID DATA
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	INFLUENT CONCENTRATION (ppmv)	SVE BLOWER FLOWRATE (scfm)	EFFLUENT CONCENTRATION (ppmv)	TOTAL OPERATIONAL HOURS	AVERAGE MOLECULAR WEIGHT	MASS REMOVAL RATE (lbs/hr)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	CUMULATIVE MASS REMOVED FROM SUBSURFACE (lbs)
10/21/2015	55.0	688	1.8	30	100	0.57	17.02	17.02
10/26/2015	8.3	650	0.6	150	100	0.08	9.31	26.34
11/6/2015	5.5	560	0.0	383	100	0.05	11.13	37.46
11/30/2015	1.9	593	0.3	958	100	0.01	8.46	45.92
12/28/2015	3.7	570	0.0	1,548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2,180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2,854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3,693	100	0.002	1.43	85.34
4/29/2016	2.0	571	0.0	4,322	100	0.018	11.14	96.48
5/26/2016	0.4	600	0.0	4,972	100	0.004	2.42	98.90
6/29/2016	0.5	600	0.0	5,784	100	0.005	3.78	102.68
7/28/2016	3.0	600	0.0	6,431	100	0.028	18.06	120.73
8/31/2016	2.7	600	0.0	7,110	100	0.025	17.05	137.79
9/29/2016	7.5	760	2.0	7,802	100	0.065	44.85	182.63
10/31/2016	0.0	520	0.0	8,516	100	0.000	0.00	182.63
11/29/2016	0.0	560	0.0	9,211	100	0.000	0.00	182.63
12/28/2016	0.0	520	0.0	9,884	100	0.000	0.00	182.63
1/25/2017	2.8	600	0.0	10,530	100	0.026	16.83	199.46
3/7/2017	0.1	360	0.0	11,186	100	0.001	0.37	199.82
4/27/2017	0.0	600	0.0	12,185	100	0.000	0.00	199.82
5/25/2017	0.8	600	0.0	12,760	100	0.008	4.42	204.24
6/28/2017	0.04	600	0.0	13,575	100	0.000	0.33	204.57
7/21/2017	0.0	600	0.0	14,060	100	0.000	0.00	204.57
8/25/2017	0.0	600	0.0	14,852	100	0.000	0.00	204.57
9/27/2017	0.7	600	0.08	15,641	100	0.006	4.55	209.12
11/1/2017	0.0	640	0.00	16,422	100	0.000	0.00	209.12
11/28/2017	0.0	600	0.00	17,069	100	0.000	0.00	209.12

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the PID readings.
3. Mass Removal rate (lb/hr) = ((Conc in ppmv)(flowrate scfm)(MW)(60 min/hr)) / ((387)(1,000,000)).
4. PID = photoionization detector
5. ppmv = parts per million volume
6. scfm = standard cubic feet per minute
7. lbs/hr = pounds per hour
8. lbs = pounds
9. SVE = soil vapor extraction

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	INFLUENT CONCENTRATION (ug/m3)	SVE BLOWER FLOWRATE (scfm)	EFFLUENT CONCENTRATION (ug/m3)	TOTAL OPERATIONAL HOURS	INFLUENT RATE (mg/min)	EFFLUENT RATE (mg/min)	REMOVAL RATE (mg/min)	MASS REMOVED FROM SUBSURFACE (lbs)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	MASS REMOVED BY CARBON (lbs)	TOTAL MASS REMOVED BY CARBON (lbs)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18
12/28/2015	3,357	570	230	1,548	53.58	3.67	49.91	4.18	16.55	3.89	15.08
1/27/2016	621	525	183	2,180	9.13	2.69	6.44	0.76	17.31	0.54	15.62
2/24/2016	1,454	578	283	2,854	23.53	4.58	18.94	2.10	19.41	1.69	17.31
3/30/2016	825	550	75	3,693	12.71	1.16	11.55	1.41	20.82	1.28	18.59
4/29/2016	482	571	112	4,322	7.70	1.79	5.91	0.64	21.46	0.49	19.08
5/26/2016	1,169	600	162	4,972	19.64	2.73	16.91	1.69	23.15	1.45	20.53
6/29/2016	1,865	600	190	5,784	31.33	3.19	28.14	3.37	26.51	3.02	23.56
7/28/2016	3,706	600	232	6,431	62.26	3.90	58.36	5.33	31.84	4.99	28.55
8/31/2016	4,798	600	135	7,110	80.61	2.26	78.35	7.24	39.08	7.04	35.59
9/29/2016	1,045	760	179	7,802	22.24	3.81	18.43	2.04	41.12	1.69	37.27
10/31/2016	922	520	91	8,516	13.42	1.32	12.10	1.27	42.38	1.14	38.42
11/29/2016	790	560	167	9,211	12.38	2.62	9.76	1.14	43.52	0.90	39.31
12/28/2016	282	520	123	9,884	4.11	1.79	2.32	0.37	43.89	0.21	39.52
1/25/2017	4.7	600	5.6	10,530	0.08	0.09	-0.02	0.01	43.89	0.00	39.52
3/7/2017	762	360	120	11,186	7.68	1.21	6.47	0.67	44.56	0.56	40.08
4/27/2017	1,008	600	86	12,185	16.93	1.44	15.49	2.24	46.80	2.05	42.13
5/25/2017	771	600	48	12,760	12.95	0.81	12.15	0.99	47.78	0.92	43.05
6/28/2017	754	600	69	13,575	12.66	1.16	11.50	1.36	49.15	1.24	44.29
7/21/2017	2,434	600	235	14,060	40.89	3.95	36.94	2.62	51.77	2.37	46.66
8/25/2017	1,334	600	246	14,852	22.41	4.13	18.28	2.35	54.12	1.91	48.58
9/27/2017	1,059	600	83	15,641	17.79	1.39	16.40	1.86	55.98	1.71	50.29
11/1/2017	1,227	640	85	16,422	21.99	1.52	20.47	2.27	58.25	2.11	52.40
11/28/2017	295	600	64	17,069	4.96	1.08	3.88	0.42	58.67	0.33	52.73

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the lab analytical data and not the PID readings.
3. ug/m3 = micrograms per cubic meter
4. scfm = standard cubic feet per minute
5. mg/min = milligrams per minute
6. lbs = pounds
7. SVE = soil vapor extraction
8. VGAC = vapor-phase granular activated carbon

TABLE 4: AS/SVE SYSTEM DAR-1 COMPLIANCE
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **11/28/2017**

CHEMICAL COMPOUND	CARBON EFFLUENT CONCENRATION MEASURED ($\mu g/m^3$)	EMISSION FLOWRATE MEASURED (SCFM)	(m^3/min)	OUTLET CONCENTRATION (Q_p) (lb/hr)	OUTLET CONCENTRATION (Q_a) (lb/yr)	MAX ANNUAL IMPACT (C_a) ($\mu g/m^3$)	MAX POTENTIAL IMPACT (C_p) ($\mu g/m^3$)	MAX SHORT-TERM IMPACT (C_{st}) ($\mu g/m^3$)	DAR-1 STANDARDS SGC ($\mu g/m^3$)	AGC ($\mu g/m^3$)	EMISSION RESTRICTION REQUIRED (if C_p>AGC and C_a<AGC)	SGC EMISSION EXCEEDANCE (if C_{st}>SGC)	AGC EMISSION EXCEEDANCE (if C_a>AGC)
Volatile Organics, USEPA TO-15 Full List (ug/m^3)													
Acetone	23.7	600	16.9902	5.32E-05	4.66E-01	4.19E-03	4.18E-03	2.72E-01	180,000	30,000	NO	NO	NO
Benzene	2.37	600	16.9902	5.32E-06	4.66E-02	4.19E-04	4.18E-04	2.72E-02	1,300	0.13	NO	NO	NO
Carbon disulfide	1.88	600	16.9902	4.22E-06	3.69E-02	3.32E-04	3.32E-04	2.16E-02	6,200	700	NO	NO	NO
Chloroform	1.08	600	16.9902	2.42E-06	2.12E-02	1.91E-04	1.91E-04	1.24E-02	150	0.04	NO	NO	NO
Chloromethane	0.446	600	16.9902	1.00E-06	8.76E-03	7.88E-05	7.87E-05	5.11E-03	6,200	700	NO	NO	NO
cis-1,2-Dichloroethylene	4.04	600	16.9902	9.06E-06	7.94E-02	7.14E-04	7.13E-04	4.63E-02	--	63	NO	No Standard	NO
Dichlorodifluoromethane	1.62	600	16.9902	3.63E-06	3.18E-02	2.86E-04	2.86E-04	1.86E-02	--	12,000	NO	No Standard	NO
Ethanol	11.7	600	16.9902	2.62E-05	2.30E-01	2.07E-03	2.06E-03	1.34E-01	--	45,000	NO	No Standard	NO
Isopropanol	2.9	600	16.9902	6.50E-06	5.70E-02	5.12E-04	5.12E-04	3.33E-02	98,000	7,000	NO	NO	NO
n-Hexane	10.1	600	16.9902	2.27E-05	1.98E-01	1.78E-03	1.78E-03	1.16E-01	--	700	NO	No Standard	NO
Tertiary Butyl Alcohol	2.7	600	16.9902	6.06E-06	5.30E-02	4.77E-04	4.76E-04	3.10E-02	--	720	NO	No Standard	NO
Toluene	1.68	600	16.9902	3.77E-06	3.30E-02	2.97E-04	2.96E-04	1.93E-02	37,000	5,000	NO	NO	NO

NOTES AND QUALIFIERS:
1. Table only displays chemical compounds with detectable concentrations.
2. Concentrations below reporting limit (non detect) are assumed to be zero.
3. Air samples were analyzed for USEPA TO-15 compounds
4. All equations are referenced in NYSDEC, Division of Air Resources, Air Guide 1, Guidelines for the Control of Toxic Ambient Air Contaminants (11/12/97). Standard Point Source Method calculations were used.
5. Values in table are compared to DAR-1 Annual Guideline Concentrations (AGC)/Short-Term Guideline Concentrations (SGC) Tables dated February 28, 2014.
6. DAR-1 AGC and/or SGC values listed as "--" means there is no AGC or SGC standard for that compound.
7. SCFM = standard cubic feet per minute
8. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
9. ug/m^3 = micrograms per cubic meter
10. m^3/min = cubic meter per minute
11. lb/hr = pounds per hour
12. lb/yr = pounds per year

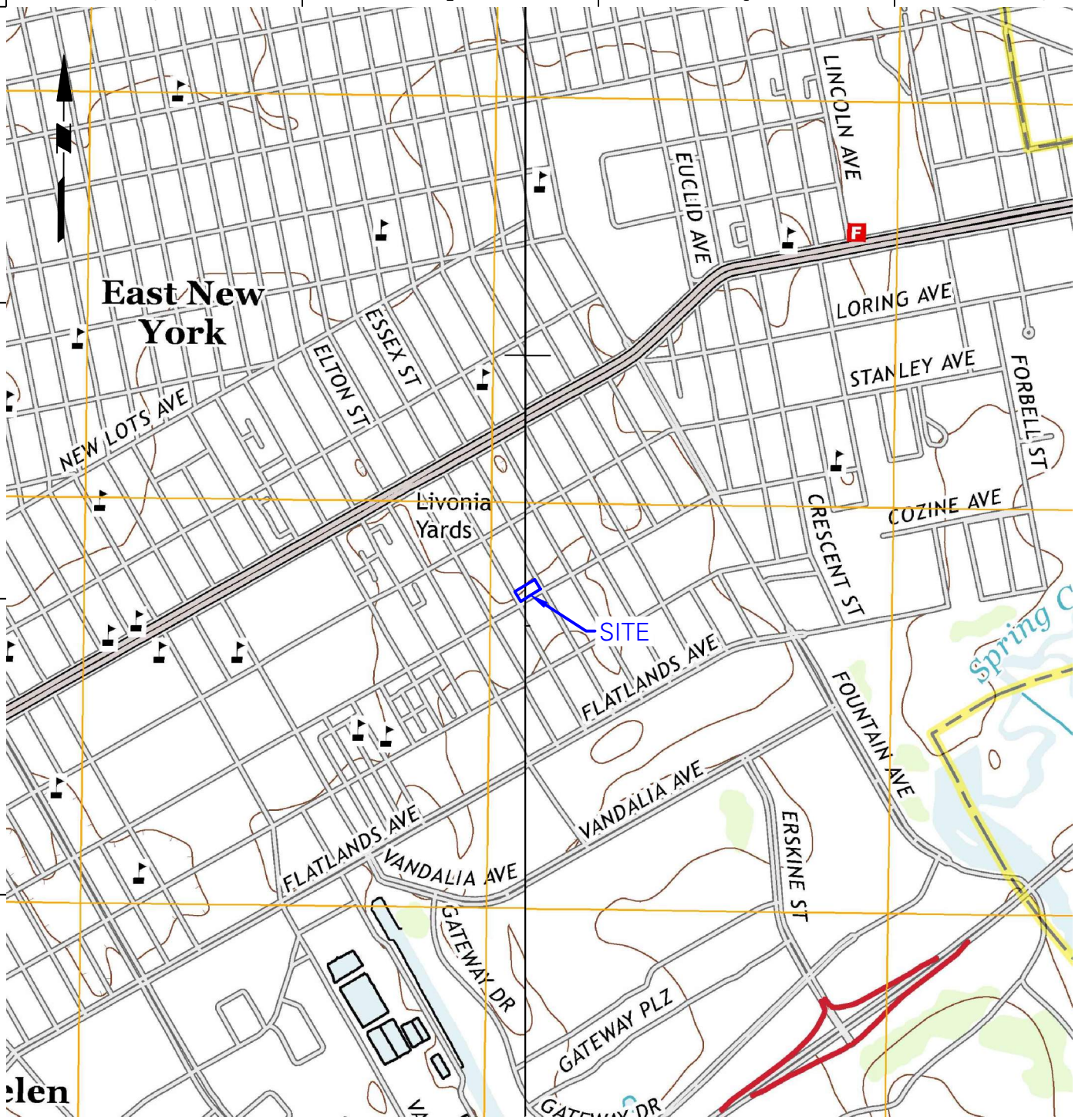
TABLE 5: AS/SVE SYSTEM ALARM HISTORY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

DATE	ALARM	ALARM DESCRIPTION	REASON	REMEDY
10/23/2015	PAL-2501	Compressor Low Pressure Alarm	Uncertain of the reason. There may be a power fluctuation that trips the low pressure alarm, which shuts the AS system down.	On-site observation confirmed that this was a false alarm and was not caused by compressor failure or a breach in the air sparge manifold. The alarm was manually reset.
10/28/2015	LAH-7301	Storage Tank High Level Alarm	The SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into nine 55-gallon drums, and the SVE system vacuum has been optimized to extract a lesser volume of water.
11/5/2015	PAL-2501	Compressor Low Pressure Alarm	Caused by the air sparge compressor on/off time, which won't allow "OFF" time to be set to zero and therefore, the compressor cannot run continuously.	The air compressor timer has been by-passed and the compressor operation is linked to the SVE system operation. If the SVE system is operational, the compressor will operate unless a different AS system alarm has been triggered.
11/17/2015	PAL-2501	Compressor Low Pressure Alarm	This was an alarm test that was performed to ensure that the update to the Programmable Logic Controller (PLC) was successful.	The PLC update was successful and the air sparge compressor can run continuously. The air compressor timer is no longer being bypassed.
12/23/2015	LAH-7301	Storage Tank High Level Alarm	Following optimization, which included increasing the AS rate and the SVE system flow rate, the SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into three 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
12/25/2015	LAH-7301	Storage Tank High Level Alarm	Following optimization, which included increasing the AS rate and the SVE system flow rate, the SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into three 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
1/7/2016	LAH-7301	Storage Tank High Level Alarm	Following continued optimization of AS/SVE system, the SVE system began to extract a larger volume of water than anticipated.	The storage tank was emptied into eight 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
1/17/2016	LAH-7301	Storage Tank High Level Alarm	Following continued optimization of AS/SVE system, the SVE system began to extract a larger volume of water than anticipated.	The storage tank was emptied. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
2/1/2016	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted at a lower speed. The compressor speed was ramped up incrementally throughout the day until the previous set point was reached. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
4/3/2016	PAL-701	Blower Influent High Pressure Alarm	The alarm was most likely triggered due to power fluctuations caused by high wind conditions.	The alarm was cleared and the SVE system was restarted at a higher frequency. The system was monitored remotely for the remainder of the day.
4/29/2016	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted. At restart, the allowable flow through the AS system was increased to alleviate the pressure on the air compressor discharge line. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
8/9/2016	PAH-702	SVE System Effluent High Pressure Alarm	Anomalously high pressures were not noted on the SVE system discharge during the remote or on-site inspections. It is likely that the SVE effluent pressure switch needs to be recalibrated following almost a year's worth of continuous use.	The SVE system was restarted at a lower frequency and monitored on-site for about two hours.
8/26/2016	FAL-701	Blower Low Flow Alarm	The alarm was triggered due to a loose relay switch.	The switch was tightened during the August 31, 2016 monthly inspection and the system was restarted without further issue.
12/27/2016	PAL-2501	Compressor Low Pressure Alarm	The alarm was triggered due to a mechanical failure at the air compressor (i.e., the belts tore).	The air compressor belts were replaced on January 9, 2017 and the system was restarted.
3/7/2017	FAL-401	Transfer Pump Low Flow Alarm	The alarm was likley triggered due to the fluctuating volume of water extracted by the SVE system.	The AS/SVE system was restarted. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
3/8/2017	Low PLC Battery	Low Programmable Loigc Controller (PLC) Battery	The alarm was triggered because the PLC battery can no longer hold a charge.	The PLC battery was replaced on March 10, 2017.
3/24/2017	VFDA-701	SVE System Variable Frequency Drive (VFD) Alarm	The alarm was triggered because the SVE system blower was not functioning within the intended parameters.	The blower was visually inspected, a piece of debris caught in the belts was removed, and the system was restarted.

TABLE 5: AS/SVE SYSTEM ALARM HISTORY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

DATE	ALARM	ALARM DESCRIPTION	REASON	REMEDY
7/4/2017	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted. At restart, the allowable flow through the AS system was increased to alleviate the pressure on the air compressor discharge line. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
8/2/2017	FAL-701	Blower Low Flow Alarm	The alarm was likely triggered by a momentary power surge.	The alarm was cleared and the AS/SVE system was restarted. The system was monitored remotely for the remainder of the day.
11/29/2017	VFDA-701	SVE System VFD Alarm	The alarm was triggered by a faulty blower permissive start relay.	The AS/SVE system was restarted, and the relay will be replaced during the December monthly inspection.

FIGURES



LEGEND:

APPROXIMATE SITE BOUNDARY

NOTE: BASE MAPS ARE REFERENCED FROM THE UNITED STATES GEOLOGICAL SURVEY (USGS) TOPOGRAPHIC QUADRANGLE MAPS FOR BROOKLYN AND JAMAICA.

LANGAN

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Langan Engineering and Environmental Services, Inc.
Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project	491 WORTMAN AVENUE BLOCK No. 4384, LOT Nos. 31 & 36 BROOKLYN KINGS NEW YORK
Figure Title	SITE LOCATION MAP
Project No.	170329301
Date	04/18/2015
Scale	N.T.S.
Drawn By / Checked By	MLR / GN
Submission Date	
Figure	1
Sheet	1 of 3

Filename: \\langan.com\data\NYC\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 22\Figure 1 - Site Location Map - Updated.dwg Date: 5/9/2017 Time: 12:48 User: mrogers Style Table: Langan.stb Layout: Site Location Map

Progress/Inspection Report No. 7
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: December 2017

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this progress/inspection report on behalf of J&H Holding Company, LLC (the "Participant"). In accordance with Section 7.1 of the Site Management Plan (SMP), which was approved by the New York State Department of Environmental Conservation (NYSDEC) on June 28, 2017, this progress/inspection report summarizes work performed at the Former Watermark Designs Facility (the "Site") during December 2018. The Final Engineering Report (FER) was submitted to the NYSDEC on May 25, 2017, and in accordance with the Brownfield Cleanup Agreement (BCA) submission of Monthly Brownfield Cleanup Program (BCP) Progress Reports is no longer required for the Site.

The Site (Block 4384, Lots 31 & 36) is located at 491 Wortman Avenue in Brooklyn, New York (Figure 1) and consists of a rectangular shaped lot that is about 19,000 square feet (±0.44 acres). The Site is located in an area zoned for industrial/manufacturing use and is bound by Wortman Street to the south, Linwood Street to the west, Essex Street to the east, and a one-story building to the north. Currently, a one-story building with a partial basement covers the entire Site footprint. The one-story building is comprised of a warehouse (i.e., the western portion) and office space and a smaller warehouse (i.e. the eastern portion).

2. Remedial Actions Relative to the Site during this Reporting Period

On December 28, 2017, Langan recorded process and performance monitoring data for the air sparge and soil vapor extraction (AS/SVE) system. As part of the monthly inspection, vapor samples were collected prior to the lead vapor-phase granular activated carbon (vGAC) unit (i.e., influent) and after the lag vGAC unit (i.e., effluent). The faulty blower permissive start relay was replaced.

3. Actions Relative to the Site Anticipated for the Next Reporting Period

The following activities are planned:

- Continued operation, maintenance and monitoring (OM&M) of the AS/SVE system
- The tenth quarterly on-site groundwater sampling event is planned January 29, 30, and 31, 2018.

4. Approved Activity Modifications (changes of work scope and/or schedule)

None

5. Results of Sampling, Testing and Other Relevant Data

OM&M sampling was performed as follows:

- An influent vapor sample was collected from the AS/SVE system and analyzed for volatile organic compounds (VOCs) via United States Environmental Protection Agency (USEPA) Method TO-15.
- An effluent vapor sample was collected from the AS/SVE system and analyzed for VOCs via USEPA Method TO-15.

Samples were analyzed by Alpha Analytical of Westborough, MA. Alpha is a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory.

Based on the results of the most recent OM&M sampling, the AS/SVE system is functioning in compliance with Policy DAR-1: Guidelines for the Control of Toxic Ambient Air Contaminants (DAR-1).

The following tables are attached to this progress report; analytical lab reports are available upon request. The tables summarize the data collected and the functionality of the AS/SVE system, including mass of VOCs removed from the subsurface based on photoionization detector (PID) readings and laboratory data, as well as, the alarm history.

- Table1: AS/SVE System Vapor Sampling Results
- Table 2: AS/SVE System Mass Removal – PID Data
- Table 3: AS/SVE System Mass Removal – Laboratory Data
- Table 4: AS/SVE System DAR-1 Compliance – December 28, 2017
- Table 5: AS/SVE System Alarm History

6. Deliverables Submitted During This Reporting Period

None

7. Information Regarding Percentage of Completion

OM&M of the AS/SVE system is ongoing.

As of January 4, 2018 and since inception, the SVE system operated for 17,782 hours (92% uptime), and the AS system operated for 17,312 hours (89% uptime).

8. Unresolved Delays Encountered or Anticipated That May Affect the Schedule and Mitigation Efforts

None

9. Citizen Participation Plan Activities during This Reporting Period

None

10. Activities Anticipated in Support of the CPP for the Next Reporting Period

None

11. Miscellaneous Information

None

TABLES

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	INFLUENT_112817		EFFLUENT_112817	
LAB SAMPLE ID	12/28/2017		12/28/2017	
SAMPLE DATE	L1747796-01		L1747796-02	
Volatile Organic Compounds (ug/m^3)				
1,1,1-Trichloroethane	2.36		1.09	U
1,1,2,2-Tetrachloroethane	1.37	U	1.37	U
1,1,2-Trichloroethane	1.09	U	1.09	U
1,1-Dichloroethane	0.809	U	0.809	U
1,1-Dichloroethene	0.793	U	0.793	U
1,2,4-Trichlorobenzene	1.48	U	1.48	U
1,2,4-Trimethylbenzene	0.983	U	0.983	U
1,2-Dibromoethane	1.54	U	1.54	U
1,2-Dichlorobenzene	1.2	U	1.2	U
1,2-Dichloroethane	0.809	U	0.809	U
1,2-Dichloropropane	2.66		0.924	U
1,3,5-Trimethylbenzene	0.983	U	0.983	U
1,3-Butadiene	0.442	U	0.442	U
1,3-Dichlorobenzene	1.2	U	1.2	U
1,4-Dichlorobenzene	1.2	U	1.2	U
1,4-Dioxane	0.721	U	0.721	U
2,2,4-Trimethylpentane	0.934	U	0.934	U
2-Butanone	1.71		1.47	U
2-Hexanone	0.82	U	0.82	U
3-Chloropropene	0.626	U	0.626	U
4-Ethyltoluene	0.983	U	0.983	U
4-Methyl-2-pentanone	2.12		2.05	U
Acetone	17.2		6.29	
Benzene	2.06		1.04	
Benzyl chloride	1.04	U	1.04	U
Bromodichloromethane	1.34	U	1.34	U
Bromoform	2.07	U	2.07	U
Bromomethane	0.777	U	0.777	U
Carbon disulfide	0.623	U	0.623	U
Carbon tetrachloride	1.26	U	1.26	U
Chlorobenzene	0.921	U	0.921	U
Chloroethane	0.528	U	0.528	U
Chloroform	0.977	U	0.977	U
Chloromethane	0.696		0.413	U
cis-1,2-Dichloroethene	2.37		2.66	
cis-1,3-Dichloropropene	0.908	U	0.908	U
Cyclohexane	0.688	U	0.688	U
Dibromochloromethane	1.7	U	1.7	U
Dichlorodifluoromethane	2.43		1.97	
Ethanol	9.42	U	9.42	U
Ethyl Acetate	1.8	U	1.8	U
Ethylbenzene	0.869	U	0.869	U
Freon-113	1.53	U	1.53	U
Freon-114	1.4	U	1.4	U
Heptane	0.82	U	0.82	U
Hexachlorobutadiene	2.13	U	2.13	U
Isopropanol	1.23	U	1.23	U
Methyl tert butyl ether	0.721	U	0.721	U
Methylene chloride	1.74	U	1.74	U
n-Hexane	1.37		14.2	
o-Xylene	0.869	U	0.869	U
p/m-Xylene	1.74	U	1.74	U
Styrene	0.852	U	0.852	U
Tertiary butyl Alcohol	2.33		2.2	
Tetrachloroethene	47.8		1.36	U
Tetrahydrofuran	1.47	U	1.47	U
Toluene	1.76		0.848	
trans-1,2-Dichloroethene	0.793	U	0.793	U
trans-1,3-Dichloropropene	0.908	U	0.908	U
Trichloroethene	170		1.07	U
Trichlorofluoromethane	1.25		1.12	U
Vinyl bromide	0.874	U	0.874	U
Vinyl chloride	0.511	U	0.511	U

NOTES:

1. ug/m^3 = micrograms per cubic meter
2. vGAC = vapor-phase granular activated carbon
3. Samples collected at the "vGAC INFLUENT" were collected before to the lead vGAC vessel.
4. Samples collected at the "vGAC EFFLUENT" were collected after the lag vGAC vessel.

Q is the Qualifier Column with definitions as follows:

U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM MASS REMOVAL - PID DATA
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	INFLUENT CONCENTRATION (ppmv)	SVE BLOWER FLOWRATE (scfm)	EFFLUENT CONCENTRATION (ppmv)	TOTAL OPERATIONAL HOURS	AVERAGE MOLECULAR WEIGHT	MASS REMOVAL RATE (lbs/hr)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	CUMULATIVE MASS REMOVED FROM SUBSURFACE (lbs)
10/21/2015	55.0	688	1.8	30	100	0.57	17.02	17.02
10/26/2015	8.3	650	0.6	150	100	0.08	9.31	26.34
11/6/2015	5.5	560	0.0	383	100	0.05	11.13	37.46
11/30/2015	1.9	593	0.3	958	100	0.01	8.46	45.92
12/28/2015	3.7	570	0.0	1,548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2,180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2,854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3,693	100	0.002	1.43	85.34
4/29/2016	2.0	571	0.0	4,322	100	0.018	11.14	96.48
5/26/2016	0.4	600	0.0	4,972	100	0.004	2.42	98.90
6/29/2016	0.5	600	0.0	5,784	100	0.005	3.78	102.68
7/28/2016	3.0	600	0.0	6,431	100	0.028	18.06	120.73
8/31/2016	2.7	600	0.0	7,110	100	0.025	17.05	137.79
9/29/2016	7.5	760	2.0	7,802	100	0.065	44.85	182.63
10/31/2016	0.0	520	0.0	8,516	100	0.000	0.00	182.63
11/29/2016	0.0	560	0.0	9,211	100	0.000	0.00	182.63
12/28/2016	0.0	520	0.0	9,884	100	0.000	0.00	182.63
1/25/2017	2.8	600	0.0	10,530	100	0.026	16.83	199.46
3/7/2017	0.1	360	0.0	11,186	100	0.001	0.37	199.82
4/27/2017	0.0	600	0.0	12,185	100	0.000	0.00	199.82
5/25/2017	0.8	600	0.0	12,760	100	0.008	4.42	204.24
6/28/2017	0.04	600	0.0	13,575	100	0.000	0.33	204.57
7/21/2017	0.0	600	0.0	14,060	100	0.000	0.00	204.57
8/25/2017	0.0	600	0.0	14,852	100	0.000	0.00	204.57
9/27/2017	0.7	600	0.08	15,641	100	0.006	4.55	209.12
11/1/2017	0.0	640	0.00	16,422	100	0.000	0.00	209.12
11/28/2017	0.0	600	0.00	17,069	100	0.000	0.00	209.12
12/28/2017	0.0	560	0.00	17,618	100	0.000	0.00	209.12

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the PID readings.
3. Mass Removal rate (lb/hr) = ((Conc in ppmv)(flowrate scfm)(MW)(60 min/hr)) / ((387)(1,000,000)).
4. PID = photoionization detector
5. ppmv = parts per million volume
6. scfm = standard cubic feet per minute
7. lbs/hr = pounds per hour
8. lbs = pounds
9. SVE = soil vapor extraction

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	INFLUENT CONCENTRATION (ug/m3)	SVE BLOWER FLOWRATE (scfm)	EFFLUENT CONCENTRATION (ug/m3)	TOTAL OPERATIONAL HOURS	INFLUENT RATE (mg/min)	EFFLUENT RATE (mg/min)	REMOVAL RATE (mg/min)	MASS REMOVED FROM SUBSURFACE (lbs)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	MASS REMOVED BY CARBON (lbs)	TOTAL MASS REMOVED BY CARBON (lbs)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18
12/28/2015	3,357	570	230	1,548	53.58	3.67	49.91	4.18	16.55	3.89	15.08
1/27/2016	621	525	183	2,180	9.13	2.69	6.44	0.76	17.31	0.54	15.62
2/24/2016	1,454	578	283	2,854	23.53	4.58	18.94	2.10	19.41	1.69	17.31
3/30/2016	825	550	75	3,693	12.71	1.16	11.55	1.41	20.82	1.28	18.59
4/29/2016	482	571	112	4,322	7.70	1.79	5.91	0.64	21.46	0.49	19.08
5/26/2016	1,169	600	162	4,972	19.64	2.73	16.91	1.69	23.15	1.45	20.53
6/29/2016	1,865	600	190	5,784	31.33	3.19	28.14	3.37	26.51	3.02	23.56
7/28/2016	3,706	600	232	6,431	62.26	3.90	58.36	5.33	31.84	4.99	28.55
8/31/2016	4,798	600	135	7,110	80.61	2.26	78.35	7.24	39.08	7.04	35.59
9/29/2016	1,045	760	179	7,802	22.24	3.81	18.43	2.04	41.12	1.69	37.27
10/31/2016	922	520	91	8,516	13.42	1.32	12.10	1.27	42.38	1.14	38.42
11/29/2016	790	560	167	9,211	12.38	2.62	9.76	1.14	43.52	0.90	39.31
12/28/2016	282	520	123	9,884	4.11	1.79	2.32	0.37	43.89	0.21	39.52
1/25/2017	4.7	600	5.6	10,530	0.08	0.09	-0.02	0.01	43.89	0.00	39.52
3/7/2017	762	360	120	11,186	7.68	1.21	6.47	0.67	44.56	0.56	40.08
4/27/2017	1,008	600	86	12,185	16.93	1.44	15.49	2.24	46.80	2.05	42.13
5/25/2017	771	600	48	12,760	12.95	0.81	12.15	0.99	47.78	0.92	43.05
6/28/2017	754	600	69	13,575	12.66	1.16	11.50	1.36	49.15	1.24	44.29
7/21/2017	2,434	600	235	14,060	40.89	3.95	36.94	2.62	51.77	2.37	46.66
8/25/2017	1,334	600	246	14,852	22.41	4.13	18.28	2.35	54.12	1.91	48.58
9/27/2017	1,059	600	83	15,641	17.79	1.39	16.40	1.86	55.98	1.71	50.29
11/1/2017	1,227	640	85	16,422	21.99	1.52	20.47	2.27	58.25	2.11	52.40
11/28/2017	295	600	64	17,069	4.96	1.08	3.88	0.42	58.67	0.33	52.73
12/28/2017	258	560	29	17,618	4.05	0.45	3.59	0.29	58.97	0.26	53.00

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the lab analytical data and not the PID readings.
3. ug/m3 = micrograms per cubic meter
4. scfm = standard cubic feet per minute
5. mg/min = milligrams per minute
6. lbs = pounds
7. SVE = soil vapor extraction
8. VGAC = vapor-phase granular activated carbon

TABLE 4A: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA (TCE ONLY)
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	TCE INFLUENT CONCENTRATION (ug/m3)	SVE BLOWER FLOWRATE (scfm)	TCE EFFLUENT CONCENTRATION (ug/m3)	TOTAL OPERATIONAL HOURS	INFLUENT RATE (mg/min)	EFFLUENT RATE (mg/min)	REMOVAL RATE (mg/min)	MASS REMOVED FROM SUBSURFACE (lbs)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	MASS REMOVED BY CARBON (lbs)	TOTAL MASS REMOVED BY CARBON (lbs)
10/20/2015	110,000	640	27.4	12	1971.20	0.49	1970.71	3.13	3.13	3.13	3.13
10/21/2015	29,000	688	530	30	558.66	10.21	548.45	1.33	4.46	1.29	4.42
10/26/2015	5,600	650	120	150	101.92	2.18	99.74	1.62	6.08	1.57	5.99
11/30/2015	2,700	593	23	958	44.83	0.38	44.45	4.79	10.87	4.74	10.74
12/28/2015	2,800	570	1.3	1,548	44.69	0.02	44.67	3.49	14.36	3.48	14.22
1/27/20126	150	525	0.13	2,180	2.21	0.00	2.20	0.18	14.54	0.18	14.40
2/24/2016	1,100	578	0.91	2,854	17.80	0.01	17.79	1.59	16.13	1.58	15.98
3/30/2016	660	550	1.30	3,693	10.16	0.02	10.14	1.13	17.26	1.12	17.10
4/29/2016	170	571	0.13	4,322	2.72	0.002	2.72	0.23	17.48	0.22	17.33
5/26/2016	870	600	1.30	4,972	14.62	0.022	14.59	1.26	18.74	1.24	18.57
6/29/2016	1,300	600	0.75	5,784	21.84	0.013	21.83	2.35	21.08	2.34	20.91
7/28/2016	3,100	600	1.30	6,431	52.08	0.022	52.06	4.46	25.54	4.44	25.34
8/31/2016	4,300	600	1.90	7,110	72.24	0.032	72.21	6.49	32.03	6.46	31.80
9/29/2016	740	760	1.30	7,802	15.75	0.028	15.72	1.44	33.47	1.41	33.22
10/31/2016	660	520	3.80	8,516	9.61	0.055	9.55	0.91	34.38	0.85	34.06
11/29/2016	450	560	1.30	9,211	7.06	0.020	7.04	0.65	35.03	0.62	34.68
12/28/2016	200	520	24	9,884	2.91	0.349	2.56	0.26	35.29	-0.20	34.49
1/25/2017	2	600	0.43	10,530	0.03	0.007	0.03	0.003	35.29	-0.01	34.48
3/7/2017	660	360	8.60	11,186	6.65	0.087	6.57	0.577	35.87	0.45	34.93
4/27/2017	650	600	1.10	12,185	10.92	0.018	10.90	1.443	37.31	1.41	36.34
5/25/2017	403	600	2.22	12,760	6.77	0.037	6.73	0.515	37.82	0.45	36.79
6/28/2017	492	600	1.10	13,575	8.27	0.018	8.25	0.891	38.72	0.86	37.65
7/21/2017	1890	600	1.36	14,060	31.75	0.023	31.73	2.037	40.75	1.99	39.65
8/25/2017	726	600	1.07	14,852	12.20	0.018	12.18	1.278	42.03	1.24	40.89
9/27/2017	656	600	2.25	15,641	11.02	0.038	10.98	1.150	43.18	1.07	41.96
11/1/2017	881	640	1.07	16,422	15.79	0.019	15.77	1.631	44.81	1.59	43.55
11/28/2017	135	600	1.07	17,069	2.27	0.018	2.25	0.194	45.01	0.15	43.70
12/28/2017	170	560	1.07	17,618	2.67	0.017	2.65	0.194	45.20	0.15	43.86

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the lab analytical data and not the PID readings.
3. ug/m3 = micrograms per cubic meter
4. scfm = standard cubic feet per minute
5. mg/min = milligrams per minute
6. lbs = pounds
7. SVE = soil vapor extraction
8. VGAC = vapor-phase granular activated carbon
9. TCE = trichloroethylene

TABLE 4B: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA (PCE ONLY)
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	PCE INFLUENT CONCENTRATION (ug/m3)	SVE BLOWER FLOWRATE (scfm)	PCE EFFLUENT CONCENTRATION (ug/m3)	TOTAL OPERATIONAL HOURS	INFLUENT RATE (mg/min)	EFFLUENT RATE (mg/min)	REMOVAL RATE (mg/min)	MASS REMOVED FROM SUBSURFACE (lbs)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	MASS REMOVED BY CARBON (lbs)	TOTAL MASS REMOVED BY CARBON (lbs)
10/20/2015	680	640	13.56	12	12.19	0.24	11.94	0.02	0.02	0.02	0.02
10/21/2015	2,800	688	48	30	53.94	0.92	53.01	0.13	0.15	0.12	0.14
10/26/2015	1,200	650	26	150	21.84	0.47	21.37	0.35	0.49	0.34	0.48
11/30/2015	290	593	12	958	4.82	0.20	4.62	0.51	1.01	0.49	0.97
12/28/2015	380	570	12	1,548	6.06	0.19	5.87	0.47	1.48	0.43	1.40
1/27/2016	280	525	6.9	2,180	4.12	0.10	4.01	0.34	1.83	0.31	1.72
2/24/2016	200	578	5.1	2,854	3.24	0.08	3.15	0.29	2.12	0.26	1.98
3/30/2016	110	550	1.7	3,693	1.69	0.03	1.67	0.19	2.30	0.18	2.15
4/29/2016	32	571	0.2	4,322	0.51	0.003	0.51	0.04	2.35	0.04	2.19
5/26/2016	150	600	1.7	4,972	2.52	0.029	2.49	0.22	2.56	0.20	2.39
6/29/2016	290	600	0.68	5,784	4.87	0.011	4.86	0.52	3.09	0.51	2.91
7/28/2016	300	600	8.80	6,431	5.04	0.148	4.89	0.43	3.52	0.31	3.21
8/31/2016	240	600	0.17	7,110	4.03	0.003	4.03	0.36	3.88	0.36	3.57
9/29/2016	140	760	3.40	7,802	2.98	0.072	2.91	0.27	4.15	0.20	3.77
10/31/2016	130	520	6.80	8,516	1.89	0.099	1.79	0.18	4.33	0.07	3.84
11/29/2016	120	560	1.70	9,211	1.88	0.027	1.85	0.17	4.50	0.14	3.98
12/28/2016	41	520	53	9,884	0.60	0.772	-0.17	0.05	4.56	-0.96	3.02
1/25/2017	2	600	0.61	10,530	0.03	0.010	0.02	0.003	4.56	-0.01	3.01
3/7/2017	68	360	1.70	11,186	0.69	0.017	0.67	0.059	4.62	0.03	3.04
4/27/2017	159	600	1.40	12,185	2.67	0.024	2.65	0.353	4.97	0.32	3.36
5/25/2017	112	600	2.80	12,760	1.88	0.047	1.83	0.143	5.12	0.06	3.42
6/28/2017	125	600	1.40	13,575	2.10	0.024	2.08	0.226	5.34	0.18	3.61
7/21/2017	126	600	2.16	14,060	2.12	0.036	2.08	0.136	5.48	0.07	3.67
8/25/2017	241	600	1.40	14,852	4.05	0.024	4.03	0.424	5.90	0.38	4.05
9/27/2017	271	600	2.80	15,641	4.55	0.047	4.51	0.475	6.38	0.38	4.43
11/1/2017	168	640	1.36	16,422	3.01	0.024	2.99	0.311	6.69	0.26	4.69
11/28/2017	66	600	1.36	17,069	1.10	0.023	1.08	0.094	6.78	0.04	4.73
12/28/2017	48	560	1.36	17,618	0.75	0.021	0.73	0.055	6.84	0.00	4.74

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the lab analytical data and not the PID readings.
3. ug/m3 = micrograms per cubic meter
4. scfm = standard cubic feet per minute
5. mg/min = milligrams per minute
6. lbs = pounds
7. SVE = soil vapor extraction
8. VGAC = vapor-phase granular activated carbon
9. PCE = tetrachloroethylene

TABLE 4: AS/SVE SYSTEM DAR-1 COMPLIANCE
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **12/28/2017**

CHEMICAL COMPOUND	CARBON EFFLUENT CONCENRATION MEASURED ($\mu g/m^3$)	EMISSION FLOWRATE MEASURED (SCFM)	(m^3/min)	OUTLET CONCENTRATION (Q_p) (lb/hr)	OUTLET CONCENTRATION (Q_a) (lb/yr)	MAX ANNUAL IMPACT (C_a) ($\mu g/m^3$)	MAX POTENTIAL IMPACT (C_p) ($\mu g/m^3$)	MAX SHORT-TERM IMPACT (C_{st}) ($\mu g/m^3$)	DAR-1 STANDARDS SGC ($\mu g/m^3$)	AGC ($\mu g/m^3$)	EMISSION RESTRICTION REQUIRED (if C_p>AGC and C_a<AGC)	SGC EMISSION EXCEEDANCE (if C_{st}>SGC)	AGC EMISSION EXCEEDANCE (if C_a>AGC)
Volatile Organics, USEPA TO-15 Full List (ug/m^3)													
Acetone	6.3	600	16.9902	1.41E-05	1.24E-01	1.11E-03	1.11E-03	7.21E-02	180,000	30,000	NO	NO	NO
Benzene	1.04	600	16.9902	2.33E-06	2.04E-02	1.84E-04	1.83E-04	1.19E-02	1,300	0.13	NO	NO	NO
Carbon disulfide	0.62	600	16.9902	1.40E-06	1.22E-02	1.10E-04	1.10E-04	7.14E-03	6,200	700	NO	NO	NO
Chloroform	0.98	600	16.9902	2.19E-06	1.92E-02	1.73E-04	1.72E-04	1.12E-02	150	0.04	NO	NO	NO
Chloromethane	0.413	600	16.9902	9.26E-07	8.11E-03	7.29E-05	7.29E-05	4.74E-03	6,200	700	NO	NO	NO
cis-1,2-Dichloroethylene	2.66	600	16.9902	5.97E-06	5.23E-02	4.70E-04	4.69E-04	3.05E-02	--	63	NO	No Standard	NO
Dichlorodifluoromethane	1.70	600	16.9902	3.81E-06	3.34E-02	3.00E-04	3.00E-04	1.95E-02	--	12,000	NO	No Standard	NO
Ethanol	9.4	600	16.9902	2.11E-05	1.85E-01	1.66E-03	1.66E-03	1.08E-01	--	45,000	NO	No Standard	NO
Isopropanol	1.2	600	16.9902	2.76E-06	2.42E-02	2.17E-04	2.17E-04	1.41E-02	98,000	7,000	NO	NO	NO
n-Hexane	14.2	600	16.9902	3.18E-05	2.79E-01	2.51E-03	2.51E-03	1.63E-01	--	700	NO	No Standard	NO
Tertiary Butyl Alcohol	2.2	600	16.9902	4.93E-06	4.32E-02	3.89E-04	3.88E-04	2.52E-02	--	720	NO	No Standard	NO
Toluene	0.85	600	16.9902	1.90E-06	1.67E-02	1.50E-04	1.50E-04	9.72E-03	37,000	5,000	NO	NO	NO

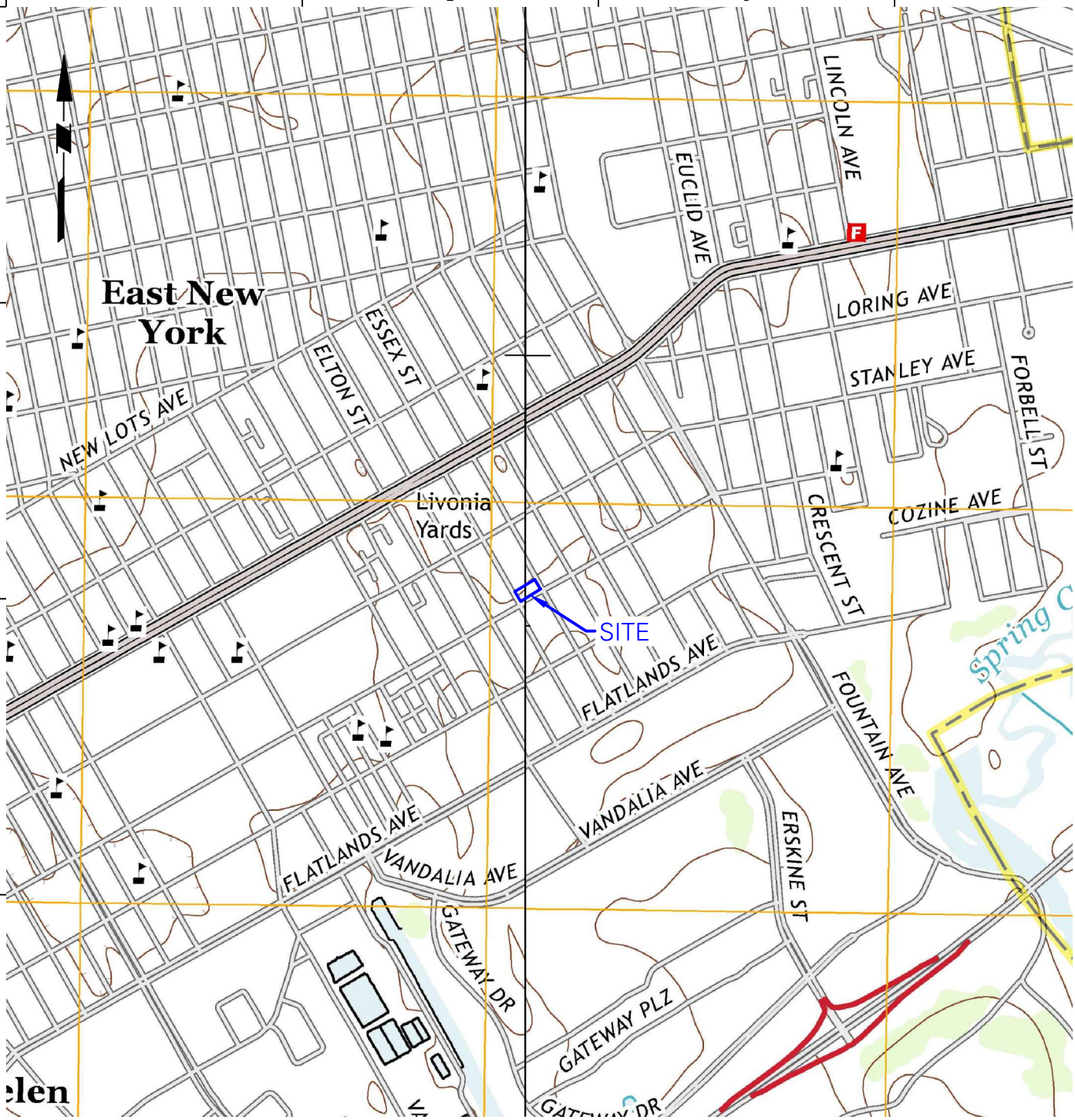
NOTES AND QUALIFIERS:

1. Table only displays chemical compounds with detectable concentrations.
2. Concentrations below reporting limit (non detect) are assumed to be zero.
3. Air samples were analyzed for USEPA TO-15 compounds
4. All equations are referenced in NYSDEC, Division of Air Resources, Air Guide 1, Guidelines for the Control of Toxic Ambient Air Contaminants (11/12/97). Standard Point Source Method calculations were used.
5. Values in table are compared to DAR-1 Annual Guideline Concentrations (AGC)/Short-Term Guideline Concentrations (SGC) Tables dated February 28, 2014.
6. DAR-1 AGC and/or SGC values listed as "--" means there is no AGC or SGC standard for that compound.
7. SCFM = standard cubic feet per minute
8. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
9. ug/m^3 = micrograms per cubic meter
10. m^3/min = cubic meter per minute
11. lb/hr = pounds per hour
12. lb/yr = pounds per year

TABLE 5: AS/SVE SYSTEM ALARM HISTORY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

DATE	ALARM	ALARM DESCRIPTION	REASON	REMEDY
10/23/2015	PAL-2501	Compressor Low Pressure Alarm	Uncertain of the reason. There may be a power fluctuation that trips the low pressure alarm, which shuts the AS system down.	On-site observation confirmed that this was a false alarm and was not caused by compressor failure or a breach in the air sparge manifold. The alarm was manually reset.
10/28/2015	LAH-7301	Storage Tank High Level Alarm	The SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into nine 55-gallon drums, and the SVE system vacuum has been optimized to extract a lesser volume of water.
11/5/2015	PAL-2501	Compressor Low Pressure Alarm	Caused by the air sparge compressor on/off time, which won't allow "OFF" time to be set to zero and therefore, the compressor cannot run continuously.	The air compressor timer has been by-passed and the compressor operation is linked to the SVE system operation. If the SVE system is operational, the compressor will operate unless a different AS system alarm has been triggered.
11/17/2015	PAL-2501	Compressor Low Pressure Alarm	This was an alarm test that was performed to ensure that the update to the Programmable Logic Controller (PLC) was successful.	The PLC update was successful and the air sparge compressor can run continuously. The air compressor timer is no longer being bypassed.
12/23/2015	LAH-7301	Storage Tank High Level Alarm	Following optimization, which included increasing the AS rate and the SVE system flow rate, the SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into three 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
12/25/2015	LAH-7301	Storage Tank High Level Alarm	Following optimization, which included increasing the AS rate and the SVE system flow rate, the SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into three 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
1/7/2016	LAH-7301	Storage Tank High Level Alarm	Following continued optimization of AS/SVE system, the SVE system began to extract a larger volume of water than anticipated.	The storage tank was emptied into eight 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
1/17/2016	LAH-7301	Storage Tank High Level Alarm	Following continued optimization of AS/SVE system, the SVE system began to extract a larger volume of water than anticipated.	The storage tank was emptied. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
2/1/2016	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted at a lower speed. The compressor speed was ramped up incrementally throughout the day until the previous set point was reached. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
4/3/2016	PAL-701	Blower Influent High Pressure Alarm	The alarm was most likely triggered due to power fluctuations caused by high wind conditions.	The alarm was cleared and the SVE system was restarted at a higher frequency. The system was monitored remotely for the remainder of the day.
4/29/2016	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted. At restart, the allowable flow through the AS system was increased to alleviate the pressure on the air compressor discharge line. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
8/9/2016	PAH-702	SVE System Effluent High Pressure Alarm	Anomalously high pressures were not noted on the SVE system discharge during the remote or on-site inspections. It is likely that the SVE effluent pressure switch needs to be recalibrated following almost a year's worth of continuous use.	The SVE system was restarted at a lower frequency and monitored on-site for about two hours.
8/26/2016	FAL-701	Blower Low Flow Alarm	The alarm was triggered due to a loose relay switch.	The switch was tightened during the August 31, 2016 monthly inspection and the system was restarted without further issue.
12/27/2016	PAL-2501	Compressor Low Pressure Alarm	The alarm was triggered due to a mechanical failure at the air compressor (i.e., the belts tore).	The air compressor belts were replaced on January 9, 2017 and the system was restarted.
3/7/2017	FAL-401	Transfer Pump Low Flow Alarm	The alarm was likley triggered due to the fluctuating volume of water extracted by the SVE system.	The AS/SVE system was restarted. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
3/8/2017	Low PLC Battery	Low Programmable Loigc Controller (PLC) Battery	The alarm was triggered because the PLC battery can no longer hold a charge.	The PLC battery was replaced on March 10, 2017.
3/24/2017	VFDA-701	SVE System Variable Frequency Drive (VFD) Alarm	The alarm was triggered because the SVE system blower was not functioning within the intended parameters.	The blower was visually inspected, a piece of debris caught in the belts was removed, and the system was restarted.
7/4/2017	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted. At restart, the allowable flow through the AS system was increased to alleviate the pressure on the air compressor discharge line. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
8/2/2017	FAL-701	Blower Low Flow Alarm	The alarm was likely triggered by a momentary power surge.	The alarm was cleared and the AS/SVE system was restarted. The system was monitored remotely for the remainder of the day.
11/29/2017	VFDA-701	SVE System VFD Alarm	The alarm was triggered by a faulty blower permissive start relay.	The AS/SVE system was restarted; the relay was replaced during the 12/28/2017 monthly inspection.

FIGURES



LEGEND:

APPROXIMATE SITE BOUNDARY

NOTE: BASE MAPS ARE REFERENCED FROM THE UNITED STATES GEOLOGICAL SURVEY (USGS) TOPOGRAPHIC QUADRANGLE MAPS FOR BROOKLYN AND JAMAICA.

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Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project	491 WORTMAN AVENUE BLOCK No. 4384, LOT Nos. 31 & 36 BROOKLYN KINGS NEW YORK
Figure Title	SITE LOCATION MAP
Project No.	170329301
Date	04/18/2015
Scale	N.T.S.
Drawn By / Checked By	MLR / GN
Submission Date	
Figure	1
Sheet	1 of 3

Filename: \\langan.com\data\NYC\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 22\Figure 1 - Site Location Map - Updated.dwg Date: 5/9/2017 Time: 12:48 User: mrogers Style Table: Langan.stb Layout: Site Location Map

Progress/Inspection Report No. 9
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: January 2018

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this progress/inspection report on behalf of J&H Holding Company, LLC (the "Participant"). In accordance with Section 7.1 of the Site Management Plan (SMP), which was approved by the New York State Department of Environmental Conservation (NYSDEC) on June 28, 2017, this progress/inspection report summarizes work performed at the Former Watermark Designs Facility (the "Site") during January 2018. The Final Engineering Report (FER) was submitted to the NYSDEC on May 25, 2017, and in accordance with the Brownfield Cleanup Agreement (BCA) submission of Monthly Brownfield Cleanup Program (BCP) Progress Reports is no longer required for the Site.

The Site (Block 4384, Lots 31 & 36) is located at 491 Wortman Avenue in Brooklyn, New York (Figure 1) and consists of a rectangular shaped lot that is about 19,000 square feet (±0.44 acres). The Site is located in an area zoned for industrial/manufacturing use and is bound by Wortman Street to the south, Linwood Street to the west, Essex Street to the east, and a one-story building to the north. Currently, a one-story building with a partial basement covers the entire Site footprint. The one-story building is comprised of a warehouse (i.e., the western portion) and office space and a smaller warehouse (i.e. the eastern portion).

2. Remedial Actions Relative to the Site during this Reporting Period

The ninth quarterly on-site groundwater sampling event was conducted on January 29th and 30th, 2018. Depth-to-water, total depth, and photoionization detector (PID) measurements were collected at monitoring wells MW-1 through MW-9 and piezometers PZ-1 and PZ-2 (thirteen locations total). Following the collection of field data, groundwater samples were collected from each monitoring well and piezometer for laboratory analysis of Target Compound List (TCL) volatile organic compounds (VOCs). Groundwater sampling locations are shown on Figure 2.

On January 31, 2018, Langan recorded process and performance monitoring data for the air sparge and soil vapor extraction (AS/SVE) system. As part of the monthly inspection, vapor samples were collected prior to the lead vapor-phase granular activated carbon (vGAC) unit (i.e., influent) and after the lag vGAC unit (i.e., effluent). Routine equipment maintenance, including greasing the blower and checking the belt tensions, was performed.

3. Actions Relative to the Site Anticipated for the Next Reporting Period

The following activities are planned:

- Continued operation, maintenance and monitoring (OM&M) of the AS/SVE system

4. Approved Activity Modifications (changes of work scope and/or schedule)

None

5. Results of Sampling, Testing and Other Relevant Data

OM&M sampling was performed as follows:

- An influent vapor sample was collected from the AS/SVE system and analyzed for volatile organic compounds (VOCs) via United States Environmental Protection Agency (USEPA) Method TO-15.
- An effluent vapor sample was collected from the AS/SVE system and analyzed for VOCs via USEPA Method TO-15.
- Thirteen groundwater samples (plus one duplicate) were collected from on-site groundwater monitoring wells MW-1, MW-2, MW-3 (shallow, middle, and deep), MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, PZ-1, and PZ-2 and analyzed for TCL VOCs via USEPA Method 8260C.

Samples were analyzed by Alpha Analytical of Westborough, MA. Alpha is a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory.

Based on the results of the most recent OM&M sampling, the AS/SVE system is functioning in compliance with Policy DAR-1: Guidelines for the Control of Toxic Ambient Air Contaminants (DAR-1).

The groundwater results from the eighth quarter of on-site groundwater sampling exhibit chlorinated VOC (CVOC) concentrations above the Title 6 of the New York Codes, Rules, and Regulations (6 NYCRR) Part 703.5 Water Quality Standards in four of the wells sampled (MW-3M, MW-3D, MW-6, and MW-8). The groundwater results for all wells are less than the August 2015 baseline groundwater sampling results (reductions in total CVOC concentrations have been achieved). Based on the data collected, CVOC concentrations appear to have stabilized below the 6 NYCRR Part 703.5 Water Quality Standards in the following eight wells/piezometers: MW-1, MW-2, MW-3S, MW-4, MW-5, MW-7, MW-9, and PZ-2. Since October 2016, tetrachloroethene (PCE) concentrations observed at MW-3M (screen 30 to 40 feet below grade surface [bgs]) and MW-3D (screened 50 to 60 feet bgs) have consistently ranged between about 19 and 10 micrograms per liter (µg/L) and concentrations of the remaining CVOCs (trichloroethene [TCE], cis-1,2-dichloroethene, and vinyl chloride) have not exceeded the 6 NYCRR Part 703.5 Water Quality Standards; indicating that CVOC concentrations in the middle- and deep-screened on-site wells have stabilized. When compared to last quarter's sampling results, an increase in the CVOC concentration was observed at MW-6. Appropriate measures targeting the remaining contamination in the vicinity of MW-6 will be evaluated.

The following tables are attached to this progress report; analytical lab reports are available upon request. The tables summarize the data collected and the functionality of the AS/SVE

system, including mass of VOCs removed from the subsurface based on photoionization detector (PID) readings and laboratory data, as well as, the alarm history.

- Table1: AS/SVE System Vapor Sampling Results
- Table 2: AS/SVE System Mass Removal – PID Data
- Table 3: AS/SVE System Mass Removal – Laboratory Data
- Table 4: AS/SVE System DAR-1 Compliance – January 31, 2018
- Table 5: AS/SVE System Alarm History
- Table 6: Quarterly Groundwater Sampling Results – Ninth Quarter
- Table 7: Quarterly Groundwater Sampling Results Summary

6. Deliverables Submitted During This Reporting Period

None

7. Information Regarding Percentage of Completion

OM&M of the AS/SVE system is ongoing.

As of January 7, 2018 and since inception, the SVE system operated for 18,549 hours (92% uptime), and the AS system operated for 18,079 hours (90% uptime).

8. Unresolved Delays Encountered or Anticipated That May Affect the Schedule and Mitigation Efforts

None

9. Citizen Participation Plan Activities during This Reporting Period

None

10. Activities Anticipated in Support of the CPP for the Next Reporting Period

None

11. Miscellaneous Information

None

TABLES

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	INFLUENT_013118		EFFLUENT_013118	
LAB SAMPLE ID	1/31/2018		1/31/2018	
SAMPLE DATE	L1803444-01		L1803444-02	
Volatile Organic Compounds (ug/m^3)				
1,1,1-Trichloroethane	2.13		1.09	U
1,1,2,2-Tetrachloroethane	1.37	U	1.37	U
1,1,2-Trichloroethane	1.09	U	1.09	U
1,1-Dichloroethane	0.809	U	0.809	U
1,1-Dichloroethene	0.793	U	0.793	U
1,2,4-Trichlorobenzene	1.48	U	1.48	U
1,2,4-Trimethylbenzene	0.983	U	0.983	U
1,2-Dibromoethane	1.54	U	1.54	U
1,2-Dichlorobenzene	1.2	U	1.2	U
1,2-Dichloroethane	0.809	U	0.809	U
1,2-Dichloropropane	15.4		0.924	U
1,3,5-Trimethylbenzene	0.983	U	0.983	U
1,3-Butadiene	0.442	U	0.442	U
1,3-Dichlorobenzene	1.2	U	1.2	U
1,4-Dichlorobenzene	1.2	U	1.2	U
1,4-Dioxane	0.721	U	0.721	U
2,2,4-Trimethylpentane	0.934	U	0.934	U
2-Butanone	1.6		1.47	U
2-Hexanone	0.82	U	0.82	U
3-Chloropropene	0.626	U	0.626	U
4-Ethyltoluene	0.983	U	0.983	U
4-Methyl-2-pentanone	2.05	U	2.05	U
Acetone	17.5		2.38	U
Benzene	2.25		0.824	
Benzyl chloride	1.04	U	1.04	U
Bromodichloromethane	1.34	U	1.34	U
Bromoform	2.07	U	2.07	U
Bromomethane	0.777	U	0.777	U
Carbon disulfide	0.623	U	0.623	U
Carbon tetrachloride	1.26	U	1.26	U
Chlorobenzene	0.921	U	0.921	U
Chloroethane	0.528	U	0.528	U
Chloroform	2.74		0.977	U
Chloromethane	1.26		0.413	U
cis-1,2-Dichloroethene	2.18		0.793	U
cis-1,3-Dichloropropene	0.908	U	0.908	U
Cyclohexane	0.688	U	0.688	U
Dibromochloromethane	1.7	U	1.7	U
Dichlorodifluoromethane	1.94		0.989	U
Ethanol	9.42	U	9.42	U
Ethyl Acetate	1.8	U	1.8	U
Ethylbenzene	0.869	U	0.869	U
Freon-113	1.53	U	1.53	U
Freon-114	1.4	U	1.4	U
Heptane	0.82	U	0.82	U
Hexachlorobutadiene	2.13	U	2.13	U
Isopropanol	1.23	U	1.23	U
Methyl tert butyl ether	0.721	U	0.721	U
Methylene chloride	3.18		1.74	U
n-Hexane	7.89		11.5	
o-Xylene	0.869	U	0.869	U
p/m-Xylene	1.74	U	1.74	U
Styrene	0.852	U	0.852	U
Tertiary butyl Alcohol	1.52	U	1.52	U
Tetrachloroethene	37.7		1.36	U
Tetrahydrofuran	1.47	U	1.47	U
Toluene	3.81		1.07	
trans-1,2-Dichloroethene	0.793	U	0.793	U
trans-1,3-Dichloropropene	0.908	U	0.908	U
Trichloroethene	189		1.07	U
Trichlorofluoromethane	1.12	U	1.12	U
Vinyl bromide	0.874	U	0.874	U
Vinyl chloride	0.511	U	0.511	U
Total VOCs	289		13.4	

NOTES:

1. ug/m^3 = micrograms per cubic meter
2. vGAC = vapor-phase granular activated carbon
3. Samples collected at the "vGAC INFLUENT" were collected before to the lead vGAC vessel.
4. Samples collected at the "vGAC EFFLUENT" were collected after the lag vGAC vessel.

Q is the Qualifier Column with definitions as follows:

U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM MASS REMOVAL - PID DATA
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	INFLUENT CONCENTRATION (ppmv)	SVE BLOWER FLOWRATE (scfm)	EFFLUENT CONCENTRATION (ppmv)	TOTAL OPERATIONAL HOURS	AVERAGE MOLECULAR WEIGHT	MASS REMOVAL RATE (lbs/hr)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	CUMULATIVE MASS REMOVED FROM SUBSURFACE (lbs)
10/21/2015	55.0	688	1.8	30	100	0.57	17.02	17.02
10/26/2015	8.3	650	0.6	150	100	0.08	9.31	26.34
11/6/2015	5.5	560	0.0	383	100	0.05	11.13	37.46
11/30/2015	1.9	593	0.3	958	100	0.01	8.46	45.92
12/28/2015	3.7	570	0.0	1,548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2,180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2,854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3,693	100	0.002	1.43	85.34
4/29/2016	2.0	571	0.0	4,322	100	0.018	11.14	96.48
5/26/2016	0.4	600	0.0	4,972	100	0.004	2.42	98.90
6/29/2016	0.5	600	0.0	5,784	100	0.005	3.78	102.68
7/28/2016	3.0	600	0.0	6,431	100	0.028	18.06	120.73
8/31/2016	2.7	600	0.0	7,110	100	0.025	17.05	137.79
9/29/2016	7.5	760	2.0	7,802	100	0.065	44.85	182.63
10/31/2016	0.0	520	0.0	8,516	100	0.000	0.00	182.63
11/29/2016	0.0	560	0.0	9,211	100	0.000	0.00	182.63
12/28/2016	0.0	520	0.0	9,884	100	0.000	0.00	182.63
1/25/2017	2.8	600	0.0	10,530	100	0.026	16.83	199.46
3/7/2017	0.1	360	0.0	11,186	100	0.001	0.37	199.82
4/27/2017	0.0	600	0.0	12,185	100	0.000	0.00	199.82
5/25/2017	0.8	600	0.0	12,760	100	0.008	4.42	204.24
6/28/2017	0.04	600	0.0	13,575	100	0.000	0.33	204.57
7/21/2017	0.0	600	0.0	14,060	100	0.000	0.00	204.57
8/25/2017	0.0	600	0.0	14,852	100	0.000	0.00	204.57
9/27/2017	0.7	600	0.08	15,641	100	0.006	4.55	209.12
11/1/2017	0.0	640	0.00	16,422	100	0.000	0.00	209.12
11/28/2017	0.0	600	0.00	17,069	100	0.000	0.00	209.12
12/28/2017	0.0	560	0.00	17,618	100	0.000	0.00	209.12
1/31/2018	0.0	600	0.00	18,382	100	0.000	0.00	209.12

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the PID readings.
3. Mass Removal rate (lb/hr) = ((Conc in ppmv)(flowrate scfm)(MW)(60 min/hr)) / ((387)(1,000,000))
4. PID = photoionization detector
5. ppmv = parts per million volume
6. scfm = standard cubic feet per minute
7. lbs/hr = pounds per hour
8. lbs = pounds
9. SVE = soil vapor extraction

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA (TOTAL VOCs)
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	INFLUENT CONCENTRATION (ug/m3)	SVE BLOWER FLOWRATE (scfm)	EFFLUENT CONCENTRATION (ug/m3)	TOTAL OPERATIONAL HOURS	INFLUENT RATE (mg/min)	EFFLUENT RATE (mg/min)	REMOVAL RATE (mg/min)	MASS REMOVED FROM SUBSURFACE (lbs)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	MASS REMOVED BY CARBON (lbs)	TOTAL MASS REMOVED BY CARBON (lbs)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18
12/28/2015	3,357	570	230	1,548	53.58	3.67	49.91	4.18	16.55	3.89	15.08
1/27/2016	621	525	183	2,180	9.13	2.69	6.44	0.76	17.31	0.54	15.62
2/24/2016	1,454	578	283	2,854	23.53	4.58	18.94	2.10	19.41	1.69	17.31
3/30/2016	825	550	75	3,693	12.71	1.16	11.55	1.41	20.82	1.28	18.59
4/29/2016	482	571	112	4,322	7.70	1.79	5.91	0.64	21.46	0.49	19.08
5/26/2016	1,169	600	162	4,972	19.64	2.73	16.91	1.69	23.15	1.45	20.53
6/29/2016	1,865	600	190	5,784	31.33	3.19	28.14	3.37	26.51	3.02	23.56
7/28/2016	3,706	600	232	6,431	62.26	3.90	58.36	5.33	31.84	4.99	28.55
8/31/2016	4,798	600	135	7,110	80.61	2.26	78.35	7.24	39.08	7.04	35.59
9/29/2016	1,045	760	179	7,802	22.24	3.81	18.43	2.04	41.12	1.69	37.27
10/31/2016	922	520	91	8,516	13.42	1.32	12.10	1.27	42.38	1.14	38.42
11/29/2016	790	560	167	9,211	12.38	2.62	9.76	1.14	43.52	0.90	39.31
12/28/2016	282	520	123	9,884	4.11	1.79	2.32	0.37	43.89	0.21	39.52
1/25/2017	4.7	600	5.6	10,530	0.08	0.09	-0.02	0.01	43.89	0.00	39.52
3/7/2017	762	360	120	11,186	7.68	1.21	6.47	0.67	44.56	0.56	40.08
4/27/2017	1,008	600	86	12,185	16.93	1.44	15.49	2.24	46.80	2.05	42.13
5/25/2017	771	600	48	12,760	12.95	0.81	12.15	0.99	47.78	0.92	43.05
6/28/2017	754	600	69	13,575	12.66	1.16	11.50	1.36	49.15	1.24	44.29
7/21/2017	2,434	600	235	14,060	40.89	3.95	36.94	2.62	51.77	2.37	46.66
8/25/2017	1,334	600	246	14,852	22.41	4.13	18.28	2.35	54.12	1.91	48.58
9/27/2017	1,059	600	83	15,641	17.79	1.39	16.40	1.86	55.98	1.71	50.29
11/1/2017	1,227	640	85	16,422	21.99	1.52	20.47	2.27	58.25	2.11	52.40
11/28/2017	295	600	64	17,069	4.96	1.08	3.88	0.42	58.67	0.33	52.73
12/28/2017	258	560	29	17,618	4.05	0.45	3.59	0.29	58.97	0.26	53.00
1/31/2018	289	600	13	18,382	4.85	0.23	4.62	0.49	59.46	0.47	53.46

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the lab analytical data and not the PID readings.
3. ug/m3 = micrograms per cubic meter
4. scfm = standard cubic feet per minute
5. mg/min = milligrams per minute
6. lbs = pounds
7. SVE = soil vapor extraction
8. VGAC = vapor-phase granular activated carbon

TABLE 3A: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA (TCE ONLY)
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	TCE INFLUENT CONCENTRATION (ug/m3)	SVE BLOWER FLOWRATE (scfm)	TCE EFFLUENT CONCENTRATION (ug/m3)	TOTAL OPERATIONAL HOURS	INFLUENT RATE (mg/min)	EFFLUENT RATE (mg/min)	REMOVAL RATE (mg/min)	MASS REMOVED FROM SUBSURFACE (lbs)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	MASS REMOVED BY CARBON (lbs)	TOTAL MASS REMOVED BY CARBON (lbs)
10/20/2015	110,000	640	27.4	12	1971.20	0.49	1970.71	3.13	3.13	3.13	3.13
10/21/2015	29,000	688	530	30	558.66	10.21	548.45	1.33	4.46	1.29	4.42
10/26/2015	5,600	650	120	150	101.92	2.18	99.74	1.62	6.08	1.57	5.99
11/30/2015	2,700	593	23	958	44.83	0.38	44.45	4.79	10.87	4.74	10.74
12/28/2015	2,800	570	1.3	1,548	44.69	0.02	44.67	3.49	14.36	3.48	14.22
1/27/20126	150	525	0.13	2,180	2.21	0.00	2.20	0.18	14.54	0.18	14.40
2/24/2016	1,100	578	0.91	2,854	17.80	0.01	17.79	1.59	16.13	1.58	15.98
3/30/2016	660	550	1.30	3,693	10.16	0.02	10.14	1.13	17.26	1.12	17.10
4/29/2016	170	571	0.13	4,322	2.72	0.002	2.72	0.23	17.48	0.22	17.33
5/26/2016	870	600	1.30	4,972	14.62	0.022	14.59	1.26	18.74	1.24	18.57
6/29/2016	1,300	600	0.75	5,784	21.84	0.013	21.83	2.35	21.08	2.34	20.91
7/28/2016	3,100	600	1.30	6,431	52.08	0.022	52.06	4.46	25.54	4.44	25.34
8/31/2016	4,300	600	1.90	7,110	72.24	0.032	72.21	6.49	32.03	6.46	31.80
9/29/2016	740	760	1.30	7,802	15.75	0.028	15.72	1.44	33.47	1.41	33.22
10/31/2016	660	520	3.80	8,516	9.61	0.055	9.55	0.91	34.38	0.85	34.06
11/29/2016	450	560	1.30	9,211	7.06	0.020	7.04	0.65	35.03	0.62	34.68
12/28/2016	200	520	24	9,884	2.91	0.349	2.56	0.26	35.29	-0.20	34.49
1/25/2017	2	600	0.43	10,530	0.03	0.007	0.03	0.003	35.29	-0.01	34.48
3/7/2017	660	360	8.60	11,186	6.65	0.087	6.57	0.577	35.87	0.45	34.93
4/27/2017	650	600	1.10	12,185	10.92	0.018	10.90	1.443	37.31	1.41	36.34
5/25/2017	403	600	2.22	12,760	6.77	0.037	6.73	0.515	37.82	0.45	36.79
6/28/2017	492	600	1.10	13,575	8.27	0.018	8.25	0.891	38.72	0.86	37.65
7/21/2017	1890	600	1.36	14,060	31.75	0.023	31.73	2.037	40.75	1.99	39.65
8/25/2017	726	600	1.07	14,852	12.20	0.018	12.18	1.278	42.03	1.24	40.89
9/27/2017	656	600	2.25	15,641	11.02	0.038	10.98	1.150	43.18	1.07	41.96
11/1/2017	881	640	1.07	16,422	15.79	0.019	15.77	1.631	44.81	1.59	43.55
11/28/2017	135	600	1.07	17,069	2.27	0.018	2.25	0.194	45.01	0.15	43.70
12/28/2017	170	560	1.07	17,618	2.67	0.017	2.65	0.194	45.20	0.15	43.86
1/31/2018	189	600	1.07	18,382	3.18	0.018	3.16	0.321	45.52	0.28	44.14

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the lab analytical data and not the PID readings.
3. ug/m3 = micrograms per cubic meter
4. scfm = standard cubic feet per minute
5. mg/min = milligrams per minute
6. lbs = pounds
7. SVE = soil vapor extraction
8. VGAC = vapor-phase granular activated carbon
9. TCE = trichloroethylene

TABLE 3B: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA (PCE ONLY)
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	PCE INFLUENT CONCENTRATION (ug/m3)	SVE BLOWER FLOWRATE (scfm)	PCE EFFLUENT CONCENTRATION (ug/m3)	TOTAL OPERATIONAL HOURS	INFLUENT RATE (mg/min)	EFFLUENT RATE (mg/min)	REMOVAL RATE (mg/min)	MASS REMOVED FROM SUBSURFACE (lbs)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	MASS REMOVED BY CARBON (lbs)	TOTAL MASS REMOVED BY CARBON (lbs)
10/20/2015	680	640	13.56	12	12.19	0.24	11.94	0.02	0.02	0.02	0.02
10/21/2015	2,800	688	48	30	53.94	0.92	53.01	0.13	0.15	0.12	0.14
10/26/2015	1,200	650	26	150	21.84	0.47	21.37	0.35	0.49	0.34	0.48
11/30/2015	290	593	12	958	4.82	0.20	4.62	0.51	1.01	0.49	0.97
12/28/2015	380	570	12	1,548	6.06	0.19	5.87	0.47	1.48	0.43	1.40
1/27/2016	280	525	6.9	2,180	4.12	0.10	4.01	0.34	1.83	0.31	1.72
2/24/2016	200	578	5.1	2,854	3.24	0.08	3.15	0.29	2.12	0.26	1.98
3/30/2016	110	550	1.7	3,693	1.69	0.03	1.67	0.19	2.30	0.18	2.15
4/29/2016	32	571	0.2	4,322	0.51	0.003	0.51	0.04	2.35	0.04	2.19
5/26/2016	150	600	1.7	4,972	2.52	0.029	2.49	0.22	2.56	0.20	2.39
6/29/2016	290	600	0.68	5,784	4.87	0.011	4.86	0.52	3.09	0.51	2.91
7/28/2016	300	600	8.80	6,431	5.04	0.148	4.89	0.43	3.52	0.31	3.21
8/31/2016	240	600	0.17	7,110	4.03	0.003	4.03	0.36	3.88	0.36	3.57
9/29/2016	140	760	3.40	7,802	2.98	0.072	2.91	0.27	4.15	0.20	3.77
10/31/2016	130	520	6.80	8,516	1.89	0.099	1.79	0.18	4.33	0.07	3.84
11/29/2016	120	560	1.70	9,211	1.88	0.027	1.85	0.17	4.50	0.14	3.98
12/28/2016	41	520	53	9,884	0.60	0.772	-0.17	0.05	4.56	-0.96	3.02
1/25/2017	2	600	0.61	10,530	0.03	0.010	0.02	0.003	4.56	-0.01	3.01
3/7/2017	68	360	1.70	11,186	0.69	0.017	0.67	0.059	4.62	0.03	3.04
4/27/2017	159	600	1.40	12,185	2.67	0.024	2.65	0.353	4.97	0.32	3.36
5/25/2017	112	600	2.80	12,760	1.88	0.047	1.83	0.143	5.12	0.06	3.42
6/28/2017	125	600	1.40	13,575	2.10	0.024	2.08	0.226	5.34	0.18	3.61
7/21/2017	126	600	2.16	14,060	2.12	0.036	2.08	0.136	5.48	0.07	3.67
8/25/2017	241	600	1.40	14,852	4.05	0.024	4.03	0.424	5.90	0.38	4.05
9/27/2017	271	600	2.80	15,641	4.55	0.047	4.51	0.475	6.38	0.38	4.43
11/1/2017	168	640	1.36	16,422	3.01	0.024	2.99	0.311	6.69	0.26	4.69
11/28/2017	66	600	1.36	17,069	1.10	0.023	1.08	0.094	6.78	0.04	4.73
12/28/2017	48	560	1.36	17,618	0.75	0.021	0.73	0.055	6.84	0.00	4.74
1/31/2018	38	600	1.36	18,382	0.63	0.023	0.61	0.064	6.90	0.01	4.74

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the lab analytical data and not the PID readings.
3. ug/m3 = micrograms per cubic meter
4. scfm = standard cubic feet per minute
5. mg/min = milligrams per minute
6. lbs = pounds
7. SVE = soil vapor extraction
8. VGAC = vapor-phase granular activated carbon
9. PCE = tetrachloroethylene

TABLE 4: AS/SVE SYSTEM DAR-1 COMPLIANCE
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **1/31/2018**

CHEMICAL COMPOUND	CARBON EFFLUENT CONCENRATION MEASURED ($\mu g/m^3$)	EMISSION FLOWRATE MEASURED (SCFM)	EMISSION FLOWRATE MEASURED (m^3/min)	OUTLET CONCENTRATION (Q_p) (lb/hr)	OUTLET CONCENTRATION (Q_a) (lb/yr)	MAX ANNUAL IMPACT (C_a) ($\mu g/m^3$)	MAX POTENTIAL IMPACT (C_p) ($\mu g/m^3$)	MAX SHORT-TERM IMPACT (C_{st}) ($\mu g/m^3$)	DAR-1 STANDARDS SGC ($\mu g/m^3$)	DAR-1 STANDARDS AGC ($\mu g/m^3$)	EMISSION RESTRICTION REQUIRED (if C_p>AGC and C_a<AGC)	SGC EMISSION EXCEEDANCE (if C_{st}>SGC)	AGC EMISSION EXCEEDANCE (if C_a>AGC)
Volatile Organics, USEPA TO-15 Full List (ug/m^3)													
Acetone	2.38	600	16.9902	5.34E-06	4.68E-02	4.20E-04	4.20E-04	2.73E-02	180,000	30,000	NO	NO	NO
Benzene	0.824	600	16.9902	1.85E-06	1.62E-02	1.46E-04	1.45E-04	9.45E-03	1,300	0.13	NO	NO	NO
Carbon disulfide	0.623	600	16.9902	1.40E-06	1.22E-02	1.10E-04	1.10E-04	7.14E-03	6,200	700	NO	NO	NO
Chloroform	0.977	600	16.9902	2.19E-06	1.92E-02	1.73E-04	1.72E-04	1.12E-02	150	0.04	NO	NO	NO
Chloromethane	0.413	600	16.9902	9.26E-07	8.11E-03	7.29E-05	7.29E-05	4.74E-03	6,200	700	NO	NO	NO
cis-1,2-Dichloroethylene	0.793	600	16.9902	1.78E-06	1.56E-02	1.40E-04	1.40E-04	9.09E-03	--	63	NO	No Standard	NO
Dichlorodifluoromethane	0.989	600	16.9902	2.22E-06	1.94E-02	1.75E-04	1.74E-04	1.13E-02	--	12,000	NO	No Standard	NO
Ethanol	9.42	600	16.9902	2.11E-05	1.85E-01	1.66E-03	1.66E-03	1.08E-01	--	45,000	NO	No Standard	NO
Isopropanol	1.23	600	16.9902	2.76E-06	2.42E-02	2.17E-04	2.17E-04	1.41E-02	98,000	7,000	NO	NO	NO
n-Hexane	11.5	600	16.9902	2.58E-05	2.26E-01	2.03E-03	2.03E-03	1.32E-01	--	700	NO	No Standard	NO
Tertiary Butyl Alcohol	1.52	600	16.9902	3.41E-06	2.99E-02	2.68E-04	2.68E-04	1.74E-02	--	720	NO	No Standard	NO
Toluene	1.07	600	16.9902	2.40E-06	2.10E-02	1.89E-04	1.89E-04	1.23E-02	37,000	5,000	NO	NO	NO

NOTES AND QUALIFIERS:
1. Table only displays chemical compounds with detectable concentrations.
2. Concentrations below reporting limit (non detect) are assumed to be zero.
3. Air samples were analyzed for USEPA TO-15 compounds
4. All equations are referenced in NYSDEC, Division of Air Resources, Air Guide 1, Guidelines for the Control of Toxic Ambient Air Contaminants (11/12/97). Standard Point Source Method calculations were used.
5. Values in table are compared to DAR-1 Annual Guideline Concentrations (AGC)/Short-Term Guideline Concentrations (SGC) Tables dated February 28, 2014.
6. DAR-1 AGC and/or SGC values listed as "--" means there is no AGC or SGC standard for that compound.
7. SCFM = standard cubic feet per minute
8. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
9. ug/m^3 = micrograms per cubic meter
10. m^3/min = cubic meter per minute
11. lb/hr = pounds per hour
12. lb/yr = pounds per year

TABLE 5: AS/SVE SYSTEM ALARM HISTORY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

DATE	ALARM	ALARM DESCRIPTION	REASON	REMEDY
10/23/2015	PAL-2501	Compressor Low Pressure Alarm	Uncertain of the reason. There may be a power fluctuation that trips the low pressure alarm, which shuts the AS system down.	On-site observation confirmed that this was a false alarm and was not caused by compressor failure or a breach in the air sparge manifold. The alarm was manually reset.
10/28/2015	LAH-7301	Storage Tank High Level Alarm	The SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into nine 55-gallon drums, and the SVE system vacuum has been optimized to extract a lesser volume of water.
11/5/2015	PAL-2501	Compressor Low Pressure Alarm	Caused by the air sparge compressor on/off time, which won't allow "OFF" time to be set to zero and therefore, the compressor cannot run continuously.	The air compressor timer has been by-passed and the compressor operation is linked to the SVE system operation. If the SVE system is operational, the compressor will operate unless a different AS system alarm has been triggered.
11/17/2015	PAL-2501	Compressor Low Pressure Alarm	This was an alarm test that was performed to ensure that the update to the Programmable Logic Controller (PLC) was successful.	The PLC update was successful and the air sparge compressor can run continuously. The air compressor timer is no longer being bypassed.
12/23/2015	LAH-7301	Storage Tank High Level Alarm	Following optimization, which included increasing the AS rate and the SVE system flow rate, the SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into three 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
12/25/2015	LAH-7301	Storage Tank High Level Alarm	Following optimization, which included increasing the AS rate and the SVE system flow rate, the SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into three 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
1/7/2016	LAH-7301	Storage Tank High Level Alarm	Following continued optimization of AS/SVE system, the SVE system began to extract a larger volume of water than anticipated.	The storage tank was emptied into eight 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
1/17/2016	LAH-7301	Storage Tank High Level Alarm	Following continued optimization of AS/SVE system, the SVE system began to extract a larger volume of water than anticipated.	The storage tank was emptied. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
2/1/2016	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted at a lower speed. The compressor speed was ramped up incrementally throughout the day until the previous set point was reached. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
4/3/2016	PAL-701	Blower Influent High Pressure Alarm	The alarm was most likely triggered due to power fluctuations caused by high wind conditions.	The alarm was cleared and the SVE system was restarted at a higher frequency. The system was monitored remotely for the remainder of the day.
4/29/2016	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted. At restart, the allowable flow through the AS system was increased to alleviate the pressure on the air compressor discharge line. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
8/9/2016	PAH-702	SVE System Effluent High Pressure Alarm	Anomalously high pressures were not noted on the SVE system discharge during the remote or on-site inspections. It is likely that the SVE effluent pressure switch needs to be recalibrated following almost a year's worth of continuous use.	The SVE system was restarted at a lower frequency and monitored on-site for about two hours.
8/26/2016	FAL-701	Blower Low Flow Alarm	The alarm was triggered due to a loose relay switch.	The switch was tightened during the August 31, 2016 monthly inspection and the system was restarted without further issue.
12/27/2016	PAL-2501	Compressor Low Pressure Alarm	The alarm was triggered due to a mechanical failure at the air compressor (i.e., the belts tore).	The air compressor belts were replaced on January 9, 2017 and the system was restarted.
3/7/2017	FAL-401	Transfer Pump Low Flow Alarm	The alarm was likley triggered due to the fluctuating volume of water extracted by the SVE system.	The AS/SVE system was restarted. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
3/8/2017	Low PLC Battery	Low Programmable Loigc Controller (PLC) Battery	The alarm was triggered because the PLC battery can no longer hold a charge.	The PLC battery was replaced on March 10, 2017.
3/24/2017	VFDA-701	SVE System Variable Frequency Drive (VFD) Alarm	The alarm was triggered because the SVE system blower was not functioning within the intended parameters.	The blower was visually inspected, a piece of debris caught in the belts was removed, and the system was restarted.
7/4/2017	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted. At restart, the allowable flow through the AS system was increased to alleviate the pressure on the air compressor discharge line. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
8/2/2017	FAL-701	Blower Low Flow Alarm	The alarm was likely triggered by a momentary power surge.	The alarm was cleared and the AS/SVE system was restarted. The system was monitored remotely for the remainder of the day.
11/29/2017	VFDA-701	SVE System VFD Alarm	The alarm was triggered by a faulty blower permissive start relay.	The AS/SVE system was restarted; the relay was replaced during the 12/28/2017 monthly inspection.

TABLE 6: QUARTERLY GROUNDWATER SAMPLING RESULTS – NINTH QUARTER
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

Sample ID Laboratory ID Sampling Date	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW01_012918 L1803127-01 1/29/2018		MW02_012918 L1803127-02 1/29/2018		MW3AS_013018 L1803351-04 1/30/2018		MW3AM_013018 L1803351-05 1/30/2018		MW3AD_013018 L1803351-06 1/30/2018		MW04_013018 L1803351-01 1/30/2018		MW05_013018 L1803351-02 1/30/2018		MW06_012918 L1803127-06 1/29/2018		MW07_012918 L1803127-07 1/29/2018		DUP01_012918 L1803127-04 1/29/2018		MW08_012918 L1803127-05 1/29/2018		MW09_013018 L1803351-03 1/30/2018		PZ01_012918 L1803127-03 1/29/2018		PZ02_012918 L1803127-10 1/29/2018	
Volatile Organic Compounds (µg/L)																													
1,2-Dichloroethene, Total	~	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	13		2.5	U	2.5	U	5.5		2.5	U	2.5	U	2.5	U
1,2-Dichloropropane	1	0.16	J	0.39	J	0.24	J	1	U	1	U	0.48	J	0.14	J	5	U	0.43	J	0.41	J	0.3	J	0.2	J	0.21	J	0.29	J
Acetone	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	25	U	5	U	5	U	5	U	5	U	2	J	5	U
Chloroform	7	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	0.8	J	2.5	U	12	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
cis-1,2-Dichloroethene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	**13**		2.5	U	2.5	U	**5.5**		2.5	U	2.5	U	2.5	U
Tetrachloroethene	5	0.26	J	0.63		0.5	U	**15**		**14**		0.2	J	0.48	J	**430**		0.5	U	0.5	U	0.99		2		1.7		0.5	U
Trichloroethene	5	0.32	J	0.36	J	0.5	U	1.6		1.2		0.62		0.26	J	**180**		0.5	U	0.5	U	3.5		1.4		0.66		0.5	U
Vinyl chloride	2	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.71	J	1	U	1	U	1	U	1	U	1	U	1	U

Notes:
1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation
(NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for
2. Results equal to or exceeding the NYSDEC TOGS standards and guidance values are shaded and bolded
3. µg/L = micrograms per liter
4. ~ = regulatory criteria have not been established for this compound
5. GWDUP01_012918 is a duplicate sample of MW07_012918.
6. Eleven monitoring wells and two piezometers associated with the air sparge and soil vapor extraction system (AS/SVE)

Qualifiers:
J = Analyte detected at or above the MDL (Method Detection Limit) but below the RL (Reporting Limit) - data is estimated.
U = Analyte not detected at or above the level indicated.

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS SUMMARY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Compound	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	Sampling Location												
		MW-1	MW-2	MW-3S	MW-3M	MW-3D	MW-4	MW-5	MW-6*	MW-7*	MW-8*	MW-9	PZ-1	PZ-2
Baseline Sampling Results Summary (µg/L) - August 2015														
CVOCs	~	1274.9	2314	873.3	23.4	27.8	653	175	1236.3	1272	458	602	903.6	438.2
PCE	5	750	480	380	14	8.3	79	110	710	460	180	400	310	230
TCE	5	500	1800	480	5.9	16	540	55	500	780	240	190	580	200
cis-1,2- DCE	5	19	14	8.3	2.5	2.5	29	9	22	27	36	10	8.6	6.2
vinyl chloride	2	5.9	20	5	1	1	5	1	4.3	5	2	2	5	2
First Quarter Sampling Results Summary (µg/L) - January 2016														
CVOCs	~	12.8	2.14	7.6	23.4	16.13	14.8	1.87	676	11.41	184.56	5.8	10	2.6
PCE	5	6	1	2	20	14	3	1	240	2	15	4	3	1
TCE	5	5.3	0.74	5.2	3	1.7	11	0.37	400	9	130	1.4	5.4	1.2
cis-1,2- DCE	5	1.3	0.2	0.2	0.2	0.23	0.6	0.3	35	0.21	39	0.2	1.4	0.2
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1	0.2	0.56	0.2	0.2	0.2
Q1 Percent CVOC Reduction		*99%*	*99.9%*	*99%*	*0%*	*42%*	*98%*	*99%*	*45%*	*99%*	*60%*	*99%*	*99%*	*99%*
Second Quarter Sampling Results Summary (µg/L) - April 2016														
CVOCs	~	3.8	1.99	4.3	18.5	9.3	3.28	1.64	401	2.46	71.96	0.91	1.45	1.79
PCE	5	1.7	0.87	1.2	16	7.6	0.48	0.67	160	0.26	5.7	0.31	0.3	0.61
TCE	5	1.7	0.72	2.7	2.1	1.3	2.4	0.38	220	1.8	43	0.2	0.75	0.78
cis-1,2- DCE	5	0.2	0.2	0.2	0.2	0.2	0.2	0.39	19	0.2	23	0.2	0.2	0.2
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	0.26	0.2	0.2	0.2
Q2 Percent CVOC Reduction from Last Quarter (Q1)		*70%*	*7%*	*43%*	*21%*	*42%*	*78%*	*12%*	*41%*	*78%*	*61%*	*84%*	*86%*	*31%*
Q2 Percent CVOC Reduction from Baseline		*99.7%*	*99.9%*	*99.5%*	*21%*	*67%*	*99.5%*	*99%*	*68%*	*99.8%*	*84%*	*99.8%*	*99.8%*	*99.6%*
Third Quarter Sampling Results Summary (µg/L) - July 2016														
CVOCs	~	1.65	4.26	7.69	24.5	14.01	6.26	3.48	1249.5	4.21	53.5	1.49	1.97	4.15
PCE	5	0.68	2.2	3	22	12	2.2	1.6	570	0.71	5.3	0.76	0.47	2
TCE	5	0.57	1.6	4.2	2.1	1.6	3.5	0.76	640	3.1	27	0.33	1.1	1.6
cis-1,2- DCE	5	0.2	0.26	0.29	0.2	0.21	0.36	0.92	39	0.2	21	0.2	0.2	0.35
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2
Q3 Percent CVOC Reduction from Last Quarter (Q2)		*57%*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*26%*	*Increased*	*Increased*	*Increased*
Q3 Percent CVOC Reduction from Baseline		*99.9%*	*99.8%*	*99.1%*	*Increased*	*50%*	*99%*	*98%*	*Increased*	*99.7%*	*88%*	*99.8%*	*99.8%*	*99.1%*

Notes:

1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water.
2. Results equal to or exceeding the NYSDEC TOGS standards and guidance values are shaded.
3. PCE = tetrachlorothylene
4. TCE = trichloroethylene
5. cis-1,2-DCE = cis-1,2-Dichloroethylene
6. µg/L = microgram per liter
7. CVOC = chlorinated volatile organic compounds
8. * = Monitoring well is located in the sidewalk adjacent to the warehouse.

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS SUMMARY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Compound	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	Sampling Location												
		MW-1	MW-2	MW-3S	MW-3M	MW-3D	MW-4	MW-5	MW-6*	MW-7*	MW-8*	MW-9	PZ-1	PZ-2
Fourth Quarter Sampling Results Summary (µg/L) - October 2016														
CVOCs	~	0.91	8.39	18.59	18.1	11.36	3.38	0.84	158.4	1.1	33.9	0.99	0.81	1.57
PCE	5	0.22	4.6	8.8	16	10	0.98	0.24	67	0.2	2.7	0.39	0.2	0.54
TCE	5	0.29	3.2	9	1.7	0.96	2	0.2	87	0.5	19	0.2	0.21	0.63
cis-1,2- DCE	5	0.2	0.39	0.59	0.2	0.2	0.2	0.2	4.2	0.2	12	0.2	0.2	0.2
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Q4 Percent CVOC Reduction from Last Quarter (Q3)		*45%*	*Increased*	*Increased*	*26%*	*19%*	*46%*	*76%*	*87%*	*74%*	*37%*	*34%*	*59%*	*62%*
Q4 Percent CVOC Reduction from Baseline		*99.9%*	*100%*	*98%*	*23%*	*59%*	*99%*	*100%*	*87%*	*99.9%*	*93%*	*99.8%*	*99.9%*	*99.6%*
Fifth Quarter Sampling Results Summary (µg/L) - January 2017														
CVOCs	~	0.8	1.32	20.71	21.1	14.21	1.89	1.02	812.7	0.9	42.4	7.9	0.8	1.49
PCE	5	0.2	0.56	10	19	13	0.52	0.42	380	0.2	3.2	5.5	0.2	0.66
TCE	5	0.2	0.36	10	1.7	0.81	0.97	0.2	410	0.3	20	2	0.2	0.43
cis-1,2- DCE	5	0.2	0.2	0.51	0.2	0.2	0.2	0.2	22	0.2	19	0.2	0.2	0.2
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.7	0.2	0.2	0.2	0.2	0.2
Q5 Percent CVOC Reduction from Last Quarter (Q4)		*12%*	*84%*	*Increased*	*Increased*	*Increased*	*44%*	*Increased*	*Increased*	*18%*	*Increased*	*Increased*	*1%*	*5%*
Q5 Percent CVOC Reduction from Baseline		*99.9%*	*100%*	*98%*	*10%*	*49%*	*100%*	*99%*	*34%*	*99.9%*	*91%*	*98.7%*	*99.9%*	*99.7%*
Sixth Quarter Sampling Results Summary (µg/L) - April 2017														
CVOCs	~	4.5	11.6	6.4	24.4	16.35	6.8	4.5	57.3	4.4	17.5	4.15	4.5	4.09
PCE	5	0.5	5.5	1.2	19	12	1.5	0.5	26	0.5	2.1	0.4	0.5	0.26
TCE	5	0.5	2.6	1.7	1.9	0.85	1.8	0.5	28	0.4	5.5	0.25	0.5	0.33
cis-1,2- DCE	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.3	2.5	8.9	2.5	2.5	2.5
vinyl chloride	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Q6 Percent CVOC Reduction from Last Quarter (Q5)		*Increased*	*Increased*	*69%*	*Increased*	*Increased*	*Increased*	*Increased*	*93%*	*Increased*	*59%*	*47%*	*Increased*	*Increased*
Q6 Percent CVOC Reduction from Baseline		*99.6%*	*99%*	*99%*	*Increased*	*41%*	*99%*	*97%*	*95%*	*99.7%*	*96%*	*99.3%*	*99.5%*	*99.1%*
Seventh Quarter Sampling Results Summary (µg/L) - July 2017														
CVOCs	~	4.5	4.61	3.98	16	18.24	4.21	4.5	758	4.32	17.2	4.23	15.1	4.36
PCE	5	0.5	0.67	0.22	11	14	0.33	0.5	490	0.5	1.2	0.23	10	0.54
TCE	5	0.5	0.44	0.26	1.5	0.74	0.38	0.5	240	0.32	5.8	0.5	1.6	0.32
cis-1,2- DCE	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	26	2.5	9.2	2.5	2.5	2.5
vinyl chloride	2	1	1	1	1	1	1	1	2	1	1	1	1	1
Q7 Percent CVOC Reduction from Last Quarter (Q6)		*None*	*60%*	*38%*	*34%*	*Increased*	*38%*	*None*	*Increased*	*2%*	*2%*	*Increased*	*Increased*	*Increased*
Q7 Percent CVOC Reduction from Baseline		*99.6%*	*100%*	*100%*	*32%*	*34%*	*99.4%*	*97%*	*39%*	*100%*	*96%*	*99.3%*	*98%*	*99%*

Notes:

1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water.
2. Results equal to or exceeding the NYSDEC TOGS standards and guidance values are shaded.
3. PCE = tetrachlorothylene
4. TCE = trichloroethylene
5. cis-1,2-DCE = cis-1,2-Dichloroethylene
6. µg/L = microgram per liter
7. CVOC = chlorinated volatile organic compounds
8. * = Monitoring well is located in the sidewalk adjacent to the warehouse.

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS SUMMARY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Compound	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	Sampling Location												
		MW-1	MW-2	MW-3S	MW-3M	MW-3D	MW-4	MW-5	MW-6*	MW-7*	MW-8*	MW-9	PZ-1	PZ-2
Eighth Quarter Sampling Results Summary (µg/L) - October 2017														
CVOCs	~	4.5	4.39	4.5	20.3	19.31	4.27	4.08	276	4.5	10.08	6.18	4.5	4.5
PCE	5	0.5	0.42	0.5	15	15	0.5	0.36	160	0.5	0.78	1.8	0.5	0.5
TCE	5	0.5	0.47	0.5	1.8	0.81	0.27	0.22	93	0.5	3.3	0.88	0.5	0.5
cis-1,2- DCE	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	21	2.5	5	2.5	2.5	2.5
vinyl chloride	2	1	1	1	1	1	1	1	2	1	1	1	1	1
Q8 Percent CVOC Reduction from Last Quarter (Q7)		*None*	*5%*	*Increased*	*Increased*	*Increased*	*Increased*	*9%*	*64%*	*Increased*	*41%*	*Increased*	*70%*	*Increased*
Q8 Percent CVOC Reduction from Baseline		*99.6%*	*100%*	*99%*	*13%*	*31%*	*99.3%*	*98%*	*78%*	*100%*	*98%*	*99.0%*	*100%*	*99%*
Ninth Quarter Sampling Results Summary (µg/L) - January 2018														
CVOCs	~	4.08	4.49	4.5	20.1	18.7	4.32	4.24	623.71	4.5	10.99	6.9	5.86	4.5
PCE	5	0.26	0.63	0.5	15	14	0.2	0.48	430	0.5	0.99	2	1.7	0.5
TCE	5	0.32	0.36	0.5	1.6	1.2	0.62	0.26	180	0.5	3.5	1.4	0.66	0.5
cis-1,2- DCE	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	13	2.5	5.5	2.5	2.5	2.5
vinyl chloride	2	1	1	1	1	1	1	1	0.71	1	1	1	1	1
Q9 Percent CVOC Reduction from Last Quarter (Q8)		*9%*	*Increased*	*0%*	*1%*	*3%*	*Increased*	*Increased*	*Increased*	*0%*	*Increased*	*Increased*	*Increased*	*0%*
Q9 Percent CVOC Reduction from Baseline		*99.7%*	*100%*	*99%*	*14%*	*33%*	*99.3%*	*98%*	*50%*	*100%*	*98%*	*98.9%*	*99%*	*99%*

Notes:

1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water.
2. Results equal to or exceeding the NYSDEC TOGS standards and guidance values are shaded.
3. PCE = tetrachlorothylene
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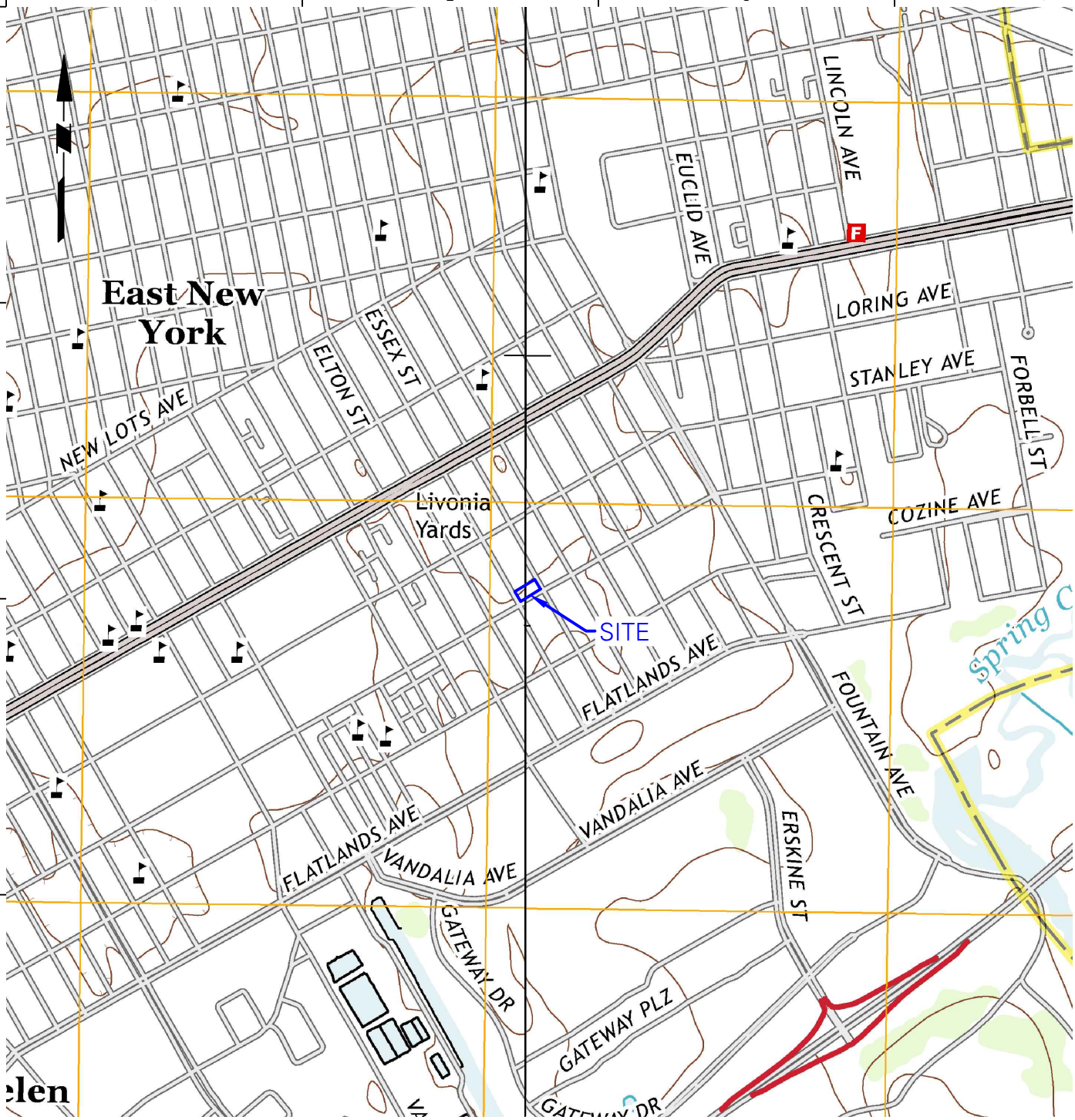
6. µg/L = microgram per liter
7. CVOC = chlorinated volatile organic compounds
8. * = Monitoring well is located in the sidewalk adjacent to the warehouse.

FIGURES



LEGEND:

APPROXIMATE SITE BOUNDARY

NOTE: BASE MAPS ARE REFERENCED FROM THE UNITED STATES GEOLOGICAL SURVEY (USGS) TOPOGRAPHIC QUADRANGLE MAPS FOR BROOKLYN AND JAMAICA.

LANGAN

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Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project

491 WORTMAN AVENUE

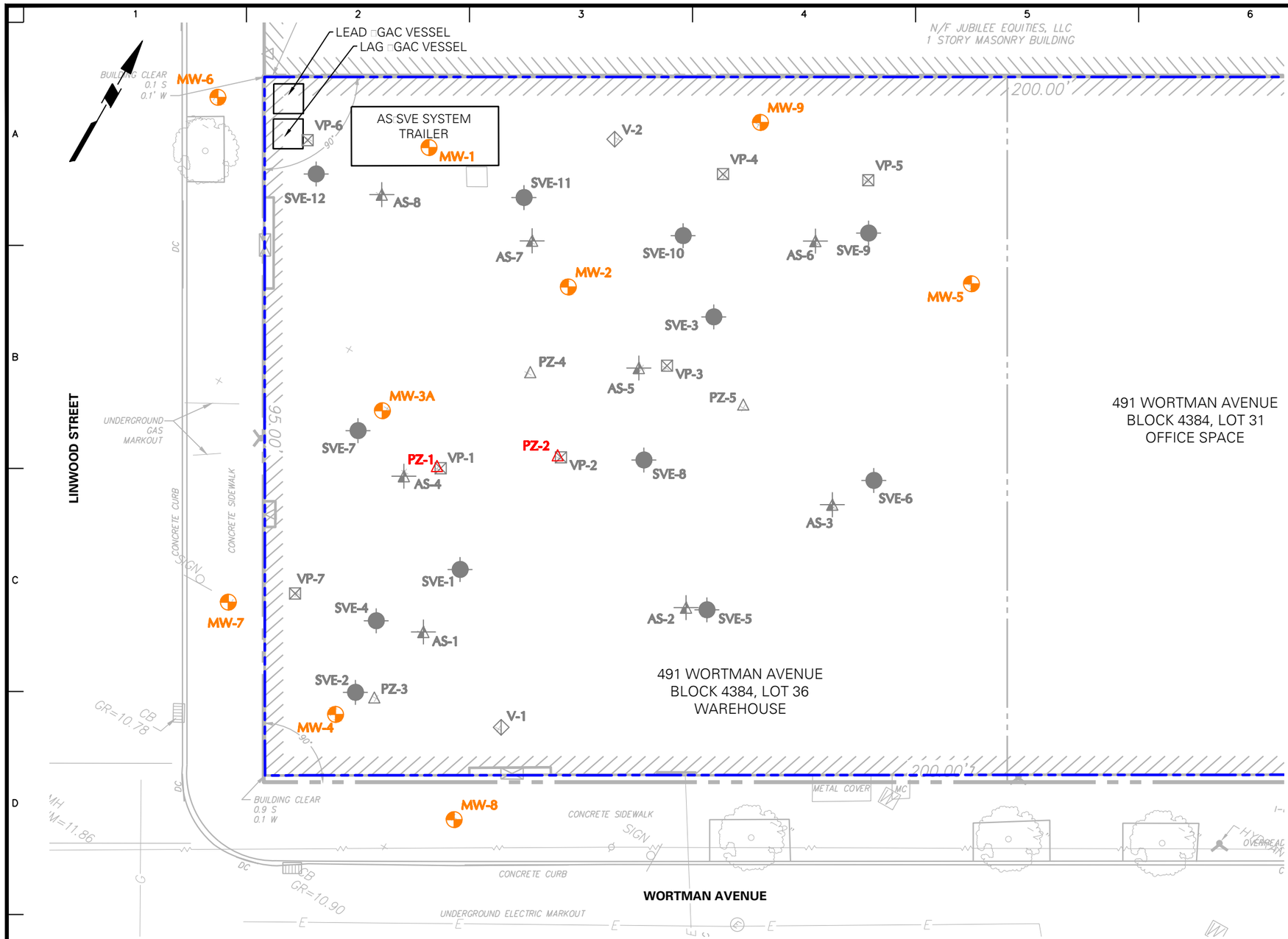
BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS NEW YORK

Figure Title

SITE LOCATION MAP

Project No. 170329301	Figure 1
Date 04/18/2015	
Scale N.T.S.	
Drawn By MLR / Checked By GN	
Submission Date	Sheet 1 of 3

Filename: \\langan.com\data\NYC\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 22\Figure 1 - Site Location Map - Updated.dwg Date: 5/9/2017 Time: 12:48 User: mrogers Style Table: Langan.stb Layout: Site Location Map



LEGEND:

- BUILDING LIMITS
- AS-6 — AIR SPARGE WELL
- SVE-9 — SOIL VAPOR EXTRACTION WELL
- VP-5 — VAPOR PROBE
- V-2 — VENT WELL
- MW-5 — MONITORING WELL
- PZ-2 — PIEZOMETER (SAMPLED)
- PZ-5 — PIEZOMETER (NOT INCLUDED IN SAMPLING PROGRAM)

NOTES:

1. THE BASEMAP IS REFERENCED FROM THE 491 WORTMAN AVENUE BOUNDARY SURVEY PREPARED BY LANGAN ENGINEERING, ENVIRONMENTAL, SURVEY, AND LANDSCAPE ARCHITECTURE, D.P.C. (LANGAN), DATED NOVEMBER 2, 2015
2. WELL LOCATIONS ARE BASED ON THE BOUNDARY SURVEY.
3. ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. 11 GROUNDWATER MONITORING WELLS AND 2 PIEZOMETERS ARE INCLUDED AS PART OF THE QUARTERLY GROUNDWATER SAMPLING PROGRAM.
5. MW-3A IS A NESTED MONITORING LOCATION WITH THREE SEPARATE WELLS SCREENED ACROSS A SHALLOW, MIDDLE, AND DEEP INTERVAL.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

15 0 7.5 15
SCALE IN FEET

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Project
491 WORTMAN AVENUE
BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS **NEW YORK**

Figure Title
ON-SITE GROUNDWATER MONITORING LOCATIONS

Project No. 170329301	Figure No. 2
Date 01/21/2016	
Scale AS SHOWN	
Drawn By TCS / Checked By GN	
Submission Date	Sheet 2 of 3

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Inspection Report No. 6\Figure 2 - On-Site MW Locations.dwg Date: 11/10/2017 Time: 11:43 User: mrogers Style Table: Langan.stb Layout: ANSIB-BL

Progress/Inspection Report No. 10
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: February 2018

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this progress/inspection report on behalf of J&H Holding Company, LLC (the "Participant"). In accordance with Section 7.1 of the Site Management Plan (SMP), which was approved by the New York State Department of Environmental Conservation (NYSDEC) on June 28, 2017, this progress/inspection report summarizes work performed at the Former Watermark Designs Facility (the "Site") during February 2018. The Final Engineering Report (FER) was submitted to the NYSDEC on May 25, 2017, and in accordance with the Brownfield Cleanup Agreement (BCA) submission of Monthly Brownfield Cleanup Program (BCP) Progress Reports is no longer required for the Site.

The Site (Block 4384, Lots 31 & 36) is located at 491 Wortman Avenue in Brooklyn, New York (Figure 1) and consists of a rectangular shaped lot that is about 19,000 square feet (±0.44 acres). The Site is located in an area zoned for industrial/manufacturing use and is bound by Wortman Street to the south, Linwood Street to the west, Essex Street to the east, and a one-story building to the north. Currently, a one-story building with a partial basement covers the entire Site footprint. The one-story building is comprised of a warehouse (i.e., the western portion) and office space and a smaller warehouse (i.e. the eastern portion).

2. Remedial Actions Relative to the Site during this Reporting Period

An on-site groundwater sampling event was conducted on March 1st, 2018. Depth-to-water, total depth, and photoionization detector (PID) measurements were collected at monitoring wells MW-3A (Medium), MW-6, and MW-8. Following the field data collection, groundwater samples were collected from the three monitoring wells for laboratory analysis of Target Compound List (TCL) volatile organic compounds (VOCs) and of compound specific isotope analysis of $^{13}C/^{12}C$ (PCE/TCE), $^{37}C/^{35}Cl$ (PCE), and $^{37}C/^{35}Cl$ (TCE). Groundwater sampling locations are shown on Figure 2.

On March 1st, 2018, Langan recorded process and performance monitoring data for the air sparge and soil vapor extraction (AS/SVE) system. The AS/SVE system was down as of 2/24/2018 because of a variable-frequency device (VFD) failure. The VFD failure as temporarily resolved and the monthly inspection proceeded. As part of the monthly inspection, vapor samples were collected prior to the lead vapor-phase granular activated carbon (vGAC) unit (i.e., influent) and after the lag vGAC unit (i.e., effluent). Routine equipment maintenance, including greasing the blower and checking the belt tensions, was performed.

3. Actions Relative to the Site Anticipated for the Next Reporting Period

The following activities are planned:

- Within 7 hours of the monthly inspection, the VFD failed again. Langan visited the site on 3/12/2018 to troubleshoot and learned that the VFD short circuited and must be replaced. Langan is engaging vendors for a replacement part.
- While the system is down, we are using this opportunity to perform a rebound test. The AS/SVE system will remain off until the next groundwater monitoring event, planned for the April 2018. During this time, we will obtain the VFD replacement part and schedule repair during the quarterly groundwater monitoring event.

4. Approved Activity Modifications (changes of work scope and/or schedule)

None

5. Results of Sampling, Testing and Other Relevant Data

OM&M sampling was performed as follows:

- An influent vapor sample was collected from the AS/SVE system and analyzed for volatile organic compounds (VOCs) via United States Environmental Protection Agency (USEPA) Method TO-15.
- An effluent vapor sample was collected from the AS/SVE system and analyzed for VOCs via USEPA Method TO-15.
- 3 groundwater samples were collected from on-site groundwater monitoring wells MW-3 (middle), MW-6, and MW-8, and analyzed for TCL VOCs via USEPA Method 8260C as well as compound specific isotope analysis of $^{13}C/^{12}C$ (PCE/TCE), $^{37}C/^{35}Cl$ (PCE), and $^{37}C/^{35}Cl$ (TCE).

Samples for TCL VOCs were analyzed by Alpha Analytical of Westborough, MA and for compound specific isotope analysis of $^{13}C/^{12}C$ (PCE/TCE), $^{37}C/^{35}Cl$ (PCE), and $^{37}C/^{35}Cl$ (TCE) by Pace Analytical of Pittsburgh, PA. Alpha and Pace are both New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratories. Sampling results for Pace Analytical were not available at the time of this report.

Based on the results of the most recent OM&M sampling, the AS/SVE system effluent complies with Policy DAR-1: Guidelines for the Control of Toxic Ambient Air Contaminants (DAR-1).

The groundwater results from the on-site groundwater sampling exhibit chlorinated VOC (CVOC) concentrations above the Title 6 of the New York Codes, Rules, and Regulations (6 NYCRR) Part 703.5 Water Quality Standards in two of the wells sampled (MW-3AM, and MW-6). The groundwater results for all wells are less than the August 2015 baseline groundwater sampling results (reductions in total CVOC concentrations have been achieved).

The following tables are attached to this progress report; analytical lab reports are available upon request. The tables summarize the data collected and the functionality of the AS/SVE system, including mass of VOCs removed from the subsurface based on photoionization detector (PID) readings and laboratory data, as well as, the alarm history.

- Table 1: AS/SVE System Vapor Sampling Results
- Table 2: AS/SVE System Mass Removal – PID Data
- Table 3: AS/SVE System Mass Removal – Laboratory Data
- Table 4: AS/SVE System DAR-1 Compliance – March 01, 2018
- Table 5: AS/SVE System Alarm History
- Table 6: Groundwater Sampling Results

6. Deliverables Submitted During This Reporting Period

None

7. Information Regarding Percentage of Completion

OM&M of the AS/SVE system is ongoing; however, the system is currently down due to a SVE system VFD alarm.

As of March 7, 2018 and since inception, the SVE system operated for 18,967 hours (92% uptime), and the AS system operated for 18,497 hours (90% uptime).

8. Unresolved Delays Encountered or Anticipated That May Affect the Schedule and Mitigation Efforts

None

9. Citizen Participation Plan Activities during This Reporting Period

None

10. Activities Anticipated in Support of the CPP for the Next Reporting Period

None

11. Miscellaneous Information

None

TABLES

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	INFLUENT_030118		EFFLUENT_030118	
LAB SAMPLE ID	3/1/2018		3/1/2018	
SAMPLE DATE	L1807247-01		L1807247-02	
Volatile Organic Compounds (ug/m^3)				
1,1,1-Trichloroethane	2.51		1.09	U
1,1,2,2-Tetrachloroethane	1.37	U	1.37	U
1,1,2-Trichloroethane	1.09	U	1.09	U
1,1-Dichloroethane	0.809	U	0.809	U
1,1-Dichloroethene	0.793	U	0.793	U
1,2,4-Trichlorobenzene	1.48	U	1.48	U
1,2,4-Trimethylbenzene	0.983	U	0.983	U
1,2-Dibromoethane	1.54	U	1.54	U
1,2-Dichlorobenzene	1.2	U	1.2	U
1,2-Dichloroethane	0.809	U	0.809	U
1,2-Dichloropropane	18.2		0.924	U
1,3,5-Trimethylbenzene	0.983	U	0.983	U
1,3-Butadiene	0.442	U	0.442	U
1,3-Dichlorobenzene	1.2	U	1.2	U
1,4-Dichlorobenzene	1.2	U	1.2	U
1,4-Dioxane	0.721	U	0.721	U
2,2,4-Trimethylpentane	0.934	U	0.934	U
2-Butanone	5.31		1.65	
2-Hexanone	0.82	U	0.82	U
3-Chloropropene	0.626	U	0.626	U
4-Ethyltoluene	0.983	U	0.983	U
4-Methyl-2-pentanone	2.27		2.05	U
Acetone	20.7		12.6	
Benzene	1.8		1.14	
Benzyl chloride	1.04	U	1.04	U
Bromodichloromethane	1.34	U	1.34	U
Bromoform	2.07	U	2.07	U
Bromomethane	0.777	U	0.777	U
Carbon disulfide	0.623	U	0.623	U
Carbon tetrachloride	1.26	U	1.26	U
Chlorobenzene	0.921	U	0.921	U
Chloroethane	0.987		0.528	U
Chloroform	1.62		0.977	U
Chloromethane	1.94		0.413	U
cis-1,2-Dichloroethene	1.34		0.793	U
cis-1,3-Dichloropropene	0.908	U	0.908	U
Cyclohexane	0.688	U	0.688	U
Dibromochloromethane	1.7	U	1.7	U
Dichlorodifluoromethane	2.1		0.989	U
Ethanol	9.42	U	9.42	U
Ethyl Acetate	1.94		1.8	U
Ethylbenzene	0.869	U	0.869	U
Freon-113	1.53	U	1.53	U
Freon-114	1.4	U	1.4	U
Heptane	0.82	U	0.82	U
Hexachlorobutadiene	2.13	U	2.13	U
Isopropanol	2.44		1.67	
Methyl tert butyl ether	0.995		1.21	
Methylene chloride	2.7		1.74	U
n-Hexane	4.97		5.29	
o-Xylene	0.899		0.869	U
p/m-Xylene	2.04		1.74	U
Styrene	0.852	U	0.852	U
Tertiary butyl Alcohol	31.5		42.7	
Tetrachloroethene	49.2		1.36	U
Tetrahydrofuran	2.95		1.47	U
Toluene	5.24		1.86	
trans-1,2-Dichloroethene	0.793	U	0.793	U
trans-1,3-Dichloropropene	0.908	U	0.908	U
Trichloroethene	369		1.07	U
Trichlorofluoromethane	1.17		1.12	U
Vinyl bromide	0.874	U	0.874	U
Vinyl chloride	0.511	U	0.511	U
Total VOCs	534		68.1	

NOTES:

1. ug/m^3 = micrograms per cubic meter
2. vGAC = vapor-phase granular activated carbon
3. Samples collected at the "vGAC INFLUENT" were collected before to the lead vGAC vessel.
4. Samples collected at the "vGAC EFFLUENT" were collected after the lag vGAC vessel.

Q is the Qualifier Column with definitions as follows:

U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM MASS REMOVAL - PID DATA
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	INFLUENT CONCENTRATION (ppmv)	SVE BLOWER FLOWRATE (scfm)	EFFLUENT CONCENTRATION (ppmv)	TOTAL OPERATIONAL HOURS	AVERAGE MOLECULAR WEIGHT	MASS REMOVAL RATE (lbs/hr)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	CUMULATIVE MASS REMOVED FROM SUBSURFACE (lbs)
10/21/2015	55.0	688	1.8	30	100	0.57	17.02	17.02
10/26/2015	8.3	650	0.6	150	100	0.08	9.31	26.34
11/6/2015	5.5	560	0.0	383	100	0.05	11.13	37.46
11/30/2015	1.9	593	0.3	958	100	0.01	8.46	45.92
12/28/2015	3.7	570	0.0	1,548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2,180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2,854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3,693	100	0.002	1.43	85.34
4/29/2016	2.0	571	0.0	4,322	100	0.018	11.14	96.48
5/26/2016	0.4	600	0.0	4,972	100	0.004	2.42	98.90
6/29/2016	0.5	600	0.0	5,784	100	0.005	3.78	102.68
7/28/2016	3.0	600	0.0	6,431	100	0.028	18.06	120.73
8/31/2016	2.7	600	0.0	7,110	100	0.025	17.05	137.79
9/29/2016	7.5	760	2.0	7,802	100	0.065	44.85	182.63
10/31/2016	0.0	520	0.0	8,516	100	0.000	0.00	182.63
11/29/2016	0.0	560	0.0	9,211	100	0.000	0.00	182.63
12/28/2016	0.0	520	0.0	9,884	100	0.000	0.00	182.63
1/25/2017	2.8	600	0.0	10,530	100	0.026	16.83	199.46
3/7/2017	0.1	360	0.0	11,186	100	0.001	0.37	199.82
4/27/2017	0.0	600	0.0	12,185	100	0.000	0.00	199.82
5/25/2017	0.8	600	0.0	12,760	100	0.008	4.42	204.24
6/28/2017	0.04	600	0.0	13,575	100	0.000	0.33	204.57
7/21/2017	0.0	600	0.0	14,060	100	0.000	0.00	204.57
8/25/2017	0.0	600	0.0	14,852	100	0.000	0.00	204.57
9/27/2017	0.7	600	0.08	15,641	100	0.006	4.55	209.12
11/1/2017	0.0	640	0.00	16,422	100	0.000	0.00	209.12
11/28/2017	0.0	600	0.00	17,069	100	0.000	0.00	209.12
12/28/2017	0.0	560	0.00	17,618	100	0.000	0.00	209.12
1/31/2018	0.0	600	0.00	18,382	100	0.000	0.00	209.12
3/1/2018	0.0	580	0.00	18,961	100	0.000	0.00	209.12

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the PID readings.
3. Mass Removal rate (lb/hr) = ((Conc in ppmv)(flowrate scfm)(MW)(60 min/hr)) / ((387)(1,000,000)).
4. PID = photoionization detector
5. ppmv = parts per million volume
6. scfm = standard cubic feet per minute
7. lbs/hr = pounds per hour
8. lbs = pounds
9. SVE = soil vapor extraction

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA (TOTAL VOCs)
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	INFLUENT CONCENTRATION (ug/m3)	SVE BLOWER FLOWRATE (scfm)	EFFLUENT CONCENTRATION (ug/m3)	TOTAL OPERATIONAL HOURS	INFLUENT RATE (mg/min)	EFFLUENT RATE (mg/min)	REMOVAL RATE (mg/min)	MASS REMOVED FROM SUBSURFACE (lbs)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	MASS REMOVED BY CARBON (lbs)	TOTAL MASS REMOVED BY CARBON (lbs)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18
12/28/2015	3,357	570	230	1,548	53.58	3.67	49.91	4.18	16.55	3.89	15.08
1/27/2016	621	525	183	2,180	9.13	2.69	6.44	0.76	17.31	0.54	15.62
2/24/2016	1,454	578	283	2,854	23.53	4.58	18.94	2.10	19.41	1.69	17.31
3/30/2016	825	550	75	3,693	12.71	1.16	11.55	1.41	20.82	1.28	18.59
4/29/2016	482	571	112	4,322	7.70	1.79	5.91	0.64	21.46	0.49	19.08
5/26/2016	1,169	600	162	4,972	19.64	2.73	16.91	1.69	23.15	1.45	20.53
6/29/2016	1,865	600	190	5,784	31.33	3.19	28.14	3.37	26.51	3.02	23.56
7/28/2016	3,706	600	232	6,431	62.26	3.90	58.36	5.33	31.84	4.99	28.55
8/31/2016	4,798	600	135	7,110	80.61	2.26	78.35	7.24	39.08	7.04	35.59
9/29/2016	1,045	760	179	7,802	22.24	3.81	18.43	2.04	41.12	1.69	37.27
10/31/2016	922	520	91	8,516	13.42	1.32	12.10	1.27	42.38	1.14	38.42
11/29/2016	790	560	167	9,211	12.38	2.62	9.76	1.14	43.52	0.90	39.31
12/28/2016	282	520	123	9,884	4.11	1.79	2.32	0.37	43.89	0.21	39.52
1/25/2017	4.7	600	5.6	10,530	0.08	0.09	-0.02	0.01	43.89	0.00	39.52
3/7/2017	762	360	120	11,186	7.68	1.21	6.47	0.67	44.56	0.56	40.08
4/27/2017	1,008	600	86	12,185	16.93	1.44	15.49	2.24	46.80	2.05	42.13
5/25/2017	771	600	48	12,760	12.95	0.81	12.15	0.99	47.78	0.92	43.05
6/28/2017	754	600	69	13,575	12.66	1.16	11.50	1.36	49.15	1.24	44.29
7/21/2017	2,434	600	235	14,060	40.89	3.95	36.94	2.62	51.77	2.37	46.66
8/25/2017	1,334	600	246	14,852	22.41	4.13	18.28	2.35	54.12	1.91	48.58
9/27/2017	1,059	600	83	15,641	17.79	1.39	16.40	1.86	55.98	1.71	50.29
11/1/2017	1,227	640	85	16,422	21.99	1.52	20.47	2.27	58.25	2.11	52.40
11/28/2017	295	600	64	17,069	4.96	1.08	3.88	0.42	58.67	0.33	52.73
12/28/2017	258	560	29	17,618	4.05	0.45	3.59	0.29	58.97	0.26	53.00
1/31/2018	289	600	13	18,382	4.85	0.23	4.62	0.49	59.46	0.47	53.46
3/1/2018	534	580	68	18,961	8.67	1.11	7.57	0.66	60.12	0.58	54.04

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the lab analytical data and not the PID readings.
3. ug/m3 = micrograms per cubic meter
4. scfm = standard cubic feet per minute
5. mg/min = milligrams per minute
6. lbs = pounds
7. SVE = soil vapor extraction

TABLE 3A: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA (TCE ONLY)
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	TCE INFLUENT CONCENTRATION (ug/m3)	SVE BLOWER FLOWRATE (scfm)	TCE EFFLUENT CONCENTRATION (ug/m3)	TOTAL OPERATIONAL HOURS	INFLUENT RATE (mg/min)	EFFLUENT RATE (mg/min)	REMOVAL RATE (mg/min)	MASS REMOVED FROM SUBSURFACE (lbs)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	MASS REMOVED BY CARBON (lbs)	TOTAL MASS REMOVED BY CARBON (lbs)
10/20/2015	110,000	640	27.4	12	1971.20	0.49	1970.71	3.13	3.13	3.13	3.13
10/21/2015	29,000	688	530	30	558.66	10.21	548.45	1.33	4.46	1.29	4.42
10/26/2015	5,600	650	120	150	101.92	2.18	99.74	1.62	6.08	1.57	5.99
11/30/2015	2,700	593	23	958	44.83	0.38	44.45	4.79	10.87	4.74	10.74
12/28/2015	2,800	570	1.3	1,548	44.69	0.02	44.67	3.49	14.36	3.48	14.22
1/27/20126	150	525	0.13	2,180	2.21	0.00	2.20	0.18	14.54	0.18	14.40
2/24/2016	1,100	578	0.91	2,854	17.80	0.01	17.79	1.59	16.13	1.58	15.98
3/30/2016	660	550	1.30	3,693	10.16	0.02	10.14	1.13	17.26	1.12	17.10
4/29/2016	170	571	0.13	4,322	2.72	0.002	2.72	0.23	17.48	0.22	17.33
5/26/2016	870	600	1.30	4,972	14.62	0.022	14.59	1.26	18.74	1.24	18.57
6/29/2016	1,300	600	0.75	5,784	21.84	0.013	21.83	2.35	21.08	2.34	20.91
7/28/2016	3,100	600	1.30	6,431	52.08	0.022	52.06	4.46	25.54	4.44	25.34
8/31/2016	4,300	600	1.90	7,110	72.24	0.032	72.21	6.49	32.03	6.46	31.80
9/29/2016	740	760	1.30	7,802	15.75	0.028	15.72	1.44	33.47	1.41	33.22
10/31/2016	660	520	3.80	8,516	9.61	0.055	9.55	0.91	34.38	0.85	34.06
11/29/2016	450	560	1.30	9,211	7.06	0.020	7.04	0.65	35.03	0.62	34.68
12/28/2016	200	520	24	9,884	2.91	0.349	2.56	0.26	35.29	-0.20	34.49
1/25/2017	2	600	0.43	10,530	0.03	0.007	0.03	0.003	35.29	-0.01	34.48
3/7/2017	660	360	8.60	11,186	6.65	0.087	6.57	0.577	35.87	0.45	34.93
4/27/2017	650	600	1.10	12,185	10.92	0.018	10.90	1.443	37.31	1.41	36.34
5/25/2017	403	600	2.22	12,760	6.77	0.037	6.73	0.515	37.82	0.45	36.79
6/28/2017	492	600	1.10	13,575	8.27	0.018	8.25	0.891	38.72	0.86	37.65
7/21/2017	1890	600	1.36	14,060	31.75	0.023	31.73	2.037	40.75	1.99	39.65
8/25/2017	726	600	1.07	14,852	12.20	0.018	12.18	1.278	42.03	1.24	40.89
9/27/2017	656	600	2.25	15,641	11.02	0.038	10.98	1.150	43.18	1.07	41.96
11/1/2017	881	640	1.07	16,422	15.79	0.019	15.77	1.631	44.81	1.59	43.55
11/28/2017	135	600	1.07	17,069	2.27	0.018	2.25	0.194	45.01	0.15	43.70
12/28/2017	170	560	1.07	17,618	2.67	0.017	2.65	0.194	45.20	0.15	43.86
1/31/2018	189	600	1.07	18,382	3.18	0.018	3.16	0.321	45.52	0.28	44.14
3/1/2018	369	580	1.07	18,961	5.99	0.017	5.98	0.459	45.98	0.42	44.55

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the lab analytical data and not the PID readings.
3. ug/m3 = micrograms per cubic meter
4. scfm = standard cubic feet per minute
5. mg/min = milligrams per minute
6. lbs = pounds
7. SVE = soil vapor extraction
8. VGAC = vapor-phase granular activated carbon
9. TCE = trichloroethene

TABLE 3B: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA (PCE ONLY)
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	PCE INFLUENT CONCENTRATION (ug/m3)	SVE BLOWER FLOWRATE (scfm)	PCE EFFLUENT CONCENTRATION (ug/m3)	TOTAL OPERATIONAL HOURS	INFLUENT RATE (mg/min)	EFFLUENT RATE (mg/min)	REMOVAL RATE (mg/min)	MASS REMOVED FROM SUBSURFACE (lbs)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	MASS REMOVED BY CARBON (lbs)	TOTAL MASS REMOVED BY CARBON (lbs)
10/20/2015	680	640	13.56	12	12.19	0.24	11.94	0.02	0.02	0.02	0.02
10/21/2015	2,800	688	48	30	53.94	0.92	53.01	0.13	0.15	0.12	0.14
10/26/2015	1,200	650	26	150	21.84	0.47	21.37	0.35	0.49	0.34	0.48
11/30/2015	290	593	12	958	4.82	0.20	4.62	0.51	1.01	0.49	0.97
12/28/2015	380	570	12	1,548	6.06	0.19	5.87	0.47	1.48	0.43	1.40
1/27/2016	280	525	6.9	2,180	4.12	0.10	4.01	0.34	1.83	0.31	1.72
2/24/2016	200	578	5.1	2,854	3.24	0.08	3.15	0.29	2.12	0.26	1.98
3/30/2016	110	550	1.7	3,693	1.69	0.03	1.67	0.19	2.30	0.18	2.15
4/29/2016	32	571	0.2	4,322	0.51	0.003	0.51	0.04	2.35	0.04	2.19
5/26/2016	150	600	1.7	4,972	2.52	0.029	2.49	0.22	2.56	0.20	2.39
6/29/2016	290	600	0.68	5,784	4.87	0.011	4.86	0.52	3.09	0.51	2.91
7/28/2016	300	600	8.80	6,431	5.04	0.148	4.89	0.43	3.52	0.31	3.21
8/31/2016	240	600	0.17	7,110	4.03	0.003	4.03	0.36	3.88	0.36	3.57
9/29/2016	140	760	3.40	7,802	2.98	0.072	2.91	0.27	4.15	0.20	3.77
10/31/2016	130	520	6.80	8,516	1.89	0.099	1.79	0.18	4.33	0.07	3.84
11/29/2016	120	560	1.70	9,211	1.88	0.027	1.85	0.17	4.50	0.14	3.98
12/28/2016	41	520	53	9,884	0.60	0.772	-0.17	0.05	4.56	-0.96	3.02
1/25/2017	2	600	0.61	10,530	0.03	0.010	0.02	0.003	4.56	-0.01	3.01
3/7/2017	68	360	1.70	11,186	0.69	0.017	0.67	0.059	4.62	0.03	3.04
4/27/2017	159	600	1.40	12,185	2.67	0.024	2.65	0.353	4.97	0.32	3.36
5/25/2017	112	600	2.80	12,760	1.88	0.047	1.83	0.143	5.12	0.06	3.42
6/28/2017	125	600	1.40	13,575	2.10	0.024	2.08	0.226	5.34	0.18	3.61
7/21/2017	126	600	2.16	14,060	2.12	0.036	2.08	0.136	5.48	0.07	3.67
8/25/2017	241	600	1.40	14,852	4.05	0.024	4.03	0.424	5.90	0.38	4.05
9/27/2017	271	600	2.80	15,641	4.55	0.047	4.51	0.475	6.38	0.38	4.43
11/1/2017	168	640	1.36	16,422	3.01	0.024	2.99	0.311	6.69	0.26	4.69
11/28/2017	66	600	1.36	17,069	1.10	0.023	1.08	0.094	6.78	0.04	4.73
12/28/2017	48	560	1.36	17,618	0.75	0.021	0.73	0.055	6.84	0.00	4.74
1/31/2018	38	600	1.36	18,382	0.63	0.023	0.61	0.064	6.90	0.01	4.74
3/1/2018	49	580	1.36	18,961	0.80	0.022	0.78	0.061	6.96	0.01	4.75

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the lab analytical data and not the PID readings.
3. ug/m3 = micrograms per cubic meter
4. scfm = standard cubic feet per minute
5. mg/min = milligrams per minute
6. lbs = pounds
7. SVE = soil vapor extraction
8. VGAC = vapor-phase granular activated carbon
9. PCE = tetrachloroethene

TABLE 4: AS/SVE SYSTEM DAR-1 COMPLIANCE
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **3/1/2018**

CHEMICAL COMPOUND	CARBON EFFLUENT CONCENRATION MEASURED ($\mu g/m^3$)	EMISSION FLOWRATE MEASURED (SCFM)	(m^3/min)	OUTLET CONCENTRATION (Q_p) (lb/hr)	OUTLET CONCENTRATION (Q_a) (lb/yr)	MAX ANNUAL IMPACT (C_a) ($\mu g/m^3$)	MAX POTENTIAL IMPACT (C_p) ($\mu g/m^3$)	MAX SHORT-TERM IMPACT (C_{st}) ($\mu g/m^3$)	DAR-1 STANDARDS SGC ($\mu g/m^3$)	AGC ($\mu g/m^3$)	EMISSION RESTRICTION REQUIRED (if C_p>AGC and C_a<AGC)	SGC EMISSION EXCEEDANCE (if C_{st}>SGC)	AGC EMISSION EXCEEDANCE (if C_a>AGC)
Volatile Organics, USEPA TO-15 Full List (ug/m^3)													
Acetone	12.6	580	16.42386	2.73E-05	2.39E-01	2.15E-03	2.15E-03	1.40E-01	180,000	30,000	NO	NO	NO
Benzene	1.14	580	16.42386	2.47E-06	2.17E-02	1.95E-04	1.94E-04	1.26E-02	1,300	0.13	NO	NO	NO
Carbon disulfide	0.623	580	16.42386	1.35E-06	1.18E-02	1.06E-04	1.06E-04	6.91E-03	6,200	700	NO	NO	NO
Chloroform	0.977	580	16.42386	2.12E-06	1.86E-02	1.67E-04	1.67E-04	1.08E-02	150	0.04	NO	NO	NO
Chloromethane	0.413	580	16.42386	8.95E-07	7.84E-03	7.05E-05	7.04E-05	4.58E-03	6,200	700	NO	NO	NO
cis-1,2-Dichloroethylene	0.793	580	16.42386	1.72E-06	1.51E-02	1.35E-04	1.35E-04	8.79E-03	--	63	NO	No Standard	NO
Dichlorodifluoromethane	0.989	580	16.42386	2.14E-06	1.88E-02	1.69E-04	1.69E-04	1.10E-02	--	12,000	NO	No Standard	NO
Ethanol	9.42	580	16.42386	2.04E-05	1.79E-01	1.61E-03	1.61E-03	1.04E-01	--	45,000	NO	No Standard	NO
Isopropanol	1.67	580	16.42386	3.62E-06	3.17E-02	2.85E-04	2.85E-04	1.85E-02	98,000	7,000	NO	NO	NO
n-Hexane	5.29	580	16.42386	1.15E-05	1.00E-01	9.03E-04	9.02E-04	5.86E-02	--	700	NO	No Standard	NO
Tertiary Butyl Alcohol	42.7	580	16.42386	9.26E-05	8.11E-01	7.29E-03	7.28E-03	4.73E-01	--	720	NO	No Standard	NO
Toluene	1.86	580	16.42386	4.03E-06	3.53E-02	3.18E-04	3.17E-04	2.06E-02	37,000	5,000	NO	NO	NO

NOTES AND QUALIFIERS:

1. Table only displays chemical compounds with detectable concentrations.
2. Concentrations below reporting limit (non detect) are assumed to be zero.
3. Air samples were analyzed for USEPA TO-15 compounds
4. All equations are referenced in NYSDEC, Division of Air Resources, Air Guide 1, Guidelines for the Control of Toxic Ambient Air Contaminants (11/12/97). Standard Point Source Method calculations were used.
5. Values in table are compared to DAR-1 Annual Guideline Concentrations (AGC)/Short-Term Guideline Concentrations (SGC) Tables dated February 28, 2014.
6. DAR-1 AGC and/or SGC values listed as "--" means there is no AGC or SGC standard for that compound.
7. SCFM = standard cubic feet per minute
8. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
9. ug/m^3 = micrograms per cubic meter
10. m^3/min = cubic meter per minute
11. lb/hr = pounds per hour
12. lb/yr = pounds per year

TABLE 5: AS/SVE SYSTEM ALARM HISTORY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

DATE	ALARM	ALARM DESCRIPTION	REASON	REMEDY
10/23/2015	PAL-2501	Compressor Low Pressure Alarm	Uncertain of the reason. There may be a power fluctuation that trips the low pressure alarm, which shuts the AS system down.	On-site observation confirmed that this was a false alarm and was not caused by compressor failure or a breach in the air sparge manifold. The alarm was manually reset.
10/28/2015	LAH-7301	Storage Tank High Level Alarm	The SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into nine 55-gallon drums, and the SVE system vacuum has been optimized to extract a lesser volume of water.
11/5/2015	PAL-2501	Compressor Low Pressure Alarm	Caused by the air sparge compressor on/off time, which won't allow "OFF" time to be set to zero and therefore, the compressor cannot run continuously.	The air compressor timer has been by-passed and the compressor operation is linked to the SVE system operation. If the SVE system is operational, the compressor will operate unless a different AS system alarm has been triggered.
11/17/2015	PAL-2501	Compressor Low Pressure Alarm	This was an alarm test that was performed to ensure that the update to the Programmable Logic Controller (PLC) was successful.	The PLC update was successful and the air sparge compressor can run continuously. The air compressor timer is no longer being bypassed.
12/23/2015	LAH-7301	Storage Tank High Level Alarm	Following optimization, which included increasing the AS rate and the SVE system flow rate, the SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into three 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
12/25/2015	LAH-7301	Storage Tank High Level Alarm	Following optimization, which included increasing the AS rate and the SVE system flow rate, the SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into three 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
1/7/2016	LAH-7301	Storage Tank High Level Alarm	Following continued optimization of AS/SVE system, the SVE system began to extract a larger volume of water than anticipated.	The storage tank was emptied into eight 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
1/17/2016	LAH-7301	Storage Tank High Level Alarm	Following continued optimization of AS/SVE system, the SVE system began to extract a larger volume of water than anticipated.	The storage tank was emptied. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
2/1/2016	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted at a lower speed. The compressor speed was ramped up incrementally throughout the day until the previous set point was reached. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
4/3/2016	PAL-701	Blower Influent High Pressure Alarm	The alarm was most likely triggered due to power fluctuations caused by high wind conditions.	The alarm was cleared and the SVE system was restarted at a higher frequency. The system was monitored remotely for the remainder of the day.
4/29/2016	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted. At restart, the allowable flow through the AS system was increased to alleviate the pressure on the air compressor discharge line. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
8/9/2016	PAH-702	SVE System Effluent High Pressure Alarm	Anomalously high pressures were not noted on the SVE system discharge during the remote or on-site inspections. It is likely that the SVE effluent pressure switch needs to be recalibrated following almost a year's worth of continuous use.	The SVE system was restarted at a lower frequency and monitored on-site for about two hours.
8/26/2016	FAL-701	Blower Low Flow Alarm	The alarm was triggered due to a loose relay switch.	The switch was tightened during the August 31, 2016 monthly inspection and the system was restarted without further issue.
12/27/2016	PAL-2501	Compressor Low Pressure Alarm	The alarm was triggered due to a mechanical failure at the air compressor (i.e., the belts tore).	The air compressor belts were replaced on January 9, 2017 and the system was restarted.
3/7/2017	FAL-401	Transfer Pump Low Flow Alarm	The alarm was likely triggered due to the fluctuating volume of water extracted by the SVE system.	The AS/SVE system was restarted. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
3/8/2017	Low PLC Battery	Low Programmable Logic Controller (PLC) Battery	The alarm was triggered because the PLC battery can no longer hold a charge.	The PLC battery was replaced on March 10, 2017.
3/24/2017	VFDA-701	SVE System Variable Frequency Drive (VFD) Alarm	The alarm was triggered because the SVE system blower was not functioning within the intended parameters.	The blower was visually inspected, a piece of debris caught in the belts was removed, and the system was restarted.
7/4/2017	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted. At restart, the allowable flow through the AS system was increased to alleviate the pressure on the air compressor discharge line. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
8/2/2017	FAL-701	Blower Low Flow Alarm	The alarm was likely triggered by a momentary power surge.	The alarm was cleared and the AS/SVE system was restarted. The system was monitored remotely for the remainder of the day.
11/29/2017	VFDA-701	SVE System VFD Alarm	The alarm was triggered by a faulty blower permissive start relay.	The AS/SVE system was restarted; the relay was replaced during the 12/28/2017 monthly inspection.

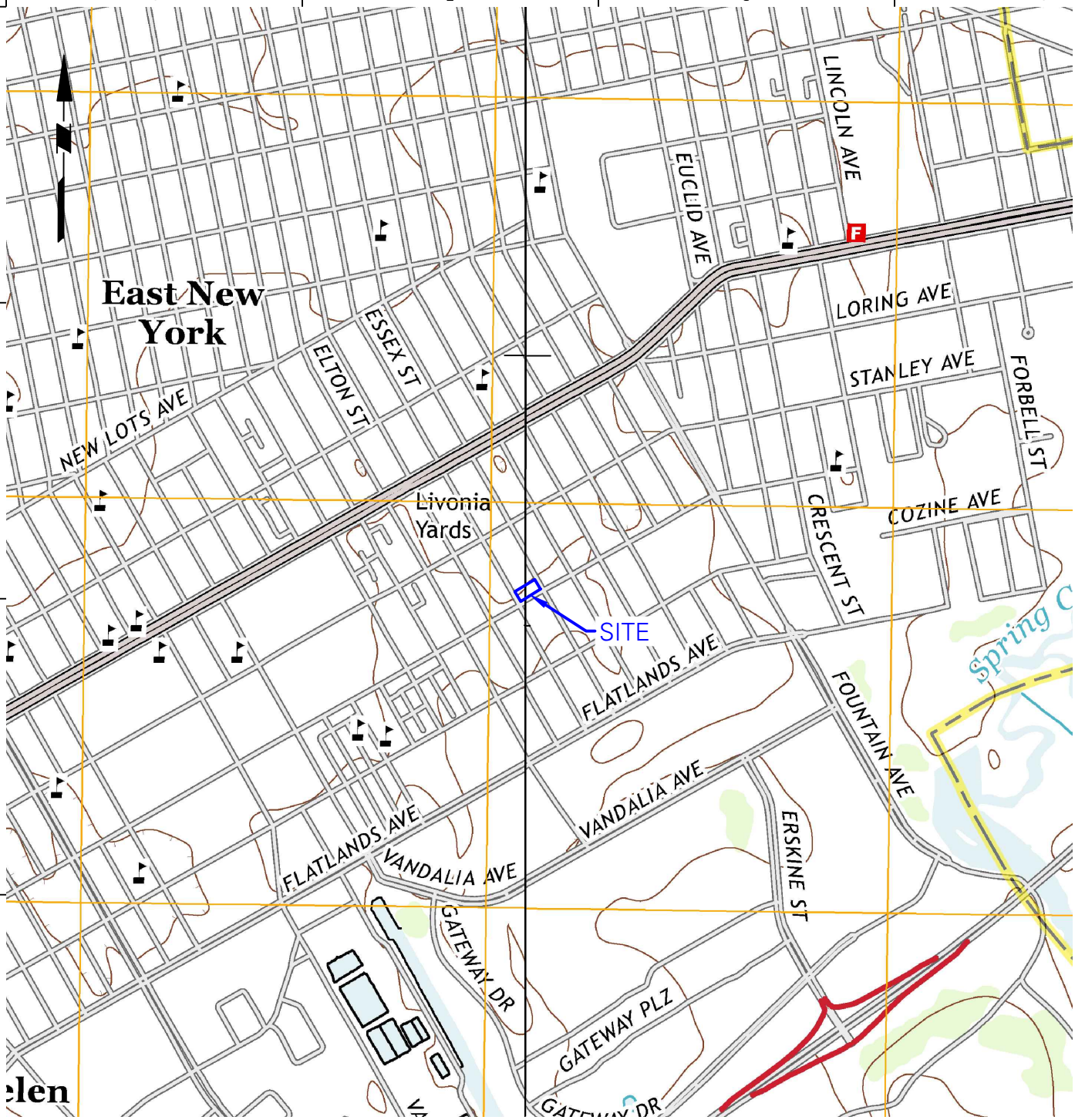
TABLE 6: QUARTERLY GROUNDWATER SAMPLING RESULTS – NINTH QUARTER
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

Sample ID Laboratory ID Sampling Date	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW3AM_030118 L1807225-03 3/1/2018		MW06_030118 L1807225-02 3/1/2018		MW08_030118 L1807225-01 3/1/2018	
Volatile Organic Compounds (µg/L)							
1,2-Dichloroethene, Total	~	2.5	U	8.5	J	3.9	
1,2-Dichloropropane	1	1	U	2	U	0.19	J
cis-1,2-Dichloroethene	5	2.5	U	**7**		3.9	
Tetrachloroethene	5	**11**		**140**		1.9	
trans-1,2-Dichloroethene	5	2.5	U	1.5	J	2.5	U
Trichloroethene	5	1.9		**72**		2.8	

Notes:
1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS)
2. Results equal to or exceeding the NYSDEC TOGS standards and guidance values are sha
3. µg/L = micrograms per liter
4. ~ = regulatory criteria have not been established for this compound
5. Three monitoring wells associated with the air sparge and soil vapor extraction

Qualifiers:
J = Analyte detected at or above the MDL (Method Detection Limit) but below the RL (Rep
U = Analyte not detected at or above the level indicated.

FIGURES



LEGEND:

APPROXIMATE SITE BOUNDARY

NOTE: BASE MAPS ARE REFERENCED FROM THE UNITED STATES GEOLOGICAL SURVEY (USGS) TOPOGRAPHIC QUADRANGLE MAPS FOR BROOKLYN AND JAMAICA.

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Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project

491 WORTMAN AVENUE

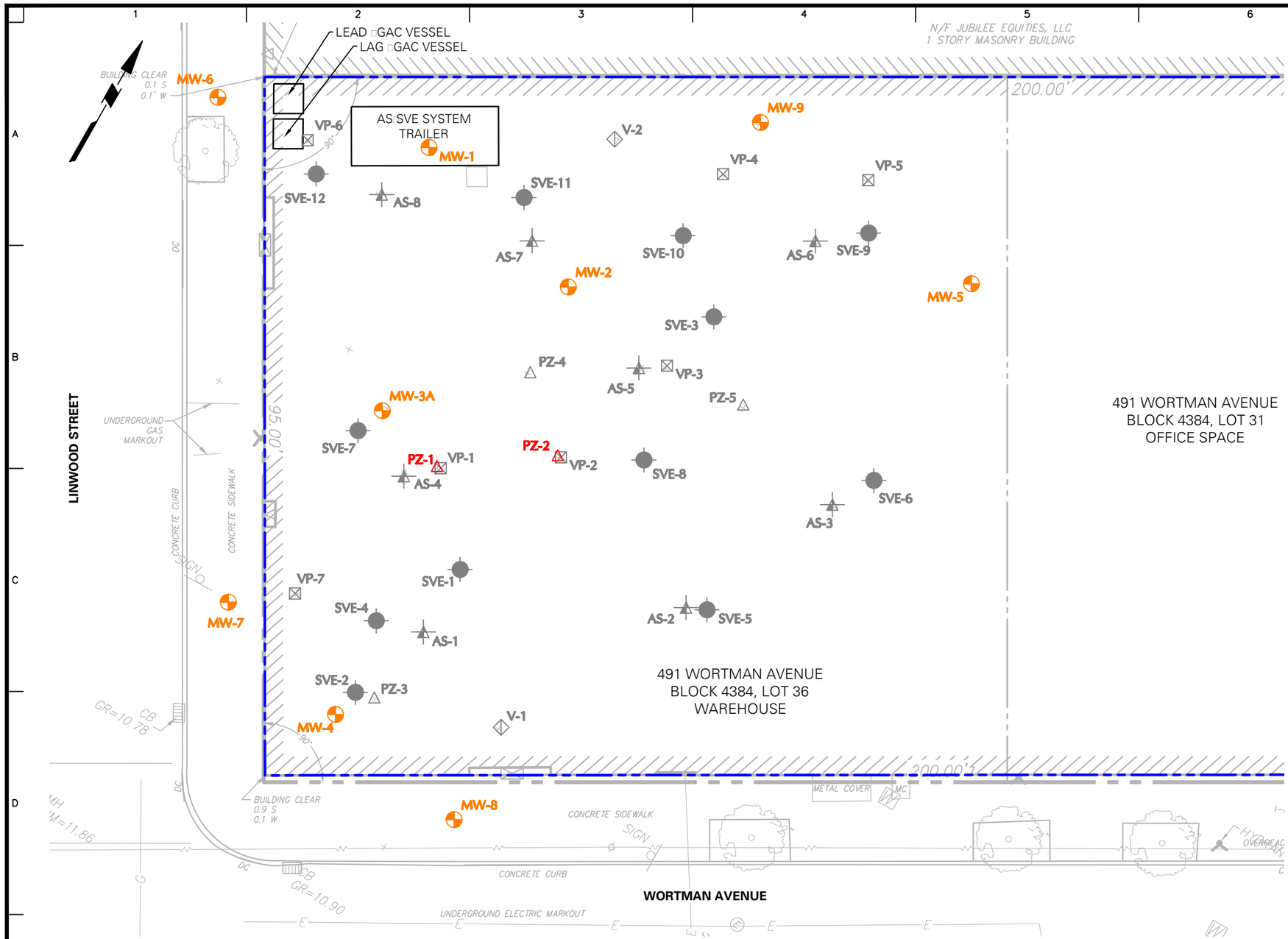
BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS NEW YORK

Figure Title

SITE LOCATION MAP

Project No. 170329301	Figure 1
Date 04/18/2015	
Scale N.T.S.	
Drawn By MLR / Checked By GN	
Submission Date	Sheet 1 of 3

Filename: \\langan.com\data\NYC\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 22\Figure 1 - Site Location Map - Updated.dwg Date: 5/9/2017 Time: 12:48 User: mrogers Style Table: Langan.stb Layout: Site Location Map



LEGEND:

- BUILDING LIMITS
- AS-6 — AIR SPARGE WELL
- SVE-9 — SOIL VAPOR EXTRACTION WELL
- VP-5 — VAPOR PROBE
- V-2 — VENT WELL
- MW-5 — MONITORING WELL
- PZ-2 — PIEZOMETER (SAMPLED)
- PZ-5 — PIEZOMETER (NOT INCLUDED IN SAMPLING PROGRAM)

NOTES:

1. THE BASEMAP IS REFERENCED FROM THE 491 WORTMAN AVENUE BOUNDARY SURVEY PREPARED BY LANGAN ENGINEERING, ENVIRONMENTAL, SURVEY, AND LANDSCAPE ARCHITECTURE, D.P.C. (LANGAN), DATED NOVEMBER 2, 2015
2. WELL LOCATIONS ARE BASED ON THE BOUNDARY SURVEY.
3. ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. 11 GROUNDWATER MONITORING WELLS AND 2 PIEZOMETERS ARE INCLUDED AS PART OF THE QUARTERLY GROUNDWATER SAMPLING PROGRAM.
5. MW-3A IS A NESTED MONITORING LOCATION WITH THREE SEPARATE WELLS SCREENED ACROSS A SHALLOW, MIDDLE, AND DEEP INTERVAL.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

15 0 7.5 15
SCALE IN FEET

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491 WORTMAN AVENUE
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KINGS **NEW YORK**

Figure Title
ON-SITE GROUNDWATER MONITORING LOCATIONS

Project No. 170329301	Figure No. 2
Date 01/21/2016	
Scale AS SHOWN	
Drawn By TCS / Checked By GN	
Submission Date	Sheet 2 of 3

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Inspection Report No. 6\Figure 2 - On-Site MW Locations.dwg Date: 11/10/2017 Time: 11:43 User: mrogers Style Table: Langan.stb Layout: ANSIB-BL

Progress/Inspection Report No. 11
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: March 2018

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this monthly progress/inspection report on behalf of J&H Holding Company, LLC (the "Participant"). In accordance with Section 7.1 of the Site Management Plan (SMP), which was approved by the New York State Department of Environmental Conservation (NYSDEC) on June 28, 2017, this progress/inspection report summarizes work performed at the Former Watermark Designs Facility (the "Site") during April 2018. The Final Engineering Report (FER) was submitted to the NYSDEC on May 25, 2017, and in accordance with the Brownfield Cleanup Agreement (BCA) submission of Monthly Brownfield Cleanup Program (BCP) Progress Reports is no longer required for the Site.

The Site (Block 4384, Lots 31 & 36) is located at 491 Wortman Avenue in Brooklyn, New York (Figure 1) and consists of a rectangular shaped lot that is about 19,000 square feet (±0.44 acres). The Site is located in an area zoned for industrial/manufacturing use and is bound by Wortman Street to the south, Linwood Street to the west, Essex Street to the east, and a one-story building to the north. Currently, a one-story building with a partial basement covers the entire Site footprint. The one-story building is comprised of a warehouse (i.e., the western portion) and office space and a smaller warehouse (i.e. the eastern portion).

2. Remedial Actions Relative to the Site during this Reporting Period

As of 2/24/2018, the air sparge and soil vapor extraction (AS/SVE) system has been shut down because of a variable-frequency drive (VFD) failure and completion of a contaminant rebound test. Remedial actions in the March 2018 monitoring consisted of continuing a contaminant rebound test.

3. Actions Relative to the Site Anticipated for the Next Reporting Period

Replacement of the VFD, AS/SVE system re-initiation, and quarterly operation, maintenance and monitoring activities is planned.

4. Approved Activity Modifications (changes of work scope and/or schedule)

None

5. Results of Sampling, Testing and Other Relevant Data

No testing was performed in this period while the a contaminant rebound test is ongoing.

6. Deliverables Submitted During This Reporting Period

None

7. Information Regarding Percentage of Completion

OM&M of the AS/SVE system is ongoing.

As of March 7, 2018 and since inception, the SVE system operated for 18,967 hours (92% uptime), and the AS system operated for 18,497 hours (90% uptime).

8. Unresolved Delays Encountered or Anticipated That May Affect the Schedule and Mitigation Efforts

None

9. Citizen Participation Plan Activities during This Reporting Period

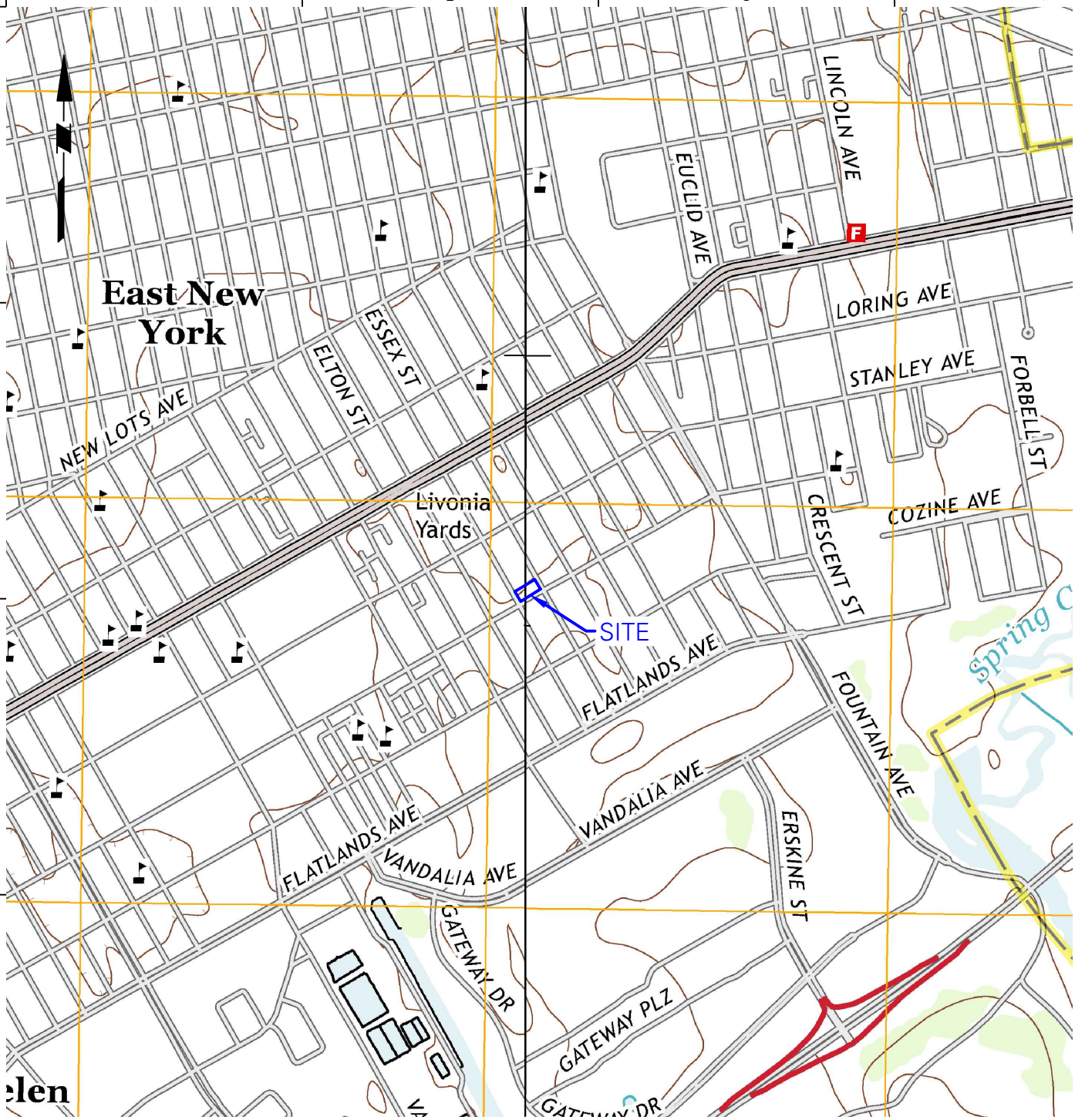
None

10. Activities Anticipated in Support of the CPP for the Next Reporting Period

None

11. Miscellaneous Information

None



LEGEND:

APPROXIMATE SITE BOUNDARY

NOTE: BASE MAPS ARE REFERENCED FROM THE UNITED STATES GEOLOGICAL SURVEY (USGS) TOPOGRAPHIC QUADRANGLE MAPS FOR BROOKLYN AND JAMAICA.

LANGAN

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Project

491 WORTMAN AVENUE

BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS NEW YORK

Figure Title

SITE LOCATION MAP

Project No. 170329301	Figure 1
Date 04/18/2015	
Scale N.T.S.	
Drawn By MLR / Checked By GN	
Submission Date	Sheet 1 of 3

Filename: \\langan.com\data\NYC\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 22\Figure 1 - Site Location Map - Updated.dwg Date: 5/9/2017 Time: 12:48 User: mrogers Style Table: Langan.stb Layout: Site Location Map

Progress/Inspection Report No. 12
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: April 2018

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this progress/inspection report on behalf of J&H Holding Company, LLC (the "Participant"). In accordance with Section 7.1 of the Site Management Plan (SMP), which was approved by the New York State Department of Environmental Conservation (NYSDEC) on June 28, 2017, this progress/inspection report summarizes work performed at the Former Watermark Designs Facility (the "Site") during April 2018. The Final Engineering Report (FER) was submitted to the NYSDEC on May 25, 2017, and in accordance with the Brownfield Cleanup Agreement (BCA), submission of Monthly Brownfield Cleanup Program (BCP) Progress Reports is no longer required for the Site.

The Site (Block 4384, Lots 31 & 36) is located at 491 Wortman Avenue in Brooklyn, New York (Figure 1) and consists of a rectangular shaped lot that is about 19,000 square feet (±0.44 acres). The Site is located in an area zoned for industrial/manufacturing use and is bound by Wortman Street to the south, Linwood Street to the west, Essex Street to the east, and a one-story building to the north. Currently, a one-story building with a partial basement covers the entire Site footprint. The one-story building is used as a warehouse in the western portion and an office space and a smaller warehouse in the eastern portion.

2. Remedial Actions Relative to the Site during this Reporting Period

Since 2/24/2018, the air sparge and soil vapor extraction (AS/SVE) system has been shut down to perform a contaminant rebound test. Additionally, the AS/SVE system had been shut down previously because of a variable-frequency drive (VFD) failure. The VFD was replaced on 4/19/2018 and the system was restarted for testing purposes; however, the system triggered another fault on 4/20/2018 due to the SVE water storage tank reaching maximum capacity.

The tenth quarterly on-site groundwater sampling event was conducted on April 11 and 12, 2018. Depth-to-water, total depth, and photoionization detector (PID) measurements were collected at monitoring wells MW-1 through MW-9 and piezometers PZ-1 and PZ-2 (thirteen locations total). Following the collection of field data, groundwater samples were collected from each monitoring well and piezometer for laboratory analysis of Target Compound List (TCL) volatile organic compounds (VOCs). On-Site Groundwater sampling locations are shown on Figure 2.

The third round of semi-annual, near-field, off-site groundwater sampling was conducted on April 11, 2018. Depth-to-water, total depth, and PID measurements were collected at monitoring wells ML-002 (shallow, middle, and deep), MW-10, and MW-11 (five locations total). Following the collection of field data, groundwater samples were collected from each

monitoring well for laboratory analysis of TCL VOCs. The near-field, off-site groundwater monitoring locations are shown on Figure 3.

Because the AS/SVE system was shut down, Langan did not perform operation, maintenance and monitoring (OM&M). Langan most recently recorded process and performance monitoring data for the air sparge and soil vapor extraction (AS/SVE) system on March 1, 2018. As part of the inspection, vapor samples were collected prior to the lead vapor-phase granular activated carbon (vGAC) unit (i.e., influent) and after the lag vGAC unit (i.e., effluent). Routine equipment maintenance, including greasing the blower and checking the belt tensions, was performed.

3. Actions Relative to the Site Anticipated for the Next Reporting Period

The following activities are planned:

- Submit a request to the NYSDEC to continue the rebound test
- Extend AS/SVE system rebound test and collect quarterly groundwater samples
- Perform OM&M and empty AS/SVE water storage tank

4. Approved Activity Modifications (changes of work scope and/or schedule)

None

5. Results of Sampling, Testing and Other Relevant Data

OM&M sampling was performed as follows:

- Influent vapor samples were not collected during the month of April. An influent vapor sample was most recently collected on March 1, 2018, from the AS/SVE system and analyzed for VOCs via USEPA Method TO-15.
- Effluent vapor samples were not collected during the month of April. An effluent vapor sample was most recently collected on March 1, 2018, from the AS/SVE system and analyzed for VOCs via USEPA Method TO-15.
- Thirteen groundwater samples (plus one duplicate) were collected from on-site groundwater monitoring wells MW-1, MW-2, MW-3 (shallow, middle, and deep), MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, PZ-1, and PZ-2 and analyzed for TCL VOCs via USEPA Method 8260C.
- Five groundwater samples (plus one duplicate) were collected from near-field, off-site groundwater monitoring wells ML-002 (shallow, middle, and deep), MW-10, and MW-11 and analyzed for TCL VOCs via USEPA Method 8260C.
- Groundwater samples were collected in March 2018 to perform a compound specific isotope analysis (CSIA) to determine how the fractionation of specific isotopes is being affected by on-site versus off-site sources, naturally occurring bioremediation

processes, and the on-going AS/SVE remediation. A technical memorandum discussing the results of this analysis is included as Attachment A.

Samples were analyzed by Alpha Analytical of Westborough, MA. Alpha is a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory.

The groundwater results from the tenth quarter of on-site groundwater sampling exhibit chlorinated VOC (CVOC) concentrations above the New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water in seven of the wells sampled (MW-2, MW-3M, MW-3D, MW-5, MW-6, PZ-1, and PZ-2). The groundwater results for all of the wells are less than the baseline groundwater sampling results from August 2015 (reductions in total CVOC concentrations have been achieved). Based on the data collected, CVOC concentrations continue to be stable below TOGS Water Quality Standards and Guidance Values in the following six wells/piezometers: MW-1, MW-3S, MW-4, MW-7, MW-8, and MW-9. Since October 2016, tetrachloroethene (PCE) concentrations observed at MW-3M (screen 30 to 40 feet below grade surface [bgs]) and MW-3D (screened 50 to 60 feet bgs) have consistently ranged between about 19 and 10 micrograms per liter (µg/L) and concentrations of the remaining CVOCs (trichloroethene [TCE], cis-1,2-dichloroethene, and vinyl chloride) have not exceeded the 6 NYCRR Part 703.5 Water Quality Standards; indicating that CVOC concentrations in the middle- and deep-screened on-site wells have stabilized. When compared to last quarter's sampling results, CVOC concentrations have increased in all of the groundwater wells with exception to MW-6, where a 43% reduction was achieved. Increased CVOC concentrations since the last sampling event in January 2018 can be attributed to the temporary deactivation of the AS/SVE system at the site since 2/24/2018.

The groundwater results from the third round of semi-annual, near-field, off-site groundwater sampling exhibit CVOC concentrations above the 6 NYCRR Part 703.5 Water Quality Standards in three of the five wells. When compared to the baseline July 2016 sampling event, reductions in total CVOC concentrations have been achieved in three of the sampled wells. Since October 2017, PCE concentration range in the shallow wells was 1.1 to 8.8 µg/L, compared to the April 2018 range of 20 to 44 µg/L. This increase of total CVOCs in shallow off-site wells can be attributed to area-wide groundwater quality and the temporary deactivation of the AS/SVE system at the site since 2/24/2018.

The following tables are attached to this progress report; analytical lab reports are available upon request. In addition to groundwater results from the tenth quarter (on-site wells) and third round (off-site wells), the tables also include summarized data from the most recent AS/SVE OM&M sampling event in March 2018.

- Table1: AS/SVE System Vapor Sampling Results – March 2018
- Table 2: AS/SVE System Mass Removal – PID Data – March 2018
- Table 3: AS/SVE System Mass Removal – Laboratory Data – March 2018
- Table 4: AS/SVE System DAR-1 Compliance – March 2018

- Table 5: AS/SVE System Alarm History – March 2018
- Table 6: Quarterly Groundwater Sampling Results – Tenth Quarter
- Table 7: Quarterly Groundwater Sampling Results Summary
- Table 8: Semi-Annual, Near-Field, Off-Site Groundwater Sampling Results – April 2018 (Round 3)
- Table 9: Semi-Annual, Near-field, Off-Site Groundwater Sampling Results Summary

6. Deliverables Submitted During This Reporting Period

None

7. Information Regarding Percentage of Completion

OM&M of the AS/SVE system is ongoing.

As of March 7, 2018 and since the system was first started, the SVE system operated for 18,967 hours (92% uptime), and the AS system operated for 18,497 hours (90% uptime).

8. Unresolved Delays Encountered or Anticipated That May Affect the Schedule and Mitigation Efforts

None

9. Citizen Participation Plan Activities during This Reporting Period

None

10. Activities Anticipated in Support of the CPP for the Next Reporting Period

None

11. Miscellaneous Information

None

TABLES

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	INFLUENT_030118		EFFLUENT_030118	
LAB SAMPLE ID	3/1/2018		3/1/2018	
SAMPLE DATE	L1807247-01		L1807247-02	
Volatile Organic Compounds (ug/m^3)				
1,1,1-Trichloroethane	2.51		1.09	U
1,1,2,2-Tetrachloroethane	1.37	U	1.37	U
1,1,2-Trichloroethane	1.09	U	1.09	U
1,1-Dichloroethane	0.809	U	0.809	U
1,1-Dichloroethene	0.793	U	0.793	U
1,2,4-Trichlorobenzene	1.48	U	1.48	U
1,2,4-Trimethylbenzene	0.983	U	0.983	U
1,2-Dibromoethane	1.54	U	1.54	U
1,2-Dichlorobenzene	1.2	U	1.2	U
1,2-Dichloroethane	0.809	U	0.809	U
1,2-Dichloropropane	18.2		0.924	U
1,3,5-Trimethylbenzene	0.983	U	0.983	U
1,3-Butadiene	0.442	U	0.442	U
1,3-Dichlorobenzene	1.2	U	1.2	U
1,4-Dichlorobenzene	1.2	U	1.2	U
1,4-Dioxane	0.721	U	0.721	U
2,2,4-Trimethylpentane	0.934	U	0.934	U
2-Butanone	5.31		1.65	
2-Hexanone	0.82	U	0.82	U
3-Chloropropene	0.626	U	0.626	U
4-Ethyltoluene	0.983	U	0.983	U
4-Methyl-2-pentanone	2.27		2.05	U
Acetone	20.7		12.6	
Benzene	1.8		1.14	
Benzyl chloride	1.04	U	1.04	U
Bromodichloromethane	1.34	U	1.34	U
Bromoform	2.07	U	2.07	U
Bromomethane	0.777	U	0.777	U
Carbon disulfide	0.623	U	0.623	U
Carbon tetrachloride	1.26	U	1.26	U
Chlorobenzene	0.921	U	0.921	U
Chloroethane	0.987		0.528	U
Chloroform	1.62		0.977	U
Chloromethane	1.94		0.413	U
cis-1,2-Dichloroethene	1.34		0.793	U
cis-1,3-Dichloropropene	0.908	U	0.908	U
Cyclohexane	0.688	U	0.688	U
Dibromochloromethane	1.7	U	1.7	U
Dichlorodifluoromethane	2.1		0.989	U
Ethanol	9.42	U	9.42	U
Ethyl Acetate	1.94		1.8	U
Ethylbenzene	0.869	U	0.869	U
Freon-113	1.53	U	1.53	U
Freon-114	1.4	U	1.4	U
Heptane	0.82	U	0.82	U
Hexachlorobutadiene	2.13	U	2.13	U
Isopropanol	2.44		1.67	
Methyl tert butyl ether	0.995		1.21	
Methylene chloride	2.7		1.74	U
n-Hexane	4.97		5.29	
o-Xylene	0.899		0.869	U
p/m-Xylene	2.04		1.74	U
Styrene	0.852	U	0.852	U
Tertiary butyl Alcohol	31.5		42.7	
Tetrachloroethene	49.2		1.36	U
Tetrahydrofuran	2.95		1.47	U
Toluene	5.24		1.86	
trans-1,2-Dichloroethene	0.793	U	0.793	U
trans-1,3-Dichloropropene	0.908	U	0.908	U
Trichloroethene	369		1.07	U
Trichlorofluoromethane	1.17		1.12	U
Vinyl bromide	0.874	U	0.874	U
Vinyl chloride	0.511	U	0.511	U
Total VOCs	534		68.1	

NOTES:

1. ug/m^3 = micrograms per cubic meter
2. vGAC = vapor-phase granular activated carbon
3. Samples collected at the "vGAC INFLUENT" were collected before to the lead vGAC vessel.
4. Samples collected at the "vGAC EFFLUENT" were collected after the lag vGAC vessel.

Q is the Qualifier Column with definitions as follows:

U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM MASS REMOVAL - PID DATA
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	INFLUENT CONCENTRATION (ppmv)	SVE BLOWER FLOWRATE (scfm)	EFFLUENT CONCENTRATION (ppmv)	TOTAL OPERATIONAL HOURS	AVERAGE MOLECULAR WEIGHT	MASS REMOVAL RATE (lbs/hr)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	CUMULATIVE MASS REMOVED FROM SUBSURFACE (lbs)
10/21/2015	55.0	688	1.8	30	100	0.57	17.02	17.02
10/26/2015	8.3	650	0.6	150	100	0.08	9.31	26.34
11/6/2015	5.5	560	0.0	383	100	0.05	11.13	37.46
11/30/2015	1.9	593	0.3	958	100	0.01	8.46	45.92
12/28/2015	3.7	570	0.0	1,548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2,180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2,854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3,693	100	0.002	1.43	85.34
4/29/2016	2.0	571	0.0	4,322	100	0.018	11.14	96.48
5/26/2016	0.4	600	0.0	4,972	100	0.004	2.42	98.90
6/29/2016	0.5	600	0.0	5,784	100	0.005	3.78	102.68
7/28/2016	3.0	600	0.0	6,431	100	0.028	18.06	120.73
8/31/2016	2.7	600	0.0	7,110	100	0.025	17.05	137.79
9/29/2016	7.5	760	2.0	7,802	100	0.065	44.85	182.63
10/31/2016	0.0	520	0.0	8,516	100	0.000	0.00	182.63
11/29/2016	0.0	560	0.0	9,211	100	0.000	0.00	182.63
12/28/2016	0.0	520	0.0	9,884	100	0.000	0.00	182.63
1/25/2017	2.8	600	0.0	10,530	100	0.026	16.83	199.46
3/7/2017	0.1	360	0.0	11,186	100	0.001	0.37	199.82
4/27/2017	0.0	600	0.0	12,185	100	0.000	0.00	199.82
5/25/2017	0.8	600	0.0	12,760	100	0.008	4.42	204.24
6/28/2017	0.04	600	0.0	13,575	100	0.000	0.33	204.57
7/21/2017	0.0	600	0.0	14,060	100	0.000	0.00	204.57
8/25/2017	0.0	600	0.0	14,852	100	0.000	0.00	204.57
9/27/2017	0.7	600	0.08	15,641	100	0.006	4.55	209.12
11/1/2017	0.0	640	0.00	16,422	100	0.000	0.00	209.12
11/28/2017	0.0	600	0.00	17,069	100	0.000	0.00	209.12
12/28/2017	0.0	560	0.00	17,618	100	0.000	0.00	209.12
1/31/2018	0.0	600	0.00	18,382	100	0.000	0.00	209.12
3/1/2018	0.0	580	0.00	18,961	100	0.000	0.00	209.12

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the PID readings.
3. Mass Removal rate (lb/hr) = ((Conc in ppmv)(flowrate scfm)(MW)(60 min/hr)) / ((387)(1,000,000)).
4. PID = photoionization detector
5. ppmv = parts per million volume
6. scfm = standard cubic feet per minute
7. lbs/hr = pounds per hour
8. lbs = pounds
9. SVE = soil vapor extraction

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA (TOTAL VOCs)
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	INFLUENT CONCENTRATION (ug/m3)	SVE BLOWER FLOWRATE (scfm)	EFFLUENT CONCENTRATION (ug/m3)	TOTAL OPERATIONAL HOURS	INFLUENT RATE (mg/min)	EFFLUENT RATE (mg/min)	REMOVAL RATE (mg/min)	MASS REMOVED FROM SUBSURFACE (lbs)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	MASS REMOVED BY CARBON (lbs)	TOTAL MASS REMOVED BY CARBON (lbs)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18
12/28/2015	3,357	570	230	1,548	53.58	3.67	49.91	4.18	16.55	3.89	15.08
1/27/2016	621	525	183	2,180	9.13	2.69	6.44	0.76	17.31	0.54	15.62
2/24/2016	1,454	578	283	2,854	23.53	4.58	18.94	2.10	19.41	1.69	17.31
3/30/2016	825	550	75	3,693	12.71	1.16	11.55	1.41	20.82	1.28	18.59
4/29/2016	482	571	112	4,322	7.70	1.79	5.91	0.64	21.46	0.49	19.08
5/26/2016	1,169	600	162	4,972	19.64	2.73	16.91	1.69	23.15	1.45	20.53
6/29/2016	1,865	600	190	5,784	31.33	3.19	28.14	3.37	26.51	3.02	23.56
7/28/2016	3,706	600	232	6,431	62.26	3.90	58.36	5.33	31.84	4.99	28.55
8/31/2016	4,798	600	135	7,110	80.61	2.26	78.35	7.24	39.08	7.04	35.59
9/29/2016	1,045	760	179	7,802	22.24	3.81	18.43	2.04	41.12	1.69	37.27
10/31/2016	922	520	91	8,516	13.42	1.32	12.10	1.27	42.38	1.14	38.42
11/29/2016	790	560	167	9,211	12.38	2.62	9.76	1.14	43.52	0.90	39.31
12/28/2016	282	520	123	9,884	4.11	1.79	2.32	0.37	43.89	0.21	39.52
1/25/2017	4.7	600	5.6	10,530	0.08	0.09	-0.02	0.01	43.89	0.00	39.52
3/7/2017	762	360	120	11,186	7.68	1.21	6.47	0.67	44.56	0.56	40.08
4/27/2017	1,008	600	86	12,185	16.93	1.44	15.49	2.24	46.80	2.05	42.13
5/25/2017	771	600	48	12,760	12.95	0.81	12.15	0.99	47.78	0.92	43.05
6/28/2017	754	600	69	13,575	12.66	1.16	11.50	1.36	49.15	1.24	44.29
7/21/2017	2,434	600	235	14,060	40.89	3.95	36.94	2.62	51.77	2.37	46.66
8/25/2017	1,334	600	246	14,852	22.41	4.13	18.28	2.35	54.12	1.91	48.58
9/27/2017	1,059	600	83	15,641	17.79	1.39	16.40	1.86	55.98	1.71	50.29
11/1/2017	1,227	640	85	16,422	21.99	1.52	20.47	2.27	58.25	2.11	52.40
11/28/2017	295	600	64	17,069	4.96	1.08	3.88	0.42	58.67	0.33	52.73
12/28/2017	258	560	29	17,618	4.05	0.45	3.59	0.29	58.97	0.26	53.00
1/31/2018	289	600	13	18,382	4.85	0.23	4.62	0.49	59.46	0.47	53.46
3/1/2018	534	580	68	18,961	8.67	1.11	7.57	0.66	60.12	0.58	54.04

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the lab analytical data and not the PID readings.
3. ug/m3 = micrograms per cubic meter
4. scfm = standard cubic feet per minute
5. mg/min = milligrams per minute
6. lbs = pounds
7. SVE = soil vapor extraction

TABLE 4: AS/SVE SYSTEM DAR-1 COMPLIANCE
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **3/1/2018**

CHEMICAL COMPOUND	CARBON EFFLUENT CONCENRATION MEASURED ($\mu g/m^3$)	EMISSION FLOWRATE MEASURED (SCFM)	EMISSION FLOWRATE MEASURED (m^3/min)	OUTLET CONCENTRATION (Q_p) (lb/hr)	OUTLET CONCENTRATION (Q_a) (lb/yr)	MAX ANNUAL IMPACT (C_a) ($\mu g/m^3$)	MAX POTENTIAL IMPACT (C_p) ($\mu g/m^3$)	MAX SHORT-TERM IMPACT (C_{st}) ($\mu g/m^3$)	DAR-1 STANDARDS SGC ($\mu g/m^3$)	DAR-1 STANDARDS AGC ($\mu g/m^3$)	EMISSION RESTRICTION REQUIRED (if C_p>AGC and C_a<AGC)	SGC EMISSION EXCEEDANCE (if C_{st}>SGC)	AGC EMISSION EXCEEDANCE (if C_a>AGC)
Volatile Organics, USEPA TO-15 Full List (ug/m^3)													
Acetone	12.6	580	16.42386	2.73E-05	2.39E-01	2.15E-03	2.15E-03	1.40E-01	180,000	30,000	NO	NO	NO
Benzene	1.14	580	16.42386	2.47E-06	2.17E-02	1.95E-04	1.94E-04	1.26E-02	1,300	0.13	NO	NO	NO
Carbon disulfide	0.623	580	16.42386	1.35E-06	1.18E-02	1.06E-04	1.06E-04	6.91E-03	6,200	700	NO	NO	NO
Chloroform	0.977	580	16.42386	2.12E-06	1.86E-02	1.67E-04	1.67E-04	1.08E-02	150	0.04	NO	NO	NO
Chloromethane	0.413	580	16.42386	8.95E-07	7.84E-03	7.05E-05	7.04E-05	4.58E-03	6,200	700	NO	NO	NO
cis-1,2-Dichloroethylene	0.793	580	16.42386	1.72E-06	1.51E-02	1.35E-04	1.35E-04	8.79E-03	--	63	NO	No Standard	NO
Dichlorodifluoromethane	0.989	580	16.42386	2.14E-06	1.88E-02	1.69E-04	1.69E-04	1.10E-02	--	12,000	NO	No Standard	NO
Ethanol	9.42	580	16.42386	2.04E-05	1.79E-01	1.61E-03	1.61E-03	1.04E-01	--	45,000	NO	No Standard	NO
Isopropanol	1.67	580	16.42386	3.62E-06	3.17E-02	2.85E-04	2.85E-04	1.85E-02	98,000	7,000	NO	NO	NO
n-Hexane	5.29	580	16.42386	1.15E-05	1.00E-01	9.03E-04	9.02E-04	5.86E-02	--	700	NO	No Standard	NO
Tertiary Butyl Alcohol	42.7	580	16.42386	9.26E-05	8.11E-01	7.29E-03	7.28E-03	4.73E-01	--	720	NO	No Standard	NO
Toluene	1.86	580	16.42386	4.03E-06	3.53E-02	3.18E-04	3.17E-04	2.06E-02	37,000	5,000	NO	NO	NO

NOTES AND QUALIFIERS:

1. Table only displays chemical compounds with detectable concentrations.
2. Concentrations below reporting limit (non detect) are assumed to be zero.
3. Air samples were analyzed for USEPA TO-15 compounds
4. All equations are referenced in NYSDEC, Division of Air Resources, Air Guide 1, Guidelines for the Control of Toxic Ambient Air Contaminants (11/12/97). Standard Point Source Method calculations were used.
5. Values in table are compared to DAR-1 Annual Guideline Concentrations (AGC)/Short-Term Guideline Concentrations (SGC) Tables dated February 28, 2014.
6. DAR-1 AGC and/or SGC values listed as "--" means there is no AGC or SGC standard for that compound.
7. SCFM = standard cubic feet per minute
8. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
9. ug/m^3 = micrograms per cubic meter
10. m^3/min = cubic meter per minute
11. lb/hr = pounds per hour
12. lb/yr = pounds per year

TABLE 5: AS/SVE SYSTEM ALARM HISTORY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

DATE	ALARM	ALARM DESCRIPTION	REASON	REMEDY
10/23/2015	PAL-2501	Compressor Low Pressure Alarm	Uncertain of the reason. There may be a power fluctuation that trips the low pressure alarm, which shuts the AS system down.	On-site observation confirmed that this was a false alarm and was not caused by compressor failure or a breach in the air sparge manifold. The alarm was manually reset.
10/28/2015	LAH-7301	Storage Tank High Level Alarm	The SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into nine 55-gallon drums, and the SVE system vacuum has been optimized to extract a lesser volume of water.
11/5/2015	PAL-2501	Compressor Low Pressure Alarm	Caused by the air sparge compressor on/off time, which won't allow "OFF" time to be set to zero and therefore, the compressor cannot run continuously.	The air compressor timer has been by-passed and the compressor operation is linked to the SVE system operation. If the SVE system is operational, the compressor will operate unless a different AS system alarm has been triggered.
11/17/2015	PAL-2501	Compressor Low Pressure Alarm	This was an alarm test that was performed to ensure that the update to the Programmable Logic Controller (PLC) was successful.	The PLC update was successful and the air sparge compressor can run continuously. The air compressor timer is no longer being bypassed.
12/23/2015	LAH-7301	Storage Tank High Level Alarm	Following optimization, which included increasing the AS rate and the SVE system flow rate, the SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into three 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
12/25/2015	LAH-7301	Storage Tank High Level Alarm	Following optimization, which included increasing the AS rate and the SVE system flow rate, the SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into three 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
1/7/2016	LAH-7301	Storage Tank High Level Alarm	Following continued optimization of AS/SVE system, the SVE system began to extract a larger volume of water than anticipated.	The storage tank was emptied into eight 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
1/17/2016	LAH-7301	Storage Tank High Level Alarm	Following continued optimization of AS/SVE system, the SVE system began to extract a larger volume of water than anticipated.	The storage tank was emptied. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
2/1/2016	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted at a lower speed. The compressor speed was ramped up incrementally throughout the day until the previous set point was reached. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
4/3/2016	PAL-701	Blower Influent High Pressure Alarm	The alarm was most likely triggered due to power fluctuations caused by high wind conditions.	The alarm was cleared and the SVE system was restarted at a higher frequency. The system was monitored remotely for the remainder of the day.
4/29/2016	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted. At restart, the allowable flow through the AS system was increased to alleviate the pressure on the air compressor discharge line. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
8/9/2016	PAH-702	SVE System Effluent High Pressure Alarm	Anomalously high pressures were not noted on the SVE system discharge during the remote or on-site inspections. It is likely that the SVE effluent pressure switch needs to be recalibrated following almost a year's worth of continuous use.	The SVE system was restarted at a lower frequency and monitored on-site for about two hours.
8/26/2016	FAL-701	Blower Low Flow Alarm	The alarm was triggered due to a loose relay switch.	The switch was tightened during the August 31, 2016 monthly inspection and the system was restarted without further issue.
12/27/2016	PAL-2501	Compressor Low Pressure Alarm	The alarm was triggered due to a mechanical failure at the air compressor (i.e., the belts tore).	The air compressor belts were replaced on January 9, 2017 and the system was restarted.
3/7/2017	FAL-401	Transfer Pump Low Flow Alarm	The alarm was likely triggered due to the fluctuating volume of water extracted by the SVE system.	The AS/SVE system was restarted. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
3/8/2017	Low PLC Battery	Low Programmable Logic Controller (PLC) Battery	The alarm was triggered because the PLC battery can no longer hold a charge.	The PLC battery was replaced on March 10, 2017.
3/24/2017	VFDA-701	SVE System Variable Frequency Drive (VFD) Alarm	The alarm was triggered because the SVE system blower was not functioning within the intended parameters.	The blower was visually inspected, a piece of debris caught in the belts was removed, and the system was restarted.
7/4/2017	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted. At restart, the allowable flow through the AS system was increased to alleviate the pressure on the air compressor discharge line. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
8/2/2017	FAL-701	Blower Low Flow Alarm	The alarm was likely triggered by a momentary power surge.	The alarm was cleared and the AS/SVE system was restarted. The system was monitored remotely for the remainder of the day.
11/29/2017	VFDA-701	SVE System VFD Alarm	The alarm was triggered by a faulty blower permissive start relay.	The AS/SVE system was restarted; the relay was replaced during the 12/28/2017 monthly inspection.
2/24/2018	VFDA-701	SVE System VFD Alarm	The alarm was triggered by a faulty blower permissive start relay.	The alarm was resolved on 3/1/2018 and then retripped within 7 hours of resolution. A new VFD is required to address this issue. This alarm remains unresolved.

TABLE 6: QUARTERLY GROUNDWATER SAMPLING RESULTS – TENTH QUARTER
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

Sample ID Laboratory ID Sampling Date	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW01_041218 L1812801-01 4/12/2018		MW02_041218 L1812801-02 4/12/2018		MW3AS_041118 L1812612-01 4/11/2018		MW3AM_041118 L1812612-02 4/11/2018		MW3AD_041118 L1812612-03 4/11/2018		MW04_ 041218 L1812801-03 4/12/2018		MW05_ 041218 L1812801-04 4/12/2018	
Volatile Organic Compounds (µg/L)															
1,1-Dichloroethene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.32	J
1,2-Dichloroethene, Total	~	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	1.3	J
1,2-Dichloropropane	1	1	U	1	U	1	U	1	U	1	U	0.22	J	0.48	J
cis-1,2-Dichloroethene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	1.3	J
Tetrachloroethene	5	1.4		**9.1**		4		**15**		**15**		1.2		**14**	
trans-1,2-Dichloroethene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Trichloroethene	5	1.2		2.4		2.5		2.1		1		0.92		3	
Vinyl chloride	2	1	U	1	U	1	U	1	U	1	U	1	U	1	U

Notes:
1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water.
2. Results equal to or exceeding the NYSDEC TOGS standards and guidance values are shaded and bolded.
3. µg/L = micrograms per liter
4. ~ = regulatory criteria have not been established for this compound
5. DUP02_041118 is a duplicate sample of MW08_041118.
6. Sixteen monitoring wells and two piezometers associated with the air sparge and soil vapor extraction system (AS/SVE) system were sampled as part of the eighth round of quarterly groundwater sampling.

Qualifiers:
J = Analyte detected at or above the MDL (Method Detection Limit) but below the RL (Reporting Limit) - data is estimated.
U = Analyte not detected at or above the level indicated.

TABLE 6: QUARTERLY GROUNDWATER SAMPLING RESULTS – TENTH QUARTER
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

Sample ID Laboratory ID Sampling Date	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW06_041118 L1812612-04 4/11/2018		MW07_041118 L1812612-05 4/11/2018		MW08_041118 L1812612-06 4/11/2018		DUP02_041118 L1812612-14 4/11/2018		MW09_ 041218 L1812801-05 4/12/2018		PZ01_041118 L1812612-07 4/11/2018		PZ02_041118 L1812612-08 4/11/2018	
Volatile Organic Compounds (µg/L)															
1,1-Dichloroethene	5	0.48	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethene, Total	~	18	J	2.5	U	3.5		3.7		2.5	U	2.3	J	6.7	
1,2-Dichloropropane	1	2.5	U	0.36	J	0.28	J	0.25	J	0.2	J	1	U	0.29	J
cis-1,2-Dichloroethene	5	**15**		2.5	U	3.5		3.7		2.5	U	2.3	J	**6.7**	
Tetrachloroethene	5	**240**		1.4		3.9		4.2		3.8		**5.7**		**14**	
trans-1,2-Dichloroethene	5	3.2	J	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Trichloroethene	5	**100**		0.82		3.6		3.6		1.3		2.6		4.4	
Vinyl chloride	2	2.5	U	1	U	1	U	1	U	1	U	1	U	1	U

Notes:
1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water.
2. Results equal to or exceeding the NYSDEC TOGS standards and guidance values are shaded and bolded.
3. µg/L = micrograms per liter
4. ~ = regulatory criteria have not been established for this compound
5. DUP02_041118 is a duplicate sample of MW08_041118.
6. Sixteen monitoring wells and two piezometers associated with the air sparge and soil vapor extraction system (AS/SVE) system were sampled as part of the eighth round of quarterly groundwater sampling.

Qualifiers:
J = Analyte detected at or above the MDL (Method Detection Limit) but below the RL (Reporting Limit) - data is estimated.
U = Analyte not detected at or above the level indicated.

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS SUMMARY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Compound	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	Sampling Location												
		MW-1	MW-2	MW-3S	MW-3M	MW-3D	MW-4	MW-5	MW-6*	MW-7*	MW-8*	MW-9	PZ-1	PZ-2
Baseline Sampling Results Summary (µg/L) - August 2015														
CVOCs	~	1274.9	2314	873.3	23.4	27.8	653	175	1236.3	1272	458	602	903.6	438.2
PCE	5	750	480	380	14	8.3	79	110	710	460	180	400	310	230
TCE	5	500	1800	480	5.9	16	540	55	500	780	240	190	580	200
cis-1,2- DCE	5	19	14	8.3	2.5	2.5	29	9	22	27	36	10	8.6	6.2
vinyl chloride	2	5.9	20	5	1	1	5	1	4.3	5	2	2	5	2
First Quarter Sampling Results Summary (µg/L) - January 2016														
CVOCs	~	12.8	2.14	7.6	23.4	16.13	14.8	1.87	676	11.41	184.56	5.8	10	2.6
PCE	5	6	1	2	20	14	3	1	240	2	15	4	3	1
TCE	5	5.3	0.74	5.2	3	1.7	11	0.37	400	9	130	1.4	5.4	1.2
cis-1,2- DCE	5	1.3	0.2	0.2	0.2	0.23	0.6	0.3	35	0.21	39	0.2	1.4	0.2
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1	0.2	0.56	0.2	0.2	0.2
Q1 Percent CVOC Reduction		*99%*	*99.9%*	*99%*	*0%*	*42%*	*98%*	*99%*	*45%*	*99%*	*60%*	*99%*	*99%*	*99%*
Second Quarter Sampling Results Summary (µg/L) - April 2016														
CVOCs	~	3.8	1.99	4.3	18.5	9.3	3.28	1.64	401	2.46	71.96	0.91	1.45	1.79
PCE	5	1.7	0.87	1.2	16	7.6	0.48	0.67	160	0.26	5.7	0.31	0.3	0.61
TCE	5	1.7	0.72	2.7	2.1	1.3	2.4	0.38	220	1.8	43	0.2	0.75	0.78
cis-1,2- DCE	5	0.2	0.2	0.2	0.2	0.2	0.2	0.39	19	0.2	23	0.2	0.2	0.2
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	0.26	0.2	0.2	0.2
Q2 Percent CVOC Reduction from Last Quarter (Q1)		*70%*	*7%*	*43%*	*21%*	*42%*	*78%*	*12%*	*41%*	*78%*	*61%*	*84%*	*86%*	*31%*
Q2 Percent CVOC Reduction from Baseline		*99.7%*	*99.9%*	*99.5%*	*21%*	*67%*	*99.5%*	*99%*	*68%*	*99.8%*	*84%*	*99.8%*	*99.8%*	*99.6%*
Third Quarter Sampling Results Summary (µg/L) - July 2016														
CVOCs	~	1.65	4.26	7.69	24.5	14.01	6.26	3.48	1249.5	4.21	53.5	1.49	1.97	4.15
PCE	5	0.68	2.2	3	22	12	2.2	1.6	570	0.71	5.3	0.76	0.47	2
TCE	5	0.57	1.6	4.2	2.1	1.6	3.5	0.76	640	3.1	27	0.33	1.1	1.6
cis-1,2- DCE	5	0.2	0.26	0.29	0.2	0.21	0.36	0.92	39	0.2	21	0.2	0.2	0.35
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2
Q3 Percent CVOC Reduction from Last Quarter (Q2)		*57%*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*26%*	*Increased*	*Increased*	*Increased*
Q3 Percent CVOC Reduction from Baseline		*99.9%*	*99.8%*	*99.1%*	*Increased*	*50%*	*99%*	*98%*	*Increased*	*99.7%*	*88%*	*99.8%*	*99.8%*	*99.1%*

Notes:

1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water.
2. Results equal to or exceeding the NYSDEC TOGS standards and guidance values are shaded.
3. PCE = tetrachlorothylene
4. TCE = trichloroethylene
5. cis-1,2-DCE = cis-1,2-Dichloroethylene
6. µg/L = microgram per liter
7. CVOC = chlorinated volatile organic compounds
8. * = Monitoring well is located in the sidewalk adjacent to the warehouse.

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS SUMMARY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Compound	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	Sampling Location												
		MW-1	MW-2	MW-3S	MW-3M	MW-3D	MW-4	MW-5	MW-6*	MW-7*	MW-8*	MW-9	PZ-1	PZ-2
Fourth Quarter Sampling Results Summary (µg/L) - October 2016														
CVOCs	~	0.91	8.39	18.59	18.1	11.36	3.38	0.84	158.4	1.1	33.9	0.99	0.81	1.57
PCE	5	0.22	4.6	8.8	16	10	0.98	0.24	67	0.2	2.7	0.39	0.2	0.54
TCE	5	0.29	3.2	9	1.7	0.96	2	0.2	87	0.5	19	0.2	0.21	0.63
cis-1,2- DCE	5	0.2	0.39	0.59	0.2	0.2	0.2	0.2	4.2	0.2	12	0.2	0.2	0.2
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Q4 Percent CVOC Reduction from Last Quarter (Q3)		*45%*	*Increased*	*Increased*	*26%*	*19%*	*46%*	*76%*	*87%*	*74%*	*37%*	*34%*	*59%*	*62%*
Q4 Percent CVOC Reduction from Baseline		*99.9%*	*100%*	*98%*	*23%*	*59%*	*99%*	*100%*	*87%*	*99.9%*	*93%*	*99.8%*	*99.9%*	*99.6%*
Fifth Quarter Sampling Results Summary (µg/L) - January 2017														
CVOCs	~	0.8	1.32	20.71	21.1	14.21	1.89	1.02	812.7	0.9	42.4	7.9	0.8	1.49
PCE	5	0.2	0.56	10	19	13	0.52	0.42	380	0.2	3.2	5.5	0.2	0.66
TCE	5	0.2	0.36	10	1.7	0.81	0.97	0.2	410	0.3	20	2	0.2	0.43
cis-1,2- DCE	5	0.2	0.2	0.51	0.2	0.2	0.2	0.2	22	0.2	19	0.2	0.2	0.2
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.7	0.2	0.2	0.2	0.2	0.2
Q5 Percent CVOC Reduction from Last Quarter (Q4)		*12%*	*84%*	*Increased*	*Increased*	*Increased*	*44%*	*Increased*	*Increased*	*18%*	*Increased*	*Increased*	*1%*	*5%*
Q5 Percent CVOC Reduction from Baseline		*99.9%*	*100%*	*98%*	*10%*	*49%*	*100%*	*99%*	*34%*	*99.9%*	*91%*	*98.7%*	*99.9%*	*99.7%*
Sixth Quarter Sampling Results Summary (µg/L) - April 2017														
CVOCs	~	4.5	11.6	6.4	24.4	16.35	6.8	4.5	57.3	4.4	17.5	4.15	4.5	4.09
PCE	5	0.5	5.5	1.2	19	12	1.5	0.5	26	0.5	2.1	0.4	0.5	0.26
TCE	5	0.5	2.6	1.7	1.9	0.85	1.8	0.5	28	0.4	5.5	0.25	0.5	0.33
cis-1,2- DCE	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.3	2.5	8.9	2.5	2.5	2.5
vinyl chloride	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Q6 Percent CVOC Reduction from Last Quarter (Q5)		*Increased*	*Increased*	*69%*	*Increased*	*Increased*	*Increased*	*Increased*	*93%*	*Increased*	*59%*	*47%*	*Increased*	*Increased*
Q6 Percent CVOC Reduction from Baseline		*99.6%*	*99%*	*99%*	*Increased*	*41%*	*99%*	*97%*	*95%*	*99.7%*	*96%*	*99.3%*	*99.5%*	*99.1%*
Seventh Quarter Sampling Results Summary (µg/L) - July 2017														
CVOCs	~	4.5	4.61	3.98	16	18.24	4.21	4.5	758	4.32	17.2	4.23	15.1	4.36
PCE	5	0.5	0.67	0.22	11	14	0.33	0.5	490	0.5	1.2	0.23	10	0.54
TCE	5	0.5	0.44	0.26	1.5	0.74	0.38	0.5	240	0.32	5.8	0.5	1.6	0.32
cis-1,2- DCE	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	26	2.5	9.2	2.5	2.5	2.5
vinyl chloride	2	1	1	1	1	1	1	1	2	1	1	1	1	1
Q7 Percent CVOC Reduction from Last Quarter (Q6)		*None*	*60%*	*38%*	*34%*	*Increased*	*38%*	*None*	*Increased*	*2%*	*2%*	*Increased*	*Increased*	*Increased*
Q7 Percent CVOC Reduction from Baseline		*99.6%*	*100%*	*100%*	*32%*	*34%*	*99.4%*	*97%*	*39%*	*100%*	*96%*	*99.3%*	*98%*	*99%*

Notes:

1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water.
2. Results equal to or exceeding the NYSDEC TOGS standards and guidance values are shaded.
3. PCE = tetrachlorothylene
4. TCE = trichloroethylene
5. cis-1,2-DCE = cis-1,2-Dichloroethylene
6. µg/L = microgram per liter
7. CVOC = chlorinated volatile organic compounds
8. * = Monitoring well is located in the sidewalk adjacent to the warehouse.

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS SUMMARY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Compound	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	Sampling Location												
		MW-1	MW-2	MW-3S	MW-3M	MW-3D	MW-4	MW-5	MW-6*	MW-7*	MW-8*	MW-9	PZ-1	PZ-2
Eighth Quarter Sampling Results Summary (µg/L) - October 2017														
CVOCs	~	4.5	4.39	4.5	20.3	19.31	4.27	4.08	276	4.5	10.08	6.18	4.5	4.5
PCE	5	0.5	0.42	0.5	15	15	0.5	0.36	160	0.5	0.78	1.8	0.5	0.5
TCE	5	0.5	0.47	0.5	1.8	0.81	0.27	0.22	93	0.5	3.3	0.88	0.5	0.5
cis-1,2- DCE	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	21	2.5	5	2.5	2.5	2.5
vinyl chloride	2	1	1	1	1	1	1	1	2	1	1	1	1	1
Q8 Percent CVOC Reduction from Last Quarter (Q7)		*None*	*5%*	*Increased*	*Increased*	*Increased*	*Increased*	*9%*	*64%*	*Increased*	*41%*	*Increased*	*70%*	*Increased*
Q8 Percent CVOC Reduction from Baseline		*99.6%*	*100%*	*99%*	*13%*	*31%*	*99.3%*	*98%*	*78%*	*100%*	*98%*	*99.0%*	*100%*	*99%*
Ninth Quarter Sampling Results Summary (µg/L) - January 2018														
CVOCs	~	4.08	4.49	4.5	20.1	18.7	4.32	4.24	623.71	4.5	10.99	6.9	5.86	4.5
PCE	5	0.26	0.63	0.5	15	14	0.2	0.48	430	0.5	0.99	2	1.7	0.5
TCE	5	0.32	0.36	0.5	1.6	1.2	0.62	0.26	180	0.5	3.5	1.4	0.66	0.5
cis-1,2- DCE	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	13	2.5	5.5	2.5	2.5	2.5
vinyl chloride	2	1	1	1	1	1	1	1	0.71	1	1	1	1	1
Q9 Percent CVOC Reduction from Last Quarter (Q8)		*9%*	*Increased*	*0%*	*1%*	*3%*	*Increased*	*Increased*	*Increased*	*0%*	*Increased*	*Increased*	*Increased*	*0%*
Q9 Percent CVOC Reduction from Baseline		*99.7%*	*100%*	*99%*	*14%*	*33%*	*99.3%*	*98%*	*50%*	*100%*	*98%*	*98.9%*	*99%*	*99%*
Tenth Quarter Sampling Results Summary (µg/L) - April 2018														
CVOCs	~	6.1	15	10	20.6	19.5	5.62	19.3	357.5	5.72	12	8.6	11.6	26.1
PCE	5	1.4	9.1	4	15	15	1.2	14	240	1.4	3.9	3.8	5.7	14
TCE	5	1.2	2.4	2.5	2.1	1	0.92	3	100	0.82	3.6	1.3	2.6	4.4
cis-1,2- DCE	5	2.5	2.5	2.5	2.5	2.5	2.5	1.3	15	2.5	3.5	2.5	2.3	6.7
vinyl chloride	2	1	1	1	1	1	1	1	2.5	1	1	1	1	1
Q10 Percent CVOC Reduction from Last Quarter (Q9)		*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*43%*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*
Q10 Percent CVOC Reduction from Baseline		*99.5%*	*99%*	*99%*	*12%*	*30%*	*99.1%*	*89%*	*71%*	*100%*	*97%*	*98.6%*	*99%*	*94%*

OK

NEED ANOTHER ROUND TO ENSURE NO REBOUND

OK

No Change Before and After

OK

NEED ANOTHER ROUND TO ENSURE NO REBOUND

OK

NEED ANOTHER ROUND TO ENSURE NO REBOUND

OK

NEED ANOTHER ROUND AT THESE 2 WELLS TO ENSURE NO REBOUND

Notes:

1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water.
2. Results equal to or exceeding the NYSDEC TOGS standards and guidance values are shaded.
3. PCE = tetrachlorothylene
4. TCE = trichloroethylene
5. cis-1,2-DCE = cis-1,2-Dichloroethylene
6. µg/L = microgram per liter
7. CVOC = chlorinated volatile organic compounds
8. * = Monitoring well is located in the sidewalk adjacent to the warehouse.

CONCENTRATIONS DECREASED BUT MAY INCREASE WITH NEXT ROUND OF SAMPLING, AS THIS HAS BEEN TYPICAL PATTERN. UNSURE IF SVE/AS IS HAVING MUCH EFFECT AT MW-6?

TABLE 8: SEMI-ANNUAL, NEAR-FIELD, OFF-SITE GROUNDWATER SAMPLING RESULTS - APRIL 2018
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	ML002S_041118 L1812612-09 4/11/2018		ML002M_041118 L1812612-10 4/11/2018		ML002D_041118 L1812612-11 4/11/2018		MW10_041118 L1812612-12 4/11/2018		DUP01_041118 L1812612-13 4/11/2018		MW11_ 041218 L1812801-06 4/11/2018	
Volatile Organic Compounds (µg/L)													
1,1-Dichloroethane	5	2.5	U	2.5	U	2.5	U	2.5	U	0.71	J	2.5	U
1,1-Dichloroethene	5	0.5	U	0.5	U	0.5	U	0.4	J	0.47	J	0.5	U
1,2-Dichloroethene, Total	~	2.5	U	2.5	U	2.5	U	26		27		2.5	U
1,2-Dichloropropane	1	1	U	1	U	1	U	0.86	J	0.91	J	1	U
Bromodichloromethane	50	0.5	U	0.36	J	0.5	U	0.59		0.64		0.5	U
Chloroform	7	2.5	U	**9.7**		3.5		**9.7**		**10**		2.8	
cis-1,2-Dichloroethene	5	2.5	U	2.5	U	2.5	U	**26**		**27**		2.5	U
Tetrachloroethene	5	**20**		1.5		**11**		**44**		**45**		4.7	
Trichloroethene	5	3.6		0.44	J	1		**22**		**24**		1.8	
Vinyl chloride	2	1	U	1	U	1	U	1	U	1	U	1	U

Notes:
1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water.
2. With the exception of vinyl chloride, only compounds with detections are shown.
3. Results exceeding the NYSDEC TOGS standards and guidance values are shaded and bolded.
4. µg/L = micrograms per liter
5. DUP01_041118 is a duplicate sample of MW10_041118.
6. Five monitoring wells were sampled as part of the second round of semi-annual, near-field, off-site groundwater sampling.

Qualifiers:
J = Analyte detected at or above the MDL (Method Detection Limit) but below the RL (Reporting Limit) - data is estimated.
U = Analyte not detected at or above the level indicated.

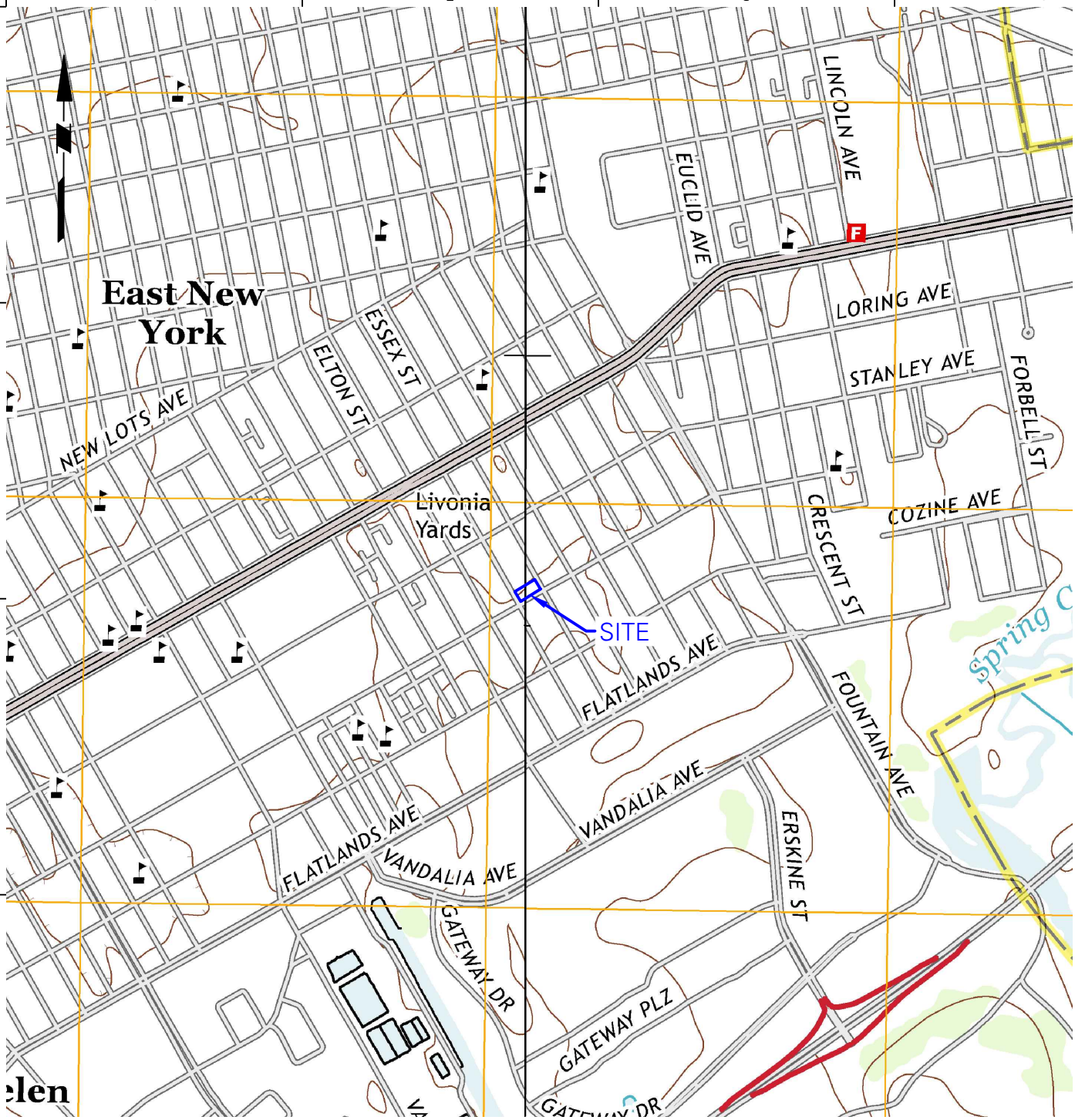
TABLE 9: SEMI-ANNUAL, NEAR-FIELD, OFF-SITE GROUNDWATER SAMPLING RESULTS SUMMARY
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Compound	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	Sampling Location				
		ML002S	ML002M	ML002D	MW10	MW11
NYSDEC-Requested Sample Results Summary (µg/L) - July 2016 (Baseline)						
CVOCs	~	38.17	16.54	--	188.2	2.9
PCE	5	17	14	NS	120	1.50
TCE	5	20	2.10	NS	57	1
cis-1,2- DCE	5	0.97	0.24	NS	11	0.20
vinyl chloride	2	0.20	0.20	NS	0.20	0.20
Round 1 Sampling Results Summary (µg/L) - April 2017						
CVOCs	~	5.49	19.9	14.1	12.23	4.58
PCE	5	1.4	14	9.5	5.6	0.56
TCE	5	0.59	2.4	1.1	4.7	0.52
cis-1,2- DCE	5	2.5	2.5	2.5	0.93	2.5
vinyl chloride	2	1	1	1	1	1
Round 1 Percent CVOC Reduction		*86%*	*Increased*	--	*94%*	*Increased*
Round 2 Sampling Results Summary (µg/L) - October 2017						
CVOCs	~	4.91	26.1	14.5	14.93	10.7
PCE	5	1.1	17	10	8.8	5.6
TCE	5	0.31	5.6	1	4.2	1.6
cis-1,2- DCE	5	2.5	2.5	2.5	0.93	2.5
vinyl chloride	2	1	1	1	1	1
Round 2 Percent CVOC Reduction from Round 1		*11%*	*Increased*	*Increased*	*Increased*	*Increased*
Round 2 Percent CVOC Reduction from Baseline		*87%*	*Increased*	--	*92%*	*Increased*
Round 3 Sampling Results Summary (µg/L) - April 2018						
CVOCs	~	27.1	5.44	15.5	93	10
PCE	5	20	1.5	11	44	4.7
TCE	5	3.6	0.44	1	22	1.8
cis-1,2- DCE	5	2.5	2.5	2.5	26	2.5
vinyl chloride	2	1	1	1	1	1
Round 3 Percent CVOC Reduction from Round 2		*Increased*	*79%*	*Increased*	*Increased*	*7%*
Round 3 Percent CVOC Reduction from Baseline		*29%*	*67%*	--	*51%*	*Increased*

Notes:

1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water.
2. Results exceeding the NYSDEC TOGS standards and guidance values are shaded.
3. PCE = tetrachlorothylene
4. TCE = trichloroethylene
5. cis-1,2-DCE = cis-1,2-Dichloroethylene
6. µg/L = microgram per liter
7. CVOC = chlorinated volatile organic compound
8. NS = not sampled

FIGURES



LEGEND:

APPROXIMATE SITE BOUNDARY

NOTE: BASE MAPS ARE REFERENCED FROM THE UNITED STATES GEOLOGICAL SURVEY (USGS) TOPOGRAPHIC QUADRANGLE MAPS FOR BROOKLYN AND JAMAICA.

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Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project

491 WORTMAN AVENUE

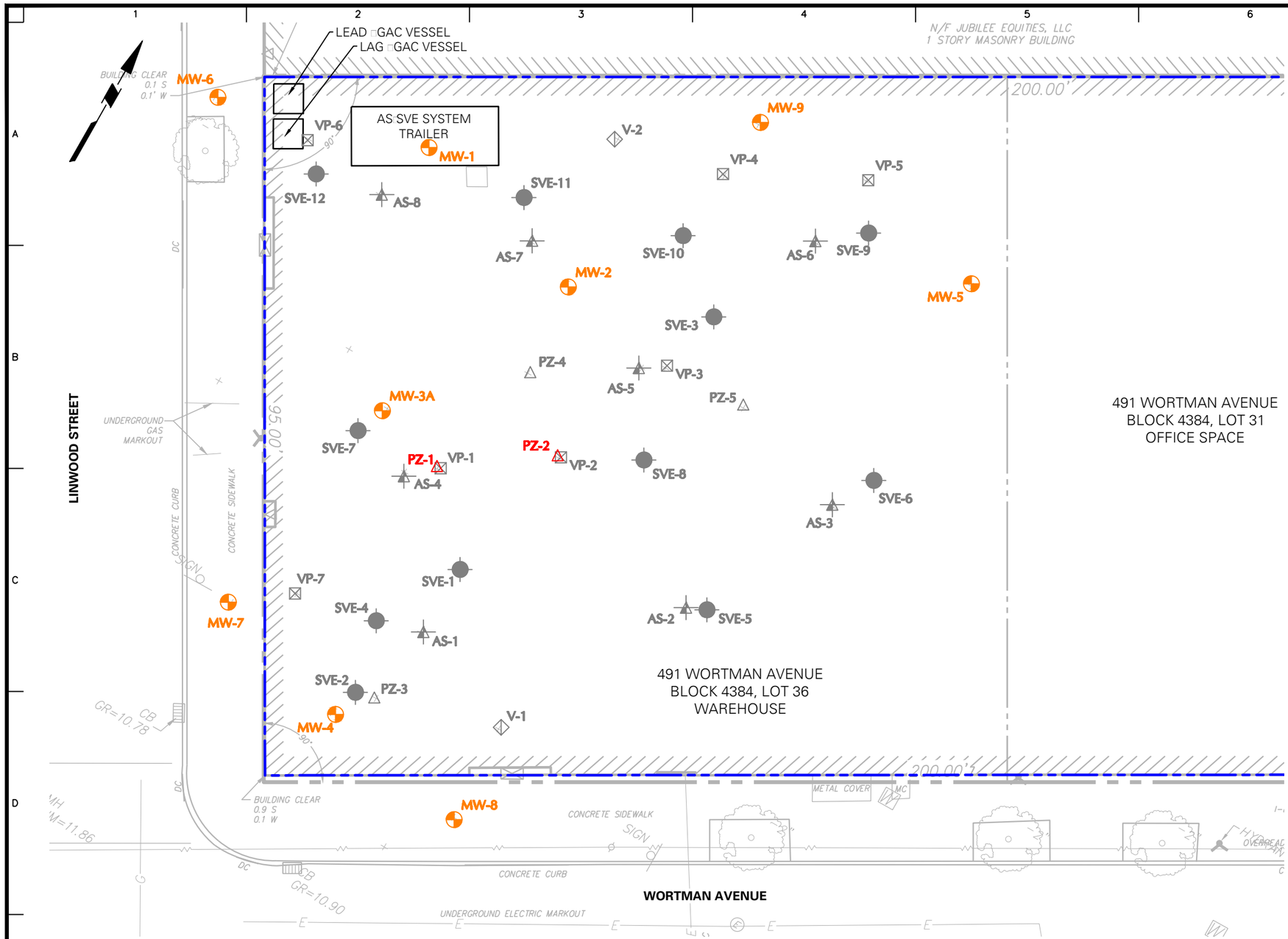
BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS NEW YORK

Figure Title

SITE LOCATION MAP

Project No. 170329301	Figure 1
Date 04/18/2015	
Scale N.T.S.	
Drawn By MLR / Checked By GN	
Submission Date	Sheet 1 of 3

Filename: \\langan.com\data\NYC\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 22\Figure 1 - Site Location Map - Updated.dwg Date: 5/9/2017 Time: 12:48 User: mrogers Style Table: Langan.stb Layout: Site Location Map



LEGEND:

- BUILDING LIMITS
- AS-6 — AIR SPARGE WELL
- SVE-9 — SOIL VAPOR EXTRACTION WELL
- VP-5 — VAPOR PROBE
- V-2 — VENT WELL
- MW-5 — MONITORING WELL
- PZ-2 — PIEZOMETER (SAMPLED)
- PZ-5 — PIEZOMETER (NOT INCLUDED IN SAMPLING PROGRAM)

NOTES:

1. THE BASEMAP IS REFERENCED FROM THE 491 WORTMAN AVENUE BOUNDARY SURVEY PREPARED BY LANGAN ENGINEERING, ENVIRONMENTAL, SURVEY, AND LANDSCAPE ARCHITECTURE, D.P.C. (LANGAN), DATED NOVEMBER 2, 2015
2. WELL LOCATIONS ARE BASED ON THE BOUNDARY SURVEY.
3. ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. 11 GROUNDWATER MONITORING WELLS AND 2 PIEZOMETERS ARE INCLUDED AS PART OF THE QUARTERLY GROUNDWATER SAMPLING PROGRAM.
5. MW-3A IS A NESTED MONITORING LOCATION WITH THREE SEPARATE WELLS SCREENED ACROSS A SHALLOW, MIDDLE, AND DEEP INTERVAL.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

15 0 7.5 15
SCALE IN FEET

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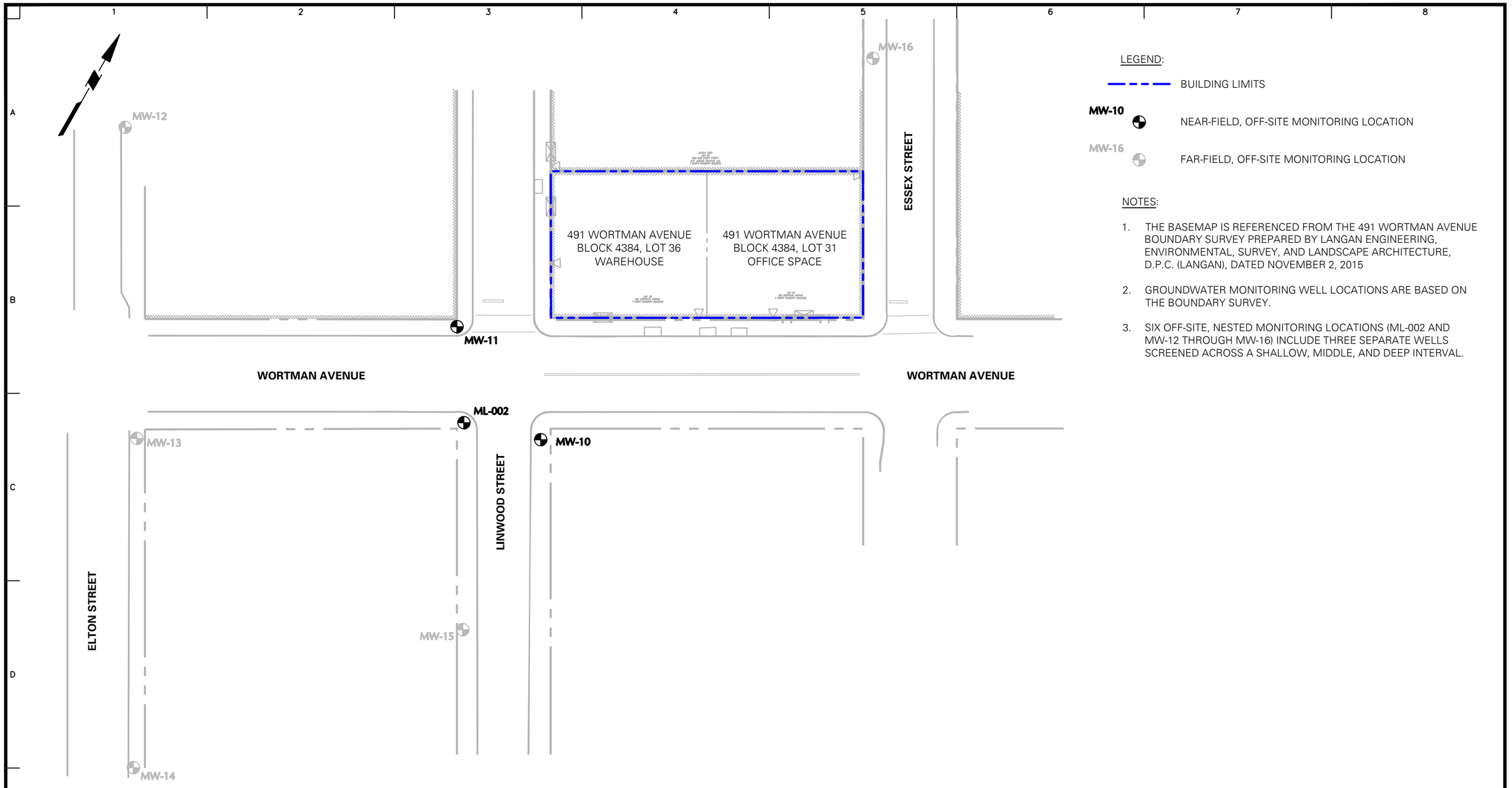
Project
491 WORTMAN AVENUE
BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS **NEW YORK**

Figure Title
ON-SITE GROUNDWATER MONITORING LOCATIONS

Project No. 170329301	Figure No. 2
Date 01/21/2016	
Scale AS SHOWN	
Drawn By TCS / Checked By GN	
Submission Date	Sheet 2 of 3

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Inspection Report No. 6\Figure 2 - On-Site MW Locations.dwg Date: 11/10/2017 Time: 11:43 User: mrogers Style Table: Langan.stb Layout: ANSIB-BL



LEGEND:

- BUILDING LIMITS
- MW-10 — NEAR-FIELD, OFF-SITE MONITORING LOCATION
- MW-16 — FAR-FIELD, OFF-SITE MONITORING LOCATION

NOTES:

1. THE BASEMAP IS REFERENCED FROM THE 491 WORTMAN AVENUE BOUNDARY SURVEY PREPARED BY LANGAN ENGINEERING, ENVIRONMENTAL, SURVEY, AND LANDSCAPE ARCHITECTURE, D.P.C. (LANGAN), DATED NOVEMBER 2, 2015
2. GROUNDWATER MONITORING WELL LOCATIONS ARE BASED ON THE BOUNDARY SURVEY.
3. SIX OFF-SITE, NESTED MONITORING LOCATIONS (ML-002 AND MW-12 THROUGH MW-16) INCLUDE THREE SEPARATE WELLS SCREENED ACROSS A SHALLOW, MIDDLE, AND DEEP INTERVAL.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

60 0 30 60
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T: 212.479.5400 F: 212.479.5444 www.langan.com
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. S.A.
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan Engineering and Environmental Services, Inc.
Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project
491 WORTMAN AVENUE
BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS NEW YORK

Figure Title
OFF-SITE GROUNDWATER MONITORING WELL LOCATIONS

Project No. 170329301	Figure No. 3
Date 10/03/2016	
Scale AS SHOWN	
Drawn By MLR / Checked By GN	
Submission Date	Sheet 3 of 3

Filename: \\langan.com\data\NYC\data3\170329301\Cadd Data - 170329301\SheetFiles\Inspection Report No. 6\Figure 3 - Off-Site MW Locations.dwg Date: 11/10/2017 Time: 11:40 User: mrogers Style Table: Langan.stb Layout: ANSIB-BL

ATTACHMENT A

LANGAN

21 Penn Plaza, 360 West 31st Street, 8th Floor New York, NY 10001 T: 212.479.5400 F: 212.479.5444

Technical Memorandum

To: Jack Abel

From: Bob Bond and Gerald Nicholls

Info: Michael Burke

Date: April 12, 2018

Re: March 2018 Compound Specific Isotope Analysis (CSIA) Groundwater Results
J&H Holding Company
491 Wortman Avenue, Brooklyn, NY 11208
Langan Project No.: 170329301

Introduction

Langan Engineering and Environmental Services, Inc. (Langan) has prepared this technical memorandum to document our findings related to the March 2018 Compound Specific Isotope Analysis (CSIA) groundwater results. The purpose of this initial sampling event was to determine how the fractionation of specific isotopes is being affected by, and attributed to on-site sources versus off-site sources, naturally occurring bioremediation processes and the ongoing soil vapor extraction (SVE)/Air Sparging remediation.

Methodology

The CSIA method utilizes gas chromatography to separate compounds in complex mixtures, an interface that completely combusts each compound as they individually elute from the gas chromatograph, and an isotope ratio mass spectrometer to determine the stable (not radioactive) isotopic compositions of the individual compounds. The isotopic signature can be shaped by several variables such as brand of parent solvent, biodegradation and evaporation. CSIA analysis on Tetrachloroethene (PCE) measures the isotopic ratios of light and heavy carbon (C^{12} and C^{13}) and chlorine (Cl^{35} and Cl^{37}) and for Trichloroethene (TCE) the isotopic ratios of carbon, chlorine and hydrogen (H^{1} and H^{2}). Three CSIA samples were collected on March 1, 2018 from monitoring wells MW-3AM, MW-06, and MW-08 in conjunction with a regularly scheduled groundwater monitoring event. The well locations are shown on Figure 1. The three samples were run for the following:

- 13C/12C CSIA for PCE
- 13C/12C CSIA for TCE
- 37Cl/35Cl CSIA for PCE
- 37Cl/35Cl CSIA for TCE

Hydrogen isotopes were not run on TCE because insufficient concentrations (less than 20 micrograms per liter) were present in MW-3AM and MW-08. Carbon and Chlorine isotope analyses can be accomplished with as little as 1 microgram per liter.

Results

The data collected in March 2018 were reduced in a d13C/d37Cl plot (Figure 2). The laboratory CSIA report is in Attachment A. The standard nomenclature for reporting is called the delta value (d) and is the ratio expressed relative to an international standard in parts per thousand. The d13C/d37Cl plot (Figure 2) also shows a range of values from literature for both manufactured PCE (red box) and manufactured TCE (blue box).

The dissolved PCE sampled from MW3AM plots solidly in the manufactured PCE range, which indicates that it is relatively undegraded PCE. When PCE degrades each molecule loses one chlorine atom (replaced by one hydrogen from groundwater) and becomes TCE. The small amount of daughter product TCE (1.9 ug/L) relative to PCE (11 ug/l) (see Table 1) and the plotting of TCE next to PCE on the d13C/d37Cl plot indicate that both PCE and TCE in MW-3AM are relatively undegraded. The lack of other TCE daughter products 1,2-Dichloroethene (1,2-DCE) and Vinyl chloride (VC) is an additional indication of the relative undegraded nature of the PCE and TCE in MW3AM. Monitoring well MW3AM is located near the former on-site source area for PCE, therefore this is an expected result. The remedy in-place is SVE/air sparging, which will promote evaporation of PCE and TCE from the water table surface. Evaporation does have a minor effect on carbon and chlorine fractionation; the residual PCE and TCE will be slightly depleted in heavier C^{13} and will therefore remain fairly light and negative (in the manufactured box). Chlorine in the residual groundwater PCE and TCE, however, will become heavier with evaporation (more C^{37}), which we are not seeing in Figure 2.

The dissolved PCE sampled from MW06 and MW08 plot outside the manufactured PCE range, which indicates that this dissolved PCE has undergone some bioremediation, which has a strong isotopic fractionation effect. Both carbon and chlorine will get heavier (enriched in C^{13} and C^{37}), which is less negative on the axes of Figure 2, when biological dechlorination is occurring. Both MW-06 and MW08 have historically shown the daughter products TCE, 1,2-DCE and VC, which is also strong evidence of natural bioremediation. The TCE in MW06 and MW08 plot more negative (lighter) than the PCE from those wells. When biological organisms respire on a chlorinated solvent molecule, such as PCE, they preferentially utilize the lighter carbon isotopes so that the heavier d13C content of the daughter product is depleted relative to the parent compound. So, the TCE isotope results support that the TCE is likely coming from the dechlorination of PCE.

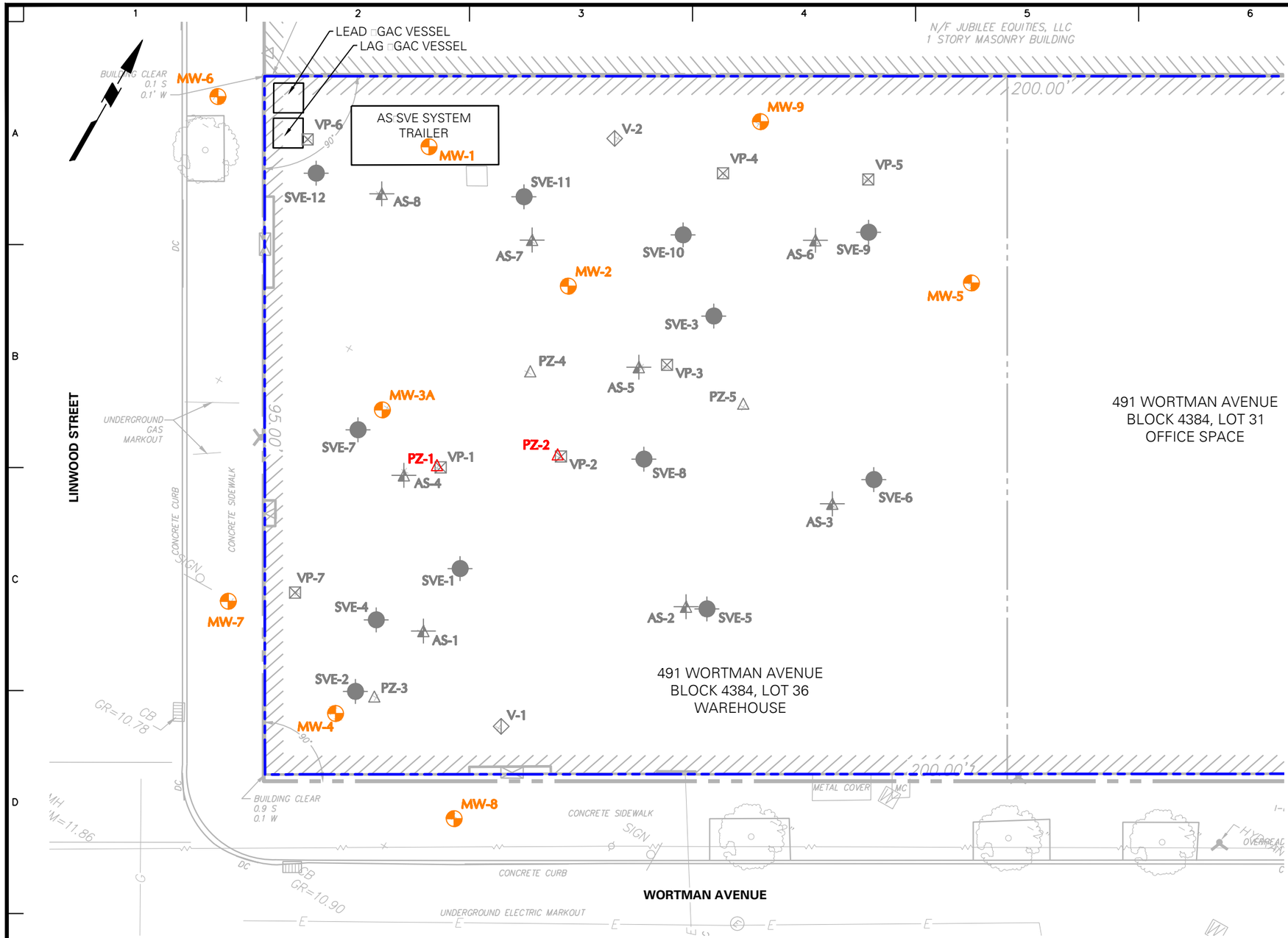
The PCE and TCE in MW06 are relatively more degraded than any other wells tested for isotopic fractionation. This is evidenced by the carbon and chlorine CSIA data as well as the occurrence of daughter products (Table 1), specifically MW06 is the only CSIA well with reported VC in 2018, and historically has exhibited more VC than the other two wells.

Conclusions

CSIA analysis serves as a valuable tool in investigating commingled plumes and measuring bioremediation. The information obtained from the initial CSIA analysis of three monitoring wells does not provide conclusive evidence of more than one source. However, the data does indicate that the chlorinated VOC plume monitored by MW06 is potentially more degraded and

therefore is possibly older. A more degraded plume can indicate a more distal source or an older spill or better conditions for bioremediation. This information should be incorporated into the hydrogeological conceptual site model to develop a holistic model of site conditions.

Figure 1 – Well Location Map



LEGEND:

- BUILDING LIMITS
- AS-6 — AIR SPARGE WELL
- SVE-9 — SOIL VAPOR EXTRACTION WELL
- VP-5 — VAPOR PROBE
- V-2 — VENT WELL
- MW-5 — MONITORING WELL
- PZ-2 — PIEZOMETER (SAMPLED)
- PZ-5 — PIEZOMETER (NOT INCLUDED IN SAMPLING PROGRAM)

NOTES:

1. THE BASEMAP IS REFERENCED FROM THE 491 WORTMAN AVENUE BOUNDARY SURVEY PREPARED BY LANGAN ENGINEERING, ENVIRONMENTAL, SURVEY, AND LANDSCAPE ARCHITECTURE, D.P.C. (LANGAN), DATED NOVEMBER 2, 2015
2. WELL LOCATIONS ARE BASED ON THE BOUNDARY SURVEY.
3. ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. 11 GROUNDWATER MONITORING WELLS AND 2 PIEZOMETERS ARE INCLUDED AS PART OF THE QUARTERLY GROUNDWATER SAMPLING PROGRAM.
5. MW-3A IS A NESTED MONITORING LOCATION WITH THREE SEPARATE WELLS SCREENED ACROSS A SHALLOW, MIDDLE, AND DEEP INTERVAL.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

15 0 7.5 15
SCALE IN FEET

LANGAN
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New York, NY 10001
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Project
491 WORTMAN AVENUE
BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS **NEW YORK**

Figure Title
ON-SITE GROUNDWATER MONITORING LOCATIONS

Project No. 170329301	Figure No. 1
Date 01/21/2016	
Scale AS SHOWN	
Drawn By TCS / Checked By GN	
Submission Date	Sheet 3 of 3

Filename: \\langan.com\data\NYC\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 22\Figure 2 - Quarterly GW Wells.dwg Date: 5/9/2017 Time: 12:55 User: mrogers Style Table: Langan.stb Layout: ANSIB-BL

Figure 2 – d13C/d37Cl Plot

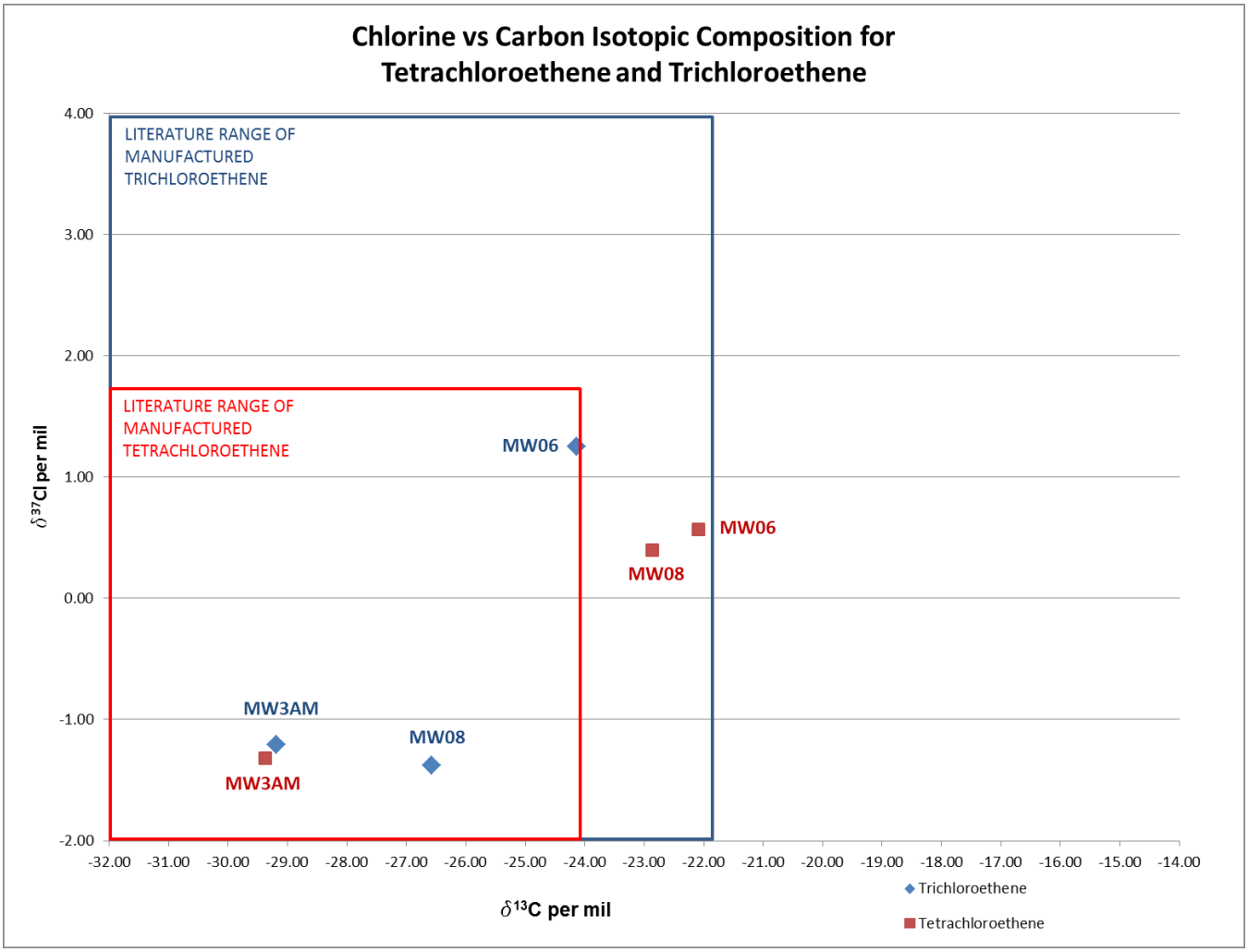


Table 1 – Tabulated VOC Concentration Data (March 1, 2018)

Monitoring Well	Trichloroethene				Tetrachloroethene			
	Concentration µg/L	Natural Log Concentration	$\delta^{13}C$	$\delta^{37}Cl$	Concentration µg/L	Natural Log Concentration	$\delta^{13}C$	$\delta^{37}Cl$
March 01, 2018								
MW3AM	1.9	0.64	-29.18	-1.21	11.0	2.40	-29.37	-1.32
MW06	72.0	4.28	-24.13	1.25	140.0	4.94	-22.09	0.57
MW08	2.8	1.03	-26.58	-1.38	1.9	0.64	-22.86	0.40

Attachment A – CSIA Laboratory Report

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

March 29, 2018

Gerry Nicholls
Langan Engineers
21 Penn Plaza
New York, NY 10011

RE: **491 WORTMAN AVE / 170329301**

Pace Workorder: 25852

Dear Gerry Nicholls:

Enclosed are the analytical results for sample(s) received by the laboratory on Friday, March 02, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lauren E McGrath

Lauren McGrath 03/29/2018
Lauren.McGrath@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 11

CERTIFICATE OF ANALYSIS

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

SAMPLE SUMMARY

Workorder: 25852 491 WORTMAN AVE / 170329301

Lab ID	Sample ID	Matrix	Date Collected	Date Received
258520001	MW08-030118	Water	3/1/2018 09:35	3/2/2018 11:30
258520002	MW06-030118	Water	3/1/2018 10:45	3/2/2018 11:30
258520003	MW3AM-030118	Water	3/1/2018 12:20	3/2/2018 11:30

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 25852 491 WORTMAN AVE / 170329301

Lab ID: **258520001** Date Received: 3/2/2018 11:30 Matrix: Water

Sample ID: **MW08-030118** Date Collected: 3/1/2018 09:35

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
Compound Specific Isotopic - PAES								
Analysis Desc: AM24		Analytical Method: AM24						
Carbon 13 Isotope	**Complete**				1	3/26/2018 00:00	JT	n
Chlorine 37 Isotope	**Complete**				1	3/26/2018 00:00	JT	n

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 25852 491 WORTMAN AVE / 170329301

Lab ID: **258520002** Date Received: 3/2/2018 11:30 Matrix: Water

Sample ID: **MW06-030118** Date Collected: 3/1/2018 10:45

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
Compound Specific Isotopic - PAES								
Analysis Desc: AM24		Analytical Method: AM24						
Carbon 13 Isotope	**Complete**				1	3/26/2018 00:00	JT	n
Chlorine 37 Isotope	**Complete**				1	3/26/2018 00:00	JT	n

CERTIFICATE OF ANALYSIS

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 25852 491 WORTMAN AVE / 170329301

Lab ID: **258520003** Date Received: 3/2/2018 11:30 Matrix: Water

Sample ID: **MW3AM-030118** Date Collected: 3/1/2018 12:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
Compound Specific Isotopic - PAES								
Analysis Desc: AM24		Analytical Method: AM24						
Carbon 13 Isotope	**Complete**				1	3/26/2018 00:00	JT	n
Chlorine 37 Isotope	**Complete**				1	3/26/2018 00:00	JT	n

CERTIFICATE OF ANALYSIS

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS QUALIFIERS

Workorder: 25852 491 WORTMAN AVE / 170329301

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

Client: Langan Engineering
21 Plenn Plaza
New York, NY 10011
Project: 491 Wortman Ave
Project # 170329301
Report to: Gerry Nicholls
gnicholls@langan.com

Pace Analytical Energy Services
220 William Pitt Way
Pittsburgh, PA 15238

412-826-5245

Report of Isotope Analysis

Water samples for $\delta^{13}C$ (‰, PDB) and $\delta^{37}Cl$ (‰, SMOC) isotopic ratios

Lab Sample Number	Client's Sample ID	$\delta^{13}C$ TCE	$\delta^{37}Cl$ TCE	$\delta^{13}C$ PCE	$\delta^{37}Cl$ PCE
258520001	MW08-030118	-26.58	-1.38	-22.86	0.40
258520002	MW06-030118	-24.13	1.25	-22.09	0.57
258520003	MW3AM-030118	-29.18	-1.21	-29.37	-1.32

ND: Ratio Not Determined
N/A: Sample Not Analyzed

TCE: Trichloroethene
PCE: Tetrachloroethene

Method: Compound Specific Isotope Analysis for ^{13}C and ^{2}H by GC-IRMS, for ^{37}Cl by GC-qMS

Quality Control STDs	$\delta^{13}C$ TCE	$\delta^{37}Cl$ TCE	$\delta^{13}C$ PCE	$\delta^{37}Cl$ PCE
QC-1	-27.12	-0.36	-27.97	0.90
QC-2	-26.75	-0.30	-27.90	1.20
Mean	-26.93	-0.33	-27.93	1.05
Analytical Precision (1σ)	0.26	0.04	0.05	0.21

Pace Analytical®
www.pacelabs.com

220 William Pitt Way
Pittsburgh, PA 15238
412-826-5245

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

010818

Section A Required Client Information:

Company: Langan Engineering
Address: 21 Penn Plaza, 360 W 31st St, 8th Fl, NY NY 10001
Email To: GNichols@Langan.com
Phone: 212 479 5400 Fax: 212 479 5444
Requested Due Date/TAT: Standard

Section B Required Project Information: 25852

Report To: "
Copy To: "
Purchase Order No.:
Project Name: 491 Wortman Ave
Project Number: 170329301

Section C Invoice Information:

Attention: Gerry Nichols
Company Name: Langan Engineering
Address: "
Pace Quote Reference:
Pace Project Manager: Lauren McGrath
Pace Profile #:

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
UST RCRA OTHER _____

Site Location STATE: NJ

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE)

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Y/N	Analysis Test: 3Cl/12Cl (RCE)	3Cl/35Cl (RCE)	3Cl/35Cl (RCE)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW08-030118	WT	G			3/1/18	9:35	16	12										X	X	X		
2	MW06-030118	WT	G			↓	10:45	17	12										X	X	X		
3	MW3AM-030118	WT	G			↓	12:20	16	12										X	X	X		
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Andrea Saher (Langan)	3/1/18	13:30	Fedex / PAES	3.2.18	11:30	2.5	Y	N	N

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Andrea Saher

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 3/1/18

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Cooler Receipt Form

Client Name: Langan Project: 491 Wartman Ave Lab Work Order: 25852

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 771671168066

Custody Seal on Cooler/Box Present: Yes (No) **Seals Intact:** Yes No

Cooler/Box Packing Material: Bubble Wrap Absorbent (Foam) Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 2.5°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC	✓			
Containers intact		✓		
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected		✓		
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

Cooler contents examined/received by : CY **Date:** 3.2.18

Project Manager Review : AW **Date:** 3-2-18

NON-CONFORMANCE FORM

PAES Work Order #: 25852

Date: 3.2.18 Time of Receipt: 11:30 Receiver: LY

Client: Langan

REASON FOR NON-CONFORMANCE:

1. No date & time of collection on vials.
2. MW08-030118: One vial broke.

ACTION TAKEN:

Client name: _____ Date: _____ Time: _____

Client called about broken vial.
OK to log per COC

Customer Service Initials: RW Date: 3-2-18

Progress/Inspection Report No. 13
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: May 2018

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this progress/inspection report on behalf of J&H Holding Company, LLC (the "Participant"). In accordance with Section 7.1 of the Site Management Plan (SMP), which was approved by the New York State Department of Environmental Conservation (NYSDEC) on June 28, 2017, this progress/inspection report summarizes work performed at the Former Watermark Designs Facility (the "Site") during May 2018. The Final Engineering Report (FER) was submitted to the NYSDEC on May 25, 2017, and in accordance with the Brownfield Cleanup Agreement (BCA), submission of Monthly Brownfield Cleanup Program (BCP) Progress Reports is no longer required for the Site.

The Site (Block 4384, Lots 31 & 36) is located at 491 Wortman Avenue in Brooklyn, New York (Figure 1) and consists of a rectangular shaped lot that is about 19,000 square feet (±0.44 acres). The Site is located in an area zoned for industrial/manufacturing use and is bound by Wortman Street to the south, Linwood Street to the west, Essex Street to the east, and a one-story building to the north. Currently, a one-story building with a partial basement covers the entire Site footprint. The one-story building is used as a warehouse in the western portion and an office space and a smaller warehouse in the eastern portion.

2. Remedial Actions Relative to the Site during this Reporting Period

Since February 24, 2018, the air sparge and soil vapor extraction (AS/SVE) system has been shut down to perform a contaminant rebound test.

Because the AS/SVE system was shut down, Langan did not perform operation, maintenance and monitoring (OM&M). Langan most recently recorded process and performance monitoring data for the air sparge and soil vapor extraction (AS/SVE) system on March 1, 2018.

On May 1, 2018, the NYSDEC issued a "Contained-In" Determination Request letter allowing disposal of accumulated water in the AS/SVE water storage tank to be disposed of as nonhazardous waste. On May 25, 2018, Langan transferred accumulated water in the AS/SVE water storage tank into seven 55-gallon drums filled to 80±% full. On May 29, Brookside Environmental, Inc. (Brookside) of Copiague, New York transported the non-hazardous water to the Veolia ES Technical Solutions, LLC facility in Flanders, New York for off-site disposal.

3. Actions Relative to the Site Anticipated for the Next Reporting Period

The following activities are planned:

- Complete the AS/SVE system rebound test

- Perform the next quarterly groundwater sampling event during the week of June 25, 2018.

4. Approved Activity Modifications (changes of work scope and/or schedule)

None

5. Results of Sampling, Testing and Other Relevant Data

- None

6. Deliverables Submitted During This Reporting Period

A letter providing the results of the short-term contaminant rebound test and to request the continuation of rebound testing was submitted on May 25, 2018.

7. Information Regarding Percentage of Completion

As of March 7, 2018 and since the system was first started, the SVE system operated for 18,967 hours (92% uptime), and the AS system operated for 18,497 hours (90% uptime).

8. Unresolved Delays Encountered or Anticipated That May Affect the Schedule and Mitigation Efforts

None

9. Citizen Participation Plan Activities during This Reporting Period

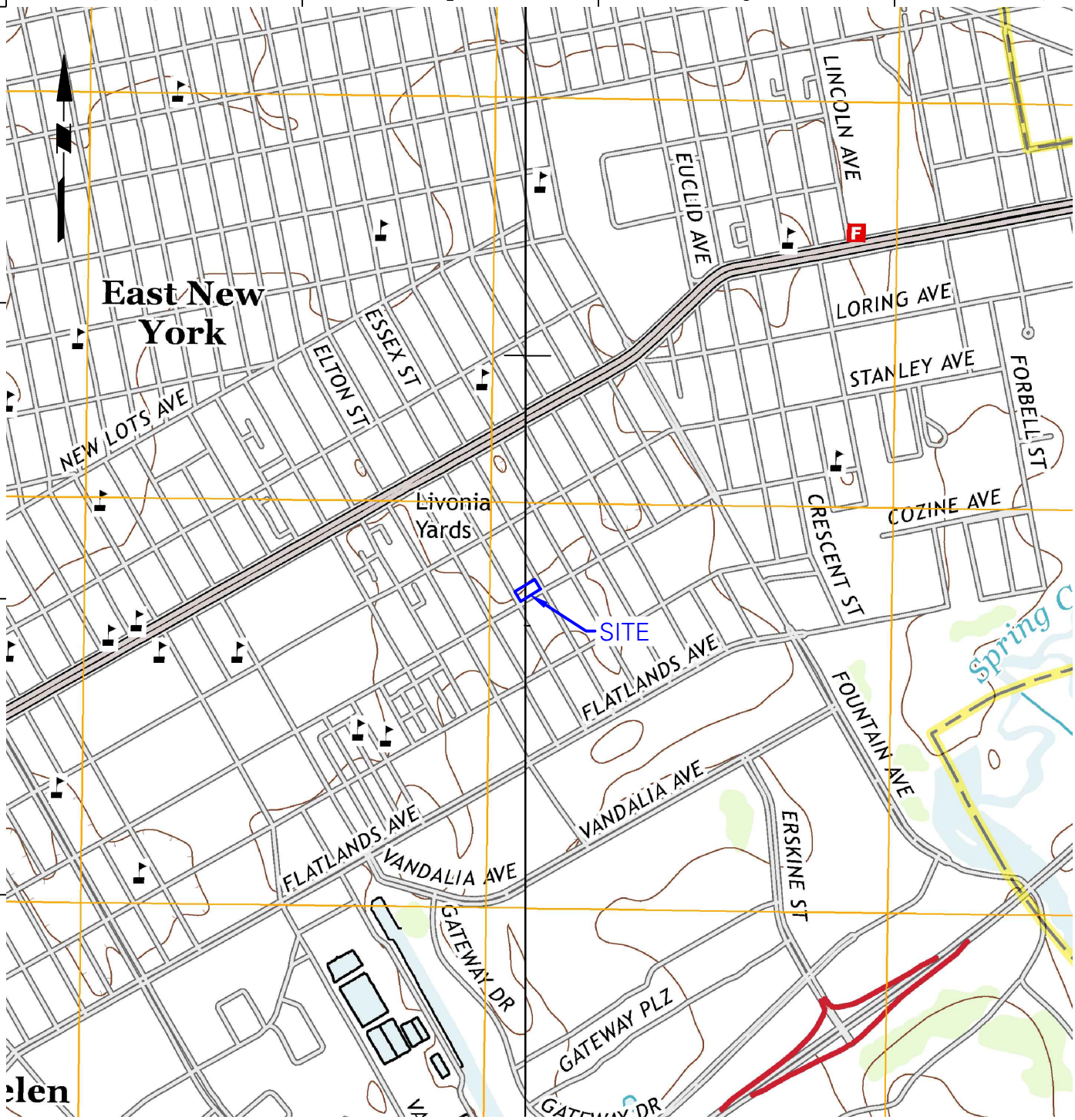
None

10. Activities Anticipated in Support of the CPP for the Next Reporting Period

None

11. Miscellaneous Information

None



LEGEND:

APPROXIMATE SITE BOUNDARY

NOTE: BASE MAPS ARE REFERENCED FROM THE UNITED STATES GEOLOGICAL SURVEY (USGS) TOPOGRAPHIC QUADRANGLE MAPS FOR BROOKLYN AND JAMAICA.

LANGAN

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Langan International LLC
Collectively known as Langan

Project

491 WORTMAN AVENUE

BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS NEW YORK

Figure Title

SITE LOCATION MAP

Project No. 170329301	Figure 1
Date 04/18/2015	
Scale N.T.S.	
Drawn By MLR / Checked By GN	
Submission Date	Sheet 1 of 3

Filename: \\langan.com\data\NYC\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 22\Figure 1 - Site Location Map - Updated.dwg Date: 5/9/2017 Time: 12:48 User: mrogers Style Table: Langan.stb Layout: Site Location Map

PROGRESS/INSPECTION REPORT NO. 14
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: June 2018

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this progress/inspection report on behalf of J&H Holding Company, LLC (the "Participant"). In accordance with Section 7.1 of the Site Management Plan (SMP), which was approved by the New York State Department of Environmental Conservation (NYSDEC) on June 28, 2017, this progress/inspection report summarizes work performed at the Former Watermark Designs Facility (the "Site") during June 2018. The Final Engineering Report (FER) was submitted to the NYSDEC on May 25, 2017, and in accordance with the Brownfield Cleanup Agreement (BCA), submission of Monthly Brownfield Cleanup Program (BCP) Progress Reports is no longer required for the Site.

The Site (Block 4384, Lots 31 & 36) is located at 491 Wortman Avenue in Brooklyn, New York (Figure 1) and consists of a rectangular shaped lot that is about 19,000 square feet (±0.44 acres). The Site is located in an area zoned for industrial/manufacturing use and is bound by Wortman Street to the south, Linwood Street to the west, Essex Street to the east, and a one-story building to the north. Currently, a one-story building with a partial basement covers the entire Site footprint. The one-story building is used as a warehouse in the western portion and an office space and a smaller warehouse in the eastern portion.

2. Remedial Actions Relative to the Site during this Reporting Period

2.1 Quarterly Monitoring and Long-term Contaminant Rebound Testing

Remedial actions for June 2018 consisted of quarterly on-site groundwater monitoring, annual on-site vapor monitoring, and sampling of the near field off-site groundwater monitoring wells. Groundwater sampling was performed as part of the quarterly monitoring program specified in the Site Management Plan and to conclude the long-term contaminant rebound test (the air sparge and soil vapor extraction (AS/SVE) system has been shut down since February 24, 2018).

The eleventh quarterly groundwater sampling event was conducted on June 27 and 28, 2018. Depth-to-water, total depth, and photoionization detector (PID) measurements were collected at monitoring wells MW-1 through MW-9 and piezometers PZ-1 and PZ-2 (thirteen locations total). Following the collection of field data, groundwater samples were collected from each monitoring well and piezometer for laboratory analysis of Target Compound List (TCL) volatile organic compounds (VOCs). On-site groundwater sampling locations are shown on Figure 2.

The third annual vapor sampling event was conducted on June 27 and 28, 2018. Vapor probes VP-1 through VP-7 were sampled for laboratory analysis of VOCs via United States

Environmental Protection Agency (USEPA) Method TO-15. The vapor probe locations are shown on Figure 2.

The near-field, off-site groundwater monitoring wells were sampled again as part of the long-term contaminant rebound test (they were previously sampled in April 2018 and the next semiannual event would normally be in October 2018) on June 27, 2018. Depth-to-water, total depth, and PID measurements were collected at monitoring wells ML-002 (shallow, middle, and deep), MW-10, and MW-11 (five locations total). Following the collection of field data, groundwater samples were collected from each monitoring well for laboratory analysis of TCL VOCs. The near-field, off-site groundwater monitoring locations are shown on Figure 3.

2.2 AS/SVE System Operation, Maintenance and Monitoring

Langan did not perform operation, maintenance and monitoring (OM&M) during June 2018 because the AS/SVE system was shut down; however, the AS/SVE system was restarted and OM&M activities were performed on July 2, 2018. The AS/SVE system was reactivated to confirm that the AS/SVE system works appropriately, as OM&M on the system had not been conducted since March 2018. Additionally, the AS/SVE system was restarted in the event that the rebound test results are not favorable, or if the rebound test results are favorable, to perform additional remedial polishing.

3. Actions Relative to the Site Anticipated for the Next Reporting Period

Submission of a letter to the NYSDEC documenting the results of the long-term contaminant with recommendations for next steps and continued OM&M of the AS/SVE system.

4. Approved Activity Modifications (changes of work scope and/or schedule)

None

5. Results of Sampling, Testing and Other Relevant Data

Samples were analyzed by Alpha Analytical of Westborough, MA. Alpha is a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory.

The groundwater sample results from the eleventh quarter of on-site groundwater sampling exhibited chlorinated VOC (CVOC) concentrations above the New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (AWQSGVs) for Class GA Water in 10 of the wells sampled (MW-2, MW-3S, MW-3M, MW-3D, MW-5, MW-6, MW-8, MW-9, PZ-1, and PZ-2). The groundwater results for all of the wells are less than the baseline groundwater sampling results from August 2015; for the shallow-screened wells, total CVOC concentrations reductions ranged from 75% (MW-6) to 99% (MW-1, -2, -3S, -4, and -7). Based on the data collected, CVOC concentrations continue to be stable below TOGS AWQSGVs in the following three wells: MW-1, MW-4, and MW-7. Since October 2016, tetrachloroethene (PCE) concentrations observed at MW-3M (screened 30 to 40 feet below grade surface [bgs]) and

MW-3D (screened 50 to 60 feet bgs) have consistently ranged between 10 and 19 micrograms per liter (µg/L) and concentrations of the remaining CVOCs (trichloroethene [TCE], cis-1,2-dichloroethene, and vinyl chloride) have not exceeded the TOGS AWQSGVs; indicating that CVOC concentrations in the middle- and deep-screened on-site wells have stabilized. When compared to last quarter's sampling results, CVOC concentrations have increased in eight of the groundwater wells/piezometers (MW-1, MW-2, MW-5, MW-7, MW-8, MW-9, PZ-1, and PZ-2) and decreased in five of the groundwater wells (MW-3S, MW-3M, MW-3D, MW-4, and MW-6), with reductions ranging from 4% to 59%. The increase in CVOC concentrations since the April 2018 sampling event can be attributed to the four-month deactivation of the AS/SVE. The maximum increase in CVOC concentration was observed in PZ-2 (from 26.1 µg/L to 48.8 µg/L).

The groundwater sample results from the near-field, off-site groundwater wells exhibited CVOC concentrations above TOGS AWQSGVs in four of the wells sampled (ML-002M, ML-002D, MW-10, and MW-11). The groundwater results for ML002S and MW10 are 93% and 64% less than the July 2016 baseline groundwater sampling results. Since July 2016, PCE concentrations observed in ML-002M and ML-002D have consistently ranged between 2 to 17 µg/L and, with the exception TCE in ML-002M during the October 2017 sampling event, concentrations of the remaining CVOCs have not exceeded the TOGS AWQSGVs. When compared to April 2018, CVOC concentrations have increased in two of the five off-site groundwater wells (ML-002M and MW-11) and decreased in three of the groundwater wells (ML-002S, ML-002D, and MW10), with reductions ranging from 10% to 90%. This increase of total CVOCs in off-site wells can be attributed to area-wide groundwater quality and the four-month AS/SVE system deactivation. The maximum increase in CVOC concentration was observed in ML-002M (from 5.44 µg/L to 19 µg/L).

Soil vapor samples were collected as part of annual vapor sampling. When compared to the baseline vapor sampling results from August 2015, the analytical results for the second annual on-site vapor sampling event show that 99%+ reductions in total CVOC concentrations have been achieved at each vapor sampling location. Since July 2016, CVOC concentrations have decreased between about 12.9% and 93% in all vapor points with the exception of VP-04, which increased from 320 micrograms per cubic meter (µg/m^3) to 1,360 µg/m^3. This increase in CVOC concentration is primarily due to an increase in TCE (from 280 µg/m^3 to 1,330 µg/m^3), which is attributed to the four-month AS/SVE system deactivation.

The following tables are attached to this progress report and analytical lab reports are available upon request. The tables summarize the data collected to date and the functionality of the AS/SVE system, including mass of VOCs removed from the subsurface based on photoionization detector (PID) readings and laboratory data, as well as the alarm history.

- Table 1 – AS/SVE System Vapor Sampling Results
- Table 2 – AS/SVE System Mass Removal – PID Data*
- Table 3 – AS/SVE System Mass Removal – Total VOCs*
- Table 4 – AS/SVE System DAR-1 Compliance
- Table 5 – AS/SVE System Alarm History

- Table 6 – Quarterly Groundwater Sampling Results – June 2018
- Table 7 – Quarterly Groundwater Sampling Results Summary
- Table 8 – Semi-annual, Near-Field, Off-site Groundwater Sampling Results – June 2018
- Table 9 – Semi-annual, Near-Field, Off-site Groundwater Sampling Results Summary
- Table 10 – Annual Vapor Sampling Results – June 2018
- Table 11 – Annual Vapor Sampling Results Summary

*Tables are unchanged from the previous progress/inspection report because of the system shut down.

6. Deliverables Submitted During This Reporting Period

None

7. Information Regarding Percentage of Completion

As of March 7, 2018 and since the system was first started, the SVE system operated for 18,967 hours (92% uptime), and the AS system operated for 18,497 hours (90% uptime).

8. Unresolved Delays Encountered or Anticipated That May Affect the Schedule and Mitigation Efforts

None

9. Citizen Participation Plan Activities during This Reporting Period

None

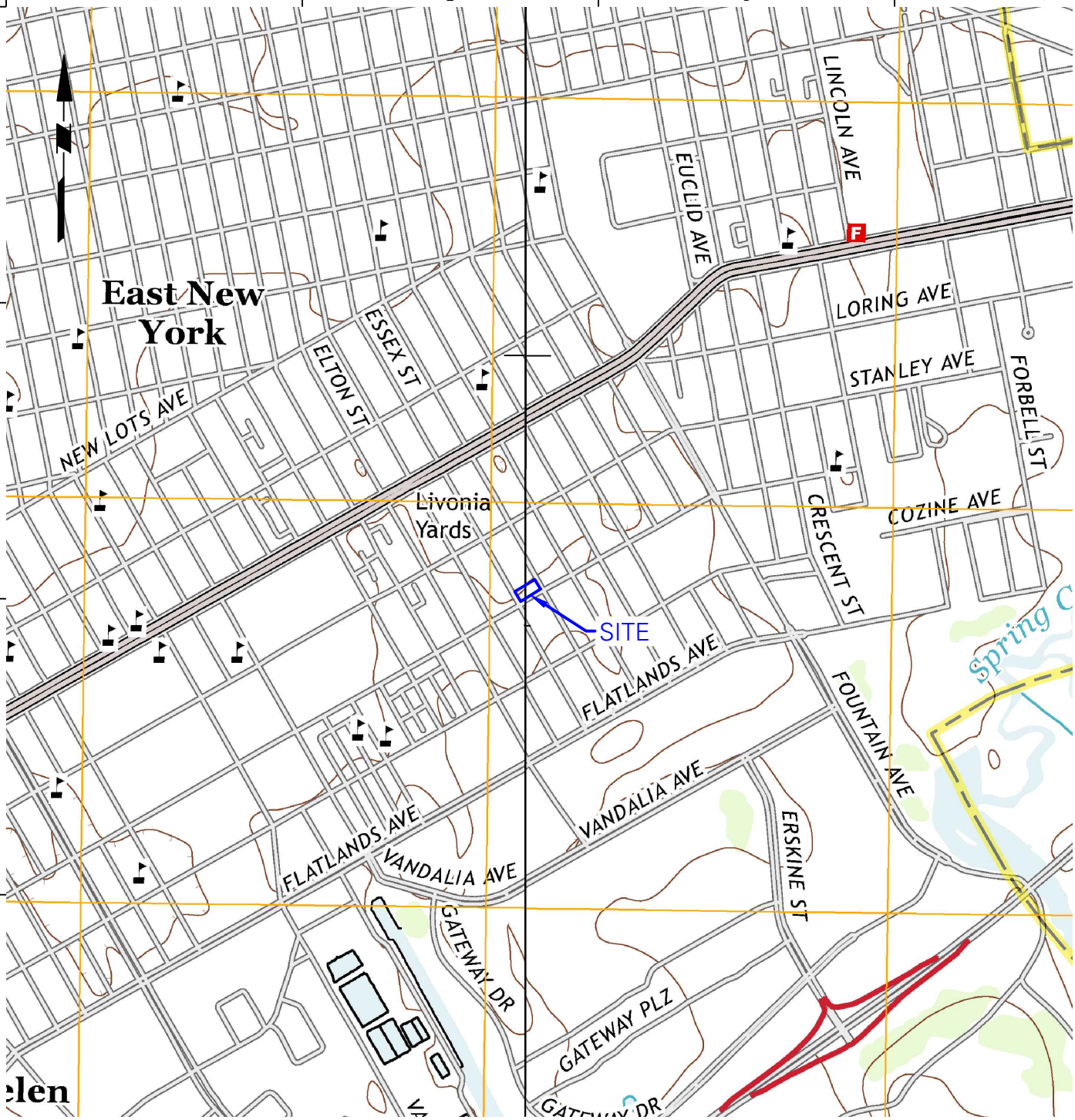
10. Activities Anticipated in Support of the CPP for the Next Reporting Period

None

11. Miscellaneous Information

None

FIGURES



LEGEND:

APPROXIMATE SITE BOUNDARY

NOTE: BASE MAPS ARE REFERENCED FROM THE UNITED STATES GEOLOGICAL SURVEY (USGS) TOPOGRAPHIC QUADRANGLE MAPS FOR BROOKLYN AND JAMAICA.

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BLOCK No. 4384, LOT Nos. 31 & 36
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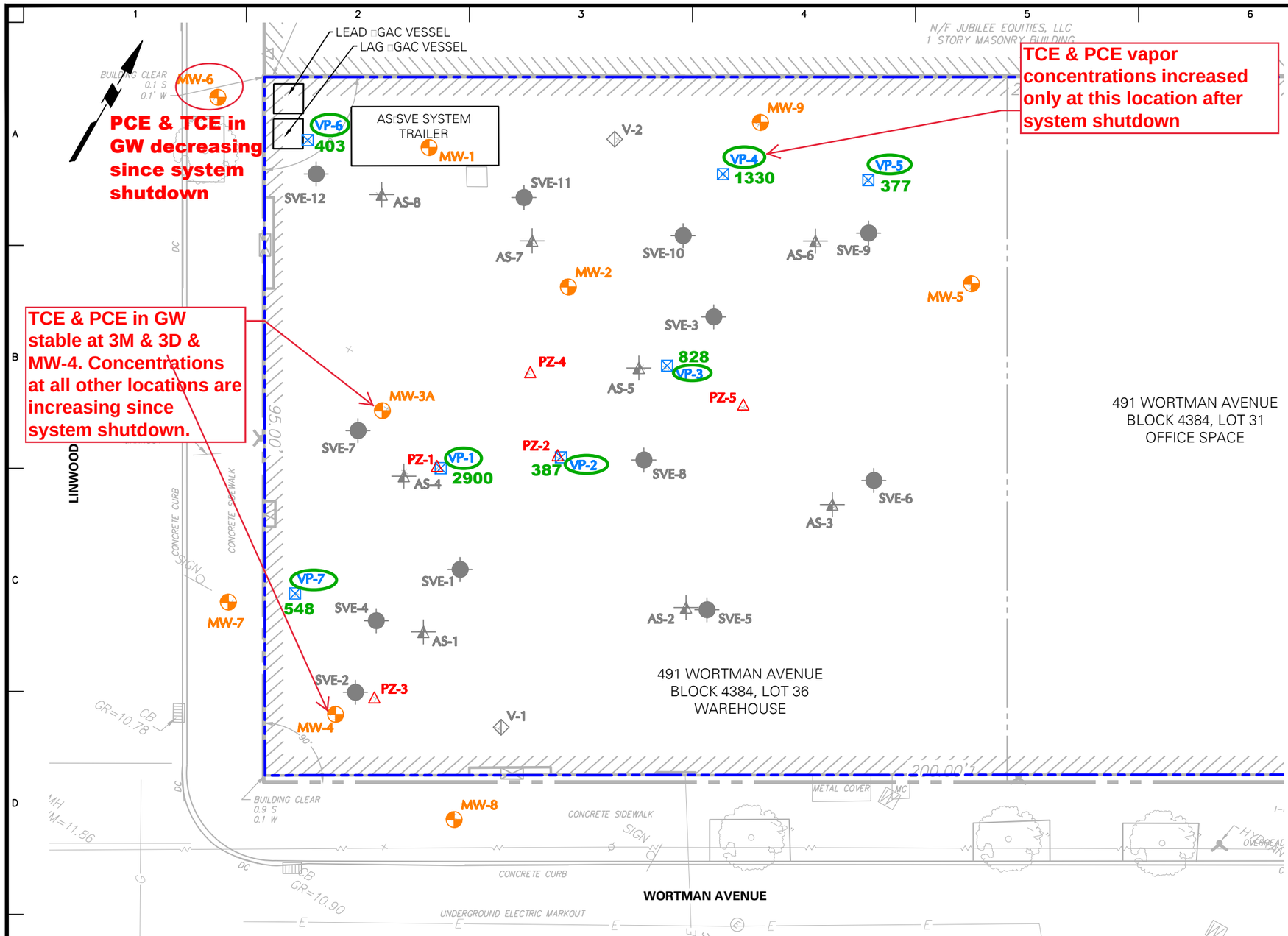
Figure Title

SITE LOCATION MAP

Project No. 170329301	Figure 1
Date 04/18/2015	
Scale N.T.S.	
Drawn By MLR / Checked By GN	
Submission Date	Sheet 1 of 3

Filename: \\langan.com\data\NYC\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 22\Figure 1 - Site Location Map - Updated.dwg Date: 5/9/2017 Time: 12:48 User: mrogers Style Table: Langan.stb Layout: Site Location Map



491 WORTMAN AVENUE
BLOCK 4384, LOT 31
OFFICE SPACE

LEGEND:

- BUILDING LIMITS
- AS-6 AIR SPARGE WELL
- SVE-9 SOIL VAPOR EXTRACTION WELL
- VP-5 VAPOR PROBE
- V-2 VENT WELL
- MW-5 MONITORING WELL
- PZ-5 PIE□OMETER

NOTES:

1. THE BASEMAP IS REFERENCED FROM THE 491 WORTMAN AVENUE BOUNDARY SURVEY PREPARED BY LANGAN ENGINEERING, ENVIRONMENTAL, SURVEY, AND LANDSCAPE ARCHITECTURE, D.P.C. (LANGAN), DATED NOVEMBER 2, 2015
2. WELL LOCATIONS ARE BASED ON THE BOUNDARY SURVEY.
3. ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. 11 GROUNDWATER MONITORING WELLS AND 2 PIE□OMETERS ARE INCLUDED AS PART OF THE □ UARTERLY GROUNDWATER SAMPLING PROGRAM.
5. □ VAPOR PROBES ARE INCLUDED AS PART OF THE ANNUAL VAPOR SAMPLING PROGRAM.
6. MW-3A IS A NESTED MONITORING LOCATION WITH THREE SEPARATE WELLS SCREENED ACROSS A SHALLOW, MIDDLE, AND DEEP INTERVAL.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

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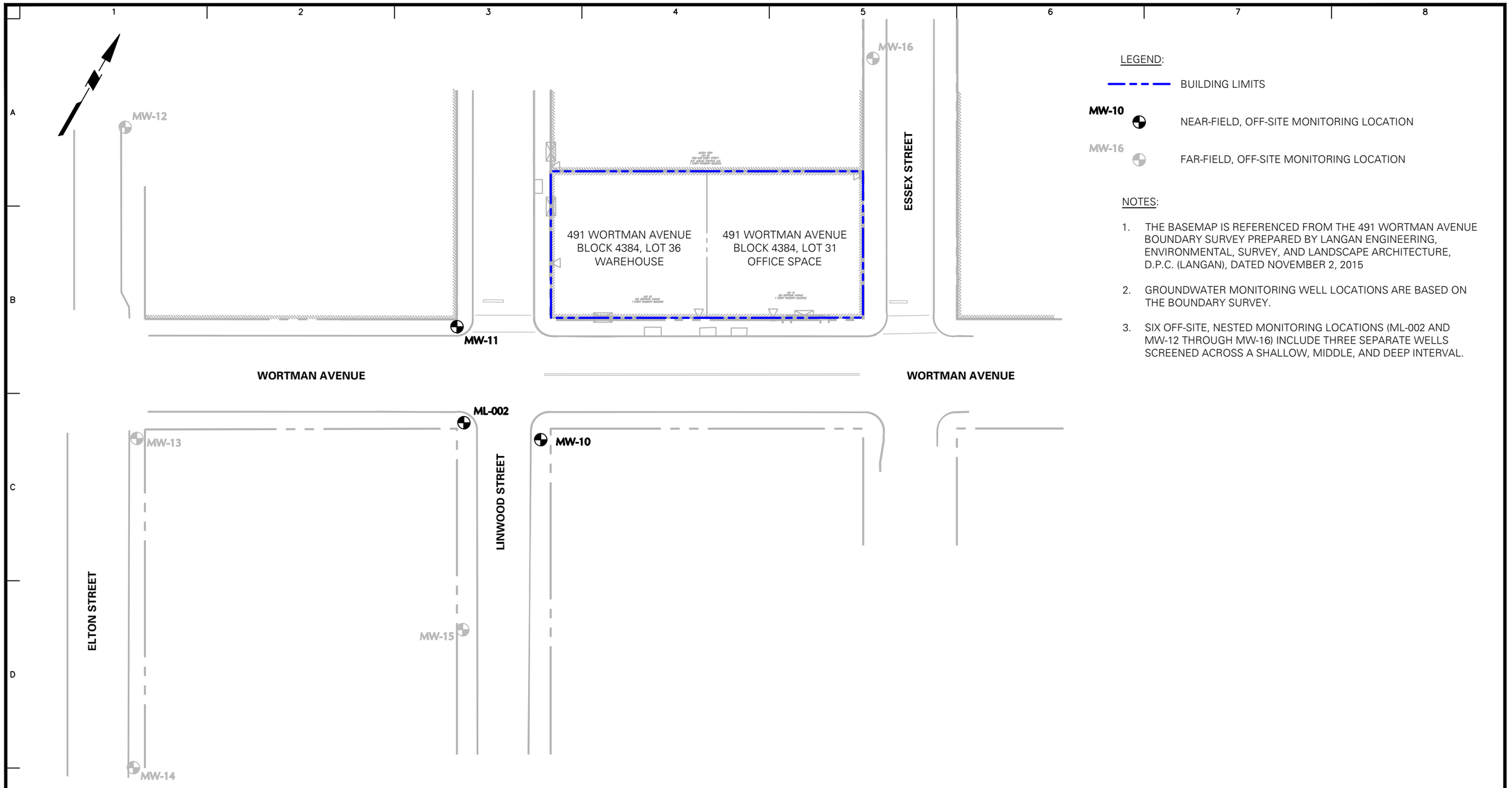
Figure Title
ON-SITE AND NEAR-FIELD MONITORING LOCATIONS

Project No. 170329301	Figure No. 2
Date 01/21/2016	
Scale AS SHOWN	
Drawn By TCS / Checked By GN	
Submission Date	Sheet 2 of 3

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 19\Figure 2 - Quarterly GW Wells.dwg Date: 7/6/2018 Time: 13:10 User: wkim Style Table: Langan.stb Layout: ANSIB-BL



LEGEND:

- BUILDING LIMITS
- MW-10 — NEAR-FIELD, OFF-SITE MONITORING LOCATION
- MW-16 — FAR-FIELD, OFF-SITE MONITORING LOCATION

NOTES:

1. THE BASEMAP IS REFERENCED FROM THE 491 WORTMAN AVENUE BOUNDARY SURVEY PREPARED BY LANGAN ENGINEERING, ENVIRONMENTAL, SURVEY, AND LANDSCAPE ARCHITECTURE, D.P.C. (LANGAN), DATED NOVEMBER 2, 2015
2. GROUNDWATER MONITORING WELL LOCATIONS ARE BASED ON THE BOUNDARY SURVEY.
3. SIX OFF-SITE, NESTED MONITORING LOCATIONS (ML-002 AND MW-12 THROUGH MW-16) INCLUDE THREE SEPARATE WELLS SCREENED ACROSS A SHALLOW, MIDDLE, AND DEEP INTERVAL.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

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Figure Title
OFF-SITE GROUNDWATER MONITORING WELL LOCATIONS

Project No. 170329301	Figure No. 3
Date 10/03/2016	
Scale AS SHOWN	
Drawn By MLR / Checked By GN	
Submission Date	Sheet 3 of 3

Filename: \\langan.com\data\NYC\data3\170329301\Cadd Data - 170329301\SheetFiles\Inspection Report No. 6\Figure 3 - Off-Site MW Locations.dwg Date: 11/10/2017 Time: 11:40 User: mrogers Style Table: Langan.stb Layout: ANSIB-BL

TABLES

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
FORMER WATERMARKS DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

LOCATION	vGAC Influent		vGAC Effluent	
SAMPLE ID	INFLUENT_070218		EFFLUENT_070218	
LAB SAMPLE ID	L1825168-01		L1825168-02	
SAMPLE DATE	7/2/2018		7/2/2018	
Volatile Organic Compounds (µg/m3)				
1,1,1-Trichloroethane	30.8	U	1.09	U
1,1,2,2-Tetrachloroethane	38.7	U	1.37	U
1,1,2-Trichloroethane	30.8	U	2.4	
1,1-Dichloroethane	22.8	U	0.809	U
1,1-Dichloroethene	22.4	U	0.793	U
1,2,4-Trichlorobenzene	41.9	U	1.48	U
1,2,4-Trimethylbenzene	27.7	U	1.18	
1,2-Dibromoethane	43.3	U	1.54	U
1,2-Dichlorobenzene	33.9	U	1.2	U
1,2-Dichloroethane	22.8	U	0.866	
1,2-Dichloropropane	41.7		0.924	U
1,3,5-Trimethylbenzene	27.7	U	0.983	U
1,3-Butadiene	12.5	U	0.442	U
1,3-Dichlorobenzene	33.9	U	1.2	U
1,4-Dichlorobenzene	33.9	U	1.2	U
1,4-Dioxane	20.3	U	0.721	U
2,2,4-Trimethylpentane	26.3	U	0.934	U
2-Butanone	41.6	U	1.95	
2-Hexanone	23.1	U	0.82	U
3-Chloropropene	17.7	U	0.626	U
4-Ethyltoluene	27.7	U	0.983	U
4-Methyl-2-pentanone	57.8	U	2.05	U
Acetone	75.3		18.5	
Benzene	18	U	0.639	U
Benzyl chloride	29.2	U	1.04	U
Bromodichloromethane	75		1.34	U
Bromoform	58.3	U	2.07	U
Bromomethane	21.9	U	0.777	U
Carbon disulfide	17.6	U	2.46	
Carbon tetrachloride	35.5	U	1.26	U
Chlorobenzene	26	U	0.921	U
Chloroethane	14.9	U	0.528	U
Chloroform	35.4		2.27	
Chloromethane	11.6	U	0.607	
cis-1,2-Dichloroethene	22.4	U	7.85	
cis-1,3-Dichloropropene	25.6	U	0.908	U
Cyclohexane	19.4	U	0.688	U
Dibromochloromethane	48	U	1.7	U
Dichlorodifluoromethane	27.9	U	4.04	
Ethanol	266	U	16.7	
Ethyl Acetate	50.8	U	1.8	U
Ethylbenzene	24.5	U	0.869	U
Freon-113	43.2	U	1.53	U
Freon-114	39.4	U	1.4	U
Heptane	23.1	U	0.82	U
Hexachlorobutadiene	60.2	U	2.13	U
Isopropanol	34.7	U	1.77	
Methyl tert butyl ether	20.3	U	0.721	U
Methylene chloride	49	U	23	
n-Hexane	19.9	U	5.6	
o-Xylene	24.5	U	0.869	U
p/m-Xylene	49.1	U	1.74	U
Styrene	24	U	0.852	U
Tertiary butyl Alcohol	42.7	U	1.52	U
Tetrachloroethene	201		2.22	
Tetrahydrofuran	41.6	U	1.47	U
Toluene	21.3	U	4.45	
trans-1,2-Dichloroethene	22.4	U	0.924	
trans-1,3-Dichloropropene	25.6	U	0.908	U
Trichloroethene	7470		3.38	
Trichlorofluoromethane	31.7	U	2.61	
Vinyl bromide	24.7	U	0.874	U
Vinyl chloride	14.4	U	0.511	U
Total VOCs	7898.4		102.777	

Notes:
1. µg/m3 = micrograms per cubic meter
2. vGAC = vapor-phase granular activated carbon
3. Samples collected at the "vGAC INFLUENT" were collecetd before the lead vGAC vessel.
4. Samples collected at the "vGAC EFFLUENT" were collected after the lag vGAC vessel.
5. Samples were collected on July 2, 2018.

Qualifiers:
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM MASS REMOVAL - PID DATA
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	INFLUENT CONCENTRATION (ppmv)	SVE BLOWER FLOWRATE (scfm)	EFFLUENT CONCENTRATION (ppmv)	TOTAL OPERATIONAL HOURS	AVERAGE MOLECULAR WEIGHT	MASS REMOVAL RATE (lbs/hr)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	CUMULATIVE MASS REMOVED FROM SUBSURFACE (lbs)
10/21/2015	55.0	688	1.8	30	100	0.57	17.02	17.02
10/26/2015	8.3	650	0.6	150	100	0.08	9.31	26.34
11/6/2015	5.5	560	0.0	383	100	0.05	11.13	37.46
11/30/2015	1.9	593	0.3	958	100	0.01	8.46	45.92
12/28/2015	3.7	570	0.0	1,548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2,180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2,854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3,693	100	0.002	1.43	85.34
4/29/2016	2.0	571	0.0	4,322	100	0.018	11.14	96.48
5/26/2016	0.4	600	0.0	4,972	100	0.004	2.42	98.90
6/29/2016	0.5	600	0.0	5,784	100	0.005	3.78	102.68
7/28/2016	3.0	600	0.0	6,431	100	0.028	18.06	120.73
8/31/2016	2.7	600	0.0	7,110	100	0.025	17.05	137.79
9/29/2016	7.5	760	2.0	7,802	100	0.065	44.85	182.63
10/31/2016	0.0	520	0.0	8,516	100	0.000	0.00	182.63
11/29/2016	0.0	560	0.0	9,211	100	0.000	0.00	182.63
12/28/2016	0.0	520	0.0	9,884	100	0.000	0.00	182.63
1/25/2017	2.8	600	0.0	10,530	100	0.026	16.83	199.46
3/7/2017	0.1	360	0.0	11,186	100	0.001	0.37	199.82
4/27/2017	0.0	600	0.0	12,185	100	0.000	0.00	199.82
5/25/2017	0.8	600	0.0	12,760	100	0.008	4.42	204.24
6/28/2017	0.04	600	0.0	13,575	100	0.000	0.33	204.57
7/21/2017	0.0	600	0.0	14,060	100	0.000	0.00	204.57
8/25/2017	0.0	600	0.0	14,852	100	0.000	0.00	204.57
9/27/2017	0.7	600	0.08	15,641	100	0.006	4.55	209.12
11/1/2017	0.0	640	0.00	16,422	100	0.000	0.00	209.12
11/28/2017	0.0	600	0.00	17,069	100	0.000	0.00	209.12
12/28/2017	0.0	560	0.00	17,618	100	0.000	0.00	209.12
1/31/2018	0.0	600	0.00	18,382	100	0.000	0.00	209.12
3/1/2018	0.0	580	0.00	18,961	100	0.000	0.00	209.12

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the PID readings.
3. Mass Removal rate (lb/hr) = ((Conc in ppmv)(flowrate scfm)(MW)(60 min/hr)) / ((387)(1,000,000)).
4. PID = photoionization detector
5. ppmv = parts per million volume
6. scfm = standard cubic feet per minute
7. lbs/hr = pounds per hour
8. lbs = pounds
9. SVE = soil vapor extraction

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA (TOTAL VOCs)
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

DATE	INFLUENT CONCENTRATION (ug/m3)	SVE BLOWER FLOWRATE (scfm)	EFFLUENT CONCENTRATION (ug/m3)	TOTAL OPERATIONAL HOURS	INFLUENT RATE (mg/min)	EFFLUENT RATE (mg/min)	REMOVAL RATE (mg/min)	MASS REMOVED FROM SUBSURFACE (lbs)	TOTAL MASS REMOVED FROM SUBSURFACE (lbs)	MASS REMOVED BY CARBON (lbs)	TOTAL MASS REMOVED BY CARBON (lbs)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18
12/28/2015	3,357	570	230	1,548	53.58	3.67	49.91	4.18	16.55	3.89	15.08
1/27/2016	621	525	183	2,180	9.13	2.69	6.44	0.76	17.31	0.54	15.62
2/24/2016	1,454	578	283	2,854	23.53	4.58	18.94	2.10	19.41	1.69	17.31
3/30/2016	825	550	75	3,693	12.71	1.16	11.55	1.41	20.82	1.28	18.59
4/29/2016	482	571	112	4,322	7.70	1.79	5.91	0.64	21.46	0.49	19.08
5/26/2016	1,169	600	162	4,972	19.64	2.73	16.91	1.69	23.15	1.45	20.53
6/29/2016	1,865	600	190	5,784	31.33	3.19	28.14	3.37	26.51	3.02	23.56
7/28/2016	3,706	600	232	6,431	62.26	3.90	58.36	5.33	31.84	4.99	28.55
8/31/2016	4,798	600	135	7,110	80.61	2.26	78.35	7.24	39.08	7.04	35.59
9/29/2016	1,045	760	179	7,802	22.24	3.81	18.43	2.04	41.12	1.69	37.27
10/31/2016	922	520	91	8,516	13.42	1.32	12.10	1.27	42.38	1.14	38.42
11/29/2016	790	560	167	9,211	12.38	2.62	9.76	1.14	43.52	0.90	39.31
12/28/2016	282	520	123	9,884	4.11	1.79	2.32	0.37	43.89	0.21	39.52
1/25/2017	4.7	600	5.6	10,530	0.08	0.09	-0.02	0.01	43.89	0.00	39.52
3/7/2017	762	360	120	11,186	7.68	1.21	6.47	0.67	44.56	0.56	40.08
4/27/2017	1,008	600	86	12,185	16.93	1.44	15.49	2.24	46.80	2.05	42.13
5/25/2017	771	600	48	12,760	12.95	0.81	12.15	0.99	47.78	0.92	43.05
6/28/2017	754	600	69	13,575	12.66	1.16	11.50	1.36	49.15	1.24	44.29
7/21/2017	2,434	600	235	14,060	40.89	3.95	36.94	2.62	51.77	2.37	46.66
8/25/2017	1,334	600	246	14,852	22.41	4.13	18.28	2.35	54.12	1.91	48.58
9/27/2017	1,059	600	83	15,641	17.79	1.39	16.40	1.86	55.98	1.71	50.29
11/1/2017	1,227	640	85	16,422	21.99	1.52	20.47	2.27	58.25	2.11	52.40
11/28/2017	295	600	64	17,069	4.96	1.08	3.88	0.42	58.67	0.33	52.73
12/28/2017	258	560	29	17,618	4.05	0.45	3.59	0.29	58.97	0.26	53.00
1/31/2018	289	600	13	18,382	4.85	0.23	4.62	0.49	59.46	0.47	53.46
3/1/2018	534	580	68	18,961	8.67	1.11	7.57	0.66	60.12	0.58	54.04

NOTES:
1. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
2. The influent and effluent concentrations are based on the lab analytical data and not the PID readings.
3. ug/m3 = micrograms per cubic meter
4. scfm = standard cubic feet per minute
5. mg/min = milligrams per minute
6. lbs = pounds
7. SVE = soil vapor extraction

TABLE 4: AS/SVE SYSTEM DAR-1 COMPLIANCE
FORMER WATERMARKS DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **7/2/2018**

CHEMICAL COMPOUND	CARBON EFFLUENT CONCENRATION MEASURED ($\mu g/m^3$)	EMISSION FLOWRATE MEASURED (SCFM)	EMISSION FLOWRATE MEASURED (m^3/min)	OUTLET CONCENTRATION (Q_p) (lb/hr)	OUTLET CONCENTRATION (Q_a) (lb/yr)	MAX ANNUAL IMPACT (C_a) ($\mu g/m^3$)	MAX POTENTIAL IMPACT (C_p) ($\mu g/m^3$)	MAX SHORT-TERM IMPACT (C_{st}) ($\mu g/m^3$)	DAR-1 STANDARDS SGC ($\mu g/m^3$)	DAR-1 STANDARDS AGC ($\mu g/m^3$)	EMISSION RESTRICTION REQUIRED (if C_p>AGC and C_a<AGC)	SGC EMISSION EXCEEDANCE (if C_{st}>SGC)	AGC EMISSION EXCEEDANCE (if C_a>AGC)
Volatile Organics, USEPA TO-15 Full List (ug/m^3)													
1,2-Dichloroethane	0.866	450	12.74265	1.46E-06	1.28E-02	1.15E-04	1.15E-04	7.45E-03	--	--	No Standard	No Standard	No Standard
1,1,2-Trichloroethane	2.4	450	12.74265	4.04E-06	3.54E-02	3.18E-04	3.18E-04	2.06E-02	--	--	No Standard	No Standard	No Standard
1,2,4-Trimethylbenzene	1.18	450	12.74265	1.98E-06	1.74E-02	1.56E-04	1.56E-04	1.01E-02	--	6	NO	No Standard	NO
2-Butanone	1.95	450	12.74265	3.28E-06	2.87E-02	2.58E-04	2.58E-04	1.68E-02	13000	5000	NO	NO	NO
Acetone	18.5	450	12.74265	3.11E-05	2.73E-01	2.45E-03	2.45E-03	1.59E-01	180,000	30,000	NO	NO	NO
Carbon disulfide	2.46	450	12.74265	4.14E-06	3.62E-02	3.26E-04	3.26E-04	2.12E-02	6,200	700	NO	NO	NO
Chloroform	2.27	450	12.74265	3.82E-06	3.34E-02	3.01E-04	3.00E-04	1.95E-02	150	0.04	NO	NO	NO
Chloromethane	0.607	450	12.74265	1.02E-06	8.94E-03	8.04E-05	8.03E-05	5.22E-03	6,200	700	NO	NO	NO
cis-1,2-Dichloroethylene	7.85	450	12.74265	1.32E-05	1.16E-01	1.04E-03	1.04E-03	6.75E-02	--	63	NO	No Standard	NO
Dichlorodifluoromethane	4.04	450	12.74265	6.80E-06	5.95E-02	5.35E-04	5.35E-04	3.47E-02	--	12,000	NO	No Standard	NO
Ethanol	16.7	450	12.74265	2.81E-05	2.46E-01	2.21E-03	2.21E-03	1.44E-01	--	45,000	NO	No Standard	NO
Isopropanol	1.77	450	12.74265	2.98E-06	2.61E-02	2.34E-04	2.34E-04	1.52E-02	98,000	7,000	NO	NO	NO
Methylene chloride	23	450	12.74265	3.87E-05	3.39E-01	3.05E-03	3.04E-03	1.98E-01	14,000	60	NO	NO	NO
n-Hexane	5.6	450	12.74265	9.42E-06	8.25E-02	7.42E-04	7.41E-04	4.82E-02	--	700	NO	No Standard	NO
Tetrachloroethene	2.22	450	12.74265	3.73E-06	3.27E-02	2.94E-04	2.94E-04	1.91E-02	300	4	NO	NO	NO
Toluene	4.45	450	12.74265	7.49E-06	6.56E-02	5.90E-04	5.89E-04	3.83E-02	37,000	5,000	NO	NO	NO
trans-1,2-Dichloroethene	0.924	450	12.74265	1.55E-06	1.36E-02	1.22E-04	1.22E-04	7.95E-03	--	--	No Standard	No Standard	No Standard
Trichloroethylene	3.38	450	12.74265	5.69E-06	4.98E-02	4.48E-04	4.47E-04	2.91E-02	14,000	0.2	NO	NO	NO
Trichlorofluoromethane	2.61	450	12.74265	4.39E-06	3.85E-02	3.46E-04	3.45E-04	2.24E-02	9,000	5,000	NO	NO	NO

NOTES AND QUALIFIERS:
1. Table only displays chemical compounds with detectable concentrations.
2. Concentrations below reporting limit (non detect) are assumed to be zero.
3. Air samples were analyzed for USEPA TO-15 compounds
4. All equations are referenced in NYSDEC, Division of Air Resources, Air Guide 1, Guidelines for the Control of Toxic Ambient Air Contaminants (11/12/97). Standard Point Source Method calculations were used.
5. Values in table are compared to DAR-1 Annual Guideline Concentrations (AGC)/Short-Term Guideline Concentrations (SGC) Tables dated February 28, 2014.
6. DAR-1 AGC and/or SGC values listed as "--" means there is no AGC or SGC standard for that compound.
7. SCFM = standard cubic feet per minute
8. Blower flowrate is recorded from PDI-701 pitot tube flow indicator located on the blower discharge line.
9. ug/m^3 = micrograms per cubic meter
10. m^3/min = cubic meter per minute
11. lb/hr = pounds per hour
12. lb/yr = pounds per year

TABLE 5: AS/SVE SYSTEM ALARM HISTORY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

DATE	ALARM	ALARM DESCRIPTION	REASON	REMEDY
10/23/2015	PAL-2501	Compressor Low Pressure Alarm	Uncertain of the reason. There may be a power fluctuation that trips the low pressure alarm, which shuts the AS system down.	On-site observation confirmed that this was a false alarm and was not caused by compressor failure or a breach in the air sparge manifold. The alarm was manually reset.
10/28/2015	LAH-7301	Storage Tank High Level Alarm	The SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into nine 55-gallon drums, and the SVE system vacuum has been optimized to extract a lesser volume of water.
11/5/2015	PAL-2501	Compressor Low Pressure Alarm	Caused by the air sparge compressor on/off time, which won't allow "OFF" time to be set to zero and therefore, the compressor cannot run continuously.	The air compressor timer has been by-passed and the compressor operation is linked to the SVE system operation. If the SVE system is operational, the compressor will operate unless a different AS system alarm has been triggered.
11/17/2015	PAL-2501	Compressor Low Pressure Alarm	This was an alarm test that was performed to ensure that the update to the Programmable Logic Controller (PLC) was successful.	The PLC update was successful and the air sparge compressor can run continuously. The air compressor timer is no longer being bypassed.
12/23/2015	LAH-7301	Storage Tank High Level Alarm	Following optimization, which included increasing the AS rate and the SVE system flow rate, the SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into three 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
12/25/2015	LAH-7301	Storage Tank High Level Alarm	Following optimization, which included increasing the AS rate and the SVE system flow rate, the SVE system began to extract a larger volume of water than previously anticipated.	The storage tank was emptied into three 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
1/7/2016	LAH-7301	Storage Tank High Level Alarm	Following continued optimization of AS/SVE system, the SVE system began to extract a larger volume of water than anticipated.	The storage tank was emptied into eight 55-gallon drums. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
1/17/2016	LAH-7301	Storage Tank High Level Alarm	Following continued optimization of AS/SVE system, the SVE system began to extract a larger volume of water than anticipated.	The storage tank was emptied. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
2/1/2016	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted at a lower speed. The compressor speed was ramped up incrementally throughout the day until the previous set point was reached. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
4/3/2016	PAL-701	Blower Influent High Pressure Alarm	The alarm was most likely triggered due to power fluctuations caused by high wind conditions.	The alarm was cleared and the SVE system was restarted at a higher frequency. The system was monitored remotely for the remainder of the day.
4/29/2016	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted. At restart, the allowable flow through the AS system was increased to alleviate the pressure on the air compressor discharge line. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
8/9/2016	PAH-702	SVE System Effluent High Pressure Alarm	Anomalously high pressures were not noted on the SVE system discharge during the remote or on-site inspections. It is likely that the SVE effluent pressure switch needs to be recalibrated following almost a year's worth of continuous use.	The SVE system was restarted at a lower frequency and monitored on-site for about two hours.
8/26/2016	FAL-701	Blower Low Flow Alarm	The alarm was triggered due to a loose relay switch.	The switch was tightened during the August 31, 2016 monthly inspection and the system was restarted without further issue.
12/27/2016	PAL-2501	Compressor Low Pressure Alarm	The alarm was triggered due to a mechanical failure at the air compressor (i.e., the belts tore).	The air compressor belts were replaced on January 9, 2017 and the system was restarted.
3/7/2017	FAL-401	Transfer Pump Low Flow Alarm	The alarm was likely triggered due to the fluctuating volume of water extracted by the SVE system.	The AS/SVE system was restarted. Both the AS and SVE system flow rates were adjusted in an effort to reduce excess water collection by the SVE system.
3/8/2017	Low PLC Battery	Low Programmable Logic Controller (PLC) Battery	The alarm was triggered because the PLC battery can no longer hold a charge.	The PLC battery was replaced on March 10, 2017.
3/24/2017	VFDA-701	SVE System Variable Frequency Drive (VFD) Alarm	The alarm was triggered because the SVE system blower was not functioning within the intended parameters.	The blower was visually inspected, a piece of debris caught in the belts was removed, and the system was restarted.
7/4/2017	TAH-2501	Air Compressor High Temperature Alarm	The AS system is operating close to the alarm set point so that as much warm air as possible is continuously injected into the subsurface. A slight change in the air flow rate and/or ambient temperature most likely caused the rise in discharge air temperature.	The alarm was cleared and the AS system was restarted. At restart, the allowable flow through the AS system was increased to alleviate the pressure on the air compressor discharge line. The heat exchanger flow and AS manifold temperature are being monitored on a daily basis in an effort to prevent tripping the high temperature alarm again.
8/2/2017	FAL-701	Blower Low Flow Alarm	The alarm was likely triggered by a momentary power surge.	The alarm was cleared and the AS/SVE system was restarted. The system was monitored remotely for the remainder of the day.
11/29/2017	VFDA-701	SVE System VFD Alarm	The alarm was triggered by a faulty blower permissive start relay.	The AS/SVE system was restarted; the relay was replaced during the 12/28/2017 monthly inspection.
2/24/2018	VFDA-701	SVE System VFD Alarm	The alarm was triggered by a faulty blower permissive start relay.	The alarm was resolved on 3/1/2018 and then retripped within 7 hours of resolution. A new VFD is required to address this issue. This alarm was resolved on 4/20/2018 when the new VFD was installed.
4/20/2018	LAH-7301 LAHH-7301	Storage Tank High Level Alarm Storage Tank High-High Level Alarm	Following VFD replacement and reactivation of AS/SVE system, the SVE system began to extract a larger volume of water than anticipated.	The alarm was resolved when accumulated water in the SVE tank was drained into 55-gallon drums.
7/10/2018	TAH-701	SVE System discharge high temperature alar	Ambient temp inside trailer was high so SVE discharge temp exceeded 150°F	The set point was changed to 175°F and the system restarted.

TABLE 6: QUARTERLY GROUNDWATER SAMPLING RESULTS - JUNE 2018
FORMER WATERMARKS DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C244139

Sample ID Laboratory ID Sampling Date	NYSDEC TOGS Standards and Guidance Values	MW-1_062818 L1824775-01 6/28/2018		MW-2_062718 L1824506-12 6/27/2018		MW-3S_062818 L1824775-04 6/28/2018		MW-3M_062818 L1824775-07 6/28/2018		MW-3D_062818 L1824775-08 6/28/2018		MW-4_062818 L1824775-05 6/28/2018		MW-5_062818 L1824775-03 6/28/2018	
Volatile Organic Compounds (µg/L)															
1,1-Dichloroethene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.39	J
1,2-Dichloroethene, Total	~	2.5	U	0.78	J	2.5	U	2.5	U	2.5	U	2.5	U	1.4	J
1,2-Dichloropropane	1	0.18	J	0.16	J	1	U	1	U	1	U	0.49	J	0.39	J
Acetone	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U
cis-1,2-Dichloroethene	5	2.5	U	0.78	J	2.5	U	2.5	U	2.5	U	2.5	U	1.4	J
Tetrachloroethene	5	4.5		**21**		**5.6**		**13**		**18**		1.2		**15**	
trans-1,2-Dichloroethene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Trichloroethene	5	4		**6.1**		3.5		2.2		0.74		1.1		3.7	

Notes:
1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (SGVs) for Class GA water.
2. Only detected compounds are shown.
3. Results equal to or exceeding the NYSDEC TOGS SGVs are shaded and bolded.
4. Reporting Limits (RL) above NYSDEC TOGS SGVs are italicized.
5. µg/L = micrograms per liter
6. ~ = regulatory criteria have not been established for this compound
7. Eleven monitoring wells and two piezometers associated with the air sparge and soil vapor extraction system (AS/SVE) system were sampled as part of the eleventh round of quarterly groundwater sampling.

Qualifiers:
J = Analyte detected at or above the MDL (Method Detection Limit) but below the RL - data is estimated.
U = Analyte not detected at or above the level indicated.

TABLE 6: QUARTERLY GROUNDWATER SAMPLING RESULTS - JUNE 2018
FORMER WATERMARKS DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C244139

Sample ID Laboratory ID Sampling Date	NYSDEC TOGS Standards and Guidance Values	MW-6_062718 L1824506-05 6/27/2018		MW-7_062718 L1824506-08 6/27/2018		MW-8_062718 L1824506-09 6/27/2018		MW-9_062818 L1824775-02 6/28/2018		PZ-1_062718 L1824506-10 6/27/2018		PZ-2_062818 L1824775-06 6/28/2018	
Volatile Organic Compounds (µg/L)													
1,1-Dichloroethene	5	0.36	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethene, Total	~	17	J	2.5	U	2.9		1.6	J	2	J	7.3	
1,2-Dichloropropane	1	*2*	U	0.28	J	0.18	J	1	U	1	U	0.24	J
Acetone	50	10	U	5	U	2	J	5	U	5	U	5	U
cis-1,2-Dichloroethene	5	**14**		2.5	U	2.9		1.6	J	2	J	**7.3**	
Tetrachloroethene	5	**200**		4.3		**5.3**		**9.5**		**19**		**32**	
trans-1,2-Dichloroethene	5	3.3	J	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Trichloroethene	5	**95**		2.3		4.8		3.3		**6.5**		**9.5**	

Notes:
1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (SGVs) for Class GA
2. Only detected compounds are shown.
3. Results equal to or exceeding the NYSDEC TOGS SGVs are shaded and bolded.
4. Reporting Limits (RL) above NYSDEC TOGS SGVs are italicized.
5. µg/L = micrograms per liter
6. ~ = regulatory criteria have not been established for this compound
7. Eleven monitoring wells and two piezometers associated with the air sparge and soil vapor extraction system (AS/SVE) system were sampled as part of the eleventh round of quarterly groundwater sampling.

Qualifiers:
J = Analyte detected at or above the MDL (Method Detection Limit) but below the RL - data is estimated.
U = Analyte not detected at or above the level indicated.

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS SUMMARY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Compound	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	Sampling Location												
		MW-1	MW-2	MW-3S	MW-3M	MW-3D	MW-4	MW-5	MW-6*	MW-7*	MW-8*	MW-9	PZ-1	PZ-2
Baseline Sampling Results Summary (µg/L) - August 2015														
CVOCs	~	1274.9	2314	873.3	23.4	27.8	653	175	1236.3	1272	458	602	903.6	438.2
PCE	5	750	480	380	14	8.3	79	110	710	460	180	400	310	230
TCE	5	500	1800	480	5.9	16	540	55	500	780	240	190	580	200
cis-1,2- DCE	5	19	14	8.3	2.5	2.5	29	9	22	27	36	10	8.6	6.2
vinyl chloride	2	5.9	20	5	1	1	5	1	4.3	5	2	2	5	2
First Quarter Sampling Results Summary (µg/L) - January 2016														
CVOCs	~	12.8	2.14	7.6	23.4	16.13	14.8	1.87	676	11.41	184.56	5.8	10	2.6
PCE	5	6	1	2	20	14	3	1	240	2	15	4	3	1
TCE	5	5.3	0.74	5.2	3	1.7	11	0.37	400	9	130	1.4	5.4	1.2
cis-1,2- DCE	5	1.3	0.2	0.2	0.2	0.23	0.6	0.3	35	0.21	39	0.2	1.4	0.2
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1	0.2	0.56	0.2	0.2	0.2
Q1 Percent CVOC Reduction		*99%*	*99.9%*	*99%*	*0%*	*42%*	*98%*	*99%*	*45%*	*99%*	*60%*	*99%*	*99%*	*99%*
Second Quarter Sampling Results Summary (µg/L) - April 2016														
CVOCs	~	3.8	1.99	4.3	18.5	9.3	3.28	1.64	401	2.46	71.96	0.91	1.45	1.79
PCE	5	1.7	0.87	1.2	16	7.6	0.48	0.67	160	0.26	5.7	0.31	0.3	0.61
TCE	5	1.7	0.72	2.7	2.1	1.3	2.4	0.38	220	1.8	43	0.2	0.75	0.78
cis-1,2- DCE	5	0.2	0.2	0.2	0.2	0.2	0.2	0.39	19	0.2	23	0.2	0.2	0.2
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	0.26	0.2	0.2	0.2
Q2 Percent CVOC Reduction from Last Quarter (Q1)		*70%*	*7%*	*43%*	*21%*	*42%*	*78%*	*12%*	*41%*	*78%*	*61%*	*84%*	*86%*	*31%*
Q2 Percent CVOC Reduction from Baseline		*99.7%*	*99.9%*	*99.5%*	*21%*	*67%*	*99.5%*	*99%*	*68%*	*99.8%*	*84%*	*99.8%*	*99.8%*	*99.6%*
Third Quarter Sampling Results Summary (µg/L) - July 2016														
CVOCs	~	1.65	4.26	7.69	24.5	14.01	6.26	3.48	1249.5	4.21	53.5	1.49	1.97	4.15
PCE	5	0.68	2.2	3	22	12	2.2	1.6	570	0.71	5.3	0.76	0.47	2
TCE	5	0.57	1.6	4.2	2.1	1.6	3.5	0.76	640	3.1	27	0.33	1.1	1.6
cis-1,2- DCE	5	0.2	0.26	0.29	0.2	0.21	0.36	0.92	39	0.2	21	0.2	0.2	0.35
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2
Q3 Percent CVOC Reduction from Last Quarter (Q2)		*57%*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*26%*	*Increased*	*Increased*	*Increased*
Q3 Percent CVOC Reduction from Baseline		*99.9%*	*99.8%*	*99.1%*	*Increased*	*50%*	*99%*	*98%*	*Increased*	*99.7%*	*88%*	*99.8%*	*99.8%*	*99.1%*

Notes:

1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water.
2. Results equal to or exceeding the NYSDEC TOGS standards and guidance values are shaded.
3. PCE = tetrachlorothylene
4. TCE = trichloroethylene
5. cis-1,2-DCE = cis-1,2-Dichloroethylene
6. µg/L = microgram per liter
7. CVOC = chlorinated volatile organic compounds
8. * = Monitoring well is located in the sidewalk adjacent to the warehouse.
9. ND = Non detect

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS SUMMARY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Compound	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	Sampling Location												
		MW-1	MW-2	MW-3S	MW-3M	MW-3D	MW-4	MW-5	MW-6*	MW-7*	MW-8*	MW-9	PZ-1	PZ-2
Fourth Quarter Sampling Results Summary (µg/L) - October 2016														
CVOCs	~	0.91	8.39	18.59	18.1	11.36	3.38	0.84	158.4	1.1	33.9	0.99	0.81	1.57
PCE	5	0.22	4.6	8.8	16	10	0.98	0.24	67	0.2	2.7	0.39	0.2	0.54
TCE	5	0.29	3.2	9	1.7	0.96	2	0.2	87	0.5	19	0.2	0.21	0.63
cis-1,2- DCE	5	0.2	0.39	0.59	0.2	0.2	0.2	0.2	4.2	0.2	12	0.2	0.2	0.2
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Q4 Percent CVOC Reduction from Last Quarter (Q3)		*45%*	*Increased*	*Increased*	*26%*	*19%*	*46%*	*76%*	*87%*	*74%*	*37%*	*34%*	*59%*	*62%*
Q4 Percent CVOC Reduction from Baseline		*99.9%*	*100%*	*98%*	*23%*	*59%*	*99%*	*100%*	*87%*	*99.9%*	*93%*	*99.8%*	*99.9%*	*99.6%*
Fifth Quarter Sampling Results Summary (µg/L) - January 2017														
CVOCs	~	0.8	1.32	20.71	21.1	14.21	1.89	1.02	812.7	0.9	42.4	7.9	0.8	1.49
PCE	5	0.2	0.56	10	19	13	0.52	0.42	380	0.2	3.2	5.5	0.2	0.66
TCE	5	0.2	0.36	10	1.7	0.81	0.97	0.2	410	0.3	20	2	0.2	0.43
cis-1,2- DCE	5	0.2	0.2	0.51	0.2	0.2	0.2	0.2	22	0.2	19	0.2	0.2	0.2
vinyl chloride	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.7	0.2	0.2	0.2	0.2	0.2
Q5 Percent CVOC Reduction from Last Quarter (Q4)		*12%*	*84%*	*Increased*	*Increased*	*Increased*	*44%*	*Increased*	*Increased*	*18%*	*Increased*	*Increased*	*1%*	*5%*
Q5 Percent CVOC Reduction from Baseline		*99.9%*	*100%*	*98%*	*10%*	*49%*	*100%*	*99%*	*34%*	*99.9%*	*91%*	*98.7%*	*99.9%*	*99.7%*
Sixth Quarter Sampling Results Summary (µg/L) - April 2017														
CVOCs	~	4.5	11.6	6.4	24.4	16.35	6.8	4.5	57.3	4.4	17.5	4.15	4.5	4.09
PCE	5	0.5	5.5	1.2	19	12	1.5	0.5	26	0.5	2.1	0.4	0.5	0.26
TCE	5	0.5	2.6	1.7	1.9	0.85	1.8	0.5	28	0.4	5.5	0.25	0.5	0.33
cis-1,2- DCE	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.3	2.5	8.9	2.5	2.5	2.5
vinyl chloride	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Q6 Percent CVOC Reduction from Last Quarter (Q5)		*Increased*	*Increased*	*69%*	*Increased*	*Increased*	*Increased*	*Increased*	*93%*	*Increased*	*59%*	*47%*	*Increased*	*Increased*
Q6 Percent CVOC Reduction from Baseline		*99.6%*	*99%*	*99%*	*Increased*	*41%*	*99%*	*97%*	*95%*	*99.7%*	*96%*	*99.3%*	*99.5%*	*99.1%*
Seventh Quarter Sampling Results Summary (µg/L) - July 2017														
CVOCs	~	4.5	4.61	3.98	16	18.24	4.21	4.5	758	4.32	17.2	4.23	15.1	4.36
PCE	5	0.5	0.67	0.22	11	14	0.33	0.5	490	0.5	1.2	0.23	10	0.54
TCE	5	0.5	0.44	0.26	1.5	0.74	0.38	0.5	240	0.32	5.8	0.5	1.6	0.32
cis-1,2- DCE	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	26	2.5	9.2	2.5	2.5	2.5
vinyl chloride	2	1	1	1	1	1	1	1	2	1	1	1	1	1
Q7 Percent CVOC Reduction from Last Quarter (Q6)		*None*	*60%*	*38%*	*34%*	*Increased*	*38%*	*None*	*Increased*	*2%*	*2%*	*Increased*	*Increased*	*Increased*
Q7 Percent CVOC Reduction from Baseline		*99.6%*	*100%*	*100%*	*32%*	*34%*	*99.4%*	*97%*	*39%*	*100%*	*96%*	*99.3%*	*98%*	*99%*

Notes:

1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water.
2. Results equal to or exceeding the NYSDEC TOGS standards and guidance values are shaded.
3. PCE = tetrachlorothylene
4. TCE = trichloroethylene
5. cis-1,2-DCE = cis-1,2-Dichloroethylene
6. µg/L = microgram per liter
7. CVOC = chlorinated volatile organic compounds
8. * = Monitoring well is located in the sidewalk adjacent to the warehouse.
9. ND = Non detect

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS SUMMARY
FORMER WATERMARK DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Compound	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	Sampling Location												
		MW-1	MW-2	MW-3S	MW-3M	MW-3D	MW-4	MW-5	MW-6*	MW-7*	MW-8*	MW-9	PZ-1	PZ-2
Eighth Quarter Sampling Results Summary (µg/L) - October 2017														
CVOCs	~	4.5	4.39	4.5	20.3	19.31	4.27	4.08	276	4.5	10.08	6.18	4.5	4.5
PCE	5	0.5	0.42	0.5	15	15	0.5	0.36	160	0.5	0.78	1.8	0.5	0.5
TCE	5	0.5	0.47	0.5	1.8	0.81	0.27	0.22	93	0.5	3.3	0.88	0.5	0.5
cis-1,2- DCE	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	21	2.5	5	2.5	2.5	2.5
vinyl chloride	2	1	1	1	1	1	1	1	2	1	1	1	1	1
Q8 Percent CVOC Reduction from Last Quarter (Q7)		*None*	*5%*	*Increased*	*Increased*	*Increased*	*Increased*	*9%*	*64%*	*Increased*	*41%*	*Increased*	*70%*	*Increased*
Q8 Percent CVOC Reduction from Baseline		*100%*	*100%*	*99%*	*13%*	*31%*	*99%*	*98%*	*78%*	*100%*	*98%*	*99.0%*	*100%*	*99%*
Ninth Quarter Sampling Results Summary (µg/L) - January 2018														
CVOCs	~	4.08	4.49	4.5	20.1	18.7	4.32	4.24	623.71	4.5	10.99	6.9	5.86	4.5
PCE	5	0.26	0.63	0.5	15	14	0.2	0.48	430	0.5	0.99	2	1.7	0.5
TCE	5	0.32	0.36	0.5	1.6	1.2	0.62	0.26	180	0.5	3.5	1.4	0.66	0.5
cis-1,2- DCE	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	13	2.5	5.5	2.5	2.5	2.5
vinyl chloride	2	1	1	1	1	1	1	1	0.71	1	1	1	1	1
Q9 Percent CVOC Reduction from Last Quarter (Q8)		*9%*	*Increased*	*0%*	*1%*	*3%*	*Increased*	*Increased*	*Increased*	*0%*	*Increased*	*Increased*	*Increased*	*0%*
Q9 Percent CVOC Reduction from Baseline		*100%*	*100%*	*99%*	*14%*	*33%*	*99%*	*98%*	*50%*	*100%*	*98%*	*99%*	*99%*	*99%*
Tenth Quarter Sampling Results Summary (µg/L) - April 2018														
CVOCs	~	6.1	15	10	20.6	19.5	5.62	19.3	357.5	5.72	12	8.6	11.6	26.1
PCE	5	1.4	9.1	4	15	15	1.2	14	240	1.4	3.9	3.8	5.7	14
TCE	5	1.2	2.4	2.5	2.1	1	0.92	3	100	0.82	3.6	1.3	2.6	4.4
cis-1,2- DCE	5	2.5	2.5	2.5	2.5	2.5	2.5	1.3	15	2.5	3.5	2.5	2.3	6.7
vinyl chloride	2	1	1	1	1	1	1	1	2.5	1	1	1	1	1
Q10 Percent CVOC Reduction from Last Quarter (Q9)		*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*43%*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*
Q10 Percent CVOC Reduction from Baseline		*99.5%*	*99%*	*99%*	*12%*	*30%*	*99%*	*89%*	*71%*	*100%*	*97%*	*99%*	*99%*	*94%*
Eleventh Quarter Sampling Results Summary (µg/L) - June 2018														
CVOCs	~	8.5	27.88	9.1	15.2	18.74	2.3	20.1	309	6.6	13	14.4	27.5	48.8
PCE	5	4.5	21	5.6	13	18	1.2	15	200	4.3	5.3	9.5	19	32
TCE	5	4	6.1	3.5	2.2	0.74	1.1	3.7	95	2.3	4.8	3.3	6.5	9.5
cis-1,2- DCE	5	ND	0.78	ND	ND	ND	ND	1.4	14	ND	2.9	1.6	2	7.3
vinyl chloride	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q11 Percent CVOC Reduction from Last Quarter (Q10)		*Increased*	*Increased*	*9%*	*26%*	*4%*	*59%*	*Increased*	*14%*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*
Q11 Percent CVOC Reduction from Baseline		*99%*	*99%*	*99%*	*35%*	*33%*	*100%*	*89%*	*75%*	*99%*	*97%*	*98%*	*97%*	*89%*

Notes:

1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water.
2. Results equal to or exceeding the NYSDEC TOGS standards and guidance values are shaded.
3. PCE = tetrachlorothylene
4. TCE = trichloroethylene
5. cis-1,2-DCE = cis-1,2-Dichloroethylene
6. µg/L = microgram per liter
7. CVOC = chlorinated volatile organic compounds
8. * = Monitoring well is located in the sidewalk adjacent to the warehouse.
9. ND = Non detect

TABLE 8: SEMI-ANNUAL, NEAR-FIELD, OFF-SITE GROUNDWATER SAMPLING RESULTS - JUNE 2018
FORMER WATERMARKS DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C244139

Sample ID Laboratory ID Sampling Date	NYSDEC TOGS Standards and Guidance Values	ML-002S_062718 L1824506-02 6/27/2018		ML-002M_062718 L1824506-04 6/27/2018		ML-002D_062718 L1824506-03 6/27/2018		MW-10_062718 L1824506-06 6/27/2018		MW-11_062718 L1824506-07 6/27/2018	
Volatile Organic Compounds (µg/L)											
1,1-Dichloroethene	5	0.5	U	0.5	U	0.5	U	0.46	J	0.5	U
1,2-Dichloroethene, Total	~	2.5	U	2.5	U	2.5	U	14		2.5	U
1,2-Dichloropropane	1	1	U	1	U	1	U	0.71	J	1	U
Acetone	50	5	U	1.6	J	5	U	5	U	1.8	J
Bromodichloromethane	50	0.54		0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	7	**9.9**		2.5	U	2.5	U	4.3		1.3	J
cis-1,2-Dichloroethene	5	2.5	U	2.5	U	2.5	U	**14**		2.5	U
Tetrachloroethene	5	2		**16**		**13**		**36**		**12**	
Trichloroethene	5	0.83		3		0.9		**18**		**8.2**	

Notes:
1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (SGVs) for Class GA water.
2. Only detected compounds are shown.
3. Results equal to or exceeding the NYSDEC TOGS SGVs are shaded and bolded.
4. µg/L = micrograms per liter
5. ~ = regulatory criteria have not been established for this compound
6. Five monitoring wells were sampled as part of the fourth round of semi-annual, near-field, off-site groundwater sampling.

Qualifiers:
J = Analyte detected at or above the MDL (Method Detection Limit) but below the RL - data is estimated.
U = Analyte not detected at or above the level indicated.

TABLE 9: SEMI-ANNUAL, NEAR-FIELD, OFF-SITE GROUNDWATER SAMPLING RESULTS SUMMARY
FORMER WATERMARKS DESIGN FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Compound	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	Sampling Location				
		ML002S	ML002M	ML002D	MW10	MW11
NYSDEC-Requested Sample Results Summary (µg/L) - July 2016 (Baseline)						
CVOCs	~	38.17	16.54	--	188.2	2.9
PCE	5	17	14	NS	120	1.50
TCE	5	20	2.10	NS	57	1
cis-1,2- DCE	5	0.97	0.24	NS	11	0.20
vinyl chloride	2	0.20	0.20	NS	0.20	0.20
Round 1 Sampling Results Summary (µg/L) - April 2017						
CVOCs	~	5.49	19.9	14.1	12.23	4.58
PCE	5	1.4	14	9.5	5.6	0.56
TCE	5	0.59	2.4	1.1	4.7	0.52
cis-1,2- DCE	5	2.5	2.5	2.5	0.93	2.5
vinyl chloride	2	1	1	1	1	1
Round 1 Percent CVOC Reduction		*86%*	*Increased*	--	*94%*	*Increased*
Round 2 Sampling Results Summary (µg/L) - October 2017						
CVOCs	~	4.91	26.1	14.5	14.93	10.7
PCE	5	1.1	17	10	8.8	5.6
TCE	5	0.31	5.6	1	4.2	1.6
cis-1,2- DCE	5	2.5	2.5	2.5	0.93	2.5
vinyl chloride	2	1	1	1	1	1
Round 2 Percent CVOC Reduction from Round 1		*11%*	*Increased*	*Increased*	*Increased*	*Increased*
Round 2 Percent CVOC Reduction from Baseline		*87%*	*Increased*	--	*92%*	*Increased*
Round 3 Sampling Results Summary (µg/L) - April 2018						
CVOCs	~	27.1	5.44	15.5	93	10
PCE	5	20	1.5	11	44	4.7
TCE	5	3.6	0.44	1	22	1.8
cis-1,2- DCE	5	2.5	2.5	2.5	26	2.5
vinyl chloride	2	1	1	1	1	1
Round 3 Percent CVOC Reduction from Round 2		*Increased*	*79%*	*Increased*	*Increased*	*7%*
Round 3 Percent CVOC Reduction from Baseline		*29%*	*67%*	--	*51%*	*Increased*
Round 4 Sampling Results Summary (µg/L) - June 2018						
CVOCs	~	2.83	19	13.9	68	20.2
PCE	5	2	16	13	36	12
TCE	5	0.83	3	0.9	18	8.2
cis-1,2- DCE	5	ND	ND	ND	14	ND
vinyl chloride	2	ND	ND	ND	ND	ND
Round 4 Percent CVOC Reduction from Round 3		*90%*	*Increased*	*10%*	*27%*	*Increased*
Round 4 Percent CVOC Reduction from Baseline		*93%*	*Increased*	--	*64%*	*Increased*

Notes:

1. Groundwater sample analytical results are compared to New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water.
2. Results exceeding the NYSDEC TOGS standards and guidance values are shaded.
3. PCE = tetrachlorothylene
4. TCE = trichloroethylene
5. cis-1,2-DCE = cis-1,2-Dichloroethylene
6. µg/L = microgram per liter
7. CVOC = chlorinated volatile organic compounds
8. NS = not sampled
9. ND = not detected

TABLE 10: ANNUAL VAPOR SAMPLING RESULTS – JUNE 2018
FORMER WATERMARKS DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

Sample ID	VP-1_062718		VP-2_062818		VP-3_062718		VP-4_062818		VP-5_062718		VP-6_062818		VP-7_062818	
Laboratory ID	L1824493-01		L1824790-04		L1824493-02		L1824790-01		L1824493-03		L1824790-02		L1824790-03	
Sampling Date	6/27/2018		6/28/2018		6/27/2018		6/28/2018		6/27/2018		6/28/2018		6/28/2018	
Volatile Organic Compounds (µg/m³)														
1,1,1-Trichloroethane	10.9	U	6.06		13.2		29.6		34.9		5.21		11.2	
1,1-Dichloroethane	8.09	U	1.62		5.06		4.78		2.74		0.809	U	1.62	U
1,2,4-Trimethylbenzene	9.83	U	3.91		3.24		3.28	U	3.79		3.64		1.97	U
1,2-Dichloropropane	28.4		46.2		34		33		24.3		49		41.5	
1,4-Dioxane	7.21	U	0.721	U	1.44	U	2.4	U	0.814		0.721	U	1.44	U
2,2,4-Trimethylpentane	9.34	U	0.934	U	1.87	U	4.42		0.934	U	0.934	U	1.87	U
2-Butanone	56.3		7.93		31.6		69.9		124		56.6		34.5	
Acetone	44.2		18.1		35.2		25.9		32.3		73.2		24.5	
Benzene	6.39	U	0.639	U	1.28	U	2.13	U	0.639	U	1.28		1.28	U
Carbon disulfide	6.23	U	0.719		1.25	U	2.08	U	1.61		2.51		1.25	U
Chloroethane	5.28	U	0.528	U	1.06	U	1.76	U	0.528	U	8		1.06	U
Chloroform	9.77	U	6.74		20.1		5.32		4.04		2.05		11.5	
Chloromethane	4.13	U	0.762		0.826	U	1.38	U	0.448		3.24		0.826	U
cis-1,2-Dichloroethene	7.93	U	1.81		2.74		2.64	U	0.793	U	0.793	U	1.59	U
Cyclohexane	6.88	U	0.688	U	1.38	U	2.3	U	0.688	U	1.12		1.38	U
Dichlorodifluoromethane	9.89	U	2.3		2.24		3.3	U	2.31		2.09		2	
Ethanol	118		49		176		31.5	U	56.2		81.2		41.1	
Ethyl Acetate	28.8		6.23		50.5		6.02	U	23.2		3.93		3.86	
Ethylbenzene	8.69	U	4.19		4.69		2.95		5.47		4.23		2.68	
Heptane	8.2	U	1.43		1.64	U	2.73	U	1.07		1.84		1.64	U
Isopropanol	12.3	U	2.88		5.73		4.1	U	2.29		8.21		2.46	U
Methylene chloride	17.4	U	3.29		10.9		5.8	U	10.9		9.41		3.47	U
n-Hexane	7.05	U	0.705	U	4.16		2.35	U	3.24		9.02		1.41	U
o-Xylene	8.69	U	8.38		9.69		5.39		10.9		8.3		5.26	
p/m-Xylene	17.4	U	17.4		20.9		11.3		23.4		17.5		10.5	
Styrene	8.52	U	1.52		1.7	U	2.84	U	1.46		1.51		1.7	U
Tetrachloroethene	13.6	U	3.09		8.27		29.5		43.5		7.93		12	
Tetrahydrofuran	156		5.1		63.4		64		191		48.7		20.7	
Toluene	7.54	U	13.2		9.04		12.7		9.42		16.4		11.8	
Trichloroethene	2900		387		828		1330		377		403		548	
Trichlorofluoromethane	11.2	U	1.62		2.25	U	3.75	U	1.69		1.53		2.25	U
1,1,1-Trichloroethane	6.71		NA		NA		NA		NA		NA		NA	
cis-1,2-Dichloroethene	1.74		NA		NA		NA		NA		NA		NA	
Tetrachloroethene	2.64		NA		NA		NA		NA		NA		NA	

Notes:
1. Only compounds with detections are shown.
2. (µg/m³) = micrograms per cubic meter
3. NA = Not analyzed

Qualifiers:
U = Analyte not detected at or above the level indicated.

TABLE 11: ANNUAL VAPOR SAMPLING RESULTS SUMMARY
FORMER WATERMARKS DESIGNS FACILITY
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

Compound	Sampling Location						
	VP-01	VP-02	VP-03	VP-04	VP-05	VP-06	VP-07
Baseline Sampling Results Summary (ug/m^3) - August 2015							
CVOCs	1,909,219	3,414,000	2,044,050	309,649	371,597	47,923	390,070
PCE	18,000	32,800	22,700	10,400	2,400	5,250	6,850
TCE	1,890,000	3,380,000	2,020,000	299,000	369,000	42,500	383,000
cis-1,2- DCE	741	730	821	151	120	105	145
vinyl chloride	478	470	529	97.6	77.2	67.7	75.2
First Annual Sampling Results Summary (ug/m^3) - July 2016							
CVOCs	3,346	5,595	11,255	320	576	2,325	1,065
PCE	230	370	240	25	130	1400	49
TCE	3,100	5,200	11,000	280	430	910	1,000
cis-1,2- DCE	9.6	19	9.2	9.2	9.6	9	9.5
vinyl chloride	6.2	5.7	5.9	5.9	6.2	5.8	6.1
Percent CVOC Reduction (Round 1)	99.8%	99.8%	99.4%	99.9%	99.8%	95%	99.7%
Second Annual Sampling Results Summary (ug/m^3) - June 2018							
CVOCs	2,914	392	839	1,360	421	411	560
PCE	13.6	3.09	8.27	29.5	43.5	7.93	12
TCE	2900	387	828	1330	377	403	548
cis-1,2- DCE	ND	1.81	2.74	ND	ND	ND	ND
vinyl chloride	ND	ND	ND	ND	ND	ND	ND
Percent CVOC Reduction (Round 2) from Round 1	12.9%	93.0%	92.5%	*Increased*	27.0%	82.3%	47.4%
Percent CVOC Reduction from Baseline	99.8%	99.9%	99.9%	*99.6%*	99.9%	99.1%	99.9%

Notes:
1. Only compounds with detections are shown.
2. ug/m^3 = micrograms per cubic meter
3. PCE = tetrachlorothylene
4. TCE = trichloroethylene
5. cis-1,2-DCE = cis-1,2-Dichloroethylene
6. CVOC = chlorinated volatile organic compounds
7. ND = Non-detect