

FINAL PERIODIC REVIEW REPORT

FOR THE

FORMER CLINTON TERRACE SHOPPING CENTER 78 CROTON AVENUE OSSINING, NEW YORK

NYSDEC BROWNFIELD #360110

Prepared for: Ms. Sally Krauss, S.V.P.
Real Estate and Environmental Affairs
DLC Management Corp.
580 White Plains Road, Tarrytown, NY 10591
Phone: (914) 631-3131
URL: www.dlcmgmt.com

Prepared by: Dave Pelletier, P.E., Project Engineer
Jade Environmental, Inc.
59 Circle Drive, Hopewell Junction, NY 12533
Office: (914) 882-6074
Fax: (845) 704-1376
E-mail: dave@jadeenv.com

NYSDEC Case Manager: John Miller, Project Supervisor
NYSDEC
Division of Environmental Remediation
625 Broadway, Albany, NY 12233-7014
(518) 402-9662

Report Date: October 11, 2016

Groundwater Sampling Completed September 2016

EXECUTIVE SUMMARY

The following Final Periodic Review Report (PRR) is being submitted as required in accordance with Section 6.5 of DER-10, *Technical Guidance for Site Investigation and Remediation*, for the former Clinton Terrace Shopping Center (Site), Brownfield file number 360110.

This report includes the results of our most recent site reconnaissance for evidence of Site Wide Cover and/or Soil Vapor Liner disturbance as well as groundwater testing results associated with the three remaining monitoring wells on-site. As you may recall, two of the original five monitoring wells have previously been closed with NYSDEC approval, as a result of their consistent lack of contamination. Recent laboratory data confirms that all contaminant concentrations at the three remaining wells have also been reduced to non-detect levels.

The Site consists of a 0.9-acre comer parcel known as 78 Croton Avenue, in a local business/residential area of the City of Ossining, New York. The Site was cleaned up under the state Brownfield program after it was determined during routine predevelopment due diligence that the Site was contaminated as a result of historical dry cleaner operations at the shopping center.

Although the dry cleaner has not been in business since 1974, while it was operating, PCE was spilled from leaky plumbing associated with a coin-operated dry cleaning equipment spill containment system. The small but chronic spillage of PCE from the leaky drain plumbing created a plume that extended down through the soil strata approximately 10 feet, where it entered the groundwater of the Upper Glacial Aquifer. Once in the water column, the PCE migrated with groundwater flow in a northwesterly direction beneath the parking lot of the former strip center. Delineation efforts revealed the plume was mostly contained on-site and had not breached any down gradient property bounds.

The remedial effort included extensive dewatering followed by excavation and off-site disposal of contaminated soil down to 17-18' below grade (7-8 feet into the saturated zone). The source removal included 'polishing' efforts comprised of backfilling of the saturated zone with highly permeable crushed stone inoculated with a mixture of municipal water and 50+ gallons of Hydrogen Releasing Compound (HRC). The HRC is designed to stimulate biological activity which metabolizes the chlorinated molecules, ultimately breaking them down into non-hazardous constituents.

This Final Periodic Review Report (PRR) confirms that:

- the remedial work completed to date, including the removal and disposal of contaminated soils, has successfully mitigated the source of the release; and
- monitored natural attenuation of residual groundwater contamination has been successfully completed, and contaminant concentrations at all monitoring locations have been confirmed by laboratory analysis to have reduced to non-detect levels.

Jade therefore concludes that:

- continued groundwater monitoring and reporting is no longer required for this Site;
- use of a sub-slab depressurization system (SSDS) as an Engineering Control (EC) for mitigation of soil vapor intrusion is no longer required for this Site.

This Final PRR has been prepared in order to petition NYSDEC to proceed with site closeout, specifically to:

- terminate the requirement for periodic groundwater monitoring and reporting;
- authorize decommissioning of all remaining on-site monitoring wells; and,
- terminate the requirement for continued use of the SSDS.

1. BACKGROUND DATA

1.1 Introduction

The following Final Periodic Review Report details the results of our prior four years of groundwater monitoring at the Former Clinton Terrace Shopping Center located at the corner of Croton and Clinton Avenues in the City of Ossining, New York, Westchester County, New York. Remedial efforts were completed in the summer of 2011, groundwater well installation was completed in the summer of 2012; the summer of 2016 completes the fourth year of monitoring.

1.1.1 Project Background / Spill Details

The original Clinton Corners Shopping Center, built in 1950, replaced two lots improved with residential dwellings with ground floor retail space. An addition doubled the floor space in 1960, and the structure was divided into several retail units. The southernmost end unit closest to Clinton Place was immediately occupied by a "state of the art" dry cleaner facility that utilized ten Westinghouse coin-operated dry cleaning machine located just inside the front door at the northwest corner of the unit. All ten machines were reportedly inside a containment designed to collect any spilled PCE. The spill containment directed the spilled PCE through a copper drain pipe down to a 550-gallon steel tank set beneath the solvent machines. The remedial effort begun in the Spring of 2011 was started with the removal of the tank, which was filled with a mix of PCE and water.

During the tank system removal, it became apparent that the floor drain inside of the containment was connected to the tank via 1 ½" diameter copper piping which traversed from the center of the room, north towards the interior wall, then down into the subsurface, then back and south to the tank. During removal of the slab, a weld failure was identified on a 45-degree fitting at the interior wall. Based on the details of the failure it became clear that every time PCE had been discharged from the floor drain to the tank, a small amount was released through this breach and into the subsurface.

Although anticipated to be relatively small in volume, the chronic and continuous nature of the discharges resulted in a plume of chlorinated solvent contamination originating just beneath the leaking pipework, extending down to the saturated zone and then traveling northwest transported by groundwater currents. Our inspection revealed the tank itself had not leaked and was filled almost to capacity with PCE when uncovered.

Monitoring well MW-2 was installed in front of the new building (generally within the same footprint as the previous improvements) directly down gradient within 30' of the point of release. It was expected the highest concentrations of PCE would persist in this

well.

1.1.2 Summary of Remedial Efforts

As noted above, during the late Spring and Summer of 2011, Jade oversaw the dewatering of the site (which dropped the water table more than 5 feet), and then the excavation of soil beneath the former machines from just below the slab to a depth of more than 7 feet below the natural static water level (more than 16' below grade). Dewater was treated and discharged to the county sewer under permit. Discharge samples were collected daily from the treatment system to ensure the discharge met permit requirements. Contaminated soil was disposed as either hazardous waste at StableX, Canada, or as non-hazardous landfill cover in western New York State.

Once end point soil samples revealed all of the source contamination had been removed (*i.e.* soil contaminated above the regulatory limit of 1,300 ppb), the excavation was ceased, the floor of the excavation lined with geo-textile and backfilled highly permeable $\frac{3}{4}$ " crushed stone to an elevation of approximately 2' above the water table. Prior to covering the stone with geo-textile and shutting down the dewatering system, the gravel pack was inoculated with 150 gallons of HRC with the intention of enhancing the natural degradation process and speeding up completion of the groundwater monitoring program.

1.1.3 Monitoring Well Installation and Layout

After the remediation was complete, the Site was redeveloped with the current improvements. In the Summer of 2011, in accordance with NYSDEC approval, Jade installed three (3) new 2" monitoring wells across the front of the new building, and a fourth further out in the parking lot, in a position directly down gradient of MW-2 and the source.

In addition to the installation of monitoring wells, NYSDEC also required testing of the Site's permanent dewatering system, which was installed to manage groundwater elevation and prevent possible flooding of the building basement. In addition to the pump system, the entire foundation was sealed with a high-grade liner to protect the interior in the event the pump system failed.

The effluent, originating at a pump system set just behind the building, discharges into a catch basin also located behind the building near the dewatering pit. The catch basin is connected to the Site stormwater control system, which ultimately discharges to Sing Sing Creek, a tributary of the Hudson River and regulated resource. Despite the system having the ability to draw in contaminated groundwater, to date only trace levels of PCE have been detected in the pump effluent, well below the discharge standards. In addition to the newly installed wells and the pump system, Jade salvaged a former 2" well drilled at the northeast corner of the site and included it in the monitoring program, for a total of five (5) wells and

one pump effluent. The map provided in Appendix A depicts the details of this description.

1.1.4 NYSDEC Approvals / Plan Changes

In 2014, the NYSDEC approved the closure of MW-1 and MW-5 and discontinued sampling of the groundwater discharge system. In addition, the required frequency of sampling was changed from quarterly to annually.

1.2 Purpose and Objective

The primary purpose of this monitoring program is to document the effectiveness of the remedial efforts and enhanced natural attenuation program put in place to deal with the residual plume. Based on previous discussions with the NYSDEC, site closure would be considered when 2-3 consistent sampling events identified PCE levels at or near applicable regulatory levels.

2. SEPTEMBER 2016 GROUNDWATER MONITORING AND SITE INSPECTION

2.1 Groundwater Monitoring

2.1.1 Field Screening / Sampling

Prior to sampling, Jade purged the monitoring wells of multiple well volumes, a minimum of five gallons, using dedicated bailers. The samples were screened, placed in VOA bottles without headspace, labeled and placed in a cooler with blue ice for preservation. during next day transport to a NYLAP certified laboratory for chemical analysis. Of note, although the presence of HRC or a residual compound was previously observed at down-gradient well MW-2 during previous sampling events, no evidence of biological activity was noted in any of the wells during this most recent sampling.

2.1.2 Sample Management

Under standard chain of custody procedures, the samples were transported overnight to a NYLAP certified laboratory for chemical analysis. All samples were analyzed using USEPA analytical method 8010, which is a GC/MS analysis that reports only halogenated compounds that specifically include PCE and many of its degradation products.

2.1.3 Analytical Results

Sample analysis results are summarized in the table below, and compared with results from previous sampling events since April 2012. The < symbol indicates that constituents were not detected above the laboratory method detection limit (MDL). The reportable detection limit (RDL) is consistently 5ppb or better for all constituents.

Concentrations above the MDL are bolded. Cells shaded yellow indicate constituent concentrations within one order of magnitude of the regulatory standard (5-50 ppb). Cells shaded orange indicate concentrations between one and two orders of magnitude (50-500 ppb). Cells shaded red indicate concentrations exceeding two orders of magnitude (>500 ppb). Please refer to the complete laboratory report in Appendix B for the complete list of parameters and method detection limits.

NYSDEC guidance states that site closure would be considered when 2-3 consistent sampling events identified PCE levels at or near applicable regulatory levels. The laboratory data tabulated on the following page confirms that contaminant concentrations at the Site have decreased rapidly to below the laboratory method detection limit (MDL), and no constituents have been detected above the applicable groundwater quality criteria for the previous two sampling events.

Groundwater Monitoring Summary Table							
Constituent Detected	Date Sampled						
	April 2012	Sept 2012	Jan 2013	March 2013	July 2013	July 2015	Sept 2016
MW-2							
Tetrachloroethylene	280	12	32	25 J	11	3.7	<1
Trichloroethylene	<5	<5	<10	<120	<25	<2.0	<1
Cis 1,2 Dichloroethylene	<5	<5	770	450	350	3.1	<1
Cis 1,3 Dichloropropene	<5	<5	<5	<120	<25	<2.0	<0.40
Vinyl Chloride	<5	<5	55	36 J	<25	<2.0	<1
MW-3							
Tetrachloroethylene	<10	<5	<10	<10	<5	<100	<1
Trichloroethylene	<10	<5	<10	<10	<5	<100	<1
Cis 1,2 Dichloroethylene	<10	<5	<10	0.85 J	1.9	<100	<1
Cis 1,3 Dichloropropene	<10	<5	<10	<10	<5	<100	<0.40
Vinyl Chloride	<10	<5	<10	<10	<5	<100	<1
MW-4							
Tetrachloroethylene	<5	<5	1.5	20	<5	<2.0	<3.9
Trichloroethylene	<5	<5	<1	1.8	<5	<2.0	<1
Cis 1,2 Dichloroethylene	<5	2.6	<1	86	0.99	<2.0	<1
Cis 1,3 Dichloropropene	<5	<5	<0.5	<1	<5	<2.0	<0.40
Vinyl Chloride	<5	<5	<1	5.8	3.3	<2.0	<1

2.2 Site Inspection / Cap Integrity

Jade thoroughly inspected the entire site and did not identify any evidence of any existing of prior breach of the cap. Flatwork was intact without evidence of patching or other indication that the subsurface vapor barrier (which cannot itself be inspected) may have been penetrated. The SSDS was also inspected and confirmed to be functioning correctly; the vacuum gauge attached just below the in-line fan indicated that a negative pressure differential was being maintained.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 Groundwater Monitoring

The groundwater monitoring results summarized above and documented in Appendix B confirm that dissolved CVOCs are no longer a contaminant of concern for this Site. Therefore, Jade concludes that continued groundwater monitoring and reporting is no longer required.

3.2 Site Wide Cover / Vapor Barrier

Jade inspected the site on September 8, 2016 and confirmed that the site wide cover system and vapor barrier are intact. No area of the property was compromised in any way indicating that the cover or liner under building had been damaged. The Site continues to be used for commercial purposes only, no redevelopment of the property is proposed, and the site-wide cover system and vapor barrier are to remain in place indefinitely.

3.3 Sub-Slab Depressurization

The vacuum gauge attached to the sub-slab depressurization system just below the in-line fan was inspected, and indicated that a negative pressure differential was being maintained. Based on the favorable groundwater data, relatively low PCE concentrations detected in 2014 soil gas sampling, and continued presence of a high-grade vapor barrier installed beneath the current improvements, Jade concludes that use of the SSDS as an added Engineering Control to mitigate the vapor intrusion risk is no longer required.

3.4 Recommendations

Based on these considerations and conclusions, Jade has prepared this Final PRR in order to petition NYSDEC to proceed with site closeout, and recommends the following:

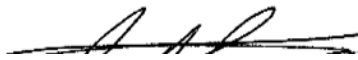
- termination of the requirement for periodic groundwater monitoring and reporting;
- authorization be given to decommission all remaining on-site monitoring wells;
- termination of the requirement for continued use of the SSDS as an Engineering Control.

4. IC/EC CERTIFICATION / SIGNATURE PAGE

Based on quarterly inspections of the Site, Jade certifies that based on inspection, no site activities have occurred that have compromised the integrity of the Institutional or Engineering Controls that apply to the Site. All areas of the property remain covered with intact blacktop, concrete and/or grass/mulch in the Site's minimal landscaping areas. Based on this most recent testing event, Jade concludes further testing would not necessarily provide cost efficient data and recommends the NYSDEC consider closing the testing portion of this Annual Certification.

The activities detailed herein were planned and supervised by Dave Pelletier, P.E., an Environmental Engineer working in the environmental engineering field since 1984. Mr. Pelletier holds a Bachelors degree in Civil Engineering from Rensselaer Polytechnic Institute, and graduate level training from both Rensselaer Polytechnic Institute and Manhattan College with concentrations in geotechnical and water resource engineering. Mr. Pelletier is a New York State licensed professional engineer and holds multiple certifications in asbestos, Cathodic Protection System Testing and petroleum storage system development, testing and assessment.

Jade Environmental Engineering, PLLC further certifies that the conclusions and recommendations provided herein are based on sound engineering principles, commercially accepted standards and NYS Brownfield requirements all having the ultimate goal of reestablishing conditions protective of human health and the environment.



Dave Pelletier, P.E.
Project Engineer



Seal

EXHIBITS

METS AND BOUND DESCRIPTION
LOT 1 BLOCK 7 SECTION 89.16
VILLAGE OF OSSING, TOWN OF OSSING
WESTCHESTER COUNTY, STATE OF NEW YORK

1. BEGINNING AT A POINT FORMED BY THE INTERSECTION OF THE NORTHEASTERLY LINE OF CLINTON AVENUE (60' WIDE) WITH THE SOUTHEASTERLY LINE OF CROTON AVENUE (A.K.A. ROUTE 133, F.K.A. CROTON-TURNPIKE AVENUE), AND FROM SAID BEGINNING POINT RUNNING, THENCE:
 1. ALONG THE SOUTHEASTERLY LINE OF CROTON AVENUE, NORTH 52 DEGREES - 52 MINUTES - 00 SECONDS EAST, A DISTANCE OF 132.52 FEET TO A POINT, THENCE;
 2. ALONG THE DIVING LINE BETWEEN LOT 1 AND LOT 2, SOUTH 49 DEGREES - 48 MINUTES - 40 SECONDS EAST, A DISTANCE OF 140.35 FEET TO A POINT, THENCE;
 3. ALONG THE DIVING LINE BETWEEN LOT 1 AND LOT 4, BLOCK 7, SOUTH 75 DEGREES - 42 MINUTES - 00 SECONDS EAST, A DISTANCE OF 93.00 FEET TO A POINT, THENCE;
 4. ALONG THE DIVING LINE BETWEEN LOT 1 AND LOT 9, BLOCK 7, SOUTH 16 DEGREES - 22 MINUTES - 10 SECONDS WEST, A DISTANCE OF 56.74 FEET TO A POINT, THENCE;
 5. ALONG THE DIVING LINE BETWEEN LOT 1, BLOCK 7 AND LOT 3, BLOCK 1, SOUTH 16 DEGREES - 05 MINUTES - 20 SECONDS WEST, A DISTANCE OF 55.91 FEET TO A POINT, THENCE;
 6. ALONG THE COMMON DIVING LINE BETWEEN LOT 1, BLOCK 7 AND LOTS 1 & 2, BLOCK 1, NORTH 52 DEGREES - 29 MINUTES - 20 SECONDS WEST, A DISTANCE OF 40.25 FEET TO A POINT, THENCE;
 7. ALONG THE DIVING LINE BETWEEN BETWEEN LOT 1, BLOCK 7 AND LOT 1, BLOCK 1, SOUTH 43 DEGREES - 58 MINUTES - 50 SECONDS WEST, A DISTANCE OF 87.89 FEET TO A POINT, THENCE;
 8. ALONG THE NORTHEASTERLY LINE OF CLINTON AVENUE, THE FOLLOWING TWO (2) COURSES:
 1. NORTH 54 DEGREES - 21 MINUTES - 00 SECONDS WEST, A DISTANCE OF 60.87 FEET TO A POINT, THENCE;
 2. NORTH 41 DEGREES - 47 MINUTES - 30 SECONDS WEST, A DISTANCE OF 194.08 FEET TO THE POINT AND PLACE OF BEGINNING.

CONTAINING 39,271 SQUARE FEET OR 0.902 ACRE

THIS DESCRIPTION IS PREPARED WITH REFERENCE TO A TITLE REPORT PREPARED BY ROYAL ABSTRACT OF NEW YORK LLC, AGENT FOR STEWART TITLE INSURANCE COMPANY, TITLE NO. 901727, WITH AN EFFECTIVE DATE OF FEBRUARY 23, 2012.

LEGEND

- X 123.45 EXISTING SPOT ELEVATION
- X 10 123.45 EXIST. TOP OF CURB ELEVATION
- X 6 123.45 EXIST. GUTTER ELEVATION
- X NW 123.45 EXIST. TOP OF WALL ELEVATION
- X SW 123.45 EXIST. BOTTOM OF WALL ELEVATION
- X FF 123.45 EXIST. FINISHED FLOOR ELEVATION
- X BS 123.45 EXIST. DOOR SILL ELEVATION
- W WATER VALVE
- GA GAS METER
- EM ELECTRIC METER
- OW OVERHEAD WIRES
- APPROX. LOC. UNDERGROUND GAS LINE
- PER REF. #3
- APPROX. LOC. UNDERGROUND WATER LINE
- PER REF. #3
- UP ST. UTILITY POLE
- UP ST. UTILITY POLE/STREET LIGHT
- STREET LIGHT
- GLY GUY WIRE
- TRAFFIC SIGNAL POLE
- MONITORING WELL
- AREA LIGHT
- DMW DETECTABLE WARNING PAD
- SBL SOLID BLUE LINE
- STYL SOLID YELLOW LINE
- D/L DOUBLE YELLOW LINE
- C/O CLEAN OUT
- SIGN
- BOLLARD
- PAINTED ARROWS
- T.O.C. TOP OF CHAMBER
- T.O.W. TOP OF WATER
- N.V.P. NO VISIBLE PIPE
- C.L.F. CHAIN LINK FENCE
- E.O.C. EDGE OF CONC.
- C.M.C. CONCRETE
- L.S.A. LANDSCAPED AREA
- (TP) TYPICAL
- DMH DRAINAGE/STORM MANHOLE
- EMH ELECTRIC MANHOLE
- SMH SANITARY/SEWER MANHOLE
- UM UNKNOWN MANHOLE
- PA PARKING SPACE COUNT
- DENOTES TITLE REPORT EXCEPTION

CROTON AVENUE

(A.K.A. ROUTE 133)
(F.K.A. CROTON-TURNPIKE AVENUE)
(ASPHALT ROADWAY)





Tuesday, October 04, 2016

Attn: Mr. David Pelletier
Jade Environmental, Inc.
14 Ridgecrest Dr
Wingdale, NY 12594

Project ID: OSSINING BIENNIAL
Sample ID#s: BV33082 - BV33084

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Phyllis Shiller".

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #MA-CT-007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B

NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

October 04, 2016

FOR: Attn: Mr. David Pelletier
Jade Environmental, Inc.
14 Ridgecrest Dr
Wingdale, NY 12594

Sample Information

Matrix: GROUND WATER
Location Code: JADEENV
Rush Request: 72 Hour
P.O.#:

Custody Information

Collected by:
Received by: B
Analyzed by: see "By" below

Date

09/26/16
09/30/16

Time

12:00
17:07

Laboratory Data

SDG ID: GBV33082
Phoenix ID: BV33082

Project ID: OSSINING BIENNIAL
Client ID: MW-2

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>Halogenated Volatiles</u>							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	10/01/16	MH	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1-Dichloroethene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dibromoethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dichloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Bromobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	10/01/16	MH	SW8260C
Bromoform	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Bromomethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Chloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Chloroform	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Chloromethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	10/01/16	MH	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	10/01/16	MH	SW8260C
Dibromomethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Methylene chloride	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	10/01/16	MH	SW8260C
trans-1,4-dichloro-2-butene	ND	2.5	ug/L	1	10/01/16	MH	SW8260C
Trichloroethene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
<u>QA/QC Surrogates</u>							
% 1,2-dichlorobenzene-d4	100		%	1	10/01/16	MH	70 - 130 %
% Bromofluorobenzene	95		%	1	10/01/16	MH	70 - 130 %
% Dibromofluoromethane	99		%	1	10/01/16	MH	70 - 130 %
% Toluene-d8	100		%	1	10/01/16	MH	70 - 130 %

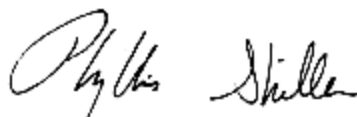
RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL

BRL=Below Reporting Level

QA/QC Surrogates: Surrogates are compounds (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
This report must not be reproduced except in full as defined by the attached chain of custody.



Phyllis Shiller, Laboratory Director

October 04, 2016

Reviewed and Released by: Bobbi Aloisa, Vice President



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

October 04, 2016

FOR: Attn: Mr. David Pelletier
Jade Environmental, Inc.
14 Ridgecrest Dr
Wingdale, NY 12594

Sample Information

Matrix: GROUND WATER
Location Code: JADEENV
Rush Request: 72 Hour
P.O.#:

Custody Information

Collected by:
Received by: B
Analyzed by: see "By" below

Date

09/26/16
09/30/16

Time

12:30
17:07

Laboratory Data

SDG ID: GBV33082
Phoenix ID: BV33083

Project ID: OSSINING BIENNIAL
Client ID: MW-3

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>Halogenated Volatiles</u>							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	10/01/16	MH	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1-Dichloroethene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dibromoethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dichloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Bromobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	10/01/16	MH	SW8260C
Bromoform	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Bromomethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Chloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Chloroform	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Chloromethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	10/01/16	MH	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	10/01/16	MH	SW8260C
Dibromomethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Methylene chloride	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	10/01/16	MH	SW8260C
trans-1,4-dichloro-2-butene	ND	2.5	ug/L	1	10/01/16	MH	SW8260C
Trichloroethene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
<u>QA/QC Surrogates</u>							
% 1,2-dichlorobenzene-d4	100		%	1	10/01/16	MH	70 - 130 %
% Bromofluorobenzene	95		%	1	10/01/16	MH	70 - 130 %
% Dibromofluoromethane	101		%	1	10/01/16	MH	70 - 130 %
% Toluene-d8	102		%	1	10/01/16	MH	70 - 130 %

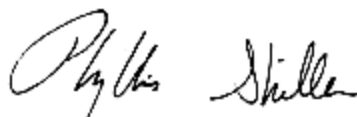
RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL

BRL=Below Reporting Level

QA/QC Surrogates: Surrogates are compounds (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller, Laboratory Director

October 04, 2016

Reviewed and Released by: Bobbi Aloisa, Vice President



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

October 04, 2016

FOR: Attn: Mr. David Pelletier
Jade Environmental, Inc.
14 Ridgecrest Dr
Wingdale, NY 12594

Sample Information

Matrix: GROUND WATER
Location Code: JADEENV
Rush Request: 72 Hour
P.O.#:

Custody Information

Collected by:
Received by: B
Analyzed by: see "By" below

Date

09/26/16
09/30/16

Time

13:00
17:07

Laboratory Data

SDG ID: GBV33082
Phoenix ID: BV33084

Project ID: OSSINING BIENNIAL
Client ID: MW-4

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>Halogenated Volatiles</u>							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	10/01/16	MH	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1-Dichloroethene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dibromoethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dichloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Bromobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	10/01/16	MH	SW8260C
Bromoform	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Bromomethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Chloroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Chloroform	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Chloromethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C

Client ID: MW-4

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	10/01/16	MH	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	10/01/16	MH	SW8260C
Dibromomethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Methylene chloride	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Tetrachloroethene	3.9	1.0	ug/L	1	10/01/16	MH	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	10/01/16	MH	SW8260C
trans-1,4-dichloro-2-butene	ND	2.5	ug/L	1	10/01/16	MH	SW8260C
Trichloroethene	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	10/01/16	MH	SW8260C
<u>QA/QC Surrogates</u>							
% 1,2-dichlorobenzene-d4	102		%	1	10/01/16	MH	70 - 130 %
% Bromofluorobenzene	96		%	1	10/01/16	MH	70 - 130 %
% Dibromofluoromethane	101		%	1	10/01/16	MH	70 - 130 %
% Toluene-d8	100		%	1	10/01/16	MH	70 - 130 %

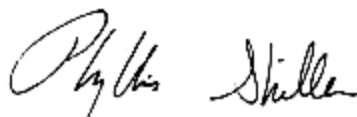
RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL

BRL=Below Reporting Level

QA/QC Surrogates: Surrogates are compounds (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller, Laboratory Director

October 04, 2016

Reviewed and Released by: Bobbi Aloisa, Vice President



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823



QA/QC Report

October 04, 2016

QA/QC Data

SDG I.D.: GBV33082

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 361218 (ug/L), QC Sample No: BV32489 (BV33082, BV33083, BV33084)										
Volatiles - Ground Water										
1,1,1,2-Tetrachloroethane	ND	1.0	104	128	20.7				70 - 130	30
1,1,1-Trichloroethane	ND	1.0	93	119	24.5				70 - 130	30
1,1,2,2-Tetrachloroethane	ND	0.50	99	122	20.8				70 - 130	30
1,1,2-Trichloroethane	ND	1.0	95	117	20.8				70 - 130	30
1,1-Dichloroethane	ND	1.0	95	113	17.3				70 - 130	30
1,1-Dichloroethene	ND	1.0	90	115	24.4				70 - 130	30
1,1-Dichloropropene	ND	1.0	93	118	23.7				70 - 130	30
1,2,3-Trichloropropane	ND	1.0	105	113	7.3				70 - 130	30
1,2-Dibromo-3-chloropropane	ND	1.0	107	135	23.1				70 - 130	30
1,2-Dibromoethane	ND	1.0	101	123	19.6				70 - 130	30
1,2-Dichlorobenzene	ND	1.0	98	117	17.7				70 - 130	30
1,2-Dichloroethane	ND	1.0	99	121	20.0				70 - 130	30
1,2-Dichloropropane	ND	1.0	96	116	18.9				70 - 130	30
1,3-Dichlorobenzene	ND	1.0	99	121	20.0				70 - 130	30
1,3-Dichloropropane	ND	1.0	101	125	21.2				70 - 130	30
1,4-Dichlorobenzene	ND	1.0	99	120	19.2				70 - 130	30
2,2-Dichloropropane	ND	1.0	96	121	23.0				70 - 130	30
Bromobenzene	ND	1.0	102	121	17.0				70 - 130	30
Bromodichloromethane	ND	0.50	98	116	16.8				70 - 130	30
Bromoform	ND	1.0	99	124	22.4				70 - 130	30
Bromomethane	ND	1.0	72	102	34.5				70 - 130	30
Carbon tetrachloride	ND	1.0	95	124	26.5				70 - 130	30
Chlorobenzene	ND	1.0	101	120	17.2				70 - 130	30
Chloroethane	ND	1.0	81	97	18.0				70 - 130	30
Chloroform	ND	1.0	95	114	18.2				70 - 130	30
Chloromethane	ND	1.0	76	91	18.0				70 - 130	30
cis-1,2-Dichloroethene	ND	1.0	96	116	18.9				70 - 130	30
cis-1,3-Dichloropropene	ND	0.40	96	118	20.6				70 - 130	30
Dibromochloromethane	ND	0.50	105	134	24.3				70 - 130	30
Dibromomethane	ND	1.0	94	117	21.8				70 - 130	30
Dichlorodifluoromethane	ND	1.0	74	96	25.9				70 - 130	30
Methylene chloride	ND	1.0	90	108	18.2				70 - 130	30
Tetrachloroethene	ND	1.0	94	122	25.9				70 - 130	30
trans-1,2-Dichloroethene	ND	1.0	98	117	17.7				70 - 130	30
trans-1,3-Dichloropropene	ND	0.40	97	121	22.0				70 - 130	30
trans-1,4-dichloro-2-butene	ND	5.0	83	115	32.3				70 - 130	30
Trichloroethene	ND	1.0	99	120	19.2				70 - 130	30
Trichlorofluoromethane	ND	1.0	75	95	23.5				70 - 130	30
Trichlorotrifluoroethane	ND	1.0	79	107	30.1				70 - 130	30
Vinyl chloride	ND	1.0	76	96	23.3				70 - 130	30
% 1,2-dichlorobenzene-d4	98	%	98	98	0.0				70 - 130	30

QA/QC Data

SDG I.D.: GBV33082

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
% Bromofluorobenzene	94	%	97	101	4.0				70 - 130	30
% Dibromofluoromethane	98	%	100	100	0.0				70 - 130	30
% Toluene-d8	99	%	101	101	0.0				70 - 130	30

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.

r = This parameter is outside laboratory RPD specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference

LCS - Laboratory Control Sample

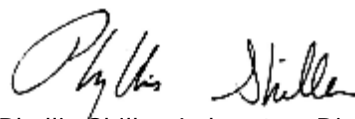
LCSD - Laboratory Control Sample Duplicate

MS - Matrix Spike

MS Dup - Matrix Spike Duplicate

NC - No Criteria

Intf - Interference

Phyllis Shiller, Laboratory Director
October 04, 2016

Sample Criteria Exceedences Report

GBV33082 - JADEENV

Criteria: None

State: NY

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
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*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.



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Tel. (860) 645-1102 Fax (860) 645-0823

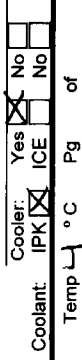


NY Temperature Narration

October 04, 2016

SDG I.D.: GBV33082

The samples in this delivery group were received at 4°C.
(Note acceptance criteria is above freezing up to 6°C)



☐ Fax: _____
☐ Phone: _____
☒ Email: dave@iadeenvv.com

Project P.O.:

Soil VOA Vials	1 mekhanol	1 H ₂ O
Gl. Soil container	() oz	
Gl. Soil container	() oz	
40 ml VOA vial	As is	() HCl
Pl. As is	1000ml	
Pl. H ₂ SO ₄	250ml	
Pl. HNO ₃	250ml	
Pl. NaOH	250ml	
Bacteria Bottle		





Client Sample - Information - Identification

Sampler's Signature: [Signature] Date: 9/26

Matrix Code:
 DW=Drinking Water GW=Ground Water SW=Surface Water WW=Waste Water
 RW=Raw Water SE=Sediment SL=Sludge S=Soil SD=Solid W=Wipe
 OIL=Oil B=Bulk L=Liquid

PHOENIX USE. ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled
33082	MW-2	GW	9/26	12pm
33083	MW-3	GW	9/26	12:30
33084	MW-4	GW	9/26	2pm

[illegible]

Relinquished by:	Accepted by:	Date:
		9.30
	Accepted by:  Accepted by: 	9.30

Comments, Special Requirements or Regulations:

Turnaround:
☒ 1 Day*
☐ 2 Days*
☐ 3 Days*
☐ 5 Days
☐ 10 Days
☐ Other

* SURCHARGE APPLIES

NJ
☐ Res. Criteria
☐ Non-Res. Criteria
☐ Impact to GW Soil Cleanup Criteria
☐ GW Criteria

NY	<input type="checkbox"/>	TAGM 4046 GW
<input type="checkbox"/>	<input type="checkbox"/>	TAGM 4046 SOIL
<input type="checkbox"/>	<input type="checkbox"/>	NY375 Unrestricted Use Soil
<input type="checkbox"/>	<input type="checkbox"/>	NY375 Residential Soil
<input type="checkbox"/>	<input type="checkbox"/>	Restricted/Residential
<input type="checkbox"/>	<input type="checkbox"/>	Commercial
<input type="checkbox"/>	<input type="checkbox"/>	Industrial

Data Format

Phoenix Std Report

☐ Excel
☒ PDF
☒ GIS/Key
☐ EQuIS
☐ NJ Hazsite EDD
☐ NY EZ EDD (ASP)
☐ Other

Data Package

☐ NJ Reduced Deliv. *

☐ NY Enhanced (ASP B) *

☐ Other

State where samples were collected:

 \geq