REMEDIAL SYSTEM OPTIMIZATION REPORT
BALDWIN PLACE MALL SITE
SITE NO. 360023

WORK ASSIGNMENT NO. D007619-28

Prepared for:

New York State Department of Environmental Conservation
Albany, New York

Prepared by:

MACTEC Engineering and Consulting, P.C.
Portland, Maine

MACTEC Project No. 3617137308

SEPTEMBER 2014

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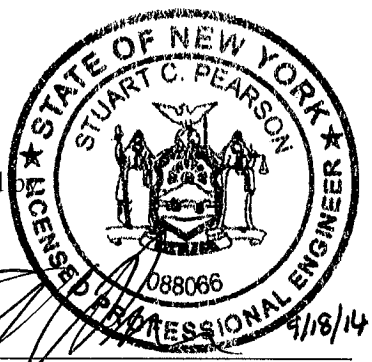

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GLOSSARY OF ACRONYMS AND ABBREVIATIONS

Aztech	Aztech Technologies, Inc.
Baldwin Place	Baldwin Plan Shopping Center
COCs	contaminants of concern
CSM	Conceptual Site Model
DCE	dichloroethene
DNAPL	dense non-aqueous phase liquid
FS	Feasibility Study
GAC	granular activated carbon
gpd	gallons per day
gpm	gallons per minute
LMSE	Lawler, Matusky & Skelly Engineers
MACTEC	MACTEC Engineering and Consulting, P.C.
mg/kg	milligrams per kilogram
MPRC	Meadow Park Road community
NYSDEC	New York State Department of Environmental Conservation
O&M	operation and maintenance
PCE	tetrachloroethylene
PCP	pump control panel
PRP	potentially responsible party

GLOSSARY OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

RAOs	Remedial Action Objectives
RI	Remedial Investigation
ROD	Record of Decision
RSO	Remedial System Optimization
Site	Baldwin Place Mall site
SPDES	State Pollutant Discharge Elimination System
TCE	trichloroethylene
µg/L	micrograms per liter
VOC	volatile organic compound
yd^3	cubic yards

1.0 INTRODUCTION

MACTEC Engineering and Consulting, P.C. (MACTEC) performed a Remedial System Optimization (RSO) Study for the Baldwin Place Mall site (Site) in Somers, Westchester County, New York (see Figure 1.1). This work was completed for the New York State Department of Environmental Conservation (NYSDEC) under Work Assignment No. D007619-28 and is in accordance with the April 2011 Superfund Standby Contract No. D007619 between the NYSDEC and MACTEC. The Site was assigned Site No. 360023 by the NYSDEC. The Site is currently classified as a Class 2 site that poses a significant threat to the public health and environment. Active groundwater extraction, on-site treatment with discharge to surface water is currently in operation.

1.1 PROJECT OBJECTIVES AND SCOPE OF WORK

The overall objectives of the RSO evaluation are the following:

- Review remedial program objectives,
- Evaluate overall system operation, effectiveness and progress of the remedy,
- Assess the selected remedy applicability to meeting remedial action objectives and goals as well as the appropriateness of remedial program for the site, and
- Identify potential modifications to the remedial program and treatment system.

The evaluation of subsurface performance, adequacy of the monitoring network, contamination migration and pathways and identification of data gaps are included in Appendix A, Conceptual Site Model (CSM) and Data Gap Review letter (MACTEC, 2014). As such, these topics are only summarized in this report in the appropriate section.

The scope of work consisted of a records review, interviews, a Site visit, and preparation of this report. The records review included a review of the Remedial Investigation, Feasibility Study (RI, FS), design and construction documents, the operation and maintenance (O&M) manual and records, appropriate permits, and performance data.

MACTEC staff visited the Site on February 27, 2014 and conducted interviews with staff from Aztech Technologies, Inc. (Aztech), the current Site operators. Following the RSO visit with

Aztech, MACTEC also participated in a Site tour and review that also included NYSDEC and Aztech personnel affiliated with the Site. Prior to the Site visit, MACTEC reviewed electronic copies of the files and records for the Site provided by the NYSDEC. MACTEC also gathered additional electronic and hard copy files from Aztech during the Site visit. This report presents the findings of the RSO evaluation and recommended actions for the Baldwin Place Mall site.

1.2 REPORT OVERVIEW

This report has been prepared and organized as follows:

- Section 2.0 provides a summary of the CSM and CSM data gaps
- Section 3.0 provides a description of the existing systems.
- Section 4.0 presents the findings and observations from MACTEC's file review and Site visit.
- Section 5.0 presents an evaluation of potential modifications to the existing remedial action systems to achieve remedial action objectives.
- Section 6.0 presents recommendations for implementation

2.0 SITE BACKGROUND AND CONCEPTUAL SITE MODEL

This section presents a summary of the information presented by MACTEC to NYSDEC in the May 2014 letter entitled Conceptual Site Model a Data Gap Review and Recommendations for the Baldwin Place Shopping Center (Baldwin Place), NYSDEC Site 360023. Detailed information can be found in Appendix A of this document.

2.1 SITE BACKGROUND

Baldwin Place is located in Somers, New York and was constructed in 1965 (see Figure 1.1). A dry cleaning establishment had always been present at the mall and, dry cleaning operations occurred on the mall property until November 1991 (Lawler, Matusky & Skelly Engineers [LMSE], 1995). In 1979, the Westchester County Health Department discovered dry cleaning chemicals and their breakdown products (tetrachloroethene [PCE], trichloroethene [TCE] and 1,2-dichloroethene [1,2-DCE]) in the mall's two bedrock water supply wells (PW-1 and PW-2). In addition, two off-site areas were impacted by these site-related contaminants. These areas include part of the commercial area along Route 6 to the west, and part of the Meadow Park Road community (MPRC) to the southeast.

The Baldwin Place supply wells have a reported combined capacity of 115 gallons per minute (gpm). The water supply was treated by a granular activated carbon (GAC) filter system that was installed in April 1989 to remove the PCE and related contaminants. During the height of the mall operations, the supply wells were operating at a combined capacity of 20,000 gallons per day (gpd). By 1984 the mall operations had declined and the water consumption decreased to approximately 11,500 gpd. By 1993/1994, the demand for water was further reduced for the remaining tenants to approximately 5,700 gpd.

The original building in which the dry cleaner resided no longer exists and has been replaced by a shopping plaza. Following closure of the dry cleaners, Point of Entry Treatment systems were installed at nearby MPRC private residences affected by the contamination.

A RI was conducted in 1994 by Vincent Uhl & Associates (Vincent Uhl Associates, 1994). A FS was completed in 1995 (LMSE, 1995). The Record of Decision (ROD) was signed in 1995 (NYSDEC, 1995). The description of the selected remedy in the ROD outlines the following elements:

- Source Removal: An estimated 135 cubic yards (yd^3) of highly contaminated soil behind the old dry cleaner was to be excavated to reduce the residual PCE concentration in the soil to 10 parts per million.
- Groundwater Treatment: Two source area wells RW-1S and RW-2D, shallow and deep respectively, were to be installed within the source area to collect contaminated groundwater and treat it via GAC filtration. The filtration system was to be housed in a treatment building referred to as "Plant 1". Effluent from Plant 1 was to be discharged to the nearby stream.
- Supply of Potable Water: Big V, the potential responsible party (PRP) had two options for providing potable water to the impacted homes in the MPRC: 1) install a water supply distribution system and fund and create a new water district incorporating the existing shopping center's production wells. The GAC filter systems in use on twelve private wells in MRPC would be maintained until the new system is in place; or 2) maintain the GAC filters at the MPRC residences until a regional water supply system is commissioned.
- Connection to Alternative Water Supply: The distribution system and certain appurtenances were to be designed to be an integral part of the Town's proposed regional water supply system. The PRP would obtain approval of its plans, specifications and construction from the Town Engineer and the Westchester County of Health.
- Contingency Plan: Numerical groundwater quality goals were to be established during the remedial design to evaluate, on a yearly basis, the effectiveness of the remedy. Additional remedial actions were to be taken if results were found to be significantly short of the goal.

The remediation goals set forth in the ROD include:

- Prevent exposure to contaminated soil;
- Prevent continued degradation of groundwater quality through migration of PCE and its break down products from soils to groundwater;
- Prevent exposure (inhalation, ingestion, and dermal) to contaminated groundwater;
- Restore groundwater quality (impacted by PCE and breakdown products) to acceptable levels within a reasonable time frame; and
- Prevent migration and discharge of site contaminants in groundwater to adjacent surface water bodies.

In 1997, Lawler Matusky and Skelly completed excavation of contaminated soil in the alley way behind the dry cleaner; approximately 138 yd^3 (236 tons) of soil were removed from the excavation (based on four confirmation samples having results less than cleanup goal of 10 milligrams per

kilogram [mg/kg]). In 2009, NYSDEC requested a second round of soil borings to be completed in and around the former soil excavation area to evaluate if another potential source of contamination was present on the Site. Based on the 2009 soil boring (20 feet below ground surface) results, no additional soil contamination was observed; however, there is approximately 45 feet of soil from the bottom of the 1997 excavation (and 2009 supplemental borings) to the top of the weathered bedrock that has not been characterized.

2.2 CSM SUMMARY

A CSM is based on information that is currently available; it is considered a dynamic model that is expected to evolve and as new information becomes available. The CSM as summarized here will be updated if and when additional information is obtained regarding site hydrogeology or chemistry.

2.2.1 Contaminants of Concern

The contaminant PCE was used as a cleaning solvent at the former dry cleaners located in the mall. PCE under the right conditions will degrade to TCE, cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), 1,1-dichloroethene (1,1-DCE), vinyl chloride and eventually ethene.

The primary contaminant at the site is PCE. The breakdown products TCE and cis-1,2-DCE have also been detected in both the overburden and bedrock groundwater systems, although the concentrations have been low in comparison to PCE indicating that the degradation process is not robust

2.2.2 Source Areas and Points of Entry (for the contaminants of concern [COCs])

A residual PCE source was identified in a former alleyway near the back door of the former dry cleaners. An area of soil approximately 12 feet deep was found to contain PCE as high as 1,200 mg/kg in the unsaturated soil and 4,500 mg/kg in soil below the water table. As part of the remedy, soil was excavated to a depth of 10 to 15 feet across the area of impacted soil. Although 138 yd^3 of soil was excavated from this area, it is likely that the source of PCE found in the deeper overburden

and shallow bedrock is the direct result of vertical migration of dense non-aqueous phase liquid (DNAPL) from the shallow source area. It is possible that a point of entry may have occurred within the building, proximate to the former dry cleaning machine.

2.2.3 Hydrogeology and Contaminant Distribution

Surface drainage over the eastern and southeastern portions of the site is to an unnamed north-to-south flowing stream (eastern stream) that is a tributary to the Muscoot River. Surface drainage over the western portion of the site is to an unnamed south-to-north flowing stream (western stream) that begins just south of the mall, is diverted under the mall and parking lot and then flows into a relatively steep ravine and valley immediately north of Route 6 near McDonalds and the Exxon service station (Vincent Uhl Associates, Inc, 1994).

The site is underlain by till, with the upper portion of the bedrock being described as a weathered and fractured gneiss. More competent gneiss is found below the weathered horizon. The description of the weathered bedrock presented in the Hydrogeologic Appendix in Support of Remedial Alternatives Evaluation suggests that it is saprolitic (LMSE, 1995). Below this weathered horizon it is reported that the bedrock is fractured and groundwater circulation is relatively significant (LMSE, 1995). A CSM is presented in the aforementioned Hydrogeologic Appendix; however it is limited to a discussion of the hydrogeologic aspects of the site with no discussion given to the chemistry or contaminant distribution.

Based on May 2012 water levels, bedrock groundwater flow beneath the source area is predominantly to the southwest. A groundwater mound (in both overburden and bedrock) exists in the vicinity of MW2S/2D. This mound may be caused by ponding of excessive runoff in that area including the adjacent hill slope to the east. The Mall's perimeter road drops to a topographic low along the southwest corner of the Mall property.

The till within the source area consists of sandy silt and is approximately 60 feet in thickness. In general, the bedrock surface is sloping to the southeast with more than 70 feet of drop across the mall area. In contrast, ground surface slopes predominantly to the west with approximately 14 feet of drop across the mall. The depth to water in the till ranges from approximately 5 feet in the southwestern portion of the site (i.e., at MW-2S) to 13 feet just west of the source area (i.e., at

MW-7S). Based on May 2012 water level measurements, the direction of groundwater flow in the overburden is to the southwest.

Baldwin Place is located at a relative topographic high. The vertical hydraulic gradient within the source area is downward. The downward vertical hydraulic gradient, coupled with denser-than-water COCs and extended pumping from bedrock wells PW-1 and PW-2 have resulted in the vertical migration of COCs through the overburden aquifer into the bedrock aquifer. Based on the high concentrations in weathered rock (exceeding the 1% rule for likely presence of NAPL), it appears DNAPL may be present and migrated vertically downward into the weathered and fractured bedrock.

When the Mall's supply wells and nearby residential wells were operational, site-related COCs were drawn from the source area and made their way into the deeper, fractured bedrock flow system. The hydraulic gradient of bedrock groundwater is generally to the southwest and dissolved phase concentrations of PCE will move in that direction when there are no external hydraulic stresses. Groundwater pumping from surrounding wells contributed to the lateral spreading of PCE in the bedrock aquifer.

Downgradient and cross-gradient from the source area, overburden monitoring wells MW-7S and MW-9S, which are both located west of the source area but on the Mall property, contain site-related COCs (PCE and TCE). Only MW-7S contains a site-related COC (TCE 9 at micrograms per liter [µg/L]) above the New York State drinking water standard of 5 µg/L.

2.2.4 Migration Pathways

The near-surface contaminated soil within the source area was remediated, effectively eliminating any surface runoff pathway. Based on sampling of the surrounding monitoring wells, the extraction wells RW-1S and RW-2D appear to be containing the migration of PCE in the overburden and bedrock aquifer. However, it is possible that the downgradient/cross-gradient monitoring well pairs (i.e., MW-7S/7D & MW-9S/9D) do not sufficiently monitor the weathered bedrock zone (i.e., wells not screened at the correct interval) and that higher concentrations of COCs may be moving off site than currently indicated by recent sampling in MW-9S/9D.

The till consists predominantly of sandy silt and there have been no direct observations to suggest that the till is fractured. In all likelihood, contaminant migration in the till is controlled by the factors that govern porous media flow. As such, the movement of COCs in the till is likely to be slow. Migration in the fractured bedrock is dependent on fracture aperture and hydraulic gradient. Depending on fracture aperture and interconnectedness, groundwater velocities in this zone can be quite high with respect to groundwater movement.

2.2.5 Exposure Pathways

Public water is supplied to the Mall and surrounding residences and businesses; therefore, there is no current exposure to groundwater via ingestion. The near-surface contaminated soil has been removed, thus eliminating the potential direct contact threat to PCE-contaminated soil. Vapor intrusion is currently being monitored. The only nearby structure that has elevated subslab soil vapor is the Home Goods store, which is located immediately south of the source area. Indoor air criteria have not been exceeded in the Home Goods store; however, sub-slab and indoor air sample results from this building warrant further monitoring. The building does not have a sub-slab depressurization system in place.

2.3 CSM DATA GAPS

The following data gaps are identified based on review of existing data and development of an updated CSM:

- The location/area of the residual soil contamination has not been well defined. The vadose zone soil source area has been remediated; however, high concentrations of PCE have been continually detected in groundwater in MW-12S and RW-2D. The source of dissolved concentrations of PCE in groundwater within these zones has not been defined or evaluated. In particular, the potential presence of PCE diffused into silts and the rock matrix is unknown. Understanding this distribution is essential information needed to support future remedial decisions.
- Hydraulic properties are not sufficiently understood to evaluate remedial alternatives to control or mitigate contaminate mass and mobility. The permeability distribution is needed to evaluate applicability of other remedial options.
- Sampling results from monitoring well clusters MW-7S/7D and MW-9S/9D may not reflect the highest concentrations of site-related COCs because potentially important sections of the hydrostratigraphy are not monitored.

3.0 EXISTING SYSTEMS

Photographs were obtained during the site visit and included photos of the treatment systems and Site features. Photographs are provided in Appendix B to this report. The following subsections present a description of the existing pump and treat system based on the available file documents and the Site visit. Operational issues noted by the Site operators are included in the descriptions.

3.1 DESCRIPTION OF EXISTING SYSTEMS

Plant 1 was built in 1998 and consists of a GAC filtration system to treat contaminated groundwater in the source area from an overburden extraction well (RW-1S) and a shallow weathered bedrock well (RW-2D). Plant 1 is still operating today.

Plant 2 was built in 1999 and operated until 2011 utilizing existing Mall bedrock supply wells PW-1 and PW-2 and a similar GAC treatment system. Late in 1999, treated water from Plant 2 was used to supply water to residences in MPRC. In 2001, the MPRC went on municipal water but PW-1 and PW-2 remained in operation with the goal of partially capturing and treating contaminated groundwater. In 2014, electrical power to the Plant was disconnected.

3.1.1 Pump and Treat Systems

The pump and treat systems were designed to extract contaminated groundwater from overburden and bedrock aquifers, followed by treatment through GAC and then discharged to surface water. Plant 2, the Mall groundwater pump and treat system, was initially designed for a capacity of 115 gpm. Actual groundwater flow to the plant averaged 3.8 gpm from supply wells PW-1 and PW-2. Plant 2, PW-1 and PW-2 were shutdown in 2011 by the NYSDEC due to contaminant breakthrough at the carbon vessels. Additionally, the NYSDEC discontinued operations of Plant 2 as pumping operations may have been drawing volatile organic compounds (VOCs) deeper into the bedrock system. In 2014, electrical power to the Plant was disconnected.

Plant 1 extracts groundwater with GAC treatment followed by surface water discharge. Plant 1 was designed to treat groundwater extracted from wells RW-1S and RW-1D at a combined average

flow rate of 3.5 gpm. RW-1S is an overburden extraction well and RW-1D is the shallow weathered bedrock well. Both extraction wells were installed in the vicinity of a previous source removal area. Currently, the plant throughput is approximately 1.0 gpm.

The following paragraphs describe the existing systems for the operational plant, Plant 1.

Extraction Wells. Each well is equipped with a submersible well pump. Groundwater is removed from the wells by submersible pumps which discharge via 1-in.diameter polyethylene risers to pitless adaptors located inside 4-ft-deep concrete vaults at the wellheads. The positions of the pumps are stabilized by torque arresters. Water then flows from the pitless adaptors through 2 in. diameter force mains to the treatment building where the groundwater flow is controlled and metered. Extraction pumps are turned on and off based on levels in the wells and programmed set points. The pumping system has been designed for an average 0.5 and 3 gpm recovery from RW-1S and RW-2D, respectively to achieve hydraulic containment and to reduce the time required to remediate groundwater per the ROD requirements. Water levels in the wells fluctuate because of differences between pump and well yields.

The level in the wells is measured by a submersible pressure transducer in each well. The transducer sends a signal to a transmitter located in the groundwater treatment plant.

Power and control wiring to the recovery wells is run underground in conduit from the front of the building to the RW-2D well vault. At RW-2D, the power and control wiring for RW-1S is continued to the well vault for RW-1S. Power and control wiring are run in separate conduits (1 in. polyvinyl chloride).

Bag Filters. Groundwater is pumped through a series of bag filters prior to the Liquid-Phase GAC. A 50-micron bag filter and a 5-micron bag filter operate in series upstream of the activated carbon to reduce the potential of plugging of the carbon. The units are housed in steel containers and are rated at 80 gpm with a 1 pounds per square inch pressure drop across the filter for clean water. Each unit has a removable strainer. Filter bags are typically changed out monthly but are only changed out as needed. The used filters are placed in a plastic drum and then disposed of as hazardous waste with waste code, F002.

Liquid-Phase Carbon Filters. Removal of the groundwater contaminants is achieved with GAC. The GAC system consists of two 165 pound drums of activated carbon that are operated in series. The units are returnable, meaning that the spent carbon is shipped off-site in the original drum in which the carbon was delivered. Spent carbon is disposed of as a listed hazardous waste with the waste code, F002.

Surface Discharge. Treated groundwater is discharged to a drainage swale. Effluent Limitations and Monitoring Requirements are imposed on the site by the NYSDEC as indicated in the State Pollutant Discharge Elimination System (SPDES) (NYSDEC, 2007) equivalent letter attached in Appendix C.

Ancillary Systems. The building is an insulated, pre-engineered metal building. It is equipped with an electric unit heater.

The Pump Control Panel (PCP) is located in the treatment building and provides control and alarm functions for the two well pumps. The PCP can be operated in either manual mode or automatic mode. When operated in manual mode the well pumps are controlled by toggling a selector switch from either AUTO or OFF to HAND. When the selector switch is the HAND position, pumps will run continuously regardless of the level of water in the respective well. At programmed levels of water column, the controller will signal the well pumps to start and stop when the selector switch is in AUTO. Additionally, the controllers will provide alarm indication on high and low water level and continuous level indication. The PCP is equipped with combination magnetic motor starters, control and time delay relays, indicating lights, run time meters, reset pushbuttons and a connection to a remote flashing beacon, located over the front door of the building.

3.2 OPERATION AND MAINTENANCE PROGRAM

O&M at the Site is currently being conducted by Aztech under subcontract to the NYSDEC. O&M tasks generally include the following:

- Treatment plant O&M.
- Treatment plant monitoring (sample collection).
- Extraction systems O&M.

- Groundwater and indoor air monitoring.
- Reporting.

4.0 FINDINGS AND OBSERVATIONS

The following subsections summarize the information and data gathered by MACTEC staff during the Site visit on February 27, 2014 and interviews conducted with operators affiliated with the Site. During the Site visit, operations personnel were interviewed concerning operational procedures, operational problems, and ideas for improving the operation and performance of the treatment system.

In conjunction with the Site visit, a file and records review was conducted on the files made available from the NYSDEC. The results of this review have been included in the following subsections and recommendations section of this report. Photographs from the Site visit are included in Appendix B. A summary of non-routine maintenance activities is included in Appendix D.

4.1 REGULATORY COMPLIANCE

As stated in Section 3.1, the 1995 ROD listed remedial objectives for the site. The intent of this section is to evaluate the remedy against these objectives. The following sections will present the details of the performance of the remedy.

Prevent exposure to contaminated soil: The soil removal Interim Remedial Measure completed in 1997 has effectively prevented exposure to contaminated soil. It should be noted that a site management plan is in development to address residual contamination near bedrock depths.

Prevent continued degradation of groundwater quality through migration of PCE and its break down products from soils to groundwater: Based on the findings in the CSM & Data Gap Review letter (MACTEC, 2014), this objective has not been met.

Prevent exposure (inhalation, ingestion and dermal) to contaminated groundwater: The remedy in place at the Site has met the objective of protecting human health by preventing exposure to contaminated groundwater. Nearby residences and businesses receive drinking water from a public water supply system.

Restore groundwater quality (impacted by PCE and breakdown products) to acceptable levels within a reasonable time: The remedy in place has not achieved this objective. PCE influent concentrations continue to remain within a consistent range since the plant was installed. However, it should be noted that the treatment system continually meets discharge criteria per the SPDES permit equivalent.

Prevent migration and discharge of site contaminants in groundwater to adjacent surface water bodies: Samples collected during the Remedial Investigation (pre-treatment systems) from several surface water sampling locations contained only trace (</= 2 µg/L) concentrations of PCE. The FS and ROD did not suggest that surface water was impacted and needed remediation. Surface water samples are not currently being collected as part of the monitoring program.

4.2 TREATMENT SYSTEM PERFORMANCE

Descriptions of recurring problems and MACTEC's assessment of the treatment process are presented in the following subsections.

4.2.1 Recurring Problems or Issues

Based on operator descriptions during the Site visit and site logs (see Appendix C), the following recurring problems or issues were noted for the Site:

Frequent issues with well transducers. Level transducers installed in the wells have been prone to failure. Frequent issues with the well transducers are noted in the O&M logs. See Appendix C for a listing of non-routine maintenance items. Currently, site reports indicate that RW-1S is not operational due to an issue with the transducer. The malfunction of the RW-1S transducer has been an on-going issue since August 2011. Based upon document review and discussion with Aztech, the issue with the transducer has been found to be poor interfacing capabilities of the Precision Digital pump controller with the pump control panel and system programming. Aztech indicates that the NYSDEC has given approval to proceed with upgrading the system from the Precision Digital pump controller to a ProFlow, Inc system which will include remote access and control as

well as data logging capabilities. This system will also be based on wireless communications vs. the current telephone communication system.

Iron fouling. The O&M logs note continued issues with iron fouling at the pumps in the extraction wells and at the carbon drums. Several instances occurred where fouling of the carbon drums occurred where the carbon had to be replaced. The iron fouling has also caused pre-mature rusting of the carbon drums where the drums also had to be replaced.

4.2.2 Process Assessment

Based upon review of the influent data and the effluent data of the treatment system, it is MACTEC's conclusion that the process for treatment of VOCs is performing as designed. As shown in Table 4.1, the lead carbon vessel continues to reduce VOC contaminant concentrations to non-detect. It should also be noted that the carbon has not been changed out since 2010. Bag filter change-out frequency is not excessive such that it does not dictate the frequency of routine O&M visits.

4.3 SAFETY RECORD

There has been no Occupational Safety and Health Administration recordable injuries or lost work time accidents associated with the Site since the system was installed in 1997. System components are readily accessible and diligent treatment plant housekeeping minimizes potential worker hazards.

4.4 SUSTAINABILITY EVALUATION

A brief sustainability evaluation has been completed of the active site remedy. Sustainability in remediation is, generally, the practice of considering all environmental effects of remedy implementation and incorporating options to maximize net environmental benefit of cleanup actions. Typically it is best applied during the FS and remedy selection phase of a project because often, most of the resource consumption occurs during remedy implementation. The sustainability evaluation presented here considers the overall environmental effects of the long-term O&M activities and, specifically, considers the resource protection aspects of the long-term O&M.

4.4.1 Resource Protection

Groundwater. Groundwater is removed from the overburden and bedrock to contain the plume of contamination. This represents a depletion of groundwater resources in the area; however, most if not all of water use in the area is supplied by the local drinking water supply system.

Surface water. Treated groundwater is added to the swale near the treatment plant. Surface water resources are not depleted.

Air. There are no impacts to air resources as there is no discharge of air at this location.

Land. Currently there is a Site Management Plan in development for this site and any land-use-restrictions will be outlined in this plan. It is anticipated that some land-use restrictions will be recommended. Spent activated carbon, trash, and spent filter bags are generated from the treatment plant operations on a routine basis. Spent activated carbon and filter bags are sent for landfill disposal.

5.0 EVALUATION OF POTENTIAL MODIFICATIONS

This section presents MACTEC's recommendation for implementation of measures to: 1) achieve remedial action objectives; 2) improve system performance; and/or 3) improve sustainability. Some of the recommendations can be placed in more than one category, but are described in only one. When possible, opinions of probable cost ranges are presented based on MACTEC's experience. These estimates should be viewed only as order of magnitude costs to screen options for further consideration and not for budgeting purposes.

5.1 EVALUATION OF OPTIONS TO ACHIEVE THE REMEDIAL ACTION OBJECTIVES

Options to achieve or accelerate site closure generally cover additional site analysis and/or remedial actions that could potentially accelerate cleanup or development of alternative cleanup criteria that are protective of human health and the environment such that site closure can be achieved sooner than would otherwise be possible. These measures generally require an initial investment of additional capital for site characterization, equipment, or additional remedial actions with the goal of reducing life-cycle costs by eliminating future O&M costs. Site closure refers to a site condition in which protection of human health and the environment has been achieved and will be maintained without further monitoring or remedial actions.

5.1.1 Source Reduction/Treatment

As described in the MACTEC CSM and Data Gap Review letter, evidence of potential residual sources of contamination exists at the Site. Additional source area treatment may help to significantly reduce residual mass; however, such treatment needs to be based on a thorough characterization of the quantity and location of the residual mass. Current groundwater concentrations point to an incomplete understanding of the nature and distribution of contamination.

MACTEC recommends additional characterization of suspected residual source areas as described in the MACTEC CSM and Data Gap Review letter. This data could be used to develop an

understanding of the quantity and location of residual source material. It should be noted that, the amount of total VOCs removed from 2009 to 2014 is estimated to be thirty-seven pounds. Additional data gathering is recommended to estimate the mass of contaminant remaining for comparison to the mass removed. An assessment of the potential benefit to overall site remediation time frames would follow to evaluate whether further source mass removal or partial mass removal offers a significant reduction in overall remediation timeframe. If such a benefit exists, source area treatment would be conducted. Typically, applicable source area treatments for chlorinated solvents in overburden or bedrock include chemical oxidation or reduction, bioremediation, or thermal technologies. It should be noted that as part of the FS, these treatment technologies were not further evaluated as alternatives to a final remedy due to the potentially significant impacts to the then potable water groundwater supply. Also the technologies were fairly new at the time of the FS and not widely used, leading to a conclusion that there was not enough data to determine applicability to this site. Considering that the potable water is now supplied by a public water supply system and the aforementioned treatment technologies are widely accepted, an alternate remedial program can be evaluated and potentially implemented.

Additional source investigation, assessment, and reporting are likely to cost in the range of $40,000 to $60,000. Source area treatment costs, depending on extent of treatment required could range significantly from $200,000 to $2,000,000.

5.1.2 Treatment System Performance

As stated in Section 4.4.2, the treatment system is performing as designed. However, based on influent concentrations, the treatment system has not furthered the progress toward achieving the remedial action objectives (RAOs). As can be seen in Figure 5.1, the influent concentrations of PCE fluctuate over time, the R^2 value is close to a value of zero, indicating that there is no clear association of concentrations to time and, therefore, no clear trend can be established at this time. A trend line with an R^2 value closer to 0.6 or above would be more favorable to indicate a valid trend.

Further evaluation of the pumping wells would be necessary to evaluate whether the pump and treat system should remain in service. It is recommended that any additional evaluation of the pumping wells would be in concert with the recommendations for additional evaluations of the

monitoring network described in the MACTEC CSM & Data Gap Review letter. Additionally, as stated in the CSM & Data Gap Review Letter, additional data is needed to fully understand the contaminant pathways and hydraulic properties of the Site. This data gathering effort would be used to update the CSM and would have a significant impact on the path forward for evaluation of alternate remedial actions. Therefore, it is recommended that the current treatment system be temporarily shut-down for a period of time as part of the data gathering effort. A system shutdown would allow for an opportunity to evaluate the concentrations at the extraction wells and the monitoring network under non-pumping conditions. If the data gathering effort outlined in the CSM and the proposed shut-down outlined above reveal that the pump and treat system has had no beneficial effect on hydraulic control, then the system should remain in shut-down and be decommissioned. In this scenario, the data gathered as part of the CSM update could also be used to evaluate alternate remediation technologies.

However, if the data gathering effort reveals that the system can be utilized alone or in conjunction with another remedial technology, then the following items would be addressed prior to system start-up:

- Evaluation of new controls and transducer operations
- Chemical addition to reduce iron fouling
- Addition of variable frequency drives or flow control valves to reduce pump cycling and reduce the iron-bacteria
- Evaluate continued use of carbon of as the treatment technology

It is additionally recommended that as Plant #2 has been shut-down and electricity disconnected, and that the surrounding communities are on public water supply, the plant be decommissioned and the PW-1 and PW-2 pumps, piping and wiring be removed.

5.1.3 Monitoring Modifications

To improve evaluation of the performance of the remedy additional data would be beneficial to address data gaps in the groundwater monitoring network. Recommendations for additional data gathering are discussed in the MACTEC CSM & Data Gap Review letter.

5.2 EVALUATION OF OPTIONS TO IMPROVE SUSTAINABILITY

Options to improve sustainability cover those measures that can be implemented to reduce energy consumption or impacts on natural resources. The option presented in this subsection is focused on alternative energy solutions for electricity.

5.2.1 Change to Green Electricity Supply Option

Electric utility deregulation provides an option to purchase power from alternative sources which can be renewable or green sources. Although the cost is typically higher, selection of an alternative supplier with a higher percentage of electricity generated by green or renewable sources would improve sustainability.

6.0 RECOMMENDATIONS FOR IMPLEMENTATION

This section summarizes the recommendations pursuant of the evaluations of the prior sections. These recommendations also include the summarized recommendations from the CSM and Data Gap letter report found in Appendix A.

6.1 RECOMMENDATIONS FOR IMMEDIATE IMPLEMENTATION

Recommendations for immediate implementation include those measures that are having a short payback period, or address critical safety or maintenance issues. MACTEC recommends the following under this category:

1. Direct-push sampling (as evaluated in Appendix A) should be completed in and around MW-12S and RW-2D to:
    a. collect soil and/or groundwater grab samples to evaluate areas of potentially high concentration of residual contamination;
    b. conduct in-situ permeability testing to evaluate the viability of direct-injection of oxidant or other treatment reagents; and
    c. determine the viability of using direct-push drilling equipment as a means for potential injection of reagents.
2. If deep soil contamination is confirmed, consideration should be given to coring the underlying weathered bedrock and collect samples of rock matrix for extraction and chemical analysis for VOCs.

6.2 RECOMMENDATIONS FOR NEAR FUTURE IMPLEMENTATION

Recommendations in this category include those measures to improve site characterization, maintenance, and system performance that are not of a time critical nature such they can be scheduled when convenient to the project. MACTEC recommends the following under this category:

1. Two additional wells should be installed at the MW-7S/7D cluster to monitor the zone directly above the bedrock and within the weathered bedrock.
2. One additional well should be installed at the MW-9S/9D cluster to monitor deep bedrock. This bedrock should be cored and samples of rock matrix should be collected for extraction and chemical analysis for VOCs.

3. Re-characterize the bedrock based on existing data and new observations. Re-assess groundwater flow characterization and evaluate the need for additional monitoring wells for both overburden and bedrock.
4. Shutdown the groundwater extraction and treatment system to further evaluate the effectiveness of the treatment plant in regards to hydraulic control.
5. Switch to green electricity supply.

6.3 RECOMMENDATIONS FOR IMPLEMENTATION AT FUTURE OPPORTUNE TIME

Recommendations in this category include measures that have higher capital cost, require additional cost/benefit analysis, or are best implemented based on external circumstances. MACTEC recommends the following under this category:

1. Dependent upon source investigation results, it is recommended to evaluate alternate source area treatment technologies and conduct pilot studies to implement alternate remediation technologies to ultimately meet the RAOs.
2. Depending on the results of the data gap field activities, decommission and demolish Plant #2 to remove potential liability issues with leaving the plant in its current state. The associated wells, PW-1 and PW-2, should have their pumps and piping removed. Depending on the results of data gap field activities, these wells may be subsequently decommissioned or converted into monitoring wells.

7.0 REFERENCES

Lawler, Matusky, and Skelly Engineers, LLP, 1995. Feasibility Study, Baldwin Place Mall, Somers, NY. June.

MACTEC, 2014. CSM and Data Gap Review letter report, Baldwin Place Mall Site, Somers, New York. April.

New York State Department of Environmental Conservation (NYSDEC), 2007. SPDES Permit Equivalent Effluent Criteria for the Baldwin Place Shopping Center Memorandum. March.

New York State Department of Environmental Conservation (NYSDEC), 1995. Baldwin Place Shopping Center Site, Site Number 3-60-023, Town of Somers, Westchester County. New York, Record of Decision. November.

Vincent Uhl Associates, Inc, 1994. Draft Final Remedial Investigation, Baldwin Place Mall, Somers, NY. August.

FIGURES

Putnam County color digital orthoimagery (2013) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

N

0 100 200 Feet

Legend

- Approximate Location Bedrock Well
- Approximate Location Overburden Well

Prepared/Date: BRP 05/14/14
Checked/Date: SEW 05/14/14

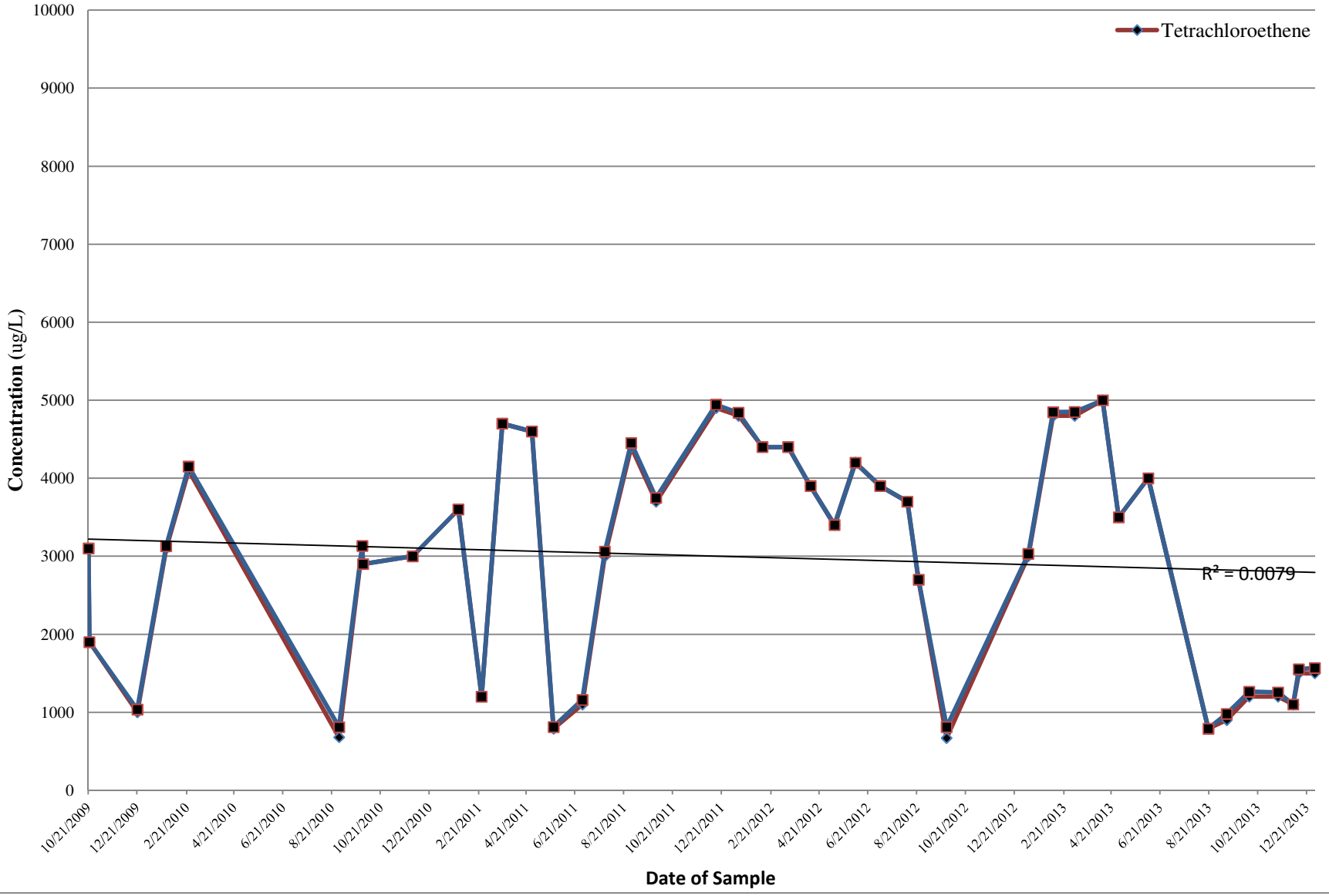
BALDWIN PLACE
SOMERS, NEW YORK

MACTEC

Site Map

Project 3617137308 Figure 1.1

Figure 5.1: Plant 1 Influent
PCE/Total VOCs Removal Rate



TABLE

Table 4.1
Plant 1 Effluent Results

Client Sample ID		Plant 1 Effluent		Plant 1 Effluent		Plant 1 Effluent		Plant 1 Effluent	
Lab Sample ID		091021055-004		091124059-004		091222047-004		100126034-004	
Sample Date		10/21/2009		11/23/2009		12/21/2009		1/26/2010	
Parameter	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Dichlorodifluoromethane	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Chloromethane	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Vinyl chloride	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Bromomethane	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Chloroethane	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Trichlorofluoromethane	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
1,1-Dichloroethene	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Methylene chloride	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
trans-1,2-Dichloroethene	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
1,1-Dichloroethane	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
cis-1,2-Dichloroethene	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Chloroform	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
1,1,1-Trichloroethane	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Carbon tetrachloride	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
1,2-Dichloroethane	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Trichloroethene	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
1,2-Dichloropropane	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Bromodichloromethane	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
cis-1,3-Dichloropropene	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
trans-1,3-Dichloropropene	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
1,1,2-Trichloroethane	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Tetrachloroethene	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Dibromochloromethane	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Chlorobenzene	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Bromoform	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
1,1,2,2-Tetrachloroethane	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
1,3-Dichlorobenzene	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
1,4-Dichlorobenzene	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
1,2-Dichlorobenzene	ug/L	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
Total VOC[1]		< 1.0		< 1.0		< 1.0		< 1.0	

Notes:

1. Total VOCs represents the numerical sum of all individual compound concentrations, rounded to the nearest integer.

BOLD - Detected concentrations are presented in bold font.

J – Analyte detected below quantitation limit

B- Analyte detected in Blank

M – Matrix Spike outside acceptable limits

D - Concentration is based on a diluted sample analysis.

U - The compound was analyzed for but not detected. Associated value is the compound quantitation limit.

VOC - volatile organic compound

Table provided by Aztech Technologies

Table 4.1
Plant 1 Effluent Results

Plant 1 Effluent 100223032-004 2/23/2010		Plant 1 Effluent 100831047-004 8/30/2010		Plant 1 Effluent 100929060-004 9/28/2010		Plant 1 Effluent 101027046-004 10/27/2010		Plant 1 Effluent 101130044-004 11/30/2010		Plant 1 Effluent 110123035-001 1/26/20111	
Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0	

Table 4.1
Plant 1 Effluent Results

Plant 1 Effluent 110224037-001 2/24/2011		Plant 1 Effluent 110330055-003 3/22/2011		Plant 1 Effluent 110428062-001 4/28/2011		Plant 1 Effluent 110525057-001 5/25/2011		Plant 1 Effluent 110630054-001 6/30/2011		Plant 1 Effluent 110728050-001 7/28/2011	
Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0	

Table 4.1
Plant 1 Effluent Results

Plant 1 Effluent 11083063-003 8/30/2011		Plant 1 Effluent 110930047-001 9/30/2011		Plant 1 Effluent 111223035-01 12/14/2011		Plant 1 Effluent 120112070-001 1/11/2012		Plant 1 Effluent 120210068-001 2/10/2012		Plant 1 Effluent 120313060-001 3/13/2012	
Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
2.9 B	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0	

Table 4.1
Plant 1 Effluent Results

Plant 1 Effluent 120410026-001 4/10/2012		Plant 1 Effluent 120510053-001 5/10/2012		Plant 1 Effluent 120605027-001 6/5/2012		Plant 1 Effluent 120706047-001 7/6/2012		Plant 1 Effluent 120809038-001 8/9/2012		Plant 1 Effluent 120823050-001 8/23/2012	
Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	**1.0 B**	1
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< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0	

Table 4.1
Plant 1 Effluent Results

Plant 1 Effluent 120928005-001 9/27/2012		Plant 1 Effluent 121204041-001 12/4/2012		Plant 1 Effluent 130107036-001 1/7/2013		Plant 1 Effluent 130212039-001 2/7/2013		Plant 1 Effluent 130306068-001 3/6/2013		Plant 1 Effluent 130410068-001 4/10/2013	
Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0	

Table 4.1
Plant 1 Effluent Results

Plant 1 Effluent 130501008-001 4/30/2013		Plant 1 Effluent 130606062-001 6/6/2013		Plant 1 Effluent 130820040-001 8/20/2013		Plant 1 Effluent 130913056-001 9/12/2013		Plant 1 Effluent 131010059-001 10/10/2013		Plant 1 Effluent 131115056-001 11/15/2013	
Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1	< 1.0	1
< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0	

Table 4.1
Plant 1 Effluent Results

Plant 1 Effluent 131211047-001 12/11/2013		Plant 1 Effluent 131231034-001 12/31/2013	
Result	Qualifier	Result	Qualifier
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0	1	< 1.0	1
< 1.0		< 1.0	

APPENDIX A

MACTEC CSM AND DATA GAP REVIEW REPORT

MACTEC

engineering and constructing a better tomorrow

May 13, 2014

Larry Thomas
Remedial Bureau E, Section A
NYSDEC Division of Environmental Remediation
625 Broadway, 12th Floor, Albany, NY12233-7017

RE: Conceptual Site Model (CSM) and Data Gap Review
Baldwin Place Shopping Center, NYSDEC – Site No. 360023
MACTEC Engineering and Consulting, P.C., Project No. 3617137308

Dear Mr. Thomas:

This letter presents a Conceptual Site Model (CSM) a Data Gap Review and Recommendations for the Baldwin Place Shopping Center (Baldwin Place), NYSDEC Site 360023. The CSM is based on information that is currently available; it is considered a dynamic model that is expected to evolve and as new information becomes available. The CSM will be updated if and when additional information is obtained regarding site hydrogeology or chemistry.

SITE BACKGROUND

Baldwin Place is located in Somers, New York and was constructed in 1965. A dry cleaning establishment had always been present at the mall and, dry cleaning operations occurred on the mall property until November 1991 (Lawler, Matusky & Skelly Engineers [LMSE], 1995). In 1979, the Westchester County Health Department discovered dry cleaning chemicals and their breakdown products (tetrachloroethene [PCE], trichloroethene [TCE] and 1,2-dichloroethene) in the mall's two bedrock water supply wells (PW-1 and PW-2). In addition, two offsite areas were impacted by these site-related contaminants. These areas include part of the commercial area along Route 6 to the west, and part of the Meadow Park Road community (MPRC) to the southeast.

The Baldwin Place supply wells have a reported combined capacity of 115 gallons per minute (gpm). PW-1 is reported to be 260 feet deep and PW-2 is reported to be 400 feet deep. The water supply was treated by a granular activated carbon (GAC) filter system that was installed in April 1989 to remove the PCE and related contaminants. During the height of the mall operations, the supply wells were operating at a combined capacity of 20,000 gallons per day (gpd). By 1984 the mall operations had declined and the water consumption decreased to approximately 11,500 gpd. By 1993/1994, the demand for water was further reduced for the remaining tenants to approximately 5,700 gpd.

The original building in which the dry cleaner resided no longer exists and has been replaced by a shopping plaza. Following closure of the dry cleaners, Point of Entry Treatment (POET) systems were installed at nearby MPRC private residences affected by the contamination.

A Remedial Investigation (RI) was conducted in 1994 by Vincent Uhl & Associates. A Feasibility Study was completed in 1995 (LMSE, 1995). The Record of Decision (ROD) was signed in 1995 (NYSDEC, 1995). The description of the selected remedy in the ROD outlines the following elements:

- Source Removal: An estimated 135 cubic yards (yd3) of highly contaminated soil behind the old dry cleaner was to be excavated to reduce the residual PCE concentration in the soil to 10 ppm.
- Groundwater Treatment: Two source area wells (RW-1S and RW-2D) were to be installed in the overburden (at the top of bedrock) and in weathered bedrock (down to the top of competent bedrock) within the source area to collect contaminated groundwater and treat it via carbon filtration. The filtration system is housed in a treatment building referred to as "Plant 1". Effluent from Plant 1 was to be discharged to the nearby stream.
- Supply of Potable Water: Big V, the potential responsible party (PRP) has two options for providing potable water to the impacted homes along Meadow Park Road (MPR): 1) install a water supply distribution system and fund and create a new water district incorporating the existing shopping center's production wells. The GAC filter systems in use on twelve private wells along MRP will be maintained until the new system is in place; 2) maintain the GAC filters at the MPR residences until the regional water supply system is commissioned.
- Connection to Alternative Water Supply: The distribution system and certain appurtenances will be designed to be an integral part of the Town's proposed regional water supply system. The PRP will obtain approval of its plans, specifications and construction from the Town Engineer and the Westchester County of Health.

- Contingency Plan: Numerical groundwater quality goals were to be established during the remedial design to evaluate, on a yearly basis, the effectiveness of the remedy. Additional remedial actions will be taken if results fall significantly short of the goal.

The remediation goals set forth in the ROD include:

- Prevent exposure to contaminated soil;
- Prevent continued degradation of groundwater quality through migration of PCE and its break down products from soils to groundwater;
- Prevent exposure (inhalation, ingestion, and dermal) to contaminated groundwater;
- Restore groundwater quality (impacted by PCE and breakdown products) to acceptable levels within a reasonable time frame; and
- Prevent migration and discharge of site contaminants in groundwater to adjacent surface water bodies.

In 1997, Lawler Matusky and Skelly completed excavation of contaminated soil in the alley way behind the dry cleaner; approximately 138 cubic yards (236 tons) of soil were removed from the excavation. In 2009, a second round of soil borings was completed in and around the former soil excavation area (Attachment 1). Eight soil borings were completed and samples analyzed were non-detect for site-related COCs except for SB-09-04A located outside the area of excavation. The maximum sample depth was only 20 feet and did not encounter bedrock; there is approximately 45 feet of soil from the bottom of the excavation to the top of the weathered bedrock; it is likely that much of this soil is contaminated.

Plant 1 was built in 1998 and consisted of a GAC filtration system to treat contaminated groundwater in the source area that was being supplied to the treatment system from an overburden extraction well (RW-1S) and a shallow weathered bedrock well (RW-2D). Plant 1 is still operating today.

Plant 2 was built in 1999 and operated until 2011 utilizing existing Mall bedrock supply wells PW-1 and PW-2 and a similar GAC treatment system. Late in 1999, treated water from Plant 2 was used to supply water to residences located along Meadow Park Road. In 2001, the MPRC neighborhood went on municipal water but PW-1 and PW-2 remained in operation with the goal of partially capturing and treating impacted groundwater. In 2011, Plant 2 started experiencing

contaminant breakthrough in its carbon vessels; therefore, the Plant was turned off and the vessels were cleaned out. PW-1 and PW-2 are no longer being used to extract groundwater.

CONTAMINANTS OF CONCERN (COCs)

The contaminant PCE was used as a cleaning solvent at the former dry cleaners located in the mall. PCE under the right conditions will degrade to trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), 1,1-dichloroethene (1,1-DCE), vinyl chloride (VC) and eventually ethene.

The primary contaminant at the site is PCE. The breakdown products TCE and cis-1,2-DCE have also been detected in both the overburden and bedrock groundwater systems, although the concentrations have been low in comparison to PCE indicating that the degradation process is not robust. In the source area extraction wells, PCE, TCE and 1,1-DCE were detected in May 2012 in RW-1S at 640, 19 and 51 µg/L, respectively. In the bedrock extraction well, RW-2D, only PCE was detected (7600 µg/L) indicating that conditions are unfavorable for biologic degradation of PCE (Attachment 2). Several of the wells (MW-10D, MW-7D and MW-2D) have pH values above 9.0 suggesting the possibility that grout installed during the well construction may be affecting water quality in these wells.

The specific gravity of PCE and TCE in liquid form are both greater than 1.0, indicating that their density makes them "sinkers" with respect to groundwater. The equilibrium solubility of PCE and TCE in water are 200 mg/L and 1,100 mg/L, respectively. The question of whether Dense Non-Aqueous Phase Liquids (DNAPL) may be present at a site generally considers dissolved concentrations relative to solubility and the long held "1% rule" of thumb. DNAPL is suspected to be present when the concentration of a chemical in groundwater is greater than 1% of its pure-phase solubility. For PCE, 1% solubility is equal to 2,000 µg/L and PCE was detected in RW-2D at a concentration of 7600 ug/L, 3.8% of solubility. PCE was also detected in the source area overburden well MW-12S at a concentration of 2800 ug/L. These concentrations suggest that DNAPL may have been present at one time. However, given the time that has elapsed since the introduction of the PCE to the environment, it is also possible that the PCE is no longer present as a DNAPL, and may have dissolved and diffused at high concentrations into bedrock matrix and low K silts within soil. If residual DNAPL is still present it is unlikely to be mobile.

SOURCE AREAS and POINTS OF ENTRY (for the COCs)

A residual PCE source was identified in a former alleyway near the back door of the former dry cleaners. An area of soil approximately 12 feet deep was found to contain PCE as high as 1,200 mg/kg in the unsaturated soil and 4,500 mg/kg in soil below the water table. Borings that were completed to a depth greater than 15 feet generally showed a declining PCE concentration in soil with depth. As part of the remedy, soil was excavated to a depth of 10 to 15 feet across the area of impacted soil. Although 138 cubic yards of soil was excavated from this area, and confirmatory sampling at the limits of the excavation showed that the cleanup goal of 10 mg/kg was met, it is likely that the source of PCE found in the deeper overburden and shallow bedrock is the direct result of vertical migration of DNAPL from the shallow source area. It is possible that a point of entry may have occurred within the building, proximate to the former dry cleaning machine. No soil samples were collected from this approximate area following demolition of the former mall. New construction currently resides over the area of where the dry cleaner was located (i.e., Home Goods).

HYDROGEOLOGY AND CONTAMINANT DISTRIBUTION

Surface drainage over the eastern and southeastern portions of the site is to an unnamed north-to-south flowing stream (eastern stream) that is a tributary to the Muscoot River (Attachment 3). Surface drainage over the western portion of the site is to an unnamed south-to-north flowing stream (western stream) that begins just south of the mall, is diverted under the mall and parking lot and then flows into a relatively steep ravine and valley immediately north of Route 6 near McDonalds and the Exxon service station (LMSE, 1994).

The site is underlain by till, with the upper portion of the bedrock being described as a weathered and fractured gneiss. More competent gneiss is found below the weathered horizon. The description of the weathered bedrock presented in the Hydrogeologic Appendix in Support of Remedial Alternatives Evaluation suggests that it is saprolitic (LMSE, 1995). Below this weathered horizon it is reported that the bedrock is fractured and groundwater circulation is relatively significant (LMSE, 1995). A CSM is presented in the aforementioned Hydrogeologic

Appendix; however it is limited to a discussion of the hydrogeologic aspects of the site with no discussion given to the chemistry or contaminant distribution.

The former water supply wells for the Mall (PW-1 and PW-2), were completed to depths of 260 and 400 feet, respectively. The Mall supply wells can reportedly provide a combined capacity of 115 gpm, although their average combined pumping rate was 3.8 gpm (LMSE, 1994). Based on May 2012 water levels, bedrock groundwater flow beneath the source area is predominantly to the southwest (Figure 1). A groundwater mound (in both overburden and bedrock) exists in the vicinity of MW2S/2D. This mound may be caused by ponding of excessive runoff in that area including the adjacent hill slope to the east. The Mall's perimeter road drops to a topographic low along the southwest corner of the Mall property. March 2002 water level measurements were used to construct the potentiometric map shown on Figure 2. During this time-frame, PW-1 and PW-2 were actively pumping. The figure indicates that bedrock groundwater has a more southerly gradient under the influence of pumping PW-1 and PW-2. When PW-1 and PW-2 were pumping, and when the residential wells located along Meadow Park Road were in use, bedrock groundwater within the source area was to the south, toward PW-1 and PW-2 and Meadow Park Road (VUA, 1994).

In February 2013, Aztech Technologies, Inc. technicians deployed passive diffusion bag (PDB) groundwater samplers in extraction well PW-1 at depths of 115, 70, and 27 feet below the top of casing (TOC). PDB samplers were retrieved for analysis following one month of diffusion time. Analytical results from the top, middle, and bottom of the water column identified PCE concentration of 3.5, 4.1, and 4.7 µg/L, respectively. Concentrations of TCE were identified at 3.1, 6.0, and 6.4 µg/L, respectively. TCE at a concentration of 6.4 µg/L exceeds the NYS groundwater standard of 5 µg/L.

The presence of contamination in PW-1 is likely due to the effect of pumping at PW-1 and PW-2, which was recently terminated in 2011 due to GAC system breakthrough. Based on the potentiometric map (see Figure 1), site-related contaminants detected in this well are likely to continue migrating in a southwesterly direction. Given that PW-1 and PW-2 are no longer pumping, the absence of hydraulic stress throughout the deeper fractured rock will likely lead to the reduction of contaminants migrating vertically downward from the deeper overburden and shallow weathered bedrock within the source area into the deeper fractured bedrock.

The till within the source area consists of sandy silt and is approximately 60 feet in thickness. In general, the bedrock surface is sloping to the southeast with more than 70 feet of drop across the mall area (Figure 3). In contrast, ground surface slopes predominantly to the west with approximately 14 feet of drop across the mall. The saturated thickness of the till ranges from less to a foot along the western edge of the mall, to approximately 75 feet along the eastern portion of the mall. The operation of PW-1 and PW-2, and the use of residential wells in the MPRC neighborhood, resulted in the vertical and lateral spread of PCE in the bedrock aquifer in an easterly and southerly direction. The depth to water in the till ranges from approximately 5 feet in the southwestern portion of the site (i.e., at MW-2S) to 13 feet just west of the source area (i.e., at MW-7S). Based on May 2012 water level measurements, the direction of groundwater flow in the overburden is to the southwest. A groundwater mound previously described exists in the vicinity of MW2S/2D is also apparent in the overburden aquifer (Figure 4).

Following aquifer testing conducted on RW-1S and RW-2SD in 2006, it was determined that the overburden aquifer in the source area has two distinct permeability layers (HDR, 2007). For the purpose of this discussion:

- upper layer in the overburden will be referred to as “Zone 1;
- bottom portion of the overburden as “Zone 2;
- weathered bedrock zone as “Zone 3”;
- deeper fractured bedrock as “Zone 4”.

The shallow portion (Zone 1) extends from the water table to a depth of approximately 20 feet and MW-5S is completed in this zone. The deeper zone (Zone 2) is located at a depth of approximately 20 feet to the top of the weathered bedrock and MW-12S is screened across this zone (HDR, 2007). The permeability of the shallow zone is sufficiently high that pumping RW-1S has virtually no influence on the water level in MW-5S, which is located 35 feet away. In contrast, about 6 feet of drawdown was observed in MW-12S, one-third of the drawdown was reported to be due to pumping RW-1S and the remainder of the drawdown resulting from pumping RW-2D. Slug testing conducted as part of the aquifer testing determined that the hydraulic conductivity in MW-5S was approximately 10 ft/day whereas the hydraulic conductivity in MW-12S was significantly lower at 0.05 ft/day.

The specific capacity was measured in both RW-1S and RW-2D several times since 1997 as a measure of well performance. The highest value recorded in each well was 0.33 gpm/ft in RW-1S, and 0.25 gpm/ft in RW-2D. An empirical solution to approximate transmissivity from specific capacity data was used providing the following results:

- RW-1S (Transmissivity) = 88 ft^2/day (Zones 1 & 2);
- RW-2D = 66 ft^2/day (Zone 3).

Transmissivity for MW-5S and MW-12S was determined by the respective hydraulic conductivity values and substituting the screen length for the aquifer thickness term (in both cases the screen length = 20 feet):

- MW-5S = 200 ft^2/day (Zone 1);
- MW-12S = 1.0 ft^2/day (Zone 2).

RW-1S is screened across both permeability layers (Zone 1 & 2) in the overburden. Given the low transmissivity in Zone 2, the relatively high transmissivity in RW-1S is most likely due to significant inflow of water through the top portion of the well screen (i.e., Zone 1).

The highly weathered portion of the bedrock (Zone 3) in the source area is approximately 25 to 35 feet thick (Figure 5). Source area extraction well, RW-2D, is screened almost entirely in Zone 3. The most recent sampling of the extraction wells (May 2012) revealed a concentration of 7600 µg/L PCE in RW-2D (Aztech, 2013). In comparison, the highest concentration of PCE in the overburden extraction well (RW-1S – Zones 1 & 2) is 640 µg/L. Monitoring well MW-5S (Zone 1) had a PCE concentration of 25 µg/L for the same sampling period. MW-12S, which monitors Zone 2, contained PCE at a concentration of 2800 µg/L. MW-5S and MW-12S are approximately 34 feet and 30 feet from RW-1S, respectively. Based on the concentration of PCE detected in MW-12S compared to RW-1S, it appears that RW-1S is drawing a significant portion of its water from the upper portion of the screen that intersects Zone 1 (Figure 5). The cleaner water in Zone 1 (e.g., 25 µg/L in MW-5S) is likely diluting the more contaminated water that is entering lower in the screen in RW-1S (i.e., from Zone 2). Based on the PCE concentration in MW-12S, there appears to be significant residual contamination still remaining in the deeper till/overburden (i.e., Zone 2). Owing to the silty nature of the till in the deeper zone, the PCE source term in this zone is

likely be diffused into lower permeability silt layers with back diffusion controlling long term concentrations.

The May 2012 sample from RW-2D, which is screened in Zone 3, indicated a PCE concentration of 7600 µg/L was reported. This suggests that residual PCE contamination is present in the weathered bedrock. The concentration of 7600 µg/L exceeds the "1% Rule" by a factor of seven suggesting that DNAPL, or DNAPL-like concentrations, may be present. Given the length of time since the PCE was introduced into the environment, it is less likely that PCE is in a DNAPL form. It is more probable that the micaceous nature of the gneiss, combined with weathered bedrock horizon has created a highly fractured and weathered rock matrix with high porosity into which the PCE migrated and diffused. Low levels of organic carbon in the rock would also allow PCE to partition as a sorbed phase within that porosity, increasing the retention of mass in the matrix. What is likely occurring now is that the PCE is back diffusing from the weathered gneiss bedrock matrix. The back diffusion process will continue as a function of chemical equilibrium between the PCE contained within the fabric of the bedrock and the adjacent groundwater in the fractures.

The Baldwin Place Shopping Center is located at a relative topographic high. The vertical hydraulic gradient within the source area is downward. The downward vertical hydraulic gradient, coupled with denser-than-water COCs and extended pumping from bedrock wells PW-1 and PW-2 have resulted in the vertical migration of COCs through the overburden aquifer into the bedrock aquifer. Based on the high concentrations in weathered rock, it appears DNAPL migrated vertically downward into the weathered and fractured bedrock.

When the Mall's supply wells and nearby residential wells were operational, site-related COCs were drawn from the source area and made their way into the deeper, fractured bedrock flow system (i.e., Zone 4). The concentration of PCE in PW-1 (260 feet deep) and PW-2 (400 feet deep) was generally less than 100 µg/L. Similarly, numerous nearby residential supply wells located along Meadow Park Road (east-southeast of source area) had PCE concentrations detected at levels generally below 50 µg/L. The highest offsite (i.e., off-property) concentration of PCE was detected in the Cron's residential well (260 µg/L) in May-June of 1997. The Cron residence is located on Route 6 approximately 1100 feet west-northwest of the source area (Figure 1). Several private wells supplying potable water to businesses along Route 6 also contained PCE, although generally at a concentration less than 100 µg/L (Attachment 4). The hydraulic gradient of bedrock

groundwater is generally to the southwest and dissolved phase concentrations of PCE will move in that direction when there are no external hydraulic stresses. Groundwater pumping from surrounding wells contributed greatly to the lateral spreading of PCE in the bedrock aquifer.

Downgradient and cross-gradient from the source area, overburden monitoring wells MW-7S and MW-9S, which are both located west of the source area but on the Mall property (i.e., on-site), contain site-related COCs (PCE and TCE). Based on the current potentiometric maps, The MW-9S/9D well pair are located cross-gradient from the source area based on the May 2012 potentiometric surface map (Figures 1, 2 and 4). Although the current potentiometric surface map does not indicate that MW-9S/9D is downgradient from the source area, hydraulic influence from pumping wells located west and north-west of the Mall may have contributed to the migration of COCs in what appears to be a cross-gradient direction as evidenced by detection of PCE (3.8 µg/L) in MW-9S (Attachment 2). A shallow water level contour map completed as part of the RI Report suggests that shallow groundwater flows westward from the source area (Attachment 5). This interpretation places MW-9S/9D directly downgradient from the source area.

Only MW-7S contains a site-related COC (TCE 9 at µg/L) above the New York State drinking water standard of 5 µg/L. Vertical hydraulic gradients at the MW-7S/7D well pair are downward; however, the vertical gradient is upward at MW-9S/9D. The bottom of the well screen at MW-7S is approximately 12 feet above the top of bedrock and MW-7D is cased to a depth of 60 feet. Therefore, there is approximately 23 feet of weathered bedrock between the bottom of MW-7S and the beginning of the open-hole section in MW-7D that is not monitored by the existing well network (Figure 6). In contrast, both MW-9S and MW-9D are bedrock wells. The depth to bedrock at the MW-9S/9D location is between 6 and 11 feet. MW-9S is installed as a screened well from a depth of 10 to 30 feet. MW-9D was installed with casing down to a depth of 60 feet with the remainder of the boring left as an open hole to a depth of 90 feet. Because the boring was cased to a depth of 60 feet and that the shallow bedrock well was completed with a screen, it suggests that the rock from roughly at depth of 10 feet to 60 feet is either very weathered, or sufficiently fractured to require installation of a well screen and/or casing to keep the borehole open. As a result, there is approximately 30 feet of weathered bedrock between the bottom of MW-9S and the open-hole section of MW-9D that is not monitored by the existing well network. It is possible that contaminated groundwater at concentrations greater than that observed in the two

shallow downgradient wells (MW-7S and MW-9S) may exist in the weathered bedrock zone (i.e., Zone 3).

MIGRATION PATHWAYS

The near-surface contaminated soil within the source area was remediated, effectively eliminating any surface runoff pathway. Based on sampling of the surrounding monitoring wells, the extraction wells RW-1S and RW-2D appear to be containing the migration of PCE in the overburden and bedrock aquifer. However, as mentioned previously it is possible that the downgradient/cross-gradient monitoring well pairs (i.e., MW-7S/7D & MW-9S/9D) do not sufficiently monitor the weathered bedrock zone and that higher concentrations of COCs may be moving off site than currently indicated by recent sampling in MW-9S/9D.

The till consists predominantly of sandy silt and there were no direct observations to suggest that the till is fractured (i.e., Zones 1 & 2). In all likelihood, contaminant migration in the till will be controlled by the factors that govern porous media flow. As such, the movement of COCs in the till is likely to be slow. The weathered bedrock (Zone 3), if sufficiently weathered, may act as a porous media. However, it is more likely that the contaminant migration in the weathered bedrock zone will be analogous to a dual porosity model (i.e., fractured and porous media flow). Migration in the fractured bedrock (Zone 4) will be dependent on fracture aperture and hydraulic gradient. Depending on fracture aperture and interconnectedness, groundwater velocities in this zone can be quite high with respect to groundwater movement in Zones 1, 2 and 3.

EXPOSURE PATHWAYS

Public water is supplied to the Mall and surrounding residences and businesses; therefore, there is no current exposure to groundwater via ingestion. The near-surface contaminated soil has been removed, thus eliminating the potential direct contact threat to PCE-contaminated soil. Vapor intrusion is currently being monitored. The only nearby structure that has elevated subslab soil vapor is the Home Goods store, which is located immediately south of the source area. Indoor air criteria have not been exceeded in the Home Goods store; however, sub-slab and indoor air sample results from this building warrant further monitoring (Attachment 2). The building does not have a sub-slab depressurization system in place.

DATA GAPS

The following data gaps are identified based on review of existing data and development of an updated CSM.

- The location/area of the residual soil contamination has not been well defined. The vadose zone soil source area has been remediated; however, high concentrations of PCE have been continually detected in groundwater in MW-12S (Zone 2) and RW-2D (Zone 3). The source of extremely high dissolved concentrations of PCE in groundwater within these zones has not been defined or evaluated. In particular, the potential presence of PCE diffused into silts within Zone 2 and rock matrix within Zone 3 is unknown. Understanding this distribution is essential information needed to support future remedial decisions.
- The hydraulic properties of Zone 2 and Zone 3 are not sufficiently understood to evaluate remedial alternatives to control or mitigate contaminate mass and mobility. It may be possible to minimize residual contamination in these zones by technologies such as injection of oxidizing material. Knowing the permeability distribution within these zones is needed to evaluate applicability for other remedial options.
- Sampling results from monitoring well clusters MW-7S/7D and MW-9S/9D may not reflect the highest concentrations of site-related COCs because potentially important sections of the hydrostratigraphy are not monitored.

RECOMMENDATIONS

The following recommendations address issues surrounding the optimization of the existing pump and treat system, and monitoring well network.

- Plant 2 should be decommissioned. The wells associated with it (i.e., PW-1 & PW-2) should have their pumps and piping removed. Depending on the results of data gap field activities, they may be subsequently decommissioned or converted into monitoring wells.
- Two additional wells should be installed at the MW-7S/7D cluster to monitor the zone directly above the bedrock (i.e., bottom of Zone 2), and within the weathered bedrock (Zone 3).
- Because of the potential variability in overburden groundwater flow direction (refer to Figure 4 and Attachment 5), one additional well should be installed at the MW-9S/9D cluster to monitor the deeper portion of Zone 3 (i.e., from between 30 and 60 feet into bedrock). This bedrock should be cored and samples of rock matrix should be collected for extraction and chemical analysis for VOCs.
- Direct-push sampling should be completed in and around MW-12S and RW-2D to:

- collect soil and/or groundwater grab samples to evaluate areas of potentially high concentration of residual contamination in Zone 1 and Zone 2;
- conduct in-situ permeability testing to evaluate the viability of direct-injection of oxidant or other treatment reagents; and
- determine the viability of using direct-push drilling equipment as a means for potential injection of reagents.

- If deep soil contamination is confirmed, consideration should be given to coring the underlying weathered bedrock in Zone 3 and collect samples of rock matrix extraction and chemical analysis for VOCs.

Please do not hesitate to call me at 207-775-5401 if you have any questions regarding this deliverable.

Sincerely,

MACTEC Engineering and Consulting, P.C.

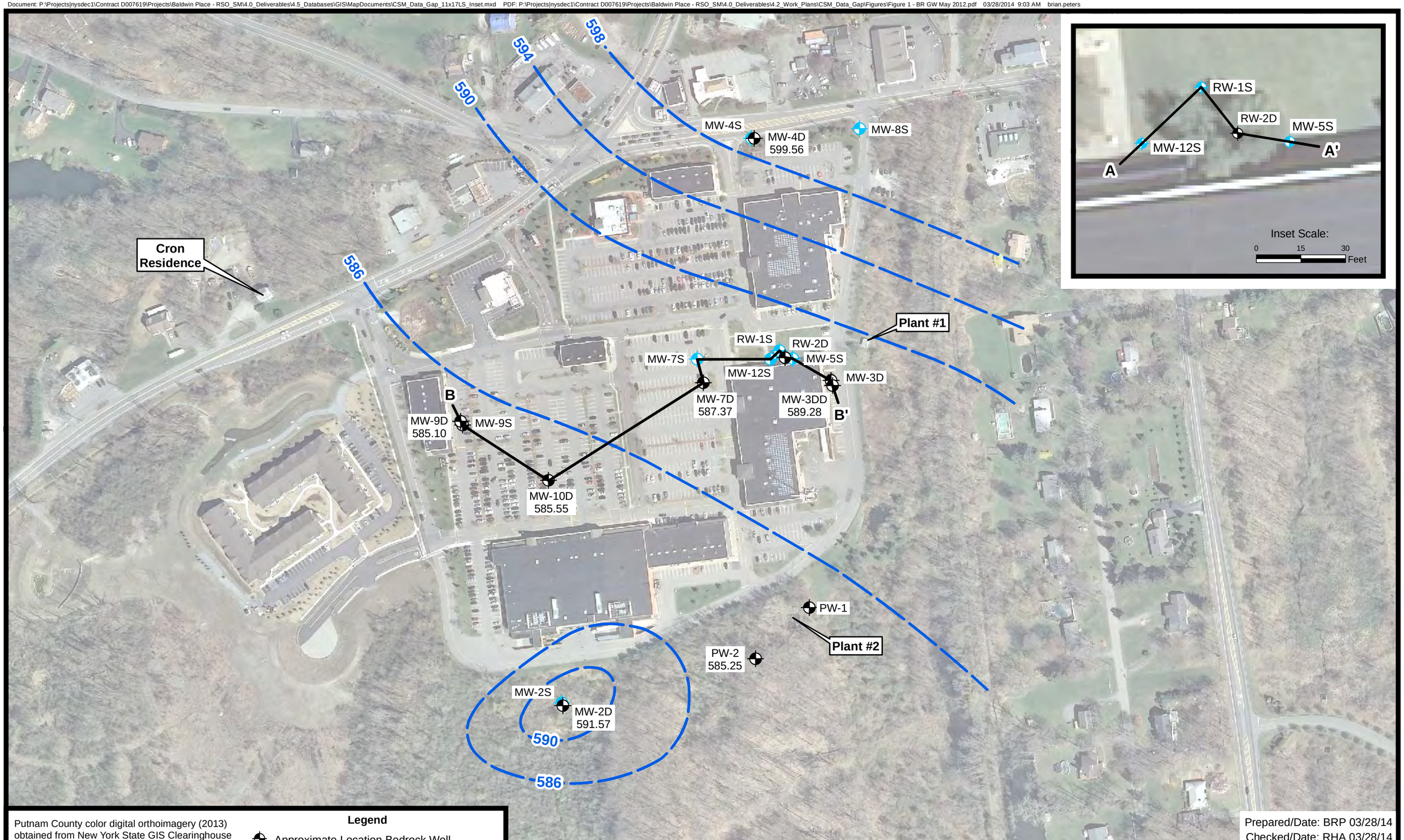
Jayme Connolly
Project Manager

Hank Andolsek, C.G.
Senior Hydrogeologist

Enclosures (5)

Attachment 1: Supplemental Soil Investigation
Attachment 2: Aztech Sampling Summary
Attachment 3: Surface Drainage Features
Attachment 4: NYSDEC Potable Well Sampling Results
Attachment 5: Shallow Water Level Contour Map

Document: P:\Projects|nysdec1\Contract D007619\Projects\Baldwin Place - RSO_SM\4.0_Deliverables\4.5_Databases\GIS\MapDocuments\CSM_Data_Gap_11x17LS_Inset.mxd PDF: P:\Projects|nysdec1\Contract D007619\Projects\Baldwin Place - RSO_SM\4.0_Deliverables\4.2_Work_Plans\CSM_Data_Gap\Figures\Figure 1 - BR GW May 2012.pdf 03/28/2014 9:03 AM brian.peters



Putnam County color digital orthoimagery (2013) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

N

0 110 220
Feet

Legend

- Approximate Location Bedrock Well
- Approximate Location Overburden Well
- Bedrock Groundwater Contour - May 2012
- Cross Section Orientation

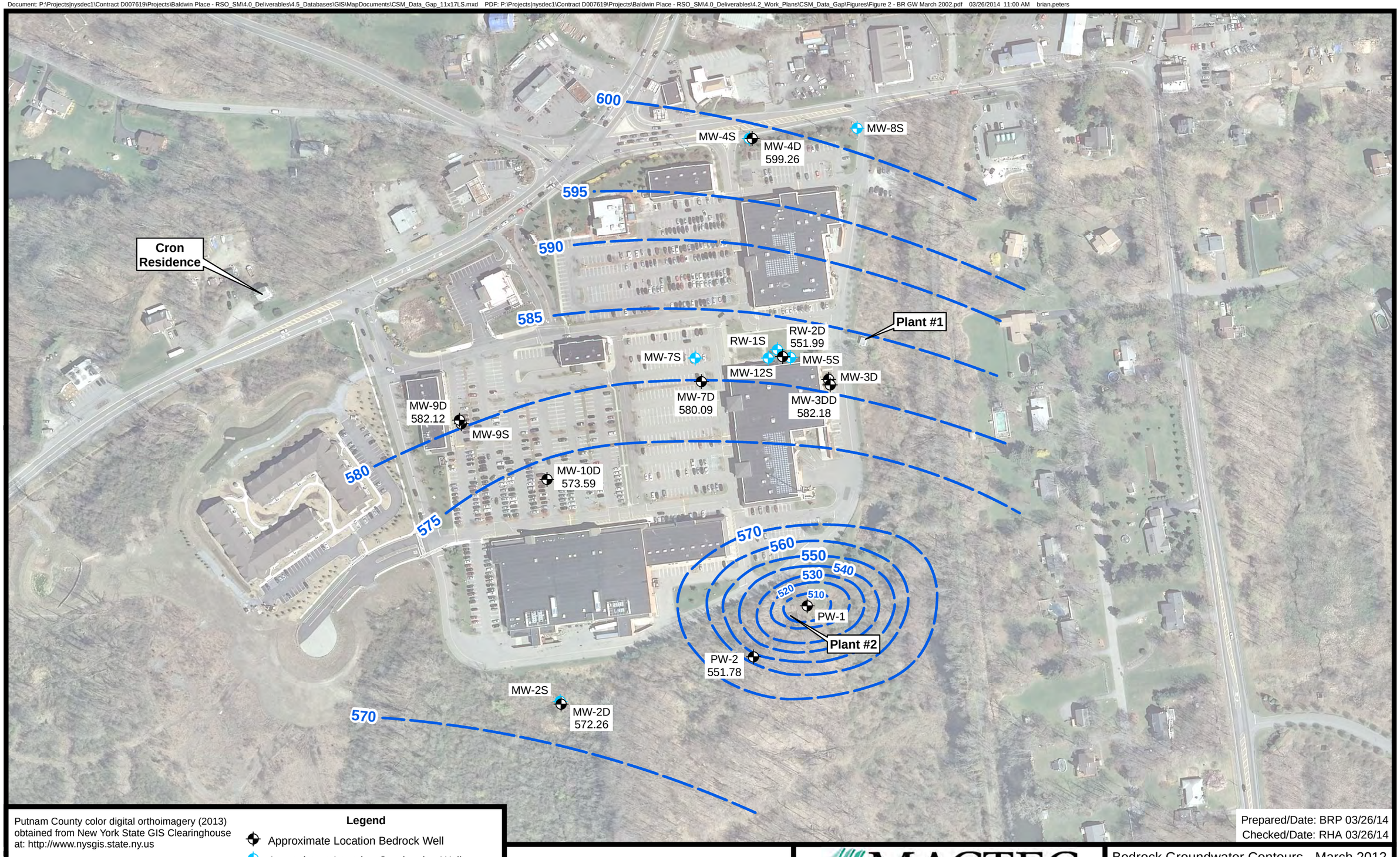
BALDWIN PLACE
SOMERS, NEW YORK

MACTEC

Bedrock Groundwater Contours - May 2012

Project 3617137308 Figure 1

Prepared/Date: BRP 03/28/14
Checked/Date: RHA 03/28/14



Putnam County color digital orthoimagery (2013) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

N

0 100 200 Feet

Legend

- Approximate Location Bedrock Well
- Approximate Location Overburden Well
- Bedrock Groundwater Contour - March 2002

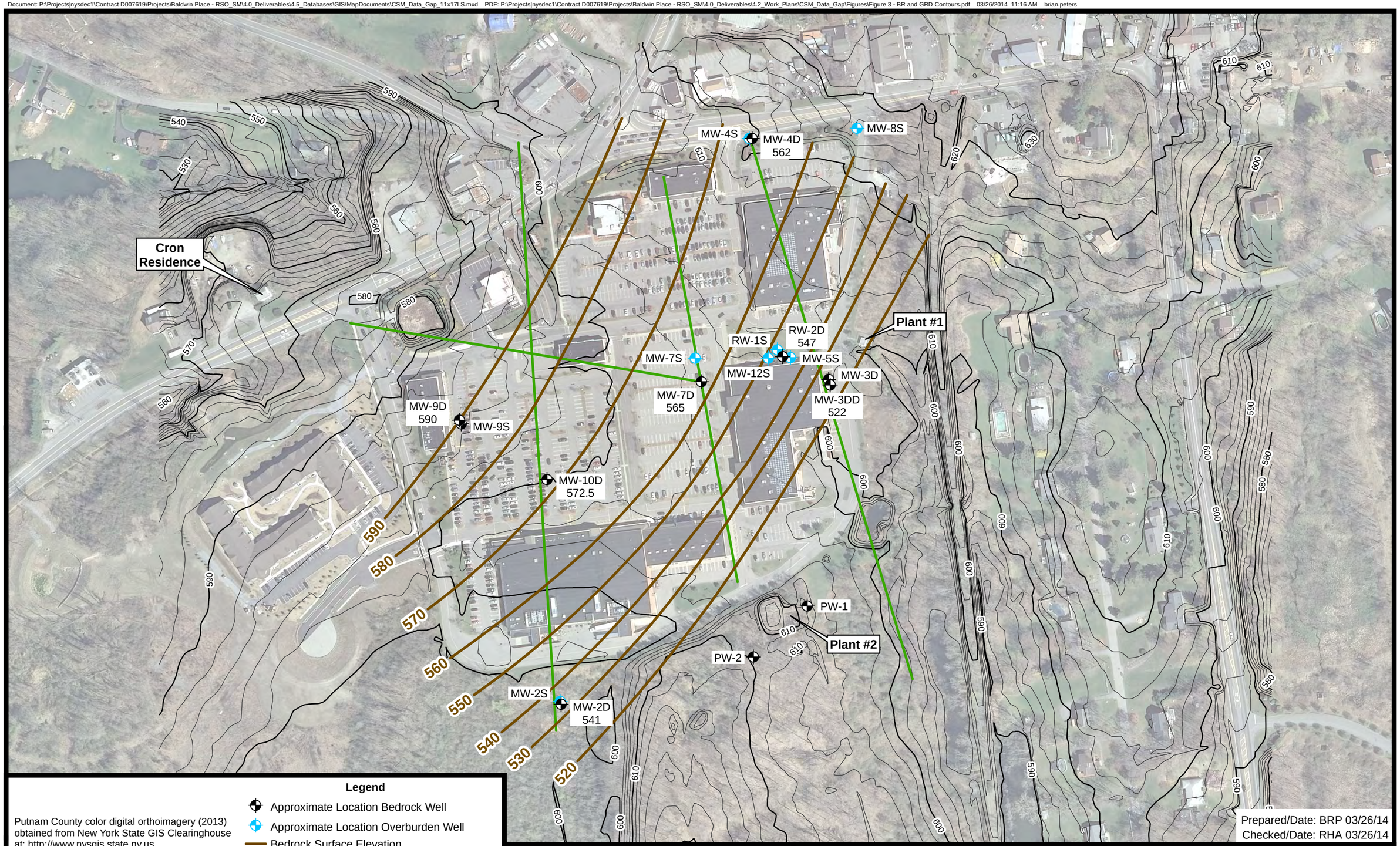
BALDWIN PLACE
SOMERS, NEW YORK

MACTEC

Bedrock Groundwater Contours - March 2012

Project 3617137308 Figure 2

Prepared/Date: BRP 03/26/14
Checked/Date: RHA 03/26/14



Legend

- Approximate Location Bedrock Well
- Approximate Location Overburden Well
- Bedrock Surface Elevation
- Bedrock Fracture Trace
- Ground Surface Elevation Contour (10 foot)
- Ground Surface Elevation Contour (2 foot)

Putnam County color digital orthoimagery (2013) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

N

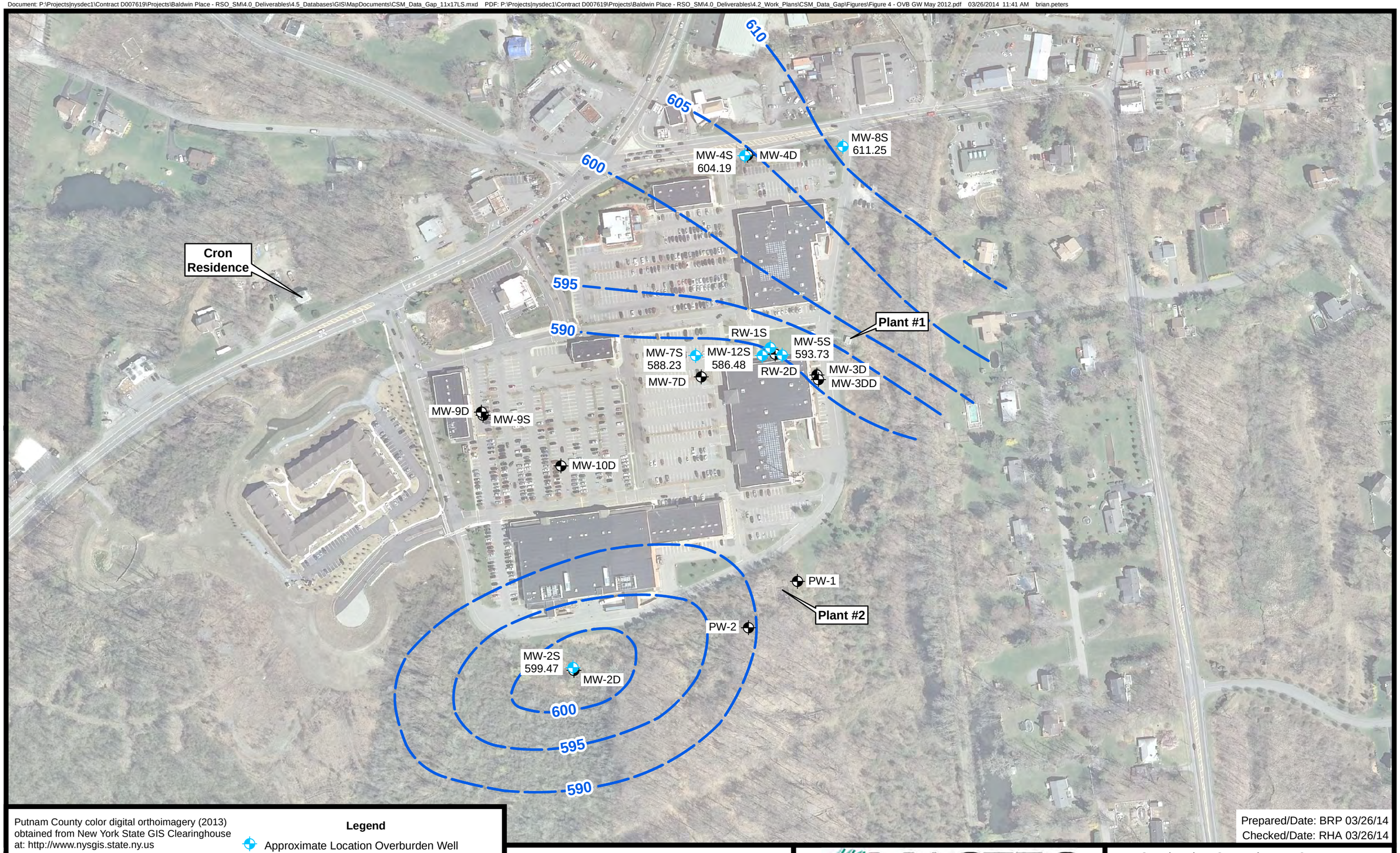
0 100 200 Feet

Prepared/Date: BRP 03/26/14
Checked/Date: RHA 03/26/14

BALDWIN PLACE
SOMERS, NEW YORK

MACTEC

Bedrock Surface and Ground Surface Contours
Project 3617137308 Figure 3



Putnam County color digital orthoimagery (2013) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

N

0 110 220 Feet

Legend

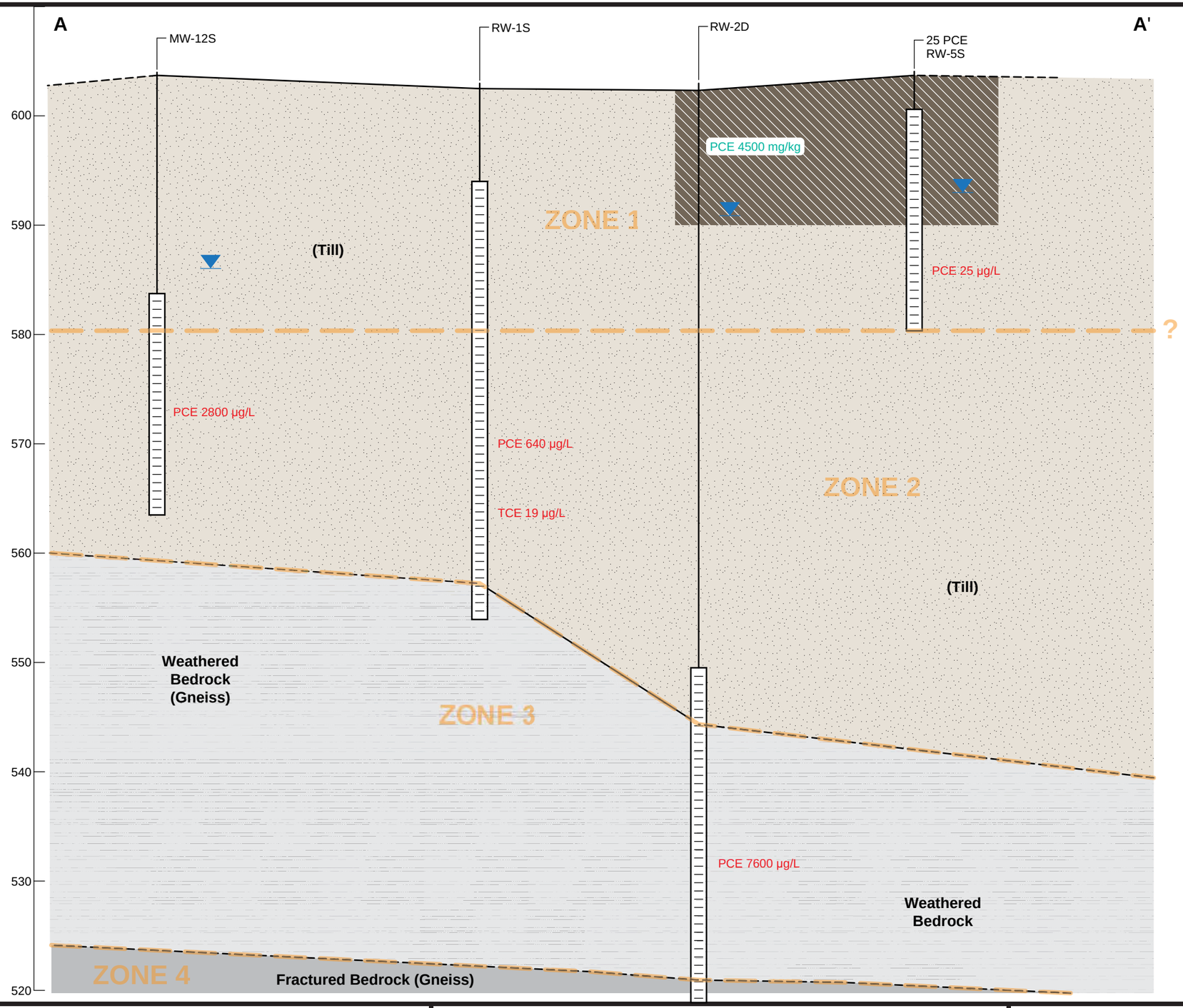
- Approximate Location Overburden Well
- Approximate Location Bedrock Well
- Overburden Groundwater Contour - May 2012

BALDWIN PLACE
SOMERS, NEW YORK

MACTEC

Overburden Groundwater Contours - May 2012
Project 3617137308 Figure 4

Prepared/Date: BRP 03/26/14
Checked/Date: RHA 03/26/14



Legend

- Excavated Soil Area
- Potentiometer Surface, May 2012
- PCE 2800 — Concentration in µg/L (May 2012)
- PCE 4500 — Soil Concentration in mg/kg

Prepared/Date: JPH 03/24/14
Checked/Date: HA 03/24/14

Baldwin Place Mall
Somers, New York

MACTEC

Cross-Section A-A'

Project 3617137308

Figure 5

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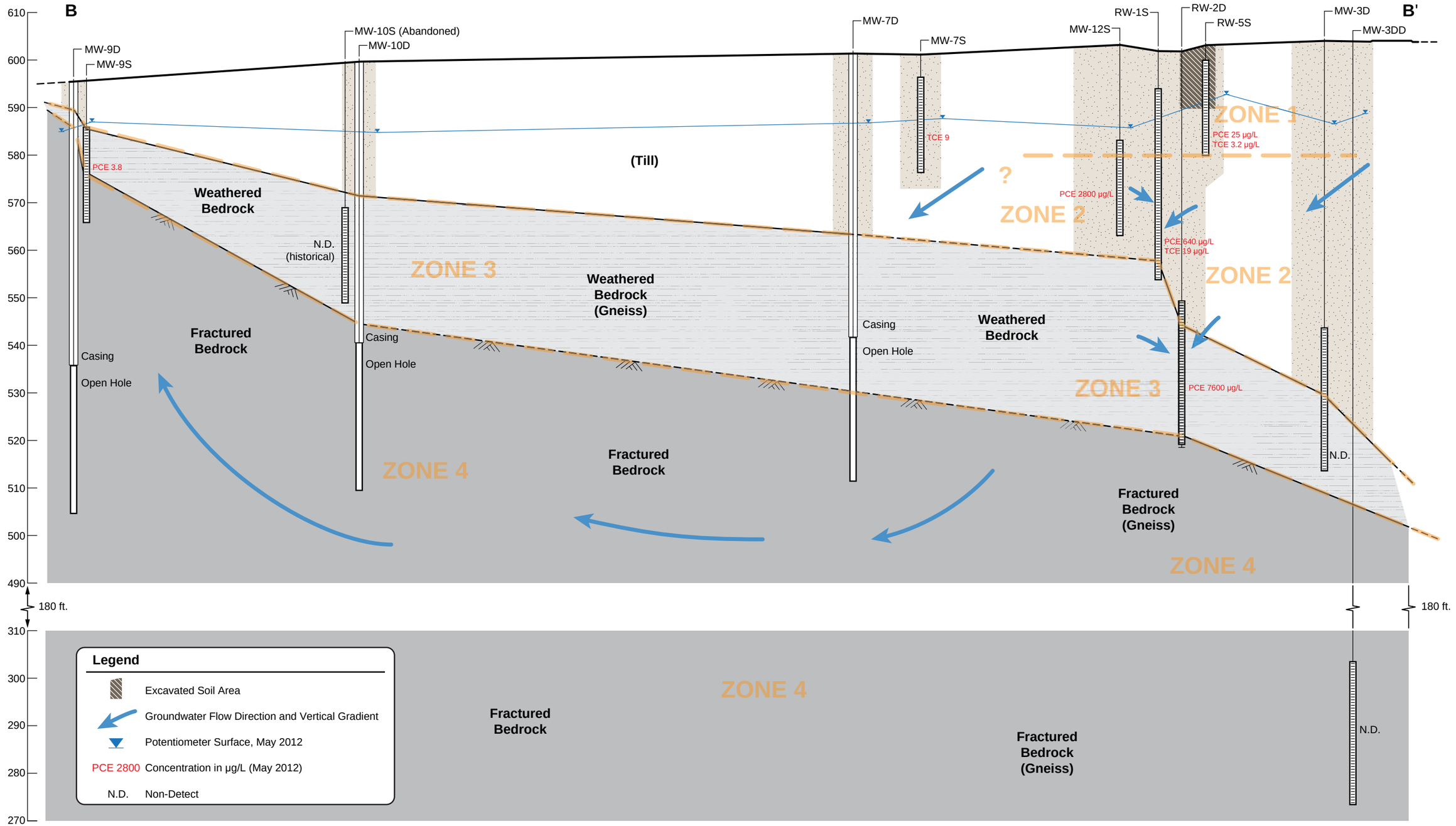

Prepared/Date: JPH 03/24/14
Checked/Date: HA 03/24/14

Baldwin Place Mall
Somers, New York

MACTEC

Cross-Section B-B'

Project 3617137308

Figure 6

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ATTACHMENT 1

SUPPLEMENTAL SOIL INVESTIGATION

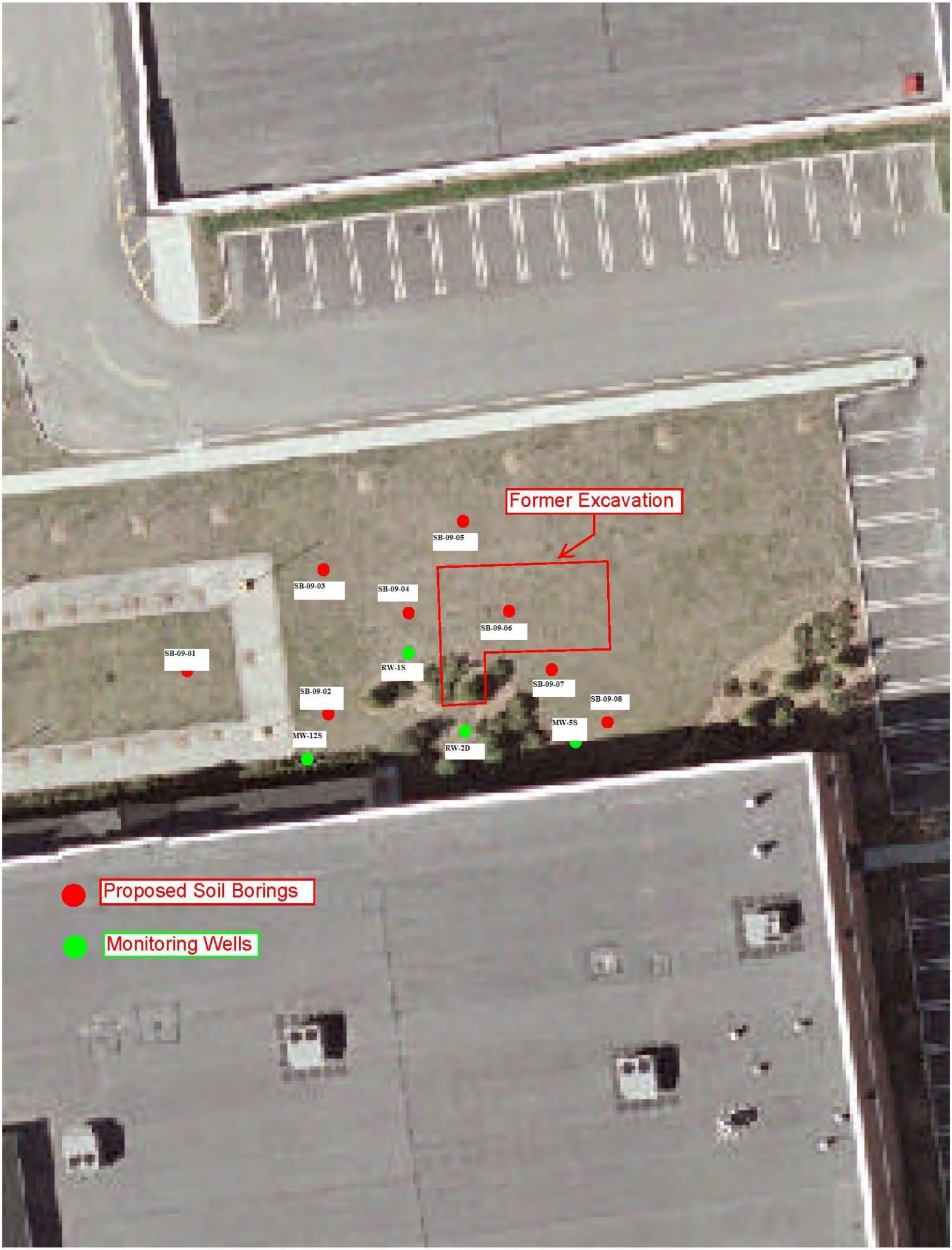
Former Excavation
SB-09-05
SB-09-03
SB-09-04
SB-09-06
SB-09-01
RW-1S
SB-09-07
SB-09-02
SB-09-08
MW-5S
MW-12S
RW-2D
Proposed Soil Borings
Monitoring Wells

Table 1
Abbreviations and Qualifiers Utilized in Result Tables

Abbreviation	Definition
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ppb	parts per billion
QC	Quality Control
SCO	Soil Clean-up Objective
ug/Kg	micrograms per kilogram.
VMSB	Volatile Matrix Spike Blank
VOC	Volatile Organic Compound

Qualifier	Definition
U	Compound not detected. The value listed is the detection limit.
J	Compound value is estimated.
B	Compound was also present in an associated blank sample.
D	Compound value reported is from a dilution analysis.

Table 2
Baldwin Place Mall Shopping Center
Soil Sampling - 11/09
Summary of VOC Results

	Site		SB-09-01	SB-09-01	SB-09-01	SB-09-01	SB-09-01	SB-09-01
	Sample ID		SB-09-01(4-6)	SB-09-01(6-8)	SB-09-DUP 1	SB-09-01(8-10)	SB-09-01(10-12)	SB-09-01(12-14)
	Date		11/9/2009	11/9/2009	11/9/2009	11/9/2009	11/9/2009	11/9/2009
	Depth (ft)	NY-SCO	6.00	8.00	8.00	10.00	12.00	14.00
	Result Type	Commercial	Primary	Primary	Duplicate	Primary	Primary	Primary
Constituent								
trans-1,2-Dichloroethene	(ug/Kg)	500,000	5.7 U	5.6 U	5.6 U	5.7 U	5.4 U	5.4 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	5.7 U	5.6 U	5.6 U	5.7 U	5.4 U	5.4 U
Trichloroethene	(ug/Kg)	200,000	5.7 U	5.6 U	5.6 U	5.7 U	5.4 U	5.4 U
Tetrachloroethene	(ug/Kg)	150,000	5.7 U	5.6 U	5.6 U	8.30	5.4 U	5.4 U

	Site		SB-09-01	SB-09-01	SB-09-01
	Sample ID		SB-09-01(14-16)	SB-09-01(16-18)	SB-09-01(18-20)
	Date		11/9/2009	11/9/2009	11/9/2009
	Depth (ft)	NY-SCO	16.00	18.00	20.00
	Result Type	Commercial	Primary	Primary	Primary
Constituent					
trans-1,2-Dichloroethene	(ug/Kg)	500,000	5.4 U	5.4 U	5.5 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	5.4 U	5.4 U	5.5 U
Trichloroethene	(ug/Kg)	200,000	5.4 U	5.4 U	5.5 U
Tetrachloroethene	(ug/Kg)	150,000	5.4 U	5.4 U	5.5 U

Table 2
Baldwin Place Mall Shopping Center
Soil Sampling - 11/09
Summary of VOC Results

	Site		SB-09-02	SB-09-02	SB-09-02	SB-09-02	SB-09-02	SB-09-02
	Sample ID		SB-09-02(2-4)	SB-09-02(4-6)	SB-09-02(6-8)	SB-09-02(8-10)	SB-09-02(10-12)	SB-09-02(12-14)
	Date		11/9/2009	11/9/2009	11/9/2009	11/9/2009	11/9/2009	11/9/2009
	Depth (ft)	NY-SCO	4.00	6.00	8.00	10.00	12.00	14.00
	Result Type	Commercial	Primary	Primary	Primary	Primary	Primary	Primary
Constituent								
trans-1,2-Dichloroethene	(ug/Kg)	500,000	5.5 U	5.6 U	5.7 U	5.6 U	5.4 U	5.5 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	5.5 U	5.6 U	5.7 U	5.6 U	5.4 U	5.5 U
Trichloroethene	(ug/Kg)	200,000	5.5 U	5.6 U	5.7 U	5.6 U	5.4 U	5.5 U
Tetrachloroethene	(ug/Kg)	150,000	5.5 U	5.6 U	5.7 U	5.6 U	5.4 U	5.5 U

	Site		SB-09-02	SB-09-02	SB-09-02
	Sample ID		SB-09-02(14-16)	SB-09-02(16-18)	SB-09-02(18-20)
	Date		11/9/2009	11/9/2009	11/9/2009
	Depth (ft)	NY-SCO	16.00	18.00	20.00
	Result Type	Commercial	Primary	Primary	Primary
Constituent					
trans-1,2-Dichloroethene	(ug/Kg)	500,000	5.5 U	5.5 U	5.5 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	5.5 U	5.5 U	5.5 U
Trichloroethene	(ug/Kg)	200,000	5.5 U	5.5 U	5.5 U
Tetrachloroethene	(ug/Kg)	150,000	5.5 U	5.5 U	5.5 U

Table 2
Baldwin Place Mall Shopping Center
Soil Sampling - 11/09
Summary of VOC Results

	Site		SB-09-03	SB-09-03	SB-09-03	SB-09-03	SB-09-03	SB-09-03
	Sample ID		SB-09-03(4-6)	SB-09-03(6-8)	SB-09-03(8-10)	SB-09-03(10-12)	SB-09-03(12-14)	SB-09-03(14-16)
	Date		11/9/2009	11/9/2009	11/9/2009	11/9/2009	11/9/2009	11/9/2009
	Depth (ft)	NY-SCO	6.00	8.00	10.00	12.00	14.00	16.00
	Result Type	Commercial	Primary	Primary	Primary	Primary	Primary	Primary
Constituent								
trans-1,2-Dichloroethene	(ug/Kg)	500,000	5.7 U	5.6 U	5.6 U	5.4 U	5.4 U	5.4 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	5.7 U	5.6 U	5.6 U	5.4 U	5.4 U	5.4 U
Trichloroethene	(ug/Kg)	200,000	5.7 U	5.6 U	5.6 U	5.4 U	5.4 U	5.4 U
Tetrachloroethene	(ug/Kg)	150,000	5.7 U	5.6 U	5.6 U	5.4 U	5.4 U	5.4 U

	Site		SB-09-03	SB-09-03
	Sample ID		SB-09-03(16-18)	SB-09-03(18-20)
	Date		11/9/2009	11/9/2009
	Depth (ft)	NY-SCO	18.00	20.00
	Result Type	Commercial	Primary	Primary
Constituent				
trans-1,2-Dichloroethene	(ug/Kg)	500,000	5.5 U	5.4 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	5.5 U	5.4 U
Trichloroethene	(ug/Kg)	200,000	5.5 U	5.4 U
Tetrachloroethene	(ug/Kg)	150,000	5.5 U	5.4 U

Table 2
Baldwin Place Mall Shopping Center
Soil Sampling - 11/09
Summary of VOC Results

	Site		SB-09-04A	SB-09-04A	SB-09-04A	SB-09-04A	SB-09-04A
	Sample ID		SB-09-04A(4-6)	SB-09-04A(6-8)	SB-09-04A(8-10)	SB-09-04A(10-12)	SB-09-04A(12-14)
	Date		11/10/2009	11/10/2009	11/10/2009	11/10/2009	11/10/2009
	Depth (ft)	NY-SCO	6.00	8.00	10.00	12.00	14.00
	Result Type	Commercial	Primary	Primary	Primary	Primary	Primary
Constituent							
trans-1,2-Dichloroethene	(ug/Kg)	500,000	5.6 U	5.7 U	5.5 U	6.1 U	5.5 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	5.6 U	5.7 U	5.5 U	6.1 U	5.5 U
Trichloroethene	(ug/Kg)	200,000	5.6 U	5.7 U	5.5 U	6.1 U	5.5 U
Tetrachloroethene	(ug/Kg)	150,000	5.6 U	5.7 U	5.5 U	97	5.5 U

Table 2
Baldwin Place Mall Shopping Center
Soil Sampling - 11/09
Summary of VOC Results

	Site		SB-09-05	SB-09-05	SB-09-05	SB-09-05	SB-09-05	SB-09-05
	Sample ID		SB-09-05(4-6)	SB-09-05(6-8)	SB-09-05(8-10)	SB-09-05(10-12)	SB-09-05(12-14)	SB-09-DUP 2
	Date		11/10/2009	11/10/2009	11/10/2009	11/10/2009	11/10/2009	11/10/2009
	Depth (ft)	NY-SCO	6.00	8.00	10.00	12.00	14.00	14.00
	Result Type	Commercial	Primary	Primary	Primary	Primary	Primary	Duplicate
Constituent								
trans-1,2-Dichloroethene	(ug/Kg)	500,000	6.1 U	5.6 U	5.6 U	5.5 U	5.5 U	5.5 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	6.1 U	5.6 U	5.6 U	5.5 U	5.5 U	5.5 U
Trichloroethene	(ug/Kg)	200,000	6.1 U	5.6 U	5.6 U	5.5 U	5.5 U	5.5 U
Tetrachloroethene	(ug/Kg)	150,000	6.1 U	5.6 U	5.6 U	5.5 U	5.5 U	5.5 U

	Site		SB-09-05	SB-09-05	SB-09-05
	Sample ID		SB-09-05(14-16)	SB-09-05(16-18)	SB-09-05(18-20)
	Date		11/10/2009	11/10/2009	11/10/2009
	Depth (ft)	NY-SCO	16.00	18.00	20.00
	Result Type	Commercial	Primary	Primary	Primary
Constituent					
trans-1,2-Dichloroethene	(ug/Kg)	500,000	5.5 U	5.5 U	5.4 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	5.5 U	5.5 U	5.4 U
Trichloroethene	(ug/Kg)	200,000	5.5 U	5.5 U	5.4 U
Tetrachloroethene	(ug/Kg)	150,000	5.5 U	5.5 U	5.4 U

Table 2
Baldwin Place Mall Shopping Center
Soil Sampling - 11/09
Summary of VOC Results

	Site		SB-09-06	SB-09-06	SB-09-06	SB-09-06	SB-09-06	SB-09-06
	Sample ID		SB-09-06(4-6)	SB-09-06(6-8)	SB-09-06(8-10)	SB-09-06(10-12)	SB-09-06(12-14)	SB-09-06(14-16)
	Date		11/10/2009	11/10/2009	11/10/2009	11/10/2009	11/10/2009	11/10/2009
	Depth (ft)	NY-SCO	6.00	8.00	10.00	12.00	14.00	16.00
	Result Type	Commercial	Primary	Primary	Primary	Primary	Primary	Primary
Constituent								
trans-1,2-Dichloroethene	(ug/Kg)	500,000	5.8 U	5.8 U	5.8 U	5.8 U	5.4 U	5.4 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	5.8 U	5.8 U	5.8 U	5.8 U	5.4 U	5.4 U
Trichloroethene	(ug/Kg)	200,000	5.8 U	5.8 U	5.8 U	5.8 U	5.4 U	5.4 U
Tetrachloroethene	(ug/Kg)	150,000	5.8 U	5.8 U	5.8 U	5.8 U	5.4 U	5.4 U

	Site		SB-09-06	SB-09-06
	Sample ID		SB-09-06(16-18)	SB-09-06(18-20)
	Date		11/10/2009	11/10/2009
	Depth (ft)	NY-SCO	18.00	20.00
	Result Type	Commercial	Primary	Primary
Constituent				
trans-1,2-Dichloroethene	(ug/Kg)	500,000	5.4 U	5.5 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	5.4 U	5.5 U
Trichloroethene	(ug/Kg)	200,000	5.4 U	5.5 U
Tetrachloroethene	(ug/Kg)	150,000	5.4 U	5.5 U

Table 2
Baldwin Place Mall Shopping Center
Soil Sampling - 11/09
Summary of VOC Results

	Site		SB-09-07	SB-09-07	SB-09-07	SB-09-07	SB-09-07	SB-09-07
	Sample ID		SB-09-07(4-6)	SB-09-07(6-8)	SB-09-07(8-10)	SB-09-07(10-12)	SB-09-07(12-14)	SB-09-07(14-16)
	Date		11/10/2009	11/10/2009	11/10/2009	11/10/2009	11/10/2009	11/10/2009
	Depth (ft)	NY-SCO	6.00	8.00	10.00	12.00	14.00	16.00
	Result Type	Commercial	Primary	Primary	Primary	Primary	Primary	Primary
Constituent								
trans-1,2-Dichloroethene	(ug/Kg)	500,000	5.7 U	5.7 U	5.6 U	5.5 U	5.2 U	5.5 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	5.7 U	5.7 U	5.6 U	5.5 U	5.2 U	5.5 U
Trichloroethene	(ug/Kg)	200,000	5.7 U	5.7 U	5.6 U	5.5 U	5.2 U	5.5 U
Tetrachloroethene	(ug/Kg)	150,000	4.0 J	5.7 U	5.6 U	5.5 U	5.2 U	5.5 U

	Site		SB-09-07	SB-09-07
	Sample ID		SB-09-07(16-18)	SB-09-07(18-20)
	Date		11/10/2009	11/10/2009
	Depth (ft)	NY-SCO	18.00	20.00
	Result Type	Commercial	Primary	Primary
Constituent				
trans-1,2-Dichloroethene	(ug/Kg)	500,000	5.4 U	5.4 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	5.4 U	5.4 U
Trichloroethene	(ug/Kg)	200,000	5.4 U	5.4 U
Tetrachloroethene	(ug/Kg)	150,000	5.4 U	5.4 U

Table 2
Baldwin Place Mall Shopping Center
Soil Sampling - 11/09
Summary of VOC Results

	Site		SB-09-08	SB-09-08	SB-09-08	SB-09-08	SB-09-08	SB-09-08
	Sample ID		SB-09-08(4-6)	SB-09-08(6-8)	SB-09-08(8-10)	SB-09-08(10-12)	SB-09-DUP 3	SB-09-08(12-14)
	Date		11/10/2009	11/10/2009	11/10/2009	11/10/2009	11/10/2009	11/10/2009
	Depth (ft)	NY-SCO	6.00	8.00	10.00	12.00	12.00	14.00
	Result Type	Commercial	Primary	Primary	Primary	Primary	Duplicate	Primary
Constituent								
trans-1,2-Dichloroethene	(ug/Kg)	500,000	5.7 U	5.7 U	5.3 U	5.6 U	5.5 U	5.4 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	5.7 U	5.7 U	5.3 U	5.6 U	5.5 U	5.4 U
Trichloroethene	(ug/Kg)	200,000	5.7 U	5.7 U	5.3 U	5.6 U	5.5 U	5.4 U
Tetrachloroethene	(ug/Kg)	150,000	5.7 U	5.7 U	5.3 U	5.6 U	5.5 U	5.4 U

	Site		SB-09-08	SB-09-08	SB-09-08
	Sample ID		SB-09-08(14-16)	SB-09-08(16-18)	SB-09-08(18-20)
	Date		11/10/2009	11/10/2009	11/10/2009
	Depth (ft)	NY-SCO	16.00	18.00	20.00
	Result Type	Commercial	Primary	Primary	Primary
Constituent					
trans-1,2-Dichloroethene	(ug/Kg)	500,000	5.4 U	5.5 U	5.4 U
cis-1,2-Dichloroethene	(ug/Kg)	500,000	5.4 U	5.5 U	5.4 U
Trichloroethene	(ug/Kg)	200,000	5.4 U	5.5 U	5.4 U
Tetrachloroethene	(ug/Kg)	150,000	5.4 U	5.5 U	5.4 U

Table 3
Baldwin Place Mall Shopping Center
Soil Sampling - 11/09
Soil Quality Control Samples

	Blank ID	VBLK01	VBLK02	VBLK02	VBLK03
	Lab ID	CB299	CB300	CB301	CB302
	Date	11/16/2009	11/17/2009	11/18/2009	11/19/2009
Constituent					
trans-1,2-Dichloroethene	(ug/Kg)	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	(ug/Kg)	5.0 U	5.0 U	5.0 U	5.0 U
Trichloroethene	(ug/Kg)	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	(ug/Kg)	5.0 U	5.0 U	5.0 U	5.0 U

	Sample ID		SB-09-02 (4-6)			SB-09-01 (10-12)	
	Blank ID	VMSB	MS	MSD	LCS050*	MS	MSD
	Date	11/16/2009	11/16/2009	11/16/2009	11/17/2009	11/17/2009	11/17/2009
	Spike (ug/Kg)	50	56	56	50	54	54
	% Recovery	86%	93%	93%	98%	96%	113%
Constituent							
trans-1,2-Dichloroethene	(ug/Kg)	5.0 U	5.6 U	5.6 U	5.0 U	5.4 U	5.4 U
cis-1,2-Dichloroethene	(ug/Kg)	5.0 U	5.6 U	5.6 U	5.0 U	5.4 U	5.4 U
Trichloroethene	(ug/Kg)	43	52	52	49	52	61
Tetrachloroethene	(ug/Kg)	5.0 U	5.6 U	5.6 U	5.0 U	5.4 U	5.4 U

For Matrix Spike Blanks, the QC % Recovery Limit Range is 71% - 120%
For Matrix Spike Samples, the QC % Recovery Limit Range is 62% - 137%

*Matrix Spike Blank mis-labeled by analyst. Should be VMSB.

Table 3
Baldwin Place Mall Shopping Center
Soil Sampling - 11/09
Soil Quality Control Samples

	Sample ID		SB-09-05 (8-10)			SB-09-08 (8-10)	
	Blank ID	VMSB	MS	MSD	VMSB	MS	MSD
	Date	11/18/2009	11/18/2009	11/18/2009	11/19/2009	11/19/2009	11/19/2009
	Spike (ug/Kg)	50	56	56	50	53	53
	% Recovery	96%	111%	88%	88%	104%	119%
Constituent							
trans-1,2-Dichloroethene	(ug/Kg)	5.0 U	5.6 U	5.6 U	5.0 U	5.3 U	5.3 U
cis-1,2-Dichloroethene	(ug/Kg)	5.0 U	5.6 U	5.6 U	5.0 U	5.3 U	5.3 U
Trichloroethene	(ug/Kg)	48	62	49	44	55	63
Tetrachloroethene	(ug/Kg)	5.0 U	5.6 U	5.6 U	5.0 U	5.3 U	5.3 U

For Matrix Spike Blanks, the QC % Recovery Limit Range is 71% - 120%
For Matrix Spike Samples, the QC % Recovery Limit Range is 62% - 137%

ATTACHMENT 2

AZTECH SAMPLING SUMMARY

Aztech Technologies, Inc.
Woman Owned Business

REMEDIATION SOLUTIONS ▪ ENVIRONMENTAL CONSULTING ▪ DRILLING APPLICATIONS

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May 31, 2013

Mr. Carl Hoffman
NYSDEC – Central Office
625 Broadway
Albany, NY 12223

RE: Annual Site Media Sampling Summary 2012-2013
Baldwin Place Mall
80 Route 6, Baldwin Place, Westchester County, New York
NYSDEC Site No. 360023

Dear Mr. Hoffman:

Aztech Technologies, Inc. (Aztech) has prepared the following correspondence on behalf of the New York State Department of Environmental Conservation (NYSDEC) to summarize groundwater and soil vapor sampling events performed at the above referenced site on March 19-20 2012 and January 17, 2013 respectively. Site events include:

- Groundwater monitoring well gauging, sampling and analysis
- Groundwater quality field parameters
- Sub-slab PID screening
- Sub-Slab and indoor ambient air sampling
- Discrete depth passive diffusive sampling

Site Description

The site is approximately 28 acres in size and lies at the intersection of Route 6 and Route 116 (Tomahawk Street). The site is currently occupied by a multi-structure shopping plaza and surrounding parking lots. The origin of contamination was the release of chemical solvents used at a former dry cleaning facility. That dry cleaner was located in the original shopping plaza which has since been demolished. The contaminant of concern is Perchloroethylene (PCE) also known as Tetrachloroethylene. The site is currently listed as a Class 2 (significant threat to public health). The site is currently maintained by the NYSDEC who has contracted Aztech to conduct all operations and maintenance to the groundwater pump and treatment systems as well as conduct annual groundwater and reporting.

Site History

Historically the site was an operational dry cleaning facility from 1979 through 1991. The original structure that sourced the contamination no longer exists and has been replaced by a shopping plaza. Following the closing of the dry cleaners, Point of Entry Treatment (POET) systems were installed at nearby private residences affected by the contamination.

A Remedial Investigation (RI) was conducted at the site in August of 1994 by Vincent Uhl & Associates. A Feasibility Study (FS) was completed in June of 1995 by Lawler Matusky and Skelly. From those reports, the NYSDEC issued a Record of Decision (ROD) in 1995 calling for the removal of contaminated soils from the site. Excavation took place in 1997 followed by the construction of a source area groundwater extraction and treatment system in 1998 (Plant 1).

In 1999 a water distribution system was constructed on site to supply water to the adjacent Meadow Park Road Community (Plant 2). When that community was connected to the public water supply in November of 2001, Plant 2 was kept online as a secondary pump and treat system. Both Plant 1 and Plant 2 ran on site treating contaminated groundwater through granular carbon vessels until early 2011 when Plant 2 was shut down due to a breakthrough of contamination identified in the effluent lab analysis.

Current Site Status and Objectives

The current objectives of the remedial program are to mitigate the site contamination and eventually eliminate the need for the groundwater treatment system.

Aztech currently possessed the callout to provide maintenance and upgrades to the two treatment systems, collect monthly treatment system influent and effluent samples, change carbon and bag filters, and perform site-wide media sampling according to the site management plan (SMP).

In December of 2011, the granular carbon vessels in Plant 2 were emptied and cleaned. Plant 1 continues to extract and treat groundwater from two wells located within the approximate limits of the source area. The combined influent sample collected from those was found to contain 4800 parts per billion (ppb) of PCE in February of 2013.

Following discussions with the NYSDEC in the spring of 2012, Aztech agreed to perform a site-wide groundwater sampling event to determine the status of contamination on site and to gain a better understanding of the needs to upgrade Plant 1 and/or bring Plant 2 back online for additional treatment capabilities. A total of two (2) extraction wells and 14 monitoring wells were sampled in on April 19-20, 2012. Results of that sampling event have been summarized in the following sections.

The NYSDOH has expressed concern of indoor air contamination through the structural slabs of surrounding businesses. A review of the SPM prepared by a previous environmental consultant indicated sub-slab and ambient indoor air samples must be collected from businesses surrounding the known spill location on site on an annual basis. Documented in an email written on July 15, 2008 by Carl Obermeyer-Assistant Sanitary Engineer NYSDOH, annual air monitoring is to occur only at the Home Goods store adjacent to the spill location. Specific locations of these samples were described in section 3.2 – Sub-slab Vapor Sample Location of Chapter 3 of the site work plan.

On January 17, 2013 a total of two (2) sub-slab, two (2) ambient air, and one (1) outdoor ambient air locations were targeted for annual vapor sampling. Results of that sampling event have been summarized in the following sections.

Monitoring Well Gauging, Sampling & Analysis

On April 19th and 20th, 16 wells were targeted for inspection, gauging, and sampling. Data was collected from each well to determine the depth to groundwater and other field parameters. Gauging data and groundwater quality field parameters are summarized in **Table 1**. The average depth to groundwater was found to be 10.07 feet below the top of the PVC well riser.

Each well was inspected to ensure the following items were in acceptable condition; well label, casing and color condition, surrounding vegetation and other internal and external items potentially needing maintenance.

Pursuant to the well inspection, when possible, a minimum of three (3) well volumes was purged from each monitoring well in order to collect representative groundwater samples. During purging activities, purge water was directed into a multi-meter flow-through cell to measure groundwater quality field parameters. Groundwater quality field measurements collected include: dissolved oxygen (DO); oxidation-reduction potential (ORP); turbidity; specific conductance (SC); temperature; and pH.

The samples were acidified and refrigerated for preservation, and delivered under a proper chain of custody to Adirondack Environmental Laboratories, Inc. located in Albany, New York on April 24, 2012. Groundwater samples from each well were analyzed for Purgeable Halocarbons using EPA method E601.

Groundwater Analytical Results Summary and Discussion

Groundwater sample analysis identified concentrations of Tetrachloroethene (PCE), Trichloroethane (TCE), 1,1-Dichloroethene, and cis-1,2-Dichloroethene. According to the NYSDEC CF Section 703.5 Table 1 – Water Quality Standards Surfacewater and Groundwater for

Class GA Waters, the maximum allowable concentration for each of these three compounds is 5.0 micrograms per liter (µg/L). A summary of the laboratory analysis for these four (4) identified compounds is presented in **Table 2**. Analytical results of these four contaminants are also presented on the groundwater contour map (**Figure 1**). Refer to the complete laboratory report for further details (**Appendix A**).

Elevated concentrations of contaminants were identified in groundwater to the south and west of the source area excavation. PCE concentrations were highest in wells RW-2D and RW-12S at 7600 and 2800 µg/L respectively. The highest concentrations identified were in groundwater at 51.79 and 17.83 feet below the top of well casing (TOC) respectively. The close proximity of these two wells suggests that the contamination remains high in shallow and deep groundwater.

Concentrations of PCE were also identified at 640 and 25 µg/L in RW-1S and MW-5S respectively. Concentrations of TCE were also identified in wells RW-1S, MW-5S, and MW-7S at 19, 3.2, and 9.0 µg/L respectively. Compounds 1,1-Dichloroethene and cis-1,2-Dichloroethene were also identified in groundwater samples at concentrations less than groundwater standards. Concentrations of multiple contaminants identified in groundwater surrounding the source excavation suggest that residual contamination remains on site.

Monitoring wells located farther than 50 feet from the source excavation area in all directions displayed non-detect concentrations for all compounds analyzed.

On February 14th 2013, Aztech technicians deployed passive diffusion groundwater sampling bags into extraction well PW-1 at depths of 115, 70, and 27 feet below the top of casing (TOC). On that day groundwater depth was 22.8 feet below the TOC. These bags were set at three specific depths in order to collect a discrete sample from each depth of the water column along the southeast corner of the site. These samples would typically be unobtainable or unrepresentative due to the high volume of groundwater to be purged from the well column. Samples were collected from the site following one month of diffusion time and delivered to Adirondack Environmental Laboratories under proper chain of custody for analyzed using EPA method 601.

Analytical results from the top, middle, and bottom of the water column identified PCE concentration of 3.5, 4.1, and 4.7 micrograms per liter respectively. Concentrations of TCE were identified at 3.1, 6.0, and 6.4 micrograms per liter respectively.

Presence of contamination in this well confirms the expansion of the plume towards the southeast corner of the site and into towards the adjacent neighborhood.

Soil Vapor Sampling & Analysis

On January 17, 2013, prior to collecting sub-slab soil vapor samples from two (2) pre-installed vapor monitoring ports in the floor of the Home Goods Store, each sample port was purged for three (3) to five (5) minutes using a hand-held photo-ionization detector (PID) capable of measuring total volatile organic compounds (VOCs) in parts per billion (ppb). PID readings as well as initial and final canister pressures were also recorded (**Table 3**).

Indoor ambient air samples were also collected adjacent to the two (2) sub-slab samples. One (1) duplicate indoor air and one (1) outdoor ambient air sample were collected for quality assurance purposes.

Canisters were attached from all sample ports using dedicated Teflon-lined tubing and stainless steel Swagelok fittings. The Teflon-lined tubing used to collect samples from the effluent stacks was purged and attached to the canisters using the same materials and methods. Each 6-liter canister collected samples from sub-slab ports, ambient air, and the SSDS effluent stacks for a duration of approximately 6-hours as outlined in the site work plan. A site map depicting the locations of each air sample and monitoring well can be seen in **Figure 1.**

The vapor canisters were capped and placed in boxes and delivered under a proper chain of custody and were received by Test America Laboratories, Inc. located in Nashville, Tennessee on January 21, 2013. Vapor samples were analyzed for volatile organic compounds using laboratory analysis method TO-15.

According to the New Your State Department of Health (NYSDOH) – Guidance for Evaluating Soil Vapor Intrusion in the State of New York October 2006 (GESVI), four (4) chemicals have been identified for use in two (2) respective decision matrices to determine if soil mitigation is needed. Those volatile chemicals are Carbon Tetrachloride, Tetrachloroethene (PCE), 1,1,1-Tricholorethane (1,1,1-TCA), and Trichloroethene (TCE). Of those compounds, 1,1,1-Trichloroethane was the only one not identified in any vapor sample collected (**Table 4**).

Each of the three chemicals concentrations identified in the sub-slab samples were compared to concentrations identified in their respective indoor-ambient air sample using the appropriate decision matrix of the GESVI. According to each matrix comparison, “No Further Action” is needed at this time.

Conclusion and Recommendations

Contamination identified during this site-wide sampling event confirms the need to continue groundwater treatment of the plume. All contamination found in monitoring wells located south of the source area also suggest that the contamination may be flowing deeper into the

groundwater table due to the presumed steeply dipped or steeply terraced bedrock identified in previous boring logs.

Without additional monitoring wells around the perimeter of the plume at various depths it is not possible to determine the exact extent of the contamination. Currently monitoring wells are located directly around the assumed perimeter of the plume at shallow and deep depths. Currently, there are no monitoring wells located between 30 and 130 feet of the excavated plume. Monitoring wells are located at distances of approximately 125 and 200 feet to the east and west respectively and approximately 450 and 550 feet to the north and south respectively.

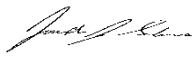
Aztech suggests the installation of additional monitoring wells with multiple discrete screened depths to determine contaminant concentrations horizontally and vertically around the suspected plume. Each of these wells will have the capability of being sealed off at various depths so each discrete depth can be sampled from a single location.

Aztech recommends soil vapor sampling continues in accordance with the current SMP. Vapor samples will be analyzed for VOCs using method TO-15 on an annual basis.

If there are any questions or comments regarding the enclosed, please do not hesitate to contact Aztech at (518) 885-5383.

Sincerely,

AZTECH TECHNOLOGIES, INC.



Joseph J Sabanos
Project Manager

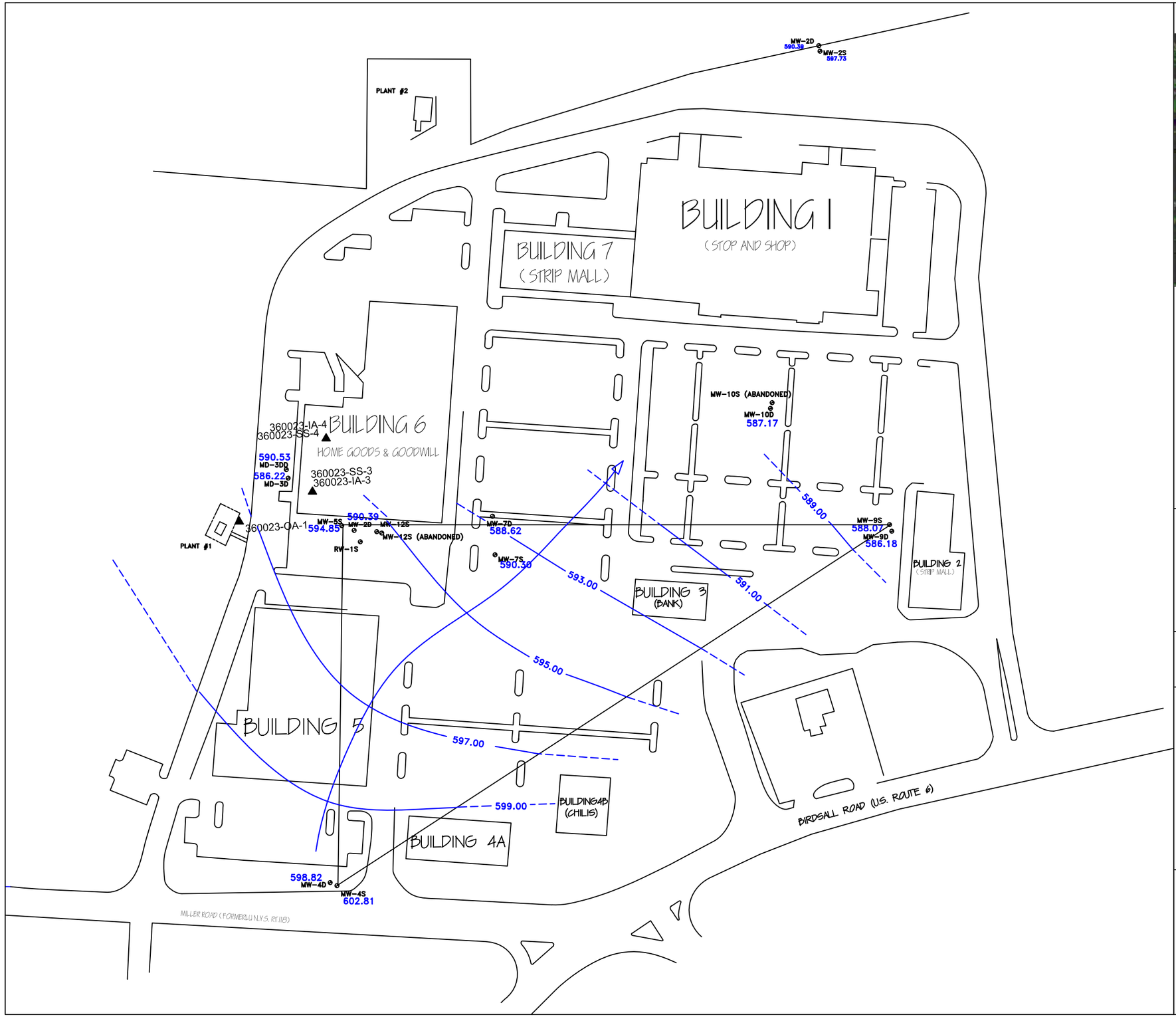
Attachments:
– Tables
– Figures
– Appendix A Groundwater Laboratory Analytical Report
– Appendix B Soil Vapor Laboratory Analytical Report

NYSDEC - Baldwin Place Mall - Annual Site Media Sampling Summary 2012-2013									
Table 1 - Groundwater Quality Field Parameters									
	pH	Temp (°C)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP (mV)	Depth to Water (ft)	Depth of Well	Ground Elev.
RW-1S	Multi-meter could not be lowered into pumping wells w/controls								
RW-2D	Multi-meter could not be lowered into pumping wells w/controls								
MW-3D	7.64	16.79	0.492	4.32	16.4	112	16.21	57	602.22
MD-3DD	8.27	14.45	0.978	0	157	-309	14.8	170	602.22
MW-7S	5.48	16.97	7.83	0	31.9	138	13.45	25	602.07
MW-7D	9.16	16.73	0.983	0	55	-178	14.45	90	602.18
MW-9S	6.03	15.5	5.17	0	6.5	133	8.74	28.6	596.21
MW-9D	3.46	15.91	3.22	0	85.1	0	10.52	90.5	595.99
MW-2D	11.87	11.14	0.616	0	10.7	-92	11.71	57	601.66
MW-2S	6.75	9.52	0.454	0	29.8	-113	4.6	14	601.53
MW-8S	7.17	16.21	32.1	0	85	-168	6.77	24	618.28
MW-10D	9.55	16.46	3.37	0	79	-200	14.41	90	600.52
MW-5S	7.04	12.33	0.984	0	8	30	9.11	27	603.36
RW-12S	7.31	19.81	0.829	0.55	181	24	16.83	40	-
MW-4S	6.9	14.04	4.13	0	263	124	7.36	24	609.72
MW-4D	7.54	15.56	-262	0	>800	-264	12.16	90.5	609.72

NYSDEC - Baldwin Place Mall - Annual Site Media Sampling Summary 2012-2013				
Table 2 - Groundwater Analytical Results (ug/L) – May 2012				
	PCE	**TCE**	**1,1-Dichloroethene**	**cis-1,2-Dichloroethene**
RW-1S	**640**	**19**	**51**	<1
RW-2D	**7600**	<100	<1	<1
MW-3D	<1	<1	<1	<1
MD-3DD	<1	<1	<1	<1
MW-7S	<1	**9**	<1	<1
MW-7D	<1	<1	<1	<1
MW-9S	**3.8**	<1	<1	1.4
MW-9D	<1	<1	<1	<1
MW-2D	<1	<1	<1	<1
MW-2S	<1	<1	<1	<1
MW-8S	<1	<1	<1	<1
MW-10D	<1	<1	<1	<1
MW-5S	**25**	3.2	<1	1.8
RW-12S	**2800**	<100	<1	<1
MW-4S	<1	<1	<1	<1
MW-4D	<1	<1	<1	<1

NYSDEC - Baldwin Place Mall - Annual Site Media Sampling Summary 2012-2013										
Table 3 - Soil Vapor Field Log Summary										
Sample ID	**Canister No.**	**Regulator No.**	**Duration (Hours)**	**Start**			**End**			**PID (ppb)**
				Date	**Time**	**Pressure (in Hg)**	**Date**	**Time**	**Pressure (in Hg)**	na
360023-SS-03	6636	K093	5:54	1/17/13	10:47	-30	1/17/13	16:41	-7	677
360023-IA-03	6371	K492	5:49	1/17/13	10:47	-29	1/17/13	16:36	0	na
360023-SS-04	4191	K379	5:50	1/17/13	10:45	-30	1/17/13	16:35	-5	225
360023-IA-04	1287	K432	5:48	1/17/13	10:45	-30	1/17/13	13:33	-4	na
360023-IA-04A	3513	K425	5:47	1/17/13	10:45	-30	1/17/13	16:32	-7	na
360023-OA-01	128	K250	6:00	1/17/13	10:58	-30	1/17/13	16:58	-7	Na

NYSDEC - Baldwin Place Mall - Annual Site Media Sampling Summary 2012-2013				
Table 4 - Soil Vapor Analysis Summary				
	Carbon tetrachloride	**Tetrachloroethene**	**1,1,1-Trichloroethane**	**Trichloroethene**
360023-SS-03	ND	50	ND	0.93
360023-IA-03	0.079	0.15	ND	0.043
360023-SS-04	ND	24 D	ND	0.25
360023-IA-04	0.073	3.5	ND	ND
360023-IA-04A(DUP)	0.061	3.2	ND	ND
360023-OA-01	0.065	ND	ND	ND



AREA MAP

LEGEND:

- Groundwater Monitoring Well
- Air Reading

BALDWIN PLACE MALL
80 ROUTE 6 BALDWIN PLACE
WESTCHESTER COUNTY, NEW YORK
NYSDEC SPILL NO. 360023

SITE MAP

N
W E
S

FIGURE 1

MAY 31, 2013

NOT TO SCALE

REMEDIATION • ENVIRONMENTAL • DRILLING

Aztech Technologies, Inc.
Woman Owned Business

5 McCrea Hill Road
Ballston Spa, NY 12020
518.885.5383
www.aztechtech.com

Appendix A

Groundwater Laboratory Analytical Report

Adirondack Environmental Services Inc
Experience is the solution
314 North Pearl Street ♦ Albany, New York 12207
(800) 848-4983 ♦ (518) 434-4546 ♦ Fax (518) 434-0891

May 08, 2012

Joseph Sabanos
Aztech Technologies
5 McCrea Hill Road
Ballston Spa, NY 12020

TEL: (518) 885-5383
FAX: (518) 885-5385

Work Order No: 120424001

Site Code 360023

RE: Baldwin Place Mall
Somers NY-Westerchester Co

Dear Joseph Sabanos:

Adirondack Environmental Services, Inc received 16 samples on 4/24/2012 for the analyses presented in the following report.

Please see case narrative for specifics on analysis.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

ELAP#: 10709

Tara Daniels
Laboratory Manager

Adirondack Environmental Services, Inc — CASE NARRATIVE

CLIENT:	Aztech Technologies	**Date:** *08-May-12*
Project:	Baldwin Place Mall	
Lab Order:	120424001	

Sample containers were supplied by Adirondack Environmental Services.

Qualifiers:	ND - Not Detected at reporting limit	S - LCS Spike recovery outside acceptable limits
	J - Analyte detected below quantitation limit	R - Duplication outside acceptable limits
	B - Analyte detected in Blank	T - Tentatively Identified Compound-Estimated
	X - Exceeds maximum contamination limit	E -Above quantitation range-Estimated
	H - Hold time exceeded	M - Matrix Spike outside acceptable limits
		C - Details are above in Case Narrative

Note : All Results are reported as wet weight unless noted

Adirondack Environmental Services, Inc

Date: *08-May-12*

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:

Client Sample ID: RW-1S
Collection Date: 4/19/2012
Lab Sample ID: 120424001-001
Matrix: GROUNDWATER

Site Code 360023

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 10	10	S	µg/L	10	4/30/2012 1:03:56 PM
Chloromethane	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
Vinyl chloride	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
Bromomethane	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
Chloroethane	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
Trichlorofluoromethane	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
1,1-Dichloroethene	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
Methylene chloride	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
trans-1,2-Dichloroethene	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
1,1-Dichloroethane	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
cis-1,2-Dichloroethene	51	10		µg/L	10	4/30/2012 1:03:56 PM
Chloroform	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
1,1,1-Trichloroethane	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
Carbon tetrachloride	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
1,2-Dichloroethane	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
Trichloroethene	19	10		µg/L	10	4/30/2012 1:03:56 PM
Bromodichloromethane	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
1,2-Dichloropropane	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
cis-1,3-Dichloropropene	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
trans-1,3-Dichloropropene	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
1,1,2-Trichloroethane	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
Tetrachloroethene	640	10		µg/L	10	4/30/2012 1:03:56 PM
Dibromochloromethane	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
Chlorobenzene	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
Bromoform	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
1,1,2,2-Tetrachloroethane	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
1,3-Dichlorobenzene	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
1,4-Dichlorobenzene	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
1,2-Dichlorobenzene	< 10	10		µg/L	10	4/30/2012 1:03:56 PM
Surr: 4-Bromofluorobenzene - Hal	103	80-120		%REC	10	4/30/2012 1:03:56 PM

Adirondack Environmental Services, Inc

Date: *08-May-12*

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:
Site Code 360023

Client Sample ID: RW-2D
Collection Date: 4/19/2012
Lab Sample ID: 120424001-002
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 100	100	S	µg/L	100	4/30/2012 2:00:14 PM
Chloromethane	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
Vinyl chloride	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
Bromomethane	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
Chloroethane	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
Trichlorofluoromethane	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
1.1-Dichloroethene	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
Methylene chloride	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
trans-1.2-Dichloroethene	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
1.1-Dichloroethane	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
cis-1,2-Dichloroethene	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
Chloroform	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
1,1,1-Trichloroethane	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
Carbon tetrachloride	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
1,2-Dichloroethane	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
Trichloroethene	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
Bromodichloromethane	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
1.2-Dichloropropane	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
cis-1,3-Dichloropropene	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
trans-1.3-Dichloropropene	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
1,1,2-Trichloroethane	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
Tetrachloroethene	7600	100		µg/L	100	4/30/2012 2:00:14 PM
Dibromochloromethane	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
Chlorobenzene	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
Bromoform	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
1.1,2,2-Tetrachloroethane	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
1,3-Dichlorobenzene	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
1,4-Dichlorobenzene	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
1.2-Dichlorobenzene	< 100	100		µg/L	100	4/30/2012 2:00:14 PM
Surr: 4-Bromofluorobenzene - Hal	93.8	80-120		%REC	100	4/30/2012 2:00:14 PM

Adirondack Environmental Services, Inc

Date: *08-May-12*

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:
Site Code 360023

Client Sample ID: MD-3D
Collection Date: 4/19/2012
Lab Sample ID: 120424001-003
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 1.0	1.0	S	µg/L	1	4/30/2012 2:56:22 PM
Chloromethane	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
Vinyl chloride	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
Bromomethane	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
Chloroethane	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
Trichlorofluoromethane	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
1,1-Dichloroethene	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
Methylene chloride	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
trans-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
1.1-Dichloroethane	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
cis-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
Chloroform	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
1,1,1-Trichloroethane	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
Carbon tetrachloride	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
1.2-Dichloroethane	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
Trichloroethene	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
Bromodichloromethane	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
1,2-Dichloropropane	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
cis-1.3-Dichloropropene	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
trans-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
1.1.2-Trichloroethane	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
Tetrachloroethene	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
Dibromochloromethane	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
Chlorobenzene	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
Bromoform	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
1.1.2.2-Tetrachloroethane	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
1.3-Dichlorobenzene	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
1,4-Dichlorobenzene	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
1,2-Dichlorobenzene	< 1.0	1.0		µg/L	1	4/30/2012 2:56:22 PM
Surr: 4-Bromofluorobenzene - Hal	94.0	80-120		%REC	1	4/30/2012 2:56:22 PM

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:

Site Code 360023

Client Sample ID: MD-3DD
Collection Date: 4/19/2012
Lab Sample ID: 120424001-004
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 1.0	1.0	S	µg/L	1	4/30/2012 3:52:47 PM
Chloromethane	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
Vinyl chloride	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
Bromomethane	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
Chloroethane	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
Trichlorofluoromethane	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
1,1-Dichloroethene	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
Methylene chloride	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
trans-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
1,1-Dichloroethane	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
cis-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
Chloroform	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
1,1,1-Trichloroethane	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
Carbon tetrachloride	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
1,2-Dichloroethane	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
Trichloroethene	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
Bromodichloromethane	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
1,2-Dichloropropane	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
cis-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
trans-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
1,1,2-Trichloroethane	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
Tetrachloroethene	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
Dibromochloromethane	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
Chlorobenzene	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
Bromoform	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
1,3-Dichlorobenzene	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
1,4-Dichlorobenzene	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
1,2-Dichlorobenzene	< 1.0	1.0		µg/L	1	4/30/2012 3:52:47 PM
Surr: 4-Bromofluorobenzene - Hal	93.1	80-120		%REC	1	4/30/2012 3:52:47 PM

Adirondack Environmental Services, Inc

Date: *08-May-12*

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:

Site Code 360023

Client Sample ID: MW-7S
Collection Date: 4/19/2012
Lab Sample ID: 120424001-005
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 1.0	1.0	S	µg/L	1	4/30/2012 4:48:35 PM
Chloromethane	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
Vinyl chloride	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
Bromomethane	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
Chloroethane	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
Trichlorofluoromethane	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
1,1-Dichloroethene	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
Methylene chloride	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
trans-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
1,1-Dichloroethane	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
cis-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
Chloroform	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
1,1,1-Trichloroethane	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
Carbon tetrachloride	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
1,2-Dichloroethane	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
Trichloroethene	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
Bromodichloromethane	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
1,2-Dichloropropane	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
cis-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
trans-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
1,1,2-Trichloroethane	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
Tetrachloroethene	9.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
Dibromochloromethane	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
Chlorobenzene	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
Bromoform	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
1,3-Dichlorobenzene	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
1,4-Dichlorobenzene	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
1,2-Dichlorobenzene	< 1.0	1.0		µg/L	1	4/30/2012 4:48:35 PM
Surr: 4-Bromofluorobenzene - Hal	92.4	80-120		%REC	1	4/30/2012 4:48:35 PM

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:
Site Code 360023

Client Sample ID: MW-7D
Collection Date: 4/19/2012
Lab Sample ID: 120424001-006
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 1.0	1.0	S	µg/L	1	5/1/2012 11:12:35 AM
Chloromethane	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
Vinyl chloride	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
Bromomethane	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
Chloroethane	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
Trichlorofluoromethane	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
1,1-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
Methylene chloride	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
trans-1.2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
1.1-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
cis-1.2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
Chloroform	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
1,1.1-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
Carbon tetrachloride	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
1,2-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
Trichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
Bromodichloromethane	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
1,2-Dichloropropane	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
cis-1.3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
trans-1.3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
1,1,2-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
Tetrachloroethene	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
Dibromochloromethane	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
Chlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
Bromoform	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
1.3-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
1,4-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
1.2-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 11:12:35 AM
Surr: 4-Bromofluorobenzene - Hal	90.5	80-120		%REC	1	5/1/2012 11:12:35 AM

Adirondack Environmental Services, Inc

Date: *08-May-12*

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:
Site Code 360023

Client Sample ID: MW-9S
Collection Date: 4/19/2012
Lab Sample ID: 120424001-007
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 1.0	1.0	S	µg/L	1	5/1/2012 12:08:36 PM
Chloromethane	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
Vinyl chloride	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
Bromomethane	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
Chloroethane	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
Trichlorofluoromethane	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
1,1-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
Methylene chloride	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
trans-1.2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
1,1-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
cis-1.2-Dichloroethene	1.4	1.0		µg/L	1	5/1/2012 12:08:36 PM
Chloroform	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
1,1,1-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
Carbon tetrachloride	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
1,2-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
Trichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
Bromodichloromethane	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
1,2-Dichloropropane	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
cis-1.3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
trans-1.3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
1.1,2-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
Tetrachloroethene	3.8	1.0		µg/L	1	5/1/2012 12:08:36 PM
Dibromochloromethane	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
Chlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
Bromoform	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
1.1,2,2-Tetrachloroethane	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
1,3-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
1.4-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
1.2-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 12:08:36 PM
Surr: 4-Bromofluorobenzene - Hal	90.5	80-120		%REC	1	5/1/2012 12:08:36 PM

Adirondack Environmental Services, Inc

Date: *08-May-12*

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:
Site Code 360023

Client Sample ID: MW-9D
Collection Date: 4/20/2012
Lab Sample ID: 120424001-008
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 1.0	1.0	S	µg/L	1	5/1/2012 1:04:56 PM
Chloromethane	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
Vinyl chloride	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
Bromomethane	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
Chloroethane	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
Trichlorofluoromethane	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
1,1-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
Methylene chloride	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
trans-1.2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
1,1-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
cis-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
Chloroform	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
1,1,1-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
Carbon tetrachloride	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
1,2-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
Trichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
Bromodichloromethane	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
1,2-Dichloropropane	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
cis-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
trans-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
1,1,2-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
Tetrachloroethene	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
Dibromochloromethane	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
Chlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
Bromoform	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
1.3-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
1,4-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
1.2-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 1:04:56 PM
Surr: 4-Bromofluorobenzene - Hal	98.1	80-120		%REC	1	5/1/2012 1:04:56 PM

Adirondack Environmental Services, Inc

Date: *08-May-12*

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:
Site Code 360023

Client Sample ID: MW-2D
Collection Date: 4/20/2012
Lab Sample ID: 120424001-009
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 1.0	1.0	S	µg/L	1	5/1/2012 2:01:07 PM
Chloromethane	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
Vinyl chloride	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
Bromomethane	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
Chloroethane	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
Trichlorofluoromethane	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
1,1-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
Methylene chloride	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
trans-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
1,1-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
cis-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
Chloroform	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
1,1,1-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
Carbon tetrachloride	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
1,2-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
Trichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
Bromodichloromethane	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
1,2-Dichloropropane	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
cis-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
trans-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
1,1,2-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
Tetrachloroethene	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
Dibromochloromethane	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
Chlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
Bromoform	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
1,3-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
1,4-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
1,2-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 2:01:07 PM
Surr: 4-Bromofluorobenzene - Hal	93.5	80-120		%REC	1	5/1/2012 2:01:07 PM

Adirondack Environmental Services, Inc

Date: *08-May-12*

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:
Site Code 360023

Client Sample ID: MW-2S
Collection Date: 4/20/2012
Lab Sample ID: 120424001-010
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 1.0	1.0	S	µg/L	1	5/1/2012 2:58:33 PM
Chloromethane	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
Vinyl chloride	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
Bromomethane	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
Chloroethane	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
Trichlorofluoromethane	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
1,1-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
Methylene chloride	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
trans-1.2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
1,1-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
cis-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
Chloroform	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
1,1,1-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
Carbon tetrachloride	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
1,2-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
Trichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
Bromodichloromethane	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
1,2-Dichloropropane	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
cis-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
trans-1.3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
1,1,2-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
Tetrachloroethene	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
Dibromochloromethane	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
Chlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
Bromoform	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
1.3-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
1,4-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
1.2-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 2:58:33 PM
Surr: 4-Bromofluorobenzene - Hal	85.8	80-120		%REC	1	5/1/2012 2:58:33 PM

Adirondack Environmental Services, Inc

Date: *08-May-12*

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:
Site Code 360023

Client Sample ID: MW-8S
Collection Date: 4/20/2012
Lab Sample ID: 120424001-011
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 1.0	1.0	S	µg/L	1	5/1/2012 4:53:04 PM
Chloromethane	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
Vinyl chloride	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
Bromomethane	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
Chloroethane	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
Trichlorofluoromethane	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
1,1-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
Methylene chloride	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
trans-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
1,1-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
cis-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
Chloroform	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
1,1,1-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
Carbon tetrachloride	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
1,2-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
Trichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
Bromodichloromethane	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
1,2-Dichloropropane	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
cis-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
trans-1.3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
1,1,2-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
Tetrachloroethene	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
Dibromochloromethane	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
Chlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
Bromoform	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
1.1.2.2-Tetrachloroethane	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
1.3-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
1.4-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
1,2-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 4:53:04 PM
Surr: 4-Bromofluorobenzene - Hal	101	80-120		%REC	1	5/1/2012 4:53:04 PM

Adirondack Environmental Services, Inc

Date: *08-May-12*

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:
Site Code 360023

Client Sample ID: MW-10D
Collection Date: 4/20/2012
Lab Sample ID: 120424001-012
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 1.0	1.0	S	µg/L	1	5/1/2012 5:49:33 PM
Chloromethane	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
Vinyl chloride	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
Bromomethane	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
Chloroethane	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
Trichlorofluoromethane	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
1,1-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
Methylene chloride	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
trans-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
1,1-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
cis-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
Chloroform	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
1,1,1-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
Carbon tetrachloride	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
1,2-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
Trichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
Bromodichloromethane	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
1,2-Dichloropropane	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
cis-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
trans-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
1,1,2-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
Tetrachloroethene	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
Dibromochloromethane	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
Chlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
Bromoform	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
1,3-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
1,4-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
1,2-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 5:49:33 PM
Surr: 4-Bromofluorobenzene - Hal	94.9	80-120		%REC	1	5/1/2012 5:49:33 PM

Adirondack Environmental Services, Inc

Date: *08-May-12*

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:
Site Code 360023

Client Sample ID: MW-5S
Collection Date: 4/20/2012
Lab Sample ID: 120424001-013
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 1.0	1.0	S	µg/L	1	5/1/2012 6:45:50 PM
Chloromethane	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
Vinyl chloride	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
Bromomethane	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
Chloroethane	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
Trichlorofluoromethane	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
1,1-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
Methylene chloride	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
trans-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
1,1-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
cis-1,2-Dichloroethene	1.8	1.0		µg/L	1	5/1/2012 6:45:50 PM
Chloroform	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
1,1,1-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
Carbon tetrachloride	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
1,2-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
Trichloroethene	3.2	1.0		µg/L	1	5/1/2012 6:45:50 PM
Bromodichloromethane	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
1,2-Dichloropropane	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
cis-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
trans-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
1,1,2-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
Tetrachloroethene	25	1.0		µg/L	1	5/1/2012 6:45:50 PM
Dibromochloromethane	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
Chlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
Bromoform	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
1,3-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
1,4-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
1,2-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 6:45:50 PM
Surr: 4-Bromofluorobenzene - Hal	96.9	80-120		%REC	1	5/1/2012 6:45:50 PM

Adirondack Environmental Services, Inc

Date: *08-May-12*

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:
Site Code 360023

Client Sample ID: MW-12S
Collection Date: 4/20/2012
Lab Sample ID: 120424001-014
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 100	100	S	µg/L	100	5/1/2012 7:42:43 PM
Chloromethane	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
Vinyl chloride	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
Bromomethane	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
Chloroethane	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
Trichlorofluoromethane	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
1,1-Dichloroethene	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
Methylene chloride	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
trans-1.2-Dichloroethene	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
1,1-Dichloroethane	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
cis-1.2-Dichloroethene	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
Chloroform	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
1.1.1-Trichloroethane	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
Carbon tetrachloride	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
1,2-Dichloroethane	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
Trichloroethene	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
Bromodichloromethane	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
1.2-Dichloropropane	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
cis-1.3-Dichloropropene	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
trans-1,3-Dichloropropene	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
1,1,2-Trichloroethane	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
Tetrachloroethene	2800	100		µg/L	100	5/1/2012 7:42:43 PM
Dibromochloromethane	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
Chlorobenzene	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
Bromoform	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
1.1.2.2-Tetrachloroethane	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
1,3-Dichlorobenzene	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
1.4-Dichlorobenzene	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
1,2-Dichlorobenzene	< 100	100		µg/L	100	5/1/2012 7:42:43 PM
Surr: 4-Bromofluorobenzene - Hal	94.2	80-120		%REC	100	5/1/2012 7:42:43 PM

Adirondack Environmental Services, Inc

Date: *08-May-12*

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:

Client Sample ID: MW-4S
Collection Date: 4/20/2012
Lab Sample ID: 120424001-015
Matrix: GROUNDWATER

Site Code 360023

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 1.0	1.0	S	µg/L	1	5/1/2012 8:39:07 PM
Chloromethane	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
Vinyl chloride	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
Bromomethane	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
Chloroethane	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
Trichlorofluoromethane	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
1,1-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
Methylene chloride	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
trans-1.2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
1.1-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
cis-1,2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
Chloroform	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
1.1.1-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
Carbon tetrachloride	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
1.2-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
Trichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
Bromodichloromethane	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
1.2-Dichloropropane	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
cis-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
trans-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
1.1,2-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
Tetrachloroethene	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
Dibromochloromethane	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
Chlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
Bromoform	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
1.1,2,2-Tetrachloroethane	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
1.3-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
1,4-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
1.2-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 8:39:07 PM
Surr: 4-Bromofluorobenzene - Hal	96.4	80-120		%REC	1	5/1/2012 8:39:07 PM

Adirondack Environmental Services, Inc

Date: *08-May-12*

CLIENT: Aztech Technologies
Work Order: 120424001
Reference: Baldwin Place Mall / Somers NY-Westerches
PO#:
Site Code 360023

Client Sample ID: MW-4D
Collection Date: 4/20/2012
Lab Sample ID: 120424001-016
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PURGEABLE HALOCARBONS E601						Analyst: SO
Dichlorodifluoromethane	< 1.0	1.0	S	µg/L	1	5/1/2012 9:35:49 PM
Chloromethane	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
Vinyl chloride	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
Bromomethane	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
Chloroethane	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
Trichlorofluoromethane	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
1,1-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
Methylene chloride	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
trans-1.2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
1.1-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
cis-1.2-Dichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
Chloroform	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
1.1.1-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
Carbon tetrachloride	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
1,2-Dichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
Trichloroethene	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
Bromodichloromethane	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
1.2-Dichloropropane	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
cis-1.3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
trans-1,3-Dichloropropene	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
1.1,2-Trichloroethane	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
Tetrachloroethene	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
Dibromochloromethane	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
Chlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
Bromoform	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
1.3-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
1,4-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
1.2-Dichlorobenzene	< 1.0	1.0		µg/L	1	5/1/2012 9:35:49 PM
Surr: 4-Bromofluorobenzene - Hal	92.0	80-120		%REC	1	5/1/2012 9:35:49 PM

Adirondack Environmental Services Inc.
314 North Pearl Street
Albany, New York 12207
518-434-4546/434-0891 FAX

Experience is the solution

A full service analytical research laboratory offering solutions to environmental concerns

CHAIN OF CUSTODY RECORD

AES Work Order # 12042401

Client Name:	Address:	
NYS DEC Region 3	625 Broadway Albany NY	
Send Report To:	**Project Name (Location)**	**Samplers: (Names)**
JSchaus@Aztechtech.com	Baldwin Place Mall	Tom Grinnell / Ray Hammond
Client Phone No:	**Client Email:**	**PO Number:** 36000033
		Samplers: (Signature)

AES Sample Number	Client Sample Identification & Location	Date Sampled	Time A=a m P=p.m.	Sample Type Matrix	Comp	Grab	Number of Cont's	Analysis Required
001	RW-1S	4/19/12	4:20 A/P	GW			2	EPA 601
002	RW-2D		4:25 A/P				2	
003	MW-3D		5:05 A/P				2	
004	MW-3DD		5:05 A/P				2	
005	MW-7S		6:10 A/P				2	
006	MW-7D		6:05 A/P				2	
007	MW-9S		7:16 A/P				2	
008	MW-9D		7:21 A/P				2	
009	MW-2D	4/20/12	8:35 A/P				2	
010	MW-2S		8:40 A/P				2	
011	MW-8S		10:10 A/P				2	
012	MW-10D		9:52 A/P				2	
013	MW-5S		11:05 A/P				2	
014	MW-12S		11:13 A/P				2	

Shipment Arrived Via:
FedEx UPS (Client) AES Other: _____

CC Report To / Special Instructions/Remarks:
JSchaus@Aztechtech.com

1 of 2

Turnaround Time Request:
☐ 1 Day ☐ 3 Day ☐ Normal
☐ 2 Day ☐ 5 Day

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	**Received by: (Signature)**	**Date/Time**
Relinquished by: (Signature)	**Received for Laboratory by:**	**Date/Time**
	J. Mahan	4/21/12 7:44

Temperature	AES Bottles	Properly Preserved	Received Within Holding Times
Ambient or (Chilled)	Y ☒ N ☐	(Y) N	(Y) N
Notes: 4		Notes:	Notes:

WHITE - Lab Copy YELLOW - Sampler Copy PINK - Generator Copy

Adirondack Environmental Services, Inc.

314 North Pearl Street
Albany, New York 12207
518-434-4546/434-0891 FAX

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CHAIN OF CUSTODY RECORD

AES Work Order # 12042001

Client Name:	Address:	
NYS DEC Region 3	625 Broadway Albany NY	
Send Report To:	**Project Name (Location)**	**Samplers: (Names)**
JSalamose Aztechtech	Baldwin Place Mall	Tom Gimbel / Ray Hammond
Client Phone No:	**Client Email:**	**PO Number:**
		3600023

Samplers: (Signature)

AES Sample Number	Client Sample Identification & Location	Date Sampled	Time A=a m P=p.m.		Sample Type: Matrix	Comp	Grab	Number of Cont's	Analysis Required
015	MW-45	4/20/12	12:07	A / P	GW			2	EPA 601
016	MW-40	↓	12:11	A / P	↓			2	↓
				A / P					
				A / P					
				A / P					
				A / P					
				A / P					
				A / P					
				A / P					
				A / P					
				A / P					
				A / P					
				A / P					
				A / P					

Shipment Arrived Via:
FedEx UPS Client AES Other:_____

CC Report To / Special Instructions/Remarks:
JSalamose Aztechtech.com

2 of 2

Turnaround Time Request:
☐ 1 Day ☐ 3 Day ☐ Normal
☐ 2 Day ☐ 5 Day

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	**Received by: (Signature)**	**Date/Time**
Relinquished by: (Signature)	**Received for Laboratory by:**	**Date/Time**
	J. Mehrer	4/24/12 7:44 AM

Temperature	AES Bottles	Properly Preserved	Received Within Holding Times
Ambient or Chilled	Y ☒ N ☐	(Y) N	(Y) N
Notes: 4		Notes:	Notes:

WHITE - Lab Copy YELLOW - Sampler Copy PINK - Generator Copy

Adirondack Environmental Services Inc.
Experience is the solution
314 North Pearl Street • Albany, New York 12207 • (518) 434-4546 • Fax (518) 434-0891

TERMS, CONDITIONS & LIMITATIONS

All service rendered by the **Adirondack Environmental Services, Inc.** are undertaken and all rates are based upon the following terms:

(a) Neither **Adirondack Environmental Services, Inc.,** nor any of its employees, agents or sub-contractors shall be liable for any loss or damage arising out of **Adirondack Environmental Services, Inc.'s** performance or nonperformance, whether by way of negligence or breach of contract, or otherwise, in any amount greater than twice the amount billed to the customer for the work leading to the claim of the customer. Said remedy shall be the sole and exclusive remedy against **Adirondack Environmental Services, Inc.** arising out of its work.

(b) All claims made must be in writing within forty-five (45) days after delivery of the **Adirondack Environmental Services, Inc.** report regarding said work or such claim shall be deemed or irrevocably waived.

(c) **Adirondack Environmental Services, Inc.** reports are submitted in writing and are for our customers only. Our customers are considered to be only those entities being billed for our services. Acquisition of an **Adirondack Environmental Services, Inc.** report by other than our customer does not constitute a representation of **Adirondack Environmental Services, Inc.** as to the accuracy of the contents thereof.

(d) In no event shall **Adirondack Environmental Services, Inc.,** its employees, agents or sub-contractors be responsible for consequential or special damages of any kind or in any amount.

(e) No deviation from the terms set forth herein shall bind **Adirondack Environmental Services, Inc.** unless in writing and signed by a Director of **Adirondack Environmental Services, Inc.**

(f) Results pertain only to items analyzed. Information supplied by client is assumed to be correct. This information may be used on reports and in calculations and **Adirondack Environmental Services, Inc.** is not responsible for the accuracy of this information.

(g) Payments by credit card are subject to a 3% additional charge.

Appendix B

Soil Vapor Laboratory Analytical Report

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

Baldwin Place

Lot #: H3A230403

Carl Hoffman

New York State D.E.C.
625 Broadway
5th Floor
Albany, NY 12233

TESTAMERICA LABORATORIES, INC.

Jamie A. McKinney
Project Manager

January 29, 2013

ANALYTICAL METHODS SUMMARY

H3A230403

PARAMETER	ANALYTICAL METHOD
Volatile Organics by TO15	EPA-2 TO-15

References:

EPA-2 "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999.

SAMPLE SUMMARY

H3A230403

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MXXT5	001	360023-SS-03	01/15/13	16:41
MXXT6	002	360023-IA-03	01/15/13	16:39
MXXT7	003	360023-SS-04	01/15/13	16:35
MXXT8	004	360023-IA-04	01/15/13	16:33
MXXT9	005	360023-IA-04A(DUP)	01/15/13	16:32
MXXVA	006	360023-OA-01	01/15/13	16:58

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

PROJECT NARRATIVE
H3A230403

The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

This report shall not be reproduced except in full, without the written approval of the laboratory.

The original chain of custody documentation is included with this report.

Sample Receipt

Custody seals were not present.

Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

For this method, the continuing calibration verification standard and the LCS are the same sample. While the results for bromomethane and chloroethane are flagged as being outside limits for batch 3024041, the results met the acceptance criteria which allows for three analytes to be within marginal exceedence limits.

The concentration of tetrachloroethene in sample 360023-SS-04 exceeded the calibration level of the instrument. The sample was analyzed at a dilution to bring the concentration of the compound into the instrument calibration range. The results for both analyses are reported in order to provide the lowest possible reporting limits.

Quantitation for ethanol was based on a minimum 5-point calibration curve. The following interim criteria are being used until the method performance for this additional analyte is fully established:

- The initial calibration acceptance criteria is set at 40% RSD. Any compound greater than 40% RSD was changed to a linear or quadratic model with an r2 ≥ 0.990 acceptance criteria.
- There are no criteria for second source standard verification % D. The second source standard was independently prepared from the same parent mixture (as the primary source).
- The continuing calibration verification criteria are set at 50% D. Any compound greater than 50% D must pass the LCS criteria.
- The LCS recovery criteria are set at 20% to 180%.
- A method detection limit study has not been performed. The detection of the analyte is demonstrated by detection of the calibration standard at the reporting limit. No estimated results are reported below the reporting limit.

CERTIFICATION SUMMARY

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Knoxville	ACLASS	DoD ELAP		ADE-1434
TestAmerica Knoxville	Arkansas	State Program	6	88-0688
TestAmerica Knoxville	California	State Program	9	2423
TestAmerica Knoxville	Colorado	State Program	8	N/A
TestAmerica Knoxville	Connecticut	State Program	1	PH-0223
TestAmerica Knoxville	Florida	NELAC	4	E87177
TestAmerica Knoxville	Georgia	State Program	4	906
TestAmerica Knoxville	Hawaii	State Program	9	N/A
TestAmerica Knoxville	Indiana	State Program	5	C-TN-02
TestAmerica Knoxville	Iowa	State Program	7	375
TestAmerica Knoxville	Kansas	NELAC	7	E-10349
TestAmerica Knoxville	Kentucky	State Program	4	90101
TestAmerica Knoxville	Louisiana	NELAC	6	LA110001
TestAmerica Knoxville	Louisiana	NELAC	6	83979
TestAmerica Knoxville	Maryland	State Program	3	277
TestAmerica Knoxville	Michigan	State Program	5	9933
TestAmerica Knoxville	Minnesota	NELAC	5	047-999-429
TestAmerica Knoxville	Nevada	State Program	9	TN00009
TestAmerica Knoxville	New Jersey	NELAC	2	TN001
TestAmerica Knoxville	New York	NELAC	2	10781
TestAmerica Knoxville	North Carolina	North Carolina DENR	4	64
TestAmerica Knoxville	North Carolina	North Carolina PHL	4	21705
TestAmerica Knoxville	Ohio	OVAP	5	CL0059
TestAmerica Knoxville	Oklahoma	State Program	6	9415
TestAmerica Knoxville	Pennsylvania	NELAC	3	68-00576
TestAmerica Knoxville	South Carolina	State Program	4	84001
TestAmerica Knoxville	Tennessee	State Program	4	2014
TestAmerica Knoxville	Texas	NELAC	6	T104704380-TX
TestAmerica Knoxville	USDA	USDA		P330-11-00035
TestAmerica Knoxville	Utah	NELAC	8	QUAN3
TestAmerica Knoxville	Virginia	State Program	3	165
TestAmerica Knoxville	Washington	State Program	10	C593
TestAmerica Knoxville	West Virginia	West Virginia DEP	3	345
TestAmerica Knoxville	West Virginia	West Virginia DHHR (DW)	3	9955C
TestAmerica Knoxville	Wisconsin	State Program	5	998044300

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Data Summary

New York State D.E.C.

Client Sample ID: 360023-SS-03

GC/MS Volatiles

Lot-Sample #	H3A230403 - 001	**Work Order #**	MXXT51AA	**Matrix.....:**	AIR
Date Sampled...:	01/15/2013	**Date Received..:**	01/21/2013		
Prep Date.....:	01/24/2013	**Analysis Date...**	01/24/2013		
Prep Batch #.....:	3024041				
Dilution Factor.:	5	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Benzene	**3.4**	**0.40**	**11**	**1.3**
Benzyl chloride	ND	0.80	ND	4.1
Bromodichloromethane	ND	0.40	ND	2.7
Bromoform	ND	0.40	ND	4.1
Bromomethane	ND	0.40	ND	1.6
2-Butanone (MEK)	ND	1.6	ND	4.7
tert-Butyl alcohol	ND	1.6	ND	4.9
Carbon tetrachloride	ND	0.20	ND	1.3
Chlorobenzene	ND	0.40	ND	1.8
Dibromochloromethane	ND	0.40	ND	3.4
Chloroethane	ND	0.40	ND	1.1
Chloroform	ND	0.40	ND	2.0
Chloromethane	ND	1.0	ND	2.1
Cyclohexane	ND	1.0	ND	3.4
1,2-Dibromoethane (EDB)	ND	0.40	ND	3.1
1,2-Dichlorobenzene	ND	0.40	ND	2.4
1,3-Dichlorobenzene	ND	0.40	ND	2.4
1,4-Dichlorobenzene	ND	0.40	ND	2.4
Dichlorodifluoromethane	**4.9**	**0.40**	**24**	**2.0**
1,1-Dichloroethane	ND	0.40	ND	1.6
1,2-Dichloroethane	ND	0.40	ND	1.6
cis-1,2-Dichloroethene	**0.58**	**0.40**	**2.3**	**1.6**
trans-1,2-Dichloroethene	ND	0.40	ND	1.6
1,1-Dichloroethene	ND	0.40	ND	1.6
1,2-Dichloropropane	ND	0.40	ND	1.8
cis-1,3-Dichloropropene	ND	0.40	ND	1.8
trans-1,3-Dichloropropene	ND	0.40	ND	1.8
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.40	ND	2.8
1,4-Dioxane	ND	1.0	ND	3.6
Ethanol	ND	4.0	ND	7.5
Ethylbenzene	ND	0.40	ND	1.7
Hexachlorobutadiene	ND	0.40	ND	4.3
n-Hexane	ND	1.0	ND	3.5
Methylene chloride	ND	1.0	ND	3.5
4-Methyl-2-pentanone (MIBK)	**24**	**1.0**	**98**	**4.1**
Methyl tert-butyl ether	ND	0.80	ND	2.9
Styrene	ND	0.40	ND	1.7
1,1,2,2-Tetrachloroethane	ND	0.40	ND	2.7

New York State D.E.C.

Client Sample ID: 360023-SS-03

GC/MS Volatiles

Lot-Sample # H3A230403 - 001 **Work Order #** MXXT51AA **Matrix.....:** AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	**50**	**0.40**	**340**	**2.7**
Toluene	**1.4**	**0.40**	**5.3**	**1.5**
1,2,4-Trichlorobenzene	ND	0.40	ND	3.0
1,1,1-Trichloroethane	ND	0.40	ND	2.2
1,1,2-Trichloroethane	ND	0.40	ND	2.2
Trichloroethene	**0.93**	**0.20**	**5.0**	**1.1**
Trichlorofluoromethane	**1.7**	**0.40**	**9.8**	**2.2**
1,1,2-Trichlorotrifluoroethane	ND	0.40	ND	3.1
1,2,4-Trimethylbenzene	ND	0.40	ND	2.0
1,3,5-Trimethylbenzene	ND	0.40	ND	2.0
2,2,4-Trimethylpentane	ND	1.0	ND	4.7
Vinyl chloride	ND	0.40	ND	1.0
m-Xylene & p-Xylene	**1.1**	**0.40**	**4.7**	**1.7**
o-Xylene	ND	0.40	ND	1.7

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	105	60 - 140

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

New York State D.E.C.

Client Sample ID: 360023-IA-03

GC/MS Volatiles

Lot-Sample # H3A230403 - 002 **Work Order #** MXXT61AA **Matrix.....:** AIR

Date Sampled...: 01/15/2013 **Date Received..:** 01/21/2013
Prep Date.....: 01/24/2013 **Analysis Date...** 01/24/2013
Prep Batch #.....: 3024041
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Benzene	**0.30**	**0.080**	**0.95**	**0.26**
Benzyl chloride	ND	0.16	ND	0.83
Bromodichloromethane	ND	0.080	ND	0.54
Bromoform	ND	0.080	ND	0.83
Bromomethane	ND	0.080	ND	0.31
2-Butanone (MEK)	**1.2**	**0.32**	**3.6**	**0.94**
tert-Butyl alcohol	ND	0.32	ND	0.97
Carbon tetrachloride	**0.079**	**0.040**	**0.50**	**0.25**
Chlorobenzene	ND	0.080	ND	0.37
Dibromochloromethane	ND	0.080	ND	0.68
Chloroethane	ND	0.080	ND	0.21
Chloroform	ND	0.080	ND	0.39
Chloromethane	**0.88**	**0.20**	**1.8**	**0.41**
Cyclohexane	ND	0.20	ND	0.69
1,2-Dibromoethane (EDB)	ND	0.080	ND	0.61
1,2-Dichlorobenzene	ND	0.080	ND	0.48
1,3-Dichlorobenzene	ND	0.080	ND	0.48
1,4-Dichlorobenzene	ND	0.080	ND	0.48
Dichlorodifluoromethane	**0.55**	**0.080**	**2.7**	**0.40**
1,1-Dichloroethane	ND	0.080	ND	0.32
1,2-Dichloroethane	**1.5**	**0.080**	**6.1**	**0.32**
cis-1,2-Dichloroethene	ND	0.080	ND	0.32
trans-1,2-Dichloroethene	ND	0.080	ND	0.32
1,1-Dichloroethene	ND	0.080	ND	0.32
1,2-Dichloropropane	ND	0.080	ND	0.37
cis-1,3-Dichloropropene	ND	0.080	ND	0.36
trans-1,3-Dichloropropene	ND	0.080	ND	0.36
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.080	ND	0.56
1,4-Dioxane	ND	0.20	ND	0.72
Ethanol	**67**	**0.80**	**130**	**1.5**
Ethylbenzene	**0.53**	**0.080**	**2.3**	**0.35**
Hexachlorobutadiene	ND	0.080	ND	0.85
n-Hexane	**0.20**	**0.20**	**0.71**	**0.70**
Methylene chloride	**0.63**	**0.20**	**2.2**	**0.69**
4-Methyl-2-pentanone (MIBK)	**0.35**	**0.20**	**1.4**	**0.82**
Methyl tert-butyl ether	ND	0.16	ND	0.58
Styrene	**0.17**	**0.080**	**0.74**	**0.34**
1,1,2,2-Tetrachloroethane	ND	0.080	ND	0.55

New York State D.E.C.

Client Sample ID: 360023-IA-03

GC/MS Volatiles

Lot-Sample # H3A230403 - 002 **Work Order #** MXXT61AA **Matrix.....:** AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	**0.15**	**0.080**	**1.0**	**0.54**
Toluene	**7.2**	**0.080**	**27**	**0.30**
1,2,4-Trichlorobenzene	ND	0.080	ND	0.59
1,1,1-Trichloroethane	ND	0.080	ND	0.44
1,1,2-Trichloroethane	ND	0.080	ND	0.44
Trichloroethene	**0.043**	**0.040**	**0.23**	**0.21**
Trichlorofluoromethane	**0.25**	**0.080**	**1.4**	**0.45**
1,1,2-Trichlorotrifluoroethane	ND	0.080	ND	0.61
1,2,4-Trimethylbenzene	**0.12**	**0.080**	**0.57**	**0.39**
1,3,5-Trimethylbenzene	ND	0.080	ND	0.39
2,2,4-Trimethylpentane	ND	0.20	ND	0.93
Vinyl chloride	ND	0.080	ND	0.20
m-Xylene & p-Xylene	**0.85**	**0.080**	**3.7**	**0.35**
o-Xylene	**0.38**	**0.080**	**1.7**	**0.35**

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	103	60 - 140

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

New York State D.E.C.

Client Sample ID: 360023-SS-04

GC/MS Volatiles

Lot-Sample #	H3A230403 - 003	**Work Order #**	MXXT71AA	**Matrix.....:**	AIR
Date Sampled...:	01/15/2013	**Date Received..:**	01/21/2013		
Prep Date.....:	01/24/2013	**Analysis Date...**	01/24/2013		
Prep Batch #.....:	3024041				
Dilution Factor.:	2	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Benzene	ND	0.16	ND	0.51
Benzyl chloride	ND	0.32	ND	1.7
Bromodichloromethane	ND	0.16	ND	1.1
Bromoform	ND	0.16	ND	1.7
Bromomethane	ND	0.16	ND	0.62
2-Butanone (MEK)	**0.82**	**0.64**	**2.4**	**1.9**
tert-Butyl alcohol	ND	0.64	ND	1.9
Carbon tetrachloride	ND	0.080	ND	0.50
Chlorobenzene	ND	0.16	ND	0.74
Dibromochloromethane	ND	0.16	ND	1.4
Chloroethane	ND	0.16	ND	0.42
Chloroform	ND	0.16	ND	0.78
Chloromethane	ND	0.40	ND	0.83
Cyclohexane	ND	0.40	ND	1.4
1,2-Dibromoethane (EDB)	ND	0.16	ND	1.2
1,2-Dichlorobenzene	ND	0.16	ND	0.96
1,3-Dichlorobenzene	ND	0.16	ND	0.96
1,4-Dichlorobenzene	ND	0.16	ND	0.96
Dichlorodifluoromethane	**1.1**	**0.16**	**5.3**	**0.79**
1,1-Dichloroethane	ND	0.16	ND	0.65
1,2-Dichloroethane	ND	0.16	ND	0.65
cis-1,2-Dichloroethene	ND	0.16	ND	0.63
trans-1,2-Dichloroethene	ND	0.16	ND	0.63
1,1-Dichloroethene	ND	0.16	ND	0.63
1,2-Dichloropropane	ND	0.16	ND	0.74
cis-1,3-Dichloropropene	ND	0.16	ND	0.73
trans-1,3-Dichloropropene	ND	0.16	ND	0.73
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.16	ND	1.1
1,4-Dioxane	ND	0.40	ND	1.4
Ethanol	**11**	**1.6**	**21**	**3.0**
Ethylbenzene	ND	0.16	ND	0.69
Hexachlorobutadiene	ND	0.16	ND	1.7
n-Hexane	ND	0.40	ND	1.4
Methylene chloride	**0.47**	**0.40**	**1.6**	**1.4**
4-Methyl-2-pentanone (MIBK)	ND	0.40	ND	1.6
Methyl tert-butyl ether	ND	0.32	ND	1.2
Styrene	ND	0.16	ND	0.68
1,1,2,2-Tetrachloroethane	ND	0.16	ND	1.1

New York State D.E.C.

Client Sample ID: 360023-SS-04

GC/MS Volatiles

Lot-Sample # H3A230403 - 003 **Work Order #** MXXT71AA **Matrix.....:** AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	**37 E**	**0.16**	**250 E**	**1.1**
Toluene	**0.95**	**0.16**	**3.6**	**0.60**
1,2,4-Trichlorobenzene	ND	0.16	ND	1.2
1,1,1-Trichloroethane	ND	0.16	ND	0.87
1,1,2-Trichloroethane	ND	0.16	ND	0.87
Trichloroethene	**0.25**	**0.080**	**1.3**	**0.43**
Trichlorofluoromethane	**1.1**	**0.16**	**6.0**	**0.90**
1,1,2-Trichlorotrifluoroethane	ND	0.16	ND	1.2
1,2,4-Trimethylbenzene	ND	0.16	ND	0.79
1,3,5-Trimethylbenzene	ND	0.16	ND	0.79
2,2,4-Trimethylpentane	ND	0.40	ND	1.9
Vinyl chloride	ND	0.16	ND	0.41
m-Xylene & p-Xylene	ND	0.16	ND	0.69
o-Xylene	ND	0.16	ND	0.69

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	105	60 - 140

Qualifiers

E Estimated result. Result concentration exceeds the calibration range.

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

New York State D.E.C.

Client Sample ID: 360023-SS-04

GC/MS Volatiles

Lot-Sample #	H3A230403 - 003	**Work Order #**	MXXT72AA	**Matrix.....:**	AIR
Date Sampled...:	01/15/2013	**Date Received..:**	01/21/2013		
Prep Date.....:	01/24/2013	**Analysis Date...**	01/24/2013		
Prep Batch #.....:	3024041				
Dilution Factor.:	4	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	**24 D**	**0.32**	**160 D**	**2.2**

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	98	60 - 140

Qualifiers

D Result was obtained from the analysis of a dilution.

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

New York State D.E.C.

Client Sample ID: 360023-IA-04

GC/MS Volatiles

Lot-Sample # H3A230403 - 004 **Work Order #** MXXT81AA **Matrix.....:** AIR

Date Sampled...: 01/15/2013 **Date Received..:** 01/21/2013
Prep Date.....: 01/24/2013 **Analysis Date...** 01/25/2013
Prep Batch #.....: 3024041
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Benzene	**0.28**	**0.080**	**0.89**	**0.26**
Benzyl chloride	ND	0.16	ND	0.83
Bromodichloromethane	ND	0.080	ND	0.54
Bromoform	ND	0.080	ND	0.83
Bromomethane	ND	0.080	ND	0.31
2-Butanone (MEK)	**1.5**	**0.32**	**4.4**	**0.94**
tert-Butyl alcohol	ND	0.32	ND	0.97
Carbon tetrachloride	**0.073**	**0.040**	**0.46**	**0.25**
Chlorobenzene	ND	0.080	ND	0.37
Dibromochloromethane	ND	0.080	ND	0.68
Chloroethane	ND	0.080	ND	0.21
Chloroform	ND	0.080	ND	0.39
Chloromethane	**0.88**	**0.20**	**1.8**	**0.41**
Cyclohexane	ND	0.20	ND	0.69
1,2-Dibromoethane (EDB)	ND	0.080	ND	0.61
1,2-Dichlorobenzene	ND	0.080	ND	0.48
1,3-Dichlorobenzene	ND	0.080	ND	0.48
1,4-Dichlorobenzene	ND	0.080	ND	0.48
Dichlorodifluoromethane	**0.58**	**0.080**	**2.8**	**0.40**
1,1-Dichloroethane	ND	0.080	ND	0.32
1,2-Dichloroethane	**1.6**	**0.080**	**6.6**	**0.32**
cis-1,2-Dichloroethene	ND	0.080	ND	0.32
trans-1,2-Dichloroethene	ND	0.080	ND	0.32
1,1-Dichloroethene	ND	0.080	ND	0.32
1,2-Dichloropropane	**0.13**	**0.080**	**0.62**	**0.37**
cis-1,3-Dichloropropene	ND	0.080	ND	0.36
trans-1,3-Dichloropropene	ND	0.080	ND	0.36
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.080	ND	0.56
1,4-Dioxane	ND	0.20	ND	0.72
Ethanol	**71**	**0.80**	**130**	**1.5**
Ethylbenzene	**0.55**	**0.080**	**2.4**	**0.35**
Hexachlorobutadiene	ND	0.080	ND	0.85
n-Hexane	**0.24**	**0.20**	**0.86**	**0.70**
Methylene chloride	**0.79**	**0.20**	**2.7**	**0.69**
4-Methyl-2-pentanone (MIBK)	**0.57**	**0.20**	**2.4**	**0.82**
Methyl tert-butyl ether	ND	0.16	ND	0.58
Styrene	**0.55**	**0.080**	**2.4**	**0.34**
1,1,2,2-Tetrachloroethane	ND	0.080	ND	0.55
Tetrachloroethene	**3.5**	**0.080**	**24**	**0.54**

New York State D.E.C.

Client Sample ID: 360023-IA-04

GC/MS Volatiles

Lot-Sample # H3A230403 - 004 **Work Order #** MXXT81AA **Matrix.....:** AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Toluene	**6.2**	**0.080**	**24**	**0.30**
1,2,4-Trichlorobenzene	ND	0.080	ND	0.59
1,1,1-Trichloroethane	ND	0.080	ND	0.44
1,1,2-Trichloroethane	ND	0.080	ND	0.44
Trichloroethene	ND	0.040	ND	0.21
Trichlorofluoromethane	**0.26**	**0.080**	**1.5**	**0.45**
1,1,2-Trichlorotrifluoroethane	ND	0.080	ND	0.61
1,2,4-Trimethylbenzene	**0.18**	**0.080**	**0.88**	**0.39**
1,3,5-Trimethylbenzene	ND	0.080	ND	0.39
2,2,4-Trimethylpentane	ND	0.20	ND	0.93
Vinyl chloride	ND	0.080	ND	0.20
m-Xylene & p-Xylene	**1.3**	**0.080**	**5.5**	**0.35**
o-Xylene	**0.62**	**0.080**	**2.7**	**0.35**

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	103	60 - 140

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

New York State D.E.C.

Client Sample ID: 360023-IA-04A(DUP)

GC/MS Volatiles

Lot-Sample #	H3A230403 - 005	**Work Order #**	MXXT91AA	**Matrix.....:**	AIR
Date Sampled...:	01/15/2013	**Date Received..:**	01/21/2013		
Prep Date.....:	01/24/2013	**Analysis Date...**	01/25/2013		
Prep Batch #.....:	3024041				
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Benzene	**0.24**	**0.080**	**0.78**	**0.26**
Benzyl chloride	ND	0.16	ND	0.83
Bromodichloromethane	ND	0.080	ND	0.54
Bromoform	ND	0.080	ND	0.83
Bromomethane	ND	0.080	ND	0.31
2-Butanone (MEK)	**1.4**	**0.32**	**4.1**	**0.94**
tert-Butyl alcohol	ND	0.32	ND	0.97
Carbon tetrachloride	**0.061**	**0.040**	**0.39**	**0.25**
Chlorobenzene	ND	0.080	ND	0.37
Dibromochloromethane	ND	0.080	ND	0.68
Chloroethane	ND	0.080	ND	0.21
Chloroform	ND	0.080	ND	0.39
Chloromethane	**0.73**	**0.20**	**1.5**	**0.41**
Cyclohexane	ND	0.20	ND	0.69
1,2-Dibromoethane (EDB)	ND	0.080	ND	0.61
1,2-Dichlorobenzene	ND	0.080	ND	0.48
1,3-Dichlorobenzene	ND	0.080	ND	0.48
1,4-Dichlorobenzene	ND	0.080	ND	0.48
Dichlorodifluoromethane	**0.51**	**0.080**	**2.5**	**0.40**
1,1-Dichloroethane	ND	0.080	ND	0.32
1,2-Dichloroethane	**1.4**	**0.080**	**5.8**	**0.32**
cis-1,2-Dichloroethene	ND	0.080	ND	0.32
trans-1,2-Dichloroethene	ND	0.080	ND	0.32
1,1-Dichloroethene	ND	0.080	ND	0.32
1,2-Dichloropropane	**0.11**	**0.080**	**0.52**	**0.37**
cis-1,3-Dichloropropene	ND	0.080	ND	0.36
trans-1,3-Dichloropropene	ND	0.080	ND	0.36
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.080	ND	0.56
1,4-Dioxane	ND	0.20	ND	0.72
Ethanol	**59**	**0.80**	**110**	**1.5**
Ethylbenzene	**0.50**	**0.080**	**2.2**	**0.35**
Hexachlorobutadiene	ND	0.080	ND	0.85
n-Hexane	**0.23**	**0.20**	**0.83**	**0.70**
Methylene chloride	**1.4**	**0.20**	**4.7**	**0.69**
4-Methyl-2-pentanone (MIBK)	**0.45**	**0.20**	**1.9**	**0.82**
Methyl tert-butyl ether	ND	0.16	ND	0.58
Styrene	**0.50**	**0.080**	**2.1**	**0.34**
1,1,2,2-Tetrachloroethane	ND	0.080	ND	0.55
Tetrachloroethene	**3.2**	**0.080**	**21**	**0.54**

New York State D.E.C.

Client Sample ID: 360023-IA-04A(DUP)

GC/MS Volatiles

Lot-Sample # H3A230403 - 005 **Work Order #** MXXT91AA **Matrix.....:** AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Toluene	**5.8**	**0.080**	**22**	**0.30**
1,2,4-Trichlorobenzene	ND	0.080	ND	0.59
1,1,1-Trichloroethane	ND	0.080	ND	0.44
1,1,2-Trichloroethane	ND	0.080	ND	0.44
Trichloroethene	ND	0.040	ND	0.21
Trichlorofluoromethane	**0.23**	**0.080**	**1.3**	**0.45**
1,1,2-Trichlorotrifluoroethane	ND	0.080	ND	0.61
1,2,4-Trimethylbenzene	**0.17**	**0.080**	**0.84**	**0.39**
1,3,5-Trimethylbenzene	ND	0.080	ND	0.39
2,2,4-Trimethylpentane	ND	0.20	ND	0.93
Vinyl chloride	ND	0.080	ND	0.20
m-Xylene & p-Xylene	**1.1**	**0.080**	**4.9**	**0.35**
o-Xylene	**0.55**	**0.080**	**2.4**	**0.35**

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	101	60 - 140

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

New York State D.E.C.

Client Sample ID: 360023-OA-01

GC/MS Volatiles

Lot-Sample # H3A230403 - 006 **Work Order #** MXXVA1AA **Matrix.....:** AIR

Date Sampled...: 01/15/2013 **Date Received..:** 01/21/2013
Prep Date.....: 01/24/2013 **Analysis Date...** 01/25/2013
Prep Batch #.....: 3024041
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Benzene	**0.22**	**0.080**	**0.70**	**0.26**
Benzyl chloride	ND	0.16	ND	0.83
Bromodichloromethane	ND	0.080	ND	0.54
Bromoform	ND	0.080	ND	0.83
Bromomethane	ND	0.080	ND	0.31
2-Butanone (MEK)	ND	0.32	ND	0.94
tert-Butyl alcohol	ND	0.32	ND	0.97
Carbon tetrachloride	**0.065**	**0.040**	**0.41**	**0.25**
Chlorobenzene	ND	0.080	ND	0.37
Dibromochloromethane	ND	0.080	ND	0.68
Chloroethane	ND	0.080	ND	0.21
Chloroform	ND	0.080	ND	0.39
Chloromethane	**0.61**	**0.20**	**1.3**	**0.41**
Cyclohexane	ND	0.20	ND	0.69
1,2-Dibromoethane (EDB)	ND	0.080	ND	0.61
1,2-Dichlorobenzene	ND	0.080	ND	0.48
1,3-Dichlorobenzene	ND	0.080	ND	0.48
1,4-Dichlorobenzene	ND	0.080	ND	0.48
Dichlorodifluoromethane	**0.50**	**0.080**	**2.5**	**0.40**
1,1-Dichloroethane	ND	0.080	ND	0.32
1,2-Dichloroethane	ND	0.080	ND	0.32
cis-1,2-Dichloroethene	ND	0.080	ND	0.32
trans-1,2-Dichloroethene	ND	0.080	ND	0.32
1,1-Dichloroethene	ND	0.080	ND	0.32
1,2-Dichloropropane	ND	0.080	ND	0.37
cis-1,3-Dichloropropene	ND	0.080	ND	0.36
trans-1,3-Dichloropropene	ND	0.080	ND	0.36
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.080	ND	0.56
1,4-Dioxane	ND	0.20	ND	0.72
Ethanol	**4.9**	**0.80**	**9.3**	**1.5**
Ethylbenzene	ND	0.080	ND	0.35
Hexachlorobutadiene	ND	0.080	ND	0.85
n-Hexane	ND	0.20	ND	0.70
Methylene chloride	**0.52**	**0.20**	**1.8**	**0.69**
4-Methyl-2-pentanone (MIBK)	ND	0.20	ND	0.82
Methyl tert-butyl ether	ND	0.16	ND	0.58
Styrene	ND	0.080	ND	0.34
1,1,2,2-Tetrachloroethane	ND	0.080	ND	0.55

New York State D.E.C.

Client Sample ID: 360023-OA-01

GC/MS Volatiles

Lot-Sample # H3A230403 - 006 **Work Order #** MXXVA1AA **Matrix.....:** AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	0.080	ND	0.54
Toluene	**0.27**	**0.080**	**1.0**	**0.30**
1,2,4-Trichlorobenzene	ND	0.080	ND	0.59
1,1,1-Trichloroethane	ND	0.080	ND	0.44
1,1,2-Trichloroethane	ND	0.080	ND	0.44
Trichloroethene	ND	0.040	ND	0.21
Trichlorofluoromethane	**0.23**	**0.080**	**1.3**	**0.45**
1,1,2-Trichlorotrifluoroethane	ND	0.080	ND	0.61
1,2,4-Trimethylbenzene	ND	0.080	ND	0.39
1,3,5-Trimethylbenzene	ND	0.080	ND	0.39
2,2,4-Trimethylpentane	ND	0.20	ND	0.93
Vinyl chloride	ND	0.080	ND	0.20
m-Xylene & p-Xylene	ND	0.080	ND	0.35
o-Xylene	ND	0.080	ND	0.35

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	101	60 - 140

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

New York State D.E.C.

Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample # H3A240000 - 041B **Work Order #** MXX831AA **Matrix.....:** AIR

	01/15/2013	**Date Received..:**	01/21/2013
Prep Date.....:	01/24/2013	**Analysis Date...**	01/24/2013
Prep Batch #.....:	3024041		
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Benzene	ND	0.080	ND	0.26
Benzyl chloride	ND	0.16	ND	0.83
Bromodichloromethane	ND	0.080	ND	0.54
Bromoform	ND	0.080	ND	0.83
Bromomethane	ND	0.080	ND	0.31
2-Butanone (MEK)	ND	0.32	ND	0.94
tert-Butyl alcohol	ND	0.32	ND	0.97
Carbon tetrachloride	ND	0.040	ND	0.25
Chlorobenzene	ND	0.080	ND	0.37
Dibromochloromethane	ND	0.080	ND	0.68
Chloroethane	ND	0.080	ND	0.21
Chloroform	ND	0.080	ND	0.39
Chloromethane	ND	0.20	ND	0.41
Cyclohexane	ND	0.20	ND	0.69
1,2-Dibromoethane (EDB)	ND	0.080	ND	0.61
1,2-Dichlorobenzene	ND	0.080	ND	0.48
1,3-Dichlorobenzene	ND	0.080	ND	0.48
1,4-Dichlorobenzene	ND	0.080	ND	0.48
Dichlorodifluoromethane	ND	0.080	ND	0.40
1,1-Dichloroethane	ND	0.080	ND	0.32
1,2-Dichloroethane	ND	0.080	ND	0.32
cis-1,2-Dichloroethene	ND	0.080	ND	0.32
trans-1,2-Dichloroethene	ND	0.080	ND	0.32
1,1-Dichloroethene	ND	0.080	ND	0.32
1,2-Dichloropropane	ND	0.080	ND	0.37
cis-1,3-Dichloropropene	ND	0.080	ND	0.36
trans-1,3-Dichloropropene	ND	0.080	ND	0.36
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.080	ND	0.56
1,4-Dioxane	ND	0.20	ND	0.72
Ethanol	ND	0.80	ND	1.5
Ethylbenzene	ND	0.080	ND	0.35
Hexachlorobutadiene	ND	0.080	ND	0.85
n-Hexane	ND	0.20	ND	0.70
Methylene chloride	ND	0.20	ND	0.69
4-Methyl-2-pentanone (MIBK)	ND	0.20	ND	0.82
Methyl tert-butyl ether	ND	0.16	ND	0.58
Styrene	ND	0.080	ND	0.34

New York State D.E.C.

Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample # H3A240000 - 041B **Work Order #** MXX831AA **Matrix.....:** AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
1,1,2,2-Tetrachloroethane	ND	0.080	ND	0.55
Tetrachloroethene	ND	0.080	ND	0.54
Toluene	ND	0.080	ND	0.30
1,2,4-Trichlorobenzene	ND	0.080	ND	0.59
1,1,1-Trichloroethane	ND	0.080	ND	0.44
1,1,2-Trichloroethane	ND	0.080	ND	0.44
Trichloroethene	ND	0.040	ND	0.21
Trichlorofluoromethane	ND	0.080	ND	0.45
1,1,2-Trichlorotrifluoroethane	ND	0.080	ND	0.61
1,2,4-Trimethylbenzene	ND	0.080	ND	0.39
1,3,5-Trimethylbenzene	ND	0.080	ND	0.39
2,2,4-Trimethylpentane	ND	0.20	ND	0.93
Vinyl chloride	ND	0.080	ND	0.20
m-Xylene & p-Xylene	ND	0.080	ND	0.35
o-Xylene	ND	0.080	ND	0.35

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	97	60 - 140

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

New York State D.E.C.

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample # H3A240000 - 041C **Work Order #** MXX831AC **Matrix.....:** AIR

	01/15/2013	**Date Received..:**	01/21/2013
Prep Date.....:	01/24/2013	**Analysis Date...**	01/24/2013
Prep Batch #.....:	3024041		
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
Benzene	5.00	5.66	16	18.1	113	70 - 130
Benzyl chloride	5.00	5.57	26	28.9	111	70 - 130
Bromodichloromethane	5.00	5.57	34	37.3	111	70 - 130
Bromoform	5.00	4.41	52	45.6	88	60 - 140
Bromomethane	5.00	6.76	19	26.2 a ME	135 a ME	70 - 130
2-Butanone (MEK)	5.00	4.91	15	14.5	98	60 - 140
tert-Butyl alcohol	5.00	6.00	15	18.2	120	60 - 140
Carbon tetrachloride	5.00	4.20	31	26.4	84	70 - 130
Chlorobenzene	5.00	5.36	23	24.7	107	70 - 130
Dibromochloromethane	5.00	5.36	43	45.7	107	70 - 130
Chloroethane	5.00	6.73	13	17.8 a ME	135 a ME	70 - 130
Chloroform	5.00	5.66	24	27.6	113	70 - 130
Chloromethane	5.00	5.82	10	12.0	116	60 - 140
Cyclohexane	5.00	5.95	17	20.5	119	70 - 130
1,2-Dibromoethane (EDB)	5.00	5.49	38	42.2	110	70 - 130
1,2-Dichlorobenzene	5.00	5.05	30	30.3	101	70 - 130
1,3-Dichlorobenzene	5.00	5.22	30	31.4	104	70 - 130
1,4-Dichlorobenzene	5.00	4.94	30	29.7	99	70 - 130
Dichlorodifluoromethane	5.00	6.02	25	29.8	120	60 - 140
1,1-Dichloroethane	5.00	5.61	20	22.7	112	70 - 130
1,2-Dichloroethane	5.00	5.30	20	21.5	106	70 - 130
cis-1,2-Dichloroethene	5.00	5.72	20	22.7	114	70 - 130
trans-1,2-Dichloroethene	5.00	5.69	20	22.6	114	70 - 130
1,1-Dichloroethene	5.00	5.86	20	23.3	117	70 - 130
1,2-Dichloropropane	5.00	5.31	23	24.6	106	70 - 130
cis-1,3-Dichloropropene	5.00	5.64	23	25.6	113	70 - 130
trans-1,3-Dichloropropene	5.00	5.57	23	25.3	111	70 - 130
1,2-Dichloro-1,1,2,2-tetrafluoroethane	5.00	6.03	35	42.1	121	60 - 140
1,4-Dioxane	5.00	5.52	18	19.9	110	60 - 140
Ethanol	25.0	21.2	47	39.9	85	20 - 180
Ethylbenzene	5.00	5.53	22	24.0	111	70 - 130
Hexachlorobutadiene	5.00	3.56	53	38.0	71	60 - 140
n-Hexane	5.00	5.63	18	19.8	113	70 - 130
Methylene chloride	5.00	5.94	17	20.6	119	70 - 130
4-Methyl-2-pentanone (MIBK)	5.00	4.40	20	18.0	88	60 - 140
Methyl tert-butyl ether	5.00	5.16	18	18.6	103	60 - 140

New York State D.E.C.

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample # H3A240000 - 041C **Work Order #** MXX831AC **Matrix.....:** AIR

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
Styrene	5.00	5.91	21	25.2	118	70 - 130
1,1,2,2-Tetrachloroethane	5.00	5.49	34	37.7	110	70 - 130
Tetrachloroethene	5.00	5.54	34	37.6	111	70 - 130
Toluene	5.00	5.55	19	20.9	111	70 - 130
1,2,4-Trichlorobenzene	5.00	3.89	37	28.9	78	60 - 140
1,1,1-Trichloroethane	5.00	5.46	27	29.8	109	70 - 130
1,1,2-Trichloroethane	5.00	5.66	27	30.9	113	70 - 130
Trichloroethene	5.00	5.53	27	29.7	111	70 - 130
Trichlorofluoromethane	5.00	5.71	28	32.1	114	60 - 140
1,1,2-Trichlorotrifluoroethane	5.00	5.75	38	44.0	115	70 - 130
1,2,4-Trimethylbenzene	5.00	5.66	25	27.8	113	70 - 130
1,3,5-Trimethylbenzene	5.00	5.29	25	26.0	106	70 - 130
2,2,4-Trimethylpentane	5.00	5.60	23	26.2	112	70 - 130
Vinyl chloride	5.00	5.72	13	14.6	114	70 - 130
m-Xylene & p-Xylene	10.0	11.4	43	49.4	114	70 - 130
o-Xylene	5.00	5.45	22	23.7	109	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	107	60 - 140

Qualifiers

a	Spiked analyte recovery is outside stated control limits.
ME	The percent recovery of the analyte is outside the control limits but within marginal exceedance limits.

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Sample Receipt Documentation

TAL Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

H3A2304103

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

THE LE

Client Contact Information	Project Manager: Tim Knollmeyer																				1 of 1 COCs
Company: NYSDEC / Aztech Technologies Inc.	Phone:																				
Address: 5 McCrea Hill Rd	Site Contact:																				
City/State/Zip Ballston Spa NY 12020	TAL Contact:																				
Phone: 518-885-5383																					
FAX: 518-885-5385																					
Project Name: DEC-Baldwin Place	Analysis Turnaround Time																				
Site/location: Baldwin Place	Standard (Specify) 14 D																				
PO #	Rush (Specify)																				

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, 'Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
360023-SS-03	1/15/2013	1047	441	-30	-7	K093	6636	x									x		
360023-IA-03	1/15/2013	1047	439	-29	-0	K492	6371	x							x				
360023-SS-04	1/15/2013	1045	435	-30	-5	K379	04191	x									x		
360023-IA-04	1/15/2013	1045	433	-30	-4	K432	12182	x							x				
360023-IA-04A (Dup)	1/15/2013	1045	432	-30	-7	K425	3513	x							x				
360023-OA-01	1/15/2013	1055	455	-30	-7	K250	01248	x								x			

7513

Sampled by :

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

NO CUSTODY SEALS
RECEIVED AT AMBIENT TEMP
BKD 1-21-13

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

1 BOX FEDX# 4110 5808 9563
6 CANS / 6 FLOWS / 3 C.C / 1 T

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by:	Date/Time: 1/17/13 1225	Received by:
Relinquished by:	Date/Time: 1/18/13 1730	Received by: Lynn Ammon 1-21-13 10:00

Lab Use Only **Shipper Name:** **Opened by:** **Condition:**

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: H3A230403

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ **1a** Do not match COC ☐ **1b** Incomplete information ☐ **1c** Marking smeared ☐ **1d** Label torn ☐ **1e** No label ☐ **1f** COC not received ☐ **1g** Other:	4A
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)			✓	☐ **2a** Temp Blank = _____ ☐ **2b** Cooler Temp = _____ ☐ **2c** Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ **3a** Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?		✓		☑ **4a** Not present ☐ **4b** Not intact ☐ **4c** Other:	
5. Were all of the samples listed on the COC received?	✓			☐ **5a** Samples received-not on COC ☐ **5b** Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐ **6a** Leaking ☐ **6b** Broken	
7. Were VOA samples received without headspace?			✓	☐ **7a** Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐ **8a** Improper container	
9. Did you check for residual chlorine, if necessary?			✓	☐ **9a** Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐ **10a** Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐ Incomplete information	
12. For 1613B water samples is pH<9?			✓	If no, was pH adjusted to pH 7 - 9 with sulfuric acid? _____	
13. Are the shipping containers intact?	✓			☐ **13a** Leaking ☐ **13b** Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ **14a** Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐ **15a** Incomplete information	
16. Is the matrix of the samples noted?	✓			☐ **15a** Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐ **15a** Incomplete information	
18. Is the client and project name/# identified?	✓			☐ **15a** Incomplete information	
19. Was the sampler identified on the COC?		✓		☐ **19a** Other	

Quote #: 91129 PM Instructions: _____

Sample Receiving Associate: Bryan Dawson Date: 1-21-13

QA026R23.doc, 022812

Test America - Knoxville ---- Air Canister Dilution Log

Lot Number: *H3A230403*

Initial Can Pressure							Subsequent Dilutions												
Analyst/Date	Can or Tedlar bag prep Time	Baro ID 17 Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (- in or + psig)	Analyst/Date	I / S	Baro ID Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
1-23-13	1045	29.26	MXXT5	6636	-5.2													10279
			MXXT6	6371	0.0													
			MXXT7	04191	-3.5													
			MXXT8	12187	-5.7													
			MXXT9	7513	-5.9													
			MXXVA	0128	-2.4													

29.26
1-23-13

ATTACHMENT 3

SURFACE DRAINAGE FEATURES

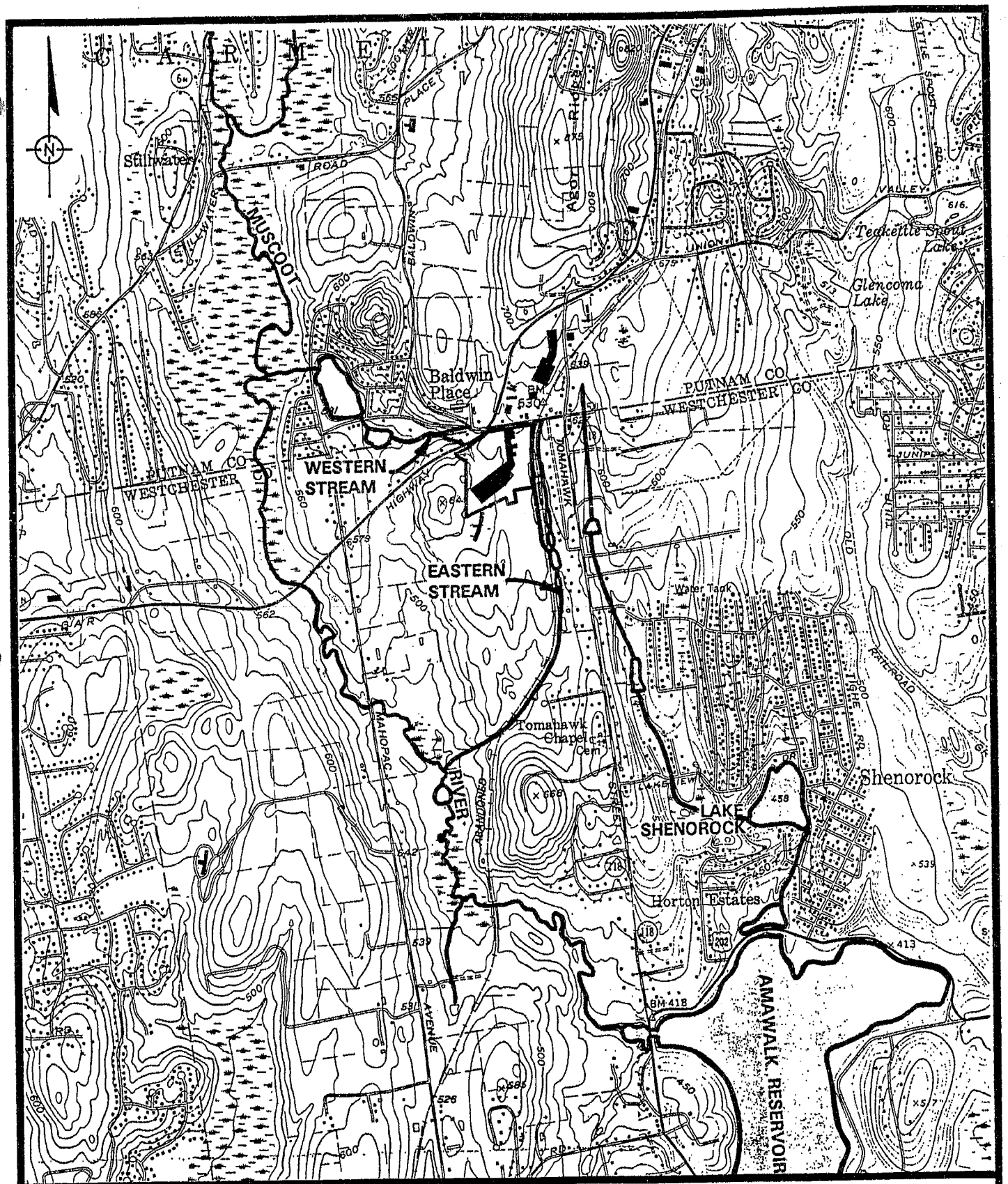


FIGURE 4-1 SURFACE WATER FEATURES IN THE BPM AREA

ATTACHMENT 4

NYSDEC POTABLE WELL SAMPLING RESULTS

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 3
21 South Putt Corners Road, New Paltz, New York 12561-1696
Phone: (845) 256-3146 • **FAX:** (845) 255-3414
Website: www.dec.state.ny.us

Denise M. Sheehan
Acting
Commissioner

November 7, 2005

Mr. Carl Obermeyer
Bureau of Environmental Exposure Investigation
NYS Department of Health
50 North Street - Suite 2
Monticello, NY 12701-1171

RE: Baldwin Place Mall - Site ID: #360023
Potable Well Sampling Program

Dear Mr. Obermeyer:

As requested in your July 18, 2005, the enclosed tables present the historical potable well data collected in conjunction with the above-referenced site as of the August 2005 sampling round. Please note that many of the properties listed on the enclosed tables have since been connected to the public water system as noted on the tables. Three of the four wells you requested to be monitored were sampled during the August 2005 round and those data are included in the attached table; the Jones (Lewis) well was not sampled because this location was connected to public water sometime between October 2003 and July 2004. For your reference, I've also enclosed an old site plan that shows the surrounding current or former potable well locations.

Please feel free to call me at (845) 256-3826 with any questions, or if you need anything further.

Sincerely,

Janet E. Brown, PE
Project Manager

cc: R. Pergadia, NYSDEC RHWRE Region 3
M. Rivara, NYSDOH
C. Lalak, Westchester County DOH

H:\Baldwin Place\PotableWellSamp.wpd

TABLE 3-3

PCE CONCENTRATIONS IN UNTREATED MAHOPAC AVENUE AREA SUPPLIES

Date	Coll. By		Jear 1 County Line Drive	P Cahill 259 Mahopac	(P) Nopper 257 Mahopac	P Church & School 253 Mahopac	P Church Annex 254 Mahopac	Slater Parsonage 249 Mahopac	P Hoppe 268 Mahopac	Coppolecchia 264 Mahopac PCE	Coppolecchia 264 Mahopac chloroform	P Lewis (Jones) 256 Mahopac	Autoparts Store* / Levine 250 Mahopac	Tool Nut (Out of the Woods) 247 Mahopac	DeLeon Route 6	PHC Total Family Care Center 48 Route 6	Baldwin Place Farm Depole 51 Route 6	Texaco Service Center 55 Route 6	Golf Worx Route 6
1/31/1989	WCHD					ND													
3/15/1989	WCHD												ND						
8/22/1990	WCHD											ND							
10/18/1989	WCHD					ND													
2/24/1993	NYHD																ND		
3/11/1993	Enviro																	ND	
4/22/1993	Enviro											ND							
2/24/2000	WCHD								ND										
3/1/2000	WCHD									ND	ND								
3/15/2000	WCHD	a		1.3		ND	ND	ND	ND	ND	ND	0.54	ND	ND		ND	ND	ND	1.7
3/22/2000	WCHD					ND**									ND				
3/24/2000	WCHD				ND														
4/18/2000	WCHD	b	0.86	2.0	ND	ND/ND**	ND	ND	ND	ND	ND	0.55	ND	ND	ND	ND	ND	ND	1.8
5/?/00	WCHD		0.81	1.6	ND	ND/ND**	ND	ND	ND	ND	1.2	0.50	ND	ND	ND	ND	ND	ND	1.6
6/19/2000	STL	c	0.7	1.7	ND	ND	ND	ND	ND	ND	1.6	0.6	ND	ND		ND	ND	ND	1.6
7/18/2000	WCHD		0.83	1.9	ND	ND/ND**	ND	ND	ND	ND	1.8	0.77	ND	ND	ND	ND	ND	ND	1.9
08/11/00	STL*	d	0.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	1.1
9/14/2000	WCHD	d2	0.52	1.3	ND	ND/ND**	ND	ND	ND			0.53	ND	ND	ND	ND	ND	ND	0.75
10/30/2000	STL*	d1	1.5	1.7	ND	ND	ND	ND	ND	ND	1.1	0.6	ND	ND		ND	ND	ND	2.2
11/28/2000	WCHD	e	1.2	1.5	ND	ND/ND**	ND	ND	ND	ND	1.0	0.54	ND	ND	ND	ND	ND	ND	1.4
12/27/2000	WCHD	f	1.2			ND/ND**	ND	ND	ND	ND	1.3		ND	ND	ND	ND	ND	ND	
1/29/2001	STL*	g		2.0	ND	ND	ND	ND	ND	0.8	1.1	0.8	ND	ND		ND	ND	ND	1.1
2/27/2001	WCHD	h		1.5	ND	ND/ND**	ND	ND	ND	0.5	1.3	0.64	ND	ND	ND	ND	ND	ND	2.0
4/4/2001	WCHD	i		1.3		ND/ND**	ND	ND	ND	ND	0.82	0.59	ND	ND	ND	ND	ND	ND	1.9
4/19/2001	STL*			1.6	ND	ND	ND	ND	ND	ND	1.3		ND	ND		ND	ND	ND	2
5/30/2001	WCHD		0.68	2.5	ND	ND/ND**	ND	ND	ND	ND	0.97		ND	ND	ND	ND	ND	ND	1.5
6/27/2001	WCHD	j	0.94	1.2	ND	ND/ND**	ND	ND	ND	ND	1.6	0.6	ND	ND	ND	ND	ND	ND	1.5
7/24/2001	STL*		ND	1.4	ND	ND	ND	ND	ND	ND	ND	0.63	ND	ND	ND	ND	ND	ND	1.4
8/30/2001	WCHD		ND	1.2	ND	ND/ND**	ND	ND	ND	ND	0.6/1.9**		ND	ND		ND	ND	ND	1
9/28/2001	WCHD	k	0.5	1.5		ND/ND**	ND		ND	ND	0.74/0.59**		ND	ND		ND	ND	ND	1.1
10/25/2001	STL*	l	ND	1.4	ND	ND	ND	ND	ND	ND	0.92	0.65	ND	ND		ND	ND	ND	1
1/23/2002	WCHD	m		2.1	ND	ND	ND	ND	m	0.5	ND/0.88	0.66	ND	ND	ND	ND	ND	ND	1.1
1/25/2002	STL*	n		2.0		ND	ND	ND	n	ND	0.9	0.75	ND	ND		ND	ND	ND	
4/26/2002	STL*	o	0.74	2.6	ND	ND	ND	ND		ND	0.96	0.98	ND	ND		ND	ND	ND	1.1
5/15/2002	WCDOH			1.9															
7/26/2002	STL*	p	ND	2.2	ND	ND	ND	ND	ND	ND	1.7	1.7	ND	ND		ND	ND	ND	1.3
10/28/2002	STL*	q	1.7	2.5	ND	ND	ND	ND		ND	1.5	0.64	ND			ND	ND	ND	0.79
1/27/2003	STL*	r		4.3	ND	ND	ND	ND		ND	1.3		ND	ND		ND	ND	ND	1.2
4/24/2003	STL*	s		3.9	ND	ND	ND	0.55		0.91	0.97		ND			ND	ND	ND	1.5
7/14/2003	WCHD			3.6															
7/25/2003	STL*	t	1.2	3.3	ND	ND	ND	ND		ND	ND					ND	ND	ND	1.2
10/13/2003	LMS*		ND	3.6						ND	0.89	1.1							1.0
1/19/2004	LMS*		0.69							ND	2.5								

Concentrations in ug/L.

TABLE 3-3

PCE CONCENTRATIONS IN UNTREATED MAHOPAC AVENUE AREA SUPPLIES

Date	Coll. By		Jear 1 County Line Drive	P Cahill 259 Mahopac	(P) Nopper 257 Mahopac	P Church & School 253 Mahopac	P Church Annex 254 Mahopac	Slater Parsonage 249 Mahopac	P Hoppe 268 Mahopac	Coppolecchia 264 Mahopac PCE	Coppolecchia 264 Mahopac chloroform	P Lewis (Jones) 256 Mahopac	Autoparts Store* / Levine 250 Mahopac	Tool Nut (Out of the Woods) 247 Mahopac	DeLeon Route 6	PHC Total Family Care Center 48 Route 6	Baldwin Place Farm Depole 51 Route 6	Texaco Service Center 55 Route 6	Golf Worx Route 6
3/15/2004	LMS*			3.9															
3/23/2004	WCDOH	w		5.5	0.79	ND	ND	ND					ND			ND	ND	ND	1.4
4/26/2004	LMS*	u	ND	5.1						ND									1.4
7/19/2004	LMS*	v	ND							ND	ND	ND		ND					0.74
10/19/2004	LMS*		ND		ND			ND		ND	ND								1.3
1/19/2005	LMS*									0.5	ND								
4/25/2005	LMS*				ND (full list)			ND		1.8	ND								1.4
8/23/2005	LMS*	x	ND							ND	ND								0.73

* Samples analysis does not include the full list of aromatics. Samples were analyzed with the Hall Detector, only.

** Post-household filter sample

a Also Auto Parts Store (MTBE 6.7). Coppolecchia samples collected pre- and post-filter.

b Also Nopper (MTBE 12), Coppolecchia (p&m-xylene 0.69; 1,2,4-TMB 0.9), DeLeon (MTBE 1.1)

c Also PHC Family Care (MTBE 2.5)

d Also Nopper (MC 1.4)

d1 Also Nopper (chloroform 5.7; BDCM 0.7), Annex (chloroform 3.5; BDCM 1.5; bromoform 1.1; DBCM 1.2), Texaco (chloroform 8.3; BDCM 0.5).
Also MC (Nopper 1.5; Parsonage 1; Autopartstore 0.9; PHC Family Care 1.2; Baldwin Place Farm 1.1; Jear 1.1). Most samples had 1,4-DCB as a result of glassware contamination.

d2 Also PHC Family Care (chloroform 0.62). All samples except for Church pre-filter also analyzed for metals, nitrate, nitrate, sulfate, H/P, BNA, Pet. Hydrocarbons, and bacteria.

e Also Cahill (trichlorofluoromethane 2.2), Church Annex (1.1 chloroform), Texaco (Chloroform 2.9)

f Also Texaco (Chloroform 1.6), Auto Parts Store (MTBE 1). Out of the Woods, Baldwin Place Farm, Texaco, Jear, and Annex also analyzed for bacteria.

g Also Church & School (1,4-DCB 1.1), Texaco (chloroform 0.8). Out of the Woods and Golf Worx sampled 2/2/01.

h Also Auto Parts Store (MTBE 4.8). Out of the Woods (MTBE 19). Coppolecchia post filter (all ND). Nopper bacteria satisfactory.

i Coppolecchia post-filter - all ND

j Also Autoparts Store (MC 0.57)

k Also PHC (MTBE 2.9), Texaco (1,4-DCB 2.2)

l Also Cahill (trichlorofluoromethane 2.3)

n Also Cahill (trichlorofluoromethane 1.5). Jones (toluene 1.3). Hoppe was connected to the public line and sampled (chloroform 5.7, bromodichloromethane 1.5).

n Also Cahill (trichlorofluoromethane 1.6). Hoppe was connected to the public line and sampled (chloroform 6.3, bromodichloromethane 2.4, and dibromochloromethane 0.89).

o Also Cahill (trichlorofluoromethane 14, chloroethane 5.5). Also Annex (trichlorofluoromethane 1.7). Several locations with trace (<1) methylene chloride. Jear collected by LMS on 5/20.

p Jear sampled by LMS 8/19/02

q Also Autoparts Store chloroform 15, bromodichloromethane 2.6, dibromochloromethane 1.2

r Also Coppollecchio BDCM 0.66

s Also Coppollecchio dibromomethane 0.66

t Also PHC Family Care 1,4-dichlorobenzene 0.58

u Methylene chloride in Cahill (0.68), Jear (0.62), Coppolecchia (0.58)

v Methylene chloride in Coppolecchia (0.83), GolfWorx (0.52), Lewis (0.60)and trip blank (1.3). Chloroform (23), bromodichloromethane (11) and dibromochloromethane (3.5) in Lewis.

w PHC Family Care 1,4-dichlorobenzene; Autoparts Store 2.7 BDCM and 5.4 chloroform

x Methylene chloride in Golf Worx (2.1)

WCHD	Westchester Health Dept.	BDCM -	bromodichloromethane	DCP -	dichloropropane
IPB -	isopropylbenzene	DBCM -	dibromochloromethane	BNA -	base neutral/acid extractable organics
B -	benzene	DCB -	dichlorobenzene	H/P -	herbicides/pesticides
X-	xylene	P -	served by public water	(P) -	pending connection to public water

Concentrations in ug/L.

Table 1. Summary of the Quarterly Monitoring Results for Meadow Park Road Residential Wells, Baldwin Place Mall; Somers, New York.

DATE		Martin (1)	Miraglia (2)
November 1991	PCE	ND	ND
	TCE	ND	ND
February 1992	PCE	ND	ND
	TCE	ND	ND
May 1992	PCE	ND	ND
	TCE	ND	ND
August 1992	PCE	ND	ND
	TCE	ND	ND
November 1992	PCE	ND	ND
	TCE	ND	ND
February 1993	PCE	ND	ND
	TCE	ND	ND
May 1993	PCE	(a) ND	ND
	TCE	ND	ND
August 1993	PCE	ND	ND
	TCE	ND	ND
November 1993	PCE	ND	ND
	TCE	ND	ND
February 1994	PCE	ND	ND
	TCE	ND	ND
May 1994	PCE	ND	(a)ND
	TCE	ND	ND
August 1994	PCE	ND	ND
	TCE	ND	ND
November/ December 1994	PCE	ND	ND
	TCE	ND	ND
February 1995	PCE	ND	ND
	TCE	ND	ND
May/June 1995	PCE	ND	ND
	TCE	ND	ND
August/ September 1995	PCE	ND	ND
	TCE	ND	ND
November 1995	PCE	ND	ND
	TCE	ND	ND
February 1996	PCE	ND	ND
	TCE	ND	ND
May 1996	PCE	ND	ND
	TCE	ND	ND
August 1996	PCE	ND	ND
	TCE	ND	ND
November 1996	PCE	ND	ND
	TCE	0.5	ND
February 1997	PCE	ND	ND
	TCE	ND	ND
May 1997	PCE	ND	ND
	TCE	ND	ND
August 1997	PCE	ND	ND
	TCE	ND	ND
November 1997	PCE	ND	ND
	TCE	ND	ND
February 1998	PCE	ND	ND
	TCE	ND	ND
May 1998	TCE	ND	ND
	PCE	ND	ND
August 1998	PCE	ND	ND
	TCE	ND	ND
November 1998	PCE	ND	ND
	TCE	ND	ND
February 1999	PCE	ND	(b) ND
	TCE	ND	ND

Table 1. Summary of the Quarterly Monitoring Results for Meadow Park Road Residential Wells, Baldwin Place Mall; Somers, New York.

DATE		Martin (1)	Miraglia (2)
May 1999	PCE	ND	ND
	TCE	ND	ND
August 1999	PCE	ND	ND (c)
	TCE	ND	ND
November 1999	PCE	ND	ND
	TCE	ND	ND
February 2000	PCE	ND	ND
	TCE	ND	ND
May 2000	PCE	ND	ND
	TCE	ND	ND
August 2000	PCE	ND	ND
	TCE	ND	ND
December 2000	PCE	ND	ND
	TCE	ND	ND
4/19/2001	PCE	ND	ND
7/24/2001	PCE	ND	ND
10/25/2001	PCE	ND	ND [d]
1/25/2002	PCE	ND	ND
4/26/2002	PCE	ND	ND
	MC	0.5	0.7
7/26/2002	PCE	ND	ND
10/28/2002	PCE	ND	ND
1/27/2003	PCE	ND	
4/24/2003	PCE	ND	ND
	MTBE	ND	1.2
7/25/2003	PCE	ND	ND
	MTBE	ND	1.1
10/19/2004 Hall Detector, only	PCE	ND	ND
4/25/2005	PCE	ND	ND
	MTBE	ND	2.1

(a) - Trace of chloroform (0.5 to 1.4 µg/L) was detected in sample.

(b) - Traces of petroleum constituents detected: toluene (0.7 ug/l), m&p-xylene (2.2 ug/l), o-xylene (0.8 ug/l), 1,3,5-trimethylbenzene (0.6 ug/l), 1,2,4-trimethylbenzene (2.3 ug/l), n-butylbenzene (0.7 ug/l) and naphthalene (1.8 ug/l).

(c) - Trace of MTBE (0.6 ug/l) detected.

[d] - Dibromomethane (0.64 ug/L).

ND - Not detected.

Concentrations are shown in micrograms per liter (µg/L)

(1) Martin - 29 Meadow Park Road (MPR)

(2) Miraglia - 25 Meadow Park Road

These locations are on private wells. Miraglia (25 MPR) refused to be connected to the new public water line. Martin (29 MPR) actually fronts on Route 118 rather than MPR and therefore could not be connected.

ANNUAL SAMPLING RESULTS FOR MEADOW PARK ROAD MONITORING WELLS

	Pepi 13 MPR		Sorensen (formerly Anderson) 6 MPR		Hale 21 MPR		Matthews 12 MPR	
	PCE	OTHERS	PCE	OTHERS	PCE	OTHERS	PCE	OTHERS
Jun-00	11	DCA 0.8; MC 0.6	3.8		11	TCE 0.7	5.5	
Jun-01	7		6.3		5.1	MC 1	2.8	
Jun-02	28		1.5	TCE 1	<1		0.84	
Jun-03	20	TCE 0.93	3.1		<1		<1	
Jun-05	6.8	chloromethane 1	1.4	TCE 2.3	<1	chloromethane 0.84	<1	

results in micrograms per liter (ug/L)
All locations on public water.

Table 6. VOC Monitoring Results for Lounsbury Road Residences and Other Locations East of the Baldwin Place Mall; Somers, New York.

		1 Lounsbury Drive	2 Lounsbury Drive	3 Lounsbury Drive	5 Lounsbury Drive	7 Lounsbury Drive	9 Lounsbury Drive	2 Cornelius Drive
January-02	PCE	ND	ND	ND	ND	ND	ND	NR
	TCE	ND	ND	ND	ND	ND	ND	NR

		237 Tomahawk Street	231 Tomahawk Street	278 Tomahawk Street Front House	278 Tomahawk Street Rear House	265 Tomahawk Street	280 Route 118
January-02	PCE	ND	ND [(a)]	ND	ND	ND [(b)]	ND
	TCE	ND	ND	ND	ND	ND	ND

Concentrations are shown in micrograms per liter (ug/l).
PCE - Tetrachloroethylene.
TCE - Trichloroethylene.
ND - Not detected.
NR - Not reported.
[(a)] 2.1 ug/l MTBE detected in sample.
[(b)] 3.2 ug/l methylene chloride detected in sample.

All locations on private wells.

Table 4. Summary of Monitoring Results for Route 6 Commercial Establishments Between Mahopac Avenue Neighborhood and the Baldwin Place Mall; Somers, New York. Testing Prior to March 1993 (Page 1 of 1)

Date	Coll. By		PJ's Pub	Cron Property	Chiropractic Clinic	Strip Mall	Restaurant (3)
11/30/1988	NYSDEC DEC	PCE	ND				
		TCE	ND				
		MTBE	150				
12/15/1988	NYSDEC	PCE	ND	9	3	19	28
		TCE	ND	ND	ND	ND	ND
		MTBE	220	10	ND	ND	ND
		Benzene	ND	ND	1	ND	ND
1/3/1989	WCHD	PCE				18	17
		TCE				ND	0.53
		MTBE				ND	ND
1/3/1989	NYSDEC	PCE	ND				
		TCE	ND				
		MTBE	150				
1/30/1989	NYSDEC	PCE	ND				
		TCE	ND				
		MTBE	180				
3/2/1989	NYSDEC	PCE	ND				
		TCE	ND				
		MTBE	150				
3/8/1989	NYSDEC	PCE		9			
		TCE		ND			
		MTBE		11			
3/15/1989	WCHD	PCE		7.5			
		TCE		ND			
		MTBE		14			
4/17/1989	NYSDEC	PCE	ND				
		TCE	ND				
		MTBE	120				
10/18/1989	WCHD	PCE	ND				
		TCE	ND				
		MTBE	92				
6/20/1990	WCHD	PCE					21
		TCE					ND
		MTBE					ND
6/20/1990	EPA	PCE					23
		TCE					0.56
		MTBE					ND
8/22/1990	WCHD	PCE					
		TCE					
		MTBE					
10/25/1990	WCHD	PCE				55	
		TCE				0.53	
		MTBE				2.6	
11/20/1990		PCE					ND
		TCE					ND
		MTBE					ND
1/15/1991	WCHD	PCE					19
		TCE					T
		MTBE					ND
2/24/1993	NYSDOH	PCE			43		
		TCE			4.7		
		MTBE			ND		
3/11/1993	VUA	PCE	ND	47	47		45/46
		TCE	ND	1	4		0.7/0.9
		MTBE	15	46	4		1/2

Table 4. Summary of Monitoring Results for Route 6 Commercial Establishments Between Mahopac Avenue Neighborhood and the Baldwin Place Mall; Somers, New York. Testing After April 1993 (Page 1 of 4)

Date		Cron Property (1)			Chiropractic Clinic (1)			Restaurant (2)			Strip Mall [3]		
		Before Filters	Betwn Filters	After Filters	Before Filters	Betwn Filters	After Filters	Before Filters	Betwn Filters	After Filters	Before Filters	Betwn Filters	After Filters
Apr-93	PCE	45	ND	ND	(a) 2.7	ND	ND						
	TCE	1.7	ND	ND	ND	ND	ND						
Aug-93	PCE	55	0.5	ND	(a) 37	(b) ND	ND						
	TCE	1.9	ND	ND	1.7	ND	ND						
	DCE	1.1	ND	ND	ND	ND	ND						
Oct-93	PCE		ND			ND							
	MTBE		1 J			ND							
Nov-93	PCE	65	ND	ND	(a) 1.4	ND	ND						
	TCE	1.7	ND	ND	ND	ND	ND						
	DCE	1.1	ND	ND	ND	ND	ND						
	MTBE	53	1 J	ND	ND	ND	ND						
Feb-94	PCE	80	ND	ND	(a) 11	ND	ND						
	TCE	1	ND	ND	ND	ND	ND						
	DCE	0.8	ND	ND	ND	ND	ND						
	MTBE	37	2J	ND	2J	ND	ND						
May-94	PCE	63	ND	ND	(a) 9.9	(a) ND	ND						
	TCE	1.7	ND	ND	ND	ND	ND						
	DCE	1.4	ND	ND	ND	ND	ND						
	MTBE	36	2J	ND	2J	ND	ND						
Aug-94	PCE	62	ND	ND	ND	ND	ND						
	TCE	2.1	ND	ND	ND	ND	ND						
	DCE	1.6	ND	ND	ND	ND	ND						
	MTBE	38	ND	ND	ND	4.5J	ND						
Nov - Dec-94	PCE	45	0.5	ND	(a) 1.2	ND	ND						
	TCE	1	ND	ND	ND	ND	ND						
	DCE	ND	ND	ND	ND	ND	ND						
	MTBE	28	5.3	ND	1	ND	ND						
Feb-95	PCE	80	ND	ND	20	ND	ND						
	TCE	2.4	ND	ND	0.9	ND	ND						
	DCE	1.5	ND	ND	ND	ND	ND						
	MTBE	30	4.9 J	ND	ND	ND	ND						
May-Jun-95	PCE	87/98	4.9/5.7	ND	(a) 1.6/1.1	(a) ND	ND						
	TCE	3.8/5.4	0.5/ND	ND	ND	ND	ND						
	DCE	ND	0.7	ND	ND	ND	ND						
	MTBE	40	13	ND	3.4	ND	ND						
Aug-Sep-95	PCE	(a) 100	1.4	ND	(a) 1.1	ND	ND						
	TCE	3.7	ND	ND	ND	ND	ND						
	DCE	3.6	ND	ND	ND	ND	ND						
	MTBE	35	27	ND	4.8	ND	ND						
Nov-95	PCE	100/120	1.3/1.2	ND	ND	ND	ND						
	TCE	3.9/3.7	ND	ND	ND	ND	ND						
	DCE	3.9	ND	ND	ND	ND	ND						
	MTBE	73	33	ND	ND	ND	ND						
Feb-96	PCE	100/98	13/12	ND	(a) 18/18	0.7	ND						
	TCE	3.3/2.9	ND	ND	1/0.8	ND	ND						
	DCE	3.5	0.7	ND	ND	ND	ND						
	MTBE	57	49	ND	5.6	ND	ND						
May-96	PCE	98	0.9	ND	(a) ND	ND	ND						
	TCE	4	ND	ND	ND	ND	ND						
	DCE	2.9	ND	ND	ND	ND	ND						
	MTBE	31	1.6	ND	2.7	ND	ND						

Table 4. Summary of Monitoring Results for Route 6 Commercial Establishments Between Mahopac Avenue Neighborhood and the Baldwin Place Mall; Somers, New York. Testing After April 1993 (Page 2 of 4)

Date		Cron Property (1)			Chiropractic Clinic (1)			Restaurant (2)			Strip Mall [3]		
		Before Filters	Betwn Filters	After Filters	Before Filters	Betwn Filters	After Filters	Before Filters	Betwn Filters	After Filters	Before Filters	Betwn Filters	After Filters
Aug-96	PCE	100	3.4	ND	(a) 1.1	(a) 0.6	ND	(c) 32	ND	ND			
	TCE	4.8	ND	ND	ND	ND	0.8	1.5	ND	ND			
	DCE	3.3	ND	ND	ND	ND	ND	1.1	ND	ND			
	MTBE	42	5.5	ND	3.2	ND	ND	1.2	ND	ND			
Nov-96	PCE	81/97	ND	ND	(a) 2.1/2	(a) 0.9/ND	ND	29/45	ND	ND			
	TCE	5.0/5.0	ND	ND	ND	ND	ND	1.3/1.2	ND	ND			
	DCE	4.7	ND	ND	ND	ND	ND	1.2	ND	ND			
	MTBE	64	9	ND	ND	ND	ND	1.3	1 J	ND			
Feb-97	PCE	98/100	5.1/4.9	ND	(a) 0.7/0.7	ND	ND	36/36	ND	ND			
	TCE	5.9/4.5	ND	ND	ND	ND	ND	1.1/1.1	ND	ND			
	DCE	6.4	ND	ND	ND	ND	ND	1.3	ND	ND			
	MTBE	72	14	ND	ND	ND	ND	1	1.6	ND			
May-Jun-97	PCE	230/200	1.7/1.8	(d) ND	(a) 0.8/ND	(a) ND	ND	32/36	ND	ND			
	TCE	4.7/9.8	ND	ND	ND	ND	ND	1.0/1.0	ND	ND			
	DCE	4.6/8.8	ND	ND	ND	ND	ND	0.9	ND	ND			
	MTBE	60	25	ND	ND	ND	ND	ND	1.3	ND			
Aug-97	PCE	140	5.1	ND	(a) 26	ND	(a) ND	32	ND	ND			
	TCE	6.2	ND	ND	1	ND	ND	1.4	ND	ND			
	DCE	5.9	ND	ND	ND	ND	ND	1	ND	ND			
	MTBE	46	3.8	ND	3.4	ND	ND	ND	1.2	1.1			
Nov-97	PCE	110/130	8.2/8.7	ND				26/32	ND	ND			
	TCE	5.3/4.9	ND	ND				1.1/1.1	ND	ND			
	DCE	5.5	ND	ND				1.3	ND	ND			
	MTBE	65	7.9	ND				ND	ND	ND			
Feb-98	PCE	110/130	ND	ND	(a) 65/82	(a) 1.2/1.2	ND	(e) 15/17	ND	ND			
	TCE	5.6/5.5	ND	ND	2.4/2.3	ND	ND	0.6/0.6	ND	ND			
	DCE	5.6	ND	ND	ND	ND	ND	0.6	0.7	ND			
	MTBE	77	11	ND	2.3	ND	ND	4.8	1.4	ND			
May-98	PCE	96/100	(f) 7.9/8.9	(f) 1.9/2.1	(g) 28/34	(a) 9.4/10	(h) 22/27*	ND*	ND	ND			
	TCE	5.3/5.4	ND	ND	1/1	ND	1.5/1.5	ND	ND	ND			
	DCE	5.4	ND	ND	ND	ND	1	0.7	ND	ND			
	MTBE	68	26	2.8	2.9	1.8	ND	1.1	ND	1.5			
Aug-98	PCE	100/120	6/5.4	ND				26/30	ND	ND			
	TCE	5.5/4.8	ND	ND				1.3/1.2	ND	ND			
	DCE	5.7	ND	ND				1.2	1.1	ND			
	MTBE	50	3.8	ND				ND	ND	1.2			
Nov-98	PCE	120/110	7.1/7.9	ND				27/30	ND	ND			
	TCE	6.6/6.5	ND	ND				1.3/1.2	ND	ND			
	DCE	7	ND	ND				1.5	1.4	ND			
	MTBE	61	7.2	ND				ND	ND	ND			
Feb-99	PCE	(a) 60 **	ND**	ND**	96**	1**	ND**	30	0.7	ND			
	TCE	4.8	ND	ND	6	ND	ND	1.3	ND	ND			
	DCE	1.6	ND	ND	6.2	ND	ND	NT	NT	NT			
	MTBE	ND	ND	ND	56	ND	ND	ND	ND	ND			
May-99	PCE	120	8.9	ND	(l) 89	2.6	ND	(a) 32	(c)1.4	ND			
	TCE	6.8	ND	ND	5.4	ND	ND	1.5	ND	ND			
	DCE	7.1	0.6	ND	1.9	ND	ND	ND	2.4	ND			
	MTBE	61	12	ND	ND	ND	ND	ND	ND	ND			
Aug-99	PCE	120	11	ND	41	ND	ND	32	2.8	ND			
	TCE	6.9	ND	ND	5	ND	ND	1.3	ND	ND			
	DCE	8.8	0.8	ND	NR	NR	NR	1.9	2.1	ND			
	MTBE	53	17	ND	1.2	ND	ND	0.6	0.6	ND			
Nov-99	PCE	110	3.8	ND	58	ND	ND	29	2.8	ND			
	TCE	6.2	ND	ND	5.1	ND	ND	1.3	ND	ND			
	DCE	6.9	ND	ND	1.4	ND	ND	1.7	1.8	ND			
	MTBE	49	17	7.6	5.4	ND	ND	ND	ND	ND			

Table 4. Summary of Monitoring Results for Route 6 Commercial Establishments Between Mahopac Avenue Neighborhood and the Baldwin Place Mall; Somers, New York. Testing After April 1993 (Page 3 of 4)

Date		Cron Property (1)			Chiropractic Clinic (1)			Restaurant (2)			Strip Mall [3]		
		Before Filters	Betwn Filters	After Filters	Before Filters	Betwn Filters	After Filters	Before Filters	Betwn Filters	After Filters	Before Filters	Betwn Filters	After Filters
Feb-00	PCE	96	1.3	ND	56	ND	ND	21	3.9	ND (j)			
	TCE	6.5	ND	ND	5.2	ND	ND	1.2	ND	ND			
	DCE	6.5	ND	ND	1.4	ND	ND	1.3	1.7	ND			
	MTBE	44	ND	ND	1.3	ND	ND	ND	ND	ND			
May-00	PCE	160	ND	(k) ND	(a) 58	ND	ND	30	7.2	ND			
	TCE	7.4	ND	ND	8.4	ND	ND	1.4	0.9	ND			
	DCE	8.7	ND	ND	2	ND	ND	1.6	2.6	0.7			
	MTBE	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Aug-00	PCE	(l)130	1.4	ND				(l)17	(l) ND	ND			
	TCE	6.4	ND	ND				0.9	ND	ND			
	DCE	5.2	ND	ND				0.8	ND	ND			
	MTBE	30	ND	ND				ND	ND	ND			
Dec-00	PCE	110	ND	ND				21	ND	ND			
	TCE	7.8	ND	ND				1.0	ND	ND			
	DCE	9.4	ND	ND				1.2	ND	ND			
	MTBE	34	ND	ND				ND	ND	ND			
4/19/01	PCE	110	ND	ND	46 (m)	13 (n)	ND	16	ND	ND	38	ND	1.4
	TCE	7	ND	ND	4	1.3	ND	0.8	ND	ND	1.9	ND	ND
	DCE	9	ND	ND	0.5	ND	ND	0.8	ND	ND	0.9	ND	ND
	MTBE	32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6/27/01 WCHD	PCE										30	ND	1.6
	TCE										1.2	ND	ND
7/24/01	PCE	91	0.57	ND	28 [o]	0.52	ND	16	ND	ND	28	ND	ND
	TCE	8.6	ND	ND	3.2	ND	ND	0.81	ND	ND	1.5	ND	ND
	DCE	8.3	ND	ND	ND	ND	ND	0.9	ND	ND	0.77	ND	ND
	MTBE	25	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/28/01 WCHD [p]	PCE							10		14			
	TCE							0.56		0.61			
	DCE							0.7		0.51			
10/3/01	PCE									ND			
10/25/01	PCE	97	5.8	ND				16	ND	ND	28	ND	ND
	TCE	7.9	ND	ND				0.91	ND	ND	1.7	ND	ND
	DCE	8.6	ND	ND				1.0	ND	ND	0.79	ND	ND
dibromomethane		25	ND	ND				1.0	ND	ND	0.76	ND	ND
11/8/01	PCE				30	16	ND						
	TCE				4.3	2.2	ND						
	DCE				ND	ND	ND						
	chloroform				5.1	2.6	ND						
	bromoform				1.3	0.72	ND						
	BDCM				5.4	3	ND						
	DBCM				6.2	3.5	ND						
1/25/02	PCE	94	ND	ND	39	38	ND	16	ND	ND	39	ND	ND
	TCE	9.4	ND	ND	4.4	4.2	ND	0.94	ND	ND	2.60	ND	ND
	MTBE	36	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	DCE	12	ND	ND	ND	ND	ND	1.2	ND	ND	1.5	ND	ND
1,3,5-TMB		ND	ND	ND	ND	ND	ND	ND	2.3	ND	ND	ND	ND
n-butylbenzene		ND	ND	ND	ND	ND	ND	0.5	2	ND	ND	ND	ND
	DCFM	ND	ND	0.51	ND	ND	ND	ND	ND	ND	ND	ND	ND
chloroform		ND	ND	ND	5.7	5.1	ND	ND	ND	ND	ND	ND	ND
bromoform		ND	ND	ND	0.98	0.75	ND	ND	ND	ND	ND	ND	ND
	BDCM	ND	ND	ND	5.1	4.8	ND	ND	ND	ND	ND	ND	ND
	DBCM	ND	ND	ND	4.6	4.4	ND	ND	ND	ND	ND	ND	ND
4/26/02	PCE	59	ND	ND	19	16	ND	13	ND	ND	29	ND	ND
	TCE	7.8	ND	ND	2.9	2.4	ND	0.81	ND	ND	2.10	ND	ND
(clinic on	MTBE	24	ND	ND	ND	ND	ND	ND	ND	ND	0.57	0.56	ND
5/9/02)	DCE	9.7	ND	ND	0.59	ND	ND	0.98	ND	ND	1.1	ND	ND

Table 4. Summary of Monitoring Results for Route 6 Commercial Establishments Between Mahopac Avenue Neighborhood and the Baldwin Place Mall; Somers, New York. Testing After April 1993 (Page 4 of 4)

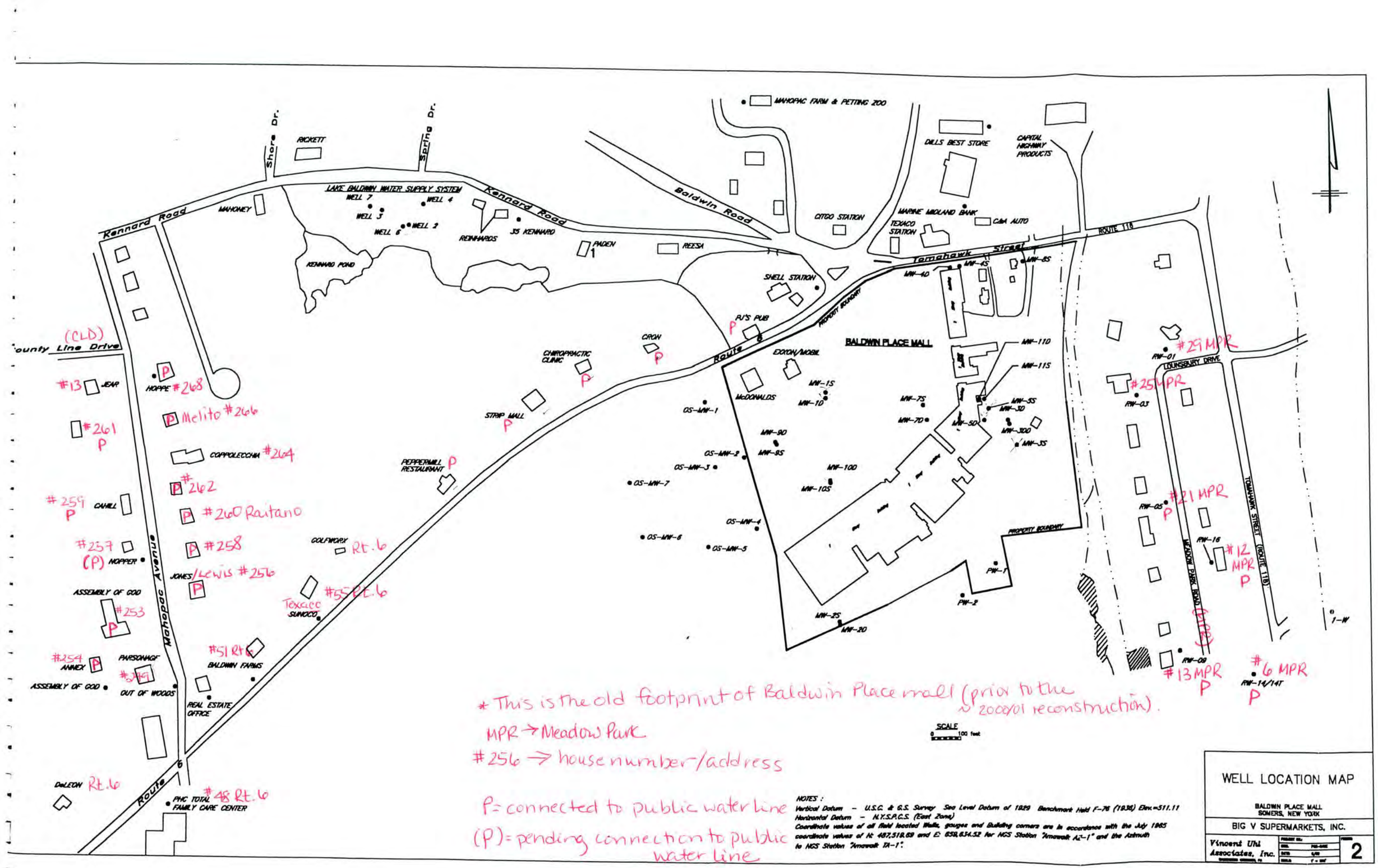
Date		Cron Property (1)			Chiropractic Clinic (1)			Restaurant (2)			Strip Mall [3]		
		Before Filters	Betwn Filters	After Filters	Before Filters	Betwn Filters	After Filters	Before Filters	Betwn Filters	After Filters	Before Filters	Betwn Filters	After Filters
ethylene cloride		0.63	0.57	0.55	1.0	0.92	0.90	0.56	0.64	0.62	0.61	0.75	0.96
chloroform		ND	ND	ND	19	16	0.53	ND	ND	ND	ND	ND	ND
bromoform		ND	ND	ND	7.2	6.3	ND	ND	ND	ND	ND	ND	ND
	BDCM	ND	ND	ND	15	13	ND	ND	ND	ND	ND	ND	ND
	DBCM	ND	ND	ND	13	11	ND	ND	ND	ND	ND	ND	ND

Table 4. Summary of Monitoring Results for Route 6 Commercial Establishments Between Mahopac Avenue Neighborhood and the Baldwin Place Mall; Somers, New York. Notes (Page 1 of 1)

Notes:
NYSDEC - New York State Department of Environmental Conservation.
WCHD - Westchester County Health Department.
EPA - Environmental Protection Agency.
NYSDOH - New York State Department of Health.
VUA - Vincent Uhl Associates.
PCE - Tetrachloroethylene.
TCE - Trichloroethylene.
DCE - cis 1,2 - Dichloroethylene.
MTBE - Methyl-tert-butyl ether.
ND - Not Detected.
NT - Not Tested.
blank space - Not Tested
T - Trace level detected.
J - Estimated concentration below reported detection limit.
Concentrations are shown in micrograms per liter (µg/L).
(1) GAC filter system installed by Big V Supermarkets, Inc. in April 1993.
(2) GAC filter system installed by owner and monitored/maintained by Big V Supermarkets starting in August 1996. Now Grand Central Deli.
(3) Fat Tyler's Restaurant, formerly Peppermill Resturant, formerly Pa Terri's, formerly Pinnochios.

(a) Trace to low levels of chloroform and/or other trihalomethanes were detected.
(b) - 4-Chlorotoluene (3.1 µg/L) was detected.
(c) - Trace Trichlorofluoromethane (0.6 µg/L) was detected.
(d) - Trace sec-Butylbenzene (0.6 µg/L) was detected.
(e) - Methylene chloride (6.2 µg/L) was detected.
(f) - sec-Butylbenzene (1.4 to 2.8 µg/L) was detected.
(g) - Trihalomethanes and traces of chloro- and bromobenzene were detected.
(h) - Traces of benzene (0.9 µ/L) and isopropyl benzene (0.5 µ/L) were detected.
(I) - Traces of chloroform (0.5 ug/l) and naphthalene (0.6 ug/l) were detected.
** Sample results from CW-20 and CW-21 are probably mislabeled in reverse.
(j) - Trace chloroform reported in sample and in trip blank.
(k) - Trace of benzene (0.5 ug/l).
(l) - Trace of methylene chloride (0.5 - 0.6 ug/l) was detected.
(m) - Also bromobenzene (0.7), chloroform (6.5), bromoform (1.5), bromodichloromethane (3.6), dibromochloromethane (4.7)
(n) - Also bromobenzene (1.9), chloroform (2.7), bromoform (0.6), bromodichloromethane (1.6), dibromochloromethane (1.6)
[o] - Also bromobenzene (0.76), chloroform (8.9), bromoform (2.2), bromodichloromethane (8.5), dibromochloromethane (9.1)
[p] - Post-filter sample collected in kitchen. See supplemental note page for additional analyses.

All locations on public water line.



* This is the old footprint of Baldwin Place mall (prior to the 2000/01 reconstruction).

MPR → Meadow Park

#256 → house number/address

P = connected to public water line

(P) = pending connection to public water line

NOTES :
Vertical Datum – U.S.C. & G.S. Survey Sea Level Datum of 1929 Benchmark Held F-76 (1936) Elev.=511.11
Horizontal Datum – N.Y.S.P.C.S. (East Zone)
Coordinate values of all field located Wells, gauges and Building corners are in accordance with the July 1965 coordinate values of N: 487,518.69 and E: 859,634.52 for NGS Station "Amawalk A2-1" and the Azimuth to NGS Station "Amawalk TA-1".

WELL LOCATION MAP

BALDWIN PLACE MALL
SOMERS, NEW YORK

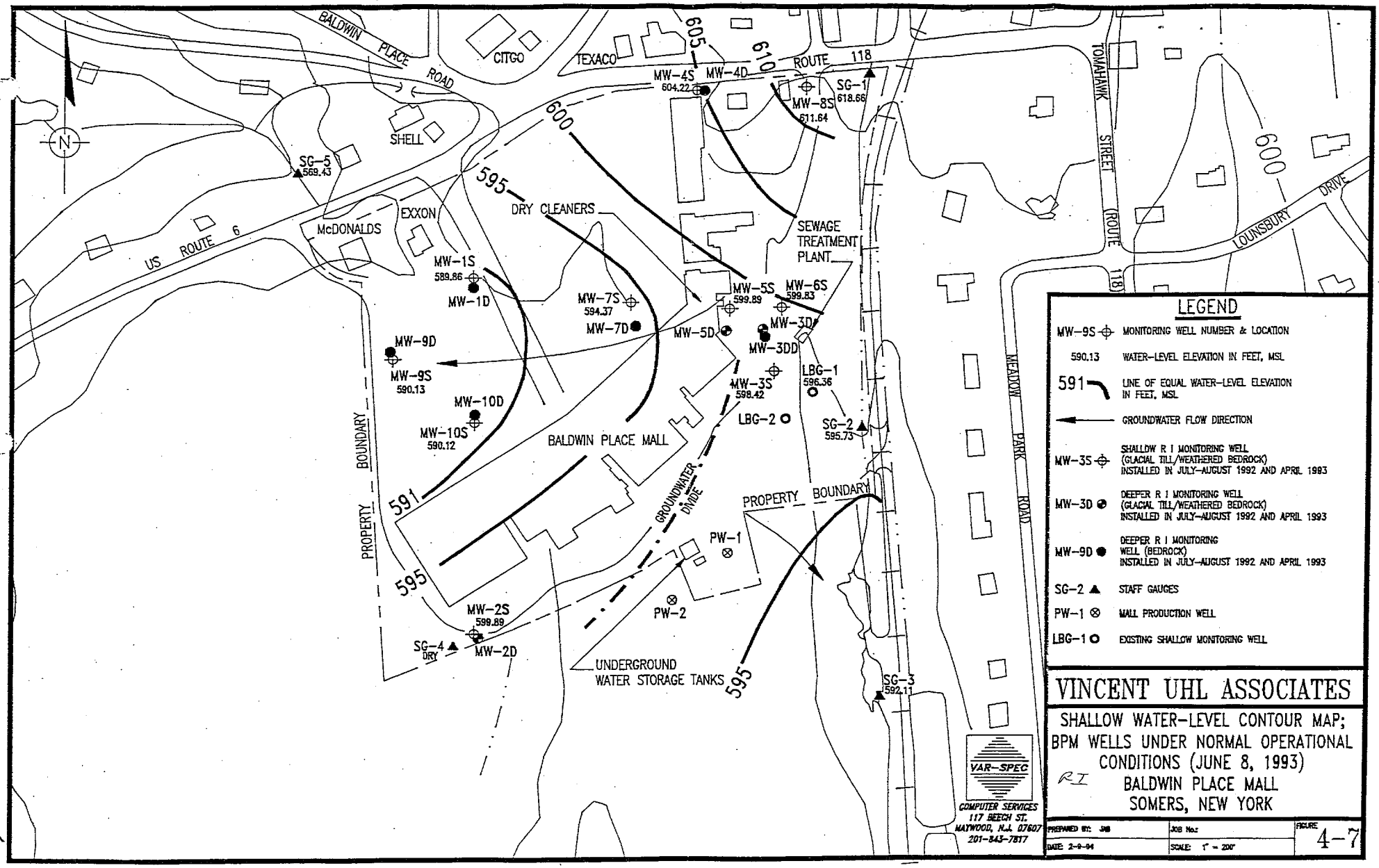
BIG V SUPERMARKETS, INC.

Vincent Uhl Associates, Inc.

2

ATTACHMENT 5

SHALLOW WATER LEVEL CONTOUR MAP


BALDWIN PLACE ROAD
CITGO
TEXACO
ROUTE 118
MW-4S 604.22
MW-4D
MW-8S 611.64
SG-1 618.66
SHELL
SG-5 569.43
US ROUTE 6
McDONALDS
EXXON
DRY CLEANERS
SEWAGE TREATMENT PLANT
TOMAHAWK STREET (ROUTE 118)
LOUNSBURY DRIVE
MW-1S 589.86
MW-1D
MW-7S 594.37
MW-7D
MW-5S 599.89
MW-6S 599.83
MW-3D
MW-3DD
MW-5D
MW-9D
MW-9S 590.13
MW-10D
MW-10S 590.12
LBG-1 596.36
MW-3S 598.42
LBG-2
SG-2 595.73
BALDWIN PLACE MALL
PROPERTY BOUNDARY
GROUNDWATER DIVIDE
MEADOW PARK ROAD
PW-1
PW-2
MW-2S 599.89
SG-4 DRY
MW-2D
UNDERGROUND WATER STORAGE TANKS
SG-3 592.11
605
610
600
595
591
LEGEND
MW-9S MONITORING WELL NUMBER & LOCATION
590.13 WATER-LEVEL ELEVATION IN FEET, MSL
591 LINE OF EQUAL WATER-LEVEL ELEVATION IN FEET, MSL
GROUNDWATER FLOW DIRECTION
MW-3S SHALLOW R I MONITORING WELL (GLACIAL TILL/WEATHERED BEDROCK) INSTALLED IN JULY-AUGUST 1992 AND APRIL 1993
MW-3D DEEPER R I MONITORING WELL (GLACIAL TILL/WEATHERED BEDROCK) INSTALLED IN JULY-AUGUST 1992 AND APRIL 1993
MW-9D DEEPER R I MONITORING WELL (BEDROCK) INSTALLED IN JULY-AUGUST 1992 AND APRIL 1993
SG-2 STAFF GAUGES
PW-1 MALL PRODUCTION WELL
LBG-1 EXISTING SHALLOW MONITORING WELL
VAR-SPEC
COMPUTER SERVICES
117 BEECH ST.
MAYWOOD, N.J. 07607
201-845-7817
VINCENT UHL ASSOCIATES
SHALLOW WATER-LEVEL CONTOUR MAP; BPM WELLS UNDER NORMAL OPERATIONAL CONDITIONS (JUNE 8, 1993)
RI
BALDWIN PLACE MALL
SOMERS, NEW YORK
PREPARED BY: JAB
JOB No.:
DATE: 2-9-94
SCALE: 1" = 200'
FIGURE 4-7

APPENDIX B

PHOTOGRAPHS

Attachment 1 – Remedial System Optimization

Client:	NYSDEC	***Project Number:***	3617137308
Site Name:	Baldwin Place Mall	***Site Location:***	Somers, New York.

Photographer: Hank Andolsek ***Date:*** February 27, 2014 ***Photograph:*** 1 ***Direction:*** NA ***Description:*** Recovery well manifold with flow meters and sample ports	
Photographer: Hank Andolsek ***Date:*** February 27, 2014 ***Photograph:*** 2 ***Direction:*** Northeast ***Description:*** 10 micron bag filter	

Attachment 1 – Remedial System Optimization

Client:	NYSDEC	***Project Number:***	3617137308
Site Name:	Baldwin Place Mall	***Site Location:***	Somers, New York.

Photographer: Hank Andolsek ***Date:*** February 27, 2014 ***Photograph:*** 3 ***Direction:*** East ***Description:*** Carbon Vessels	
Photographer: Hank Andolsek ***Date:*** February 27, 2014 ***Photograph:*** 4 ***Direction:*** Northeast ***Description:*** Plant 1 Building	

Attachment 1 – Remedial System Optimization

Client:	NYSDEC	***Project Number:***	3617137308
Site Name:	Baldwin Place Mall	***Site Location:***	Somers, New York.

Photographer: Hank Andolsek ***Date:*** February 27, 2014 ***Photograph:*** 5 ***Direction:*** East ***Description:*** Plant 1 Building	
Photographer: Hank Andolsek ***Date:*** February 27, 2014 ***Photograph:*** 6 ***Direction:*** East ***Description:*** Effluent outfall	

Attachment 1 – Remedial System Optimization

Client:	NYSDEC	***Project Number:***	3617137308
Site Name:	Baldwin Place Mall	***Site Location:***	Somers, New York.

Photographer:
Hank Andolsek

Date:
February 27, 2014

Photograph: 7

Direction:
West

Description:
Effluent outfall

Photographer:
Hank Andolsek

Date:
February 27, 2014

Photograph: 8

Direction:
East

Description:
5 Micron Bag Filter

Attachment 1 – Remedial System Optimization

Client:	NYSDEC	***Project Number:***	3617137308
Site Name:	Baldwin Place Mall	***Site Location:***	Somers, New York.

Photographer:
Hank Andolsek

Date:
February 27, 2014

Photograph: 9

Direction:
South

Description:
Recovery Wells Control Panel

Photographer:
Hank Andolsek

Date:
February 27, 2014

Photograph: 10

Direction:
Southeast

Description:
RW-1S Location

Attachment 1 – Remedial System Optimization

Client:	NYSDEC	***Project Number:***	3617137308
Site Name:	Baldwin Place Mall	***Site Location:***	Somers, New York.

Photographer: Hank Andolsek ***Date:*** February 27, 2014 ***Photograph:*** 11 ***Direction:*** West ***Description:*** Effluent Outfall	
Photographer: ***Date:*** ***Photograph:*** ***Direction:*** ***Description:***	

APPENDIX C

NYSDEC EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS LETTER DATED MARCH 28, 2007

New York State Department of Environmental Conservation
Division of Water
Bureau of Water Permits, 4th Floor
625 Broadway, Albany, New York 12233-3505
Phone: (518) 402-8111 • **FAX:** (518) 402-9029
Website: www.dec.state.ny.us

MEMORANDUM

TO: Janet Brown, DER, Region 3 - New Paltz

FROM: Bruce Terbush, Bureau of Water Permits BET

SUBJECT: Baldwin Place Shopping Center, DER Site No. 3-60-023
Groundwater Pump and Treat Systems

DRAINAGE BASIN: 13/02

DATE: March 28, 2007

Attached are effluent criteria for the reissuance of the SPDES Permit Equivalent Effluent Criteria for the Baldwin Place Shopping Center Groundwater Pump and Treat Systems located in Somers, New York.

Review of the existing monitoring data reveals periodic exceedances of the 0.001 mg/l effluent criteria for tetrachloroethylene. The facility must be advised of this and be required to take appropriate steps to operate within these effluent criteria.

Please note that pH limits have not been removed as requested as these are conventional limits which are included in all SPDES permits or permit equivalents. Additionally, the revisions noted in your March 8, 2007 e-mail have been made.

The Division of Water does not have any regulatory authority over a discharge from a State, PRP, or Federal Superfund Site. The Division of Environmental Remediation will be responsible for ensuring compliance with the attached effluent criteria and approval of all engineering submissions. Additional Condition (1) identifies the appropriate DER Section Chief as the place to send all effluent results, engineering submissions, and modification requests. The Regional Water Engineer should be kept appraised of the status of these discharges and, in accordance with the attached criteria, receive a copy of the effluent results for informational purposes.

If you have any questions, please call me at (518) 402-8235.

cc: (w/att) Lenny Meyerson, Regional Water Manager, Region 3
A Fuchs

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning March 1, 2007

and lasting until February 28, 2012

the discharges from treatment facilities to a tributary of Muscoot River [water index number H-31-P44-14-3, Class C] shall be limited and monitored by the operator as specified below:

Outfall Number and Parameter	Discharge Limitations		Units	Minimum Monitoring Requirements	
	Daily Avg.	Daily Max		Measurement Frequency	Sample Type
Outfall 002 - Treated Groundwater Remediation					
Flow	Monitor	Monitor	GPM	Continuous	Meter
pH (range)	6.0 to 9.0		SU	Quarterly	Grab
Total 1,2- Dichloroethylene	NA	0.010	mg/l	Quarterly	Grab
Methyl tert butyl ether	NA	0.050	mg/l	Quarterly	Grab
Tetrachloroethylene	NA	0.001	mg/l	Quarterly	Grab
Trichloroethylene	NA	0.010	mg/l	Quarterly	Grab

Outfall Number and Parameter	Discharge Limitations		Units	Minimum Monitoring Requirements	
	Daily Avg.	Daily Max		Measurement Frequency	Sample Type
Outfall 003 - Treated Groundwater Remediation					
Flow	Monitor	Monitor	GPM	Continuous	Meter
pH (range)	6.0 to 9.0		SU	Monthly	Grab
Total 1,2- Dichloroethylene	NA	0.010	mg/l	Monthly	Grab
Tetrachloroethylene	NA	0.001	mg/l	Monthly	Grab
Trichloroethylene	NA	0.010	mg/l	Monthly	Grab

Additional Conditions:

(1) The discharge rate may not exceed the effective or design treatment system capacity. All monitoring data, engineering submissions and modification requests must be submitted to:

Ms. Janet Brown
NYSDEC - Region 3, Division of Environmental Remediation
21 South Putt Corners Road
New Paltz, NY 12561
Phone: (845) 256-3826

With an annual sampling data summary sent to:

Regional Water Manager
NYSDEC - Region 3
100 Hillside Avenue, Suite 1W
White Plains, NY 10603-2860
Phone: (914) 428-2505

(2) Only contaminated groundwater from this site is authorized for treatment and discharge.

(3) Authorization to discharge is valid only for the period noted above but may be renewed if appropriate. A request for renewal must be received 6 months prior to the expiration date to allow for a review of monitoring data and reassessment of monitoring requirements.

(4) Both concentration (mg/l or µg/l) and mass loadings (lbs/day) must be reported to the Department for all parameters except flow and pH.

(5) For Outfall 002: to comply with the monitoring requirements specified on page 1, samples and measurements shall be taken from the activated carbon treatment system effluent prior to the discharge to the unnamed tributary of the Muscoot River at Latitude 41° 20' 37" and Longitude 73°45' 19".

(6) For Outfall 002: if a discharge limitation for any parameter is exceeded the measurement frequency for all parameters shall be monthly, until a period of 4 consecutive sampling events shows no exceedances at which point quarterly monitoring may resume.

(7) For Outfall 003: to comply with the monitoring requirements specified on page 1, samples and measurements shall be taken from the activated carbon treatment system effluent prior to the discharge to the unnamed tributary of the Muscoot River at Latitude 41° 20' 30" and Longitude 73°45' 19".

(8) Any use of corrosion/scale inhibitors, biocidal-type compounds, or other water treatment chemicals used in the treatment process must be approved by the department prior to use.

(9) This discharge and administration of this discharge must comply with the substantive requirements of 6NYCRR Part 750.

APPENDIX D

NON-ROUTINE MAINTENANCE ACTIVITIES AND SITE LOGS

NON-ROUTINE MAINTENANCE ACTIVITIES AND SITE LOGS

- 12/18/97 First phase of development of RW-1S
- 12/19/97 Second phase of development of RW-1S
- 12/22/97 First phase of development of RW-2D
- 12/23/97 Third phase of well RW-1S development, second phase of development of RW-2D, and development of well MW-12S.
- 4/14/98 System start-up, RW-1S not operational because of tear in transducer cable. Only RW-2D was in operation.
- 5/11/98 New transducer placed in RW-1S. Upon activation of RW-1S, system immediately shut itself down as a result of high inlet pressure to activated carbon system. Slime build up on coarse bag filter caused tear in filter, releasing the debris to the next downstream unit, which also tore.
- 5/18/98 System down – 1 amp fuse blown. Fuse was replaced with a 2 amp fuse.
- 6/1/98 Water level in RW-2D pumped down, 19.5 gal of 5.25% sodium hypochlorite poured into the borehole to disinfect the well of iron bacteria.
- 6/2/98 Pump and riser removed from the well, and the borehole and screen were mechanically cleaned with a steel brush; a clean pump was then placed in the well.
- 10/9/98 New bags filter installed after treatment of purge water.
- 10/21/98 Pump RW-2D pulled – steel cable was replaced with stainless steel
- 12/23/98 RW-1S goes down to approximately 10.26, pump does not shut off. Transducer cable detached from SS support cable. Reattached cable, working fine.
- 1/6/99 New junction box installed on side of breaker panel.
- 1/18/99 Unable to sample MW-12S, MW-5S, and MW-5D due to ice cover

- 3/31/99 Canister F07545 taken out of service, F07542 moved to primary position.
- 4/6/99 Polishing drum has slow leak – rim/lid area full of water to level of rim.
- 4/14/99 Leak at polishing drum repaired
- 5/26/99 Low level alarm RW2D came on after wind slammed door shut looked for and found loose wire connection to alarm module, tightened, problem restored.
- 7/13/99 Vandals have crushed and flattened right side of chain link fence
- 8/18/99 System shut down, lead carbon drum leaking around 16" up from bottom of drum. Drum appears to have rusted from the inside out. Leaking drum taken out of service; new drum placed in polishing position. Fence has been repaired.
- 10/14/99 RW2D pump pulled for maintenance; pump screens clogged with fine black silty material
- 5/3/00 Non-routine visit for additional sampling; between carbon and final effluent
- 5/22/00 All drums removed from service due to silt clogging from redevelopment of well 2D.
- 5/31/00 All carbon taken off line
- 7/24/00 RW-2D transducer installed
- 12/12/00 Non-routine visit; RW-1S pump and transducer safety cabled repaired.
- 12/18/00 RW-1S off 12/4/00 – 12/12/00
- 2/21/01 Non-routine visit for RCRA inspection
- 4/4/01 Power shut off, transducer pulled and stored in building.
- 4/9/01 System shut down due to construction of storm drain system. Piping and electrical have been serviced and are to be repaired.
- 5/7/01 RW-2D valve clogged and almost closed, cleaned, working ok.

- 8/14/01 "Drought conditions" RW-2D does not seem to be holding settings due to clogging,
- 10/22/01 RW-1S high level light on, problem with pump rate
- 10/30/01 RW-1S back on, working ok. Pump slows to a trickle and turned off.
- 1/2/02 RW-1S transducer replaced and pump impeller changed. Bellows replaced RW-2D, due to corrosion
- 12/30/02 RW-1S shut down to allow carbon to dewater.
- 7/8/03 Indication light on pump RW-2D burned-out. Pressure in system is slightly higher than normal.
- 7/21/03 High pressure warning light on – system off, water on floor. Pin hole in primary carbon drum. High level alarm on pump RW-2D. System shut down.
- 9/29/03 RW-1S alarms and level set points changed – (low level to 6' and high level to 20' / pump off 8' and pump on 15')
- 10/13/03 RW-2D levels changed (9.6 to 9.1 and 15 to 14.1)
- 10/28/03 Increased RW-2D pump rate to 1.5 gpm
- 12/22/03 Water levels adjusted RW-1S (8-15 to 6-11)
- 1/5/04 RW-1S shut down – not reaching low off setting (6')
- 1/19/04 RW-1S pump settings changed back (on – 15; off – 8)
- 4/26/04 Drum 510632 (primary) found with numerous pin holes in sides - water leaking onto floor. Drum F12108 moved to primary.
- 10/11/04 RW-2D pump flow reduced – probably dirty impellers
- 10/19/04 RW-2D impellers changed due to clogging
- 10/25/04 System off pending delivery of fresh drum
- 11/22/04 Drum replaced, system back on
- 6/6/05 RW-2D shut down due to probable pump clogging or transducer

- 6/28/05 RW-2D transducer removed for replacement
- 6/28/05 System shut down due to kink in polishing drum
- 7/5/05 System restored after shut down due to leaking polishing drum
- 8/23/05 RW-2D repaired – new transducer and bellows. RW-1S bellows replaced.
- 11/14/05 RW-2D valve clogged. Clog removed, all ok.
- 3/9/06 System shut down – RW-2D on/off due to high inlet pressure switch
- 4/17/06 Polishing drum leak at top nipple – all connections amended, did not help, possibly a problem with General Carbon drums.
- 5/1/06 Leak at polishing drum stopped by itself
- 9/18/06 RW-1S meter clogged, not logging flow. Meter cleaned – all ok.
- 3/25/06 RW-2D pump impellers replaced
- 5/30/07 System shut down due to leaking carbon drum top
- 6/12/07 Drum top replaced, back in service
- 4/28/08 Primary drum replaced with lid from fresh drum – leak would have caused a plant shut down
- 5/29/08 Leak at primary drum cover continues – will repair during rebed.
- 6/9/08 Shut down due to worsening leak primary drum cover. Cover repaired with epoxy.
- 1/5/10 Replaced leaking section of RW-2D force main in well vault. RW-2D total flow was low due to the leaking force main.
- 3/30/10 Possible blockage in carbon units.
- 5/26/10 System down due to high pressure alarm. Possible plugged effluent line in Vessel 1. Both carbon vessels have leaks, need to replace.
- 7/28/10 System down due to leaking carbon vessels and possible carbon blockage.

- 8/2/2010 Well redevelopment was conducted and temporary carbon units were installed, system back on line.
- 12/20/10 System down and requires maintenance.
- 1/26/11 System operating for routine sampling and maintenance activities
- 8/30/11 Level transducer in RW-1S not operating properly. Maintenance crew spent time troubleshooting system, and transducer was ultimately reset.
- 8/27/11 System not running at full capacity due to transducer error in extraction well RW-1S.
- 11/17/11 RW-1S not pumping.
- 11/22/11 RW-1S determined to be in operational condition
- 1/11/12 RW-1S not running due to faulty depth to water level transducer.
- 3/6/2012 Replacement of the depth to water level transducer control interface. Pumping from extraction well resumed with typical flow into the treatment system.
- 2/7/13 RW-1S transducer not working properly. Removed the wires from back and replaced.
- 4/8/14 RW-1S not running due to transducer problems