REMEDIAL ACTION WORK PLAN

100 EAST MINEOLA AVENUE
VALLEY STREAM, NEW YORK
VOLUNTARY CLEANUP PROJECT, SITE NUMBER V-00145-1

Prepared for:

Sid Harvey Industries

Garden City, New York

December 2015

Prepared by:

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and

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PROFESSIONAL ENGINEER CERTIFICATION

I, Nicholas A. Andrianas, P.E. certify that I am currently a NYS registered professional engineer as defined in Title 6 NYCRR Part 375 and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Registered Professional Engineer 063661

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1.0 INTRODUCTION

This Remedial Action Work Plan (RAWP) was prepared by Nicholas A. Andrianas, P.E. for the property located at 100 Mineola Avenue, Valley Stream, New York (Site). The RAWP was prepared in accordance with the Voluntary Cleanup Agreement (VCA) between the New York State Department of Environmental Conservation (DEC) and Sid Harvey Industries, Inc. (SHI) dated September 9, 1998, DEC Draft Voluntary Cleanup Program Guide dated May 2002 and DEC Draft DER-10 Technical Guidance for Site Investigation and Remediation dated December 2002.

1.1 Purpose

The purpose of this RAWP is to incorporate the information obtained during various on site and off site soil, groundwater and soil vapor investigations, and to develop a proposed remedial action to address the on-site groundwater impacts.

The RAWP objectives are summarized as follows:

- Provide a brief summary of the Site, including the previous investigations;
- Describe the proposed remedy for the site;
- Provide an engineering evaluation of proposed remedy in accordance with Title 6 NYCRR-375-1.10C; and
- Describe the implementation of the proposed remedy at the site and schedule.

1.2 Site Description

The Site is located at 100-104 East Mineola Avenue, Valley Stream, Nassau County, New York, on the southwestern quadrant of the intersection of East Mineola Avenue and Long Island Railroad. The Site consists of an approximately 1.0-acre irregularly shaped parcel of asphalt-paved and partially concrete-paved land and is developed with one and two story, approximately 40,000 total square-foot buildings that were utilized for office space and manufacturing. The building is presently used for commercial purposes. The adjacent properties include residential and industrial properties and the Long Island Rail Road.

The site location and site plan are presented in Figures 1 and 2.

1.3 Site History

The facility was constructed in the 1940s and was occupied by Sid Harvey Industries, Inc. (SHI) which reconditioned and rebuilt pumps, motors and controls for oil-fired boilers. Until 1993, the facility used chlorinated solvents, mainly 1,1,1-trichloroethene, as degreasers to clean parts. Concentrated spent aqueous cleaners and chemicals were generated in the rebuilding operations and were drummed and stored in an outdoor drum storage building at the west side of the facility. SHI shipped the drummed hazardous waste to off-site, permitted treatment, storage and/or disposal facilities (TSD). SHI ceased operations and completed closure activities in accordance with New York State regulations in July 2006. The Site including all buildings, environmental equipment and monitoring wells was sold to MAVS on March 30, 2007. MAVS failed to pay the property taxes and property was sold by Nassau County to L&L Posedian Realty LLC, 185 Great Neck Road, Great Neck, New York for tax liens.

1.4 Previous Investigations and Remediation

The site investigation and remediation process at the former Sid Harvey Industries, Inc. site (SHI) is regulated by the DEC in accordance with the terms of the Voluntary Cleanup Agreement (VCA) between DEC and SHI dated September 9, 1998. The agreement stipulates the steps necessary to implement and complete a phased investigation and remediation at the Site. The site investigation and remediation activities described below were conducted by **NAC CONSULTANTS, INC. (NAC)**.

The results of the on-site investigation conducted between December 1998 and September 2001 were presented in the "Final Site Investigation Report, May 2002", prepared pursuant to the VCA, and the "Supplemental Site Investigation and Pilot Test Work Plan, March 2000 (Work Plan)". The on-site investigation found that the soil and groundwater beneath the Site were contaminated by chlorinated solvents from on-site sources and by petroleum products from an off-site, up-gradient source. Laboratory analyses of soil samples indicated that the highest concentrations of chlorinated volatile organic compounds (CVOCs) were detected beneath the Cleaning Department floor. The highest concentrations of total CVOCs in groundwater were detected down-gradient of the Cleaning Department. The groundwater flow direction was determined to be to the south-southwest. The purpose of the on-site investigation was to supplement the soil and groundwater monitoring database established during the March 1997 site assessment and to perform a pilot test of a soil vapor extraction/air sparge (SVE/AS) remedial alternative to address on- site soil and shallow on-site groundwater contamination. The pilot test performed on the SVE/AS system confirmed the effectiveness of the SVE/AS remedial technology and well spacing.

The May 2002 "Off-site Investigation Work Plan" was prepared based on the results of the Site Investigation. The purpose of the off-site investigation was to determine the quality of groundwater up-gradient and down-gradient of SHI. The results of the off-site investigation conducted between September 2002 and November 2002 were presented in the "Draft Off-site Investigation report, January 2003". A total of three (3) groundwater monitoring wells with screens installed in shallow, intermediate and deep horizons were installed off-site, subsequent to the performance of preliminary aquifer profile borings. Most of the off-site monitoring wells were installed approximately 1,000 to 1,400 feet from the Site. The concentrations of CVOCs in the wells were less than the NYS DEC Groundwater Quality Standards & Guidance values (Groundwater Standards).

In March 2005, monitoring well MW-10 was installed approximately 700 feet to the southwest and hydraulically cross/down-gradient of the CVOCs source with a screen in the intermediate horizon. The well was installed approximately 150 feet from the approximate centerline of the plume, and concentrations of several CVOCs were detected only slightly above NYS Groundwater Standards.

In 2006, an additional monitoring well cluster (MW-11 and MW-11D) was installed approximately 450 feet to the south and hydraulically cross/down-gradient of the main source of the CVOCs. The wells were installed with screens in shallow and deep horizons. No significant concentrations of site related contaminants were found.

The results of the on-site and the off-site investigations are described in the May 2015, Remedial Investigation Report.

The remediation system for the former SHI site consists of Operable Unit 1 (OU-1) to remediate the unsaturated soil and soil gas on-site, and Operable Unit 2 (OU-2) to remediate groundwater from the water table to approximately 70 feet below grade.

The Soil Vapor Extraction (SVE) system was the selected remedy for OU-1 and was constructed in 2003. It consists of seven (7) soil vapor extraction wells connected to a vacuum blower and moisture knock out vessel located in an equipment shed. The VOC air emission of the SVE is treated in two (2) Carbtrol vessels containing 2,000 lbs. of activated carbon each. The remedial design information for the SVE system was presented in the "July 2003, Operable Unit 1 Remedial Action Work Plan" (OU-1 RWP). The OU-1 Draft Operation, Monitoring and Maintenance Plan, April 2003 (OU-1OM&M) was prepared in accordance with the OU-1 RWP. The OM&M describes the operation, monitoring and maintenance of the SVE system equipment, the components of the groundwater and air monitoring program, and defines the remediation goals of the SVE system.

An interim remedial measure (IRM) of OU-1 consisted of removal of the former underground structure and residual chlorinated solvents sludge and soil in the structure at the northeast corner of the Site. The IRM was defined as OU-1A. The scope of work for the investigation of the underground structure was detailed in the "Underground Structure Investigation Work Plan, October 2002" and the results of the investigation and remediation are included in the "Underground Structure Investigation and Soil Excavation Report, November 2003". The structure was found to be approximately 15 feet long by 15 feet wide and 6 feet in depth. The underground structure contained a mix of sludge and soil. The concrete top of the structure was removed and the concrete was disposed of offsite as construction debris. The sludge and soil were sampled, analyzed, and characterized. The soil/sludge and the concrete floor and sides of the structure were excavated and disposed of offsite as metals and VOC contaminated, hazardous material with EPA waste codes D006, D007 and F002. The final excavation extended approximately 9 feet below grade, the approximate depth to water.

Approximately 91 tons of soil and concrete were disposed offsite. The shallow depth to water and the close proximity of the structure to the LIRR trestle limited the ability to safely excavate in the area, and not all of the soil at the underground structure could be excavated. The area is a source of VOCs at the Site.

The Air Sparge (AS) system is the selected IRM for OU-2 and was completed in April 2006. It consists of two (2) air sparge wells installed at ten (10) sparge locations. The wells are connected to three (3) 5-hp compressors located in the equipment shed. At each sparge location, one (1) well is screened between approximately 68 and 70 feet below grade and the second well is screened between approximately 43 and 45 feet below grade. In general, two (2) shallow wells and two (2) deep wells, none within the same sparge location, run concurrently for 2 hours and cycle every 12 hours. The remedial design information for the AS system is presented in the "April 2005, Operable Unit 2 Remedial Action Work Plan" (OU-2 RWP). The OU-2 Draft Operation, Monitoring and Maintenance Plan, April 2005 (OU-2 OM&M), prepared in accordance with the OU-2 RWP, describes the operation, monitoring and maintenance of the AS system equipment, the components of the groundwater and air monitoring program, and defines the remediation goals of the AS system.

The air sparge system was designed to treat VOC contaminated groundwater to approximately 70 feet below grade. The onsite and offsite investigations show the VOCs in groundwater are present to a depth of approximately 85 feet below grade, where a clay layer is present that limits the vertical extent of the plume. To supplement OU-2 and remediate groundwater above the clay layer present at approximately 85 below land surface and where air sparing was not feasible at the site, bioremediation was proposed. A bioremediation pilot study was conducted at the northeastern portion of the Site to address the groundwater located below the zone of the AS (intermediate horizon at a depth of approximately 60 to 82 feet below grade). The bioremediation pilot test was performed to determine whether enhanced biodegradation of CVOCs in the intermediate horizon would occur if hydrogen release compounds (HRC) were injected into the aquifer between 55 and 85 feet below grade, in the immediate area of the former underground structure. Regenesis HRC was used in an attempt to accelerate in-situ biodegradation rates of CVOCs by anaerobic, reductive dechlorination processes. Reductive dechlorination is one of the primary attenuation mechanisms to remediate CVOCs.

The primary objective of the pilot test was to determine whether bioremediation of the CVOCs found in groundwater in the intermediate horizon using HRC was feasible. The pilot test work consisted of baseline geochemical and groundwater quality sampling and analysis, injection of 1,200 pounds of HRC at 10 locations into the aquifer at depths of between 55 and 85 feet below grade in the immediate area of the former underground structure at the northeast corner of the Site, and post-injection groundwater sampling and analyses at two downgradient monitoring wells (MW-3I and MW-6I).

The bioremediation pilot test results were reported in the April 2007, Operable Unit 2 HRC Pilot Test Report. Based on the pilot test results, **NAC** and DEC concluded that "the enhanced reductive dechlorination via HRC injection was not a viable technology and that the injection of HRC did not effectively reduce the contaminants to degradation/breakdown compounds, as expected.

1.5 Summary of Environmental Conditions

In accordance with the Groundwater Sampling Program described in the "March 2007 Final Engineering Report, revised June 2007", in July 2012, GCE performed monitoring of the on-site and off-site groundwater monitoring wells. **NAC** performed a limited round of groundwater sampling in August 2014. Groundwater sampling was conducted on a periodic basis from May 2001 to the most recent groundwater sampling conducted in August 2014.

On July 21 through July 22, 2012, groundwater samples were collected from the on-site and off-site monitoring wells, including performance monitoring wells. Monitoring well MW-1 was not sampled because it was damaged. Although GCE did not use the present preferred low flow sampling techniques for VOCs, the results are presented for background information. Prior to sampling, GCE obtained groundwater level measurements in the on-site and off-site monitoring wells. Depth to groundwater was measured using a Solinst oil/water interface probe equipped with a fiberglass measuring tape. GCE used water levels to prepare groundwater contour maps, separate for each of the two (2) horizons; the shallow horizon (approximately 10 to 30 feet below grade) and the intermediate horizon (above the clay layer, approximately 70 to 90 feet below grade).

Depth to groundwater was measured while the AS and SVE systems were shut down and approximately two (2) hours later while the AS and SVE systems were running. Because the AS and SVE systems run continuously, and due to the mounding that is potentially created by the AS system, the groundwater contour maps were constructed while the AS and SVE systems were running. GCE Table 1 presents the Groundwater Measurements. GCE Figure 4 shows the Groundwater Contours in shallow horizon and GCE Figure 5 shows Groundwater Contours in intermediate horizon in July 2012.

Prior to sampling, the standing water volume was calculated by using the depth to groundwater and total depth of the well. Three to five standing volumes of water were purged from the monitoring wells prior to sampling in order to evacuate the water that has stagnated and/or thermally stratified in the well casing. The wells were purged using a Proactive Water Spout-1 submersible pump. When the calculated quantity of water was purged from each well, a water

sample was obtained using a dedicated disposable bailer. Purged water was containerized in 55-gallon steel drums and stored inside the on-site building. After receiving laboratory results, the purged water was pumped to Nassau County sanitary sewer.

The groundwater samples were analyzed by Phoenix Environmental Laboratories, Inc. (Phoenix), Manchester, Connecticut, a New York State ELAP-approved laboratory. GCE presented the groundwater sampling data on aerial maps with the location of the on-site and off-site monitoring wells and groundwater flow direction, isoconcentrations for total CVOCs, separate chlorinated ethanes, chlorinated ethenes and DO, as well as the approximate area that was estimated by GCE to be partially remediated by HRC for each of the two (2) horizons. Figures 6 through 9 present the shallow horizon data and Figures 10 through 13 present the intermediate horizon data).

GCE compared the groundwater sampling analytical results to the Groundwater Standards. Laboratory analysis of the groundwater samples indicated the following:

- The petroleum hydrocarbons that were found in the on-site wells between 2002 and 2006, and in August 2008, were not detected and the AS and SVE systems have apparently removed the hydrocarbon constituents in groundwater, as expected. Only two (2) compounds, toluene and m/p-xylene were found at slightly concentrations slightly greater than Groundwater Standards at monitoring well MW-3I.

- The chlorinated solvent groundwater plume is present beneath the Site and extends horizontally off-site, with maximum concentrations in the intermediate horizon, immediately above the impermeable clay layer that is present at a depth of 82 to 85 feet below grade.

- The AS/SVE treatment reduced the concentrations of CVOCs in the shallow horizon in MW-3S. The CVOCs 1,1-DCA and cis-1,2-DCE slightly exceeded Groundwater Standards.

On August 18, 2014 and August 19, 2014, **NAC** collected groundwater samples at the on-site and off-site monitoring wells, including performance monitoring wells. The groundwater samples were analyzed for VOCs by EPA Method 8260. Prior to sampling, the standing water volume was calculated by using the depth to groundwater and total depth of the well. The wells were purged

using a low-flow sampling methods with a submersible pump. Purged water was containerized in 55-gallon steel drums and stored on-site.

Samples were collected at wells MW-2, MW-3S, MW-3I, MW-4, MW-5, MW-6I, MW-10, MW-11S, MW-12, PMW-1, PMW-2, PMW-3, and PMW-4. The samples were analyzed by Chemtech Environmental Laboratories (Chemtech), Mountainside, New Jersey, a New York State ELAP-approved laboratory. The groundwater sampling data are presented in Table 5.

The groundwater analytical results were compared to the DEC Ambient Water Quality Standards and Guidance Values for Class GA Water (Groundwater Standards). Laboratory analysis of the groundwater samples indicated the following:

- The petroleum hydrocarbon concentrations that were found in the on-site wells between 2002 and 2006, and in August 2008, were not detected in on-site wells at concentrations greater than NYSDEC groundwater standards with the exception of upgradient well MW-2. Petroleum hydrocarbon were found in the upgradient well MW-2 at concentrations greater than the NYSDEC groundwater standards. The reduced petroleum hydrocarbon concentrations found in on site wells indicate that the AS/SVE system is meeting the remedial objectives.

- Petroleum hydrocarbon concentrations less than the NYSDEC Groundwater Standards were found in intermediate horizon well MW-12.

- The CVOCs are present in groundwater beneath the Site and extend horizontally off-site, with maximum concentrations in the intermediate horizon, found at wells MW-3I, MW-6I, and MW-12.

- The AS/SVE treatment reduced the concentrations of chlorinated VOCs in the shallow horizon. The concentrations of PCE and cis-1,2-DCE slightly exceeded Groundwater Standards.

- Well PMW-2 had slightly elevated concentrations of chlorinated VOCs in the shallow horizon zone since the last round of sampling conducted in July 2012.

- The results of the on-site and the off-site investigations are described in the May 2015, Remedial Investigation Report.

1.6 Summary of Remedy

The site remedy will include the enhanced bioremediation of groundwater described in this RAWP and the continued operation of the Soil Vapor Extraction (SVE) system, the Air Sparge (AS) system, the subslab depressurization system at 140 East Mineola Avenue, vapor mitigation and the Site Management Plan prepared for the operation, maintenance, monitoring and institutional/engineering (IC/EC) controls for the site. The remedy employs site management, including institutional and engineering controls, to ensure that the remedy continues to be protective of public health and the environment, and to ensure the safe reuse of the property, where contamination will remain in place. This remedy will cover both Operable Units 1 (OU-1) the unsaturated soil and soil gas on-site, and Operable Unit 2 (OU-2) the saturated soil and groundwater on-site and off-site.

The existing Soil Vapor Extraction (SVE) system originally installed as the OU-1 remedy and later combined with an Air Sparge (AS) system as part of an IRM for OU-2 will continue in operation. The existing AS/SVE system will be evaluated, optimized and maintained. Air sparging will address the shallow on-site groundwater contaminated by volatile organic compounds (VOCs). VOCs will be physically removed from the groundwater and soil below the water table (saturated soil) by injecting air into the subsurface. As the injected air rises through groundwater, the VOCs volatilize and are transferred from the groundwater and/or soil into the injected air. The VOCs are conveyed with the injected air into the vadose zone. The vadose zone is the area below the ground surface and above the water table. The VOCs in the vadose zone are captured by the soil vapor extraction (SVE) system that removes the injected air. The SVE system applies a vacuum to wells that have been installed in the vadose zone to remove the VOCs from soil along with the air introduced by the sparging process. The air extracted from the SVE wells is then treated as necessary, prior to being discharged to the atmosphere. The AS/SVE system will treat groundwater to the depth of the sparge system.

Enhanced bioremediation will be employed to treat contaminants in on-site and off-site groundwater. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by the placement of chemical amendments into the subsurface to promote microbial growth. The bioremediation components will be injected between 60 and 85 feet deep and will treat the groundwater below the AS/SVE system's influence. Details of the

bioremediation system chemicals, injection and monitoring are described in Sections 2.0 and 3.0 of this RAWP.

Vapor Mitigation of any on-site and off-site buildings impacted by the site will be required to have a sub-slab depressurization system, or a similar engineered system, to mitigate the migration of vapors into the building from soil and/or groundwater.

Site management will include institutional and engineering controls (IC/EC) to restrict the property to industrial use and prohibit the use of groundwater without treatment, and site monitoring to assess the performance and effectiveness of each component of the remedy, including the enhanced bioremediation to be implemented as described in this RAWP.

The remedy will be protective of human health and the environment, cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy will also attain the remedial action objectives over time for the site. The proposed remedy for groundwater between 60-85 feet is the 3D Microemulsion Factory Emulsified (3DMe) by Regenesis Alternative GW-5 described in Section 3.0. This groundwater remedy will be implemented in conjunction with the continued operation of the existing remediation systems in place at this time as described above.

1.6.1 Remedial Action Objectives

Groundwater is presently remediated onsite by the AS/SV systems to a depth of approximately 60-70 feet below grade. Below the zone of the AS remediation to 85 feet, the remedial objective will be achieved through the following:

- Enhanced Anaerobic Bioremediation by means of injection of Regenesis 3D Microemulsion (3DMe), Bio-Dechlor Inoculum Plus, Chemical Reducing Solution (CRS), and molasses. Following injection of 3DMe, Bio-Dechlor Inoculum Plus, CRS, and molasses, a controlled release of organic acids to the aquifer to stimulate reductive dechlorination in the rapid and complete dechlorination of CVOCs would occur.
- Groundwater sampling and analysis of the monitoring wells screened at the intermediate horizon. The sampling and analysis will be incorporated into the SMP. The results of the groundwater monitoring will be presented in semiannual

monitoring reports and in the Professional Engineer's Periodic Review Report (PRR). Monitoring and necessary modifications to the site remedy, including the AS, SVE, vapor mitigation, SSDS, and bioremediation systems will addressed in the SMP and the PRR.

1.6.1.1 Groundwater RAOs

RAOs for Public Health Protection

- Prevent ingestion of groundwater containing VOC concentrations exceeding drinking water standards.
- Prevent contact with, or inhalation of VOCs in groundwater.

RAOs for Environmental Protection

- Restore the aquifer, to the extent practicable, to pre-release conditions.

1.6.1.2 Soil RAOs

RAOs for Public Health Protection

- Prevent ingestion/direct contact with VOCs in soil.
- Prevent inhalation of, or exposure to, VOCs from soil.

1.6.1.3 Soil Vapor RAOs

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for soil vapor intrusion into buildings at the site and adjacent properties.

1.7 Contemplated Use

The anticipated future use of the Site is industrial.

2.0 REMEDIAL ACTION REMEDY

2.1 Analysis of Remedial Alternatives

This section presents the analysis of remedial alternatives to address affected groundwater at depths of 60-85 feet below land surface at the site. The recommended remedial alternative will be implemented in conjunction with the present air sparge/soil vent systems in place at the Site and source removal remediation that has been completed at the Site.

The following remedial alternatives were evaluated for groundwater at 60-85 feet below land surface at the site:

Alternative GW-1	No Action
Alternative GW-2	Groundwater Pump and Treat
Alternative GW-3	In-Situ Chemical Oxidation
Alternative GW-4	Thermal Treatment
Alternative GW-5	Enhanced Anaerobic Biodegradation

The selected remedy for the site is Alternative GW-5 Enhanced Anaerobic Biodegradation. The selected alternative is described the below section.

2.2 Selected Remedy-Alternative GW-5 Enhanced Anaerobic Biodegradation

The proposed remedy involves degradation of chlorinated solvents by reductive dechlorination. CVOCs are generally not aerobically oxidized. CVOCs have been shown to be anaerobically dechlorinated and treated under reductive conditions. Reductive dechlorination takes place, under strong anaerobic/reductive conditions with a negative redox potential. The introduction of a carbon substrate (electron donor) inoculated with microbes, provides a food source for microbial activity. The carbon substrate and microbe slurry is then injected in the area of CVOCs. The microbes use oxygen and the resulting bacterial growth depletes the aquifer of dissolved oxygen and other terminal electron acceptors. Once the native terminal electron acceptors (oxygen, nitrates, and sulfates) have been reduced, the microbes will use the chlorinated compounds as electron

acceptors. The carbon substrate is fermented, which produces hydrogen (electron donor). The hydrogen produced is used to replace a chlorine atom by sequential dechlorination from tetrachloroethene (PCE) to trichloroethene (TCE) to dichloroethene (DCE) then to vinyl chloride (VC) and finally to ethene and ethane.

The proposed remedial alternative was evaluated against the following criteria as required by Title 6 NYCRR 375-1.10:

Protection of Human Health and the Environment

The proposed 3DMe emulsification and molasses as a carbon source will protect public health and the environment by remediating CVOC contaminated groundwater, and minimizing off-site migration of CVOCs in the groundwater.

Standards, Criteria and Guidance

The proposed alternative will remediate on-site groundwater and minimize off-site migration of CVOCs in groundwater to meet the remedial action objectives.

Short-term Effectiveness and Impacts

A Health and Safety Plan to protect the community, workers and environment will be implemented during injection of the 3DMe and molasses at the Site. The proposed remedy will achieve the RAOs over time.

Long-term Effectiveness and Permanence

The proposed remedy will reduce CVOCs in on-site groundwater over time.

Reduction of Toxicity, Mobility or Volume

The proposed 3DMe injection and molasses will permanently reduce the toxicity, mobility and volume of the on-site CVOCs through treatment by microbiologically degrading and dechlorinating the CVOCs to less harmful degradation products.

Implementability

The 3dMe product will be injected at temporary points on-site and no significant implementation issues of the proposed remedy are anticipated. Injection of 3dMe is readily implementable by various contractors and equipment and there are no significant implementability constraints. Molasses will be added to groundwater at existing monitoring PMW-3, MW-6I, and MW-12.

Cost-Effectiveness

The implementation and monitoring costs associated with the proposed remedy are reasonable in comparison to the conventional aboveground, pump and treat alternative. It is anticipated that short-term and long term groundwater monitoring will be required.

Community Acceptance

The community acceptance will be incorporated following the public comment period. Molasses is more environmentally friendly than the 3DMe treatment reagent.

Land Use

The injection points are temporary and there are no land use impacts or changes in land use needed upon implementation of the remedy.

2.3 Selected Remedy-Alternative GW-5 Enhanced Anaerobic Biodegradation Comparison of Various Treatment Reagents

NAC reviewed several remedial products alternatives (anaerobic amendments) during the preparation of this Remedial Work Plan. The following provides additional information regarding each remedial treatment product:

3D Microemulsion Factory Emulsified (3DMe) manufactured by Regenesis

3-D Microemulsion factory emulsified is an engineered electron donor material that offers a 3-stage electron donor release profile, pH neutral chemistry and is delivered on-site as a factory – emulsified product. The molecular structure of 3-D Microemulsion factory emulsified provides a hydrophile-lipophile balance (HLB) which enables maximum subsurface.

The following are benefits of the 3-D Microemulsion:

- Microemulsion application increases contact with contaminants and reduces number of injection points required for treatment.

- Three stage; immediate, mid-range and long-term controlled-release of lactic, organic and fatty acids for the production of hydrogen to support enhanced anaerobic biodegradation.

- Maximum subsurface distribution through micellar transport unlike oil products, 3-D Microemulsion factory emulsified forms micelles which are mobile in groundwater and significantly enhance electron donor distribution after injection.

- Long-term source of hydrogen to the subsurface facilitates anaerobic dechlorination for periods of up to 4 years.

- Faster than natural attenuation

- The 3DMe is a high volume, long lasting electron donor.

- The 3DMe breaks down ultimately to carbon dioxide and water. It is completely biodegradable. Volatile fatty acids such as lactic acid, acetic acid are formed as intermediates as part of the process to promote anaerobic biodegradation.

Edible Oil Substrate (EOS)

EOS products include rapidly biodegradable substrates to jump start bacterial growth, slow-released substrate to support long-term respiration, nutrients and B12 vitamin for enhancing the growth of halorespiring and other indigenous bacteria. The injections provide a food-source for aerobic bacteria to consume oxygen and promote the growth of anaerobic bacteria capable of degrading chlorinated hydrocarbons through reductive dechlorination.

The limitations of EDO include high viscosity, the tendency to sorb to soil particles; aquifer acidification; large volume of chase water; and the product is less dense than water, which may result in vertical upward migration of the vegetable oil away from the treatment zone just above the clay at 60-85 feet.

EHC

EHC is the combination of control-released carbon plus micro-scale zero valent iron (ZVI) particles used for stimulating in situ chemical reduction (ISCR) of otherwise persistent organic compounds in groundwater.

Following injection of EHC into the subsurface environment, a number of physical, chemical and microbiological processes combine to create strong reducing conditions that stimulate rapid and complete dechlorination of organic solvents. The organic component of EHC (fibrous organic material) is nutrient rich, hydrophilic with a high surface area. As the bacteria grow on EHC particle surfaces, indigenous heterotrophic bacteria consume dissolved oxygen and reduce the redox potential in groundwater. In addition, as the bacteria grow on the organic particles, the bacteria ferment carbon and release a variety of volatile fatty acids (acetic, propionic, butyric)

which diffuse from the site of fermentation into the groundwater plume and serve as electron donors for other bacteria, including dehalogenators and halorespiring species. The small ZVI particles provide substantial reactive surface area to stimulate direct chemical dechlorination and an additional drop in the redox potential of the groundwater via chemical oxygen scavenging.

Sid Harvey proposes to use the 3DMe, manufactured by Regenesis, as the alternative for this Site. The ISCR using 3DMe factory emulsified will be protective of human health and the environment, will comply with SCGs and other statutory requirements and provide the best balance of implementability, permanence, short-term effectiveness, and long-term effectiveness of the alternatives under consideration. It would achieve the remedial goal for the Site by reducing concentrations of CVOCs to less than Groundwater Standards over time.

2.4 Interference From AS System

The air sparge system may interfere with anaerobic biological treatment application. Air sparging will add oxygen to groundwater and interfere in establishing the reducing conditions required for reductive dechlorination. The AS system wells 4D, 10D, and 11D be temporarily shut down.

3.0 REMEDIAL IMPLEMENTATION AND SPECIFICATIONS Selected Remedy-Alternative GW-5 Enhanced Anaerobic Biodegradation

The selected biological treatment chemistry is 3D Microemulsion Factory Emulsified (3DMe), Bio-Dechlor Inoculum Plus, Chemical Reducing Solution (CRS), and molasses. The 3DMe emulsified product is an engineered electron donor material that provides a 3-stage electron donor release profile, pH neutral chemistry and is delivered on-site as a factory–emulsified product. The molecular structure of 3DMe provides a hydrophile-lipophile balance (HLB) which enables maximum subsurface distribution greater than that of emulsified vegetable oils.

Sequential, 3-Stage Electron Donor Release

This feature optimizes start to finish timing of the enhanced reductive dechlorination process through an immediate, mid-range and long-term electron donor release. Without a 3 stage release profile, bioremediation processes can become inefficient and require multiple injections. The 3DMe emulsified product offers 3 donors in 1 product with an expected longevity of up to 4 years on a single application.

Stage 1- Immediately available free lactic acid (lactate) is fermented rapidly

Stage 2- Controlled-release lactic acid (lactate esters and polylactate esters) are metabolized at a more controlled rate

Stage 3- Free fatty acids and fatty acid esters are converted to hydrogen over a mid to long range timeline giving 3DMe an exceptionally long electron donor release profile

Regenesis recommend installing 8 injection points in the vicinity of the underground structure. The injection points will be spaced 15 feet on center.

Using a 3DMe dilution rate of 10% within the injection area, a total of 3,600 lbs. of 3DMe is required. A total of 450 lbs. of product will be added to each injection point. Regenesis

recommended the addition of Bio-Dechlor Inoculum Plus and CRS solution to increase the effectiveness of the 3DMe. The Bio-Dechlor Inoculum Plus will be injected along with 3DMe solution at a total of 3 liters per injection point. The CRS solution will be injected along with 3DMe at a total of 200 lbs. per injection point. The treatment locations, injection components and monitoring wells to be sampled are summarized in Table 6.

The primary objective of the selected remedy is to establish bioremediation of CVOCs found in groundwater at a depth of approximately 60-85 feet below grade and below the zone of air sparge remediation system using 3DMe.

Figure 2 shows the area for 3DMe injections and a layout of the injection project. The area measures approximately 40 feet long and 40 feet in width. Three rows of injection points are proposed in the area and the locations are indicated. Assuming an injection spacing of 15 feet, a total of 8 injection points are required. Additional injection locations may be determined for additional dosages. The additional injection will be based on the monitoring performed in accordance with the SMP and the injection details will be provided in the SMP.

In addition to the injection of 3DMe, a separate injection of food grade molasses and Bio-Dechlor Inoculum Plus will be added at well PMW-3, MW-6I, and MW-12 on a monthly basis for one year. A total of 156 lbs. (15 gallons) of molasses mixed at a ratio of 1:10 by volume with water and 1 liter of Bio-Dechlor Inoculum Plus will be added at the well each month.

The treatment chemicals were selected based on drilling constraints near the former underground structure. There are no permanent wells immediately downgradient of the former underground structure. Drilling permanent additional wells in the area is not feasible, because of the overhead high tension electrical lines, access constraints and the adjacent railroad trestle. Regenesis 3-D Microemulsion® product was selected for the injection area, because it provides a long-termer source of staged-release hydrogen, on the order of 2-4 years from a single application and it can be injected using temporary, Geoprobe drilled injection points. It was selected for the injection areas to stimulate anaerobic biological treatment at the underground structure area. The mixture of food grade molasses as a carbon source, and Bio-Dechlor Inoculum Plus will be added at wells PMW-3, MW-6I, MW-12 on a monthly basis for one year to stimulate biological activity and anaerobic decomposition, because the wells are in place and readily access for routine treatment over time.

Slurry Preparation

Factory emulsified 3DMe is delivered as a ready-to- apply solution. It does not require emulsion making steps. The product is mixed with potable water to the required concentration.

The food grade molasses is delivered as a ready-to apply solution. It does not require emulsion making steps. The product is mixed with potable water to the required concentration.

Injection Approach

The 3DMe slurry will be injected into groundwater using a Geoprobe direct push drill rig. The preferred approach for the injections will be top-down direction using an injection tip that directs the slurry horizontally. For each injection point, the rods will be initially advanced to the top of the targeted depth interval and a specified volume of slurry will be injected before proceeding down to the next depth. The injections will be distributed over the targeted depth interval, using vertical injection spacing of approximately 2 to 4 feet. A small volume of potable water (approximately 15 gallons) will be used to clear the injection tip between batches and at the end of the injection.

The molasses solution will be injected into groundwater at wells PMW-3, MW-6 and MW-12. A small volume of potable water will be used to clear the well of any solution at the end of the injection.

Pump Requirements

The application of the dilute factory emulsified 3DMe is accomplished by injection via direct-push points (DPI) or dedicated injection wells. Application may be performed using pressure or gravity feed.

The following instrumentation will be used to monitor application:

- Pressure gauges
- Flow meter

- Pressure-Relief Valves to prevent pressure buildup in various segments of the application tooling.

3.1 Groundwater Monitoring

Samples will be collected at intermediate depth monitoring wells MW-3I, MW-6I and MW-12 and analyzed for VOCs to establish baseline conditions and to track performance and effectiveness of the bioremediation remedy. The baseline sampling and analyses will be performed prior to injection of 3DMe, and the food grade molasses and Bio-Dechlor Inoculum Plus at well PMW-3, MW-6, and MW-12. Samples will be collected and analyzed for VOCs quarterly for the first 1 year after injection of the injection of 3DMe, and the food grade molasses and Bio-Dechlor Inoculum Plus and annually thereafter. Additional injection of the3DMe, and the food grade molasses and Bio-Dechlor Inoculum Plus at wells PMW-3, MW-6 and MW-12 may be performed as part of the long term operation and maintenance for the groundwater remedy in accordance with the NYSDEC approved SMP. The treatment locations, injection components and monitoring wells to be sampled are summarized in Table 6.

Monitoring wells MW-3I, MW-6I and MW-12 will be sampled in accordance with the groundwater sampling procedures provided in Appendix A-1 and Table 1-1 of the March 2007 Final Engineering Report, performed by **NAC**. The procedures are provided in appendix C.

Depth to groundwater will be measured using a Solinst probe equipped with a fiberglass measuring tape. The same probe and measuring tape will be used for all measurements. All of the groundwater level measurements will be taken from an etch mark at the top of the PVC casing of each well to the nearest 0.01 foot.

All groundwater samples will be logged and transferred under a chain-of-custody protocol to a New York State ELAP-approved laboratory for analysis of VOCs using EPA Method 8260, and for additional parameters which are required for the remediation monitoring: TOC, Nitrate, Iron, Manganese and Sulfate.

Additionally, a multi-parameter water quality meter will be used to monitor water quality parameters during purging: electrical conductivity, dissolved oxygen (DO), pH, total dissolved solids (TDS), oxidation-reduction potential (ORP) and temperature. Three (3) of the water quality parameters (DO, pH and ORP) also will be used to evaluate the degree of bioremediation.

4.0 INSTITUTIONAL CONTROLS

The implementation of institutional controls is intended to reduce potential exposure to the CVOCs. The institutional controls for the Site would restrict the property usage to industrial purposes and prohibit groundwater use until the soil and groundwater are restored to conditions applicable to the Site usage as determined by NYSDEC. Sid Harvey does not own the Site and will work to the extent practicable with the property owner, to establish the site institutional controls.

The institutional controls would be in the form of an environmental easement for the Site that specifies the following:

- The preparation and submittal to NYSDEC of the periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3).
- The property would remain in use for industrial activities as defined by Part 375-1.8(g), although land use is subject to local zoning laws.
- Use of groundwater would be prohibited as a source of potable or process water without necessary water treatment as determined by the NYSDOH or the Nassau County Department of Health.
- Agriculture or vegetable gardens on the Site would be prohibited.
- The Site Management Plan (SMP) to be prepared for the Site and approved by the NYSDEC.

The SMP will include an Institutional and Engineering Control Plan that identifies all use restrictions and the engineering controls for the Site. The institutional controls would be established through the Environmental Easement described above. The Engineering Controls consist of the Air Sparge and Soil Vapor Extraction systems installed at the Site, the in-situ bioremediation systems described in this RAWP, and the soil vapor intrusion mitigation system in place at 140 East Mineola Avenue.

In accordance with 6NYCRR Part 375 regulations, the SMP will include:

1. A description of the environmental easement including the land use and groundwater use restrictions.

2. The management and inspection of the engineering controls.

3. Site access controls and NYSDEC notification.

4. The steps necessary for the professional engineer's periodic reviews and certification of the institutional and engineering controls.

5. An Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination at the Site.

6. Provisions for evaluation of the potential for soil vapor intrusion into any new buildings developed at the Site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion.

7. A Monitoring Plan based on the Final Engineering Report to assess the performance and effectiveness of the remedy including the existing AS/SVE, vapor mitigation and the enhanced bioremediation system described in this RAWP. The Monitoring Plan will include:

- Monitoring of groundwater and soil vapor to assess the performance and effectiveness of the remedy.

- A schedule of monitoring and frequency of submittals to the Department.

- Monitoring for vapor intrusion for any buildings occupied or developed on the site, as required by the Institutional and Engineering Control Plan discussed above.

- An Operation and Maintenance (O&M) Plan to ensure operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the Air Sparge, Soil Vapor Extraction and bioremediation systems described in this RAWP, and soil vapor intrusion mitigation system in place at 140 East Mineola Avenue.

5.0 QUALITY ASSURANCE/QUALITY CONTROL PLAN

Groundwater monitoring will be conducted in accordance with Quality Assurance/Quality Control (QA/QC) Plan which is described in the Appendix A of the "March 2007 Final Engineering Report, Revised June 2017, Soil Vapor Extraction/Air Sparge System Groundwater and Air Monitoring Plan". In accordance with this plan, one duplicate sample will be obtained for every sampling round and each sample shipment will contain one trip blank. Both duplicate sample and trip blank samples will be analyzed for the presence of VOCs by EPA method 8260.

6.0 HEALTH AND SAFETY PLAN

A Health and Safety Plan (HASP) for the injection of 3DMe, Bio-Dechlor Inoculum Plus, CRS, molasses, and groundwater sampling work was developed to address the protection of the project personnel and public health and safety, and to respond to contingencies that could impact public health, safety and the environment. The HASP satisfies the requirements of the Occupational Safety and Health Administration, US Department of Labor (OSHA) regulation, Title 29, Code of Federal regulations, Part 1910.120 "Hazardous Waste Operations and Emergency response" (OSHA, 1989). The HASP is included in Appendix B.

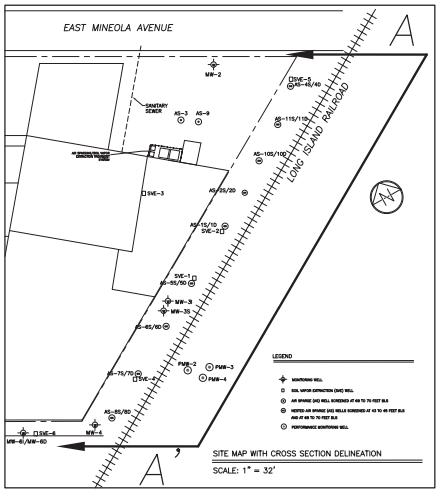
A Community Air Monitoring Plan (CAMP) prepared for the Site shall be implemented.

7.0 SCHEDULING AND REPORTING

The NYSDEC and New York State Department of Health (DOH) review of the proposed RAWP is expected to take approximately 4 weeks. Upon DEC and DOH review of the RAWP, the project will be posted by the NYSDEC in the Environmental News Bulletin (ENB) for a 30-day public comment period. Final revisions will be made to the RAWP, if necessary.

The work will commence with the injection of the 3DMe and molasses within approximately 4 weeks of NYSDEC's approval of the RAWP. Injection of 3DMe is expected to be completed within approximately 1 month. The injection of the molasses will be performed monthly for one year.

The results of the groundwater monitoring will be presented in semiannual monitoring reports and in the Professional Engineer's Periodic Review Report (PRR). Monitoring and necessary modifications to the site remedy, including the AS, SVE, vapor mitigation, SSDS, and bioremediation systems will be addressed in the SMP and the PRR.

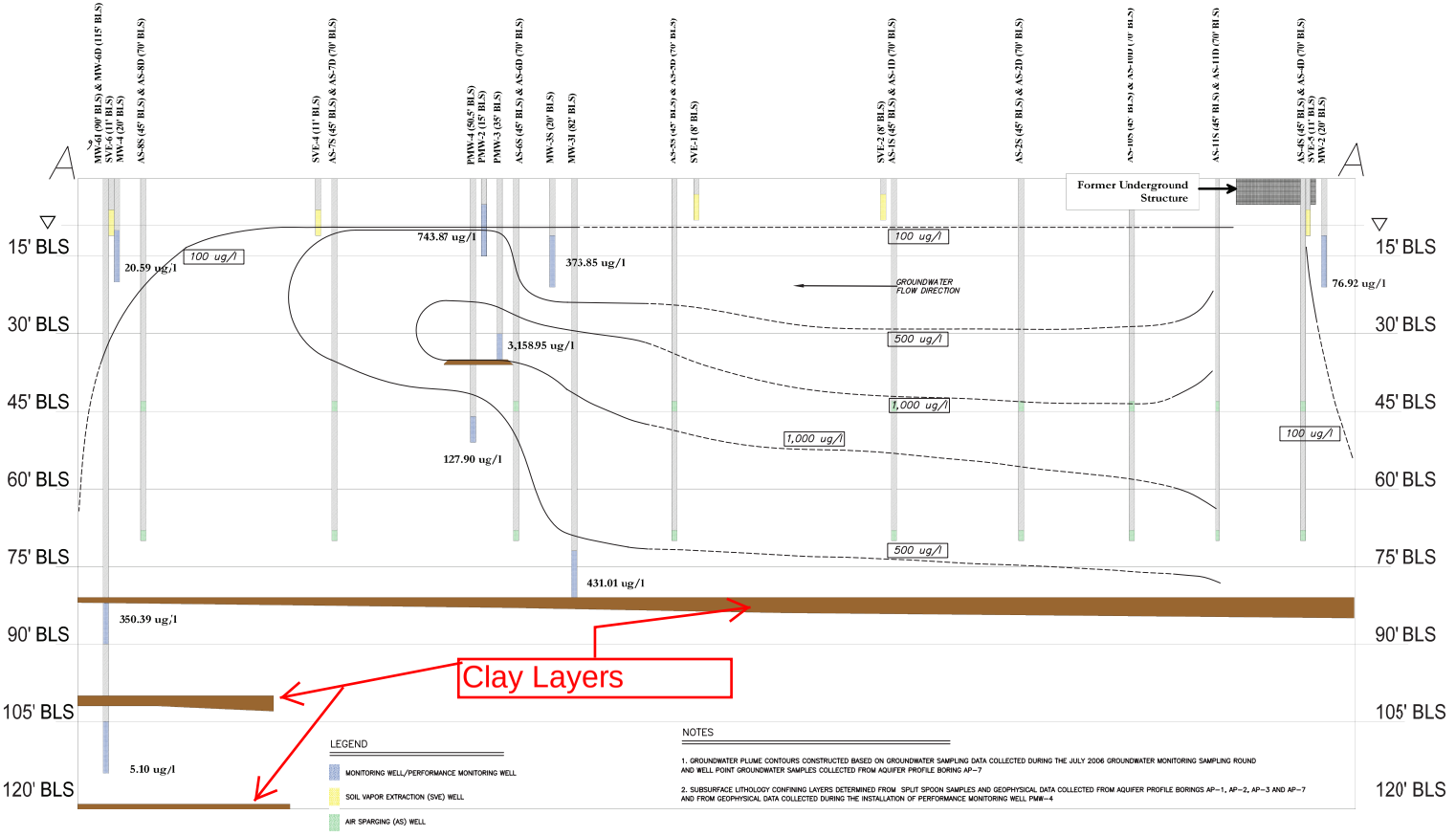


July 2006 Groundwater Sampling Results: On-Site Monitoring Wells
Volatile Organic Compounds USEPA Method 8260

Well Identification	MW2	MW-3S	MW-3I	MW-4	MW-5	MW-6I	MW-6D	PMW-2	PMW-3	PMW-4	NYSDEC
Sampling Date	July 25, 2006	July 25, 2006	July 25, 2006	July 27, 2006	July 25, 2006	July 25, 2006	July 25, 2006	July 27, 2006	July 27, 2006	July 27, 2006	Groundwater Standards (ppb)
PARAMETER - ug/l											
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	4.0	5.0	5.0 [3]
1,1-Dichloroethane	ND	2.4	16.0	0.63 J	0.30 J	22.0	0.70 J	140 E	760 E	1.2	5.0 [3]
Acetone	23.1	ND	ND	ND	ND	ND	ND	ND	5.5	ND	50.0 [3]
tert-Butyl Methyl Ether (MTBE)	ND	2.4	1.5	5.6	ND	ND	ND	ND	1.3	3.4	10.0 [3]
Methylene Chloride	ND	1.5	ND	ND	ND	ND	ND	ND	29 E	ND	5.0 [3]
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.7	5.0 [3]
1,1-Dichloroethene	0.63 J	29.0	50.0 E	7.5	1.6	81.0 E	4.0	6.4	260 E	34.0 E	5.0 [3]
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2	5
cis-1,2-Dichloroethene	ND	11.0	ND	4.2	ND	ND	ND	ND	61.0 E	8.4	5.0 [3]
Chloroform	ND	ND	ND	ND	ND	ND	ND	4.9	0.8 J	ND	7
1,1,1-Trichloroethane	25.1	31.0 E	340 E	2.0	0.50 J	250 E	0.40 J	580 E	1,700 E	7.1	5.0 [3]
Benzene	0.42 J	0.85 J	ND	ND	ND	ND	ND	ND	0.68 J	ND	1
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	1.9	ND	0.6
Trichloroethene	ND	0.66 J	2.6	ND	ND	2.1	ND	5.2	140 E	28.0	5.0 [3]
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	5.7	ND	ND	*
Methyl isobutyl ketone (MIBK)	ND	ND	ND	0.47 J	ND	ND	ND	ND	1.3 J	ND	50.0 [3]
Toluene	6.4	0.49 J	6.0	ND	0.63 J	3.8	ND	ND	42.0 E	1.4	5.0 [3]
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	6.0	ND	1
Tetrachloroethene	6.5	1.6	13.0	0.39 J	0.70 J	14.0	ND	18.0	100 E	5.1	5.0 [3]
Ethyl Benzene	1.7	7.6	0.33 J	ND	3.8	0.28 J	ND	ND	0.63 J	1.1	5.0 [3]
m&p-Xylenes	6.8	21.0	0.80 J	4.2	1.1	ND	ND	ND	ND	ND	5.0 [3]
o-Xylene	6.3	37.0 E	0.33 J	ND	33.0 E	0.46 J	ND	ND	0.78 J	1.1	5.0 [3]
Isopropylbenzene	ND	3.6	ND	ND	0.83 J	ND	ND	ND	0.73 J	ND	5.0 [3]
n-Propylbenzene	ND	2.4	ND	ND	1.0	ND	ND	ND	2.0	2.4	5.0 [3]
1,3,5-Trimethylbenzene	0.47 J	72.0 E	ND	ND	6.4	ND	ND	ND	8.0	ND	5.0 [3]
tert-Butylbenzene	ND	1.1	ND	ND	ND	ND	ND	ND	0.45 J	2.0	5.0 [3]
1,2,4-Trimethylbenzene	1.3	130 E	0.45 J	ND	47.0 E	0.55 J	ND	ND	21.0 E	5.6	5.0 [3]
sec-Butylbenzene	ND	2.3	ND	ND	ND	ND	ND	ND	1.7	11.0	5.0 [3]
p-Isopropyltoluene	ND	ND	ND	ND	3.9	ND	ND	ND	1.5	1.8	5.0 [3]
1,4-Dichlorobenzene	ND	0.45 J	ND	ND	ND	ND	ND	0.34 J	1.2	ND	3.0
n-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	1.9	2.6	5.0 [3]
1,2-Dichlorobenzene	ND	2.5	ND	ND	ND	ND	ND	ND	1.5	1.4	3.0
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	1.5	2.0	ND	5.0 [3]
Naphthalene	ND	12.0	ND	ND	35.0 E	ND	ND	1.2	1.7	1.4 B	10.0 [3]
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	0.63 J	0.38 J	ND	5.0 [3]
Total VOCs	76.92	373.85	431.01	20.59	126.86	365.39	5.10	743.87	3,158.95	127.90	
Total TICs	73.00	462.00	0	1.90	474.00	0.00	0.00	0	12.00	316.20	

Notes: 1. ND - Not Detected
2. (POC) - Principal Organic Contaminant
3. * - No groundwater standard for this compound
4. Applies to the sum of cis- and trans-1,3-dichloropropene
5. TAGM applicable but no groundwater standard

Data Qualifiers: J - Data indicates the presence of a compound that meets theidentification criteria. The result is less than the quantitation limit but greater than zero. The co
is an approximate value.
E - Data indicates the analyte's concentration exceeds the calibrated range of the instrument for that specific analyses.



NAC
CONSULTANTS, INC.
28 HENRY STREET
KINGS PARK, NEW YORK
(631) 269-2680

CLIENT:
SID HARVEY INDUSTRIES, INC.

WORK LOCATION:
100 EAST MINEOLA AVENUE
VALLEY STREAM, NEW YORK

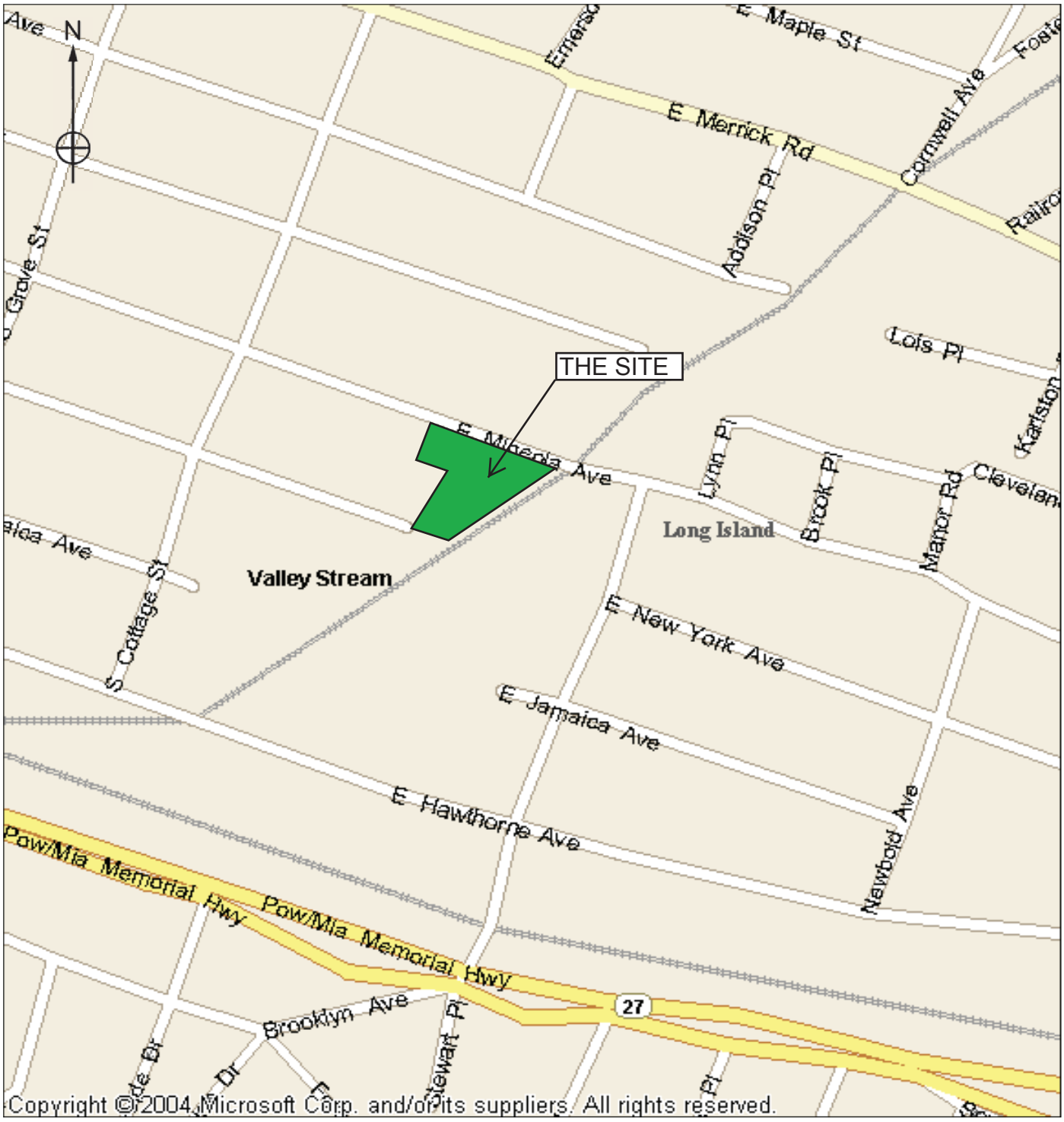
TITLE:
2006 GROUNDWATER CONTOUR PLUME MAP

REV	DATE	BY	REVISION DESCRIPTION
3	06/2007	JU	Remedial Investigation Report
2	5/2007	NAA	SOIL VAPOR INTRUSION INVESTIGATION WORK PLAN
1	3/2007	NAA	HRC PILOT TEST REPORT
0	2/2007	NAA	AS-BUILT FINAL ENGINEERING REPORT

DWG NO: 1

SCALE:	DATE:	PROJECT NO:
AS_NOTED	2/2007	02095NY01
DRWN BY:	DESIGNED BY:	APPROVED BY:
MAB	NAA	NAA

SHEET: 1 OF 1



NOTE: DRAWING NOT TO SCALE. ALL LOCATIONS ARE APPROXIMATE. DRAWING INTENDED FOR USE WITH THIS GCE RAWP ONLY.

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REMEDIAL WORK PLAN

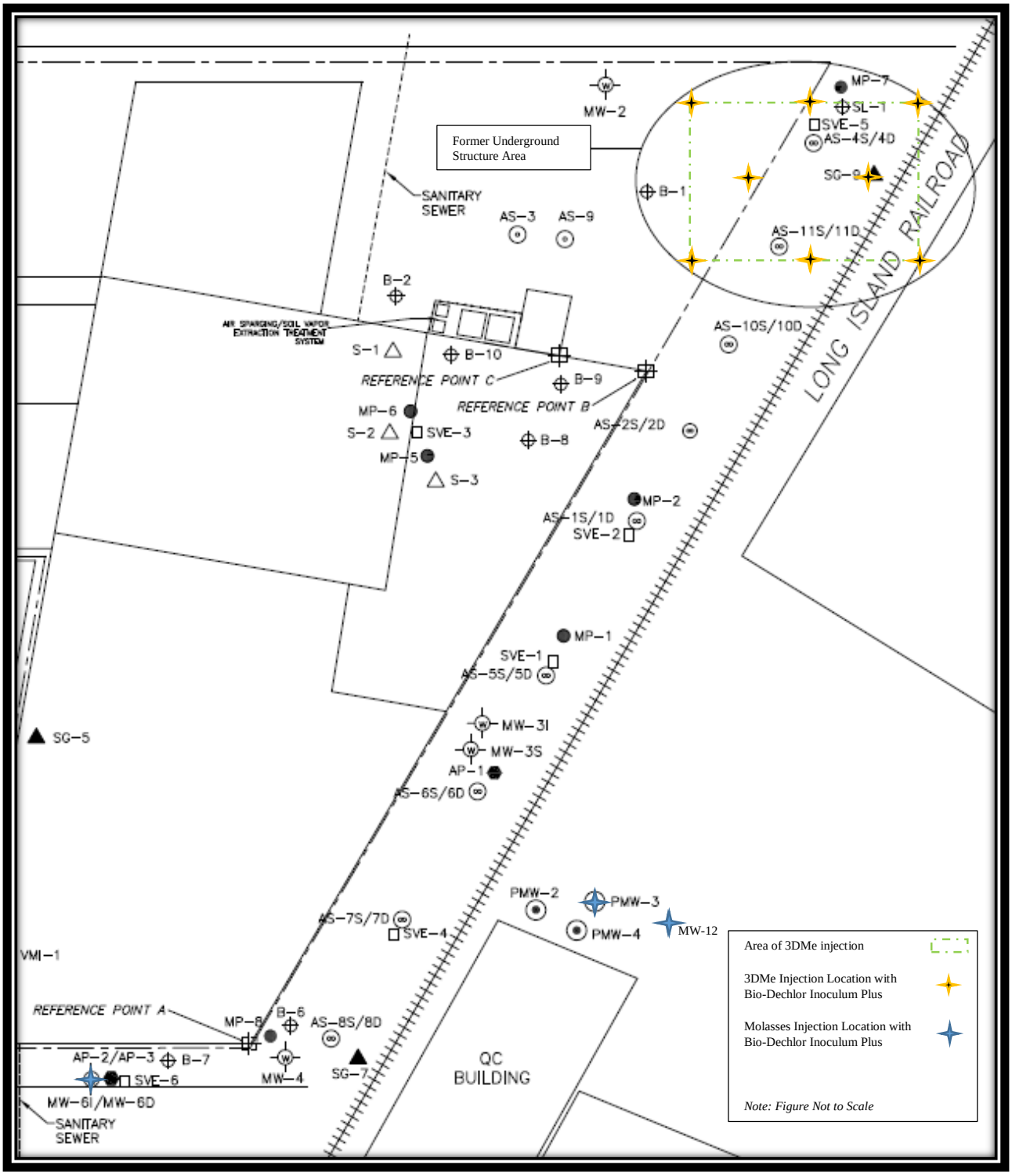
100 MINEOLA AVENUE
VALLEY STREAM, NEW YORK

VCP SITE NO: V-00145-1
GCE PROJECT NO: 06-321-00

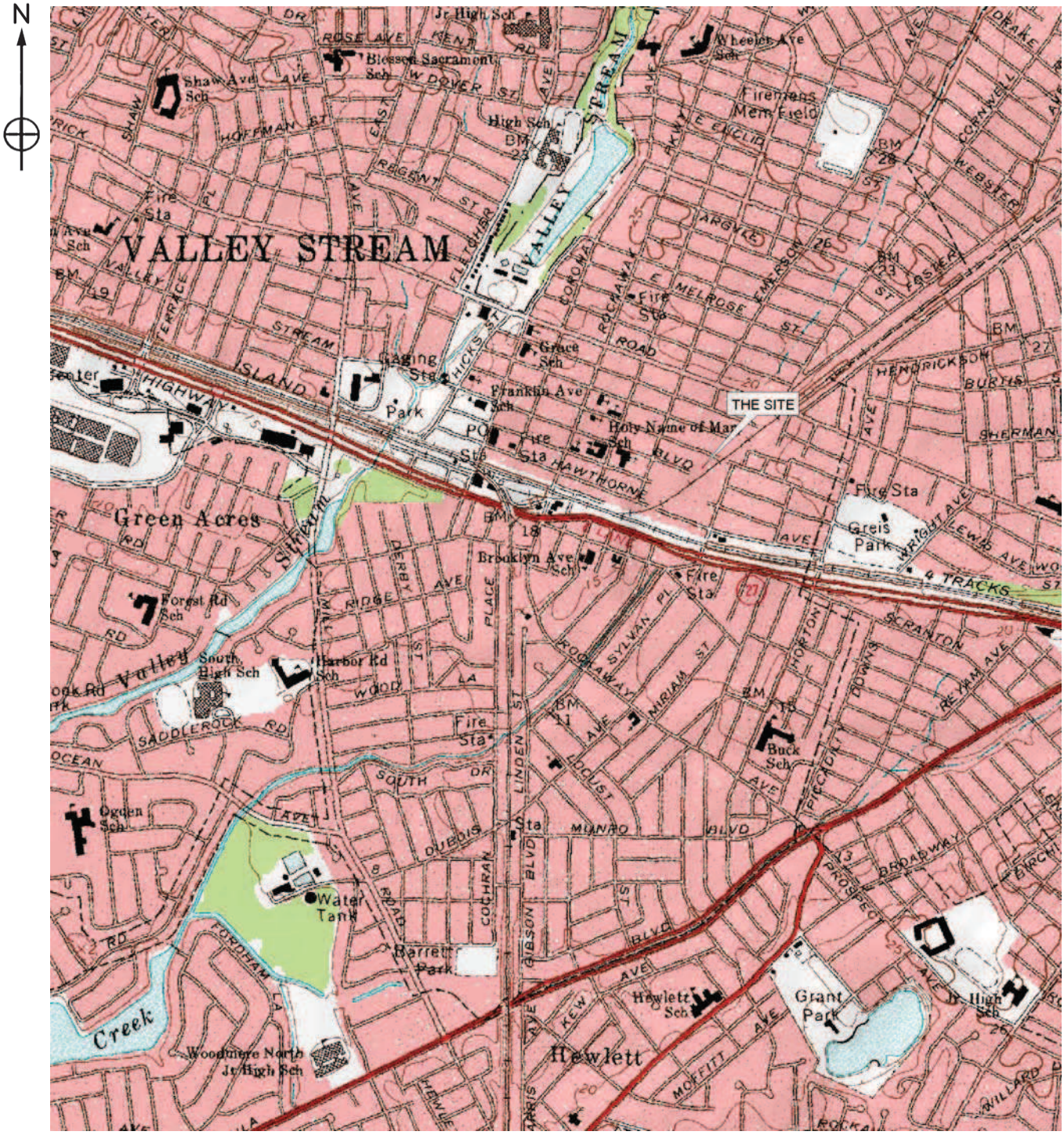
DWG. TITLE:

FIGURE 1

SITE LOCUS MAP



NAC CONSULTANTS INC. 28 Henry Street Kings Park New York 11754	Remedial Action Work Plan 100 East Mineola Avenue Valley Stream, New York	Figure 2 Site Map with Injection Point Locations



LINDBROOK, NEW YORK
7.5 MINUTE SERIES
TOPOGRAPHIC QUADRANGLE
USGS 1969

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REMEDIAL WORK PLAN

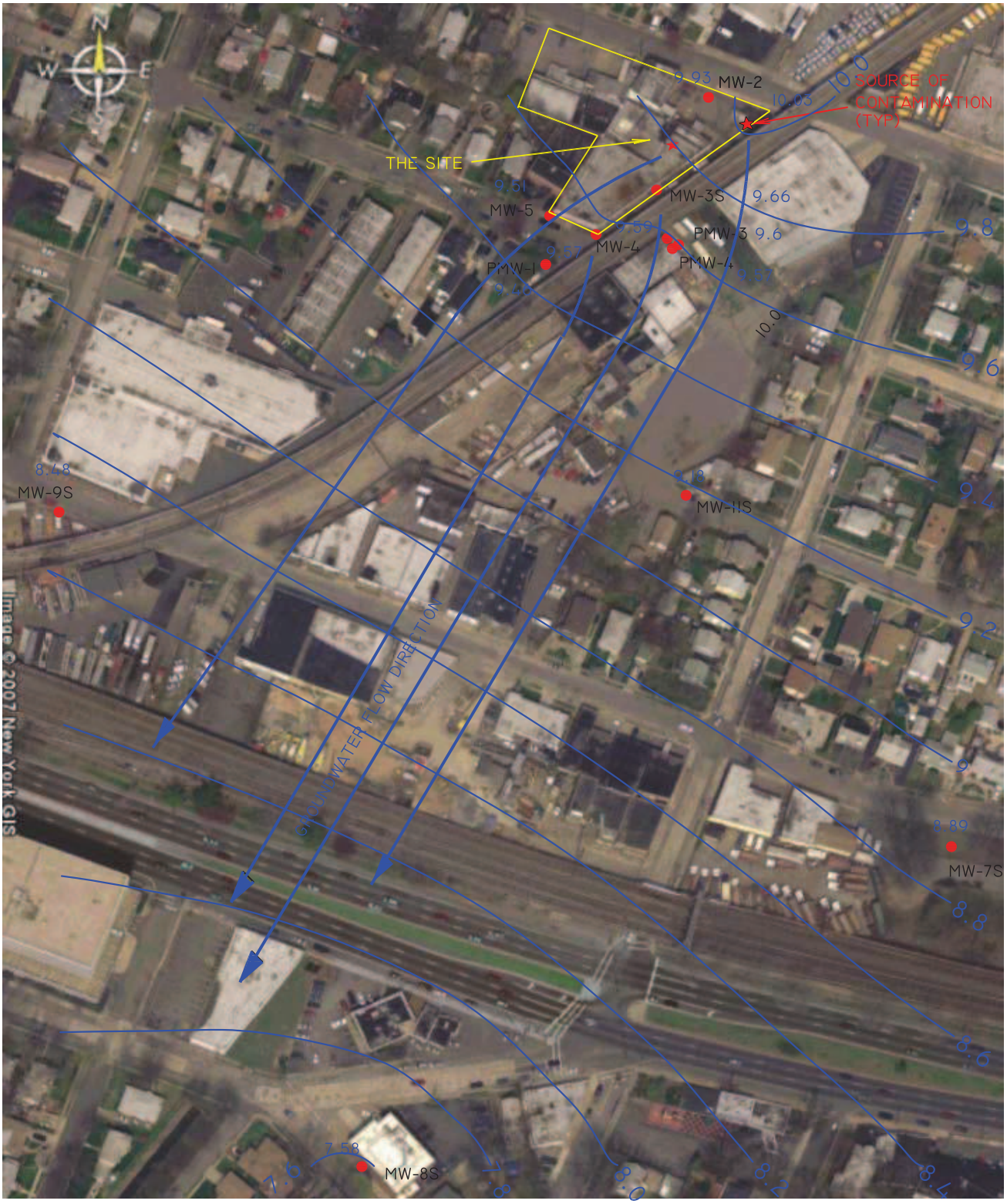
100 MINEOLA AVENUE
VALLEY STREAM, NEW YORK

VCP SITE NO: V-00145-1
GCE PROJECT NO: 06-321-00

DWG. TITLE:

FIGURE 3

USGS
TOPOGRAPHIC
MAP



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SHALLOW GROUNDWATER CONTOURS, JULY 2012 AS AND SVE ON

LEGEND

8.17
MW-8
MONITORING WELL AND WATER TABLE ELEVATION

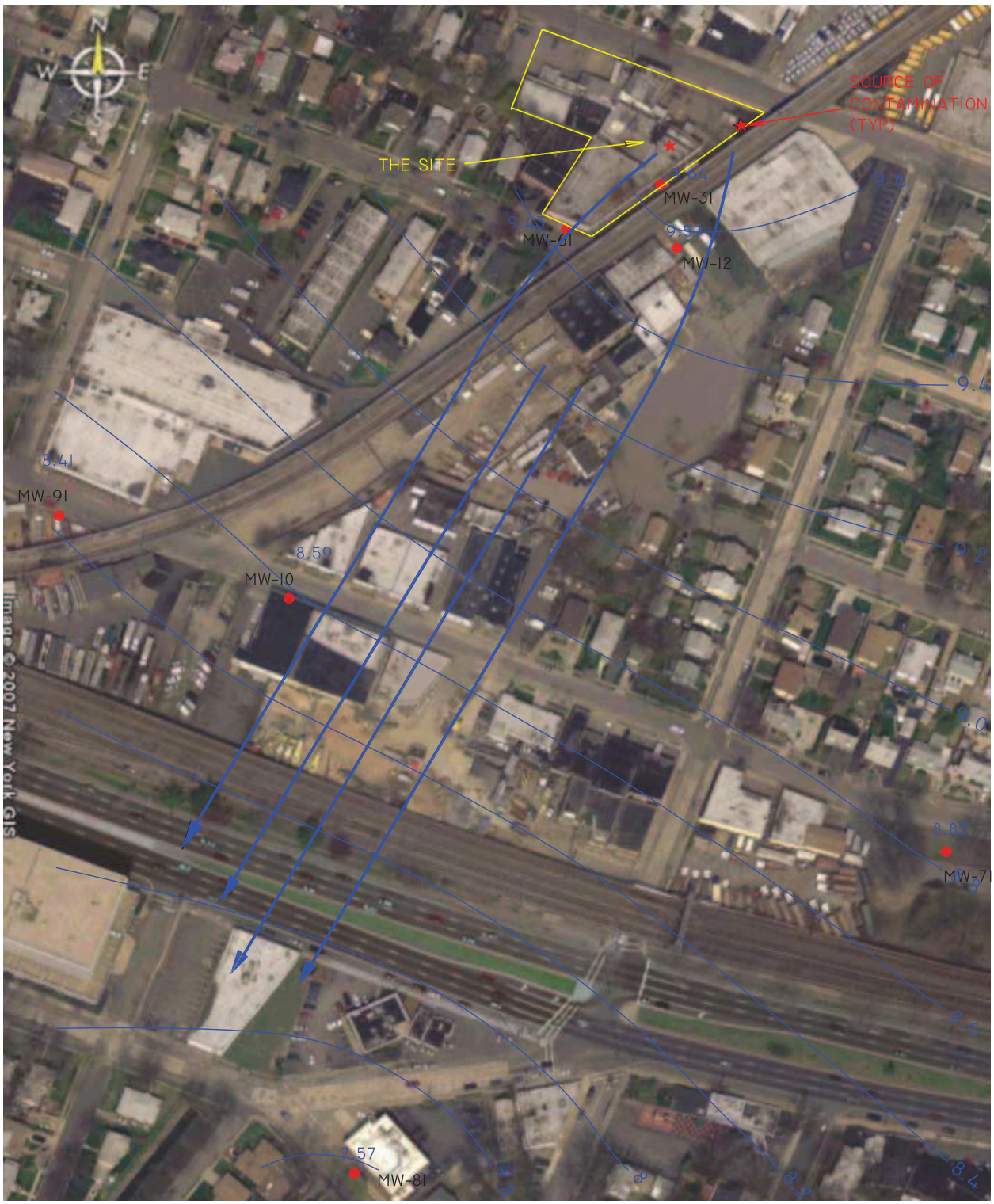
—8.5— GROUNDWATER CONTOURS IN FEET

SID HARVEY INDUSTRIES

100 MINEOLA AVENUE
VALLEY STREAM, NY

GCE PROJECT NO. 06-321-00

FIGURE 4



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INTERMEDIATE GROUNDWATER CONTOURS JULY 2012 AS AND SVE ON

LEGEND

7.57 MONITORING WELL AND WATER TABLE ELEVATION
MW-81

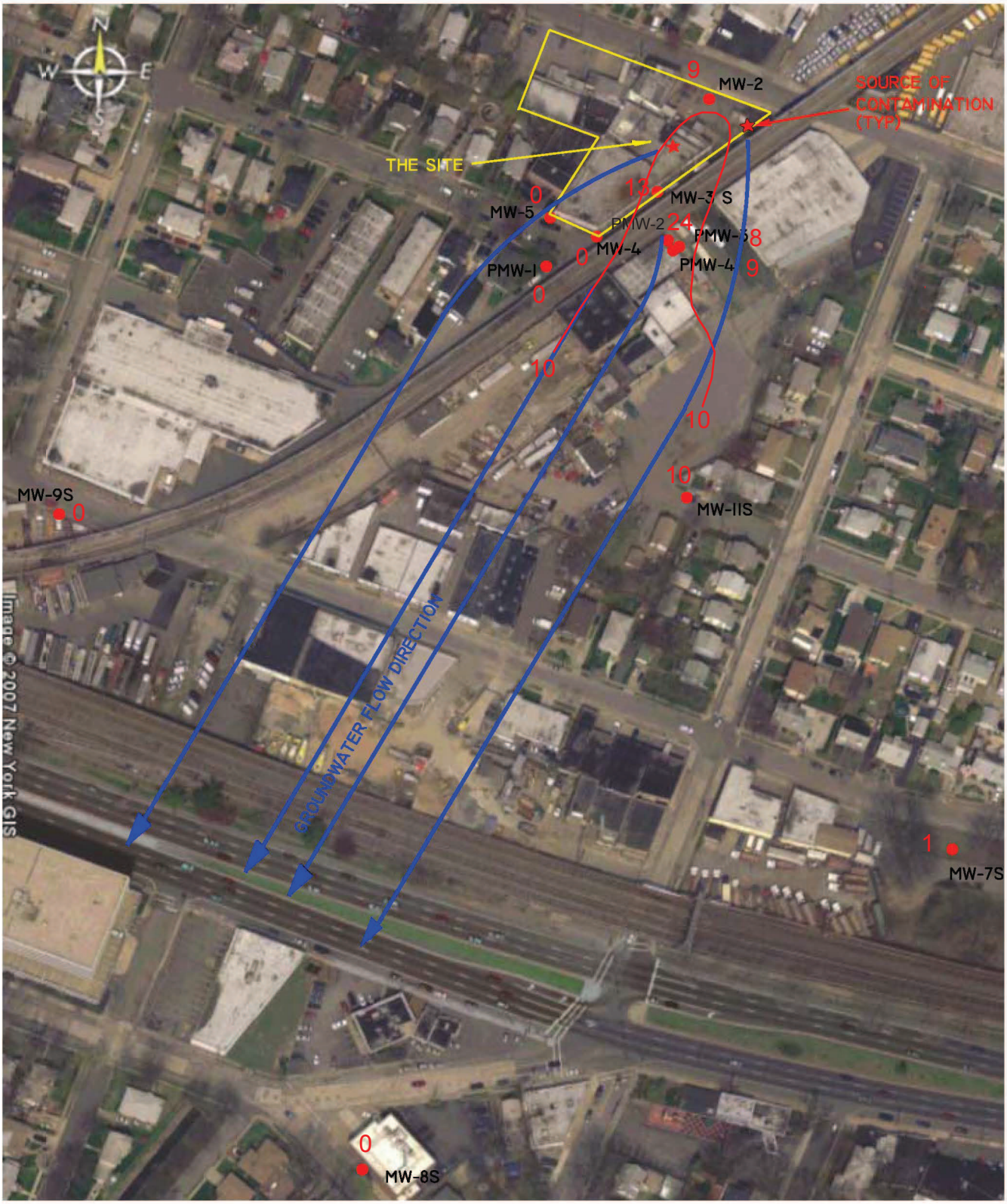
— 8.4 — GROUNDWATER CONTOURS IN FEET

SID HARVEY INDUSTRIES

100 MINEOLA AVENUE
VALLEY STREAM, NY

GCE PROJECT NO. 06-321-00

FIGURE 5



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TOTAL CHLORINATED SOLVENTS IN SHALLOW HORIZON JULY 2012 AS AND SVE ON

LEGEND

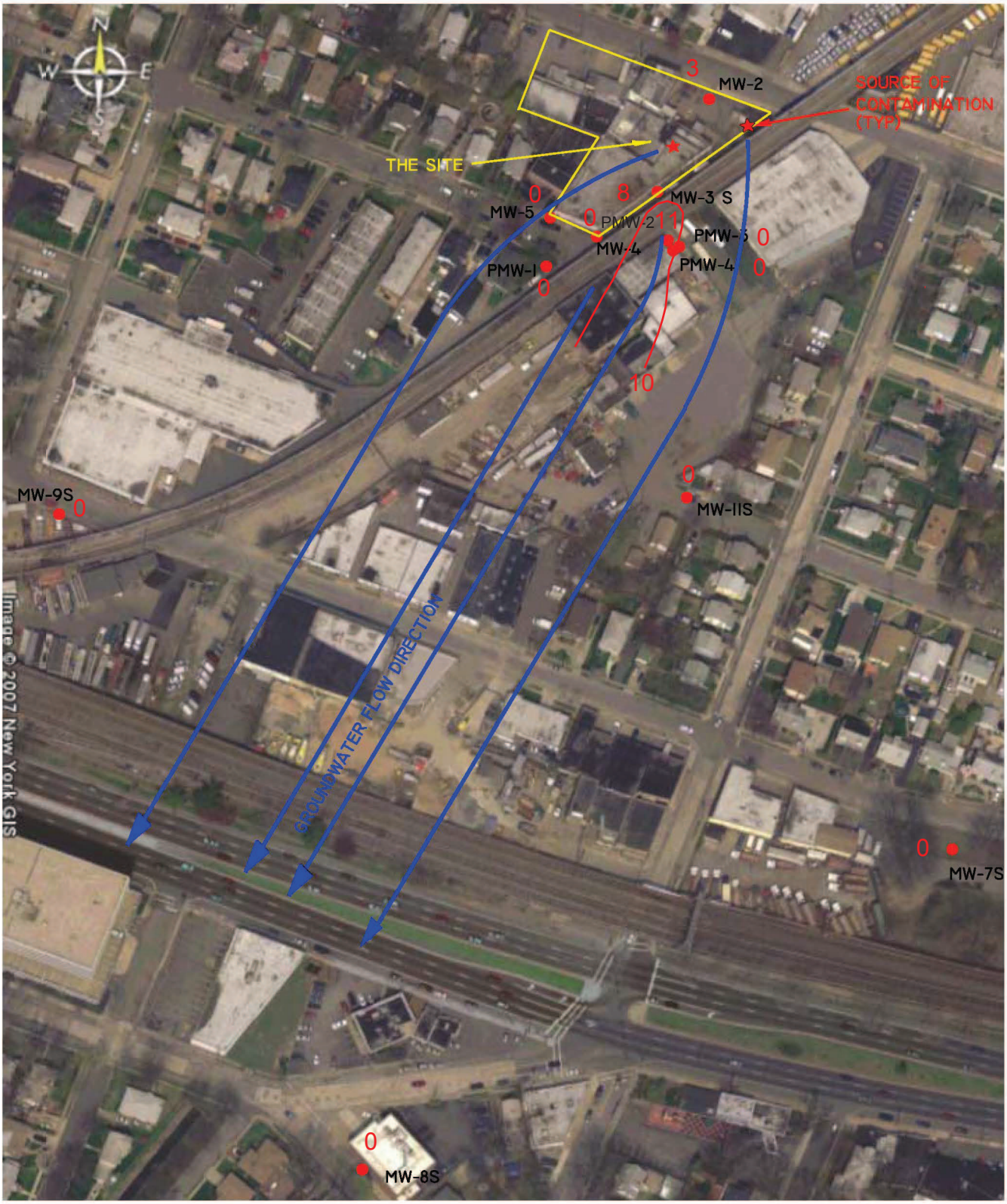
9
MW-2
MONITORING WELL AND TOTAL CVOC CONCENTRATION (UG/L)

SID HARVEY INDUSTRIES

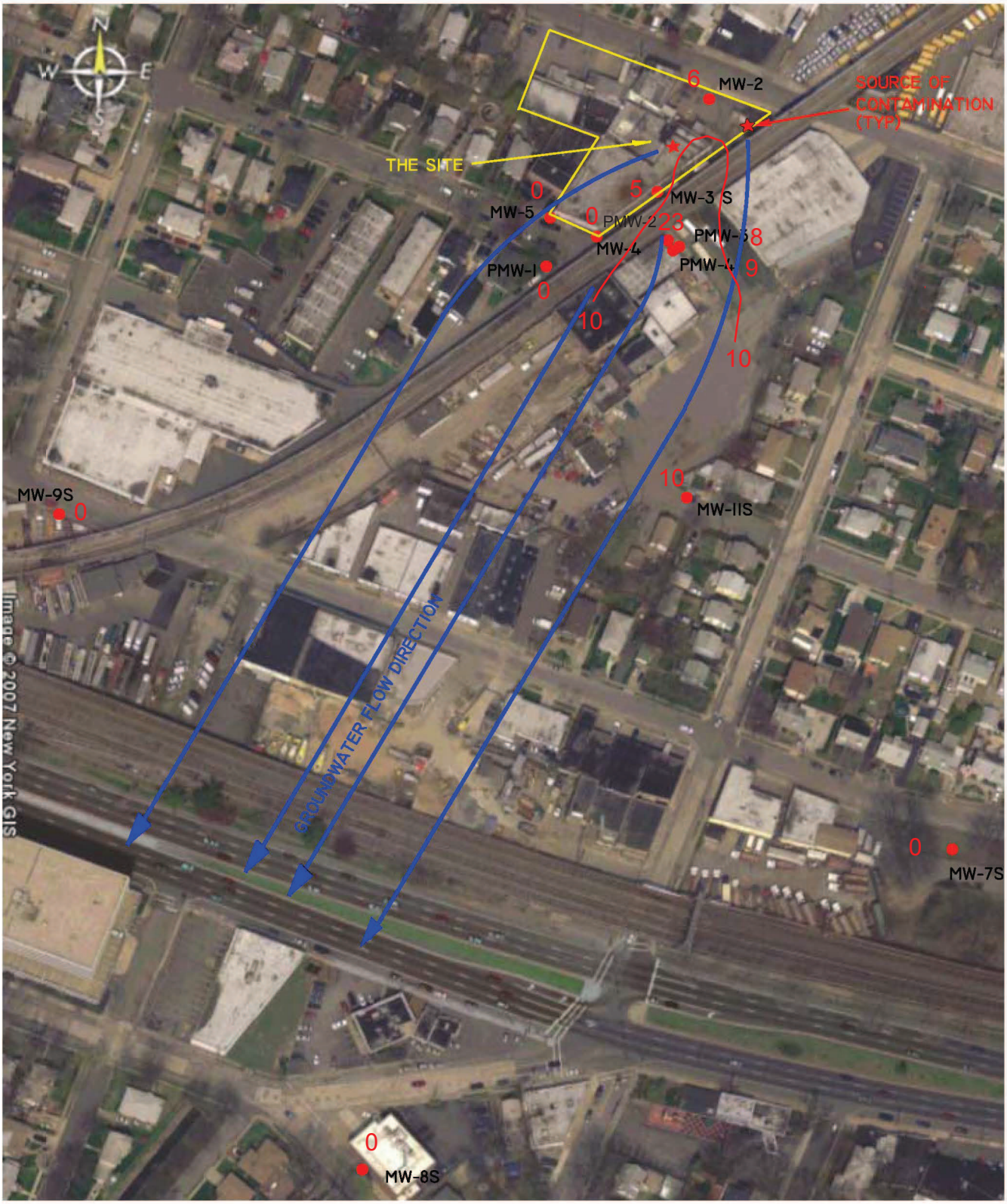
100 MINEOLA AVENUE
VALLEY STREAM, NY

GCE PROJECT NO. 06-321-00

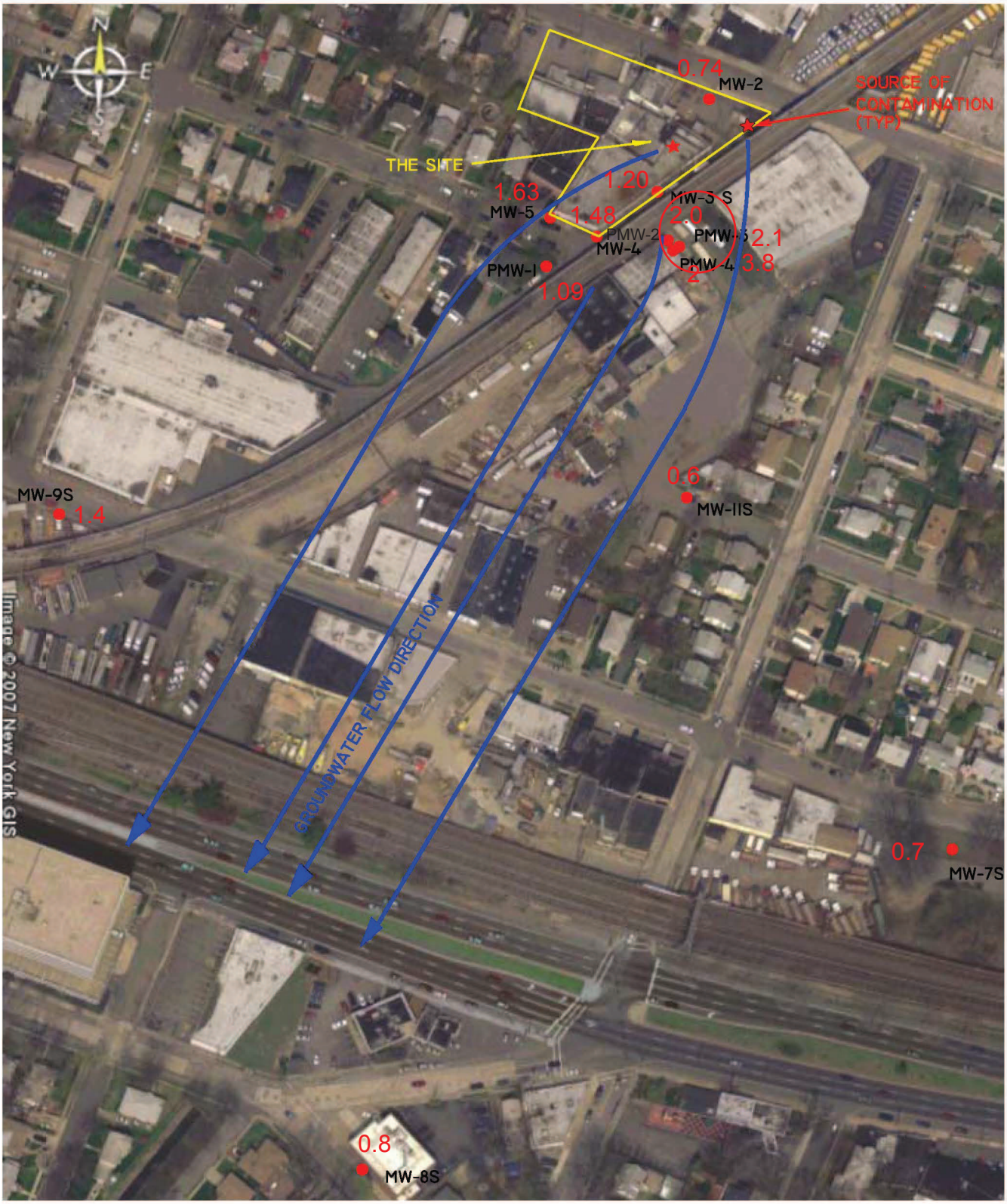
FIGURE 6



G. C. ENVIRONMENTAL, INC. ENVIRONMENTAL CONSULTANTS 22 OAK STREET BAY SHORE, NY11706 Tel. (631)206-3700 Fax: (631) 206-3729	TOTAL CHLORINATED ETHANES IN SHALLOW HORIZON JULY 2012 AS AND SVE ON SID HARVEY INDUSTRIES 100 MINEOLA AVENUE VALLEY STREAM, NY GCE PROJECT NO. 06-321-00	LEGEND 1 MW-2 MONITORING WELL AND CHLORINATED ETHANES CONCENTRATION (UG/L) FIGURE 7



G. C. ENVIRONMENTAL, INC. ENVIRONMENTAL CONSULTANTS 22 OAK STREET BAY SHORE, NY11706 Tel. (631)206-3700 Fax: (631) 206-3729	TOTAL CHLORINATED ETHENES IN SHALLOW HORIZON JULY 2012 AS AND SVE ON SID HARVEY INDUSTRIES 100 MINEOLA AVENUE VALLEY STREAM, NY GCE PROJECT NO. 06-321-00	LEGEND 1 MW-2 MONITORING WELL AND CHLORINATED ETHENES CONCENTRATION (UG/L) FIGURE 8



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DISSOLVED OXYGEN IN SHALLOW HORIZON
JULY 2012
AS AND SVE ON

SID HARVEY INDUSTRIES

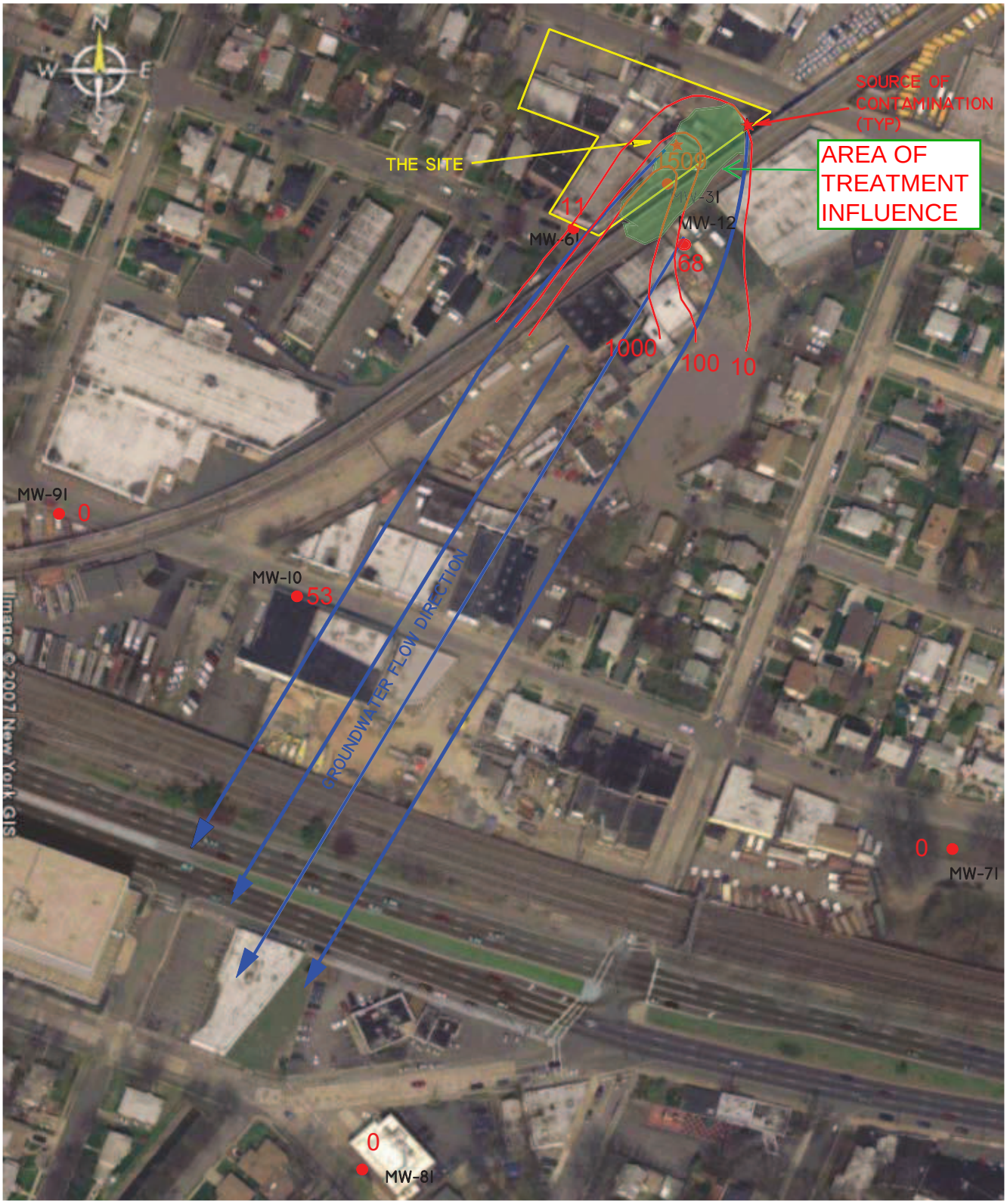
100 MINEOLA AVENUE
VALLEY STREAM, NY

GCE PROJECT NO. 06-321-00

LEGEND

6.32
MW-2
MONITORING WELL AND DISSOLVED OXYGEN CONCENTRATION (MG/L)

FIGURE 9



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TOTAL CHLORINATED SOLVENTS IN INTERMEDIATE HORIZON

JULY 2012
AS AND SVE ON

SID HARVEY INDUSTRIES

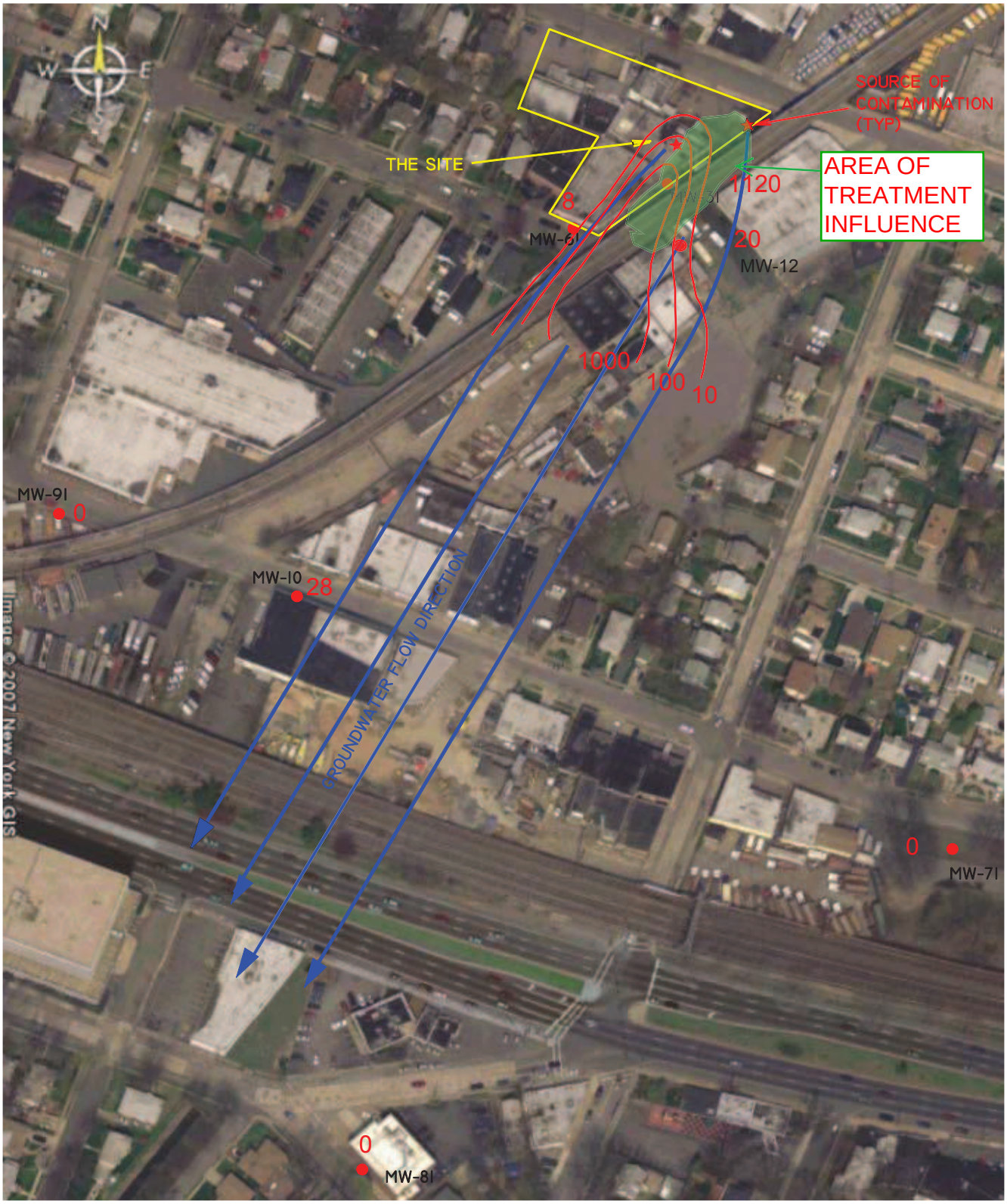
100 MINEOLA AVENUE
VALLEY STREAM, NY

GCE PROJECT NO. 06-321-00

LEGEND

1509 ● MW-31 MONITORING WELL AND TOTAL CVOC CONCENTRATION (UG/L)

FIGURE 10



G. C. ENVIRONMENTAL, INC.
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TOTAL CHLORINATED ETHANES IN INTERMEDIATE HORIZON JULY 2012 AS AND SVE ON

SID HARVEY INDUSTRIES

100 MINEOLA AVENUE
VALLEY STREAM, NY

GCE PROJECT NO. 06-321-00

LEGEND

2051 ● MW-3I — MONITORING WELL AND CHLORINATED ETHANES CONCENTRATION (UG/L)

FIGURE 11

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TOTAL CHLORINATED ETHENES IN INTERMEDIATE HORIZON JULY 2012 AS AND SVE ON

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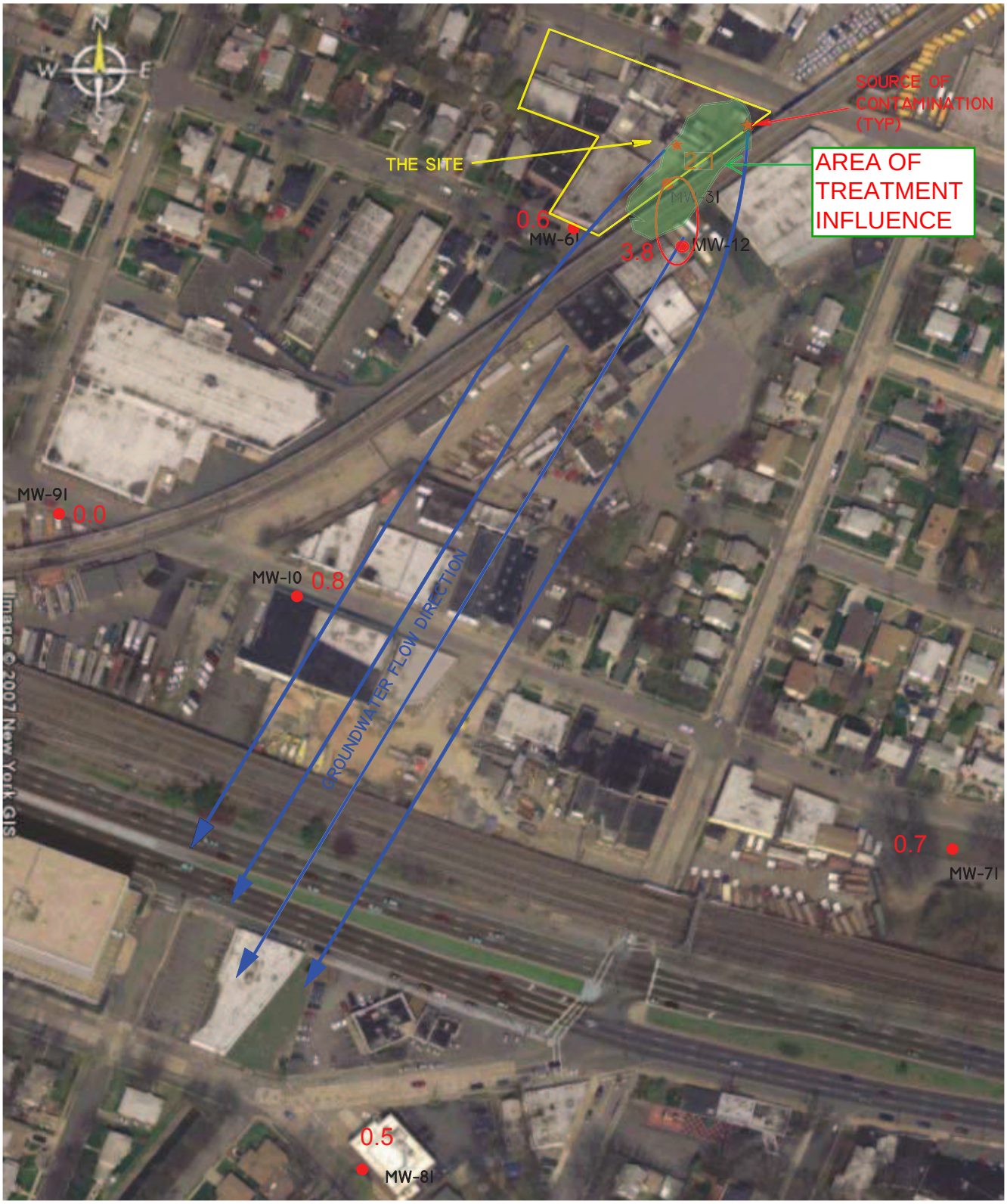
100 MINEOLA AVENUE
VALLEY STREAM, NY

GCE PROJECT NO. 06-321-00

LEGEND

270 ● MW-31 — MONITORING WELL AND CHLORINATED ETHENES CONCENTRATION (UG/L)

FIGURE 12



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DISSOLVED OXYGEN IN INTERMEDIATE HORIZON JULY 2012 AS AND SVE ON

SID HARVEY INDUSTRIES

100 MINEOLA AVENUE
VALLEY STREAM, NY

GCE PROJECT NO. 06-321-00

LEGEND

2.1 ● MW-31 — MONITORING WELL AND DISOLVED OXYGEN CONCENTRATION (UG/L)

FIGURE 13

Table 1
Groundwater Measurements, July 21, 2012
100 Mineola Avenue, Valley Stream, NY
GCE Project No. 06-321

Monitor. well	New Top Casing Elevation (ft)	7/21/2012 (AS and SVE Off)				7/21/2012 (AS and SVE On)				Difference
		Depth to water (ft)	Water Table Elevation			Depth to water (ft)	Water table Elevation			
			Shallow	Interm.	Deep		Shallow	Interm.	Deep	
On-Site and Performance Monitoring wells										
MW-2	18.57	8.74	9.83			8.64	9.93			0.1
MW-3S	19.39	9.84	9.55			9.73	9.66			0.11
MW-3I	19.44	9.94		9.5		9.8		9.64		0.14
MW-4	18.91	9.42	9.49			9.32	9.59			0.1
MW-5	19.06	9.59	9.47			9.55	9.51			0.04
MW-6I	18.69	9.37		9.32		9.26		9.43		0.11
MW-6D	18.6	13.91			4.69	13.49			5.11	0.42
PMW-1	18.71	9.3	9.41			9.25	9.46			0.05
PMW-2	18.41	8.91	9.5			8.82	9.59			0.09
PMW-3	18.35	8.86	9.49			8.75	9.6			0.11
PMW-4	18.26	8.78	9.48			8.69	9.57			0.09
MW-12	18.66	9.16		9.5		9.09		9.57		0.07
SVE-5	18.68	8.96	9.72			8.65	10.03			0.31
Off-Site Monitoring wells										
MW-7S	18.31	9.42	8.89			9.42	8.89			
MW-7I	18.26	9.43		8.83		9.43		8.83		
MW-7D	18.09	14.91			3.18	14.91			3.18	
MW-8S	16.06	8.48	7.58			8.48	7.58			
MW-8I	16.11	8.54		7.57		8.54		7.57		
MW-8D	15.92	12.43			3.49	12.43			3.49	
MW-9S	19.12	10.64	8.48			10.64	8.48			
MW-9I	18.91	10.5		8.41		10.5		8.41		
MW-9D	18.75	14.37			4.38	14.37			4.38	
MW-10	17.07	8.48		8.59		8.48		8.59		
MW-11S	15.23	6.05	9.18			6.05	9.18			
MW-11D	14.68	10.87			3.81	10.87			3.81	

Monitoring well MW-1 was damaged in 2006 and cannot be used for monitoring.

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 2
August 2014 Summary of Detected Compounds (Onsite Wells)

Well Identification	MW-2														NYSDEC Groundwater Standards (ppb)
Sampling Date	Oct-02	Mar-05	Dec-05	Mar-06	Jul-06	Aug-07	Jan-08	Apr-08	Aug-08	Oct-08	Mar-09	May-10	Jul-12	Aug-14	
PARAMETER - µg/l															
1,1,1-Trichloroethane (1,1,1-TCA)	490.0	70.0	1.8	11.0	25.0	17.0	13.0	14.0	30.0	10.0	5.0	1.2	3.3		**5.0**
1,1,2-Trichloroethane (1,1,2-TCA)															**1.0**
1,1-Dichloroethane (1,1-DCA)	42.0				0.6	2.0	1.0	2.0	2.0	1.0	1.0				**5.0**
1,1-Dichloroethene (1,1-DCE)	11.0														**5.0**
cis-1,2-Dichloroethene (cis-1,2-DCE)	2.0														**5.0**
Methylene Chloride															**5.0**
Tetrachloroethene (PCE)	37.0		2.6		6.5	10.0	4.0	10.0	9.0	3.0	2.0	1.41	6.0	2.1	**5.0**
Trichloroethene (TCE)	4.8			11.0			2.0	1.0							**5.0**
Vinyl Chloride															**2.0**
Chlorinated Ethanes	**532.00**	**70.00**	**1.80**	**11.00**	**25.60**	**19.00**	**14.00**	**16.00**	**32.00**	**11.00**	**6.00**	**1.23**	**3.30**	**-**	
Chlorinated Ethenes	**54.80**	**-**	**2.60**	**11.00**	**6.50**	**10.00**	**6.00**	**11.00**	**9.00**	**3.00**	**2.00**	**1.41**	**6.00**	**2.10**	
Total Chlorinated Solvents	**586.80**	**70.00**	**4.40**	**22.00**	**32.10**	**29.00**	**20.00**	**27.00**	**41.00**	**14.00**	**8.00**	**2.64**	**9.30**	**2.10**	
1,2,4,5-Trimethylbenzene		17.0		5.2				7.0	22.0						-
1,2,4-Trimethylbenzene	610.0	1,200.0	1.0	22.0	1.0			41.0	300.0	2.0					**5.0**
1,2-Dichlorobenzene															**3.0**
1,3,5-Trimethylbenzene	170.0	160.0		6.2	0.5			26.0	120.0						**5.0**
1,4-Dichlorobenzene															**3.0**
Acetone															**50.0**
Benzene	210.0	23.0		4.9	0.4			1.0						59.2	**1.0**
Ethyl Benzene	1,300.0	2,500.0		21.0	2.0			290.0	760.0	8.0				3.6	**5.0**
Isopropylbenzene	52.0	43.0		3.1				9.0						0.22	**5.0**
m&p-Xylenes	2,000.0	8,300.0		25.0	7.0			210.0	1,500.0	3.0				34.7	**5.0**
Methylcyclohexane														3.1	-
Methyl tert-Butyl Ether (MTBE)															**10.0**
Naphthalene	340.0	500.0	2.6	21.0				35.0	140.0	3.0					**10.0**
n-Butylbenzene								1.0							**5.0**
n-Propylbenzene	91.0	77.0		2.3				15.0							**5.0**
o-Xylene	1,500.0	4,400.0	3.0	54.0	7.0			490.0	1,000.0	4.0		1.0		41.4	**5.0**
p-Diethylbenzene		27.0													-
p-Ethyltoluene		880.0		10.0				25.0	89.0						-
p-Isopropyltoluene	7.0	37.0							2.0						**5.0**
sec-Butylbenzene	5.7								2.0						**5.0**
tert-Butylbenzene															**5.0**
Toluene	1,700.0	6,200.0	2.0	24.0	7.0			80.0	200.0	2.0		2.0		9.8	**5.0**
Total Petroleum	**7,985.70**	**24,364.00**	**8.60**	**198.70**	**24.90**	**-**	**-**	**1,230.00**	**4,135.00**	**22.00**	**-**	**3.00**	**-**	**152.02**	
Total VOCs	**8,572.50**	**24,434.00**	**13.00**	**220.70**	**57.00**	**29.00**	**20.00**	**1,257.00**	**4,176.00**	**36.00**	**8.00**	**5.64**	**9.30**	**154.12**	

Notes:

Concentration Less Than previous Round

Concentration Greater Than previous Round

Petroleum hydrocarbons were found in the upgradient well MW-2 and NYSDEC was requested to investigate the upgradient source.

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 2 (continued)
August 2014 Summary of Detected Compounds (Onsite Wells)

Well Identification	MW-3S														NYSDEC Groundwater
Sampling Date	Oct-02	Mar-05	Dec-05	Mar-06	Jul-06	Aug-07	Jan-08	Apr-08	Aug-08	Oct-08	Mar-09	May-10	Jul-12	Aug-14	Standards (ppb)
PARAMETER - µg/l															
1,1,1-Trichloroethane (1,1,1-TCA)	700.0	75.0	120.0	190.0	26.0	8.0	2.0			3.0	3.0				**5.0**
1,1,2-Trichloroethane (1,1,2-TCA)	2.0														**1.0**
1,1-Dichloroethane (1,1-DCA)	220.0	270.0	170.0	130.0	29.0	10.0	7.0			12.0	2.0	19.7	7.6		**5.0**
1,1-Dichloroethene (1,1-DCE)	210.0	27.0	39.0	18.0	24.0										**5.0**
cis-1,2-Dichloroethene (cis-1,2-DCE)	25.0	93.0	49.0	50.0	11.0	3.0							5.2		**5.0**
Methylene Chloride	62.0				1.5										**5.0**
Tetrachloroethene (PCE)	70.0	5.0	21.0	6.0		2.0	4.0		3.0	2.0	1.0	0.92			**5.0**
Trichloroethene (TCE)	31.0	2.0	4.2		0.66										**5.0**
Vinyl Chloride															**2.0**
Chlorinated Ethanes	**922.00**	**345.00**	**290.00**	**320.00**	**55.00**	**18.00**	**9.00**	**-**	**-**	**15.00**	**5.00**	**19.70**	**7.60**	**-**	
Chlorinated Ethenes	**336.00**	**127.00**	**113.20**	**74.00**	**35.66**	**5.00**	**4.00**	**-**	**3.00**	**2.00**	**1.00**	**0.92**	**5.20**	**-**	
Total Chlorinated Solvents	**1,320.00**	**472.00**	**403.20**	**394.00**	**92.16**	**23.00**	**13.00**	**-**	**3.00**	**17.00**	**6.00**	**20.62**	**12.80**	**-**	
1,2,4,5-Trimethylbenzene		30.0		28.0											**-**
1,2,4-Trimethylbenzene	380.0	820.0	450.0	720.0	140.0										**5.0**
1,2-Dichlorobenzene		5.0	10.0		2.5										**3.0**
1,3,5-Trimethylbenzene	160.0	310.0	130.0	280.0	70.0										**5.0**
1,4-Dichlorobenzene			2.0		0.4										**3.0**
Acetone						10.0				17.0					**50.0**
Benzene	2.7	11.0	25.0		0.9										**1.0**
Ethyl Benzene	34.0	66.0	190.0	70.0	6.9										**5.0**
Isopropylbenzene	19.0	28.0	21.0	22.0	3.2										**5.0**
m&p-Xylenes	150.0	160.0	20.0	77.0	20.0										**5.0**
Methylcyclohexane															**-**
Methyl tert-Butyl Ether (MTBE)		1.0	5.6		2.4										**10.0**
Naphthalene	56.0	150.0	58.0	63.0	12.0										**10.0**
n-Butylbenzene	39.0		8.7	12.0											**5.0**
n-Propylbenzene	37.0	49.0	37.0	40.0											**5.0**
o-Xylene	81.0	210.0	110.0	130.0	36.0										**5.0**
p-Diethylbenzene		89.0													**-**
p-Ethyltoluene		270.0		76.0											**-**
p-Isopropyltoluene	21.0		18.0	27.0											**5.0**
sec-Butylbenzene	23.0	19.0	12.0	15.0	3.3										**5.0**
tert-Butylbenzene		6.0	1.5	5.0											**5.0**
Toluene	28.0	51.0	21.0	7.0	0.5										**5.0**
Total Petroleum	**1,030.70**	**2,275.00**	**1,119.80**	**1,572.00**	**298.10**	**10.00**	**-**	**-**	**-**	**17.00**	**-**	**-**	**-**	**-**	
Total VOCs	**2,350.70**	**2,747.00**	**1,523.00**	**1,966.00**	**390.26**	**33.00**	**13.00**	**-**	**3.00**	**34.00**	**6.00**	**20.62**	**12.80**	**-**	

Notes:

Samples Not Colected During this Round

Concentration Less Than previous Round

Concentration Greater Than previous Round

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 2 (continued)
August 2014 Summary of Detected Compounds (Onsite Wells)

Well Identification	MW-3I													NYSDEC Groundwater
Sampling Date	Oct-02	Mar-05	Dec-05	Mar-06	Jul-06	Aug-07	Jan-08	Apr-08	Aug-08	Oct-08	Mar-09	May-10	Jul-12	Aug-14	Standards (ppb)
PARAMETER - µg/l															
1,1,1-Trichloroethane (1,1,1-TCA)		1,200.0	690.0	620.0	470.0	2,300.0	1,500.0	2,600.0	910.0	630.0	350.0	1,980.0	940.0	200.0	**5.0**
1,1,2-Trichloroethane (1,1,2-TCA)															**1.0**
1,1,2-Trichlorotrifluroethane													7.4	3.7	**-**
1,1-Dichloroethane (1,1-DCA)		180.0	65.0	56.0	57.0	170.0	170.0	230.0	230.0	160.0	210.0	192.0	180.0	70.0	**5.0**
1,1-Dichloroethene (1,1-DCE)		39.0	62.0	26.0	16.0	69.0	53.0	73.0	42.0	30.0	31.0	39.4	55.0	12.6	**5.0**
cis-1,2-Dichloroethene (cis-1,2-DCE)							7.0	11.0	7.0	4.0	3.0	5.8	6.8	3.5	**5.0**
Freon 113											1.0				**5.0**
Methylene Chloride															**5.0**
Tetrachloroethene (PCE)		24.0	14.0	23.0	13.0	120.0	69.0	94.0	22.0	12.0	7.0	12.90	7.4	2.7	**5.0**
Trichloroethene (TCE)		6.0	4.2	4.0	2.6	11.0	49.0	130.0	100.0	70.0	52.0	222.0	320.0	210.0	**5.0**
Vinyl Chloride															**2.0**
Chlorinated Ethanes	-	**1,380.00**	**755.00**	**676.00**	**527.00**	**2,470.00**	**1,670.00**	**2,830.00**	**1,140.00**	**790.00**	**560.00**	**2,172.00**	**1,127.40**	**273.70**	
Chlorinated Ethenes	-	**69.00**	**80.20**	**53.00**	**31.60**	**200.00**	**178.00**	**308.00**	**171.00**	**116.00**	**93.00**	**280.10**	**389.20**	**228.80**	
Total Chlorinated Solvents	-	**1,449.00**	**835.20**	**729.00**	**558.60**	**2,670.00**	**1,848.00**	**3,138.00**	**1,311.00**	**906.00**	**654.00**	**2,452.10**	**1,516.60**	**502.50**	
1,2,4,5-Trimethylbenzene															**-**
1,2,4-Trimethylbenzene		3.0	1.6		0.4	2.0	2.0	6.0	3.0	3.0	1.0	4.0	5.1		**5.0**
1,2-Dichlorobenzene						1.0	1.0	2.0	1.0	1.0		1.5	1.9	0.8	**3.0**
1,3,5-Trimethylbenzene								2.0	1.0	1.0		1.3	1.9		**5.0**
1,4-Dichlorobenzene															**3.0**
Acetone															**50.0**
Benzene															**1.0**
Ethyl Benzene		1.0	0.87		0.3	2.0	2.0	5.0	2.0	2.0		3.4	4.5	2.3	**5.0**
Isopropylbenzene															**5.0**
m&p-Xylenes		3.0	2.4		0.8	5.0	6.0	13.0	6.0	5.0	2.0	9.9	13.0	5.8	**5.0**
Methylcyclohexane														1.7	**-**
Methyl tert-Butyl Ether (MTBE)		4.0	3.2	2.1											**10.0**
Naphthalene			0.6					1.0							**10.0**
n-Butylbenzene															**5.0**
n-Propylbenzene															**5.0**
o-Xylene		1.0	0.9		0.3	2.0	2.0	5.0	2.0	1.0		3.0	3.5	1.8	**5.0**
p-Diethylbenzene															**-**
p-Ethyltoluene		1.0						1.0				1.6			**-**
p-Isopropyltoluene															**5.0**
sec-Butylbenzene															**5.0**
tert-Butylbenzene															**5.0**
Toluene		23.0	19.0	14.0	6.0	39.0	34.0	66.0	28.0	18.0	10.0	47.4	27.0	8.1	**5.0**
Total Petroleum	-	**36.00**	**28.57**	**16.10**	**7.80**	**51.00**	**47.00**	**101.00**	**43.00**	**31.00**	**13.00**	**72.10**	**56.90**	**20.50**	
Total VOCs	-	**1,485.00**	**863.77**	**745.10**	**566.40**	**2,721.00**	**1,895.00**	**3,239.00**	**1,354.00**	**937.00**	**667.00**	**2,524.20**	**1,573.50**	**523.00**	

Notes:

Samples Not Colected During this Round

Concentration Less Than previous Round

Concentration Greater Than previous Round

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 2 (continued)
August 2014 Summary of Detected Compounds (Onsite Wells)

Well Identification	MW-4														NYSDEC Groundwater
Sampling Date	Oct-02	Mar-05	Dec-05	Mar-06	Jul-06	Aug-07	Jan-08	Apr-08	Aug-08	Oct-08	Mar-09	May-10	Jul-12	Aug-14	Standards (ppb)
PARAMETER - µg/l															
1,1,1-Trichloroethane (1,1,1-TCA)	3.4	9.0	9.0	10.0	2.0										**5.0**
1,1,2-Trichloroethane (1,1,2-TCA)															**1.0**
1,1-Dichloroethane (1,1-DCA)	14.0	32.0	14.0	79.0	7.3										**5.0**
1,1-Dichloroethene (1,1-DCE)	7.3	14.0	47.0	39.0	0.6										**5.0**
cis-1,2-Dichloroethene (cis-1,2-DCE)	5.0	17.0	8.0	50.0	4.0										**5.0**
Methylene Chloride															**5.0**
Tetrachloroethene (PCE)	3.8	6.0	4.7	15.0	0.4									5.9	**5.0**
Trichloroethene (TCE)	0.93		1.0	1.0											**5.0**
Vinyl Chloride															**2.0**
Chlorinated Ethanes	**17.40**	**41.00**	**23.00**	**89.00**	**9.30**	-	-	-	-	-	-	-	-	-	
Chlorinated Ethenes	**17.03**	**37.00**	**60.70**	**105.00**	**5.00**	-	-	-	-	-	-	-	-	**5.90**	
Total Chlorinated Solvents	**34.43**	**78.00**	**83.70**	**194.00**	**14.30**	-	-	-	-	-	-	-	-	**5.90**	
1,2,4,5-Trimethylbenzene				1.2											-
1,2,4-Trimethylbenzene		22.0	49.0	48.0											**5.0**
1,2-Dichlorobenzene		2.0	3.0	3.0											**3.0**
1,3,5-Trimethylbenzene		4.0	8.6	12.0											**5.0**
1,4-Dichlorobenzene			1.2	1.3											**3.0**
Acetone															**50.0**
Benzene															**1.0**
Ethyl Benzene	1.0		2.2	2.4											**5.0**
Isopropylbenzene			1.4	1.5											**5.0**
m&p-Xylenes		2.0	4.9	6.5											**5.0**
Methylcyclohexane															-
Methyl tert-Butyl Ether (MTBE)			1.3		5.6										**10.0**
Naphthalene			3.7	3.8											**10.0**
n-Butylbenzene			0.9												**5.0**
n-Propylbenzene		1.0	2.1	2.7											**5.0**
o-Xylene		4.0	8.2	9.3											**5.0**
p-Diethylbenzene		2.0													-
p-Ethyltoluene		3.0		8.5											-
p-Isopropyltoluene			2.6	1.7											**5.0**
sec-Butylbenzene			1.4	1.4											**5.0**
tert-Butylbenzene															**5.0**
Toluene			1.8												**5.0**
Total Petroleum	**1.00**	**40.00**	**92.30**	**103.30**	**5.60**	-	-	-	-	-	-	-	-	-	
Total VOCs	**35.43**	**118.00**	**176.00**	**297.30**	**19.90**	-	-	-	-	-	-	-	-	**5.90**	

Notes:
Concentration Less Than previous Round
Concentration Greater Than previous Round

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 2 (continued)
August 2014 Summary of Detected Compounds (Onsite Wells)

Well Identification	MW-5														NYSDEC Groundwater
Sampling Date	Oct-02	Mar-05	Dec-05	Mar-06	Jul-06	Aug-07	Jan-08	Apr-08	Aug-08	Oct-08	Mar-09	May-10	Jul-12	Aug-14	Standards (ppb)
PARAMETER - µg/l															
1,1,1-Trichloroethane (1,1,1-TCA)	22.0	2.0		1.3	0.5	1.0	2.0	1.0	1.0						**5.0**
1,1,2-Trichloroethane (1,1,2-TCA)															**1.0**
1,1-Dichloroethane (1,1-DCA)	47.0	8.0	26.0	13.0	1.6	1.0	4.0	2.0	3.0						**5.0**
1,1-Dichloroethene (1,1-DCE)	5.3	1.0		2.3	0.3		1.0	2.0							**5.0**
Chloroform														0.47	**7.0**
cis-1,2-Dichloroethene (cis-1,2-DCE)															**5.0**
Methylene Chloride															**5.0**
Tetrachloroethene (PCE)					1.0	1.0									**5.0**
Trichloroethene (TCE)	1.1														**5.0**
Vinyl Chloride															**2.0**
Chlorinated Ethanes	**69.00**	**10.00**	**26.00**	**14.30**	**2.10**	**2.00**	**6.00**	**3.00**	**4.00**	**-**	**-**	**-**	**-**	**-**	
Chlorinated Ethenes	**6.40**	**1.00**	**-**	**2.30**	**1.30**	**1.00**	**1.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	
Total Chlorinated Solvents	**75.40**	**11.00**	**26.00**	**16.60**	**3.40**	**3.00**	**7.00**	**5.00**	**4.00**	**-**	**-**	**-**	**-**	**0.47**	
1,2,4,5-Trimethylbenzene		17.0		32.0					2.0						**-**
1,2,4-Trimethylbenzene	260.0	73.0	380.0	120.0	20.0			1.0	22.0	12.0	4.0	2.6	10.0		**5.0**
1,2-Dichlorobenzene															**3.0**
1,3,5-Trimethylbenzene	77.0	13.0	66.0	41.0	6.0				4.0	2.0			1.9		**5.0**
1,4-Dichlorobenzene															**3.0**
Acetone			150.0												**50.0**
Benzene	7.4	2.0	5.7	3.0											**1.0**
Ethyl Benzene	56.0	26.0	58.0	39.0	4.0		2.0	1.0	10.0	1.0	2.0		1.7	5.7	**5.0**
Isopropylbenzene	12.0	4.0	12.0	6.0	1.0									0.81	**5.0**
m&p-Xylenes	89.0	50.0	120.0	77.0	4.0		2.0	3.0	14.0		5.0		2.7	7.0	**5.0**
Methylcyclohexane															**-**
Methyl tert-Butyl Ether (MTBE)															**10.0**
Naphthalene	280.0	82.0	300.0	94.0	14.0				28.0	6.0	4.0		3.3		**10.0**
n-Butylbenzene	21.0			3.2											**5.0**
n-Propylbenzene	22.0	7.0	26.0	11.0	1.0										**5.0**
o-Xylene	150.0	64.0	200.0	130.0	8.0		4.0	5.0	17.0	4.0	5.0	1.1	3.0	9.8	**5.0**
p-Diethylbenzene		14.0													**-**
p-Ethyltoluene		34.0		83.0					3.0	1.0					**-**
p-Isopropyltoluene	7.0	1.0	26.0	3.0	4.0										**5.0**
sec-Butylbenzene	7.6	2.0	12.0	4.0											**5.0**
tert-Butylbenzene															**5.0**
Toluene	24.0	20.0	48.0	31.0	0.6		3.0	2.0	6.0		3.0			1.5	**5.0**
Total Petroleum	**1,013.00**	**409.00**	**1,403.70**	**677.20**	**62.60**	**-**	**11.00**	**12.00**	**106.00**	**26.00**	**23.00**	**3.70**	**22.60**	**24.81**	
Total VOCs	**1,088.40**	**420.00**	**1,429.70**	**693.80**	**66.00**	**3.00**	**18.00**	**17.00**	**110.00**	**26.00**	**23.00**	**3.70**	**22.60**	**25.28**	

Notes:
Concentration Less Than previous Round
Concentration Greater Than previous Round

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 2 (continued)
August 2014 Summary of Detected Compounds (Onsite Wells)

Well Identification	MW-6I														NYSDEC Groundwater
Sampling Date	Nov-02	Mar-05	Dec-05	Mar-06	Jul-06	Aug-07	Jan-08	Apr-08	Aug-08	Oct-08	Mar-09	May-10	Jul-12	Aug-14	Standards (ppb)
PARAMETER - µg/l															
1,1,1-Trichloroethane (1,1,1-TCA)	180.0	21.0	1,000.0	100.0	220.0	230.0	130.0	40.0	79.0	47.0		4.0	5.8	41.5	**5.0**
1,1,2-Trichloroethane (1,1,2-TCA)															**1.0**
1,1-Dichloroethane (1,1-DCA)	69.0	6.0	140.0	19.0	32.0	48.0	32.0	11.0	25.0	16.0	3.0	3.9	2.2		**5.0**
1,1-Dichloroethene (1,1-DCE)	36.0	4.0	67.0	12.0	22.0	25.0	16.0	5.0	11.0	8.0		1.2	1.3	18.2	**5.0**
cis-1,2-Dichloroethene (cis-1,2-DCE)														6.9	**5.0**
Methylene Chloride															**5.0**
Tetrachloroethene (PCE)	10.0	2.0	26.0	7.4	14.0	22.0	16.0	7.0	12.0	5.0					**5.0**
Trichloroethene (TCE)	3.0			1.2		3.0	2.0		2.0	5.0			1.3	11.0	**5.0**
Vinyl Chloride															**2.0**
Chlorinated Ethanes	**249.00**	**27.00**	**1,140.00**	**119.00**	**252.00**	**278.00**	**162.00**	**51.00**	**104.00**	**63.00**	**3.00**	**7.90**	**8.00**	**41.50**	
Chlorinated Ethenes	**49.00**	**6.00**	**93.00**	**20.60**	**36.00**	**50.00**	**34.00**	**12.00**	**25.00**	**18.00**	**-**	**1.20**	**2.60**	**36.10**	
Total Chlorinated Solvents	**298.00**	**33.00**	**1,233.00**	**139.60**	**288.00**	**328.00**	**196.00**	**63.00**	**129.00**	**81.00**	**3.00**	**9.10**	**10.60**	**77.60**	
1,2,4,5-Trimethylbenzene															**-**
1,2,4-Trimethylbenzene			1.9		0.5										**5.0**
1,2-Dichlorobenzene			0.6												**3.0**
1,3,5-Trimethylbenzene			0.6												**5.0**
1,4-Dichlorobenzene															**3.0**
Acetone															**50.0**
Benzene															**1.0**
Ethyl Benzene			1.2		0.4										**5.0**
Isopropylbenzene															**5.0**
m&p-Xylenes			3.3		1.1										**5.0**
Methylcyclohexane															**-**
Methyl tert-Butyl Ether (MTBE)															**10.0**
Naphthalene															**10.0**
n-Butylbenzene															**5.0**
n-Propylbenzene															**5.0**
o-Xylene			1.0		0.5										**5.0**
p-Diethylbenzene															**-**
p-Ethyltoluene															**-**
p-Isopropyltoluene															**5.0**
sec-Butylbenzene															**5.0**
tert-Butylbenzene															**5.0**
Toluene	1.0		56.0		3.8									1.1	**5.0**
Total Petroleum	**0.95**	**-**	**64.60**	**-**	**6.30**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.10**	
Total VOCs	**298.95**	**33.00**	**1,297.60**	**139.60**	**294.30**	**328.00**	**196.00**	**63.00**	**129.00**	**81.00**	**3.00**	**9.10**	**10.60**	**78.70**	

Notes:
Concentration Less Than previous Round
Concentration Greater Than previous Round

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 3
August 2014 Summary of Detected Compounds (Performance Monitoring Wells)

Well Identification	PMW-1												NYSDEC Groundwater Standards (ppb)
Sampling Date	Dec-05	Mar-06	Jul-06	Aug-07	Jan-08	Apr-08	Aug-08	Oct-08	Mar-09	May-10	Jul-12	Aug-14	
PARAMETER - µg/l													
1,1,1-Trichloroethane (1,1,1-TCA)	3.0	2.3	1.9										**5.0**
1,1,2-Trichloroethane (1,1,2-TCA)													**1.0**
1,1-Dichloroethane (1,1-DCA)	1.9	2.5	2.6										**5.0**
1,1-Dichloroethene (1,1-DCE)		1.0	0.7										**5.0**
cis-1,2-Dichloroethene (cis-1,2-DCE)													**5.0**
Methylene Chloride													**5.0**
Tetrachloroethene (PCE)	2.8	3.6	2.7	1.0									**5.0**
Trichloroethene (TCE)	0.68		0.8										**5.0**
Vinyl Chloride													**2.0**
Chlorinated Ethanes	**4.90**	**4.80**	**4.50**	-	-	-	-	-	-	-	-	-	
Chlorinated Ethenes	**3.48**	**4.60**	**4.20**	**1.00**	-	-	-	-	-	-	-	-	
Total Chlorinated Solvents	**8.38**	**9.40**	**8.70**	**1.00**	-	-	-	-	-	-	-	-	
1,2,4,5-Trimethylbenzene													-
1,2,4-Trimethylbenzene													**5.0**
1,2-Dichlorobenzene													**3.0**
1,3,5-Trimethylbenzene													**5.0**
1,4-Dichlorobenzene													**3.0**
Acetone													**50.0**
Benzene													**1.0**
Ethyl Benzene													**5.0**
Isopropylbenzene													**5.0**
m&p-Xylenes													**5.0**
Methylcyclohexane													-
Methyl tert-Butyl Ether (MTBE)	0.73												**10.0**
Naphthalene													**10.0**
n-Butylbenzene													**5.0**
n-Propylbenzene													**5.0**
o-Xylene													**5.0**
p-Diethylbenzene													-
p-Ethyltoluene													-
p-Isopropyltoluene													**5.0**
sec-Butylbenzene													**5.0**
tert-Butylbenzene													**5.0**
Toluene													**5.0**
Total Petroleum	**0.73**	-	-	-	-	-	-	-	-	-	-	-	
Total VOCs	**9.11**	**9.40**	**8.70**	**1.00**	-	-	-	-	-	-	-	-	

Notes:
Concentration Less Than previous Round
Concentration Greater Than previous Round

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 3 (continued)
August 2014 Summary of Detected Compounds (Performance Monitoring Wells)

Well Identification	PMW-2												NYSDEC Groundwater
Sampling Date	Dec-05	Mar-06	Jul-06	Aug-07	Jan-08	Apr-08	Aug-08	Oct-08	Mar-09	May-10	Jul-12	Aug-14	Standards (ppb)
PARAMETER - µg/l													
1,1,1-Trichloroethane (1,1,1-TCA)	28.0	18.0	970.0	310.0	91.0	73.0	30.0	10.0	5.0	14.5	4.0	63.0	**5.0**
1,1,2-Trichloroethane (1,1,2-TCA)							2.0	1.0	3.0				**1.0**
1,1-Dichloroethane (1,1-DCA)	1.8		6.4	67.0	21.0	45.0	22.0	8.0	6.0	3.5	7.3	24.4	**5.0**
1,1-Dichloroethene (1,1-DCE)	2.6		100.0	9.0	2.0	2.0						1.7	**5.0**
Chloroform	3.2		4.9	6.0	6.0	3.0		1.0		2.8	1.3	1.3	**7.0**
cis-1,2-Dichloroethene (cis-1,2-DCE)				4.0	1.0	5.0	4.0	2.0	2.0		14.0	15.6	**5.0**
Methylene Chloride													**5.0**
Tetrachloroethene (PCE)	2.9		18.0	33.0	18.0	44.0	47.0	33.0	39.0	12.90	5.5	2.3	**5.0**
Trichloroethene (TCE)	0.65		5.2	48.0	15.00	23.0	17.0	11.0	12.0	6.9	3.0	6.5	**5.0**
Vinyl Chloride													**2.0**
Chlorinated Ethanes	**29.80**	**18.00**	**976.40**	**377.00**	**112.00**	**118.00**	**54.00**	**19.00**	**14.00**	**18.00**	**11.30**	**87.40**	
Chlorinated Ethenes	**6.15**	**-**	**123.20**	**94.00**	**36.00**	**74.00**	**68.00**	**46.00**	**53.00**	**19.80**	**22.50**	**26.10**	
Total Chlorinated Solvents	**39.15**	**18.00**	**1,104.50**	**477.00**	**154.00**	**195.00**	**122.00**	**66.00**	**67.00**	**40.60**	**35.10**	**114.80**	
1,2,4,5-Trimethylbenzene													**-**
1,2,4-Trimethylbenzene					1.5	3.0		1.0	4.0	5.0	2.0		**5.0**
1,2,3-Trichlorobenzene					0.6			1.0					**5.0**
1,2-Dichlorobenzene													**3.0**
1,3,5-Trimethylbenzene													**5.0**
1,4-Dichlorobenzene					0.3			1.0					**3.0**
Acetone													**50.0**
Benzene													**1.0**
Ethyl Benzene													**5.0**
Isopropylbenzene													**5.0**
m&p-Xylenes													**5.0**
Methylcyclohexane													**-**
Methyl tert-Butyl Ether (MTBE)													**10.0**
Naphthalene					1.2								**10.0**
n-Butylbenzene													**5.0**
n-Propylbenzene													**5.0**
o-Xylene													**5.0**
p-Diethylbenzene													**-**
p-Ethyltoluene													**-**
p-Isopropyltoluene													**5.0**
sec-Butylbenzene													**5.0**
tert-Butylbenzene													**5.0**
Toluene													**5.0**
Total Petroleum	**-**	**-**	**-**	**-**	**3.60**	**3.00**	**-**	**3.00**	**4.00**	**5.00**	**2.00**	**-**	
Total VOCs	**39.15**	**18.00**	**1,104.50**	**477.00**	**157.60**	**198.00**	**122.00**	**69.00**	**71.00**	**45.60**	**37.10**	**114.80**	

Notes:
Concentration Less Than previous Round
Concentration Greater Than previous Round

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 3 (continued)
August 2014 Summary of Detected Compounds (Performance Monitoring Wells)

Well Identification	PMW-3												NYSDEC Groundwater
Sampling Date	Dec-05	Mar-06	Jul-06	Aug-07	Jan-08	Apr-08	Aug-08	Oct-08	Mar-09	May-10	Jul-12	Aug-14	Standards (ppb)
PARAMETER - µg/l													
1,1,1-Trichloroethane (1,1,1-TCA)	32,000.0	38,000.0	15,000.0	12.0	36.0	45.0	16.0	4.0	2.0				**5.0**
1,1,2-Trichloroethane (1,1,2-TCA)	39.0												**1.0**
1,1,2-Trichlorotrifluroethane													**-**
1,1-Dichloroethane (1,1-DCA)	3,100.0	480.0	420.0	110.0	2.0	2.0	1.0						**5.0**
1,1-Dichloroethene (1,1-DCE)	5,800.0	610.0	230.0	3.0									**5.0**
cis-1,2-Dichloroethene (cis-1,2-DCE)	22.0	27.0	79.0	21.0			3.0	2.0	1.0	1.8			**5.0**
Chloroethane	58.0		4.0	7.0									**5.0**
Chloroform	3.0												**7.0**
Methylene Chloride	1,300.0		64.0	1.0									**5.0**
Tetrachloroethene (PCE)	1,400.0	770.0	160.0	28.0	120.0	160.0	130.0	58.0	58.0	37.00	7.0		**5.0**
Trichloroethene (TCE)	120.0	140.0	180.0	42.0	20.0	39.0	32.0	14.0	19.0	28.9	1.7		**5.0**
Vinyl Chloride													**2.0**
Chlorinated Ethanes	**35,197.00**	**38,480.00**	**15,420.00**	**122.00**	**38.00**	**47.00**	**17.00**	**4.00**	**2.00**	**-**	**-**	**-**	
Chlorinated Ethenes	**7,342.00**	**1,547.00**	**649.00**	**94.00**	**140.00**	**199.00**	**165.00**	**74.00**	**78.00**	**67.70**	**8.70**	**-**	
Total Chlorinated Solvents	**43,842.00**	**40,027.00**	**16,137.00**	**224.00**	**178.00**	**246.00**	**182.00**	**78.00**	**80.00**	**67.70**	**8.70**	**-**	
1,2,4,5-Trimethylbenzene													**-**
1,2,4-Trimethylbenzene	75.0	48.0											**5.0**
1,2-Dichlorobenzene	15.0	15.0											**3.0**
1,2,3-Trichlorobenzene	3.7												**5.0**
1,2,4-Trichlorobenzene	14.0			3.0	2.0								**5.0**
1,3,5-Trimethylbenzene	22.0	13.0											**5.0**
1,4-Dichlorobenzene	2.3			1.0									**3.0**
Acetone													**50.0**
Benzene	3.5												**1.0**
Ethyl Benzene	45.0	75.0											**5.0**
Isopropylbenzene	6.1												**5.0**
m&p-Xylenes	130.0	240.0											**5.0**
Methylcyclohexane													**-**
MIBK	33.0												**-**
Methyl tert-Butyl Ether (MTBE)	1.1												**10.0**
Naphthalene	12.0												**10.0**
n-Butylbenzene	4.6												**5.0**
n-Propylbenzene	11.0												**5.0**
o-Xylene	56.0	97.0											**5.0**
p-Diethylbenzene													**-**
p-Ethyltoluene		15.0											**-**
p-Isopropyltoluene	11.0												**5.0**
sec-Butylbenzene	5.1												**5.0**
tert-Butylbenzene	0.98												**5.0**
Toluene	1,800.0	320.0	60.0										**5.0**
Total Petroleum	**2,251.38**	**823.00**	**60.00**	**4.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
Total VOCs	**46,093.38**	**40,850.00**	**16,197.00**	**228.00**	**180.00**	**246.00**	**182.00**	**78.00**	**80.00**	**67.70**	**8.70**	**-**	

Notes:
Concentration Less Than previous Round
Concentration Greater Than previous Round

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 3 (continued)
August 2014 Summary of Detected Compounds (Performance Monitoring Wells)

Well Identification	PMW-4												NYSDEC Groundwater
Sampling Date	Dec-05	Mar-06	Jul-06	Aug-07	Jan-08	Apr-08	Aug-08	Oct-08	Mar-09	May-10	Jul-12	Aug-14	Standards (ppb)
PARAMETER - µg/l													
1,1,1-Trichloroethane (1,1,1-TCA)	27.0	29.0	7.1	32.0	71.0	180.0	6.0						**5.0**
1,1,2-Trichloroethane (1,1,2-TCA)													**1.0**
1,1-Dichloroethane (1,1-DCA)	11.0	7.1	25.0	40.0	28.0	7.0	2.0						**5.0**
1,1-Dichloroethene (1,1-DCE)	3.2		1.2		1.0	2.0							**5.0**
Chloroethane			5.0	2.0									**5.0**
cis-1,2-Dichloroethene (cis-1,2-DCE)	3.1	1.1	8.4	120.0	1.0	1.0					4.9		**5.0**
trans-1,2-Dichloroethene (trans-1,2-DCE)	0.92		1.7										
Methylene Chloride													**5.0**
Tetrachloroethene (PCE)	15.0	20.0	5.1	17.0	58.0	220.0	18.0	3.0	1.0	87.90	2.1		**5.0**
Trichloroethene (TCE)	11.00	4.8	28.0	34.0	110.0	170.0	9.0			1.0	2.0		**5.0**
Vinyl Chloride				1.0									**2.0**
Chlorinated Ethanes	**38.00**	**36.10**	**37.10**	**74.00**	**99.00**	**187.00**	**8.00**	**-**	**-**	**-**	**-**	**-**	
Chlorinated Ethenes	**33.22**	**25.90**	**44.40**	**171.00**	**170.00**	**393.00**	**27.00**	**3.00**	**1.00**	**88.90**	**9.00**	**-**	
Total Chlorinated Solvents	**71.22**	**62.00**	**81.50**	**246.00**	**269.00**	**580.00**	**35.00**	**3.00**	**1.00**	**88.90**	**9.00**	**-**	
1,2,4,5-Trimethylbenzene													**-**
1,2,4-Trimethylbenzene	11.0	4.7											**5.0**
1,2-Dichlorobenzene	4.0	1.2	1.4										**3.0**
1,2,3-Trichlorobenzene	2.4												**5.0**
1,2,4-Trichlorobenzene	13.0	3.4	5.6	1.0									**5.0**
1,3,5-Trimethylbenzene	2.8												**5.0**
1,4-Dichlorobenzene	0.97			2.0									**3.0**
Acetone													**50.0**
Benzene													**1.0**
Ethyl Benzene	0.51		1.1										**5.0**
Isopropylbenzene	1.3												**5.0**
m&p-Xylenes	0.82		1.1										**5.0**
Methylcyclohexane													**-**
Methyl tert-Butyl Ether (MTBE)	9.7	7.3	3.4	5.0	2.0								**10.0**
Naphthalene	1.6		1.4										**10.0**
n-Butylbenzene	4.8	4.3	3.6										**5.0**
n-Propylbenzene	4.4	3.3	2.4										**5.0**
o-Xylene	0.63												**5.0**
p-Diethylbenzene		4.9											**-**
p-Ethyltoluene													**-**
p-Isopropyltoluene	2.9	2.2	1.8										**5.0**
sec-Butylbenzene	11.0	10.0	11.0										**5.0**
tert-Butylbenzene	1.9	1.7	2.0										**5.0**
Toluene	1.9		1.4										**5.0**
Total Petroleum	**75.63**	**43.00**	**36.20**	**8.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
Total VOCs	**146.85**	**105.00**	**117.70**	**254.00**	**271.00**	**580.00**	**35.00**	**3.00**	**1.00**	**88.90**	**9.00**	**-**	

Notes:
Concentration Less Than previous Round
Concentration Greater Than previous Round

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 4
August 2014 Summary of Detected Compounds (Offsite Wells)

Well Identification	MW-10										NYSDEC Groundwater Standards (ppb)
Sampling Date	Apr-05	Dec-05	Jun-06	Jul-06	Aug-07	Apr-08	Oct-08	May-10	Jul-12	Aug-14	
PARAMETER - µg/l											
1,1,1-Trichloroethane (1,1,1-TCA)											**5.0**
1,1,2-Trichloroethane (1,1,2-TCA)											**1.0**
1,1-Dichloroethane (1,1-DCA)	23.0	39.0		5.0		25.0	190.0	26.0	27.0	17.1	**5.0**
1,1-Dichloroethene (1,1-DCE)	15.0	26.0		1.8		18.0	100.0	16.0	18.0	6.9	**5.0**
1,2-Dichloroethane (1,2-DCA)		0.7					3.0		0.6		**5.0**
cis-1,2-Dichloroethene (cis-1,2-DCE)	2.0	4.3		0.6		3.0	13.0	2.5	3.3	1.7	**5.0**
Methylene Chloride											**5.0**
Tetrachloroethene (PCE)	2.0	3.3		0.9		4.0	14.0	2.3	2.5	0.9	**5.0**
Trichloroethene (TCE)		1.5				1.0	14.0		1.2	0.4	**5.0**
Vinyl Chloride											**2.0**
Chlorinated Ethanes	**23.00**	**39.70**	**-**	**5.00**	**-**	**25.00**	**193.00**	**26.00**	**27.60**	**17.10**	
Chlorinated Ethenes	**19.00**	**35.10**	**-**	**3.30**	**-**	**26.00**	**141.00**	**20.80**	**25.00**	**9.85**	
Total Chlorinated Solvents	**42.00**	**74.80**	**-**	**8.30**	**-**	**51.00**	**334.00**	**46.80**	**52.60**	**26.95**	
1,2,4,5-Trimethylbenzene											**-**
1,2,4-Trimethylbenzene											**5.0**
1,2-Dichlorobenzene											**3.0**
1,3,5-Trimethylbenzene											**5.0**
1,4-Dichlorobenzene											**3.0**
Acetone											**50.0**
Benzene		1.0					4.0				**1.0**
Ethyl Benzene											**5.0**
Isopropylbenzene											**5.0**
m&p-Xylenes											**5.0**
Methylcyclohexane											**-**
Methyl tert-Butyl Ether (MTBE)											**10.0**
Naphthalene											**10.0**
n-Butylbenzene											**5.0**
n-Propylbenzene											**5.0**
o-Xylene											**5.0**
p-Diethylbenzene											**-**
p-Ethyltoluene											**-**
p-Isopropyltoluene											**5.0**
sec-Butylbenzene											**5.0**
tert-Butylbenzene											**5.0**
Toluene											**5.0**
Total Petroleum	**-**	**1.00**	**-**	**-**	**-**	**-**	**4.00**	**-**	**-**	**-**	
Total VOCs	**42.00**	**75.80**	**-**	**8.30**	**-**	**51.00**	**338.00**	**46.80**	**52.60**	**26.95**	

Notes:
Samples Not Colected During this Round
Concentration Less Than previous Round
Concentration Greater Than previous Round

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 4 (continued)
August 2014 Summary of Detected Compounds (Offsite Wells)

Well Identification	MW-11S										NYSDEC Groundwater
Sampling Date	Apr-05	Dec-05	Jun-06	Jul-06	Aug-07	Apr-08	Oct-08	May-10	Jul-12	Aug-14	Standards (ppb)
PARAMETER - µg/l											
1,1,1-Trichloroethane (1,1,1-TCA)						1.0					**5.0**
1,1,2-Trichloroethane (1,1,2-TCA)											**1.0**
1,1-Dichloroethane (1,1-DCA)							1.0				**5.0**
1,1-Dichloroethene (1,1-DCE)											**5.0**
1,2-Dichloroethane (1,2-DCA)					1.0						
cis-1,2-Dichloroethene (cis-1,2-DCE)			6.0	6.0	15.0	21.0	9.0	13.0	3.3	5.4	**5.0**
Methylene Chloride											**5.0**
Tetrachloroethene (PCE)					2.0	2.0	2.0				**5.0**
Trichloroethene (TCE)			12.0	8.0	30.0	44.00	2.0	27.0	6.5	3.5	**5.0**
Vinyl Chloride											**2.0**
Chlorinated Ethanes	-	-	-	-	**1.00**	**1.00**	**1.00**	-	-	-	
Chlorinated Ethenes	-	-	**18.00**	**14.00**	**47.00**	**67.00**	**13.00**	**40.00**	**9.80**	**8.90**	
Total Chlorinated Solvents	-	-	**18.00**	**14.00**	**48.00**	**68.00**	**14.00**	**40.00**	**9.80**	**8.90**	
1,2,4,5-Trimethylbenzene											-
1,2,4-Trimethylbenzene											**5.0**
1,2-Dichlorobenzene											**3.0**
1,3,5-Trimethylbenzene											**5.0**
1,4-Dichlorobenzene											**3.0**
Acetone											**50.0**
Benzene											**1.0**
Ethyl Benzene											**5.0**
Isopropylbenzene											**5.0**
m&p-Xylenes											**5.0**
Methylcyclohexane											-
Methyl tert-Butyl Ether (MTBE)											**10.0**
Naphthalene											**10.0**
n-Butylbenzene											**5.0**
n-Propylbenzene											**5.0**
o-Xylene											**5.0**
p-Diethylbenzene											-
p-Ethyltoluene											-
p-Isopropyltoluene											**5.0**
sec-Butylbenzene											**5.0**
tert-Butylbenzene											**5.0**
Toluene											**5.0**
Total Petroleum	-	-	-	-	-	-	-	-	-	-	
Total VOCs	-	-	**18.00**	**14.00**	**48.00**	**68.00**	**14.00**	**40.00**	**9.80**	**8.90**	

Notes:
Samples Not Colected During this Round
Concentration Less Than previous Round
Concentration Greater Than previous Round

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 4 (continued)
August 2014 Summary of Detected Compounds (Offsite Wells)

Well Identification	MW-12										NYSDEC Groundwater
Sampling Date	Apr-05	Dec-05	Jun-06	Apr-08	Aug-08	Oct-08	Mar-09	May-10	Jul-12	Aug-14	Standards (ppb)
PARAMETER - µg/l											
1,1,1-Trichloroethane (1,1,1-TCA)				360.0	50.0	27.0	10.0	111.0	13.0	420.0	**5.0**
1,1,2-Trichloroethane (1,1,2-TCA)											**1.0**
1,1,2-Trichlorotrifluroethane										4.0	**-**
1,1-Dichloroethane (1,1-DCA)				15.0	2.0	4.0	2.0	12.5	1.4	11.7	**5.0**
1,1-Dichloroethene (1,1-DCE)				11.0	1.0	1.0		4.5		9.1	**5.0**
cis-1,2-Dichloroethene (cis-1,2-DCE)						1.0	2.0			1.5	**5.0**
Methylene Chloride											**5.0**
Tetrachloroethene (PCE)				580.0	350.0	430.0	310.0	173.0	40.0	150.0	**5.0**
Trichloroethene (TCE)				8.0	4.0	4.0	3.0	2.2	1.7	5.9	**5.0**
Vinyl Chloride											**2.0**
Chlorinated Ethanes	-	-	-	**375.00**	**52.00**	**31.00**	**12.00**	**123.50**	**14.40**	**435.70**	
Chlorinated Ethenes	-	-	-	**599.00**	**355.00**	**436.00**	**315.00**	**179.70**	**41.70**	**166.50**	
Total Chlorinated Solvents	-	-	-	**974.00**	**407.00**	**467.00**	**327.00**	**303.20**	**56.10**	**602.20**	
1,2,4,5-Trimethylbenzene											**-**
1,2,4-Trimethylbenzene											**5.0**
1,2-Dichlorobenzene										2.8	**3.0**
1,3,5-Trimethylbenzene											**5.0**
1,4-Dichlorobenzene											**3.0**
Acetone											**50.0**
Benzene											**1.0**
Ethyl Benzene										0.28	**5.0**
Isopropylbenzene											**5.0**
m&p-Xylenes										1.1	**5.0**
Methylcyclohexane										1.5	**-**
Methyl tert-Butyl Ether (MTBE)											**10.0**
Naphthalene											**10.0**
n-Butylbenzene											**5.0**
n-Propylbenzene											**5.0**
o-Xylene										0.6	**5.0**
p-Diethylbenzene											**-**
p-Ethyltoluene											**-**
p-Isopropyltoluene											**5.0**
sec-Butylbenzene											**5.0**
tert-Butylbenzene											**5.0**
Toluene											**5.0**
Total Petroleum	-	-	-	-	-	-	-	-	-	**6.26**	
Total VOCs	-	-	-	**974.00**	**407.00**	**467.00**	**327.00**	**303.20**	**56.10**	**608.46**	

Notes:

Samples Not Colected During this Round

Concentration Less Than previous Round

Concentration Greater Than previous Round

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 5
August 2014 Groundwater Sampling Results: On-Site Monitoring and Performance Monitoring Wells
Volatile Organic Compounds USEPA Method 8260

Well Identification	MW-2	MW-3S	MW-3I	MW-4	MW-5		MW-6I	MW-10		MW-11S	MW-12	PMW-1	PMW-2	PMW-3	PMW-4	NYSDEC Groundwater Standards (ppb)
Sample Identification	MW-2	MW-3S	MW-3I	MW-4	MW-5	DUP-A	MW-6I	MW-10	DUP	MW-11S	MW-12	PMW-1	PMW-2	PMW-3	PMW-4	
Sampling Date	8/18/2014	8/19/2014	8/19/2014	8/19/2014	8/19/2014	8/19/2014	8/19/2014	8/18/2014	8/18/2014	8/18/2014	8/18/2014	8/19/2014	8/18/2014	8/18/2014	8/18/2014	
PARAMETER - µg/l																
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
1,1,1-Trichloroethane	ND	ND	**200**	ND	ND	ND	**41.5**	ND	ND	ND	**420**	ND	**63.0**	ND	ND	5.0 [2]
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0
1,1-Dichloroethane	ND	ND	**70**	ND	ND	ND	**18.2**	**17.1**	**16.6**	ND	**11.7**	ND	**24.4**	ND	ND	5.0 [2]
1,1-Dichloroethene	ND	ND	**12.6**	ND	ND	ND	**6.9**	**8.6**	**8.6**	ND	**9.1**	ND	**1.7**	ND	ND	5.0 [2]
1,1-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0
1,3-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
2,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50.0 [5]
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50.0 [5]
Benzene	**59.2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0
Bromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
Chloroform	ND	ND	ND	ND	**0.47**	**0.46**	ND	ND	ND	ND	ND	ND	**1.3**	ND	ND	7.0
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	* [3]
cis-1,2-Dichloroethene	ND	ND	**3.5**	ND	ND	ND	ND	**1.7**	**1.7**	**5.4**	**1.5**	ND	**15.6**	ND	ND	5.0 [2]
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.4 [4]
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
Dibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
Ethyl Benzene	**3.6**	ND	**2.3**	ND	**5.7**	**5.2**	ND	ND	ND	ND	**0.28**	ND	ND	ND	ND	5.0 [2]
Isopropylbenzene	**0.22**	ND	ND	ND	**0.81**	**0.77**	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
m&p-Xylenes	**34.7**	ND	**5.8**	ND	**7**	**6.6**	ND	ND	ND	ND	**1.1**	ND	ND	ND	ND	5.0 [2]
Methyl tert-Butyl Ether (MTBE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10.0 [5]
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
o-Xylene	**41.4**	ND	**1.8**	ND	**9.8**	**9.1**	ND	ND	ND	ND	**0.58**	ND	ND	ND	ND	5.0 [2]
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
Tetrachloroethene	**2.1**	ND	**2.7**	**0.59**	ND	ND	ND	**0.86**	**0.7**	ND	**150**	ND	**2.3**	ND	ND	5.0 [2]
Toluene	**9.8**	ND	**8.1**	ND	**1.5**	**1.4**	**1.1**	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.4 [4]
Trichloroethene	ND	ND	**210.0**	ND	ND	ND	**11.0**	**0.39**	**0.39**	**3.5**	**5.9**	ND	**6.5**	ND	ND	5.0 [2]
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.0

NOTES: 1. ND - Not Detected
2. (POC) - Principal Organic Contaminant
3. * - No groundwater standard for this compound
4. Applies to the sum of cis- and trans-1,3-dichloropropene
5. TAGM applicable but no groundwater standard

Concentration Detected

Sid Harvey Industries, Inc.
Valley Stream, New York

Table 5 (continued)
August 2014 Groundwater Sampling Results: On-Site Monitoring and Performance Monitoring Wells
Volatile Organic Compounds USEPA Method 8260

Well Identification	MW-2	MW-3S	MW-3I	MW-4	MW-5		MW-6I	MW-10		MW-11S	MW-12	PMW-1	PMW-2	PMW-3	PMW-4	NYSDEC Groundwater Standards (ppb)
Well Depth	MW-2	MW-3S	MW-3I	MW-4	MW-5	DUP-A	MW-6I	MW-10	DUP	MW-11S	MW-12	PMW-1	PMW-2	PMW-3	PMW-4	
Sampling Date	8/18/2014	8/19/2014	8/19/2014	8/19/2014	8/19/2014	8/19/2014	8/19/2014	8/18/2014	8/18/2014	8/18/2014	8/18/2014	8/19/2014	8/18/2014	8/18/2014	8/18/2014	
PARAMETER - µg/l																
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.04
1,1,2-Trichlorotrifluoroethane	ND	ND	**3.7**	ND	ND	ND	ND	ND	ND	ND	**4.0**	ND	ND	ND	ND	*
Chlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*
Methyl Isobutyl Ketone (MIBK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*
Methylcyclohexane	**3.1**	ND	**1.7**	ND	ND	ND	ND	ND	ND	ND	**1.5**	ND	ND	ND	ND	*
p-Diethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*
p-Ethyltoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*
1,2-Dibromo-3-Chloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.04
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10.0 [5]
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.0
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.0
1,2-Dichlorobenzene	ND	ND	**0.8**	ND	ND	ND	ND	ND	ND	ND	**2.8**	ND	ND	ND	ND	3.0
Bromobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
n-Propylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
2-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
4-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
tert-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
sec-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
n-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
Freon 113	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
1,2,4,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [2]
4-Isopropyltoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 [5]
Total VOCs	**66.12**	**0.00**	**294.64**	**0.00**	**6.98**	**6.43**	**66.60**	**27.40**	**26.90**	**5.40**	**450.88**	**0.00**	**106.00**	**0.00**	**0.00**	

NOTES: 1. ND - Not Detected
2. (POC) - Principal Organic Contaminant
3. * - No groundwater standard for this compound
4. Applies to the sum of cis- and trans-1,3-dichloropropene
5. TAGM applicable but no groundwater standard

Concentration Detected

Sid Harvey Industries, Inc.
Valley Stream, New York
Table 6
Treatment and Sampling by Location

Location Identification	Treatment Component	Frequency
Former Underground Structure Area	3D-Microemulsion and Bio-Dechlor Inoculum Plus	1 time Injection
PMW-3	Molasses and Bio-Dechlor Inoculum Plus	Monthly (1 Year)
MW-6I	Molasses and Bio-Dechlor Inoculum Plus	Monthly (1 Year)
MW-12	Molasses and Bio-Dechlor Inoculum Plus	Monthly (1 Year)

Location Identification	Sampling Parameters	Frequency
MW-3I	VOCs (8260), Nitrate, Iron, Manganese, Sulfate	Prior to Injection, Quarterly (1 Year)
MW-6I	VOCs (8260), Nitrate, Iron, Manganese, Sulfate	Prior to Injection, Quarterly (1 Year)
MW-12	VOCs (8260), Nitrate, Iron, Manganese, Sulfate	Prior to Injection, Quarterly (1 Year)

APPENDIX A
3DMe Case Studies

PATRIOT ENGINEERING and Environmental, Inc.
Engineering Value for Project Success

Long-Term Chlorinated Solvent Treatment using a Controlled-Release Microemulsion

PROJECT SUMMARY

- Dry cleaning operations resulted in a chlorinated solvent plume with concentrations as high as 700 micrograms per liter (µg/L) in chlorinated solvents
- Typical Midwestern geology: Silty clay with intermittent sand stringers underlain by a clay till confining layer
- Contaminants of concern within the silty clay aquifer included tetrachloroethene (PCE) and trichloroethene (TCE) (see Table 1)
- High sulfate environment (~100 mg/L) – potential inhibitor for successful remediation
- Cleanup goals were based on the Industrial Risk Integrated System of Closure (RISC) levels
- Enhanced anaerobic bioremediation of chlorinated solvents in groundwater using 3-D Microemulsion (3DMe)®
- $195,000 (Costs include 3DMe® material, injection, field oversight, 2 yrs post injection monitoring, project management and report writing)

THE COMPANY

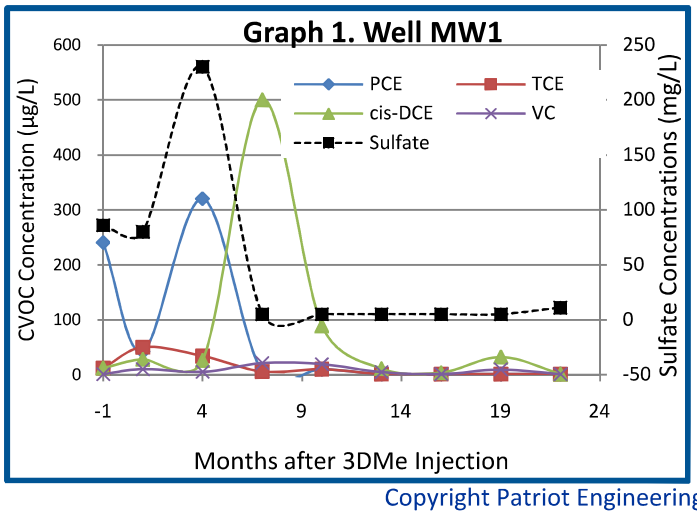
Patriot Engineering is a diverse engineering firm providing geotechnical, environmental, and construction materials testing services and consultation to commercial, industrial and governmental clients. Patriot provides the specific information you need to make informed, cost-effective business decisions which will help you reduce net cost, decrease risk and improve the quality of your organization's project outcomes.

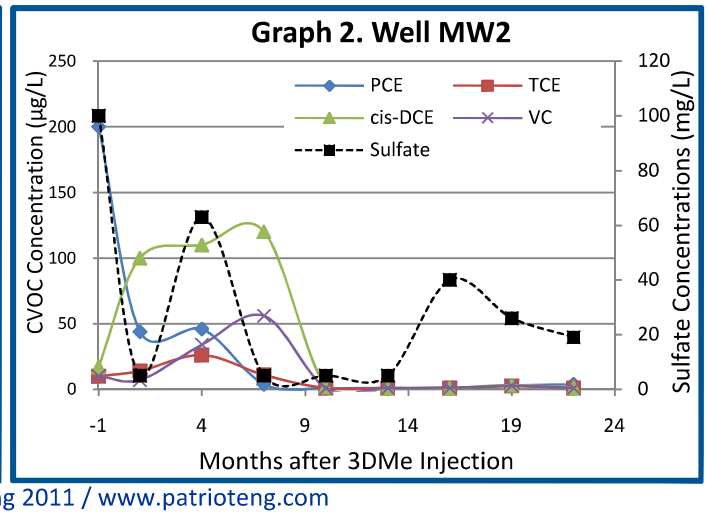
RESULTS

- The 3DMe application overcame high sulfate levels and resulted in a reducing environment lasting almost 2 years
- Sampling at 22 months post-3DMe indicated sustained low levels of ORP (-136mV) and DO (1.3mg/L)
- Reduction of chlorinated solvents by 83% to 98% in all impacted wells
- Site is pending closure from regulatory agency

Table 1. Pre-Treatment Concentrations and Cleanup Goals (µg/L)

Contaminant	Pre-Treatment Concentrations	RISC Cleanup Goals
PCE	240	55
TCE	12	7.2
Cis-DCE	550	1000
VC	ND	4

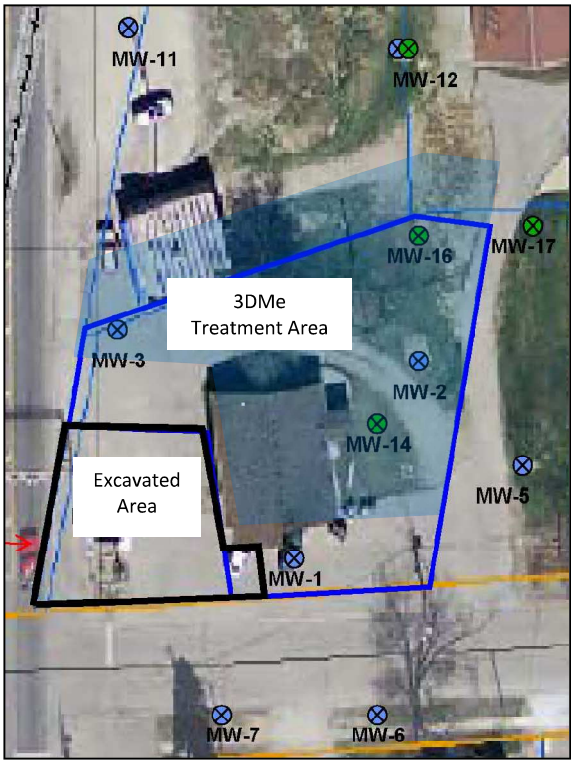




PATRIOT ENGINEERING and Environmental, Inc.
Engineering Value for Project Success

APPLICATION DETAILS

Table 2. Injection Design	
Soil Type	Silty clay w/isolated sand stringers
Inj. Points	78
Inj. Spacing	12’ on center
Inj. Rate	93 gallons/inj. point
Total 3DMe Applied	60,754 lbs (7,282 gallons)
3DMe Cost	~ $25,000

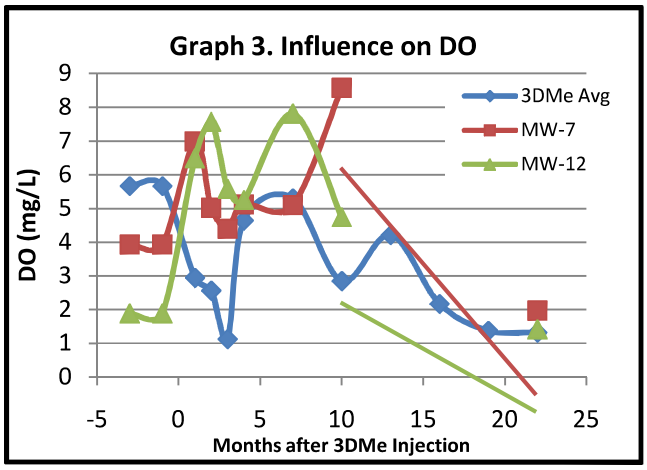


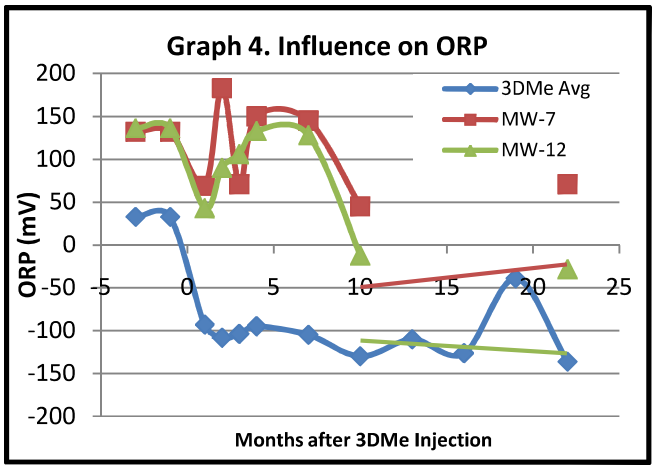
ELECTRON DONOR INFLUENCE

Analytical parameters including oxidation-reduction potential (ORP), dissolved oxygen (DO) and total organic acids (TOAs) were monitored to verify the influence of the electron donor post-injection. The monitoring wells likely influenced by 3DMe (MW1-3, MW5, MW14-17) were analyzed on average and compared to background wells MW7 and MW12.

Within the 3DMe influence area:

- On average, ORP reduced to -100mV and DO levels declined to ~2mg/L (Graphs 3 and 4)
- Concentrations of TOAs were detected at >1,000 mg/L during the first 10 months of monitoring





Bart F. Compton, LPG
Patriot Engineering and Environmental, Inc.
1000 Airport North Office Park, Suite B
Fort Wayne, Indiana 46825
Phone 260-490-1112

Enhanced Anaerobic Biodegradation of Chlorinated Solvents at a Dry Cleaner

A large chlorinated solvent plume was discovered around the area of the Peter Pan Dry Cleaner facility in Santa Rosa, CA. The California DTSC tasked URS with finding a solution to treat the contaminated area which contained high amounts of PCE and TCE. A pilot study was undertaken to validate the use of enhanced anaerobic bioremediation to biodegrade the primarily dissolved-phase solvent plume. 3-D Microemulsion, an injectable, 3-stage electron donor release material was selected as the preferred bioamendment to accelerate the anaerobic biodegradation process.

Project Details:

- The remediation effort was covered by the California State Superfund under the direction of the DTSC and the URS, San Francisco office. This project was also within the jurisdiction of the North Coast Regional Water Quality Control Board (RWQCB).

- Elevated levels of chlorinated hydrocarbons including perchlorethene (PCE) and trichloroethene (TCE) were identified in the subsurface at the dry cleaning facility.

- Chlorinated contaminant levels as high as 4100 ug/L PCE and 120 ug/L TCE were measured and formed a plume migrating off-site and beneath a public school (Figure 1).

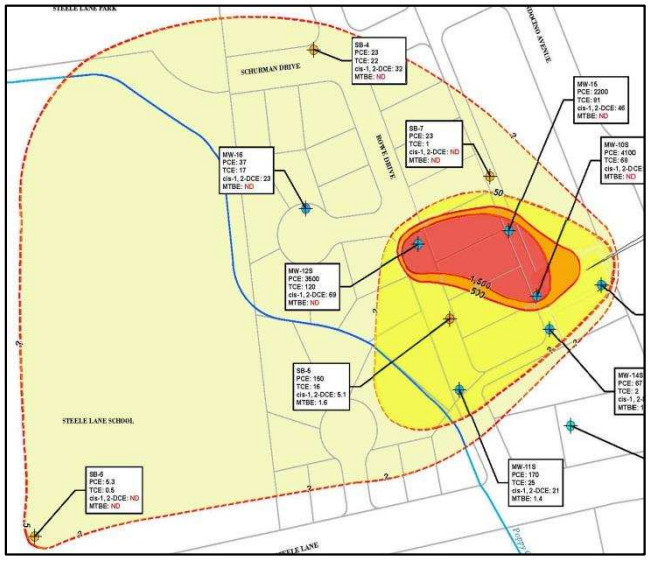


Figure 1. Contaminated Plume Pre-Injection

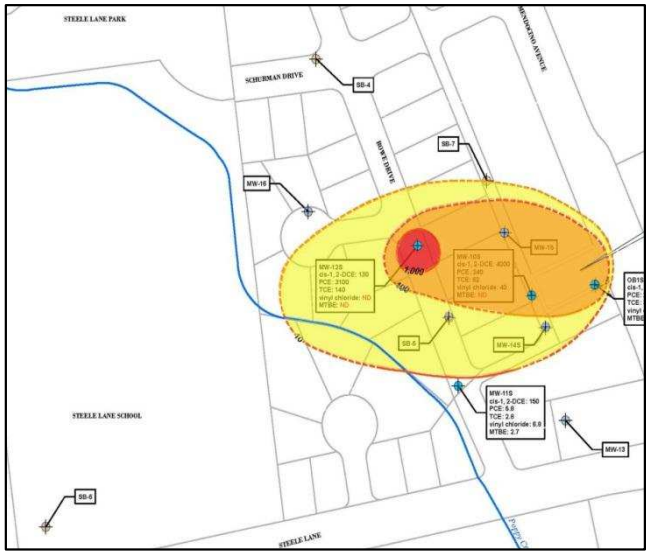


Figure 2. Contaminated Plume Area Post-Injection

- A total of 6300 lbs. of 3-D Microemulsion and 1080 lbs. of HRC® Primer were injected in a linear barrier configuration into approximately 25 direct-push points across the upper section of the plume.

- The remediation goal was to reduce chlorinated solvent levels (PCE and TCE) to below the CA MCL of < 5 ug/L in all monitoring wells.

Injection of 3-D Microemulsion®

- After 2 months post 3-D Microemulsion and HRC Primer injection, chlorinated solvent concentrations declined significantly in 7 of the 8 monitoring wells (Figure 2).

- One well, MW-15 showed an increase in contaminant concentrations. This uncharacteristic increase was identified to be the result of direct-injection activities and the mobilizing of an unidentified pocket of pure PCE which accumulated near a sewer line.

- Overall the pilot test results were favorable and the outlook for successful enhanced anaerobic bioremediation of the dissolved-phase chlorinated solvent plume is high. URS and the DTSC are currently reviewing the data and determining what the next steps are for treating the PCE source area that was recently identified.

For more information contact:

Project Manager: Giorgio Molinario
URS
Senior Environmental Chemist
(415) 896-5858
giorgio.molinario@urs.com

On-Site Direct-Push Rig

REGENESIS
Advanced Technologies for Groundwater Resources

3-D MicroEmulsion™ HRC ADVANCED®

3-D Microemulsion® Enhances Reductive Dechlorination and Reduces PCE and TCE Concentrations to Non-Detect

CASE SUMMARY

Dry Cleaning Operations, Belleville, IL

Operations at a dry cleaning facility in Illinois resulted in elevated levels of chlorinated ethenes in the subsurface. Downgradient of the contaminant source (in Well MW-4), the total chlorinated compound concentration was greater than 6,400 parts per billion (ppb), the main contaminant being tetrachloroethene (PCE). A pilot test using Hydrogen Release Compound (HRC®) was initially designed and deployed to produce conditions favorable for the reduction of contaminants. Well MW-4 was the designated sampling point to observe the contaminant reduction. The HRC pilot application was mis-applied over a 20 foot vertical interval instead of the recommended and planned 10 foot interval, resulting in under-dosing of HRC and only moderate treatment performance. A second application was performed 18 months later using the correct dosing of 3-D Microemulsion (3DMe)®.

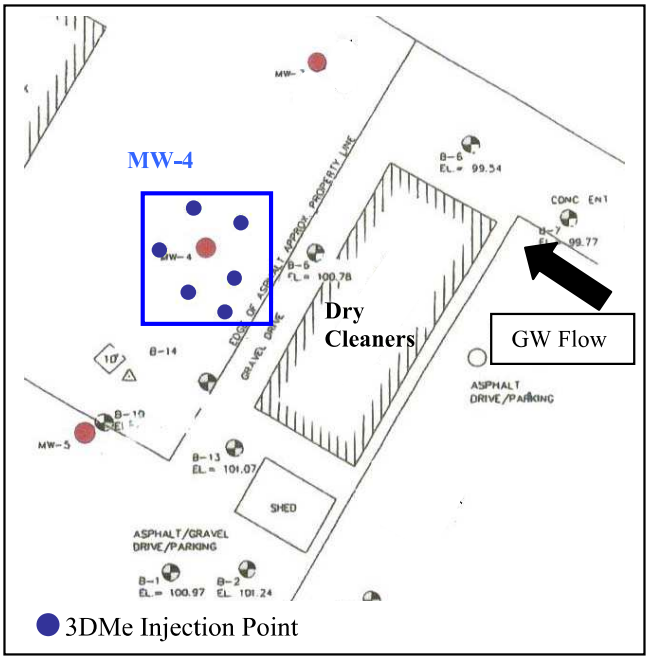
REMEDIATION APPROACH

3DMe is a completely new molecule with staged hydrogen release capabilities and is applied as a microemulsion for enhanced distribution. The 3DMe microemulsion was directly injected at 6 locations surrounding the targeted monitoring well MW-4 (Figure 1). It was injected at a rate of 120 pounds per injection point and at 10 to 20 feet below ground surface (at the correct 10 foot interval). The injection points were spaced approximately 7 feet from one another.

Table 1. MW-4 Concentrations Prior to 3DMe Injection (ppb)

Contaminant	Concentration
PCE	5,680
TCE	301
cis-DCE	474
VC	ND

Figure 1. Pilot Injection Layout



- **Application Type:** Pilot Test
- **Quantity Applied:** 720 lbs
- **Application Rate:** 15 gal/ft
- **Injection Spacing:** 7 feet
- **Soil Type:** Clay
- **Groundwater Velocity:** <0.1 ft/day
- **Treatment Thickness:** 10 feet
- **Depth to Groundwater:** 10 feet

RESULTS

Although HRC was applied and under-dosed in September 2004, moderate increases in the reductive dechlorination process were observed near Well MW-4. The moderate effect resulted in a 50 percent decrease in PCE concentrations. As expected some daughter products were also produced.

Within 30 days of the 3DMe application, PCE was reduced from 5,680 ppb to non-detect followed by a similar reduction in TCE. A reduction of 77 percent was observed in cis-DCE between August 2006 and April 2007. Slight increases in vinyl chloride (VC) and ethene indicated that complete dechlorination was occurring with no stalling effect (Table 2).

Concentrations vs. Time

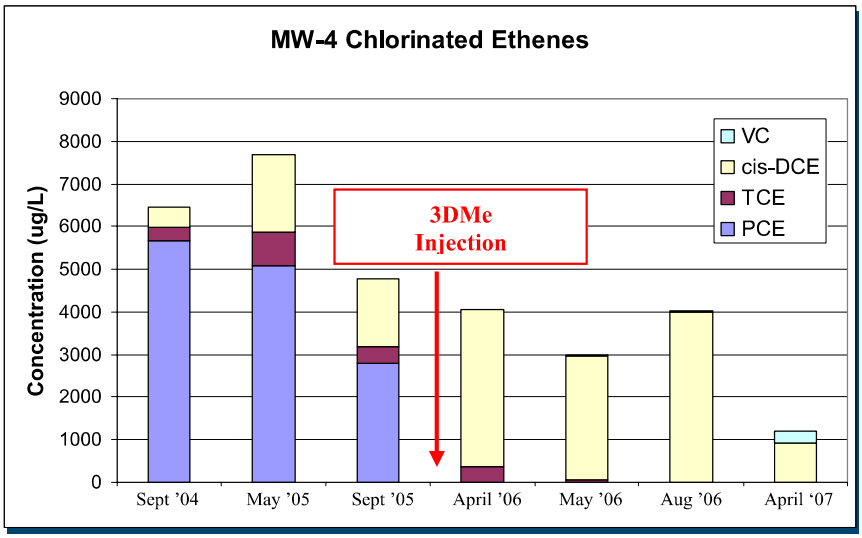


Table 2. Vinyl Chloride and Ethene detection in Well MW-4 (ppb)

	April 2006	May 2006	August 2006	April 2007
VC	ND	17	25	270
Ethene	3	3	NA	13

CONCLUSION

Biostimulation using 3DMe was successful in treating the target contaminants as a result of the proper dosing/emplacement of the material and overall product performance. In MW-4, PCE and TCE were reduced to non-detect while total chlorinated compounds were reduced by more than 70 percent.

CONTACT

Scott Mullin
Regenesis
Great Lakes Regional Manager
630-753-0836 | smullin@regenesis.com

Consultant contact information available upon request. Please contact the Regenesis representative listed above

3-D MicroEmulsion™ HRC ADVANCED®

REGENESIS
Advanced Technologies for Groundwater Resources

3-D Microemulsion® Effective in Treating CVOC Contamination

SITE SUMMARY

3-D Microemulsion (3DMe)® was used to treat chlorinated volatile organic compounds (CVOCs) at a manufacturing facility in Florida. 3DMe was injected around wells MW-103 and MW-106 to reduce tetrachloroethene (PCE) and trichloroethene (TCE) concentrations. Prior to injection, PCE and TCE levels had exceeded 2,000 micrograms per liter (ug/L) and 160 ug/L, respectively. Cis-1,2-dichloroethene (DCE) was present at approximately 38 ug/L.

TECHNOLOGY DESCRIPTION

3DMe is composed of free lactic acid, controlled-release lactic acid (polylactate) and certain fatty acid components which are esterified to a carbon backbone molecule of glycerin. When injected into contaminated soil and groundwater, 3DMe produces a sequential, staged release of its electron donor components. The immediately available free lactic acid is fermented rapidly while the controlled-release lactic acid is metabolized at a more controlled, gradual rate. The fatty acids are converted to hydrogen over a mid-to long-range timeline giving 3DMe an exceptionally long electron donor release profile. This staged fermentation provides an immediate, mid-range and very long-term, controlled-release supply of hydrogen (electron donor) to fuel the reductive dechlorination process.

REMEDIATION APPROACH

- **Remediation Objective**: Through a pilot test, show the effectiveness of 3DMe to reduce CVOC concentrations.
- **Application Type:** Direct-Injection
- **Product:** 3-D Microemulsion
- **Quantity Applied:** 1,080 lbs
- **Application Rate:** 5.0 lbs/ft
- **Injection Spacing:** 5.0 ft

SITE CHARACTERISTICS

General

- **Name:** Sherwood Medical
- **Location:** Deland, FL
- **Industry:** Manufacturing
- **Contaminants of Concern:**

Contaminant	Concentration
PCE	2,300 ug/L
TCE	160 ug/L
cis-1,2-DCE	38 ug/L
VC	ND

Hydrogeology

- **Treatment Area:** MW-103: ~300 ft^2
  MW-106 ~300 ft^2
- **Soil Type:** Silty Sand

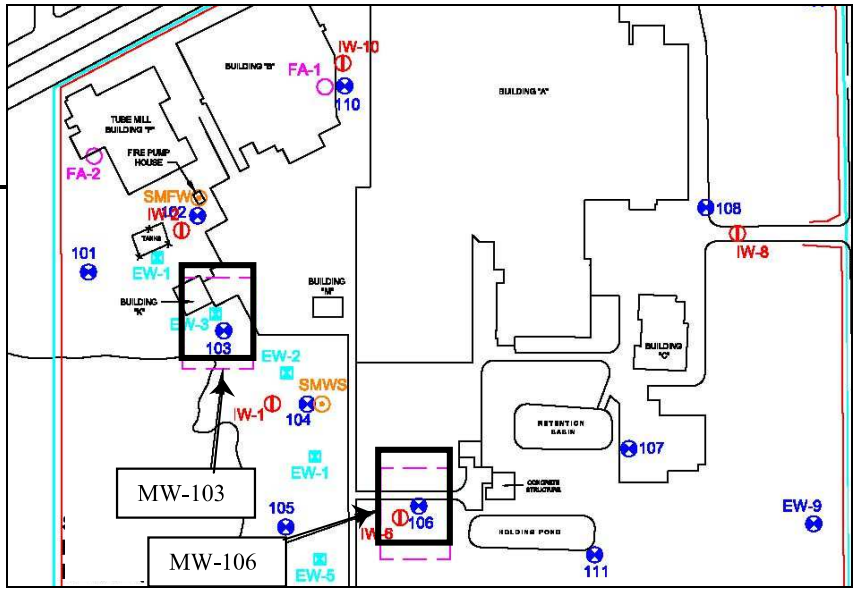
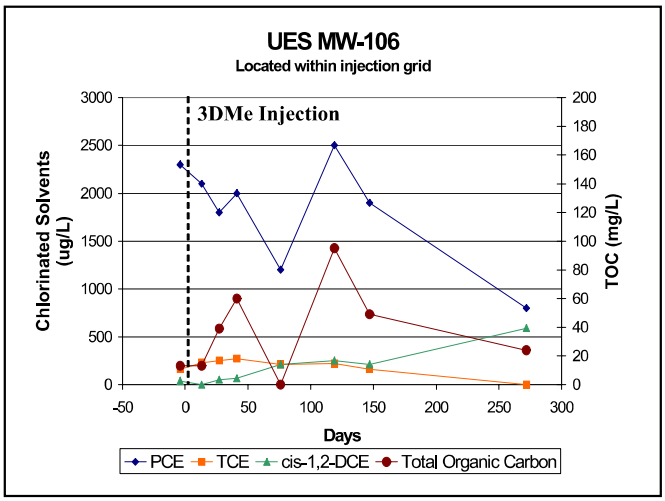
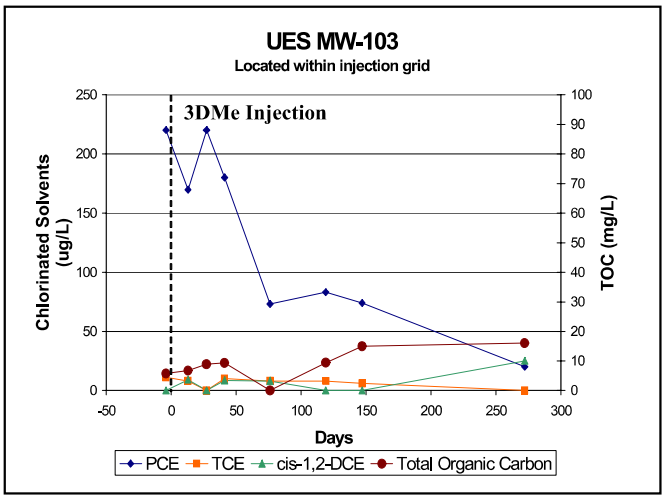


Figure 1. Site Map

RESULTS

Concentrations vs. Time





CONCLUSION

Two monitoring wells were used in this pilot test, MW-106 and MW-103. Well MW-106 contained pre-treatment PCE concentrations of 2,300 ug/L. At 272 days post-3DMe injection, PCE was reduced to 800 ug/L, while TCE levels were reduced to non-detect concentrations. Total organic carbon (TOC) levels remain elevated and 3DMe appears to be working well into the first year following application. Daughter products such as DCE have increased slightly as the reductive dechlorination process proceeds.

Monitoring well MW-103 started with lower CVOC concentrations and also showed a significant reduction in PCE. Concentrations over the 272 day period were reduced from 220 ug/L to 20 ug/L, a 91% reduction.

CONTACTS

Regenesis: Drew Baird
Southeast District Manager
(864) 240-9181
dbaird@regenesis.com

Consultant contact information available upon request. Please contactthe Regenesis representative listed above.

APPENDIX B
3DMe Material Safety Data Sheet

3-D Microemulsion (3DMe)™
MATERIALS SAFETY DATA SHEET

Last Revised: March 26, 2007

Section 1 – Material Identification

Supplier:

REGENESIS

1011 Calle Sombra
San Clemente, CA 92673

Phone: **949.366.8000**

Fax: **949.366.8090**

E-mail: **info@regenesis.com**

Chemical Name(s):	• Glycerides, di-, mono [2-[2-[2-(2-hydroxy-1-oxopropoxy)-1-oxopropoxyl]-1-oxopropoxy]propanoates] • Propanoic acid, 2-[2-[2-(2-hydroxy-1-oxopropoxy)-1-oxopropoxy]-1-oxopropoxy]-1,2,3-propanetriyl ester • Glycerol
Chemical Family:	**Organic Chemical**
Trade Name:	**3-D Microemulsion (3DMe)™**
Synonyms:	**HRC Advanced™ HRC-PED (Hydrogen Release Compound – Partitioning Electron Donor)**
Product Use:	**Used to remediate contaminated groundwater (environmental applications)**

Section 2 – Chemical Identification

CAS#	Chemical
823190-10-9	**HRC-PED**
61790-12-3 or 112-80-1	**Fatty Acids (neutralized)**
201167-72-8	**Glycerol Tripolylactate**
56-81-5	**Glycerol**

Section 3 – Physical Data

Melting Point:	**Not Available (NA)**
Boiling Point:	**Not determined (ND)**
Flash Point:	**> 200 ºF using the Closed Cup method**
Density:	**0.9 -1.1 g/cc**
Solubility:	**Slightly soluble in acetone. Insoluble in water.**
Appearance:	**Amber semi-solid.**
Odor:	**Not detectable**
Vapor Pressure:	**None**

Section 4 – Fire and Explosion Hazard Data

Extinguishing Media: **Use water spray, carbon dioxide, dry chemical powder or appropriate foam to extinguish fires.**

Water May be used to keep exposed containers cool.

For large quantities involved in a fire, one should wear full protective clothing and a NIOSH approved self contained breathing apparatus with full face piece operated in the pressure demand or positive pressure mode as for a situation where lack of oxygen and excess heat are present.

Section 5 – Toxicological Information

Acute Effects: **May be harmful by inhalation, ingestion, or skin absorption. May cause irritation. To the best of our knowledge, the chemical, physical, and toxicological properties of the 3-D Microemulsion have not been investigated. Listed below are the toxicological information for glycerol, lactic acid and fatty acid.**

RTECS#

MA8050000

Glycerol

Irritation Data:

SKN-RBT 500 MG/24H MLD	**85JCAE-,207,1986**
EYE-RBT 126 MG MLD	**BIOFX* 9-4/1970**
EYE-RBT 500 MG/24H MLD	**85JCAE-,207,1986**

Section 5 – Toxicological Information (cont)

Toxicity Data:	**ORL-MUS LD50:4090 MG/KG**	**FRZKAP (6),56,1977**
	SCU-RBT LD50:100 MG/KG	**NIIRDN 6,215,1982**
	ORL-RAT LD50:12,600 MG/KG	**FEPRA7 4,142,1945**
	IHL-RAT LC50: >570 MG/M3/1H	**BIOFX* 9-4/1970**
	IPR-RAT LD50: 4,420 MG/KG	**RCOCB8 56,125,1987**
	IVN-RAT LD50:5,566 MG/KG	**ARZNAD 26,1581,1976**
	IPR-MUS LD50: 8,700 MG/KG	**ARZNAD 26,1579,1978**
	SCU-MUS LD50:91 MG/KG	**NIIRDN 6,215,1982**
	IVN-MUS LD50:4,250 MG/KG	**JAPMA8 39,583,1950**
	ORL-RBT LD50: 27 MG/KG	**DMDJAP 31,276,1959**
	SKN-RBT LD50: >10 MG/KG	**BIOFX* 9-4/1970**
	IVN-RBT LD50: 53 MG/KG	**NIIRDN 6,215,1982**
	ORL-GPG LD50: 7,750 MG/KG	**JIHTAB 23,259,1941**

Target Organ Data: **Behavioral (headache), gastrointestinal (nausea or vomiting), Paternal effects (spermatogenesis, testes, epididymis, sperm duct), effects of fertility (male fertility index, post-implantation mortality).**

Only selected registry of toxic effects of chemical substances (RTECS) data is presented here. See actual entry in RTECS for complete information on lactic acid and glycerol.

Fatty Acids

Acute oral (rat) LD50 value for fatty acids is 10000 mg/kg. Aspiration of liquid may cause pneumonitis. Repeated dermal contact may cause skin sensitization.

Section 6 – Health Hazard Data

One should anticipate the potential for eye irritation and skin irritation with large scale exposure or in sensitive individuals. Product is not considered to be combustible. However, after prolonged contact with highly porous materials in the presence of excess heat, this product may spontaneously combust.

Handling: **Avoid continued contact with skin. Avoid contact with eyes.**

In any case of any exposure which elicits a response, a physician should be consulted immediately.

First Aid Procedures

Inhalation: **Remove to fresh air. If not breathing give artificial respiration. In case of labored breathing give oxygen. Call a physician.**

Ingestion: **No effects expected. Do not give anything to an unconscious person. Call a**

physician immediately. DO NOT induce vomiting.

Section 6 – Health Hazard Data (cont)

Skin Contact:	**Flush with plenty of water. Contaminated clothing may be washed or dry cleaned normally.**
Eye Contact:	**Wash eyes with plenty of water for at least 15 minutes lifting both upper and lower lids. Call a physician.**

Section 7 – Reactivity Data

Conditions to Avoid:	**Strong oxidizing agents, bases and acids**
Hazardous Polymerization:	**Will not occur.**
Further Information:	**Hydrolyses in water to form lactic acid, glycerol and fatty acids.**
Hazardous Decomposition Products:	**Thermal decomposition or combustion may produce carbon monoxide and/or carbon dioxide.**

Section 8 – Spill, Leak or Accident Procedures

After Spillage or Leakage:	**Neutralization is not required. The material is very slippery. Spills should be covered with an inert absorbent and then be placed in a container. Wash area thoroughly with water. Repeat these steps if slipperiness remains.**
Disposal:	**Laws and regulations for disposal vary widely by locality. Observe all applicable regulations and laws. This material may be disposed of in solid waste. Material is readily degradable and hydrolyses in several hours.**

No requirement for a reportable quantity (CERCLA) of a spill is known.

Section 9 – Special Protection or Handling

Should be stored in plastic lined steel, plastic, glass, aluminum, stainless steel, or reinforced fiberglass containers.

Protective Gloves:	**Vinyl or Rubber**
Eyes:	**Splash Goggles or Full Face Shield. Area should have approved means of washing eyes.**
Ventilation:	**General exhaust.**
Storage:	**Store in cool, dry, ventilated area. Protect from incompatible materials.**

Section 10 – Other Information

This material will degrade in the environment by hydrolysis to lactic acid, glycerol and fatty acids. Materials containing reactive chemicals should be used only by personnel with appropriate chemical training.

The information contained in this document is the best available to the supplier as of the time of writing. Some possible hazards have been determined by analogy to similar classes of material. No separate tests have been performed on the toxicity of this material. The items in this document are subject to change and clarification as more information becomes available.

Chemical Reducing Solution – CRS™

Material Safety Data Sheet (MSDS)

Revised: August 21, 2012

Section 1 – Supplier Information and Material Identification

Supplier:

REGENESIS

1011 Calle Sombra
San Clemente, CA 92673
Telephone: 949.366.8000
Fax: 949.366.8090
E-mail: info@regenesis.com

Chemical Description:	Ferrous Gluconate Solution
Trade Name:	Chemical Reducing Solution – CRS™
Product Use:	Used for environmental remediation of contaminated soils and groundwater

Section 2 – Chemical Information/Other Designations

CAS#	Chemical:	Percent %
299-29-6	Ferrous Gluconate	8 – 15
7732-18-5	Water	85 – 92

Section 3 – Physical Data

Form:	Liquid
Color:	Dark green to black
Odor:	Odorless
Flammability/Flash Point:	NA
Specific Gravity	1.0 - 1.1 g/cm^3
Solubility:	Miscible

Viscosity:	NA
Hazardous Decomposition Products:	Oxides of carbon and iron may be formed when heated to decomposition temperatures.

Section 4 – Reactivity Data

Stability:	Product can oxidize in air, FeII to FeIII.
Conditions to Avoid:	N/A
Incompatibility:	N/A

Section 5 – Fire Fighting Measures

Flammability:	Non-flammable,
Auto-Ignition Temperature:	Not available
Flash Point:	Not available
Products of Combustion:	These products are carbon oxides (CO, CO2). Some metallic oxides.
Fire fighting Media and Instructions:	Small Fire: Use dry chemical powder. Large Fire: Use water spray, fog or foam.

Section 6 – Protective Measures, Storage and Handling

Technical Protective Measures

Storage:	Keep container dry. Keep in a cool place. Keep container tightly closed. Keep in a cool, well-ventilated place. Material should be stored away from extreme heat and away from strong oxidizing agents.
Handling:	Avoid contact with eyes, skin and clothing. Avoid breathing spray mist. Use with adequate ventilation.
Engineering Controls:	General room ventilation is required if used indoors. Local exhaust ventilation, process enclosures or other engineering controls may be needed to maintain airborne levels below recommended exposure limits. Safety shower and eyewash station should be within direct access.
Personal Protective Equipment (PPE):	
Respiratory Protection:	Use NIOSH-approved dust and mist respirator where spray mist exists. Respirators should be used in accordance with 29 CFR 1910.134.

Hand Protection:	Wear chemical resistant gloves.
Eye Protection:	Wear chemical safety goggles. A full face shield may be worn in lieu of safety goggles.
Skin Protection:	Try to avoid skin contact with this product. Gloves and protective clothing should be worn during use.
Protection Against Fire & Explosion:	Keep away from heat. Keep packaged product away from sources of ignition.

Section 7 – Hazards Identification

Potential Health Effects	Repeated exposures can lead to sensitization.
Inhalation:	Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath, and irritations to mucous membranes, nose and throat.
Eye Contact:	Causes irritation, redness and pain.
Skin Contact:	Causes irritation. Symptoms include redness, itching and pain.
Ingestion:	Harmful if swallowed. May cause irritation to mouth, esophagus, and stomach.

Section 8 – Measures in Case of Accidents

After Spillage/Leakage (small):	Mop up and neutralize liquid, then discharge in accordance with local, state and federal disposal regulations.
After Spillage/Leakage (large):	Keep unnecessary personnel away; isolate hazard area and do not allow entrance into the affected area. Do not touch or walk through spilled material. Stop leak if possible without risking injury. Prevent runoff from entering into storm sewers and ditches that lead to natural waterways. Isolate the material if at all possible. Sand or earth may be used to contain the spill. If containment is not possible, neutralize the contaminated area and flush with large quantities of water.
Extinguishing Media:	Material is compatible with all extinguishing media.

First Aid

Eye Contact:	Flush eyes with running water for at least 15 minutes with eyelids held open. Seek medical advice.

Inhalation:	Remove affected person to fresh air. Give artificial respiration if individual is not breathing. If breathing is difficult, give oxygen. Seek medical attention if the effects persist.
Ingestion:	If the individual is conscious and not convulsing, give two-four cups of water to wash chemical out of mouth and seek medical attention immediately.
Skin Contact:	Wash affected areas with soap and a mild detergent and large amounts of water. Remove contaminated clothing and shoes.

Section 9 – Accidental Release Measures

Precautions:

PPE:	Wear SCBA for personal air supply, chemical goggles, body-covering protective clothing, chemical resistant gloves and boots as well as site specific PPE.
Cleanup Methods:	Pick-up and solidify using adsorbent material like expanded perlite, sweep into mound and scoop up to place in an appropriate disposal container for reclamation or disposal.

Section 10 – Information on Toxicology

Toxicity Data

Toxicity to Animals:	Acute oral toxicity (LD50): 2100 mg/kg Guinea Pig

Section 11 – Information on Ecology

Ecology Data:	NA

Section 12 – Disposal Considerations

Waste Disposal Method: Contact a licensed professional waste disposal service to properly dispose of this material. Observe all federal, state and local environmental regulations for waste disposal.

Section 13 – Shipping/Transport Information

U.S.D.O.T. This product is not regulated .

Section 14 – Other Information

HMIS® Rating	Health – 1 (slight	Reactivity – 0 (none)
	Flammability – 0 (none)	Lab PPE – goggles, gloves, and lab coat
	Contact – 1 (slight)	

HMIS® is a registered trademark of the National Painting and Coating Association.

Section 15 – Further Information

The information contained in this document is the best available to the supplier at the time of writing, but is provided without warranty of any kind. Some possible hazards have been determined by analogy to similar classes of material. The items in this document are subject to change and clarification as more information become available. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person. Individuals receiving this information must exercise their independent judgment in determining its appropriateness for a particular purpose.

Bio-Dechlor INOCULUM™ +
MATERIAL SAFETY DATA SHEET (MSDS)

Last Revised: January 5, 2010

Section 1 - Material Identification

Supplier:

REGENESIS

1011 Calle Sombra
San Clemente, CA 92673

Phone: **949.366.8000**

Fax: **949.366.8090**

E-mail: **info@regenesis.com**

Chemical Name:	**Soil Born Bacteria Extract Solution**
Chemical Family:	**Organic Chemical**
Trade Name:	**Bio-Dechlor INOCULUM™ +, BDI+, (SDC-9)**
Product Use:	**Used in the remediation of contaminated groundwater (environmental applications)**

Section 2 – Chemical Information

CAS#	Chemical	
Not Available (NA)	**Soil Bacteria**	**Non Hazardous Ingredients**

Section 3 - Physical Data

Physcial State:	**Liquid**
Boiling Point:	**100ºC**
Flash Point:	**ND**
Density:	**0.9-1.1 g/cc**
Solubility:	**Water**
Appearance:	**Murky Yellow Liquid**
Odor:	**Musty Odor**

Section 4 - Fire and Explosion Hazard Data

Extinguishing Media: **Carbon Dioxide, Water, Foam.**

Water may be used to keep exposed containers cool.

For large quantities involved in a fire, one should wear full protective clothing and a NIOSH approved self contained breathing apparatus with full face piece operated in the pressure demand or positive pressure mode as for a situation where lack of oxygen and excess heat are present.

Section 5 - Health Hazard Data

Handling: **Avoid contact with skin. Avoid contact with eyes.**

In any case of any exposure which elicits a response, a physician should be consulted immediately.

First Aid Procedures

Inhalation:	**Remove to fresh air. If not breathing give artificial respiration. In case of labored breathing give oxygen. Call a physician.**

Section 5 - Health Hazard Data (cont)

Ingestion:	**No effects expected. Do not give anything to an unconscious person. Call a physician immediately.**
Skin Contact:	**Flush with plenty of water. Contaminated clothing may be washed or dry cleaned normally.**
Eye contact:	**Wash eyes with plenty of water for at least 15 minutes, lifting both upper and lower lids. Call a physician.**

Section 6 - Toxicological Information

Acute Effects:	**May be harmful by inhalation, ingestion, or skin absorption. May cause irritation. To the best of our knowledge, the chemical, physical, and toxicological properties of Bio-Dechlor INOCULUM + have not been investigated.**

Section 7 - Reactivity Data

Conditions to Avoid:	**Strong oxidizing agents, bases and acids**
Hazardous Polymerization:	**None known**

Section 8 - Spill, Leak or Accident Procedures

After Spillage or Leakage:	**Neutralization is not required. The area should be disinfected with a 5% bleach solution**
Disposal:	**Laws and regulations for disposal vary widely by locality. Observe all applicable regulations and laws. This material, may be disposed of in a solid waste landfill. Material is readily degradable and hydrolyses in several hours.**

No requirement for a reportable quantity (CERCLA) of a spill is known.

Section 9 - Special Protection or Handling

Should be stored in plastic lined steel, plastic, glass, aluminum, stainless steel, or reinforced fiberglass containers.

Protective Gloves:	**Vinyl or Rubber**
Eyes:	**Splash Goggles or Full Face Shield. Area should have approved means of washing eyes.**
Ventilation:	**General exhaust.**
Storage:	**Store in cool, dry, 4-5 ºC area. Protect from incompatible materials.**

Section 10 - Shipping Information

D.O.T Shipping Name	**No limitations on shipping this material.**

Section 11 - Other Information

This material will degrade in the environment. Materials containing reactive chemicals should be used only by personnel with appropriate chemical training.

The information contained in this document is the best available to the supplier as of the time of writing. Some possible hazards have been determined by analogy to similar classes of material. No separate tests have been performed on the toxicity of this material. The items in this document are subject to change and clarification as more information becomes available.

REGENESIS

Advanced Technologies for Groundwater Resources

Material Safety Data Sheet (MSDS)

Bio-Dechlor INOCULUM PLUS (BDI PLUS™)

SECTION 1 - MATERIAL IDENTIFICATION AND INFORMATION

Material Name: DHC microbial consortium (SDC-9) MSDS #: ENV 1033

Date Prepared: 1/05/2006 CAS #: N/A (Not Applicable)

Prepared By: Simon Vainberg Formula #: N/A

Material Description: Non-hazardous, naturally occurring non-altered anaerobic microbes and enzymes in a water-based medium.

SECTION 2 - INGREDIENTS

Components	%	OSHA PEL	ACGIH TLV	OTHER LIMITS
Non-Hazardous Ingredients	100	N/A	N/A	N/A

SECTION 3 - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: 100°C (water)

Specific Gravity (H_2O = 1): 0.9 - 1.1

Vapor Pressure @ 25°C: 24 mm Hg (water)

Melting Point: 0°C (water)

Vapor Density: N/A

Evaporation Rate (H_2O = 1): 0.9 - 1.1

Solubility in Water: Soluble

Water Reactive: No

pH: 6.0 - 8.0

Appearance and Odor: Murky, yellow to grey water. Musty odor.

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

Flash Point: N/A

Flammable Limits: N/A

Extinguishing Media: Foam, carbon dioxide, water

Special Fire Fighting Procedures: None

Unusual Fire and Explosion Hazards: None

SECTION 5 - REACTIVITY DATA

Stability: Stable

Conditions to Avoid: None

Incompatibility (Materials to Avoid): Water-reactive materials

Hazardous Decomposition Byproducts: None

SECTION 6 - HEALTH HAZARD DATA

HEALTH EFFECTS

The effects of exposure to this material have not been determined. Safe handling of this material on a long-term basis will avoid any possible effect from repetitive acute exposures. Below are possible health effects based on information from similar materials. Individuals hyper allergic to enzymes or other related proteins should not handle.

Ingestion: Ingestion of large quantities may result in abdominal discomfort including nausea, vomiting, cramps, diarrhea, and fever.

Inhalation: Hypersensitive individuals may experience breathing difficulties after inhalation of aerosols.

Skin Absorption: N/A

Skin Contact: May cause skin irritation. Hypersensitive individuals may experience allergic reactions to enzymes.

Eye Contact: May cause eye irritation.

FIRST AID

Ingestion: Get medical attention if allergic symptoms develop (observe for 48 hours). Never give anything by mouth to an unconscious or convulsing person.

Inhalation: Get medical attention if allergic symptoms develop.

Skin Absorption: N/A

Skin Contact: Wash affected area with soap and water. Get medical attention if allergic symptoms develop.

Eye Contact: Flush eyes with plenty of water for at least 15 minutes using an eyewash fountain, if available. Get medical attention if irritation occurs.

NOTE TO PHYSICIANS: All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this material may have occurred.

SECTION 7 - SPILL AND LEAK PROCEDURES

Reportable quantities (in lbs of EPA Hazardous Substances): N/A

Steps to be taken in case of spill or release: No emergency results from spillage. However, spills should be cleaned up promptly. All personnel involved in the cleanup must wear protective clothing and avoid skin contact. Absorb spilled material or vacuum into a container. After clean-up, disinfect all cleaning materials and storage containers that come in contact with the spilled liquid.

Waste Disposal Method: No special disposal methods are required. The material may be sewered, and is compatible with all known biological treatment methods. To reduce odors and permanently inactivate microorganisms, mix 100 parts (by volume) of SDC-9 consortium with 1 part (by volume) of bleach. Dispose of in accordance with local, state and federal regulations.

SECTION 8 - HANDLING AND STORAGE

Hand Protection: Rubber gloves.

Eye Protection: Safety goggles with side splash shields.

Protective Clothing: Use adequate clothing to prevent skin contact.

Respiratory Protection: Surgical mask.

Ventilation: Provide adequate ventilation to remove odors.

Storage & Handling:
Material may be stored for up to 3 weeks at 2-4°C without aeration.

Other Precautions: An eyewash station in the work area is recommended.

APPENDIX C
Groundwater Sampling Procedures

REMEDIAL ACTION WORK PLAN

APPENDIX C

100 EAST MINEOLA AVENUE

VALLEY STREAM, NEW YORK

VOLUNTARY CLEANUP PROJECT

SITE NUMBER V-00145-1

Groundwater Sampling Procedures

(1) Upon arrival at each well site, enter well identification in field log notebook.

(2) Place new plastic sheeting over and around the monitoring well so that a clean surface is created for the sampling equipment. All materials, tools and equipment will be cleaned prior to placement on the plastic.

(3) Clean the top of the well, remove well cap and place it on the plastic sheeting.

(4) Measure the depth to water below the reference point (top of casing) using an electric water level indicator to the nearest 0.01 foot. Clean the measuring device with phosphate-free detergent and rinse with distilled water between measurements.

(5) Calculate the volume of standing water by multiplying the gallons per linear feet of 2 inch diameter pipe times height of standing water.

(6) Purge well with a submersible pump until at least three standing water volumes have been purged in accordance with USEPA ***April 1996, Low-Flow (Minimal Drawdown) Ground Water Sampling Procedures*** (<0.5 L/min), as required by the NYSDEC. ***Note: Purge water will be containerized in 55 gallon drums.***

(7) Measure specific conductance, temperature, pH, and dissolved oxygen using a Horiba U-22 with a flow-thru cell or equivalent water quality meter.

(8) Prepare sample bottles to receive samples.

(9) Collect the sample using submersible pump tubing into the sample bottles.

(10) Replace well cap and lock.

(11) Discard plastic sheeting, and other expendable materials.

(12) Samples will be placed on ice and brought to the laboratory with chain of custody documentation.

REMEDIAL ACTION WORK PLAN

APPENDIX C

100 EAST MINEOLA AVENUE

VALLEY STREAM, NEW YORK

VOLUNTARY CLEANUP PROJECT

SITE NUMBER V-00145-1

Groundwater Sampling Checklist

Monitoring Well ID_____ Date_____

[ ] Place new plastic sheeting over and around the monitoring well so that a clean surface is used for the sampling equipment.

[ ] Measure the depth to water below the reference point (top of casing) using a chalked, steel tape or electric sensor to the nearest 0.01 foot.

[ ] Refer to the well depth and calculate the volume of standing water by multiplying the gallons per linear feet of 2 inch diameter pipe times height of standing water.

[ ] Purge well with submersible pump or suction pump until at least three standing water volumes have been purged using low-flow methods (<0.5 L/min).

[ ] Record the physical appearance and temperature of the purged groundwater.

[ ] Measure specific conductance, temperature and pH.

[ ] Prepare sample bottles to receive samples.

[ ] Immediately pour the sample into the respective sample bottles.

[ ] Pour purge water into 55 gallon drums for removal.

REMEDIAL ACTION WORK PLAN

APPENDIX C

100 EAST MINEOLA AVENUE

VALLEY STREAM, NEW YORK

VOLUNTARY CLEANUP PROJECT

SITE NUMBER V-00145-1

Monitoring Well ID_____ Date_____

[ ] Note the condition of the well protective cover or flush-mounted curb box.

[ ] Examine the well cap for a locking device.

[ ] Note conditions inside the well enclosure, such as standing water, damage and any obvious signs of contamination (oily sheen, staining, odors, etc.).

[ ] Replace well cap and lock.

[ ] Discard plastic sheeting and other expendable materials.

Comments:_____

Notes:

1. Use the comment section to document the need for corrective actions and the date that the corrective actions are completed.