Progress Report No. 7
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: January 2016

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this monthly progress report on behalf of J&H Holding Company, LLC (the "Participant"). Monthly progress report submittal to the New York State Department of Environmental Conservation (NYSDEC) is performed in accordance with the Brownfield Cleanup Agreement (BCA) and Section 3.2 of the NYSDEC-approved Interim Remedial Measures Work Plan (IRMWP), prepared by Langan, dated April 28, 2015, and revised June 16, 2015. This monthly progress report summarizes work performed at 491 Wortman Avenue, Brooklyn, New York (the "site") during January 2016.

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 (i.e. the eastern portion).

Environmental site investigations began in November 2008. The most recent environmental activity was Langan's submittal of the IRMWP, which the NYSDEC approved on June 18, 2015. Implementation of the IRMWP and the pending environmental activities are described further in this progress report.

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

On January 7, 2016, in response to a high storage tank alarm, tank water was pumped from the soil vapor extraction (SVE) system storage tank to seven 55-gallon drums. In an effort to reduce water output to the storage tank, the SVE flowrate was reduced and the air sparge (AS) temperature was increased. During system optimization on January 20, 2016, the storage tank was emptied along with the knock-out tank. Piezometers, indoor monitoring wells, and SVE wells were gauged prior to system restart, during optimization, and about an hour into resumed system operation. AS and SVE flow rates were adjusted during optimization and vent wells V-1 and V-2 were opened. The system was functional and in automatic mode at the end of the optimization event.

The first quarterly groundwater sampling event was conducted on January 25 and 26, 2016. A synoptic groundwater survey, consisting of depth-to-water, total depth, and photoionization detector (PID) measurements, was performed at monitoring wells MW-1 through MW-9, piezometers PZ-1 and PZ-2, and vent wells V-1 and V2. Following the synoptic groundwater survey, groundwater samples were collected from eleven monitoring wells and two piezometers.

Process and performance monitoring data was recorded on January 27, 2015. 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), and routine equipment maintenance was performed. Maintenance included greasing the blower and checking the belt

tensions. In addition, water surfaced at the wellhead of PZ-2. This was remedied the following afternoon with a new well cap fitting.

On February 2, 2016, compressor speed and heat exchanger flow were adjusted in response to an AS discharge high temperature alarm. Once the temperature was returned to optimal range, the AS/SVE operational parameters were recorded.

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:

- Three influent vapor samples were collected from the AS/SVE system and analyzed for volatile organic compounds (VOCs) via the United States Environmental Protection Agency (USEPA) Method TO-15.
- Three effluent vapor samples were collected from the AS/SVE system and analyzed for VOCs via USEPA Method TO-15.
- Thirteen groundwater samples (plus one duplicate) were collected from each of the 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 Target Compound List (TCL) VOCs via USEPA Method 8260C.

Samples were analyzed by York Analytical Laboratories Inc. (York) of Stratford, CT. York 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).

Groundwater results exhibit VOC concentrations above the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS) for Class GA water; however, when compared to the baseline groundwater sampling results from August 2015, reductions in total chlorinated VOC (CVOC) concentrations have been achieved in all but one (MW-3 intermediate) of the sampled wells.

The following tables are attached to this progress report. 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 PID readings and laboratory data, as well as the alarm history.

- Table 1: AS/SVE System Vapor Sampling Summary
- Table 2: AS/SVE System Vapor Sampling Results (lab reports available upon request)
- Table 3: AS/SVE System Mass Removal – PID Data

- Table 4: AS/SVE System Mass Removal – Laboratory Data
- Table 5: AS/SVE System DAR-1 Compliance – December 28, 2015
- Table 6: AS/SVE System Alarm History
- Table 7: Quarterly Groundwater Sampling Results – First Quarter (lab reports available upon request)
- Table 8: Quarterly Groundwater Sampling Results Summary

6. Deliverables Submitted During This Reporting Period

No deliverables were submitted during this reporting period.

7. Information Regarding Percentage of Completion

Operation, maintenance and monitoring of the AS/SVE system are ongoing.

As of January 29, 2016 and since inception, the SVE system operated for 2,229 hours, and the AS system operated for 2,199 hours.

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

None.

9. Citizen Participation Plan Activities during This Reporting Period

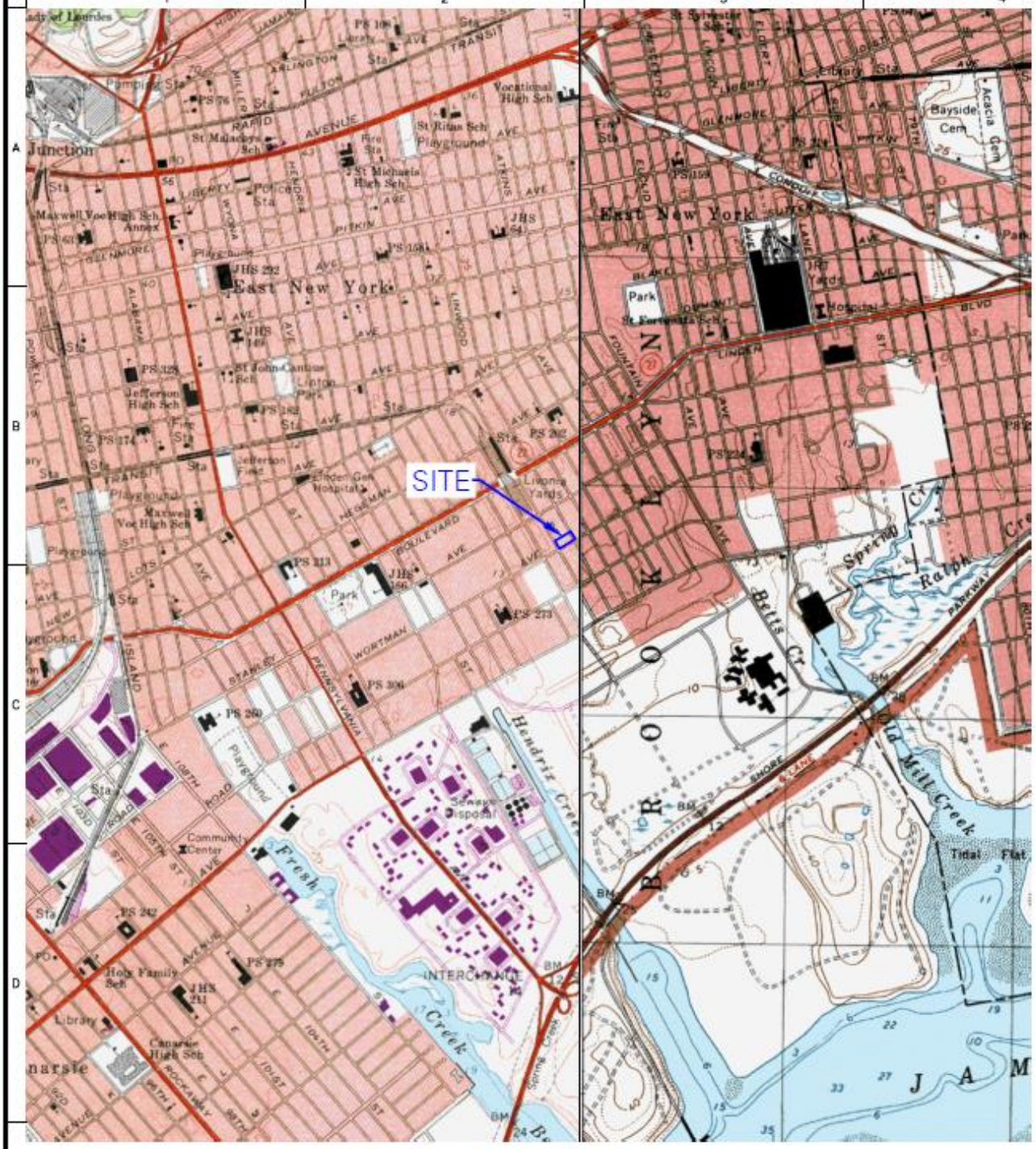
None.

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

None.

11. Miscellaneous Information

None.



REFERENCE: 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
Date	04/18/2015
Scale	N.T.S.
Drawn By	MLR
Checked By	GN
Submission Date	
Figure	1
Sheet	1 of 7

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\2D-DesignFiles\RMWP\Figure 1 - Site Location Map.dwg Date: 4/18/2015 Time: 11:35 User: mrogers Style Table: Langan.stb Layout: Site Location Map

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING SUMMARY
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

SAMPLE NAME	SAMPLE DATE	SAMPLE TYPE	LOCATION	ANALYSIS
AS/SVE SYSTEM VAPOR SAMPLES				
Influent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs

Notes:

1. The vapor samples were analyzed for VOCs via USEPA Method TO-15.
2. USEPA = United States Environmental Protection Agency
3. VOCs = volatile organic compounds
4. AS/SVE = air sparge/soil vapor extraction
5. vGAC = vapor-phase granular activated carbon

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent 102015		Effluent 102015		Influent_102115		Effluent_102115	
LAB SAMPLE ID	15J0790-01		15J0790-02		15J0866-01		15J0866-02	
SAMPLE DATE	10/20/2015		10/20/2015		10/21/2015		10/21/2015	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.86	U	6.86	U	6.90	U	6.90	U
1,1,1-Trichloroethane	981.76	D	5.45	U	140	D	5.50	U
1,1,2,2-Tetrachloroethane	6.86	U	6.86	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.66	U	7.66	U	7.70	U	7.70	U
1,1,2-Trichloroethane	8.73	D	5.45	U	5.50	U	5.50	U
1,1-Dichloroethane	117.33	D	4.05	U	15	D	4	U
1,1-Dichloroethylene	11.10	D	3.96	U	4	U	4	U
1,2,4-Trichlorobenzene	7.42	U	7.42	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	5.90	D	4.91	U	4.90	U	4.90	U
1,2-Dibromoethane	7.68	U	7.68	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,2-Dichloroethane	4.05	U	4.05	U	4	U	4	U
1,2-Dichloropropane	4.62	U	4.62	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	6.99	U	6.99	U	7	U	7	U
1,3,5-Trimethylbenzene	4.91	U	4.91	U	4.90	U	4.90	U
1,3-Butadiene	13.00	U	13.00	U	13	U	13	U
1,3-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,3-Dichloropropane	4.62	U	4.62	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U	7.20	U
2-Butanone	88.44	D	82.55	D	36	D	21	D
2-Hexanone	8.19	U	8.19	U	8.20	U	8.20	U
3-Chloropropene	15.64	U	15.64	U	16	U	16	U
4-Methyl-2-pentanone	5.32	D	4.09	U	4.50	D	4.10	U
Acetone	332.54	D	1,800	D	150	D	200	D
Acrylonitrile	2.17	U	2.17	U	2.20	U	2.20	U
Benzene	226.73	D	27.78	D	100	D	42	D
Benzyl chloride	5.17	U	5.17	U	5.20	U	5.20	U
Bromodichloromethane	6.21	U	6.21	U	6.20	U	6.20	U
Bromoform	10.33	U	10.33	U	10	U	10	U
Bromomethane	3.88	U	3.88	U	3.90	U	3.90	U
Carbon disulfide	9.65	D	3,600	D	7.50	D	200	D
Carbon tetrachloride	1.57	U	1.57	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U	4.60	U
Chloroethane	2.64	U	2.64	U	2.60	U	2.60	U
Chloroform	634.48	D	4.88	U	140	D	4.90	U
Chloromethane	3.51	D	13.42	D	2.10	U	2.10	U
cis-1,2-Dichloroethylene	39.63	D	3.96	U	28	D	4	U
cis-1,3-Dichloropropylene	4.54	U	4.54	U	4.50	U	4.50	U
Cyclohexane	3.44	U	14.45	D	3.40	U	11	D
Dibromochloromethane	8.02	U	8.02	U	8	U	8	U
Dichlorodifluoromethane	4.94	U	4.94	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U	7.20	U
Ethyl Benzene	24.31	D	4.34	U	21	D	4.30	D
Hexachlorobutadiene	10.66	U	10.66	U	11	U	11	U
Isopropanol	16.95	D	3,400	D	25	D	NT	
Methyl Methacrylate	4.09	U	4.09	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U	3.60	U
Methylene chloride	90.28	D	13.54	D	35	D	12	D
n-Heptane	4.10	U	4.10	U	4.10	U	4.10	U
n-Hexane	42.28	D	10.57	D	17	D	9.90	D
o-Xylene	8.25	D	4.34	U	11	D	4.30	U
p- & m- Xylenes	23.87	D	8.68	U	26	D	8.70	U
p-Ethyltoluene	4.91	U	4.91	U	4.90	U	4.90	U
Propylene	1.72	U	1.72	U	1.70	U	1.70	U
Styrene	4.26	U	4.26	U	4.30	U	4.30	U
Tetrachloroethylene	680	U	13.56	D	2,800	D	48	D
Tetrahydrofuran	1,473.83	D	203.39	D	87	D	16	D
Toluene	124.31	D	34.28	D	110	D	35	D
trans-1,2-Dichloroethylene	10.70	D	3.96	U	5.20	D	4	U
trans-1,3-Dichloropropylene	4.54	U	4.54	U	4.50	U	4.50	U
Trichloroethylene	110,000	D	27.40	D	29,000	D	530	D
Trichlorofluoromethane (Freon 11)	5.62	U	5.62	U	5.60	U	5.60	U
Vinyl acetate	3.52	U	3.52	U	3.50	U	3.50	U
Vinyl bromide	4.37	U	4.37	U	4.40	U	4.40	U
Vinyl Chloride	2.56	U	2.56	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_102615		Effluent_102615		Influent_113015		Effluent_113015	
LAB SAMPLE ID	15J0989-01		15J0989-02		15L0012-01		15L0012-02	
SAMPLE DATE	10/26/2015		10/26/2015		11/30/2015		11/30/2015	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U	6.90	U
1,1,1-Trichloroethane	18	D	5.50	U	5.50	U	13	D
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U	4	U	4	U
1,1-Dichloroethylene	4	U	4	U	4	U	4	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U	6	U	6	U
1,2-Dichloroethane	4	U	4	U	4	U	4	U
1,2-Dichloropropane	4.60	U	4.60	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	7	U	7	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	4.90	U	4.90	U
1,3-Butadiene	13	U	13	U	13	U	13	U
1,3-Dichlorobenzene	6	U	6	U	6	U	6	U
1,3-Dichloropropane	4.60	U	4.60	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6	U	6	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U	7.20	U
2-Butanone	6	D	3	D	8	D	5.30	D
2-Hexanone	8.20	U	8.20	U	8.20	U	8.20	U
3-Chloropropene	16	U	16	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	4.10	U	4.10	U	4.10	U
Acetone	37	D	66	D	54	D	69	D
Acrylonitrile	2.20	U	2.20	U	2.20	U	2.20	U
Benzene	11	D	14	D	19	D	22	D
Benzyl chloride	5.20	U	5.20	U	5.20	U	5.20	U
Bromodichloromethane	6.20	U	6.20	U	6.20	U	6.20	U
Bromoform	10	U	10	U	10	U	10	U
Bromomethane	3.90	U	3.90	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	34	D	3.10	U	31	D
Carbon tetrachloride	1.60	U	1.60	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U	2.60	U	2.60	U
Chloroform	18	D	4.90	U	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U	2.10	U	2.10	U
cis-1,2-Dichloroethylene	13	D	4	U	4	U	4	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U	4.50	U
Cyclohexane	3.40	U	5	D	3.40	U	3.40	U
Dibromochloromethane	8	U	8	U	8	U	8	U
Dichlorodifluoromethane	4.90	U	4.90	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U	7.20	U
Ethyl Benzene	4	D	4.30	U	5.20	D	4.30	U
Hexachlorobutadiene	11	U	11	U	11	U	11	U
Isopropanol	10	D	57	D	6.40	D	150	D
Methyl Methacrylate	4.10	U	4.10	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U	3.60	U
Methylene chloride	32	D	34	D	19	D	68	D
n-Heptane	4.10	U	4.10	U	4.10	U	4.10	U
n-Hexane	5	D	8.80	D	3.50	U	12	D
o-Xylene	4	U	4.30	U	4.30	U	4.30	U
p- & m- Xylenes	9	U	8.70	U	12	D	8.70	U
p-Ethyltoluene	4.90	U	4.90	U	4.90	U	4.90	U
Propylene	36.00	D	1.70	U	1.70	U	1.70	U
Styrene	4.30	U	4.30	U	4.30	U	4.30	U
Tetrachloroethylene	1,200	D	26	D	290	D	12	D
Tetrahydrofuran	14	D	6	U	5.90	U	5.90	U
Toluene	22	D	15	D	30	D	21	D
trans-1,2-Dichloroethylene	4.00	U	4	U	4	U	4	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U	4.50	U
Trichloroethylene	5,600	D	120	D	2700	D	23	D
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	U	2.60	U	2.60	U

NOTES:
1. ug/m^3 = micrograms per cubic meter
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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:
D = The result is from an analysis that required a dilution.
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TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_122815		Effluent_122815		INFLUENT_012716		EFFLUENT_012716	
LAB SAMPLE ID	15L1040-01		15L1040-02		16A0778-01		16A0778-02	
SAMPLE DATE	12/28/2015		12/28/2015		1/27/2016		1/27/2016	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	0.69	U
1,1,1-Trichloroethane	5.50	D	5.50	U	2.70		0.55	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	0.69	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	16	D	0.77	U	0.77	U
1,1,2-Trichloroethane	5.50	U	5.50	U	0.55	U	0.55	U
1,1-Dichloroethane	4	U	4	U	0.69		0.40	U
1,1-Dichloroethylene	4	U	4	U	0.44		0.44	
1,2,4-Trichlorobenzene	7.40	U	7.40	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	0.54		0.49	U
1,2-Dibromoethane	7.70	U	7.70	U	0.77	U	0.77	U
1,2-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,2-Dichloroethane	4	U	4	U	0.40	U	0.40	U
1,2-Dichloropropane	4.60	U	4.60	U	0.46	U	0.46	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	0.70	U	0.70	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	0.49	U	0.49	U
1,3-Butadiene	13	U	13	U	1.30	U	1.30	U
1,3-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,3-Dichloropropane	4.60	U	4.60	U	0.46	U	0.46	U
1,4-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,4-Dioxane	7.20	U	7.20	U	0.72	U	0.72	U
2-Butanone	4.70	D	2.90	U	6.70		1.60	
2-Hexanone	8.20	U	8.20	U	0.82	U	0.82	U
3-Chloropropene	16	U	16	U	1.60	U	1.60	U
4-Methyl-2-pentanone	4.10	U	4.10	U	2		1.10	
Acetone	35	D	32	D	40		25	
Acrylonitrile	2.20	U	2.20	U	0.22	U	0.22	U
Benzene	6.40	D	3.20	U	13		2.50	
Benzyl chloride	5.20	U	5.20	U	0.52	U	0.52	U
Bromodichloromethane	6.20	U	6.20	U	0.62	U	0.62	U
Bromoform	10	U	10	U	1	U	1	U
Bromomethane	3.90	U	3.90	U	0.39	U	0.39	U
Carbon disulfide	3.10	U	13	D	1.40		8.70	
Carbon tetrachloride	1.60	U	1.60	U	0.44		0.16	U
Chlorobenzene	4.60	U	4.60	U	0.46	U	0.46	U
Chloroethane	2.60	U	2.60	U	1.20		0.26	U
Chloroform	4.90	D	4.90	U	2.60		0.49	U
Chloromethane	2.10	U	2.10	U	3		2	
cis-1,2-Dichloroethylene	7.90	D	4	U	7.70		0.40	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	0.45	U
Cyclohexane	3.40	U	3.40	U	0.34	U	0.34	U
Dibromochloromethane	8	U	8	U	0.80	U	0.80	U
Dichlorodifluoromethane	4.90	U	4.90	U	2.10		3.20	
Ethyl acetate	7.20	U	7.20	U	0.72	U	0.72	U
Ethyl Benzene	4.30	U	4.30	U	1.70		0.48	
Hexachlorobutadiene	11	U	11	U	1.10	U	1.10	U
Isopropanol	67	D	98	D	0.49	U	49	
Methyl Methacrylate	4.10	U	7	D	17		9.40	
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	0.36	U	0.36	U
Methylene chloride	13	D	24	D	40		34	
n-Heptane	4.10	U	4.10	U	0.41	U	0.41	U
n-Hexane	3.50	U	6	D	6.50		8.60	
o-Xylene	4.30	U	4.30	U	0.65		0.43	U
p- & m- Xylenes	8.70	U	8.70	U	2		0.96	
p-Ethyltoluene	4.90	U	4.90	U	0.49	U	0.49	U
Propylene	13	D	13	D	21		18	
Styrene	4.30	U	4.30	U	0.68		0.43	U
Tetrachloroethylene	380	D	12	D	280		6.90	
Tetrahydrofuran	6.80	D	5.90	U	0.59	U	0.59	U
Toluene	13	D	8.70	D	14		9.50	
trans-1,2-Dichloroethylene	4	U	4	U	0.48		0.40	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	0.45	U
Trichloroethylene	2,800	D	1.3	U	150	D	0.13	U
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	1.70		1.80	
Vinyl acetate	3.50	U	3.50	U	0.35	U	0.35	U
Vinyl bromide	4.40	U	4.40	U	0.44	U	0.44	U
Vinyl Chloride	2.60	U	2.60	U	0.82		0.26	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - PID DATA
491 WORTMAN AVENUE
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	1548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2180	100	0.01	3.60	68.81

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 4: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA
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)	VGAC MASS REMOVAL EFFICIENCY (%)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99	92
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44	97
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36	95
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18	86
12/28/2015	3,357	570	230	1548	53.58	3.67	49.91	4.18	16.55	3.89	15.08	93
1/27/2016	621	525	183	2180	9.13	2.69	6.44	0.76	17.31	0.54	15.62	71

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 5: AS/SVE SYSTEM DAR-1 COMPLIANCE
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **1/27/2016**

CHEMICAL COMPOUND	CARBON EFFLUENT CONCENTRATION 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	SGC EMISSION EXCEEDANCE (if C_{st}>SGC)	AGC EMISSION EXCEEDANCE (if C_a>AGC)
Volatile Organics, USEPA TO-15 Full List (ug/m^3)													
1,1-Dichloroethylene	0.44	525	14.86643	8.63E-07	7.56E-03	6.80E-05	6.79E-05	4.42E-03	0	200	NO	No Standard	NO
2-Butanone	1.6	525	14.86643	3.14E-06	2.75E-02	2.47E-04	2.47E-04	1.61E-02	13000	5000	NO	NO	NO
4-Methyl-2pentan0ne	1.1	525	14.86643	2.16E-06	1.89E-02	1.70E-04	1.70E-04	1.10E-02	31000	3000	NO	NO	NO
Acetone	25	525	14.86643	4.91E-05	4.30E-01	3.86E-03	3.86E-03	2.51E-01	180,000	30,000	NO	NO	NO
Benzene	2.5	525	14.86643	4.91E-06	4.30E-02	3.86E-04	3.86E-04	2.51E-02	1,300	0	NO	NO	NO
Carbon disulfide	8.7	525	14.86643	1.71E-05	1.50E-01	1.34E-03	1.34E-03	8.73E-02	6,200	700	NO	NO	NO
Chloromethane	2	525	14.86643	3.92E-06	3.44E-02	3.09E-04	3.09E-04	2.01E-02	6,200	700	NO	NO	NO
Dichlorodifluoromethane	3.2	525	14.86643	6.28E-06	5.50E-02	4.95E-04	4.94E-04	3.21E-02	0	12,000	NO	No Standard	NO
Isopropanol	49	525	14.86643	9.62E-05	8.42E-01	7.57E-03	7.56E-03	4.92E-01	98,000	7,000	NO	NO	NO
Ethyl Benzene	0.48	525	14.86643	9.42E-07	8.25E-03	7.42E-05	7.41E-05	4.82E-03	54,000	1,000	NO	NO	NO
Methylene chloride	34	525	14.86643	6.67E-05	5.84E-01	5.25E-03	5.25E-03	3.41E-01	14,000	60	NO	NO	NO
Methyl methacrylate	9.4	525	14.86643	1.84E-05	1.62E-01	1.45E-03	1.45E-03	9.43E-02	41,000	700	NO	NO	NO
n-Hexane	8.6	525	14.86643	1.69E-05	1.48E-01	1.33E-03	1.33E-03	8.63E-02	0	700	NO	No Standard	NO
p&m-Xylenes	0.96	525	14.86643	1.88E-06	1.65E-02	1.48E-04	1.48E-04	9.63E-03	22,000	100	NO	NO	NO
Propylene	18	525	14.86643	3.53E-05	3.09E-01	2.78E-03	2.78E-03	1.81E-01	0	3,000	NO	No Standard	NO
Tetrachloroethylene	6.9	525	14.86643	1.35E-05	1.19E-01	1.07E-03	1.07E-03	6.92E-02	300	4	NO	NO	NO
Trichlorofluoromethane	1.8	525	14.86643	3.53E-06	3.09E-02	2.78E-04	2.78E-04	1.81E-02	9,000	5,000	NO	NO	NO
Toluene	9.5	525	14.86643	1.86E-05	1.63E-01	1.47E-03	1.47E-03	9.53E-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 "0.00" 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 6: AS/SVE SYSTEM ALARM HISTORY
491 WORTMAN AVENUE
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.

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS - FIRST QUARTER
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW01_012516 16A0725-01 1/25/2016 1		MW02_012516 16A0725-02 1/25/2016 1		MW03_012516 16A0725-03 1/25/2016 0:00 1		MW03I_012516 16A0750-01 1/25/2016 1		MW03D_012616 16A0750-02 1/26/2016 1		MW04_012616 16A0750-03 1/26/2016 1		MW05_012516 16A0725-04 1/25/2016 1		MW06_012616 16A0774-01 1/26/2016 5	
Volatile Organic Comounds (µg/L)																	
1,1-Dichloroethane	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	1	U
1,1-Dichloroethylene	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	1	U
Acetone	50	2.5	B	3.3	B	3.2	B	1	U	1	U	1	U	2.5	B	10	BD
Chloroform	7	0.2	U	0.2	U	0.2	U	0.23	J	0.79		0.2	U	0.2	U	2.1	JD
Chloromethane	5	0.32	J	0.32	J	0.29	J	0.2	U	0.2	U	0.2	U	0.31	J	1	U
cis-1,2-Dichloroethylene	5	1.3		0.2	U	0.2	U	0.24	J	0.23	J	0.6		0.3	J	**35**	D
Methyl tert-butyl ether (MTBE)	10	0.2	U	0.2	U	0.2	U	0.2	U	0.4	J	0.2	U	0.28	J	1	U
tert-Butyl alcohol (TBA)	~	0.2	U	1.4	J	0.2	U	0.5	U	0.5	U	0.5	U	0.2	U	2.5	U
Tetrachloroethylene	5	**6**		1.1		2		**20**		**14**		2.9		0.8		**240**	D
trans-1,2-Dichloroethylene	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	1	U
Trichloroethylene	5	**5.3**		0.74		**5.2**		3		1.7		**11**		0.37	J	**400**	D
Vinyl Chloride	2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	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 (AWQS) for Class GA water.
2. 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. ~ = No regulatory limit has been established for this analyte.
6. DUP01_012612 is a duplicate sample of MW07_012616.
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 baseline sampling program.
8. Two trip blanks (TB01_012516 and TB02_012616) and one field blank (FB01_012616) were collected for quality assurance/quality control (QA/QC) purposes.

Qualifiers:
B = Analyte found in the analysis batch blank.
D = The sample was diluted per the dilution factor shown.
E = Result is estimated and cannot be accurately reported due to levels encountered or interferences.
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 - FIRST QUARTER
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW07_012616 16A0750-04 1/26/2016 1		DUP01_012616 16A0750-08 1/26/2016 1		MW08_012616 16A0750-05 1/26/2016 1		MW09_012516 16A0725-05 1/25/2016 1		PZ01_012616 16A0750-06 1/26/2016 1		PZ02_012516 16A0750-07 1/25/2016 1		TB01_012516 16A0725-06 1/25/2016 1		TB02_012616 16A0750-10 1/26/2016 1		FB01_012616 16A0750-09 1/26/2016 1	
Volatile Organic Comounds (µg/L)																			
1,1-Dichloroethane	5	0.2	U	0.2	U	1.5		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
1,1-Dichloroethylene	5	0.2	U	0.2	U	0.22	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Acetone	50	1	U	1	U	1	U	2.4	B	1	U	1	U	2.6	B	1	U	1	U
Chloroform	7	0.2	U	0.2	U	0.28	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Chloromethane	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.23	J	0.2	U	0.2	U
cis-1,2-Dichloroethylene	5	0.21	J	0.21	J	**39**		0.2	U	1.4		0.2	U	0.2	U	0.2	U	0.2	U
Methyl tert-butyl ether (MTBE)	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
tert-Butyl alcohol (TBA)	~	0.5	U	0.5	U	0.5	U	0.2	U	0.5	U	0.5	U	0.2	U	0.5	U	0.5	U
Tetrachloroethylene	5	1.7		1.7		**15**		3.6		3.3		0.97		0.2	U	0.2	U	0.2	U
trans-1,2-Dichloroethylene	5	0.2	U	0.2	U	0.6		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Trichloroethylene	5	**9**		**9.1**		**130**	E	1.4		**5.4**		1.2		0.2	U	0.2	U	0.2	U
Vinyl Chloride	2	0.2	U	0.2	U	0.56		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	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 (AWQS) for Class GA water.
2. 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. ~ = No regulatory limit has been established for this analyte.
6. DUP01_012612 is a duplicate sample of MW07_012616.
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 baseline sampling program.
8. Two trip blanks (TB01_012516 and TB02_012616) and one field blank (FB01_012616) were collected for quality assurance/quality control (QA/QC) purposes.

Qualifiers:
B = Analyte found in the analysis batch blank.
D = The sample was diluted per the dilution factor shown.
E = Result is estimated and cannot be accurately reported due to levels encountered or interferences.
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 8: QUARTERLY 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												
		MW-1	MW-2	MW-3S	MW-3I	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%*

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 (AWQS) for Class GA water.
2. Results exceeding the NYSDEC TOGS standards and guidance values are shaded and bolded.
3. PCE = tetrachloroethylene
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.

Progress Report No. 8
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: February 2016

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this monthly progress report on behalf of J&H Holding Company, LLC (the "Participant"). Monthly progress report submittal to the New York State Department of Environmental Conservation (NYSDEC) is performed in accordance with the Brownfield Cleanup Agreement (BCA) and Section 3.2 of the NYSDEC-approved Interim Remedial Measures Work Plan (IRMWP), prepared by Langan, dated April 28, 2015, and revised June 16, 2015. This monthly progress report summarizes work performed at 491 Wortman Avenue, Brooklyn, New York (the "site") during February 2016.

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 (i.e. the eastern portion).

Environmental site investigations began in November 2008. The most recent environmental activity was Langan's submittal of the IRMWP, which the NYSDEC approved on June 18, 2015. Implementation of the IRMWP and the pending environmental activities are described further in this progress report.

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

On February 24, 2016, 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), and routine equipment maintenance was performed. Maintenance included greasing the blower and checking the belt tensions. An additional sample was collected in between the lead and lag vGAC units (i.e., mid-point) to monitor break-through of the lead vGAC unit.

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.
- vGAC carbon replacement.

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:

- Three influent vapor samples were collected from the AS/SVE system and analyzed for volatile organic compounds (VOCs) via the United States Environmental Protection Agency (USEPA) Method TO-15.
- Three mid-point vapor samples were collected from the AS/SVE system and analyzed for VOCs via USEPA Method TO-15.
- Three effluent vapor samples were collected from the AS/SVE system and analyzed for VOCs via USEPA Method TO-15.

Samples were analyzed by York Analytical Laboratories Inc. (York) of Stratford, CT. York 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).

Based on the results of the samples collected from the influent and mid-point of the vGAC units, a carbon change-out at the lead vGAC vessel will be scheduled for March 2016.

The following tables are attached to this progress report. 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 PID readings and laboratory data, as well as the alarm history.

- Table 1: AS/SVE System Vapor Sampling Summary
- Table 2: AS/SVE System Vapor Sampling Results (lab reports available upon request)
- Table 3: AS/SVE System Mass Removal – PID Data
- Table 4: AS/SVE System Mass Removal – Laboratory Data
- Table 5: AS/SVE System DAR-1 Compliance – February 24, 2016
- Table 6: AS/SVE System Alarm History
- Table 7: Quarterly Groundwater Sampling Results – First Quarter (lab reports available upon request)
- Table 8: Quarterly Groundwater Sampling Results Summary

6. Deliverables Submitted During This Reporting Period

No deliverables were submitted during this reporting period.

7. Information Regarding Percentage of Completion

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

As of March 3, 2016 and since inception, the SVE system operated for 3,040 hours (95% uptime), and the AS system operated for 2,999 hours (93% 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

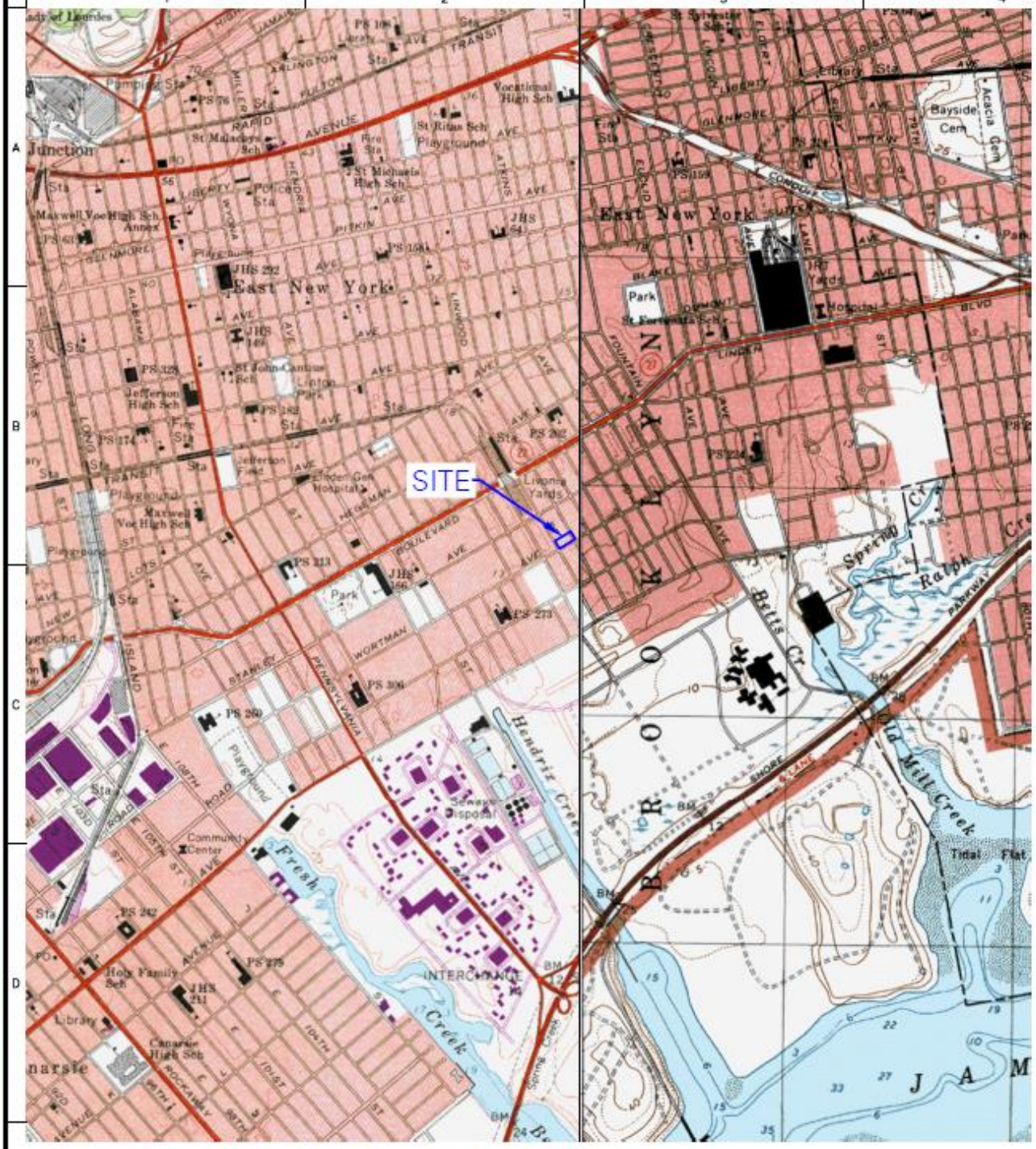
None.

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

None.

11. Miscellaneous Information

None.



REFERENCE: 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	MLR
Checked By	GN
Submission Date	
Figure	1
Sheet	1 of 7

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\2D-DesignFiles\RMWP\Figure 1 - Site Location Map.dwg Date: 4/18/2015 Time: 11:35 User: mrogers Style Table: Langan.stb Layout: Site Location Map

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING SUMMARY
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

SAMPLE NAME	SAMPLE DATE	SAMPLE TYPE	LOCATION	ANALYSIS
AS/SVE SYSTEM VAPOR SAMPLES				
Influent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Mid_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs

Notes:

1. The vapor samples were analyzed for VOCs via USEPA Method TO-15.
2. USEPA = United States Environmental Protection Agency
3. VOCs = volatile organic compounds
4. AS/SVE = air sparge/soil vapor extraction
5. vGAC = vapor-phase granular activated carbon

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent 102015		Effluent 102015		Influent_102115		Effluent_102115	
LAB SAMPLE ID	15J0790-01		15J0790-02		15J0866-01		15J0866-02	
SAMPLE DATE	10/20/2015		10/20/2015		10/21/2015		10/21/2015	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.86	U	6.86	U	6.90	U	6.90	U
1,1,1-Trichloroethane	981.76	D	5.45	U	140	D	5.50	U
1,1,2,2-Tetrachloroethane	6.86	U	6.86	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.66	U	7.66	U	7.70	U	7.70	U
1,1,2-Trichloroethane	8.73	D	5.45	U	5.50	U	5.50	U
1,1-Dichloroethane	117.33	D	4.05	U	15	D	4	U
1,1-Dichloroethylene	11.10	D	3.96	U	4	U	4	U
1,2,4-Trichlorobenzene	7.42	U	7.42	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	5.90	D	4.91	U	4.90	U	4.90	U
1,2-Dibromoethane	7.68	U	7.68	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,2-Dichloroethane	4.05	U	4.05	U	4	U	4	U
1,2-Dichloropropane	4.62	U	4.62	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	6.99	U	6.99	U	7	U	7	U
1,3,5-Trimethylbenzene	4.91	U	4.91	U	4.90	U	4.90	U
1,3-Butadiene	13.00	U	13.00	U	13	U	13	U
1,3-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,3-Dichloropropane	4.62	U	4.62	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U	7.20	U
2-Butanone	88.44	D	82.55	D	36	D	21	D
2-Hexanone	8.19	U	8.19	U	8.20	U	8.20	U
3-Chloropropene	15.64	U	15.64	U	16	U	16	U
4-Methyl-2-pentanone	5.32	D	4.09	U	4.50	D	4.10	U
Acetone	332.54	D	1,800	D	150	D	200	D
Acrylonitrile	2.17	U	2.17	U	2.20	U	2.20	U
Benzene	226.73	D	27.78	D	100	D	42	D
Benzyl chloride	5.17	U	5.17	U	5.20	U	5.20	U
Bromodichloromethane	6.21	U	6.21	U	6.20	U	6.20	U
Bromoform	10.33	U	10.33	U	10	U	10	U
Bromomethane	3.88	U	3.88	U	3.90	U	3.90	U
Carbon disulfide	9.65	D	3,600	D	7.50	D	200	D
Carbon tetrachloride	1.57	U	1.57	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U	4.60	U
Chloroethane	2.64	U	2.64	U	2.60	U	2.60	U
Chloroform	634.48	D	4.88	U	140	D	4.90	U
Chloromethane	3.51	D	13.42	D	2.10	U	2.10	U
cis-1,2-Dichloroethylene	39.63	D	3.96	U	28	D	4	U
cis-1,3-Dichloropropylene	4.54	U	4.54	U	4.50	U	4.50	U
Cyclohexane	3.44	U	14.45	D	3.40	U	11	D
Dibromochloromethane	8.02	U	8.02	U	8	U	8	U
Dichlorodifluoromethane	4.94	U	4.94	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U	7.20	U
Ethyl Benzene	24.31	D	4.34	U	21	D	4.30	D
Hexachlorobutadiene	10.66	U	10.66	U	11	U	11	U
Isopropanol	16.95	D	3,400	D	25	D	NT	
Methyl Methacrylate	4.09	U	4.09	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U	3.60	U
Methylene chloride	90.28	D	13.54	D	35	D	12	D
n-Heptane	4.10	U	4.10	U	4.10	U	4.10	U
n-Hexane	42.28	D	10.57	D	17	D	9.90	D
o-Xylene	8.25	D	4.34	U	11	D	4.30	U
p- & m- Xylenes	23.87	D	8.68	U	26	D	8.70	U
p-Ethyltoluene	4.91	U	4.91	U	4.90	U	4.90	U
Propylene	1.72	U	1.72	U	1.70	U	1.70	U
Styrene	4.26	U	4.26	U	4.30	U	4.30	U
Tetrachloroethylene	680	U	13.56	D	2,800	D	48	D
Tetrahydrofuran	1,473.83	D	203.39	D	87	D	16	D
Toluene	124.31	D	34.28	D	110	D	35	D
trans-1,2-Dichloroethylene	10.70	D	3.96	U	5.20	D	4	U
trans-1,3-Dichloropropylene	4.54	U	4.54	U	4.50	U	4.50	U
Trichloroethylene	110,000	D	27.40	D	29,000	D	530	D
Trichlorofluoromethane (Freon 11)	5.62	U	5.62	U	5.60	U	5.60	U
Vinyl acetate	3.52	U	3.52	U	3.50	U	3.50	U
Vinyl bromide	4.37	U	4.37	U	4.40	U	4.40	U
Vinyl Chloride	2.56	U	2.56	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_102615		Effluent_102615		Influent_113015		Effluent_113015	
LAB SAMPLE ID	15J0989-01		15J0989-02		15L0012-01		15L0012-02	
SAMPLE DATE	10/26/2015		10/26/2015		11/30/2015		11/30/2015	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U	6.90	U
1,1,1-Trichloroethane	18	D	5.50	U	5.50	U	13	D
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U	4	U	4	U
1,1-Dichloroethylene	4	U	4	U	4	U	4	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U	6	U	6	U
1,2-Dichloroethane	4	U	4	U	4	U	4	U
1,2-Dichloropropane	4.60	U	4.60	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	7	U	7	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	4.90	U	4.90	U
1,3-Butadiene	13	U	13	U	13	U	13	U
1,3-Dichlorobenzene	6	U	6	U	6	U	6	U
1,3-Dichloropropane	4.60	U	4.60	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6	U	6	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U	7.20	U
2-Butanone	6	D	3	D	8	D	5.30	D
2-Hexanone	8.20	U	8.20	U	8.20	U	8.20	U
3-Chloropropene	16	U	16	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	4.10	U	4.10	U	4.10	U
Acetone	37	D	66	D	54	D	69	D
Acrylonitrile	2.20	U	2.20	U	2.20	U	2.20	U
Benzene	11	D	14	D	19	D	22	D
Benzyl chloride	5.20	U	5.20	U	5.20	U	5.20	U
Bromodichloromethane	6.20	U	6.20	U	6.20	U	6.20	U
Bromoform	10	U	10	U	10	U	10	U
Bromomethane	3.90	U	3.90	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	34	D	3.10	U	31	D
Carbon tetrachloride	1.60	U	1.60	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U	2.60	U	2.60	U
Chloroform	18	D	4.90	U	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U	2.10	U	2.10	U
cis-1,2-Dichloroethylene	13	D	4	U	4	U	4	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U	4.50	U
Cyclohexane	3.40	U	5	D	3.40	U	3.40	U
Dibromochloromethane	8	U	8	U	8	U	8	U
Dichlorodifluoromethane	4.90	U	4.90	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U	7.20	U
Ethyl Benzene	4	D	4.30	U	5.20	D	4.30	U
Hexachlorobutadiene	11	U	11	U	11	U	11	U
Isopropanol	10	D	57	D	6.40	D	150	D
Methyl Methacrylate	4.10	U	4.10	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U	3.60	U
Methylene chloride	32	D	34	D	19	D	68	D
n-Heptane	4.10	U	4.10	U	4.10	U	4.10	U
n-Hexane	5	D	8.80	D	3.50	U	12	D
o-Xylene	4	U	4.30	U	4.30	U	4.30	U
p- & m- Xylenes	9	U	8.70	U	12	D	8.70	U
p-Ethyltoluene	4.90	U	4.90	U	4.90	U	4.90	U
Propylene	36.00	D	1.70	U	1.70	U	1.70	U
Styrene	4.30	U	4.30	U	4.30	U	4.30	U
Tetrachloroethylene	1,200	D	26	D	290	D	12	D
Tetrahydrofuran	14	D	6	U	5.90	U	5.90	U
Toluene	22	D	15	D	30	D	21	D
trans-1,2-Dichloroethylene	4.00	U	4	U	4	U	4	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U	4.50	U
Trichloroethylene	5,600	D	120	D	2700	D	23	D
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_122815		Effluent_122815		INFLUENT_012716		EFFLUENT_012716	
LAB SAMPLE ID	15L1040-01		15L1040-02		16A0778-01		16A0778-02	
SAMPLE DATE	12/28/2015		12/28/2015		1/27/2016		1/27/2016	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	0.69	U
1,1,1-Trichloroethane	5.50	D	5.50	U	2.70		0.55	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	0.69	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	16	D	0.77	U	0.77	U
1,1,2-Trichloroethane	5.50	U	5.50	U	0.55	U	0.55	U
1,1-Dichloroethane	4	U	4	U	0.69		0.40	U
1,1-Dichloroethylene	4	U	4	U	0.44		0.44	
1,2,4-Trichlorobenzene	7.40	U	7.40	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	0.54		0.49	U
1,2-Dibromoethane	7.70	U	7.70	U	0.77	U	0.77	U
1,2-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,2-Dichloroethane	4	U	4	U	0.40	U	0.40	U
1,2-Dichloropropane	4.60	U	4.60	U	0.46	U	0.46	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	0.70	U	0.70	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	0.49	U	0.49	U
1,3-Butadiene	13	U	13	U	1.30	U	1.30	U
1,3-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,3-Dichloropropane	4.60	U	4.60	U	0.46	U	0.46	U
1,4-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,4-Dioxane	7.20	U	7.20	U	0.72	U	0.72	U
2-Butanone	4.70	D	2.90	U	6.70		1.60	
2-Hexanone	8.20	U	8.20	U	0.82	U	0.82	U
3-Chloropropene	16	U	16	U	1.60	U	1.60	U
4-Methyl-2-pentanone	4.10	U	4.10	U	2		1.10	
Acetone	35	D	32	D	40		25	
Acrylonitrile	2.20	U	2.20	U	0.22	U	0.22	U
Benzene	6.40	D	3.20	U	13		2.50	
Benzyl chloride	5.20	U	5.20	U	0.52	U	0.52	U
Bromodichloromethane	6.20	U	6.20	U	0.62	U	0.62	U
Bromoform	10	U	10	U	1	U	1	U
Bromomethane	3.90	U	3.90	U	0.39	U	0.39	U
Carbon disulfide	3.10	U	13	D	1.40		8.70	
Carbon tetrachloride	1.60	U	1.60	U	0.44		0.16	U
Chlorobenzene	4.60	U	4.60	U	0.46	U	0.46	U
Chloroethane	2.60	U	2.60	U	1.20		0.26	U
Chloroform	4.90	D	4.90	U	2.60		0.49	U
Chloromethane	2.10	U	2.10	U	3		2	
cis-1,2-Dichloroethylene	7.90	D	4	U	7.70		0.40	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	0.45	U
Cyclohexane	3.40	U	3.40	U	0.34	U	0.34	U
Dibromochloromethane	8	U	8	U	0.80	U	0.80	U
Dichlorodifluoromethane	4.90	U	4.90	U	2.10		3.20	
Ethyl acetate	7.20	U	7.20	U	0.72	U	0.72	U
Ethyl Benzene	4.30	U	4.30	U	1.70		0.48	
Hexachlorobutadiene	11	U	11	U	1.10	U	1.10	U
Isopropanol	67	D	98	D	0.49	U	49	
Methyl Methacrylate	4.10	U	7	D	17		9.40	
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	0.36	U	0.36	U
Methylene chloride	13	D	24	D	40		34	
n-Heptane	4.10	U	4.10	U	0.41	U	0.41	U
n-Hexane	3.50	U	6	D	6.50		8.60	
o-Xylene	4.30	U	4.30	U	0.65		0.43	U
p- & m- Xylenes	8.70	U	8.70	U	2		0.96	
p-Ethyltoluene	4.90	U	4.90	U	0.49	U	0.49	U
Propylene	13	D	13	D	21		18	
Styrene	4.30	U	4.30	U	0.68		0.43	U
Tetrachloroethylene	380	D	12	D	280		6.90	
Tetrahydrofuran	6.80	D	5.90	U	0.59	U	0.59	U
Toluene	13	D	8.70	D	14		9.50	
trans-1,2-Dichloroethylene	4	U	4	U	0.48		0.40	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	0.45	U
Trichloroethylene	2,800	D	1.3	U	150	D	0.13	U
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	1.70		1.80	
Vinyl acetate	3.50	U	3.50	U	0.35	U	0.35	U
Vinyl bromide	4.40	U	4.40	U	0.44	U	0.44	U
Vinyl Chloride	2.60	U	2.60	U	0.82		0.26	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC MID-POINT		vGAC EFFLUENT	
SAMPLE ID	INFLUENT_022416		MID_022416		EFFLUENT_022416	
LAB SAMPLE ID	16B0855		16B0855		16B0855	
SAMPLE DATE	2/24/2016		2/24/2016		2/24/2016	
Volatile Organic Compounds (ug/m^3)						
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U
1,1,1-Trichloroethane	5.50	U	5.50	U	0.55	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U	0.77	U
1,1,2-Trichloroethane	5.50	U	5.50	U	0.55	U
1,1-Dichloroethane	4	U	4	U	0.40	U
1,1-Dichloroethylene	4	U	4	U	0.40	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U	0.74	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	10	
1,2-Dibromoethane	7.70	U	7.70	U	0.77	U
1,2-Dichlorobenzene	6	U	6	U	0.60	U
1,2-Dichloroethane	4	U	4	U	0.40	U
1,2-Dichloropropane	4.60	U	4.60	U	0.46	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	0.70	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	4	
1,3-Butadiene	13	U	13	U	1.30	U
1,3-Dichlorobenzene	6	U	6	U	0.60	U
1,3-Dichloropropane	4.60	U	4.60	U	0.46	U
1,4-Dichlorobenzene	6	U	6	U	0.60	U
1,4-Dioxane	7.20	U	7.20	U	0.72	U
2-Butanone	12	D	2.90	U	6.10	
2-Hexanone	8.20	U	8.20	U	0.82	U
3-Chloropropene	16	U	16	U	1.60	U
4-Methyl-2-pentanone	4.10	U	4.10	U	0.41	U
Acetone	76	D	39	D	64	
Acrylonitrile	2.20	U	2.20	U	0.22	U
Benzene	30	D	11	D	7.40	
Benzyl chloride	5.20	U	5.20	U	0.52	U
Bromodichloromethane	6.20	U	6.20	U	0.62	U
Bromoform	10	U	10	U	1	U
Bromomethane	3.90	U	3.90	U	0.39	U
Carbon disulfide	3.10	U	3.10	U	2.60	
Carbon tetrachloride	1.60	U	1.60	U	0.16	U
Chlorobenzene	4.60	U	4.60	U	0.46	U
Chloroethane	2.60	U	2.60	U	0.26	U
Chloroform	4.90	U	4.90	U	0.49	U
Chloromethane	2.10	U	2.10	U	0.21	U
cis-1,2-Dichloroethylene	4.40	D	4	U	0.40	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U
Cyclohexane	3.40	U	3.40	U	0.34	U
Dibromochloromethane	8	U	8	U	0.80	U
Dichlorodifluoromethane	4.90	U	4.90	U	1.60	
Ethyl acetate	7.20	U	7.20	U	1.90	
Ethyl Benzene	4.30	D	4.30	U	12	
Hexachlorobutadiene	11	U	11	U	1.10	U
Isopropanol	4.90	U	4.90	U	34	
Methyl Methacrylate	4.10	U	4.10	U	0.41	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	0.36	U
Methylene chloride	6.90	U	6.90	U	1.10	
n-Heptane	4.10	U	4.10	U	4	
n-Hexane	3.50	U	3.50	U	1.30	
o-Xylene	4.30	U	4.30	U	16	
p- & m- Xylenes	8.70	U	8.70	U	47	
p-Ethyltoluene	4.90	U	4.90	U	12	
Propylene	1.70	U	1.70	U	0.17	U
Styrene	4.30	U	4.30	U	0.43	U
Tetrachloroethylene	200	D	11	D	5.10	
Tetrahydrofuran	5.90	U	5.90	U	3.90	
Toluene	27	D	20	D	44	
trans-1,2-Dichloroethylene	4	U	4	U	2.60	
trans-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U
Trichloroethylene	1,100	D	2,500	D	0.91	
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	1.60	
Vinyl acetate	3.50	U	3.50	U	0.35	U
Vinyl bromide	4.40	U	4.40	U	0.44	U
Vinyl Chloride	2.60	U	2.60	U	0.26	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - PID DATA
491 WORTMAN AVENUE
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	1548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2854	100	0.02	15.10	83.91

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 4: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA
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)	VGAC MASS REMOVAL EFFICIENCY (%)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99	92
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44	97
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36	95
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18	86
12/28/2015	3,357	570	230	1548	53.58	3.67	49.91	4.18	16.55	3.89	15.08	93
1/27/2016	621	525	183	2180	9.13	2.69	6.44	0.76	17.31	0.54	15.62	71
2/24/2016	1,454	578	283	2854	23.53	4.58	18.94	2.10	19.41	1.69	17.31	81

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 5: AS/SVE SYSTEM DAR-1 COMPLIANCE
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **2/24/2016**

CHEMICAL COMPOUND	CARBON EFFLUENT CONCENTRATION 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)													
1,2,4-Trimethylbenzene	10	560	15.85752	2.09E-05	1.83E-01	1.65E-03	1.65E-03	1.07E-01	--	6	NO	No Standard	NO
1,3,5-Trimethylbenzene	4	560	15.85752	8.37E-06	7.33E-02	6.59E-04	6.59E-04	4.28E-02	--	6	NO	No Standard	NO
2-Butanone	6.1	560	15.85752	1.28E-05	1.12E-01	1.01E-03	1.00E-03	6.53E-02	13000	5000	NO	NO	NO
Acetone	64	560	15.85752	1.34E-04	1.17E+00	1.06E-02	1.05E-02	6.85E-01	180,000	30,000	NO	NO	NO
Benzene	7.4	560	15.85752	1.55E-05	1.36E-01	1.22E-03	1.22E-03	7.92E-02	1,300	0.13	NO	NO	NO
Carbon disulfide	2.6	560	15.85752	5.44E-06	4.77E-02	4.29E-04	4.28E-04	2.78E-02	6,200	700	NO	NO	NO
Dichlorodifluoromethane	1.6	560	15.85752	3.35E-06	2.93E-02	2.64E-04	2.63E-04	1.71E-02	--	12,000	NO	No Standard	NO
Ethyl Acetate	1.9	560	15.85752	3.98E-06	3.48E-02	3.13E-04	3.13E-04	2.03E-02	--	3,400	NO	No Standard	NO
Ethyl Benzene	12	560	15.85752	2.51E-05	2.20E-01	1.98E-03	1.98E-03	1.28E-01	--	1,000	NO	No Standard	NO
Isopropanol	34	560	15.85752	7.12E-05	6.23E-01	5.61E-03	5.60E-03	3.64E-01	98,000	7,000	NO	NO	NO
Methylene chloride	1.1	560	15.85752	2.30E-06	2.02E-02	1.81E-04	1.81E-04	1.18E-02	14,000	60	NO	NO	NO
n-Heptane	4	560	15.85752	8.37E-06	7.33E-02	6.59E-04	6.59E-04	4.28E-02	210,000	3,900	NO	NO	NO
n-Hexane	1.3	560	15.85752	2.72E-06	2.38E-02	2.14E-04	2.14E-04	1.39E-02	--	700	NO	No Standard	NO
o-Xylene	16	560	15.85752	3.35E-05	2.93E-01	2.64E-03	2.63E-03	1.71E-01	22,000	100	NO	NO	NO
p&m-Xylenes	47	560	15.85752	9.84E-05	8.62E-01	7.75E-03	7.74E-03	5.03E-01	22,000	100	NO	NO	NO
trans-1,2-Dichloroethylene	2.6	560	15.85752	5.44E-06	4.77E-02	4.29E-04	4.28E-04	2.78E-02	--	63	NO	No Standard	NO
Tetrachloroethylene	5.1	560	15.85752	1.07E-05	9.35E-02	8.41E-04	8.40E-04	5.46E-02	300	4	NO	NO	NO
Tetrahydrofuran	3.9	560	15.85752	8.16E-06	7.15E-02	6.43E-04	6.42E-04	4.17E-02	30,000	350	NO	NO	NO
Trichloroethylene	0.91	560	15.85752	1.90E-06	1.67E-02	1.50E-04	1.50E-04	9.74E-03	14,000	0.2	NO	NO	NO
Trichlorofluoromethane	1.6	560	15.85752	3.35E-06	2.93E-02	2.64E-04	2.63E-04	1.71E-02	9,000	5,000	NO	NO	NO
Toluene	44	560	15.85752	9.21E-05	8.07E-01	7.25E-03	7.25E-03	4.71E-01	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 6: AS/SVE SYSTEM ALARM HISTORY
491 WORTMAN AVENUE
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.

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS - FIRST QUARTER
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW01_012516 16A0725-01 1/25/2016 1		MW02_012516 16A0725-02 1/25/2016 1		MW03_012516 16A0725-03 1/25/2016 0:00 1		MW03I_012516 16A0750-01 1/25/2016 1		MW03D_012616 16A0750-02 1/26/2016 1		MW04_012616 16A0750-03 1/26/2016 1		MW05_012516 16A0725-04 1/25/2016 1		MW06_012616 16A0774-01 1/26/2016 5	
Volatile Organic Comounds (µg/L)																	
1,1-Dichloroethane	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	1	U
1,1-Dichloroethylene	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	1	U
Acetone	50	2.5	B	3.3	B	3.2	B	1	U	1	U	1	U	2.5	B	10	BD
Chloroform	7	0.2	U	0.2	U	0.2	U	0.23	J	0.79		0.2	U	0.2	U	2.1	JD
Chloromethane	5	0.32	J	0.32	J	0.29	J	0.2	U	0.2	U	0.2	U	0.31	J	1	U
cis-1,2-Dichloroethylene	5	1.3		0.2	U	0.2	U	0.24	J	0.23	J	0.6		0.3	J	**35**	D
Methyl tert-butyl ether (MTBE)	10	0.2	U	0.2	U	0.2	U	0.2	U	0.4	J	0.2	U	0.28	J	1	U
tert-Butyl alcohol (TBA)	~	0.2	U	1.4	J	0.2	U	0.5	U	0.5	U	0.5	U	0.2	U	2.5	U
Tetrachloroethylene	5	**6**		1.1		2		**20**		**14**		2.9		0.8		**240**	D
trans-1,2-Dichloroethylene	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	1	U
Trichloroethylene	5	**5.3**		0.74		**5.2**		3		1.7		**11**		0.37	J	**400**	D
Vinyl Chloride	2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	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 (AWQS) for Class GA water.
2. 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. ~ = No regulatory limit has been established for this analyte.
6. DUP01_012612 is a duplicate sample of MW07_012616.
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 baseline sampling program.
8. Two trip blanks (TB01_012516 and TB02_012616) and one field blank (FB01_012616) were collected for quality assurance/quality control (QA/QC) purposes.

Qualifiers:
B = Analyte found in the analysis batch blank.
D = The sample was diluted per the dilution factor shown.
E = Result is estimated and cannot be accurately reported due to levels encountered or interferences.
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 - FIRST QUARTER
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW07_012616 16A0750-04 1/26/2016 1		DUP01_012616 16A0750-08 1/26/2016 1		MW08_012616 16A0750-05 1/26/2016 1		MW09_012516 16A0725-05 1/25/2016 1		PZ01_012616 16A0750-06 1/26/2016 1		PZ02_012516 16A0750-07 1/25/2016 1		TB01_012516 16A0725-06 1/25/2016 1		TB02_012616 16A0750-10 1/26/2016 1		FB01_012616 16A0750-09 1/26/2016 1	
Volatile Organic Comounds (µg/L)																			
1,1-Dichloroethane	5	0.2	U	0.2	U	1.5		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
1,1-Dichloroethylene	5	0.2	U	0.2	U	0.22	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Acetone	50	1	U	1	U	1	U	2.4	B	1	U	1	U	2.6	B	1	U	1	U
Chloroform	7	0.2	U	0.2	U	0.28	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Chloromethane	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.23	J	0.2	U	0.2	U
cis-1,2-Dichloroethylene	5	0.21	J	0.21	J	**39**		0.2	U	1.4		0.2	U	0.2	U	0.2	U	0.2	U
Methyl tert-butyl ether (MTBE)	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
tert-Butyl alcohol (TBA)	~	0.5	U	0.5	U	0.5	U	0.2	U	0.5	U	0.5	U	0.2	U	0.5	U	0.5	U
Tetrachloroethylene	5	1.7		1.7		**15**		3.6		3.3		0.97		0.2	U	0.2	U	0.2	U
trans-1,2-Dichloroethylene	5	0.2	U	0.2	U	0.6		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Trichloroethylene	5	**9**		**9.1**		**130**	E	1.4		**5.4**		1.2		0.2	U	0.2	U	0.2	U
Vinyl Chloride	2	0.2	U	0.2	U	0.56		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	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 (AWQS) for Class GA water.
2. 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. ~ = No regulatory limit has been established for this analyte.
6. DUP01_012612 is a duplicate sample of MW07_012616.
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 baseline sampling program.
8. Two trip blanks (TB01_012516 and TB02_012616) and one field blank (FB01_012616) were collected for quality assurance/quality control (QA/QC) purposes.

Qualifiers:
B = Analyte found in the analysis batch blank.
D = The sample was diluted per the dilution factor shown.
E = Result is estimated and cannot be accurately reported due to levels encountered or interferences.
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 8: QUARTERLY 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												
		MW-1	MW-2	MW-3S	MW-3I	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%*

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 (AWQS) for Class GA water.
2. Results exceeding the NYSDEC TOGS standards and guidance values are shaded and bolded.
3. PCE = tetrachloroethylene
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.

Progress Report No. 9
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: March 2016

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this monthly progress report on behalf of J&H Holding Company, LLC (the "Participant"). Monthly progress report submittal to the New York State Department of Environmental Conservation (NYSDEC) is performed in accordance with the Brownfield Cleanup Agreement (BCA) and Section 3.2 of the NYSDEC-approved Interim Remedial Measures Work Plan (IRMWP), prepared by Langan, dated April 28, 2015, and revised June 16, 2015. This monthly progress report summarizes work performed at 491 Wortman Avenue, Brooklyn, New York (the "site") during March 2016.

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 (i.e. the eastern portion).

Environmental site investigations began in November 2008. The most recent environmental activity was Langan's submittal of the IRMWP, which the NYSDEC approved on June 18, 2015. Implementation of the IRMWP and the pending environmental activities are described further in this progress report.

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

On March 30, 2016, 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), and routine equipment maintenance was performed. Maintenance included greasing the blower and checking the belt tensions.

On April 3, 2016, the high pressure alarm that monitors the SVE blower influent was triggered due to power fluctuations caused by high wind conditions, and the AS/SVE was shutdown. The AS/SVE system was restarted remotely and monitored for the remainder of the day to ensure system functionality.

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
- Carbon replacement in both vGAC units
- Second round of quarterly groundwater sampling

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:

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

Samples were analyzed by York Analytical Laboratories Inc. (York) of Stratford, CT. York 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. 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 Summary
- Table 2: AS/SVE System Vapor Sampling Results (lab reports available upon request)
- Table 3: AS/SVE System Mass Removal – PID Data
- Table 4: AS/SVE System Mass Removal – Laboratory Data
- Table 5: AS/SVE System DAR-1 Compliance – March 30, 2016
- Table 6: AS/SVE System Alarm History
- Table 7: Quarterly Groundwater Sampling Results – First Quarter (lab reports available upon request)
- Table 8: Quarterly Groundwater Sampling Results Summary

6. Deliverables Submitted During This Reporting Period

No deliverables were submitted during this reporting period.

7. Information Regarding Percentage of Completion

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

As of April 1, 2016 and since inception, the SVE system operated for 3,733 hours (95% uptime), and the AS system operated for 3,692 hours (94% 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

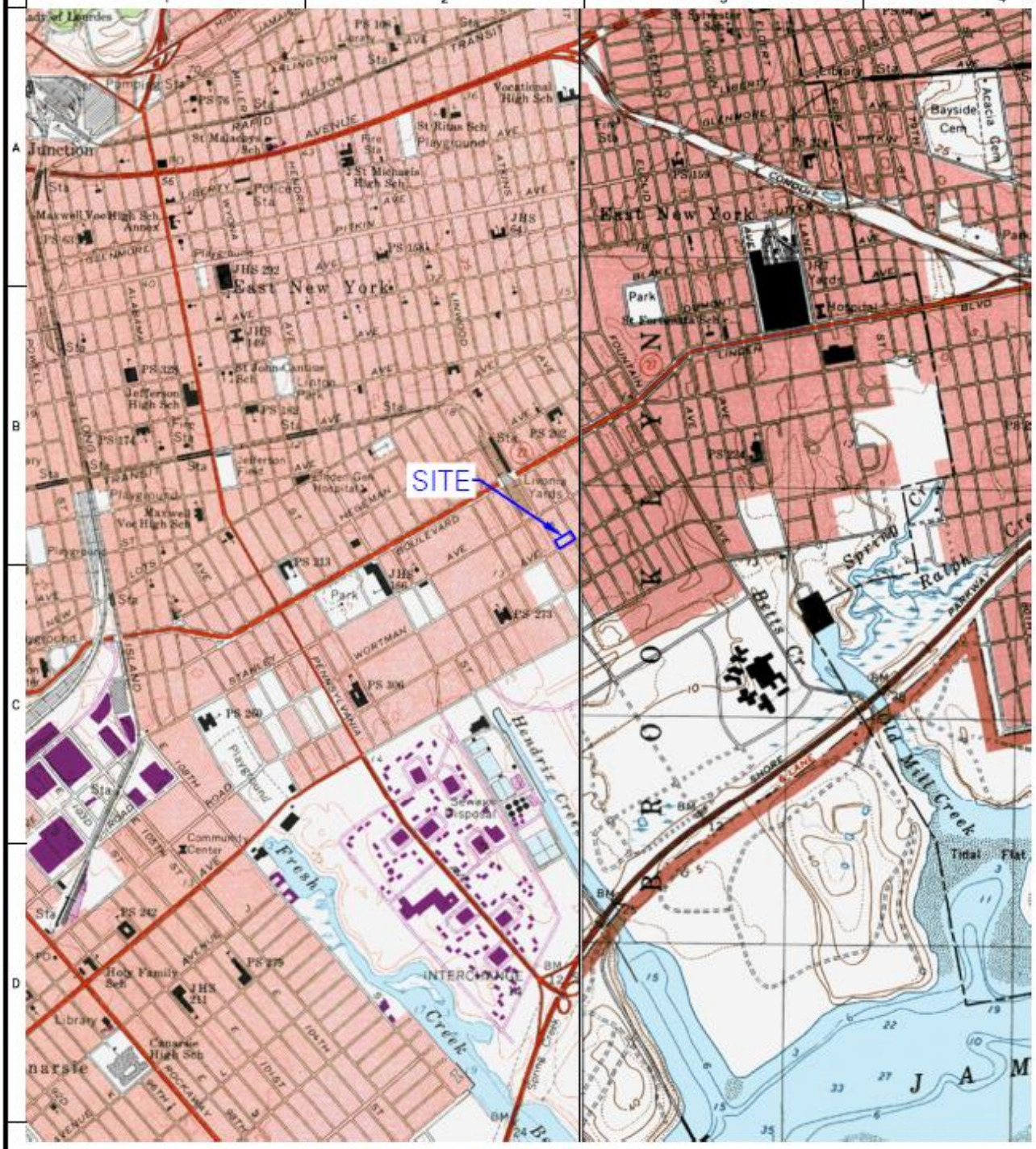
None.

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

None.

11. Miscellaneous Information

None.



REFERENCE: USGS TOPOGRAPHIC QUADRANGLE MAPS FOR BROOKLYN AND JAMAICA.

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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	SITE LOCATION MAP
Project No.	170329301
Date	04/18/2015
Scale	N.T.S.
Drawn By	MLR
Checked By	GN
Submission Date	
Figure	1
Sheet	1 of 7

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\2D-DesignFiles\RMWP\Figure 1 - Site Location Map.dwg Date: 4/18/2015 Time: 11:35 User: mrogers Style Table: Langan.stb Layout: Site Location Map

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING SUMMARY
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

SAMPLE NAME	SAMPLE DATE	SAMPLE TYPE	LOCATION	ANALYSIS
AS/SVE SYSTEM VAPOR SAMPLES				
Influent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Mid_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs

Notes:

1. The vapor samples were analyzed for VOCs via USEPA Method TO-15.
2. USEPA = United States Environmental Protection Agency
3. VOCs = volatile organic compounds
4. AS/SVE = air sparge/soil vapor extraction
5. vGAC = vapor-phase granular activated carbon

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION SAMPLE ID LAB SAMPLE ID SAMPLE DATE	vGAC INFLUENT Influent 102 15J0790-0 10/20/20		vGAC EFFLUENT Effluent 1020 15J0790-0 10/20/20		vGAC INFLUENT Influent_102 15J0866-0 10/21/20		vGAC EFFLUENT Effluent_1021 15J0866-0 10/21/20	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.86	U	6.86	U	6.90	U	6.90	U
1,1,1-Trichloroethane	981.76	D	5.45	U	140	D	5.50	U
1,1,2,2-Tetrachloroethane	6.86	U	6.86	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.66	U	7.66	U	7.70	U	7.70	U
1,1,2-Trichloroethane	8.73	D	5.45	U	5.50	U	5.50	U
1,1-Dichloroethane	117.33	D	4.05	U	15	D	4	U
1,1-Dichloroethylene	11.10	D	3.96	U	4	U	4	U
1,2,4-Trichlorobenzene	7.42	U	7.42	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	5.90	D	4.91	U	4.90	U	4.90	U
1,2-Dibromoethane	7.68	U	7.68	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,2-Dichloroethane	4.05	U	4.05	U	4	U	4	U
1,2-Dichloropropane	4.62	U	4.62	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	6.99	U	6.99	U	7	U	7	U
1,3,5-Trimethylbenzene	4.91	U	4.91	U	4.90	U	4.90	U
1,3-Butadiene	13.00	U	13.00	U	13	U	13	U
1,3-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,3-Dichloropropane	4.62	U	4.62	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U	7.20	U
2-Butanone	88.44	D	82.55	D	36	D	21	D
2-Hexanone	8.19	U	8.19	U	8.20	U	8.20	U
3-Chloropropene	15.64	U	15.64	U	16	U	16	U
4-Methyl-2-pentanone	5.32	D	4.09	U	4.50	D	4.10	U
Acetone	332.54	D	1,800	D	150	D	200	D
Acrylonitrile	2.17	U	2.17	U	2.20	U	2.20	U
Benzene	226.73	D	27.78	D	100	D	42	D
Benzyl chloride	5.17	U	5.17	U	5.20	U	5.20	U
Bromodichloromethane	6.21	U	6.21	U	6.20	U	6.20	U
Bromoform	10.33	U	10.33	U	10	U	10	U
Bromomethane	3.88	U	3.88	U	3.90	U	3.90	U
Carbon disulfide	9.65	D	3,600	D	7.50	D	200	D
Carbon tetrachloride	1.57	U	1.57	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U	4.60	U
Chloroethane	2.64	U	2.64	U	2.60	U	2.60	U
Chloroform	634.48	D	4.88	U	140	D	4.90	U
Chloromethane	3.51	D	13.42	D	2.10	U	2.10	U
cis-1,2-Dichloroethylene	39.63	D	3.96	U	28	D	4	U
cis-1,3-Dichloropropylene	4.54	U	4.54	U	4.50	U	4.50	U
Cyclohexane	3.44	U	14.45	D	3.40	U	11	D
Dibromochloromethane	8.02	U	8.02	U	8	U	8	U
Dichlorodifluoromethane	4.94	U	4.94	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U	7.20	U
Ethyl Benzene	24.31	D	4.34	U	21	D	4.30	D
Hexachlorobutadiene	10.66	U	10.66	U	11	U	11	U
Isopropan	16.95	D	3,400	D	25	D	NT	
Methyl Methacrylate	4.09	U	4.09	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U	3.60	U
Methylene chloride	90.28	D	13.54	D	35	D	12	D
n-Heptane	4.10	U	4.10	U	4.10	U	4.10	U
n-Hexane	42.28	D	10.57	D	17	D	9.90	D
o-Xylene	8.25	D	4.34	U	11	D	4.30	U
p- & m- Xylenes	23.87	D	8.68	U	26	D	8.70	U
p-Ethyltoluene	4.91	U	4.91	U	4.90	U	4.90	U
Propylene	1.72	U	1.72	U	1.70	U	1.70	U
Styrene	4.26	U	4.26	U	4.30	U	4.30	U
Tetrachloroethylene	680	U	13.56	D	2,800	D	48	D
Tetrahydrofuran	1,473.83	D	203.39	D	87	D	16	D
Toluene	124.31	D	34.28	D	110	D	35	D
trans-1,2-Dichloroethylene	10.70	D	3.96	U	5.20	D	4	U
trans-1,3-Dichloropropylene	4.54	U	4.54	U	4.50	U	4.50	U
Trichloroethylene	110,000	D	27.40	D	29,000	D	530	D
Trichlorofluoromethane (Freon 11)	5.62	U	5.62	U	5.60	U	5.60	U
Vinyl acetate	3.52	U	3.52	U	3.50	U	3.50	U
Vinyl bromide	4.37	U	4.37	U	4.40	U	4.40	U
Vinyl Chloride	2.56	U	2.56	U	2.60	U	2.60	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.

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D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_102		Effluent_1026		Influent_111		Effluent_113	
LAB SAMPLE ID	15J0989-0		15J0989-0		15L0012-		15L0012-	
SAMPLE DATE	10/26/20		10/26/20		11/30/20		11/30/20	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U	6.90	U
1,1,1-Trichloroethane	18	D	5.50	U	5.50	U	13	D
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U	4	U	4	U
1,1-Dichloroethylene	4	U	4	U	4	U	4	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U	6	U	6	U
1,2-Dichloroethane	4	U	4	U	4	U	4	U
1,2-Dichloropropane	4.60	U	4.60	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	7	U	7	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	4.90	U	4.90	U
1,3-Butadiene	13	U	13	U	13	U	13	U
1,3-Dichlorobenzene	6	U	6	U	6	U	6	U
1,3-Dichloropropane	4.60	U	4.60	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6	U	6	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U	7.20	U
2-Butanone	6	D	3	D	8	D	5.30	D
2-Hexanone	8.20	U	8.20	U	8.20	U	8.20	U
3-Chloropropene	16	U	16	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	4.10	U	4.10	U	4.10	U
Acetone	37	D	66	D	54	D	69	D
Acrylonitrile	2.20	U	2.20	U	2.20	U	2.20	U
Benzene	11	D	14	D	19	D	22	D
Benzyl chloride	5.20	U	5.20	U	5.20	U	5.20	U
Bromodichloromethane	6.20	U	6.20	U	6.20	U	6.20	U
Bromoform	10	U	10	U	10	U	10	U
Bromomethane	3.90	U	3.90	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	34	D	3.10	U	31	D
Carbon tetrachloride	1.60	U	1.60	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U	2.60	U	2.60	U
Chloroform	18	D	4.90	U	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U	2.10	U	2.10	U
cis-1,2-Dichloroethylene	13	D	4	U	4	U	4	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U	4.50	U
Cyclohexane	3.40	U	5	D	3.40	U	3.40	U
Dibromochloromethane	8	U	8	U	8	U	8	U
Dichlorodifluoromethane	4.90	U	4.90	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U	7.20	U
Ethyl Benzene	4	D	4.30	U	5.20	D	4.30	U
Hexachlorobutadiene	11	U	11	U	11	U	11	U
Isopropan	10	D	57	D	6.40	D	150	D
Methyl Methacrylate	4.10	U	4.10	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U	3.60	U
Methylene chloride	32	D	34	D	19	D	68	D
n-Heptane	4.10	U	4.10	U	4.10	U	4.10	U
n-Hexane	5	D	8.80	D	3.50	U	12	D
o-Xylene	4	U	4.30	U	4.30	U	4.30	U
p- & m- Xylenes	9	U	8.70	U	12	D	8.70	U
p-Ethyltoluene	4.90	U	4.90	U	4.90	U	4.90	U
Propylene	36.00	D	1.70	U	1.70	U	1.70	U
Styrene	4.30	U	4.30	U	4.30	U	4.30	U
Tetrachloroethylene	1,200	D	26	D	290	D	12	D
Tetrahydrofuran	14	D	6	U	5.90	U	5.90	U
Toluene	22	D	15	D	30	D	21	D
trans-1,2-Dichloroethylene	4.00	U	4	U	4	U	4	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U	4.50	U
Trichloroethylene	5,600	D	120	D	2700	D	23	D
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	U	2.60	U	2.60	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.

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TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION SAMPLE ID LAB SAMPLE ID SAMPLE DATE	vGAC INFLUENT Influent_1228 15L1040- 12/28/20		vGAC EFFLUENT Effluent_1228 15L1040- 12/28/20		vGAC INFLUENT INFLUENT_01 27 16A0778-0 1/27/20		vGAC EFFLUENT EFFLUENT_01 271 16A0778-0 1/27/20	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	0.69	U
1,1,1-Trichloroethane	5.50	D	5.50	U	2.70		0.55	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	0.69	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	16	D	0.77	U	0.77	U
1,1,2-Trichloroethane	5.50	U	5.50	U	0.55	U	0.55	U
1,1-Dichloroethane	4	U	4	U	0.69		0.40	U
1,1-Dichloroethylene	4	U	4	U	0.44		0.44	
1,2,4-Trichlorobenzene	7.40	U	7.40	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	0.54		0.49	U
1,2-Dibromoethane	7.70	U	7.70	U	0.77	U	0.77	U
1,2-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,2-Dichloroethane	4	U	4	U	0.40	U	0.40	U
1,2-Dichloropropane	4.60	U	4.60	U	0.46	U	0.46	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	0.70	U	0.70	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	0.49	U	0.49	U
1,3-Butadiene	13	U	13	U	1.30	U	1.30	U
1,3-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,3-Dichloropropane	4.60	U	4.60	U	0.46	U	0.46	U
1,4-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,4-Dioxane	7.20	U	7.20	U	0.72	U	0.72	U
2-Butanone	4.70	D	2.90	U	6.70		1.60	
2-Hexanone	8.20	U	8.20	U	0.82	U	0.82	U
3-Chloropropene	16	U	16	U	1.60	U	1.60	U
4-Methyl-2-pentanone	4.10	U	4.10	U	2		1.10	
Acetone	35	D	32	D	40		25	
Acrylonitrile	2.20	U	2.20	U	0.22	U	0.22	U
Benzene	6.40	D	3.20	U	13		2.50	
Benzyl chloride	5.20	U	5.20	U	0.52	U	0.52	U
Bromodichloromethane	6.20	U	6.20	U	0.62	U	0.62	U
Bromoform	10	U	10	U	1	U	1	U
Bromomethane	3.90	U	3.90	U	0.39	U	0.39	U
Carbon disulfide	3.10	U	13	D	1.40		8.70	
Carbon tetrachloride	1.60	U	1.60	U	0.44		0.16	U
Chlorobenzene	4.60	U	4.60	U	0.46	U	0.46	U
Chloroethane	2.60	U	2.60	U	1.20		0.26	U
Chloroform	4.90	D	4.90	U	2.60		0.49	U
Chloromethane	2.10	U	2.10	U	3		2	
cis-1,2-Dichloroethylene	7.90	D	4	U	7.70		0.40	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	0.45	U
Cyclohexane	3.40	U	3.40	U	0.34	U	0.34	U
Dibromochloromethane	8	U	8	U	0.80	U	0.80	U
Dichlorodifluoromethane	4.90	U	4.90	U	2.10		3.20	
Ethyl acetate	7.20	U	7.20	U	0.72	U	0.72	U
Ethyl Benzene	4.30	U	4.30	U	1.70		0.48	
Hexachlorobutadiene	11	U	11	U	1.10	U	1.10	U
Isopropan	67	D	98	D	0.49	U	49	
Methyl Methacrylate	4.10	U	7	D	17		9.40	
Methyl tert-butyl ether (MTBE	3.60	U	3.60	U	0.36	U	0.36	U
Methylene chloride	13	D	24	D	40		34	
n-Heptane	4.10	U	4.10	U	0.41	U	0.41	U
n-Hexane	3.50	U	6	D	6.50		8.60	
o-Xylene	4.30	U	4.30	U	0.65		0.43	U
p- & m-Xylenes	8.70	U	8.70	U	2		0.96	
p-Ethyltoluene	4.90	U	4.90	U	0.49	U	0.49	U
Propylene	13	D	13	D	21		18	
Styrene	4.30	U	4.30	U	0.68		0.43	U
Tetrachloroethylene	380	D	12	D	280		6.90	
Tetrahydrofuran	6.80	D	5.90	U	0.59	U	0.59	U
Toluene	13	D	8.70	D	14		9.50	
trans-1,2-Dichloroethylene	4	U	4	U	0.48		0.40	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	0.45	U
Trichloroethylene	2,800	D	1.3	U	150	D	0.13	U
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	1.70		1.80	
Vinyl acetate	3.50	U	3.50	U	0.35	U	0.35	U
Vinyl bromide	4.40	U	4.40	U	0.44	U	0.44	U
Vinyl Chloride	2.60	U	2.60	U	0.82		0.26	U

NOTES:
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3. Samples collected at the "vGAC INFLUENT" were collected before to the lead vGAC vessel.
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491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION SAMPLE ID LAB SAMPLE ID SAMPLE DATE	vGAC INFLUENT INFLUENT_02241 16B0859 2/24/201		vGAC MID-POINT MID_02241 16B0859 2/24/201		vGAC EFFLUENT EFFLUENT_02241 16B0859 2/24/201		vGAC INFLUENT INFLUENT_03301 16C1247-0 3/30/201		vGAC EFFLUENT EFFLUENT_03301 16C1247-0 3/30/201	
Volatile Organic Compounds (ug/m^3)										
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	6.90	U	6.90	U
1,1,1-Trichloroethane	5.50	U	5.50	U	0.55	U	5.50	U	5.50	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U	0.77	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U	0.55	U	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U	0.40	U	4.00	U	4.00	U
1,1-Dichloroethylene	4	U	4	U	0.40	U	4.00	U	4.00	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U	0.74	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	10		4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U	0.77	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,2-Dichloroethane	4	U	4	U	0.40	U	4.00	U	4.00	U
1,2-Dichloropropane	4.60	U	4.60	U	0.46	U	11.00	D	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	0.70	U	7.00	U	7.00	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	4		4.90	U	4.90	U
1,3-Butadiene	13	U	13	U	1.30	U	6.60	U	6.60	U
1,3-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,3-Dichloropropane	4.60	U	4.60	U	0.46	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,4-Dioxane	7.20	U	7.20	U	0.72	U	7.20	U	7.20	U
2-Butanone	12	D	2.90	U	6.10		2.90	U	2.90	U
2-Hexanone	8.20	U	8.20	U	0.82	U	8.20	U	8.20	U
3-Chloropropene	16	U	16	U	1.60	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	4.10	U	0.41	U	4.10	U	4.10	U
Acetone	76	D	39	D	64		25	D	22	D
Acrylonitrile	2.20	U	2.20	U	0.22	U	2.20	U	2.20	U
Benzene	30	D	11	D	7.40		3.20	U	3.20	U
Benzyl chloride	5.20	U	5.20	U	0.52	U	5.20	U	5.20	U
Bromodichloromethane	6.20	U	6.20	U	0.62	U	6.70	U	6.70	U
Bromoform	10	U	10	U	1	U	10	U	10	U
Bromomethane	3.90	U	3.90	U	0.39	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	3.10	U	2.60		3.10	U	3.10	U
Carbon tetrachloride	1.60	U	1.60	U	0.16	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	0.46	U	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U	0.26	U	2.60	U	2.60	U
Chloroform	4.90	U	4.90	U	0.49	U	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U	0.21	U	2.10	U	2.10	U
cis-1,2-Dichloroethylene	4.40	D	4	U	0.40	U	4.00	U	4.00	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	4.50	U	4.50	U
Cyclohexane	3.40	U	3.40	U	0.34	U	3.40	U	3.40	U
Dibromochloromethane	8	U	8	U	0.80	U	8.50	U	8.50	U
Dichlorodifluoromethane	4.90	U	4.90	U	1.60		4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	1.90		7.20	U	7.20	U
Ethyl Benzene	4.30	D	4.30	U	12		4.30	U	4.30	U
Hexachlorobutadiene	11	U	11	U	1.10	U	11	U	11	U
Isopropanol	4.90	U	4.90	U	34		4.90	U	4.90	U
Methyl Methacrylate	4.10	U	4.10	U	0.41	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	0.36	U	3.60	U	3.60	U
Methylene chloride	6.90	U	6.90	U	1.10		11	D	40	D
n-Heptane	4.10	U	4.10	U	4		4.10	U	4.10	U
n-Hexane	3.50	U	3.50	U	1.30		3.50	U	13	D
o-Xylene	4.30	U	4.30	U	16		4.30	U	4.30	U
p- & m-Xylenes	8.70	U	8.70	U	47		8.70	U	8.70	U
p-Ethyltoluene	4.90	U	4.90	U	12		4.90	U	4.90	U
Propylene	1.70	U	1.70	U	0.17	U	1.70	U	1.70	U
Styrene	4.30	U	4.30	U	0.43	U	4.30	U	4.30	U
Tetrachloroethylene	200	D	11	D	5.10		110	D	1.70	U
Tetrahydrofuran	5.90	U	5.90	U	3.90		5.90	U	5.90	U
Toluene	27	D	20	D	44		7.90	D	3.80	U
trans-1,2-Dichloroethylene	4	U	4	U	2.60		4.00	U	4.00	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	4.50	U	4.50	U
Trichloroethylene	1,100	D	2,500	D	0.91		660	D	1.30	U
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	1.60		5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U	0.35	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U	0.44	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	U	0.26	U	2.60	U	2.60	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.

Qis the Qualifier Column with definitions as follows:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - PID DATA
491 WORTMAN AVENUE
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	1548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3693	100	0.002	1.43	85.34

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 4: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA
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)	VGAC MASS REMOVAL EFFICIENCY (%)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99	92
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44	97
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36	95
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18	86
12/28/2015	3,357	570	230	1548	53.58	3.67	49.91	4.18	16.55	3.89	15.08	93
1/27/2016	621	525	183	2180	9.13	2.69	6.44	0.76	17.31	0.54	15.62	71
2/24/2016	1,454	578	283	2854	23.53	4.58	18.94	2.10	19.41	1.69	17.31	81
3/30/2016	825	550	75	3693	12.71	1.16	11.55	1.41	20.82	1.28	18.59	91

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 5: AS/SVE SYSTEM DAR-1 COMPLIANCE
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **3/30/2016**

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	22	550	15.57435	4.52E-05	3.96E-01	3.56E-03	3.56E-03	2.31E-01	180,000	30,000	NO	NO	NO
Methylene chloride	40	550	15.57435	8.22E-05	7.20E-01	6.48E-03	6.47E-03	4.20E-01	14,000	60	NO	NO	NO
n-Hexane	13	550	15.57435	2.67E-05	2.34E-01	2.10E-03	2.10E-03	1.37E-01	--	700	NO	No Standard	NO
Tetrachloroethylene	1.7	550	15.57435	3.49E-06	3.06E-02	2.75E-04	2.75E-04	1.79E-02	300	4	NO	NO	NO
Trichloroethylene	1.3	550	15.57435	2.67E-06	2.34E-02	2.10E-04	2.10E-04	1.37E-02	14,000	0.2	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 6: AS/SVE SYSTEM ALARM HISTORY
491 WORTMAN AVENUE
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.

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS - FIRST QUARTER
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW01_012516 16A0725-01 1/25/2016 1		MW02_012516 16A0725-02 1/25/2016 1		MW03_012516 16A0725-03 1/25/2016 0:00 1		MW03I_012516 16A0750-01 1/25/2016 1		MW03D_012616 16A0750-02 1/26/2016 1		MW04_012616 16A0750-03 1/26/2016 1		MW05_012516 16A0725-04 1/25/2016 1		MW06_012616 16A0774-01 1/26/2016 5	
Volatile Organic Comounds (µg/L)																	
1,1-Dichloroethane	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	1	U
1,1-Dichloroethylene	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	1	U
Acetone	50	2.5	B	3.3	B	3.2	B	1	U	1	U	1	U	2.5	B	10	BD
Chloroform	7	0.2	U	0.2	U	0.2	U	0.23	J	0.79		0.2	U	0.2	U	2.1	JD
Chloromethane	5	0.32	J	0.32	J	0.29	J	0.2	U	0.2	U	0.2	U	0.31	J	1	U
cis-1,2-Dichloroethylene	5	1.3		0.2	U	0.2	U	0.24	J	0.23	J	0.6		0.3	J	**35**	D
Methyl tert-butyl ether (MTBE)	10	0.2	U	0.2	U	0.2	U	0.2	U	0.4	J	0.2	U	0.28	J	1	U
tert-Butyl alcohol (TBA)	~	0.2	U	1.4	J	0.2	U	0.5	U	0.5	U	0.5	U	0.2	U	2.5	U
Tetrachloroethylene	5	**6**		1.1		2		**20**		**14**		2.9		0.8		**240**	D
trans-1,2-Dichloroethylene	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	1	U
Trichloroethylene	5	**5.3**		0.74		**5.2**		3		1.7		**11**		0.37	J	**400**	D
Vinyl Chloride	2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	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 (AWQS) for Class GA water.
2. 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. ~ = No regulatory limit has been established for this analyte.
6. DUP01_012612 is a duplicate sample of MW07_012616.
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 baseline sampling program.
8. Two trip blanks (TB01_012516 and TB02_012616) and one field blank (FB01_012616) were collected for quality assurance/quality control (QA/QC) purposes.

Qualifiers:
B = Analyte found in the analysis batch blank.
D = The sample was diluted per the dilution factor shown.
E = Result is estimated and cannot be accurately reported due to levels encountered or interferences.
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 - FIRST QUARTER
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW07_012616 16A0750-04 1/26/2016 1		DUP01_012616 16A0750-08 1/26/2016 1		MW08_012616 16A0750-05 1/26/2016 1		MW09_012516 16A0725-05 1/25/2016 1		PZ01_012616 16A0750-06 1/26/2016 1		PZ02_012516 16A0750-07 1/25/2016 1		TB01_012516 16A0725-06 1/25/2016 1		TB02_012616 16A0750-10 1/26/2016 1		FB01_012616 16A0750-09 1/26/2016 1	
Volatile Organic Comounds (µg/L)																			
1,1-Dichloroethane	5	0.2	U	0.2	U	1.5		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
1,1-Dichloroethylene	5	0.2	U	0.2	U	0.22	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Acetone	50	1	U	1	U	1	U	2.4	B	1	U	1	U	2.6	B	1	U	1	U
Chloroform	7	0.2	U	0.2	U	0.28	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Chloromethane	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.23	J	0.2	U	0.2	U
cis-1,2-Dichloroethylene	5	0.21	J	0.21	J	**39**		0.2	U	1.4		0.2	U	0.2	U	0.2	U	0.2	U
Methyl tert-butyl ether (MTBE)	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
tert-Butyl alcohol (TBA)	~	0.5	U	0.5	U	0.5	U	0.2	U	0.5	U	0.5	U	0.2	U	0.5	U	0.5	U
Tetrachloroethylene	5	1.7		1.7		**15**		3.6		3.3		0.97		0.2	U	0.2	U	0.2	U
trans-1,2-Dichloroethylene	5	0.2	U	0.2	U	0.6		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Trichloroethylene	5	**9**		**9.1**		**130**	E	1.4		**5.4**		1.2		0.2	U	0.2	U	0.2	U
Vinyl Chloride	2	0.2	U	0.2	U	0.56		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	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 (AWQS) for Class GA water.
2. 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. ~ = No regulatory limit has been established for this analyte.
6. DUP01_012612 is a duplicate sample of MW07_012616.
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 baseline sampling program.
8. Two trip blanks (TB01_012516 and TB02_012616) and one field blank (FB01_012616) were collected for quality assurance/quality control (QA/QC) purposes.

Qualifiers:
B = Analyte found in the analysis batch blank.
D = The sample was diluted per the dilution factor shown.
E = Result is estimated and cannot be accurately reported due to levels encountered or interferences.
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 8: QUARTERLY 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												
		MW-1	MW-2	MW-3S	MW-3I	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%*

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 (AWQS) for Class GA water.
2. Results exceeding the NYSDEC TOGS standards and guidance values are shaded and bolded.
3. PCE = tetrachloroethylene
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.

Progress Report No. 10
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: April 2016

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this monthly progress report on behalf of J&H Holding Company, LLC (the "Participant"). Monthly progress report submittal to the New York State Department of Environmental Conservation (NYSDEC) is performed in accordance with the Brownfield Cleanup Agreement (BCA) and Section 3.2 of the NYSDEC-approved Interim Remedial Measures Work Plan (IRMWP), prepared by Langan, dated April 28, 2015, and revised June 16, 2015. This monthly progress report summarizes work performed at 491 Wortman Avenue, Brooklyn, New York (the "site") during April 2016.

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 (i.e. the eastern portion).

Environmental site investigations began in November 2008. The most recent environmental activity was Langan's submittal of the IRMWP, which the NYSDEC approved on June 18, 2015. Implementation of the IRMWP and the pending environmental activities are described further in this progress report.

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

Remedial actions primarily included the quarterly on-site and semi-annual off-site vapor and groundwater monitoring. The AS/SVE system operation was suspended during monitoring activities.

The second quarterly groundwater sampling event was conducted on April 26, 27, and 28, 2016. A synoptic groundwater survey, consisting of depth-to-water, total depth, and photoionization detector (PID) measurements, was performed at monitoring wells MW-1 through MW-9 and piezometers PZ-1 and PZ-2. Following the synoptic groundwater survey, groundwater samples were collected from eleven monitoring wells and two piezometers.

The first off-site semi-annual groundwater sampling event was also conducted on April 26 through 29, 2016. A synoptic groundwater survey, consisting of depth-to-water, total depth, and PID measurements, was performed at the shallow, middle, and deep monitoring wells located at nested monitoring locations MW-12 through MW-16. Following the synoptic

groundwater survey, groundwater samples were collected from fifteen off-site monitoring wells.

On April 27, 2016, 19 drums containing nonhazardous wastewater were transported off-site to Cycle Chem, Inc. of Elizabeth, New Jersey by AWT Environmental Services, Inc. (AWT) of Sayreville, New Jersey. AWT was also on-site the morning of April 28th to complete a carbon change-out of the vapor-phase granular activated carbon (vGAC) units. The spent carbon is staged on-site in four super sacks pending the results of the waste profile.

On April 29, 2016, 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 vGAC unit (i.e., influent), and after the lag vGAC unit (i.e., effluent), and routine equipment maintenance was performed. Maintenance included greasing the blower and checking the belt tensions. The allowable flow through the AS system was also adjusted in response to the high temperature alarm on the air compressor's discharge line being tripped.

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:

- Three influent vapor samples were collected from the AS/SVE system and analyzed for volatile organic compounds (VOCs) via the United States Environmental Protection Agency (USEPA) Method TO-15.
- Three effluent vapor samples were collected from the AS/SVE system and analyzed for VOCs via USEPA Method TO-15.
- Thirteen groundwater samples (plus one duplicate) were collected from each of the 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 Target Compound List (TCL) VOCs via USEPA Method 8260C.
- Fifteen groundwater samples (plus one duplicate) were collected from the shallow, middle, and deep wells located at nested monitoring locations MW-12, MW-13, MW-14, MW-15, and MW-16 and analyzed for TCL VOCs via USEPA Method 8260C.

Samples were analyzed by York Analytical Laboratories Inc. (York) of Stratford, CT. York 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 second quarter of on-site groundwater sampling exhibit VOC concentrations above the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS) for Class GA water; however, when compared to the baseline groundwater sampling results from August 2015 and the first quarter groundwater sampling results from January 2016, reductions in total chlorinated VOC (CVOC) concentrations have been achieved in each of the sampled on-site wells.

The groundwater results from the first round of semi-annual, off-site groundwater sampling exhibit VOC concentrations above the NYSDEC TOGS AWQS for Class GA water; however, when compared to the baseline groundwater sampling results from November 2014, reductions in total CVOC concentrations have been achieved in all but two (MW-13 shallow and MW-16 middle) of the sampled wells.

The following tables are attached to this progress report. 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 Summary
- Table 2: AS/SVE System Vapor Sampling Results (lab reports available upon request)
- Table 3: AS/SVE System Mass Removal – PID Data
- Table 4: AS/SVE System Mass Removal – Laboratory Data
- Table 5: AS/SVE System DAR-1 Compliance – April 29, 2016
- Table 6: AS/SVE System Alarm History
- Table 7: Quarterly Groundwater Sampling Results – Second Quarter (lab reports available upon request)
- Table 8: Quarterly Groundwater Sampling Results Summary
- Table 9: Off-Site Groundwater Sampling Results – April 2016 (lab reports available upon request)
- Table 10: Off-Site Groundwater Sampling Results Summary

6. Deliverables Submitted During This Reporting Period

No deliverables were submitted during this reporting period.

7. Information Regarding Percentage of Completion

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

As of May 2, 2016 and since inception, the SVE system operated for 4,393 hours (94% uptime), and the AS system operated for 4,351 hours (93% 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

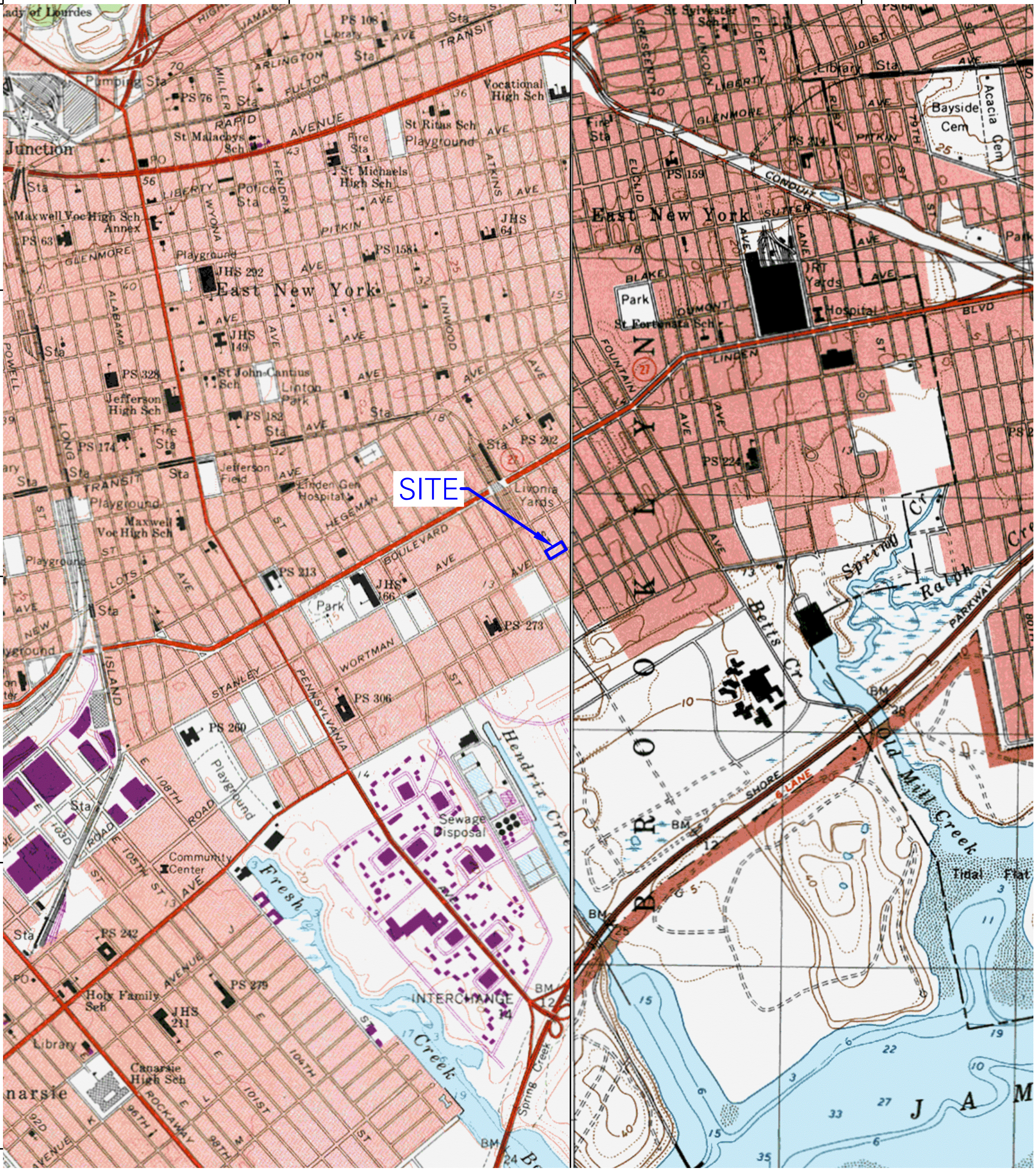
None.

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

None.

11. Miscellaneous Information

None.



REFERENCE: USGS TOPOGRAPHIC QUADRANGLE MAPS FOR BROOKLYN AND JAMAICA.

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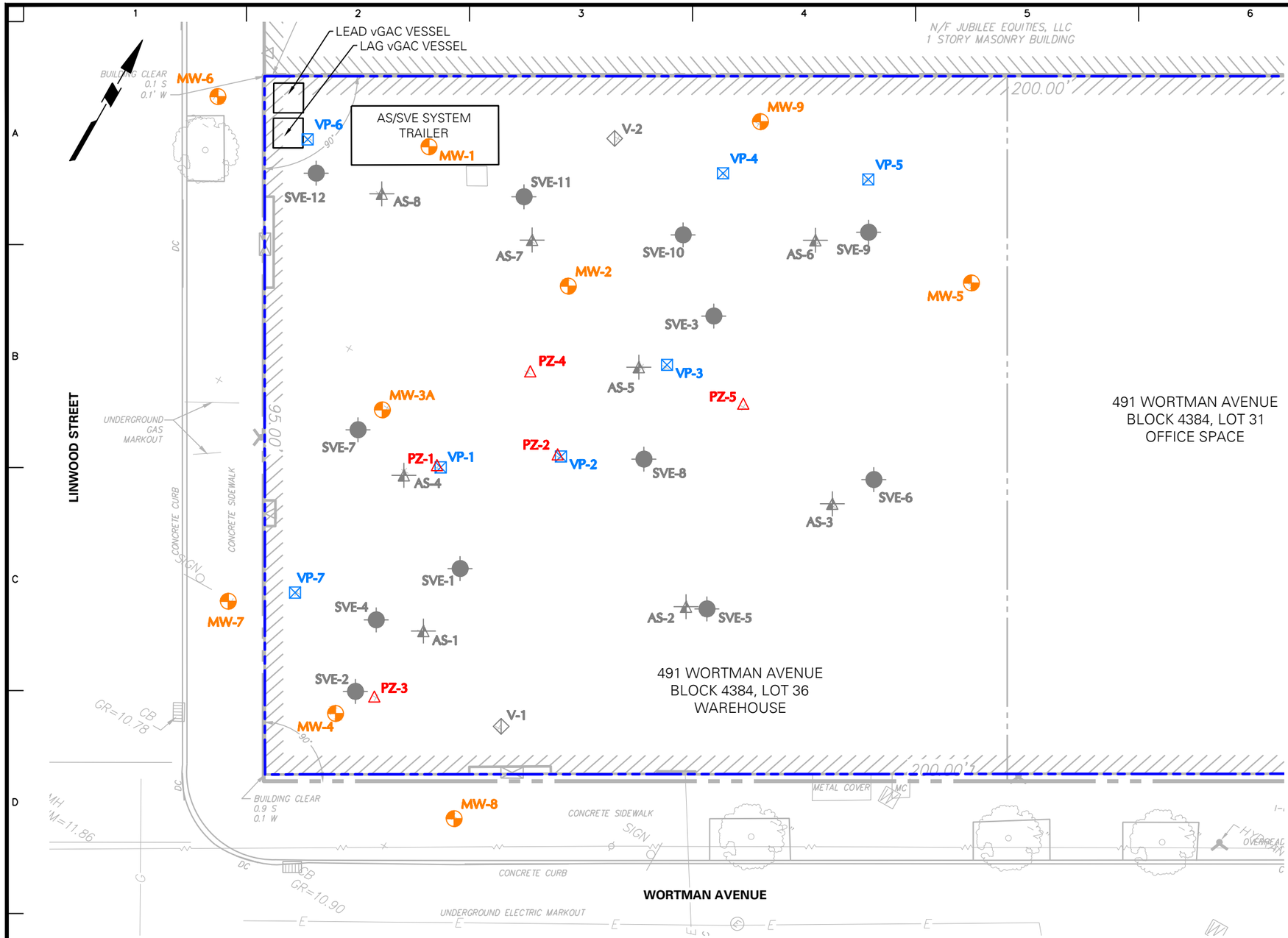
Project	Figure Title	Project No.	Figure
491 WORTMAN AVENUE BLOCK No. 4384, LOT Nos. 31 & 36 BROOKLYN KINGS NEW YORK	SITE LOCATION MAP	170329301 Date: 04/18/2015 Scale: N.T.S. Drawn By: MLR Checked By: GN Submission Date	1 Sheet 1 of 3



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 — PIEZOMETER

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.

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SCALE IN FEET

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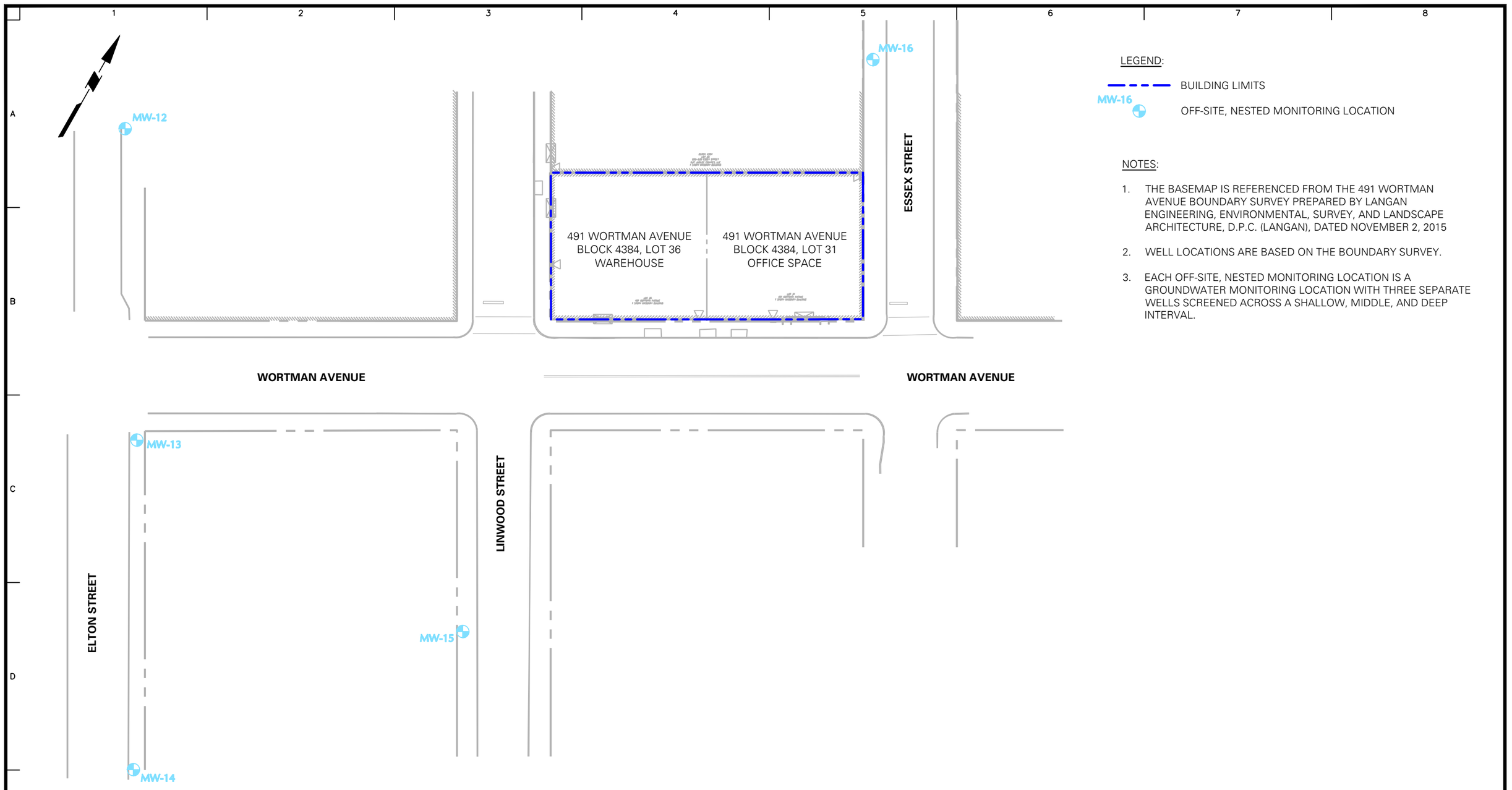
Project
491 WORTMAN AVENUE
BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS **NEW YORK**

Figure Title
QUARTERLY GROUNDWATER SAMPLING PROGRAM

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\Figure 2 - Quarterly GW Wells.dwg Date: 5/9/2016 Time: 15:51 User: mrogers Style Table: Langan.stb Layout: ANSI-D



LEGEND:

BUILDING LIMITS

MW-16 OFF-SITE, NESTED 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. WELL LOCATIONS ARE BASED ON THE BOUNDARY SURVEY.
3. EACH OFF-SITE, NESTED MONITORING LOCATION IS A GROUNDWATER MONITORING LOCATION WITH THREE SEPARATE WELLS SCREENED ACROSS A SHALLOW, MIDDLE, AND DEEP INTERVAL.

WARNING: □T □S □ □□OL□T□ON OF T□□ NYS □DUC□T□ON L□W □RT□CL□ 145 FOR □NY P□RSON, UNL□SS □□ □S □CT□N□ UND□R T□□ D□R□CT□ON OF □ L□C□NS□D PROF□SS□ONAL □N□ □N□□R, TO □LT□R T□S □T□M □N □NY W□Y.

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

Figure Title
OFF-SITE, NESTED MONITORING LOCATIONS

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

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report\Figure 3 - O□Site □W Wells.dwg Date: 5/9/2016 Time: 15:49 User: mrogers Style Table: Langan.stb Layout: □NS□□-□L

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING SUMMARY
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

SAMPLE NAME	SAMPLE DATE	SAMPLE TYPE	LOCATION	ANALYSIS
AS/SVE SYSTEM VAPOR SAMPLES				
Influent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Mid_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs

Notes:

1. The vapor samples were analyzed for VOCs via USEPA Method TO-15.
2. USEPA = United States Environmental Protection Agency
3. VOCs = volatile organic compounds
4. AS/SVE = air sparge/soil vapor extraction
5. vGAC = vapor-phase granular activated carbon

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent 102015		Effluent 102015		Influent_102115		Effluent_102115	
LAB SAMPLE ID	15J0790-01		15J0790-02		15J0866-01		15J0866-02	
SAMPLE DATE	10/20/2015		10/20/2015		10/21/2015		10/21/2015	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.86	U	6.86	U	6.90	U	6.90	U
1,1,1-Trichloroethane	981.76	D	5.45	U	140	D	5.50	U
1,1,2,2-Tetrachloroethane	6.86	U	6.86	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.66	U	7.66	U	7.70	U	7.70	U
1,1,2-Trichloroethane	8.73	D	5.45	U	5.50	U	5.50	U
1,1-Dichloroethane	117.33	D	4.05	U	15	D	4	U
1,1-Dichloroethylene	11.10	D	3.96	U	4	U	4	U
1,2,4-Trichlorobenzene	7.42	U	7.42	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	5.90	D	4.91	U	4.90	U	4.90	U
1,2-Dibromoethane	7.68	U	7.68	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,2-Dichloroethane	4.05	U	4.05	U	4	U	4	U
1,2-Dichloropropane	4.62	U	4.62	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	6.99	U	6.99	U	7	U	7	U
1,3,5-Trimethylbenzene	4.91	U	4.91	U	4.90	U	4.90	U
1,3-Butadiene	13.00	U	13.00	U	13	U	13	U
1,3-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,3-Dichloropropane	4.62	U	4.62	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U	7.20	U
2-Butanone	88.44	D	82.55	D	36	D	21	D
2-Hexanone	8.19	U	8.19	U	8.20	U	8.20	U
3-Chloropropene	15.64	U	15.64	U	16	U	16	U
4-Methyl-2-pentanone	5.32	D	4.09	U	4.50	D	4.10	U
Acetone	332.54	D	1,800	D	150	D	200	D
Acrylonitrile	2.17	U	2.17	U	2.20	U	2.20	U
Benzene	226.73	D	27.78	D	100	D	42	D
Benzyl chloride	5.17	U	5.17	U	5.20	U	5.20	U
Bromodichloromethane	6.21	U	6.21	U	6.20	U	6.20	U
Bromoform	10.33	U	10.33	U	10	U	10	U
Bromomethane	3.88	U	3.88	U	3.90	U	3.90	U
Carbon disulfide	9.65	D	3,600	D	7.50	D	200	D
Carbon tetrachloride	1.57	U	1.57	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U	4.60	U
Chloroethane	2.64	U	2.64	U	2.60	U	2.60	U
Chloroform	634.48	D	4.88	U	140	D	4.90	U
Chloromethane	3.51	D	13.42	D	2.10	U	2.10	U
cis-1,2-Dichloroethylene	39.63	D	3.96	U	28	D	4	U
cis-1,3-Dichloropropylene	4.54	U	4.54	U	4.50	U	4.50	U
Cyclohexane	3.44	U	14.45	D	3.40	U	11	D
Dibromochloromethane	8.02	U	8.02	U	8	U	8	U
Dichlorodifluoromethane	4.94	U	4.94	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U	7.20	U
Ethyl Benzene	24.31	D	4.34	U	21	D	4.30	D
Hexachlorobutadiene	10.66	U	10.66	U	11	U	11	U
Isopropanol	16.95	D	3,400	D	25	D	NT	
Methyl Methacrylate	4.09	U	4.09	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U	3.60	U
Methylene chloride	90.28	D	13.54	D	35	D	12	D
n-Heptane	4.10	U	4.10	U	4.10	U	4.10	U
n-Hexane	42.28	D	10.57	D	17	D	9.90	D
o-Xylene	8.25	D	4.34	U	11	D	4.30	U
p- & m- Xylenes	23.87	D	8.68	U	26	D	8.70	U
p-Ethyltoluene	4.91	U	4.91	U	4.90	U	4.90	U
Propylene	1.72	U	1.72	U	1.70	U	1.70	U
Styrene	4.26	U	4.26	U	4.30	U	4.30	U
Tetrachloroethylene	680	U	13.56	D	2,800	D	48	D
Tetrahydrofuran	1,473.83	D	203.39	D	87	D	16	D
Toluene	124.31	D	34.28	D	110	D	35	D
trans-1,2-Dichloroethylene	10.70	D	3.96	U	5.20	D	4	U
trans-1,3-Dichloropropylene	4.54	U	4.54	U	4.50	U	4.50	U
Trichloroethylene	110,000	D	27.40	D	29,000	D	530	D
Trichlorofluoromethane (Freon 11)	5.62	U	5.62	U	5.60	U	5.60	U
Vinyl acetate	3.52	U	3.52	U	3.50	U	3.50	U
Vinyl bromide	4.37	U	4.37	U	4.40	U	4.40	U
Vinyl Chloride	2.56	U	2.56	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_102615		Effluent_102615		Influent_113015		Effluent_113015	
LAB SAMPLE ID	15J0989-01		15J0989-02		15L0012-01		15L0012-02	
SAMPLE DATE	10/26/2015		10/26/2015		11/30/2015		11/30/2015	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U	6.90	U
1,1,1-Trichloroethane	18	D	5.50	U	5.50	U	13	D
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U	4	U	4	U
1,1-Dichloroethylene	4	U	4	U	4	U	4	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U	6	U	6	U
1,2-Dichloroethane	4	U	4	U	4	U	4	U
1,2-Dichloropropane	4.60	U	4.60	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	7	U	7	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	4.90	U	4.90	U
1,3-Butadiene	13	U	13	U	13	U	13	U
1,3-Dichlorobenzene	6	U	6	U	6	U	6	U
1,3-Dichloropropane	4.60	U	4.60	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6	U	6	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U	7.20	U
2-Butanone	6	D	3	D	8	D	5.30	D
2-Hexanone	8.20	U	8.20	U	8.20	U	8.20	U
3-Chloropropene	16	U	16	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	4.10	U	4.10	U	4.10	U
Acetone	37	D	66	D	54	D	69	D
Acrylonitrile	2.20	U	2.20	U	2.20	U	2.20	U
Benzene	11	D	14	D	19	D	22	D
Benzyl chloride	5.20	U	5.20	U	5.20	U	5.20	U
Bromodichloromethane	6.20	U	6.20	U	6.20	U	6.20	U
Bromoform	10	U	10	U	10	U	10	U
Bromomethane	3.90	U	3.90	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	34	D	3.10	U	31	D
Carbon tetrachloride	1.60	U	1.60	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U	2.60	U	2.60	U
Chloroform	18	D	4.90	U	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U	2.10	U	2.10	U
cis-1,2-Dichloroethylene	13	D	4	U	4	U	4	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U	4.50	U
Cyclohexane	3.40	U	5	D	3.40	U	3.40	U
Dibromochloromethane	8	U	8	U	8	U	8	U
Dichlorodifluoromethane	4.90	U	4.90	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U	7.20	U
Ethyl Benzene	4	D	4.30	U	5.20	D	4.30	U
Hexachlorobutadiene	11	U	11	U	11	U	11	U
Isopropanol	10	D	57	D	6.40	D	150	D
Methyl Methacrylate	4.10	U	4.10	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U	3.60	U
Methylene chloride	32	D	34	D	19	D	68	D
n-Heptane	4.10	U	4.10	U	4.10	U	4.10	U
n-Hexane	5	D	8.80	D	3.50	U	12	D
o-Xylene	4	U	4.30	U	4.30	U	4.30	U
p- & m- Xylenes	9	U	8.70	U	12	D	8.70	U
p-Ethyltoluene	4.90	U	4.90	U	4.90	U	4.90	U
Propylene	36.00	D	1.70	U	1.70	U	1.70	U
Styrene	4.30	U	4.30	U	4.30	U	4.30	U
Tetrachloroethylene	1,200	D	26	D	290	D	12	D
Tetrahydrofuran	14	D	6	U	5.90	U	5.90	U
Toluene	22	D	15	D	30	D	21	D
trans-1,2-Dichloroethylene	4.00	U	4	U	4	U	4	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U	4.50	U
Trichloroethylene	5,600	D	120	D	2700	D	23	D
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_122815		Effluent_122815		INFLUENT_012716		EFFLUENT_012716	
LAB SAMPLE ID	15L1040-01		15L1040-02		16A0778-01		16A0778-02	
SAMPLE DATE	12/28/2015		12/28/2015		1/27/2016		1/27/2016	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	0.69	U
1,1,1-Trichloroethane	5.50	D	5.50	U	2.70		0.55	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	0.69	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	16	D	0.77	U	0.77	U
1,1,2-Trichloroethane	5.50	U	5.50	U	0.55	U	0.55	U
1,1-Dichloroethane	4	U	4	U	0.69		0.40	U
1,1-Dichloroethylene	4	U	4	U	0.44		0.44	
1,2,4-Trichlorobenzene	7.40	U	7.40	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	0.54		0.49	U
1,2-Dibromoethane	7.70	U	7.70	U	0.77	U	0.77	U
1,2-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,2-Dichloroethane	4	U	4	U	0.40	U	0.40	U
1,2-Dichloropropane	4.60	U	4.60	U	0.46	U	0.46	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	0.70	U	0.70	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	0.49	U	0.49	U
1,3-Butadiene	13	U	13	U	1.30	U	1.30	U
1,3-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,3-Dichloropropane	4.60	U	4.60	U	0.46	U	0.46	U
1,4-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,4-Dioxane	7.20	U	7.20	U	0.72	U	0.72	U
2-Butanone	4.70	D	2.90	U	6.70		1.60	
2-Hexanone	8.20	U	8.20	U	0.82	U	0.82	U
3-Chloropropene	16	U	16	U	1.60	U	1.60	U
4-Methyl-2-pentanone	4.10	U	4.10	U	2		1.10	
Acetone	35	D	32	D	40		25	
Acrylonitrile	2.20	U	2.20	U	0.22	U	0.22	U
Benzene	6.40	D	3.20	U	13		2.50	
Benzyl chloride	5.20	U	5.20	U	0.52	U	0.52	U
Bromodichloromethane	6.20	U	6.20	U	0.62	U	0.62	U
Bromoform	10	U	10	U	1	U	1	U
Bromomethane	3.90	U	3.90	U	0.39	U	0.39	U
Carbon disulfide	3.10	U	13	D	1.40		8.70	
Carbon tetrachloride	1.60	U	1.60	U	0.44		0.16	U
Chlorobenzene	4.60	U	4.60	U	0.46	U	0.46	U
Chloroethane	2.60	U	2.60	U	1.20		0.26	U
Chloroform	4.90	D	4.90	U	2.60		0.49	U
Chloromethane	2.10	U	2.10	U	3		2	
cis-1,2-Dichloroethylene	7.90	D	4	U	7.70		0.40	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	0.45	U
Cyclohexane	3.40	U	3.40	U	0.34	U	0.34	U
Dibromochloromethane	8	U	8	U	0.80	U	0.80	U
Dichlorodifluoromethane	4.90	U	4.90	U	2.10		3.20	
Ethyl acetate	7.20	U	7.20	U	0.72	U	0.72	U
Ethyl Benzene	4.30	U	4.30	U	1.70		0.48	
Hexachlorobutadiene	11	U	11	U	1.10	U	1.10	U
Isopropanol	67	D	98	D	0.49	U	49	
Methyl Methacrylate	4.10	U	7	D	17		9.40	
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	0.36	U	0.36	U
Methylene chloride	13	D	24	D	40		34	
n-Heptane	4.10	U	4.10	U	0.41	U	0.41	U
n-Hexane	3.50	U	6	D	6.50		8.60	
o-Xylene	4.30	U	4.30	U	0.65		0.43	U
p- & m- Xylenes	8.70	U	8.70	U	2		0.96	
p-Ethyltoluene	4.90	U	4.90	U	0.49	U	0.49	U
Propylene	13	D	13	D	21		18	
Styrene	4.30	U	4.30	U	0.68		0.43	U
Tetrachloroethylene	380	D	12	D	280		6.90	
Tetrahydrofuran	6.80	D	5.90	U	0.59	U	0.59	U
Toluene	13	D	8.70	D	14		9.50	
trans-1,2-Dichloroethylene	4	U	4	U	0.48		0.40	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	0.45	U
Trichloroethylene	2,800	D	1.3	U	150	D	0.13	U
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	1.70		1.80	
Vinyl acetate	3.50	U	3.50	U	0.35	U	0.35	U
Vinyl bromide	4.40	U	4.40	U	0.44	U	0.44	U
Vinyl Chloride	2.60	U	2.60	U	0.82		0.26	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC MID-POINT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	INFLUENT_022416		MID_022416		EFFLUENT_022416		INFLUENT_033016		EFFLUENT_033016	
LAB SAMPLE ID	16B0855		16B0855		16B0855		16C1247-01		16C1247-02	
SAMPLE DATE	2/24/2016		2/24/2016		2/24/2016		3/30/2016		3/30/2016	
Volatile Organic Compounds (ug/m^3)										
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	6.90	U	6.90	U
1,1,1-Trichloroethane	5.50	U	5.50	U	0.55	U	5.50	U	5.50	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U	0.77	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U	0.55	U	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U	0.40	U	4.00	U	4.00	U
1,1-Dichloroethylene	4	U	4	U	0.40	U	4.00	U	4.00	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U	0.74	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	10		4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U	0.77	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,2-Dichloroethane	4	U	4	U	0.40	U	4.00	U	4.00	U
1,2-Dichloropropane	4.60	U	4.60	U	0.46	U	11.00	D	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	0.70	U	7.00	U	7.00	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	4		4.90	U	4.90	U
1,3-Butadiene	13	U	13	U	1.30	U	6.60	U	6.60	U
1,3-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,3-Dichloropropane	4.60	U	4.60	U	0.46	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,4-Dioxane	7.20	U	7.20	U	0.72	U	7.20	U	7.20	U
2-Butanone	12	D	2.90	U	6.10		2.90	U	2.90	U
2-Hexanone	8.20	U	8.20	U	0.82	U	8.20	U	8.20	U
3-Chloropropene	16	U	16	U	1.60	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	4.10	U	0.41	U	4.10	U	4.10	U
Acetone	76	D	39	D	64		25	D	22	D
Acrylonitrile	2.20	U	2.20	U	0.22	U	2.20	U	2.20	U
Benzene	30	D	11	D	7.40		3.20	U	3.20	U
Benzyl chloride	5.20	U	5.20	U	0.52	U	5.20	U	5.20	U
Bromodichloromethane	6.20	U	6.20	U	0.62	U	6.70	U	6.70	U
Bromoform	10	U	10	U	1	U	10	U	10	U
Bromomethane	3.90	U	3.90	U	0.39	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	3.10	U	2.60		3.10	U	3.10	U
Carbon tetrachloride	1.60	U	1.60	U	0.16	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	0.46	U	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U	0.26	U	2.60	U	2.60	U
Chloroform	4.90	U	4.90	U	0.49	U	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U	0.21	U	2.10	U	2.10	U
cis-1,2-Dichloroethylene	4.40	D	4	U	0.40	U	4.00	U	4.00	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	4.50	U	4.50	U
Cyclohexane	3.40	U	3.40	U	0.34	U	3.40	U	3.40	U
Dibromochloromethane	8	U	8	U	0.80	U	8.50	U	8.50	U
Dichlorodifluoromethane	4.90	U	4.90	U	1.60		4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	1.90		7.20	U	7.20	U
Ethyl Benzene	4.30	D	4.30	U	12		4.30	U	4.30	U
Hexachlorobutadiene	11	U	11	U	1.10	U	11	U	11	U
Isopropanol	4.90	U	4.90	U	34		4.90	U	4.90	U
Methyl Methacrylate	4.10	U	4.10	U	0.41	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	0.36	U	3.60	U	3.60	U
Methylene chloride	6.90	U	6.90	U	1.10		11	D	40	D
n-Heptane	4.10	U	4.10	U	4		4.10	U	4.10	U
n-Hexane	3.50	U	3.50	U	1.30		3.50	U	13	D
o-Xylene	4.30	U	4.30	U	16		4.30	U	4.30	U
p- & m- Xylenes	8.70	U	8.70	U	47		8.70	U	8.70	U
p-Ethyltoluene	4.90	U	4.90	U	12		4.90	U	4.90	U
Propylene	1.70	U	1.70	U	0.17	U	1.70	U	1.70	U
Styrene	4.30	U	4.30	U	0.43	U	4.30	U	4.30	U
Tetrachloroethylene	200	D	11	D	5.10		110	D	1.70	U
Tetrahydrofuran	5.90	U	5.90	U	3.90		5.90	U	5.90	U
Toluene	27	D	20	D	44		7.90	D	3.80	U
trans-1,2-Dichloroethylene	4	U	4	U	2.60		4.00	U	4.00	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	4.50	U	4.50	U
Trichloroethylene	1,100	D	2,500	D	0.91		660	D	1.30	U
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	1.60		5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U	0.35	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U	0.44	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	U	0.26	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	INFLUENT_042916		EFFLUENT_042916	
LAB SAMPLE ID	16D1143-01		16D1143-02	
SAMPLE DATE	4/29/2016		4/29/2016	
Volatile Organic Compounds (ug/m^3)				
1,1,1,2-Tetrachloroethane	6.90	U	0.69	U
1,1,1-Trichloroethane	5.50	U	0.55	U
1,1,2,2-Tetrachloroethane	6.90	U	0.69	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	0.77	U
1,1,2-Trichloroethane	5.50	U	0.55	U
1,1-Dichloroethane	4.00	U	0.40	U
1,1-Dichloroethylene	4.00	U	0.40	U
1,2,4-Trichlorobenzene	7.40	U	0.74	U
1,2,4-Trimethylbenzene	4.90	U	2.50	
1,2-Dibromoethane	7.70	U	0.77	U
1,2-Dichlorobenzene	6.00	U	0.60	U
1,2-Dichloroethane	4.00	U	0.40	U
1,2-Dichloropropane	4.60	U	0.46	U
1,2-Dichlorotetrafluoroethane	7.00	U	0.70	U
1,3,5-Trimethylbenzene	4.90	U	0.54	
1,3-Butadiene	6.60	U	0.66	U
1,3-Dichlorobenzene	6.00	U	0.60	U
1,3-Dichloropropane	4.60	U	0.46	U
1,4-Dichlorobenzene	6.00	U	0.60	U
1,4-Dioxane	7.20	U	0.72	U
2-Butanone	2.90	U	1.30	
2-Hexanone	8.20	U	0.82	U
3-Chloropropene	16	U	2	U
4-Methyl-2-pentanone	4.10	U	1.30	
Acetone	11	D	32	
Acrylonitrile	2.20	U	0.22	U
Benzene	3.20	U	3.40	
Benzyl chloride	5.20	U	0.52	U
Bromodichloromethane	6.70	U	0.67	U
Bromoform	10	U	1	U
Bromomethane	3.90	U	0.39	U
Carbon disulfide	3.10	U	0.69	
Carbon tetrachloride	1.60	U	0.16	U
Chlorobenzene	4.60	U	0.46	U
Chloroethane	2.60	U	0.26	U
Chloroform	4.90	U	0.49	U
Chloromethane	2.10	U	1.50	
cis-1,2-Dichloroethylene	4.00	U	0.40	U
cis-1,3-Dichloropropylene	4.50	U	0.45	U
Cyclohexane	3.40	U	0.34	U
Dibromochloromethane	8.50	U	0.85	U
Dichlorodifluoromethane	4.90	U	2.00	
Ethyl acetate	10.00	D	2.60	
Ethyl Benzene	4.30	U	0.61	
Hexachlorobutadiene	11	U	1	U
Isopropanol	4.90	U	0.49	U
Methyl Methacrylate	4.10	U	4.00	
Methyl tert-butyl ether (MTBE)	3.60	U	0.36	U
Methylene chloride	250	D	46	
n-Heptane	4.10	U	0.41	U
n-Hexane	8.80	D	4	
o-Xylene	4.30	U	0.43	
p- & m- Xylenes	8.70	U	0.96	
p-Ethyltoluene	4.90	U	1.50	
Propylene	1.70	U	0.17	U
Styrene	4.30	U	0.47	
Tetrachloroethylene	32	D	0.17	U
Tetrahydrofuran	5.90	U	0.59	U
Toluene	3.80	U	3.30	
trans-1,2-Dichloroethylene	4.00	U	0.40	U
trans-1,3-Dichloropropylene	4.50	U	0.45	U
Trichloroethylene	170	D	0.13	U
Trichlorofluoromethane (Freon 11)	5.60	U	2.80	
Vinyl acetate	3.50	U	0.35	U
Vinyl bromide	4.40	U	0.44	U
Vinyl Chloride	2.60	U	0.26	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - PID DATA
491 WORTMAN AVENUE
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	1548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3693	100	0.002	1.43	85.34
4/29/2016	2.0	571	0.0	4322	100	0.018	11.14	96.48

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 4: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA
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)	VGAC MASS REMOVAL EFFICIENCY (%)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99	92
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44	97
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36	95
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18	86
12/28/2015	3,357	570	230	1548	53.58	3.67	49.91	4.18	16.55	3.89	15.08	93
1/27/2016	621	525	183	2180	9.13	2.69	6.44	0.76	17.31	0.54	15.62	71
2/24/2016	1,454	578	283	2854	23.53	4.58	18.94	2.10	19.41	1.69	17.31	81
3/30/2016	825	550	75	3693	12.71	1.16	11.55	1.41	20.82	1.28	18.59	91
4/29/2016	482	571	112	4322	7.70	1.79	5.91	0.64	21.46	0.49	19.08	77

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 5: AS/SVE SYSTEM DAR-1 COMPLIANCE
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **4/29/2016**

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)													
1,2,4-Trimethylbenzene	2.50	571	16.16901	5.34E-06	4.67E-02	4.20E-04	4.20E-04	2.73E-02	--	6	NO	No Standard	NO
1,3,5-Trimethylbenzene	0.54	571	16.16901	1.15E-06	1.01E-02	9.08E-05	9.07E-05	5.89E-03	--	6	NO	No Standard	NO
2-Butanone	1.30	571	16.16901	2.77E-06	2.43E-02	2.19E-04	2.18E-04	1.42E-02	13000	5000	NO	NO	NO
4-Methyl-2pentan0ne	1.30	571	16.16901	2.77E-06	2.43E-02	2.19E-04	2.18E-04	1.42E-02	31000	3000	NO	NO	NO
Acetone	32	571	16.16901	6.83E-05	5.98E-01	5.38E-03	5.37E-03	3.49E-01	180,000	30,000	NO	NO	NO
Benzene	3.40	571	16.16901	7.26E-06	6.36E-02	5.72E-04	5.71E-04	3.71E-02	1,300	0.13	NO	NO	NO
Carbon disulfide	0.69	571	16.16901	1.47E-06	1.29E-02	1.16E-04	1.16E-04	7.53E-03	6,200	700	NO	NO	NO
Chloromethane	1.50	571	16.16901	3.20E-06	2.80E-02	2.52E-04	2.52E-04	1.64E-02	6,200	700	NO	NO	NO
Dichlorodifluoromethane	2	571	16.16901	4.27E-06	3.74E-02	3.36E-04	3.36E-04	2.18E-02	--	12,000	NO	No Standard	NO
Ethyl Acetate	2.60	571	16.16901	5.55E-06	4.86E-02	4.37E-04	4.37E-04	2.84E-02	--	3,400	NO	No Standard	NO
Ethyl Benzene	0.61	571	16.16901	1.30E-06	1.14E-02	1.03E-04	1.02E-04	6.66E-03	--	1,000	NO	No Standard	NO
Methyl methacrylate	4	571	16.16901	8.54E-06	7.48E-02	6.72E-04	6.72E-04	4.37E-02	41,000	700	NO	NO	NO
Methylene chloride	46	571	16.16901	9.82E-05	8.60E-01	7.73E-03	7.72E-03	5.02E-01	14,000	60	NO	NO	NO
n-Hexane	4	571	16.16901	8.54E-06	7.48E-02	6.72E-04	6.72E-04	4.37E-02	--	700	NO	No Standard	NO
o-Xylene	0.43	571	16.16901	9.18E-07	8.04E-03	7.23E-05	7.22E-05	4.69E-03	22,000	100	NO	NO	NO
p&m-Xylenes	0.96	571	16.16901	2.05E-06	1.79E-02	1.61E-04	1.61E-04	1.05E-02	22,000	100	NO	NO	NO
p-Ethyltoluene	1.50	571	16.16901	3.20E-06	2.80E-02	2.52E-04	2.52E-04	1.64E-02	--	--	No Standard	No Standard	No Standard
Styrene	0.47	571	16.16901	1.00E-06	8.79E-03	7.90E-05	7.89E-05	5.13E-03	17,000	1,000	NO	NO	NO
Toluene	3.30	571	16.16901	7.04E-06	6.17E-02	5.55E-04	5.54E-04	3.60E-02	37,000	5,000	NO	NO	NO
Trichlorofluoromethane	2.80	571	16.16901	5.98E-06	5.24E-02	4.71E-04	4.70E-04	3.06E-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 6: AS/SVE SYSTEM ALARM HISTORY
491 WORTMAN AVENUE
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.

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS - SECOND QUARTER
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW-1_042616 16D0970-07 4/26/2016 1		MW-2_042616 16D0970-04 4/26/2016 1		MW-3AS_042716 16D1034-05 4/27/2016 1		MW-3AM_042816 16D1088-01 4/28/2016 1		MW-3AD_042816 16D1088-02 4/28/2016 1		MW-4_042616 16D0970-01 4/26/2016 1		MW-5_042616 16D0970-02 4/26/2016 1		MW-6_042716 16D1034-01 4/27/2016 10	
Volatile Organic Compounds (µg/L)																	
1,1-Dichloroethane	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	2	U
1,2-Dichloropropane	1	0.48	J	0.47	J	0.36	J	0.2	U	0.2	U	0.2	U	0.32	J	*2*	U
2-Butanone	50	0.8	U	0.8	U	0.43	J	0.8	U	0.8	U	0.8	U	0.8	U	2	U
Acetone	50	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
Bromodichloromethane	50	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	2	U
Bromomethane	5	0.2	U	0.2	U	2.2	B	0.2	U	0.2	U	0.2	U	0.2	U	**22**	BD
Chloroform	7	0.2	U	0.2	U	0.2	U	0.2	U	0.82		0.2	U	0.2	U	2	U
cis-1,2-Dichloroethylene	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.39	J	**19**	D
Methyl tert-butyl ether (MTBE)	10	0.2	U	0.2	U	0.2	U	0.33	J	0.29	J	0.2	U	0.27	J	2	U
Tetrachloroethylene	5	1.7		0.87		1.2		**16**		**7.6**		0.48	J	0.67		**160**	D
Trichloroethylene	5	1.7		0.72		2.7		2.1		1.3		2.4		0.38	J	**220**	D
Vinyl Chloride	2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	2	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 (AWQS) for Class GA water.
2. 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. ~ = No regulatory limit has been established for this analyte.
6. DUP01_012612 is a duplicate sample of MW-9_042616.
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 second round of quarterly groundwater sampling.
8. One trip blank (TB01_042816) and one field blank (FB01_042816) were collected for quality assurance/quality control (QA/QC) purposes.

Qualifiers:
B = Analyte found in the analysis batch blank.
D = The sample was diluted per the dilution factor shown.
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 - SECOND QUARTER
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW-7_042716 16D1034-03 4/27/2016 1		MW-8_042716 16D1034-02 4/27/2016 1		MW-9_042616 16D0970-05 4/26/2016 1		DUP-01_042616 16D0970-03 4/26/2016 1		PZ-1_042616 16D0970-06 4/26/2016 1		PZ-2_042716 16D1034-04 4/27/2016 1		FB-01_042816 16D1088-03 4/28/2016 1		TB-01_042816 16D1088-04 4/28/2016 1	
Volatile Organic Compounds (µg/L)																	
1,1-Dichloroethane	5	0.2	U	0.71		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
1,2-Dichloropropane	1	0.37	J	0.2	U	0.51		0.52		0.44	J	0.49	J	0.2	U	0.2	U
2-Butanone	50	0.58	J	0.2	U	0.8	U	0.8	U	0.8	U	0.2	U	0.8	U	0.8	U
Acetone	50	1.3	J	1.2	J	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	50	1		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Bromomethane	5	2.1	B	2.1	B	0.2	U	0.2	U	0.2	U	2.2	B	0.2	U	0.2	U
Chloroform	7	**7.9**		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
cis-1,2-Dichloroethylene	5	0.2	U	**23**		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Methyl tert-butyl ether (MTBE)	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Tetrachloroethylene	5	0.26	J	**5.7**		0.31	J	0.31	J	0.3	J	0.61		0.2	U	0.2	U
Trichloroethylene	5	1.8		**43**		0.2	U	0.2	U	0.75		0.78		0.2	U	0.2	U
Vinyl Chloride	2	0.2	U	0.26	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	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 (AWQS) for Class GA water.
2. 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. ~ = No regulatory limit has been established for this analyte.
6. DUP01_012612 is a duplicate sample of MW-9_042616.
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 second round of quarterly groundwater sampling.
8. One trip blank (TB01_042816) and one field blank (FB01_042816) were collected for quality assurance/quality control (QA/QC) purposes.

Qualifiers:
B = Analyte found in the analysis batch blank.
D = The sample was diluted per the dilution factor shown.
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 8: QUARTERLY 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												
		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%*

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 (AWQS) 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. * = Monitoring well is located in the sidewalk adjacent to the warehouse.

TABLE 9: OFF-SITE GROUNDWATER SAMPLING RESULTS - APRIL 2016
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW-12S_042716 16D1036-04 4/27/2016 1		MW-12M_042716 16D1036-05 4/27/2016 1		MW-12D_042716 16D1036-06 4/27/2016 1		MW-13S_042816 16D1089-01 4/28/2016 25		DUP-01_042816 16D1089-02 4/28/2016 25		MW-13M_042816 16D1089-03 4/28/2016 1		MW-13D_042816 16D1089-04 4/28/2016 1		MW-14S_042716 16D1036-01 4/27/2016 1		MW-14M_042716 16D1036-02 4/27/2016 1		MW-14D_042716 16D1036-03 4/27/2016 1	
Volatile Organic Compounds (µg/L)																					
1,1,1-Trichloroethane	5	0.20	U	0.99		0.20	U	**17**	D	**16**	D	0.39	J	0.20	U	0.20	U	0.20	U	0.20	U
1,1-Dichloroethane	5	0.20	U	0.20	U	0.20	U	**11**	D	**11**	D	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1-Dichloroethylene	5	0.20	U	0.47	J	0.20	U	**24**	D	**24**	D	0.27	J	0.20	U	0.20	U	0.20	U	0.20	U
1,2-Dichlorobenzene	3	0.20	U	0.20	U	0.20	U	2	U	2	U	0.20	U	0.20	U	0.20	U	0.21	J	0.20	U
1,4-Dichlorobenzene	3	0.20	U	0.20	U	0.20	U	2	U	2	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,4-Dioxane	~	40	U	40	U	40	U	400	U	400	U	40	U	40	U	40	U	40	U	40	U
2-Butanone	50	0.20	U	0.20	U	0.20	U	2	U	2	U	0.20	U	0.20	U	0.25	J	0.20	U	0.20	U
Acetone	50	1.30	J	1	U	1	U	10	JBD	11	JBD	1	U	1	U	1	J	1	U	1	U
Bromodichloromethane	50	0.20	U	0.20	U	0.20	U	2	U	2	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Bromomethane	5	2.20	B	2.20	B	2.10	B	**21**	BD	2	U	2.10	B	2.10	B	2.20	B	2.20	B	2.20	B
Chlorobenzene	5	0.20	U	0.20	U	0.20	U	2	U	2	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Chloroform	7	0.20	U	0.20	U	0.20	U	2.20	JD	2.10	JD	0.23	J	0.20	U	0.33	J	0.23	J	0.20	U
cis-1,2-Dichloroethylene	5	0.20	U	1.60		0.20	U	**52**	D	**52**	D	0.50		0.24	J	0.20	U	0.88		0.31	J
Dichlorodifluoromethane	5	0.20	U	0.20	U	0.20	U	2	U	2	U	0.20	U	0.20	U	0.20	U	0.20	U	0.33	J
Methyl tert-butyl ether (MTBE)	10	0.20	U	0.20	U	0.20	U	2	U	2	U	0.58		0.87		0.20	U	7.80		4.80	
o-Xylene	5	0.20	U	0.20	U	0.20	U	2	U	2	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
p- & m- Xylenes	5	0.50	U	0.50	U	0.50	U	5	U	5	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
tert-Butyl alcohol (TBA)	~	0.50	U	0.50	U	0.50	U	5	U	5	U	0.50	U	0.50	U	0.50	U	1		1.20	
Tetrachloroethylene	5	0.20	U	**7.40**		0.70		**110**	D	**110**	D	**25**		**12**		0.38	J	**27**		**13**	
Trichloroethylene	5	0.20	U	**55**		2.50		**2,100**	D	**2,100**	D	**19**		4.70		0.42	J	**24**		3.60	
Trichlorofluoromethane	5	0.20	U	0.20	U	0.20	U	**14**	D	**13**	D	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Vinyl Chloride	2	0.20	U	0.20	U	0.20	U	**2.10**	JD	2	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Xylenes, Total	5	0.60	U	0.60	U	0.60	U	6	U	6	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	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 (AWQS) for Class GA water.
2. 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. ~ = No regulatory limit has been established for this analyte.
6. DUP-01_042816 is a duplicate sample of MW-13M_042816.
7. Five nested monitoring locations were sampled as part of the first round of semi-annual, off-site groundwater sampling. Each nested monitoring location contains three monitoring wells screened across a shallow, middle, and deep interval.
8. One trip blank (Trip Blank) was collected for quality assurance/quality control (QA/QC) purposes.
9. S = shallow-screened monitoring well; M = middle-screened monitoring well; D = deep-screened monitoring well

Qualifiers:
B = Analyte found in the analysis batch blank.
D = The sample was diluted per the dilution factor shown.
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: OFF-SITE GROUNDWATER SAMPLING RESULTS - APRIL 2016
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW-15S_042916 16D1144-01 4/28/2016 1		MW-15M_042916 16D1144-02 4/28/2016 1		MW-15D_042916 16D1144-03 4/28/2016 1		MW-16S_042616 16D0967-01 4/26/2016 1		MW-16M_042816 16D1089-05 4/28/2016 1		MW-16D_042816 16D1089-06 4/28/2016 1		Trip Blank 16D1144-04 4/28/2016 1	
Volatile Organic Compounds (µg/L)															
1,1,1-Trichloroethane	5	0.22	J	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1-Dichloroethane	5	0.20	U	0.33	J	0.20	U	0.25	J	0.20	U	0.20	U	0.20	U
1,1-Dichloroethylene	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,2-Dichlorobenzene	3	0.20	U	0.24	J	0.20	U	0.20	U	0.85		0.28	J	0.20	U
1,4-Dichlorobenzene	3	0.20	U	0.20	U	0.20	U	0.20	U	0.40	J	0.20	U	0.20	U
1,4-Dioxane	~	40	U	42	B	40	U	40	U	40	U	40	U	40	U
2-Butanone	50	0.20	U	0.20	U	0.20	U	0.80	U	0.20	U	0.20	U	0.20	U
Acetone	50	1	U	1	U	1	U	1	U	1	U	1	U	1	J
Bromodichloromethane	50	1.20		0.47	J	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Bromomethane	5	0.20	U	0.20	U	0.20	U	0.20	U	2.10	B	2.10	B	0.20	U
Chlorobenzene	5	0.20	U	0.25	J	0.20	U	0.20	U	0.78		0.32	J	0.20	U
Chloroform	7	**12**		5		0.20	J	0.20	U	0.20	U	0.20	U	0.20	U
cis-1,2-Dichloroethylene	5	0.20	U	0.68		0.27	J	0.52		0.28	J	0.26	J	0.20	U
Dichlorodifluoromethane	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Methyl tert-butyl ether (MTBE)	10	0.20	U	2.30		0.54		0.20	U	0.28	J	0.20	U	0.20	U
o-Xylene	5	0.36	J	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
p- & m- Xylenes	5	0.78	J	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
tert-Butyl alcohol (TBA)	~	0.87	J	1.20	J	1.10	J	1.70	J	0.50	U	0.50	U	1.40	J
Tetrachloroethylene	5	0.58		**11**		**14**		0.49	J	**9.80**		**15**		0.20	U
Trichloroethylene	5	0.20	U	3.70		2.40		0.87		1.50		1		0.20	U
Trichlorofluoromethane	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Vinyl Chloride	2	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Xylenes, Total	5	1.10	J	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	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 (AWQS) for Class GA water.
2. 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. ~ = No regulatory limit has been established for this analyte.
6. DUP-01_042816 is a duplicate sample of MW-13M_042816.
7. Five nested monitoring locations were sampled as part of the first round of semi-annual, off-site groundwater sampling. Each nested monitoring location contains three monitoring wells screened across a shallow, middle, and deep interval.
8. One trip blank (Trip Blank) was collected for quality assurance/quality control (QA/QC) purposes.
9. S = shallow-screened monitoring well; M = middle-screened monitoring well; D = deep-screened monitoring well

Qualifiers:
B = Analyte found in the analysis batch blank.
D = The sample was diluted per the dilution factor shown.
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 10: 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	Off-Site Sampling Location														
		MW-12S	MW-12M	MW-12D	MW-13S	MW-13M	MW-13D	MW-14S	MW-14M	MW-14D	MW-15S	MW-15M	MW-15D	MW-16S	MW-16M	MW-16D
Baseline Sampling Results Summary (µg/L) - November 2014																
CVOCs	~	3.54	96	24.7	1,500.7	296.78	21.03	10.08	73.2	25.6	2.43	22.1	16.92	3.74	9.55	16.57
PCE	5	0.64	11	17	140	32	13	5.1	33	18	1.6	16	14	1.5	7.3	15
TCE	5	2.5	78	7.2	1,300	240	7.4	4.3	37	7	0.43	4.7	2.4	0.74	1.3	0.98
cis-1,2- DCE	5	0.2	6.8	0.3	58	24	0.43	0.48	3	0.4	0.2	1.2	0.32	1.3	0.75	0.39
vinyl chloride	2	0.2	0.2	0.2	2.7	0.78	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
First Round: Semi-Annual Sampling Results Summary (µg/L) - April 2016																
CVOCs	~	0.8	64.2	3.6	2264.1	44.7	17.14	1.2	52.08	17.11	1.18	15.58	16.87	2.08	11.78	16.46
PCE	5	0.2	7.4	0.7	110	25	12	0.38	27	13	0.58	11	14	0.49	9.8	15
TCE	5	0.2	55	2.5	2100	19	4.7	0.42	24	3.6	0.2	3.7	2.4	0.87	1.5	1
cis-1,2- DCE	5	0.2	1.6	0.2	52	0.5	0.24	0.2	0.88	0.31	0.2	0.68	0.27	0.52	0.28	0.26
vinyl chloride	2	0.2	0.2	0.2	2.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
First Round Percent CVOC Reduction		*77%*	*33%*	*85%*	*-51%*	*85%*	*18%*	*88%*	*29%*	*33%*	*51%*	*30%*	*0.3%*	*44%*	*-23%*	*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 (AWQS) 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. S = shallow-screened monitoring well; M = middle-screened monitoring well; D = deep-screened monitoring well

Progress Report No. 11
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: May 2016

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this monthly progress report on behalf of J&H Holding Company, LLC (the "Participant"). Monthly progress report submittal to the New York State Department of Environmental Conservation (NYSDEC) is performed in accordance with the Brownfield Cleanup Agreement (BCA) and Section 3.2 of the NYSDEC-approved Interim Remedial Measures Work Plan (IRMWP), prepared by Langan, dated April 28, 2015, and revised June 16, 2015. This monthly progress report summarizes work performed at 491 Wortman Avenue, Brooklyn, New York (the "site") during May 2016.

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 (i.e. the eastern portion).

Environmental site investigations began in November 2008. The most recent environmental activity was Langan's submittal of the IRMWP, which the NYSDEC approved on June 18, 2015. Implementation of the IRMWP and the pending environmental activities are described further in this progress report.

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

On May 26, 2016, 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), and routine equipment maintenance was performed. Maintenance included greasing the blower and checking the belt tensions. The allowable flow through the AS system was adjusted to stop the surfacing of groundwater through PZ-2.

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:

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

Samples were analyzed by York Analytical Laboratories Inc. (York) of Stratford, CT. York 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. 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 Summary
- Table 2: AS/SVE System Vapor Sampling Results (lab reports available upon request)
- Table 3: AS/SVE System Mass Removal – PID Data
- Table 4: AS/SVE System Mass Removal – Laboratory Data
- Table 5: AS/SVE System DAR-1 Compliance –May 26, 2016
- Table 6: AS/SVE System Alarm History

6. Deliverables Submitted During This Reporting Period

No deliverables were submitted during this reporting period.

7. Information Regarding Percentage of Completion

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

As of June 3, 2016 and since inception, the SVE system operated for 5,158 hours (95% uptime), and the AS system operated for 5,116 hours (94% 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

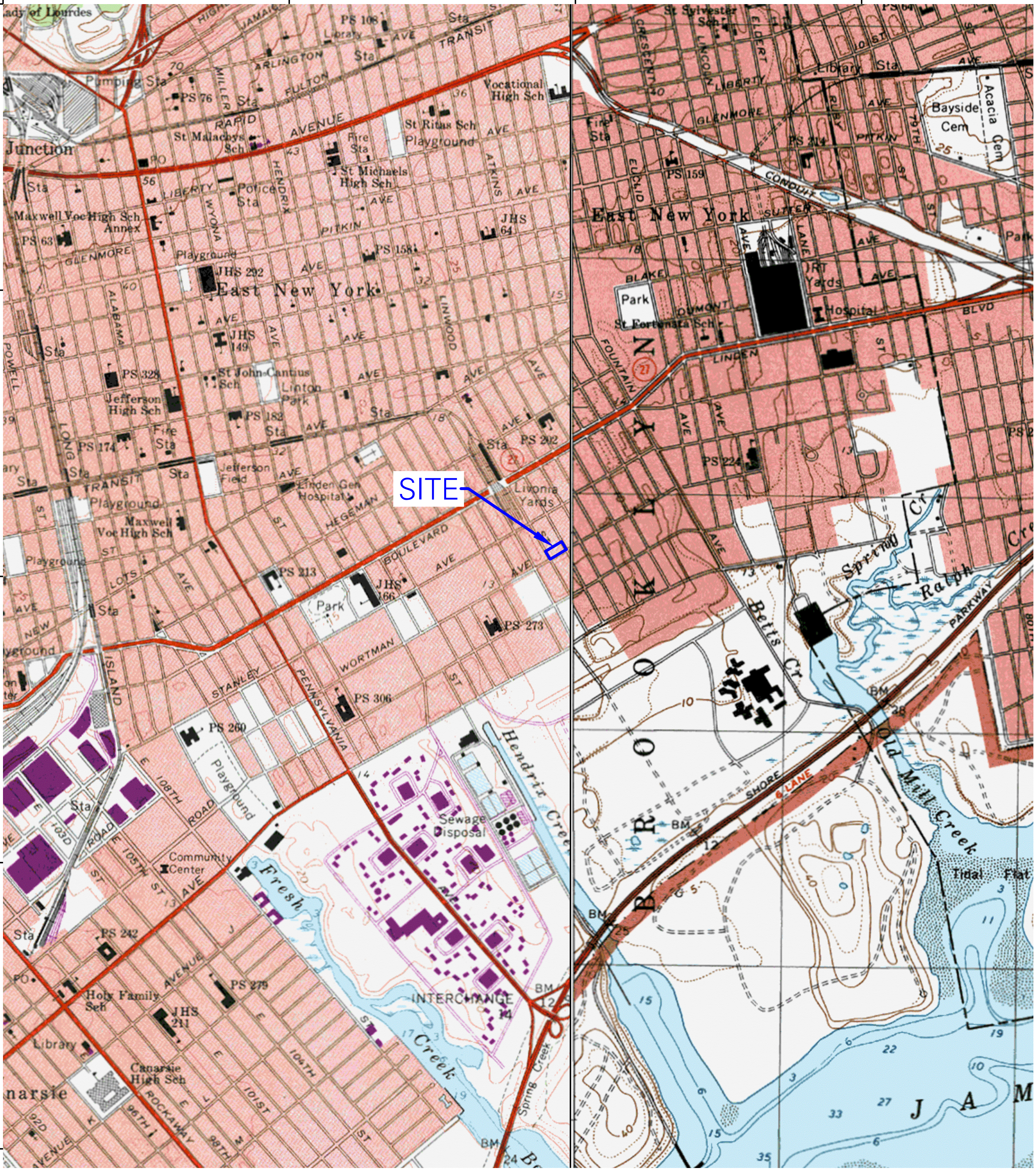
None.

11. Miscellaneous Information

The warehouse space, which was previously unoccupied, is now being used by a tenant to store sound equipment.

The following is an update regarding the site activities discussed during the May 24, 2016 phone call:

- A draft Construction Completion Report (CCR) will be submitted the week of June 13, 2016.
- The database study to identify nearby facilities possibly contributing to chlorinated solvent concentrations at MW-13S is ongoing. A technical memorandum presenting our findings will be submitted the week of June 13, 2016.
- The status of off-site monitoring wells MW011, MW012, and ML002 was summarized in an email sent to the NYSDEC on June 3, 2016.



REFERENCE: USGS TOPOGRAPHIC QUADRANGLE MAPS FOR BROOKLYN AND JAMAICA.

LANGAN	Project	Figure Title	Project No.	Figure
21 Penn Plaza, 360 West 31st Street, 8th Floor New York, NY 10001 T: 212.479.5400 F: 212.479.5444 www.langan.com	491 WORTMAN AVENUE	SITE LOCATION MAP	170329301	1
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	BLOCK No. 4384, LOT Nos. 31 & 36 BROOKLYN KINGS NEW YORK		Date: 04/18/2015 Scale: N.T.S. Drawn By: MLR Checked By: GN Submission Date	Sheet 1 of 3

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report\Figure 1 - Site Location Map.dwg Date: 5/9/2016 Time: 15:55 User: mrogers Style Table: Langan.stb Layout: Site Location Map

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING SUMMARY
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

SAMPLE NAME	SAMPLE DATE	SAMPLE TYPE	LOCATION	ANALYSIS
AS/SVE SYSTEM VAPOR SAMPLES				
Influent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Mid_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_052616	5/26/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_052616	5/26/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs

Notes:

1. The vapor samples were analyzed for VOCs via USEPA Method TO-15.
2. USEPA = United States Environmental Protection Agency
3. VOCs = volatile organic compounds
4. AS/SVE = air sparge/soil vapor extraction
5. vGAC = vapor-phase granular activated carbon

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent 102015		Effluent 102015		Influent_102115		Effluent_102115	
LAB SAMPLE ID	15J0790-01		15J0790-02		15J0866-01		15J0866-02	
SAMPLE DATE	10/20/2015		10/20/2015		10/21/2015		10/21/2015	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.86	U	6.86	U	6.90	U	6.90	U
1,1,1-Trichloroethane	981.76	D	5.45	U	140	D	5.50	U
1,1,2,2-Tetrachloroethane	6.86	U	6.86	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.66	U	7.66	U	7.70	U	7.70	U
1,1,2-Trichloroethane	8.73	D	5.45	U	5.50	U	5.50	U
1,1-Dichloroethane	117.33	D	4.05	U	15	D	4	U
1,1-Dichloroethylene	11.10	D	3.96	U	4	U	4	U
1,2,4-Trichlorobenzene	7.42	U	7.42	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	5.90	D	4.91	U	4.90	U	4.90	U
1,2-Dibromoethane	7.68	U	7.68	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,2-Dichloroethane	4.05	U	4.05	U	4	U	4	U
1,2-Dichloropropane	4.62	U	4.62	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	6.99	U	6.99	U	7	U	7	U
1,3,5-Trimethylbenzene	4.91	U	4.91	U	4.90	U	4.90	U
1,3-Butadiene	13.00	U	13.00	U	13	U	13	U
1,3-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,3-Dichloropropane	4.62	U	4.62	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U	7.20	U
2-Butanone	88.44	D	82.55	D	36	D	21	D
2-Hexanone	8.19	U	8.19	U	8.20	U	8.20	U
3-Chloropropene	15.64	U	15.64	U	16	U	16	U
4-Methyl-2-pentanone	5.32	D	4.09	U	4.50	D	4.10	U
Acetone	332.54	D	1,800	D	150	D	200	D
Acrylonitrile	2.17	U	2.17	U	2.20	U	2.20	U
Benzene	226.73	D	27.78	D	100	D	42	D
Benzyl chloride	5.17	U	5.17	U	5.20	U	5.20	U
Bromodichloromethane	6.21	U	6.21	U	6.20	U	6.20	U
Bromoform	10.33	U	10.33	U	10	U	10	U
Bromomethane	3.88	U	3.88	U	3.90	U	3.90	U
Carbon disulfide	9.65	D	3,600	D	7.50	D	200	D
Carbon tetrachloride	1.57	U	1.57	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U	4.60	U
Chloroethane	2.64	U	2.64	U	2.60	U	2.60	U
Chloroform	634.48	D	4.88	U	140	D	4.90	U
Chloromethane	3.51	D	13.42	D	2.10	U	2.10	U
cis-1,2-Dichloroethylene	39.63	D	3.96	U	28	D	4	U
cis-1,3-Dichloropropylene	4.54	U	4.54	U	4.50	U	4.50	U
Cyclohexane	3.44	U	14.45	D	3.40	U	11	D
Dibromochloromethane	8.02	U	8.02	U	8	U	8	U
Dichlorodifluoromethane	4.94	U	4.94	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U	7.20	U
Ethyl Benzene	24.31	D	4.34	U	21	D	4.30	D
Hexachlorobutadiene	10.66	U	10.66	U	11	U	11	U
Isopropanol	16.95	D	3,400	D	25	D	NT	
Methyl Methacrylate	4.09	U	4.09	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U	3.60	U
Methylene chloride	90.28	D	13.54	D	35	D	12	D
n-Heptane	4.10	U	4.10	U	4.10	U	4.10	U
n-Hexane	42.28	D	10.57	D	17	D	9.90	D
o-Xylene	8.25	D	4.34	U	11	D	4.30	U
p- & m- Xylenes	23.87	D	8.68	U	26	D	8.70	U
p-Ethyltoluene	4.91	U	4.91	U	4.90	U	4.90	U
Propylene	1.72	U	1.72	U	1.70	U	1.70	U
Styrene	4.26	U	4.26	U	4.30	U	4.30	U
Tetrachloroethylene	680	U	13.56	D	2,800	D	48	D
Tetrahydrofuran	1,473.83	D	203.39	D	87	D	16	D
Toluene	124.31	D	34.28	D	110	D	35	D
trans-1,2-Dichloroethylene	10.70	D	3.96	U	5.20	D	4	U
trans-1,3-Dichloropropylene	4.54	U	4.54	U	4.50	U	4.50	U
Trichloroethylene	110,000	D	27.40	D	29,000	D	530	D
Trichlorofluoromethane (Freon 11)	5.62	U	5.62	U	5.60	U	5.60	U
Vinyl acetate	3.52	U	3.52	U	3.50	U	3.50	U
Vinyl bromide	4.37	U	4.37	U	4.40	U	4.40	U
Vinyl Chloride	2.56	U	2.56	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_102615		Effluent_102615		Influent_113015		Effluent_113015	
LAB SAMPLE ID	15J0989-01		15J0989-02		15L0012-01		15L0012-02	
SAMPLE DATE	10/26/2015		10/26/2015		11/30/2015		11/30/2015	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U	6.90	U
1,1,1-Trichloroethane	18	D	5.50	U	5.50	U	13	D
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U	4	U	4	U
1,1-Dichloroethylene	4	U	4	U	4	U	4	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U	6	U	6	U
1,2-Dichloroethane	4	U	4	U	4	U	4	U
1,2-Dichloropropane	4.60	U	4.60	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	7	U	7	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	4.90	U	4.90	U
1,3-Butadiene	13	U	13	U	13	U	13	U
1,3-Dichlorobenzene	6	U	6	U	6	U	6	U
1,3-Dichloropropane	4.60	U	4.60	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6	U	6	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U	7.20	U
2-Butanone	6	D	3	D	8	D	5.30	D
2-Hexanone	8.20	U	8.20	U	8.20	U	8.20	U
3-Chloropropene	16	U	16	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	4.10	U	4.10	U	4.10	U
Acetone	37	D	66	D	54	D	69	D
Acrylonitrile	2.20	U	2.20	U	2.20	U	2.20	U
Benzene	11	D	14	D	19	D	22	D
Benzyl chloride	5.20	U	5.20	U	5.20	U	5.20	U
Bromodichloromethane	6.20	U	6.20	U	6.20	U	6.20	U
Bromoform	10	U	10	U	10	U	10	U
Bromomethane	3.90	U	3.90	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	34	D	3.10	U	31	D
Carbon tetrachloride	1.60	U	1.60	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U	2.60	U	2.60	U
Chloroform	18	D	4.90	U	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U	2.10	U	2.10	U
cis-1,2-Dichloroethylene	13	D	4	U	4	U	4	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U	4.50	U
Cyclohexane	3.40	U	5	D	3.40	U	3.40	U
Dibromochloromethane	8	U	8	U	8	U	8	U
Dichlorodifluoromethane	4.90	U	4.90	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U	7.20	U
Ethyl Benzene	4	D	4.30	U	5.20	D	4.30	U
Hexachlorobutadiene	11	U	11	U	11	U	11	U
Isopropanol	10	D	57	D	6.40	D	150	D
Methyl Methacrylate	4.10	U	4.10	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U	3.60	U
Methylene chloride	32	D	34	D	19	D	68	D
n-Heptane	4.10	U	4.10	U	4.10	U	4.10	U
n-Hexane	5	D	8.80	D	3.50	U	12	D
o-Xylene	4	U	4.30	U	4.30	U	4.30	U
p- & m- Xylenes	9	U	8.70	U	12	D	8.70	U
p-Ethyltoluene	4.90	U	4.90	U	4.90	U	4.90	U
Propylene	36.00	D	1.70	U	1.70	U	1.70	U
Styrene	4.30	U	4.30	U	4.30	U	4.30	U
Tetrachloroethylene	1,200	D	26	D	290	D	12	D
Tetrahydrofuran	14	D	6	U	5.90	U	5.90	U
Toluene	22	D	15	D	30	D	21	D
trans-1,2-Dichloroethylene	4.00	U	4	U	4	U	4	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U	4.50	U
Trichloroethylene	5,600	D	120	D	2700	D	23	D
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
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TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_122815		Effluent_122815		INFLUENT_012716		EFFLUENT_012716	
LAB SAMPLE ID	15L1040-01		15L1040-02		16A0778-01		16A0778-02	
SAMPLE DATE	12/28/2015		12/28/2015		1/27/2016		1/27/2016	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	0.69	U
1,1,1-Trichloroethane	5.50	D	5.50	U	2.70		0.55	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	0.69	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	16	D	0.77	U	0.77	U
1,1,2-Trichloroethane	5.50	U	5.50	U	0.55	U	0.55	U
1,1-Dichloroethane	4	U	4	U	0.69		0.40	U
1,1-Dichloroethylene	4	U	4	U	0.44		0.44	
1,2,4-Trichlorobenzene	7.40	U	7.40	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	0.54		0.49	U
1,2-Dibromoethane	7.70	U	7.70	U	0.77	U	0.77	U
1,2-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,2-Dichloroethane	4	U	4	U	0.40	U	0.40	U
1,2-Dichloropropane	4.60	U	4.60	U	0.46	U	0.46	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	0.70	U	0.70	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	0.49	U	0.49	U
1,3-Butadiene	13	U	13	U	1.30	U	1.30	U
1,3-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,3-Dichloropropane	4.60	U	4.60	U	0.46	U	0.46	U
1,4-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,4-Dioxane	7.20	U	7.20	U	0.72	U	0.72	U
2-Butanone	4.70	D	2.90	U	6.70		1.60	
2-Hexanone	8.20	U	8.20	U	0.82	U	0.82	U
3-Chloropropene	16	U	16	U	1.60	U	1.60	U
4-Methyl-2-pentanone	4.10	U	4.10	U	2		1.10	
Acetone	35	D	32	D	40		25	
Acrylonitrile	2.20	U	2.20	U	0.22	U	0.22	U
Benzene	6.40	D	3.20	U	13		2.50	
Benzyl chloride	5.20	U	5.20	U	0.52	U	0.52	U
Bromodichloromethane	6.20	U	6.20	U	0.62	U	0.62	U
Bromoform	10	U	10	U	1	U	1	U
Bromomethane	3.90	U	3.90	U	0.39	U	0.39	U
Carbon disulfide	3.10	U	13	D	1.40		8.70	
Carbon tetrachloride	1.60	U	1.60	U	0.44		0.16	U
Chlorobenzene	4.60	U	4.60	U	0.46	U	0.46	U
Chloroethane	2.60	U	2.60	U	1.20		0.26	U
Chloroform	4.90	D	4.90	U	2.60		0.49	U
Chloromethane	2.10	U	2.10	U	3		2	
cis-1,2-Dichloroethylene	7.90	D	4	U	7.70		0.40	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	0.45	U
Cyclohexane	3.40	U	3.40	U	0.34	U	0.34	U
Dibromochloromethane	8	U	8	U	0.80	U	0.80	U
Dichlorodifluoromethane	4.90	U	4.90	U	2.10		3.20	
Ethyl acetate	7.20	U	7.20	U	0.72	U	0.72	U
Ethyl Benzene	4.30	U	4.30	U	1.70		0.48	
Hexachlorobutadiene	11	U	11	U	1.10	U	1.10	U
Isopropanol	67	D	98	D	0.49	U	49	
Methyl Methacrylate	4.10	U	7	D	17		9.40	
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	0.36	U	0.36	U
Methylene chloride	13	D	24	D	40		34	
n-Heptane	4.10	U	4.10	U	0.41	U	0.41	U
n-Hexane	3.50	U	6	D	6.50		8.60	
o-Xylene	4.30	U	4.30	U	0.65		0.43	U
p- & m- Xylenes	8.70	U	8.70	U	2		0.96	
p-Ethyltoluene	4.90	U	4.90	U	0.49	U	0.49	U
Propylene	13	D	13	D	21		18	
Styrene	4.30	U	4.30	U	0.68		0.43	U
Tetrachloroethylene	380	D	12	D	280		6.90	
Tetrahydrofuran	6.80	D	5.90	U	0.59	U	0.59	U
Toluene	13	D	8.70	D	14		9.50	
trans-1,2-Dichloroethylene	4	U	4	U	0.48		0.40	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	0.45	U
Trichloroethylene	2,800	D	1.3	U	150	D	0.13	U
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	1.70		1.80	
Vinyl acetate	3.50	U	3.50	U	0.35	U	0.35	U
Vinyl bromide	4.40	U	4.40	U	0.44	U	0.44	U
Vinyl Chloride	2.60	U	2.60	U	0.82		0.26	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:
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491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC MID-POINT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	INFLUENT_022416		MID_022416		EFFLUENT_022416		INFLUENT_033016		EFFLUENT_033016	
LAB SAMPLE ID	16B0855		16B0855		16B0855		16C1247-01		16C1247-02	
SAMPLE DATE	2/24/2016		2/24/2016		2/24/2016		3/30/2016		3/30/2016	
Volatile Organic Compounds (ug/m^3)										
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	6.90	U	6.90	U
1,1,1-Trichloroethane	5.50	U	5.50	U	0.55	U	5.50	U	5.50	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U	0.77	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U	0.55	U	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U	0.40	U	4.00	U	4.00	U
1,1-Dichloroethylene	4	U	4	U	0.40	U	4.00	U	4.00	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U	0.74	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	10		4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U	0.77	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,2-Dichloroethane	4	U	4	U	0.40	U	4.00	U	4.00	U
1,2-Dichloropropane	4.60	U	4.60	U	0.46	U	11.00	D	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	0.70	U	7.00	U	7.00	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	4		4.90	U	4.90	U
1,3-Butadiene	13	U	13	U	1.30	U	6.60	U	6.60	U
1,3-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,3-Dichloropropane	4.60	U	4.60	U	0.46	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,4-Dioxane	7.20	U	7.20	U	0.72	U	7.20	U	7.20	U
2-Butanone	12	D	2.90	U	6.10		2.90	U	2.90	U
2-Hexanone	8.20	U	8.20	U	0.82	U	8.20	U	8.20	U
3-Chloropropene	16	U	16	U	1.60	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	4.10	U	0.41	U	4.10	U	4.10	U
Acetone	76	D	39	D	64		25	D	22	D
Acrylonitrile	2.20	U	2.20	U	0.22	U	2.20	U	2.20	U
Benzene	30	D	11	D	7.40		3.20	U	3.20	U
Benzyl chloride	5.20	U	5.20	U	0.52	U	5.20	U	5.20	U
Bromodichloromethane	6.20	U	6.20	U	0.62	U	6.70	U	6.70	U
Bromoform	10	U	10	U	1	U	10	U	10	U
Bromomethane	3.90	U	3.90	U	0.39	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	3.10	U	2.60		3.10	U	3.10	U
Carbon tetrachloride	1.60	U	1.60	U	0.16	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	0.46	U	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U	0.26	U	2.60	U	2.60	U
Chloroform	4.90	U	4.90	U	0.49	U	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U	0.21	U	2.10	U	2.10	U
cis-1,2-Dichloroethylene	4.40	D	4	U	0.40	U	4.00	U	4.00	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	4.50	U	4.50	U
Cyclohexane	3.40	U	3.40	U	0.34	U	3.40	U	3.40	U
Dibromochloromethane	8	U	8	U	0.80	U	8.50	U	8.50	U
Dichlorodifluoromethane	4.90	U	4.90	U	1.60		4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	1.90		7.20	U	7.20	U
Ethyl Benzene	4.30	D	4.30	U	12		4.30	U	4.30	U
Hexachlorobutadiene	11	U	11	U	1.10	U	11	U	11	U
Isopropanol	4.90	U	4.90	U	34		4.90	U	4.90	U
Methyl Methacrylate	4.10	U	4.10	U	0.41	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	0.36	U	3.60	U	3.60	U
Methylene chloride	6.90	U	6.90	U	1.10		11	D	40	D
n-Heptane	4.10	U	4.10	U	4		4.10	U	4.10	U
n-Hexane	3.50	U	3.50	U	1.30		3.50	U	13	D
o-Xylene	4.30	U	4.30	U	16		4.30	U	4.30	U
p- & m- Xylenes	8.70	U	8.70	U	47		8.70	U	8.70	U
p-Ethyltoluene	4.90	U	4.90	U	12		4.90	U	4.90	U
Propylene	1.70	U	1.70	U	0.17	U	1.70	U	1.70	U
Styrene	4.30	U	4.30	U	0.43	U	4.30	U	4.30	U
Tetrachloroethylene	200	D	11	D	5.10		110	D	1.70	U
Tetrahydrofuran	5.90	U	5.90	U	3.90		5.90	U	5.90	U
Toluene	27	D	20	D	44		7.90	D	3.80	U
trans-1,2-Dichloroethylene	4	U	4	U	2.60		4.00	U	4.00	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	4.50	U	4.50	U
Trichloroethylene	1,100	D	2,500	D	0.91		660	D	1.30	U
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	1.60		5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U	0.35	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U	0.44	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	U	0.26	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	INFLUENT_042916		EFFLUENT_042916		INFLUENT_052616		EFFLUENT_052616	
LAB SAMPLE ID	16D1143-01		16D1143-02		16E1125-01		16E1125-02	
SAMPLE DATE	4/29/2016		4/29/2016		5/26/2016		5/26/2016	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	0.69	U	6.90	U	6.90	U
1,1,1-Trichloroethane	5.50	U	0.55	U	5.50	U	5.50	U
1,1,2,2-Tetrachloroethane	6.90	U	0.69	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	0.77	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	0.55	U	5.50	U	5.50	U
1,1-Dichloroethane	4.00	U	0.40	U	4.00	U	4.00	U
1,1-Dichloroethylene	4.00	U	0.40	U	4.00	U	4.00	U
1,2,4-Trichlorobenzene	7.40	U	0.74	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	2.50		6.90	D	7.40	D
1,2-Dibromoethane	7.70	U	0.77	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6.00	U	0.60	U	6.00	U	6.00	U
1,2-Dichloroethane	4.00	U	0.40	U	4.00	U	4.00	U
1,2-Dichloropropane	4.60	U	0.46	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	7.00	U	0.70	U	7.00	U	7.00	U
1,3,5-Trimethylbenzene	4.90	U	0.54		4.90	U	4.90	U
1,3-Butadiene	6.60	U	0.66	U	6.60	U	6.60	U
1,3-Dichlorobenzene	6.00	U	0.60	U	6.00	U	6.00	U
1,3-Dichloropropane	4.60	U	0.46	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6.00	U	0.60	U	6.00	U	6.00	U
1,4-Dioxane	7.20	U	0.72	U	7.20	U	7.20	U
2-Butanone	2.90	U	1.30		9.40	D	7.70	D
2-Hexanone	8.20	U	0.82	U	8.20	U	8.20	U
3-Chloropropene	16	U	2	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	1.30		4.10	U	4.50	D
Acetone	11	D	32		46	D	67	D
Acrylonitrile	2.20	U	0.22	U	2.20	U	2.20	U
Benzene	3.20	U	3.40		8.30	D	7.70	D
Benzyl chloride	5.20	U	0.52	U	5.20	U	5.20	U
Bromodichloromethane	6.70	U	0.67	U	6.70	U	6.70	U
Bromoform	10	U	1	U	10	U	10	U
Bromomethane	3.90	U	0.39	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	0.69		3.10	U	3.10	U
Carbon tetrachloride	1.60	U	0.16	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	0.46	U	4.60	U	4.60	U
Chloroethane	2.60	U	0.26	U	2.60	U	2.60	U
Chloroform	4.90	U	0.49	U	4.90	U	4.90	U
Chloromethane	2.10	U	1.50		2.10	U	2.10	U
cis-1,2-Dichloroethylene	4.00	U	0.40	U	4.00	U	4.00	U
cis-1,3-Dichloropropylene	4.50	U	0.45	U	4.50	U	4.50	U
Cyclohexane	3.40	U	0.34	U	3.40	U	3.40	U
Dibromochloromethane	8.50	U	0.85	U	8.50	U	8.50	U
Dichlorodifluoromethane	4.90	U	2.00		4.90	U	4.90	U
Ethyl acetate	10.00	D	2.60		7.20	D	7.20	U
Ethyl Benzene	4.30	U	0.61		4.30	U	4.30	U
Hexachlorobutadiene	11	U	1	U	11	U	11	U
Isopropanol	4.90	U	0.49	U	4.90	U	4.90	U
Methyl Methacrylate	4.10	U	4.00		42.00	D	41.00	D
Methyl tert-butyl ether (MTBE)	3.60	U	0.36	U	3.60	U	3.60	U
Methylene chloride	250	D	46		17	D	21	D
n-Heptane	4.10	U	0.41	U	4.10	U	4.10	U
n-Hexane	8.80	D	4		3.50	U	4	U
o-Xylene	4.30	U	0.43		4.30	U	4.30	U
p- & m- Xylenes	8.70	U	0.96		8.70	U	8.70	U
p-Ethyltoluene	4.90	U	1.50		4.90	U	4.90	U
Propylene	1.70	U	0.17	U	1.70	U	1.70	U
Styrene	4.30	U	0.47		4.30	U	4.30	U
Tetrachloroethylene	32	D	0.17	U	150	D	1.70	U
Tetrahydrofuran	5.90	U	0.59	U	5.90	U	5.90	U
Toluene	3.80	U	3.30		12.00	D	6.00	D
trans-1,2-Dichloroethylene	4.00	U	0.40	U	4.00	U	4.00	U
trans-1,3-Dichloropropylene	4.50	U	0.45	U	4.50	U	4.50	U
Trichloroethylene	170	D	0.13	U	870	D	1.30	U
Trichlorofluoromethane (Freon 11)	5.60	U	2.80		5.60	U	5.60	U
Vinyl acetate	3.50	U	0.35	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	0.44	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	0.26	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - PID DATA
491 WORTMAN AVENUE
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	1548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3693	100	0.002	1.43	85.34
4/29/2016	2.0	571	0.0	4322	100	0.018	11.14	96.48
5/26/2016	0.4	600	0.0	4972	100	0.004	2.42	98.90

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 4: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA
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)	VGAC MASS REMOVAL EFFICIENCY (%)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99	92
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44	97
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36	95
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18	86
12/28/2015	3,357	570	230	1548	53.58	3.67	49.91	4.18	16.55	3.89	15.08	93
1/27/2016	621	525	183	2180	9.13	2.69	6.44	0.76	17.31	0.54	15.62	71
2/24/2016	1,454	578	283	2854	23.53	4.58	18.94	2.10	19.41	1.69	17.31	81
3/30/2016	825	550	75	3693	12.71	1.16	11.55	1.41	20.82	1.28	18.59	91
4/29/2016	482	571	112	4322	7.70	1.79	5.91	0.64	21.46	0.49	19.08	77
5/26/2016	1,169	600	162	4972	19.64	2.73	16.91	1.69	23.15	1.45	20.53	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

TABLE 5: AS/SVE SYSTEM DAR-1 COMPLIANCE
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **5/26/2016**

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)													
1,2,4-Trimethylbenzene	7.40	571	16.16901	1.58E-05	1.38E-01	1.24E-03	1.24E-03	8.08E-02	--	6	NO	No Standard	NO
2-Butanone	7.70	571	16.16901	1.64E-05	1.44E-01	1.29E-03	1.29E-03	8.40E-02	13000	5000	NO	NO	NO
4-Methyl-2-pentanone	4.50	571	16.16901	9.60E-06	8.41E-02	7.56E-04	7.56E-04	4.91E-02	31000	3000	NO	NO	NO
Acetone	67	571	16.16901	1.43E-04	1.25E+00	1.13E-02	1.12E-02	7.31E-01	180,000	30,000	NO	NO	NO
Benzene	7.70	571	16.16901	1.64E-05	1.44E-01	1.29E-03	1.29E-03	8.40E-02	1,300	0.13	NO	NO	NO
Methyl methacrylate	41	571	16.16901	8.75E-05	7.67E-01	6.89E-03	6.88E-03	4.47E-01	41,000	700	NO	NO	NO
Methylene chloride	21	571	16.16901	4.48E-05	3.93E-01	3.53E-03	3.53E-03	2.29E-01	14,000	60	NO	NO	NO
Toluene	6.00	571	16.16901	1.28E-05	1.12E-01	1.01E-03	1.01E-03	6.55E-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 6: AS/SVE SYSTEM ALARM HISTORY
491 WORTMAN AVENUE
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.

Progress Report No. 12
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: June 2016

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this monthly progress report on behalf of J&H Holding Company, LLC (the "Participant"). Monthly progress report submittal to the New York State Department of Environmental Conservation (NYSDEC) is performed in accordance with the Brownfield Cleanup Agreement (BCA) and Section 3.2 of the NYSDEC-approved Interim Remedial Measures Work Plan (IRMWP), prepared by Langan, dated April 28, 2015, and revised June 16, 2015. This monthly progress report summarizes work performed at 491 Wortman Avenue, Brooklyn, New York (the "site") during June 2016.

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 (i.e. the eastern portion).

Environmental site investigations began in November 2008. The most recent environmental activity was Langan's submittal of the IRMWP, which the NYSDEC approved on June 18, 2015. Implementation of the IRMWP and the pending environmental activities are described further in this progress report.

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

On June 29, 2016, 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), and routine equipment maintenance was performed. Maintenance included greasing the blower and checking the belt tensions.

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

The following activities are planned:

- Additional off-site sampling as directed by the NYSDEC to investigate the off-site source impacting MW13-S
- Continued operation, maintenance and monitoring (OM&M) of the AS/SVE system
- Third round of quarterly groundwater sampling

- First round of annual vapor probe sampling

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:

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

Samples were analyzed by York Analytical Laboratories Inc. (York) of Stratford, CT. York 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. 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 Summary
- Table 2: AS/SVE System Vapor Sampling Results (lab reports available upon request)
- Table 3: AS/SVE System Mass Removal – PID Data
- Table 4: AS/SVE System Mass Removal – Laboratory Data
- Table 5: AS/SVE System DAR-1 Compliance – June 29, 2016
- Table 6: AS/SVE System Alarm History

6. Deliverables Submitted During This Reporting Period

The following deliverables were submitted during this reporting period:

- The draft Construction Completion Report was submitted on June 10, 2016
- The technical memorandum summarizing potential sources of impacts to off-site groundwater monitoring well MW13-S was submitted on June 21, 2016.

7. Information Regarding Percentage of Completion

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

As of July 7, 2016 and since inception, the SVE system operated for 5,972 hours (96% uptime), and the AS system operated for 5,930 hours (95% 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

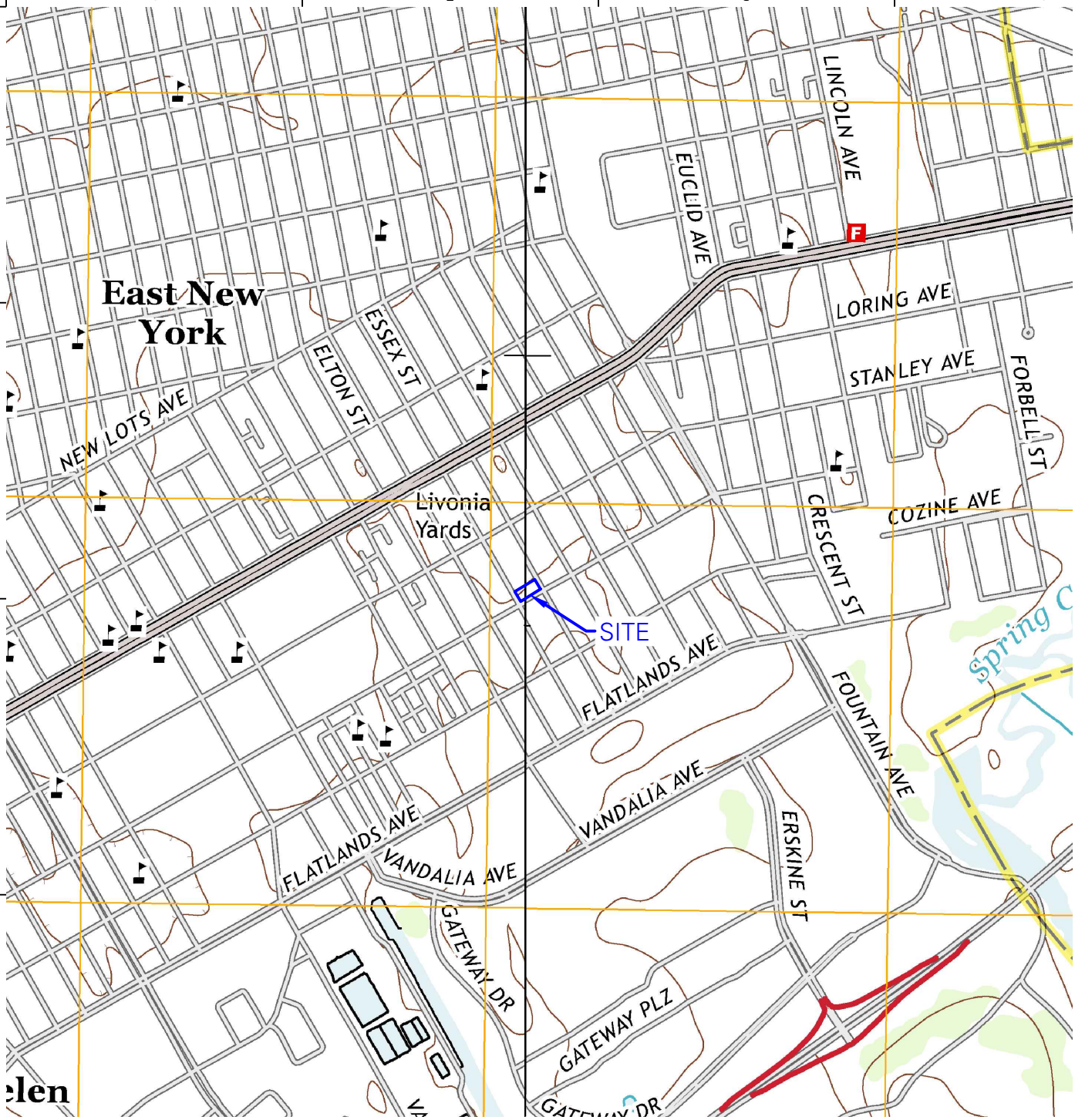
None.

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 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\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report\Figure 1 - Site Location Map - Updated.dwg Date: 6/21/2016 Time: 10:28 User: mrogers Style Table: Langan.stb Layout: Site Location Map

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING SUMMARY
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

SAMPLE NAME	SAMPLE DATE	SAMPLE TYPE	LOCATION	ANALYSIS
AS/SVE SYSTEM VAPOR SAMPLES				
Influent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Mid_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_052616	5/26/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_052616	5/26/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_062916	6/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_062916	6/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs

Notes:

1. The vapor samples were analyzed for VOCs via USEPA Method TO-15.
2. USEPA = United States Environmental Protection Agency
3. VOCs = volatile organic compounds
4. AS/SVE = air sparge/soil vapor extraction
5. vGAC = vapor-phase granular activated carbon

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent 102015		Effluent 102015		Influent_102115		Effluent_102115	
LAB SAMPLE ID	15J0790-01		15J0790-02		15J0866-01		15J0866-02	
SAMPLE DATE	10/20/2015		10/20/2015		10/21/2015		10/21/2015	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.86	U	6.86	U	6.90	U	6.90	U
1,1,1-Trichloroethane	981.76	D	5.45	U	140	D	5.50	U
1,1,2,2-Tetrachloroethane	6.86	U	6.86	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.66	U	7.66	U	7.70	U	7.70	U
1,1,2-Trichloroethane	8.73	D	5.45	U	5.50	U	5.50	U
1,1-Dichloroethane	117.33	D	4.05	U	15	D	4	U
1,1-Dichloroethylene	11.10	D	3.96	U	4	U	4	U
1,2,4-Trichlorobenzene	7.42	U	7.42	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	5.90	D	4.91	U	4.90	U	4.90	U
1,2-Dibromoethane	7.68	U	7.68	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,2-Dichloroethane	4.05	U	4.05	U	4	U	4	U
1,2-Dichloropropane	4.62	U	4.62	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	6.99	U	6.99	U	7	U	7	U
1,3,5-Trimethylbenzene	4.91	U	4.91	U	4.90	U	4.90	U
1,3-Butadiene	13.00	U	13.00	U	13	U	13	U
1,3-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,3-Dichloropropane	4.62	U	4.62	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U	7.20	U
2-Butanone	88.44	D	82.55	D	36	D	21	D
2-Hexanone	8.19	U	8.19	U	8.20	U	8.20	U
3-Chloropropene	15.64	U	15.64	U	16	U	16	U
4-Methyl-2-pentanone	5.32	D	4.09	U	4.50	D	4.10	U
Acetone	332.54	D	1,800	D	150	D	200	D
Acrylonitrile	2.17	U	2.17	U	2.20	U	2.20	U
Benzene	226.73	D	27.78	D	100	D	42	D
Benzyl chloride	5.17	U	5.17	U	5.20	U	5.20	U
Bromodichloromethane	6.21	U	6.21	U	6.20	U	6.20	U
Bromoform	10.33	U	10.33	U	10	U	10	U
Bromomethane	3.88	U	3.88	U	3.90	U	3.90	U
Carbon disulfide	9.65	D	3,600	D	7.50	D	200	D
Carbon tetrachloride	1.57	U	1.57	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U	4.60	U
Chloroethane	2.64	U	2.64	U	2.60	U	2.60	U
Chloroform	634.48	D	4.88	U	140	D	4.90	U
Chloromethane	3.51	D	13.42	D	2.10	U	2.10	U
cis-1,2-Dichloroethylene	39.63	D	3.96	U	28	D	4	U
cis-1,3-Dichloropropylene	4.54	U	4.54	U	4.50	U	4.50	U
Cyclohexane	3.44	U	14.45	D	3.40	U	11	D
Dibromochloromethane	8.02	U	8.02	U	8	U	8	U
Dichlorodifluoromethane	4.94	U	4.94	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U	7.20	U
Ethyl Benzene	24.31	D	4.34	U	21	D	4.30	D
Hexachlorobutadiene	10.66	U	10.66	U	11	U	11	U
Isopropanol	16.95	D	3,400	D	25	D	NT	
Methyl Methacrylate	4.09	U	4.09	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U	3.60	U
Methylene chloride	90.28	D	13.54	D	35	D	12	D
n-Heptane	4.10	U	4.10	U	4.10	U	4.10	U
n-Hexane	42.28	D	10.57	D	17	D	9.90	D
o-Xylene	8.25	D	4.34	U	11	D	4.30	U
p- & m- Xylenes	23.87	D	8.68	U	26	D	8.70	U
p-Ethyltoluene	4.91	U	4.91	U	4.90	U	4.90	U
Propylene	1.72	U	1.72	U	1.70	U	1.70	U
Styrene	4.26	U	4.26	U	4.30	U	4.30	U
Tetrachloroethylene	680	U	13.56	D	2,800	D	48	D
Tetrahydrofuran	1,473.83	D	203.39	D	87	D	16	D
Toluene	124.31	D	34.28	D	110	D	35	D
trans-1,2-Dichloroethylene	10.70	D	3.96	U	5.20	D	4	U
trans-1,3-Dichloropropylene	4.54	U	4.54	U	4.50	U	4.50	U
Trichloroethylene	110,000	D	27.40	D	29,000	D	530	D
Trichlorofluoromethane (Freon 11)	5.62	U	5.62	U	5.60	U	5.60	U
Vinyl acetate	3.52	U	3.52	U	3.50	U	3.50	U
Vinyl bromide	4.37	U	4.37	U	4.40	U	4.40	U
Vinyl Chloride	2.56	U	2.56	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_102615		Effluent_102615		Influent_113015		Effluent_113015	
LAB SAMPLE ID	15J0989-01		15J0989-02		15L0012-01		15L0012-02	
SAMPLE DATE	10/26/2015		10/26/2015		11/30/2015		11/30/2015	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U	6.90	U
1,1,1-Trichloroethane	18	D	5.50	U	5.50	U	13	D
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U	4	U	4	U
1,1-Dichloroethylene	4	U	4	U	4	U	4	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U	6	U	6	U
1,2-Dichloroethane	4	U	4	U	4	U	4	U
1,2-Dichloropropane	4.60	U	4.60	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	7	U	7	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	4.90	U	4.90	U
1,3-Butadiene	13	U	13	U	13	U	13	U
1,3-Dichlorobenzene	6	U	6	U	6	U	6	U
1,3-Dichloropropane	4.60	U	4.60	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6	U	6	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U	7.20	U
2-Butanone	6	D	3	D	8	D	5.30	D
2-Hexanone	8.20	U	8.20	U	8.20	U	8.20	U
3-Chloropropene	16	U	16	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	4.10	U	4.10	U	4.10	U
Acetone	37	D	66	D	54	D	69	D
Acrylonitrile	2.20	U	2.20	U	2.20	U	2.20	U
Benzene	11	D	14	D	19	D	22	D
Benzyl chloride	5.20	U	5.20	U	5.20	U	5.20	U
Bromodichloromethane	6.20	U	6.20	U	6.20	U	6.20	U
Bromoform	10	U	10	U	10	U	10	U
Bromomethane	3.90	U	3.90	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	34	D	3.10	U	31	D
Carbon tetrachloride	1.60	U	1.60	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U	2.60	U	2.60	U
Chloroform	18	D	4.90	U	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U	2.10	U	2.10	U
cis-1,2-Dichloroethylene	13	D	4	U	4	U	4	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U	4.50	U
Cyclohexane	3.40	U	5	D	3.40	U	3.40	U
Dibromochloromethane	8	U	8	U	8	U	8	U
Dichlorodifluoromethane	4.90	U	4.90	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U	7.20	U
Ethyl Benzene	4	D	4.30	U	5.20	D	4.30	U
Hexachlorobutadiene	11	U	11	U	11	U	11	U
Isopropanol	10	D	57	D	6.40	D	150	D
Methyl Methacrylate	4.10	U	4.10	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U	3.60	U
Methylene chloride	32	D	34	D	19	D	68	D
n-Heptane	4.10	U	4.10	U	4.10	U	4.10	U
n-Hexane	5	D	8.80	D	3.50	U	12	D
o-Xylene	4	U	4.30	U	4.30	U	4.30	U
p- & m- Xylenes	9	U	8.70	U	12	D	8.70	U
p-Ethyltoluene	4.90	U	4.90	U	4.90	U	4.90	U
Propylene	36.00	D	1.70	U	1.70	U	1.70	U
Styrene	4.30	U	4.30	U	4.30	U	4.30	U
Tetrachloroethylene	1,200	D	26	D	290	D	12	D
Tetrahydrofuran	14	D	6	U	5.90	U	5.90	U
Toluene	22	D	15	D	30	D	21	D
trans-1,2-Dichloroethylene	4.00	U	4	U	4	U	4	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U	4.50	U
Trichloroethylene	5,600	D	120	D	2700	D	23	D
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	U	2.60	U	2.60	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.
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TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_122815		Effluent_122815		INFLUENT_012716		EFFLUENT_012716	
LAB SAMPLE ID	15L1040-01		15L1040-02		16A0778-01		16A0778-02	
SAMPLE DATE	12/28/2015		12/28/2015		1/27/2016		1/27/2016	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	0.69	U
1,1,1-Trichloroethane	5.50	D	5.50	U	2.70		0.55	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	0.69	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	16	D	0.77	U	0.77	U
1,1,2-Trichloroethane	5.50	U	5.50	U	0.55	U	0.55	U
1,1-Dichloroethane	4	U	4	U	0.69		0.40	U
1,1-Dichloroethylene	4	U	4	U	0.44		0.44	
1,2,4-Trichlorobenzene	7.40	U	7.40	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	0.54		0.49	U
1,2-Dibromoethane	7.70	U	7.70	U	0.77	U	0.77	U
1,2-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,2-Dichloroethane	4	U	4	U	0.40	U	0.40	U
1,2-Dichloropropane	4.60	U	4.60	U	0.46	U	0.46	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	0.70	U	0.70	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	0.49	U	0.49	U
1,3-Butadiene	13	U	13	U	1.30	U	1.30	U
1,3-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,3-Dichloropropane	4.60	U	4.60	U	0.46	U	0.46	U
1,4-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,4-Dioxane	7.20	U	7.20	U	0.72	U	0.72	U
2-Butanone	4.70	D	2.90	U	6.70		1.60	
2-Hexanone	8.20	U	8.20	U	0.82	U	0.82	U
3-Chloropropene	16	U	16	U	1.60	U	1.60	U
4-Methyl-2-pentanone	4.10	U	4.10	U	2		1.10	
Acetone	35	D	32	D	40		25	
Acrylonitrile	2.20	U	2.20	U	0.22	U	0.22	U
Benzene	6.40	D	3.20	U	13		2.50	
Benzyl chloride	5.20	U	5.20	U	0.52	U	0.52	U
Bromodichloromethane	6.20	U	6.20	U	0.62	U	0.62	U
Bromoform	10	U	10	U	1	U	1	U
Bromomethane	3.90	U	3.90	U	0.39	U	0.39	U
Carbon disulfide	3.10	U	13	D	1.40		8.70	
Carbon tetrachloride	1.60	U	1.60	U	0.44		0.16	U
Chlorobenzene	4.60	U	4.60	U	0.46	U	0.46	U
Chloroethane	2.60	U	2.60	U	1.20		0.26	U
Chloroform	4.90	D	4.90	U	2.60		0.49	U
Chloromethane	2.10	U	2.10	U	3		2	
cis-1,2-Dichloroethylene	7.90	D	4	U	7.70		0.40	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	0.45	U
Cyclohexane	3.40	U	3.40	U	0.34	U	0.34	U
Dibromochloromethane	8	U	8	U	0.80	U	0.80	U
Dichlorodifluoromethane	4.90	U	4.90	U	2.10		3.20	
Ethyl acetate	7.20	U	7.20	U	0.72	U	0.72	U
Ethyl Benzene	4.30	U	4.30	U	1.70		0.48	
Hexachlorobutadiene	11	U	11	U	1.10	U	1.10	U
Isopropanol	67	D	98	D	0.49	U	49	
Methyl Methacrylate	4.10	U	7	D	17		9.40	
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	0.36	U	0.36	U
Methylene chloride	13	D	24	D	40		34	
n-Heptane	4.10	U	4.10	U	0.41	U	0.41	U
n-Hexane	3.50	U	6	D	6.50		8.60	
o-Xylene	4.30	U	4.30	U	0.65		0.43	U
p- & m- Xylenes	8.70	U	8.70	U	2		0.96	
p-Ethyltoluene	4.90	U	4.90	U	0.49	U	0.49	U
Propylene	13	D	13	D	21		18	
Styrene	4.30	U	4.30	U	0.68		0.43	U
Tetrachloroethylene	380	D	12	D	280		6.90	
Tetrahydrofuran	6.80	D	5.90	U	0.59	U	0.59	U
Toluene	13	D	8.70	D	14		9.50	
trans-1,2-Dichloroethylene	4	U	4	U	0.48		0.40	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	0.45	U
Trichloroethylene	2,800	D	1.3	U	150	D	0.13	U
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	1.70		1.80	
Vinyl acetate	3.50	U	3.50	U	0.35	U	0.35	U
Vinyl bromide	4.40	U	4.40	U	0.44	U	0.44	U
Vinyl Chloride	2.60	U	2.60	U	0.82		0.26	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC MID-POINT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	INFLUENT_022416		MID_022416		EFFLUENT_022416		INFLUENT_033016		EFFLUENT_033016	
LAB SAMPLE ID	16B0855		16B0855		16B0855		16C1247-01		16C1247-02	
SAMPLE DATE	2/24/2016		2/24/2016		2/24/2016		3/30/2016		3/30/2016	
Volatile Organic Compounds (ug/m^3)										
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	6.90	U	6.90	U
1,1,1-Trichloroethane	5.50	U	5.50	U	0.55	U	5.50	U	5.50	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U	0.77	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U	0.55	U	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U	0.40	U	4.00	U	4.00	U
1,1-Dichloroethylene	4	U	4	U	0.40	U	4.00	U	4.00	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U	0.74	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	10		4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U	0.77	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,2-Dichloroethane	4	U	4	U	0.40	U	4.00	U	4.00	U
1,2-Dichloropropane	4.60	U	4.60	U	0.46	U	11.00	D	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	0.70	U	7.00	U	7.00	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	4		4.90	U	4.90	U
1,3-Butadiene	13	U	13	U	1.30	U	6.60	U	6.60	U
1,3-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,3-Dichloropropane	4.60	U	4.60	U	0.46	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,4-Dioxane	7.20	U	7.20	U	0.72	U	7.20	U	7.20	U
2-Butanone	12	D	2.90	U	6.10		2.90	U	2.90	U
2-Hexanone	8.20	U	8.20	U	0.82	U	8.20	U	8.20	U
3-Chloropropene	16	U	16	U	1.60	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	4.10	U	0.41	U	4.10	U	4.10	U
Acetone	76	D	39	D	64		25	D	22	D
Acrylonitrile	2.20	U	2.20	U	0.22	U	2.20	U	2.20	U
Benzene	30	D	11	D	7.40		3.20	U	3.20	U
Benzyl chloride	5.20	U	5.20	U	0.52	U	5.20	U	5.20	U
Bromodichloromethane	6.20	U	6.20	U	0.62	U	6.70	U	6.70	U
Bromoform	10	U	10	U	1	U	10	U	10	U
Bromomethane	3.90	U	3.90	U	0.39	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	3.10	U	2.60		3.10	U	3.10	U
Carbon tetrachloride	1.60	U	1.60	U	0.16	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	0.46	U	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U	0.26	U	2.60	U	2.60	U
Chloroform	4.90	U	4.90	U	0.49	U	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U	0.21	U	2.10	U	2.10	U
cis-1,2-Dichloroethylene	4.40	D	4	U	0.40	U	4.00	U	4.00	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	4.50	U	4.50	U
Cyclohexane	3.40	U	3.40	U	0.34	U	3.40	U	3.40	U
Dibromochloromethane	8	U	8	U	0.80	U	8.50	U	8.50	U
Dichlorodifluoromethane	4.90	U	4.90	U	1.60		4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	1.90		7.20	U	7.20	U
Ethyl Benzene	4.30	D	4.30	U	12		4.30	U	4.30	U
Hexachlorobutadiene	11	U	11	U	1.10	U	11	U	11	U
Isopropanol	4.90	U	4.90	U	34		4.90	U	4.90	U
Methyl Methacrylate	4.10	U	4.10	U	0.41	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	0.36	U	3.60	U	3.60	U
Methylene chloride	6.90	U	6.90	U	1.10		11	D	40	D
n-Heptane	4.10	U	4.10	U	4		4.10	U	4.10	U
n-Hexane	3.50	U	3.50	U	1.30		3.50	U	13	D
o-Xylene	4.30	U	4.30	U	16		4.30	U	4.30	U
p- & m- Xylenes	8.70	U	8.70	U	47		8.70	U	8.70	U
p-Ethyltoluene	4.90	U	4.90	U	12		4.90	U	4.90	U
Propylene	1.70	U	1.70	U	0.17	U	1.70	U	1.70	U
Styrene	4.30	U	4.30	U	0.43	U	4.30	U	4.30	U
Tetrachloroethylene	200	D	11	D	5.10		110	D	1.70	U
Tetrahydrofuran	5.90	U	5.90	U	3.90		5.90	U	5.90	U
Toluene	27	D	20	D	44		7.90	D	3.80	U
trans-1,2-Dichloroethylene	4	U	4	U	2.60		4.00	U	4.00	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	4.50	U	4.50	U
Trichloroethylene	1,100	D	2,500	D	0.91		660	D	1.30	U
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	1.60		5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U	0.35	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U	0.44	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	U	0.26	U	2.60	U	2.60	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.

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TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	INFLUENT_042916		EFFLUENT_042916		INFLUENT_052616		EFFLUENT_052616	
LAB SAMPLE ID	16D1143-01		16D1143-02		16E1125-01		16E1125-02	
SAMPLE DATE	4/29/2016		4/29/2016		5/26/2016		5/26/2016	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	0.69	U	6.90	U	6.90	U
1,1,1-Trichloroethane	5.50	U	0.55	U	5.50	U	5.50	U
1,1,2,2-Tetrachloroethane	6.90	U	0.69	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	0.77	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	0.55	U	5.50	U	5.50	U
1,1-Dichloroethane	4.00	U	0.40	U	4.00	U	4.00	U
1,1-Dichloroethylene	4.00	U	0.40	U	4.00	U	4.00	U
1,2,4-Trichlorobenzene	7.40	U	0.74	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	2.50		6.90	D	7.40	D
1,2-Dibromoethane	7.70	U	0.77	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6.00	U	0.60	U	6.00	U	6.00	U
1,2-Dichloroethane	4.00	U	0.40	U	4.00	U	4.00	U
1,2-Dichloropropane	4.60	U	0.46	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	7.00	U	0.70	U	7.00	U	7.00	U
1,3,5-Trimethylbenzene	4.90	U	0.54		4.90	U	4.90	U
1,3-Butadiene	6.60	U	0.66	U	6.60	U	6.60	U
1,3-Dichlorobenzene	6.00	U	0.60	U	6.00	U	6.00	U
1,3-Dichloropropane	4.60	U	0.46	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6.00	U	0.60	U	6.00	U	6.00	U
1,4-Dioxane	7.20	U	0.72	U	7.20	U	7.20	U
2-Butanone	2.90	U	1.30		9.40	D	7.70	D
2-Hexanone	8.20	U	0.82	U	8.20	U	8.20	U
3-Chloropropene	16	U	2	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	1.30		4.10	U	4.50	D
Acetone	11	D	32		46	D	67	D
Acrylonitrile	2.20	U	0.22	U	2.20	U	2.20	U
Benzene	3.20	U	3.40		8.30	D	7.70	D
Benzyl chloride	5.20	U	0.52	U	5.20	U	5.20	U
Bromodichloromethane	6.70	U	0.67	U	6.70	U	6.70	U
Bromoform	10	U	1	U	10	U	10	U
Bromomethane	3.90	U	0.39	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	0.69		3.10	U	3.10	U
Carbon tetrachloride	1.60	U	0.16	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	0.46	U	4.60	U	4.60	U
Chloroethane	2.60	U	0.26	U	2.60	U	2.60	U
Chloroform	4.90	U	0.49	U	4.90	U	4.90	U
Chloromethane	2.10	U	1.50		2.10	U	2.10	U
cis-1,2-Dichloroethylene	4.00	U	0.40	U	4.00	U	4.00	U
cis-1,3-Dichloropropylene	4.50	U	0.45	U	4.50	U	4.50	U
Cyclohexane	3.40	U	0.34	U	3.40	U	3.40	U
Dibromochloromethane	8.50	U	0.85	U	8.50	U	8.50	U
Dichlorodifluoromethane	4.90	U	2.00		4.90	U	4.90	U
Ethyl acetate	10.00	D	2.60		7.20	D	7.20	U
Ethyl Benzene	4.30	U	0.61		4.30	U	4.30	U
Hexachlorobutadiene	11	U	1	U	11	U	11	U
Isopropanol	4.90	U	0.49	U	4.90	U	4.90	U
Methyl Methacrylate	4.10	U	4.00		42.00	D	41.00	D
Methyl tert-butyl ether (MTBE)	3.60	U	0.36	U	3.60	U	3.60	U
Methylene chloride	250	D	46		17	D	21	D
n-Heptane	4.10	U	0.41	U	4.10	U	4.10	U
n-Hexane	8.80	D	4		3.50	U	4	U
o-Xylene	4.30	U	0.43		4.30	U	4.30	U
p- & m- Xylenes	8.70	U	0.96		8.70	U	8.70	U
p-Ethyltoluene	4.90	U	1.50		4.90	U	4.90	U
Propylene	1.70	U	0.17	U	1.70	U	1.70	U
Styrene	4.30	U	0.47		4.30	U	4.30	U
Tetrachloroethylene	32	D	0.17	U	150	D	1.70	U
Tetrahydrofuran	5.90	U	0.59	U	5.90	U	5.90	U
Toluene	3.80	U	3.30		12.00	D	6.00	D
trans-1,2-Dichloroethylene	4.00	U	0.40	U	4.00	U	4.00	U
trans-1,3-Dichloropropylene	4.50	U	0.45	U	4.50	U	4.50	U
Trichloroethylene	170	D	0.13	U	870	D	1.30	U
Trichlorofluoromethane (Freon 11)	5.60	U	2.80		5.60	U	5.60	U
Vinyl acetate	3.50	U	0.35	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	0.44	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	0.26	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
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TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_062916		Effluent_062916	
LAB SAMPLE ID	16F1140-01		16F1140-02	
SAMPLE DATE	6/29/2016		6/29/2016	
Volatile Organic Compounds (ug/m^3)				
1,1,1,2-Tetrachloroethane	0.69	U	0.69	U
1,1,1-Trichloroethane	2.70		0.55	U
1,1,2,2-Tetrachloroethane	0.69	U	0.69	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.77	U	0.77	U
1,1,2-Trichloroethane	0.55	U	0.55	U
1,1-Dichloroethane	0.65		0.40	U
1,1-Dichloroethylene	0.40	U	0.40	U
1,2,4-Trichlorobenzene	0.74	U	3.60	
1,2,4-Trimethylbenzene	22		9	
1,2-Dibromoethane	0.77	U	0.77	U
1,2-Dichlorobenzene	0.60	U	0.60	U
1,2-Dichloroethane	0.65		0.40	U
1,2-Dichloropropane	28		0.46	U
1,2-Dichlorotetrafluoroethane	0.70	U	0.70	U
1,3,5-Trimethylbenzene	5.50		2.10	
1,3-Butadiene	0.66	U	0.66	U
1,3-Dichlorobenzene	0.60	U	0.60	U
1,3-Dichloropropane	0.46	U	0.46	U
1,4-Dichlorobenzene	0.60	U	0.60	U
1,4-Dioxane	0.72	U	0.72	U
2-Butanone	18		19	
2-Hexanone	0.82	U	0.82	U
3-Chloropropene	1.60	U	1.60	U
4-Methyl-2-pentanone	6		6.30	
Acetone	43		43	
Acrylonitrile	0.22	U	0.22	U
Benzene	2.30		0.93	
Benzyl chloride	0.52	U	0.52	U
Bromodichloromethane	0.67	U	0.67	U
Bromoform	1	U	1	U
Bromomethane	0.39	U	0.39	U
Carbon disulfide	1.10		0.75	
Carbon tetrachloride	0.16	U	0.16	U
Chlorobenzene	0.46	U	0.46	U
Chloroethane	2.10		3	
Chloroform	3.10		0.49	U
Chloromethane	3.90		6	
cis-1,2-Dichloroethylene	5.70		0.52	
cis-1,3-Dichloropropylene	0.45	U	0.45	U
Cyclohexane	0.65		0.34	U
Dibromochloromethane	0.85	U	0.85	U
Dichlorodifluoromethane	1.50		1.90	
Ethyl acetate	2.30		1.70	
Ethyl Benzene	3.90		0.96	
Hexachlorobutadiene	1.10	U	1.10	U
Isopropanol	0.49	U	0.49	U
Methyl Methacrylate	36		43	
Methyl tert-butyl ether (MTBE)	0.36	U	0.36	U
Methylene chloride	12		15	
n-Heptane	1		0.49	
n-Hexane	3.90		4.60	
o-Xylene	10		1.10	
p- & m- Xylenes	16		2	
p-Ethyltoluene	12		4.50	
Propylene	0.17	U	0.17	U
Styrene	3.70		2.30	
Tetrachloroethylene	290		0.68	
Tetrahydrofuran	10		11	
Toluene	15		3.60	
trans-1,2-Dichloroethylene	0.75		0.40	U
trans-1,3-Dichloropropylene	0.45	U	0.45	U
Trichloroethylene	1,300	D	0.75	
Trichlorofluoromethane (Freon 11)	1.50		1.80	
Vinyl acetate	0.35	U	0.35	U
Vinyl bromide	0.44	U	0.44	U
Vinyl Chloride	0.26	U	0.26	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - PID DATA
491 WORTMAN AVENUE
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	1548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3693	100	0.002	1.43	85.34
4/29/2016	2.0	571	0.0	4322	100	0.018	11.14	96.48
5/26/2016	0.4	600	0.0	4972	100	0.004	2.42	98.90
6/29/2016	0.5	600	0.0	5784	100	0.005	3.78	102.68

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 4: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA
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)	VGAC MASS REMOVAL EFFICIENCY (%)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99	92
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44	97
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36	95
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18	86
12/28/2015	3,357	570	230	1548	53.58	3.67	49.91	4.18	16.55	3.89	15.08	93
1/27/2016	621	525	183	2180	9.13	2.69	6.44	0.76	17.31	0.54	15.62	71
2/24/2016	1,454	578	283	2854	23.53	4.58	18.94	2.10	19.41	1.69	17.31	81
3/30/2016	825	550	75	3693	12.71	1.16	11.55	1.41	20.82	1.28	18.59	91
4/29/2016	482	571	112	4322	7.70	1.79	5.91	0.64	21.46	0.49	19.08	77
5/26/2016	1,169	600	162	4972	19.64	2.73	16.91	1.69	23.15	1.45	20.53	86
6/29/2016	1,865	600	190	5784	31.33	3.19	28.14	3.37	26.51	3.02	23.56	90

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 5: AS/SVE SYSTEM DAR-1 COMPLIANCE
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **6/29/2016**

CHEMICAL COMPOUND	CARBON EFFLUENT CONCENTRATION 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)													
1,2,4-Trichlorobenzene	3.60	600	16.9902	8.07E-06	7.07E-02	6.36E-04	6.35E-04	4.13E-02	--	--	No Standard	No Standard	No Standard
1,2,4-Trimethylbenzene	9.00	600	16.9902	2.02E-05	1.77E-01	1.59E-03	1.59E-03	1.03E-01	--	6	NO	No Standard	NO
1,3,5-Trimethylbenzene	2.10	600	16.9902	4.71E-06	4.13E-02	3.71E-04	3.70E-04	2.41E-02	--	6	NO	No Standard	NO
2-Butanone	19.00	600	16.9902	4.26E-05	3.73E-01	3.36E-03	3.35E-03	2.18E-01	13000	5000	NO	NO	NO
4-Methyl-2-pentanone	6.30	600	16.9902	1.41E-05	1.24E-01	1.11E-03	1.11E-03	7.22E-02	31000	3000	NO	NO	NO
Acetone	43.00	600	16.9902	9.64E-05	8.45E-01	7.60E-03	7.59E-03	4.93E-01	180,000	30,000	NO	NO	NO
Benzene	0.93	600	16.9902	2.09E-06	1.83E-02	1.64E-04	1.64E-04	1.07E-02	1,300	0.13	NO	NO	NO
Carbon disulfide	0.75	600	16.9902	1.68E-06	1.47E-02	1.32E-04	1.32E-04	8.60E-03	6,200	700	NO	NO	NO
Chloroethane	3.00	600	16.9902	6.73E-06	5.89E-02	5.30E-04	5.29E-04	3.44E-02	--	--	No Standard	No Standard	No Standard
Chloromethane	6.00	600	16.9902	1.35E-05	1.18E-01	1.06E-03	1.06E-03	6.88E-02	6,200	700	NO	NO	NO
cis-1,2-Dichloroethylene	0.52	600	16.9902	1.17E-06	1.02E-02	9.18E-05	9.17E-05	5.96E-03	--	63	NO	No Standard	NO
Dichlorodifluoromethane	1.90	600	16.9902	4.26E-06	3.73E-02	3.36E-04	3.35E-04	2.18E-02	--	12,000	NO	No Standard	NO
Ethyl Acetate	1.70	600	16.9902	3.81E-06	3.34E-02	3.00E-04	3.00E-04	1.95E-02	--	3,400	NO	No Standard	NO
Ethyl Benzene	0.96	600	16.9902	2.15E-06	1.89E-02	1.70E-04	1.69E-04	1.10E-02	--	1,000	NO	No Standard	NO
Methyl methacrylate	43.00	600	16.9902	9.64E-05	8.45E-01	7.60E-03	7.59E-03	4.93E-01	41,000	700	NO	NO	NO
Methylene chloride	15.00	600	16.9902	3.36E-05	2.95E-01	2.65E-03	2.65E-03	1.72E-01	14,000	60	NO	NO	NO
n-Heptane	0.49	600	16.9902	1.10E-06	9.63E-03	8.65E-05	8.64E-05	5.62E-03	210,000	3,900	NO	NO	NO
n-Hexane	4.60	600	16.9902	1.03E-05	9.04E-02	8.12E-04	8.12E-04	5.28E-02	--	700	NO	No Standard	NO
o-Xylene	1.10	600	16.9902	2.47E-06	2.16E-02	1.94E-04	1.94E-04	1.26E-02	22,000	100	NO	NO	NO
p&m-Xylenes	2.00	600	16.9902	4.49E-06	3.93E-02	3.53E-04	3.53E-04	2.29E-02	22,000	100	NO	NO	NO
p-Ethyltoluene	4.50	600	16.9902	1.01E-05	8.84E-02	7.95E-04	7.94E-04	5.16E-02	--	--	No Standard	No Standard	No Standard
Styrene	2.30	600	16.9902	5.16E-06	4.52E-02	4.06E-04	4.06E-04	2.64E-02	17,000	1,000	NO	NO	NO
Tetrachloroethylene	0.68	600	16.9902	1.53E-06	1.34E-02	1.20E-04	1.20E-04	7.80E-03	300	4	NO	NO	NO
Tetrahydrofuran	11.00	600	16.9902	2.47E-05	2.16E-01	1.94E-03	1.94E-03	1.26E-01	30,000	350	NO	NO	NO
Toluene	3.60	600	16.9902	8.07E-06	7.07E-02	6.36E-04	6.35E-04	4.13E-02	37,000	5,000	NO	NO	NO
Trichloroethylene	0.75	600	16.9902	1.68E-06	1.47E-02	1.32E-04	1.32E-04	8.60E-03	14,000	0.2	NO	NO	NO
Trichlorofluoromethane	1.80	600	16.9902	4.04E-06	3.54E-02	3.18E-04	3.18E-04	2.06E-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 6: AS/SVE SYSTEM ALARM HISTORY
491 WORTMAN AVENUE
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.

Progress Report No. 13
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: July 2016

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this monthly progress report on behalf of J&H Holding Company, LLC (the "Participant"). Monthly progress report submittal to the New York State Department of Environmental Conservation (NYSDEC) is performed in accordance with the Brownfield Cleanup Agreement (BCA) and Section 3.2 of the NYSDEC-approved Interim Remedial Measures Work Plan (IRMWP), prepared by Langan, dated April 28, 2015, and revised June 16, 2015. This monthly progress report summarizes work performed at 491 Wortman Avenue, Brooklyn, New York (the "site") during July 2016.

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 (i.e. the eastern portion).

Environmental site investigations began in November 2008. The most recent environmental activity was Langan's submittal of the IRMWP, which the NYSDEC approved on June 18, 2015. Implementation of the IRMWP and the pending environmental activities are described further in this progress report.

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

Remedial actions for July 2016 were primarily related to air sparge and soil vapor extraction (AS/SVE) system performance monitoring and consisted of quarterly on-site groundwater monitoring and annual on-site vapor monitoring, plus sampling of five additional off-site groundwater monitoring wells. The third quarterly groundwater sampling event was conducted on July 26 and 27, 2016. 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). The quarterly on-site groundwater monitoring locations are shown on Figure 2.

The first annual vapor sampling event was conducted on July 26 and 27, 2016. 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.

As requested by the NYSDEC, five off-site groundwater monitoring wells (MW-010, MW-011, ML-002 [shallow and middle], and MW-13 [shallow]) were sampled for laboratory analysis of TCL VOCs on July 26, 2016. Additionally, a synoptic groundwater survey, consisting of depth-to-water, total depth, and PID measurements, was performed at all off-site wells and four on-site wells. The supplemental off-site groundwater monitoring locations are shown on Figure 3.

On July 28, 2016, Langan recorded process and performance monitoring data for the 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), and routine equipment maintenance was performed. Maintenance included greasing the blower and checking the belt tensions.

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
- Preparation of a Remedial Action Work Plan
- Resolution or completion of supplemental off-site investigational activities

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 VOCs via the USEPA Method TO-15.
- An effluent vapor sample was collected from the AS/SVE system and analyzed for VOCs via USEPA Method TO-15.
- Five groundwater samples were collected from off-site groundwater monitoring wells MW-010, MW-011, ML-002 (shallow and middle), and MW-13 (shallow) and analyzed for TCL VOCs via USEPA Method 8260C.
- 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.
- Seven vapor samples were collected from on-site vapor probes VP-1, VP-2, VP-3, VP-4, VP-5, VP-6, and VP-7 and analyzed for VOCs via USEPA Method TO-15.

Samples were analyzed by York Analytical Laboratories Inc. (York) of Stratford, CT. York 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).

Third quarter groundwater monitoring results exhibit VOC concentrations above the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS) for Class GA water, but less than the baseline groundwater concentrations from August 2015 (reductions in total chlorinated VOC [CVOC] concentrations have been achieved in 11 out of 13 wells).

Supplemental off-site well sampling results identified CVOC concentrations in MW-010, MW-011, and ML-002 (shallow and middle) that are consistent with expectations for downgradient site wells. The CVOC concentrations in MW-13 (shallow well about 275 feet downgradient from the site) remain anomalously high relative to the 491 Wortman conceptual site model. As with previous sampling events, the groundwater sample collected from MW-13 (shallow) contained concentrations of chlorinated alkanes, specifically 1,1,1-trichloroethane and 1,1-dichloroethane, above the TOGS AWQS and a total CVOC concentration at least 100 times greater than the wells located in the site warehouse source area under treatment conditions. Chlorinated alkanes are not contaminants of concern at the site, and there is no record of historical use of these materials. The concentration of TCE in MW-13 (shallow) continues to increase as follows: 1,300 micrograms per liter (µg/L) in November 2014, 2,100 µg/L in April 2016, and 2,700 µg/L in July 2016.

The samples collected from MW-011 and ML-002 (shallow and middle) did not contain detectable concentrations of chlorinated alkanes, and the total CVOC concentration identified in each of these off-site and downgradient wells is at least 75 times less than that identified in MW-13 (shallow). The sample collected from MW-010 did not contain concentrations of chlorinated alkanes above the TOGS AWQS and the total CVOC concentration identified in MW-010 is about 15 times less than that identified in MW-13 (shallow).

When compared to the baseline vapor sampling results from August 2015, the analytical results for the first annual on-site vapor sampling event show that reductions in total CVOC concentrations have been achieved in each vapor sampling location.

The following tables are attached to this progress report; 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 Summary
- Table 2: AS/SVE System Vapor Sampling Results
- Table 3: AS/SVE System Mass Removal – PID Data

- Table 4: AS/SVE System Mass Removal – Laboratory Data
- Table 5: AS/SVE System DAR-1 Compliance – July 28, 2016
- Table 6: AS/SVE System Alarm History
- Table 7: Quarterly Groundwater Sampling Results – Third Quarter
- Table 8: Quarterly Groundwater Sampling Results Summary
- Table 9: Annual Vapor Sampling Results – First Round
- Table 10: Annual Vapor Sampling Results Summary
- Table 11: Supplemental Off-Site Groundwater Sample Analytical Results

6. Deliverables Submitted During This Reporting Period

The following deliverables were submitted during this reporting period:

- The revised Construction Completion Report and associated comment response letter were submitted on August 2, 2016

7. Information Regarding Percentage of Completion

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

As of August 8, 2016 and since inception, the SVE system operated for 6,696 hours (96% uptime), and the AS system operated for 6,653 hours (95% 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.

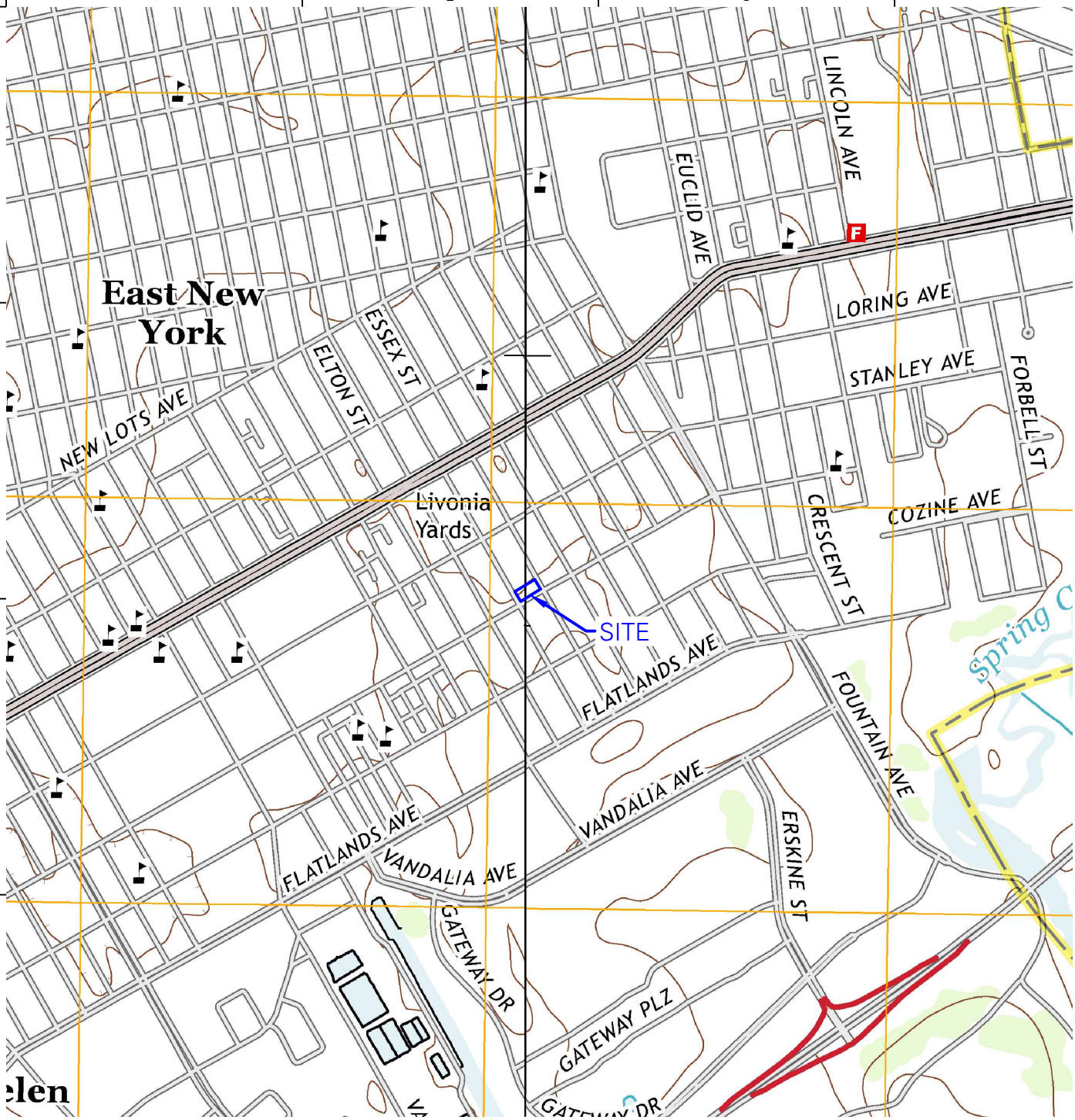
11. Miscellaneous Information

The following is an update regarding the supplemental off-site investigational activities requested by the NYSDEC in an email dated June 28, 2016:

- As detailed above, groundwater samples were collected from off-site groundwater monitoring wells MW-010, MW-011, ML-002 (middle and shallow), and MW-13 (shallow) on July 26, 2016.

- A synoptic groundwater survey, consisting of depth-to-water, total depth, and PID measurements, was performed at all off-site wells and four on-site wells on July 26, 2016. A revised groundwater flow map is forthcoming.
- A utility records review request submitted to the New York City Department of Environmental Protection (DEP) on July 11, 2016, was denied. As requested, a draft letter that NYSDEC can submit to DEP was supplied to the NYSDEC on August 3, 2016.
- Off-site access requests were sent via certified mail on August 3, 2016, to the owner of each property identified on the map provided by NYSDEC in an email dated June 28, 2016. The properties and property owners are listed below.

Street Address	Block	Lot	Property Owner
482 Wortman Avenue	4406	1	Selar Realty Corp.
961 Elton Street	4405	50	Soiefer Brother's Realty Co.
457 Wortman Avenue	4383	40	
1006 Linwood Street	4383	23	
494 Wortman Avenue	4406	6	Aslan Holdings Corp.



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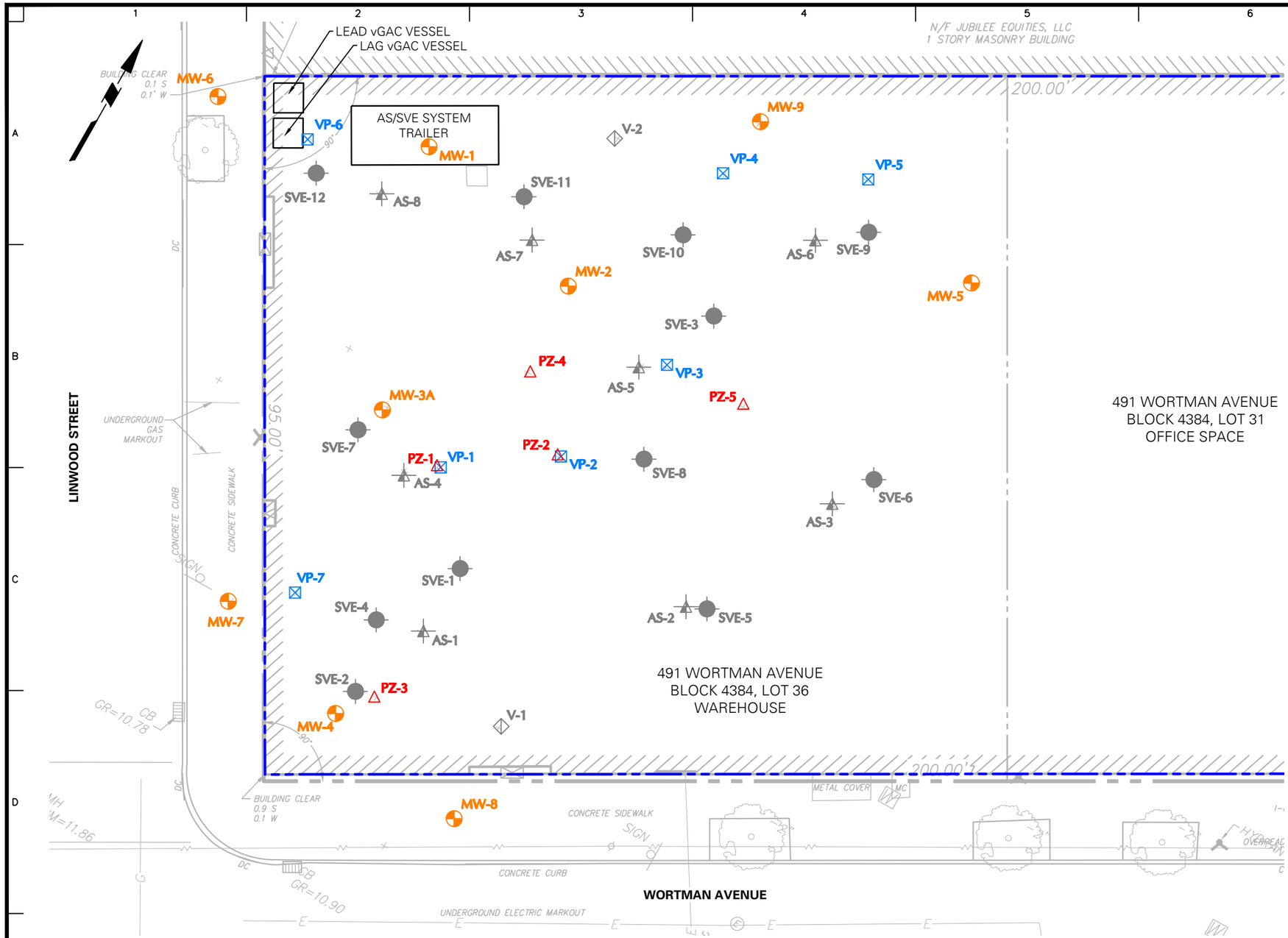
Project
491 WORTMAN AVENUE
BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS NEW YORK

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\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report\Figure 1 - Site Location Map - Updated.dwg Date: 6/21/2016 Time: 10:28 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-5 — PIEZOMETER

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.

15 0 7.5 15
SCALE IN FEET

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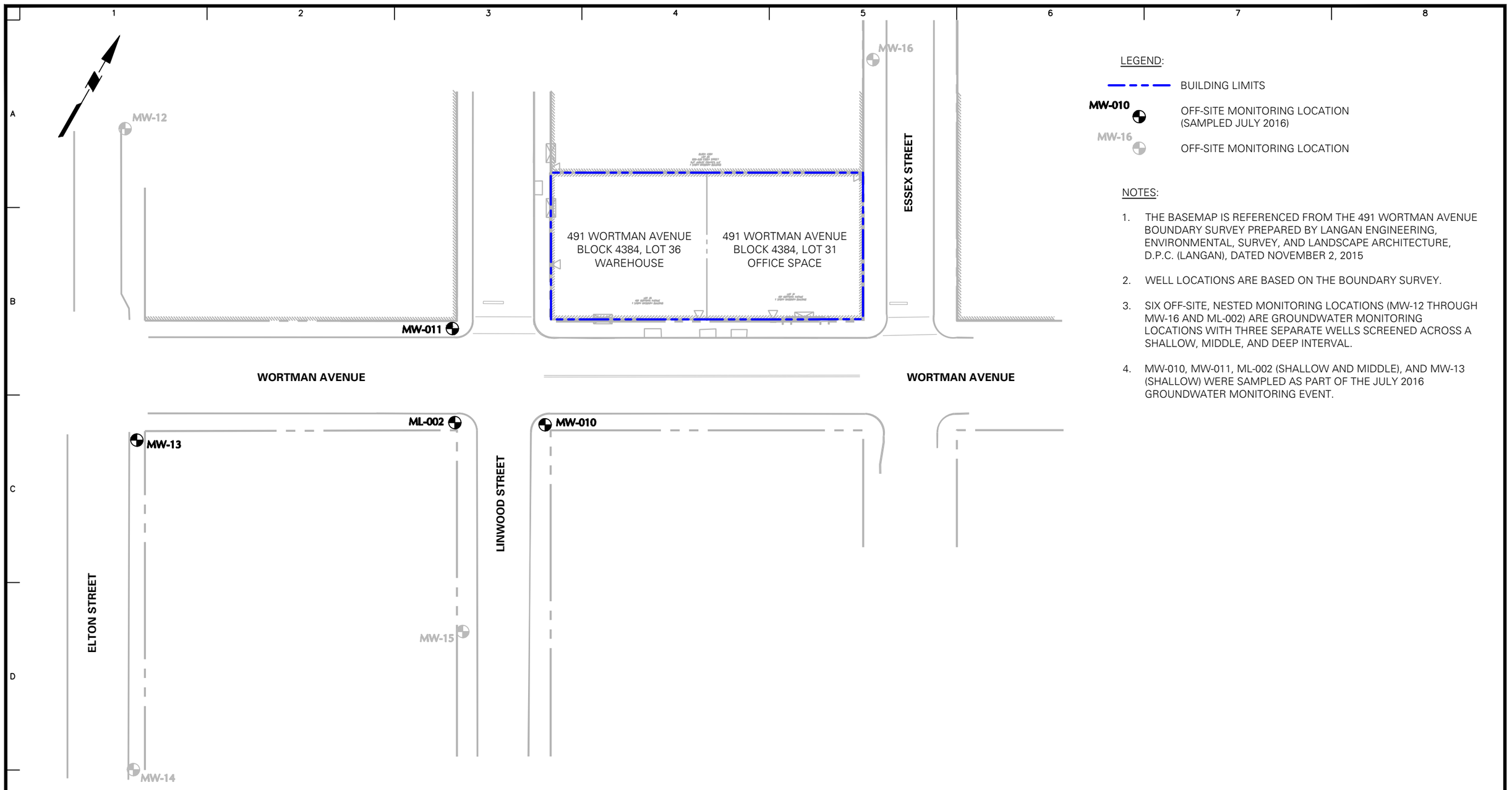
Collectively known as Langan

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

Figure Title
QUARTERLY GROUNDWATER SAMPLING PROGRAM

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\Figure 2 - Quarterly GW Wells.dwg Date: 5/9/2016 Time: 15:51 User: mrogers Style Table: Langan.stb Layout: ANSI-D



LEGEND:

- BUILDING LIMITS
- MW-010 — OFF-SITE MONITORING LOCATION (SAMPLED JULY 2016)
- MW-16 — 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. WELL LOCATIONS ARE BASED ON THE BOUNDARY SURVEY.
3. SIX OFF-SITE, NESTED MONITORING LOCATIONS (MW-12 THROUGH MW-16 AND ML-002) ARE GROUNDWATER MONITORING LOCATIONS WITH THREE SEPARATE WELLS SCREENED ACROSS A SHALLOW, MIDDLE, AND DEEP INTERVAL.
4. MW-010, MW-011, ML-002 (SHALLOW AND MIDDLE), AND MW-13 (SHALLOW) WERE SAMPLED AS PART OF THE JULY 2016 GROUNDWATER MONITORING EVENT.

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

60 0 30 60
SCALE IN FEET

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

Figure Title
SUPPLEMENTAL OFF-SITE GROUNDWATER MONITORING LOCATIONS

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

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report\Figure 3 - OffSite GW Wells.dwg Date: 8/9/2016 Time: 15:17 User: mrogers Style Table: Langan.stb Layout: ANSI-L

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING SUMMARY
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

SAMPLE NAME	SAMPLE DATE	SAMPLE TYPE	LOCATION	ANALYSIS
AS/SVE SYSTEM VAPOR SAMPLES				
Influent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Mid_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_052616	5/26/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_052616	5/26/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_062916	6/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_062916	6/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_072816	7/28/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_072816	7/28/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs

Notes:

1. The vapor samples were analyzed for VOCs via USEPA Method TO-15.
2. USEPA = United States Environmental Protection Agency
3. VOCs = volatile organic compounds
4. AS/SVE = air sparge/soil vapor extraction
5. vGAC = vapor-phase granular activated carbon

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent 102015		Effluent 102015		Influent_102115		Effluent_102115	
LAB SAMPLE ID	15J0790-01		15J0790-02		15J0866-01		15J0866-02	
SAMPLE DATE	10/20/2015		10/20/2015		10/21/2015		10/21/2015	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.86	U	6.86	U	6.90	U	6.90	U
1,1,1-Trichloroethane	981.76	D	5.45	U	140	D	5.50	U
1,1,2,2-Tetrachloroethane	6.86	U	6.86	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.66	U	7.66	U	7.70	U	7.70	U
1,1,2-Trichloroethane	8.73	D	5.45	U	5.50	U	5.50	U
1,1-Dichloroethane	117.33	D	4.05	U	15	D	4	U
1,1-Dichloroethylene	11.10	D	3.96	U	4	U	4	U
1,2,4-Trichlorobenzene	7.42	U	7.42	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	5.90	D	4.91	U	4.90	U	4.90	U
1,2-Dibromoethane	7.68	U	7.68	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,2-Dichloroethane	4.05	U	4.05	U	4	U	4	U
1,2-Dichloropropane	4.62	U	4.62	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	6.99	U	6.99	U	7	U	7	U
1,3,5-Trimethylbenzene	4.91	U	4.91	U	4.90	U	4.90	U
1,3-Butadiene	13.00	U	13.00	U	13	U	13	U
1,3-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,3-Dichloropropane	4.62	U	4.62	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6.01	U	6.01	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U	7.20	U
2-Butanone	88.44	D	82.55	D	36	D	21	D
2-Hexanone	8.19	U	8.19	U	8.20	U	8.20	U
3-Chloropropene	15.64	U	15.64	U	16	U	16	U
4-Methyl-2-pentanone	5.32	D	4.09	U	4.50	D	4.10	U
Acetone	332.54	D	1,800	D	150	D	200	D
Acrylonitrile	2.17	U	2.17	U	2.20	U	2.20	U
Benzene	226.73	D	27.78	D	100	D	42	D
Benzyl chloride	5.17	U	5.17	U	5.20	U	5.20	U
Bromodichloromethane	6.21	U	6.21	U	6.20	U	6.20	U
Bromoform	10.33	U	10.33	U	10	U	10	U
Bromomethane	3.88	U	3.88	U	3.90	U	3.90	U
Carbon disulfide	9.65	D	3,600	D	7.50	D	200	D
Carbon tetrachloride	1.57	U	1.57	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U	4.60	U
Chloroethane	2.64	U	2.64	U	2.60	U	2.60	U
Chloroform	634.48	D	4.88	U	140	D	4.90	U
Chloromethane	3.51	D	13.42	D	2.10	U	2.10	U
cis-1,2-Dichloroethylene	39.63	D	3.96	U	28	D	4	U
cis-1,3-Dichloropropylene	4.54	U	4.54	U	4.50	U	4.50	U
Cyclohexane	3.44	U	14.45	D	3.40	U	11	D
Dibromochloromethane	8.02	U	8.02	U	8	U	8	U
Dichlorodifluoromethane	4.94	U	4.94	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U	7.20	U
Ethyl Benzene	24.31	D	4.34	U	21	D	4.30	D
Hexachlorobutadiene	10.66	U	10.66	U	11	U	11	U
Isopropanol	16.95	D	3,400	D	25	D	NT	
Methyl Methacrylate	4.09	U	4.09	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U	3.60	U
Methylene chloride	90.28	D	13.54	D	35	D	12	D
n-Heptane	4.10	U	4.10	U	4.10	U	4.10	U
n-Hexane	42.28	D	10.57	D	17	D	9.90	D
o-Xylene	8.25	D	4.34	U	11	D	4.30	U
p- & m- Xylenes	23.87	D	8.68	U	26	D	8.70	U
p-Ethyltoluene	4.91	U	4.91	U	4.90	U	4.90	U
Propylene	1.72	U	1.72	U	1.70	U	1.70	U
Styrene	4.26	U	4.26	U	4.30	U	4.30	U
Tetrachloroethylene	680	U	13.56	D	2,800	D	48	D
Tetrahydrofuran	1,473.83	D	203.39	D	87	D	16	D
Toluene	124.31	D	34.28	D	110	D	35	D
trans-1,2-Dichloroethylene	10.70	D	3.96	U	5.20	D	4	U
trans-1,3-Dichloropropylene	4.54	U	4.54	U	4.50	U	4.50	U
Trichloroethylene	110,000	D	27.40	D	29,000	D	530	D
Trichlorofluoromethane (Freon 11)	5.62	U	5.62	U	5.60	U	5.60	U
Vinyl acetate	3.52	U	3.52	U	3.50	U	3.50	U
Vinyl bromide	4.37	U	4.37	U	4.40	U	4.40	U
Vinyl Chloride	2.56	U	2.56	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_102615		Effluent_102615		Influent_113015		Effluent_113015	
LAB SAMPLE ID	15J0989-01		15J0989-02		15L0012-01		15L0012-02	
SAMPLE DATE	10/26/2015		10/26/2015		11/30/2015		11/30/2015	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U	6.90	U
1,1,1-Trichloroethane	18	D	5.50	U	5.50	U	13	D
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U	4	U	4	U
1,1-Dichloroethylene	4	U	4	U	4	U	4	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U	6	U	6	U
1,2-Dichloroethane	4	U	4	U	4	U	4	U
1,2-Dichloropropane	4.60	U	4.60	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	7	U	7	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	4.90	U	4.90	U
1,3-Butadiene	13	U	13	U	13	U	13	U
1,3-Dichlorobenzene	6	U	6	U	6	U	6	U
1,3-Dichloropropane	4.60	U	4.60	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6	U	6	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U	7.20	U
2-Butanone	6	D	3	D	8	D	5.30	D
2-Hexanone	8.20	U	8.20	U	8.20	U	8.20	U
3-Chloropropene	16	U	16	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	4.10	U	4.10	U	4.10	U
Acetone	37	D	66	D	54	D	69	D
Acrylonitrile	2.20	U	2.20	U	2.20	U	2.20	U
Benzene	11	D	14	D	19	D	22	D
Benzyl chloride	5.20	U	5.20	U	5.20	U	5.20	U
Bromodichloromethane	6.20	U	6.20	U	6.20	U	6.20	U
Bromoform	10	U	10	U	10	U	10	U
Bromomethane	3.90	U	3.90	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	34	D	3.10	U	31	D
Carbon tetrachloride	1.60	U	1.60	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U	2.60	U	2.60	U
Chloroform	18	D	4.90	U	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U	2.10	U	2.10	U
cis-1,2-Dichloroethylene	13	D	4	U	4	U	4	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U	4.50	U
Cyclohexane	3.40	U	5	D	3.40	U	3.40	U
Dibromochloromethane	8	U	8	U	8	U	8	U
Dichlorodifluoromethane	4.90	U	4.90	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U	7.20	U
Ethyl Benzene	4	D	4.30	U	5.20	D	4.30	U
Hexachlorobutadiene	11	U	11	U	11	U	11	U
Isopropanol	10	D	57	D	6.40	D	150	D
Methyl Methacrylate	4.10	U	4.10	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U	3.60	U
Methylene chloride	32	D	34	D	19	D	68	D
n-Heptane	4.10	U	4.10	U	4.10	U	4.10	U
n-Hexane	5	D	8.80	D	3.50	U	12	D
o-Xylene	4	U	4.30	U	4.30	U	4.30	U
p- & m- Xylenes	9	U	8.70	U	12	D	8.70	U
p-Ethyltoluene	4.90	U	4.90	U	4.90	U	4.90	U
Propylene	36.00	D	1.70	U	1.70	U	1.70	U
Styrene	4.30	U	4.30	U	4.30	U	4.30	U
Tetrachloroethylene	1,200	D	26	D	290	D	12	D
Tetrahydrofuran	14	D	6	U	5.90	U	5.90	U
Toluene	22	D	15	D	30	D	21	D
trans-1,2-Dichloroethylene	4.00	U	4	U	4	U	4	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U	4.50	U
Trichloroethylene	5,600	D	120	D	2700	D	23	D
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	U	2.60	U	2.60	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.
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Q is the Qualifier Column with definitions as follows:
D = The result is from an analysis that required a dilution.
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TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_122815		Effluent_122815		INFLUENT_012716		EFFLUENT_012716	
LAB SAMPLE ID	15L1040-01		15L1040-02		16A0778-01		16A0778-02	
SAMPLE DATE	12/28/2015		12/28/2015		1/27/2016		1/27/2016	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	0.69	U
1,1,1-Trichloroethane	5.50	D	5.50	U	2.70		0.55	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	0.69	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	16	D	0.77	U	0.77	U
1,1,2-Trichloroethane	5.50	U	5.50	U	0.55	U	0.55	U
1,1-Dichloroethane	4	U	4	U	0.69		0.40	U
1,1-Dichloroethylene	4	U	4	U	0.44		0.44	
1,2,4-Trichlorobenzene	7.40	U	7.40	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	0.54		0.49	U
1,2-Dibromoethane	7.70	U	7.70	U	0.77	U	0.77	U
1,2-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,2-Dichloroethane	4	U	4	U	0.40	U	0.40	U
1,2-Dichloropropane	4.60	U	4.60	U	0.46	U	0.46	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	0.70	U	0.70	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	0.49	U	0.49	U
1,3-Butadiene	13	U	13	U	1.30	U	1.30	U
1,3-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,3-Dichloropropane	4.60	U	4.60	U	0.46	U	0.46	U
1,4-Dichlorobenzene	6	U	6	U	0.60	U	0.60	U
1,4-Dioxane	7.20	U	7.20	U	0.72	U	0.72	U
2-Butanone	4.70	D	2.90	U	6.70		1.60	
2-Hexanone	8.20	U	8.20	U	0.82	U	0.82	U
3-Chloropropene	16	U	16	U	1.60	U	1.60	U
4-Methyl-2-pentanone	4.10	U	4.10	U	2		1.10	
Acetone	35	D	32	D	40		25	
Acrylonitrile	2.20	U	2.20	U	0.22	U	0.22	U
Benzene	6.40	D	3.20	U	13		2.50	
Benzyl chloride	5.20	U	5.20	U	0.52	U	0.52	U
Bromodichloromethane	6.20	U	6.20	U	0.62	U	0.62	U
Bromoform	10	U	10	U	1	U	1	U
Bromomethane	3.90	U	3.90	U	0.39	U	0.39	U
Carbon disulfide	3.10	U	13	D	1.40		8.70	
Carbon tetrachloride	1.60	U	1.60	U	0.44		0.16	U
Chlorobenzene	4.60	U	4.60	U	0.46	U	0.46	U
Chloroethane	2.60	U	2.60	U	1.20		0.26	U
Chloroform	4.90	D	4.90	U	2.60		0.49	U
Chloromethane	2.10	U	2.10	U	3		2	
cis-1,2-Dichloroethylene	7.90	D	4	U	7.70		0.40	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	0.45	U
Cyclohexane	3.40	U	3.40	U	0.34	U	0.34	U
Dibromochloromethane	8	U	8	U	0.80	U	0.80	U
Dichlorodifluoromethane	4.90	U	4.90	U	2.10		3.20	
Ethyl acetate	7.20	U	7.20	U	0.72	U	0.72	U
Ethyl Benzene	4.30	U	4.30	U	1.70		0.48	
Hexachlorobutadiene	11	U	11	U	1.10	U	1.10	U
Isopropanol	67	D	98	D	0.49	U	49	
Methyl Methacrylate	4.10	U	7	D	17		9.40	
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	0.36	U	0.36	U
Methylene chloride	13	D	24	D	40		34	
n-Heptane	4.10	U	4.10	U	0.41	U	0.41	U
n-Hexane	3.50	U	6	D	6.50		8.60	
o-Xylene	4.30	U	4.30	U	0.65		0.43	U
p- & m- Xylenes	8.70	U	8.70	U	2		0.96	
p-Ethyltoluene	4.90	U	4.90	U	0.49	U	0.49	U
Propylene	13	D	13	D	21		18	
Styrene	4.30	U	4.30	U	0.68		0.43	U
Tetrachloroethylene	380	D	12	D	280		6.90	
Tetrahydrofuran	6.80	D	5.90	U	0.59	U	0.59	U
Toluene	13	D	8.70	D	14		9.50	
trans-1,2-Dichloroethylene	4	U	4	U	0.48		0.40	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	0.45	U
Trichloroethylene	2,800	D	1.3	U	150	D	0.13	U
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	1.70		1.80	
Vinyl acetate	3.50	U	3.50	U	0.35	U	0.35	U
Vinyl bromide	4.40	U	4.40	U	0.44	U	0.44	U
Vinyl Chloride	2.60	U	2.60	U	0.82		0.26	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC MID-POINT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	INFLUENT_022416		MID_022416		EFFLUENT_022416		INFLUENT_033016		EFFLUENT_033016	
LAB SAMPLE ID	16B0855		16B0855		16B0855		16C1247-01		16C1247-02	
SAMPLE DATE	2/24/2016		2/24/2016		2/24/2016		3/30/2016		3/30/2016	
Volatile Organic Compounds (ug/m^3)										
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	6.90	U	6.90	U
1,1,1-Trichloroethane	5.50	U	5.50	U	0.55	U	5.50	U	5.50	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	0.69	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U	0.77	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U	0.55	U	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U	0.40	U	4.00	U	4.00	U
1,1-Dichloroethylene	4	U	4	U	0.40	U	4.00	U	4.00	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U	0.74	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	10		4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U	0.77	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,2-Dichloroethane	4	U	4	U	0.40	U	4.00	U	4.00	U
1,2-Dichloropropane	4.60	U	4.60	U	0.46	U	11.00	D	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	0.70	U	7.00	U	7.00	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	4		4.90	U	4.90	U
1,3-Butadiene	13	U	13	U	1.30	U	6.60	U	6.60	U
1,3-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,3-Dichloropropane	4.60	U	4.60	U	0.46	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6	U	6	U	0.60	U	6.00	U	6.00	U
1,4-Dioxane	7.20	U	7.20	U	0.72	U	7.20	U	7.20	U
2-Butanone	12	D	2.90	U	6.10		2.90	U	2.90	U
2-Hexanone	8.20	U	8.20	U	0.82	U	8.20	U	8.20	U
3-Chloropropene	16	U	16	U	1.60	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	4.10	U	0.41	U	4.10	U	4.10	U
Acetone	76	D	39	D	64		25	D	22	D
Acrylonitrile	2.20	U	2.20	U	0.22	U	2.20	U	2.20	U
Benzene	30	D	11	D	7.40		3.20	U	3.20	U
Benzyl chloride	5.20	U	5.20	U	0.52	U	5.20	U	5.20	U
Bromodichloromethane	6.20	U	6.20	U	0.62	U	6.70	U	6.70	U
Bromoform	10	U	10	U	1	U	10	U	10	U
Bromomethane	3.90	U	3.90	U	0.39	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	3.10	U	2.60		3.10	U	3.10	U
Carbon tetrachloride	1.60	U	1.60	U	0.16	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	0.46	U	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U	0.26	U	2.60	U	2.60	U
Chloroform	4.90	U	4.90	U	0.49	U	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U	0.21	U	2.10	U	2.10	U
cis-1,2-Dichloroethylene	4.40	D	4	U	0.40	U	4.00	U	4.00	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	4.50	U	4.50	U
Cyclohexane	3.40	U	3.40	U	0.34	U	3.40	U	3.40	U
Dibromochloromethane	8	U	8	U	0.80	U	8.50	U	8.50	U
Dichlorodifluoromethane	4.90	U	4.90	U	1.60		4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	1.90		7.20	U	7.20	U
Ethyl Benzene	4.30	D	4.30	U	12		4.30	U	4.30	U
Hexachlorobutadiene	11	U	11	U	1.10	U	11	U	11	U
Isopropanol	4.90	U	4.90	U	34		4.90	U	4.90	U
Methyl Methacrylate	4.10	U	4.10	U	0.41	U	4.10	U	4.10	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	0.36	U	3.60	U	3.60	U
Methylene chloride	6.90	U	6.90	U	1.10		11	D	40	D
n-Heptane	4.10	U	4.10	U	4		4.10	U	4.10	U
n-Hexane	3.50	U	3.50	U	1.30		3.50	U	13	D
o-Xylene	4.30	U	4.30	U	16		4.30	U	4.30	U
p- & m- Xylenes	8.70	U	8.70	U	47		8.70	U	8.70	U
p-Ethyltoluene	4.90	U	4.90	U	12		4.90	U	4.90	U
Propylene	1.70	U	1.70	U	0.17	U	1.70	U	1.70	U
Styrene	4.30	U	4.30	U	0.43	U	4.30	U	4.30	U
Tetrachloroethylene	200	D	11	D	5.10		110	D	1.70	U
Tetrahydrofuran	5.90	U	5.90	U	3.90		5.90	U	5.90	U
Toluene	27	D	20	D	44		7.90	D	3.80	U
trans-1,2-Dichloroethylene	4	U	4	U	2.60		4.00	U	4.00	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	0.45	U	4.50	U	4.50	U
Trichloroethylene	1,100	D	2,500	D	0.91		660	D	1.30	U
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	1.60		5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U	0.35	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U	0.44	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	U	0.26	U	2.60	U	2.60	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.

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D = The result is from an analysis that required a dilution.
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TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	INFLUENT_042916		EFFLUENT_042916		INFLUENT_052616		EFFLUENT_052616	
LAB SAMPLE ID	16D1143-01		16D1143-02		16E1125-01		16E1125-02	
SAMPLE DATE	4/29/2016		4/29/2016		5/26/2016		5/26/2016	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	6.90	U	0.69	U	6.90	U	6.90	U
1,1,1-Trichloroethane	5.50	U	0.55	U	5.50	U	5.50	U
1,1,2,2-Tetrachloroethane	6.90	U	0.69	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	0.77	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	0.55	U	5.50	U	5.50	U
1,1-Dichloroethane	4.00	U	0.40	U	4.00	U	4.00	U
1,1-Dichloroethylene	4.00	U	0.40	U	4.00	U	4.00	U
1,2,4-Trichlorobenzene	7.40	U	0.74	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	2.50		6.90	D	7.40	D
1,2-Dibromoethane	7.70	U	0.77	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6.00	U	0.60	U	6.00	U	6.00	U
1,2-Dichloroethane	4.00	U	0.40	U	4.00	U	4.00	U
1,2-Dichloropropane	4.60	U	0.46	U	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	7.00	U	0.70	U	7.00	U	7.00	U
1,3,5-Trimethylbenzene	4.90	U	0.54		4.90	U	4.90	U
1,3-Butadiene	6.60	U	0.66	U	6.60	U	6.60	U
1,3-Dichlorobenzene	6.00	U	0.60	U	6.00	U	6.00	U
1,3-Dichloropropane	4.60	U	0.46	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6.00	U	0.60	U	6.00	U	6.00	U
1,4-Dioxane	7.20	U	0.72	U	7.20	U	7.20	U
2-Butanone	2.90	U	1.30		9.40	D	7.70	D
2-Hexanone	8.20	U	0.82	U	8.20	U	8.20	U
3-Chloropropene	16	U	2	U	16	U	16	U
4-Methyl-2-pentanone	4.10	U	1.30		4.10	U	4.50	D
Acetone	11	D	32		46	D	67	D
Acrylonitrile	2.20	U	0.22	U	2.20	U	2.20	U
Benzene	3.20	U	3.40		8.30	D	7.70	D
Benzyl chloride	5.20	U	0.52	U	5.20	U	5.20	U
Bromodichloromethane	6.70	U	0.67	U	6.70	U	6.70	U
Bromoform	10	U	1	U	10	U	10	U
Bromomethane	3.90	U	0.39	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	0.69		3.10	U	3.10	U
Carbon tetrachloride	1.60	U	0.16	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	0.46	U	4.60	U	4.60	U
Chloroethane	2.60	U	0.26	U	2.60	U	2.60	U
Chloroform	4.90	U	0.49	U	4.90	U	4.90	U
Chloromethane	2.10	U	1.50		2.10	U	2.10	U
cis-1,2-Dichloroethylene	4.00	U	0.40	U	4.00	U	4.00	U
cis-1,3-Dichloropropylene	4.50	U	0.45	U	4.50	U	4.50	U
Cyclohexane	3.40	U	0.34	U	3.40	U	3.40	U
Dibromochloromethane	8.50	U	0.85	U	8.50	U	8.50	U
Dichlorodifluoromethane	4.90	U	2.00		4.90	U	4.90	U
Ethyl acetate	10.00	D	2.60		7.20	D	7.20	U
Ethyl Benzene	4.30	U	0.61		4.30	U	4.30	U
Hexachlorobutadiene	11	U	1	U	11	U	11	U
Isopropanol	4.90	U	0.49	U	4.90	U	4.90	U
Methyl Methacrylate	4.10	U	4.00		42.00	D	41.00	D
Methyl tert-butyl ether (MTBE)	3.60	U	0.36	U	3.60	U	3.60	U
Methylene chloride	250	D	46		17	D	21	D
n-Heptane	4.10	U	0.41	U	4.10	U	4.10	U
n-Hexane	8.80	D	4		3.50	U	4	U
o-Xylene	4.30	U	0.43		4.30	U	4.30	U
p- & m- Xylenes	8.70	U	0.96		8.70	U	8.70	U
p-Ethyltoluene	4.90	U	1.50		4.90	U	4.90	U
Propylene	1.70	U	0.17	U	1.70	U	1.70	U
Styrene	4.30	U	0.47		4.30	U	4.30	U
Tetrachloroethylene	32	D	0.17	U	150	D	1.70	U
Tetrahydrofuran	5.90	U	0.59	U	5.90	U	5.90	U
Toluene	3.80	U	3.30		12.00	D	6.00	D
trans-1,2-Dichloroethylene	4.00	U	0.40	U	4.00	U	4.00	U
trans-1,3-Dichloropropylene	4.50	U	0.45	U	4.50	U	4.50	U
Trichloroethylene	170	D	0.13	U	870	D	1.30	U
Trichlorofluoromethane (Freon 11)	5.60	U	2.80		5.60	U	5.60	U
Vinyl acetate	3.50	U	0.35	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	0.44	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	0.26	U	2.60	U	2.60	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.

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D = The result is from an analysis that required a dilution.
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TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT		vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_062916		Effluent_062916		Influent_072816		Effluent_072816	
LAB SAMPLE ID	16F1140-01		16F1140-02		16G1194-01		16G1194-02	
SAMPLE DATE	6/29/2016		6/29/2016		7/28/2016		7/28/2016	
Volatile Organic Compounds (ug/m^3)								
1,1,1,2-Tetrachloroethane	0.69	U	0.69	U	6.90	U	6.90	U
1,1,1-Trichloroethane	2.70		0.55	U	8.70	D	5.50	U
1,1,2,2-Tetrachloroethane	0.69	U	0.69	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.77	U	0.77	U	7.70	U	7.70	U
1,1,2-Trichloroethane	0.55	U	0.55	U	5.50	U	5.50	U
1,1-Dichloroethane	0.65		0.40	U	4.00	U	4.00	U
1,1-Dichloroethylene	0.40	U	0.40	U	4.00	U	4.00	U
1,2,4-Trichlorobenzene	0.74	U	3.60		7.40	U	7.40	U
1,2,4-Trimethylbenzene	22		9		5	D	5	U
1,2-Dibromoethane	0.77	U	0.77	U	7.70	U	7.70	U
1,2-Dichlorobenzene	0.60	U	0.60	U	6.00	U	6.00	U
1,2-Dichloroethane	0.65		0.40	U	4.00	U	4.00	U
1,2-Dichloropropane	28		0.46	U	63	D	4.60	U
1,2-Dichlorotetrafluoroethane	0.70	U	0.70	U	7.00	U	7.00	U
1,3,5-Trimethylbenzene	5.50		2.10		4.90	U	4.90	U
1,3-Butadiene	0.66	U	0.66	U	6.60	U	6.60	U
1,3-Dichlorobenzene	0.60	U	0.60	U	6.00	U	6.00	U
1,3-Dichloropropane	0.46	U	0.46	U	4.60	U	4.60	U
1,4-Dichlorobenzene	0.60	U	0.60	U	6.00	U	6.00	U
1,4-Dioxane	0.72	U	0.72	U	7.20	U	7.20	U
2-Butanone	18		19		9	D	6	D
2-Hexanone	0.82	U	0.82	U	8.20	U	8.20	U
3-Chloropropene	1.60	U	1.60	U	16.00	U	16.00	U
4-Methyl-2-pentanone	6		6.30		4	U	6.10	D
Acetone	43		43		65	D	61	D
Acrylonitrile	0.22	U	0.22	U	2.20	U	2.20	U
Benzene	2.30		0.93		3.20	U	4.20	D
Benzyl chloride	0.52	U	0.52	U	5.20	U	5.20	U
Bromodichloromethane	0.67	U	0.67	U	6.70	U	6.70	U
Bromoform	1	U	1	U	10	U	10	U
Bromomethane	0.39	U	0.39	U	3.90	U	3.90	U
Carbon disulfide	1.10		0.75		4.40	D	5.00	D
Carbon tetrachloride	0.16	U	0.16	U	1.60	U	1.60	U
Chlorobenzene	0.46	U	0.46	U	4.60	U	4.60	U
Chloroethane	2.10		3		2.60	U	3	U
Chloroform	3.10		0.49	U	8.30	D	4.90	U
Chloromethane	3.90		6		5.80	D	7	D
cis-1,2-Dichloroethylene	5.70		0.52		5.90	D	4.00	U
cis-1,3-Dichloropropylene	0.45	U	0.45	U	4.50	U	4.50	U
Cyclohexane	0.65		0.34	U	3.40	U	3.40	U
Dibromochloromethane	0.85	U	0.85	U	8.50	U	8.50	U
Dichlorodifluoromethane	1.50		1.90		4.90	U	4.90	U
Ethyl acetate	2.30		1.70		7.20	U	7.20	U
Ethyl Benzene	3.90		0.96		4.30	U	4.30	U
Hexachlorobutadiene	1.10	U	1.10	U	11.00	U	11.00	U
Isopropanol	0.49	U	0.49	U	4.90	U	4.90	U
Methyl Methacrylate	36		43		45	D	49	D
Methyl tert-butyl ether (MTBE)	0.36	U	0.36	U	3.60	U	3.60	U
Methylene chloride	12		15		40	D	34	D
n-Heptane	1		0.49		4	U	4.10	U
n-Hexane	3.90		4.60		36.00	D	45.00	D
o-Xylene	10		1.10		4	U	4.30	U
p- & m- Xylenes	16		2		9	U	9	U
p-Ethyltoluene	12		4.50		5	U	4.90	U
Propylene	0.17	U	0.17	U	1.70	U	1.70	U
Styrene	3.70		2.30		4.30	U	4.30	U
Tetrachloroethylene	290		0.68		300	D	8.80	D
Tetrahydrofuran	10		11		6	U	6	U
Toluene	15		3.60		9	D	6.40	D
trans-1,2-Dichloroethylene	0.75		0.40	U	4.00	U	4.00	U
trans-1,3-Dichloropropylene	0.45	U	0.45	U	4.50	U	4.50	U
Trichloroethylene	1,300	D	0.75		3,100	D	1.30	U
Trichlorofluoromethane (Freon 11)	1.50		1.80		5.60	U	5.60	U
Vinyl acetate	0.35	U	0.35	U	3.50	U	3.50	U
Vinyl bromide	0.44	U	0.44	U	4.40	U	4.40	U
Vinyl Chloride	0.26	U	0.26	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - PID DATA
491 WORTMAN AVENUE
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	1548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3693	100	0.002	1.43	85.34
4/29/2016	2.0	571	0.0	4322	100	0.018	11.14	96.48
5/26/2016	0.4	600	0.0	4972	100	0.004	2.42	98.90
6/29/2016	0.5	600	0.0	5784	100	0.005	3.78	102.68
7/28/2016	3.0	600	0.0	6431	100	0.028	18.06	120.73

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 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 4: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA
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)	VGAC MASS REMOVAL EFFICIENCY (%)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99	92
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44	97
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36	95
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18	86
12/28/2015	3,357	570	230	1548	53.58	3.67	49.91	4.18	16.55	3.89	15.08	93
1/27/2016	621	525	183	2180	9.13	2.69	6.44	0.76	17.31	0.54	15.62	71
2/24/2016	1,454	578	283	2854	23.53	4.58	18.94	2.10	19.41	1.69	17.31	81
3/30/2016	825	550	75	3693	12.71	1.16	11.55	1.41	20.82	1.28	18.59	91
4/29/2016	482	571	112	4322	7.70	1.79	5.91	0.64	21.46	0.49	19.08	77
5/26/2016	1,169	600	162	4972	19.64	2.73	16.91	1.69	23.15	1.45	20.53	86
6/29/2016	1,865	600	190	5784	31.33	3.19	28.14	3.37	26.51	3.02	23.56	90
7/28/2016	3,706	600	232	6431	62.26	3.90	58.36	5.33	31.84	4.99	28.55	94

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 5: AS/SVE SYSTEM DAR-1 COMPLIANCE
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **7/28/2016**

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)													
2-Butanone	5.90	600	16.9902	1.32E-05	1.16E-01	1.04E-03	1.04E-03	6.77E-02	13000	5000	NO	NO	NO
4-Methyl-2-pentanone	6.10	600	16.9902	1.37E-05	1.20E-01	1.08E-03	1.08E-03	7.00E-02	31000	3000	NO	NO	NO
Acetone	61	600	16.9902	1.37E-04	1.20E+00	1.08E-02	1.08E-02	7.00E-01	180,000	30,000	NO	NO	NO
Benzene	4.20	600	16.9902	9.42E-06	8.25E-02	7.42E-04	7.41E-04	4.82E-02	1,300	0.13	NO	NO	NO
Carbon disulfide	5	600	16.9902	1.12E-05	9.82E-02	8.83E-04	8.82E-04	5.73E-02	6,200	700	NO	NO	NO
Chloromethane	7	600	16.9902	1.57E-05	1.38E-01	1.24E-03	1.23E-03	8.03E-02	6,200	700	NO	NO	NO
Methyl methacrylate	49	600	16.9902	1.10E-04	9.63E-01	8.65E-03	8.64E-03	5.62E-01	41,000	700	NO	NO	NO
Methylene chloride	34	600	16.9902	7.63E-05	6.68E-01	6.01E-03	6.00E-03	3.90E-01	14,000	60	NO	NO	NO
n-Hexane	45	600	16.9902	1.01E-04	8.84E-01	7.95E-03	7.94E-03	5.16E-01	--	700	NO	No Standard	NO
Tetrachloroethylene	8.80	600	16.9902	1.97E-05	1.73E-01	1.55E-03	1.55E-03	1.01E-01	300	4	NO	NO	NO
Toluene	6.40	600	16.9902	1.44E-05	1.26E-01	1.13E-03	1.13E-03	7.34E-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 6: AS/SVE SYSTEM ALARM HISTORY
491 WORTMAN AVENUE
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.

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS - THIRD QUARTER
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW01_072716 16G1076-10 7/27/2016 1		DUP01_072716 16G1076-11 7/27/2016 1		MW02_072716 16G1076-12 7/27/2016 1		MW3AS_072616 16G1022-01 7/26/2016 1		MW3AM_072616 16G1022-02 7/26/2016 1		MW3AD_072616 16G1076-07 7/26/2016 1		MW04_072716 16G1076-03 7/27/2016 1		MW05_072716 16G1076-01 7/27/2016 1		MW06_072716 16G1076-05 7/27/2016 20	
Volatile Organic Compounds (µg/L)																			
1,1,1-Trichloroethane	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.27	J
1,1,2-Trichloroethane	1	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U	*0.61*	
1,1-Dichloroethane	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	1.90	
1,1-Dichloroethylene	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	1.40	
1,2,4-Trimethylbenzene	5	0.20	U	0.20	U	0.20	U	0.94		0.45	J	0.20	U	0.20	U	0.20	U	0.20	U
1,2-Dichloropropane	1	**3.30**		**3.80**		**3**		*0.80*		*0.20*	U	*0.20*	U	**2**		*1*		**1.50**	
2-Butanone	50	0.80	U	0.80	U	0.80	U	0.93	B	0.72	B	0.80	U	0.80	U	0.80	U	6.20	
Acetone	50	1.20	J	1	U	1	U	2.80	B	1.60	JB	1	U	1	U	1	J	1	U
Benzene	1	*0.20*	U	*0.20*	U	*0.20*	U	*0.33*	J	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U
Chloroform	7	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.88		0.20	U	0.20	U	2.20	
cis-1,2-Dichloroethylene	5	0.20	U	0.20	U	0.26	J	0.29	J	0.20	U	0.21	J	0.36	J	0.92		**39**	D
Ethyl Benzene	5	0.20	U	0.20	U	0.20	U	0.38	J	0.20	J	0.20	U	0.20	U	0.20	U	0.20	U
Methyl tert-butyl ether (MTBE)	10	0.20	U	0.20	U	0.20	U	0.71		0.20	U	0.39	J	0.20	U	0.25	J	0.20	U
o-Xylene	5	0.20	U	0.20	U	0.20	U	0.47	J	0.25	J	0.20	U	0.20	U	0.20	U	0.20	U
p- & m- Xylenes	5	0.50	U	0.50	U	0.50	U	1.10		0.61	J	0.50	U	0.50	U	0.50	U	0.50	U
tert-Butyl alcohol (TBA)	~	0.80	U	0.80	U	0.80	U	9		3.60		0.80	U	0.80	U	0.80	U	0.80	U
Tetrachloroethylene	5	0.68		0.71		2.20		3		**22**		**12**		2.20		1.60		**570**	D
trans-1,2-Dichloroethylene	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	2.30	
Trichloroethylene	5	0.57		0.66		1.60		*4.20*		2.10		1.60		3.50		0.76		**640**	D
Trichlorofluoromethane	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.89	
Vinyl Chloride	2	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.50	
Xylenes, Total	5	0.60	U	0.60	U	0.60	U	1.60		0.86	J	0.60	U	0.60	U	0.60	U	0.60	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 (AWQS) for Class GA water.
2. 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. ~ = No regulatory limit has been established for this analyte.
6. DUP01_072716 is a duplicate sample of MW01_072716.
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 second round of quarterly groundwater sampling.
8. One field blank (FB01_072716) were collected for quality assurance/quality control (QA/QC) purposes.

Qualifiers:
B = Analyte found in the analysis batch blank.
D = The sample was diluted per the dilution factor shown.
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 - THIRD QUARTER
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW07_072716 16G1076-08 7/27/2016 1		MW08_072716 16G1076-04 7/27/2016 1		MW09_072716 16G1076-13 7/27/2016 1		PZ01_072616 16G1076-06 7/26/2016 1		PZ02_072716 16G1076-02 7/27/2016 1		FB01_072716 16G1076-09 7/27/2016 1	
Volatile Organic Compounds (µg/L)													
1,1,1-Trichloroethane	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1,2-Trichloroethane	1	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U
1,1-Dichloroethane	5	0.20	U	0.54		0.20	U	0.20	U	0.20	U	0.20	U
1,1-Dichloroethylene	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,2,4-Trimethylbenzene	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,2-Dichloropropane	1	*0.90*		*0.61*		**2.40**		**3.70**		**3.50**		*0.20*	U
2-Butanone	50	0.80	U	0.80	U	0.80	U	0.80	U	0.80	U	0.80	U
Acetone	50	2.40		1.70	J	1	U	1.30	J	1.50	J	6.80	
Benzene	1	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U
Chloroform	7	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
cis-1,2-Dichloroethylene	5	0.20	U	**21**		0.20	U	0.20	U	0.35	J	0.20	U
Ethyl Benzene	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Methyl tert-butyl ether (MTBE)	10	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
o-Xylene	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
p- & m- Xylenes	5	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
tert-Butyl alcohol (TBA)	~	0.80	U	0.80	U	0.80	U	0.50	U	0.80	U	0.80	U
Tetrachloroethylene	5	0.71		**5.30**		0.76		0.47	J	2		0.20	U
trans-1,2-Dichloroethylene	5	0.20	U	0.61		0.20	U	0.20	U	0.20	U	0.20	U
Trichloroethylene	5	3.10		**27**		0.33	J	1.10		1.60		0.20	U
Trichlorofluoromethane	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Vinyl Chloride	2	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Xylenes, Total	5	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	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 (AWQS) for Class GA
2. 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. ~ = No regulatory limit has been established for this analyte.
6. DUP01_072716 is a duplicate sample of MW01_072716.
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 second round of quarterly groundwater sampling.
8. One field blank (FB01_072716) were collected for quality assurance/quality control (QA/QC) purposes.

Qualifiers:
B = Analyte found in the analysis batch blank.
D = The sample was diluted per the dilution factor shown.
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 8: QUARTERLY 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												
		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%*	*-114%*	*-79%*	*-32%*	*-51%*	*-91%*	*-112%*	*-212%*	*-71%*	*26%*	*-64%*	*-36%*	*-132%*
Q3 Percent CVOC Reduction from Baseline		*99.9%*	*99.8%*	*99.1%*	*-5%*	*50%*	*99%*	*98%*	*-1%*	*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 (AWQS) 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. * = Monitoring well is located in the sidewalk adjacent to the warehouse.

TABLE 9: ANNUAL VAPOR SAMPLING RESULTS - FIRST ROUND
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

Sample ID	VP01_072616		VP02_072616		VP03_072716		VP04_072616		VP05_072616		VP06_072616		VP07_072616	
Laboratory ID	16G1007-02		16G1007-06		16G1079-01		16G1007-01		16G1007-04		16G1007-05		16G1007-03	
Sampling Date	7/26/2016		7/26/2016		7/27/2016		7/26/2016		7/26/2016		7/26/2016		7/26/2016	
Dilution Factor	24.11		22.3		92.48		23.12		24.23		22.7		23.89	
Volatile Organic Compounds (ug/m^3)														
1,2,4-Trimethylbenzene	12	U	11	U	49	D	11	U	12	U	11	U	12	U
1,2-Dichloropropane	190	D	120	D	67	D	220	D	180	D	140	D	170	D
1,3,5-Trimethylbenzene	12	U	11	U	13	D	11	U	12	U	11	U	12	U
2-Butanone	1,200	D	540	D	2,100	D	840	D	670	D	610	D	760	D
Acetone	140	D	89	D	720	D	150	D	100	D	86	D	140	D
Chloroform	12	U	11	U	47	D	11	U	12	U	11	U	12	U
cis-1,2-Dichloroethylene	9.60	U	19	D	9.20	U	9.20	U	9.60	U	9	U	9.50	U
Methylene chloride	60	D	21	D	16	U	36	D	17	U	86	D	39	D
n-Hexane	47	D	7.90	U	8.10	U	8.10	U	8.50	U	110	D	13	D
p-Ethyltoluene	12	U	11	U	32	D	11	U	12	U	11	U	12	U
Tetrachloroethylene	230	D	370	D	240	D	25	D	130	D	1,400	D	49	D
Tetrahydrofuran	410	D	210	D	5,100	D	320	D	210	D	180	D	390	D
Toluene	9	U	8	U	11	D	9	U	9	U	9	U	9	U
Trichloroethylene	3,100	D	5,200	D	11,000	D	280	D	430	D	910	D	1,000	D
Trichlorofluoromethane (Freon 11)	14	U	13	U	13	U	13	U	14	U	13	U	13	U
Vinyl Chloride	6.20	U	5.70	U	5.90	U	5.90	U	6.20	U	5.80	U	6.10	U
Total VOCs	**5,377**		**6,569**		**19,379**		**1,871**		**1,720**		**3,522**		**2,561**	

NOTES:
1. Only compounds with detections are shown.
2. ug/m^3 = micrograms per cubic meter

Qualifiers:
D = The sample was diluted per the dilution factor shown.
U = Analyte not detected at or above the level indicated.

TABLE 10: ANNUAL VAPOR SAMPLING RESULTS SUMMARY
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANDGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE 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%

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

TABLE 11: SUPPLEMENTAL OFF-SITE GROUNDWATER SAMPLE ANALYTICAL RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANDGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	ML002S_072616 16G1021-01 7/26/2016 1		ML002M_072616 16G1021-02 7/26/2016 1		MW10_072616 16G1021-05 7/26/2016 1		MW11_072616 16G1021-04 7/26/2016 1		MW13S_072616 16G1021-03 7/26/2016 50	
Volatile Organic Compounds (ug/L)											
1,1,1-Trichloroethane	5	0.20	U	0.20	U	0.26	J	0.20	U	**25**	
1,1,2-Trichloroethane	1	0.20	U	0.20	U	0.20	U	0.20	U	**1.20**	
1,1-Dichloroethane	5	0.20	U	0.20	U	0.83		0.20	U	**17**	
1,1-Dichloroethylene	5	0.20	U	0.20	U	0.77		0.20	U	**36**	
1,2,3-Trichloropropane	0.04	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U
1,2,4-Trimethylbenzene	5	0.28	J	0.20	J	0.20	U	0.20	U	0.20	U
1,2-Dibromo-3-chloropropane	0.04	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U	*0.20*	U
1,4-Dichlorobenzene	3	0.20	U	0.20	U	0.22	J	0.20	U	0.20	U
Acetone	50	1.80	JB	2	B	1	U	1	U	3.20	B
Benzene	1	0.20	U	0.20	U	0.20	U	0.20	U	**2**	
Bromodichloromethane	50	0.20	U	0.20	U	0.20	U	2.40		0.20	U
Chlorobenzene	5	0.59		0.20	U	0.74		0.20	U	0.20	U
Chloroform	7	0.20	U	0.28	J	1.30		**30**		2.60	
cis-1,2-Dichloroethylene	5	0.97		0.24	J	**11**		0.20	U	**72**	
Methyl tert-butyl ether (MTBE)	10	1.30		0.59		0.77		0.20	U	0.43	J
tert-Butyl alcohol (TBA)	~	2.60		2		0.50	U	0.50	U	0.50	U
Tetrachloroethylene	5	**17**		**14**		**120**		1.50		**160**	
trans-1,2-Dichloroethylene	5	0.20	U	0.20	U	0.20	U	0.20	U	1.10	
Trichloroethylene	5	**20**		2.10		**57**		1		**2,700**	D
Trichlorofluoromethane	5	0.20	U	0.20	U	0.20	U	0.20	U	**18**	
Vinyl Chloride	2	0.20	U	0.20	U	0.20	U	0.20	U	**2.50**	
Total CVOCs	~	38.17		16.54		188.20		2.90		2,934.50	

Notes:
1. Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS) for Class GA water.
2. Only compounds with detections are shown.
3. Results exceeding the NYSDEC TOGS standards and guidance values are shaded and bolded.
4. ug/L = micrograms per liter
5. ~ = No regulatory limit has been established for this analyte.
6. Five monitoring wells were sampled as requested by the NYSDEC in an e-mail dated June 28, 2016.
7. CVOC = chlorinated volatile organic compound; this value is the sum of the cis-1,2-dichloroethylene, tetrachloroethylene, trichloroethylene, and vinyl chloride concentrations.

Qualifiers:
B = Analyte found in the analysis batch blank.
D = The sample was diluted per the dilution factor shown.
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.

Progress Report No. 15
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: September 2016

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this monthly progress report on behalf of J&H Holding Company, LLC (the "Participant"). Monthly progress report submittal to the New York State Department of Environmental Conservation (NYSDEC) is performed in accordance with the Brownfield Cleanup Agreement (BCA) and Section 3.2 of the NYSDEC-approved Interim Remedial Measures Work Plan (IRMWP), prepared by Langan, dated April 28, 2015, and revised June 16, 2015. This monthly progress report summarizes work performed at 491 Wortman Avenue, Brooklyn, New York (the "site") during September 2016.

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 (i.e. the eastern portion).

Environmental site investigations began in November 2008. Langan submitted the IRMWP, which the NYSDEC approved on June 18, 2015. Implementation of the IRMWP and the pending environmental activities are described further in this progress report.

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

On September 14, 2016, a second round of depth-to-groundwater data was collected from the shallow-screened, off-site groundwater monitoring wells. The well locations are shown on Figure 2.

On September 16, 2016, to determine the depth of the sewer line beneath Wortman Avenue, three Langan field engineers opened a nearby manhole and measured the depth of the sewer invert. Attempts were made to open two manholes located at the intersection of Wortman Avenue and Linwood Street using a manhole key and a crowbar; the attempts were unsuccessful because the manhole covers were jammed into the collar from vehicular traffic. A third manhole located at the intersection of Wortman Avenue and Essex Street was successfully opened; however, this manhole was filled with soil to about 3 feet below the cover. A laser measurement tool and standard tape measure were directed through a hole in one of the manhole covers located at Wortman Avenue and Linwood Street, and both tools encountered an "obstruction" at about 3 feet below the manhole cover. The manhole locations are shown on Figure 2.

On September 29, 2016, 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), after the lead vGAC unit and prior to the lag vGAC unit (i.e., mid-point), and after the lag vGAC unit (i.e., effluent). Routine equipment maintenance, including greasing the blower and checking the belt tensions, was also 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
- Preparation and submission of a Remedial Action Work Plan
- Resolution or completion of supplemental off-site investigational activities

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.
- A mid-point vapor sample was collected from the AS/SVE system and analyzed for VOCs via 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 York Analytical Laboratories Inc. (York) of Stratford, CT. York 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 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 Summary
- Table 2: AS/SVE System Vapor Sampling Results

- Table 3: AS/SVE System Mass Removal – PID Data
- Table 4: AS/SVE System Mass Removal – Laboratory Data
- Table 5: AS/SVE System DAR-1 Compliance – September 29, 2016
- Table 6: 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 October 3, 2016 and since inception, the SVE system operated for 7,895 hours (95% uptime), and the AS system operated for 7,833 hours (94% 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 following is an update regarding the supplemental off-site investigational activities requested by the NYSDEC in an email dated September 8, 2016:

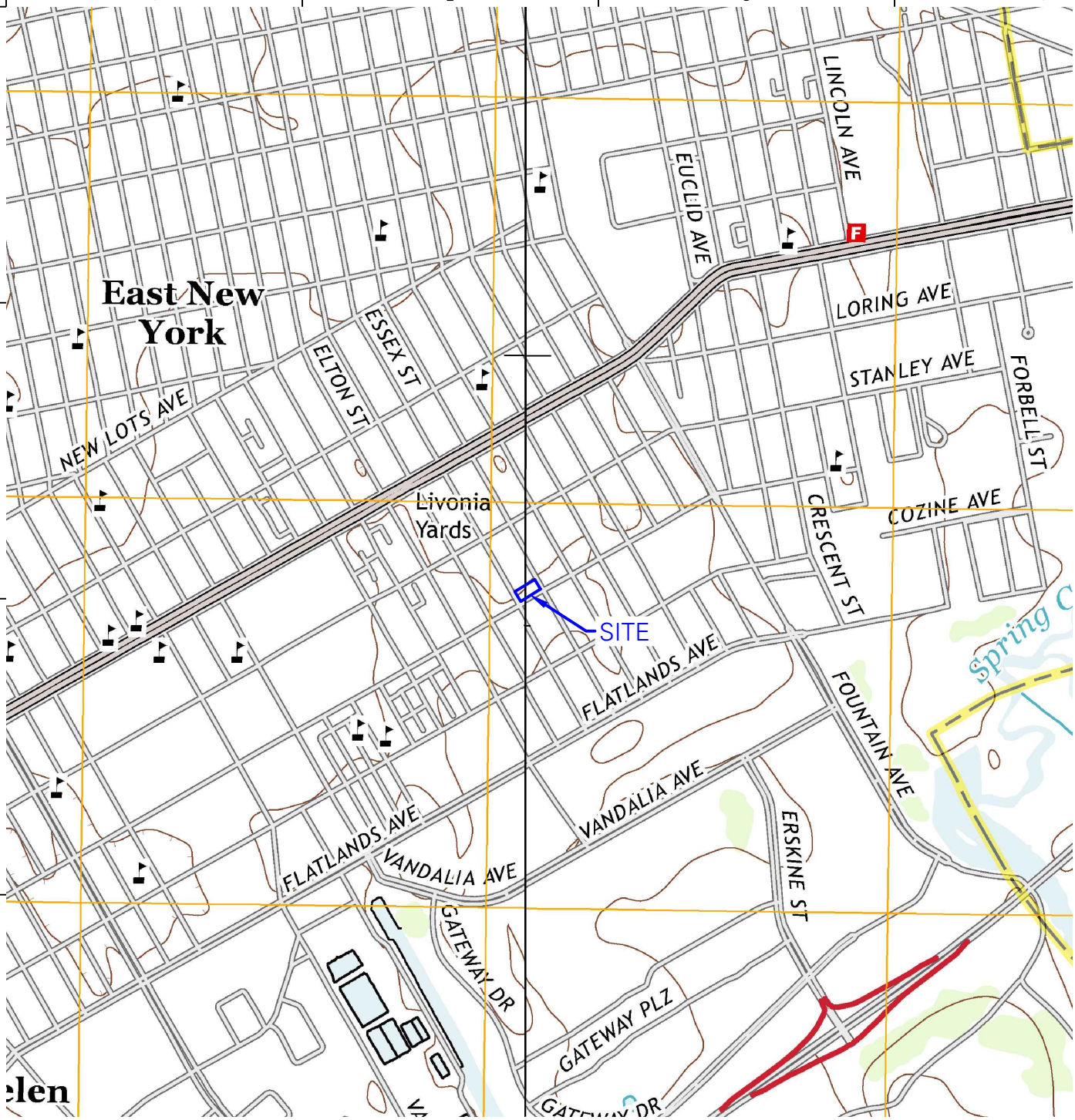
- Three figures showing the results of each groundwater sampling event at the shallow-, middle-, and deep-screened, off-site wells were provided to the NYSDEC via email on September 20, 2016. Copies of the maps are included with this monthly report as Figures 3, 4 and 5.
- A map showing the properties that received off-site access letters and the status of each request was provided to the NYSDEC via email on September 20, 2016. A copy of the map is included with this monthly report as Figure 6.
- A shallow groundwater contour map based on the data collected on September 14, 2016, was provided to the NYSDEC via email on September 20, 2016. A copy of this map is included with this monthly report as Figure 7. The MW-010 data is still mildly

inconsistent with the neighboring wells; however, the overall groundwater flow direction is consistent with the middle and deep levels and the conceptual site model.

- All records provided by the New York City Department of Environmental Protection (DEP), which were submitted to the NYSDEC via email on September 20, 2016, are included as an attachment to this monthly report. The first two pages of the attachment were sent electronically by DEP on August 15, 2016, in response to our records request, and the remaining pages were obtained following a visit to DEP's Brooklyn office on September 14, 2016. Based on these records, the sewer line beneath Wortman Avenue directs flow to the west. The water line's flow direction and the depth of both the water and sewer lines could not be ascertained from the records provided by DEP. As described in Section 2 above, three Langan field engineers went out to the Site on September 16, 2016, to manually measure the depth of the sewer invert. Manual inspection was attempted at three manholes located in the vicinity of the Site. Two of the manholes could not be opened and the third was found to be filled with soil. The additional data and information obtained from DEP does not indicate a preferential pathway to MW13 (shallow) and, in consideration of the other lines of evidence, we maintain our conclusion that the primary impacts to MW13 (shallow) are related to a different contaminant source.
- The following was our response to the NYSDEC's comment regarding the lack of decrease in chlorinated VOC (CVOC) concentrations at off-site groundwater monitoring well MW-6:

  During the first and second quarter groundwater sampling events, the CVOC concentration observed at MW-6 decreased by 45% and 68%, respectively, when compared to the baseline CVOC concentrations. During the third quarter groundwater sampling event, the observed CVOC concentrations were roughly the same as the baseline. Based on the data collected during the monthly system inspections, the nearest SVE well (about 16 feet from SVE-12) and the nearest AS well (about 25 feet from AS-8) to MW-6 experienced lower than average recorded vacuums and pressures, respectively, in the months leading up to the third quarter groundwater sampling event. It is possible that during this time, the AS/SVE system had little to no influence over MW-6. Since the third quarter sampling event, the pressures at AS-8 and the vacuums at SVE-12 have been recorded at values higher than the average; therefore, we anticipate a reduction in the CVOC concentration at MW-6 during the fourth quarter groundwater sampling event. If a significant reduction in CVOC concentration is not observed, the next step will be to conduct a "radius-of-influence" field test at MW-6 to determine whether the AS/SVE system is influencing the area around the well.

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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Project

491 WORTMAN AVENUE

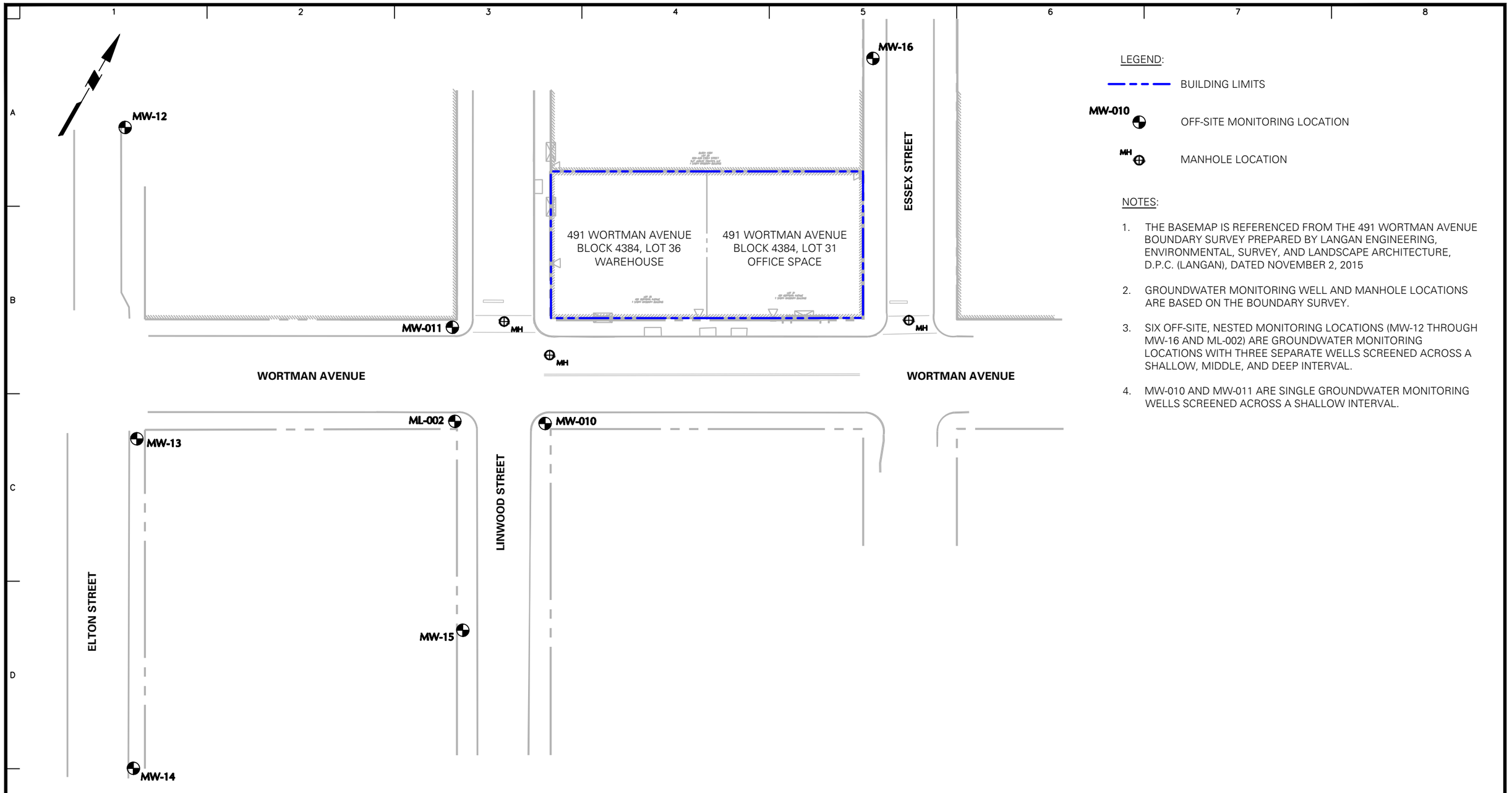
BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS NEW YORK

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 7

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 15\Figure 1 - Site Location Map - Updated.dwg Date: 10/3/2016 Time: 10:51 User: mrogers Style Table: Langan.stb Layout: Site Location Map



LEGEND:

- BUILDING LIMITS
- MW-010 — OFF-SITE MONITORING LOCATION
- MH — MANHOLE 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 AND MANHOLE LOCATIONS ARE BASED ON THE BOUNDARY SURVEY.
3. SIX OFF-SITE, NESTED MONITORING LOCATIONS (MW-12 THROUGH MW-16 AND ML-002) ARE GROUNDWATER MONITORING LOCATIONS WITH THREE SEPARATE WELLS SCREENED ACROSS A SHALLOW, MIDDLE, AND DEEP INTERVAL.
4. MW-010 AND MW-011 ARE SINGLE GROUNDWATER MONITORING WELLS SCREENED ACROSS A SHALLOW INTERVAL.

WARNING: □T □S □ □□OL□T□ON OF T□□ NYS □DUC□T□ON L□W □RT□CL□ 145 FOR □NY P□RSON, UNL□SS □□ □S □CT□N□ UND□R T□□ D□R□CT□ON OF □ L□C□NS□D PROF□SS□ONAL □N□ □N□□R, TO □LT□R T□S □T□M □N □NY W□Y.

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Figure Title
OFF-SITE GROUNDWATER MONITORING WELL AND MANHOLE LOCATIONS

Project No. 170329301	Figure No. 2
Date 10/03/2016	
Scale AS SHOWN	
Drawn By MLR / Checked By GN	
Submission Date	Sheet 2 of 7

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 15\Figure 2 - O□-Site MW Locations.dwg Date: 10/3/2016 Time: 11:20 User: mrogers Style Table: Langan.stb Layout: □NS□□-□L

Location	MW012-S			
Sampling Date	Nov. 2014		Apr. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	0.2	U	0.2	U
1,1-Dichloroethane	0.2	U	0.2	U
1,1-Dichloroethylene	0.2	U	0.2	U
cis-1,2-Dichloroethylene	0.2	U	0.2	U
Tetrachloroethylene	0.64		0.2	U
Trichloroethylene	2.5		0.2	U
Vinyl Chloride	0.2	U	0.2	U

Location	MW011			
Sampling Date	Oct. 2013		Jul. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	*6.2*	U	0.2	U
1,1-Dichloroethane	*6.2*	U	0.2	U
1,1-Dichloroethylene	1.2	U	0.2	U
cis-1,2-Dichloroethylene	**10**		0.2	U
Tetrachloroethylene	**240**		1.5	
Trichloroethylene	**110**		1	
Vinyl Chloride	*2.5*	U	0.2	U

Location	MW013-S					
Sampling Date	Nov. 2014		Apr. 2016		Jul. 2016	
Volatile Organic Compounds (µg/L)						
1,1,1-Trichloroethane	1.5		**17**	D	**25**	
1,1-Dichloroethane	**6.4**		**11**	D	**17**	
1,1-Dichloroethylene	**8.7**		**24**	D	**36**	
cis-1,2-Dichloroethylene	**58**	D	**52**	D	**72**	
Tetrachloroethylene	**140**	D	**110**	D	**160**	
Trichloroethylene	**1300**	D	**2100**	D	**2700**	D
Vinyl Chloride	**2.7**		**2.1**	JD	**2.5**	

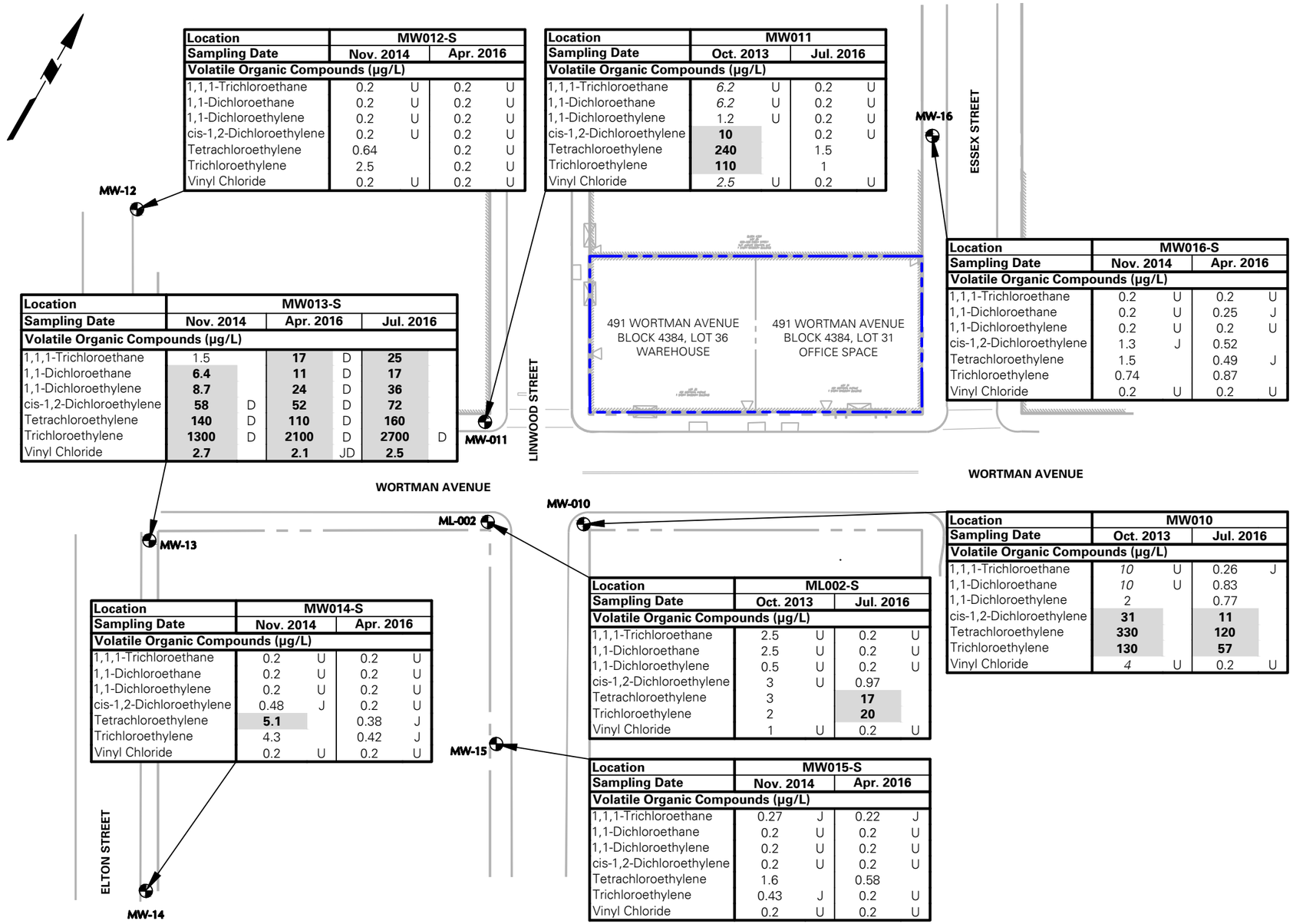
Location	MW016-S			
Sampling Date	Nov. 2014		Apr. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	0.2	U	0.2	U
1,1-Dichloroethane	0.2	U	0.25	J
1,1-Dichloroethylene	0.2	U	0.2	U
cis-1,2-Dichloroethylene	1.3	J	0.52	
Tetrachloroethylene	1.5		0.49	J
Trichloroethylene	0.74		0.87	
Vinyl Chloride	0.2	U	0.2	U

Location	MW010			
Sampling Date	Oct. 2013		Jul. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	*10*	U	0.26	J
1,1-Dichloroethane	*10*	U	0.83	
1,1-Dichloroethylene	2		0.77	
cis-1,2-Dichloroethylene	**31**		**11**	
Tetrachloroethylene	**330**		**120**	
Trichloroethylene	**130**		**57**	
Vinyl Chloride	*4*	U	0.2	U

Location	MW014-S			
Sampling Date	Nov. 2014		Apr. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	0.2	U	0.2	U
1,1-Dichloroethane	0.2	U	0.2	U
1,1-Dichloroethylene	0.2	U	0.2	U
cis-1,2-Dichloroethylene	0.48	J	0.2	U
Tetrachloroethylene	**5.1**		0.38	J
Trichloroethylene	4.3		0.42	J
Vinyl Chloride	0.2	U	0.2	U

Location	ML002-S			
Sampling Date	Oct. 2013		Jul. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	2.5	U	0.2	U
1,1-Dichloroethane	2.5	U	0.2	U
1,1-Dichloroethylene	0.5	U	0.2	U
cis-1,2-Dichloroethylene	3	U	0.97	
Tetrachloroethylene	3		**17**	
Trichloroethylene	2		**20**	
Vinyl Chloride	1	U	0.2	U

Location	MW015-S			
Sampling Date	Nov. 2014		Apr. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	0.27	J	0.22	J
1,1-Dichloroethane	0.2	U	0.2	U
1,1-Dichloroethylene	0.2	U	0.2	U
cis-1,2-Dichloroethylene	0.2	U	0.2	U
Tetrachloroethylene	1.6		0.58	
Trichloroethylene	0.43	J	0.2	U
Vinyl Chloride	0.2	U	0.2	U



LEGEND:

BUILDING LIMITS

MW-010 OFF-SITE MONITORING WELL

NOTES:

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7. U = ANALYTE NOT DETECTED AT OR ABOVE THE LEVEL INDICATED.

Analyte	NYSDEC TOGS Standards and Guidance Values
Volatile Organic Compounds (µg/L)	
1,1,1-Trichloroethane	5
1,1-Dichloroethane	5
1,1-Dichloroethylene	5
cis-1,2-Dichloroethylene	5
Tetrachloroethylene	5
Trichloroethylene	5
Vinyl Chloride	2

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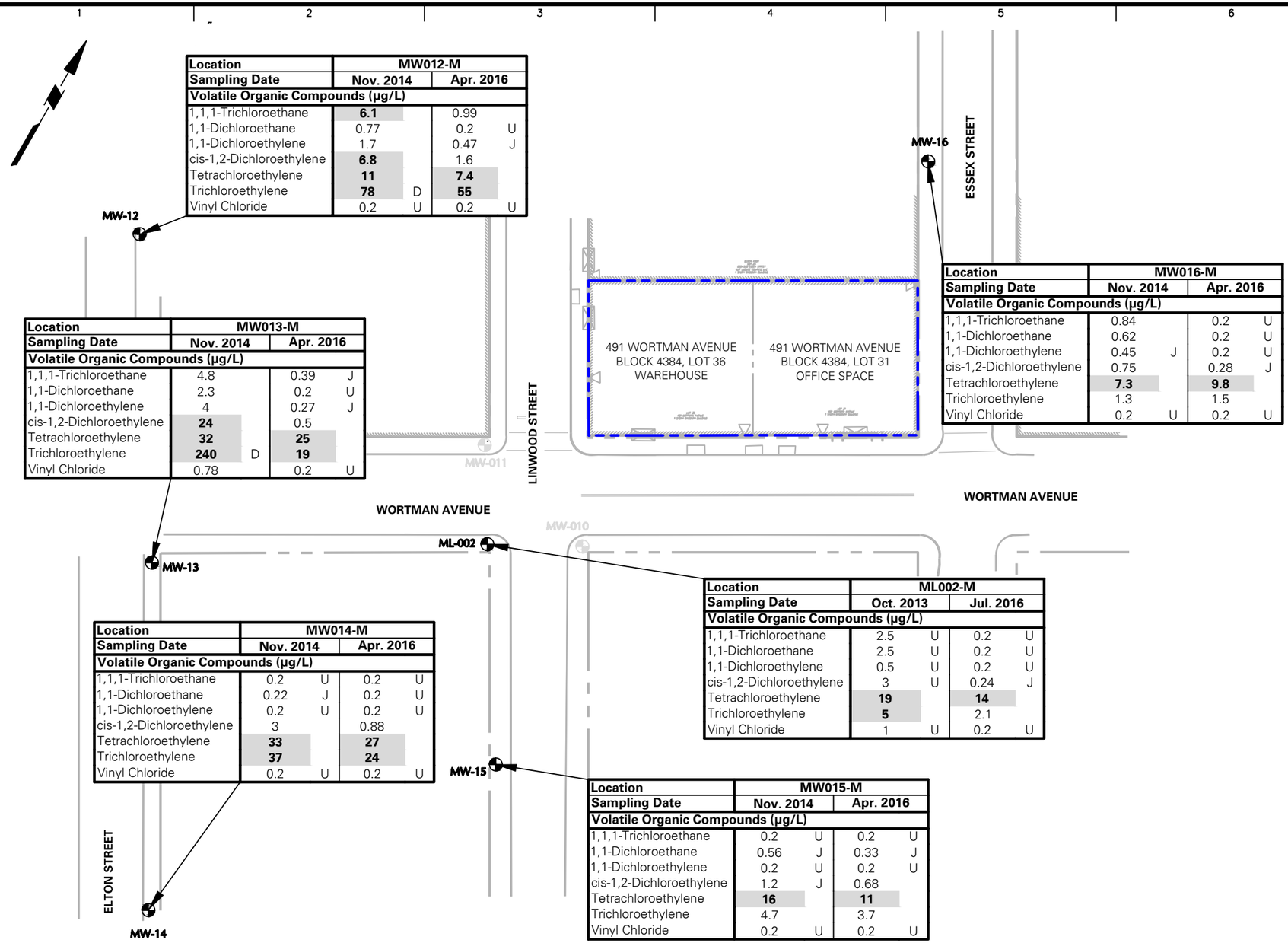
Figure Title
GROUNDWATER SAMPLING RESULTS SHALLOW-SCREENED MONITORING WELLS

Project No. 170329301	Figure No. 3
Date 9/12/2016	
Scale AS SHOWN	
Drawn By AJ / Checked By MLR	
Submission Date	Sheet 3 of 7

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 15\Figure 3 - o□site shallow results.dwg Date: 10/3/2016 Time: 10:54 User: mrogers Style Table: Langan.stb Layout: □NS□-□L



Location	MW012-M			
Sampling Date	Nov. 2014		Apr. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	**6.1**		0.99	
1,1-Dichloroethane	0.77		0.2	U
1,1-Dichloroethylene	1.7		0.47	J
cis-1,2-Dichloroethylene	**6.8**		1.6	
Tetrachloroethylene	**11**		**7.4**	
Trichloroethylene	**78**	D	**55**	
Vinyl Chloride	0.2	U	0.2	U

Location	MW013-M			
Sampling Date	Nov. 2014		Apr. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	4.8		0.39	J
1,1-Dichloroethane	2.3		0.2	U
1,1-Dichloroethylene	4		0.27	J
cis-1,2-Dichloroethylene	**24**		0.5	
Tetrachloroethylene	**32**		**25**	
Trichloroethylene	**240**	D	**19**	
Vinyl Chloride	0.78		0.2	U

Location	MW016-M			
Sampling Date	Nov. 2014		Apr. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	0.84		0.2	U
1,1-Dichloroethane	0.62		0.2	U
1,1-Dichloroethylene	0.45	J	0.2	U
cis-1,2-Dichloroethylene	0.75		0.28	J
Tetrachloroethylene	**7.3**		**9.8**	
Trichloroethylene	1.3		1.5	
Vinyl Chloride	0.2	U	0.2	U

Location	ML002-M			
Sampling Date	Oct. 2013		Jul. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	2.5	U	0.2	U
1,1-Dichloroethane	2.5	U	0.2	U
1,1-Dichloroethylene	0.5	U	0.2	U
cis-1,2-Dichloroethylene	3	U	0.24	J
Tetrachloroethylene	**19**		**14**	
Trichloroethylene	**5**		2.1	
Vinyl Chloride	1	U	0.2	U

Location	MW014-M			
Sampling Date	Nov. 2014		Apr. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	0.2	U	0.2	U
1,1-Dichloroethane	0.22	J	0.2	U
1,1-Dichloroethylene	0.2	U	0.2	U
cis-1,2-Dichloroethylene	3		0.88	
Tetrachloroethylene	**33**		**27**	
Trichloroethylene	**37**		**24**	
Vinyl Chloride	0.2	U	0.2	U

Location	MW015-M			
Sampling Date	Nov. 2014		Apr. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	0.2	U	0.2	U
1,1-Dichloroethane	0.56	J	0.33	J
1,1-Dichloroethylene	0.2	U	0.2	U
cis-1,2-Dichloroethylene	1.2	J	0.68	
Tetrachloroethylene	**16**		**11**	
Trichloroethylene	4.7		3.7	
Vinyl Chloride	0.2	U	0.2	U

LEGEND:

- BUILDING LIMITS
- MW-012 — OFF-SITE MONITORING WELL
- MW-010 — OFF-SITE MONITORING WELL (SHALLOW-SCREENED INTERVAL ONLY)

NOTES:

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7. U = ANALYTE NOT DETECTED AT OR ABOVE THE LEVEL INDICATED.

Analyte	NYSDEC TOGS Standards and Guidance Values
Volatile Organic Compounds (µg/L)	
1,1,1-Trichloroethane	5
1,1-Dichloroethane	5
1,1-Dichloroethylene	5
cis-1,2-Dichloroethylene	5
Tetrachloroethylene	5
Trichloroethylene	5
Vinyl Chloride	2

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Figure Title
GROUNDWATER SAMPLING RESULTS MIDDLE-SCREENED MONITORING WELLS

Project No.	Figure No.
170329301	4
Date: 9/12/2016	
Scale: AS SHOWN	
Drawn By: AJ / Checked By: MLR	
Submission Date	Sheet 4 of 7

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 15\Figure 4 - o□site middle results.dwg Date: 10/3/2016 Time: 10:55 User: mrogers Style Table: Langan.stb Layout: □NS□-□L

Location	MW012-D			
Sampling Date	Nov. 2014		Apr. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	0.2	U	0.2	U
1,1-Dichloroethane	0.2	U	0.2	U
1,1-Dichloroethylene	0.2	U	0.2	U
cis-1,2-Dichloroethylene	0.3	J	0.2	U
Tetrachloroethylene	**17**		0.7	
Trichloroethylene	**7.2**		2.5	
Vinyl Chloride	0.2	U	0.2	U

Location	MW013-D			
Sampling Date	Nov. 2014		Apr. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	0.57		0.2	U
1,1-Dichloroethane	0.2	U	0.2	U
1,1-Dichloroethylene	0.29	J	0.2	U
cis-1,2-Dichloroethylene	0.43	J	0.24	J
Tetrachloroethylene	**13**		**12**	
Trichloroethylene	**7.4**		4.7	
Vinyl Chloride	0.2	U	0.2	U

Location	MW014-D			
Sampling Date	Nov. 2014		Apr. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	0.2	U	0.2	U
1,1-Dichloroethane	0.2	U	0.2	U
1,1-Dichloroethylene	0.2	U	0.2	U
cis-1,2-Dichloroethylene	0.4	J	0.31	J
Tetrachloroethylene	**18**		**13**	
Trichloroethylene	**7**		3.6	
Vinyl Chloride	0.2	U	0.2	U

Location	ML002-D	
Sampling Date	Oct. 2013	
Volatile Organic Compounds (µg/L)		
1,1,1-Trichloroethane	2.5	U
1,1-Dichloroethane	2.5	U
1,1-Dichloroethylene	0.5	U
cis-1,2-Dichloroethylene	3	U
Tetrachloroethylene	**14**	
Trichloroethylene	2.5	U
Vinyl Chloride	1	U

Location	MW015-D			
Sampling Date	Nov. 2014		Apr. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	0.2	U	0.2	U
1,1-Dichloroethane	0.2	U	0.2	U
1,1-Dichloroethylene	0.2	U	0.2	U
cis-1,2-Dichloroethylene	0.32	J	0.27	J
Tetrachloroethylene	**14**		**14**	
Trichloroethylene	2.4		2.4	
Vinyl Chloride	0.2	U	0.2	U

Location	MW016-D			
Sampling Date	Nov. 2014		Apr. 2016	
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	0.2	U	0.2	U
1,1-Dichloroethane	0.2	U	0.2	U
1,1-Dichloroethylene	0.2	U	0.2	U
cis-1,2-Dichloroethylene	0.39	J	0.26	J
Tetrachloroethylene	**15**		**15**	
Trichloroethylene	0.98		1	
Vinyl Chloride	0.2	U	0.2	U

MW-12 MW-13 MW-14 MW-15 MW-16 ML-002 MW-011 MW-010

491 WORTMAN AVENUE BLOCK 4384, LOT 36 WAREHOUSE

491 WORTMAN AVENUE BLOCK 4384, LOT 31 OFFICE SPACE

LINWOOD STREET

ESSEX STREET

WORTMAN AVENUE

WORTMAN AVENUE

ELTON STREET

LEGEND:

- BUILDING LIMITS
- MW-012 OFF-SITE MONITORING WELL
- MW-010 OFF-SITE MONITORING WELL (SHALLOW-SCREENED INTERVAL ONLY)

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5. D = RESULT IS FROM AN ANALYSIS THAT REQUIRED DILUTION.
6. J = ANALYTE DETECTED AT OR ABOVE THE METHOD DETECTION LIMIT (MDL) BUT BELOW THE REPORTING LIMIT (RL). DATA IS ESTIMATED.
7. U = ANALYTE NOT DETECTED AT OR ABOVE THE LEVEL INDICATED.

Analyte	NYSDEC TOGS Standards and Guidance Values
Volatile Organic Compounds (µg/L)	
1,1,1-Trichloroethane	5
1,1-Dichloroethane	5
1,1-Dichloroethylene	5
cis-1,2-Dichloroethylene	5
Tetrachloroethylene	5
Trichloroethylene	5
Vinyl Chloride	2

70 0 35 70

SCALE IN FEET

LANGAN
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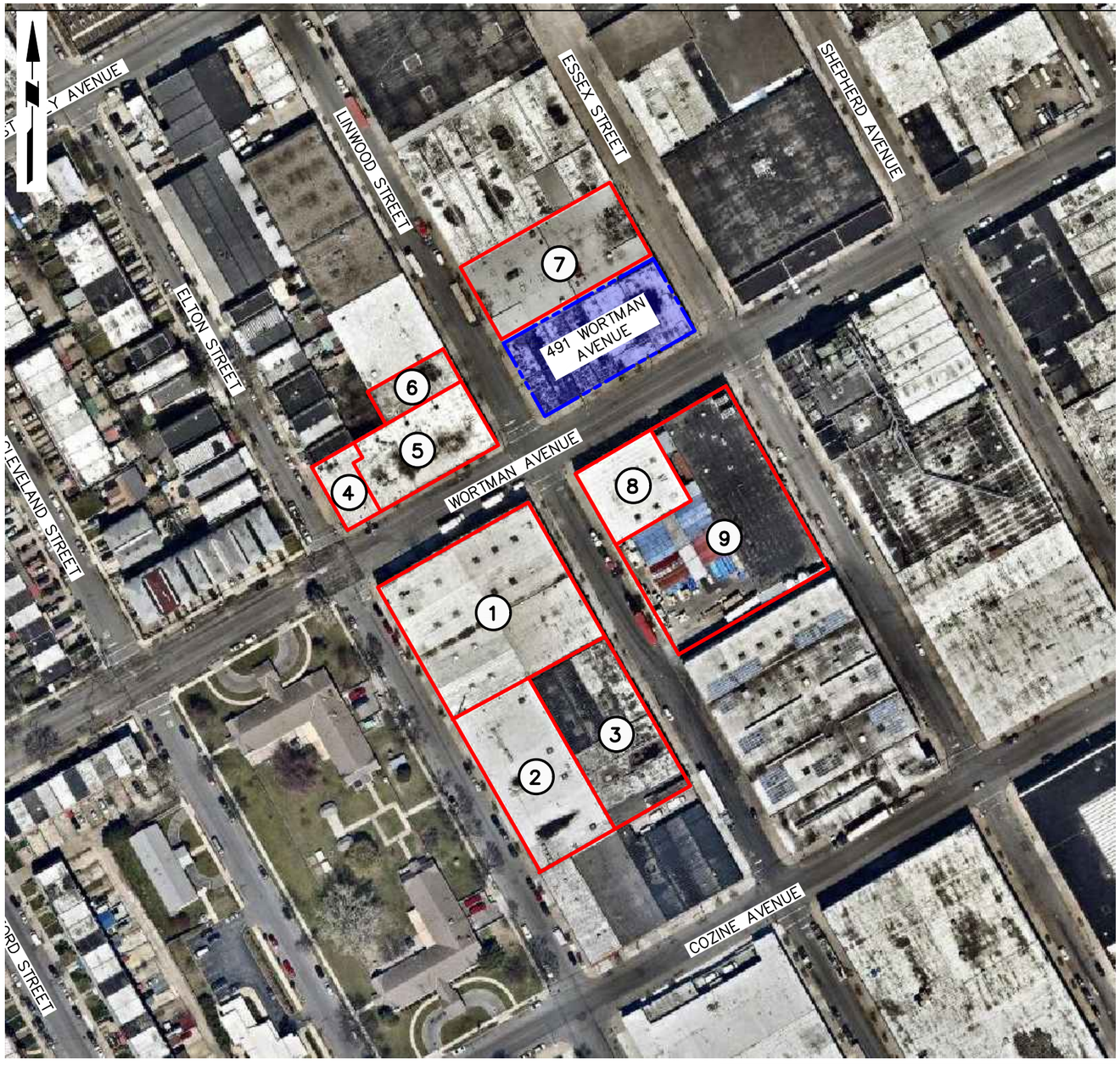
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan Engineering and Environmental Services, Inc.
Langan CT, Inc.
Langan International LLC
Collectively known as Langan

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

Figure Title
GROUNDWATER SAMPLING RESULTS DEEP-SCREENED MONITORING WELLS

Project No. 170329301	Figure No. 5
Date 9/12/2016	
Scale AS SHOWN	
Drawn By AJ / Checked By MLR	
Submission Date	Sheet 5 of 7

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 15\Figure 5 - offsite deep results.dwg Date: 10/3/2016 Time: 10:57 User: mrogers Style Table: Langan.stb Layout: ANSI-L



LEGEND:

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE SURROUNDING PROPERTY BOUNDARIES
- (1) IDENTIFYING NO. FOR OFF-SITE ACCESS LETTER RECIPIENT

NOTES:

1. BASE MAP IS REFERENCED FROM NEARMAP, ACCESSED ON APRIL 16, 2016.
2. THE ADDRESSES OF THE ADJACENT PROPERTIES TO WHICH OFF-SITE ACCESS LETTERS HAVE BEEN SENT ARE SHOWN ON THE MAP AS FOLLOWS:

(1) 458 WORTMAN AVENUE
OWNER: SOIEFER BROTHER'S REALTY CO.
SENT: UNKNOWN

(2) 961 ELTON STREET
OWNER: SOIEFER BROTHER'S REALTY CO.
SENT: 8/3/2016

(3) 1044 LINWOOD STREET
OWNER: SOIEFER BROTHER'S REALTY CO.
SENT: UNKNOWN

(4) 457 WORTMAN AVENUE
OWNER: SOIEFER BROTHER'S REALTY CO.
SENT: 8/3/2016

(5) 465 WORTMAN AVENUE
OWNER: SOIEFER BROTHER'S REALTY CO.
SENT: 12/16/2014

(6) 1006 LINWOOD STREET
OWNER: SOIEFER BROTHER'S REALTY CO.
SENT: 8/3/2016

(7) 920 ESSEX STREET
OWNER: ZIFF REALTY CO LLC
SENT 12/16/2014

(8) 482 WORTMAN AVENUE
OWNER: SELAR REALTY CORP
SENT 8/3/2016

(9) 494 WORTMAN AVENUE
OWNER: ASLAN HOLDINGS CORP
SENT: 8/3/2016 & 9/7/2016

3. CERTIFIED LETTERS WERE SENT TO THE OWNERS OF PROPERTIES 1 AND 3 BY P.W. GROSSER CONSULTING.
4. CERTIFIED LETTERS WERE SENT TO THE OWNERS OF PROPERTIES 2, 4, 5, 6, 7, 8, AND 9 BY LANGAN.
5. SIGNED RECEIPTS WERE RETURNED BY THE OWNERS OF PROPERTIES 1, 2, 3, 4, 5, 6, AND 7. LANGAN OR P.W. GROSSER WERE NOT CONTACTED FOR A SITE VISIT.
6. NO ACKNOWLEDGMENT OR RESPONSE HAS BEEN RECEIVED FROM THE OWNERS OF PROPERTIES 8 AND 9.
7. THE LETTER SENT TO THE OWNER OF PROPERTY 9 ON 8/3/2016 WAS RETURNED TO SENDER. THE LETTER WAS RESENT ON 9/7/2016 TO A SECOND ADDRESS ASSOCIATED WITH THE OWNER.

150 0 75 150
SCALE IN FEET

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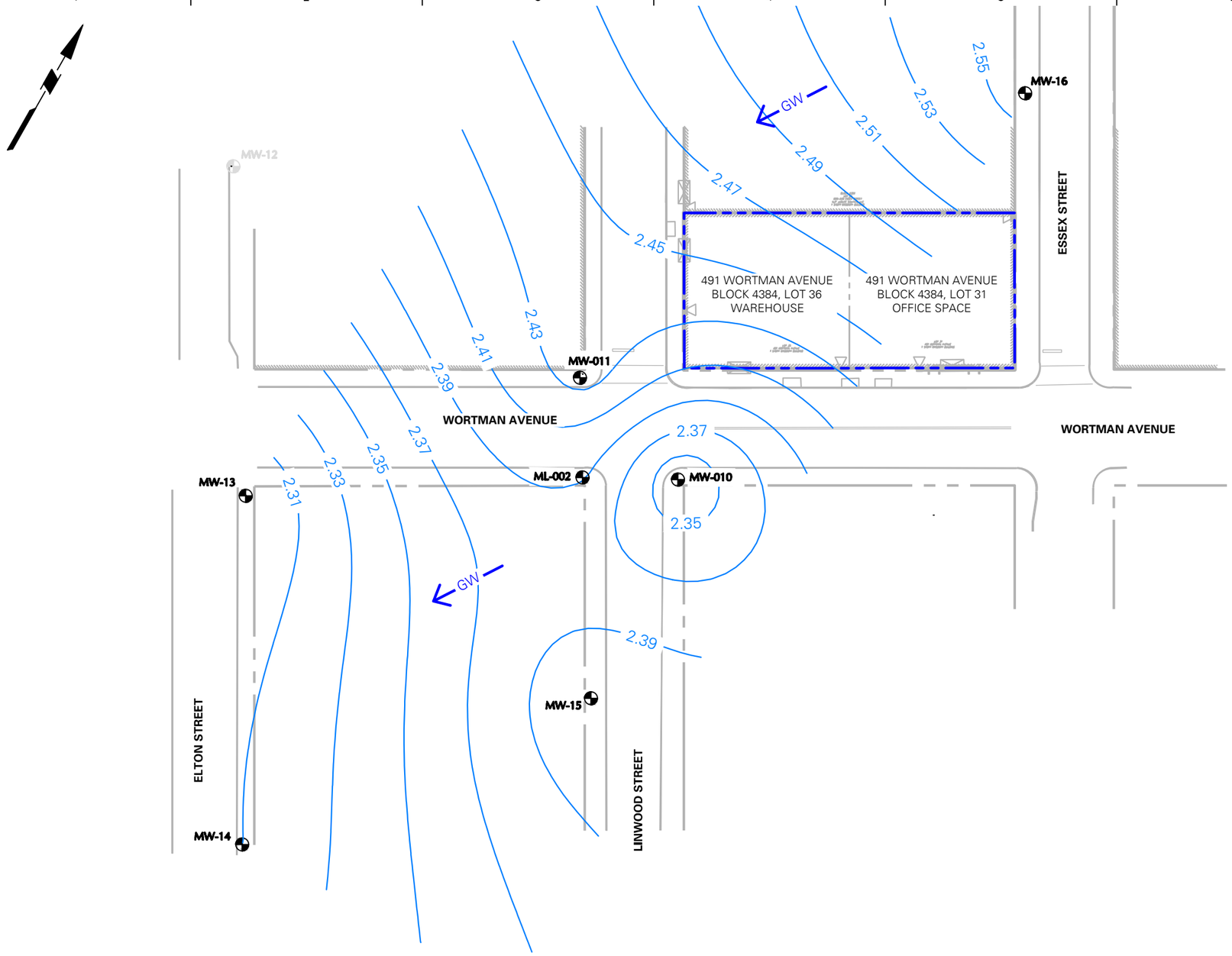
Project
491 WORTMAN AVENUE
BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS NEW YORK

Figure Title
OFF-SITE ACCESS LETTER RECIPIENTS

Project No. 170329301	Figure No. 6
Date 09/12/2016	
Scale 1"=150'	
Drawn By AJ / Checked By MR	
Submission Date	Sheet 6 of 7

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 15\Figure 6 - O□Site □ccess Letter Recipients.dwg Date: 10/3/2016 Time: 11:00 User: mrogers Style Table: Langan.stb Layout: Well Layout Plan □nd Detail



LEGEND:

- BUILDING LIMITS
- MW-010 — OFF-SITE MONITORING WELL (GAUGED SEPTEMBER 16, 2016)
- MW-12 — OFF-SITE MONITORING WELL (NOT GAUGED)
- SHALLOW GROUNDWATER ELEVATION CONTOUR
- GW — INFERRED GROUNDWATER FLOW DIRECTION

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. THE GROUNDWATER CONTOURS ARE BASED ON DEPTH TO GROUNDWATER MEASUREMENTS TAKEN ON SEPTEMBER 16, 2016.
3. GROUNDWATER ELEVATION CONTOURS ARE PRESENTED IN 0.02-FOOT INTERVALS.
4. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
5. SURFER 11 BY GOLDEN SOFTWARE WAS USED TO DEVELOP THE GROUNDWATER CONTOURS.
6. SHALLOW MONITORING WELLS (SCREENED ACROSS THE GROUNDWATER TABLE) WERE INCLUDED IN THE MODEL.
7. ACCESS TO MW-12 COULD NOT BE OBTAINED AND AS SUCH, THE SHALLOW-SCREENED WELL WAS NOT GAUGED DURING THIS ROUND.

WARNING: □T □S □ □□OL□T□ON OF T□□ NYS □DUC□T□ON L□W □RT□CL□ 145 FOR □NY P□RSON, UNL□SS □□ □S □CT□N□ UND□R T□□ D□R□CT□ON OF □ L□C□NS□D PROF□SS□ONA□L □N□□N□□R, TO □LT□R T□S □T□M □N □NY W□Y.

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SCALE IN FEET

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

Figure Title
GROUNDWATER CONTOUR MAP SHALLOW-SCREENED MONITORING WELLS

Project No. 170329301	Figure No. 7
Date 9/16/2016	
Scale AS SHOWN	
Drawn By KDC / Checked By MLR	
Submission Date	Sheet 7 of 7

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 15\Figure 7 - Shallow O□Site □W Contours.dwg Date: 10/3/2016 Time: 10:58 User: mrogers Style Table: Langan.stb Layout: □NS□-□L

TABLES

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING SUMMARY
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

SAMPLE NAME	SAMPLE DATE	SAMPLE TYPE	LOCATION	ANALYSIS
AS/SVE SYSTEM VAPOR SAMPLES				
Influent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Mid_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Mid-Point	TO-15 VOCs
Effluent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_052616	5/26/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_052616	5/26/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_062916	6/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_062916	6/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_072816	7/28/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_072816	7/28/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_083116	8/31/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_083116	8/31/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_092916	9/29/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Midpoint_092916	9/29/2016	One, 3-Liter Tedlar Bags	vGAAC Vessel Mid-Point	TO-15 VOCs
Effluent_092916	9/29/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs

Notes:

1. The vapor samples were analyzed for VOCs via USEPA Method TO-15.
2. USEPA = United States Environmental Protection Agency
3. VOCs = volatile organic compounds
4. AS/SVE = air sparge/soil vapor extraction
5. vGAC = vapor-phase granular activated carbon

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC MID-POINT		vGAC EFFLUENT	
SAMPLE ID	Influent_092916		Midpoint_092916		Effluent_092916	
LAB SAMPLE ID	16I1118-01		16I1118-02		16I1118-03	
SAMPLE DATE	9/29/2016		9/29/2016		9/29/2016	
Volatile Organic Compounds (ug/m^3)						
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U
1,1,1-Trichloroethane	5.50	U	5.50	U	5.50	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U	4	U
1,1-Dichloroethylene	4	U	4	U	4	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U	6	U
1,2-Dichloroethane	4	U	4	U	4	U
1,2-Dichloropropane	36	D	4.60	U	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U	7	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U	4.90	U
1,3-Butadiene	6.60	U	6.60	U	6.60	U
1,3-Dichlorobenzene	6	U	6	U	6	U
1,3-Dichloropropane	4.60	U	4.60	U	4.60	U
1,4-Dichlorobenzene	6	U	6	U	6	U
1,4-Dioxane	7.20	U	7.20	U	7.20	U
2-Butanone	8.30	D	5	D	4.70	D
2-Hexanone	9	D	8.20	U	8.20	U
3-Chloropropene	16	U	16	U	16	U
4-Methyl-2-pentanone	11	D	5.70	D	5.70	D
Acetone	43	D	54	D	51	D
Acrylonitrile	2.20	U	2.20	U	2.20	U
Benzene	5.40	D	3.20	U	3.20	U
Benzyl chloride	5.20	U	5.20	U	5.20	U
Bromodichloromethane	6.70	U	6.70	U	6.70	U
Bromoform	10	U	10	U	10	U
Bromomethane	3.90	U	3.90	U	3.90	U
Carbon disulfide	3.10	U	3.10	U	3.10	U
Carbon tetrachloride	1.60	U	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U	2.60	U
Chloroform	4.90	U	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U	2.10	U
cis-1,2-Dichloroethylene	4	U	4	D	4	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U
Cyclohexane	3.40	U	3.40	U	3.40	U
Dibromochloromethane	8.50	U	8.50	U	8.50	U
Dichlorodifluoromethane	4.90	U	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U	7.20	U
Ethyl Benzene	4.30	U	4.30	U	4.30	U
Hexachlorobutadiene	11	U	11	U	11	U
Isopropanol	4.90	U	4.90	U	4.90	U
Methyl Methacrylate	38	D	33	D	29	D
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U	3.60	U
Methylene chloride	9.70	D	50	D	50	D
n-Heptane	4.10	U	4.10	U	4.10	U
n-Hexane	3.50	U	29	D	30	D
o-Xylene	4.30	U	4.30	U	4.30	U
p- & m- Xylenes	8.70	U	8.70	U	8.70	U
p-Ethyltoluene	4.90	U	4.90	U	4.90	U
Propylene	1.70	U	1.70	U	1.70	U
Styrene	4.30	U	4.30	U	4.30	U
Tetrachloroethylene	140	D	4.10	D	3.40	D
Tetrahydrofuran	5.90	U	5.90	U	5.90	U
Toluene	4.50	D	4.90	D	4.90	D
trans-1,2-Dichloroethylene	4	U	4	U	4	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U	4.50	U
Trichloroethylene	740	D	3.20	D	1.30	U
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
NT = This indicates the analyte was not a target for this sample.
U = The analyte was not detected at or above the level indicated.

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - PID DATA
491 WORTMAN AVENUE
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	1548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3693	100	0.002	1.43	85.34
4/29/2016	2.0	571	0.0	4322	100	0.018	11.14	96.48
5/26/2016	0.4	600	0.0	4972	100	0.004	2.42	98.90
6/29/2016	0.5	600	0.0	5784	100	0.005	3.78	102.68
7/28/2016	3.0	600	0.0	6431	100	0.028	18.06	120.73
8/31/2016	2.7	600	0.0	7110	100	0.025	17.05	137.79
9/29/2016	7.5	760	2.0	7802	100	0.065	44.85	182.63

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 4: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA
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)	VGAC MASS REMOVAL EFFICIENCY (%)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99	92
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44	97
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36	95
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18	86
12/28/2015	3,357	570	230	1548	53.58	3.67	49.91	4.18	16.55	3.89	15.08	93
1/27/2016	621	525	183	2180	9.13	2.69	6.44	0.76	17.31	0.54	15.62	71
2/24/2016	1,454	578	283	2854	23.53	4.58	18.94	2.10	19.41	1.69	17.31	81
3/30/2016	825	550	75	3693	12.71	1.16	11.55	1.41	20.82	1.28	18.59	91
4/29/2016	482	571	112	4322	7.70	1.79	5.91	0.64	21.46	0.49	19.08	77
5/26/2016	1,169	600	162	4972	19.64	2.73	16.91	1.69	23.15	1.45	20.53	86
6/29/2016	1,865	600	190	5784	31.33	3.19	28.14	3.37	26.51	3.02	23.56	90
7/28/2016	3,706	600	232	6431	62.26	3.90	58.36	5.33	31.84	4.99	28.55	94
8/31/2016	4,798	600	135	7110	80.61	2.26	78.35	7.24	39.08	7.04	35.59	97
9/29/2016	1,045	760	179	7802	22.24	3.81	18.43	2.04	41.12	1.69	37.27	83

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 5: AS/SVE SYSTEM DAR-1 COMPLIANCE
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **9/29/2016**

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)													
2-Butanone	4.70	760	21.52092	1.34E-05	1.17E-01	1.05E-03	1.05E-03	6.83E-02	13000	5000	NO	NO	NO
4-Methyl-2-pentanone	5.70	760	21.52092	1.62E-05	1.42E-01	1.28E-03	1.27E-03	8.28E-02	31000	3000	NO	NO	NO
Acetone	51	760	21.52092	1.45E-04	1.27E+00	1.14E-02	1.14E-02	7.41E-01	180,000	30,000	NO	NO	NO
Methyl methacrylate	29	760	21.52092	8.24E-05	7.22E-01	6.49E-03	6.48E-03	4.21E-01	41,000	700	NO	NO	NO
Methylene chloride	50	760	21.52092	1.42E-04	1.24E+00	1.12E-02	1.12E-02	7.26E-01	14,000	60	NO	NO	NO
n-Hexane	30	760	21.52092	8.52E-05	7.47E-01	6.71E-03	6.70E-03	4.36E-01	--	700	NO	No Standard	NO
Tetrachloroethylene	3.40	760	21.52092	9.66E-06	8.46E-02	7.61E-04	7.60E-04	4.94E-02	300	4	NO	NO	NO
Toluene	4.90	760	21.52092	1.39E-05	1.22E-01	1.10E-03	1.10E-03	7.12E-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

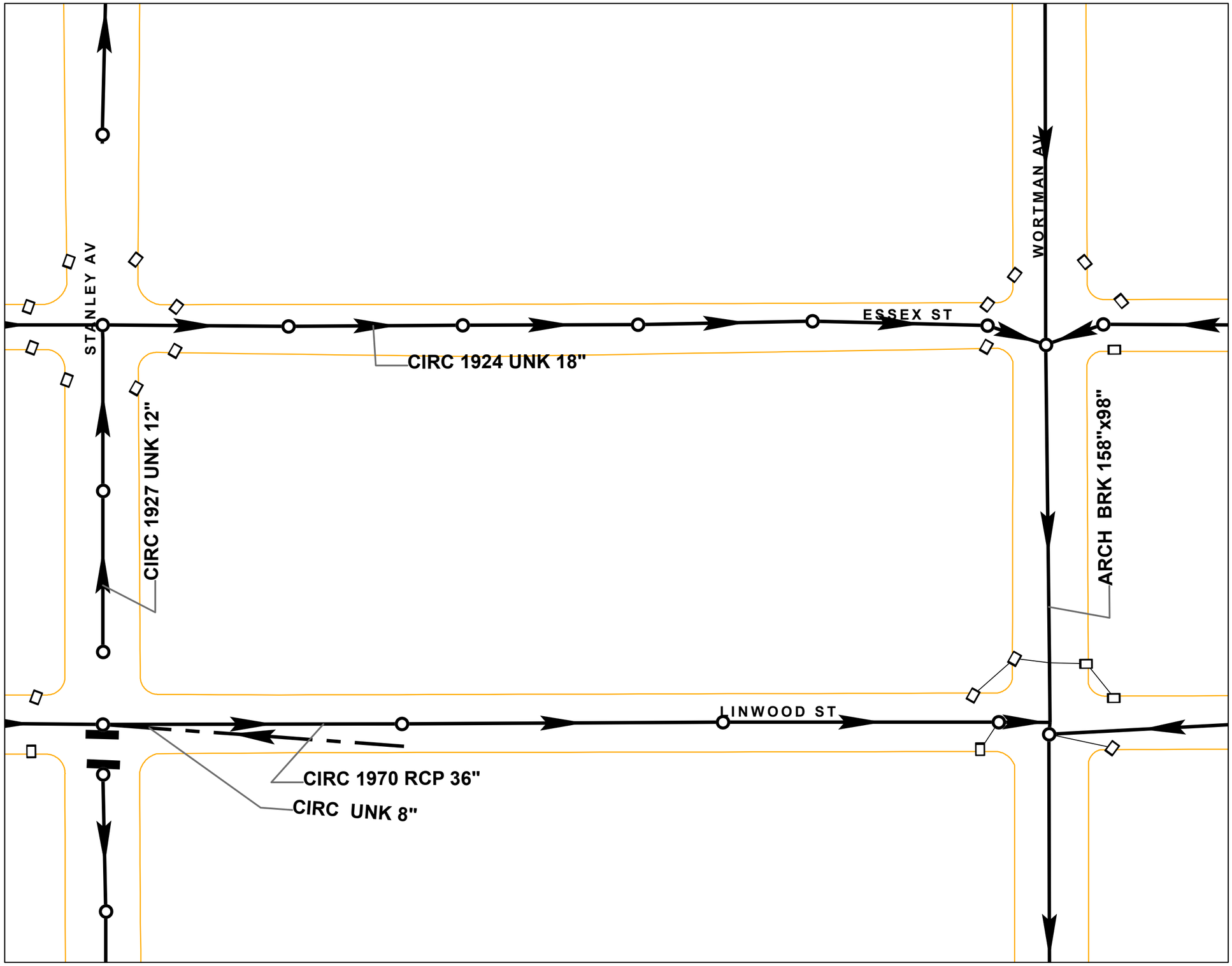
TABLE 6: AS/SVE SYSTEM ALARM HISTORY
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

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.

ATTACHMENT (MONTHLY REPORT NO. 15)

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

UTILITY RECORDS (SEWER AND WATER)



LEGEND:

NYC DEP

- Sanitary Sewer
- Storm Sewer
- Combined Sewer
- Combined Sewer Overflow
- Relief Storm Sewer
- Relief Combined Sewer
- Highway Drain
- Intercepting Sewer
- Intercepting Collector
- Branch Intercepting
- Intercepting Force Main
- Force Main
- Emergency Construction Sewer
- Catch Basin Connector
- Unknown Sewer
- Manhole
- Catch Basin
- Chamber
- Weir Chamber
- Regulator
- Tide Gate
- Outfall
- Headwall
- Culvert
- Bulkhead
- Pumping Station

NYS DOT

- Sewer
- Trough
- Catch Basin\Scupper Connector
- Temporary Connection and Plumber's Drain
- Flow Direction
- Manhole
- Catch Basin
- Chamber
- Outfall
- Headwall
- Culvert
- Bulkhead
- Pumping Station

Sewer Shape	Abbreviation
Double Circular	DCIR
Egg	EGG
Elliptical	ELP
Vertical Elliptical	VELP
Horizontal Elliptical	HELP
Box	BOX
Double Barrel	DB
Triple Barrel	TB
Quadruple Barrel	QB
Circular Barrel	CIRB
Oval	OVL
Flat Top	FT
Double Flat Top	DFT
Tunnel	TUN
Double Tunnel	DTUN
Circular Pipe	CIRC
Arch	ARCH
Irregular	IRRG
Unknown	UNK

Sewer Ownership	Abbreviation
Private	Pvt
Temporary Connection	TC
Plumber's Drain	PID
Triborough Bridge & Tunnel Authority	TBTA
Work Progress Administration	WPA

PIPE ANNOTATION
Pipe shown as shape, year of installation, material and pipe diameter.
Example; CIRC 1945 VCP 24"
Pipes with a second or height dimension will be displayed with the height dimension, in inches, directly after the diameter
Example BOX 1955 CIP 48" x 32"

RESPECTIVE BOROUGH HIGHWAY AND SEWER DATUMS
(ABOVE MEAN SEA LEVEL AT SANDY HOOK, NEW JERSEY)

BOROUGH	SEWER DATUM	HIGHWAY DATUM
BRONX	2.608 FEET	2.608 FEET
BROOKLYN	1.720 FEET	2.560 FEET
MANHATTAN	2.750 FEET	2.750 FEET
QUEENS	2.725 FEET	2.725 FEET
STATEN ISLAND	3.192 FEET	3.192 FEET

MANHOLE RIM AND INVERT ELEVATIONS,
WHERE AVAILABLE, ARE DISPLAYED BY COLOR

25.67 = Manhole Rim elevation

25.67 = Manhole Invert elevation

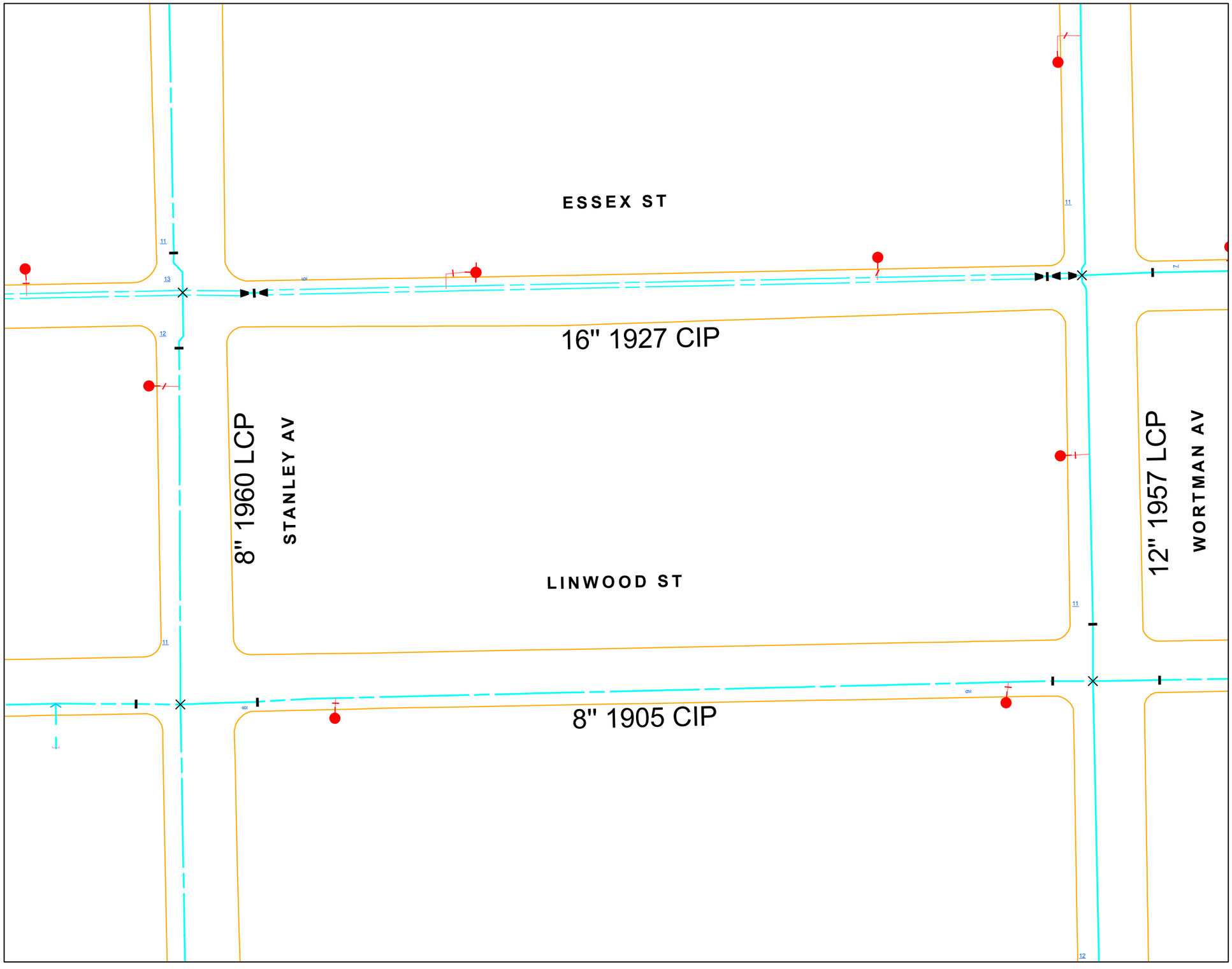
Sewer Mapping

NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
59-17 Junction Boulevard, 3rd Floor
Corona, NY 11373-5108

Map Print Date: 8/15/2016

50 25 0 50 100 150 200 250 300
Feet

Sewer Material	Abbreviation																
Brick	BRK	*Concrete Pipe*	CRTP	*Reinforced Concrete Culvert Pipe*	RCCP	*Wood*	WD	*Steel*	STL	*Liner Plate*	LRPL	*Block*	BLK
Reinforced Concrete Brick	RC/BR	*Reinforced Concrete*	RC	*Corrugated Metal Pipe*	CMP	*Wood Pipe*	WDP	*Steel Pipe*	STLP	*Reinforced Concrete Liner Plate*	RC LRPL	*Tile*	TILE
Cement Pipe	CMTP	*Reinforced Concrete Pipe*	RCP	*High Density Polyethylene Pipe*	HDPEP	*Clay Pipe*	CP	*Cast Iron*	CI	*Steel Liner Plate*	STL LRPL	*Stone*	STON
Asbestos Cement Pipe	ASBCMTP	*Precast Reinforced Concrete*	PRC	*Corrugated High Density Polyethylene Pipe*	CHDPEP	*Vitrified Clay Pipe*	VCP	*Cast Iron Pipe*	CIP	*Cast Iron Liner Plate*	CI LRPL	*Fiberglass*	FBGL
Concrete	CRT	*Precast Reinforced Concrete Pipe*	PRCP	*Polyvinyl Chloride Pipe*	PVCP	*Extra Strength Vitrified Clay Pipe*	ESVP	*Ductile Iron Pipe*	DIP	*Ductile Liner Plate*	DI LRPL	*Unknown*	UNK



Water Map Legend

Valve Type and Status V100392 22 EN/5 SS
- Butterfly, Open
- Butterfly, Boundary
- Butterfly, Closed
- Check, Open
- LH Gate, Open
- LH Gate, Closed or Boundary
- Gate Open
- Gate, Closed or Boundary

Water Connections
- 3 Way
- 4 Way
- Bulkhead
- CAP
- Eccentric Reducer
- Reducer
- Plug
- Riser
- Manifolds / Reducer Bank
- Wet Connection
- Expansion Joint
- Terminus

BO Discharge and Valve
- BLIND
- Direct to Sewer
- Direct to Unknown
- Direct to Waterway
- POT to Sewer
- POT to Waterway
- BO Valve *O2048*

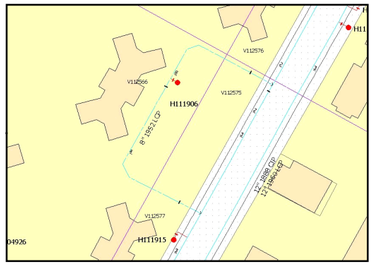
Appurtenance
- Access Manhole
- Aqualog
- Electrolysis Connection
- Gauge/Meter
- Pitot Chamber
- Vent
- Venturi Tube
- Water Fed Transformer
- Street Washer

Hydrants H435123
- Breakaway
- Standard
- Unknown
- Hydrant Gate

Structures and Miscellaneous
- Tank
- Well
- Sampling Station 7356A
- Regulator R5025
- Shaft, Chamber,Vault, Etc

General WaterMain Sizes (in inches)
- Aqueduct
- 96
- 84
- 72
- 66
- 60
- 54
- 48
- 42
- 36
- 30
- 24
- 20
- 18
- 16
- 14
- 12
- 10
- 8
- 6
- 4
- 3
- <3

Base Map Layers
- Railroad (NYCMAP)
- Road Edge (NYCMAP)
- Borough Boundary
- City Tile Boundary (NYCMAP)
- Buildings (NYCMAP)
- Open Space (NYCMAP)
- Tax Lot (COGIS)
- Elevated Transportation Structures (NYCMAP)



"Curb dimensions may exist in the water data in areas where there are not curb lines in the current NYCMAP landbase transportation edge layer. This may be because the curbs no longer exist or they are not in NYCMAP because the roadways are private or newly constructed"

Water Mapping

NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
59-17 Junction Boulevard, 3rd Floor
Corona, NY 11373-5108

Datum:
NAD_1983
StatePlane_New_York_Long_Island
FIPS_3104_Feet

Map Printed: 8/15/2016

50 25 0 50 100 150 200 250 300
Feet

Brooklyn Pressure Gradient Colors: K02, K03, K05, K06

Bronx Pressure Gradient Colors: X01, X03, X04, X06, X07

Manhattan Pressure Gradient Colors: M01, M02, M03, M04, M06, M07

Queens Pressure Gradient Colors: Q01, Q02, Q03, Q04, Q05, Q06, Q07, Q08, Q09, Q10

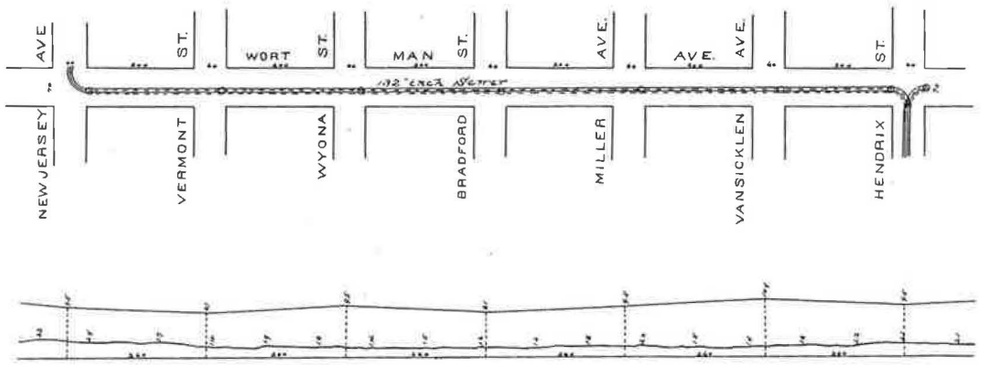
Staten Island Pressure Gradient Colors: R03, R04, R05, R06, R07, R08, R09

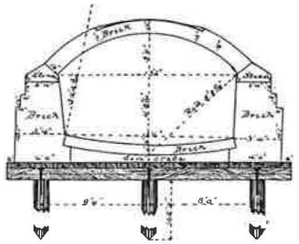
Pipe Material

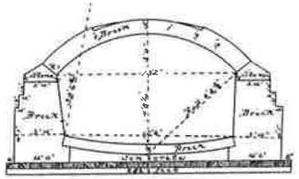
DIP Ductile Iron Pipe	ACP Asbestos Concrete Pipe	LCP Lined Cast Iron Pipe
CIP Cast Iron Pipe	RCP Reinforced Concrete Pipe	STL Steel Pipe
PVC Polyvinyl Chloride Pipe	COP Copper Pipe	TRN Transite Pipe

PWM - Private Water Main
IWM - Internal Water Main

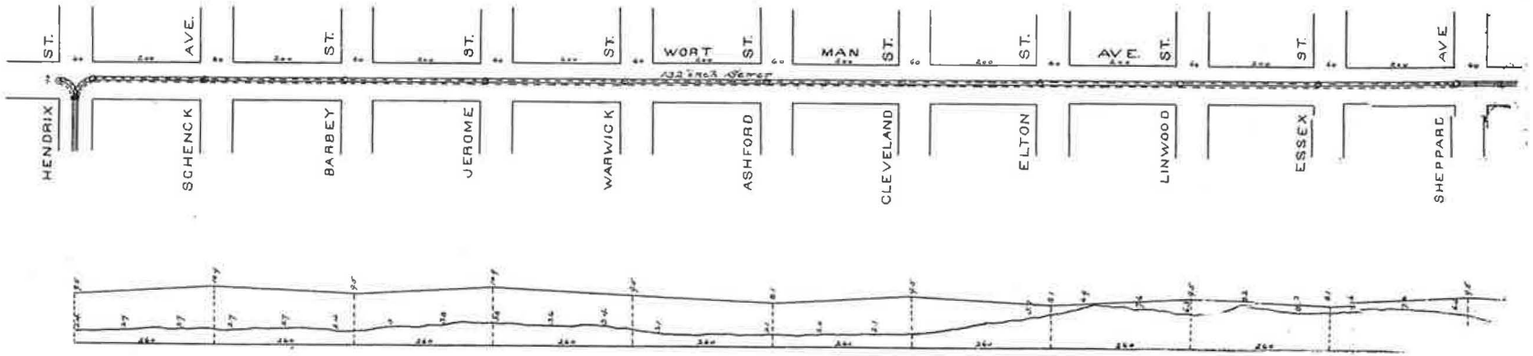
This map is intended to be a schematic representation of the water system ONLY, and is not warranted to be accurate for construction and/or surveying purposes and is based on the best information available







SECTION OF 132 INCH MAIN



OFFICE OF THE PRESIDENT OF THE BOROUGH.

BUREAU OF SEWERS.

BOROUGH OF BROOKLYN, CITY OF NEW YORK.

MAP "S." DIST. 39.

SEWER IN ESSEX STREET BETWEEN NEW LOTS AVENUE AND WORTMAN AVENUE.

STANDARD SPECIFICATIONS.

Approved ..... President of the Borough of Brooklyn.

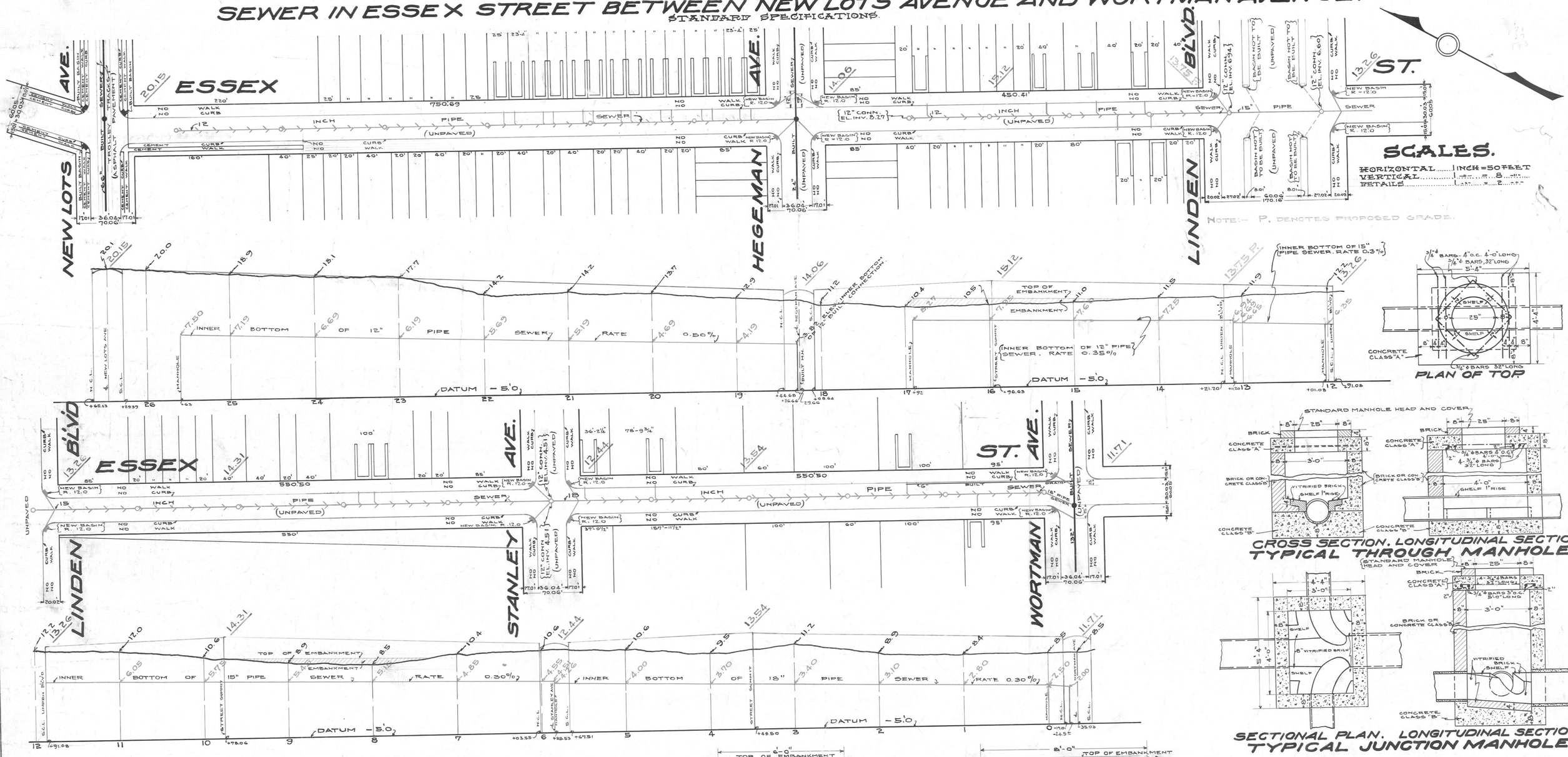
Approved ..... Commissioner of Public Works, Borough of Brooklyn.

Approved ..... Superintendent of Sewers, Borough of Brooklyn.

Approved ..... Chief Engineer of Sewers, Borough of Brooklyn.

This Plan is dated ..... April 28th 1924.

Approved ..... Consulting Engineer, Borough of Brooklyn.

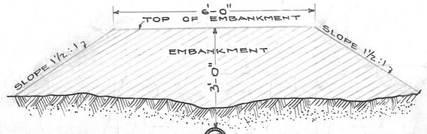


APPROXIMATE QUANTITIES.

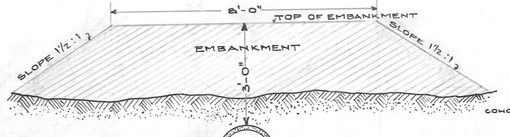
18 INCH PIPE SEWER	614	LIN. FT.
15 -"- -"- -"-	726	-"- -"-
12 -"- -"- -"-	1118	-"- -"-
6 -"- HOUSE CONNECTION DRAIN	420	-"- -"-
MANHOLES	22	
SEWER BASINS	14	
FOUNDATION PLANKING	1000	FT. B.M.
CONCRETE CLASS "B"	5	CU. YDS.
EXTRA EXCAVATION	5	-"- -"-
EMBANKMENT	300	-"- -"-

NOTES:-

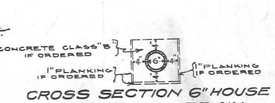
Manholes shall be built as shown except that on pipe sewers up to and including 15 inches in diameter the shelf shall be carried to the inside top of the largest pipe, and shall be made of brick, or concrete with brick facing from the springing line; on pipe sewers over 15 inches in diameter the shelf shall be carried to a height of seven-tenths the vertical diameter of the largest pipe. Lot and property lines are same as shown on Tax Commissioner's Maps of the City of New York and as given by owners, April 17th 1924. Elevations are referred to mean high tide, sewer datum, Borough of Brooklyn, which is 1.772 feet above mean sea level as established by the U.S. Coast and Geodetic Survey at Sandy Hook. Plans referred to in these notes are on file in the office of the Chief Engineer of Sewers. Elevations at curb lines are approximately the same as at centre line.



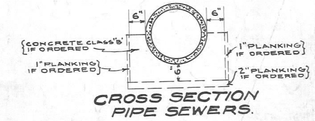
CROSS SECTION OF EMBANKMENT OVER 6" HOUSE CONNECTION DRAIN.



CROSS SECTION OF EMBANKMENT OVER PIPE SEWERS.



CROSS SECTION 6" HOUSE CONNECTION DRAIN.



CROSS SECTION PIPE SEWERS.

1433

DRAWN BY PETERS
CHECKED BY C.H. HARPER

WS129-25M-11046 114

SEC.	BLOCK	LOT
	4384	31
WARD	DIST.	PLOT

CITY OF NEW YORK
Department of
WATER SUPPLY, GAS & ELECTRICITY
Bureau of Water Supply

BOROUGH

HOUSE SERVICES ORDER
PERMIT NO. 32705
INSP. NO.

LOCATION Essex St N.S. 95' W Wortman Ave

INSERT ____ TAP ON ____ MAIN, READY ____ M.

INSERT ____ PLUG ON ____ MAIN, READY DrP 10/11/46 M.

INSPECT SERVICE PIPE ____ READY ____ M.

SPECIAL ORDERS

OWNER ____ ADDRESS

PLUMBER N. Bresalier ADDRESS 1348 Fulton St

BUILDING { STORIES ____ FT. FRONT ____ FT. DEEP ____

FOR BOROUGH ENGINEER
J Mullen
10/7/46 19

REPORT 10/11 19 46 M.

LOCATION 932-42 ESSEX ST ST. AVE.

S. SIDE 107 FT. W OF WORTMAN AVE ST. AVE.

SIZE OF TAP ____ PLUG ____ MAIN 16 DEPTH 4

LOCATION IS ____ FT. ____ OF ____ BUILDING LINE OF ____

____ AND 6 FT. FROM N. CURB LINE

KIND AND SIZE OF SERVICE PIPE { NEW / OLD ____

NEW SERVICE LENGTH ____ IS CURB COCK AND BOX SET? ____ KIND AND MAKE ____

OPENING SIDEWALK OR ROADWAY ROADWAY FOR BUILDING PURPOSES ____

VIOLATIONS ____ RE-EXAMINED ____ VIOL. REMOVED ____

REMARKS destroyed 5/8 tap 1 Hole.

I CERTIFY THAT THE ABOVE REPORT IS CORRECT

J Colyer TAPPER / INSPECTOR

WS129-25M-1229055 (61) 871

SEC.	BLOCK	LOT
	4384	31/36
WARD	DIST.	PLOT

CITY OF NEW YORK
DEPARTMENT OF
WATER SUPPLY, GAS & ELECTRICITY
BUREAU OF WATER SUPPLY

HOUSE SERVICES ORDER
37207
PERMIT NO.

BOROUGH

INSP. NO.

LOCATION 491 Warlman Ave N.W.Cor. Essex ST

INSERT 12X6 TAP ON MAIN, READY M.

INSERT PLUG ON MAIN, READY Plumber supplies material M.

INSPECT SERVICE PIPE READY Wed. 9/18/63 M.

SPECIAL ORDERS

OWNER ADDRESS Sprinkler

PLUMBER H. Preter ADDRESS 1835 Boone Ave Bx

BUILDING
STORIES
FT. FRONT
FT. DEEP

FOR BOROUGH ENGINEER
JP Rodgers
8/27/63 19

Sprinkler

REPORT 9/18/63 19 M

LOCATION 491 Warlman Ave ST. AVE

SIDE FT. OF N/w/c Essex ST ST. AVE

SIZE OF TAP 12X6 PLUG MAIN 12" DEPTH 4'

LOCATION IS 40 FT. W OF EXIST BUILDING LINE OF Hydrant-front of 491

AND 12 FT. FROM N CURB LINE

KIND AND SIZE OF SERVICE PIPE {NEW / OLD} 6" Corporation Pipe

NEW SERVICE LENGTH 36' IS CURB COCK AND BOX SET? Yes KIND AND MAKE CF

OPENING SIDEWALK OR ROADWAY R/W-1SW FOR BUILDING PURPOSES Sprk

VIOLATIONS RE-EXAMINED VIOL. REMOVED

REMARKS Installed 36 ft of 6" Corporation Pipe from 12X6 W/c to Inside Curb —

S/W

I CERTIFY THAT THE ABOVE REPORT IS CORRECT.

PENALTY FOR FALSIFICATION

Falsification of any statement made herein is an offense punishable by a fine or imprisonment or both. (N.Y.C. Adm. Code, Sec. 982-9.0)

~~TAPPER~~ INSPECTOR

SEC.	BLOCK	LOT
11	4384	36
WARD	DIST.	PLOT

THE CITY OF NEW YORK
DEPARTMENT OF
WATER SUPPLY, GAS and ELECTRICITY
BUREAU OF WATER SUPPLY
BOROUGH BROOKLYN

40 C-1007 D. D. Form 23 M-27-B
HOUSE SERVICES ORDER
PERMIT NO. 47091
INSP. NO.

LOCATION Northman Ave, N.E.C. Linwood St.
INSERT 1 TAP ON MAIN. READY M.
INSERT PLUG ON MAIN. READY M.
INSPECT SERVICE PIPE READY M.
SPECIAL ORDERS
OWNER ADDRESS
PLUMBER M Levine ADDRESS 37 Thatford Av.

BUILDING
STORIES
FT. FRONT
FT. DEEP

FOR BOROUGH ENGINEER
JOB
192

REPORT Nov 21st 192 9 M.
LOCATION Northman St ST. AVE.
SIDE FT. OF N. E. Cor Linwood St ST. AVE.
SIZE OF TAP 5/8 PLUG MAIN 8 DEPTH 4
LOCATION IS 12 FT. N OF S BUILDING LINE OF
AND 6 FT. FROM W CURB LINE
KIND AND SIZE OF SERVICE PIPE { NEW 1. 2 H / OLD }
NEW SERVICE, LENGTH 50 IS CURB COCK AND BOX SET? KIND AND MAKE
OPENING SIDEWALK OR ROADWAY Both FOR BUILDING PURPOSES
VIOLATIONS RE-EXAMINED VIOL. REMOVED
REMARKS

I CERTIFY THAT THE ABOVE REPORT IS CORRECT

Hamilton
TAPPER
INSPECTOR

WS129—35m—70141 251

SEC.	BLOCK	LOT
14	4384	36
WARD	DIST.	PLOT

CITY OF NEW YORK
Department of
WATER SUPPLY, GAS & ELECTRICITY
Bureau of Water Supply
BOROUGH BROOKLYN

HOUSE SERVICES ORDER
PERMIT NO.
INSP. NO. 67209

LOCATION 481 Wortman Ave N/E cor. Linwood St.

INSERT ..... TAP ON ..... MAIN. READY ..... M.

INSERT ..... PLUG ON ..... MAIN. READY 9/26/41 M.

INSPECT SERVICE PIPE Relay READY ..... M.

SPECIAL ORDERS O.K.

OWNER ..... ADDRESS .....

PLUMBER A. Schuller ADDRESS 1863 Pitkin Ave.

BUILDING { STORIES ..... FT. FRONT ..... FT. DEEP .....

FOR BOROUGH ENGINEER
Keeley
9/25/41 19

REPORT Sept. 26/1941 19 ..... M.

LOCATION 481 Wortman St. N/E Cor. Linwood St ST. ~~AVE.~~

..... SIDE ..... FT. ..... OF ..... ST. AVE

SIZE OF TAP ..... PLUG ..... MAIN Cast DEPTH .....

LOCATION IS 30 FT. N OF → BUILDING LINE OF Wortman Ave

..... AND ..... FT. FROM ..... CURB LINE

KIND AND SIZE OF SERVICE PIPE NEW 1" Copper.
~~OLD~~

NEW SERVICE LENGTH 50 ft. IS CURB COCK AND BOX SET? ..... KIND AND MAKE .....

OPENING SIDEWALK OR ROADWAY Street & Walk FOR BUILDING PURPOSES .....

VIOLATIONS ..... RE EXAMINED ..... VIOL. REMOVED .....

REMARKS Service on Linwood St. -
New Service from Main to Cellar.
H.P. # 38381 - 1" Lead 5/8 Tape - Long Water

I CERTIFY THAT THE ABOVE REPORT IS CORRECT

Thos. E. Kelly INSPECTOR ~~TAPPER~~

WS129-25M-11046 114

SEC.	BLOCK	LOT
	4384	36
WARD	DIST.	PLOT

CITY OF NEW YORK
Department of
WATER SUPPLY, GAS & ELECTRICITY
Bureau of Water Supply

BOROUGH

HOUSE SERVICES ORDER
PERMIT NO. 32705
INSP. NO.

LOCATION Linwood St ~~N~~ E 50' ~~to~~ N Wortman Ave

INSERT TAP ON MAIN, READY M.

INSERT PLUG ON MAIN, READY M.

INSPECT SERVICE PIPE READY Dr P M.

SPECIAL ORDERS

OWNER ADDRESS

PLUMBER L. Bresalier ADDRESS 1348 Fulton St

Not to be Dr P. MAR 1 - 1947

BUILDING { STORIES
FT. FRONT
FT. DEEP

1972 20

FOR BOROUGH ENGINEER
J. Mullen
10/7/46 19

REPORT 19 M.

LOCATION ST. AVE.

SIDE FT. OF ST. AVE.

SIZE OF TAP PLUG MAIN DEPTH

LOCATION IS FT. OF BUILDING LINE OF

AND FT. FROM CURB LINE

KIND AND SIZE OF SERVICE PIPE { NEW / OLD

NEW SERVICE LENGTH IS CURB COCK AND BOX SET? KIND AND MAKE

OPENING SIDEWALK OR ROADWAY FOR BUILDING PURPOSES

VIOLATIONS RE-EXAMINED VIOL. REMOVED

REMARKS Pipe not to be plugged.
Rec'd. 1972-20

A O'Canavan

I CERTIFY THAT THE ABOVE REPORT IS CORRECT

TAPPER
INSPECTOR

WS129-30M-81147 33

S.C.	BLOCK	LOT
	4384	36
WARD	DIST.	PLOT

CITY OF NEW YORK
Department of
WATER SUPPLY, GAS & ELECTRICITY
Bureau of Water Supply

HOUSE SERVICES ORDER

PERMIT NO. 49559

INSP. NO.

BOROUGH

LOCATION 491 Wortman Ave NEcor Linwood St

INSERT 1" TAP ON MAIN, READY 9-18-52 M.

INSERT PLUG ON MAIN, READY M.

INSPECT SERVICE PIPE READY M.

SPECIAL ORDERS

OWNER ADDRESS

PLUMBER J. Alfonso ADDRESS 366 Hackett St

BUILDING { STORIES / FT. FRONT / FT. DEEP

FOR BOROUGH ENGINEER
A Comargo
9-16-52 19

REPORT 9-18-52 19 M.

LOCATION 491 Wortman Ave N/E Cor Linwood St ST. AVE.

N SIDE FT. E OF Linwood St. ST. AVE.

SIZE OF TAP 1" PLUG MAIN 8" DEPTH 6 ft.

LOCATION IS 14' FT. N OF N BUILDING LINE OF N/E cor. Wortman Ave & Linwood St AND 8' FT. FROM C/W Curb CURB LINE

KIND AND SIZE OF SERVICE PIPE { NEW ~~OLD~~ 2" Copper service

NEW SERVICE LENGTH 45 ft. IS CURB COCK AND BOX SET? KIND AND MAKE

OPENING SIDEWALK OR ROADWAY Both FOR BUILDING PURPOSES

VIOLATIONS RE-EXAMINED VIOL. REMOVED

REMARKS Extracted old 5/8" tap and inserted 1" tap in same location, long watty two holes. dirt street

I CERTIFY THAT THE ABOVE REPORT IS CORRECT

J. Ascione TAPPER INSPECTOR

Progress Report No. 16
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: October 2016

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this monthly progress report on behalf of J&H Holding Company, LLC (the "Participant"). Monthly progress report submittal to the New York State Department of Environmental Conservation (NYSDEC) is performed in accordance with the Brownfield Cleanup Agreement (BCA) and Section 3.2 of the NYSDEC-approved Interim Remedial Measures Work Plan (IRMWP), prepared by Langan, dated April 28, 2015, and revised June 16, 2015. This monthly progress report summarizes work performed at 491 Wortman Avenue, Brooklyn, New York (the "Site") during October 2016.

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 (i.e. the eastern portion).

Environmental site investigations began in November 2008. Langan submitted the IRMWP, which the NYSDEC approved on June 18, 2015. Implementation of the IRMWP and the pending environmental activities are described further in this progress report.

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

Remedial actions for October 2016 were primarily related to air sparge and soil vapor extraction (AS/SVE) system performance monitoring and consisted of quarterly on-site groundwater monitoring, semi-annual off-site groundwater monitoring and monthly system monitoring. Annual maintenance of the system was also conducted during October 2016.

The second semi-annual, off-site groundwater sampling event was conducted on October 26, 27 and 28, 2016. Depth-to-water, total depth, and photoionization detector (PID) measurements were collected at nested groundwater monitoring wells MW-12 through MW-16 (fifteen locations total). Following the collection of field data, groundwater samples were collected from each monitoring well for laboratory analysis of Target Compound List (TCL) volatile organic compounds (VOCs). The semi-annual, off-site groundwater monitoring locations are shown on Figure 2.

The fourth quarterly on-site groundwater sampling event was conducted on October 27 and 28, 2016. Depth-to-water, total depth, and 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 TCL VOCs. The quarterly on-site groundwater monitoring locations are shown on Figure 3.

On October 27 and 28, 2016, 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, electrical and 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.

On October 31, 2016, Langan recorded process and performance monitoring data for the 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.

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
- Preparation and submission of a Remedial Action Work Plan

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 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.
- Fifteen groundwater samples (plus one duplicate) were collected from the shallow, middle, and deep wells located at nested monitoring locations MW-12, MW-13, MW-14, MW-15, and MW-16 and analyzed for TCL VOCs via USEPA Method 8260C.

Samples were analyzed by York Analytical Laboratories Inc. (York) of Stratford, CT. York 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).

Fourth quarter groundwater monitoring results exhibit VOC concentrations above the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS) for Class GA water, but less than the baseline groundwater concentrations from August 2015 (reductions in total chlorinated VOC [CVOC] concentrations have been achieved in all wells).

The groundwater results from the second round of semi-annual, off-site groundwater sampling exhibit VOC concentrations above the NYSDEC TOGS AWQS for Class GA water. When compared to the baseline groundwater sampling results from November 2014, reductions in total CVOC concentrations have been achieved in eight of the sampled wells. The CVOC concentrations in the MW-13 shallow- and middle-screened wells remain anomalously high relative to the 491 Wortman Avenue conceptual site model.

The following tables are attached to this progress report; 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 Summary
- Table 2: AS/SVE System Vapor Sampling Results
- Table 3: AS/SVE System Mass Removal – PID Data
- Table 4: AS/SVE System Mass Removal – Laboratory Data
- Table 5: AS/SVE System DAR-1 Compliance – October 31, 2016
- Table 6: AS/SVE System Alarm History
- Table 7: Quarterly Groundwater Sampling Results – Fourth Quarter (lab reports available upon request)
- Table 8: Quarterly Groundwater Sampling Results Summary
- Table 9: Off-Site Groundwater Sampling Results – October 2016 (lab reports available upon request)
- Table 10: 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 November 9, 2016 and since inception, the SVE system operated for 8,729 hours (94% uptime), and the AS system operated for 8,600 hours (93% 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 SUMMARY
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

SAMPLE NAME	SAMPLE DATE	SAMPLE TYPE	LOCATION	ANALYSIS
AS/SVE SYSTEM VAPOR SAMPLES				
Influent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Mid_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Mid-Point	TO-15 VOCs
Effluent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_052616	5/26/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_052616	5/26/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_062916	6/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_062916	6/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_072816	7/28/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_072816	7/28/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_083116	8/31/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_083116	8/31/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_092916	9/29/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Midpoint_092916	9/29/2016	One, 3-Liter Tedlar Bags	vGAAC Vessel Mid-Point	TO-15 VOCs
Effluent_092916	9/29/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_103116	10/31/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_103116	10/31/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs

Notes:

1. The vapor samples were analyzed for VOCs via USEPA Method TO-15.
2. USEPA = United States Environmental Protection Agency
3. VOCs = volatile organic compounds
4. AS/SVE = air sparge/soil vapor extraction
5. vGAC = vapor-phase granular activated carbon

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_103116		Effluent_103116	
LAB SAMPLE ID	16J1099-01		16J1099-02	
SAMPLE DATE	10/31/2016		10/31/2016	
Volatile Organic Compounds (ug/m^3)				
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U
1,1,1-Trichloroethane	5.50	U	5.50	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U
1,1-Dichloroethylene	4	U	4	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U
1,2-Dichloroethane	4	U	4	U
1,2-Dichloropropane	14	D	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U
1,3-Butadiene	6.60	U	6.60	U
1,3-Dichlorobenzene	6	U	6	U
1,3-Dichloropropane	4.60	U	4.60	U
1,4-Dichlorobenzene	6.60	D	6	U
1,4-Dioxane	7.20	U	7.20	U
2-Butanone	11	D	4.70	D
2-Hexanone	8.20	U	8.20	U
3-Chloropropene	16	U	16	U
4-Methyl-2-pentanone	4.50	D	4.10	U
Acetone	36	D	41	D
Acrylonitrile	2.20	U	2.20	U
Benzene	6.10	D	3.20	U
Benzyl chloride	5.20	U	5.20	U
Bromodichloromethane	6.70	U	6.70	U
Bromoform	10	U	10	U
Bromomethane	3.90	U	3.90	U
Carbon disulfide	3.10	D	3.10	U
Carbon tetrachloride	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U
Chloroform	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U
cis-1,2-Dichloroethylene	4	U	4	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U
Cyclohexane	3.40	U	3.40	U
Dibromochloromethane	8.50	U	8.50	U
Dichlorodifluoromethane	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U
Ethyl Benzene	4.30	U	4.30	U
Hexachlorobutadiene	11	U	11	U
Isopropanol	4.90	U	4.90	U
Methyl Methacrylate	15	D	17	D
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U
Methylene chloride	16	D	18	D
n-Heptane	4.10	U	4.10	U
n-Hexane	3.50	U	3.50	U
o-Xylene	4.30	U	4.30	U
p- & m- Xylenes	8.70	U	8.70	U
p-Ethyltoluene	4.90	U	4.90	U
Propylene	1.70	U	1.70	U
Styrene	4.30	U	4.30	U
Tetrachloroethylene	130	D	6.80	D
Tetrahydrofuran	13	D	5.90	U
Toluene	6.80	D	3.80	U
trans-1,2-Dichloroethylene	4	U	4	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U
Trichloroethylene	660	D	3.80	D
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
U = The analyte was not detected at or above the level indicated.

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - PID DATA
491 WORTMAN AVENUE
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	1548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3693	100	0.002	1.43	85.34
4/29/2016	2.0	571	0.0	4322	100	0.018	11.14	96.48
5/26/2016	0.4	600	0.0	4972	100	0.004	2.42	98.90
6/29/2016	0.5	600	0.0	5784	100	0.005	3.78	102.68
7/28/2016	3.0	600	0.0	6431	100	0.028	18.06	120.73
8/31/2016	2.7	600	0.0	7110	100	0.025	17.05	137.79
9/29/2016	7.5	760	2.0	7802	100	0.065	44.85	182.63
10/31/2016	0.0	520	0.0	8516	100	0.000	0.00	182.63

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 4: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA
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)	VGAC MASS REMOVAL EFFICIENCY (%)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99	92
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44	97
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36	95
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18	86
12/28/2015	3,357	570	230	1548	53.58	3.67	49.91	4.18	16.55	3.89	15.08	93
1/27/2016	621	525	183	2180	9.13	2.69	6.44	0.76	17.31	0.54	15.62	71
2/24/2016	1,454	578	283	2854	23.53	4.58	18.94	2.10	19.41	1.69	17.31	81
3/30/2016	825	550	75	3693	12.71	1.16	11.55	1.41	20.82	1.28	18.59	91
4/29/2016	482	571	112	4322	7.70	1.79	5.91	0.64	21.46	0.49	19.08	77
5/26/2016	1,169	600	162	4972	19.64	2.73	16.91	1.69	23.15	1.45	20.53	86
6/29/2016	1,865	600	190	5784	31.33	3.19	28.14	3.37	26.51	3.02	23.56	90
7/28/2016	3,706	600	232	6431	62.26	3.90	58.36	5.33	31.84	4.99	28.55	94
8/31/2016	4,798	600	135	7110	80.61	2.26	78.35	7.24	39.08	7.04	35.59	97
9/29/2016	1,045	760	179	7802	22.24	3.81	18.43	2.04	41.12	1.69	37.27	83
10/31/2016	922	520	91	8516	13.42	1.32	12.10	1.27	42.38	1.14	38.42	90

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 5: AS/SVE SYSTEM DAR-1 COMPLIANCE
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **10/31/2016**

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)													
2-Butanone	4.70	520	14.72484	9.14E-06	8.00E-02	7.19E-04	7.19E-04	4.67E-02	13000	5000	NO	NO	NO
Acetone	41	520	14.72484	7.97E-05	6.98E-01	6.28E-03	6.27E-03	4.07E-01	180,000	30,000	NO	NO	NO
Methyl methacrylate	17	520	14.72484	3.30E-05	2.89E-01	2.60E-03	2.60E-03	1.69E-01	41,000	700	NO	NO	NO
Methylene chloride	18	520	14.72484	3.50E-05	3.06E-01	2.76E-03	2.75E-03	1.79E-01	14,000	60	NO	NO	NO
Tetrachloroethylene	6.80	520	14.72484	1.32E-05	1.16E-01	1.04E-03	1.04E-03	6.76E-02	300	4	NO	NO	NO
Trichloroethylene	3.80	760	21.52092	1.08E-05	9.46E-02	8.50E-04	8.49E-04	5.52E-02	14,000	0.2	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 6: AS/SVE SYSTEM ALARM HISTORY
491 WORTMAN AVENUE
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.

TABLE 7: QUARTERLY GROUNDWATER SAMPLING RESULTS - FOURTH QUARTER
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW-1_102716 16J1012-09 10/27/2016 1		MW-2_102716 16J1012-01 10/27/2016 1		MW-3AS_102716 16J1012-05 10/27/2016 1		MW-3AM_102716 16J1012-06 10/27/2016 1		MW-3AD_102716 16J1012-07 10/27/2016 1		MW-4_102716 16J1012-02 10/27/2016 1		Dup-01_102716 16J1012-03 10/27/2016 1		MW-5_102716 16J1012-12 10/27/2016 1	
Volatile Organic Compounds (µg/L)																	
1,1-Dichloroethane	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,2-Dichlorobenzene	3	0.20	U	0.44	J	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,2-Dichloropropane	1	0.27	J	0.20	U	0.43	J	0.20	U	0.20	U	0.52		0.51		0.62	
2-Butanone	50	0.20	U	1.40		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Acetone	50	1	U	3.30		1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	5	0.20	U	0.26	J	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Chloroform	7	0.20	U	0.20	U	0.20	U	0.23	J	1.10		0.20	U	0.20	U	0.20	U
cis-1,2-Dichloroethylene	5	0.20	U	0.39	J	0.59		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Methyl tert-butyl ether (MTBE)	10	0.20	U	0.21	J	0.20	U	0.28	J	0.36	J	0.20	U	0.20	U	0.20	U
tert-Butyl alcohol (TBA)	~	0.50	U	1.30		0.50	U	0.87	J	0.50	U	1.10		0.50	U	0.50	U
Tetrachloroethylene	5	0.22	J	4.60		**8.80**		**16**		**10**		0.98		0.93		0.24	J
trans-1,2-Dichloroethylene	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Trichloroethylene	5	0.29	J	3.20		**9**		1.70		0.96		2		2.20		0.20	U
Vinyl Chloride	2	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	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. Only compounds with detections are shown (with the exception of vinyl chloride).
3. Results exceeding the NYSDEC TOGS standards and guidance values are shaded and bolded.
4. µg/L = micrograms per liter
5. ~ = No regulatory limit has been established for this analyte.
6. Dup-01_102716 is a duplicate sample of MW-4_102716.
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 fourth 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 - FOURTH QUARTER
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW6_102816		MW7_102816		MW-8_102716		MW9_102816		PZ-1_102716		PZ-2_102716	
Laboratory ID		16J1057-03		16J1057-01		16J1012-11		16J1057-02		16J1012-10		16J1012-08	
Sampling Date		10/28/2016		10/28/2016		10/27/2016		10/28/2016		10/27/2016		10/27/2016	
Dilution Factor		1		1		1		1		1		1	
Volatile Organic Compounds (µg/L)													
1,1-Dichloroethane	5	0.21	J	0.20	U	0.39	J	0.20	U	0.20	U	0.20	U
1,2-Dichlorobenzene	3	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,2-Dichloropropane	1	0.34	J	0.59		**1.10**		0.52		0.39	J	0.37	J
2-Butanone	50	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Acetone	50	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Chloroform	7	0.27	J	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
cis-1,2-Dichloroethylene	5	4.20		0.20	U	**12**		0.20	U	0.20	U	0.20	U
Methyl tert-butyl ether (MTBE)	10	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
tert-Butyl alcohol (TBA)	~	0.50	U	0.50	U	0.50	U	0.50	U	0.93	J	0.50	U
Tetrachloroethylene	5	**67**		0.20	U	2.70		0.39	J	0.20	U	0.54	
trans-1,2-Dichloroethylene	5	0.26	J	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Trichloroethylene	5	**87**		0.50		**19**		0.20	U	0.21	J	0.63	
Vinyl Chloride	2	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	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. Only compounds with detections are shown (with the exception of vinyl chloride).
3. Results exceeding the NYSDEC TOGS standards and guidance values are shaded and bolded.
4. µg/L = micrograms per liter
5. ~ = No regulatory limit has been established for this analyte.
6. Dup-01_102716 is a duplicate sample of MW-4_102716.
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 fourth 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 8: QUARTERLY 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												
		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%*
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%*

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. * = Monitoring well is located in the sidewalk adjacent to the warehouse.

TABLE 9: OFF-SITE GROUNDWATER SAMPLING RESULTS - OCTOBER 2016
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW12S_102816		MW12M_102816		GWDUP02_102816		MW12D_102816		MW-13S_102616		MW-13M_102616		MW-13D_102616		MW-14S_102616	
Laboratory ID		16J1058-01		16J1058-02		16J1058-05		16J1058-03		16J0942-01		16J0942-02		16J0942-03		16J0942-04	
Sampling Date		10/28/2016		10/28/2016		10/28/2016		10/28/2016		10/26/2016		10/26/2016		10/26/2016		10/26/2016	
Dilution Factor		1		1		1		1		50		50		1		1	
Volatile Organic Compounds (µg/L)																	
1,1,1-Trichloroethane	5	0.20	U	0.93		0.99		0.20	U	**32**		**8.60**		0.20	U	0.20	U
1,1,2-Trichloroethane	1	0.20	U	0.20	U	0.20	U	0.20	U	**1.20**		0.85		0.20	U	0.20	U
1,1-Dichloroethane	5	0.20	U	0.20	U	0.20	U	0.20	U	**18**		**12**		0.20	U	0.20	U
1,1-Dichloroethylene	5	0.20	U	0.54		0.56		0.20	U	**45**		**25**		0.27	J	0.20	U
1,2-Dichlorobenzene	3	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,4-Dichlorobenzene	3	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Acetone	50	1	U	1.00	U	1.00	U	1.00	U	1.00	U	1.20	J	1.00	U	1.00	U
Benzene	1	0.20	U	0.20	U	0.20	U	0.20	U	**2.20**		**1.40**		0.20	U	0.20	U
Bromodichloromethane	50	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Chlorobenzene	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Chloroform	7	0.40	J	0.20	U	0.20	U	0.22	J	3.10		1.70		0.20	U	0.20	U
cis-1,2-Dichloroethylene	5	0.20	U	1.30		1.30		0.29	J	**98**		**74**		0.50		0.20	U
Dichlorodifluoromethane	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.44	J	0.20	U
Methyl tert-butyl ether (MTBE)	10	0.20	U	0.24	J	0.20	U	0.24	J	0.37	J	0.46	J	0.91		0.20	U
tert-Butyl alcohol (TBA)	~	0.50	U	0.50	U	0.50	U	0.50	U	2.20		1.30		0.64	J	0.50	U
Tetrachloroethylene	5	0.20	U	**6.60**		**7.20**		**15**		**140**		**50**		**12**		2.20	
trans-1,2-Dichloroethylene	5	0.20	U	0.20	U	0.20	U	0.20	U	1.20		1.10		0.20	U	0.20	U
Trichloroethylene	5	0.20	U	**48**		**51**		**5.10**		**2800**	D	**1900**	D	**14**		2.70	
Trichlorofluoromethane	5	0.20	U	0.20	U	0.20	U	0.20	U	**26**		**16**		0.20	U	0.20	U
Vinyl Chloride	2	0.20	U	0.20	U	0.20	U	0.20	U	**4.50**		**4.80**		0.20	U	0.20	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. 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. ~ = No regulatory limit has been established for this analyte.
6. GWDUP02_102816 is a duplicate sample of MW12M_102816.
7. Five nested monitoring locations were sampled as part of the second round of semi-annual, off-site groundwater sampling. Each nested monitoring location contains three monitoring wells screened across a shallow, middle, and deep interval.
8. S = shallow-screened monitoring well; M = middle-screened monitoring well; D = deep-screened monitoring well

Qualifiers:
D = The sample was diluted per the dilution factor shown.
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: OFF-SITE GROUNDWATER SAMPLING RESULTS - OCTOBER 2016
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

Sample ID Laboratory ID Sampling Date Dilution Factor	NYSDEC TOGS STANDARDS AND GUIDANCE VALUES	MW-14M_102616 16J0942-05 10/26/2016 1		MW-14D_102616 16J0942-06 10/26/2016 1		MW-15S_102716 16J1015-01 10/27/2016 1		MW-15M_102716 16J1015-02 10/27/2016 1		MW15D_102816 16J1058-04 10/28/2016 1		MW-16S_102616 16J0942-07 10/26/2016 1		MW-16M_102616 16J0942-08 10/26/2016 1		MW-16D_102616 16J0942-09 10/26/2016 1	
Volatile Organic Compounds (µg/L)																	
1,1,1-Trichloroethane	5	0.20	U	0.20	U	0.40	J	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1,2-Trichloroethane	1	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1-Dichloroethane	5	0.20	J	0.20	U	0.20	U	0.37	J	0.20	U	0.43	J	0.20	U	0.20	U
1,1-Dichloroethylene	5	0.20	J	0.20	U	0.20	U	0.20	U	0.20	U	0.53		0.25	J	0.20	U
1,2-Dichlorobenzene	3	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.73		0.20	U
1,4-Dichlorobenzene	3	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.36	J	0.20	U
Acetone	50	1.00	U	1.00	U	1.00	U	1	U	1.00	U	1.00	U	1.00	U	1.00	U
Benzene	1	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Bromodichloromethane	50	0.20	U	0.20	U	1.20		0.26	J	0.20	U	0.20	U	0.20	U	0.20	U
Chlorobenzene	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.59		0.20	U
Chloroform	7	0.26	J	0.20	U	**14**		3.70		0.50		0.20	U	0.20	U	0.20	J
cis-1,2-Dichloroethylene	5	0.91		0.32	J	0.20	U	0.93		0.28	J	0.92		0.37	J	0.24	J
Dichlorodifluoromethane	5	0.21	J	0.71		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Methyl tert-butyl ether (MTBE)	10	8.60		2.40		0.20	U	2.80		0.39	J	0.20	U	0.32	J	0.20	U
tert-Butyl alcohol (TBA)	~	0.50	U	0.50	U	0.50	U	1.40	J	0.50	U	0.50	U	1.10		0.50	U
Tetrachloroethylene	5	**26**		**12**		1.20		**19**		**13**		0.77		**9.60**		**16**	
trans-1,2-Dichloroethylene	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Trichloroethylene	5	**19**		3.40		2.40		**6.50**		2.40		1.10		1.50		0.93	
Trichlorofluoromethane	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Vinyl Chloride	2	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	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. 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. ~ = No regulatory limit has been established for this analyte.
6. GWDUP02_102816 is a duplicate sample of MW12M_102816.
7. Five nested monitoring locations were sampled as part of the second round of semi-annual, off-site groundwater sampling. Each nested monitoring location contains three monitoring wells screened across a shallow, middle, and deep interval.
8. S = shallow-screened monitoring well; M = middle-screened monitoring well; D = deep-screened monitoring well

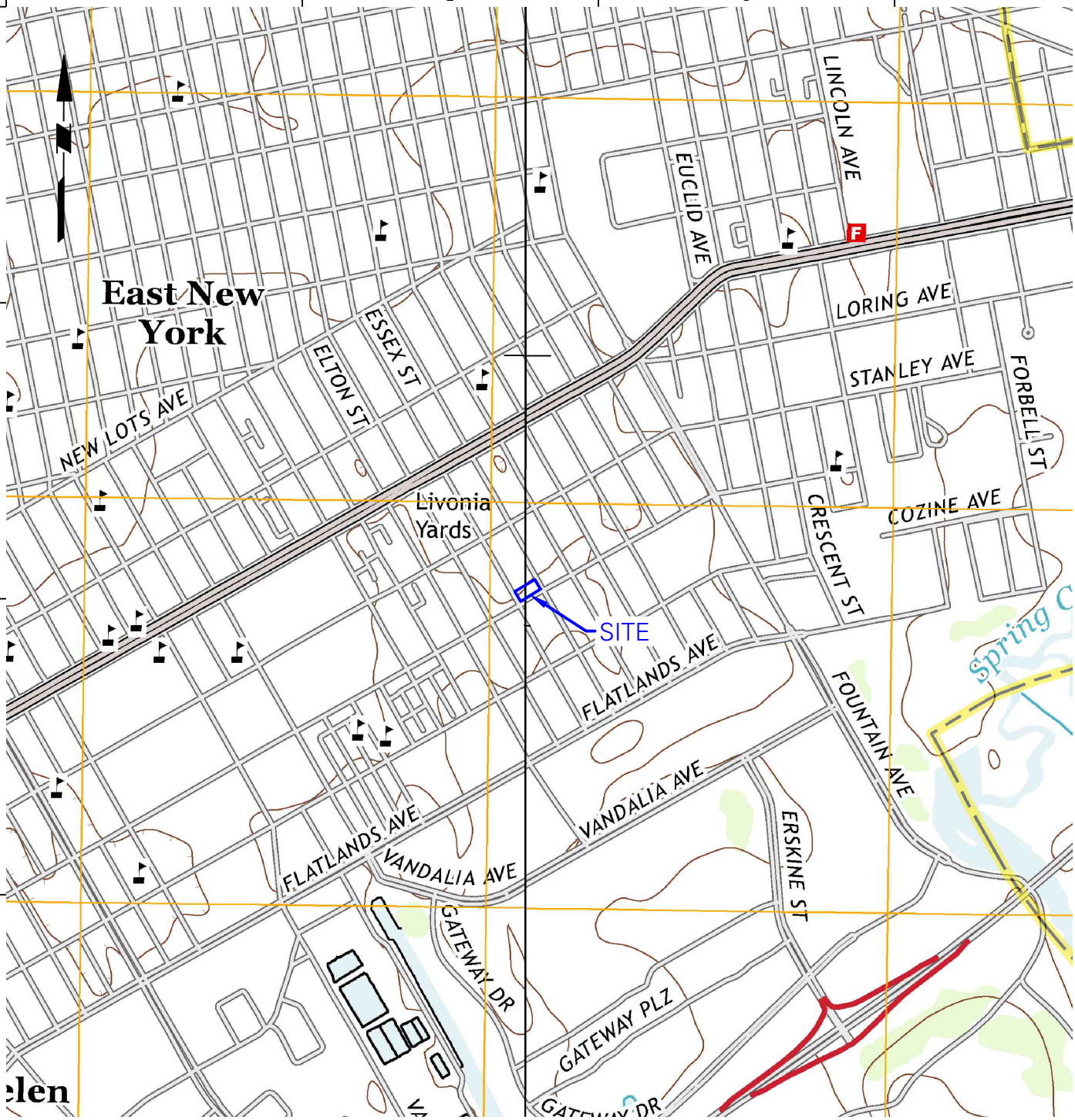
Qualifiers:
D = The sample was diluted per the dilution factor shown.
J = Analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit) - data is estimated.
U = Analyte not detected at or above the level indicated.

TABLE 10: 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	Off-Site Sampling Location														
		MW-12S	MW-12M	MW-12D	MW-13S	MW-13M	MW-13D	MW-14S	MW-14M	MW-14D	MW-15S	MW-15M	MW-15D	MW-16S	MW-16M	MW-16D
Baseline Sampling Results Summary (µg/L) - November 2014																
CVOCs	~	3.54	96	24.7	1,500.7	296.78	21.03	10.08	73.2	25.6	2.43	22.1	16.92	3.74	9.55	16.57
PCE	5	0.64	11	17	140	32	13	5.1	33	18	1.6	16	14	1.5	7.3	15
TCE	5	2.5	78	7.2	1,300	240	7.4	4.3	37	7	0.43	4.7	2.4	0.74	1.3	0.98
cis-1,2- DCE	5	0.2	6.8	0.3	58	24	0.43	0.48	3	0.4	0.2	1.2	0.32	1.3	0.75	0.39
vinyl chloride	2	0.2	0.2	0.2	2.7	0.78	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
First Round: Semi-Annual Sampling Results Summary (µg/L) - April 2016																
CVOCs	~	0.8	64.2	3.6	2,264.1	44.7	17.14	1.2	52.08	17.11	1.18	15.58	16.87	2.08	11.78	16.46
PCE	5	0.2	7.4	0.7	110	25	12	0.38	27	13	0.58	11	14	0.49	9.8	15
TCE	5	0.2	55	2.5	2,100	19	4.7	0.42	24	3.6	0.2	3.7	2.4	0.87	1.5	1
cis-1,2- DCE	5	0.2	1.6	0.2	52	0.5	0.24	0.2	0.88	0.31	0.2	0.68	0.27	0.52	0.28	0.26
vinyl chloride	2	0.2	0.2	0.2	2.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
First Round Percent CVOC Reduction		*77%*	*33%*	*85%*	*Increased*	*85%*	*18%*	*88%*	*29%*	*33%*	*51%*	*30%*	*0.3%*	*44%*	*Increased*	*1%*
Second Round: Semi-Annual Sampling Results Summary (µg/L) - October 2016																
CVOCs	~	0.8	56.1	20.59	3,042.5	2,028.8	26.7	5.3	46.11	15.92	4	26.63	15.88	2.99	11.67	17.37
PCE	5	0.2	6.6	15	140	50	12	2.2	26	12	1.2	19	13	0.77	9.6	16
TCE	5	0.2	48	5.1	2,800	1,900	14	2.7	19	3.4	2.4	6.5	2.4	1.1	1.5	0.93
cis-1,2- DCE	5	0.2	1.3	0.29	98	74	0.5	0.2	0.91	0.32	0.2	0.93	0.28	0.92	0.37	0.24
vinyl chloride	2	0.2	0.2	0.2	4.5	4.8	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Second Round Percent CVOC Reduction from Last Round		*0%*	*13%*	*Increased*	*Increased*	*Increased*	*Increased*	*Increased*	*11%*	*7%*	*Increased*	*Increased*	*5.9%*	*Increased*	*1%*	*Increased*
Second Round Percent CVOC Reduction		*77%*	*42%*	*17%*	*Increased*	*Increased*	*Increased*	*47%*	*37%*	*38%*	*Increased*	*Increased*	*6%*	*20%*	*Increased*	*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. S = shallow-screened monitoring well; M = middle-screened monitoring well; D = deep-screened monitoring well

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

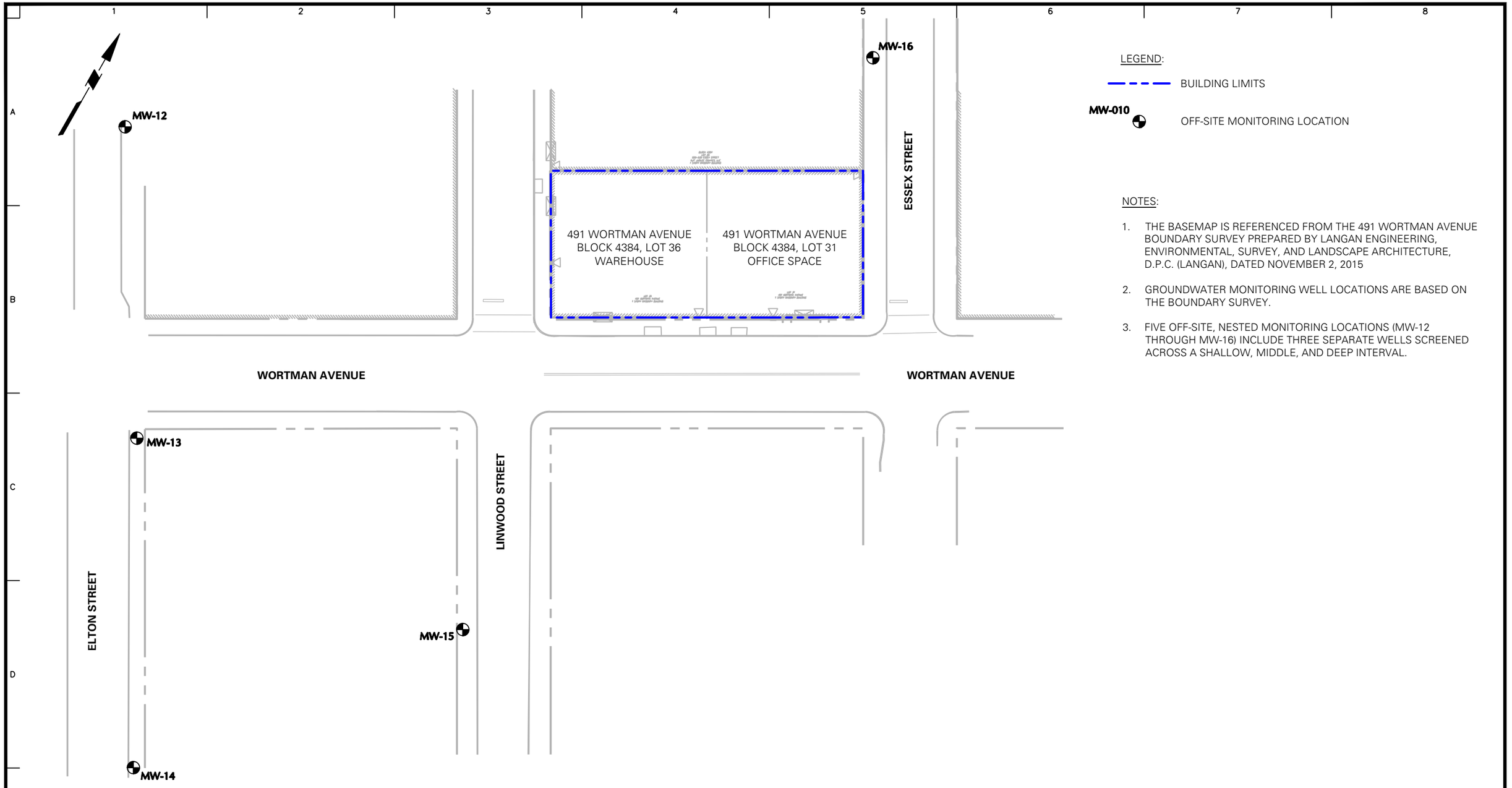
BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS NEW YORK

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\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 16\Figure 1 - Site Location Map - Updated.dwg Date: 11/2/2016 Time: 18:12 User: mrogers Style Table: Langan.stb Layout: Site Location Map



LEGEND:

BUILDING LIMITS

MW-010 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. FIVE OFF-SITE, NESTED MONITORING LOCATIONS (MW-12 THROUGH MW-16) INCLUDE THREE SEPARATE WELLS SCREENED ACROSS A SHALLOW, MIDDLE, AND DEEP INTERVAL.

WARNING: □T □S □ □□OL□T□ON OF T□□ NYS □DUC□T□ON L□W □RT□CL□ 145 FOR □NY P□RSON, UNL□SS □□ □S □CT□N□ UND□R T□□ D□R□CT□ON OF □ L□C□NS□D PROF□SS□ONAL □N□□N□□R, TO □LT□R T□S □T□M □N □NY W□Y.

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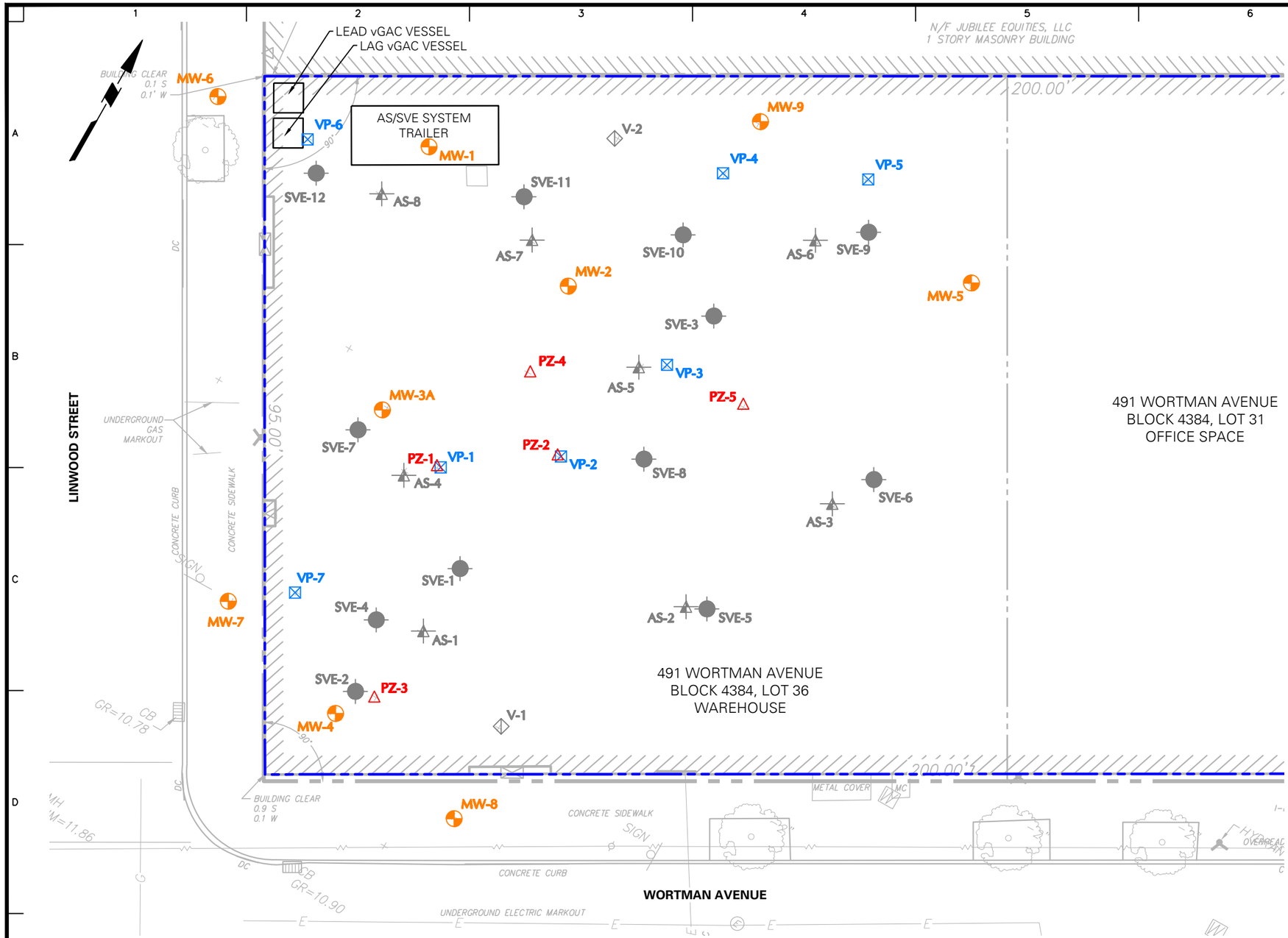
491 WORTMAN AVENUE
BLOCK No. 4384, LOT Nos. 31 & 36
BROOKLYN
KINGS **NEW YORK**

Figure Title
OFF-SITE GROUNDWATER MONITORING WELL LOCATIONS

Project No. 170329301	Figure No. 2
Date 10/03/2016	
Scale AS SHOWN	
Drawn By MLR / Checked By GN	
Submission Date	Sheet 2 of 3

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 16\Figure 2 - O□-Site MW Locations.dwg Date: 11/2/2016 Time: 18:08 User: mrogers Style Table: Langan.stb Layout: □NS□□-□L



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 — PIEZOMETER

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.

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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. 3
Date 01/21/2016	
Scale AS SHOWN	
Drawn By TCS / Checked By GN	
Submission Date	Sheet 3 of 3

Filename: \\langan.com\data\NY\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 16\Figure 2 - Quarterly GW Wells.dwg Date: 11/2/2016 Time: 18:15 User: mrogers Style Table: Langan.stb Layout: ANSI-D

Progress Report No. 17
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: November 2016

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this monthly progress report on behalf of J&H Holding Company, LLC (the "Participant"). Monthly progress report submittal to the New York State Department of Environmental Conservation (NYSDEC) is performed in accordance with the Brownfield Cleanup Agreement (BCA) and Section 3.2 of the NYSDEC-approved Interim Remedial Measures Work Plan (IRMWP), prepared by Langan, dated April 28, 2015, and revised June 16, 2015. This monthly progress report summarizes work performed at 491 Wortman Avenue, Brooklyn, New York (the "Site") during November 2016.

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 (i.e. the eastern portion).

Environmental site investigations began in November 2008. Langan submitted the IRMWP, which the NYSDEC approved on June 18, 2015. Implementation of the IRMWP and the pending environmental activities are described further in this progress report.

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

On November 29, 2016, 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, checking belt tensions, and replacing the oil in the blower and air compressor, was also 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
- Preparation and submission of a Remedial Action Work Plan

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 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 York Analytical Laboratories Inc. (York) of Stratford, CT. York 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 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 Summary
- Table 2: AS/SVE System Vapor Sampling Results
- Table 3: AS/SVE System Mass Removal – PID Data
- Table 4: AS/SVE System Mass Removal – Laboratory Data
- Table 5: AS/SVE System DAR-1 Compliance – November 29, 2016
- Table 6: 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 5, 2016 and since inception, the SVE system operated for 9,333 hours (95% uptime), and the AS system operated for 9,204 hours (93% 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 SUMMARY
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

SAMPLE NAME	SAMPLE DATE	SAMPLE TYPE	LOCATION	ANALYSIS
AS/SVE SYSTEM VAPOR SAMPLES				
Influent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Mid_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Mid-Point	TO-15 VOCs
Effluent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_052616	5/26/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_052616	5/26/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_062916	6/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_062916	6/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_072816	7/28/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_072816	7/28/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_083116	8/31/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_083116	8/31/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_092916	9/29/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Midpoint_092916	9/29/2016	One, 3-Liter Tedlar Bags	vGAAC Vessel Mid-Point	TO-15 VOCs
Effluent_092916	9/29/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_103116	10/31/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_103116	10/31/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_112916	11/29/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_112916	11/29/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs

Notes:

1. The vapor samples were analyzed for VOCs via USEPA Method TO-15.
2. USEPA = United States Environmental Protection Agency
3. VOCs = volatile organic compounds
4. AS/SVE = air sparge/soil vapor extraction
5. vGAC = vapor-phase granular activated carbon

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_112916		Effluent_112916	
LAB SAMPLE ID	16K1113-02		16K1113-01	
SAMPLE DATE	11/29/2016		11/29/2016	
Volatile Organic Compounds (ug/m^3)				
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U
1,1,1-Trichloroethane	5.50	U	5.50	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U
1,1-Dichloroethylene	4	U	4	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U
1,2-Dichloroethane	4	U	4	U
1,2-Dichloropropane	11	D	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U
1,3-Butadiene	6.60	U	6.60	U
1,3-Dichlorobenzene	6	U	6	U
1,3-Dichloropropane	4.60	U	4.60	U
1,4-Dichlorobenzene	6.00	U	6	U
1,4-Dioxane	7.20	U	7.20	U
2-Butanone	8	D	6.20	D
2-Hexanone	8.20	U	8.20	U
3-Chloropropene	16	U	16	U
4-Methyl-2-pentanone	5.70	D	4.10	U
Acetone	120	D	100	D
Acrylonitrile	2.20	U	2.20	U
Benzene	15.00	D	7.70	D
Benzyl chloride	5.20	U	5.20	U
Bromodichloromethane	6.70	U	6.70	U
Bromoform	10	U	10	U
Bromomethane	3.90	U	3.90	U
Carbon disulfide	3.10	U	3.10	U
Carbon tetrachloride	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U
Chloroform	4.90	U	4.90	U
Chloromethane	6.60	D	3.50	D
cis-1,2-Dichloroethylene	6	D	4	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U
Cyclohexane	3.40	U	3.40	U
Dibromochloromethane	8.50	U	8.50	U
Dichlorodifluoromethane	4.90	U	5.90	D
Ethyl acetate	7.20	U	7.20	U
Ethyl Benzene	4.30	U	4.30	U
Hexachlorobutadiene	11	U	11	U
Isopropanol	4.90	U	4.90	U
Methyl Methacrylate	12	D	14	D
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U
Methylene chloride	15	D	14	D
n-Heptane	4.10	U	4.10	U
n-Hexane	3.50	D	3.90	D
o-Xylene	4.30	U	4.30	U
p- & m- Xylenes	8.70	U	8.70	U
p-Ethyltoluene	4.90	U	4.90	U
Propylene	1.70	U	1.70	U
Styrene	4.30	U	4.30	U
Tetrachloroethylene	120	D	1.70	U
Tetrahydrofuran	6	U	5.90	U
Toluene	11.00	D	4.50	D
trans-1,2-Dichloroethylene	4	U	4	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U
Trichloroethylene	450	D	1.30	U
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U
Vinyl Chloride	6.10	D	7.40	D

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:
D = The result is from an analysis that required a dilution.
U = The analyte was not detected at or above the level indicated.

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - PID DATA
491 WORTMAN AVENUE
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	1548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3693	100	0.002	1.43	85.34
4/29/2016	2.0	571	0.0	4322	100	0.018	11.14	96.48
5/26/2016	0.4	600	0.0	4972	100	0.004	2.42	98.90
6/29/2016	0.5	600	0.0	5784	100	0.005	3.78	102.68
7/28/2016	3.0	600	0.0	6431	100	0.028	18.06	120.73
8/31/2016	2.7	600	0.0	7110	100	0.025	17.05	137.79
9/29/2016	7.5	760	2.0	7802	100	0.065	44.85	182.63
10/31/2016	0.0	520	0.0	8516	100	0.000	0.00	182.63
11/29/2016	0.0	560	0.0	9211	100	0.000	0.00	182.63

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 4: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA
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)	VGAC MASS REMOVAL EFFICIENCY (%)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99	92
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44	97
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36	95
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18	86
12/28/2015	3,357	570	230	1548	53.58	3.67	49.91	4.18	16.55	3.89	15.08	93
1/27/2016	621	525	183	2180	9.13	2.69	6.44	0.76	17.31	0.54	15.62	71
2/24/2016	1,454	578	283	2854	23.53	4.58	18.94	2.10	19.41	1.69	17.31	81
3/30/2016	825	550	75	3693	12.71	1.16	11.55	1.41	20.82	1.28	18.59	91
4/29/2016	482	571	112	4322	7.70	1.79	5.91	0.64	21.46	0.49	19.08	77
5/26/2016	1,169	600	162	4972	19.64	2.73	16.91	1.69	23.15	1.45	20.53	86
6/29/2016	1,865	600	190	5784	31.33	3.19	28.14	3.37	26.51	3.02	23.56	90
7/28/2016	3,706	600	232	6431	62.26	3.90	58.36	5.33	31.84	4.99	28.55	94
8/31/2016	4,798	600	135	7110	80.61	2.26	78.35	7.24	39.08	7.04	35.59	97
9/29/2016	1,045	760	179	7802	22.24	3.81	18.43	2.04	41.12	1.69	37.27	83
10/31/2016	922	520	91	8516	13.42	1.32	12.10	1.27	42.38	1.14	38.42	90
11/29/2016	790	560	167	9211	12.38	2.62	9.76	1.14	43.52	0.90	39.31	79

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 5: AS/SVE SYSTEM DAR-1 COMPLIANCE
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **11/29/2016**

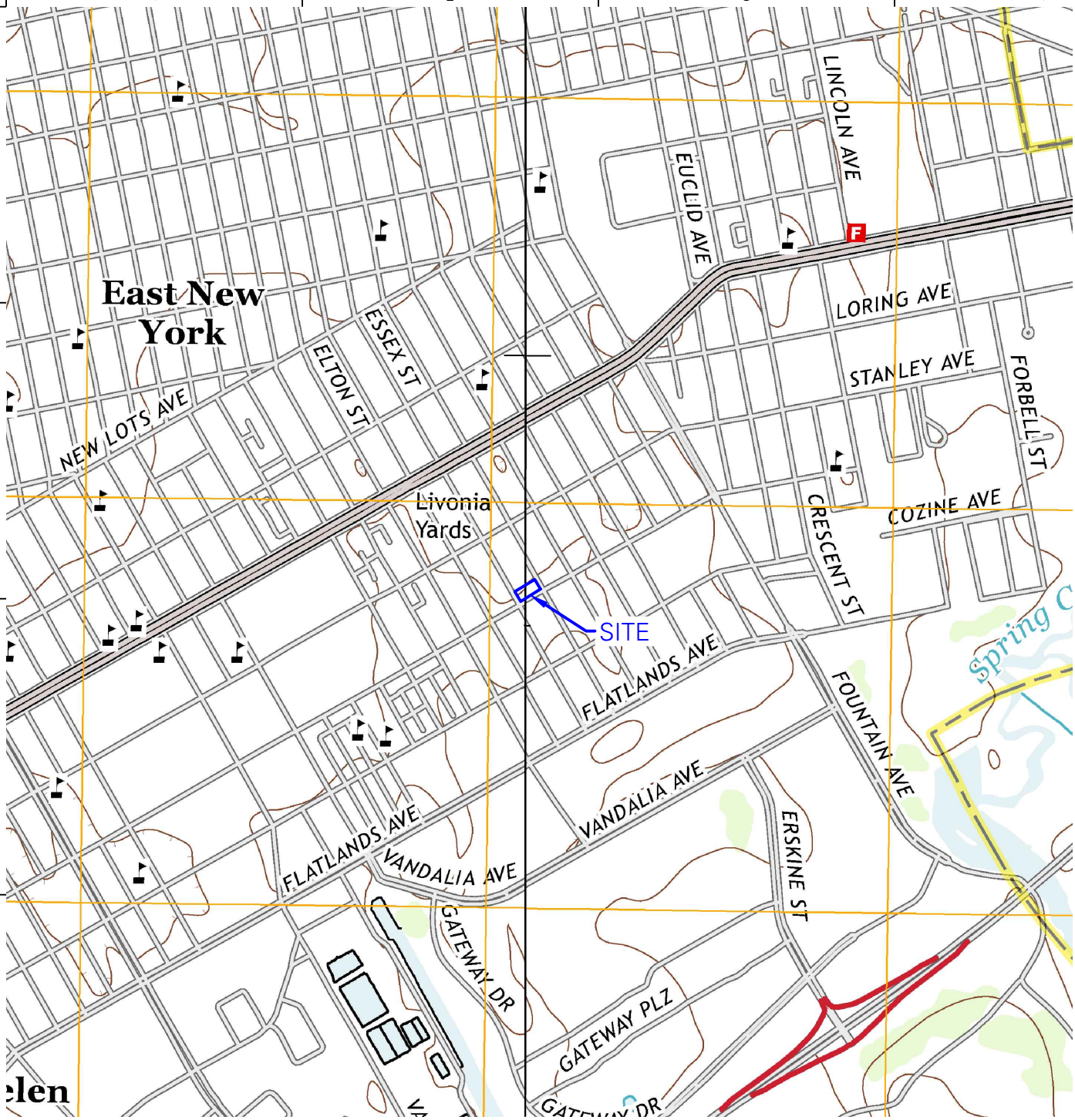
CHEMICAL COMPOUND	CARBON EFFLUENT CONCENRATION MEASURED ($\mu g/m^3$)	EMISSION FLOWRATE MEASURED (SCFM)	(m^3/min)	OUTLET CONCENTRATION (Q_p) (lb/hr)	OUTLET CONCENTRATION (Q_a) (lb/yr)	MAX ANNUAL IMPACT (C_a) ($\mu g/m^3$)	MAX POTENTIAL IMPACT (C_p) ($\mu g/m^3$)	MAX SHORT-TERM IMPACT (C_{st}) ($\mu g/m^3$)	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)													
2-Butanone	6.2	560	15.85752	1.30E-05	1.14E-01	1.02E-03	1.02E-03	6.64E-02	13000	5000	NO	NO	NO
Acetone	100	560	15.85752	2.09E-04	1.83E+00	1.65E-02	1.65E-02	1.07E+00	180,000	30,000	NO	NO	NO
Benzene	7.7	560	15.85752	1.61E-05	1.41E-01	1.27E-03	1.27E-03	8.24E-02	1,300	0.13	NO	NO	NO
Chloromethane	3.5	560	15.85752	7.33E-06	6.42E-02	5.77E-04	5.76E-04	3.75E-02	6,200	700	NO	NO	NO
Dichlorodifluoromethane	5.9	560	15.85752	1.23E-05	1.08E-01	9.73E-04	9.72E-04	6.31E-02	--	12,000	NO	No Standard	NO
Methyl methacrylate	14	560	15.85752	2.93E-05	2.57E-01	2.31E-03	2.31E-03	1.50E-01	41,000	700	NO	NO	NO
Methylene chloride	14	560	15.85752	2.93E-05	2.57E-01	2.31E-03	2.31E-03	1.50E-01	14,000	60	NO	NO	NO
n-Hexane	3.9	560	15.85752	8.16E-06	7.15E-02	6.43E-04	6.42E-04	4.17E-02	--	700	NO	No Standard	NO
Toluene	4.5	560	15.85752	9.42E-06	8.25E-02	7.42E-04	7.41E-04	4.82E-02	37,000	5,000	NO	NO	NO
Vinly Chloride	7.4	560	15.85752	1.55E-05	1.36E-01	1.22E-03	1.22E-03	7.92E-02	180,000	0.11	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 6: AS/SVE SYSTEM ALARM HISTORY
491 WORTMAN AVENUE
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.

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, 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

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 1

Filename: \\langan.com\data\NYC\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 17 - Figure 1 Only\Figure 1 - Site Location Map.dwg Date: 12/5/2016 Time: 11:40 User: mrogers Style Table: Langan.stb Layout: Site Location Map

Progress Report No. 18
J&H Holding Company, LLC
491 Wortman Avenue, Brooklyn, NY 11208
Brownfield Cleanup Program Site No. C224139
Reporting Period: December 2016

1. Introduction

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) submits this monthly progress report on behalf of J&H Holding Company, LLC (the "Participant"). Monthly progress report submittal to the New York State Department of Environmental Conservation (NYSDEC) is performed in accordance with the Brownfield Cleanup Agreement (BCA) and Section 3.2 of the NYSDEC-approved Interim Remedial Measures Work Plan (IRMWP), prepared by Langan, dated April 28, 2015, and revised June 16, 2015. This monthly progress report summarizes work performed at 491 Wortman Avenue, Brooklyn, New York (the "Site") during December 2016.

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 (i.e. the eastern portion).

Environmental site investigations began in November 2008. Langan submitted the IRMWP, which the NYSDEC approved on June 18, 2015. Implementation of the IRMWP and the pending environmental activities are described further in this progress report.

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

On December 28, 2016, Langan recorded process and performance monitoring data for the soil vapor extraction (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, checking belt tensions, and replacing the oil in the blower, was also performed.

Process and performance data for the air compressor (AS) system could not be recorded during this monthly inspection because the AS system shutdown on December 27th at 4:40pm due to a low pressure alarm that was caused by a mechanical failure of the air compressor (i.e., the belts tore).

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

On January 9, 2017, the air compressor belts were replaced and the AS system was restarted.

The following activities are planned:

- Continued operation, maintenance and monitoring (OM&M) of the AS/SVE system
- Preparation and submission of a Remedial Action Work Plan

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 York Analytical Laboratories Inc. (York) of Stratford, CT. York 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 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 Summary
- Table 2: AS/SVE System Vapor Sampling Results
- Table 3: AS/SVE System Mass Removal – PID Data
- Table 4: AS/SVE System Mass Removal – Laboratory Data
- Table 5: AS/SVE System DAR-1 Compliance – December 28, 2016
- Table 6: AS/SVE System Alarm History

6. Deliverables Submitted During This Reporting Period

None, but in the subsequent reporting period (January 2017) a draft Remedial Action Work Plan will be submitted to the NYSDEC for review.

7. Information Regarding Percentage of Completion

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

As of January 9, 2017 and since inception, the SVE system operated for 10,173 hours (95% uptime), and the AS system operated for 9,707 hours (91% 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

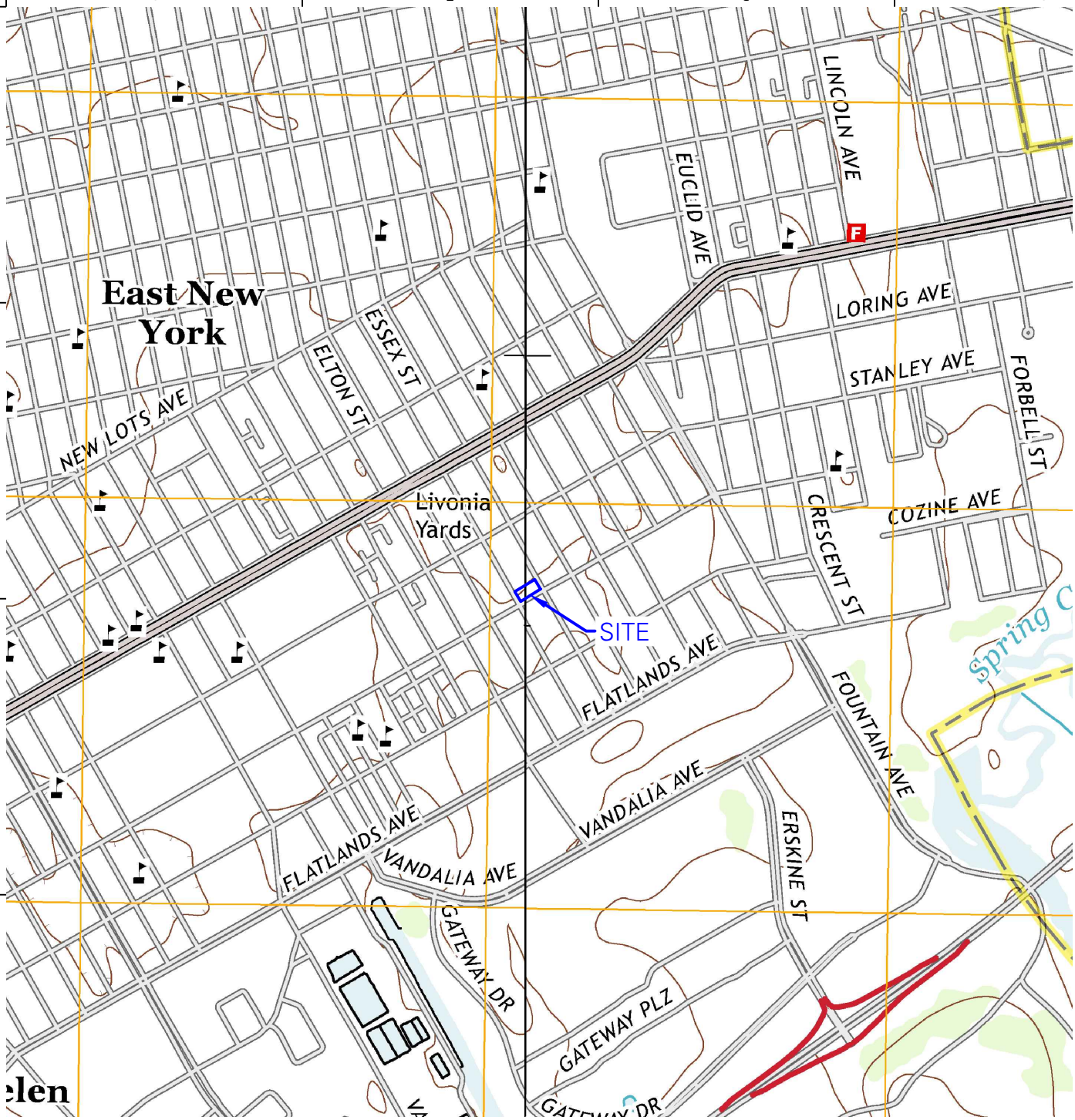
10. Activities Anticipated in Support of the CPP for the Next Reporting Period

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.

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 1

Filename: \\langan.com\data\NYC\data3\170329301\Cadd Data - 170329301\SheetFiles\Monthly Report 17 - Figure 1 Only\Figure 1 - Site Location Map.dwg Date: 12/5/2016 Time: 11:40 User: mrogers Style Table: Langan.stb Layout: Site Location Map

TABLES

TABLE 1: AS/SVE SYSTEM VAPOR SAMPLING SUMMARY
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

SAMPLE NAME	SAMPLE DATE	SAMPLE TYPE	LOCATION	ANALYSIS
AS/SVE SYSTEM VAPOR SAMPLES				
Influent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent 102015	10/20/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102115	10/21/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_102615	10/26/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_113015	11/30/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_122815	12/28/2015	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_012716	1/27/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Mid_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Mid-Point	TO-15 VOCs
Effluent_022416	2/24/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_033016	3/30/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_042916	4/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_052616	5/26/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_052616	5/26/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_062916	6/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_062916	6/29/2016	Three, 1-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_072816	7/28/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_072816	7/28/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_083116	8/31/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_083116	8/31/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_092916	9/29/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Midpoint_092916	9/29/2016	One, 3-Liter Tedlar Bags	vGAAC Vessel Mid-Point	TO-15 VOCs
Effluent_092916	9/29/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_103116	10/31/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_103116	10/31/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_112916	11/29/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_112916	11/29/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs
Influent_122816	12/28/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Influent	TO-15 VOCs
Effluent_122816	12/28/2016	One, 3-Liter Tedlar Bags	vGAC Vessel Effluent	TO-15 VOCs

Notes:

1. The vapor samples were analyzed for VOCs via USEPA Method TO-15.
2. USEPA = United States Environmental Protection Agency
3. VOCs = volatile organic compounds
4. AS/SVE = air sparge/soil vapor extraction
5. vGAC = vapor-phase granular activated carbon

TABLE 2: AS/SVE SYSTEM VAPOR SAMPLING RESULTS
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM SITE NO. C224139

LOCATION	vGAC INFLUENT		vGAC EFFLUENT	
SAMPLE ID	Influent_122816		Effluent_122816	
LAB SAMPLE ID	16L1100-01		16L1100-02	
SAMPLE DATE	12/28/2016		12/28/2016	
Volatile Organic Compounds (ug/m^3)				
1,1,1,2-Tetrachloroethane	6.90	U	6.90	U
1,1,1-Trichloroethane	5.50	U	5.50	U
1,1,2,2-Tetrachloroethane	6.90	U	6.90	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.70	U	7.70	U
1,1,2-Trichloroethane	5.50	U	5.50	U
1,1-Dichloroethane	4	U	4	U
1,1-Dichloroethylene	4	U	4	U
1,2,4-Trichlorobenzene	7.40	U	7.40	U
1,2,4-Trimethylbenzene	4.90	U	4.90	U
1,2-Dibromoethane	7.70	U	7.70	U
1,2-Dichlorobenzene	6	U	6	U
1,2-Dichloroethane	4	U	4	U
1,2-Dichloropropane	5	U	4.60	U
1,2-Dichlorotetrafluoroethane	7	U	7	U
1,3,5-Trimethylbenzene	4.90	U	4.90	U
1,3-Butadiene	6.60	U	6.60	U
1,3-Dichlorobenzene	6	U	6	U
1,3-Dichloropropane	4.60	U	4.60	U
1,4-Dichlorobenzene	6.00	U	6	U
1,4-Dioxane	7.20	U	7.20	U
2-Butanone	3	U	2.90	U
2-Hexanone	8.20	U	8.20	U
3-Chloropropene	16	U	16	U
4-Methyl-2-pentanone	4.10	U	4.10	U
Acetone	20	D	26	D
Acrylonitrile	2.20	U	2.20	U
Benzene	3.20	U	3.20	U
Benzyl chloride	5.20	U	5.20	U
Bromodichloromethane	6.70	U	6.70	U
Bromoform	10	U	10	U
Bromomethane	3.90	U	3.90	U
Carbon disulfide	3.10	U	3.10	U
Carbon tetrachloride	1.60	U	1.60	U
Chlorobenzene	4.60	U	4.60	U
Chloroethane	2.60	U	2.60	U
Chloroform	4.90	U	4.90	U
Chloromethane	2.10	U	2.10	U
cis-1,2-Dichloroethylene	4	U	4	U
cis-1,3-Dichloropropylene	4.50	U	4.50	U
Cyclohexane	3.40	U	3.40	U
Dibromochloromethane	8.50	U	8.50	U
Dichlorodifluoromethane	4.90	U	4.90	U
Ethyl acetate	7.20	U	7.20	U
Ethyl Benzene	4.30	U	4.30	U
Hexachlorobutadiene	11	U	11	U
Isopropanol	4.90	U	4.90	U
Methyl Methacrylate	4	U	4	U
Methyl tert-butyl ether (MTBE)	3.60	U	3.60	U
Methylene chloride	21	D	20	D
n-Heptane	4.10	U	4.10	U
n-Hexane	3.50	U	3.50	U
o-Xylene	4.30	U	4.30	U
p- & m- Xylenes	8.70	U	8.70	U
p-Ethyltoluene	4.90	U	4.90	U
Propylene	1.70	U	1.70	U
Styrene	4.30	U	4.30	U
Tetrachloroethylene	41	D	53	D
Tetrahydrofuran	6	U	5.90	U
Toluene	3.80	U	3.80	U
trans-1,2-Dichloroethylene	4	U	4	U
trans-1,3-Dichloropropylene	4.50	U	4.50	U
Trichloroethylene	200	D	24	D
Trichlorofluoromethane (Freon 11)	5.60	U	5.60	U
Vinyl acetate	3.50	U	3.50	U
Vinyl bromide	4.40	U	4.40	U
Vinyl Chloride	2.60	U	2.60	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:
D = The result is from an analysis that required a dilution.
U = The analyte was not detected at or above the level indicated.

TABLE 3: AS/SVE SYSTEM MASS REMOVAL - PID DATA
491 WORTMAN AVENUE
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	1548	100	0.03	19.29	65.21
1/27/2016	1.2	525	0.5	2180	100	0.01	3.60	68.81
2/24/2016	2.5	578	0.0	2854	100	0.02	15.10	83.91
3/30/2016	0.2	550	0.0	3693	100	0.002	1.43	85.34
4/29/2016	2.0	571	0.0	4322	100	0.018	11.14	96.48
5/26/2016	0.4	600	0.0	4972	100	0.004	2.42	98.90
6/29/2016	0.5	600	0.0	5784	100	0.005	3.78	102.68
7/28/2016	3.0	600	0.0	6431	100	0.028	18.06	120.73
8/31/2016	2.7	600	0.0	7110	100	0.025	17.05	137.79
9/29/2016	7.5	760	2.0	7802	100	0.065	44.85	182.63
10/31/2016	0.0	520	0.0	8516	100	0.000	0.00	182.63
11/29/2016	0.0	560	0.0	9211	100	0.000	0.00	182.63
12/28/2016	0.0	520	0.0	9884	100	0.000	0.00	182.63

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 4: AS/SVE SYSTEM MASS REMOVAL - LABORATORY DATA
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)	VGAC MASS REMOVAL EFFICIENCY (%)
10/20/2015	114,348	640	9,241	12	2049.12	165.60	1883.52	3.25	3.25	2.99	2.99	92
10/21/2015	32,758	688	1,129	30	631.05	21.75	609.30	1.50	4.76	1.45	4.44	97
10/26/2015	7,027	650	383	150	127.89	6.97	120.92	2.03	6.79	1.92	6.36	95
11/30/2015	3,144	593	426	958	52.20	7.07	45.13	5.58	12.36	4.82	11.18	86
12/28/2015	3,357	570	230	1548	53.58	3.67	49.91	4.18	16.55	3.89	15.08	93
1/27/2016	621	525	183	2180	9.13	2.69	6.44	0.76	17.31	0.54	15.62	71
2/24/2016	1,454	578	283	2854	23.53	4.58	18.94	2.10	19.41	1.69	17.31	81
3/30/2016	825	550	75	3693	12.71	1.16	11.55	1.41	20.82	1.28	18.59	91
4/29/2016	482	571	112	4322	7.70	1.79	5.91	0.64	21.46	0.49	19.08	77
5/26/2016	1,169	600	162	4972	19.64	2.73	16.91	1.69	23.15	1.45	20.53	86
6/29/2016	1,865	600	190	5784	31.33	3.19	28.14	3.37	26.51	3.02	23.56	90
7/28/2016	3,706	600	232	6431	62.26	3.90	58.36	5.33	31.84	4.99	28.55	94
8/31/2016	4,798	600	135	7110	80.61	2.26	78.35	7.24	39.08	7.04	35.59	97
9/29/2016	1,045	760	179	7802	22.24	3.81	18.43	2.04	41.12	1.69	37.27	83
10/31/2016	922	520	91	8516	13.42	1.32	12.10	1.27	42.38	1.14	38.42	90
11/29/2016	790	560	167	9211	12.38	2.62	9.76	1.14	43.52	0.90	39.31	79
12/28/2016	282	520	123	9884	4.11	1.79	2.32	0.37	43.89	0.21	39.52	56

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 5: AS/SVE SYSTEM DAR-1 COMPLIANCE
491 WORTMAN AVENUE
BROOKLYN, NEW YORK
LANGAN PROJECT NO. 170329301
BROWNFIELD CLEANUP PROGRAM NO. C224139

SAMPLING DATE: **12/28/2016**

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	26	520	14.72484	5.05E-05	4.43E-01	3.98E-03	3.98E-03	2.58E-01	180,000	30,000	NO	NO	NO
Methylene chloride	20	520	14.72484	3.89E-05	3.41E-01	3.06E-03	3.06E-03	1.99E-01	14,000	60	NO	NO	NO
Tetrachloroethylene	53	520	14.72484	1.03E-04	9.02E-01	8.11E-03	8.10E-03	5.27E-01	300	4	NO	NO	NO
Trichloroethylene	24	520	14.72484	4.66E-05	4.09E-01	3.67E-03	3.67E-03	2.39E-01	14,000	0.2	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 6: AS/SVE SYSTEM ALARM HISTORY
491 WORTMAN AVENUE
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.