DRAFT FINAL REMEDIAL INVESTIGATION

BALDWIN PLACE MALL SOMERS, NEW YORK

Volume 1

Text and Tables

Prepared for

Big V Supermarkets, Inc.

REGION 3 - NEW PALTZ

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EXECUTIVE SUMMARY

The Remedial Investigation (RI) at the Baldwin Place Mall (BPM) in Somers, New York was conducted in partial fulfillment of the requirements of the Order on Consent concerning the development and implementation of an RI/FS under Article 27, Title 13 of the New York Environmental Conservation Law entered into by Big V Supermarkets, Inc. and the New York State Department of Environmental Conservation on August 4, 1992. Vincent Uhl Associates, Inc. was retained by Big V Supermarkets, Inc. to lead the investigative effort with the assistance of expert firms in particular aspects. Environmental Standards, Inc., Valley Forge, Pennsylvania performed the data quality assurance review (validation) and Baseline Risk Assessment. The Fish and Wildlife Impact Analysis was conducted by J. Fain & Associates, Westport, Connecticut.

The BPM is an approximately 28-acre site with retail space in three mall buildings that were constructed in 1965. Most of the remaining area is paved for parking. A dry cleaner has always been present in the mall, and until at least May 1991, dry cleaning processing was performed onsite.

The RI field programs were performed during the period from July 1992 through December 1993. Nineteen RI monitoring wells were installed and sampled, and a 2-day constant-rate pumping test was conducted utilizing a BPM production well (PW-1). Other elements of the RI included a soil gas survey, a test boring/soil sampling program, sampling of nearby offsite residential and commercial wells, and surface-water and sediment sampling in nearby streams and drainageways. Further, in November and December 1993, an Additional Data Collection Program was conducted, comprised of a second test boring/soil sampling program in the confirmed onsite tetrachloroethylene (PCE) source area at the dry cleaners and the installation and sampling of two source area monitoring wells.

A residual PCE source area is present in the alleyway near the backdoor of the dry cleaners. Residual PCE concentrations are present in both the unsaturated and saturated soil in this area. Elevated PCE concentration in the unsaturated zone (soil above the water table) appears to be limited to an approximate 15 by 15 foot area directly behind the dry cleaners. The top of the zone of saturation in this area is about 3 feet below ground surface (bgs). As such, the volume of unsaturated material in the source area is small (approximately 25 cubic yards). Elevated PCE concentration extends below the water table to a maximum depth of 15 feet at the most highly impacted location (approximately 5 feet from the backdoor of the dry cleaners). The area of elevated PCE concentration in the saturated zone extends approximately 5 to 10 feet further east than the source area above the water table. The shallow groundwater within the source area exhibits 24,000 ug/L PCE concentration. The PCE concentrations that are in the onsite and nearby offsite groundwater, and which have been observed in the BPM production wells since 1979, have emanated from this residual source area.

The site and vicinity are underlain by glacial till, weathered bedrock and bedrock. The glacial till comprises the uppermost geologic and water-bearing unit. The till is very thin near the western and northwestern site boundaries and thickens to the south/southeast. The weathered bedrock is approximately 15 to 30 feet thick and there is a gradation from highly weathered (decomposed) bedrock to competent bedrock. The depth to competent bedrock (biotite gneiss) ranges from 35 feet bgs in the western part of the site to about 100 feet bgs in the east/southeast.

The saturated glacial till materials range in thickness from less than 1 foot in the northwest to as much as 76 feet in the southeast. Therefore, the weathered bedrock/bedrock system is unconfined over the extreme western and northwestern portion of the site, and over the main body of the site is overlain/confined by the glacial till water bearing unit. The weathered bedrock/bedrock aquifer underlying the site behaves as a leaky artesian system whereby the overlying glacial till materials serve as a leaky confining unit (source bed). Leakage through the glacial till is the principal source of recharge to the weathered bedrock/bedrock system. A vertical (downward) component to groundwater flow is present over the portion of the site wherein saturated glacial till materials overlie the bedrock. Flow in the weathered bedrock/bedrock unit on the western part of the site (unencumbered by a saturated lower permeability glacial till) has less of a downward flow component.

The transmissivity of the weathered bedrock/bedrock aquifer is in the range from 750 to 1,500 gpd/ft which is characteristic of a moderately permeable bedrock system. Storativity is in the range from 1.7 x 10-4 to 2.5 x 10-3 reflective of leaky artesian conditions. The vertical permeability of the glacial till confining unit is in the range from 0.043 to 0.050 gpd/ft2.

The RI included a characterization of groundwater flow for the following conditions: (1) normal operation of the BPM production wells at approximately 3.8 gpm; (2) following shutdown of the BPM production wells for approximately 2 weeks; and (3) after BPM Production Well PW-1 had been operative for 42 hours at a sustained pumping rate of 39 gpm.

An onsite shallow groundwater divide is oriented in a southwest to northeast direction in the vicinity of the main mall building (and dry cleaners). This divide is evident under normal BPM pumping conditions (average 3.8 gpm), and also when the mall wells have been shutdown for an extended period. Groundwater flow from the divide is to the southeast and west/northwest. The water-level drawdown response during the 2-day pumping test indicates that sustained pumping of PW-1 (beyond the 2-day pumping test) may begin to capture shallow groundwater in the weathered bedrock over the western portion of the site.

The regional water-level contour map for the bedrock system confirms the presence of a deeper groundwater divide onsite under non-pumping conditions with flow components to the southeast and west/northwest. Under present BPM pumping

conditions, the mall wells are capturing deeper groundwater over a portion of the site with a component of groundwater flow offsite to the southeast. Under sustained pumping conditions (2 days at 39 gpm), BPM Production Well PW-1 effectively captures deeper groundwater over the site.

The dry-cleaner related compounds (PCE and its breakdown products trichloroethylene (TCE) and 1,2-dichloroethylene (1,2-DCE)) are the constituents of concern in groundwater at the BPM site, and their concentration distribution is consistent with a sole contaminant source at the dry cleaners. As a result of the groundwater divide, these compounds are emanating in both the southeasterly and westerly directions from the dry cleaners proximity. Comparable PCE concentrations are present in onsite monitoring wells located to both the southeast and west of the shallow groundwater divide near the dry cleaners. The highest PCE concentration detected in the RI monitoring wells (outside of the source area) was 910 ug/L. TCE was detected up to 190 ug/L and 1,2-DCE was detected up to 61 ug/L.

Over the southeast portion of the site, where the glacial till materials are thick and there is a significant vertical component to groundwater flow, the lateral extent of contaminant migration in the shallow glacial till materials appears to be somewhat limited. The contaminants are migrating into weathered bedrock within a very short distance from the source area. As such the principal migration pathway to the south/southeast is in the deeper weathered bedrock/bedrock system. On the western portion of the site, where the glacial till materials are thinner, the shallow groundwater system is comprised of weathered bedrock. There is less of a downward component to groundwater flow, and contaminant migration occurs in the shallow as well as the deeper system.

Two offsite areas have been impacted by the BPM site-related constituents: part of the commercial area along Route 6 to the west and part of the Meadow Park Road community to the southeast. The impacted Meadow Park Road area extends approximately 1,200 feet, begins southeast of the dry cleaners and does not reach south beyond Meadow Park Road where it rejoins Tomahawk Street. PCE concentrations in the eleven wells within the impacted area range from 1.3 to 300 ug/L, TCE from non-detectable to 10 ug/L, and 1,2-DCE from non-detectable to 0.5 ug/L (as of May 1994). In nine of these wells, PCE concentration consistently or intermittently exceeds the 5 ug/L NYSDEC/NYSDOH Maximum Contaminant Level (MCL) and Big V Supermarkets, Inc. maintains GAC filter systems on each of these wells. The concentration distribution indicates that PCE levels decline within a short distance in the southeast (downgradient) direction within the Meadow Park Road area. The general trend of the five year database from late 1988 through 1993 was one of very gradually increasing concentrations in the Meadow Park Road area. In the first two quarters of 1994, a more marked increase has been observed in the four most northerly impacted wells within this area.

The Route 6 area impacted by the site-related constituents also extends approximately 1,200 feet, begins west of where the western stream crosses under Route

6, and does not extend to where the ground surface begins to rise markedly towards Mahopac Avenue to the west. In the four commercial wells within the impacted area, PCE concentrations up to 80 ug/L have been detected, TCE up to 4.0 ug/L, and 1,2-DCE up to 1.4 ug/L (as of May 1994). Two of these wells are equipped with GAC filter systems maintained by the owners. Big V Supermarkets, Inc. maintains filter systems on the other two wells.

The impact by service stations (Exxon (formerly Mobil), Texaco and Citgo) in the vicinity of the Baldwin Place Mall intersection extends into the areas both immediately south and north of the western stream. The four Route 6 commercial wells south of the western stream equipped with filter systems due to PCE concentration, and the McDonalds well, also contain MTBE. The leakage from the service stations has also resulted in a dispersion of low levels of MTBE (from 1 to 15 ug/L) over wide areas of the BPM property.

Drainage from the BPM is to the northwest and southeast. The western/northwestern portion of the site drains to an unnamed south-to-north flowing stream (western stream) that heads to the south of the mall, is diverted under the mall and parking lot, and empties into a relatively steep ravine and valley just north of Route 6. The western stream flows through two ponds and Lake Baldwin prior to its confluence with the Muscoot River approximately 3,500 feet from the site. Drainage over the eastern portion of the site is to an unnamed north-to-south flowing stream (eastern stream) that heads just north of the site, is parallel to the eastern site boundary, and lies between the site and the Meadow Park Road residential community. The eastern stream is also tributary to the Muscoot River, and its confluence with the river lies approximately I mile south of the site.

The RI results indicate that limited areas within the western stream and in a tributary drainageway to the western stream (which runs west of the site along the south side of Route 6) are the only surface water areas that have been impacted to a slight degree by site-related constituents. Low PCE concentrations are present in surface water (up to 2 ug/L) and sediment (up to 4 mg/Kg) in these areas near the site but not at sampled downstream locations..

The Baseline Risk Assessment provides an analysis of potential risks to human health and the environment associated with exposures to site-related constituents under current and potential future conditions. The current-use scenario considers potential risks posed to nearby residents. The potential future-use scenarios consider the risks posed to site construction workers, office workers (in a future building constructed over the source area), children, and nearby residents.

Under future conditions, construction workers are estimated to incur an upper bound cancer risk of 1 x 10-5 and a hazard index of 6.0, and office workers in a future building constructed over the area of soil contamination (source area) are estimated to incur a cancer risk of 9 x 10-6 and a hazard index of 2.0. These potential cancer risks

and adverse health hazards are all attributable to PCE contamination in the unsaturated soil near the dry cleaners.

At this time all residential and commercial water supplies analyzed during the RI are currently meeting MCLs and are, therefore, adequately protected. This assumes that regular maintenance on the existing GAC filter systems will continue; that the GAC systems will not be dismantled until groundwater has been remediated or an alternate water supply provided; and that if any further residential wells exhibit PCE attributable to the site above the MCL, a GAC filter will be installed or alternate water supply provided. The combined total hazard index for this group of exposed individuals (current residents) is estimated to be 0.08, which is well below unity and indicates no possible health hazards other than the very minimal added risk of cancer (which may be zero). The combined excess cancer risk of 4 x 10-6 was calculated assuming concentrations of both PCE and TCE at the MCL. Assuming the concentrations of PCE and TCE are 5 ug/L is a conservative assumption because for the wells with existing GAC filtration, PCE and TCE are not detected in the treated water, and none of the wells without filter systems exceed the MCL. The upper 95th confidence limit (UCL) is, therefore, more likely to be much lower than 5 ug/L.

Under the assumption that the concentrations of constituents detected in the residential, commercial and onsite deep monitoring wells would be of future domestic use without any treatment, a carcinogenic risk of $5 \times 10-5$ is estimated, and a combined hazard index for the future residents is estimated to be 1.0.

Children are estimated to incur a combined cancer risk of 5×10 -7, which is below the de minimis benchmark of 1×10 -6, and the total combined hazard index is estimated to be 0.2, indicating that no adverse health effects can be anticipated even under reasonable maximum conditions of exposure. This population incorporated soil, sediment and surface water media.

The results of the ecological assessment of surface water in the site vicinity indicate that no chemical analyzed in surface water poses a risk to the freshwater aquatic life or its uses. Results of the ecological analysis of sediment, additionally demonstrated no environmental risk

The most significant fish and wildlife resource, both within the one-half mile radius and within two miles downstream of the site, is the Muscoot River including the Amawalk Reservoir, and its associated wetlands, open water, and riparian areas. Correspondence with the New York Natural Heritage Program did not identify any resident endangered, threatened, or species of special concern, or significant habitats within the boundaries of the study area. Two wetland communities were found on the BPM; field investigation of these areas did not disclose the presence of any Federal or State listed rare or endangered plant species on the site. The pathway analysis indicated no impact to fish and wildlife resources.

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1.0 INTRODUCTION

As authorized by Big V Supermarkets, Inc., Vincent Uhl Associates has performed a Remedial Investigation (RI) of the Baldwin Place Mall (BPM) in Somers, New York (Figure 1-1). The RI for the BPM site was conducted in accordance with the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and with the requirements of the National Contingency Plan (NCP, 40 CFR 300). Additionally the RI was conducted in partial fulfillment of the requirements of the Order On Consent concerning the development and implementation of an RI/FS under Article 27, Title 13 of the New York Environmental Conservation Law entered into by Big V Supermarkets, Inc. and the New York State Department of Environmental Conservation on August 4, 1992 (NYSDEC, 1992a).

The scope of work for the RI was specified in a Work Plan (VUA, 1992a) that was appended to the Order On Consent. As required by the Work Plan, operational plans for the performance of the RI were presented in the Sampling and Analysis Plan (VUA, 1992b), which included a Field Sampling Plan, Quality Assurance Project Plan, and Health and Safety Plan. Approval of the Sampling and Analysis Plan was received from NYSDEC on November 17, 1992 (NYSDEC, 1992b).

Vincent Uhl Associates led the investigative effort with the assistance of expert firms in particular aspects. Environmental Standards, Inc. performed the data quality assurance review (validation) and Baseline Risk Assessment. The Fish and Wildlife Impact Analysis was conducted by J. Fain & Associates.

This report presents a compilation of the RI data collection activities, an analysis of the site characteristics, conclusions relative to the risk to public health and the environment posed by the site, and a basis for the evaluation of appropriate remedies in the Feasibility Study by J. Robert Folchetti & Associates. Section 2.0 presents a review of the site history and a summary of previous investigations. The rationale for, and detailed descriptions of the data collection activities undertaken during the RI are presented in Section 3.0. Section 4.0 discusses the findings with respect to the physical characteristics of the site, including geology and hydrogeology. The characteristics of the contaminant source area are discussed in Section 5.0. Sections 6.0 and 7.0 discuss the

nature and extent of impact to groundwater and surface water. Section 8.0 brings together the information in previous sections for a summary of contaminant migration mechanisms. The Fish and Wildlife Impact Analysis is summarized in Section 9.0 and provided in Appendix M. Section 10.0 summarizes the Baseline Risk Assessment which is provided in Appendix N. The conclusions of the RI are presented in Section 11.0.

The RI Report is comprised of four volumes. Volume 1 contains the Executive Summary, text, and tables, and Volume 2 the figures. Volume 3 contains Appendices A through L, and Volume 4 contains Appendices M through Q including the Baseline Risk Assessment.

2.0 BACKGROUND

2.1 SITE DESCRIPTION

The BPM is located due south of the Route 6, Route 118, and Baldwin Place Road intersection (Baldwin Place intersection) at the northern edge of the Town of Somers, New York in northern Westchester County (Figure 2-1). The approximately 28-acre site is bounded on the northwest by U.S. Route 6; on the west and south by undeveloped property; on the east by an abandoned railroad embankment; and by a short east-west oriented section of Route 118 on the north which represents the Putnam-Westchester County line.

The mall contains 209,800 square feet of retail space in three separate buildings oriented in an angled line. The front of the mall faces Route 6; the area between the mall and the railroad embankment is referred to as behind. Nearly the entire area in front of the mall is paved for parking. A section behind the mall is also paved. Some of the area east of the pavement is a low quality wetland according to field investigations conducted by a wetlands specialist in December 1990 (Jay Fain & Associates, 1991) and during the RI. The railroad embankment divides an unnamed stream into two separate channels that flow in a general north to south direction along the eastern edge of the site.

Drainage from the BPM is to the northwest and southeast. The western portion of the site, which is comprised of a parking area, drains to a tributary of the Muscoot River (western stream). This tributary stream flows in a northwesterly direction prior to its confluence with the Muscoot River approximately 3,500 feet from the site. The headwaters of this tributary stream are just south of the BPM property. The drainage from the parking area over the western portion of the site is conveyed to the western stream via a stormwater system. The eastern and southeastern portions of the BPM property drain to the small stream that heads a short distance north of the site and flows in a north-to-south direction just east of the site boundary (eastern stream). This stream lies between the site and the Meadow Park Road residential community. The eastern stream is also tributary to the Muscoot River, and its confluence with the river lies approximately 1 mile south of the site (see Figures 2-1 and 4-1).

In addition to the mall buildings, a McDonalds restaurant and an Exxon service station (formerly Mobil service station #06-GDK) are located along Route 6 on the northwest part of the property. Two residences are situated in the northeast corner of the property; one residence is tenanted and the other is unoccupied.

The BPM was constructed in 1965. Prior to the mall, an orchard had been maintained on the property. Big V Supermarkets, Inc. purchased the BPM in July 1986. Most of the mall space is vacant and in need of renovation before it can be utilized. The existing tenants are a post office, commercial offices and various retail stores including a dry cleaners. The dry cleaners came under scrutiny by the Westchester County Health Department (WCHD) in the late 1970s as a result of the discovery of dry cleaning chemicals in the mall water supply. A previous consultant has stated that their review of mall tenants records indicated that "there always has been a dry cleaner on the premises" (JRFA, 1989). Until at least May 1991, dry cleaning processing was performed on the BPM property. Presently, the dry cleaners' processing is performed offsite.

The mall water supply is comprised of two production wells located beyond the fenced-in area on the southern part of the property. These wells are 260 feet deep (Production Well PW-1) and 400 feet deep (Production Well PW-2), and can reportedly provide a combined capacity of 115 gallons per minute (gpm). The water supply is treated by a granular activated carbon (GAC) filter system that was installed in April 1989 (JRFA, 1989). The filter system has been effective in removing the contaminants in the BPM production wells: tetrachloroethylene (PCE) and trichloroethylene (TCE). The two on-site residences are also connected to the mall water-supply system (Leggette, Brashears & Graham, 1988).

The sanitary wastewater from the mall is handled by an on-site treatment plant located beyond the fenced area on the southeast part of the property (SPEDES Permit No. 0067741). The treatment plant effluent is routed through two subsurface sand filters, collected by an underdrain assembly, chlorinated and re-aerated before discharge to the eastern stream.

The Exxon (formerly Mobil) service station has an operating groundwater remediation system installed by Technical Environmental Specialists Corporation (TES) for Mobil Oil Corporation. The remediation system consists of two recovery wells, one shallow and one in bedrock, to recover groundwater containing dissolved petroleum

hydrocarbon compounds (BTEX) and an additive (MTBE). The groundwater pumped from the recovery wells is treated by carbon filtration before discharge into the same storm-water system that drains the parking area in the western portion of the BPM (TES, 1991).

The McDonalds restaurant well is reportedly 650 feet deep and cased to 31 feet below ground surface (bgs) (TES, 1991). This well was temporarily taken out of service in 1989 as a result of water quality problems; both MTBE and PCE were detected. This well is presently equipped with a GAC filter system maintained by Mobil Oil Corporation.

2.2 SITE HISTORY AND PREVIOUS INVESTIGATIONS

The BPM water supply was initially sampled by the Westchester County Health Department (WCHD) in 1979 as part of a county-wide investigation of water supplies vulnerable to dry cleaning chemical contamination. This early result indicated the presence of tetrachloroethylene (PCE) in the BPM water supply at 37 micrograms per liter (ug/L), below the prevailing New York State Department of Environmental Conservation (NYSDEC) guideline concentration for VOCs of 50 ug/L (WCHD, 1989). Subsequently, in 1979, WCHD conducted an inspection of the dry cleaning establishment on the BPM property. Evidence of chemical dumping or spillage, or unacceptable disposal practices, was not noted at the time of this inspection (WCHD, 1989).

The BPM and surrounding area wells were resampled by WCHD in 1984, at the time of the fire at Lloyd's Lumber on Route 6 north of the BPM. The levels of VOCs in the BPM water supply samples (35 to 39 ug/L PCE in July 1984) had not significantly changed from those found in 1979 (WCHD, 1989).

In 1988, Leggette, Brashears & Graham, Inc. (LBG) conducted an environmental assessment of the BPM for the mall management firm, Hampton Management Company. The assessment was based on a review of land-use history of the site and adjacent property, local and state records, and examination of aerial photographs, and involved a limited onsite field program. The field program included a site inspection; collection of samples from the BPM production wells (an initial and confirmatory sample) and from the water-supply wells for McDonalds and the Mobil service station; and the installation

and sampling of two shallow monitoring wells directly beneath the sand filters of the BPM sanitary wastewater treatment system. The results of this program indicated concentrations of PCE and TCE in the BPM production wells that were comparable to the previous WCHD testing. The PCE concentrations were noted to be above the lowered New York State Department of Health (NYSDOH) guideline for PCE in drinking water of 5 ug/L that was accepted by the Public Health Board on July 22, 1988 and was shortly to become effective as a standard on January 9, 1989. In addition, the McDonalds well also exhibited PCE above the 5 ug/L guideline (21 ug/L). Neither PCE, TCE, or any other VOCs were detected in the water-supply well for the Mobil service station. The results of both soil and groundwater sampling at the sand filters did not implicate the wastewater system area as the source of the PCE and TCE in the groundwater. LBG concluded that there was insufficient data to define a source of the PCE on the BPM property (LBG, 1988).

The WCHD and NYSDEC resampled the McDonalds and BPM wells in October and November 1988, to confirm the LBG investigation findings. In addition to PCE, the gasoline additive methyl tertiary butyl ether (MTBE) was detected in the McDonalds well at 320 ug/L. McDonalds was directed by WCHD to use a new source of water (WCHD, 1989), and for several years McDonalds brought in bulk water from an off-site source. The well resumed service in 1993 after being equipped with a GAC filter system by Mobil Oil Corporation.

WCHD subsequently reinspected the BPM dry cleaning establishment and initiated an extensive sampling program to investigate if other water sources in the area were affected. The reinspection of the BPM dry cleaners in January 1989, like the 1979 inspection, did not indicate that current disposal practices were contributing to the groundwater contamination. From November 1988 through early 1989, 38 area wells (32 residential and 6 commercial) were sampled either by WCHD or by NYSDEC which was investigating an apparent petroleum spill in the same area. Several residential wells on Meadow Park Road east/southeast of the BPM exhibited PCE concentrations; in two of these wells PCE concentrations above 5 ug/L were detected. Also, four commercial wells along Route 6 to the west of the BPM exhibited PCE concentrations; PCE was detected above 5 ug/L in three of these wells. MTBE was detected in two commercial wells along Route 6 at up to 220 ug/L, and was not detected in the Meadow Park Road residential wells. Neither PCE or MTBE were detected in residential wells on Lounsbury

Drive and Cornelius Lane east of Meadow Park Road, and in residential wells on Mahopac Avenue (WCHD, 1989).

As part of this study, WCHD also tested the BPM wastewater treatment plant influent and effluent. The influent sample exhibited a low PCE concentration below levels detected in the BPM wells. This provided the basis for WCHD's stated opinion that the PCE concentration in the influent represented the ambient level in the water (that came from the production wells rather than resulting from a PCE-laden discharge to the sewer). PCE was not detected in the wastewater system effluent (WCHD, 1989).

In the week of February 20, 1989, WCHD resampled the residential wells on Meadow Park Road that exhibited positive results in the initial samples. The owner of one of the two residential wells that exceeded the maximum contaminant level (MCL) for PCE installed a GAC filter system that was tested after installation and found to be effective (WCHD, 1989).

Big V Supermarkets, Inc. installed a GAC filter system on the BPM production wells. The system design, by J. Robert Folchetti & Associates (JRFA), was approved by WCHD in November 1988, and the system came on-line in April 1989 (JRFA, May 1989). This system is effective at removing PCE and TCE concentrations in the drinking water to non-detectable levels. The filter system is designed for 60 gallons per minute (gpm); current BPM water usage is on the order of 3.8 gpm. Starting in September 1990 and continuing to present, the firm of Landau & Heyman, Inc. has maintained the BPM water-supply treatment system for Big V Supermarkets. Landau & Heyman conducted monthly monitoring through January 1992. In and after February 1992, a quarterly monitoring program has been implemented by VUA and Big V Supermarkets.

In April 1989, the WCHD issued an Interim Report on Groundwater Volatile Organic Chemical Contamination at and in the BPM proximity (WCHD, 1989). This report summarized WCHD's investigative efforts and findings, and recommended the evaluation of water treatment and/or supply alternatives for the area and continuation of a groundwater monitoring program. WCHD also forwarded their findings to the NYSDEC for consideration in a remedial action program.

In May 1989, JRFA prepared a report for Big V Supermarkets, Inc. that summarized the water quality of wells proximate to the BPM and identified potential

sources (JRFA, 1989). JRFA compiled data for 57 wells in the area, some of which had detectable levels of PCE and/or MTBE. JRFA stated that they were not able to substantiate from this investigation any locations where PCE was entering the environment on the BPM site.

NYSDEC notified Big V Supermarkets, Inc. of the inclusion of the BPM in the Registry of Inactive Hazardous Waste Disposal Sites (Site Classification 2) in a letter dated October 31, 1989. The Inactive Hazardous Waste Disposal Report enclosed with the notification letter indicated that the NYSDEC viewed the WCHD Interim Report as an equivalent Phase I investigation, and that PCE in the BPM wells and four residential wells in the area appeared to originate from the dry cleaners in the mall (NYSDEC, 1989).

On December 7, 1989, Malcolm Pirnie conducted a soil gas survey for Big V Supermarkets, Inc. on the BPM property. Soil gas readings were taken at 24 locations in the area behind (east and southeast of) the mall. These locations were spaced along the length of the mall, with particular focus on the central area between the dry cleaners and Meadow Park Road. The soil gas readings (HNu photoionization detector measurements at 3-foot sample depths) were uniformly low and ranged from 0 to 4.4 parts per million (ppm) (Malcolm Pirnie, 1990).

An Order On Consent concerning the performance of a limited investigation to include further soil gas and soil sampling was entered into by Big V Supermarkets, Inc. and NYSDEC on June 3, 1991 (NYSDEC, 1991a). The second soil gas investigation on the BPM property was performed by Tracer Research Corporation under subcontract to Malcolm Pirnie on June 4, 1991. This investigation primarily addressed a broad area behind the dry cleaners. A total of ten locations (3-foot sample depths) were tested for PCE, TCE and 1,1,1-trichloroethane (TCA) using a gas chromatograph equipped with an electron capture detector. An elevated PCE concentration of 94 ppm was detected at one location; the one closest to and directly behind the dry cleaners, approximately 5 feet from the building. The remainder of the locations tested exhibited much lower PCE concentrations (at and below 0.3 ppm) (Malcolm Pirnie, 1992).

The soil gas investigation was followed by a limited soil boring program to assess soil quality conditions. From July 12 through 16, 1991, Malcolm Pirnie drilled five soil borings in the area behind the mall buildings. PCE concentrations were detected in the

unsaturated soil from the boring right behind the dry cleaners; however, the PCE levels detected were relatively low at 1.6 to 1.7 mg/kg. (Malcolm Pirnie, 1992).

As part of this field program, on May 23, 1991, Malcolm Pirnie collected an air sample from the vent outside the backdoor of the BPM dry cleaners. The PCE concentration at the vent exhaust was reported at 350 parts per million (ppm). Based on the measured air flow velocity, and an assumed typical time of (dryer) operation, Malcolm Pirnie estimated an annual PCE emission of approximately 350 gallons. Malcolm Pirnie additionally noted that the vent was located about 8 feet above the ground and was venting downward (Malcolm Pirnie, 1992).

During the period from February 1989 through August 1991, WCHD collected at least one and typically several samples (up to eight samples) from each of the 18 residential wells on Meadow Park Road. The results for samples collected in August 1991 indicated that four of these wells (besides the well with the filter system installed by the owner) exhibited PCE concentrations greater than 5 ug/L, accompanied by lower concentrations of TCE. Six other wells on Meadow Park Road also exhibited PCE at lower concentrations (below 5 ug/L).

A second Order On Consent concerning Interim Remedial Measures was entered into by Big V Supermarkets, Inc. and NYSDEC on September 12, 1991 (NYSDEC, 1991b). In accordance with the provisions of this Order, Big V Supermarkets installed GAC filter/ultraviolet (UV) disinfection systems on the four Meadow Park Road residential wells that exhibited PCE concentrations greater than 5 ug/L in the August 1991 samples. Big V Supermarkets, Inc. also assumed maintenance and monitoring responsibilities for the GAC filter at the fifth residence that was previously installed by the owner, and agreed to implement a quarterly monitoring program that included all 18 residential wells on Meadow Park Road.

The initial quarterly monitoring event under this program was conducted in late October/early November 1991. Split samples of water from points before and after treatment at selected residences were also collected by the New York State Department of Health (NYSDOH). All five GAC systems were found to be providing effective treatment. A sixth residential well on Meadow Park Road exhibited a PCE concentration above 5 ug/L, and this residence was fitted with a GAC/UV system by Big V Supermarkets, Inc. in December 1991.

A third Order On Consent concerning the implementation of a Remedial Investigation/Feasibilty Study at the BPM was entered into by Big V Supermarkets, Inc. and NYSDEC on August 4, 1992 (NYSDEC, 1992a).

During and after the RI investigative period, in March and April 1993 and in March 1994, three additional residential wells on Meadow Park Road (nine total) and two commercial wells on Route 6 to the west of the BPM were fitted with GAC/UV systems by Big V Supermarkets, Inc.

RIT

3.0 FIELD INVESTIGATIONS

3.1 OVERVIEW

The RI site characterization elements are described in this section. The program objectives, scope and chronology are provided, followed by discussions of general program aspects and the details of each element.

3.1.1 Objectives

The specific objectives of the site characterization program as stated in the RI/FS Work Plan were:

To develop an in-depth understanding of groundwater flow conditions in the shallow groundwater and in the bedrock aquifer system.

To delineate the horizontal and vertical extent of the PCE and TCE concentrations in groundwater that exceed the New York State groundwater quality criteria (5 ug/L), and assess if concentrations of these constituents are present in the nearby stream[s].

To determine if other site-related constituents are present in the onsite shallow groundwater and bedrock aquifer system; and, if present, to delineate the extent of concentrations of these constituents.

To determine the extent to which site-related constituents may be impacting offsite groundwater quality.

To assess if the PCE and TCE concentrations in the groundwater are attributable to the suspected source area near the dry cleaners or if any other onsite sources of these and/or any other groundwater contaminants are indicated.

To assess the impact on onsite groundwater quality from the Mobil [now Exxon] service station leakage and [other] potential degradation sources on surrounding properties [Citgo and Texaco service stations].

To delineate the magnitude and extent of the suspected source area near the dry cleaners, and any other onsite sources, if indicated.

[To provide a basis] to determine the risks to human health and the environment posed by the site-related constituents.

3.1.2 Scope and Chronology

The RI/FS Work Plan specified the original outline of the field program. This program included investigative components to address the potential source area(s), groundwater and surface water:

- o Seismic refraction survey.
- o Soil gas survey.
- Test boring and soil sampling program.
- o Installation and sampling of thirteen monitoring wells.
- o Sampling of Meadow Park Road and BPM production wells.
- o Surface-water and sediment sampling in nearby streams and storm drainages.

As described in the following paragraphs, this program was subsequently modified and expanded as appropriate to satisfy the study objectives.

The chronology of the RI field program is shown on Figure 3-1. Due to timing constraints associated with business considerations on the part of the property owner, the thirteen monitoring wells specified in the RI/FS Work Plan were installed in July/August 1992 and initially sampled in September 1992 ahead of the Work Plan schedule. Information concerning the installation and sampling of these monitoring wells was submitted to NYSDEC (VUA 1992c and e), and provided the basis for a preliminary assessment of the site hydrogeologic and groundwater quality conditions that was

presented in an Interim Site Characterization Report prepared in December 1992 (VUA 1992f).

The Interim Site Characterization Report identified the major remaining data gaps with respect to groundwater flow and quality conditions and presented recommendations for the work necessary to address them. In 1993, NYSDEC accepted the work which had been conducted and concurred with the recommended supplemental RI work items. These items included:

- o The installation of six supplemental monitoring wells.
- o A second complete round of monitoring well sampling.
- o Sampling of commercial wells along Route 6.
- o Performance of an aquifer pumping test on a BPM production well.

The remaining original RI/FS Work Plan and supplemental groundwater elements of the RI field program were implemented over a 10-month period, beginning in December 1992. Appropriate detailed plans and specifications for the supplemental elements and those that were left flexible in the Work Plan (i.e. the test boring and soil sampling program), were prepared during this timeframe. These included the letter regarding the proposed soil sampling/test boring locations, et. al. (VUA, 1993c), and the Technical Specification for Aquifer Pumping Test (VUA, 1993d).

Two other modifications were made in 1993 to the scope of the RI field program. The seismic refraction survey proposed in the Work Plan was eliminated as being of minimal usefulness in a joint decision by VUA and NYSDEC (VUA, 1993a). The surface-water/sediment sampling program was expanded with the collection of supplemental samples in October and December 1993 (see Section 3.9).

In August 1993, a Work Plan for Additional Data Collection in the PCE Source Area was developed based on the results of the test boring and soil sampling program (VUA, 1993f). The objective of this program was to provide additional data considered necessary for the evaluation, selection and design of source area remedial alternatives. The Source Area Additional Data Collection Program was approved (NYSDEC, 1993), and implemented in November and December 1993.

3.1.3 Drilling Programs

Three drilling programs were conducted as part of the RI site characterization: (1) the installation of the original thirteen RI monitoring wells in July/August 1992; (2) the installation of the six supplemental RI monitoring wells in April 1993, and (3) also in April 1993, the RI test boring and soil sampling program. A fourth drilling program was conducted in November/December 1993 as part of the Source Area Additional Data Collection Program, comprised of a test boring and soil sampling program and the installation of two source area monitoring wells. Samuel Stothoff Company, Inc. of Flemington, New Jersey performed the drilling and well installation services under the supervision of VUA hydrogeologists.

The water used during the drilling programs was obtained from the BPM water supply system. This water is pumped from two onsite production wells and routed through a granular activated carbon (GAC) filter system. The treated water is tested quarterly and does not contain VOCs. In addition, for confirmation purposes, a sample was collected on July 7, 1992 prior to the drilling programs, and was found to be free of Target Compound List (TCL) organic compounds with acceptable metals concentrations.

Prior to the drilling programs in July/August 1992, April 1993, and November/December 1993, provisions were made to contain generated water. A shallow plastic-lined sump was constructed at the decontamination station for heavy equipment. The drilling water, well development water, decontamination water, and the water from well evacuation during sampling, was stored in tank trucks staged onsite. At the conclusion of the field programs, the water was sampled and transported to the E. I. Dupont deNemours Company Chamber Works facility in Deepwater, New Jersey for disposal.

The drill cuttings from the RI monitoring well installation programs were temporarily stockpiled onsite, on and covered by plastic sheeting. NYSDEC has agreed that these soils may remain onsite based on the test results for representative samples (VUA, 1992d and 1993i; NYSDEC, 1992c).

The drill cuttings from the test borings and source area monitoring wells near the dry cleaners were segregated and placed in DOT-approved drums. These materials were disposed at the Chemical Waste Management Trade Waste Incinerator facility in Sauget, Illinois.

3.1.4 Surveying

In 1992, Ward Carpenter Engineers, Inc. of White Plains, New York performed the surveying services for the thirteen original RI monitoring wells and five stream staff gauges. In 1993, Terry Bergendorff-Collins, Inc. of Brewster, New York surveyed the six supplemental RI monitoring wells and selected offsite wells including those used in the regional water-level survey. In 1993, the vertical elevations of several of the original RI monitoring wells were also re-surveyed, to confirm agreement between the two firms' measurements.

Horizontal coordinates were determined within the New York State Plane Coordinate System (East Zone). The ground surface and marked measuring point elevations of each monitoring well were determined to the nearest 0.01 foot relative to the United States Coast and Geodetic Survey sea level datum. The horizontal and vertical survey data are presented on Table 3-1. Appendix A provides information concerning the monument and benchmark for the survey.

3.1.5 Sampling and Analysis

The samples collected during the RI site characterization program were submitted to Envirotest Laboratories, Inc. of Newburgh, New York for analytical testing. Table 3-2 summarizes the individual RI samples collected and the analytical parameters.

Unsaturated and saturated zone soil, groundwater, surface water and sediment were sampled. With the exception of the saturated zone soil samples, all of the samples were analyzed for the TCL/TAL parameters or the VOC portion thereof by New York State (NYS) Contract Laboratory Program Analytical Services Protocols (CLP ASP). Standard testing and reporting format was utilized for the VOC analyses of saturated zone soils, and also for several additional "groundwater chemistry" parameters tested in selected monitoring wells as these analyses were not used for risk assessment purposes.

Given the site-related constituents of concern (PCE and TCE) and the nearby service stations leakage, the analytical program emphasized VOC analysis. NYS Method 91.1 was used for the unsaturated zone soil samples, surface water and sediment samples, and groundwater samples from the onsite monitoring wells. NYS Method 91.4 (low-

level analysis) was used for the groundwater samples collected from the BPM production wells and from offsite residential and commercial wells. MTBE was analyzed as an additional targeted parameter in all the RI VOC samples.

No preservatives were used for the TCL VOC, semi-VOC and pesticides/PCBs samples in accordance with NYSDEC protocol. Nitric acid was used to preserve the TAL metals and inorganics water samples.

3.1.6 Data Validation and Management

The RI data were validated by Environmental Standards, Inc. (ESI) of Valley Forge, Pennsylvania. ESI prepared a Quality Assurance Review report for each data set (ESI, 1993a through h) and Envirotest Laboratories prepared responses to the identified deficiencies. The Quality Assurance Review reports and laboratory responses were submitted to the NYSDEC Investigation Support Section as they became available (VUA, 1993k). Appendix B contains the ESI validated data spreadsheets and a Data Usability Report for each set of RI samples. In general, the RI data were valid and usable, and met the project data quality objectives.

For the results reported in standard format, for which ESI spreadsheets are not available, the Envirotest Laboratories analytical data packages are provided in Appendices F and J.

3.1.7 NYSDEC/NYSDOH Oversight

Communication with the NYSDEC Case Manager was maintained during the RI site characterization program. Throughout, preliminary data and interim reports describing the conduct and results of the field program elements were submitted to and discussed with NYSDEC. A NYSDEC representative was onsite during a portion of the original monitoring wells installation program, for all of the supplemental monitoring wells installation and the test borings, and during the second round of groundwater sampling.

The NYSDOH's primary area of concern on this project are the nearby offsite wells used for water supply purposes. NYSDOH oversees the routine quarterly monitoring of the residential wells in the Meadow Park Road community; the RI samples were collected in partial place of the routine samples in the first quarter 1993. NYSDOH also was instrumental in gaining access to commercial wells along Route 6 for RI sampling, and continues to oversee the monitoring of two Route 6 wells that have been fitted with GAC filter systems based on the RI data.

3.2 SITE RECONNAISSANCE

The site reconnaissance entailed activities related to characterization of the BPM site and its environmental setting. These included the compilation of reports, literature, maps and aerial photographs, and inquiries to NYSDEC and County agencies, municipalities, private parties and consultants concerning the service station spills and historical/current groundwater monitoring data for wells used for water supply in the site vicinity. Field components included identification and verification of land use, geologic, topographic, surface water and ecologic features.

3.2.1 Environmental Setting

The United States Geological Survey (USGS) Mohegan Lake and Croton Falls 7.5-minute quadrangle topographic maps were reviewed for pertinent features, including streams, ponds, pipelines, wells, commercial facilities and residences. Regional geologic and hydrogeologic literature included University of the State of New York (Prucha J.J. et. al., 1968) and State of New York Department of Conservation, Water Power and Control Commission (1955) publications, and the Westchester County 208 Study (1977).

Topographic and covertype (land use and habitat) maps were prepared as part of the Fish and Wildlife Impact Analysis. Resources relied on include the Westchester County Environmental Atlas, the NYSDEC stream segment map, federal, state and local wetlands maps (NWI, NYSDEC and Town of Somers), the NYSDEC significant habitiat unit, and other general references. Indigenous wildlife and plants were noted during field surveys conducted from January to June 1993 by Jay Fain & Associates.

3.2.2 Records Search and Compilation of Previous Data

Available records were pursued from regulatory and private sources. NYSDEC records were obtained through FOIL requests for the (1) Baldwin Place hazardous waste remediation site and (2) petroleum product spill #88-07084 files. Visits were made to the Westchester County Health Department in November 1991 (VUA, 1991) and to the Putnam County Health Department, Division of Environmental Health Services in September 1993 (VUA, 1993g) to review and reproduce County records related to monitoring of wells used for water supply purposes for dry cleaner-related and petroleum constituents. The NYSDEC Spills Management Section was also directly contacted for information regarding the conditions and status of remediation at the Mahopac Village Center (VUA, 1993h).

Other parties contacted included Spain Oil, the firm which operates several of the service stations at and near the Baldwin Place intersection, and their consultant, ERM, for current monitoring results, well construction details and access to wells for water-level measurements. Putnam County Health Department and the Town of Carmel provided current monitoring data and well information for the Lake Baldwin community water supply system (VUA, 1993g and j).

3.2.3 Topography, Geology and Surface Features

Field reconnaissances were conducted on December 12, 1992, March 10, 1993, and November 11, 1993 to compile information regarding the topography, geology and surface drainage on and in the BPM vicinity. Pertinent features were noted and inspected. The stream channels to the east and west of the BPM were walked, and the only bedrock exposure noted within the vicinity of the BPM (approximately 2 miles southwest of the site along Route 6) was inspected and measured for strike and dip orientations. The field reconnaissance notes are provided in Appendix C.

3.2.4 Review of Aerial Photographs and Fracture Trace Survey

Fracture traces, identified from a stereographic analysis of aerial photographs, are documented in the Westchester County 208 Study (1977). In addition, a review of

historical low-altitude aerial photographs (stereo coverage) was conducted to examine present and past land uses, topography, drainage and identify fracture traces. Photographs included in this review were from 1962 to 1990.

Aerial photograph enlargements on a 1 inch equals 100 feet scale were also obtained for the years 1962, 1984 and 1990. These photographs were reviewed for details of land use and conditions at and in the neighborhood of the BPM before and after the mall development, and the 1990 photograph was used to prepare the base maps of the site.

3.3 SOIL GAS SURVEY

The soil gas survey was performed on January 20, 21 and 22, 1993 by Tracer Research Corporation, Inc. of Tucson, Arizona. Thirty-nine soil gas samples (SG-1 through SG-39) were collected in an approximate 5-foot, then 10-foot and 20-foot grid pattern extending outward from the alleyway behind the dry cleaners (see Figure 3-2). Flooded water and ice from snowmelt to the east of the dry cleaners area required some adjustment to the sampling locations; the outermost points on the east side of the grid were moved in from 50 to approximately 35 feet. Also, a water main and electrical conduits to the south of the area posed a constraint to the outermost points in the survey grid in this direction.

The soil gas samples were collected primarily at a depth of 2 feet below ground surface (bgs); shallower samples (10-inches bgs minimum) were collected due to high groundwater levels encountered at a few locations. The samples were collected by inserting a sampling probe to the target depth and drawing soil gas into the probe by a vacuum pump. The sample was collected with a syringe needle after two to five probe volumes of soil gas were evacuated. The samples were analyzed in the Tracer Research analytical van using a gas chromatograph (GC) equipped with flame ionization and electron capture detectors (FID and ECD). The sampling and analytical methodologies are discussed in detail in the Shallow Soil Gas Investigation report prepared by Tracer Research Corporation provided in Appendix D.

The soil gas samples were tested for the dry cleaner-related compounds (PCE and TCE), methylene chloride, and gasoline constituents (benzene, toluene, ethylbenzene and

xylene (BTEX)). Total volatile hydrocarbon concentrations (TVHC) were also reported. Tracer Research Corporation reported the results in micrograms per liter (ug/L) (Appendix D). Table 3-3 provides the sample concentrations converted into parts per million by volume (ppmv).

The survey results indicated elevated soil gas PCE concentrations within the very limited area of several sample points just outside of the backdoor of the dry cleaners (see Figure 3-2). The highest PCE concentrations were found in Samples SG-1 (55.5 ppmv) and SG-3 (51.0 ppmv). Adjacent samples SG-2, SG-6 and SG-4 exhibited concentrations from 2.5 to 8.4 ppmv. Samples collected outside of this area exhibited trace levels, up to and typically much lower than 1 ppmv, that are not indicative of a source area and may reflect the groundwater quality.

Significant TCE, methylene chloride and BTEX concentrations were not detected throughout the survey area. The methylene chloride was included in the soil gas survey at NYSDEC's request based on the detection of this compound in the August/September 1992 monitoring well samples. Subsequent to the soil gas survey, the second monitoring well sampling event in May 1993 confirmed the absence of this very common laboratory contaminant in the onsite groundwater.

Elevated TVHC concentrations were detected at several points within the survey area. The highest concentrations (754 ppmv at SG-38, 312 to 364 ppmv at SG-33/34/39, and 119.6 ppmv at SG-9) appeared to be distributed close to the underground natural gas conduits which criss-cross the survey area. During the soil gas survey, a natural gas leak from the main conduit which traverses the area was evident by the observation of venting in the puddled water at the location noted on Figure 3-2. This leak was fixed by Consolidated Edison personnel on April 12, 1993.

In summary, the soil gas survey results indicated a residual PCE source area in the alleyway near the backdoor of the dry cleaners. The subsequent test boring and soil sampling program, described in the following section, was designed with a primary focus in this area.

3.4 TEST BORINGS AND SOIL SAMPLING

From April 12 through 14, 1993, fourteen test borings were drilled and 23 subsurface soil samples were collected, primarily to investigate the residual PCE source area behind the dry cleaners that was indicated by the results of the soil gas survey. Figures 3-3 and 3-4 show the test boring locations. The placement of these test borings was as follows:

Five test borings (TB-1, TB-2, TB-7, TB-8 and TB-9) were drilled within an approximately 10 by 20 ft. area directly behind the dry cleaners. A sixth test boring (TB-3) was located near MW-5S approximately 30 feet southeast of this area.

Two test borings (TB-4 and TB-11) were drilled opposite the dry cleaners next to the front of the building, and a third test boring (TB-5) was located approximately 100 feet further west adjacent to MW-7S.

Four test borings (TB-12 through TB-15) were drilled next to soil gas survey points SG-38, SG-33/34/39, SG-9, and west of SG-36 near the apparent leak in the gas pipeline to investigate these remote locations where total volatile hydrocarbon concentrations, but not PCE, were reported in the soil gas.

One test boring (TB-6) was drilled near MW-8S at the northeastern corner of the property to provide background soil quality data.

Note: There was no Test Boring TB-10.

Test Borings TB-2 through TB-5, and TB-7 through TB-9 were drilled to refusal (total depths from 6.5 to 19.5 feet bgs.). A decision was made to end Test Boring TB-1 before refusal so as not to penetrate a clay layer encountered in this highly impacted borehole at 15 feet bgs. Background Test Boring TB-6 was drilled to 6 feet bgs., approximately 3 feet below the water table. The remainder of the test borings, TB-11 through TB-15, were drilled to the water table. The geologic logs of the test borings are presented in Appendix E.

The test borings were continuously sampled in two-foot intervals, and each sample was screened in the field with an HNu photoionization detector (PID) upon initial collection and in the headspace. The PID field screening results are provided on Table 3-4; these results were used to select the samples for laboratory analyses.

A soil sample from both the unsaturated and saturated zones within the TB-1 through TB-9 boreholes was submitted for laboratory analysis. An unsaturated zone soil sample was submitted to the laboratory from TB-11 through TB-15. The unsaturated zone soil samples from Test Borings TB-1, TB-4 and TB-6 were tested for the standard CLP parameters: TCL VOCs, TCL semi-VOCs, TCL pesticides/PCBs, and TAL metals and inorganics. The remainder of the unsaturated and saturated zone soil samples were tested for TCL VOCs. Table 3-2 lists the individual samples collected and the analytical parameters. The ESI validated data spreadsheets for the unsaturated zone soil samples and the Envirotest Laboratories analytical data package for the saturated zone soil samples are respectively provided in Appendices B and F.

3.5 INSTALLATION OF MONITORING WELLS

The nineteen RI monitoring wells include eight monitoring well clusters (MW-1S/1D, MW-2S/2D, MW-3S/3D/3DD, MW-4S/4D, MW-5S/5D, MW-7S/7D, MW-9S/9D and MW-10S/10D) and two additional shallow wells (MW-6S and MW-8S). Nine of the ten shallow (S) monitoring wells were completed in the shallow glacial till/weathered bedrock materials, screened at or near the water table, and range in total depth from 14 to 30 feet bgs. MW-10S was completed from 31 to 51 feet bgs based on water strikes during drilling in this interval. The eight deeper monitoring wells (D) were completed with an approximate depth interval from 60 to 90 feet bgs, and are either of open-hole construction or screened, depending on whether relatively competent or weathered bedrock conditions were encountered at the targeted depth interval. Monitoring Well MW-3DD was completed with an open-hole interval from 170 to 200 feet bgs. At the MW-3DD location, a continuous 100-foot long bedrock core was obtained from the approximate top of competent bedrock to the bottom depth of the monitoring well.

The monitoring well construction details are summarized on Table 3-5, and well construction diagrams are provided in Appendix G. Appendix H contains the geologic logs of the monitoring wells, and the bedrock core log is provided in Appendix I.

3.5.1 Placement of Monitoring Wells

The location of the nineteen RI monitoring wells are shown on Figure 3-5. The rationale for placement of these wells was as follows:

Monitoring Well Cluster MW-1S/1D: To provide data for the northwest portion of the site between the mall and the Mobil [now Exxon] service station and in the area that drains to the western stream which flows in a northwest direction to the Muscoot River.

Monitoring Well Cluster MW-2S/2D: To provide data for the southwest portion of the site.

Monitoring Well Cluster MW-3S/3D/3DD: To provide data for the onsite area between the dry cleaners in the mall and the residential wells on Meadow Park Road that exhibit PCE concentrations.

Monitoring Well Cluster MW-4S/4D: To provide data in the upgradient site area near to the service stations north of Route 6 and Route 118 concerning possible groundwater quality impacts.

Shallow Wells MW-5S, 6S and 7S: To provide data for the shallow groundwater in the vicinity of the dry cleaners. Specifically, to determine the location of the groundwater divide that was indicated by the configuration of surface drainage; and to address conditions between the residential wells on Meadow Park Road and the dry cleaners.

<u>Deeper Wells MW-5D and 7D</u>: To provide groundwater quality at depth proximate to the dry cleaners, and also to assess whether a groundwater divide is present in the deeper groundwater flow system.

Monitoring Well MW-8S: To provide data for the upgradient location near the northeastern site boundary to evaluate possible contributions from upgradient land uses over this part of the study area.

Monitoring Well Clusters MW-9S/9D and MW-10S/10D: To provide data for the western part of the property and to characterize groundwater flow and quality conditions near the Route 6/western site boundary.

Monitoring well clusters were situated along fracture traces or at fracture trace intersections, where applicable (see Figure 3-5). Prior to establishing the exact well locations, the orientation of the fracture traces were surveyed in and marked in the field.

3.5.2 Drilling and Installation Methodology

The RI monitoring wells were drilled using the air-rotary/hammer method of drilling. The deeper monitoring well in a shallow/deep well cluster was drilled first to collect hydrogeologic information. Samples of formation materials were collected during the drilling process to characterize the subsurface with respect to stratigraphy, groundwater occurrence and yield, and to screen the samples with a photoionization detector (PID).

The formation samples were collected continuously through the glacial till and highly weathered bedrock materials with a standard 2-inch diameter by 2-foot long split-spoon sampler to the top of the saturated zone (water table), and then at 5-foot intervals to the top of bedrock or refusal. Formation samples were then collected and described from the drill cuttings returning in the air stream while drilling in bedrock. Fractures and fractured or friable intervals were observed by examining the drill cuttings and by measuring groundwater yields through drilled intervals. Groundwater blowout yields were measured during drilling by channeling water through a Parshall flume. Table 3-6 summarizes the depth and yields of fractured intervals encountered in bedrock.

3.5.2.1 Deeper Monitoring Wells

Five deeper monitoring wells (MW-1D, MW-4D, MW-7D, MW-9D, and MW-10D) were drilled using a down-the-hole air hammer through the glacial till, weathered bedrock into competent bedrock. Initially, a 10-inch diameter borehole was drilled to a depth of 60 feet bgs into the competent bedrock. When necessary, the borehole diameter

was enlarged to 12-inches to accommodate temporary surface casing installed through relatively loose and unstable unconsolidated materials. At 60 feet bgs, 6-inch diameter steel casing was lowered into the borehole and grouted in place with a five percent bentonite/cement slurry mixture. A 1-inch diameter tremie pipe was used to pressure grout the mixture between the borehole annulus and the 6-inch steel casing from the bottom of the borehole to ground surface. After the grout was allowed to cure for a minimum of 12 hours, the level of the hardened grout was measured and additional grout was added to bring the level to within 2 feet of ground surface. A 6-inch diameter open borehole was then drilled to the total well depth of 90 feet.

The deeper monitoring wells were finished by either extending the 6-inch steel casing approximately 2-feet above ground surface or installing steel flush-mount covers. Locking covers/caps were provided and concrete pads were constructed around all of the monitoring wells.

At three deeper monitoring well locations (MW-2D, MW-3D, and MW-5D) the thickness of the glacial till and weathered bedrock materials exceeded 60 feet. These wells were drilled with an 8-inch diameter down-the-hole air hammer to a total depth of 90 feet bgs. A 30-foot length of 4-inch diameter PVC screen was installed in the 8-inch diameter borehole. A screen slot size of 0.020-inch was used in monitoring wells MW-2D and MW-3D, and 0.010-inch slot was used in MW-5D. The well casing was then extended to land surface with 4-inch diameter PVC riser pipe. The annulus between the 8-inch diameter borehole and the 4-inch diameter PVC screen was filled with clean, well-graded silica sand to approximately 3 feet above the top of the well screen. Two feet of bentonite pellets were placed on top of the sand and the remaining annulus was filled with a five percent bentonite/cement grout mixture. A tremie pipe was used to pressure grout from the top of the bentonite pellets to ground surface.

At the remaining deep well location (MW-3DD), a 10-inch diameter borehole was drilled through approximately 88 feet of unconsolidated and highly weathered bedrock materials. A 10-inch diameter surface casing was installed, and a 6-inch diameter borehole was drilled to approximately 101 feet bgs. A temporary 4-inch diameter steel casing was installed in the 6-inch diameter borehole. The bottom annulus between the 6-inch diameter borehole and the 4-inch diameter temporary casing was sealed with bentonite pellets. An Acker drill rig was used to continuously core the bedrock from approximately 101 feet bgs to 200 feet bgs using a 10-foot NQ wireline core barrel.

Core sections were retrieved in 10-foot intervals and the cores placed in a wooden core trough. Individual pieces of the core were aligned in the trough and two marked lines, one red and one black, were drawn from the bottom to the top of the cored interval. Descriptions of the core were recorded, including texture, color, length of individual competent core pieces, orientation and intensity of fractures, petrographic composition and changes in the petrographic composition of the bedrock. A Rock Quality Designation (RQD) was determined for each of the cored intervals. The log of the bedrock core is provided in Appendix I.

Once the coring was complete, a 10-inch diameter down-the-hole air hammer was used to ream the previously drilled 6-inch diameter borehole interval and 4-inch diameter cored interval to a total depth of 170 feet bgs. Six-inch diameter steel casing was installed in the borehole and a five percent bentonite/cement mixture was pressure grouted through a tremie pipe from the bottom of the borehole to ground surface. The grout was allowed to set for a minimum of 12 hours. A 6-inch diameter open borehole was then drilled to a total depth of 200 feet bgs.

3.5.2.2 Shallow Monitoring Wells

Seven of the ten shallow monitoring wells are completed in the unconsolidated glacial till materials (MW-2S, MW-3S, MW-4S, MW-5S, MW-6S, MW-7S, and MW-8S). The remaining three shallow monitoring wells (MW-1S, MW-9S, and MW-10S) are completed in weathered bedrock materials. With the exception of MW-2S and MW-10S, these wells are screened over an approximate 20-foot interval across the water table. Monitoring Well MW-2S was adjusted to suit the encountered hydrogeological conditions and is screened over a 13-foot interval, also across the water table. MW-10S, was also adjusted and is screened from 31 to 51 feet bgs based on water strikes in this interval.

The shallow monitoring wells were installed by first drilling an 8-inch diameter borehole with a down-the-hole air hammer to the targeted well depth. Four-inch diameter PVC well screen (0.010 or 0.020 inch slot) and casing was then installed in the borehole. The well casing was extended to ground surface with 4-inch diameter PVC riser pipe. The annulus between the 8-inch diameter borehole and the 4-inch diameter

PVC screen was filled with clean, well-graded silica sand to approximately 3 feet above the top of the well screen. Two feet of bentonite pellets were placed on top of the sand and the remaining annulus was filled with a five percent bentonite/cement grout mixture. A tremie pipe was used to pressure grout from the top of the bentonite pellets to ground surface.

Monitoring Wells MW-2S, MW-3S, and MW-6S were fitted with 6-inch diameter protective steel casing. The remaining wells were finished at ground surface with steel flush mount covers. Locking caps/covers were provided and concrete pads were constructed around all of the monitoring wells.

3.6 LOCAL/REGIONAL FLOW EVALUATION

Synoptic water-level measurement events were conducted at intervals during the RI field programs. These events included the two BPM production wells, the nineteen RI monitoring wells, five stream staff gauges (SG-1 through SG-5), and two existing monitoring wells (LBG-1 and LBG-2). The data from three events on June 8, 1993, June 28, 1993 and June 30, 1993 are presented on Table 3-7, and were used to prepare the water-level contour maps that depict shallow and deeper flow conditions (Section 4.3.2). The June 8, 1993 data represent conditions under normal BPM production well(s) operation; the June 28, 1993 data represent conditions after the BPM production wells had been shut down for approximately two weeks; and the June 30, 1993 data represent conditions after BPM Production Well PW-1 had been pumping continuously for 42 hours (2520 minutes) at a rate of 39 gpm.

On August 18, 1993, a regional water-level survey was conducted, which utilized thirteen offsite residential and commercial wells, the onsite monitoring wells and the stream staff gauges. The regional water-level survey data are shown on Table 3-8. The vertical elevations of the measuring points of the offsite wells were determined by the surveyor. Available details of the offsite wells that were measured and used in preparing a regional water-level contour map are summarized on Table 3-9.

3.7 MONITORING WELL SAMPLING

On August 31 through September 2, 1992, the thirteen RI monitoring wells installed in July and August 1992 were sampled (Monitoring Wells MW-1S/1D, MW-2S/2D, MW-3S/3D/3DD, MW-4S/4D, MW-5S, MW-6S, MW-7S and MW-8S). Table 3-2 lists the individual samples collected and the analytical parameters.

The purpose of this initial sampling event was to test the groundwater samples for a wide range of constituents in addition to the dry cleaner-related compounds for which the site was listed (PCE and TCE). The August-September 1992 samples from Monitoring Wells MW-1S/1D, MW-2S/2D, MW-3S/3D/3DD, MW-4S/4D and MW-8S were therefore analyzed for the standard CLP parameters: TCL VOCs, TCL semi-VOCs, TCL pesticides/PCBs, and TAL metals and inorganics (total). Dissolved TAL metals and inorganics were also tested in samples from six selected wells, and five wells were tested for a set of groundwater chemistry parameters (alkalinity, chloride, nitrate/nitrite, sulfate, total dissolved solids and total hardness). Monitoring Wells MW-5S, MW-6S and MW-7S near the dry cleaners were analyzed for TCL VOCs only.

On May 18 through 21, 1993, the second groundwater sampling event was conducted. The six supplemental RI monitoring wells that were installed in April 1993 (Monitoring Wells MW-5D, MW-7D, MW-9S/9D and MW-10S/10D) were sampled, and the thirteen original wells were resampled. Based on the 1992 findings, the samples were analyzed for TCL VOCs (see Table 3-2).

Newly-installed monitoring wells were sampled at least two weeks after they were installed and developed. Immediately prior to the collection of each sample, a submersible centrifugal pump or dedicated PVC bailer was used to evacuate at least three well casing volumes from the well, where possible. In some cases, it was impractical to remove three casing well volumes of water due to low well yield. In this event, the well was pumped dry and recovery was monitored. If the well recovered to within 75 percent of the static level within 15 minutes, two additional well volumes were evacuated. If the well did not recover within this time frame, the sample was collected. The field measurements for pH, specific conductance and temperature are summarized on Table 3-10.

Samples were collected using laboratory-cleaned (first round) and dedicated new (second round) PVC bailers and transferred directly into laboratory containers. The samples were immediately placed on ice in secure coolers and delivered to the laboratory either the day or morning after collection. Chain-of-custody procedures were followed.

For quality control purposes, two field replicate samples and two field blank samples were collected during each monitoring well sampling event. The field blank samples were collected by routing laboratory-supplied blank water through a bailer. A trip blank sample was submitted with each delivery of samples.

The ESI validated spreadsheets for the TCL/TAL parameters for the two sampling events are provided in Appendix B. The Envirotest Laboratories analytical data package for the groundwater chemistry parameters is provided in Appendix J.

3.8 RESIDENTIAL/COMMERCIAL WELL SAMPLING

The RI residential/commercial well sampling events included: (a) samples from the two BPM production wells; (b) samples from 17 residential wells along Meadow Park Road; and (c) samples from six commercial wells on the north side of Route 6 between the Baldwin Place intersection and Mahopac Avenue.

3.8.1 Baldwin Place Mall Production Wells

The RI samples were collected from the two BPM production wells (PW-1 and PW-2) on February 24, 1993. Before sampling, the wells were flushed: 500 gallons were pumped from PW-1 and 700 gallons from PW-2. The samples were collected from points before the GAC filter system as close to the wellheads as possible. The sampling procedures were similar to those for the residential wells (see Section 3.8.2). The RI samples were analyzed for TCL VOCs using NYS Method 91.4 (low-level analysis). Appendix B contains the ESI validated data spreadsheets for these samples.

3.8.2 Meadow Park Road Residential Wells

The RI samples were collected from the Meadow Park Road community residential wells on February 24, 1993. This community includes nineteen homes that are served by eighteen individual wells (see Figure 3-6). These wells have been designated as RW-01 through RW-18 in the routine monitoring program, and these designations were retained in the RI for sample identification and historical data compilation purposes.

The Meadow Park Road wells have been monitored quarterly since November 1991. In the quarterly monitoring program at the time of the RI sample collection, three samples (before, between, and after filter samples) were collected from the six residences equipped with GAC filter systems due to PCE concentrations (RW-05, RW-07, RW-08, RW-09, RW-10, and RW-15), and one sample was collected from each of the twelve remaining wells. RW-13 is equipped with a GAC filter system installed by the owner as a precautionary measure and not based on PCE concentration; therefore, one before-filter sample is collected from this well. The routine samples are tested for VOCs by GC Method 502.1.

Since the purpose of the RI sampling event was to assess groundwater quality at these well locations, the RI sample set was comprised of one sample collected at each of the residences. The RI samples replaced the 1st quarter 1993 routine samples collected from the wells without filter systems (and from RW-13), and the routine before-filter samples at the six wells with filter systems. The RI samples were analyzed for TCL VOCs using NYS Method 91.4 (low-level analysis). Appendix B contains the ESI validated data spreadsheets for these samples.

One well (RW-06) was not sampled during the RI since this residence was unoccupied at the time and accessibility was difficult. Also, historical and recent (July 1992) routine sampling data (since confirmed by the August 1993 through May 1994 samples) indicated that PCE and TCE had never been detected in this well.

The wells were flushed for 10 minutes (where the owner permitted) prior to collecting the sample. The field measurements for pH, specific conductance and temperature are shown on Table 3-10. The samples were collected directly into laboratory containers from a tap valve as near to the wellhead as possible. The samples

were immediately placed on ice in secure coolers and delivered to the laboratory on the day of sampling. Chain-of-custody procedures were followed. For quality control purposes, two field replicate samples were collected, and a trip blank was delivered with the samples.

3.8.3 Route 6 Commercial Wells

The sampling of commercial wells along Route 6 between the Baldwin Place intersection and Mahopac Avenue was added to the RI scope based on the 1992 preliminary assessment (VUA, 1992f). This assessment indicated that the historical detection of PCE in certain wells within this area was likely related to the BPM, given the northwest component of shallow groundwater flow from the vicinity of the dry cleaners and the detection of PCE and TCE concentrations in onsite monitoring wells in this direction.

Information on the commercial wells within this area was compiled via a well survey questionnaire mailed to the property owners, followed by telephone contacts, and a door-to-door survey on February 24, 1993 to request sampling access during which VUA was accompanied by a NYSDOH representative. Nine commercial wells were identified within this area; these wells were designated as CW-19 through CW-27 for RI sample identification and historical data compilation purposes. At the time of the survey, one of these wells (CW-19) was equipped with a GAC filter system to remove MTBE; NYSDEC installed and maintains this system. Two other wells (CW-22 and CW-23) were equipped with GAC filter systems by the property owners as a result of PCE detection.

Permission to sample six of these wells (CW-19, CW-20, CW-21, CW-23, CW-25 and CW-27) was granted, and the RI samples were collected on March 11 and April 22, 1993. The sampling procedures were similar to those for the residential wells (see Section 3.8.2). At wells with filter systems, before-filter samples were collected. For quality control purposes, a field replicate sample was collected and trip blanks were delivered with the samples. The RI samples were analyzed for TCL VOCs using NYS Method 91.4 (low-level analysis). Appendix B contains the ESI validated data spreadsheets for these samples.

Although VUA did not obtain permission to collect an RI sample at CW-26, the NYSDOH representative collected a sample from this well during the February 24, 1993 door-to-door survey. The CW-26 sample was tested by NYSDOH for VOCs by Method 502. These results are included.

3.9 SURFACE-WATER AND SEDIMENT SAMPLING

On June 2, 1993, the three stream surface-water/sediment (SW/SD) sample pairs from the eastern stream and the catch basin sediment sample that were specified in the RI/FS Work Plan were collected. As part of this sampling event, an additional surface-water/sediment sample pair in the western stream was collected, based on the northwest component of shallow groundwater flow toward this stream that was indicated by the 1992 preliminary assessment (VUA, 1992f). As shown on Figure 3-7, these samples were taken at the following locations:

SW/SD-01: Northern (upstream) point in the eastern stream near the location of Staff Gauge SG-1.

SW/SD-02: Intermediate point in the eastern stream at the BPM wastewater treatment plant outfall.

SW/SD-03: Southern (downstream) point in the eastern stream, near the southern site boundary.

<u>SW/SD-04</u>: Point in the western stream, just north of where the stream crosses under Route 6.

SD-05: Stormwater catch basin on the western part of the BPM.

The eastern stream has two channels, to the west and east of the abandoned railroad embankment (see Figure 3-7). Shortly downstream of the wastewater treatment plant outfall, the eastern channel partially flows under a bridged section of the embankment into the western channel. The eastern stream samples were all collected from the western channel, and SW/SD-3 was collected just south and downstream of the joining of the eastern with the western channel.

On October 15, 1993, a supplemental surface-water/sediment sampling event was conducted during which three sample pairs were collected in segments of the western stream over a 1,500-foot distance, and one sample pair was collected in a tributary drainage pathway that receives contribution from the area northeast of the Baldwin Place intersection. These samples were collected based on the Route 6 commercial well sampling results which indicated offsite PCE migration in groundwater in the western/northwestern direction. As shown on Figure 3-7, four surface-water/sediment sample pairs were collected at the following locations:

SW/SD-06: Point in western stream approximately 350 feet downstream of the SW/SD-4 location (upstream of the first, unnamed, pond).

<u>SW/SD-07</u>: Point in western stream downstream of the first pond and upstream of Kennard Pond.

SW/SD-08: Point in western stream approximately midway between the outlet of Kennard Pond and Lake Baldwin.

SW/SD-09: Near the outlet of the drainage culvert at the intersection of Kennard Road and Baldwin Place Road, in the drainage pathway that joins the western stream approximately 500 feet from this intersection.

On December 9, 1993, a second supplemental surface-water/sediment sampling event was conducted during which two sample pairs were collected in a small drainage ditch on the south side of Route 6 and west of McDonalds. This drainage ditch conveys runoff from the area west of McDonalds to a culvert that crosses under Route 6 just east of the Texaco (former Sunoco) station and ultimately empties into Lake Baldwin (see Figure 3-7). Seepage from the hillside directly west of McDonalds has been noted (less than 0.1 gpm); and serves as a source of flow in this drainageway. As shown on Figure 3-7, the samples were collected at the following locations:

<u>SW/SD-10</u>: Point in drainage ditch 50 feet downstream (west) from where the seepage begins.

SW/SD-11: Point in drainage ditch about 800 feet downstream from where the seepage begins.

The surface-water and sediment samples were collected during dry periods of base flow conditions. During each event, sampling proceeded from downstream to upstream locations. At each sampling location, the surface-water sample was collected first, followed by the sediment sample. During surface-water sampling care was taken to avoid disturbance of the underlying materials.

The surface-water samples were collected by slowly lowering a glass beaker from the water surface to the bottom of the stream channel, where possible. If the water in the stream channel was very shallow, the beaker mouth was positioned in an upstream direction to obtain the water sample. Except for SD-4, the stream and drainageway sediment samples were collected using a stainless steel hand auger. The material at the SD-4 location was too loose to be retained in the hand auger and this sediment sample was collected with a stainless steel trowel. The catch basin sediment sample (SD-5) was also collected with a stainless steel trowel.

The samples were transferred directly into laboratory containers. The samples were immediately placed on ice in secure coolers and delivered to the laboratory the day of collection. Chain-of-custody procedures were followed

For quality control purposes, two field blank samples were collected in the June and October 1993 sampling events. One field blank sample was collected by routing laboratory-supplied blank water through a beaker, and the second was routed over the hand auger and trowel. A surface-water field replicate was collected in June 1993, and a trip blank was submitted with each set of samples.

The June 1993 surface-water/sediment samples were analyzed for the standard CLP parameters: TCL VOCs, TCL semi-VOCs, TCL pesticides/PCBs, and TAL metals and inorganics. The supplemental samples collected from the western stream and tributary drainageways in October and December 1993 were analyzed for TCL VOCs only. Table 3-2 lists the individual samples collected and the analytical parameters. Appendix B provides the ESI validated data spreadsheets for the surface-water and sediment samples.

3.10 HYDROGEOLOGIC TESTS

The hydrogeologic testing program at the BPM site involved: (1) short-term pumping tests on the monitoring wells during pre-sampling evacuation; (2) a step-drawdown pumping test on BPM Production Well PW-1; (3) pre-pumping background water-level monitoring; and (4) a 48-hour constant-rate aquifer pumping test with BPM Production Well PW-1 as the pumping well, and utilizing Production Well PW-2 and deeper Monitoring Wells MW-2D, MW-3D, MW-3DD, MW-5D, and MW-10D as observation wells. Shallow Monitoring Well MW-5S was also monitored during the constant-rate test to assess the degree to which the pumping from a deeper bedrock well (PW-1) influences water levels in the shallow unconsolidated glacial till materials which overlie the bedrock.

3.10.1 Short-Term Pumping Tests

Short-term pumping tests were conducted during monitoring well sampling to develop a preliminary evaluation of hydraulic characteristics for the glacial till, weathered bedrock and bedrock systems. Water-level drawdown in the monitoring wells was measured while the wells were being evacuated at a constant rate of pumping. Pumping rates for individual wells were determined by measuring the volume of water collected in a graduated container over time with a stop watch. Pumping rates for the monitoring wells ranged from 0.5 to 7.5 gallons per minute (gpm) and the test durations ranged from 30 to 160 minutes. Water-level measurements were recorded in one-half minute intervals for the initial 10 minutes of pumping, and thereafter at less frequent intervals.

Estimates of aquifer hydraulic characteristics were derived from the water-level drawdown data. Specific capacity was determined for each monitoring well and the water-level drawdown versus time data were plotted on semi-logarithmic graph paper for estimates of transmissivity, where possible. The results of these analyses are discussed in Section 4.4.1.

3.10.2 Step-Drawdown Pumping Test

A step-drawdown pumping test was conducted on PW-1 on June 18, 1993. The step test involved pumping PW-1 at three successively decreasing pumping rates or steps. In the initial step, PW-1 was pumped at 39 gallons per minute (gpm) for 1 hour, followed by steps at 32 gpm and 25 gpm, each for 30 minutes. During the test, water levels were measured in PW-1 with a electronic water-level indicator. Water levels were also monitored in PW-1 and PW-2 with pressure transducers connected to a two-channel data logger.

The data developed from the step-drawdown pumping test on PW-1 were analyzed by standard analytical methods to determine the magnitude of the well loss and aquifer loss drawdown components at different pumping rates. Further, the step test data were analyzed to arrive at a safe sustained pumping rate for the 48-hour constant rate test. The depth-to-water measurements and drawdown data are provided in Appendix L. The results of the step drawdown test analyses are discussed in Section 4.4.3.

3.10.3 Pre-Pumping Background Monitoring

Prior to the startup of the 48-hour constant-rate aquifer pumping test, background water-level conditions were monitored to assess: (1) natural water-level fluctuations within the aquifer; and (2) the influence on water levels from normal operating conditions of the BPM production wells. Background monitoring was conducted in the two BPM production wells (PW-1 and PW-2) and in observation wells MW-3D, MW-3D, MW-5D, MW-7D, and MW-10D.

The background monitoring began on June 8, 1993 with the installation of a pressure transducer in Monitoring Well MW-10D for a period of four days. On June 11, 1993 the pressure transducer was removed from MW-10D and installed in MW-7D for a period of seven days. The two BPM production wells were being used to supply the mall storage tanks until they were shut down on June 15, 1993. Two additional transducers were installed in PW-1 and PW-2 on June 16, 1993. On June 18, 1993 the pressure transducer in MW-7D was removed and installed in MW-10D prior to the start up of the step-drawdown pumping test on BPM Production Well PW-1. Two additional transducers were installed in MW-3D and MW-3DD on June 23, 1993. On June 28, 1993

the pressure transducer in MW-3D was removed and installed in MW-5D prior to the start up of the constant-rate aquifer pumping test. In addition, continuous water-level monitoring was continued after the conclusion of the constant-rate aquifer pumping test, at MW-5D from June 30 through July 16, 1993.

Table 3-11 provides a summary of the time period for background water-level monitoring at individual wells. Depth to water versus time plots for the background monitoring are provided in Appendix L.

3.10.4 Constant-Rate Aquifer Pumping Test

On June 28, 1993 at 2:30 pm, a 48-hour constant-rate aquifer pumping test was commenced on PW-1 at a rate of 39 gpm. During the test, water levels were measured in the pumping well (PW-1) and observation wells (PW-2, MW-2D, MW-3D, MW-5D and MW-5S) with water-level indicators. Water levels were also monitored in PW-1, PW-2, MW-3DD, MW-5D, and MW-10D with pressure transducers connected to data loggers. The pumping rate was monitored with the existing totalizing flow meter in the pump house. The depth-to-water measurements were converted to water-level drawdown data (depth to water at time (t) minus the static water level) and these data and the pumping rate were recorded. These data are provided in Appendix L.

During the 48-hour test, two synoptic rounds of water-level measurements were made in all of the on-site monitoring and production wells; staff gauge measurements were also collected at the five staff gauge locations. The first synoptic round was made after 1440 minutes (24 hours) of pumping PW-1; the second after 2520 minutes (42 hours) of pumping.

Following the 48-hour pumping period, the pump was shut down and water-level recovery was monitored in PW-1 and the observation wells with water-level indicators for a period of about 8-hours. The pressure transducers remained in PW-1, PW-2, MW-3DD, MW-5D and MW-10D for approximately 20-hours after the pump was shut down.

The aquifer test discharge water was pumped through the existing GAC filter system and into the 170,000 gallon BPM water-supply tanks.

3.10.5 Water-Level Monitoring Equipment and Procedures

As described above, pressure transducers were installed in wells PW-1, PW-2, MW-3D, MW-3DD, MW-5D, MW-7D and MW-10D for varying periods of time during the background monitoring period as indicated on Table 3-11. During the 48-hour aquifer pumping test the pressure transducers were utilized in PW-1, PW-2, MW-3DD, MW-5D, and MW-10D for recording water-level drawdown and recovery.

The pressure transducers consisted of one 100 psi transducer to monitor the pumping well (PW-1) and four 30 psi transducers installed in the observation wells. The pressure transducers were connected to In-Situ, Inc. Hermit 1000 (2-channel) Data Loggers. Due to the spatial distribution of the wells, individual data loggers were used at the PW-1/PW-2 locations, the MW-3DD/MW-5D locations and the MW-10D location.

The data loggers were programmed to collect background water-level readings according to a linear sample collection mode whereby the data logger would record one water-level reading from each transducer at a sample collection rate of 10-minutes. Once the background monitoring was complete, the data loggers were programmed to record water-level data in a log sampling mode for the drawdown and recovery phases of the 48-hour aquifer pumping test. This was done to allow measurements for the characteristically rapid changes in water levels during the first few minutes of pumping (particularly in the pumping well), and to optimize memory storage within the data logger for the latter periods of the test.

4.0 PHYSICAL CHARACTERISTICS

4.1 SITE SETTING

4.1.1 General

The BPM is located due south of the Route 6, Route 118 and Baldwin Place Road intersection (Baldwin Place intersection). Land use to the east of the site is residential (Meadow Park Road); to the north and northwest commercial (Route 118 and Route 6), and to the west and south undeveloped (see Figure 2-1).

The BPM site is located in a relative topographic high area. Drainage over the eastern portion of the site is to an unnamed north-to-south flowing stream (eastern stream) that is tributary to the Muscoot River. A defunct (plugged) underground storm drain system traverses the eastern part of the site (see Figure 4-1A). Presently, some of the drainage in this direction ponds just north of the wastewater treatment plant building. The eastern stream heads just north of Route 118, is parallel to the eastern site boundary, and lies between the site and the Meadow Park Road residential community. In the Meadow Park residential area, this eastern stream is routed through a series of man-made ponds and has a fairly gentle gradient. A parallel stream drainage system is present to the east of Tomahawk Street; this stream system drains to Lake Shenorock to the southeast (Figure 4-1).

Drainage over the western portion of the site is to an unnamed south-to-north flowing stream (western stream) that heads just south of the mall, is diverted under the mall and parking lot by an underground storm drain system (Figure 4-1A), and empties into a relatively steep ravine and valley just north of Route 6 near McDonalds and the Exxon station. This western stream flows through two ponds (an unnamed pond and then Kennard Pond) and Lake Baldwin prior to its confluence with the Muscoot river (Figure 4-1).

The western stream valley north of Route 6 is 30 to 50 feet lower in elevation than the BPM site. It is bounded by hills to the north and west (ridge on Mahopac

Avenue). This valley comprises the most significant topographic feature in the study area. In contrast, the eastern stream topography is relatively featureless.

4.1.2 Groundwater Usage

The residential and commercial establishments within a 1/2-mile radius of the site rely on groundwater for supply purposes. The smaller commercial establishments have individual wells. The BPM and the Mahopac Village Center mall to the northeast of the site (see Figure 1-1) have centralized production well systems. The BPM system is comprised of two wells and the supply from both wells is treated by a granular activated carbon (GAC) filtration system for the removal of chlorinated solvents (PCE and TCE). The Mahopac Village Center mall has three wells and the supply from one well is treated by an air stripper for removal of methyl tert-butyl ether (MTBE). At least seven of the individual commercial wells are also equipped with treatment systems; four primarily for PCE/TCE removal and three for removal of MTBE.

Most of the residences proximate to the site rely on individual wells for drinking water. These include the nineteen homes in the Meadow Park Road community (on Meadow Park Road and Tomahawk Street) directly east of the BPM; approximately 32 homes on Lounsbury Drive and Cornelius Lane east of Tomahawk Street; and at least seven homes on Kennard Lane northwest of the BPM. Nine of the homes in the Meadow Park community have GAC filter systems for PCE/TCE removal, and two of the homes on Kennard Lane have GAC filter systems for the removal of MTBE.

The nearest public supply is the Lake Baldwin system located approximately 1,800 feet northwest of the western BPM site boundary which serves 165 residences in the Lake Baldwin community area. This utility, which is owned and operated by the Town Of Carmel, uses six wells and delivers on average 32,000 gallons per day (gpd). No treatment has been necessary. The Lake Baldwin system wells are all completed in bedrock; range in depth from 220 to 950 feet bgs; and have reported yields from 8 to 30 gpm.

Available well records indicate that the residential and commercial wells are also completed in bedrock. Table 3-9 provides a summary of the available construction details for nearby residential and commercial wells.

In addition, three of the four service stations located near the Baldwin Place intersection along Route 6 (Exxon, Citgo and Texaco), have active groundwater recovery systems. An investigation at the fourth service station (Shell) concluded that this facility has not been a source of gasoline constituents (International Technology Corporation, 1990).

The major pumping stresses in the area are the BPM, Mahopac Village Center mall and Lake Baldwin well systems. Estimated average daily withdrawals for these three supply systems are 5,400 gpd for the BPM, 10,000 gpd for the Mahopac Village Center, and 32,000 gpd for the Lake Baldwin system.

A development has been proposed for an area east of the site and Tomahawk Street (Route 118). This potential development reportedly plans to tie into the Amawalk-Shenorock water system with onsite production wells available for backup purposes.

4.2 GEOLOGY

The Baldwin Place Mall is situated in an area of southeastern New York comprised of two distinct petrologic provinces. The first petrologic province constitutes the Precambrian metamorphic rocks of the Hudson Highlands and the second province comprises the metamorphic rocks of the Manhattan Prong. The Hudson Highland group of metamorphic rocks are considered as a northeast extension of the Reading Prong and of the New Jersey Highlands (Prucha, J.J. et al., 1968). The metamorphic rocks of the Manhattan Prong occur to the southeast of the Hudson Highlands and are separated from the Hudson Highlands by a high-angle reverse fault (The Highlands Border Fault). The BPM site is located in the Hudson Highlands.

The areas underlain by the Hudson Highland rocks are generally characterized by greater relief in contrast to the areas underlain by Manhattan Prong rocks. In general, the highest hills and ridges are underlain by gneiss and granite, intermediate elevations by

schist and the valleys by marble. The topography of the entire region has been further modified by Pleistocene glaciation. Generally the glacial cover is thinnest along the higher elevations and thickens in the valleys.

4.2.1 Regional Bedrock Stratigraphy and Structure

The rocks of the Hudson Highlands include various gneiss, marble, granites and granodiorite. The Hudson Highland group of rocks were initially deposited as sandstone, shales, and limestones within a shallow sea and later underwent metamorphism by a least three deformational events dating back to the Precambrian. To the southeast of the Hudson Highlands, the Manhattan Prong is comprised of the New York City Group of metamorphic rocks consisting of the Fordham Gneiss, the Inwood Marble, and the Manhattan Formation. The Fordham Gneiss consists of a coarsely banded hornblende biotite quartz plagioclase gneiss. The Inwood Marble is a white to grey, medium to coarse grained rock ranging in composition from calcite to nearly pure dolomite and the Manhattan Formation is dominantly a garnetiferous quartz biotite plagioclase gneiss (Prucha J. J. et al., 1968).

The age of the New York City Group of rocks of the Manhattan Prong is not definitely established but is thought to range from Precambrian to early Paleozoic. The Fordham Gneiss is generally considered to be the basal formation of the New York City Group.

The rocks of the Hudson Highlands and the Manhattan Prong have complex histories of repeated intense deformation and metamorphism. The rocks of the Hudson Highlands are moderately to strongly foliated consisting of parallel platy and elongate mineral grains. These foliations are produced by interlayering of beds of different mineral composition and the parallelism by regional stresses during deformation. The repeated episodes of deformation have resulted in intensive metamorphism and a complex series of northeast-plunging isoclinal folds.

4.2.2 Unconsolidated Glacial Deposits

The region is covered by a mantle of Pleistocene glacial materials consisting primarily of till. Glacial till comprises a heterogeneous mixture of clay, silt, sand, and boulders. The till within the region is thinnest on hilltops and ridges, thickens on bedrock slopes, and attains its maximum thickness within the valleys. In addition to the till deposits, stratified sand and gravel deposits are present in the region along streams and major river valleys such as the Peekskill Hollow Creek, Canopus Creek, the Croton River, Chappaqua Brook, the Byram and Wampus Rivers, and the Mianus River. Glacial terraces are reportedly present along the banks of the Peekskill Hollow Creek, Canopus Creek and the Annsville Brook (Westchester County 208 Study, 1977).

4.2.3 Onsite Geology

The BPM site is located on a relative topographic high at approximately 600 feet above mean sea level. The land surface on the BPM is relatively flat and there is a rise in elevation to the north of the property. The results of the drilling program indicate that the stratigraphy beneath the site consists of Hudson Highland granitic-gneiss bedrock overlain by glacial till deposits. The bedrock geology, as described from hand specimens, drill cuttings and bedrock cores, consists of granitic gneiss with mineral assemblages of biotite mica, hornblende, quartz, and white to pink feldspars. This petrology is consistent with published geologic reports for the area (Prucha J. J. et al., 1968). The Westchester County 208 Study (1977) noted a geologic contact between the biotite granitic gneiss of the New York City Group with Hudson Highland rocks just south/southeast of the site, trending approximately North 20 degrees East. The position of the New York City Group of rocks against the Hudson Highland rocks in this area could not be confirmed.

The bedrock profile consists of a zone of intense weathering (residuum) underlain by less weathered bedrock materials which are in turn underlain by competent bedrock. The overlying glacial till deposits consist of a heterogeneous mixture of clay, silt, sand, gravel and boulders. These till materials were found to be thinnest over the western area of the site where depths to bedrock are relatively shallow and thicken to the east where the depths to bedrock reach the maximum onsite depth. Figure 4-6 is a contour map

showing the configuration of the partially weathered bedrock surface. In order to visualize the onsite geology, three cross sections were prepared as shown on Figures 4-3, 4-4 and 4-5. The lines of section are shown on Figure 4-2.

Geologic Cross Section A - A' (Figure 4-3) is constructed with a northwest to southeast orientation through Monitoring Wells MW-9D, MW-10D, and Production Well PW-2. This profile demonstrates the increasing thickness of the glacial till materials toward the east-southeast. At the MW-9D location, unconsolidated till materials were observed to a depth of approximately 6 feet bgs. Highly weathered gneiss materials were observed below the till to approximately 12 feet bgs underlain by partially weathered bedrock to approximately 35 feet bgs. Competent bedrock was observed below this depth. The depth to the top of highly weathered bedrock (thickness of unconsolidated till materials) at the MW-10D location is approximately 24.5 feet bgs. Again, to the southeast toward PW-2, the thickness of the till materials increases.

Geologic Cross Section B - B' (Figure 4-4) is constructed with a general west to east orientation through Monitoring Wells MW-9D, MW-1D, MW-7D, MW-5D, and MW-3DD. The geologic profile through MW-9D and MW-1D indicates the relatively shallow depths to bedrock in the western site areas. The thickness of the unconsolidated glacial till materials at the MW-9D and the MW-1D locations is similar; approximately 6 feet. The thickness of highly weathered bedrock materials (residuum) increases toward the MW-1D location (northeast). The geologic profile towards the east through Monitoring Wells MW-7D, MW-5D, and MW-3DD, also depicts the increasing thickness of the glacial till materials and the increasing depth to competent bedrock. A maximum till thickness of approximately 80 feet was observed during the drilling of MW-3DD. The highly weathered (decomposed) and partially weathered bedrock is on the order of 15 to 30 feet thick.

Geologic Cross Section C - C' (Figure 4-5) is oriented in a north to south direction through Monitoring Wells MW-4D, MW-5D, and Production Well PW-1 over the eastern portion of the BPM property. The thickness of the glacial till is approximately 47 feet at the MW-4D location and increases to the south-southeast through the MW-5D location (approximately 55 feet) toward PW-1. From north to south, the depth to weathered and competent bedrock likewise increases.

Table 3-6 summarizes depths to fractures and groundwater blow-out yields that were recorded during drilling. Within the western site area where a relatively thin cover of glacial till materials is present (MW-9S/9D, MW-1S/1D, and MW-10S/10D), groundwater blowout yields measured within the partially weathered bedrock ranged from less than 1 to 9 gpm. Blowout yields generally increased with depth due to the cumulative contribution of groundwater through fractures and relatively friable intervals. Once the well casing was installed and grouted at 60 feet bgs in these wells, the blowout yields decreased and ranged from less than 1 to 1.5 gpm. Bedrock blowout yields were measured at less than 1 gpm in the monitoring wells within the eastern area of the site (MW-5D and MW-7D) where the glacial till materials are thicker.

4.3 HYDROGEOLOGY

4.3.1 Nature and Occurrence of Groundwater

The BPM site is underlain by three principal water-bearing units: glacial till, weathered bedrock and bedrock.

Glacial Till: The glacial till is the uppermost water-bearing unit over most of the site area. Although present over the extreme western and northwestern portion of the site (MW-1S/1D and MW-9S/9D), the bottom of the glacial till lies near the top of the water table in this area. The saturated glacial till materials range in thickness from less than 1 foot in the northwest to as much as 76 feet in the southeast site area. The thickness of the glacial till materials increases to the east/southeast of the BPM as indicated from residential well records for Meadow Park Road and for wells further to the southeast (State of New York Department of Conservation Water Power and Control Commission, 1955). The depth to the top of the zone of saturation (groundwater) in the till materials ranges from less than 2 feet bgs in the eastern site area (MW-6S) to as much as 6 to 7 feet bgs in the topographically higher northeastern site area (MW-8S). Recharge to the glacial till materials is principally from the infiltration of precipitation.

Groundwater in the glacial till occurs in intergranular pore spaces. The till serves to recharge the underlying weathered bedrock and fractured bedrock units as evidenced

by the higher water-level elevations (heads) in the till materials as compared to those in the underlying weathered bedrock and bedrock units in Monitoring Well Clusters MW-2S/2D, MW-3S/3D, MW-4S/4D, MW-5S/5D and MW-7S/7D.

Weathered Bedrock: Directly underlying the glacial till materials is highly weathered (decomposed) bedrock which is on the order of five feet thick. Groundwater occurs in intergranular pore spaces/openings in the decomposed bedrock. As is common in a weathered bedrock setting, there is a transition from decomposed bedrock to more competent bedrock. As such, the geologic cross-sections indicate the depth to and thickness of a decomposed and also a partially weathered bedrock horizon. Groundwater circulation is significant in the highly and partially weathered bedrock horizons as indicated by water strikes and yields during drilling (Table 3-6 and Figures 4-3, 4-4 and 4-5), and from iron staining on rock cuttings indicative of groundwater circulation.

Bedrock: The depth to competent bedrock ranges from 35 feet bgs on the western portion of the site (MW-9S/9D) to about 100 feet bgs in the east/southeast (MW-3DD). Groundwater occurs in fracture and joint openings in the bedrock and was also observed to occur in friable intervals of biotite and feldspars. The yield of individual wells is dependent on the number and intensity of fracture openings encountered. Table 3-6 provides a summary of fracture intervals encountered during the drilling of the bedrock monitoring wells and relative yields measured during the drilling process.

The weathered bedrock and bedrock systems are unconfined over the extreme western and northwestern portion of the site (MW-9S/9D and MW-1S/1D), and are overlain by the glacial till water-bearing unit over the main body of the site.

4.3.2 Groundwater Flow Conditions

The RI included a characterization of onsite groundwater flow for the following conditions:

(1) June 8, 1993: Normal operation of BPM production wells at approximately 3.8 gpm.

- (2) June 28, 1993: Following shutdown of the BPM production wells for approximately 2 weeks.
- (3) June 30, 1993: After BPM Production Well PW-1 had been operative for 42 hours at a sustained pumping rate of 39 gpm.

In addition, one water-level measurement event included selected residential and commercial wells in the site vicinity, to develop a picture of deeper (bedrock) regional groundwater flow conditions (August 18, 1993).

4.3.2.1 Onsite Shallow Groundwater Flow Conditions

The shallow water-level contour maps were developed from water-level measurements made in the onsite shallow monitoring well network. These shallow wells are completed in unconsolidated glacial till deposits (MW-2S, MW-3S, MW-4S, MW-5S, MW-6S, MW-7S and MW-8S) over the main body of the site, and in shallow weathered bedrock (MW-1S, MW-9S and MW-10S) over the west/northwest portion of the site.

The June 8 and June 28, 1993 shallow water-level contour maps (Figures 4-7 and 4-8) show very similar shallow flow conditions under normal BPM production well pumping and non-pumping conditions. The northeast portion of the site (MW-4S and MW-8S vicinity) is upgradient of the site and flow from this northeast portion is to the west/southwest. A groundwater divide is evident, oriented in a northeast to southwest direction, just south of the mall building and proximate to the dry cleaners. The contours indicate a shallow groundwater flow component from the identified source area behind the dry cleaners to the west toward MW-9S. Likewise, there is a shallow groundwater flow component from the divide to the southeast.

The location of the groundwater divide is much nearer to the eastern stream than to the western stream, indicating that the western stream has a more pronounced influence on shallow groundwater flow than the eastern stream. This is likely due to the greater topographic relief to the west of the site as compared with that to the east. There

is an approximate 30 to 50 foot difference in elevation between the eastern and western streams.

Water-level elevations within the northern portion of the eastern stream where it enters the site indicate losing conditions within the stream to the groundwater system. Water levels at Staff Gauge SG-1 have consistently been several feet higher than water levels in proximate Monitoring Well MW-8S. For much of the year, the eastern stream is in transition from a losing to gaining stream between SG-1 and SG-2; during measurement events in June and July 1993, the eastern stream was dry at SG-2 with flow beginning just downgradient.

Figure 4-9 depicts shallow water levels measured on June 30, 1993 after BPM Production Well PW-1 had been pumping at a continuous rate of 39 GPM for 42 hours. A companion map (Figure 4-10) shows the magnitude of water-level changes on this date from the June 28, 1993 pre-pumping static water-levels. Given the distribution of water levels over the western portion of the site (MW-1S, MW-2S, MW-9S and MW-10S), it was not possible with any degree of certainty to construct shallow water-level contours over this portion of the site. It appears that the sustained pumping of PW-1 influenced (drew down) water levels in shallow wells completed in weathered bedrock (especially in MW-9S and MW-10S) more than water levels in shallow wells completed in glacial till (MW-7S) as shown on Figure 4-10. This suggests that sustained pumping of PW-1 (beyond the 2-day test period) may in fact begin to capture shallow groundwater in the weathered bedrock over the western portion of the site.

4.3.2.2 Onsite Deeper Groundwater Flow Conditions

The deeper water-level contour maps were developed from water-level measurements in the onsite deeper monitoring well network. These deeper monitoring wells are completed in weathered bedrock (MW-2D, MW-3D and MW-5D) and in competent bedrock (MW-1D, MW-3DD, MW-4D, MW-7D, MW-9D and MW-10D). Water-level data from MW-1D were not used in preparation of the deeper water-level contour maps as the water level in this well appeared to take many weeks/months to recover after sampling and the well is completed in an interval of very tight bedrock.

The June 8, 1993 water-level contour map (Figure 4-11) depicts deeper groundwater flow conditions under normal BPM production well operation. The water-level contour configuration and flow lines indicate that the two BPM production wells are capturing deeper groundwater over a portion of the site, with a component of flow to the southeast.

The June 28, 1993 water-level contour maps (Figures 4-12 and 4-13) depict two interpretations of deeper groundwater flow conditions after the two BPM production wells had been shut down for almost two weeks. The first map (Figure 4-12) provides a strict interpretation of the data with a principal deeper groundwater flow direction to the southeast. The second map (Figure 4-13) takes into consideration the higher water-level elevation (head) in MW-2D as compared to those in MW-9D and MW-10D. The waterlevel elevation data for these three wells point to the presence of a southwest-to-northeast oriented groundwater divide as shown on Figure 4-13. This interpretation indicates that there is a deeper groundwater flow component to the northwest from this divide as well as to the southeast. The deeper water-level contour configuration on Figure 4-13 is similar to the June 8 and June 28, 1993 contour maps for the shallow groundwater. This configuration is reasonable given the presence of the pronounced western stream valley to the northwest and the significant elevation difference between this stream valley and the western portion of the site. The regional water-level contour map (Section 4.3.2.4, Figure 4-16) provides confirmation of the presence of a deeper groundwater divide onsite under non-pumping conditions.

The June 30, 1993 water-level contour map (Figure 4-14) depicts deeper groundwater flow conditions after BPM Production Well PW-1 had been pumping for 42 hours at a continuous rate of 39 gpm. The flow lines from both the east and west sides of the site are toward the pumping well. This water-level map clearly indicates that PW-1 is effectively capturing deeper groundwater on the site. Theoretical capture zones were also determined for PW-1 pumping at a rate of 39 gpm and are shown on Figure 4-15. The actual and theoretical capture zones show a reasonable correlation.

In summary, groundwater flow systems in areas underlain by shallow glacial/crystalline bedrock materials are generally local flow systems wherein local topographic high areas behave as groundwater recharge areas and local topographic low areas behave as groundwater discharge areas. Local groundwater flow systems are generally limited to

small drainage basins where the depth of groundwater circulation is quite shallow and short flow paths exist.

As discussed in Section 4.1.1, the BPM is located in a relative topographic high area with surface drainage to a north-to-south flowing stream system (eastern steam) and a south-to-north flowing stream system (western stream). Absent pumping stresses, natural groundwater flow in both the shallow glacial till/weathered bedrock and deeper bedrock should be to the southeast and northwest with a groundwater divide on the site proximate to the topographic high area. The shallow water-level contour maps clearly show the presence of such a divide under normal pumping and non-pumping conditions on June 8 and June 28, 1993.

The deeper water-level contour maps for June 8, 1993 (normal BPM production well pumping operations) and June 30, 1993 (sustained pumping of PW-1) do not show a groundwater divide for deeper flow due to the overriding influence of the BPM production well pumping. Figure 4-13 for June 28, 1993 (BPM wells shutdown for two weeks) shows the presence of a divide with deeper groundwater flow to the southeast and west/northwest towards the two stream drainages (eastern and western streams).

4.3.2.3 Onsite Vertical Groundwater Flow Conditions

The water-level measurement data from the three synoptic measurement events (June 8, June 28 and June 30, 1993) indicate that the water-level elevations (heads) in shallow wells completed in the shallow glacial till materials are higher than water-level elevations (heads) in coupled wells completed in the underlying weathered bedrock and bedrock units. This water-level elevation difference indicates that a vertical (downward) component to groundwater flow is present over the portion of the site wherein saturated glacial till materials overlie the bedrock. As shown on the table below, this downward component to flow is more pronounced in well clusters south and east of the mall building (MW-2S/2D, MW-3S/3D and MW-5S/5D) as compared to well clusters north and west of the mall building (MW-4S/4D and MW-7S/7D).

WATER LEVEL ELEVATIONS IN FEET MSL

Well Cluster	June 8, 1993 (Normal BPM Well Pumping)	June 28, 1993 (BPM Wells Off)	June 30, 1993 (Sustained BPM Well Pumping)
Glacial Till/	Weathered Bedrock (Clusters South and Eas	st of Mall
MW-2S	599.89	599.56	599.11
MW-2D	584.85	589.88	583.77
difference	-15.04	-9.68	-15.34
MW-3S	598.42	598.19	598.41
MW-3D	585.55	590.43	584.87
difference	-12.87	-7.76	-13.54
MW-5S	599.89	599.22	599.35
MW-5D	586.97	591.11	586.27
difference	-12.92	-8.11	-13.08
Glacial Till/B	Bedrock Clusters Nort	h and West of Mall	
MW-4S	604.22	603.06	602.93
MW-4D	602.00	601.33	601.14
difference	-2.22	-1.73	-1.79
MW-7S	594.37	593.73	593.56
MW-7D	592.16	592.03	591.43
difference	-2.21	-1.70	-2 .13

In contrast, as shown on the table below, the downward vertical head differentials are less for the monitoring well clusters completed in weathered bedrock/bedrock (MW-9S/9D and MW-10S/10D).

WATER LEVEL ELEVATIONS IN FEET MSL

Well Cluster	June 8, 1993 (Normal BPM Well Pumping)	June 28, 1993 (BPM Wells Off)	June 30, 1993 (Sustained BPM Well Pumping)	
Weathered B	edrock/Bedrock Clus	sters		
MW-9S	590.13	589.60	589.29	
MW-9D	589.70	588.98	588.70	
difference	-0.43	-0.62	-0.59	
MW-10S	590.12	589.80	589.09	
MW-10D	588.51	588.59	587.50	
difference	-1.61	-1.21	-1.59	

The less significant downward head differentials for coupled wells completed in weathered bedrock/bedrock horizons as compared to coupled wells completed in glacial till/weathered bedrock or bedrock indicates that flow in the bedrock unit on the western part of the site (unencumbered by a saturated lower permeability glacial till) has less of a downward flow component.

Figure 4-17 is a vertical flow net along Cross Section B - B' for June 28, 1993. This figure demonstrates the vertical nature of groundwater flow from the glacial till to weathered bedrock unit on the southeastern portion of the site and the more horizontal nature of groundwater flow, particularly in the weathered bedrock unit, over the western portion of the site where saturated glacial till is thin to absent.

The sustained pumping of BPM production well PW-1 (June 28 to 30, 1993) resulted in a significant increase in water-level elevation (head) differential for the three glacial till/weathered bedrock clusters south and east of the mall (MW-2S/2D, MW-3S/3D and MW-5S/5D); a minor increase in water-level elevation differential for the glacial till/bedrock clusters north and west of the mall (MW-4S/4D and MW-7S/7D); and in no change to little increase in water-level elevation differential for the two weathered bedrock/bedrock clusters to the west (MW-9S/9D and MW-10S/10D). The increase is sharpest in MW-2S/2D, MW-3S/3D and MW-5S/5D because while water levels in the deeper weathered bedrock wells declined about 5 to 6 feet, the water levels in the shallow glacial till wells remained unaffected. In contrast, in the MW-9S/9D and MW-10S/10D clusters, the water level declines in both the shallow and deeper wells were of similar magnitude.

Finally, the water-level data from the MW-3D/3DD cluster demonstrate that the BPM production wells influence water level elevations in the weathered bedrock more than in deeper competent bedrock:

WATER LEVEL ELEVATIONS IN FEET MSL

Well Cluster	June 8, 1993 (Normal BPM Well Pumping)	June 28, 1993 (BPM Wells Off)	June 30, 1993 (Sustained BPM Well Pumping)						
Weathered Bedrock/Deep Bedrock Cluster									
MW-3D	585.55	590.43	584.87						
MW-3DD	589.64	590.13	588.63						
difference	+4.09	-0.30	+3.76						

On June 8, 1993, the water-level elevations in this cluster show an upward vertical flow component; on June 28, 1993 after the BPM wells had been off for two weeks, a slight downward vertical flow component; and on June 30, 1993 after two days of sustained pumping, the return of an upward flow component. This is because the

water-level response to pumping in MW-3D is more pronounced than in MW-3DD and indicates that the BPM wells are producing water primarily from the weathered bedrock horizon.

4.3.2.4 Regional Groundwater Flow Conditions

The August 18, 1993 water-level measurements made in the deeper onsite monitoring wells and proximate residential (Meadow Park Road) and commercial (Route 6) wells were used to develop a regional water-level contour map for the bedrock system (Figure 4-16). The BPM production wells were not actively pumping during the period of measurement; however this was not during a sustained period of shutdown.

The regional water-level configuration and contours confirm the presence of a deeper groundwater divide onsite. This is because of lower water-level elevations (non-pumping) within wells along Meadow Park Road and also within wells along Route 6 relative to onsite water-level elevations. For example, water-level elevations in deeper western onsite wells MW-9D and MW-10D are respectively 587.61 and 586.20 feet msl, as compared to a 531.44 feet msl water-level elevation in Route 6 well CW-23; this represents a 56-foot difference. Water-level elevations in deeper eastern onsite wells (589.79 feet msl in MW-5D and 589.16 in MW-3D) were also higher than water-level elevations in Meadow Park Road residential wells (e.g., 576.42 feet msl in RW-05; 576.76 in RW-09 and 561.18 in RW-12).

4.3.3 Surface Water

The BPM site drains to two small stream systems discussed in Section 4.1.1; an eastern stream and a western stream. The eastern stream heads just north of Route 118 and flows to the south parallel to the site's eastern boundary. This stream has been split into two channels by the abandoned railroad embankment. Near Staff Gauge SG-2, water from the channel to the east flows under a bridged section of the embankment and joins the channel nearest to the BPM. Both channels flow through a series of man-made ponds in the Meadow Park Road residential area prior to the stream's confluence with the Muscoot River about one mile south of the site.

As discussed in Section 4.3.2.1, the eastern stream is a losing stream between SG-1 and SG-2. This condition has been documented by: (1) a comparison of the water-level elevation in the stream (at SG-1) with the water-level elevation in proximate monitoring well MW-8S, and (2) stream flow measurements. Water-level elevations in SG-1 have been at least 7 feet higher than water-level elevations in MW-8S. Stream flow measurements made on June 8, 1993 indicated flows of 4.5 gpm at SG-1 and 1.5 gpm at SG-2; which is a net loss in flow of 3 gpm.

The western stream heads just south of the site, is diverted under the mall by a drainage system, and empties into a steep ravine just north of Route 6 near McDonalds and the Exxon station. Upon entering the ravine north of Route 6, the stream drains through a valley that is bounded by rising topography to the north/northeast and west (ridge on Mahopac Avenue). Shortly north of Route 6, the western stream is joined by a drainage channel to the east (Figure 4-1) that receives runoff from the area to the northeast of the Baldwin Place intersection. The western stream flows through two small ponds prior to entering Lake Baldwin. Lake Baldwin empties into a drainage that feeds into the Muscoot River which flows north to south approximately 3,500 feet from where the western stream crosses under Route 6.

A small drainage pathway on the south side of Route 6 and west of McDonalds conveys surface runoff from the area west of McDonalds to a culvert that passes under Route 6 just east of the Texaco (former Sunoco) station and ultimately empties into Kennard Pond that feeds into Lake Baldwin (see Figure 3-7). Seepage from the hillside directly west of McDonalds has been noted (less than 0.1 gpm) and serves as a source of flow in this drainageway.

4.3.4 Summary

The BPM site is located in a relative topographic high area, and drains to two stream systems (the eastern and western streams). Both of these streams head near the site, thus have very small drainage areas in the vicinity of the site, and are tributary to the Muscoot river. The western stream valley comprises the most significant topographic feature in the study area.

Water supply in the immediate site area is derived from groundwater. The BPM and Mahopac Village Center mall are supplied by centralized production well systems with appropriate treatment. The nearest public supply system is the Lake Baldwin system located about 1,800 feet from the western site boundary. No treatment has been necessary for this system. The remaining residences and commercial establishments rely on individual wells for supply purposes. At least sixteen of these wells are equipped with treatment systems.

The site and area are underlain by glacial till, weathered bedrock and bedrock. The glacial till comprises the uppermost geologic and water-bearing unit. The till is very thin near the western and northwestern site boundaries and thickens to the south/southeast. The saturated glacial till materials range in thickness from less than 1 foot in the northwest to as much as 76 feet in the southeast site area.

The weathered bedrock materials are approximately 15 to 30 feet thick and there is a gradation from highly weathered (decomposed) bedrock to competent bedrock in this interval. Groundwater circulation appears to be significant in the weathered and partially weathered horizon based on water strikes during drilling and iron staining on rock cuttings indicative of water circulation. The depth to competent bedrock (biotite gneiss) ranges from 35 feet bgs in the western part of the site (MW-9S/9D) to about 100 feet bgs in the east/southeast (MW-3DD).

The weathered bedrock and bedrock systems are unconfined over the extreme western and northwestern portion of the site (MW-1S/1D and MW-9S/9D), and are overlain/confined over the main body of the site by the glacial till water-bearing unit.

Water-level measurements made in the shallow monitoring well network indicate the presence of an onsite groundwater divide oriented in a southwest to northeast direction in the vicinity of the main mall building (and dry cleaners). This divide is evident under normal BPM pumping conditions (3.8 gpm), and also when the mall wells have been shut down for an extended period. Groundwater flow from the divide is to the southeast and west/northwest. The sustained pumping of PW-1 (beyond the two-day test) may begin to capture shallow groundwater in the weathered bedrock over the western portion of the site.

Water-level measurements made in the deeper monitoring well network provide an understanding of the extent to which the BPM production wells serve to capture deeper flow. Under present BPM pumping conditions, the mall wells appear to be capturing groundwater over a portion of the site with a component of groundwater flow to the southeast. Under sustained pumping conditions (two days at 39 gpm), BPM Production Well PW-1 effectively captures deeper groundwater on the site.

The regional water-level contour map for the bedrock system confirms the presence of a deeper groundwater divide onsite under non-pumping conditions with flow components to the southeast and west/northwest. The regional water-level measurements were made during a period when the BPM wells were not actively pumping, but not during a sustained period of shutdown.

Water-level measurement data for glacial till/weathered bedrock clustered wells indicate a significant downward vertical component of groundwater flow in areas where saturated glacial till overlies bedrock. This implies that the saturated glacial till materials serve to recharge the underlying bedrock system. In contrast, the downward vertical head differentials are much lower for monitoring well clusters completed in weathered bedrock/bedrock (MW-9S/9D and MW-10S/10D).

4.4 ANALYSIS OF HYDROGEOLOGIC TESTS

4.4.1 Short-Term Pumping Tests

Short-term pumping tests were conducted on sixteen monitoring wells during the RI field program to develop a preliminary understanding of hydraulic characteristics for the glacial till, weathered bedrock and bedrock systems. The monitoring wells were pumped and water-level drawdown measured while the wells were being evacuated for sampling purposes. The pumping test data were used to calculate individual well specific capacity and where possible to develop estimates of aquifer transmissivity. For many of the monitoring wells, it was not possible to calculate transmissivity due to low well yields, short pumping durations, and the related effects of casing storage.

The initial step in the analysis involved determining the critical time, t_c , after which the water held in storage in the well casing or open borehole has a negligible effect on transmissivity calculation. The following equation (Schafer, 1978) is used to determine t_c :

$$t_c = 0.6 (d_c^2 - d_p^2) / Q/s$$

where: t_c = time when casing storage effect becomes negligible (minutes).

d_c = inside diameter of well casing (inches).

d_p = outside diameter of pump column pipe (inches).

 $Q/s = \text{specific capacity of well at time } t_c \text{ (gpm/ft)}.$

The calculations for t_c for pumping tests at nine of the monitoring wells (MW-6S, MW-10S, MW-1D, MW-3D, MW-3DD, MW-4D, MW-5D, MW-7D, and MW-9D) indicated that the time at which casing storage effect became negligible exceeded the total time of pumping. The drawdown data for these monitoring wells were therefore influenced by casing storage and transmissivity could not be estimated.

The calculations for t_c for the pumping tests at Monitoring Wells MW-1S, MW-3S, MW-5S, MW-7S, MW-9S, MW-2D and MW-10D) indicated that the total time of pumping was greater than the time at which the storage casing effect became negligible, and as such the drawdown data after the critical time t_c were no longer influenced by casing storage. The water-level drawdown versus time data for the Monitoring Wells MW-9S and MW-7S tests, however, could not be analyzed due to the low pumping rate and little to no change in water-level drawdown after time t_c.

Transmissivity was first calculated for the remaining monitoring wells for which the casing storage effect did not exceed 30 minutes by using the specific capacity data normalized to 30 minutes. An estimate of aquifer transmissivity was derived from the normalized specific capacity data using the empirical equation by Walton (1984):

$$Q/s = T/264 \log (Tt/2693 r^2S) - 66.1$$

where: Q/s = specific capacity (gpm/ft).

S = storativity (dimensionless)

r = nominal well radius (feet).

t = time of pumping (minutes).

T = transmissivity (gpd/ft).

Transmissivity was also calculated for these wells using the Cooper-Jacob modified non-equilibrium equation (1946):

$$T = 264 Q$$
delta s

where: T = transmissivity in gallons per day per foot (gpd/ft).

Q = pumping rate (gpm).

Delta s = slope of the time-drawdown plot on semi-log paper over one log cycle of time (feet).

The estimated specific capacity and transmissivity values derived from the short-term pumping tests are presented on Table 4-1. The results for the three systems (glacial till, weathered bedrock and bedrock) indicate that the weathered bedrock wells exhibit the highest 30-minute specific capacities (0.78 gpm/ft average) and transmissivities. The highest specific capacities and transmissivities were for weathered bedrock monitoring wells MW-1S and MW-9S. Specific capacities were lower for wells completed in the overlying glacial till (0.41 gpm/ft average) and even lower for wells completed in the underlying bedrock (0.15 gpm/ft average).

4.4.2 Background Water-Level Data

As described in Section 3.10.3, the background monitoring period began on June 8, 1993 and lasted until June 28, 1993 after which the constant-rate aquifer pumping test

began. Initially, background monitoring was conducted in Monitoring Wells MW-10D and MW-7D while the BPM production wells were operating from June 8, 1993 through June 15, 1993. Background monitoring was then conducted in Monitoring Wells MW-10D, MW-3D, MW-3DD, and the two BPM production wells (PW-1 and PW-2) while these wells were not operating from June 16, 1993 until the startup of the constant-rate aquifer pumping test on June 28, 1993. Background monitoring was also continued at MW-5D for a period of 16 days after the conclusion of the constant-rate aquifer pumping test. The depth to water versus time plots for the background monitoring are provided in Appendix L.

The two BPM production wells recorded a total of 16,900 gallons pumped between June 11, 1993 (initial record entry) and June 15, 1993 (last entry prior to the step-drawdown pumping test) as indicated on Table 4-2. A review of the depth to water versus time plots for Monitoring Well MW-10D indicated an approximate 0.40 foot steady decline in the water level in this well from June 8, 1993 to June 10, 1993 followed by an approximate 0.60 foot steady rise of the water level until June 11, 1993. These data may reflect a decline in water-level elevation due to the pumping, and water-level recovery due to the shutdown of pumping, of the BPM production wells.

The background water-level monitoring data at the MW-7D location, collected while the BPM wells were in operation, indicated a cycle of declines and rises in the water level in this well which appear to be in response to the intermittent pumping of PW-1 and PW-2. A decline of approximately 0.13 feet was recorded in the first 24-hours of record followed by a rise of approximately 0.12 feet over the next 24 hours. A similar pattern of water-level decline and rise was recorded in this well through to June 15, 1993 after which a water-level fluctuation of approximately 0.03 feet was recorded until the end of record on June 18, 1993; these last 2 to 3 days (June 16 to 18, 1993) correspond to a period when the BPM production wells were not in use.

The background monitoring plots for the remaining well locations (that were monitored during the time frame when the BPM supply wells were not in operation: June 16, 1993 until the start of the constant-rate aquifer test on June 28, 1993) did not indicate any water-level fluctuations due to other nearby pumping stresses in the vicinity of the BPM site.

Water levels in the two BPM production wells showed an overall rise in water levels during the period of background monitoring (June 16, 1993 to June 28, 1993). The initial water level rise in PW-1 and PW-2 from June 16, 1993 to June 17, 1993 was in response to the shutdown of PW-1 on June 15, 1993. The 2.5 foot and 1.7 foot rise in the water levels in PW-1 and PW-2, respectively from June 18, 1993 to June 19, 1993 was in response to water-level recovery following the end of the step-drawdown pumping test on June 18, 1993. The background monitoring at the PW-2 location was terminated on June 19, 1993 as the transducer wire was cut/vandalized. The transducer in this well was replaced on June 28, 1993 prior to starting the constant-rate aquifer pumping test.

The background monitoring data at the MW-10D, MW-3D, and MW-3DD locations indicated maximum water-level fluctuations of approximately 0.25 feet, 0.50 feet, and 1.40 feet, respectively, during the background monitoring period from June 18, 1993 through June 28, 1993.

Monitoring at the MW-5D location continued after the constant-rate aquifer pumping test had ended on June 30, 1993 and continued through July 16, 1993. The initial rise of the water level in this well (from July 1 through July 4, 1993) was in response to the end of the 48-hour pumping test on PW-1. The remaining record for MW-5D indicated water-level fluctuations of less than 0.50 feet.

4.4.3 Step-Drawdown Pumping Test

The step-drawdown pumping test on BPM Production Well PW-1 was conducted on June 18, 1993. During this test, PW-1 was pumped at three successively decreasing rates: 39, 32 and 22 gpm.

The step-drawdown pumping test data were analyzed by a graphical method developed by Bruin and Hudson (1955). The observed drawdown (s_w) in the pumping well PW-1 was plotted against the corresponding time (t) for each pumping step on semi-logarithmic graph paper (Appendix L). The curve through the plotted data for each step was then extrapolated to the end of the next step in the test. The incremental drawdown (delta s), the difference between the drawdown at the end of a given step and the

extrapolated drawdown for the preceeding step, was determined for each step. The ratio s_W/Q_n (where Q_n = individual step pumping rate) was then calculated. The data derived from the PW-1 step test are summarized below:

Step	Q_n	Delta s	s s _w	Q/s_W	s _w /Q
(gpm)	(ft)	(ft) (g	pm/ft)	(ft/gpm)
1	39	62.90	62.90	0.62	1.61
2	32	14.00	48.90	0.65	1.53
3	22	18.00	30.90	0.71	1.40

The calculated values of s_w/Q_n versus the corresponding values of Q_n were plotted on arithmetic graph paper. The straight line plot through the data was used to derive values of the aquifer loss constant (B) and the well loss constant (C). These data were then used to estimate the aquifer loss and well loss components of drawdown for each of the three pumping steps.

Table 4-3 provides a summary of the step-drawdown pumping test analysis and notes the magnitude of drawdown as a result of aquifer loss (BQ) and well loss (CQ²) for each step. Analysis of the test data indicated that Production Well PW-1 can sustain a yield of 39 gpm (the maximum pump capacity) with 30 to 40 feet of remaining available drawdown.

4.4.4 Constant-Rate Aquifer Pumping Test

The drawdown phase of the aquifer pumping test began at 2:30 pm on June 28, 1993 and lasted for 48 hours until 2:30 pm on June 30, 1993. As described in Section 3.10.4, water-level data from the wells were collected utilizing both pressure transducers and hand held water-level indicators. Pumping was held constant at 39 gpm for the duration of the test.

Once the pump was shut down on June 30, 1993, water-level recovery measurements were initiated for approximately 8 hours with the water-level indicators

and for approximately 20 hours with the pressure transducers. During the drawdown and recovery periods, no precipitation was recorded at the site.

The water-level drawdown and recovery data from the 48-hour pumping test were analyzed to determine aquifer hydraulic characteristics (transmissivity and storativity) for the bedrock aquifer underlying the BPM site and vertical permeability of the confining unit (glacial till). Water-level contour maps were prepared for the two synoptic rounds of water-level measurements collected during the test after 1440 minutes (24 hours) and 2520 minutes (42 hours) of pumping. In addition, actual and theoretical capture zones were derived for BPM Production Well PW-1 (Figures 4-14 and 4-15).

Logarithmic and semi-logarithmic plots of water-level drawdown versus time were used to determine aquifer hydraulic characteristics using appropriate analytical models. These data plots are provided in Appendix L.

The water-level drawdown data were analyzed by the following analytical methods: the Theis Non-Equilibrium Method (1935); the Non-Equilibrium Leaky Artesian Analytical Method (Hantush and Jacob, 1955); and the Cooper-Jacob Modified Non-Equilibrium Method (1946). Correction of the water-level drawdown data for external influences were not deemed necessary given the absence of precipitation during the test.

The water-level drawdown response (log-log plots) for Monitoring Wells MW-3D, MW-5D and MW-2D showed a departure from the Theis type curve indicative of leaky artesian conditions. These test data were analyzed by the Hantush-Jacob Leaky Artesian Method.

The water-level drawdown data for MW-3DD (deeper bedrock monitoring well) and PW-2 showed a reasonable fit to the Theis type curve and were analyzed by the Theis method. The MW-10D water-level drawdown data, while showing a reasonable fit to the Theis type curve, had much less of a drawdown response than in wells at a comparable distance from PW-1 (MW-2D, MW-3D and MW-5D). Shallow monitoring well MW-5S showed essentially no response to the pumping of PW-1 over the 48-hour period.

The Cooper-Jacob method was also used to analyze data from the pumping well and observation wells. Before applying the Cooper-Jacob method to the pumping well (PW-1), the critical time (t_c) when casing storage became negligible was determined to be 30 minutes (Shaffer, 1978). In addition, the time at which the Cooper-Jacob method is valid was also determined for each observation well. The results of these analyses are provided on Table 4-6; the Cooper-Jacob method could only be applied to PW-1 and PW-2.

Leaky Artesian Analytical Method Analysis

The geologic logs and cross sections (Figures 4-3, 4-4 and 4-5) indicate that the weathered bedrock and bedrock systems are overlain by a confining bed (glacial till) over most of the site. The presence of higher heads (water-level elevations) in shallow monitoring wells completed in glacial till as compared to lower heads (water-level elevations) in weathered bedrock and bedrock monitoring wells indicates that the glacial till confining bed serves as a source bed for water to the underlying weathered bedrock/bedrock aquifer. In that the water-level drawdown response for monitoring wells MW-2D, MW-3D and MW-5D showed a departure from the Theis type curve indicative of leakage, the data for these wells were analyzed by a leaky artesian method.

Hantush and Jacob (1955) developed a family of type curves to take into account leakage from an overlying confining bed (source bed) to an underlying semi-confined aquifer. Applying the type curve matching method involves superimposing the type curves on the log-log plot of water-level drawdown versus time while keeping the coordinate axes parallel, and adjusting the type curves until a position is found where much of the plotted water-level drawdown data fall on one of the type curves. An arbitrary match point is then selected on the two overlapping curves and the values for W(u,r/B), u (or 1/u), s, and t are noted. These data are then substituted into the equation outlined below to calculate transmissivity:

$$T = 114.6 Q W(u,r/B)$$

where: s = drawdown at any point in the vicinity of a well discharging at a constant rate (feet).

T = aquifer transmissivity (gpd/ft).

Q = pumping rate (gpm).

W(u,r/B) = "Well function" for leaky artesian aquifer (dimensionless).

Storativity was calculated from the equation:

$$S = Tut$$

$$1.87 r^2$$

where: r = distance from the pumped well to the observation well where drawdown is measured (feet).

S = storativity (dimensionless).

t = time since pumping started (days).

The hydraulic conductivity (permeability) of the confining unit can then be calculated with the following equation:

$$P'/M' = T(r/B)^2/r^2$$

where: $P' = \text{vertical permeability of the overlying confining unit (gpd/ft}^2)$.

M' = saturated confining unit thickness (feet).

Table 4-4 provides a summary of the aquifer hydraulic characteristics determined for observation wells MW-2D, MW-3D, and MW-5D using the Hantush-Jacob (1955) analytical method. Transmissivity is in the range from 1,000 to 1,500 gpd/ft. Storativity is fairly similar for the three wells $(1.7 \times 10^{-4} \text{ to } 6.3 \times 10^{-4})$ as is the vertical permeability of the glacial till confining bed $(0.043 \text{ to } 0.050 \text{ gpd/ft}^2)$.

Theis Non-Equilibrium Method Analysis

An examination of the water-level drawdown versus time data for observation wells PW-2, MW-3DD and MW-10D indicates a close relationship to the theoretical type curve developed by Theis (1935). Applying the Theis type curve matching method involves superimposing the type curve developed by Theis (1935) on the log-log plot of water-level drawdown versus time while keeping the coordinate axis parallel, and adjusting the type curve until a position is found where much of the plotted water-level drawdown data fall on the type curve. An arbitrary match point is then selected on the two overlapping curves and the values for W(u), u, s, and t are noted. These data are then substituted into the equations below to calculate transmissivity and storativity.

$$T = \underbrace{114.6 \, Q}_{S} W(u)$$

where: s = drawdown at any point in the vicinity of a well discharging at a constant rate (feet).

T = aquifer transmissivity (gpd/ft).

Q = pumping rate (gpm).

W(u) = "Well function of u".

Storativity was calculated from the equation:

$$S = \underline{Tut}$$

$$1.87 \, r^2$$

where: r = distance from the pumped well to the observation well where drawdown is measured (feet).

S = storativity (dimensionless).

t = time since pumping started (days).

The data for the values of W(u), u, s, and t derived from observation wells PW-2 and MW-3DD, and the calculated values for aquifer transmissivity and storativity are

provided in Table 4-5. Aquifer transmissivity was 745 gpd/ft for PW-2 and 2,352 gpd/ft for MW-3DD. Storativity for PW-2 was 6.6×10^{-4} and 2.5×10^{-3} for MW-3DD.

The drawdown response for MW-10D and the two other bedrock monitoring wells to the north of the mall (MW-7D and MW-9D) was less than for wells to the south of the mall (MW-2D, MW-3D and MW-5D) indicating a lesser degree of hydraulic connection to the north. As such, the calculated transmissivity for MW-10D was apparent (not representative) and reflects a somewhat lesser degree of hydraulic connection and concomittant drawdown response over the area proximate to this well. The water-level drawdown response in MW-3DD was much less than in MW-3D indicating that the weathered zone (MW-3D screened interval) has a more pronounced hydraulic connection to PW-1 than the deeper bedrock (MW-3DD open-hole interval).

Cooper-Jacob Modified Non-Equilibrium Method Analysis

Cooper and Jacob (1946) developed a method of analysis based on the Theis non-equilibrium equations. The Cooper-Jacob method is a straight-line method which can be applied when the values of u are small (less than 0.05). Applying the Cooper-Jacob method involves plotting the water-level drawdown data on semi-logarithmic graph paper with time (t) on the logarithmic scale. The difference in drawdown over one log cycle is then determined and substituted into the following equation to determine aquifer transmissivity (T):

$$T = 264 O$$
delta s

where: Q = pumping rate (gpm).

T = transmissivity (gpd/ft)

delta s = the difference in drawdown over one log cycle (feet).

Storativity (S) is determined from the data in an observation well by substituting the calculated transmissivity, and the time at which the straight line intercepts the time axis where drawdown equals 0 into the following equation:

$$S = \underbrace{0.3 \text{ T t}}_{r^2}$$

where: S = storativity (dimensionless).

r = distance from a pumped well to an observation well (feet).

t = time at which drawdown is zero (days).

The aquifer characteristics derived using the Cooper-Jacob modified non-equilibrium method are summarized on Table 4-6. Transmissivity was 940 gpd/ft for PW-1 and 760 gpd/ft for PW-2. Storativity for PW-2 was 5.4 x 10⁻⁴. The data derived for PW-2 using the Cooper-Jacob method are comparable with the data derived using the Theis method.

4.4.5 Summary

The short-term pumping test results indicate that wells completed in weathered bedrock showed the highest specific capacities (0.78 gpm/ft average) and transmissivities. Specific capacities and transmissivities were lower for wells completed in the overlying glacial till and underlying bedrock.

The step-drawdown pumping test on PW-1 indicates that PW-1 can sustain a yield of 39 gpm (the maximum pump capacity) with 30 to 40 feet of remaining available drawdown.

The analysis of the 48-hour constant-rate pumping test indicates that the weathered bedrock/bedrock aquifer underlying the site behaves as a leaky artesian aquifer wherein the overlying glacial till materials serve as a leaky confining unit (source bed). Leakage through the glacial till is the principal source of recharge to the weathered bedrock/bedrock aquifer system.

The transmissivity of the weathered bedrock/bedrock aquifer is in the range from 750 to 1,500 gpd/ft which is characteristic of a moderately permeable weathered bedrock/bedrock system. Storativity is in the range from 2.5×10^{-3} to 1.7×10^{-4}

reflective of leaky artesian conditions. The vertical permeability of the confining unit is in the range from 0.043 to 0.050 gpd/ft².



5.0 SOURCE AREA CHARACTERISTICS

The analytical results for the soil samples collected from the test borings, and observations and photoionization detector (PID) screening during drilling, confirmed the presence of a residual PCE source area in the alleyway near the back door of the dry cleaners.

5.1 REMEDIAL INVESTIGATION

The locations of the RI test borings are shown on Figures 3-3 and 3-4, and the analytical results for the soil samples from the test borings are summarized on Tables 5-1 through 5-5. The samples tested were selected based on the field PID screening results (see Section 3.4). The unsaturated soil samples from three of the test borings, TB-1, TB-4 and TB-6 (background) were analyzed for the full TCL/TAL parameters. The remainder of the samples from the unsaturated and saturated zones were analyzed for TCL VOCs.

5.1.1 Unsaturated Zone

The analytical results for TCL VOCs in the unsaturated zone (soil above the water table) are summarized on Table 5-1. Elevated PCE concentrations were detected in the unsaturated soil samples from the three test borings immediately in back of the dry cleaners: TB-1, TB-2 and TB-7 (see Figure 5-1). The soil sample (2 to 4 feet bgs) from Test Boring TB-1, the boring nearest to and approximately 5 feet from the dry cleaners, exhibited 1,200 mg/Kg PCE concentration. In the soil sample (2 to 4 feet bgs) from Test Boring TB-2, located approximately 5 feet east of TB-1, 660 mg/Kg PCE was detected. PCE was detected at 12 mg/Kg in the soil sample (0 to 2 feet bgs) from Test Boring TB-7 located 6 feet south of TB-2. At Test Boring TB-1, 0.260 mg/Kg TCE was also detected.

The elevated PCE concentrations in the unsaturated zone appear to be limited to the interior of the alleyway in the vicinity of these three test borings (TB-1, TB-2 and TB-7), as evidence by the much lower results for soil samples from adjacent test borings just

east of this area. The sample (0 to 2 feet bgs) from Test Boring TB-8 exhibited a very low (0.026 mg/Kg) PCE concentration. In the sample (2 to 4 feet bgs) from Test Boring TB-9, only a trace level of PCE (0.008 mg/Kg) was detected. A very low PCE concentration (0.027 mg/Kg) was also detected in the sample (0 to 1.5 feet bgs) from Test Boring TB-3, located approximately 30 feet southeast of the alleyway near Monitoring Well MW-5S (see Figure 3-3).

Test Borings TB-4 and TB-11 were located directly in front of the dry cleaners on the west side of the building (see Figure 3-4). In the unsaturated soil samples from these two borings (4 to 6 feet bgs), only traces of PCE were detected (0.003 to 0.004 mg/Kg). This was also the case for the sample at the same depth from Test Boring TB-5 (0.002 mg/Kg), located approximately 100 feet west of TB-4 near Monitoring Well MW-7S.

Other VOC compounds were not detected at significant concentrations in Test Borings TB-1 through TB-9 and TB-11 (traces less than 0.010 mg/Kg); there was no Test Boring TB-10. Test Borings TB-12 through TB-15 were drilled next to certain soil gas survey points and near the apparent leak in the gas pipeline to investigate these remote locations where total volatile hydrocarbon concentrations, but not PCE, were reported in the soil gas. As shown on Table 5-1, VOC concentrations were negligible in these samples. The data QC reviewer indicated that, although there was no direct reason to question the very low acetone concentrations found in samples from remote borings (up to 0.033 mg/Kg), these results should be viewed with caution because this is a very common laboratory contaminant (Environmental Standards, Inc., 1993d).

The finding of residual PCE concentrations in the unsaturated soil in the area defined by TB-1, TB-2 and TB-7 immediately behind the dry cleaners is consistent with observations made during the RI and the site history. This area was used for PCE drum storage, and the asphalt in this area of the alleyway was observed to be in a very deteriorated condition, possibly as a result of solvent attack during repeated incidents of spillage. Solvent odors were noted in the split-spoon samples from Test Boring TB-1. In addition, the dry cleaner vent was located in this area, and this vent was observed to be approximately 8 feet above ground surface and facing downward when Malcolm Pirnie collected an air sample on May 23, 1991 (Malcom Pirnie, 1992).

The unconsolidated materials within the source area consist of glacial till materials comprised of silty sand with varying amounts of clay and fine to medium

gravel. The top of the zone of saturation (water table) in this area is approximately 3 feet below ground surface. The unsaturated materials in the source area which have been impacted by residual PCE encompasses an area of approximately 15 by 15 feet. As such, the volume of these impacted materials is small (approximately 25 cubic yards).

With respect to other constituents, low levels of several polyaromatic hydrocarbon compounds (PAHs) were detected in background Test Boring TB-6 (up to 0.110 mg/Kg), but not in Test Borings TB-1 and TB-4 behind and in front of the dry cleaners. Pesticides but not PCBs were detected in all three of these borings. TCL metals concentrations in Test Borings TB-1 and TB-4 do not appear elevated and were generally comparable to, and in most cases lower than, those detected in background Test Boring TB-6.

5.1.2 Saturated Zone

The five RI test borings behind the dry cleaners (TB-1, TB-2, TB-7, TB-8, and TB-9) were drilled to depths from 6.5 to 18 feet bgs. These borings were all drilled to refusal, except for TB-1 where a decision was made to end this boring before refusal so as not to penetrate a silty clay layer encountered in this highly impacted borehole at 14 to 15 feet bgs. The geologic materials in these borings generally consisted of silty sand with varying amounts of clay.

The analytical results for TCL VOCs in the saturated zone soils are shown on Table 5-2. Elevated PCE concentrations were detected in the saturated soil samples from two of the test borings in back of the dry cleaners: TB-1 and TB-8 (see Figure 5-1). The sample (6 to 8 feet bgs) from Test Boring TB-1, nearest to and approximately 5 feet from the dry cleaners, exhibited PCE at 4,500 mg/Kg. The saturated soil sample (6 to 6.5 feet bgs) from Test Boring TB-8, located 15 feet east of TB-1, exhibited 410 mg/Kg PCE. Very low PCE concentrations were found in the saturated soil samples from the remainder of the test borings in the alleyway behind the dry cleaners: 0.014 mg/Kg in the sample (8 to 10 feet bgs) from TB-2, 0.960 mg/Kg in the sample (14 to 16 feet bgs) from TB-7, and 0.073 mg/Kg in the sample (4 to 6 feet bgs) from TB-9. The saturated soil samples from the test borings outside of this area (from TB-3, TB-4, TB-5 and TB-6) exhibited negligible PCE concentrations (less than 0.010 mg/Kg).

The PID field screening results indicated that elevated PCE concentration below the water table extends to a depth of at least 12 feet at the Test Boring TB-1 location, the most highly impacted borehole (see Table 3-4). The PCE concentration detected in the saturated soil at TB-1 was higher than that detected in soil above the water table. The extent of the elevated PCE concentration in the saturated zone is somewhat wider than above the water table as evidence by the results for Test Boring TB-8 which indicate elevated PCE in the saturated soil but not above the water table. Whereas, the area of high residual PCE above the water table was defined through the RI program, the area and maximum depth in the saturated zone was less certain. The area of elevated residual PCE in the saturated zone behind the dry cleaner was further delineated by the test borings drilled and sampled during the Source Area Additional Data Collection Program.

5.2 ADDITIONAL DATA COLLECTION PROGRAM

The Source Area Additional Data Collection Program conducted in November and December 1993 was designed to:

Assess the extent and depth of PCE concentration in the saturated unconsolidated materials within the source area.

Characterize groundwater quality within the source area by installing two groundwater monitoring wells (MW-11S and MW-11D).

Determine the extent, if present, of elevated concentrations of PCE within the soils to the west/northwest of the source area beneath the mall building.

Characterize the hydraulic characteristics of the saturated unconsolidated materials within the source area.

The geologic logs for the seven Additional Data Collection Test Borings are provided in Appendix O. The locations of these test borings, and the concentrations in the sampled intervals are shown on Figure 5-2. All of the samples collected during the Additional Data Collection Program were analyzed for PCE, TCE, and 1,2-DCE by USEPA Method 8010 (SW-846). These results are summarized on Table 5-6. The Envirotest Laboratories analytical data package is provided in Appendix P.

5.2.1 Source Area Test Borings and Monitoring Wells

Test Boring TB-16 was drilled at the location closest to the back of the dry cleaners, where the highest PCE concentration (4,500 mg/kg) was detected during the RI test boring program (TB-1 location). Hollow stem augers were used to drill a 12-inch diameter borehole and split spoons were used to continuously sample the subsurface materials. The field screening results (see Table 5-8), and field observations confirmed the presence of elevated concentrations of PCE to 14 feet bgs at the TB-16 location. The soil composition observed from ground surface to 14 feet bgs consisted of silty sand with varying amounts of clay with fine rounded gravel. At 14 feet, a thin silty clay layer was encountered to approximately 15 feet bgs. Based on the results of the initial PID screening (upon opening the split spoon), and the soil composition, a 6-inch diameter steel casing was installed through the highly impacted materials to the top of the silty clay layer at 14 feet bgs.

Below 14 feet, drilling and sampling continued using wet rotary drilling and sampling with split spoon samplers. The soil composition below 15 feet bgs consisted of till of moderately dense to very dense silty sand with a trace of clay. The results of the continuous sampling within TB-16 below 15 feet bgs indicated very low to non-detectable initial PID readings (0 to 0.4 ppm) to the bottom of the borehole at 34 feet bgs.

PCE concentrations detected in the TB-16 borehole ranged from 0.160 mg/Kg up to 1,300 mg/Kg within the interval from land surface to 15 feet bgs. Below 15 feet bgs, PCE concentrations were much lower ranging from 0.0012 mg/Kg to 0.250 mg/Kg. TCE was detected from only one interval (8 to 10 feet bgs) within the TB-16 borehole at a trace concentration of 0.0079 mg/Kg and 1,2-DCE was not detected.

Two monitoring wells designated MW-11S and MW-11D were installed within the source area behind the dry cleaners. At the TB-16 location, the 6-inch diameter drilled borehole was terminated based on low to non-detect PID readings and a 2-inch diameter stainless steel monitoring well was installed screened from 22 to 32 feet bgs. Approximately 5 feet east of the TB-16/MW-11D location, shallow Monitoring Well MW-11S was installed with 4-inch diameter stainless steel screen and casing. MW-11S

is screened from 4 to 14 feet bgs. The well construction details for the two source area monitoring wells are provided in Appendix O.

The monitoring wells were sampled on December 22, 1993 approximately 2 weeks after installation and development. PCE concentrations of 24,000 ug/L (24 mg/L) were detected in MW-11S and 3,200 ug/L (3.2 mg/L) were detected in MW-11D (Table 5-7).

5.2.2 Perimeter Test Borings

Three test borings (TB-17 through TB-19) were drilled along the perimeter of the source area behind the dry cleaners to delineate the extent of residual PCE in the saturated zone east of the source area. These test borings were also sampled continuously.

Test Boring TB-17 was drilled to a total depth of 30 feet bgs, approximately 5 feet east of RI Test Boring TB-8 where 410 mg/Kg of PCE was detected within the saturated interval from 6 to 6.5 feet bgs. PCE concentrations within the saturated zone ranged from 43 mg/Kg in the 8 to 10 feet bgs interval, to much lower levels (up to 0.040 mg/Kg) in the other intervals. The laboratory results for the unsaturated soil at the TB-17 location were very low and on the order of 0.130 mg/Kg to 0.160 mg/Kg PCE (Table 5-6). TCE was only detected within the 1 to 2 foot bgs interval at a trace concentration of 0.0011 mg/Kg and 1,2-DCE was not detected.

Perimeter test boring TB-18 was drilled approximately 5 feet southeast of Test Boring TB-9 and sampled to a total depth of 22 feet bgs. The laboratory analytical results for PCE from this borehole were very low and on the order of 0.0018 to 0.034 mg/Kg within the saturated interval. PCE was not detected in the unsaturated zone. TCE and 1,2 DCE were not detected in any of the seven samples collected from this borehole.

Perimeter Test Boring TB-19 was drilled approximately 16 feet east of Test Boring TB-17 to a total depth of 25 feet bgs. PCE was the only compound detected at a trace concentration of 0.0021 mg/Kg within the 7 to 9 foot bgs interval in this borehole.

The soil composition at the perimeter test boring locations consisted of till materials of loose to moderately dense silty sand and clay with fine to medium rounded gravel to a depth of approximately 8 feet bgs. Below this depth the till materials are much more dense and compact.

5.2.3 Test Borings Beneath The Mall Building

Three test borings (TB-20 through TB-22) were drilled beneath the mall building west and north of the source area to assess if residual PCE contamination extended in these directions. Test Boring TB-20 was drilled within the dry cleaners approximately 5 feet west of the backdoor. Test Borings TB-21 and TB-22 were drilled northwest and north of the source area, respectively as shown on Figure 5-2. These borings were sampled to total depths of 11 feet (TB-20), 8 feet (TB-21), and 7.5 feet (TB-22). The laboratory results indicated trace concentrations of PCE in the saturated interval at the TB-20 location (0.0044 mg/Kg to 0.0082 mg/Kg) and a trace concentration of 0.0023 mg/Kg in the unsaturated interval. At the TB-22 location, trace PCE concentrations were detected in the saturated (0.0012 mg/Kg to 0.003 mg/Kg) and unsaturated intervals (0.012 mg/Kg). PCE was not detected in Test Boring TB-21. TCE and 1,2-DCE were not detected in these three borings.

5.2.4 Source Area Hydraulic Characteristics

The result of a shelby tube sample from TB-16 indicated a low vertical hydraulic conductivity (permeability) of the saturated till materials at the source area (approximately 1.40 X 10⁻⁵ cm/sec). The results of a short-term pumping test on MW-11S indicated a transmissivity of 188 gpd/ft for the approximately 11 feet of saturated materials at this well location. This transmissivity translates to a hydraulic conductivity of 8.0 X 10⁻⁴ cm/sec. The results of a rising head slug test conducted on MW-11D indicated a hydraulic conductivity on the order of 1.5 X 10⁻⁵ to 2.0 X 10⁻⁵ cm/sec.

5.3 SUMMARY OF PCE SOURCE AREA DELINEATION

A total of nine test borings were drilled within the alleyway behind the dry cleaners and three test borings were drilled below the mall building (dry cleaner and former bakery) in April, 1993 (RI Test Boring Program) and in November/December, 1993 (Additional Data Collection Program). The locations of these test borings are shown on Figure 5-2. A conceptual profile constructed from west to east (TB-20, TB-16/MW-11D, MW-11S, TB-8, TB-17, and TB-19) through the source area is shown on Figure 5-3.

The analytical results for VOCs in the unsaturated zone (soil above the water table) indicated elevated PCE concentrations at three Test Borings TB-1, TB-2, and TB-7: 1,200 mg/Kg, 660 mg/Kg and 12 mg/Kg, respectively. Given the relatively shallow depths to groundwater in this area, PCE contamination within the unsaturated zone is limited to a depth of approximately 3 feet bgs and spatially within an area of approximately 15 feet by 15 feet. PCE, TCE and 1,2-DCE were either not-detected or detected at very low concentrations within the unsaturated zone from the remaining test borings in this area including the three borings drilled below the mall building.

The analytical results for PCE, TCE and 1,2-DCE within the saturated zone indicated elevated concentrations of PCE at Test Borings TB-1, TB-16, TB-8 and TB-17 to a maximum depth of approximately 15 feet bgs (TB-16). PCE concentrations within the saturated zone at the TB-1/TB-16 location (approximately 5 feet from the backdoor of the dry cleaners) ranged from 130 mg/Kg to as much as 4,500 mg/Kg. At the TB-8 location, a relatively high PCE concentration of 410 mg/Kg was detected within the saturated zone at 6 to 6.5 feet bgs and at the TB-17 location, 43 mg/Kg of PCE was detected within the saturated zone from 8 to 10 feet bgs. There is a marked contrast in the analytical results for PCE below 15 feet in Test Borings TB-1/TB-16 which were either trace or detected at very low concentrations. The area of elevated PCE concentrations in the saturated zone extends approximately 5 to 10 feet further east from the source area above the water table and extends to a maximum depth of 15 feet bgs.

At the remaining test boring locations east of the source area (TB-18, and TB-19) and west and north of the source area beneath the mall building (TB-20, TB-21, and TB-22), PCE was either not detected or detected at trace concentrations. TCE and 1,2-DCE were not detected.

The two monitoring wells within the source area (MW-11S and MW-11D) were installed to assess the quality of groundwater both within the highly impacted interval within the saturated zone (above 15 feet bgs) and just below it. The analytical results for the groundwater samples collected from these monitoring wells indicated PCE concentrations of 24,000 ug/L in MW-11S (24 mg/L) and 3,200 ug/L (3.2 mg/L) in MW-11D (Table 5-7).

The unconsolidated materials within the source area consist of till materials comprised of loose to moderately dense silty sand and clay with fine to medium rounded gravel to a depth of approximately 6 to 8 feet bgs. Below this depth the till materials attain a much greater density and as such are more compact.



6.0 CHEMICAL CHARACTERISTICS OF GROUNDWATER

The groundwater quality on and in the vicinity of the BPM site is discussed in this section. Given that groundwater quality has been impacted by both the BPM dry cleaners and by service stations in the area, this section is divided into two main headings. In the first part, the nature and extent of the BPM site-related constituents are delineated. The second part addresses the distribution of gasoline constituents to the extent that the BPM and areas impacted by the BPM are affected by these constituents. The third part of the section recaps the areas that have been impacted by the site-related and gasoline constituents, and the well locations that are equipped with point-of-use treatment systems for PCE removal (as a BPM site Interim Remedial Measure) or for removal of MTBE.

Tables 6-1 through 6-9 present summaries of the RI analytical data in order of the text discussion. In addition, compilations of the historical data that are available for many of the wells used for water supply in the site proximity are shown on Tables 6-10 through 6-13. The offsite residential (RW), commercial (CW) and public water supply (PW) wells have been assigned designations for data compilation and discussion purposes and Table 6-14 lists the well locations. The RI results are highlighted in bold in the text discussion.

The distribution of the BPM site-related constituents in groundwater is shown on Figure 6-1 and the distribution of gasoline constituents is shown on Figure 6-2. Data for the onsite monitoring wells, BPM production wells, and nearby residential, commercial and public community supply wells are shown on these figures. The RI results are shown for the wells that were sampled during this study; the most recent available data are shown for other wells in the area. In addition, the most recent results (May 1994) are noted on Figure 6-1 for the Meadow Park Road residential wells and Route 6 commercial wells that are included in the quarterly monitoring program conducted by Big V Supermarkets, Inc.

6.1.1 Overview of Monitoring

The RI samples were collected from the onsite monitoring wells in August/September 1992 and May 1993, from the BPM production wells and Meadow Park Road residential wells in February 1993, and from the Route 6 commercial wells in March and April 1993. For the BPM production wells, Meadow Park Road residential wells, and several Route 6 commercial wells, the historical data base encompasses samples collected both prior to and more recently than the RI samples. The routine monitoring results for these locations through the 2nd Quarter (May) 1994 are included in this report. The historical data base also includes samples for many other residential and commercial wells in the BPM vicinity and for the Lake Baldwin community supply system.

As discussed in Section 2.2, the BPM production wells were initially sampled by WCHD in 1979 as part of a county-wide investigation of water supplies vulnerable to dry cleaning chemical contamination. WCHD infrequently resampled these wells through the mid 1980s, and WCHD and NYSDEC collected several samples from November 1988 through March 1989 as part of area-wide investigations. Routine sampling was instituted during and after mid 1989 when the GAC filter system was installed on the BPM supply system. J. Robert Folchetti & Associates collected samples through mid 1990, Landau & Heyman collected monthly samples through January 1992, and the system was sampled quarterly thereafter (beginning in February 1992) by VUA or Big V Supermarkets, Inc.

From November 1988 through March 1989, residential and commercial wells in Weschester County in the Baldwin Place area were sampled either by WCHD or by NYSDEC which was investigating a petroleum spill (Spill #88-07084) in this area. In addition, as part of the petroleum spill investigation, samples from wells used for water supply in Putnam County in the Baldwin Place area were collected by PCHD and NYSDEC

The WCHD continued to periodically collect samples from residences on Meadow Park Road after the area-wide investigations. During the period from

November 1988 through August 1991, WCHD collected and analyzed over 100 samples. Beginning in October/November 1991, Big V Supermarkets, Inc. (or VUA) has conducted a quarterly monitoring program that includes all 18 of the Meadow Park Road residential wells with and without filter systems.

After the November 1988 through March 1989 investigations, WCHD and NYSDEC also resampled many of the other wells in the area of interest in Westchester and Putnam Counties (commercial wells on Route 6, residential wells on Kennard Road, et. al.). Several of these wells were fitted with GAC filter systems for MTBE removal; data for chlorinated VOCs are available for some but not all of the routine samples that are collected from these wells. Only those samples that were tested for PCE and TCE are shown on the historical data compilation tables.

The Lake Baldwin water supply system was sampled by PCHD and NYSDEC from November 1988 through March 1989 as part of the area-wide investigations. An annual monitoring program has been conducted by the Town Of Carmel, the system owner/operator, since June 1991.

6.1.2 Onsite Monitoring Wells

6.1.2.1 Volatile Organic Compounds

The analytical results for TCL VOC constituents in the monitoring wells are summarized on Tables 6-1 and 6-2. The results confirm that the dry-cleaner related compounds (PCE and its breakdown products TCE and 1,2-DCE) are the contaminants of concern at the site, and their concentration distribution is consistent with a sole contaminant source at the dry cleaners. As a result of the groundwater divide discussed in Section 4.3.2, Groundwater Flow Conditions, these compounds are emanating in both the southeasterly and westerly directions from the dry cleaners proximity. The PCE concentrations that are in the onsite and nearby offsite groundwater, and which have been observed in the BPM production wells since 1979, have emanated from the residual source area in the dry cleaners proximity.

In the east/southeastern area, shallow Monitoring Well MW-5S, the well closest to and approximately 40 feet from the dry cleaners exhibited 64 to 300 ug/L PCE, 25 to 190 ug/L TCE and 23 to 61 ug/L 1,2-DCE concentrations in the two rounds of sampling. MW-5D, the deeper well in the cluster (approximately 50 feet south of MW-5S) exhibited 840 to 910 ug/L PCE, 57 ug/L TCE, and 1,2-DCE was not detected (ND). Monitoring Well MW-6S is located approximately 110 feet due east of MW-5S; in this well these compounds were not detected (ND). The wells in the MW-3 cluster are located south of MW-6S and east/southeast of MW-5D. The shallow well MW-3S exhibited 7 to 12 ug/L PCE, 1 to 4 ug/L TCE and 2 to 4 ug/L 1,2-DCE; these compounds were not detected (ND) in the intermediate well MW-3D; and only a trace of TCE at 1 ug/L was detected in the first but not in the second round sample from the deepest well MW-3DD.

As discussed in Section 4.3.2.3, there is a significant vertical component to groundwater flow in the east/southeastern site area. This is reflected in the results for Monitoring Well MW-5D, which indicate downward migration of contaminants from the shallow groundwater in the glacial till into the weathered bedrock/bedrock within a very short distance from the source area. The deeper groundwater flow in this area is influenced by the BPM production wells pumping, and is more southerly in direction than flow in the shallower unit. Monitoring Wells MW-3D and MW-3DD appear to be located just east of the area in the bedrock aquifer that is the primary southeastern constituent migration pathway.

In the westerly area, Monitoring Well MW-7S located just in front of the dry cleaners exhibited 12 to 30 ug/L PCE concentration, and 2 to 3 ug/L PCE was detected in MW-7D, the deeper well in this cluster. The Monitoring Well MW-9 cluster, located near the western property boundary exhibited the highest concentrations. In the shallow well, MW-9S, 850 ug/L PCE, 14 ug/L TCE and 20 ug/L 1,2-DCE were detected. The deeper well, MW-9D, exhibited 300 ug/L PCE, 10 ug/L TCE and 10 ug/L 1,2-DCE concentrations. Wells located in areas both north and south of the MW-9 cluster exhibited much lower concentrations. At the more northern MW-1 cluster, these compounds were not detected (ND) in shallow well MW-1S, and 1 to 2 ug/L PCE was detected in deeper well MW-1D. At the more southern MW-10 cluster, these compounds were not detected (ND) in shallow well MW-10S, and deeper well MW-10D exhibited 37 ug/L PCE, 1 ug/L TCE and 1 ug/L 1,2-DCE. In addition, these compounds were not detected (ND) in the MW-2S/2D cluster near the southwest corner of the property.

The finding of the highest concentrations at the MW-9 cluster is consistent with the shallow groundwater flow contours which indicate that this well cluster is located directly downgradient of the dry cleaners (see Figure 4-7). The vertical component of groundwater flow is more gentle here than on the east/southeastern part of the property, (see Section 4.3.2.3) and this is reflected in the MW-9S concentration which is higher than in deeper well MW-9D. The MW-7 and MW-1 cluster locations appear to be just north, and the MW-10 well cluster location appears to be just south of the primary western constituent migration pathway.

Monitoring Wells MW-4S/4D and MW-8S are located in the upgradient area at the northern site boundary. These wells did not exhibit detectable concentrations of the dry cleaner-related constituents (ND).

With respect to other TCL VOCs, low levels of gasoline constituents were detected in monitoring wells on the BPM property. These results are discussed in detail in Section 6.2.4.

Aside from the dry cleaner-related and gasoline constituents, no other VOCs of concern were found in the BPM monitoring wells. Methylene chloride was detected in samples from several wells in the August/September 1992 sampling event; the second sampling event in May 1993 confirmed the absence of this very common laboratory contaminant. Similarly, the detection of acetone in samples was not consistent and is also believed to be a sampling/laboratory artifact. Trace concentrations of 1,1,2,2-tetrachloroethane (2 ug/L) were detected in the first round samples from MW-3S and MW-3DD; however, this compound was also detected in a trip blank sample, and its absence in the wells was confirmed by the second round samples.

6.1.2.2 Semi-Volatile Organic Compounds

The analytical results for TCL semi-VOC compounds are summarized on Table 6-3. Bis(2-ethylhexyl)phthalate was the only targeted compound detected. Low concentrations of this compound (7 to 11 ug/L), which is a laboratory/sampling contaminant and is ubiquitous in most data sets, were detected in samples from two

distant deeper monitoring wells, MW-1D and MW-2D. These results are not considered representative of groundwater conditions.

6.1.2.3 Pesticides/PCBs

The analytical results for pesticides and polychlorinated biphenyls (PCBs) are summarized on Table 6-4. No TCL PCBs were detected in any of the monitoring wells tested. Trace levels of TCL pesticides were found in six monitoring wells situated in various site areas; these include the MW-2S/2D cluster near the southwest corner of the property, MW-3D in the central area in back of the mall, and MW-4S and MW-8S near the upgradient property boundary. Thirteen individual pesticides were detected and total estimated pesticide concentrations in these wells ranged from 0.08 to 1.1 ug/L. Although most of the trace level pesticide results could not be qualified as they met the identification criteria stipulated in the method, the data QA reviewer indicated that these results should be used with extreme caution. It is the opinion of the QA reviewer that sufficient reasons exist not to consider these pesticide detections as totally reliable (Environmental Standards, Inc., 1993a). These reasons include the following:

- Examination of the chromatograms revealed significant chromatographic interferences reminiscent of a large hydrocarbon pattern. (Although this multipeak pattern has the shape and intensity of an Aroclor pattern, these patterns did not provide even a marginal retention time match to Aroclor standards). The interferences evident on the chromatograms could easily result in false positive results for the pesticides.
- o All but several of the results are below (some significantly below) the quantitation limit.
- Trace levels of most of the pesticides reported were also observed in laboratory instrument blanks at concentrations of approximately 0.01 ug/L. These could not be used to qualify sample results since they were not (nor required to be) confirmed on a second column.
- The percent differences in the concentrations calculated between the two GC columns is significant with very few exceptions.

It is possible that residual trace pesticides are present from former agricultural land use before development of the BPM and adjacent properties. Review of historical aerial photographs indicates that orchards were present on the BPM as well as on other properties in the immediate area. However, as the data QA reviewer also points out, the variety of unrelated pesticides detected do not represent a pattern of contamination that is typically observed for environmental samples contaminated with pesticides (e.g., the presence of a notable level of gamma-chlordane and the absence of alpha-chlordane).

6.1.2.4 Metals and Inorganics

The analytical results for total and dissolved TAL metals are shown on Tables 6-5 and 6-6, and the groundwater chemistry parameters results are shown on Table 6-7. Aside from iron and manganese, the only result which exceeded New York State groundwater quality standards was the total lead concentration of 47.2 ug/L in Monitoring Well MW-2S; this well was not tested for dissolved concentration.

High total iron and manganese concentrations were detected in the samples from certain monitoring wells. The total concentrations show a high degree of variation and appear to reflect the amount of particulate matter in the samples. Dissolved concentrations were much lower, however, in some cases exceed the New York groundwater quality standards. The iron and manganese are natural components of the subsurface materials and do not indicate contamination. The standards for iron and manganese are based on aesthetic rather than health-based considerations, and it is not unusual for these criteria to be exceeded in natural groundwater systems.

6.1.2.5 Summary

In summary, the RI sampling results confirm that the dry cleaner-related compounds (PCE and its breakdown products TCE and 1,2-DCE) are the contaminants of concern at the BPM site, and their concentration distribution is consistent with a sole contaminant source at the dry cleaners. As a result of the groundwater divide discussed

in Section 4.3.2, these compounds are emanating in both the southeasterly and westerly directions from the dry cleaners proximity.

Comparable PCE concentrations were found in monitoring wells located to both the southeast and west of the groundwater divide near the dry cleaners. The highest PCE concentrations detected were 910 ug/L in southeastern well MW-5D and 850 ug/L in western well MW-9S. TCE (up to 190 ug/L) and 1,2-DCE (up to 61 ug/L) concentrations were also detected in southeastern and western monitoring wells.

In the east/southeastern part of the site, the results for Monitoring Well MW-5D indicate downward migration of contaminants from the shallow groundwater in the glacial till into the weathered bedrock/bedrock within a very short distance from the source area. The deeper groundwater flow in this area is influenced by the BPM production wells pumping, and is more southerly in direction than flow in the shallower unit. Monitoring Wells MW-3D and MW-3DD appear to be located just east of the area in the bedrock aquifer that is the primary southeastern constituent migration pathway.

In the western part of the site, the finding of the highest concentrations at the MW-9 cluster is consistent with the shallow groundwater flow contours which indicate that this well cluster is located directly downgradient of the dry cleaners (see Figure 4-7). The vertical component of groundwater flow is more gentle here than on the east/southeastern part of the property, and this is reflected in the MW-9S PCE concentration which is higher than in deeper well MW-9D. The MW-7 and MW-1 cluster locations appear to be just north, and the MW-10 well cluster location appears to be just south of the primary western constituent migration pathway.

6.1.3 BPM Production Wells

The compiled historical monitoring results for the BPM production wells are summarized on Table 6-10. The RI results for these wells are included on this table in addition to being summarized on Table 6-8.

In the February 1993 RI samples, Production Well PW-1 exhibited 93 ug/L PCE, 6.5 ug/L TCE and a trace of 1,2-DCE at 0.8 ug/L; and 39 ug/L PCE and 2.5 ug/L TCE. were detected in Production Well PW-2. The historical data indicate that PCE

concentrations typically range from 50 to 100 ug/L, TCE from 2 to 10 ug/l, and 1,2-DCE appears at below 1 ug/L in the BPM production well samples, with occasional outliers. In most cases, these samples are non-specific with respect to the individual wells. In general, the results over the 15-year period of record do not indicate an overall increasing or decreasing trend in concentration for the production wells.

6.1.4 Meadow Park Road Residential Wells and Northeast Area

The compiled historical monitoring results for the eighteen residential wells along Meadow Park Road (and Tomahawk Street) (RW-01 through RW-18) are summarized on Table 6-11. The RI results for this area are included on this table in addition to being summarized on Table 6-8. Graphs of PCE concentration versus time for the eleven wells which exhibit detectable concentrations are presented in Appendix Q.

The five most northerly situated wells both to the west and east of Meadow Park Road are RW-01, RW-02, RW-03, RW-04 and RW-18. Wells RW-01 through RW-04 were each tested from five to seven times, and RW-18 was tested twice by WCHD in the period from November 1988 through August 1991. With the exception of a single positive result for RW-03 in October 1990 of 1.2 ug/L PCE, none of these samples contained detectable concentrations of PCE or TCE. These five wells continued to exhibit non-detectable PCE and TCE concentrations in the eleven quarterly samples collected from October 1991 through May 1994. These included the February 1993 RI samples from each well (ND), which replaced the routine sampling for the first quarter 1993.

Moving southward on the west side of Meadow Park Road, RW-05 was tested by WCHD seven times from November 1988 through June 1991; these samples indicated PCE concentration from 6.0 to 28 ug/L, and trace TCE levels up to 1.8 ug/L. Well RW-05 was equipped with a GAC filter system by the owner in 1989. The eleven quarterly samples collected from October 1991 through May 1994 reflect an increasing trend in concentration. The February 1993 RI sample and replicate indicated 13 to 16 ug/L PCE and 0.8 to 0.9 ug/L TCE concentrations. In the May 1994 sample collected from RW-05, 300 ug/L PCE, 10 ug/L TCE, and 0.5 ug/L 1,2-DCE were detected. RW-05 currently exhibits the highest offsite PCE and TCE concentrations.

RW-06 was tested by WCHD four times from November 1988 through November 1989 and PCE and TCE were not detected. This house was unoccupied at the beginning of the quarterly monitoring program in October 1991 and was therefore not readily accessible for sampling. Special arrangements were made to collect a sample in August 1992 which confirmed non-detectable concentrations. Due to access constraints, an RI sample was not collected; however, it was not considered critical given the historical data. In August 1993, this house was purchased by a new owner and incorporated into the quarterly monitoring program. PCE and TCE remained non-detected in the August 1993 through May 1994 samples.

RW-07 was tested by WCHD six times from November 1988 through August 1991. During this period, PCE concentration in this well gradually increased from a trace less than 0.5 ug/L to 4.6 ug/L. RW-07 was equipped with a GAC filter system in December 1991 by Big V Supermarkets, Inc. based on the 6.0 ug/L PCE result for a split sample collected by NYSDOH in October 1991. The eleven quarterly samples collected from October 1991 through May 1994 continue to reflect a steadily increasing trend in concentration. The February 1993 RI sample indicated **4.6 ug/L PCE**, and the May 1994 sample exhibited 14 ug/L PCE.

RW-08 was tested by WCHD six times from December 1988 through August 1991. During this period, PCE concentration in this well increased from 4.9 to 33 ug/L and trace TCE was present up to 1.6 ug/L. Well RW-08 was equipped with a GAC filter system in October 1991 by Big V Supermarkets, Inc. The eleven quarterly samples collected from October 1991 through May 1994 continue to reflect an increasing trend in concentration. The February 1993 RI sample indicated 33 ug/L PCE and 1.8 ug/L TCE, and the May 1994 sample exhibited 43 ug/L PCE and 1.9 ug/L TCE.

RW-09 was tested by WCHD eight times from November 1988 through August 1991. In the latter part of this period, PCE concentration increased to 48 to 52 ug/L from earlier 10 to 16 ug/L concentrations. TCE levels up to 2.7 ug/L were also detected. Well RW-09 was equipped with a GAC filter system in October 1991 by Big V Supermarkets, Inc. In the eleven quarterly samples collected from October 1991 through May 1994, PCE concentrations ranged from 21 to 43 ug/L. The February 1993 RI sample indicated 32 ug/L PCE and 1.9 ug/L TCE, and 38 ug/L PCE and 1.8 ug/L TCE were found in the May 1994 sample.

RW-10 was tested by WCHD seven times from November 1988 through August 1991. In August 1991, PCE concentration increased to 15 ug/L from earlier concentrations less than 4 ug/L, and a trace of TCE at 0.64 ug/L was also detected in this well. Well RW-10 was equipped with a GAC filter system in October 1991 by Big V Supermarkets, Inc. In the eleven quarterly samples collected from October 1991 through May 1994, PCE concentrations ranged from 9.3 to 18 ug/L. The February 1993 RI sample indicated 13 ug/L PCE and 0.6 ug/L TCE, and 18 ug/L PCE was found in the May 1994 sample.

RW-11 was tested by WCHD six times from November 1988 through August 1991. A trace of PCE was first apparent in this well in October 1989, and PCE was detected at 3.7 ug/L by August 1991. In the nine quarterly samples collected from October 1991 through November 1993, PCE concentrations remained below 5 ug/L. RW-11 was equipped with a GAC filter system in March 1994 by Big V Supermarkets, Inc. based on the February 1994 result of 5.9 ug/L PCE. The February 1993 RI sample indicated 3.5 ug/L PCE, and the May 1994 sample exhibited 6.6 ug/L.

RW-12 was tested by WCHD seven times from November 1988 through August 1991. A trace of PCE at 0.72 ug/L first appeared in the August 1991 sample. In the eleven quarterly samples collected from October 1991 through May 1994, traces of PCE were intermittently and then consistently detected. In the three most recent quarterly sampling events, PCE concentrations reached above 1 ug/L. The February 1993 RI sample indicated **0.8 ug/L PCE**, and the May 1994 sample exhibited 1.3 ug/L PCE.

The southernmost well along Meadow Park Road, RW-13, was tested by WCHD seven times from November 1988 through August 1991. PCE was not detected in any of these samples. Well RW-13 is equipped with a GAC filter system by the homeowner. In the eleven quarterly samples collected from October 1991 through May 1994, including the February 1993 RI sample, PCE has remained undetected (ND) in this well.

Moving back north on the east side of Meadow Park Road, RW-14 serves two residences. RW-14 was tested by WCHD five times from November 1988 through August 1991. In August 1991, PCE was first detected at 1.2 ug/L. In the eleven quarterly samples collected from October 1991 through May 1994, very gradually increasing PCE

concentrations from 0.99 to 3.0 ug/L were consistently detected. The February 1993 RI sample indicated 1.8 ug/L, and the May 1994 sample exhibited 3.0 ug/L.

RW-15 was tested by WCHD eight times from November 1988 through August 1991. PCE concentrations increased from trace levels less than 0.5 ug/L to 1 ug/L by May 1990, and showed a further increase to 6.1 ug/L in August 1991. Well RW-15 was equipped with a GAC filter in October 1991 by Big V Supermarkets, Inc. In the eleven quarterly samples collected from October 1991 through May 1994, PCE concentrations showed a gentle increase. The February 1993 RI sample indicated 8.7 ug/L PCE and 0.6 ug/L TCE, and the May 1994 sample exhibited 13 ug/L PCE and 0.6 ug/L TCE.

RW-16 was tested eight times between December 1988 and June 1991. During this period, a gradual increase in PCE concentration was apparent from 0.84 to 2.5 ug/L. Well RW-16 was equipped with a GAC filter system in March 1993 based on the February 1993 RI sample result of **5.2 ug/L PCE**. The nine quarterly samples collected from October 1991 through November 1993 showed a very gentle increase. In the two most recent samples, this increase has been steeper. The May 1994 sample exhibited 20 ug/L PCE and 0.6 ug/L TCE.

RW-17 was tested by WCHD five times from December 1988 through August 1991. PCE concentrations detected over this period ranged from non-detectable to 2.1 ug/L. In the nine quarterly samples collected from October 1991 through November 1993, PCE concentrations ranged from 0.74 to 4.6 ug/L. RW-17 was equipped with a GAC filter system in March 1994 by Big V Supermarkets, Inc. based on the February 1994 result of 17 ug/L PCE. The February 1993 RI sample indicated 1.1 ug/L PCE and the May 1994 sample exhibited a further increase to 27 ug/L PCE and 1.2 ug/L TCE.

Summary

In summary, the area along Meadow Park Road has been impacted by the BPM site-related constituents. The impacted area extends approximately 1,200 feet southward from the vicinity of Residential Wells RW-05 and RW-17 to the vicinity of RW-12. As demonstrated by the test results for residential wells directly north (RW-01, RW-02, RW-03, RW-04 and RW-18) and south (RW-13), the impacted area begins southeast of the dry cleaners and does not reach south beyond Meadow Park Road where it rejoins Tomahawk Street. The delineation of the impacted area is consistent with the identified

PCE source location at the BPM dry cleaners, and the onsite and regional groundwater flow directions (see Section 4.3.2).

In addition, the absence of PCE and TCE to the north and northeast of this area is supported by historic results obtained by WCHD. Between November 1988 and August 1991, WCHD tested a residential well directly north on Tomahawk Street (RW-28) and six residential wells on Lounsbury Drive and Cornelius Lane (RW-29 through RW-34). PCE and TCE were not detected (see Figure 6-1 and Table 6-13).

Also, information on the area to the east of the Meadow Park Road community is available for a test production well installed in connection with a potential new development. This well (Well 1-W) is located across from the central-southern part of the Meadow Park Road community, approximately 200 feet east of Tomahawk Street. This well was sampled on May 6, 1988 in connection with a pumping test, on January 1, 1992 in response to Town concerns about the BPM site-related constituents, and again on February 24, 1994. In all of these samples, PCE and TCE were not detected (Leggette, Brashears & Graham, 1993 & 1994).

Eleven residential wells in the Meadow Park Road community have been impacted; a twelfth well (RW-06) geographically within the impacted area has apparently not been affected. Three wells on the west side of Meadow Park Road have exhibited the highest PCE concentrations; RW-05 up to 300 ug/L; RW-08 up to 46 ug/L; and RW-09 up to 52 ug/L. Six other wells (RW-07, RW-10, RW-11, RW-15, RW-16, and RW-17) have exhibited PCE concentrations on the order of 5 to 27 ug/L. These nine wells are equipped with GAC filter systems. Two additional wells (RW-12 and RW-14 near the south end of the road) exhibit lesser PCE concentrations below 5 ug/L. concentration distribution indicates that PCE concentrations decline within a short distance in the southeast (downgradient) direction within the Meadow Park Road community area. For example, RW-08 shows 43 ug/L PCE, while RW-15 shows 13 ug/L PCE, and PCE is not detected in Test Well 1-W. The general trend of the five year database from late 1988 through 1993 was one of very gradually increasing concentrations in the Meadow Park Road area. In the first two quarters of 1994, a more marked increase has been observed in the four most northerly impacted wells (RW-05, RW-07, RW-16 and RW-17) within this area.

6.1.5 Route 118 and Upgradient Northern Area

Available data from the PCHD files for the Mahopac Village Center mall wells, located approximately 1,500 feet north on Route 6 from the BPM, included seven samples collected from March 1989 through June 1990. Some of these samples were from taps (non-specific with respect to the wells), and others were specific to the three production wells at the center. The two earliest tap samples (March 16, 1989 and April 11, 1989) had trace PCE concentrations (0.6 ug/L) and the April 26, 1989 sample from Well 3 exhibited PCE at 3 ug/L. PCE and TCE were not detected in April 26, 1989, May 16, 1989 and June 22, 1989 samples from Wells 1 and 2; nor in June 22, 1989 and June 5, 1990 ("influent to stripper") samples from Well 3. Well 3 is connected to an air stripper system to remove gasoline constituents as discussed in Section 6.2.3.

The compiled historical results for four commercial wells (CW-48, CW-49, CW-49A and CW-50) located along and near Route 118 directly north of the BPM site (between the Mahopac Village Center and the BPM) are shown on Table 6-13. PCE and TCE were not detected in these wells which were tested as part of the WCHD/PCHD/NYSDEC area-wide investigations from November 1988 to April 1989. These results, and the results for the upgradient onsite monitoring wells (MW-4S/4D and MW-8S) indicate that PCE is not emanating onto the BPM property from an upgradient source.

6.1.6 Route 6 Commercial Wells and Western Area

The compiled results for the McDonalds well (CW-52) at the northwest end of the BPM property are shown on Table 6-13. The McDonalds well is the only well identified along the south side of Route 6 between the site and Mahopac Avenue. This well was sampled at least five times between June 1988 and January 1989 by Leggette, Brashears & Graham, Mid Hudson Pollution Control, WCHD and NYSDEC. The samples collected in June and July 1988 exhibited 21 and 17 ug/L PCE; in three subsequent samples PCE concentration ranged from non-detectable to 7.2 ug/L. The restaurant used bulk water before being equipped with a GAC filter system in 1993 by Mobil Oil Corporation to remove higher MTBE concentrations. The filter system is monitored monthly by Land Tech Remedial, Inc. The most recent available results for this well were 1.3 ug/L, 3.2 ug/L and 9.9 ug/L PCE in January, February and March 1994.

The compiled historical monitoring results for the nine commercial wells situated along the north side of Route 6 between the Baldwin Place intersection and Mahopac Avenue (CW-19 through CW-27) are summarized on Table 6-12. The RI results for this area are included on this table in addition to being summarized on Table 6-9. Graphs of PCE concentration versus time for the two wells monitored quarterly by Big Supermarkets, Inc. (CW-20 and CW-21) are presented in Appendix Q.

The most easterly well (CW-19) along Route 6 near the Baldwin Place intersection (east of where the western stream crosses under Route 6) was equipped with a GAC filter system by NYSDEC in January 1989 as a result of MTBE concentration. The more recent routine testing of this filter system by NYSDEC has been limited to gasoline-related constituents. In terms of PCE analysis, this well was tested for chlorinated VOCs seven times between November 1988 and October 1989 by NYSDEC and WCHD. PCE and TCE were not detected in any of these samples. The RI sample collected in March 1993 confirmed the continued absence (ND) of these compounds.

The second commercial well moving westward (CW-20) is located west of where the western stream crosses under Route 6. This well was tested for chlorinated VOCs three times in December 1988 and March 1989 by NYSDEC and WCHD. PCE was detected in this well at concentrations from 7.5 to 9 ug/L. The RI results in March 1993 indicated 47 ug/L PCE and 1 ug/L TCE. Based on the RI results, this well was equipped with a GAC filter system in April 1993 by Big V Supermarkets, Inc. Big V Supermarkets presently maintains this system and conducts quarterly monitoring. In the five quarterly samples collected from April 1993 through May 1994, PCE concentrations ranged from 45 to 80 ug/L and lesser concentrations of TCE and 1,2-DCE were detected. The May 1994 sample exhibited 63 ug/L PCE, 1.7 ug/L TCE and 1.4 ug/L DCE.

The third commercial well moving westward (CW-21) was tested for chlorinated VOCs in December 1988 by NYSDEC. At this time, 3 ug/L PCE was detected. In February 1993, this well was resampled by NYSDOH during a pre-RI sampling visit with VUA in this area and exhibited PCE at 43 ug/L and TCE at 4.7 ug/L. The RI results in March 1993 indicated 47 ug/L PCE and 4 ug/L TCE. Based on the RI results, this well was equipped with a GAC filter system in April 1993 by Big V Supermarkets, Inc. Big V Supermarkets presently maintains this system and conducts quarterly monitoring. The five quarterly samples collected from April 1993 through May 1994 indicated variable

PCE concentrations from 1.4 to 37 ug/L. In the sample collected in May 1994, 9.9 ug/L PCE was detected.

The fourth commercial well (CW-22) was tested for chlorinated VOCs twice in December 1988 and January 1989 by NYSDEC and WCHD. PCE was detected at 18 to 19 ug/L. In October 1990, this well was resampled by WCHD and exhibited PCE at 55 ug/L and a 0.53 ug/L trace of TCE. This well was equipped with a GAC filter system by the owner of the property. Permission to sample this well was denied and no monitoring data were made available to the RI investigator.

The fifth commercial well (CW-23) was tested for chlorinated VOCs five times from December 1988 through January 1991 by NYSDEC, WCHD and EPA. PCE concentrations detected in this well ranged from 17 to 28 ug/L. A sample tested privately by a commercial laboratory within this period exhibited an anomalous result of not detected. This well was equipped with a GAC filter system by the owner; this system is reportedly maintained but not monitored routinely. The RI results in March 1993 indicated 46 ug/L PCE and 0.9 ug/L TCE.

For the sixth commercial well (CW-24), no historic data were found in the reviewed NYSDEC or WCHD files. The RI investigator was not able to obtain permission to sample this well.

For the seventh and eighth commercial wells (CW-25 and CW-26), also, historic data were unavailable. The RI results in March 1993 for CW-25 indicated non-detectable (ND) PCE and TCE. An RI sample could not be collected from CW-26 due to the reluctance of the owner; however, NYSDOH sampled this well in late February 1993 during a pre-RI sampling visit with VUA in this area and the sample exhibited non-detectable (ND) PCE and TCE concentration.

The ninth well (CW-27) located on Route 6 just east of Mahopac Avenue was tested for chlorinated VOCs by WCHD in August 1990. PCE and TCE were not detected. The RI results in March 1993 confirmed the absence of PCE/TCE concentrations (ND).

Summary

In summary, a limited area along Route 6 has been impacted by the BPM site-related constituents (as well as by gasoline constituents; see Section 6.2.2). The impacted area extends along Route 6 approximately 1,200 feet, in the vicinity of commercial wells CW-20 to CW-23. It is unclear if a fifth well (CW-24) directly west of these wells has been impacted, as the well and any existing data were not accessible. As demonstrated by the test results for commercial wells to the east (CW-19) and west of this area (CW-25, CW-26 and CW-27), the impacted area begins west of where the western stream crosses under Route 6 and does not extend to CW-25 where the ground surface begins to rise markedly toward Mahopac Avenue to the west. The delineation of the impacted area is consistent with the identified PCE source location at the BPM dry cleaners, and the onsite and regional groundwater flow directions (see Section 4.3.2.4).

In addition, the absence of PCE and TCE to the west of this area is supported by other historic results obtained by WCHD. Between January and October 1989, WCHD tested several commercial and residential wells just west of the Route 6 and Mahopac Avenue intersection (CW-35) and north on Mahopac Avenue (RW-36, CW-37, RW-38 and RW-39). PCE and TCE were not detected in these wells (see Figure 6-1 and Table 6-13). Similarly, the results for the Shell service station supply well (CW-54), and for RW-40 along Kennard Road (discussed below) support the absence of PCE and TCE in wells to the east of where the western stream crosses under Route 6.

In the four wells within the impacted area, PCE concentrations up to 80 ug/L, TCE up to 4.0 ug/L, and 1,2-DCE up to 1.4 ug/L (as of May 1994) have been detected. The general trend of the five year database from late 1988 through the present is one of gradually increasing concentrations in this area.

6.1.7 Kennard Road Residential Wells

The compiled monitoring results for the six residential wells tested along Kennard Road (RW-40, RW-41, RW-42, RW-43, RW-45 and RW-46) and for the Lake Baldwin public water supply (PW-44) are summarized on Table 6-13.

The two most easterly situated residential wells along this road nearest the intersection with Route 6 (RW-40 and RW-41) are equipped with GAC filter systems for MTBE treatment and are sampled routinely. In terms of PCE analysis, the samples collected from these wells between October 1988 and April 1989 included chlorinated VOCs; more recent testing has mainly been limited to gasoline-related constituents (BTEX, dichlorobenzenes, and MTBE). However, in mid-1992, samples were tested for chlorinated VOCs.

The most easterly residential well (RW-40) was tested for chlorinated VOCs five times between October 1988 and March 1989, and twice more in June and August 1992. PCE and TCE were not detected.

The second residential well (RW-41) was tested for chlorinated VOCs seven times between October 1988 and April 1989, and once more in August 1992. PCE and TCE were not detected in the 1988 and 1989 samples. A trace of PCE at 1 ug/L was reported in the August 1992 sample.

The third and fourth residential wells sampled (RW-42 and RW-43), moving west down Kennard Road, were tested for chlorinated VOCs respectively two and three times between October 1988 and March 1989 by PCHD and NYSDEC. PCE and TCE were not detected.

Moving further west, near the intersection of Shore Drive with Kennard Road, the fifth and sixth residential wells sampled (RW-45 and RW-46) were both tested twice for chlorinated VOCs in November 1988 and March 1989 by PCHD and NYSDEC. Except for a trace of TCE less than 1 ug/L in the initial RW-46 sample, PCE and TCE were not detected.

6.1.8 Lake Baldwin Community System

The Lake Baldwin water supply (PW-44) was tested for chlorinated VOCs at least six times between October 1988 and March 1989 by PCHD and NYSDEC. The Lake Baldwin water supply is presently subject to annual monitoring by the owner/operator (Town Of Carmel), and later results are available for this system for June 1991, June 1992 and April 1993. PCE and TCE have never been detected in the water supply samples.

6.2.1 Overview of Monitoring

Analysis of wells along Kennard Road was initiated by Putnam County in October and November 1988, in response to the oil spill at the Lightning Lube at the Baldwin Place intersection (Petroleum Product Spill #88-05397). These initial samples collected by Putnam County indicated gasoline constituents in sediment in the first, unnamed, pond in the western stream and in certain wells in this area, and the case was referred to NYSDEC. NYSDEC collected samples in late November and December 1988 from wells along Kennard Road and from additional wells located in both Putnam and Westchester counties. These early samples by the two agencies in the RI area of interest included residential wells and the Lake Baldwin public community water supply along Kennard Road, and commercial wells along Route 6 and Route 118.

As a consequence of the late 1988 PCHD/NYSDEC testing, a gasoline contamination problem (primarily MTBE) that was subsequently associated with several local service stations was identified within the area. The four service stations at and near the Baldwin Place intersection were investigated, and three of these stations (Mobil (now Exxon), Texaco and Citgo) were determined to have leakage with impact to groundwater. These three stations have installed groundwater recovery systems. The fourth service station (Shell) was not found to be a contributor to the groundwater contamination (International Technology Corporation, 1990).

In December 1988, the two residential wells on the eastern part of Kennard Road nearest to the Baldwin Place intersection (RW-40 and RW-41), and a commercial well on Route 6 (CW-19) were equipped by NYSDEC with GAC filter systems due to MTBE concentration. In January 1989, NYSDEC installed a fourth filter system on the water supply well at the Shell service station (CW-54). NYSDEC monitored these filter systems monthly through May 1989, and thereafter quarterly through April 1991. In August 1991, Spain Oil assumed responsibility for the quarterly monitoring of the RW-40 and RW-41 systems; NYSDEC continues to quarterly monitor the systems at CW-19 and CW-54.

In 1993, Mobil Oil Corporation equipped the McDonalds well (CW-52) on the northwest end of the BPM property with a GAC filter system due to MTBE concentration. Earlier data were available for samples collected by consultants to Big V in mid-1988 and as part the area-wide investigations by WCHD and NYSDEC in late 1988 through January 1989.

MTBE was analyzed in some but not all of the samples that WCHD collected from the Meadow Park Road residential wells from November 1988 through August 1991. MTBE was again analyzed during the first quarterly monitoring event by VUA in October/November 1991, and in the RI samples collected in February 1993. In addition, the four most northerly located wells in this area were tested for MTBE in October 1993.

6.2.2 Route 6 and Kennard Road

A limited area on both the south and north sides of the western stream has been impacted by the service station spills at and near the Baldwin Place intersection (Exxon (formerly Mobil), Texaco and Citgo). Several commercial wells along Route 6 and residential wells on Kennard Road are affected.

The Shell station is located just west of the Baldwin Place intersection. In January 1989, the station supply well (CW-54) was equipped with a GAC filter system to remove MTBE by NYSDEC. The results for NYSDEC samples collected from January 1990 through June 1993 indicate that MTBE concentration has declined in this well from 340 to less than 70 ug/L.

In December 1988, the commercial well on Route 6 just west of the Shell station and east of where the western stream crosses under Route 6 (CW-19) was also equipped with a GAC filter system by NYSDEC. The results for NYSDEC samples collected from November 1988 through March 1993 indicate that MTBE concentrations in this well have steadily declined from over 200 to below 20 ug/L. The RI result in March 1993 indicated 15 ug/L MTBE.

The next commercial well moving westward on Route 6 (CW-20) exhibited 10 to 14 ug/L MTBE in three samples collected between December 1988 and March 1989 by NYSDEC and WCHD. The RI result in March 1993 indicated 44 ug/L MTBE.

The next three commercial wells (CW-21, CW-22 and CW-23) continuing westward have exhibited detectable but lower MTBE concentrations. The March 1993 RI results indicated 4 ug/L MTBE in CW-21, and 1 to 2 ug/L MTBE in CW-23. The most recent available result for CW-22 was an October 1990 WCHD sample which exhibited MTBE at 2.6 ug/L.

For CW-24, there was no available information. Further west toward Mahopac Avenue, MTBE was not detected (ND) in the March 1993 RI sample from CW-25, the NYSDOH February 1993 sample from CW-26, and the April 1993 RI sample from CW-27.

On Kennard Road, the two nearest residential wells to the Baldwin Place intersection are equipped with GAC filter systems to remove MTBE concentration. The first well (RW-40) has exhibited 27 to 72 ug/L MTBE in the series of samples collected from October 1988 to August 1992. The second well (RW-41) exhibited 200 ug/L MTBE in October 1988 and has shown a gradual decrease; the most recent available result in August 1992 indicated 59 ug/L MTBE.

Four other wells further west on Kennard Road (RW-42, RW-43, RW-45 and RW-46) were tested for MTBE by PCHD and/or NYSDEC during the late 1988 investigation. MTBE was detected at 7 ug/L in one of two samples from RW-43; in the other three wells MTBE was not detected. These four wells were also resampled by NYSDEC in March 1989 and MTBE was not detected. (Note that the detection limits for the NYSDEC analyses were 20 ug/L during these timeframes).

The Lake Baldwin water supply (PW-44) was sampled by PCHD three times in October/November 1988 and a trace of MTBE was reported in two of these early samples. MTBE was not detected in three samples collected by NYSDEC in November 1988 through March 1989. In the more recent June 1991, June 1992 and April 1993 annual monitoring by the Town Of Carmel, MTBE has not been detected at a reported detection limit of 1 ug/L.

6.2.3 Route 118 and Northern Upgradient Area

The area north and upgradient of the BPM has also been impacted by service station spill(s) that have resulted in groundwater contamination. A spill from the Sunoco station about 0.7 mile northeast of the Baldwin Place intersection on Route 6 at Union Valley Road is under investigation by NYSDEC. Although the source has not been determined, MTBE and lower levels of benzene are present in a production well (Well 3) at the Mahopac Village Center mall; this well is reportedly 930 feet deep and is located on the northeast part of the mall property, approximately 1,500 feet from the northern boundary of the BPM. Two other shallower production wells at the Mahopac Village Center (less than 300 feet deep), also located on the northeast part of the property, have reportedly not been impacted (VUA, 1993h).

In 1988, MTBE concentration in the Mahopac Village Center Well 3 was at or less than 200 ug/L. An air stripper system was installed in early 1990 and operated until June 1992. In this timeframe, MTBE concentration in the well peaked at approximately 1,300 ug/L and the well was shut down as the treatment system was not capable of treating the water to the NYSDOH standard of 50 ug/L. The treatment system was subsequently upgraded and the well resumed operation in October 1993. Recent data indicate MTBE in the well water before treatment on the order of 500 ug/L (VUA, 1993h).

Wells along Route 118, between the Mahopac Village Center and the BPM were sampled in November 1988 and March 1989 by NYSDEC and Putnam County. One well (CW-50) showed a trace of MTBE at 1.3 ug/L; in the other sampled wells (CW-48, CW-49, CW-49A, and RW-51) MTBE was not detected. MTBE also has not been detected in the Meadow Park Road residential wells.

6.2.4 Onsite Monitoring Wells and Production Wells

The RI results indicate that low MTBE levels are present in the monitoring wells on both the eastern and western portions of the BPM site. MTBE concentrations from 1 to 4 ug/L were detected in Monitoring Wells MW-1S/1D, MW-3S/3DD, MW-4S, MW-6S, MW-9D, and MW-10D, and 15 ug/L MTBE was detected in MW-10S (See Tables 6-1 and 6-2). The leakage from the service stations near and at the Baldwin Place

intersection has apparently resulted in a dispersion of this highly mobile compound and low MTBE concentrations over wide areas of the BPM property.

Traces of toluene from 2 to 9 ug/L were also detected in eight monitoring wells located throughout the property. A trace of benzene at 3 ug/L was detected in one of two samples from MW-5S. A trace of xylene at 2 ug/L was detected in MW-5D, however, this result is qualitatively suspect ("B"), and xylene was not detected in the replicate MW-5D sample.

Trace levels of MTBE have occasionally been detected in the BPM production wells. MTBE was not detected (ND) in the February 1993 RI production wells samples. However, traces of MTBE (1.2 to 1.5 ug/L) were detected in a March 1989 samples collected by NYSDEC and in a recent November 1993 sample (2 ug/L). The reported detection limit for MTBE in routinely collected samples have typically been higher than these trace levels.

6.3 RECAP OF GROUNDWATER IMPACT AND INTERIM REMEDIAL MEASURES

The constituents of concern at the BPM site, PCE, TCE and 1,2-DCE, are classified by New York State as Principal Organic Contaminants (POCs), and the maximum contaminant level (MCL) established for each POC in Class GA groundwater (source of potable water supply) is 5 ug/L (New York State Title 6, Chapter X, Part 703). Figure 6-3 shows the locations of the nearby offsite residential and commercial wells equipped with GAC filter systems due to PCE concentrations exceeding this MCL, and also of wells equipped with GAC filter systems due to MTBE.

In the BPM production well samples, PCE consistently and TCE intermittently exceed the MCL. The BPM production wells are equipped with a GAC filter system that is designed to handle up to 60 gpm. The current average water usage for this system is about 3.8 gpm. The system is monitored quarterly by Big V Supermarkets, Inc. to confirm that the filters are providing effective treatment. The treated water contains non-detectable levels of VOCs.

The McDonalds Restaurant well on the BPM property contains PCE concentration that intermittently exceeds the MCL (9.9 ug/L in March 1994). This well also contains higher MTBE concentrations (100s ug/L) as a result of leakage from the adjacent Exxon (formerly Mobil) service station. This well is equipped with a GAC filter system maintained by Mobil Oil Corporation.

Two offsite areas have been impacted by the BPM site-related constituents: part of the commercial area along Route 6 to the west and part of the Meadow Park Road community to the southeast. PCE concentrations in certain commercial and residential wells in both the Route 6 and Meadow Park Road areas exceed the MCL; TCE, with one exception, is detected in the offsite wells at low concentrations below the MCL, and traces of 1,2-DCE concentration have been detected in two offsite wells.

The Meadow Park Road community area impacted by the BPM site-related constituents extends approximately 1,200 feet, begins southeast of the dry cleaners and does not reach south beyond Meadow Park Road where it rejoins Tomahawk Street. Eleven residential wells (RW-05, RW-07, RW-08, RW-09, RW-10, RW-11, RW-12, RW-14, RW-15, RW-16, and RW-17) in the Meadow Park community have been impacted. PCE concentrations in these wells range from 1.3 to 300 ug/L, TCE from non-detectable to 10 ug/L, and 1,2-DCE from non-dectable to 0.5 ug/L (as of May 1994). In nine of these wells (RW-05, RW-07, RW-08, RW-09, RW-10, RW-11, RW-15, RW-16, and RW-17), PCE concentration consistently or intermittently exceeds the 5 ug/L MCL and Big V Supermarkets, Inc. maintains GAC filter systems on each of these wells. These filter systems are monitored quarterly by Big V Supermarkets, Inc. to confirm that the filters are providing effective treatment. The treated water contains non-detectable levels of VOCs. The quarterly monitoring results for the nine Meadow Park Road point-of-use filter systems are provided on Table 6-15.

The general trend of the five year database from late 1988 through 1993 was one of very gradually increasing concentrations in the Meadow Park Road area. In the first two quarters of 1994, a more marked increase has been observed in the four most northerly impacted wells (which are equipped with filter systems) within this area. All eighteen wells in the Meadow Park Road community are included in the quarterly monitoring program and should concentrations exceeding the MCL be detected in any of the wells without treatment during the RI/FS period, these wells will also be equipped with a filter system by Big V Supermarkets, Inc.

The Route 6 area impacted by the BPM site-related constituents extends approximately 1,200 feet, begins west of where the western stream crosses under Route 6 and does not extend to CW-25 where the ground surface begins to rise markedly toward Mahopac Avenue to the west. In the four wells within the impacted area (CW-20 through CW-23), PCE concentrations up to 80 ug/L have been detected; TCE up to 4.0 ug/L; and 1,2-DCE up to 1.4 ug/L (as of May 1994). It is unclear if a fifth well directly west of these wells (CW-24) has been impacted as the well and any existing data were not accessible.

Two of these impacted Route 6 wells (CW-22 and CW-23) are equipped with GAC filter systems maintained by the owners. Big V Supermarkets, Inc. equipped the two remaining wells (CW-20 and CW-21) with GAC filter systems. The CW-20 and CW-21 filter systems are monitored quarterly by Big V Supermarkets, Inc. to confirm that the filters are providing effective treatment. The treated water contains non-detectable levels of VOCs (see Table 6-15). These Route 6 wells lie within the area that has also been impacted by the leakage from service stations near the Baldwin Place intersection. Well CW-20 exhibits 36 to 53 ug/L MTBE and the three wells to the west, CW-21, CW-22 and CW-23, show lower concentrations (less than 5 ug/L). The GAC filter systems also provide removal of the MTBE.

The area that has been impacted by the service stations in the vicinity of the Baldwin Place intersection (Exxon (formerly Mobil), Texaco, Citgo) extends into the areas both immediately south and north of the western stream. As mentioned above, the four Route 6 wells south of the western stream equipped with filter systems due to PCE concentrations also contain MTBE. The McDonalds well, and four wells north of the western stream are equipped with GAC filter systems due to MTBE concentrations; CW-19 and CW-54 (the Shell service station well) on Route 6, and RW-40 and RW-41 on Kennard Road. One of these wells, RW-41, is located very close to the western stream and is the only well north of the stream that has also exhibited a trace of PCE (1 ug/L in one sample in August 1992). The CW-19 and CW-54 filter systems are monitored quarterly by NYSDEC and the CW-40 and CW-41 filter systems are monitored quarterly by Spain Oil. The Lake Baldwin water supply on Kennard Road is monitored annually by the owner/operator (Town of Carmel); this water supply system is not impacted by either the BPM site-related or gasoline constituents.

The northern area upgradient of the BPM has also been impacted by gasoline constituents. The source of this leakage is likely a service station located further north on Route 6, and the impact has extended to a production well in the Mahopac Village Center. This well is equipped with an air stripper for MTBE removal. MTBE has not been detected in the Meadow Park Road residential wells.

In summary, the BPM production wells, the McDonalds well, nine Meadow Park Road residential wells to the southeast of the BPM and four commercial wells along Route 6 to the west of the BPM contain PCE concentrations that exceed the New York State MCL for Class GA groundwater of 5 ug/L. All of these wells are equipped with point-of-use GAC filter systems which remove the PCE (and lower TCE/1,2-DCE concentrations, where present) and, in the McDonalds and Route 6 wells, MTBE that is also present. The nine additional Meadow Park Road wells are monitored on a quarterly basis and will be equipped with GAC filter systems for PCE removal as an Interim Remedial Measure before the conclusion of the RI/FS should concentration exceed the MCL.

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7.0 CHEMICAL CHARACTERISTICS OF SURFACE WATER AND SEDIMENT

Surface water and sediment quality conditions were characterized in the two stream systems that receive drainage from the BPM site: the eastern and the western streams (see Section 4.3.3). Figure 3-7 shows the surface-water/sediment sample locations and the analytical results for the surface-water/sediment samples are summarized on Tables 7-1 through 7-5.

7.1 EASTERN STREAM

The analytical results indicate that the eastern stream has not been impacted by the site-related constituents (PCE, TCE and 1,2-DCE). These compounds were not detected in any of the three surface-water/sediment sample pairs collected from the eastern stream at the upstream location (SW/SD-01), at the wastewater treatment plant outfall (SW/SD-02) and at the downstream location near the southern property boundary (SW/SD-03).

The surface-water samples collected at and downstream of the treatment plant outfall exhibited trihalomethane (THM) concentrations. At the outfall (SW-02), 200 ug/L chloroform and 46 ug/L bromodichloromethane were detected; 120 ug/L chloroform and 31 ug/L bromodichloromethane were found at the downstream location (SW-03). A trace of chloroform (6 ug/Kg) was also detected in the sediment at the outfall (SD-02). The wastewater is chlorinated as part of the treatment process resulting in the presence of these chlorination associated compounds.

No targeted semi-VOC compounds were detected in the eastern stream surface water; however, low levels of polyaromatic hydrocarbons (PAHs) were detected in the upstream sediments (SD-01). Pesticides were detected in the surface water at the SW-02 and SW-03 locations, and in the sediment at all three sampling locations. However, in the opinion of the data QC reviewer, sufficient reasons exist not to consider these pesticide detections as totally reliable (Environmental Standards, Inc., 1993f); these reasons are the same as for the groundwater samples as described in Section 6.1.2.3. PCBs were not detected in either surface water or sediment. With respect to metals, the

surface-water and sediment samples at the treatment plant outfall and the downstream location exhibited generally comparable or lower concentrations than at the upstream location.

The sediment materials in the eastern stream were primarily comprised of fine to medium sand and gravel with some silt and clay.

7.2 WESTERN STREAM

The western stream heads south of the BPM property, crosses under Route 6 north of the site and then flows in a westerly direction. The stream flows through two small ponds (an unnamed pond and then Kennard Pond) and Lake Baldwin, prior to its confluence with the Muscoot River approximately 3,500 feet from the site. Four points along this stream channel were sampled extending over a 1,500-foot distance. From east to west (upstream to downstream), these points are located just north of where the stream crosses under Route 6 (SW/SD-04); upstream of the first, unnamed, pond (SW/SD-06); downstream of the first pond (SW/SD-07); and midway between Kennard Pond and Lake Baldwin (SW/SD-08). The surface-water/sediment sampling in the western stream covered an area within which impacted groundwater (containing the BPM site-related constituents) flowing from the site in a northwest direction would be expected to discharge to this stream (sample locations SW/SD-04, SW/SD-06, and SW/SD-07). Sample location SW/SD-08 is further downstream of this area.

The analytical results indicate that the western stream has been impacted to a very limited degree and extent by the site-related constituents. Traces of PCE at 1 and 2 ug/L were detected in the surface water just north of where the stream crosses under Route 6 (SW-04) and at the next downstream location (SW-06). PCE was also detected at 4 ug/Kg in the sediment at SD-04, but not at SD-06. PCE was not detected in either surface water or sediment at the two further downstream locations (SW/SD-07 and SW/SD-08).

A fifth surface-water/sediment sample pair (SW/SD-09) was collected from the tributary drainage channel to the east (see Figure 3-7) that receives runoff from the area to the northeast of the Baldwin Place intersection. This drainage pathway joins the western stream approximately 200 feet north of where the western stream crosses under

Route 6 (between SW/SD-04 and SW/SD-06). A sixth and seventh surface-water/sediment sample pair (SW/SD-10 and SW/SD-11) were collected from a small drainage ditch on the south side of Route 6 and west of McDonalds that conveys surface runoff from the area west of McDonalds to a culvert that passes under Route 6 just east of the Texaco (former Sunoco) station and ultimately empties into Kennard Pond. This drainage ditch receives seepage from the hillside directly west of McDonalds. SW/SD-10 was collected approximately 50 feet downstream (west) from the beginning of this seepage and SW/SD-11 was collected approximately 750 feet further west.

The analytical results indicate that the drainage ditch south of Route 6 has also been impacted to a very limited degree and extent by the site-related constituents. A trace of PCE at 1 ug/L was detected in surface water at SW-10, and 4 ug/Kg PCE was detected in the sediment at this location (SD-10). PCE was not detected in either surface water or sediment 750 feet further west in this drainage ditch at SW/SD-11; nor was PCE detected at the SW/SD-09 (other tributary drainageway) location.

With respect to other constituents, the analytical results and observations during sampling indicate that the western stream has been impacted by the oil and gasoline spills in the area. The sediment material at the location just north of Route 6 (SD-04) was observed to be strongly odorous during sampling; many PAHs were detected in the sediment but not in the surface-water sample. Since the RI program was focused on the BPM site-related constituents, the samples further downstream in the western stream which were collected during the supplemental event were not tested for PAHs. At the SW/SD-09 location in the tributary drainage pathway to the east, the surface water contained a trace of MTBE (2 ug/L). This location was also not tested for PAHs.

With respect to historical data, at least one oil spill is documented in the area to the northeast of the BPM intersection that would flow to the tributary drainage pathway that joins the western stream. This spill occurred at the Lightning Lube at the Citgo station in 1988. Testing at the time was limited to a sediment sample collected by PCHD from the first pond in the western stream in October 1988 which contained benzene, dichlorobenzenes and other VOCs. PAHs were not analyzed.

The sediment materials in the western stream were varied and comprised of medium to coarse grained sand and pebbles at SD-04 and SD-06, and organic soil with some sand at SD-07 and SD-08. As would be expected with the range of sediment

materials, total organic carbon (TOC) contents were variable and ranged from 3,900 mg/kg (0.3 percent) in the coarse-grained material at SD-06 to 120,000 mg/kg (12 percent) in the fine-grained material at SD-07. The SD-08 sample contained a TOC of 34,000 mg/kg (3.4 percent).

The sediment materials at the SD-09 location in the tributary drainage channel to the east were comprised of silt with some fine to medium sand. In the small drainage ditch on the south side of Route 6, the sediment materials consisted of medium to coarse grained sand and pebbles with sandy clay at SD-10; and medium to coarse grained sand and pebbles at SD-11. TOC contents of these samples were 64,000 mg/Kg (6.4 percent) in SD-09; 12,000 mg/Kg (1.2 percent) in SD-10; and 1,200 mg/Kg (0.12 percent) in SD-11.

Finally, a sediment sample was obtained from a catch basin in the stormwater system on the BPM property that drains to the western stream (SD-05). This catch basin contained a minor amount of sediment material that was consumed during sampling, and was sufficient only for TCL VOC and TAL metals analyses. PCE was not detected.



8.0 CONTAMINANT TRANSPORT MECHANISMS

This section brings together the information presented regarding the source area, onsite and regional groundwater flow conditions, and distribution of BPM site-related constituents to provide a description of contaminant transport mechanisms.

A single onsite PCE source area is present in the alleyway immediately behind the dry cleaners. PCE used in dry cleaning has entered the subsurface environment in this area. High residual PCE soil concentrations are present in a limited area (approximately 15 by 15 feet) in the unsaturated zone (above the water table). The water table in this area is approximately 3 feet below ground surface. PCE breakdown products (TCE and 1,2-DCE) are also in evidence at lower concentrations.

The PCE has migrated vertically (under the influence of gravity) through the unsaturated zone into the saturated soil beneath the water table. In the saturated zone, the area with high residual soil PCE concentrations is also limited, but of somewhat wider extent than the area showing high PCE concentrations above the water table. The density of PCE (heavier than water), the local stratigraphy, adsorption, and the groundwater flow system are all factors governing the rate and direction of PCE migration in the saturated zone. As a result of the groundwater divide, PCE is moving with the groundwater in both the south/southeasterly and westerly directions.

Over the southeast portion of the site, the glacial till materials are from 45 to 80 feet thick. In this area, water-level elevations in shallow monitoring wells completed in the glacial till are approximately 10 to 12 feet higher than water-level elevations in deeper wells completed in weathered and competent bedrock. As a result, there is a significant downward vertical component to groundwater flow and the lateral extent of contaminant migration in the shallow glacial till materials appears to be somewhat limited. The contaminants are migrating into the weathered bedrock horizon within a very short distance from the source area. As such the principal migration pathway to the south/southeast is in the weathered bedrock/bedrock system.

The operation of the BPM production wells influences the deeper (weathered bedrock/bedrock) groundwater flow conditions. At current rates of pumpage (average 3.8 gpm), the BPM wells capture a portion of the contaminated groundwater emanating

from the source area. However, there is a deeper component of groundwater flow in a southeast direction from the source area that passes the site boundary and reaches the Meadow Park Road community area.

With distance from the source, the contaminant concentrations (PCE, TCE and 1,2-DCE) markedly diminish (dilute) due to hydrodynamic dispersion. As a result, the offsite PCE concentrations in the Meadow Park Road wells are trace (1 ug/L) to 300 ug/L, as compared with 24,000 ug/L in Monitoring Well MW-11S in the source area; 3,200 ug/L in MW-11D just beneath the source area; and nearly 1,000 ug/L in Monitoring Well MW-5D just downgradient of the source area. Due to dispersion, the plume tends to widen with distance from the source area. In the Meadow Park Road community, highest concentrations have appeared in RW-05, RW-08 and RW-09, with wells to the east and south showing lower concentrations. The impacted area begins southeast of the dry cleaners and does not reach south beyond Meadow Park Road where it rejoins Tomahawk Street.

On the western portion of the site, the glacial till materials become thinner and over the far western/northwestern parts of the site, the glacial till materials lie at or near the top of the zone of saturation (water table). Therefore, the shallow groundwater system proximate to the source area is in glacial till and farther west as the saturated glacial materials thin (to less than 1 foot), the shallow groundwater system is comprised of weathered bedrock. In contrast to the eastern portion of the site, water-level elevations in shallow monitoring wells (glacial till and weathered bedrock) are only slightly higher than water-level elevations in coupled deeper bedrock monitoring wells. As such, there is less of a downward component to groundwater flow and contaminant migration occurs in the shallow as well as the deeper system.

The shallow groundwater flow component from the source area is toward the Monitoring Well MW-9 cluster. The regional flow conditions point to the presence of a deeper groundwater divide onsite and a deeper component of groundwater flow in a westerly direction when the BPM production wells are not pumping. The highest PCE concentrations are found in both the shallow and deeper monitoring wells in the MW-9 cluster which is directly downgradient of the dry cleaners. This is consistent with groundwater flow conditions on the western portion of the site, and indicates that contaminant transport from the source occurs within both the shallow and deeper groundwater. PCE concentrations were detected in shallow and deeper wells MW-9S

and MW-9D at 850 and 300 ug/L, respectively. As a result of hydrodynamic dispersion, lower concentrations are detected in the MW-1 cluster to the north and in MW-10D to the south. The lower to non-detectable concentrations in the monitoring wells on the western side of the site (MW-7S/7D, MW-10S/10D, and MW-1S/1D) and in commercial wells along Route 6 (McDonalds well, CW-19, and CW-25) serve to bound the plume and provide an additional confirmation of the source area behind the dry cleaners by eliminating the possibility of contribution from any other areas on the site. Although there is no specific explanation for the apparent absence of PCE in MW-10S (during this one sampling event), the data from this sampling point does not affect the conclusions which have been drawn regarding the source area, groundwater flow and contaminant transport in the western site area.

Groundwater flow from the western site boundary is in a northwesterly direction toward Route 6 and the western stream. Along Route 6, there is a sharply delineated area of impact. This area extends from CW-20 to CW-23, and within this area PCE concentrations have been detected up to 80 ug/L. Wells both east and west of this area exhibit non-detectable concentrations (CW-19 to the east and CW-25 to the west). The impacted area begins west of where the western stream crosses under Route 6 and does not extend to CW-25 where the ground surface begins to rise markedly toward Mahopac Avenue to the west.

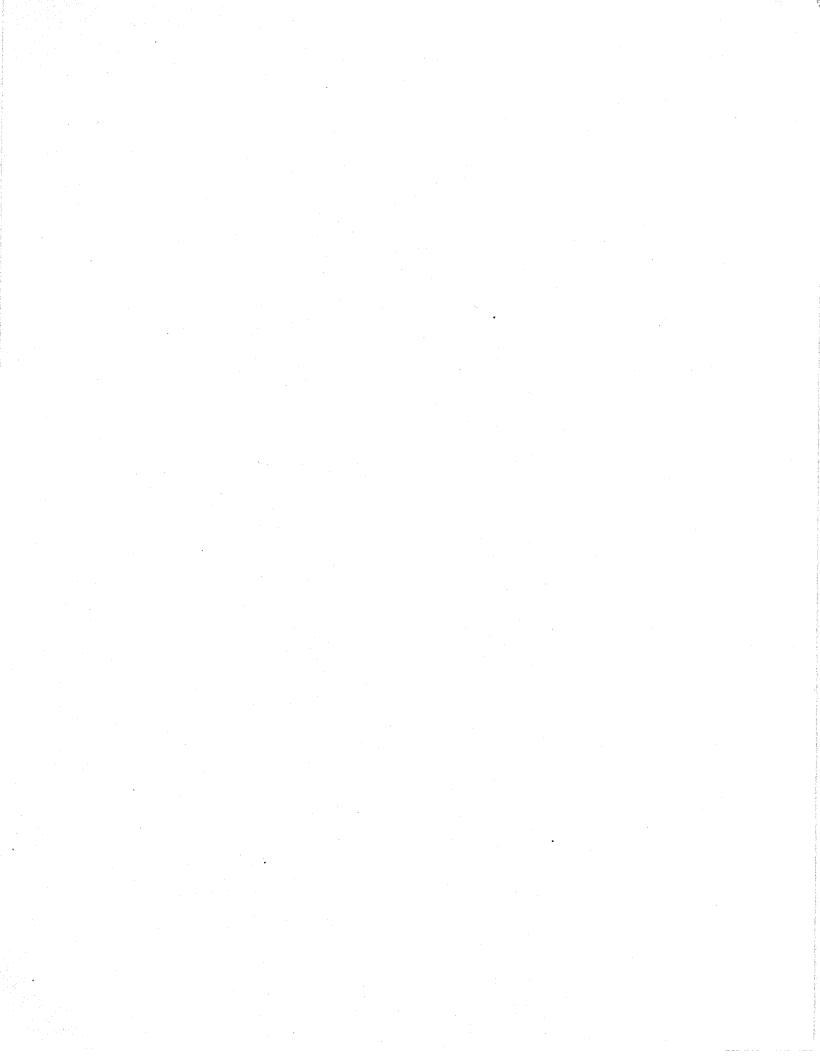
Residential wells (RW-40, RW-41, RW-42 and RW-43) and public community supply wells (PW-44) north of the western stream have not shown the presence of site-related constituents, with the exception of a single occurrence of 1 ug/L PCE in RW-41 in August 1992. This well is located within a few feet of the western stream.

The area to the north of Route 118 is hydraulically upgradient of the site in both the shallow and deeper groundwater flow systems. PCE is not entering the site from the upgradient direction as evidenced by its absence in the three upgradient monitoring wells (MW-4S/4D and MW-8S) located at the northern site boundary.

The groundwater quality in the site vicinity has also been impacted by spills/leakage at three of the four service stations located at and near the Baldwin Place intersection (the Exxon (formerly Mobil), Texaco, and Citgo stations). The western stream is the discharge point for the shallow and deeper groundwater emanating from these stations. Concentrations of MTBE, a gasoline constituent, are present in a limited

area just north and south of the western stream. South of the western stream, MTBE is present in the McDonalds well, and in several of the wells with PCE concentrations along the north side of Route 6. The leakage from the service stations near and at the Baldwin Place intersection has also resulted in a dispersion of this highly mobile compound and low MTBE concentrations (1 to 15 ug/L) over wide areas of the BPM site.

Surface water and sediments in the eastern stream did not contain site-related constituents. The western stream serves as a discharge point for groundwater emanating from the western portion of the site and has been impacted to a very limited degree and extent by the site-related constituents. Traces of PCE at 1 ug/L and 4 ug/kg were detected in the surface water and sediment just north of where the stream crosses under Route 6, and at 2 ug/L in surface water only at the next downstream location. PCE was not detected in either surface water or sediment at two further downstream locations: downstream of the first, unnamed, pond in the western stream channel and midway between Kennard Pond and Lake Baldwin. These results demonstrate that the site-related constituents have not migrated to the Muscoot River via either the eastern or western streams.



9.0 FISH AND WILDLIFE IMPACT ANALYSIS

The Fish and Wildlife Impact Analysis for the Baldwin Place Mall was prepared by Jay Fain & Associates of Westport, Connecticut. The complete report "Fish and Wildlife Impact Analysis for the Baldwin Place Mall, Town of Somers, Westchester County, New York" is included as Appendix M, and the study results are summarized in this section.

Step I of the study identified the fish and wildlife resources present in the vicinity of the site and provided a qualitative assessment of the value of these resources. A topographic map was prepared documenting NYSDEC Significant Habitats, other habitats that may support rare, threatened or endangered species, species of special concern, regulated wetlands, wild and scenic rivers, lakes and other waterbodies, if present, within a two-mile radius of the site perimeter. A covertype map was prepared for the area within one-half mile of the site perimeter illustrating major vegetative communities including forested and emergent wetlands, terrestrial and aquatic habitats based on vegetative covertypes, NYSDEC Significant Habitats (none present) and other land use features. Fish and wildlife species known or expected to be associated with the identified covertypes and aquatic habitats are identified within the study area.

The Step I study concluded that all surface flow from the BPM is confined to the Muscoot River sub-basin, and that the most significant fish and wildlife resource, both within the one-half mile radius and within two miles downstream of the site, is the Muscoot River including the Amawalk Reservoir, and its associated wetlands, open water, and riparian areas. Correspondence with the New York Natural Heritage Program did not identify any resident endangered, threatened, or species of special concern within the boundaries of the study area. Two wetland communities were found on the BPM; field investigation of these areas did not disclose the presence of any Federal or State listed rare or endangered plant species on the site.

Step II of the study determined if there has been, or may be, potential impacts of site-related constituents on fish and wildlife resources via a Pathway Analysis. This analysis was based on the RI surface-water/sediment sampling data which indicate that limited areas within the western stream and in a tributary drainageway to the western stream (which runs west of the site along the south side of Route 6) are the only surface water areas adjacent to the BPM where site-related constituents (PCE) occur. The ecological risk posed by the identified levels of constituents was examined in the Baseline Risk Assessment (See Section 10.0) which concluded that the "results show that no chemical analyzed in surface water poses a risk to the freshwater aquatic life or its uses at the Baldwin Place Mall site. Results of the ecological analysis of sediment demonstrated no environmental risk". Furthermore, constituent migration ends well before the western stream's confluence with the Muscoot River. Based on the finding of no impact to fish and wildlife resources in the Pathway Analysis, the Fish and Wildlife Impact Analysis concluded that further studies are not warranted.

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10.0 BASELINE RISK ASSESSMENT

The Baseline Risk Assessment for the Baldwin Place Mall was prepared by Environmental Standards, Inc. of Valley Forge, Pennsylvania. The complete report, "Baseline Risk Assessment for the Baldwin Place Mall Site in Somers, New York" is included as Appendix N, and the methodology and results of the evaluation are summarized in this section.

The risk assessment provides an analysis of potential risks to human health and the environment associated with exposures to site-related chemical constituents, under current and potential future site conditions based on the Remedial Investigation sampling data. The results of the assessment document the magnitude of risk associated with the site, and identify the major contributors to that risk, in order to support a "no-action" alternative where appropriate, or to determine whether additional remediation is necessary to be protective of human health and the environment. The baseline risk assessment follows accepted USEPA procedures and guidelines (e.g., Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual, 1989a). Risk is estimated by utilizing conservative point estimates of exposure parameters. Parameters are selected in order that the maximum exposure estimate represents the reasonable maximum exposure (defined as the maximum exposure reasonably expected to occur under a given set of conditions). The comprehensive approach considers potential risks posed by the soil, surface water, groundwater and air pathways.

The exposure assessment (Section 4.0 of the risk assessment) estimates the type, magnitude, frequency, and duration of exposures to the chemicals of potential concern that are present at or migrating from the BPM. The exposure scenarios chosen are identified given both current and potential future activities at the site. The current-use scenario considers potential risks posed to nearby residents. Potential future-use scenarios consider the risks posed to site construction workers, office workers, children and nearby residents. The following pathways are considered to be a comprehensive assessment of potential risks under current and future conditions and are quantitatively addressed in the assessment:

- o Dermal contact and ingestion of soil by construction workers;
- o Volatile emissions via excavation and grading activities with subsequent inhalation by construction workers;
- o Inhalation of volatile organics emissions from site unsaturated soils by current residents:
- o Inhalation of vapors from soil infiltrating into a future building foundation by office workers;

- o Dermal contact and ingestion of soil by children;
- o Inhalation of volatile organic emissions from the soil by site children;
- o Dermal contact and ingestion of sediments in the western stream and tributary drainage ditch by children;
- o Dermal contact and ingestion of surface water in the western stream and tributary drainage ditch by children swimming;
- o Inhalation of volatile organic emissions from surface water by children swimming;
- o Ingestion and dermal contact of contaminants in groundwater by current residents who utilize a domestic well adjacent to the property boundary (concentrations in groundwater assumed to equal MCLs);
- o Inhalation of contaminants volatilized from groundwater by current residents during household use of contaminated domestic well water;
- o Ingestion and dermal contact of contaminants in groundwater by future residents who utilize a domestic well adjacent to the property boundary (no GAC filtration assumed):
- o Inhalation of contaminants volatilized from groundwater by future residents during household use of contaminated domestic well water.

Summaries of the combined hazard indices and upper-bound lifetime cancer risks resulting from exposure to site-related chemicals in the exposure scenarios defined above are presented in Table 10-1. Risk calculations for the various chemicals and individual pathways are presented in the Baseline Risk Assessment Tables 9 through 23 (Appendix N).

Cancer risks posed to future construction workers in the area of soil contamination (source area) via exposure through all pathways and all chemicals is estimated to be 1 x 10-5 (i.e., one case of excess cancer in one hundred thousand exposed individuals). This risk is within USEPA's acceptable target risk range of 1 x 10-4 to 1 x 10-6, but exceeds the de minimis benchmark level of 1 x 10-6. The combined hazard index for the construction worker is estimated to be 6.0 which exceeds the threshold benchmark of 1.0. All of the cancer risk and hazard quantity is attributable to the inhalation pathway for PCE.

Future office workers via exposure through infiltration of vapors through the foundation of a future building constructed over the area of soil contamination (source

area) are estimated to incur a combined cancer risk of 9 x 10-6, and a hazard index of 2.0. Again, all of the cancer risk and hazard quantity is attributable to PCE.

Children are estimated to incur a combined cancer risk of 5 x 10-7, which is below the de minimis benchmark level of 1 x 10-6. The total combined hazard index for this population is estimated to be 0.2, indicating that no adverse health effects are anticipated, even under reasonable maximum conditions of exposure. The population incorporated soil, sediment and surface water media and the results indicate that no remediation of any media is necessary under the scenarios developed to assess potential exposure by children.

The National Contingency Plan (NCP) states that the Applicable or Relevant and Appropriate Requirement (ARAR) for groundwater that is currently a source of drinking water are federal non-zero MCLGs, MCLs, or the state drinking water standards. At this time, all residential and commercial water supplies analyzed during the RI are currently meeting MCLs and are, therefore, adequately protected. This assumes that regular maintenance on the existing GAC filter systems will continue; that the GAC systems will not be dismantled until groundwater has been remediated or an alternate water supply provided; and that if any further residential wells exhibit PCE attributable to the site above the MCL of 0.005 mg/L, a GAC filter will be installed or an alternate water supply provided. The combined total hazard index for this group of exposed individuals (current residents) is estimated to be 0.08, which is well below unity and indicates no possible health hazards other than the very minimal added risk of cancer (which may be zero). The nearby residents (residence time of 30 years) are estimated to incur a combined excess risk of cancer of about 4 x 10-6, which slightly exceeds the de minimis benchmark level of 1 x 10-6. The risk is attributable only to groundwater pathways which utilized the federal and NYSDEC/NYDOH maximum contaminant levels (MCL) for PCE and TCE as the groundwater concentrations. Assuming the concentrations of both PCE and TCE are 0.005 mg/L for current residents is a conservative assumption because for the wells with existing GAC filter systems PCE and TCE are not detected in the treated water, and none of the wells without filter systems exceed the MCL. The upper 95th confidence limit (UCL) is, therefore, more likely to be much lower than 0.005 mg/L.

Under the assumption that the concentrations of constituents detected in the residential wells, commercial wells and deep monitoring wells would be of future domestic use without any treatment, a carcinogenic risk of 5×10 -5 is estimated. This risk, while within USEPA's acceptable target risk range of 1×10 -4 to 1×10 -6, exceeds the de minimis benchmark level of 1×10 -6. The combined hazard index for the future residents is estimated to be 1.0.

The results of the ecological assessment of the surface water in the vicinity of the site indicate that no chemical analyzed in surface water poses a risk to the freshwater aquatic life or its uses at the BPM site. Results of the ecological analysis of sediment additionally demonstrated no environmental risk.

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11.0 SUMMARY AND CONCLUSIONS

General

The BPM site is located in a relative topographic high area and surface drainage from the site is to two stream systems: the eastern and the western streams. Both of these streams head near the site, thus have very small drainage areas in the vicinity of the site, and are tributary to the Muscoot River. The western stream valley comprises the most significant topographic feature in the study area.

Water supply in the area proximate to the site is derived from groundwater. The BPM and Mahopac Village Center mall are supplied by centralized production well systems with appropriate treatment. The nearest public supply system is the Lake Baldwin system located about 1,800 feet northwest of the western site boundary. No treatment has been necessary for this system. The remaining residences and commercial establishments rely on individual wells for supply purposes. At least sixteen of these wells are equipped with treatment systems.

Hydrogeologic Framework

The site and vicinity are underlain by glacial till, weathered bedrock and bedrock. The glacial till comprises the uppermost geologic and water-bearing unit. The till is very thin near the western and northwestern site boundaries and thickens to the south/southeast. The saturated glacial till materials range in thickness from less than 1 foot in the northwest to as much as 80 feet in the southeast site area.

The glacial till is directly underlain by weathered bedrock. The weathered bedrock is approximately 20 feet thick and there is a gradation from highly weathered (decomposed) bedrock to competent bedrock. Groundwater circulation appears to be significant in the weathered and partially weathered bedrock horizon. The depth to competent bedrock (biotite gneiss) ranges from 22 feet bgs in the western part of the site to about 100 feet bgs in the east/southeast.

The weathered bedrock/bedrock system is unconfined over the extreme western and northwestern portion of the site. Over the main body of the site, the weathered bedrock/bedrock system is overlain/confined by the glacial till water-bearing unit.

Water-level measurements made in the shallow monitoring well network indicate the presence of an onsite groundwater divide oriented in a southwest to northeast direction in the vicinity of the main mall building (and dry cleaners). This divide is evident under normal BPM pumping conditions (average 3.8 gpm), and also when the mall wells have been shutdown for an extended period. Groundwater flow from the divide is to the southeast and west/northwest. The water-level drawdown response in shallow weathered bedrock monitoring wells during the 2-day pumping test indicate that sustained pumping of PW-1 (beyond the 2-day pumping test) may begin to capture shallow groundwater in the weathered bedrock over the western portion of the site.

Water-level measurements made in the deeper monitoring well network provide an understanding of the extent to which the BPM production wells serve to capture deeper flow. Under present BPM pumping conditions, the mall wells are capturing groundwater over a portion of the site with a component of groundwater flow offsite to the southeast. Under sustained pumping conditions (2 days at 39 gpm), BPM Production Well PW-1 effectively captures deeper groundwater over the site.

The regional water-level contour map for the bedrock system confirms the presence of a deeper groundwater divide onsite under non-pumping conditions with flow components to the southeast and west/northwest. The regional water-level measurements were made during a period when the BPM production wells were not actively pumping, but not during a sustained period of shutdown.

Water-level measurement data for glacial till/weathered bedrock clustered wells indicate that water-level elevations (heads) in shallow wells completed in the shallow glacial till are higher than water-level elevations in coupled wells completed in the underlying weathered bedrock/bedrock unit. This water-level elevation difference indicates that a vertical (downward) component to groundwater flow is present over the portion of the site wherein saturated glacial till materials overlie the bedrock. This downward component to flow is more pronounced in well clusters south and east of the mall building as compared to well clusters north and west of the mall building.

In contrast, the water-level elevation (head) differences are less for monitoring well clusters completed in weathered bedrock/bedrock over the western portion of the site. This indicates that flow in the weathered bedrock/bedrock unit on the western part of the site (unencumbered by a saturated lower permeability glacial till) has less of a downward flow component.

Aquifer Hydraulic Characteristics

The analysis of data from the short-term pumping tests indicates that monitoring wells completed in weathered bedrock show the highest specific capacities (0.78 gpm/ft average) and transmissivities. Individual well specific capacities and transmissivities are lower for monitoring wells completed in the overlying glacial till and underlying competent bedrock.

The analysis of the 48-hour constant-rate pumping test indicates that the weathered bedrock/bedrock aquifer underlying the site behaves as a leaky artesian system wherein the overlying glacial till materials serve as a leaky confining unit (source bed). Leakage through the glacial till is the principal source of recharge to the weathered bedrock/bedrock system.

The transmissivity of the weathered bedrock/bedrock aquifer is in the range from 750 to 1,500 gpd/ft which is characteristic of a moderately permeable bedrock system. Storativity is in the range from 1.7×10^{-4} to 2.5×10^{-3} reflective of leaky artesian conditions. The vertical permeability of the glacial till confining unit is in the range from 0.043 to 0.050 gpd/ft².

The step-drawdown pumping test on BPM Production Well PW-1 indicates that this well can sustain a yield of 39 gpm (maximum pump capacity) with 30 to 40 feet of remaining available drawdown.

The theoretical capture zone calculated for PW-1 pumping at 39 gpm with a transmissivity of 1,500 gpd/ft shows a reasonable correlation with the field-determined capture zone based on water-level measurements made after 42 hours of pumping. Both

the theoretical and field-based capture zones demonstrate that the sustained PW-1 pumping effectively captures deeper groundwater on the site.

Source Area Characteristics

The analytical results for the soil samples collected from the test borings confirm the presence of a residual PCE source area in the alleyway near the back door of the dry cleaners. Residual PCE concentrations are present in both the unsaturated and saturated soil in this area.

Elevated PCE concentration in the unsaturated zone (soil above the water table) appears to be limited to an approximate 15 by 15 foot area directly behind the dry cleaners. The top of the zone of saturation in this area is about 3 feet below ground surface. As such, the volume of unsaturated material in the source area is small (approximately 25 cubic yards).

Elevated PCE concentration extends below the water table to a maximum depth of 15 feet at the most highly impacted location (approximately 5 feet from the backdoor of the dry cleaners). The area of elevated PCE concentration in the saturated zone extends approximately 5 to 10 feet further east than the source area above the water table. The groundwater within the source area exhibits 24,000 ug/L PCE concentration, and, immediately below the source area, 3,200 ug/L.

Onsite Groundwater Quality

The dry cleaner-related compounds (PCE and its breakdown products TCE and 1,2-DCE) are the constituents of concern in groundwater at the BPM site, and their concentration distribution is consistent with a sole contaminant source at the dry cleaners. As a result of the groundwater divide, these compounds are emanating in both the southeasterly and westerly directions from the dry cleaners proximity. The PCE concentrations that are in the onsite and nearby offsite groundwater, and which have been observed in the BPM production wells since 1979, have emanated from this residual source area in the dry cleaners proximity.

Comparable PCE concentrations are present in monitoring wells located to both the southeast and west of the shallow groundwater divide near the dry cleaners. The highest PCE concentrations detected were 910 ug/L in southeastern well MW-5D and 850 ug/L in western well MW-9S. TCE (up to 190 ug/L) and 1,2-DCE (up to 61 ug/L) concentrations were also detected in southeastern and western monitoring wells.

In the east/southeastern part of the site, downward migration of contaminants from the shallow groundwater in the glacial till into the weathered bedrock/bedrock occurs within a very short distance from the source area as demonstrated by the concentrations in Monitoring Well MW-5D. Monitoring Wells MW-3D and MW-3DD appear to be just east (outside) of the area in the bedrock aquifer that is the primary southeastern constituent migration pathway.

In the western part of the site, the finding of the highest concentrations at the MW-9 cluster is consistent with the shallow water-level contours which indicate that this well cluster is located directly downgradient of the dry cleaners. The vertical component of groundwater flow is more gentle here than on the east/southeast part of the site, and this is reflected in the Monitoring Well MW-9S PCE concentration which is higher than in deeper well MW-9D. The MW-7 and MW-1 cluster locations appear to be just north, and the MW-10 well cluster location just south of the primary western constituent migration pathway.

Offsite Groundwater Quality

Two offsite areas have been impacted by the BPM site-related constituents: part of the commercial area along Route 6 to the west and part of the Meadow Park Road community to the southeast. PCE concentrations in certain commercial and residential wells in both the Route 6 and Meadow Park Road area exceed the New York State MCL for Class GA groundwater of 5 ug/L; TCE, with one exception, is detected in the offsite wells at low concentrations below the MCL, and traces of 1,2-DCE have been detected in two offsite wells.

The Meadow Park Road area impacted by the BPM site-related constituents extends approximately 1,200 feet, begins southeast of the dry cleaners and does not reach south beyond Meadow Park Road where it rejoins Tomahawk Street. Eleven residential

wells in the Meadow Park Road community have been impacted. PCE concentrations in these wells range from 1.3 to 300 ug/L, TCE from non-detectable to 10 ug/L, and 1,2-DCE from non-detectable to 0.5 ug/L (as of May 1994). In nine of these wells, PCE concentration consistently or intermittently exceeds the 5 ug/L MCL and Big V Supermarkets, Inc. maintains GAC filter systems on each of these wells. The concentration distribution indicates that PCE levels decline within a short distance in the southeast (downgradient) direction within the Meadow Park Road area. The general trend of the five year database from late 1988 through 1993 was one of very gradually increasing concentrations in the Meadow Park Road area. In the first two quarters of 1994, a more marked increase has been observed in the four northernmost impacted wells within this area.

The Route 6 area impacted by the site-related constituents also extends approximately 1,200 feet, begins west of where the western stream crosses under Route 6, and does not extend to where the ground surface begins to rise markedly towards Mahopac Avenue to the west. In the four commercial wells within the impacted area, PCE concentrations up to 80 ug/L have been detected; TCE up to 4.0 ug/L; and 1,2-DCE up to 1.4 ug/L (as of May 1994). Two of these wells are equipped with GAC filter systems maintained by the owners. Big V Supermarkets, Inc. maintains GAC filter systems on the other two wells.

The impact by the service stations in the vicinity of the Baldwin Place intersection (Exxon (formerly Mobil), Texaco and Citgo) extends into the areas both immediately south and north of the western stream. The four Route 6 commercial wells south of the western stream equipped with filter systems due to PCE concentration also contain MTBE. The McDonalds well, and four wells north of the western stream are equipped with GAC filter systems due to MTBE concentrations; two commercial wells on Route 6 (east of where the stream crosses under Route 6) and two residential wells on Kennard Road. One of the Kennard Road wells is located very close to the western stream and is the only well north of the stream that has also exhibited a trace of PCE. Neither PCE or MTBE are present in the Lake Baldwin public water supply system. The McDonalds well is also fitted with a GAC filter system due to MTBE.

The leakage from the service stations near and at the Baldwin Place intersection has resulted in a dispersion of MTBE (a highly mobile compound) over wide areas of the BPM property. Low levels of MTBE (from 1 to 15 ug/L) are present in monitoring wells

on both the eastern and western parts of the property, and traces of MTBE (on the order of 2 ug/L) are intermittently present in the BPM production wells.

The northern area upgradient of the BPM has also been impacted by gasoline constituents. The source of this leakage is likely a service station located further north on Route 6, and the impact has extended to a production well in the Mahopac Village Center mall. This well is equipped with an air stripper for MTBE removal. Historical results for wells along Route 118, between the Mahopac Village Center mall and the BPM, do not indicate the presence of MTBE. MTBE is also not present in the Meadow Park Road residential wells.

In all, the BPM production wells, the McDonalds well, nine Meadow Park Road residential wells to the southeast of the BPM and four commercial wells along Route 6 to the west of the BPM contain PCE concentrations that exceed the New York State MCL for Class GA groundwater of 5 ug/L. All of these wells are equipped with GAC filter systems which remove the PCE (and lower TCE/1,2-DCE concentrations, where present), and, in the McDonalds and Route 6 wells, MTBE that is also present. The nine remaining Meadow Park Road wells are monitored on a quarterly basis and will be equipped with GAC filter systems for PCE removal as an Interim Remedial Measure before the conclusion of the RI/FS should concentrations exceed the MCL.

Surface-Water/Sediment Quality

The eastern stream heads just north of Route 118 and flows parallel to the site's eastern boundary. The stream flows through a series of man-made ponds in the Meadow Park Road residential area prior to the stream's confluence with the Muscoot River about one mile south of the site. The analytical results indicate that the eastern stream has not been impacted by the site-related constituents (PCE, TCE and 1,2-DCE).

The western stream heads south of the BPM property, crosses under Route 6 north of the site and then flows in a westerly direction. The stream flows through two small ponds (an unnamed pond and then Kennard Pond) and Lake Baldwin, prior to its confluence with the Muscoot River approximately 3,500 feet from the site.

The analytical results indicate that the western stream and a tributary drainageway to the western stream (which runs along the south side of Route 6 to the west of the site) have been impacted to a limited degree and extent by the site-related constituents. Traces of PCE were detected in surface water and/or sediment only in the sampled locations most proximate to the site and not at downstream locations.

Future Modelling Effort

As part of the Feasibility Study, an analytical mass transport groundwater model will be formulated that simulates the total VOC (PCE and its breakdown products) distribution over the southeastern and western site areas emanating from the source area near the dry cleaners. This model will also be used to predict total VOC concentrations in the impacted southeastern and western onsite and offsite areas, given source remediation and groundwater recovery alternatives consistent with the goal of remediating groundwater at the onsite production wells to below standards in a reasonable timeframe. The modelling effort will also yield an estimate of the quantity of total VOCs in the subsurface.



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Monitoring Well MW-2D	Groundwater		PM-MW-2D-01	8/1/92	×	۲	Y	C		
	Groundwater		BPM-MW-20-02	5/18/83	*	<u>`</u>	×	×	×	θ×
Monttoring Well MW-39	Groundwater	all debe de consequente	FM-MW-3S-01	28/28/2	<	Υ	·	· · · · · · · · · · · · · · · · · · ·		And the second second
Name in the section of the section o	Groundwate		FM-MW-35-02	2/18/93	<>					
	Field Blank		FM-MW-35-UZB	0,10,83		,	,	×	×	X (1)
Monitoring Well MW-3D	Groundware		FW-MW-3D-01	0031/92	< >	×	×	X	×	
- Market Andrews where the set of the setting of th	Groundwarer	-	BFM-MW-SC-UID	9731.00	<	×	×	×		
mannan matematikan manan dalam d			DATA NAVI ON CO	K/10/02	*		-			
1000 1000 1000 1000 1000 1000 1000 100	Giodinawate		DOM: NW. 200.00	8/31/02	×	×	×	×	×	Ex
	and an analysis of the second		PM-MW-3DD-02	5/19/93	×	***************************************				
Manipolice Well MW.49	Groundwater		PM-MW-48-01	8/31/92	×	×	×	×		X (1)
	Groundwede	Manager of the second	BPM-MW-45-02	5/19/83	×					
Monttoring Well MW-4D	Groundwate		BPM-WW-4D-01	9/1/92	×	×	×	×	×	ε×
	Groundwate		PM-MW-4D-02	5/19/03	×					
Monitoring Well MW-59	Groundwater		BPM-MW-58-01	9/1/92	×	***************************************	***************************************			
	Groundwate		PM-MW-58-02	5/18/93	×					
Monitoring Well MW-5D	Groundwater		PM-MW-5D-01	5/21/83	Y	***************************************				
	Groundwater		PW-WW-5D-01R	3/21/43	< >	***************************************	***************************************			
	FIERS CHARTS		DOWN WAY BO OF	20000	«×					
Montaing Well MW-65	Maria Maria		BPM.MW.52-01B	26/26	×					
dimmental metrologisco militar of matrix propries propries unaber son distribution distribution of more propries and refer to an extension of the contract of	Groundwater		PM-MW-6S-02	5/18/03	×					
Monitoring Well MW-75	Groundwate		BPM-MW-78-01	9/2/92	×					
	Groundwater		BPM-MW-7S-02	5/20/93	×					
Monitoring Well MW-7D Bedrock	Groundwater		IPM-MW-7D-01	5/21/83	×		****		***************************************	
	Groundwater		PM-MW-7D-01R	5/21/03	×			,	,	
Monitoring Well MW-85 Shallow	Groundwater	***************************************	RM-MW-8S-01	9/1/02	×	×	×	X	*	
	Groundwater		BPM-MW-8S-02	5/19/93	×					
	Groundwate		3PM-MW-95-01	58/81/5	*,					
Monitoring Well MW-9D Bedrock	Groundwate		3PM-MW-9D-01	EBVOZAS	×,					
	Groundwate	١	3PM-MW-105-01	5/20/83	*					
lonitoring Well MW-10D	Groundwate		3PM-MW-10D-01	5720/83	,					
na disentana dan dan dan dan dan dan dan dan dan	And dell		BHW-15-08/31	0/1/02	×				***************************************	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
and a second	The Diete		BPM.TR.0002	20/2/0	×					
	Tro Blank		PM-TB-05/18	5/18/93	×		***************************************			
Andrew and the second s	Trip Blank		BPM-TB-05/19	5/19/93	×					
Appropriate the second section of the second	***************************************		BPM-TB-05/21	5%21/03	×					
Water Used in Drilling BPM Water Supply				717/92	×	×	×	×		
	ls Water	1	BPM Tanker Water	9/9/92	(i) x					
Drill Cuttings Soil Piles Monitaring Wel	-		SPM Soil Pile #1	9/9/92	(Dx)					
and de combined in the sign parameter and included an analysis of the second control of the combined and the second control of the combined and the second control of the second			BPM Soil Pile #1	28/8/8	X (1)	W W	X (4)	W X		
emples francisco man marketira de principale de compressor en estado en la compressor de la			STIM SOULTING COMP.	7006	***************************************					
Since land	Sundemental Monitoring Wells Soil	-	BPM Soil Pile #2	5/21/93	(i) x	(i) X	(1) X	(j) x		
NOTE: (1) - Stendard (non-C! P) analyses and reporting.									Vincent Uhi Associates	sociates

TABLE 3-2.	REMEDIAL INVESTIGATION SANFI		ING AND ANALITICAL IEO ANG SOBBATI, DALCHIN ILLANDINI DALCHINI DAL				7A.			
Control	Description	Samole	Sample	Sample	TCL-VOCs	TCL-BNAs	TCL-Pest/PCBs	TAL Metals &	TAL Metals &	Groundwater
ANDER CONTRACTOR OF THE PROPERTY OF THE CONTRACTOR OF THE CONTRACT		Natrix	Designation	Date				fnorganics	Inorganica (Dissolved)	Chemistry
en, referit etter temate masterial state men förste til en til till 18. det hattet en en fra fråbenske till ti			TO A STATE OF THE PARTY OF THE		- Constitution of the contract				***************************************	
BPM PRODUCTION WELLS		111111111111111111111111111111111111111	The section of the se							
Production Well PW-1	Northeast Well	Groundwater	BPM-WELL1-01	2/24/93	X					
Production Well PW-2	Southwest Well	Groundwater	BPM-WELL2-01	2/24/93	×			***************************************		
		Trip Blank	BPM-TB-02/24	2/24/93	×					
RESIDENTIAL & COMMERCIAL WELLS	albersbetere i kere ett i i ken ett i i i i ken ett i i i i ken ett ett ett ett ett ett ett ett ett e	aria, republikanski kalanska polencja koleka silena kolekanska pre							***************************************	
Residential Well RW-01	Meedow Park Road	Groundwater	BPM-RW-01-01	2/24/93	×					
Residential Well RW-02	Meedow Park Road	Groundweter	BPM-RW-02-01	2/24/93	×					
Residental Well RW-03	Meadow Park Road	Groundwater	BPM-RW-03-01	2/24/93	×					
Residential Well RW-04	Mendow Park Road	Groundwater	BPM-RW-04-01	2/24/93	×					
Residential Well RW-05	Meadow Park Road	Groundwater	BPM-RW-05A-01	2/24/93	×					***************************************
THE PROPERTY OF THE PROPERTY O		Groundwater	BPM-RW-05A-01R	2/24/93	×					
Residential Well RW-07	Meadow Park Road	Groundwater	BPM-RW-07A-01	2/24/93	×					
Residential Well RW-08	Meadow Park Road	Groundwater	BPM-RW-08A-01	2/24/93	×					
Residential Well RW-09	Meadow Perk Road	Groundwater	BPM-RW-09A-01	2/24/93	×					
Residential Well RW-10	Meadow Park Road	Groundwater	BPM-RW-10A-01	2/24/93	×					
Residental Well RW-11	Meadow Park Road	Groundwater	BPM-RW-11-01	2/24/93	×					
Residential Well RW-12	Meadow Park Road	Groundwater	BPM-RW-12-01	2/24/93	×					
Residential Well RW-13	Meadow Park Road	Groundwater	BPM-RW-13-01	2/24/93	×					
Residential Well RW-14	Meadow Park Road	Groundwater	BPM-RW-14-01	2/24/93	×					
demiai Well RW-15	Tornahawk Street	Groundwater	BPM-RW-15-01	2/24/93	×					
Residential Well RW-16	Meadow Park Road	Groundwater	BPM-RW-16-01	2/24/93	×			***************************************		***************************************
		Groundwater	BPM-RW-16-01R	2/24/93	×					
Residential Well RW-17	Tomahawk Street	Groundweter	BPM-RW-17-01	2/24/93	×					
Residential Well RW-18	Meadow Park Road	Groundwater	BPM-RW-18-01	2724/93	×					
		Trip Blank	BPM-TB-02/24	2/24/93	×					
para un desperator como por contra medical medical de desperado de desperado de contra de contra de contra de c					ter description of an oblique to the proof and the first					
Commercial Well CW-19	Route 6;	Groundwater	BPM-CW-19-01	3/11/83	×					
Commercial Well CW-20	Route 6;	Groundwater	BPM-CW-20-01	3/11/93	×					
Commercial Well CW-21	Route 6:	Groundwater	BPM-CW-21-01	3/11/93	×					
nmercial Well CW-23	Route 6;	Groundwater	BPM-CW-23-01	3/11/93	×		***************************************			
A PROPERTY AND A PROPERTY OF THE PROPERTY OF T		Groundwater	BPM-CW-23-01R	3/11/93	×					
Commercial Well CW-25	Route 6;	Groundwater	BPM-CW-25-01	3/11/93	×					
Commercial Well CW-27	Route 6;	Groundwater	BPM-CW-27-01	4/22/93	×					
		Trip Blank	BPM-TB-03/11	3/11/83	×					

Location	Description	Sample	Sample	Sample	TCL-VOCs	TCL.BNAs	TCL-Pest/PCBs	TAL Metals &	T	Groundwater
		Matrix	Designation	Date				inorganica	Inorganics	Chamistry
								(Total)	(Dissolved)	

TEST BORINGS		***************************************	***************************************							
eneri de desperante en encompar de mandesperante por entre de la compara de la compara de la compara de la comp	terranicement and an extra control of the control o				2				**************************************	
lest Boring 1B-1 2 to 4 it bgs	Benind ory desirers.	Unsaturated SOI	Brw-18-1/2-4 ft.	44000	Κ,	X	Y	<		
ast borng 18-2 2 to 4 it bgs	Denning or y charges	Crisalitated SOII	Drw-10-02-4 II.	44000	,					
est bolling 15-3 U.O.1.3 II bys	Mest Myv-30.	Unsaturated SO!	DOME TO ALLO TO	4/14/03	< >	,	,			
asi boring 15-4 4 to 5 n bgs	III HORR OF URANTES.	Unsalurated SQ1	Brim-15-440 II.	414 4/00	< >	<		,		
as borng 16-5 4 to 6 n bgs	Mess Myv-70.	Unsaturated Soli	Drw-15-34-0 II.	2017		,	,	,	+	
asi boring 18-6 2 to 3 ft bgs	Near MW-85; Background.		Brw-18-072-3 ft.	414/93	< >	*	<	<>		
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		Field Brank (aqueou	S) Brw-18-6-FB	200000	<,	,	<	Š	-	
est Boring IB-/ U to 2 ft bgs	Benind ory cleaners.	Unsaturated Sol	Br7M-1 B-7/0-2 ft.	41393	×.					
Test Boring TB-8 0 to 2 ft bgs	Behind dry cleaners.	Unsaturated Sol	BPM-TB-800-2 ff.	4/13/93	×					
ist Boring TB-9 2 to 4 ft bgs	Behind dry cleaners.	Unsaturated Soll	BPM-TB-9/2-4 ft.	4/13/93	×					
est Boring TB-11 4 to 6 ft bgs	In front of dry cleaners.	Unsaturated Sol	BPM-TB-11/4-6 ft.	4/14/93	×					
ast Boring TB-12 0 to 2 ft bgs	Near SG38.	Unsaturated Soil	BPM-TB-12/0-2 ft.	4/14/93	×					
ist Boring TB-13 0 to 2 ft bgs	Near SG33/34/39	Unsaturated Soil	BPM-TB-13/0-2 ft.	4/14/93	×					
st Boring TB-14 0 to 2 ft bgs	Near SG9.	Unsaturated Soll	BPM-TB-14/0-2 ft.	4/14/93	×					
est Boring TB-15 0 to 2 ft bgs	Near SG36.	Unsaturated Soil	BPM-T8-15/0-2 ft.	4/14/93	×					
					***************************************	***************************************				
rstBorring TB-1 6 to 8 ft bgs	Behind dry cleaners.	Seturated Soil	BPM-TB-1/6-8 ft.	4/12/93	(j) X					
est Boring TB-2 8 to 10 ft bgs	Behind dry cleaners.	Saturated Soil	BPM-TB-2/8-10 ft.	4/12/93	(I) X					
Test Baring TB-3 5.5 to 7.5 ft bgs	Near MW-5S.	Saturated Soil	BPM-TB-3/5.5-7.5 ft.	4/12/93	(I) X					
ist Boring TB-4 6 to 8 ft bgs	In front of dry cleaners.	Saturated Soll	BPM-TB-4/6-8 ft.	4/14/93	(I) X					
ist Boring TB-5 6 to 8 ft bas	Near MW-7S.	Seturated Soil	BPM-TB-5/6-8 ft.	4/14/93	£					
ast Boring TB-6 3 to 6 ft bos	Near MW-8S: Background	Seturated Soil	BPM-TB-6/3-6 ft.	4/14/93	£					
		Fleid Blank (sousou	B) BPM-TB-8-FB-2	4/14/93	(D) X			***************************************		
of Rodon TB.7 14 to 16 th has	Rehind dry cleaners	Saturated Soil	RPM-TR-7/14-18 #	4/13/93	E X					
A Bodos Tible & to B.A. & bos	Behind dry cleaners	Seturated Soil	BPM.TB.8/6.8 5 #	4713/03	E X					
Tast Borner TB.O. 4 to 6.4 hos	Behind day cleaners	Seturated Soil	RPM-TR-04.6 #	E0/51/7	(L) X					
Security of the security of th	Company of Company	ocara moc			1					
		***************************************			***************************************					-
SHEEACE WATED/SEDIMENT	an en einem besteht er ten ter fen it er er besteht er der ich eine der eine er er er besteht ein besteht eine							-		
	and the second second specifical plates desired beautiful and the second				***************************************					
Fater Steam	Adjacent to SG-1 (North)	Surface Water	BPM-SW-01	82/93	×	×	X	**************************************	*******************************	
The state of the s		Sedment	BPM-SD-01	6/2/93	×	×	×	×		
Fastern Stream	WW treatment plant outfall.	Surface Water	BPM-SW-02	6/2/93	×	×	×	×		
		Sediment	BPM-SD-02	6/2/93	×	×	×	×	***************************************	-
Fastern Stream	South of Bridge	Steface Water	BPM-SW-03	6/2/93	×	×	×	×		
		Sadiment	RPM-SO-03	6/2/03	×	×	X	×		
Market Physics	List Moth of Boids 8	Surface Water	BOW OW	RIZIOS	>	×	×	×		
	and to the second	Dietar Mater	DOM ON	S COLOR	·····		×	×		***************************************
edddioddio mir add harbo ei odd i farn i gaell fryn y meddiodd yn ar ymai ei y ffeithiol ei mawr hefeith y gael		Our local yvater	CAN CANC	2675	<	· · · · · · · · · · · · · · · · · · ·	·	·	***************************************	THE REAL PROPERTY OF THE PERSONS ASSESSED.
eriken men bereite beite istel beite mit gegeptet entereten men bereite inter i stelle i stelle i stelle stelle			Brw-ow-046	00000	× >	<>>	<>	<>	***************************************	
distribul de 1800 prografit i 1800 și ce i especial a prosedur i especial i contribue de 1800 a prografiu de s		OPOLITION	5-00-ELG	2676	<	< >	\	\	-	
		Pierd Bienk (aqueou	5) Dr.W3D-048	SA/Z/G	<,	< 6	< E	\		
	Modelines par of property.	Suffer Water	DOM: SIN OF	10/15/03		(3)	3			
Western Dugger	Charges of class Form.		200	2000	*			***************************************	minute, and a state of the stat	
		Occiment	D-M-OP-IN-OP	COLORA	(6) \$					
YYESTER OTBER	LOWINGIAM OF LIST FORE.	Couloce vale	D-M-244-0/	104502	6 >		***************************************		***************************************	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	1 production of the Delated	Curtain Water	DOM CWOO	10/48/02	,					
Medial II Odeall		Cald Plant	DOW OND	10/15/03	*					***************************************
***************************************			2000	SOUTH TO SERVICE	()					-
		Cleid Diant Assures	DFW-50-06	CONTROL .	(e) <					
		rield blank (aqueo	Briw-Sc-08B	CACTO	<,;					
Urainage to Western Stream	Br'W IMersection.	DUTACE WATER	BLM-SW-08	Section	Y		.,			-
		Gediment	Brw-SD-08	Section	(S) X				-	
Drainage to Western Stream	Near Seepage at House 5.	Surface Water	Brw-sw-10	2/9/93	< >	***************************************				
		Securion	Brw-SD-10	00/0/21	(S) X					
Urenage to Western Stream	West on hours o.	OUTSON WATER	Drw.ow.ii	100,00	< >					
		Cedimen		58/8/2	(c) Y					
eren elektristi arpiantata a arpusulusi da desa (sa localisti elektrista aren esta elektriste alektriste aren			(WILL SUITED WEIST)	04293	< >					
e des constitues de la constitue de la constit			(with sediment)	100000	*				***************************************	***************************************
		Trip Blank	(with both)	Sakstrot	×	***************************************				
		Trip Blank	(with both)	120,93	×					
NOTES: (1) - Standerd (non-CLP) analyses and reporting.	se and reporting.									
(2) - insufficient material for analy	Vsis.									

						TE, COMETO, NEW JOHN.		
amples Collec	Samples Collected On 1/20/93.							
SAMPLE	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES	TVHC	METHYLENE CHLORIDE	TCE	PCE
	(hmdd)	(hudd)	(hmdd)	(bbmv)	(bbmv)	(hmdd)	(bpmv)	(bpmv)
SG-01-2'	0.0192	0.27	<0.096	<0.12	14.3	<0.116	0.095	55.5
SG-02-2'	NA	NA	NA	NA	NA	<0.58	<0.0171	2.55
SG-03-2'	NA	NA	NA	NA	NA	<1.16	<0.038	51.0
G-04-2'	INI	<0.027	960.0>	<0.12	1 83	8 27	0 10	4 0
SG-06-2*	0.032	<0.027	<0.096	<0.12	0.13	<0.0116	<0.00038	0.0045
SG-06-2'	<0.0192	<0.027	>0.096	<0.12	1.04	<0.029	0.0171	3.3
SG-07-2'	AN	ΨV	WA	NA	AN	<0.0145	0.00067	900
SG-08-2'	<0.0128	<0.027	<0.048	<0.096	0.78	<0.0116	0.057	0.000
SG-09-2'	<0.0192	<0.027	<0.096	<0.12	119.6	<0.029	0.95	1.05
SG.10.9	00000	1000	00.00	7007	90 07	V170 V7		
SG-11-2'	<0.0192	<0.027	<0.19Z	<0.24	0.189	<0.0116	<0.00038	<0.0003
SG-12-2'	<0.0192	<0.027	>0.096	<0.12	3.38	<0.0145	0,010	20.0
SG-13-2'	<2.56	2.43	<0.096	<0.12	78	<0.0145	0.095	0.105
SG-14-2	<0.0192	0.216	<0.096	<0.12	1.82	<0.058	0.038	0.15
SG-15-2"	<0.0192	0.135	<0.096	<0.12	0.26	<0.0145	0.0038	0.0045
AIR	AN	A N	NA	MA	NA	990000	70,000474	0,000
						00000	1/1000:05	V.000 IZ
SG-01-2' - Samr	ole point designation	on and denth below	Sample noint desimation and denth helper grand surface (feet)					
pmv - Parts per	r million in air by	volume, converte	d from Tracer Researc	h Corporation res	sults in micrograi	ppmv - Parts per million in air by volume, converted from Tracer Research Corporation results in micrograms per liter (Appendix D).		
otal volatile hydr	Total volatile hydrocarbons (TVHC) are estimated concentrations.	are estimated con	centrations.					
NA - Not Analyzed.								
T - Interference	INT - Interference with Adjacent Peaks.	iks.					Vincent Uhl Associates	ciates
lefer to Figure 3	Refer to Figure 3-2 for soil gas sample locations and PC	nple locations and	PCE concentrations.					

forest a managed of the property of the second seco		***						
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1451 6 2 2	ANALYTICAL RESULTS FOR		CAR CAUDI EG 1	IN DOMY. DA! DWA DI ACE	LIVE BOY IG NO			
ABLE 3-3.			משווונים מש	A LLMA, DALDA		LL, somens, new ronn.		
Samples Colle	Samples Collected On 1/21/93.							
SAMPLE	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES	TVHC	METHYLENE CHLORIDE	TCE	PCE
	(bbmv)	(bpmv)	(Amdd)	(bbmv)	(hmdd)	(Amdd)	(hmdd)	(Awdd)
OIV	90,000	760.05	870 02	00 00×	<0.104	<0.0087	0 000152	<0.000105
AIT CO 46 91	V.0.0120	20.027	960 00	<0.050 <0.19	101.4	CO 058	0.0078	0.015
SG-17-2	<0.016	<0.027	<0.096	<0.12	31.2	<0.0203	0.0019	0.00135

SG-18-2'	<0.016	<0.027	<0.096	<0.12	<0.13	<0.0174	0.00019	0.00075
SG-19-2'	<0.016	<0.027	>0.096	<0.12	<0.13	<0.0203	<0.000152	0.0015
SG-20-2'	0.064	<0.027	<0.096	<0.12	0.156	<0.0087	<0.000152	0.00045
AIR	<0.0128	<0.027	<0.048	<0.096	<0.104	<0.0087	<0.000152	<0.000105
3G-21-2'	<0.0128	<0.027	<0.048	<0.096	1.04	<0.0087	0.00038	0.003
SG-22-2'	INI	<0.027	<0.048	<0.096	75.4	<0.0087	<0.000152	0.0003
				400		1000	031000	0000
SG-23-2'	<0.0128	<0.027	<0.048	<0.096	6.24	<0.008/	<0.000152	0.0003
SG-24-2'	×0.64	<0.027	<0.048	<0.096	46.8	<0.008/	261000.0	0.00012
3G-25-2'	N.	<0.027	<0.048	<0.096	33.8	<0.0087	0.00076	0.00135
SG-26-2'	0.16	0.081	<0.048	<0.096	1.56	<0.0087	0.0019	0.06
G-27-2'	<0.0128	0.027	<0.048	<0.096	2.08	<0.0087	0.00095	0.0015
SG-28-2'	0.032	0.054	<0.048	<0.096	0.26	<0.0087	<0.000152	0.00015
					, ,	*****	021000	30,000,0
AIR	<0.0128	<0.027	<0.048	<0.096	<0.104	<0.008/	40.00019Z	0.000130
SG-16-2' - San	nole point designation	on and depth belo	- Sample point designation and depth below ground surface. (feet)					
	ppmv - Parts per million in air by volume, converted f	volume, converte	od from Tracer Researc	ch Corporation re	sults in microgra	rom Tracer Research Corporation results in micrograms per liter (Appendix D).		
Total volatile hy	Total volatile hydrocarbons (TVHC) are estimated concentrations.	are estimated con	centrations.					
NA - Not Analyzed.	9d .							
NT - Interferenc	INT - Interference with Adjacent Peaks.	iks.					Vincent Uni Associates	lates
Refer to Figure	3-2 for soil gas sam	nple locations and	Refer to Figure 3.2 for soil gas sample locations and PCE concentrations.					
						eren der eine eren eren eren eren eren eren er		

								Page 3 of 3.
TABLE 3-3.	ANALYTICAL RESULTS FOR	RESULTS FOR SOIL	3	IN PPMV; BALD	GAS SAMPLES IN PPMV; BALDWIN PLACE MALL,	L, SOMERS, NEW YORK.		
Samples Collec	Samples Collected On 1/22/93.							
SAMPLE	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES	ТУНС	METHYLENE CHLORIDE	TCE	PCE
	(Amdd)	(hbmv)	(Amdd)	(hmdd)	(bbmv)	(Amdd)	(bpmv)	(bpmv)
AIR	<0.0128	<0.027	<0.048	<0.072	<0.078	<0.0087	<0.000152	<0.000075
SG-29-2'	<0.0128	<0.027	<0.048	<0.072	0.52	<0.087	<0.00152	0.00012
SG-30-2'	<0.0128	<0.027	<0.048	<0.072	4.68	<0.0087	<0.000152	0.0003
SG-31-1'	0.0288	<0.027	<0.048	<0.072	0.78	<0.0087	<0.000152	0.00015
SG-32-1'	0.0288	0.054	<0.048	<0.072	0.28	<0.0087	<0.000152	60000
SG-33-10"	M	<0.54	<0.72	<1.2	364	<0.0087	0.00095	0.0015
AIR	<0.0128	<0.027	<0.048	<0.072	<0.078	<0.0087	<0.000152	0.00045
SG-34-1.5'	<0.32	<0.81	<1.68	<2.4	338	<0.0087	0.00095	0.0045
SG-35-1.5'	<0.0128	<0.027	<0.048	<0.072	3.38	<0.0087	<0.000152	0.0015
SG-36-15"	IN	<0.027	<0.048	<0.072	127.4	<0.0087	<0.000152	0.00015
SG-37-1.5'	<0.0128	<0.027	<0.048	<0.072	<0.078	<0.0087	<0.000162	0.0003
AIR	0.016	<0.027	<0.048	<0.072	0.208	<0.0087	<0.00152	<0.00075
SG-38-1.5'	96'0>	<2.16	<4.08	<5.76	754	<0.0087	0.00057	0.00045
SG-39-2'	IN	<0.54	<0.72	<1.2	312	<0.0087	0.00152	0.015
SG-29-2' - Sam	ple point designati	on and depth below	Sample point designation and depth below ground surface, (feet)					
ppmv - Parts pe	r million in air by	volume, converted	from Tracer Resear	ch Corporation re-	sults in microgram	ppmv - Parts per million in air by volume, converted from Tracer Research Corporation results in micrograms per liter (Appendix D).		
Total volatile hyde	rocarbons (TVHC)	Total volatile hydrocarbons (TVHC) are estimated concentrations.	entrations.					
NA - Not Analyzed.	-						-	
INT - Interference	INT - Interference with Adjacent Peaks.	aks.					Vincent Uhl Associates	iates
Refer to Figure 3	1-2 for soll gas sar	Refer to Figure 3-2 for soll gas sample locations and PCE concentrations.	CE concentrations.					

	TB-1			TB-2	A CONTRACTOR OF THE PROPERTY O		TB-7	
Depth	Initial	Head	Depth	Initial	Head	Depth	Initial	Head
Interval	PID	Space	Interval	DIG	Space	Interval	PID	Space
(feet bgs)	Screening	Reading	(feet bgs)	Screening	Reading	(feet bgs)	Screening	Reading
	(mdd)	(mdd)		(mdd)	(mdd)		(mdd)	(mdd)
0 to 2	NB	S. S.	0 to 2		NB	0 to 2	0 to 1	100
2 to 4	200	320 to 400	2 to 4	25	550	2 to 4	0 to 1	40
4 to 6	50 to 150	200	4 to 6	0 to 3	490	4 to 6	10	280
6 to 8	50 to 100	540	6 to 8	20 to 30	400	6 to 8	0	220
8 to 10	50 to 100	220	8 to 10	0 to 20	500	8 to 10	0	80
10 to 12	300	480	10 to 11.5	0 to 3	290	10 to 12	32	320
11.5 to 13.5	5	320				12 to 14	5 to 10	400
14 to 16	0 to 3	220				14 to 16	300	400
							0.7	
					e de casa de manuel e de compositor de la mandada de la compositor de la compositor de la compositor de la comp			
	TB-8			TB-9	e de la companya de			
Depth	Initial	Head	Depth	Initial	Head	Militar dikastranskript da irangerias seriensessissessis (research repositor).		
Interval	PID	Space	Interval	PID	Space	en ja anganinga danaran araba kanaran nasan kanaran kanaran danaran danaran danaran danaran danaran danaran da	den des des companyes des constructions de la construction de la const	
(feet bgs)	Screening	Reading	(feet bgs)	Screening	Reading			***************************************
	(mdd)	(mdd)		(mdd)	(wdd)			
0 to 2	0	09	0 to 2	EN.	N.			
2 to 4	5	40	2 to 4	0	30			
4 to 6	50	320	4 to 6	0	100			
6 to 6.5	100	440	6 to 8	0 to 1	48			
			8 to 10	0	20			
			10 to 11	2	30			
S were scre	Samples were screened with an HNu photoionizati	u photoionization d	on detector (PID).	e que en entre en en	and the second construction of the second construction of the second construction of the second construction of			
bgs - Below ground surface.	d surface.							
ppm - Parts per million.	illion.							
o or insuffi	NR - No or insufficient recovery.		-				Vincent Uhl Associates	iates

TB-4 TB-5		Borings Lo	scated Further E	ast and in Front	Test Borings Located Further East and in Front (West) of the Dry Cleaners.	y Cleaners.			
TB-3		-				والمتعارضة			
Initial Head Depth Initial Head Depth Initial Head Depth Initial Head Depth Initial Head Interval PID Space Interval PID Spac	-	TB-3			TB-4	eferente situate de principal de la communicación de la communicación de la communicación de la communicación	er e	TB-5	
PID Space Interval PID Space Interval PID		Initial	Head	Depth	Initial	Head	Depth	Initial	Head
Screening Reading (feet bgs) Screening Reading (fepm) Screening (ppm) (ppm) (ppm) (ppm) (ppm) (ppm) (ppm) (ppm) (ppm) (ppm) (ppm) (ppm) (ppm) (ppm) (ppm) 50 2 to 4 0 6 2 to 4 0 0 (ppm) 30 4 to 6 2 8 4 to 6 0 0 (ppm) 40 6 to 8 5.5 20 6 to 8 0 0 (ppm) 40 8 to 10 2 10 10 to 12 0 0 (ppm) 40 8 to 10 2 10 8 to 10 0 0 0 (ppm) 40 8 to 10 2 10 10 to 12 0		PID	Space	Interval	Old	Space	Interval	PID	Space
(ppm) (ppm) (ppm) (ppm) (ppm) (ppm) 0 50 0 to 2 0 5 0 to 2 0 0 50 2 to 4 0 6 2 to 4 0 0 30 4 to 6 2 8 4 to 6 0 0 40 8 to 10 2 10 8 to 10 0 0 40 8 to 10 2 10 8 to 10 0 0 40 8 to 10 2 14 to 16 0 0 1 1 1 to 10 1 1 to 10 0 0 1 1 1 1 1 to 16 0 0 1 1 to 10 0 0 0 1		reening	Reading	(feet bgs)	Screening	Reading	(feet bgs)	Screening	Reading
0 50 0102 0 6 2104 0 0 30 4106 2 8 4106 0 0 40 6108 55 20 6108 0 0 40 6108 55 20 6108 0 0 40 81010 2 10 1012 0 121014 0 121014 0 141016 0 141016 0 161018 0 161018 0 161018 0 161018 0 161019 0 161018 0 161018 0 161018 0 161018 0 161018 0 161018 0 161018 0 161019 161018 0 0 161019 161018 0 161018 0 161019 161018 0 161018 0 161019 161018		(mdd)	(mdd)		(mdd)	(mdd)		(mdd)	(mdd)
0 50 2 to 4 0 6 2 to 4 0 0 30 4 to 6 2 8 4 to 6 0 0 40 6 to 8 5.5 20 6 to 8 0 0 40 8 to 10 2 10 to 12 0 10 10 to 12 0 14 to 16 0 10 10 to 12 0 14 to 16 0 10 10 to 10 14 to 16 0 0 10 16 to 18 0 16 to 18 0 10 10 to 2 18 to 19.5 0 10 10 to 2 10 to 2 0 10 10 10 to 2 10 to 2 10 10 10 to 2 10 to 2	10 15	0	50	0 to 2	0	on the supplies of the supplie	0 to 2	0	0
0 30 4 to 6 2 8 4 to 6 0 0 40 6 to 8 5.5 20 6 to 8 0 0 40 8 to 10 2 10 8 to 10 0 1 1 10 to 12 0 0 10 to 14 0 1 1 1 14 to 16 0 0 14 to 16 0 1 1 1 1 14 to 16 0 0 0 1 1 1 1 14 to 16 0 6 to 8 0 0 0 0 0 0 0 0 0 0 0 <td< td=""><td>5 to 3.5</td><td>0</td><td>50</td><td>2 to 4</td><td>0</td><td>9</td><td>2 to 4</td><td>0</td><td>0.2</td></td<>	5 to 3.5	0	50	2 to 4	0	9	2 to 4	0	0.2
0	5 to 5.5	0	30	4 to 6	2	8	4 to 6	0	100
0	5 to 7.5	0	40	6 to 8	5.5	20	6 to 8	0	80
TB-6	.5 to 8.5	0	40	8 to 10	2	10	8 to 10	0	30
TB-6 Text TB-11 TB-11	and design the state of the sta			. Martinan janasan janasan sa	And the state of t	Aperer dess dans ales aldamentes a seconocios a se desse de septembra septembra septembra septembra septembra s	10 to 12	0	10
TB-6 TB-11 TB-11							12 to 14	0	5
TB-6 TB-11 TB-11							14 to 16	0	8
TB-6 TB-11 TB-11							16 to 18	0	8
TB-6 TB-11 TB-6 Initial Head Depth Initial Screening Reading (feet bgs) Screening (ppm) (ppm) (ppm) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							18 to 19.5	0	11
TB-6 TB-11	THE RESERVE THE PROPERTY OF TH		and the second period on the principle state is block as side appear in the case of the principle state in the	en e		n addressen series de la completación de la complet			
TB-6 TB-11 TB-11									
Initial Head Depth Initial PID Space Interval PID Space Interval PID		18-6			TB-11		m selves debesek melhannengsakerapangan selvespengan selvespengan aproposation of the control of		
Screening Reading (feet bgs) Screening (ppm) (Initial	PagH	Danth	laitial	Реен			
Screening Reading (feet bgs) Screening (ppm) (ppm) (ppm) 0 0 0 0 0 0 0 0 0 0 2 to 4 5		Old	Space	Interval	PID	Space			
(ppm) (ppm) (ppm) (ppm) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		reening	Reading	(feet bas)	Screening	Reading	A for each free format was to be serviced assessment for transfer and the service and the serv		
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		(mdd)	(mdd)		(mdd)	(mdd)			The second secon
0 2 (0 4 5	0 to 2	0	0	0 to 2	0	0.6			
	2 to 4	0	0	2 to 4	5	0.8			
0 0 4 to 6 3	4 to 6	0	0	4 to 6	3	3			
Complee were excepted with an UNit short-invitation detector (PID)	olo word	with as HN		otoctor (DID)					
	DOLLOS DIOM SOL	William IIIV		ופופפוסו (ה יבי).		which is the standard of the s			
bgs - below ground surrace. ppm - Parts per million.	- Parts per million.	ace.		And or containing and processes is a major many an agreement for a substantial for		deplaces the best depth of the contribution of		Vincent Uhl Associ	iates

								Page 3 of 3.
Table 3-4.	RI Test Boring Soil Sample	Soil Sample PIC	PID Screening Results;	ılts; Baldwin Pia	Baldwin Place Mall, Somers, New York.	s, New York.		
Lie terretasserserserserserserserserserserserserser	Test Borings	Located at Soil	Gas Survey Poir	Test Borings Located at Soil Gas Survey Points where Total Volatile Hydrocarbon Concentration	Volatile Hydroca	arbon Concentra	tion (TVHC) was	Detected.
					de production an strategic de de des de la companie			
	TB-12		And a second section of the second section of the second section section of the second section	TB-13			TB-14	
Depth	Initial	Head	Depth	Initial	Head	Depth	Initial	Head
Interval	OIA	Space	Interval	Old	Space	Interval	PIO	Space
(feet bgs)	Screening	Reading	(feet bgs)	Screening	Reading	(feet bgs)	Screening	Reading
	(mdd)	(mdd)		(mdd)	(mdd)		(mdd)	(mdd)
0 04 0			0 -1 0		***************************************			9.7
7010		0.0	7 01 0	0	_	Z 01 0		C.I
2 to 4	0	SS	2 to 4	0	SN	2 to 4	0	SN
					essentation of the complete management of the co			71
de remains ainmeile de de che de marie de che de marie de la compansión de la compansión de la compansión de c					manie 1860 il 186 ocho ilizate in processo compressioni principalitati processo anno anno anno anno anno anno			
The seasons of the se	T8-15	***************************************	egy e gê î di de fêdêrîn ir manasanın e rendamen de dêdeniya e î î î î î î î î î î î î î î î î î î	er er er de e er i del i general en en en en en en er er er er en	6 (An agus i Am summerados e delibros de 14 sebes e camero un redesidoridos las 84 de 84.	e de la companya de l		
Depth	Initial	Head						
Interval	OIA	Space	reasons respected to the destination of the state of them to the state of the state	de departe de la constante de	underfoldereite i finde in de vereitet is de de dans die de	i pad dadar szerz nikokrátek szakopiszkók market daktora kilokokoky pilonga kirákokok		
(feet bgs)	Screening	Reading						
	(mdd)	(mdd)						
0 to 2	0	2.2						
2 to 4	. 0	NS						
amples were so	Samples were screened with an HNu photoionizati	lu photoionization d	on detector (PID).					
bgs - Below ground surface.	nd surface.							
ppm - Parts per million.	million.							
NS - Not sampled	Ti-						Vincent Uhl Associates	iates
						<u> </u>		

BALDWIN PLACE MALL,	UALL SOMERS NEW YORK			
	_	RK.		
			J (CIT INJUSTICAL PROPERTY OF THE PROPERTY OF	Na Nagada
WELL INSTALLATION	LAND SURFACE	SCREENED/OPEN HOLE		SCHEEN OF
DESIGNATION DATE	ELEVATION (feet MSL)	INTERVAL (feet bgs)	INTERVAL ELEVATION (feet MSL)	OPEN HOLE
7/30/92	597.41	3.6 to 23.6	593.81 to 573.81	Screened
	597.41	59.2 to 90.8	538.21 to 506.61	Open Hote
	601.53	1 to 14	600.53 to 587.53	Screened
	601.66	60 to 90	541.66 to 511.66	Screened
	602,65	3 to 23	599.65 to 579.65	Screened
	602.35	60 to 90	542.35 to 512.35	Screened
Q	602.22	170 to 200	432.22 to 402.22	Open Hole
MW-4S 8/5/92	609.68	3.6 to 23.6	606.08 to 586.08	Screened
	609.72	58.4 to 90.5	551.32 to 519.22	Open Hole
	603.36	3 to 23	600.36 to 580.36	Screened
	602.80	57 to 87	545.80 to 515.80	Screened
	602.09	3 to 23	599.09 to 579.09	Screened
MW-7S 8/5/92	602.07	5 to 25	597.07 to 577.07	Screened
MW-7D 4/13/93	602.18	60 to 90	542.18 to 512.18	Open Hole
MW-8S 8/4/92	618.28	4 to 24	614.28 to 594.28	Screened
MW-9S 4/21/93	596.21	10.55 to 30.55	585.66 to 565.66	Screened
WW-9D 4/20/93	595.99	60 to 90	535.99 to 505.99	Open Hole
S	600.64	31 to 51	569.64 to 549.64	Screened
	600.52	59.5 to 90	541.02 to 510.52	Open Hole
Screened wells are completed with 4-inch diameter (neter 0.01 or 0.02-inch slot F	0.01 or 0.02-inch slot PVC well screen and 4-inch PVC casing	casing.	
Open Hole wells are completed with 6-inch diameter	ameter steel casing to the t	r steel casing to the top of the open-hole interval.		
bgs - Below ground surface.				
MSL - Mean sea level.			Vincent Uhl Associates	

TABLE 3-6.	DEPTH AND VIEL	DEPTH AND YIELD FROM FRACTURED INTERVA		S ENCOUNTERED DURING DRILLING	G;		
THE RESERVE OF THE PROPERTY OF	BALDWIN PLACE	BALDWIN PLACE MALL, SOMERS, NEW YORK.		en managas paragan paragan per	eman in terministe de service de la companya de la La companya de la co		
WELL	GROUND	DEPTH OF	ELEVATION OF	DEPTH	ELEVATION	CUMULATIVE BLOWOUT	COMMENTS
**************************************	SURFACE	BEDROCK INTERVAL	BEDROCK INTERVAL BEDROCK INTERVAL	5	OF	YIELD MEASURED	
maintine de la companya de la compa	ELEVATION	DRILED	DRILLED	FRACTURE	FRACTURE	DURING DRILLING	
	(ft msl)	(tt pgs)	(it msi)	(ft bgs)	(It mal)	(mdb)	
MW-1D	597.41	11-35	586-562	29, 34	568, 563	< 1 gpm	6-inch diameter casing set at 59 feet bgs.
		35-45	562-552	Friable Interval	562, 552	6 gpm	and a series of the series of
		45-60	552-537	49, 57	548, 540	HN	
Petropologia e comunicación de comunicación de comunicación de comunicación de comunicación de comunicación de	- v / At-	06-09	537-507		-	Dry	
MW-3DD	602.22	80-200	522-402	107, 109-116, 128,	495, 493-486, 474,	ΑN	6-inch dlameter casing set at 170.5 bgs.
				129-131, 138,	473-471, 464,		Bedrock cored from 101 ft bgs to 200 ft bgs
		and the second s	The state of the s	166-167, 175-178,	436-435, 427-424,	ADAMIN'S PROPRESSOR AND THE STREET, SANGER STREET, SANGER STREET, SANGER STREET, SANGER STREET, SANGER STREET,	rayan kanangari dan dan kanangan dan manangan kanangan kanangan kanangan dan kanangan kanangan kanangan kanang
			and profession can be an accommon or the contraction of the contractio	184-185, 189-190,	418-417, 413-412,		
				195	407		
		THE REAL PROPERTY OF THE PROPE	THE PARTY CONTRACTOR OF THE PARTY CONTRACTOR OT THE PARTY CONTRACTOR OF THE PARTY CONTRACTOR OT THE PARTY CONTRACTOR OF THE PA	realiseasus eris usuudes esessiisesel sõlet isalisus eerastas eristus esestes lii kei jäljik elijäljik elijäl	e de cristian de la company de la constante de la comp	ada militaria serjadi bidin sakkadadi disibuas in'u mis binga tapa sapa japa japa persenta dang kepangan perse	
MW-4D	609.72	48-60	562-550	_	Andrew and the second control of the control of the second	NA	6-Inch dlameter casing set at 58.4 bgs.
		60-65	550-545	62	548	0.8	
		70-80	540-530	NR	NR	2.3	
radirer erag blessbeka anternasser i ere er enegrab er brita		80-85	530-525		•	4.0	
e de la companyation de mandrata de la companyation		85-90	525-520	85	525	4.5	
The second secon			And the state of t	A DESCRIPTION OF THE REST OF THE PARTY OF TH		The first of the state of the s	
MW-5D	602.80	56-90	547-513	99	538	< 1 gpm	Top of screen at 57.0 bgs.
MW-7D	602.18	37-60	565-542	57-58	545-544	RN	6-Inch diameter casing set at 60.0 bgs.
	***************************************	60-65	542-537		- September 1 (September 1 marks) service (service) service (service) service (september 1) (September 1)	0.5	
NR - Not Recorded	led.						
bgs - Below Ground Surface.	ound Surface.			***************************************			
msl - Mean Sea Level.	Level.				***************************************		
gpm - Gallons Per Minute.	Per Minute.						Vincent Uhl Associates

				en e			des
TARIE 3.6	DEPTH AND VIE	DEPTH AND VIELD FROM FRACTURED INTERV	INTERVALS ENCOUNTER	ALS ENCOUNTERED DURING DRILLING:		i de des de la compressa de la	Page 2 of 2.
	BALDWIN PLACE	BALDWIN PLACE MALL, SOMERS, NEW YORK.	YORK.	A STATE OF THE STA	andere de la companya de la company		
		10	A DELICATION OF THE PROPERTY O	TEGER	HOLLANDIN	RIOWOIT VIELD	COMMENTS
WELL	GHOUND	BENDOCK INTEDVAL	BEDBOCK INTERVAL	10	0F	MEASURED	AND THE RESERVE OF THE PROPERTY OF THE PROPERT
and between supplemental and a supplemental	ELEVATION	DRILLED	DRILLED	FRACTURE	FRACTURE	DURING DRILLING	
60 - 100 - 1	(ft mst)	(ft bgs)	(tt msl)	(ft bgs)	(It mal)	(mdg)	
			the control of the second control of the control of	me de la companya de			and took Of the animals and the deal of
MW-9D	595.99	6-12	590-584	*		Wet Cuttings	6-Inch diameter casing set at 60 feet bgs.
and the state of the thoughturn of the state		12-20	584-576	•	•	2.0	
-		20-25	576-571	•	•	3.0	
		25-45	571-551	27, 33-35,	569, 563-561,	4.5	
er andre de l'angles de constitute de la partie de la par		The state of the s	The second of th	36-38	560-558		
res de seguiro de la companya de la		45-60	551-536	48-50	548-546	0.9	
		60-61.5	536-534.5	61.5	534.5	1.5	
Ade impression free description of the second secon	-	61.5-90	534.5-506	Table of the designation of the control of the cont	•	No Flow	
		ender den de de la company	ed in the second of the second	V, page , per ampa mer o, appens pass , as mes de ve, avec alle à la page de sem p		abilia mande abile e finance a numero bes fil discharis spikeles es services per mentance accessive in indisc	er eigen weigen er eine eine eine eine eine weigen werde eine eine eine eine eine eine eine ei
AM 10D	600 69	98-30	572 5.570 5	ur de en les des des des des des des des des des d	***************************************	And the state of t	6-inch diameter casing set at 59.5 feet bgs.
	JO: 000	30.35	570.5-565.5	er e	de .	3.0	and in the state of the state o
		35-45	565.5-555,5	-	-	4.5	
***************************************	Andrewson or annual special sp	45-60	555.5-540.5	45-54	555.5-546.5	0.6	
-	The same of the sa	60-80	540.5-520.5	67-70	533.5-530.5	No Flow	
		80-85	520.5-515.5	80	520	Wet Cuttings	
		85.90	515.5-510.5			No Flow	
				ALLE CONTRACTOR OF THE STATE OF			A STATE OF THE PARTY OF THE PAR
bgs - Below Ground Surface.	ound Surface.						THE PROPERTY OF THE PROPERTY O
msi - Mean Sea Level	ı Level.						AND THE PROPERTY OF THE PROPER
gpm - Gallons Per Minute.	Per Minute.						Vincent Uni Associates

	ことのことのことのことのことのことのことのことのことのことのことのことのことのこ	GLOCADAY EN-LEVEL MEASONEMEN S		AND ULTERM ULATE GAUGE HEADINGS	250	_		
	(JUNE 8, 1993,	(JUNE 8, 1993, JUNE 28, 1993, AND JUNE 30, 1993);	J JUNE 30, 1993)					
	BALDWIN PLAC	BALDWIN PLACE MALL, SOMERS, NEW	EW YORK.					
			JUNE 8, 1993		JUNE 28, 1993		JUNE 30, 1993	
WELL/GAUGE	GHOUND	MEASURING POINT	WATER	WAIEM-LEVEL	DEPTH TO	WATER-LEVEL	DEPTH TO	WATER-LEVEL
NOMBER	SOUTHOR	ELEVATION	WAICH	ELEVATION	WAIER	ELEVALION	WAIER	ELEVALION
	(reet, msi)	(it mai)	(dma n)	(IR msl)	(дша ш)	(It mst)	(It bmp)	(R msl)
MW-18	597.41	596.94	7.08	589.86	7.77	589.17	7.88	589.08
MW-1D	597.41	596.98	11.48	585.50	4.36	592.62	4.41	592.57
MW-2S	601.53	604.05	4.16	599.89	4.49	599.56	4.94	599.11
MW-2D	601.66	603.41	18.66	584.85	13.53	589.88	19.64	583.77
MW-3S	602.65	604.60	6.18	598.42	6.41	598.19	6.19	598.41
MW-3D	602.25	604.23	18.68	585.55	13.80	590.43	19.36	584.87
MW-3DD	602.22	604.21	14.67	589.64	14.08	590.13	15.58	588.63
MW-4S	809.68	611.64	7.42	604.22	8.58	603.06	8.71	602.93
MW-4D	609.72	611.84	9.84	602.00	10.51	601.33	10.70	601.14
MW-5S	603.36	602.84	2.95	599.89	3.62	599.22	3.49	699.35
MW-5D	602.80	602.26	15.29	586.97	11.15	591.11	15.99	586.27
MW-6S	602.09	. 603.95	4.12	599.83	4.79	599.16	3.88	600.07
MW-7S	602.07	601.67	7.30	594.37	7.94	593.73	8.11	593.56
MW-7D	602.18	601.85	9.68	592.16	9.82	592.03	10.42	691.43
MW-8S	618.28	618.02	6.38	611.64	6.64	611.38	6.61	611.41
MW-9S	596.21	595.99	5.86	590.13	6.39	589.60	6.70	589.29
MW-9D	595.99	595.68	5.98	589.70	6.70	588.98	6.98	588.70
MW-10S	600.64	600.18	10.06	590.12	10.38	589.80	11.09	683.09
MW-10D	600.52	600.22	11.71	588.51	11.63	588.59	12.72	587.50
DYA! 1	907.00	00 000	107 59	E90 14*	25.40	200 00	90 70+	E07 204
PW-2	610.32	613.51	50 18	563 33	30.22	583.29	52.36	581 15
LBG-1	600.48	602.26	5.90	596.36	6,22	596.04	6.22	696.04
LBG-2	•	602.57	ΝN		7.00	595.57	7.11	695.46
SG-1	*	620.70	2.04	618.66	2.10	618.60	D	•
SG-2	•	596.77	1.04	695.73	Dry	•	1.86	594.91
SG-3	•	593.61	1.50	592.11	1.80	592.01	1.55	592.06
SG-4	-	602.30	Dry	*	Dry	-	Οŋ	•
59-5		5/1.35	1.92	569.43	2.00	569.35	2.00	569.35
IIISI - ADOVE MBATI SEA LEVEI.	an sea Level.							
omp - Below Measuring Point	easuring Point							
- Drawdown C	. Drawdown Corrected For Well Loss.	088.				Vincent Uhl Associates	168	
								-

Vincent Uhl Associat			uzsem woled - qrr
			si - Mean Sea Lev
		surface.	selow ground
24.698	1.93	36.178	9-6
	DŊ	602.30	7- 5
	4	19.563	8-3
	Уva		3-5
07.81a	2.00	07.029	ļ- <u></u>
80.262	6 4 .7	49.209	3G-2
97.368	13.9	602.26	1-90
15.188	32.20	13.518	Z-N
41.188	28.18	SE.909	L-V
		77:000	G01-M
59.985	13.57	SS.009	W-10D
28.782	12.33	81.009	S01-W
7E.78 2	18.8	89.265	Q6-N
88.783	11.8	66'969	S6-N
₱8.018	81.7	20.819	S8-W
PO.063	18.11	38.109	Q7-W
Z8.162	28.6	79.109	SZ-W
££.10 3	2.62	96.509	S9-M
67.683	72.47	602.26	W-5D
91.965	89.8	18.209	SS- <i>N</i>
72.00a	73.11	48.113	<u> </u>
12.109	Er.or	19,119	St-V
98.983	14.85	1S.408	W-3DD
91.683	15.07	6S.409	W-3D
29.862	86.3	09.409	SE-V
58.383	82.31	14,503	V-2D
01.009	3.95	50.409	V-2S
08.163	81.2	86.963	M-1D
ST.788	9.22	76 .963	St-V
			ONSILE
(low vi)	(dwd 11)	(lem it)	
(lem ft)	HETAW (III)	ELEVATION #1	ИЛМВЕВ
ELEVATION			MELL/GAUGE
WATER LEVEL	OT HT930	MEASURING POINT	3011401 1 13W
		STREAM STAFF GAUGE REA	10.A 35.41
o i egsa Qua stv.	LEVEL MEASUREME	REGIONAL GROUNDWATER-	/BLE 3-8.

Vincent Uhl Associates			pmp - Below messu
		1	msi - Mean Sea Lev
		snusce.	bgs - Below ground
		1:2/5	CM-57
624.49	54.28	77.872	CM-25
60.353	80.3	71,148	
44.1EB	£6.31	75.743	CM-53
77.E7 2	89.41	24.882	CM-19
69.095	30.20	68.063	E1-WA
81,188	35.28	94.962	FW-12
97.973	Z9.0Z	87.209	60-WA
19.878	32.29	06.019	70-WA
31.673	34.00	31.213	90-WA
576.42	38.28	07.418	FW-05
58.085	32.61	91.219	PW-04
10.883	77.ES	87.118	FW-02
10.882	29.29	06.719	10-WA
			OFFSITE
(lem 17)	(dmd #)	(lem ft)	
ELEVATION	MATER	ELEVATION	NUMBER
MATER LEVEL	OT HT930	MEASURING POINT	MELL/GAUGE
		REGIONAL GROUNDWATER-LASTREAM STAFF GAUGE REA	TABLE 3-8.
S to S age 2 of 2.	131436112434 13V3	1 4227771411111414114141414141414141414141	

		<u> </u>		minute.	om - Gallons per
8	77.61	12	100	Kennard Road	W-42/43
9	198t	31	502	Kennard Road	14-W
				Kennard Road	04-W
			520	8 estud	7S-W
				ਰ etuoਮ	M-26
				8 etuoA	M-25
				3 etuoA	W-24
				8 etuoR	W-23
				ð efuo凡	W-22
				ð əfuo뒤	W-21
				6 eiuo뒤	W-20
				3 efuoR	61-W
) þ	496 1	121	00 1	Baldwin Place Mall	Z-M
9	9961	140	560	Baldwin Place Mall	ŀ-W
				Meadow Park Road	81-W
	0961		185	Tomahawk Street	ZI-W
	₱ 96 ₽	199	502	Meadow Park Road	91-W
			500	Tomahawk Street	M-15
			190	Meadow Park Road	W-14
				Meadow Park Road	W-13
	1961		520	Meadow Park Road	W-12
			520	Mesdow Park Road	11-W
	***************************************			Meadow Park Road	W-10
9	9861	180	542	Meadow Park Road	60-W
	1973		550	Meadow Park Road	80-W
				Meadow Park Road	40-W
				Meadow Park Road	90-M
S	1964/2	145	550	Meadow Park Road	M-02
5(1974	151	S20	Meadow Park Road	₩-0 1
	4961		140	Meadow Park Road	W-03
	1982		582	Meadow Park Road	W-02
	1983			Meadow Park Road	10-W
ıd6)	(Year)	(Feet, bgs)	(Feet, bgs)		
AIE!	סצוררבם	DEPTH	НТЧЭО	LOCATION	NUMBER
ESTIM	BTA	CASING	METE	MECL	MELL
		YORK.	OMEBS' NEM	BYFDMIN BEYCE WYF	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
W TAIDHEMM	IUJ/JAHNJUIS			AVAILABLE CONSTRUC	.6-E 3-8

pds - Below ground surface.

Vincent Uhi Associates

IABLE 3-10.	KEMEDIAL INVESTIGATION							
	Property				1			4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 -
Location	Description	Sample	Sample	Sample	Ha	Specific	I emperature	SAMPLE
destellere eine belieben des destellen muche i der bildmeten in megere is me berbunde darenere	edirection i care i de l'indicate de l'annue constant de l'annue de l'annue de l'annue de l'annue de l'annue d	Watrix	Designation	Date	(Standard Units)	Conductance	(Celoine)	DESCRIPTION
						(million)		
MONITORING WELLS			A STATE OF THE STA					
Monitoring Well MW-19	Shallow	Groundwater	BPM-MW-1S-01	9/1/92	9.0	670	೩	CloudyBrown
		Groundwater	BPM-MW-15-02	6/20/93	7.0	760	11	Slightly Cloudly
Monitoring Well MW-1D	Bedrock	Groundwater	BPM-MW-1D-01	9/1/92	9:0	740	15	Cloudy/Brown
		Groundwater	BPM-MW-1D-02	5/20/83	7.6	940	13	Slightly Sifty
Monitoring Well MW-29	Shallow	Groundwater	BPM-MW-28-01	9/1/92	6.6	1130	17	Silty/Brown
		Groundwater	BPM-MW-29-02	6/19/93	9.8	1280	0.0	Slightly Cloudly
Monitoring Well MW-2D	Deep	Groundwater	BPM-MW-2D-01	9/1/92	10.6	900	13	Slightly Cloudy/Colorless
The state of the s		Groundwater	BPM-MW-2D-02	6/19/93	7,8	460	10	Clear
Monitoring Well MW-39	Shallow	Groundwater	BPM-MW-3S-01	8/31/92	7.4		18	SiftyBrown
	Andreas de la caracteria de la capacidade de la capacidad	Groundwater	BPM-MW-3S-02	6/18/93	7.2	979	11	Clear
Monitoring Well MW-3D	Deep	Groundwater	BPM-MW-3D-01	8/31/92	9.3	980	17	Slightly Cloudy
		Groundwater	BPM-WW-3D-02	5/19/93	7,9	089	12	Slightly Cloudy
Monfloring Well MW-3DD	Bedrock	Groundwater	BPM-MW-3DD-01	8/31/92	9.1	400	14	Slightly Cloudy
		Groundwater	BPM-MW-3DD-02	6/19/83	7.0	620	12	Gear
Monitoring Well MW-49	Shallow	Groundwater	BPM-MW-4S-01	8/31/92	11.3	1000	9	•
		Groundwater	BPM-MW-45-02	6/19/93	7.6	1180	đ	Cloudy
Monitoring Well MW-4D	Bedrock	Groundwater	BPM-WW-4D-01	9/1/92	5.5	2009	12	Cloudy/Green-Brown
		Groundwater	BPM-MW-4D-02	5/19/93	7.7	680	12	285
Monitoring Wall MW-59	Shallow	Groundwater	BPM-MW-53-01	9/1/92	2.0	730	20	Slightly Sifty
		Groundwater	BPM-MW-6S-02	5/18/93	7.3	630	16	Silty/Light Green
Monitoring Well MW-5D	Deep	Groundwater	BPM-MW-5D-01	6/21/93	8.0	670	ħ	Clear
Monitoring Well MW-69	Shallow	Groundwater	BPM-MW-69-01	9/2/82	5.5	086	16	Cloudy
		Groundwater	BPM-MW-6S-02	6/18/93	6.3	086	11	Cloudy/Light Grey
Monitoring Well MW-78	Shallow	Groundwater	BPM-MW-78-01	8/2/92	5.5	978	- 12	Slightly Cloudy
		Groundwater	BPM-MW-78-02	5/20/93	7.0	1010	13	SiltyBrown
Monitoring Well MW-7D	Bedrock	Groundwater	BPM-MW-7D-01	6/21/93	7.7	820	16	
Monitoring Well MW-89	Shallow	Groundwater	BPM-MW-89-01	9/1/92	6.0	008	13	Sity/Brown
		Groundwater	BPM-MW-8S-02	5/19/93	7.6	1160	10	Slightly Cloudy
Monitoring Well MW-95	Shallow	Groundwater	BPM-WW-89-01	5/19/93	6.6	026	13	Slightly Sity/Very Light Green
Monitoring Well MW-9D	Bedrock	Groundwater	BPM-WW-9D-01	6/20/93	8.4	1000	13	Slightly Silty/Grey to Clear
ontoing Well MW-10S	Shallow	Groundwater	BPM-MW-10S-01	6/20/93	7.6	096	13	Ciear/Colorless
Monitoring Well MW-10D	Bedrock	Groundwater	BPM-MW-10D-01	6/20/93	7.0	1440	13	Slightly Cloudy
BPM PRODUCTION WELLS								
Production Well PW.1	Northeast Well	Groundwater	RPM.WE111.01	207703	7.7	44	B.1	
Production Well PW-2	Southwest Well	Groundwater	BPM-WELL2-01	2/24/93	7.9	602	6.6	
		_	_					

Controller Designation Sample Sample Sample Sample Sample Controller Controller <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>									
	Location	Description	Sample	Sample	Sample	풉	Specific	Temperature	SAMPLE
PRINCE	THE THE PERSON OF THE PERSON O		Matrix	Designation	Date	(Standard Units)	Conductance (umhos/cm)	(Celoius)	DESCRIPTION
Meschow Perk Road Groundweler BPM RW 01-01 224,853 8.4 255 7.9 Meschow Perk Road Groundweler BPM RW 03-01 222,835 8.1 4272 6.3 Meschow Perk Road Groundweler BPM RW 03-01 222,835 8.1 4272 6.2 Meschow Perk Road Groundweler BPM RW 03-01 222,483 8.2 300 7.0 Meschow Perk Road Groundweler BPM RW 03-04 224,893 8.3 200 2.7 Meschow Park Road Groundweler BPM RW 10-04 224,893 8.3 200 2.6 Meschow Park Road Groundweler BPM RW 10-04 222489 8.3 200 2.6 Meschow Park Road Groundweler BPM RW 10-04 222489 8.3 200 6.6 Meschow Park Road Groundweler BPM RW 10-04 222489 8.3 200 6.0 Meschow Park Road Groundweler BPM RW 10-04 222489 8.3 200 6.0 Meschow Park Ro	ESIDENTIAL & COMMERCIAL	, WELLS	e en	Territoristeristeristeristeristeristeristeriste	***************************************			***************************************	
Meactor Park Read Goundwester BPM-RW 0.2 of 1 22499 8.1 4.27 6.3 Meactor Park Read Goundwester BPM-RW 0.3 of 1 224499 8.1 4.4 4.2 Meactor Park Read Goundwester BPM-RW 0.3 of 1 224489 8.3 2.9 5.9 Meactor Park Read Goundwester BPM-RW 0.3 of 1 22489 8.3 2.9 5.7 Meactor Park Read Goundwester BPM-RW 0.3 of 1 22489 8.3 2.99 5.7 Meactor Park Read Goundwester BPM-RW 1.201 22489 8.4 2.9 3.3 Meactor Park Read Goundwester BPM-RW 1.201 22489 8.4 2.0 1.0 Meactor Park Read Goundwester BPM-RW 1.201 22489 8.4 2.0 1.0 Tomation Read Goundwester BPM-RW 1.201 22489 8.4 2.0 1.0 Tomation Read Goundwester BPM-RW 1.201 22489 8.4 2.0 1.0 Tomation Read	Residential Well RW-01	Meadow Park Road	Groundwater	BPM-RW-01-01	2/24/93	8.4	258	7.8	Clear
Meadow Park Road Groundwater SPN-RW-02-01 222-489 8.1 444 2.2 Meadow Park Road Groundwater SPN-RW-02-01 222-489 8.1 200 7.0 Meadow Park Road Groundwater SPN-RW-02-01 222-489 8.3 2.90 7.0 Meadow Park Road Groundwater BPN-RW-12-01 222-489 8.3 2.90 7.0 Meadow Park Road Groundwater BPN-RW-12-01 222-489 8.3 2.20 8.7 Meadow Park Road Groundwater BPN-RW-12-01 222-489 8.3 2.0 9.9 Meadow Park Road Groundwater BPN-RW-12-01 222-489 8.3 2.0 8.0 Meadow Park Road Groundwater BPN-RW-12-01 222-489 8.3 2.0 8.0 Meadow Park Road Groundwater BPN-RW-12-01 222-489 8.3 2.0 8.0 Meadow Park Road Groundwater BPN-RW-12-01 222-489 8.3 2.0 8.0 Mouse Service And Co	Residential Well RW-02	Meadow Park Road	Groundwater	BPM-RW-02-01	2/24/93	8,1	272	6.3	Clear
Meactory Fac Road Groundwater BPM.RWA401 222483 8.1 530 7.0 Meactory Fac Road Groundwater BPM.RWA5041 222483 8.2 286 6.5 Meactory Fac Road Groundwater BPM.RWA5041 222483 8.3 239 2.4 Meactory Fac Road Groundwater BPM.RWA5041 222483 8.3 238 7.0 Meactory Fac Road Groundwater BPM.RWA1031 222483 8.3 228 7.0 Meactory Fac Road Groundwater BPM.RWA11301 222483 8.4 229 8.0 Meactory Fac Road Groundwater BPM.RW.1501 222483 8.4 220 8.0 Meactory Pac Road Groundwater BPM.RW.1501 222483 8.4 220 8.0 Floute 8; Groundwater BPM.RW.1501 222483 8.4 220 8.0 Floute 8; Groundwater BPM.RW.1501 222483 8.4 220 8.0 Floute 8; Groundwater	Residential Well RW-03	Meadow Park Road	Groundwater	BPM-RW-03-01	2/24/93	8.1	444	2.2	Clear
Meadow Park Road Groundwater BPM-RWU-MA-01 222483 8.2 200 6.6 Meadow Park Road Groundwater BPM-RWU-MA-01 222483 8.3 229 6.7 Meadow Park Road Groundwater BPM-RWU-MA-01 222483 8.3 229 6.7 Meadow Park Road Groundwater BPM-RWU-12-01 222483 8.3 229 6.7 Meadow Park Road Groundwater BPM-RWU-12-01 222483 8.4 229 9.9 Meadow Park Road Groundwater BPM-RWU-12-01 222483 8.4 220 8.9 Meadow Park Road Groundwater BPM-RWU-12-01 222483 8.4 220 8.0 Meadow Park Road Groundwater BPM-RWU-12-01 222483 8.4 220 8.0 Meadow Park Road Groundwater BPM-RWU-12-01 222483 8.4 220 8.0 Meadow Park Road Groundwater BPM-RWU-12-01 222483 8.4 220 8.0 Route 6; <	esidential Well RW-04	Meadow Park Road	Groundwater	BPM-RW-04-01	2/24/93	8.1	330	7.0	Clear
Meadow Park Road Groundwester BPM.HW.Q7A-Q1 224/89 6.3 290 2.9 Meadow Park Road Groundwester BPM.HW.Q7A-Q1 224/89 6.3 299 6.7 Meadow Park Road Groundwester BPM.RW.104-Q1 222/493 6.5 22.8 7.0 Meadow Park Road Groundwester BPM.RW.104-Q1 222/493 6.5 22.8 7.0 Meadow Park Road Groundwester BPM.RW.14-Q1 222/493 6.5 22.6 7.0 Meadow Park Road Groundwester BPM.RW.14-Q1 222/493 6.4 22.6 6.9 Inchalbank Street Groundwester BPM.RW.14-Q1 222/493 6.4 22.6 6.9 Meadow Park Road Groundwester BPM.RW.17-Q1 222/493 6.3 22.0 6.0 Meadow Park Road Groundwester BPM.RW.17-Q1 222/493 8.3 22.7 4.0 Meadow Park Road Groundwester BPM.RW.17-Q1 222/493 8.3 22.7 4.0 Fl	esidential Well RW-05	Meadow Park Road	Groundwater	BPM-RW-05A-01	2/24/93	8.2	308	8.5	Clear
Meadow Park Road Groundwater BPA-INV-Q8A-01 226483 6.3 299 6.7 Meadow Park Road Groundwater BPA-INV-LOA-01 226483 6.3 206 2.4 Meadow Park Road Groundwater BPA-RVM-LOA-01 226483 6.3 206 2.4 Meadow Park Road Groundwater BPA-RVM-LOA-01 226483 6.3 206 2.4 Meadow Park Road Groundwater BPA-RVM-LO-01 222483 8.5 1.66 9.9 Meadow Park Road Groundwater BPA-RVM-LO-01 222483 8.4 220 4.0 Meadow Park Road Groundwater BPA-RVM-LO-01 222483 8.4 220 4.0 Meadow Park Road Groundwater BPA-RVM-LO-01 221493 8.4 220 4.0 Meadow Park Road Groundwater BPA-RVM-LO-01 221793 5.7 4.0 Meadow Park Road Groundwater BPA-RVM-LO-01 221193 6.3 220 1.0 Meadow Park Road Groun	esidential Well RW-07	Meadow Park Road	Groundwater	BPM-RW-07A-01	2/24/93	8.3	290	2.9	Clear
Meadow Park Read	esidential Well RW-08	Meadow Park Road	Groundwater	BPM-RW-08A-01	2/24/93	8.3	299	8.7	Clear
Meadow Park Road Groundwater BPM-SW-10A-01 272-493 8.5 229 7.0	ssidential Well RW-09	Meadow Park Road	Groundwater	BPM-RW-09A-01	2/24/93	8,3	380	2.4	Clear
Meadow Park Road Groundwater BPM-RW1-1-01 272-493 8.5 226 3.3 Meadow Park Road Groundwater BPM-RW1-1-01 272-493 8.5 1.6 9.9 I Meadow Park Road Groundwater BPM-RW1-1-01 22-493 8.4 226 9.9 I Ornabank Street Groundwater BPM-RW1-1-01 22-493 8.4 220 4.0 Meadow Park Road Groundwater BPM-RW1-1-01 22-493 8.3 220 4.0 Meadow Park Road Groundwater BPM-RW1-1-01 22-493 8.3 2271 7.0 Meadow Park Road Groundwater BPM-RW1-1-01 22-493 8.3 271 7.0 Meadow Park Road Groundwater BPM-RW1-1-01 22-493 8.3 271 7.0 Meadow Park Road Groundwater BPM-RW1-1-01 22-493 8.3 271 7.0 Route 6; Groundwater BPM-RW1-1-01 27-493 8.3 7.1 7.0 Route 6; Groundwat	ssidential Well RW-10	Meadow Park Road	Groundwater	BPM-RW-10A-01	2/24/93	8.3	208	7.0	Clear
Meadon-Park Road Groundwater BPM-RW1-12-01 222-493 8.3 270 1.5 Meadon-Park Road Groundwater BPM-RW1-12-01 222-493 8.5 136 5.9 Meadow-Park Road Groundwater BPM-RW1-15-01 222-493 8.5 136 5.9 Meadow-Park Road Groundwater BPM-RW1-15-01 222-493 8.3 220 4.0 Meadow-Park Road Groundwater BPM-RW1-15-01 222-493 8.3 2271 7.6 Route 6; Groundwater BPM-RW1-15-01 222-493 8.3 2271 7.6 Route 6; Groundwater BPM-CW1-15-01 222-493 8.3 271 7.6 Route 6; Groundwater BPM-CW1-15-01 222-493 8.3 271 7.6 Route 6; Groundwater BPM-CW2-10-01 21/1393 6.6 6.0 11.1 Route 6; Groundwater BPM-CW2-10-01 31/183 7.5 6.0 11.2 Route 6; Groundwater	ssidential Well RW-11	Meadow Park Road	Groundwater	BPM-RW-11-01	2/24/93	8.5	228	3.3	Clear
Meadow Park Road Groundwater GPM-RW-14-01 22/483 8.4 226 9.9 Meadow Park Road Groundwater GRM-RW-14-01 22/483 8.4 240 4.0 Meadow Park Road Groundwater GRM-RW-15-01 22/483 8.4 220 4.0 Meadow Park Road Groundwater GRM-RW-15-01 22/483 8.3 327 4.0 Route Street Groundwater BPM-RW-15-01 22/483 8.3 327 4.0 Route Street Groundwater BPM-RW-15-01 21/183 - - - Route Street Groundwater BPM-RW-20-01 31/183 - - - Route Street Groundwater BPM-RW-20-01 31/183 - - - - Route Street Groundwater BPM-CW-20-01 31/183 - - - - - - - - - - - - - - - - - -	ssidential Well RW-12	Meadow Park Road	Groundwater	BPM-RW-12-01	2/24/93	8.3	270	1.5	Clear
Meadow Park Road Groundwater BPM-RW16-01 224483 8.6 186 6.9 Meadow Park Road Groundwater BPM-RW16-01 224483 8.4 240 4.0 Meadow Park Road Groundwater BPM-RW16-01 224493 8.3 327 4.0 Meadow Park Road Groundwater BPM-RW16-01 224493 8.3 327 4.0 Route 6; Groundwater BPM-RW16-01 224493 8.3 327 4.0 Route 6; Groundwater BPM-RW16-01 224493 8.3 271 7.6 Route 6; Groundwater BPM-RW20-01 371183 7.5 600 9 Route 6; Groundwater BPM-CW2-02 472893 6.6 390 11.1 Route 6; Groundwater BPM-CW2-02 472893 7.5 600 9 Route 6; Groundwater BPM-CW2-02 472893 7.5 66 10.5 Route 6; Groundwater BPM-CW2-02 37.183	ssidential Well RW-13	Meadow Park Road	Groundwater	BPM-RW-13-01	2/24/93	8.4	226	6.6	Clear
Tomatawk Street	ssidential Well RW-14	Meadow Park Road	Groundwater	BPM-RW-14-01	2/24/93	8.5	186	6.9	Clear
Meadow Park Read Groundwater BPM-RW-14-01 2724893 8-4 320 8-10 Inchalark Streat Groundwater BPM-RW-17-01 2224893 8-3 27-1 7-6 Route 6; Groundwater BPM-RW-18-01 371189 - - - Route 6; Groundwater BPM-CW-20-01 371189 - - - Route 6; Groundwater BPM-CW-20-01 371189 - - - Route 6; Groundwater BPM-CW-20-01 371189 7.5 660 11 Route 6; Groundwater BPM-CW-20-01 371189 7.5 660 11 Route 6; Groundwater BPM-CW-20-02 472289 7.5 660 11 Route 6; Groundwater BPM-CW-20-01 37189 7.5 660 11 Adjacert to SG-1 (Verth) Groundwater BPM-CW-20-01 472289 8.6 360 12 Aglacert to SG-1 (Verth) Groundwater BPM-SW-02 622	ssidential Well RW-15	Tomahawk Street	Groundwater	BPM-RW-15-01	2/24/93	8.4	240	4.0	Clear
Tontahawk Street Gloundwater BPM-RW-17-01 224,933 8.3 327 4.0 Meadow Park Road Gloundwater BPM-RW-18-01 231,193	sidential Well RW-16	Meadow Park Road	Groundwater	BPM-RW-16-01	2/24/93	8,4	320	8.0	Clear
Meadow Park Road Groundwater BPM-RW-18-01 3/1/193	sidential Well RW-17	Tomahawk Street	Groundwater	BPM-RW-17-01	2/24/93	8.3	327	4.0	Clear
Houte 6; Groundwater BPM-CW-19-01 3/11/93 6.8 6.6 11.1 Houte 6; Groundwater BPM-CW-20-01 3/11/93 6.8 6.6 11.1 Houte 6; Groundwater BPM-CW-20-01 3/11/93 7.5 6.00 9.2 Houte 6; Groundwater BPM-CW-21-02 3/11/93 7.5 6.00 9.1 Houte 6; Groundwater BPM-CW-25-01 3/11/93 7.5 4.69 10.5 Houte 6; Groundwater BPM-CW-25-01 3/11/93 7.5 4.69 10.5 Houte 6; Groundwater BPM-CW-27-01 3/11/93 7.5 4.69 10.5 Houte 6; Groundwater BPM-CW-27-01 3/11/93 7.5 6.60 1.1 Houte 6; Groundwater BPM-SW-27-01 4/22/93 6.6 380 1.1 Houte 6; Groundwater BPM-SW-27-01 4/22/93 7.8 6.60 1.2 Houte 6; Surface Water BPM-SW-07 6/2/93 7.5 6.60 1.2 Lipstream of Lake Baldwin. Surface Water BPM-SW-06 10/16/93 6.5 6.50 6.50 Lipstream of Lake Baldwin. Surface Water BPM-SW-08 10/16/93 6.5 6.50 6.50 Houte 6; Surface Water BPM-SW-09 10/16/93 6.5 6.50 6.50 Houte 6; Surface Water BPM-SW-09 10/16/93 6.5 6.50 6.50 Houte 6; Surface Water BPM-SW-10 12/9/93 7.5 6.50 6.50 Houte 6; Surface Water BPM-SW-09 10/16/93 6.5 6.50 6.50 Houte 6; Surface Water BPM-SW-10 12/9/93 7.5 6.50 6.50 Houte 6; Surface Water BPM-SW-10 12/9/93 7.5 6.50 6.50 Houte 6; Surface Water BPM-SW-10 12/9/93 7.5 6.50 6.50 Houte 6; Surface Water BPM-SW-10 12/9/93 7.5 6.50 6.50 Houte 6; Surface Water BPM-SW-10 12/9/93 7.5 6.50 6.50 Houte 6; Surface Water BPM-SW-10 12/9/93 7.5 6.50 6.50 Houte 6; Surface Water BPM-SW-10 12/9/93 7.5 6.50 6.50 Houte 6; Surface Water BPM-SW-10 12/9/93 7.5 6.50 6.50 Houte 6; Surface Water BPM-SW-10 12/9/93 7.5 6.50 6.50 Houte 6; Surface Water BPM-SW-10 12/9/93 7.5 6.50 6.50 Houte 6; Surface Water BPM-SW-10 12/9/93 7.5 6.50 6.50 Houte 6; Surf	sidential Well RW-18	Meadow Park Road	Groundwater	BPM-RW-18-01	2/24/93	8.3	271	7.8	Clear
Houte 6; Groundwater BPM-CW-19-01 3/11/83			triata meditak pada dengah merenasagan dajam dan ter	APPEN PER APPENDENCE AND				easte a response to the contract of the contra	
Route 6; Groundwater BPM.CW-20-01 31/183 6.8 6.60 11.1 Route 6; Groundwater BPM.CW-20-02 4/2283 6.3 920 12 Route 6; Groundwater BPM.CW-21-01 4/2283 7.5 1010 10.5 Route 6; Groundwater BPM.CW-21-02 4/2283 7.5 469 10.5 Route 6; Groundwater BPM.CW-22-01 31/183 7.5 469 10.5 Route 6; Groundwater BPM.CW-22-01 4/2283 7.5 469 10.5 Route 6; Groundwater BPM.CW-22-01 4/2283 7.5 680 11 Route 6; Groundwater BPM.SW-01 4/2283 7.5 680 12 Adjacent to SG-1 (North). Surface Water BPM.SW-02 6/2/83 7.5 680 12 Upstream of First Pond. Surface Water BPM.SW-02 10/15/93 6 5/00 12 Upstream of Lake Baldwin. Surface Water BPM.SW-07 10/15/93 6 5/00 12 The BPM Interestion. Surface Water BPM.SW-07 10/15/93 6 5/00 12 The BPM Interestion. Surface Water BPM.SW-07 10/15/93 6 5/00 12 The BPM Interestion. Surface Water BPM.SW-07 10/15/93 6 5/00 12 The BPM Interestion. Surface Water BPM.SW-07 10/15/93 6 5/00 12 The BPM Interestion. Surface Water BPM.SW-07 10/15/93 6 5/00 12 The BPM Interestion. Surface Water BPM.SW-10 10/15/93 6 5/00 12 The BPM Interestion. Surface Water BPM.SW-10 10/15/93 6 5/00 12 The BPM Interestion. Surface Water BPM.SW-10 10/15/93 6 5/00 13 The BPM Interestion. Surface Water BPM.SW-10 10/15/93 6 5/00 3.8 The BPM Interestion. Surface Water BPM.SW-10 10/15/93 6 5/00 3.8 The BPM Interestion. Surface Water BPM.SW-10 10/15/93 7 400 3.8 The BPM Interestion. Surface Water BPM.SW-10 10/15/93 7 400 3.8 The BPM Interestion. Surface Water BPM.SW-11 12/9/93 7 400 3.8 The BPM Interestion. Surface Water BPM.SW-11 12/9/93 7 400 3.8 The BPM Interestion. Surface Water BPM.SW-11 12/9/93 7 400 3.8 The BPM Interestion. Surface Water B	mmerdal Well CW-19	Route 8;	Groundwater	BPM-CW-19-01	3/11/93	•		,	
Route 6; Route 6; RPM-CW-20-02 4/22/93 5.50 5.00 9 1.0 Route 6; Groundwater BPM-CW-23-01 3/11/93 7.5 5.00 9.1 Route 6; Groundwater BPM-CW-23-01 3/11/93 7.5 459 10.5 Route 6; Groundwater BPM-CW-23-01 3/11/93 7.5 680 1.1 Adjacent to SG-1 (North). Surface Water BPM-SW-02 6/2/93 7.8 680 1.5 South of Bridge. Surface Water BPM-SW-02 6/2/93 7.8 680 1.2 Upstream of First Pond. Surface Water BPM-SW-03 10/15/93 6 530 Upstream of First Pond. Surface Water BPM-SW-03 10/15/93 6 530 Upstream of Lake Baldwin. Surface Water BPM-SW-03 10/15/93 6 530 Upstream of Lake Baldwin. Surface Water BPM-SW-03 10/15/93 6 530 Upstream of Lake Baldwin. Surface Water BPM-SW-03 10/15/93 6 530 Upstream of Lake Baldwin. Surface Water BPM-SW-10 12/15/93 7.3 10/100 Upstream of Lake Baldwin. Surface Water BPM-SW-10 12/15/93 7.3 10/100 Upstream of Lake Baldwin. Surface Water BPM-SW-10 12/15/93 7.3 10/100 Upstream of Lake Baldwin. Surface Water BPM-SW-10 12/15/93 7.3 10/100 Upstream of Lake Baldwin. Surface Water BPM-SW-10 12/15/93 7.3 10/100 Upstream of Lake Baldwin. Surface Water BPM-SW-10 12/15/93 7.3 10/100 Upstream of Lake Baldwin. Surface Water BPM-SW-10 12/15/93 7.3 10/100 Upstream of Lake Baldwin. Surface Water BPM-SW-10 12/15/93 7.3 10/100 Upstream of Lake Baldwin. Surface Water BPM-SW-10 12/15/93 7.3 10/100 Upstream of Lake Baldwin. Surface Water BPM-SW-10 12/15/93 7.3 10/100 Upstream of Lake Baldwin. Surface Water BPM-SW-10 12/15/93 7.3 10/100 Upstream	mmercial Well CW-20	Route 6;	Groundwater	BPM-CW-20-01	3/11/93	8.8	920	11.1	Cear
Route 6; Groundwater BPM-CW-21-01 3/11/93 7.5 500 9	THE PROPERTY OF THE PROPERTY O	ter bei eine der net er eine eine eine eine eine der der der der der meine der eine der eine der eine mer eine		BPM-CW-20-02	4/22/93	8,3	920	12	0.621
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Route 6; Groundwater BPM-CW-23-01 3/1/93 7.5 469 10.5 Route 6; Groundwater BPM-CW-25-01 3/1/93 7.3 700 9.1 Route 6; Groundwater BPM-CW-27-01 4/22/93 6.8 380 11 Adjacent to SG-1 (North); Surface Water BPM-SW-01 6/2/93 7.7 680 15 South of Bridge. Surface Water BPM-SW-02 6/2/93 7.8 660 12 Just North of Route 6. Surface Water BPM-SW-03 6/2/93 7.5 700 1.2 Upstream of First Pond. Surface Water BPM-SW-04 6/2/93 7.5 700 1.2 Upstream of First Pond. Surface Water BPM-SW-04 6/2/93 7.5 700 1.2 em. BPM Intersection. Surface Water BPM-SW-09 10/15/93 6 500 1.0 am. Neas Seepage at Route 6 Surface Water BPM-SW-10 1/2/9/93 7 400 3.8 <tr< td=""><td>A STATE OF THE PROPERTY OF THE</td><td>despessor of the case of the c</td><td>***************************************</td><td>BPM-CW-21-02</td><td>4/22/93</td><td>7.0</td><td>1010</td><td>10</td><td>Clear</td></tr<>	A STATE OF THE PROPERTY OF THE	despessor of the case of the c	***************************************	BPM-CW-21-02	4/22/93	7.0	1010	10	Clear
Route 6; Groundwater BPM-CW-25-01 3/11/93 7.3 700 9.1 Route 6; Groundwater BPM-CW-27-01 4/22/93 6.6 380 11 Adjacent control BPM-SW-27-01 4/22/93 6.6 380 11 Adjacent to SG-1 (North). Surface Water BPM-SW-01 6/21/93 7.7 680 15 South of Bridge. Surface Water BPM-SW-02 6/21/93 7.9 560 12 Just North of Route 8. Surface Water BPM-SW-04 6/21/93 7.5 700 12 Downsteam of First Pond Surface Water BPM-SW-06 10/15/93 6 500 . In pstream of First Pond Surface Water BPM-SW-06 10/15/93 6 500 . In pstream of First Pond Surface Water BPM-SW-06 10/15/93 6 500 . In pstream of First Pond Surface Water BPM-SW-09 10/15/93 6 500 . In pstream of First Pond Surf	immercial Well CW-23	Route 6;	Groundwater	BPM-CW-23-01	3/11/93	7.5	469	10.5	Clear
CW-27 Poute 6; Southdwater BPM-CW-27-01 4/22/93 6.6 380 11 FER	mmercial Well CW-25	Route 6;	Groundwater	BPM-CW-25-01	3/11/93	7.3	700	9.1	Clear/Colorless
FER Adjacent to SG-I (North). Surface Water BPM-SW-01 682/93 7.7 680 15 WW treatment plant outfall. Surface Water BPM-SW-02 6/2/93 7.7 680 13 South of Bridge. Surface Water BPM-SW-04 6/2/93 7.9 660 12 Just North of Bridge. Surface Water BPM-SW-04 6/2/93 7.5 700 12 Upstream of First Pond. Surface Water BPM-SW-06 10/15/93 6 530 - Upstream of Less Baldwin. Surface Water BPM-SW-06 10/15/93 6 530 - stem Stream BPM Intersection. Surface Water BPM-SW-09 10/15/93 6-7 1,070 - stem Stream West on Route 6 Surface Water BPM-SW-10 12/9/93 7 400 3.8	immercial Well CW-27	Route 6;	Groundwater	BPM-CW-27-01	4/22/93	6.6	380	-	Clear
Adjacent to SG-1 (North), Surface Water BPM-SW-01 642/93 7.7 680 15	DEACE WATER								
Adjacent to SG-1 (North). Surface Water BPM-SW-01 68/2/93 7.7 680 15 WW treatment plant outfall. Surface Water BPM-SW-02 6/2/93 7.8 560 13 South of Bridge. Surface Water BPM-SW-03 6/2/93 7.9 560 12 Upstream of First Pond. Surface Water BPM-SW-04 6/2/93 7.5 700 12 Upstream of First Pond. Surface Water BPM-SW-06 10/15/93 6 530 - Upstream of Lake Baldwin. Surface Water BPM-SW-09 10/15/93 6 510 - Idem Stream Nest Seepage at Route 6 Surface Water BPM-SW-09 10/15/93 6-7 1,070 - Idem Stream West on Route 6 Surface Water BPM-SW-10 12/9/93 7 400 3.8	ALACE WATER	transmission de sant de service de	***************************************	retarion and the control of the cont					enderskenskelskei Beier beserberen en sessenalistet uten met manskelsessistetaken en en detamantet en en en en
WW treatment plant outfall. Surface Water BPM-SW-02 662/93 7.8 560 13 South of Bridge. Surface Water BPM-SW-03 68/2/93 7.9 560 12 Just North of Bridge. Surface Water BPM-SW-04 68/2/93 7.5 700 12 Department of First Pond. Surface Water BPM-SW-07 10/15/93 6 530 - Upstream of Itak Baldwin. Surface Water BPM-SW-09 10/15/93 6 510 - Item Stream BPM Intersection. Surface Water BPM-SW-09 10/15/93 6-7 1,070 - Aftern Stream West on Route 6 Surface Water BPM-SW-10 12/9/93 7 400 3.8	stern Stream	Adjacent to SG-1 (North).	Surface Water	BPM-SW-01	6/2/93	7.7	080	15	Coar
South of Bridge. Surface Water BPM.SW-03 662/93 7.9 560 12 Just North of Route 6. Surface Water BPM.SW-04 6/2/93 7,5 700 12 Upstream of First Pond. Surface Water BPM.SW-06 10/15/93 6 500 - Upstream of First Pond. Surface Water BPM.SW-09 10/15/93 6 510 - Upstream of Leaf Baldwin. Surface Water BPM.SW-08 10/15/93 6-7 1,070 - stem Stream Nest Seepage at Route 6 Surface Water BPM.SW-10 12/9/93 7 400 3.8 stem Stream West on Route 6 Surface Water BPM.SW-11 12/9/93 7 400 3.8	stern Stream	WW treatment plant outfall.	1	BPM-SW-02	6/2/93	7.8	280	43	Clear
Just North of Route 8. Surface Water RPM-SW-04 662/93 7.5 700 12 Upstream of First Pond. Surface Water RPM-SW-06 10/15/93 6 1,090 - Upstream of Lake Baldwin. Surface Water RPM-SW-09 10/15/93 6 530 - Stem Stream BPM intersection. Surface Water RPM-SW-09 10/15/93 6-7 1,070 - stem Stream Nest on Route 6 Surface Water RPM-SW-11 12/9/93 7 330 8/8 stem Stream West on Route 6 Surface Water BPM-SW-11 12/9/93 7 400 3.8	stern Stream	South of Bridge.	1	BPM-SW-03	6/2/93	7.9	290	12	Cear
Upstream of First Pond. Surface Water RPM.SW-08 10/15/93 6 1,090 . Downstream of First Pond. Surface Water RPM.SW-07 10/15/93 6 530 . Ident Stream BPM Interaction. Surface Water RPM.SW-09 10/15/93 6-7 1,070 . stem Stream Nest on Route 6 Surface Water RPM.SW-11 12/9/93 7 330 8.6 stem Stream West on Route 6 Surface Water BPM.SW-11 12/9/93 7 400 3.8	estern Stream	Just North of Route 6.	Surface Water	BPM-SW-04	6/2/93	7.5	700	12	Clear
Downstream of First Pond. Surface Water BPM.SW-07 10/15/93 6 530 - Upstream of Lake Baldwin. Surface Water BPM.SW-08 10/15/93 6 510 - BPM Intersection. Surface Water BPM.SW-09 10/15/93 6-7 1,070 - Near Sepsage at Route 8 Surface Water BPM.SW-10 12/9/93 7 330 8.6 West on Route 8 Surface Water BPM.SW-11 12/9/93 7 400 3.8	estern Stream	Upstream of First Pond.	Surface Water	BPM-SW-08	10/15/93	8	1,090		Clear
Upstream of Lake Baldwin. Surface Water BPM-SW-08 10/15/93 6 7 510 . BPM Intersection. Surface Water BPM-SW-09 10/15/93 6-7 1,070 . Near Seepage at Route 8 Surface Water BPM-SW-10 12/9/93 7 330 6.6 West on Route 8 Surface Water BPM-SW-11 12/9/93 7 400 3.8	estem Stream	Downstream of First Pond.	Surface Water	BPM-SW-07	10/15/93	9	230	•	Clear
BPM Intersection. Surface Water BPM-SW-09 10/15/93 6-7 1,070 . Near Seepage at Route 8 Surface Water BPM-SW-10 12/9/93 7 330 8.6 West on Route 6 Surface Water BPM-SW-11 12/9/93 7 400 3.8	estem Stream	Upstream of Lake Baldwin.	Surface Water	BPM-SW-08	10/15/93	8	510		Fairly Clear
Near Seepage at Route 6 Surface Water BPM-SW-10 12/9/93 7 330 6.6 West on Route 6 Surface Water BPM-SW-11 12/9/93 7 400 3.8	rainage to Western Stream	BPM Intersection.	Surface Water	BPM-SW-09	10/15/93	6-7	1,070	•	Clear
West on Route 6 Surface Water BPM-SW-11 12/9/33 7 400 3.8	ainage to Western Stream	Near Seepage at Route 6	Surface Water	BPM-SW-10	12/9/93	7	330	8.8	Clear
	ainage to Western Stream	West on Route 8	Surface Water	BPM-SW-11	12/9/93	7	400	3.8	Clear
	Madellan kan da	ter til de lagerspeter af de en sperk kan kant skamm myr i ber sen en e	***************************************	teri bu a matematica de la contraction de la con				***************************************	A. A

TABLE 3-11. BACKGROUND MONITORING SCHEDULE FOR INDIVIDUAL OBSERVATION WELLS. BALDWIN PLACE MALL, SOMERS, NEW YORK

MW-3DD 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 WELL NUMBER Image: Content of the	HUNOM	JUNE 1993	393																			
NUMBER DD	DAY	l .	2	=	12	13	14	15	16	17	18	19	20	21	22	3 2	4	15 2	9	7 21	62 8	1
	WELL NUMBER																					
	MW-10D																					
	MW-7D										4											
	PW-1								$ \perp $													
MW-3DD	PW-2											⊥ TR	ANSDI	JCER	CABL	5						
MW-3DD	MW-3D														┸							
	MW-3DD																					

MONTH JULY 1993	2	[Y 19	93																			
DAY	-	2	89	4	S	9	7	8	6	10	=	12 13 14 15 16	13	4.	15	16	17	18	19	19 20 21	1	22 23
WELL NUMBER																						
MW-5D																†	İ					

Vincent Uhl Associates

MACS MALL SOMERS	ERS, NEW YORK. tc (min) NA 53 53 7 7 NA NA NA NA NA NA NA NA NA	DRAWDOWN (feet) NA 3.01 NA 1.09 11.34 3.35 NA	Gpm/f) NA 0.17				
TEST TEST UMBER (min) Irden Wells (min) Irden Wells HB 75 75 76 160 80 80 HB Ired Bedrock 30 30 30 30 31 31 32 32 30 30 30 30 30 30 30	tc (min) NA S3 NA NA NA NA NA NA NA NA NA N	(feet) (feet) NA 3.01 NA 1.09 11.34 3.35 NA	Gpm/f) NA 0.17				
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riden Wells HB 75 HB 30 160	NA	NA 3.01 NA 1.09 11.34 3.35 NA	NA 0.17	(feet)	(t)/wdb)	(GPD/FT)	(GPD/FT)
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160 80 80 HB HB 180 30 30 30 30 30 90 80	30 NA	11.34 3.35 NA	1.1	1.09	1.1	1250	1130
80 HB HB 118 130 30 30 35 135 148 158 168	30 NA	3.35 NA	0.04	6.34	0.08		•
HB Fred Bedrock 30 30 30 30 72 80	WA	¥	0.29	3.28	0.3	350	894
72 F80			Ş	NA NA	¥	W	Υ×
72 Redrock 30 30 35 35 35 35 30 30 30 35 35 30 30 30 30 30 30 30 30 30 30 30 30 30							
30 30 35 35 90 72 80							
30 30 35 90 72 80							
30 35 90 72 80	3.5	1,55	2.26	1.55	2.26	2900	3080
35 90 72 80	4	1.03	1.94	1.03	1.94	2400	944
90 72 80	•	39.78	0.075	39.38	0.075	:	•
72 80	40	24.21	0.21	22.04	0.23	**	275
80	•	46.27	0.11	36.74	0.14		4
A	•	35.40	0.056	29.50	0.067	••	•
K Wells							
55	•	80.17	0.025	44.79	0.045	:	•
. 100	•	155.62	0.025	102.39	0.04		•
50	•	27.03	0.28	27.73	0.27	:	•
	•	55.75	0.036	21.26	0.094	:	•
130	•	40.54	0.031	15.87	0.078	;	•
	70	10.80	0.28	7.81	0.38	1	190
 Casing storage exceeds duration of the test. 							
** - Casing storage exceeds 30-minutes.							
Test data could not be analyzed due to limited water-level	level drawdown response after tc.	nse after tc.					
HB - Well was hand balled for sampling.							
Transmissivity values were derived from the 30-minute specific		ing an empirical ec	uation develope	od by Walton (1984): O/8= T/264 loc	capacity data using an empirical equation developed by Watton (1984); O/s= T/264 log(TV2693r*25)-66.1.	

TABLE 4-2.	BALDWIN PLAC	E MALL PRODUC	TION WELLS RE	E MALL PRODUCTION WELLS RECORD OF PUMPING;	
	SOMERS, NEW Y	ORK.			
		Meter	Gallons		
Date	Time	Reading	Pumped	ŭ	Comments
6/11/93	1210	4893200		Start of Record	
6/12/93	0060	4898800	0099		
6/13/93	1000	4898800	0		
6/14/93	0830	4898800	0		
6/15/93	1030	4904500	00/5		
6/15/93	1700	4910100	0099	Pump Turned Off	
6/18/93	1800	4914900	4800	Step Test Pumpage	
6/28/93	1430	4914900	0	Prior to Startup of Constant Rate Test	tant Rate Test
6/29/93	1330	4968400	53500	1380 minutes into the Constant Rate Test	onstant Rate Test
6/30/93	1430	5024300	23900	End of Constant Rate Test	əst
7/15/93	1800	5024300	0	Transducer removed from MW-5D	om MW-5D
11/11/93	1200	5671000	646700	Translates to a pumpin	Translates to a pumping rate of 5,434 gallons per
				day for a 119 day period of record	d of record
				(3.77 gallons per minute)	е).
				Vince	Vincent Uhl Associates

TABLE 4-3.	RESULTS OF ST	EP-DRAWDOWN	OF STEP-DRAWDOWN TEST AT PRODUCTION WELL	UCTION WELL PI	PW-1;
	BALDWIN PLAC	BALDWIN PLACE MALL, SOMERS, NEW YORK.	IS, NEW YORK.		
	c	Dolta e	700	ma/O	C/ma
Step	(map)	(#)	₩	(apm/ft)	(ff/apm)
-	39	62.90	62.90	0.62	1.61
2	32	14.00	48.90	0.65	1.53
3	22	18.00	30.90	0.71	1.40
	σ	ВО	CQ^2	BQ+CQ^2	
Step	(mdb)	(L)	(tt)	(μ)	
1	36	43.68	18.25	61.93	
2	32	35.84	12.29	48.13	
3	22	24.64	5.80	30.44	
Notes:	B = 1.12 ft/gpm				
	$C = 0.012 \text{ fl/gpm}^{2}$				
				Vincent Uhl Associates	ates

TABLE 4-4.	AQUIFER COEFFICIENTS D	FICIENTS	ERIVED	FROM THE LEAKY			WETHOD	ARTESIAN METHOD ANALYSIS;			
	BALDWIN PLACE MALL, SOMERS, NEW YORK.	E MALL,	SOMERS, I	NEW YORK	. •						
			Match Points	ints							
WELL	W(u,r/B)	ח	r/B	+	စ	-	-	S	P'/M'	Þ,	Ψ.
								eratealpares adjusted by special at the special and address on	And distance of the control of the c		transler man de de receptor menade artico esperante
MW-2D	ŀ	0.1	0.4	1150	2.9	620	1540	0.00017	0.00064	0.050	76
MW-3D		0.1	4.0	4200	4.3	540	1040	0.00055	0.00057	0.043	76
MW-5D	-	0.1	0.5	4500	4.2	530	1064	0.00063	0.00095	0.050	50
W(u,r/B) = Well	W(u,r/B) = Well function for a leaky artesian aquifer (dimensionless); Match Point.	y artesian	aquifer (di	mensionless); Match	Point.		Total se una forte en una proprieta de constantes que describan des consentaciones de consentaciones despuisas	***************************************		Assessment of the state of the
u = 2693r^2S/Tt; Match Point.	Match Point.							enders de la company de la com			
r/B = r/Sq.Rt. T	r/B = r/Sq.Rt. T/(P'/M') (dimensionless).	nless).									
t = Time after pu	= Time after pumping started (minutes); Matcl	nutes); Ma	tch Point.								:
s = Drawdown at	s = Drawdown at any point in the vicinity of a we	inity of a w	rell discharg	Il discharging at a constant rate (feet); Match Point.	stant rate	(feet); Mat	ch Point.				
r = Radial distan	r = Radial distance from pumping well (feet).	well (feet).									
T = Aquifer transmissivity (gpd/ft).	missivity (gpd/ft).										
S = Aquifer stora	S = Aquifer storativity (dimensionless).	3S).									
P' = Vertical peri	P' = Vertical permeability of aquitard (gpd/ft^2).	d (gpd/ft^2	. ـ								And special sections and sections and sections are sections as the section of the
M' = Saturated a	M' = Saturated aquitard thickness (feet).	eet).									
										Vincent Uhl Associates	sociates

TABLE 4-5.	Aquifer Coe	ifficients Derived	Aquifer Coefficients Derived from the Theis Method Analysis.	Method Analysis.			
							entre de la companya
WELL	W(u)	ח	-	S		F —	S
PW-2	1	0.1	069	9	175	745	0.00062
MW-3DD		0.1	8000	1.9	580	2352	0.0021
W(u)	Well function	Well function (dimensionless); match point.	s); match point.				
n	2693r^2S/T	2693r^2S/Tt; match point					
+	Time after p	pumping started	Time after pumping started (minutes); match point.	h point.			
S	Drawdown at any	at any point in tl	ne vicinity of the	well discharging	point in the vicinity of the well discharging at a constant rate (feet); match point.	e (feet); match	point.
À	Radial dista	ince from the pur	Radial distance from the pumping well (feet).				
}	Aquifer Transmissiv	nsmissivity (gpd/ft).	ft).				
S	Aquifer Storativity	rativity (dimensionless).	onless).				
					Vincent Uhl Associates	ciates	
						A	

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	BALDWIN PLACE MALL, SOM	E MALL, SOME	ERS, NEW YORK.				
							Arrest and the control of the contro
	t (min.)						
WELL	@ u<0.05	tc	Delta s	to	Andread and the control of the contr	S	
P.W1	MA	06		N A	TO A D		
	500	200		UNI	O45	AN C	
FW-2	689	AN	13.6	100	760	0.00054	
MW-2D	>2880	NA	ΑN	AN	NA	NA	**************************************
MW-3D	>2880	AN	NA	NA	NA	NA	
MW-5D	>2880	NA	NA	NA	NA	NA	
MW-10D	>2880	NA	NA	NA	NA	NA	
MW-3DD	>2880	NA	NA	NA	NA	NA	
in.)@ u<0.05 =	t(min.)@ u<0.05 = Time at which Cooper-Jacob Modified Non-Equilibrium Analysis becomes valid (minutes)	oper-Jacob Modifi	ed Non-Equilibrium	Analysis becomes	valid (minutes).	Betrakniste distracessessessessessessessessessessessessess	
 Time at which 	tc = Time at which casing storage becomes negligible	comes negligible ((minutes).	AND THE CONTRACT OF LAND AND THE CONTRACT OF T	Marketin		
Ita s = The diffe	Delta s = The difference in drawdown over one log cy	1 over one log cycle	cle (feet).	to the statement of the	and the second s		
= Time at which	to = Time at which drawdown is zero (minutes)	•	And a second	The same are the same of the s	entre de tradación de la company de la compa	Orași de la constitucione de la constitución de la	And the same and t
- Aquifer Trans	= Aquifer Transmissivity (gpd/ft).	we men't respect to de a consecutives and the state of the desire of the desire of the desire of the desire of	er de la companya de	ANALY MANAGEMENT AND THE PROPERTY OF THE PROPE	And de to serve or described from the described fro		
- Aquifer Storal	S = Aquifer Storativity (dimensionless)	.(s			AND REVENUE OF SECURITION OF S		Vincent Uhl Associates

₽-01 x E.8	090,1	Hantush-Jacob	MW-5D
₽-01 x 3.3	1,040	Hantush-Jacob	MW-3D
4-01 x 7.1	1,540	Hantush-Jacob	MW-2D
2.5 x 10-3	5,350	siəriT	MW-3DD
₽-01 x 8.8	97 L	si9dT	
₽-01 x 4.8	094	Cooper-1scop	S-W9
			(NeW gnigmu9)
₩	076	Cooper-Jacob	r-W9
		·	
(Dimensionless)	(1 1 /pd6)	METHOD	METF NO:
YTIVITAROTS	YTIVISSIMSUART	ANALYTICAL	
	OMERS, NEW YORK.	BALDWIN PLACE MALL, S	
JIFER PUMPING TEST;	COEFFICIENTS; PW-1 AQI	SUMMARY OF AQUIFER (TABLE 4-7.

	And the state of t	BALDWIN PLACE R	BALDWIN PLACE MALL, SOMERS, NEW YORK.	YORK.							
# 1 to 8 ft. bgs	Antian in the square had been assumed to be the square to be square to the square to t	BPW-TB-1	BPM-T8-1 (DL)	BPM-TB-2	BPM-TB-3	8PM-TB-4	BPW-TB-5	BPW.TB.0		BPW-TB-7 (DL)	8PM-78-6
D	SAMPLE DATE	4/12/93	2 to 4 ff. bgs 4/12/93	2 to 4 ff. bgs 4/12/83	0 to 1.5 ff. bgs 4/12/93	4 to 6 ft. bge 4/14/93	4 to 6 ft. bge 4/14/93	2 to 3 ft. bgs 4/14/93	0 to 2 ft. bgs 4/13/93	0 to 2 ft. bge 4/13/93	0 to 2 ft. bgs 4/13/93
0.003 B 0.002 B 0.004 B 0.003 B 0.002 B 0.004 B 0.001 J 0.02 B 0.002 B 0.004 B 0.002 B 0.002 H, bge Field Blank 4/14/03 4/14/03 4/14/03 0.007 B 0.023 J ND* 0.007 B 0.023 J ND* 0.006 J* ann per liter (µg/L). ann per liter (µg/L).	ARGET COMPOUND LIST OLATILE OPGANIC COMPOUNDS										
0.003 B 0.002 B 0.004 B 0.001 J 0.001 J 0.002 B 0.002 B 0.004 B 0.001 J 0.002 B 0.002 B Field Blank 4/14/03 4/14/03 4/14/03 0.002 J 0.	cetone	0.003	tie en en en territorio en				0.014	a de la constante de la consta			
0.003 B 0.002 B 0.004 B 0.001 J 0.001 J 0.002 B 0.002 B 0.004 B 0.001 J 0.002 B 0.002 H. bgs Field Blank 4/14/03 4/14/03 4/14/03 4/14/03 0.002 J 0.002 J 0.002 J 0.008	hlorobenzene	0.003 J									0.00
0.002 B 0.002 B 0.004 B ND* ND* ND* ND* ND* 1/14/03 4/14/03 4/14/03 4/14/03 4/14/03 0.007 B 0.0023 J ND* 0.008 J* ND* 0.00	noroethane ,2-Dichloroethylene (Total)			PART FOR the spins of the spins	0.007	en teleper i e gangdis meer est fysiel te e de capacita bis meeter de les en est			0.002 J		
0.003 B 0.002 B 0.004 B ND* ND* ND* ND* ND* 1/14/03 4/14/03 4/14/03 4/14/03 4/14/03 0.007 B 0.002 J ND* 0.008 J* thybanzana	C 900.0	***************************************		and the substitute of the subs	And the last of th		***************************************	n para de la proposición de con se mandado pelagrapida de la secución de constituido de la propesión de la pro			
ND* ND* ND* ND* ND* ND* O to 2 ft. bgs of the Blank 4/14/03 4/14/03 4/14/03 4/14/03 (1/14/03) (1	etrachloroethylene	0.7 J	1,200	099	0.027 J	0.003 B	0.002 B	0.004 B	1.4.J	12	0.026
ND' ND' ND' ND'	Stuene 1.1-Tricklomathana	0.007 J	The second secon								
ND' ND' ND' ND' ND' ND' ND' ND' ND' ND ND	ichloroethylene	0.260 J		***************************************		***************************************	0.001 J		- 000		
ND' ND' ND'	dene (Total)	0.005 J				***************************************	de mission de commerce per entre de secretarios de cesas de secretarios de secretarios de companyes de la comp		0.003		
ND' ND' ND' ND'	NTATIVELY IDENTIFIED		***************************************	A property construction of the freedy stable and according to		***************************************					
### PBM-TB-15 #PM-TB-0 FB	XATILE OPGANIC COMPOUNDS	QV	ND*	-QN	ND•	ND.	ND*	•QN	-GN	.QX	-CN
BPM-TB-14 BPM-TB-15 0 to 2 ft. bgs 4/14/63 4/14/63 4/14/63 0.002 B 0.002 J* 0.008 J* ams per Ret (Lig/L). ams per Ret (Lig/L).											
0 to 2 ft. bgs	And the second s					***************************************					
0 to 2 ft. bge 0 to 2 ft. bge 4/14/03 4/14/03 0.007 B 0.007 B ND*	THE STATE OF THE S	BPW-TB-9	BPM-TB-11	BPM-T8-12	BPM-TB-13	BPM-TB-14	BPM-TB-15	BPM-TB-6 FB			
ATTACE DATE ATTACE DATE ATTACE	0 4 HO T 10 HO	2 to 4 ft. bgs	4 to 6 ft. bgs	0 to 2 ff. bgs	Field Blank						
NEW CONTINUE CASANIC COAP-CIANS NO NO NO NO NO NO NO	SAMPLE VALE	A/13/83	4/14/83	4/14/83	4/14/93	4/14/03	4/14/93	4/14/83			
Land Expension Cover-DUNDS ND Activals 0.007 J 0.008 J 0.007 B 0.007 B 0.002 J Order between Considerations 0.007 B 0.007 B 0.007 B 0.007 B 0.007 B Public constituence of considerations 0.008 B 0.004 B 0.002 J 0.002 J 0.007 B 0.007 B Land Tribit continuence from the construction of constructions and constructions are abover in militarian part kilogram (mg/kgl, scorpt for the aqueous field beint which is shown in micrograms part liter (ingl.). ND* ND* Annual Vest or in the labble. The compound was detected in field and/or laboratory blanks as a provincial to the subconding detected are also in this labble. The compound set detected in field and/or laboratory blanks as a privale field in field and/or laboratory blanks as a privale and consideration field and/or laboratory stiffcas as a not shown. 0.001 J* 0.001 J* 0.001 J* 0.006 J* 0.001 J* 0.008 J*	RGET COMPOUND LIST	de trades error programment en en enteren en enterente programment en enterente en enterente en enterente en e	and the same party pages to the same and a same and	***************************************			***************************************			***************************************	
Accordance Cock C	LATILE OPGANIC COMPOUNDS			***************************************				QN	***************************************		
	STOTAL	L 700.0		0.083.1		***************************************	1 800 0				
Little bloom Little Litt	lorobenzene					to the time of the control of the time of time of the time of time of the time of the time of time	0.063 J		And the state of t	The state of the s	
Publicoetry	loroethane		erityin harmedaaa batka paga yana yana bahan bahan da kana da	e eft til e tilpasse fill give så er en tillet e taljonnen massen ste men til gefrepript	***************************************			-			
trachlorenthylene 0.006 B 0.004 B 0.002 J 0.007 B 0.00	2-Dichloroethylene (Total)				And the second level and describe the second level and the second level						
University the properties are also and and or laboratory blanks at a miles for the adjustments of the table. The complete are blown from the table. The complete are blown on the table. The complete are blown in micrograms per liter (Light). Specification are aboven in miligrams per kilogram (mgKg), except for the equecue field blenk which is shown in micrograms per liter (Light). Shearl is qualitatively accepted are above more than compounds detected in field and/or laboratory blanks at a miles levels. Clearitation is approximate due to limitation electrical in field a validation (pelow the method quantitation limit or based on QC orferie). Also used for tentatively identified compounds. Blank contaminants and/or laboratory aritfacts are not shown.	trachloroethylene	0.00e B	0.004 B	0.005 B	0.007 B	0.007 B	errore de la companie		***************************************	Annual or section of the section of	
thiorestityens bene (Total) NITATIVELY IDENTIFIED NITATIVE CONTROLLER IN THE CONTROLLER IN THE PROPRIES AND THE CONTROLLER IN THE CHARLES AND THE CH	Lene 1 Tricklem where										
INTATIVELY IDENTIFIED IND IND IND IND IND IND IND	chloreshylese		0.002 J	0.002 J							
MYATIVELY IDENTIFIED LATILE CHEANIC COMPOUNDS ND* ND* ND* ND* ND* ND* ND*	ene (Total)			obel men delle destillation delle							
Known (s) Late CRGANIC COMPOUNDS ND* ND* ND* ND* ND* ND* ND*	NTATIVELY IDENTIFIED	derdereite sis best charterentered to the party of the						was been special to the same and the same			
bgs - Feet below ground surface. Concentrations are shown in miligrams per klogram (mgKg), except for the equecus field blenk which is shown in micrograms per liter (lug/L). If those compounds detected are shown on the teble. The complete analytical data spreadcheats are provided in Appendix B. Clearitation are spoot shore this compound was detected in field and/or laboratory blanks at similar levels. Clearitation is approximate due to limitations learly from the provided in the passed on OC criteria). Also used for tentatively identified during data validation below the method quantitation limit or based on OC criteria). Also used for tentatively identified compounds. Blank contaminants and/or laboratory aritations are not shown.	LATILE OPIGANIC COMPOUNDS	-QN					.QN	,QN			
bgs - Feet below ground surface. concentrations are shown in miligrams per kilogram (mgKg), except for the equecus field blenk which is shown in micrograms per liter (ugL). Result is compounds detected are shown on the teble. The complete analytical data spreadsheets are provided in Appendix B. Result is qualitatively suspect shree this compound was detected in field and/or laboratory blanks at similar levels. Clearitation is approximate due to limitations identified duing data validation (below the method quantitation limit or based on QC criteria). Also used for tentatively identified compounds. Blank contaminants analor laboratory surfaces are not shown.	known (s)		0.00 6 J*		0.015 J*	0.008 J*					
Concentrations are shown in miligrams per kitogram (mg/Kg), except for the aquecus field blank which is shown in micrograms per liter (µg/L). If the complete are shown on the table. The complete analytical data spreadsheets are provided in Appendix B. Sheald is explorated the support shown on the table. The complete analytical data spreadsheets are provided in Appendix B. Charitation is approximate due to limitations identified during data validation (below the method quantitation limit or based on QC criteria). Also used for tentatively identified compounds. Blank contaminants and/or identified authors.	bgs - Feet below ground surface.										
Result is qualitatively suspect error this compound was described in field and/or laboratory blanks at similar levels Quantitation is approximate due to limitations identified during data validation (below the method quantitation limit or based on QC criteria). Also used for tenrarively identified compounds. Blank contaminants and/or laboratory sinitacts are not shown.	Concentrations are shown in mil	grams per kilogram (m	g/Kg), except for the a	queous field blank whi	ch is shown in microgra	ams per liter (µg/L).					
Quantitation is approximate due to limitations identified during data validation (below the method quantitation limit or based on QC criteria). Also used for tentatively identified compounds. Blank contaminants and/or laboratory arifacts are not shown.	· Result is qualitatively suspect s	ince this compound was	re companie analytical or te detected in field and	eta spreaceneets are p for laboratory blanks a	rovided in Appendix B. 1 eimilar levels.	The state of the s					
CHAIR CONTAINMENTS & INVO! MEDICATION & ALTHRICAS & TO PTO STOWN.	Quantitation is approximate due	to limitations Identified	during data validation (selow the method quar	ntitation limit or based o	on QC criteria). Also us	ed for tentatively ident	fled compounds.			***************************************
Might with the manner of the second s	moles were analyzed by Environ	atory animates are not at	nown.								

										Page 1 of 1
TABLE 5-2.	SUMMARY OF FIT A	SUMMARY OF HI ANALYTICAL RESULTS FOR V Baldwin Place Mall, Somers, New York.	SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SOIL BORINGS (SATURATED ZONE); Baldwin Place Mall, somers, new York.	SANIC COMPOUNDS	IN SOIL BORINGS (SATURATED ZONE);	en e	ver vand baken Habipalana vaplend i genederlyk jamen genede i 1900 och 1800 och 1800 och 1800 och 1800 och 180	***************************************	
							and the second s			***************************************
	BPW-TB-1	BPM-TB-2	BPM-TB-3	8PM-TB-4	8PM-TB-5	BPM-TB-6	BPM-T8-7	8-81-Md6	BPM-TB-0	8PM-TB-6 FB 2
	8 to 8 ft. bgs	8 to 10 ft. bgs	5.5 to 7.5 ft. bgs	6 to 8 ft. bgs	6 to 8 ft. bgs	3 to 6 ft. bgs	14 to 16 ft. bgs	6 to 6.5 ff. bgs	4 to 6 ft. bge	
SAMPLE DATE	4/12/93	4/12/93	4/12/93	4/14/93	4/14/93	4/14/93	4/13/93	4/13/93	4/13/93	4/14/93
TARGET COMPOUND LIST					***************************************		The state of the s			
VOLATILE OPIGANIC COMPOUNDS						***************************************			***************************************	
Acetora		0.008 J								
Chloroethane						***************************************			0.001	
Tetrachioroethylene	4,500 B	0.014 B	0.009 B	L 900.0	C 600.0	0.003 J	96.0	410	0.073	
1,1,1-Triohloroethane			The state of the s	0.028 B		0.027 B			0000	88
Toluene					***************************************					9.1
Vinyl Chloride				mings brondlended in the state of the state					0.002 J	
ft. bgs · Feet below ground surface.						amerikan departuar estere an urbere an apropriation appropriation and access to the second and appropriation and access to the second and appropriation and access to the second access to		en Britan jaren etten ressengenge page ette som etter ent		
All concentrations are shown in milligrams per kilogram (mg/Kg), except for the aqueous field blank which is shown in micrograms per liter (usd).	ligrams per kilogram (m	g/Kg), except for the e	squeous field blank which	th is shown in microgra	ams per liter (uo/L).					***************************************
Only those compounds detected are shown on the table. The analytical data reports are provided in Appendix	shown on the table. Th	e analytical data report	a are provided in Appent	女 F.		***************************************		and the state of t		***************************************
B - Analyte was also found in the associated laboratory blank sample.	seciated laboratory blan	rk sample.							AND AND ADDRESS OF THE PERSON AD	***************************************
J - Estimated value less than the reported detection limit.	ported detection limit.				The same of the sa					***************************************
Samples were analyzed by Envirotest Laboratories, Inc., Newburgh, New York.	set Leboratories, Inc., N	lewburgh, New York.				THE CONTRACTOR AND THE PARTY OF			Vincent UN Associates	

TABLE 5.3.	SUMMARY OF RI ANALYTICAL RESULTS	NALYTICAL RESULT		AL AND ACID EXTR	FOR BASENEUTRAL AND ACID EXTRACTABLE ORGANIC COMPONINGS IN SOIL BODINGS ALINGSATURATED FORES	ONDONING IN ST	A BOBINGS // INCA	TIBATED JONES.	10 1 20 1
And the second s	BALDWIN PLACE M	BALDWIN PLACE MALL, SOMERS, NEW YORK	YORK.				Sommes (One)	HOURIED COREJ.	
	BPM-TB-1	BPM-TB-4	BPM-TB-6	BPM-TB-6 FB					
_	2 to 4 ft. bgs	0 to 6 ft. bgs	0 to 3 ft. bgs	Field Blank					
SAMPLE DATE	4/12/93	4/14/93	4/14/93	4/14/93					
TARGET COMPOUND LIST			one and separate properties of a combinisher in the publisher with	e sejement en	and the second closed of the second of the s				
BASE/NEUTRAL AND ACID									
EXTRACTABLE ORGANIC COMPOUNDS	ON	QN		QN					
Benzo (a) Anthracene			0.065 J						
Benzo (b) Fluoranthene			0.100 J	-					
Chrysene			0.064 J						
Fluoranthene			0.100 J						
Pyrene			0.110	mary and a mary mark the garage of the state				***************************************	
TENTATIVELY IDENTIFIED									
BASE/NEUTRAL AND ACID			THE PARTY OF THE PROPERTY OF THE PARTY OF TH	***************************************					
EXTRACTABLE ORGANIC COMPOUNDS				and the same and the same of t					
2-Propanol, 1-(2-methoxypropoxy)				3.5					
Unknown Alkanes	0.220								
Unknown (s)	0.185 J	0.408 J	0.186 J						
ft. bgs - Feet below ground surface.									
All concentrations are shown in milligrams per kilogram (mg/kg), except for the aqueous field blank which is shown in micrograms per liter (μg/L)	ne per kilogram (mg/Kg	I), except for the aque	sous field blank which	is shown in microgra	ms per liter (µg/L).				
Only those compounds detected are shown on the table. The complete analytical data spreadsheets are provided in Appendix B.	on the table. The comp	olete analytical data spr	eadsheets are provided	d in Appendix B.					
 - Quantitation is approximate due to limitations identified during data validation (below 	itations identified during	g data validation (below	w the method quantita	tion limit or based on	he method quantitation limit or based on QC criteria). Also used for tentatively identified compounds	for tentatively identiff	led compounds.		
Samples were analyzed by Envirotest Laboratories, Inc., Newburgh, New York,	vatories, Inc., Newburg	h, New York.						Managed 1964 Access	***************************************

TABLE 5-4.	SUMMARY OF RIA	NALYTICAL RESULT	S FOR PESTICIDES	AND PCBs IN SOIL	BORINGS (UNSATUR	ATED ZONES		rage i or i
	BALDWIN PLACE N	ALL, SOMERS, NEW	YORK.	BALDWIN PLACE MALL, SOMERS, NEW YORK.	***************************************	1/2		
	BPM-TB-1	BPM-TB-4	BPM-TB-6	BPM-TB-6 FB				
	2 to 4 ft. bgs	0 to 6 ft. bgs	0 to 3 ft. bgs	Field Blank				
SAMPLE DATE	4/12/93	4/14/93	4/14/93	4/14/93				
ARGET COMPOUND LIST			· · · · · · · · · · · · · · · · · · ·			The state of the s		
PESTICIDES AND PCBe					ere i reade sides e como dia e babel a cabila de la mam que de pelo pelo pero per per pero per per			
alpha Chlordane	0.00077 ع		0.00032 J		remaining and the control of the con			
gamma Chlordane	0.00065 J		0.00025 J					
4,4'-DDD	0.0035 J		And the latest designation of the property property and the latest designation of the latest des					
4,4'-DDE	0.0037 J							
4,4'-DDT	0.042 J		0.00083					
Diełdrin	0.00092 J							
Endosultan /	0.00033 J							
Endosultan II	0.0016 B	0.000268	0.00034 B					
Endosuftan Sulfate	0.0088 J	0.0022 B	0.0026 B	0.034.1	The same of the sa			
Endrin	0.00037 J		Anna de la constitución de la co			-		***************************************
ft. bgs - Feet below ground surface.								
All concentrations are shown in milligrams per kilogram (mg/kg), except for the ague	illigrams per kilogram (mg/Kg), except for the	aqueous field blank w	sous field blank which is shown in microcrams per liter ()	Oranne ner liter (u.c.)			
Only those compounds detected are shown on the table. The complete analytical data a	e shown on the table, T	te complete analytical o	Sta storearts heats are n	Dreadsheats are provided in Amendia B	יום היום האם היום	***************************************		
B - Quentitation is distillatively element enne this compared was declared in facts	the cinca this company	Land Andrews Company	d am cross consider the	O VIOSO III ADDEI KIIA D.				
Chamitation is specyclimate due to timestical designation of the second	DOCUMENT OF STREET		arta or reportatory plan	or reporatory planks at similar levels.				
action is appointed	ine to illilitations results	ed during data validati		below the method quantitation limit or based on QC criteria)	ased on QC criteria).			
carrides were arranged by Environest Laboratories, Inc., Newburgh, New York.	est Ladoratories, inc., N	WDUIDH, New York.					Vincent I M Associates	

TABIF & &	STIMMARY OF RIANAL VTICAL RESULTS	AAI VTICA! RESUITS		VTE LIST METALS A	FOR TARGET ANALYTE LIST METALS AND INORGANICS IN SOIL BORINGS (UNSATURATED ZONE)	ORINGS (UNSATUR	RATED ZONE):	
	BALDWIN PLACE M	BALDWIN PLACE MALL, SOMERS, NEW						
A PROPERTY OF THE PROPERTY OF			· L					
	BPM-TB-1	BPM-TB-4	BPM-TB-6	BPM-TB-6 FB				
. A telebit gerrifik mangga menjakakasa sakahippayaka sambabiya sabakasa gamya tagainkaran daga.	2 to 4 ft. bgs	0 to 6 ft. bgs	0 to 3 ft. bgs	Field Blank				
SAMPLE DATE	4/12/93	4/14/93	4/14/93	4/14/93				
		er en manasan en	errennes i delebem reri de cheches ren ere des de sa chelè mares des i enn					
TARGET COMPOUND LIST		en beste beste en						
METALS AND INORGANICS								
				er i mege i spe emmen i hangar kartige i im i since en skuplet karte en er e		entime mare and entertain or a beneather, a stay of and are that a publishment of each		
Aluminum	L 069,1	1,730 J	2,610 J	22.2 J	THE PARTY OF THE P	***************************************		
Antimony					en e			
Arsenic								
Barium	36.3 J	44.0 J	60.8 J					
Beryllium	0.14B	0.12 B	0.11.8					
Cadmium	1.3 B	1.7 B	2.2 J					
Calcium	2,050 J	2,580 J	2,650 J	92.0 J				
Chromium	3.9 J		5.9 J					
Cobalt								
Copper	4.3	3.8	4.8	5.8				
Cyanide (Total)								
iron	1,750 J	1,870 J	3,430 J	25.1 J				
Lead	4.1	2.4	3.0					
Magnesium	908 J	1,250 J	1,740 J					
Manganese	120 J	£ 0.86	202 J	1.3 J				
Mercury		-						
Nickel			5.78	16.8 J				
Potassium	197	331	133					
Selenium	•							
Silver	0.598	0.42 B						
Sodium	161 B	1158	396 J	193 J				
Thallium		0.18 B						
Vanadlum	5.2	8.6	6.6					
Zinc	11.7 B	11.3B	17.1 J	12.5 J				
ft. bgs - Feet below ground surface.								 ***************************************
All concentrations are shown in milligrams per kilogram (mg/Kg), dry weight, e	nilligrams per kilogram	(mg/Kg), dry weight,	except for the aqueou	s field blank which is	except for the aqueous field blank which is shown in micrograms per liter (u.g/L.	(μg/L).		
Only those compounds detected are shown on the table. The complete analytical data spreadsheets are provided in Appendix B.	e shown on the table. T	he complete analytical	data spreadsheets are p	provided in Appendix B.				***************************************
B - Quantitation is qualitatively suspect since this compound was detected in field	pect since this compou	nd was detected in fiel	d and/or laboratory blanks at similar levels.	nks at similar levels.	responsable de la companya de la co			
J - Quantitation is approximate due to limitations identified during data validation (below the method quantitation limit or based on QC criteria).	ue to limitations identif	ied during data validal	ion (below the method	quantitation limit or b	ased on QC criteria).		***************************************	 ***************************************
				_	_		1100	

	BALDWIN PLACE MALL, SOMERS, NEW YORK.	MALL, SOMERS, I			-		***************************************			***************************************	
SAMPLE DATE	BPM-TB-16 6 to 8 ft. bgs E 11/15/93	BPM-TB-16 8 to 10 ft. bgs 11/15/93	BPM-TB-16 10 to 10.7 ft. bgs 11/15/93	BPM-TB-16 12 to 13 ft. bgs 11/15/93	BPM-TB-16 14 to 15 ff. bgs 11/15/93	BPM-TB-16 16 to 18 ft. bgs 11/16/93	BPM-TB-16 18 to 20 ft. bgs 11/16/93	BPM-TB-16 22 to 24 ft. bgs 11/16/93	BPM-TB-16 26 to 28 ft. bgs 11/17/93	BPM-TB-16 30 to 32 ft. bgs 11/17/93	BPM-TB-16 32 to 34 ft. bgs 11/17/93
TETRACHLOROETHYLENE TRICHLOROETHYLENE	130	0.160	200	270	1,300	0.0031	0.0062	0.0012	0.0059	0.250	0.0031
1,2-DICHLOROETHYLENE								THE THE PROPERTY OF THE	•	***************************************	
	BPM-TB-17 1 to 2 ft. bgs	BPM-TB-17 2 to 4 ff. bgs	BPM-TB-17 8 to 10 ft. bgs	BPM-TB-17	BPM-TB-17	BPM-TB-17 18 to 20 ft. bos	8PM-TB-17	8PM-TB-17	BPM-TB-17		
SAMPLE DATE		11/18/93	11/18/93	11/18/93	11/19/93	11/19/93	11/19/93	11/19/93	11/19/93	***************************************	en er
TETRACHLOROETHYLENE TRICHLOROETHYLENE 1,2-DICHLOROETHYLENE	0.130	0.180	43	0.190	2.2	1.7	6.1	0.040	0.040		

SAMPLE DATE	BPM-TB-18 0 to 2 ft. bgs E 12/2/93	BPM-TB-18 6 to 8 ff. bgs 12/2/93	BPM-TB-18 10 to 12 ft. bgs 12/2/83	BPM-TB-18 12 to 14 ft. bgs 12/2/93	BPM-TB-18 14 to 16 ft. bgs 12/2/93	BPM-TB-18 16 to 18 ft. bgs 12/2/93	BPM-TB-18 20 to 22 ft, bgs 12/2/93				
TETRACHLOROETHYLENE		0.0018		0,0022	0,0072	0.034	0.0066				
1,2-DICHLOROETHYLENE					en er en						
SAMPLE DATE	BPM-TB-19 1 to 3 ft. bgs E 11/30/93	BPW-TB-19 7 to 9 ft. bgs 11/30/93	BPM-TB-19 13 to 15 ft. bgs	BPM-TB-19 19 to 21 ft. bgs 7	23 to 25 ft. bgs						
TETRACHLOROETHYLENE	4	0.0021	AND AND ADDRESS OF THE PARTY OF	The second secon					ne des amérètes maniques proprietant des services de la company de la co	***************************************	
TRICHLOROETHYLENE											
SAMPLE DATE	BPM-TB-20 0 to 2 ft. bgs E 12/1/93	BPM-TB-20 2 to 4 ft. bgs 12/1/93	BPM-TB-20 4 to 6 ft, bgs 12/1/83	BPM-TB-20 6 to 8 ft. bgs 12/1/93	BPM-TB-20 8 to 10 ft. bgs 12/1/93						
TETRACHLOROETHYLENE TRICHLOROETHYLENE 12-DICHLOROETHYLENE		0,0023	0.0047	0.0082	0.0044		A Privilege Privilege and the Privilege Andreas of the Privilege Andrea	ed annamenta pepakan (manin pepakin permenintana). Pakamenta tetermanan i antelija dipukan katan katan karan katan katan katan katan katan katan katan katan kata			
SAMPLE DATE	<u> </u>	2 to 4 ff. bgs 12/1/93	4 to 6 ft. bgs 12/1/83	***************************************							***************************************
TETRACHLOROETHYLENE TRICHLOROETHYLENE								**************************************	u muunganalipumisti jota maasaassa arakitaataa n	e de la companya de l	
1,2-DICHLOROETHYLENE											***************************************
n. 045 - reer cook ground surrace. Not deleared concentrations are shown in militarens per kitogram (mg/kg). Not deleared.	are shown in miligram	s per kilogram (mg/K	(0).					addiction and a second control of a second con	had and charles a management before the state of the stat		
NA - Not analyzed due to laboratory error. Sambles wate analyzed by Emirotest Laboratories. Inc. Newburdt. New York	atory error.	New American	7					The state of the s			***************************************

									Page 2 of 2.
TABLE 5-6.	SOURCE AREA A	DDITIONAL DATA	SOURCE AREA ADDITIONAL DATA COLLECTION PROGRAM:		ANALYTICAL RESULTS FOR PCE, TCE AND 1,2-DCE IN TEST BORINGS	V TEST BORINGS;			
and the state of t	BALDWIN PLACE	BALDWIN PLACE MALL, SOMERS, NEW YORK.	NEW YORK.	***************************************				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	BPM-TB-22	BPM-TB-22	BPM-TB-22	***************************************		The state of the s	and the control of th		
And the state of t	1 to 3 ft. bgs	3 to 5 ff. bgs	5 to 7 ff. bgs		terri de companya a territoria de companya	THE PROPERTY OF THE PROPERTY O	ti bara i in paragan in bi agrapa paragangi kapin matiki babi kan madaganga barahar sa managan		
SAMPLE DATE		12/2/93	12/2/93				**************************************		
TETRACHI DROETHYI ENE	0.012	0.0012	0.003			'standedit uta albede der soomelen dem bedässtell binden ingeren. An in pen teres manasses e	'tallacentes for hugh to be the Mulaskie destina general che pale de consocie de pale habitantes es		
TRICHLOROETHYLENE		***************************************		***************************************	***************************************				
1,2-DICHLOROETHYLENE	•				The state of the s				***************************************
				***************************************	· · · · · · · · · · · · · · · · · · ·	the table date or the court of			

1									
	BPM-TB-16FB	8PM-TB-17FB	BPM-TB-20FB	BPM-TB-22FB					
	Field Blank	Fleid Blank	Field Blank	Fleid Blank		***************************************	THE RESIDENCE OF THE PROPERTY	***************************************	
SAMPLE DATE	11/16/93	11/19/93	12/1/93	12/2/93		tedata in in indicate and indi	ikeria serencentaria birakan direkapada temberia birakan berakan basaran dari berakan i 1845 melancia birakan dari birakan dari berakan birakan birakan birakan basaran dari berakan basaran basaran b		
TETRACHLOROETHYLENE	¥N		•			te entitle en title habetele en tileden met delse en enem de tenetim en entite en entite en entite en en entite	tradi de de delem armero serego espesaro a la mega que propresente pere describiras entre sa manerespe		
TRICHLOROETHYLENE	A		***************************************		Activity or consistent to plantage and the state of the s		***************************************		
1,2-DICHLOROETHYLENE	NA.			•					
ft. bgs - Feet below ground surface.	g								
All soll sample concentrations are shown in miligrams per kilogram (mg/Kg).	e shown in milligram	ns per kilogram (mg/	. (5)					***************************************	
- Not detected.									
NA - Not analyzed due to laboratory error.	tory error.							***************************************	
Complete Annual Control of the Contr	otood oppositories	Nowthing Now	Zark			***************************************			******************

TABLE 5-7.	SOURCE AREA	ADDITIONAL DATA	COLLECTION PRO	GRAM: ANALYTICAL	RESULTS FOR	PCE. TCE AND 1.2-C	CE IN SOURCE AR	SOURCE AREA ADDITIONAL DATA COLLECTION PROGRAM: ANALYTICAL RESULTS FOR PCE. TCE AND 1.2-DCE IN SOURCE AREA MONITORING WELLS:	LS:
en en entre entre des metals des des des manuels de la companya de la companya de la companya de la companya d La companya de la co	BALDWIN PLAC	BALDWIN PLACE MALL, SOMERS, NEW	NEW YORK.	The state of the s		The second secon	AND THE PROPERTY OF THE PROPER	to the state of th	
diştirin iştiriydiri karası armısı i masiringi tiringinin iştirin iştirin ildi diğirinde istir prosent ire	erent, commence and control of the c	en egenden begriften seg aden blegssammen, de sampesen eine spenden en den	den et ege pille gift som engagnet en bessesseren en en enderlegt, og ingen						***************************************
and the order of the state of t					e de l'étable de la company			Angerer (Free to the Control of the	
	MW-11S	MW-11S (DL)	MW-11SR	MW-11S (DL)	MW-11D	MW-11D (DL)	TRIP BLANK		
	SHALLOW	SHALLOW	SHALLOW	SHALLOW	DEEP	DEEP	and the first that the first of the control of the		
SAMPLE DATE	E 12/22/93	12/22/93	12/22/93	12/22/93	12/22/93	12/22/93	12/22/93		
TETRACHLOROETHYLENE	44,000 E	24,000	4,800 E	24,000	2,400 E	3,200	-		
TRICHLOROETHYLENE	160	A CALL DE LA CALL DE L	170		15	-			Marie and Marie and American American
1,2-DICHLOROETHYLENE	•	-		-	-	-	-		***************************************

All sample concentrations are shown in micrograms per liter (µg/L).	e shown in microgra	ms per liter (µg/L).	ari deferitables da participa de la companya de la	and the same and the	and the second s			and the same is the same of the same of the same of the same of the same is the same of th	
- Not detected.		The state of the s	e de majorité par la companya de la				And the same of th		***************************************
E - Concentration was outside calibration range; sample consequently diluted and reanalyzed (DL)	calibration range; sa	mple consequently dil	uted and reanalyzed	(DL).	AND THE PARTY AND THE AND THE PARTY AND THE				
Samples were analyzed by Envirotest Laboratories, inc., Newburgh, New York,	virotest Laboratories,	inc., Newburgh, New	York.		***************************************	-	***************************************		

Depth Inflated Inflated TB-17 TB-18 TB-18 TB-17 TB-18 TB-18 TB-17 TB-18 TB-18 TB-19		DALDWIN FLAN	DALOWIN TLACE MALL, SOMERS, NEW TORK	No NEW TORK					
Head Depth Initial Head Depth Initial Space Interval PID Space Interval PID Space Interval PID Space Interval PID Reading (feet bgs) Screening Reading (feet bgs) Screening 70		TB-16			TB-17	An and the state of the state o		TB-18	
Space Interval PID Space Interval PID (ppm) (feet bgs) Screening Reading (feet bgs) Screening (ppm) (ppm) (ppm) (ppm) (ppm) 70 0 to 2 30 400 0 to 2 0 300 2 to 4 6 300 2 to 4 0.5 300 2 to 4 6 300 2 to 4 0.5 300 2 to 4 6 300 2 to 4 0.5 300 2 to 4 6 300 2 to 4 0.5 300 2 to 4 6 300 2 to 4 0.5 300 6 to 8 30 400 6 to 8 1 400 10 to 12 15 500 12 to 14 20 200 12 to 14 20 250 14 to 16 20 400 16 to 18 1 60 16 to 18 10 10 2 to 24 0	Depth	Initial	Head	Depth	Initial	Head	Denth	lai+in!	Head
Reading (feet bgs) Screening (ppm) Reading (ppm) Screening (ppm) (ppm)	Interval	DIA	Space	Interval	PID	Space	Interval	Old	Space
(ppm) (ppm) (ppm) (ppm) 70 0 to 2 30 400 0 to 2 0 300 2 to 4 6 300 2 to 4 0.5 300 2 to 4 6 300 2 to 4 0.5 300 2 to 4 6 30 4 to 6 0.5 360 6 to 8 30 400 6 to 8 1 400 10 to 12 15 500 10 to 12 1 400 14 to 16 50 200 14 to 16 20 380 16 to 18 1 60 16 to 14 20 4 18 to 20 5 100 18 to 20 0 100 20 to 22 2 40 20 to 22 0 10 28 to 28 0 13 0 0 0 0 13 0 0 0 0 0 13 0 0 0 10 <td>(feet bgs)</td> <td>Screening</td> <td>Reading</td> <td>(feet bgs)</td> <td>Screening</td> <td>Reading</td> <td>(feet bgs)</td> <td>Screening</td> <td>Reading</td>	(feet bgs)	Screening	Reading	(feet bgs)	Screening	Reading	(feet bgs)	Screening	Reading
70 0 to 2 30 400 0 to 2 0 300 2 to 4 6 300 2 to 4 0.5 300 2 to 4 6 300 2 to 4 0.5 300 4 to 6 15 450 4 to 6 0.5 360 6 to 8 30 400 6 to 8 1 400 10 to 12 15 500 10 to 12 1 200 12 to 14 20 200 14 to 16 20 400 14 to 16 50 250 14 to 16 20 380 16 to 18 1 60 16 to 18 10 4 18 to 20 5 100 18 to 20 0 10 20 to 22 2 40 20 to 22 0 1 28 to 36 0 12 20 to 24 0 0 0 13 25 to 24 0 12 0 0 13 0 0		(mdd)	(mdd)		(mdd)	(mdd)		(mdd)	(mdd)
300 2 to 4 6 300 2 to 4 0.5 300 to 350 4 to 6 15 450 4 to 6 0.5 360 6 to 8 30 4 00 6 to 8 1 400 8 to 10 120 500 8 to 10 0 400 10 to 12 15 500 10 to 12 1 200 12 to 14 20 200 12 to 14 20 400 14 to 16 50 14 to 16 20 10 4 d 18 to 20 5 100 18 to 20 0 10 20 to 22 2 40 20 to 22 0 11 22 to 24 0 4 22 to 24 NR 2 24 to 26 0 35 2 40 10 28 to 36 0 12 0 12 0 0 13 0 0 12 0 0 13 0 0	0 to 2	4	70	0 to 2	30	400	0 to 2	0	_
300 to 350 4 to 6 15 450 4 to 6 0.5 360 6 to 8 30 400 6 to 8 1 400 8 to 10 120 500 8 to 10 0 400 10 to 12 15 500 10 to 12 1 200 12 to 14 20 200 12 to 14 20 380 16 to 18 1 60 16 to 18 10 4 18 to 20 5 100 18 to 20 0 10 20 to 22 2 40 20 to 22 0 12 22 to 24 0 4 22 to 24 NR 2 24 to 26 0 35 2 0 10 28 to 30 0 12 NR 0 0 13 0 0 0 0 13 0 0 0 0 13 0 0 0 0 13	2 to 4	50 to 70	300	2 to 4	9	300	2 to 4	0.5	1.5
360 6 to 8 30 400 6 to 8 1 400 8 to 10 120 500 8 to 10 0 400 10 to 12 15 500 10 to 12 1 200 12 to 14 20 200 12 to 14 20 200 14 to 16 50 250 14 to 16 20 380 16 to 18 1 60 16 to 18 10 4 18 to 20 5 100 18 to 20 0 10 20 to 22 2 40 20 to 22 0 2 24 to 26 0 35 8 0 1.8 26 to 28 0 12 NR 0 0 0 13 0 1 0 0.5 0 13 0 1 0 0 0 13 0 0 0 1 0 12 0 0 0	4 to 6	100 to 300	300 to 350	4 to 6	15	450	4 to 6	0.5	+
400 8 to 10 120 500 8 to 10 0 400 10 to 12 15 500 10 to 12 1 200 12 to 14 20 200 12 to 14 20 400 14 to 16 50 250 14 to 16 20 380 16 to 18 1 60 16 to 18 10 4 18 to 20 5 100 18 to 20 0 12 22 to 24 0 4 20 to 22 0 18 26 to 28 0 4 22 to 24 NR 2 24 to 26 0 35 R 0 0 18 26 to 28 0 13 R 0 1 28 to 38 0 13 R 0 1 1 0 1 1 0 0 13 0 1 1 0 0 13 0 1 1	6 to 8	250	360	6 to 8	30	400	6 to 8		-
400 10 to 12 15 500 10 to 12 1 200 12 to 14 20 200 12 to 14 20 400 14 to 16 50 250 14 to 16 20 380 16 to 18 1 60 16 to 18 10 4 18 to 20 5 100 18 to 20 0 100 20 to 22 2 40 20 to 22 0 2 24 to 26 0 4 20 to 22 0 1.8 26 to 24 0 4 22 to 24 NR 1.8 26 to 28 0 12 NR 0 12 0 13 0 0.5 1 13 0 0 0 0.5 1 0 0 0 HNu photoionization detector (PID). 1 0 0 0 0	8 to 10	10 to 15	400	8 to 10	120	200	8 to 10	0	1.5
200 12 to 14 20 200 12 to 14 20 400 14 to 16 50 250 14 to 16 20 380 16 to 18 1 60 16 to 18 10 4 18 to 20 5 100 18 to 20 0 100 20 to 22 2 40 20 to 22 0 2 24 to 26 0 4 22 to 24 NR 10 28 to 28 0 12 NR 0 28 to 28 0 13 R 0 10 13 R R 0 1 1 R R 0 1 1 R R R 0 1 1 R R R R 0 0 13 R R R R R 0 0 1 R R R R R R R	10 to 12	10 in sand	400	10 to 12	15	500	10 to 12	-	က
400 14 to 16 50 250 14 to 16 20 380 16 to 18 1 60 16 to 18 10 4 18 to 20 5 100 18 to 20 0 100 20 to 22 2 40 20 to 22 0 12 22 to 24 0 4 22 to 24 NR 1.8 26 to 28 0 12 NR 0 13 12 NR 0.5 13 12 12 0.5 13 12 12 0.5 13 12 12 0.5 13 12 12 0.5 13 12 12 1 1 12 12 1 1 12 12 1 1 12 12 1 1 12 12 1 1 12 12 1 1 12 12 <td></td> <td>5 below</td> <td>200</td> <td>12 to 14</td> <td>20</td> <td>200</td> <td>12 to 14</td> <td>20</td> <td>80</td>		5 below	200	12 to 14	20	200	12 to 14	20	80
380 16 to 18 1 60 16 to 18 10 4 18 to 20 5 100 18 to 20 0 100 20 to 22 2 40 20 to 22 0 12 22 to 24 0 4 22 to 24 NR 10 28 to 28 0 12 NR 0 13 13 NR NR 0 13 0 13 NR 0 1 13 NR NR 0 1 NR NR NR 0 1 NR NR NR NR HNu photoionization detector (PID). NR NR NR NR NR	12 to 13	0	400	14 to 16	50	250	14 to 16	20	30
4 18 to 20 5 100 18 to 20 0 100 20 to 22 2 40 20 to 22 0 2 22 to 24 0 4 22 to 24 NR 2 24 to 26 0 35 NR 10 28 to 36 0 12 NR 0 13 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 HNu photoionization detector (PID). NA 0	14 to 15	0	380	16 to 18	-	90	16 to 18.	10	11
100 20 to 22 2 40 20 to 22 0 12 22 to 24 0 4 22 to 24 NR 2 24 to 26 0 35 NR 1.8 26 to 28 0 12 NR 0 13 0 13 NR 0.5 1 1 NR NR 1 1 NR NR NR NR 0.5 1 1 NR NR NR NR 1 1 NR NR NR NR NR NR 0.5 0.5 NR	15 to 17	NA	7	18 to 20	5	100	18 to 20	0	0
12 22 to 24 0 4 22 to 24 NR 2 24 to 26 0 35 8 8 1.8 26 to 28 0 12 8 9 10 28 to 30 0 13 8 9 0.5 0.5 1 8 9 9 1 1 0 1 9 9 HNu photoionization detector (PID). 1 1 1 1	16 to 18	0	100	20 to 22	2	40	20 to 22	0	1
2 24 to 26 0 35 1.8 26 to 28 0 12 10 28 to 30 0 13 0 0.5 0.5 0 HNu photoionization detector (PID). HNu photoionization detector (PID). 0	to 20	0.4	12	22 to 24	0	4	22 to 24	Æ	Æ
1.8 26 to 28 0 0 10 28 to 30 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	to 22	0	2	24 to 26	0	35			
10 28 to 30 0 0 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.	22 to 24	0	1.8	26 to 28	0	12	di marija sadika niposopopopoposia simban da da da jaka karpa majagapa para karpana		
to 28 0 0 0 0.5 0 0.5 0	24 to 26	0	10	28 to 30	0	13	e de destacracións de la companya de		
to 30 0 0.5 1 6 1 6 1 6 1 </th <td>26 to 28</td> <td>0</td> <td>0</td> <td></td> <td></td> <td></td> <td>reine et deter met i denspringelje met i de sept blima dadama terres estad en</td> <td></td> <td></td>	26 to 28	0	0				reine et deter met i denspringelje met i de sept blima dadama terres estad en		
to 32 0 1 to 34 0 0 s were screened with an HNu photoionization detector (PID). In the photoionization detector (PID). singular surface. In the photoionization detector (PID). stars per million. In the photoionization detector (PID).	28 to 30	0	0.5	Parkana mayor kesan patanan da ada sananganan da ada ada ada ada ada ada ada ada	der	er der er e	A CONTRACTOR OF THE PROPERTY O		
s were screened with an HNu photoionization detector (PID).	30 to 32	0		and the state of t		- The second	***************************************		The second secon
s were screened with an HNu photoionization detector (PID). slow ground surface. arts per million.	32 to 34	0	0						
s were screened with an HNu photoionization detector (PID). Ilow ground surface. arts per million.									
slow ground surface. arts per million.	S Were scr	eened with an HN	u photoionization d	etector (PID).					
arts per million.	elow groun	d surface.	A THE RESERVE THE PROPERTY OF THE PERSON OF						
	arts per n	nillion.		de sage anjuntant estada de proposition de la companya de la companya de la companya de la companya de la comp	e de la companya de l				

TABLE 5-8.	SOURCE AREA ADDITIONAL	ADDITIONAL DATA	TA COLLECTION PROGRAM:	1	TEST BORING SOIL	SAMPI F PID	SCREENING RESILLTS:	TS:
	BALDWIN PLACE MALL, SO	E MALL, SOME	MERS, NEW YORK.					
Marie es establishment des establishments des estab			Vide research des des des des constructions de la construction de la c		medaler same addigrefs translage opposes spage personapas opposes opposes opposes	and the special section of the special sectin		
	TB-19		randige Protested de State de Marie de Marie de Marie de Company d	TB-20	Hall the state of		TB-21	
Depth	Initial	Head	Depth	Initial	Head	Depth	Initial	Head
Interval	PID	Space	Interval	PID	Space	Interval	PID	Space
(feet bgs)	Screening	Reading	(feet bgs)	Screening	Reading	(feet bgs)	Screening	Reading
	(mdd)	(mdd)		(mdd)	(mdd)		(mdd)	(mdd)
1 to 3	0	0	0 to 2	0	5	0 to 2	0	0.5
3 to 5	0	0	2 to 4	0	3	2 to 4	0	-
5 to 7	0	0	4 to 6	9	09	4 to 6	0.5	-
7 to 9	0	0	6 to 8	5	65	6 to 8	AN AN	SB
9 to 11	0	0	8 to 10	4	85			
11 to 13	0	0	9 to 1.1	NR	AN.			
13 to 15	0	0.5				The state of the s		
15 to 17	0	0.5	Andrewsky programmy and the control of the control	AND THE PROPERTY OF THE PROPER	er deltolle forbytskenser e een en bekelske hijd on bloomskenske spilspensepary op			
17 to 19	0	0			deletivitation est entre deletivitation est est est est de la commence production de la commence production de			***************************************
19 to 21	0	0.2						
21 to 23	0	0						ereiri mun meneriri kanannan samunin s
23 to 25	. 0	0						
					to de fels between grande by the second			
			and the state state of the stat	a de la companya de l	endarrajos est i successor de construcción de construcción de construcción de construcción de construcción de c	And the state of t		
				And the second s	managere in a managere de partir de la companya de		The state of the s	-
	2							
	77-91							
Depth	Initial	Head						
Interval	PID	Space			to resident and consideration of the constant	der		
(feet bgs)	Screening	Reading	Addition where the Article between times and that to their commerceal to the	de la la constitució de la constitució	As i Aprillega ariam partie a 3 Martin (468 parties i Martin Artin Andréa (Assar Martin) (Assar Martin) (Assar	est dessibilità de l'estude estato de la metadologia de l'action de la maltiera sul mesadologia sur	and the state of t	
	(ppm)	(bpm)						
1 to 3	0	0.5						
3 to 5	-	0.5						
5 to 7	0	NB						
5.5 to 7.5	0	0						
***************************************				Art id kinnessen erformersten en emissaksingh personap aproper prifet en nørsten e	name in the description of the special state of the			
ples were sc	Samples were screened with an HNu photoionization detector (PID)	u photoionization d	etector (PID).	The second secon				
bgs - Below ground surface.	nd surface.				-			
- Parts per r	ppm - Parts per million.			and all information of day, and any appropriate sequences of page 40	a biyaya da mili bala bi inn ba dalay da da sa sa sa sa da		The state of the s	
ALC: UNITED AND				-		-	THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAM	

UNDS Nation Shallow Shallow Shallow Shallow Bedrock 9/1/92 8/1/92 1.1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1	8 PM.MW.2S O11 Shallow 9/1/92 8 J 2 J	BPM.MW-2D 01 01 Deep 9/1/82 55 55 2 J 2 J	Shallow 8/31/82 8/31/82 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3	BPM-MW-3D 01 Deep 8/31/92 20 J	BPM-MW-3D 01R	BPM-#W-3DD	BPN-NW-4S	BPH-MW-4D 01	BPM-MW-5S 01	BPM-MW-5S
Shallow BPM.MW-ID		91100 01 01 01 01 01 01 01 01 01 01 01 01		BPM.MW-3D Of Deep 8/31/92	BPN-MW-3D 01R	8PM-MW-3DD 01	BPM-MW-4S 01	BPM-MW-4D 01	8PM-WW-5S 01	BPN-MW-5S
SAMPLE DATE Shallow Bedrock SAMPLE DATE 9/1/92 0/1/92 CMPOUND LIST OPGANIC COMPOUNDS Chloride Chlori	Shallow 91/92 8 J 2 J 2 J ND	911/82 911/82 55 55 2 J	\$hallow 8/31/82 8/31/82 4 J	6/31/92 6/31/92 20 J		5	10			
SAMPLE DATE Shallow Bedrock	Shallow 91/92 8 J 8 J 2 J ND	9/1/82 9/1/82 31 J 31 J 2 J ND	Shallow 8/31/82 8/31/82 4 J 1 J 1 J 2 B	8/31/92 8/31/92 20 J						E 5
SAMPLE DATE SAMPL	28.0 8.0 L S 2.0 L S 0.0 MD	31.1 31.1 31.1 ND	4 J 4 J 2 B 2 B 2 B 2 B 2 B 2 B 2 B 2 B 2 B 2	8/31/82 20 J	Cean	Bedrock	Shallow	Bedrock	Shallow	Shallow
ORGANIC COMPOUNDS ORGANIC COMPOUNDS I Buy Ether Chloride estrylene estrylene ELY IDENTIFIED ORGANIC COMPOUNDS ND ND ORGANIC COMPOUNDS	3 3 \$ 3 3 4 ND	31 J 85 SS 8 D ND	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	83.7	B/31/92	8/31/92	8/31/92	9/1/92	9/1/92	9/1/92
Chloride	- 1	31 J 2 J 2 J 2 J J WD	4 4 J 1 J 1 J 1 2 B 2 B 1 2 B	20 J			***************************************	teritorio de la compaño de compañ		ere i consessione memoranamente con establica de consessione establica de consessione de consess
Chorida	35 35 ND	25 2 2 2 ND ND	4 4 J		97.1	The state of the s	***************************************	- Production of other property of the production		***************************************
Chloride	35 2 J ND	2 2 2 ND ND	1 J 2 B 12		C 17				23	28
THAY Lither	ND ND	Ta a QN	1.J 2.B 12	85	94		20	7.8	18	
1	L S D D	DQN QN	2 B		er or make current and assertanced concerning to the	1	2 J	***************************************		
1 J 1 J	ND ND	ς QV	12			28	- jerisspilat magigatelakindet jerrestelbelakinsk	rijme maket fodbrijskerijjes mesenam je ram-prieplem		***************************************
Phylene	UD ND	ON ON	The same of the sa					v million berrerren freferie verrennistischen	64	74
CELY IDENTIFIED	QN	2	T 7	P 9	5 J	1.1	3.1		96	
NEW INCRINITION NEW INCREMENTATION NEW INCREM	QN	9				,			CN CN	7.7
			2			Q	Q	QN	QN	Q
SAMPLE DATE 8/2/82 8/2/82 CMPOUND LIST ORGANIC COMPOUNDS										
SPM-MW-65 BPM-MW-75 01 01 Shallow Shallow 9/2/92 9/2/92				5.1	13.J					
Shallow Shallow Shallow Shallow Shallow Shallow Shallow						***************************************	and the second s			

BPN-MW-65 BPM-MW-75 01 01 Shallow Shallow 6/2/92 6/2/92							erretamentament of the state of		***************************************	
BPM-MW-65 BPM-MW-75 01 01 Shallow Shallow 9/2/92 9/2/92					***************************************	enterret de se reserve en receptos de sente de s		***************************************		
01 01 Shallow Shallow 6/2/92 6/2/92	BPW-WW-8S	BPM-MW-3D	BPM-MW-6S	TB 8/31	TB 9/1	TB 9/2				
Shallow 9/2/92		018	910							***************************************
Shallow 9/2/92		Field	Field	Trip	Trip	Trip				
2677.6	Shallow	Blank	Blank	Blank	Blank	Blank				
RGET COMPOUND LIST AATILE OPGANIC COMPOUNDS etone	8/2/92	8/31/92	9/2/92	8/31/92	9/1/82	9/2/92				
LATILE ORGANIC COMPOUNDS etone						777777777777777777777777777777777777777		***************************************		
et de la company de la comp			Q.	2		Q				
								WARRANT TO SERVICE TO SERVICE THE PROPERTY AND MINISTERS OF SERVICE AND RES		
ie (total)								***************************************		
Methylene Chloride Nathul terr Surul Cher	8 8	7								
							***************************************	***************************************		
Tetrachloroethane	***************************************				1.7	111111111111111111111111111111111111111				
12 Tolkrachloroethylene	1 6		***************************************				***************************************			
ethylene	2.4			***************************************						
TENTANCELY (DENTIEED)		***************************************	division and the second							
VOLATILE OPGANIC COMPOUNDS ND ND	QN	ND	ND	ON	QV	MD				
I Infrontin	Parente or the Complete and the Complete of th									***************************************
ILLI O HIL										
ND- None Detected.										
All onceptrations are shown in micrograms per lifet (ught.) Only those normonic described cleared are shown in the table. The complete analysis and the complete described the second of	in date enrepeat	ari babiana ara	a Aprovio			and the spill that of the state and the stat				
. Result is qualitatively suspect since this compound was detected in field an	and/or leboratory ble	anks at similar leve	i Young					***************************************		***************************************
- Quentitation is approximate due to limitations identified during data validation	ation (below the met	hod quentitation fim	it or based on QC o	orferia). Also use	d for tentatively ide	entified compounds.				

APPLIA PROPERTY THE CONTRACT OF THE CONTRACT O	BPM-MW-1S	BPM-MW-1D	BPM-MW-2S	BPM-MW-2D	BPM-MW-3S	BPM-MW-3D	BPM-MW-3DD	BPM	BPM-MW-4D
	0.2	02	02	02	0.5	02	05	02	05
d material service successive consequents before resources and an approximate special special services and about	Shaflow	Bedrock	Shallow	Deep	Shallow	DeeD	Bedrock	Shallow	Bedrock
SAMPLE DATE	6/20/93	5/20/93	5/19/93	5/19/93	5/18/93	5/19/93	5/19/93	6/19/93	6/19/93
TARGET COMPOUND LIST	***************************************	erincian primerich mil forbithminimine betreher	Orbeitäjättititetaabet tiksubatut etteretuditeliitie.	A The State of the	To the state of th				
VOLATILE OPGANIC COMPOUNDS	terrori rama fanns dibitida idabitida di risarran adoren distanta en esta	n nakandunad) tidan kinikat bildi tinanakidi binabid dalah d	***************************************	QN	H Middi i id i dissifuranza paparana na	***************************************	Q	er erenen un pro-, unannun erenen erenen bestehnten bestehnten erenen erenen erenen erenen erenen erenen erene	S
Acetone			ſ6						
Benzene		andressen er bespen bresk bestredt der til delt bestrebten better bestre	**************************************		***************************************	475, 1447 144 144 14 14 14 14 14 14 14 14 14 14 1	CON 47 Mary 12.11.1. 1974 Mary 12.11.11.11.11.11.11.11.11.11.11.11.11.1	to the contract the state of th	and the second second descriptions of the second se
Carbon Disulfide			J.				, , , , , , , , , , , , , , , , , , , ,		
Chlorotom 1.2. Nichloroethylane Actal	***************************************		AND THE PARTY OF T		1 6	THE PROPERTY IN COLUMN TWO IS NOT THE PROPERTY OF THE PROPERTY			der weren in the characteristic black decreases
Methylene Chloride	re communication and made and the latter better to me		and the same and t	***************************************		***************************************	***************************************		
Methyl tert Butyl Ether	3J		***************************************					4.3	
Tetrachloroethylene		2.3		***************************************	۲۵				
Toluene					-	2.3			
Viene (Total)					7				
TENTATIVELY IDENTIFIED									#
								2	2
	BPM-MW-6S	BPM-MW-6S	BPM-MW-6D	BPM-MW-5D	BPM-MW-5D	BPM-MW-5D	BPM-MW-6S	BPM-MW-7S	
ter for the state of the state	02	02 (DL)	-01	04 (DL)	91R	01R (DL)	03	03	
SAMPLE DATE	Shallow 6/18/93	Shallow 5/18/93	Deep 5/21/93	Deep 5/21/93	Deep 5/21/93	Deep 5/21/93	Shallow 5/18/93	Shallow 6/20/93	
TARGET COMPOUND LIST VOLATILE ORGANIC COMPOUNDS									
Acetone			1.1		1.8.1				
Benzene	2.3	3				***************************************		***************************************	***************************************
Carbon Disulfide	***************************************	3.1							
Chloroform	7				***************************************	***************************************		Tomas mahadifeterettes vernis hebera (Wilders et all the besteret	
1,2-Uchioretriyrene (total) Methylene Chloride	00					***************************************			
Methyl tert Butyl Ether							3.1	***************************************	
Tetrachloroethylene Toluene	260 J	300	780 J 8 J	910	790 J 6 J	840		98	***************************************
Trichloroethylene Xylene (total)	180	190	57 2 B	40 J	57	38 J			
TENTATIVELY IDENTIFIED	a l'a circata de marche de de de l'appendiant	***************************************	Port of the first control to t				***************************************	***************************************	e pas de care : l'étade per care ;
VOLATILE OPGANIC COMPOUNDS	*		QN	QN	QN	CN	.QN	QN	
Dodecane	6.3		***************************************			And a second of the second of			
ND- None Detected.									
All concentrations are shown in micrograms per	crograms per liter (µg/L).	9/L).	***************************************		***************************************		***************************************		***************************************
Only those compounds detected are shown on the table. The complete analytical data spreadsheets are provided in Appendix B. J. Quantitation is approximate due to limitations Identified during data validation (below the method quantitation limit or based on GC criteria). Also used for tentarively identified compounds	shown on the table.	The complete anal	ytical data spreadsi dation (below the n	neets are provided in nethod quantitation	λ Appendix B. limit or based on C	Contenia). Also us	sed for tentatively to	entified compound	
Blank contaminants and/or laboratory artifacts are not shown.	ratory artifacts are r	iot shown.			7988 11 444 PT 12 12 12 12 12 12 12 12 12 12 12 12 12				***************************************
Samples were analyzed by Envirotest Laboratories, Inc., Newburgh, New York	est Laboratories, Inc.	Newburgh, New Yo	ork.					Vincent Uhl Associates	ates

IABLE 6-2.	BALDWIN PLACE	OF HI ANALYTICAL RESULTS FOR A	OF HI ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN MONITORING WELLS (SECOND ROUND); PLACE MALL, SOMERS, NEW YORK.	AILE ORGANIC	COMPOUNDS IN	MONITORING WEL	La (SECOND NO	OND);	***************************************
and a construction of the		77 MA 108	20 MM 2108	SO WAY MAG	SO WIN MOS				
e de la company de la comp	01	018	02	01	01 (DL)	07 TO	01 (DL)	BFM-MW-10S	01 M .1 0D
en de la compresenta manda de la compaña	Bedrook	Badrock	Shallow	Shallow	Shallow	Redroot	Bedroot	Challan	1
SAMPLE DATE	5/21/93	5/21/93	6/19/93	6/19/93	5/19/93	5/20/93	5/20/93	5/20/93	5/20/93
TARGET COMPOUND LIST VOLATLE ORGANIC COMPOUNDS			ND		eren erentelbet i eren kommen eren betat eren senten betat eren senten betat eren betat eren betat eren betat e		er e		- Maria de Caración de La Caración de Cara
Acetone	Typipoly is an efficiency of the different inches and the state of the			***				***************************************	***************************************
Benzene Carbon Disulfida									***************************************
Chloroform	***************************************	***************************************						The state of the s	7.
1.2-Dichloroethylene (total)				8	20 J	10	7.3		1
Methyl tert Butyl Ether					(Control of the cont	18	***************************************	7	- 0
Tetrachloroethylene	3.3	2.3		640 J	850	290 J	300	2	37
Oluene Trichlorathdene		***************************************	1			,			
Xylene (Total)				#1	٠/١	01			15
TENTATIVELY IDENTIFIED			***************************************	erra bereferra e por postero sociera de l'esta	***************************************			The state of the s	THE PARTY AND PROPERTY AND PROP
VOLATILE OPGANIC COMPOUNDS	QV	QN	•QN	.QN	-	ON	ON		QN
Unknown				***************************************				6.3	

And the state of t						Opposite the state of the state			***************************************
	BPM-MW-3S	BPM-MW-6D	TB 5/18	TB 5/19	TB 5/21		tantitisti ta dan kan da k		
	02B	018							***************************************
	Field	Field	Trip	Trip	Trb				***************************************
SAMPLE DATE	6/18/93	6/21/93	6/18/93	5/19/93	5/21/93				***************************************
TARGET COMPOUND LIST	· W								
Mahulana Charida			2	2		***************************************			***************************************
		0.7							Ambie menteletetetetetetetetetetetetetetetetete
TENTATIVELY IDENTIFIED VOLATILE OPGANIC COMPOUNDS	.QN	QN	.QN	•QN	ND			***************************************	
ND. None Detected,	***************************************						THE COLUMN THE PROPERTY OF THE		***************************************
All concentrations are shown in micrograms per	rograms per liter (µg/L).	9/L).					***************************************		
Unly those compounds detected are shown on the table. The complete analytical data spreadsheets are provided in Appendix B. J. Ottantifation is approximate due to limitations identified during data validation the marked an unitation limit as based as 00 minutes.	shown on the table.	The complete analy	fical data spreadshe	sets are provided in	Appendix B.				
- Blank contaminants and/or laboratory artifacts are not shown.	atory artifacts are n	of shown.			D IS DAME IN THE	C Gileral. Also us	ed IOT (entalively io	Also used for temainely identified compounds	***************************************
Samples were analyzed by Envirotest Laboratories, Inc., Newburgh, New York	f Laboratories, Inc.,	Newburgh, New 10	Ę.					Vincent Uhl Associates	86

4-517 5 5							** A	Acres and a second seco	The state of the s	THE REAL PROPERTY OF THE PARTY		5
IABLE 0-3.	BALDWIN PLAC	BALDWIN PLACE MALL, SOMERS, NEW YORK.	ESULTS FOR BAS	E/NEUTHAL AND	ACID EXTRACTA	BLE ORGANIC CC	MPOUNDS IN MO	SUMMANT OF HIANALTIKAL HESULTS FOR DASENEUTAL AND ACID EXTRACTABLE ORGANIC COMPOUNDS IN MONTORING WELLS; BALDWIN PLACE MALL, SOMERS, NEW YORK.			***************************************	

ress annual of the last the board of the supplement of the control of the board of the supplement of t	BPM-WW-1S	BPM-MW-1D	BPM-MW-2S	BPM-WW-2D	BPM-MW-3S	BPM-MW-3D	BPM-WW-3D	BPM-MW-3DD	BPM-MW-4S	BPM-MW-4D	BPM-MW-8S	BPM-MW-3D
, et alle de la companya de la comp	91	5	5	5	5	5	OTR	5	5	9	5	918
***************************************	***************************************	***************************************										Fleid
	Shallow	Bedrock	Shallow	Deep	Shaltow	Deep	Deep	Bedrock	Shallow	Bedrock	Shallow	Blank
SAMPLE DATE	8/1/85	9/1/92	9/1/92	9/1/92	8/31/92	8/31/92	8/31/92	8/31/92	8/31/92	9/1/92	9/1/82	8/31/92
TABLET CAMBOLIND LIST									***************************************			***************************************
DACEMENTON AND ACID					***************************************							***************************************
BASENEU I HAL AND ACID								***************************************				
EXTRACT ABLE CHUANIC COMPOUNDS	2		ON		QN	QV	Q	9	9	2	QV QV	QN
bls (2-Ethyl Hexyl) Phthalate		۲٦		1	Photogram by Parkethild District Consideration							***************************************
TENTATIVELY IDENTIFIED									***************************************			****
BASE/NEUTRAL AND ACID										***		***************************************
EXTRACT ABLE ORGANIC COMPOUNDS					***************************************		***************************************			***************************************		
Unkmown(s)		23	26	12.1		36.1	42.)	-		6.1	78	
Blank Conterninant	60	108	218	33 B	48		***************************************	58	58	68	88	
Saturated Hydrocarbon(a)	7*	71.	L 8 1	24	3.3	4.5	r6	33	3.1	8.3	181	4.1
Unsaturated Hydrocarbon(s)		23							***************************************			
Octadecanol			2.1			4			***************************************			***************************************
Octanole Acid							2,	-	***************************************			***************************************
Carboxylic Acid				3.1		***************************************			***************************************			***************************************
Dimethylethylphenyl leomer			33			***************************************		-	***************************************	***************************************		
Pentachlorofluorobenzene			20		***************************************							
Tetraethyistanane			37									
Phthalate Ester			3.1									***************************************
2-emino-8-methoxy-phenazine						18	62.5		***************************************			***************************************
2-ethylhexandic Acid				3.1	The same of the sa							
2-methylpropylester octanoic Acid									,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	7.60		
2-(2H-benzotriazol-2-yl)-4-methylphenol				101			***************************************		H 1811 4-4-4-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1			-
2,8-bis(1,1-dimethylethyl)-4-ethylphenol					(1.0.00 mm.m.m.m.m.m.m.m.m.m.m.m.m.m.m.m.m	37	3.1		***************************************			
4-morpholineathaniol						23	5.3			***************************************		
4-morpholineethanthiol				2.3	***************************************							

ND. None Detected.												***************************************
All concentrations are shown in micrograms per Iter (µg/L)	per Iter (µg/L).						***************************************	***************************************	***************************************			***************************************
Only those compounds detected are shown on the table. The complete analytical data spreadsheets are provided in Appendix B.	the table. The comple	te analytical data sp.	readsheets are provid	sed in Appendix B.					***************************************			***************************************
B - Result is qualitatively suspect since this compound was detected in field and/or jaboratory blanks at similar levels.	compound was detec	ted in field and/or it	aboratory blanks at	similar levels.	***************************************							
J. Cuanitation is approximate due to imitations identified during data validation (below the method qu	ons identified during	data validation (Dek	ow the method quan	lamitation amit or based on QC criteria).	ed on QC criteria).	÷	Also used for tentatively identified compounds.	mpounds.				
Sembles were analyzed by Envirotest Laboratories, Inc., Newbirgh, New York	Mes Inc. Newbirm	None Vends									The state of the s	

TABLE 6-4.	SUMMARY OF F	SUMMARY OF RI ANALYTICAL RESULTS FOR PESTICIDES AND PCB. IN MONITORING WELLS;	SULTS FOR PES	TICIDES AND PCE	38 IN MONITORIN	IQ WELLS;					Page 1 of 1
ANTARAMENTALAMENT OF THE RESISTANCE AND PROPERTY AND PROPERTY AND A PROPERTY OF THE PROPERTY O	BALDWIN PLAC	E MALL, SOMERS	, NEW YORK.							er pro-ph. Man out de surviver pres l'act et des représentation par une service et	And the section of th
	BPM-MW-1S 01	BPM-MW-1D 01	BPM-MW-2S 01	BPM-NW-2D 01	BPM-MW-3S 01	BPM-MW-3D 01	BPM-MW-3D 01 (DL)	BPN-MW-3D 01R	BPM-MW-3DD	BPM-MW-4S	BPM-MW-4D 01
t mentanka kirkat kepantan seseren sekir mentankan dalam sekir reset mentangan pagangan tang pagangan tang paga	Shallow	Bedrock	Shallow	Deep	Shallow	Deep	Deep	Deep	Bedrock	Shallow	Bedrock
SAMPLE DATE	9/1/92	9/1/92	9/1/92	9/1/92	8/31/92	8/31/92	8/31/92	8/31/92	8/31/92	8/31/92	9/1/92
TARGET COMPOUND LIST PESTICIDES AND PCBs	ND	QN			ON		***************************************		QN		QN
beta-BHC	n yeştiri deri sazeten bekalandır sası sarının serenak		er i descende de la Constante des Sant Modern de Local de Angeles de la Constante de Angeles de Constante de			reas superior cut can be company to the property from the company of the company of the company of the company	1.80.0				
delta-BHC								0.02 J			
atpha Chlordane	***************************************			0.02 J				ل 0.01		0.05 J	
gamma Chlordane			1.600	ი.068 კ		0.97 J	0.80 J	0.83 ქ			***************************************
4.4'-DDE	e de la contraction de la cont				***************************************					0.03 J	
4.4.DDT	and the first description of the second seco	The state of the s	0.02 J								
Dieldnr Fracestifen II			0.03 R	0.02		0.04 J	0.04 J	0.04 J		0.04 J	
Endosulfan Sulfate			11 70.0	0.34.0	744	0.00 J		0.02 0		1.600	er hande for the first of the forest parties
Endrin			0.01 J	0.03 J	***************************************	0.05 J	***************************************	***************************************			***************************************
Heptachlor			0.02 J					0.033 J		0.01 J	
Heptachlor Epoxide			0.01 R	0.01 J		0.01 J				0.04 J	Hill statement (ste testant coloresterment)
***************************************									***************************************		
AND COMPANY AND ADDRESS OF THE PROPERTY OF THE	***************************************							And played, the spirit place and the spirit party of the spirit party.			***************************************
en opppan opdie en meletyne er en op op met en en en pete til et et pete teget en beteken beste petekel. Her formen van de peteken en e											

	BPM-MW-8S	BPM-MW-8S	BPM-MW-3D								
e parameter principal constitutiva de la constitutiva de la constitutiva de la constitutiva de la constitutiva	01	91 (DL)									
	Shallow	Shallow	Fleid Blank						- aferrately the 'q' lastere sorrete en souseen avenue.		
SAMPLE DATE	9/1/92	9/1/92	8/31/92								
TARGET COMPOUND LIST PESTICIDES AND PCBS					***************************************						
beta-BHC											esperatus in happeners is an account of the principles.
delta-BHC		0.02 J									***
alpha Chlordane	0.13 A	0.12 J	1 100			- The state of the	O THE PROPERTY OF THE PARTY OF	vid bliber borne in shaka birka rayayan masan sa			
4,4-DDD	11 20:2	0.04 J	200								erine entre de la companya de la com
4,4-00E	0.05 R	0,04 J			***************************************						
4.4'-DDT	9,5			-						er en	dent construction and processes to the processes
Frdostiffan II	H 91 0	0.10	and the same of th								
Endosulfan Sulfate	0.05 R		and the second s		***************************************						
Endrin	0.34 FI	0.14.J		***************************************	***************************************						
Heptachlor	0.03 R										
Heptachlor Epoxide	0.078 R										
ND- None Detected.					and the photography or philosophy to printer p		- Commence of the later specification of the following specifi		and the state of t		***************************************
All concentrations are shown in micrograms per liter (µg/L).	rograms per liter (p	g/L).									
Only those compounds detected are shown on the table. The complete analytical data spreadsheets are provided in Appendix B.	shown on the table.	The complete analy	ytical data spreadsh	eets are provided in	Appendix B.						***************************************
Use - Cuentralion is approximate due to imitiations identified during data validation (below the method quantitation limit or based on B. Itanziaha easit Commond may or moving he messen in the semnlar semilar provided to the control of the contro	s to limitations iden	imed during data va	lidation (below the	method quantitation	Ilmit or based on	QC criteria).				eri eldistici i si tambunyah salisi i ismaaana si ad-assa s	***************************************
Samples were analyzed by Envirote	et Laboratories. Inc.	Newburgh, New Yo	#.							Vincent Uhl Associates	70
7									,	VIII VIII VIII VIII VIII VIII	3

TABLE 0.5.	SUMMARY OF R	SUMMARY OF RI ANALYTICAL RESULTS FOR TARGET	ESULTS FOR TAI	-	NALYTE LIST METALS AND INORGANICS (TOTAL) IN MONITORING WELLS;	INORGANICS (T	OTAL) IN MONITO	RING WELLS;				
	BALDWIN PLACE	BALDWIN PLACE MALL, SOMERS, NEW YORK.	, NEW YORK.							***************************************	***************************************	
	BPM-WW-1S	BPW-MW-1D	BPM-MW-25	BPM-MW-2D	BPM-MW-35	BPM-MW-3D	BPM-MW-3D	BPM-MW-3DD	BPM-MW-4S	BPM-MW-40	BPM-MW-85	BPM-MW-3D
	6	-6	5	5	10	, in the second	OIR.	Б	-0	6	5	978
-pau aprilia de constante de per la contra de												Field
***************************************	Shallow	Bedrock	Shallow	Deep	Shallow	Deep	Deep	Bedrock	Shallow	Bedrock	Shallow	Blank
SAMPLE DATE	9/1/92	9/1/92	9/1/92	9/1/92	6/31/92	8/31/92	8/31/92	8/31/92	8/31/92	8/1/92	9/1/82	8/31/92
TADGET ANALYTE LEFT	***************************************		***************************************							-		
METALS AND INORGANICS			reference de la company de		***************************************		***************************************		eneral in the specific of states in the second sections in the second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section in the section is a section in the section is a section in the section i	And the second s		
Aluminam	11,300 J	1,200 J	6,280 J	482 J	3,980 J	423 J	407 J	72.18	3,940 J	226 J	6,880 J	41.1
Antimony	21.4 J	***************************************	19.61		18,6 B				30.2 B		18.3 J	
Araenic	4.4 B	3.0 B	8.38	2.08			2.9 J			3.2 B	3.8 B	
Barium	288	296	377	76.4	114	1 06	104	189	274	85.0	384	2.7
Beryllium	0.62 B		0.428		0638			0.80 8	0.88 B		0.89 B	0.72
Cadmium		3.1B	2.9 B	2.1 B				2.9 B	2.6 B		3.78	2.7 J
Calcium	66,500	82,800	159,000	33,900	57,000	33,900	33,200	55,800	122,000	58,400	128,000	4,730
Chromium	₽.8.	9.1.5	8.1 ∪								7.6 J	
Cobalt	20.9		8.8		7.6	7		15.4	6.6		3.7	
Copper	53.5	28.3	44.9	25.2 B	15.5 B	9.5 B	10.28	8.8 3	26 B	9.98	35.4	5.3
Cyanide (Total)	NA		ΥN									
Iron	15,800	42,600	35,600	£.	4,910 J	480 J	468 J	3,900 J	5,870 J	19,300	10,400	13.4
Lead	6.6	13.8	47.2	1.1	40	13.4	15.1	2.3 B	7.0 B	3.2 B	20.5	1.3
Magnesium	26,300	23,800	23,600	7,330	19,800	3,460	3,940 J	17,200	51,000	17,700	49,800	88.3
Manganese	1,040	430	6,540	116	421	23.7 J	24.2 J	404	525	623	1,160	4.5
Mercury												
Nickei			13.9						***************************************		20.6	
Potassium	6,890	19,500	7,130	77,500	1,840 J	111,000 J	105,000 J	4,950 J	ر 77,70	7,010	7,920	322 J
Selenium				2.1 J							1.8.1	
Silver	3.78	3.48		2.38	2.8 B			4.8 B	4.48	2.7 B	3.0 B	3.3 J
Sodium	50,200	51,000	36,500	28,000	22,700	43,300	41,400	15,000	44,400	26,300	74,900	168
Thellium			0.60	0.77.5		0.63 B		0.80 B	0.50 B	5.5 J	0.47 J	
Vanadium	\$2.9	27.6 B	49.4	16.1B	24.2 B	14.0 B	14.2 B	19.3 B	37.5	17.08	45.8	5.9
ZInc	48.2 B	50.4 B	144 B	12.0 B	74.8 B	47.18	53.8 B	101 B	44.18	53.8 B	79.4 B	83.3 J
			-									***************************************
All concentrations are shown in micrograms per liter (µg/L).	w in micrograms p	er liter (μg/L).				***************************************	***************************************		***************************************	***************************************	***************************************	-
The complete analytical data spreadsheets are provided in Appendix B.	spreadsheets are p	rovided in Appendix	9.		***************************************			(*) m* *				
NA - Not analyzed.								***************************************	AND THE PROPERTY OF THE PROPER			
D - Hesting is quantitatively suspect since this compound was detected in left since in the control states at sinning levels. 1. O controllers in annowing the form the form the detected during data validation factors the method clientification in the controllers.	uspect since this or	e identified dering of	ete velidation (helo	with method minns	y plants at setting terois.	d on OC criteria)	**************************************			the second secon		
			THE PERSON NAMED IN COLUMN									

-AGLE 0-0.	SUMMARY OF RIANALYTI					· <<:		
	BALDWIN PLACE		MERS, NEW YORK.		LISI MEIALS AN	AND INCREANCS	(DISSOLVED) IN MONITORING	MONITORING WEL
	8PM-MW-1D	BPM-MW-3S	RPM.MW.3D	MM MOB				
		7			DOS-W-M-W-DOS	DFM-MW-4D	BPM-MW-8S	
en de la companya de				MIO	01	01	01	
der ter reprisentation betrette der er reprisentation bestehnte der er verweren bestehnte begreichte in der	Bedrock	Shallow	Deep	Deep	Bedrock	Redrock	Challow	
SAMPLE DATE	9/1/92	8/31/92	8/31/92	8/31/92	8/31/92	9/1/92	9/1/92	
TARGET ANALYTE LIST								
METALS AND INORGANICS			ere en en demokratiske interestatiske en	A the remove and the second		and the same of particular to the state of the state of the state of the same	And the section of th	
Aluminum		36.9 B	16.3B		22.1 B		15.7 B	
Antimony		and the second s				arrest entrettes against a destacration of the best of the second of the second of the second of the second of	18.0 J	es estimatorisation de professional profession de la companya de l
Arsenic	2.6B				Na control en	3.0B	2.6B	
Barium	185	24.3	83.4	75.7	178	83.1	168	
Beryllium					And the second s			***************************************
Cadmium	***************************************	2.6B	1.9 B	And the state of t	2.5 B	de alle de la companya del la companya de la compan	***************************************	
Calcium	74,300	51,500	28,400	27,800	50.900	56,900	79 400	***************************************
Chromium			7.9		The second secon			***************************************
Cobalt		en pris se sant status de la costa paparica de la capación de la c	***************************************	AT AT THE PARTY OF	5.1			
Copper	3.4 B	22.6 B	3.7 B	2.7 B	4.18	29B		
Íron	468	27.7 B	17.2 B	7.5 B	272	3980	28 2 B	
Lead	1.9 B	1.8B	1.4 B	2.08	redit de de rederenda independente e e constituto de la c	2.3 B	26B	
Magnesium	22,900	16,700	3,570	4,500 J	16.800	18.500	28.800	
Manganese	235	7.0 B		Andrea de la companya	380	518	V2007	***************************************
Mercury				and the same of the same and th		2	¥0.4	
Nickel			And the second control of the second control	-				
Potassium	18,900	1,020 B	94,700 J	83.700 J	4.750.1	7.630	5 ABA	
Selenium				A STATE OF THE PERSON NAMED OF		17.1	0010	
Silver	2.8B	3.2 B			3.2 B			AND THE PERSON AND TH
Sodium	50,600	22,200	38,400	35,400	14,700	28,600	73.100	***************************************
Thallium		0.53 B	0.60 B	0.45 B	0.60 B	Andrew Commission of the Commi		
Vanadium	14.4 B	13.2 B	14.4 B	13.1 B	14.2 B	9.6B	13.2 B	
Zinc	12.7 B	49 B	7.18	3.8B	20.9 B	3.1B	17.4 B	
All concentrations are shown in micrograms per liter (µg/L).	m in micrograms pe	r liter (μg/L).						
The complete analytical data spreadsheets are provided in Appendix B.	spreadsheets are pri	ovided in Appendix E	3.		***************************************			***************************************
B - Result is qualitatively suspect since this compound was detected in field and/or laboratory blanks at similar levels.	uspect since this con	npound was detecte	ed in field and/or la	boratory blanks at	similar levels.			
J - Quantitation is approximate due to limitations identified during data validation (below the method quantitation limit or based on QC criteria)	ate due to limitations	identified during da	ita validation (below	the method quanti	ation limit or based	on QC criteria).		
The sections of the column				The state of the s				

TABLE 6-7.	SUMMARY OF R	ANALYTICAL RE	SULTS FOR GRO	RI ANALYTICAL RESULTS FOR GROUNDWATER CHEMISTRY	MISTRY PARAMETERS	ERS
	IN MONITORING	WELLS; BALDWI	N PLACE MALL,	ING WELLS; BALDWIN PLACE MALL, SOMERS, NEW YORK	JRK.	
	BPM-MW-1D	BPM-MW-3S	BPM-MW-3D	BPM-MW-3DD	BPM-MW-4S	BPM-MW-4D
	01	10	01	01	10	01
	Bedrock	Shallow	Deep	Bedrock	Shallow	Bedrock
SAMPLE DATE	9/1/92	8/31/92	8/31/92	8/31/92	8/31/92	9/1/92
LIST OF PARAMETERS			videoprapa del del del como de del constante			
Alkalinity (total)	240	210	98 (a)	160	240	210
Chlorides	92	20	93	38	210	43
Nitrate/Nitrite	2.4	ND (0.2)	ND (0.2)	0.27	1.2	ND (0.2)
Sulfate	45	21	40	27	65	21
Total Dissolved Solids	390	230	310	250	009	300
Total Hardness	270	230	57	200	460	230
Hd	7.5	7.2	11.4	7.8	7.6	7.5
ND (X) - Not detected at detection limit X.	etection limit X.					
(a) - Bicarbonate alkalinity = 32 mg/L. E	I = 32 mg/L. Bicart	onate alkalinity equ	uals total alkalinity	sicarbonate alkalinity equals total alkalinity for all other samples.	St.	
All concentrations are shown in milligrams per liter (mg/L)	own in milligrams p	er liter (mg/L).				
The analytical data reports are provided in	are provided in App	n Appendix J.				
Samples were analyzed by Envirotest Lal	y Envirotest Laborate	poratories, Inc., Newburgh, New York.	th, New York.		Vincent Uhl Associates	ates
a nowfining a low policing	1000	3.55.1.5.1.6.1.6.1.6.1.6	I TOTAL LOUVE		5	וויס וויס

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e principal de la compansión de la compa							***************************************		***************************************	***************************************		
	BPM-RW-01	BPM-RW-01	BPM-RW-02	BPM-RW-03	BPM-RW-04	BPM-RW-05A	89	8 P E	8 P W	8	BPM-RW-09A	2 A
SAMPLE DATE	2/24/93	2/24/93	2/24/93	2/24/93	01 2/24/93	2/24/93	01R 2/24/93	01 2/24/93	2/24/93	01 (DL) 2/24/03	2/24/93	01 (DL)
TARGET COMPOUND LIST VOLATILE ORGANIC COMPOUNDS	ND ND	QN	ND	QN	QN							
Acetone 1,2-Dichloroethylene (Total)						***************************************			2.0 B	***************************************		
l etrachloroethylene Trichloroethylene						16 0.9 J	13 0.8 J	4.6	33 J 1.8	33 J 1.8 J	31 J 1.6 J	32 1.9 J
TENTATIVELY IDENTIFIED VOLATILE OPGANIC COMPOUNDS	"QN	ND.	ND*	ND•	ND*	QN	QN	Q	ND*	***************************************	QN.	***************************************
	BPM-RW-10A	BPM-RW-11	BPM-RW-12	BPM-RW-13	BPM-RW-14	BPM-RW-15A	BPW-RW-16	BPM-RW-16	BPW-RW-16	BPM-RW-17	BPM-RW.18	And and the second second second
SAMPLE DATE	2/24/93	2/24/93	01 2/24/93	01 2/24/93	01 2/24/93	01 2/24/93		01 RE 2/24/93	01 R 2/24/93	01 2/24/93	01	***************************************
TARGET COMPOUND LIST VOLATILE OPGANIC COMPOUNDS				QN.		***************************************					GA	
Acetone 1 2. Dichtomethylene (Fotel)										1.2 B		
Tetrachloroethylene Trichloroethylene	13 0.5 J	3.5	L 8.0		1.8	8.7 0.6 J	5.2.1	4.6 J	4.2	1, 1		
TENTATIVELY IDENTIFIED VOLATILE OPGANIC COMPOUNDS	QN	•QN	ND*	ND.	.QN	QN	QN	-GN	CN	Q	GN	
un entre principal de constante d												***************************************
			A constraint of the constraint co									***************************************
	BPM-WELL 1	BPN-WELL 1	BPM-WELL 2	BPM.WELL 2	TB 2/24							
SAMPLE DATE	2/24/93	01 (DL) 2/24/93	2/24/93	01 (DL) 2/24/93	2/24/93							
TARGET COMPOUND LIST VOLATILE ORGANIC COMPOUNDS					e de la constitución de la const						en e en	***************************************
Acetone 1 2. Dichloroethylene (Totel)	1.08				2.4 J							
Trichloroethylene	100.1	93	30 J	39 J			7,000,000,000,000,000,000,000,000,000,0					
TENTATIVELY IDENTIFIED VOLATILE OFFGANIC COMPOUNDS	•GN		NO		QN							
ND- None Detected.	***************************************						The second section of the second second second second second	er i i i distrator, proprado de construir de				***************************************
All concentrations are shown in micrograms per liter (µg/L). Only those compounds detected are shown on the table. The R. Basult is challestrated a second since this compound uses.	e shown on the table	. The complete and	Mical data spreads	heets are provided	l in Appendix B.							
J. Quantitation is approximate due to limitations identified during deta validation (below the method quentitation limit or base	As to limitations ident	iffed during data ve	fidation (below the	ry planks at similar	tory clearing at similar revers. The method quentitation limit or based on QC criterial.	n OC criteria). A	Also used for tentatively identified compounds.	rely identified com	pornds.			
- DIRITIK CONTRIBILITIER ENDOOF AND STATIFICACIE ETE INCI STOWN. Samples were analyzed by Envirotest Laboratories, Inc., Newburgh, New York.	oratory artifacts are est Laboratories, inc.	, Newburgh, New Y	ork.			- martin contraction of color of particular of the color						

					, , , , , , , , , , , , , , , , , , ,								. 60
TABLE 6.9.	SUMMARY OF	SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE	ESULTS FOR VO		ORGANIC COMPOUNDS IN ROUTE & COMMERCIAL WELLS	N ROUTE & COM	WERCIAL WELLS						
	BALDWIN PLAC	BALDWIN PLACE MALL, SOMERS, NEW YORK.	18, NEW YORK.						***************************************			apropria de messación espesación de secuención de secuenci	
	BPM-CW-10	BPM-CW-20	BPM-CW-20	BPM-CW-21	BPM-CW-21	BPM-CW-23	BPM-CW-23	BPM-CW-23	BPM-CW-23	BPM-CW-25	BPM-CW-27	118 3/11	TB 4/22
i i i je	5	5	04 (DE)	10	91 (DL)	70	30 P	91 B	01 R (DL)	, d	5	Trip	판
		- Parlicularion of the land of				# 1 P.			the same of the sa			Blank	Stank
SAMPLE DATE	3/11/93	3/11/93	3/11/93	3/11/93	3/11/93	3/11/93	3/11/93	3/11/93	3/11/83	3/11/93	4/22/93	3/11/83	4/22/93
TABLET COMPONING HET													
VOLATILE OPGANIC COMPOUNDS										QN	QN	QN	ON
Tetrachloroethylene		48.3	47	480	4	40,1	4	40°	46.5				
Trichloroethylene		1		3.0	64	0.7.0	**************************************	C 6.0	***************************************				
Methyl tert butyl ether	ŧ.	46.1	44	4.0	6.4	-		2					
Prince Cont. A serial serial and a serial se													tunnanapprostantaringe
TENTATIVELY IDENTIFIED				***************************************					d 1-1 100 100 100 100 100 100 100 100 100				
VOLATILE OFIGANIC COMPOUNDS	g		,	ND	•	QN.	:	Q	1	Ş	D	2	.QV
2,2,4 Trimethylpentane		1.3											
ND: None Detected.													
All concentrations are shown in micrograms per liter (µg/L).	rograms per fiter (igt.).											
Only those compounds detected are shown on the table. The complete analytical data spreadsheets a	shown on the table	. The complete an	alytical data spread	sheets are provide	are provided in Appendix B.								
J - Quantitation is approximate due to limitations identified during data validation (below the method	to Imitations iden	tified during data v	elidation (below the	•	quantitation limit or based on QC criteria).		Also used for tentatively identified compounds	vely identified com	pounds.				
 Blank conterminants and/or laboratory artifacts are not shown. 	ratory artifacts are	not shown.											
Samples were analyzed by Envirotest Laboratories, Inc., Newburdh, New York,	st Lebarataries, Inc.	Newburgh, New Y	Ş.									Vincent Uhl Associates	ates

			and the second of the second s							The state of the s			
Chiefe Search Charles Serve Chiefe Search Chiefe Searc													
Charles Speaking Charles Spe	<u> </u>	SAMPLED	ANALYZED	Supply Well(s)	LOCATION			DATE	SAMPLED	ANALYZED	Supply Well(s)	PW-1	PW-2
POES 35 Liberary La Lis Environment 602.1 POES 65	(ED	ձ	BYMETHOD	(Non-Specifia)				SAMPLED	æ	BY/METHOD	(Non-Specific)	(East)	(West)
POES 19 POES	2	WCHD	WCEHC	PCE 37	Liquor Stone			16/8/E	L&H	Envirotest 503.1	PCE 96		
Total State	82	WCHD	WCDL&R	PCE 5.3	Bakery						TCE 9.5		
POE 50				TCE 3.6			***************************************	4/9/91	L&H	Envirotest 503.1	PCE 86		
TOTE 5.0 TOTE 5.0	/84	WGHD	WCDL&R	PCE 35*	2						TCE 8.3		-
100 100	-			TCE 3.8				5/9/91	LAH	Envirolest 503.1	PCE 77		
100 100	*	WCHD	WCDL&FI	PCE 30	esno _H		and the state of t			The state of the s	TCE 5.6	***************************************	***************************************
102 1.0	-	4		- CF 4.6			***************************************	L6/21/30	LAH	Envirotest 503.1	25.12		
121 17 17 17 17 17 17 17	22	OF5.¥	WCULAH	P. 1.8	Ŝ				***************************************	***************************************	13		
Supply Wald(s) FWH.1 FWH.2 S11/201 L.8.H Environatio (SOL1 TOE 5.8 (Not-Signation) (Earth) (Ward) (Wald) (101/701 L.8.H Environatio (SOL1 TOE 5.8 (Not-Signation) (Earth) (Wald)	+			105 1.7				18/81/	LAH	Envirofest 503.1	PCE 170		
Suppy Wade) PW1 PW2 S72291 L.1.1 Environes 2021 PGE 16		The state of the s									TCE 13	***************************************	
Supply Supply Sup	+							8/22/91	LAH	Envirotest 503.1	PCE 85		
Charles Char	<u> </u>	SAMPLED	ANALYZED	Supply Well(s)	PW-1	PW-2				a tradition of the party of the	TCE 7.4		
1007.001 1,4 H Emirodes 2021 1006 64 1707.002 1,4 H Emirodes 2021 1,4 H 1,0 H 1,4 H	C C	В	BY/WE HOU	(Non-Specific)	(Faet)	(Mest)		16/11/8	T#	Envirolest 503.1	ND (0.5)		-
TOE 5.07	80	FBG	Envirotest 601/602	25.45				1977/01	LAH	Environent 503.1	PCE 110		-
TOPE 58 MINO POPE 52 TOPE 64 TOPE 59 TOPE 64 TOPE 65 TOPE 65 TOPE 64 TOPE 65 TOPE 64 TOPE 65	88	Less	Emvirolest 801 &	PUE /USK	***************************************		er i ferste fine de l'année de l'a			The state of the s	ICE 6.9		
TOE 6.87 TOE 6.8 TOE			ErMrite	ICE 3.8/ND			***************************************	12/1//91	LAH	Envirolest 503.1	88		
TOE 0.051 POEE 44 TOE 7.5 TO	288	ACHO	WCDL&H	PCE 12							1GE 8.4		
POE 82 TOE 84 221/02 VUA Environes 524 TOE 53				TCE 0.67				1/27/92	LAH	Erwirotest 503.1	PCE 85		
TOE 15 TOE 15 SZYINZ VIA	7/88	WOHD	WCDL&R		POE 32	PCE 6.4	***************************************	The state of the s	***************************************		TOE 7.3		
POE 14 POE 15 POE 16 POE 16 POE 16 POE 17 POE 18 POE 19 P					TCE 1.5	TCE 1.5		2/21/92	V	Envirolent 524.2		PCE 68	PCE 4.7
POE 16 POE 16 ST1/NO BIG V Environes 0221 å 5031 TOE 43440 FOE 14 TOE 20 TOE 20 \$71/NO BIG V Environes 521 å 5031 POE 6472 TOE 20	788	MYSDEC	Camo 503.1		PCE 14	PCE 38			- Andread Control of the Control of			TCE 5.3	
POE 16 POE 15 TOE 6.94 TO				***************************************	***************************************	TCE 2	,	5/11/82	913 V	Envirotest 502.1 & 503.1	PCE 90/98		
POE 14 POE 15 POE 167 POE 167 POE 167 POE 167	98/	WCHD	WCDL&R	PCE 18						i	4		
TOE 2.0 TOE 2.0 TOE 2.0 TOE 2.0	68	MSDEC			PCE 41	PCE 15		8/11/82	BIG v	4			
12-DOE 14 MTBE 12 MTBE 13 11/1092 BIG V Emirotes 90.1 A 500.1 TOE 50.04.	_				TCE 2.0	TCE 0.89					-		
POE 14 POE 14 POE 104 POE 105					MTBE 1.2	MTBE 1.5					1,2-DCE 0.5/-		
TOE 1.2 TOE 1.2 TOE 1.2 TOE 1.4 TOE	28	JAFA	Envirotest 503.1	POF 14				11/10/92	BIG V	Envirotest 502.1 & 503.1	PCE 80/85		
PDE 53 PDE 53 PDE 54 PDE 51 P				T0€ 1.2							TCE 3.8/4.2		
TOE 4.1 TOE 4.1 TOE 4.1 TOE 4.1 TOE 4.1 TOE 4.1	88	JRFA	Envirotest 503.1	PCE 53				2/24/93	ΥΩ¥	Envirotest 91.4 (a)		PCE 83	PCE 30
POE 10011 POE 20011 POE	_			TCE 4.1								TCE 6.5	TCE 2.5
TCE 5.654 PCE 6.102 PCE 6.103 PCE	28	JRFA	Envirolest 503.1	PCE 70/71								1,2-DCE 0.8	
PCE 50 P	_			TCE 5.5/5.4				5/24/83	BIG V	Envirotest 502.1 & 503.1	PCE 81/89		
TCE 2.6 TCE 2.7 TCE 2.6 TCE 2.7 TCE	780	JAFA	Enviroteet 503.1	PCE 36							TCE 5.1/0.2		
PCE 44 PCE 44 PCE 44				TCE 2.6							1,2-DCE 0.5/-		
TOE 3.8 TOE 4.14.2 TOE 5.5 TOE 4.14.2 TOE 5.5 TOE 4.14.2 TOE 5.5 TOE 3.05.3 TOE 4.14.2 TOE 5.5	8	JRFA	Envirotest 503.1	PCE 48				870/03	BIG V	Environment 502.1 & 503.1	PCE 68/78		
POE 85 11/8/102 11/8/103				TCE 3.8							TCE 4.1/4.2		
TOE 8.0 TOE 9.0 TOE 3.043 TOE 3.04	8	LAH	Envirolest 503.1	PCE 85				11/9/83	BIG V	Environment 502.1 & 503.1	PCE 45/63		
POE 73 WTRE 2.0				TCE 8.0							TCE 3.2/5.3		
TOE 8.4 POE 60/88	06/8	L&H	Envirotest 503.1	PCE 73			4	and strategies are not referred to the contract of the contrac	and the same of th		MTBE 2.0		
POE 110 TOE 3.53.6 TOE 2.1 A 503.1 POE 4.647 TOE 2.573.0 TOE 2.773.0 TOE 2.773.0 TOE 2.773.0 TOE 2.773.0 TOE 1.2 T				TCE D.4				2722/04	BIG V	Envirotest 502.1 & 503.1	PCE 80/88		
TCE 10 FOR 21 FOR 47 FOR 47 FOR 47 FOR 47 FOR 45/47 FOR 21 FOR 47	20/60	H	Frederitant 503 1	PCF 110							TOF 3 5/3 6		
POE 71 TOE 2.720 TOE 1.720 TOE 2.720 TOE 1.720 TOE 1.7				105 40		er meleken er les wementen er eren Breken wa		K194 KD4	V Cla	Eminates 503 4 & 503 4	4		
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Abony New York. A Abony New York. tout.													
tout. Abany, New York. teor. Annual Research. Vahalta, New York.	rations are	athown in mich	ograms per Mer (µg/L).					(a) - Hemedial Inves	igation deta set.	ge med allejadeja oz zaje je iz jednjem bljale i branjale jedi i bazajej i i i prikance dj			
Aberry, New York. e.e. and Recearch. Vehalts. New York. stort.	Westchester	r County Health	Department.								-		
es and Rosearch, Vahalis, New York. ftput.	- Winchester	r County Enviro	nmental Health Center, Al	bany, New York.									
itout	4 · Westcher	eter County De	partment of Laboratories	and Research, Vall	alla, New York.								
	Envirie An	edytical Service.	a, Watertown, Connection	#									
	CAMO Labor	ratories, Pought	teepele, New York.		مسال الرجوريسة عا واطرائية الراجوات المساودة والمساودة و				***		**************************************		
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RW-09 RW-10	$\downarrow \downarrow$	PCE 12	PCE 0.7	25 15	TOE 1.5	PCE 1.1		S.C. 1.3	PCE 14	ET < 0.5		H	TCE 0.86	***************************************	200	POE 12	DE 0.64	***************************************	PCE 4.1 All ND (6					***************************************	CE 48 PCE 15	TCE 2.7 TCE 0.64	CE 2.7	44	TOE 2.2/2.3	${\mathbb H}$	CE 39 PCE 12	TCE 1.8 PCE 32 PCE 14	H		CE 28 PCE 13	H	TCE 1.6 TCE 0.6 PCE 39 PCE 12		+	PCE 21 PCE 11	OE 43 PCE 15		FCE 1.8		- Laboratory report notes that other VOCs pr	was detected in ran	1 in 10/92.	in 7/92. ation data set.	in And 1009
RW-08	H	121				PCE 4.9			_	+	PCE 7.2	TCE 1.2	+	\vdash		PCE 14 P	-		PCE 11 PC						4	¥ã	\dashv	TCE 1.8	+-	\vdash	\parallel	PCE 31 PC		\dashv	-	+	-	TCE 1.8 TC	\dashv	-	PCE 48	-	+		- Laboratory report no	- Laboratory report n	(a) - Sampled collected	(b) - Sample collected (c) - Remedial Investiga	(b) Sample Collected
RW-07	PCET	20 1 201		-		PCE 0.82						PCF 0 77					PCE 1.8		PCE 1.4	***			100000000000000000000000000000000000000		PCE 4.6"			6 7 6 7 3 JG		PCE 6.0	PCE 4	PCE 6	PCE 4.2		PGE 4.8	PCE 4.6	PCE 5.1	PCFRA		P.E. 8.1	PCE 9.8	1	Chloroform 1			×			•
RW-06	All ND (0.5)	600					A! ND (0.5)		***************************************			A ND (0.5)					All ND (0.5)			***************************************					***************************************								All ND (0.5) (b)					Ali ND (0.5)		(6.0) ON IN	AI ND (0.5)	All ND (0.5)	(ca) ca c		entitation limit X.	West Moses serve		***************************************	
RW-05			POE 28	PCE 27	TCE 1.8		PCE 18	TCE 1.1						PCE 25	7000			PCE 12		-	PCE 6.0	***************************************	152	TCE 0.61			-	PCE 11	TCE 0.64	PCE 11	PCE 13	PCE9		TCE 3.1	TCE 1.9	PCE 16/13	PCE 6.1	PCE 22	TCE 1.2	TCE 3.6	PCE 140	PCF 300	TCE 10	UCE 0.5	detected at quantitation limit X.	ed.			
RW-04	All ND (0.5)								(G.0)			AI ND (0.5)	,				All ND (0.5)	***************************************	All ND (0.5)		T S UN IN	(c.0)	All ND (0.5)								(S'O) QN IN	All ND (0.5)	All ND (0.5)	All NO GR	6000	(1) ON IV	All ND (0.5)	All ND (0.5)	All MD (A E)	(0.0)		All ND (0.5)			ND (X) - Not detected at quant 7 < X - Trace concentration A	ND - Not Detect	NT - Not Tested		
RW-03								1 0 0 N	(C.D) (N. IV			All ND (0.5)				All ND (0.5)			***************************************			PCE 1.2			MTBE 1.0	All ND (0.5)		All ND (0.5)	***************************************		Ali ND (0.5)	Al ND (0.5)	Al ND (0.5)	AN ND (0.5)	(6:0)	Al ND (1)	Al ND (0.5)	Al ND (0.5)	AII ND GE		(5:0) QN IN	Chloroform 2.6	***************************************				Recent		
RW-02			***************************************		AN AND GO	(6.0) ON IN		AN MA	(0.0) ON IN			All ND (0.5)			(5:0) QN IN									***************************************	All ND (0.5)	***************************************		All ND (0.5)		Al ND (0.5)	At ND (0.5)	(9'0) QN IN	. Ali ND (0.5)	All ND (0.5)		A NO (1)	AI ND (0.5)	All ND (0.5)	NO CO		Al ND (0.5)	Chloroform 0.7					for Laboratories and		
RW-01				Aff ND (0.5)	***************************************			NO CON HA	(CA) CM HV		Aff ND (0.5)	All ND (0.5)				All ND (0.5)						***************************************			All ND (0.5)			All ND (0.5)			All ND (0.5)	All ND (0.5)	All ND (0.5)	All ND (0.5)		AI ND (1)	Chloroform 0.5	All ND (0.5)	AU ND (0.5)		All ND (0.5)	All ND (0.5)				stories and Research.	Health Wadeworth Center for		
ANALYZED	WCDL&R 502 & 503		WCDL&R-502 & 503	WCDL&R 502 & 503	WCDI AB 500 & 503	WCDL&R 502 & 503	WCDL&R 502 & 503	WCDL &B 400 & 403	200 8 400	WCDL&R 502 & 503	WCDL&R 502 & 503	WCDLAR 502 & 503	100 HOW	WCDLAH 502 & 503	WCDLAR	WCDL&R 503.1	WCDL&R 503.1	אכטנמא סטג מ סטפ	WCDL&R 502 & 503	WCDL&R 502 & 503	WCDL&R 502/503	WCDL&R 502/503	WCDLAR 524 WCDLAR 524		WCDL&R 503+	WCDLAR 503+	WCDL&R 503+	Envirolest 524.2	2 004 O 1 F 7M	Wad Lan 304.4	Envirolest 502.1	Envirotest 502.1	Envirotest 502.1	Envirotest 502,1		Envirotest 91.4 (c)	Enviroteet 502.1	Envirotest 502.1	Envirotest 502.1		Enviroteet 502.1	Envirotest 502.1			grams per liter (µg/L). Department.	artment of Laboratories an	Department of Health Wa		
SAMPLED	WCHD	GIIOIN.	MCHD	WCHD	1	WCHD		WCHD	T	WCHD	7	WCHD	Cricia	CHO.	WCHD	Ť	₩CHD	T	WCHD	11	1		WCHD		WCHD	WCHD	WCHD	VUA	TOUGON	5	A 988	N BIG V	BIG V	BIG V		*	BIGV	Bla v	BG V		BIG V	BIG V			shown in micro	ster County Dep	· New York State	markets.	
SAMPI ED	11/22/88	119080	11/30/88	12/9/88	12/21/88	1/12/89	2/23/89	2/24/89		37/80	3/15/89	5/23/89	OBICHA	R07111	10/18/89	11/2/88	11/28/89	2600	5/15/80	6/26/90	06/6/8	10/25/90	1/15/91		9/5/91	16/51/8	8/28/91	10/30-11/4/91	(4)40)	(11120)	2882	5/82	8/82	11/82		2/83	5/8%	8/93	11/93	340	2/94	5/94			Concentrations are shown in micrograms per liter (ug VCHD - Westchester County Health Department.	WCDL&R - Westche	NYSDOH Wad L&R	BIG V - BIG V Super	

SAMPLED		PCE 19 PCE 18 PCE 18 PCE 18 TCE 0.53 MTBE 2.8	PCE 28 PCE 17 TCE 0.53 PCE 21 PCE 21 PCE 22 PCE 23 TCE 0.68 All ND PCE 19 TCE 19 PCE 19	OW-25	CW-26	CW-27	
WCHD		┨╏╏ ╫╫╫			AII ND (0.5)	All ND (0.5)	
NYSDEC		╂┼╁┠┼╀╃┼┼┼┼┼┼╂╂┼┼┧┧┧╂┼╂┼┼┼	PCE 28 PCE 17 TCE 0.63 PCE 21 PCE 22 PCE 23 TCE 0.66 TCE 19 PCE 19 PCE 45/46		AN ND (0.5)	All ND (0.5)	
NYSDEC		┤ ╫╊╫╫╃╫╫	PCE 28 PCE 17 TCE 0.63 PCE 21 PCE 23 TCE 0.66 All ND PCE 19 TCE 19 PCE 19 PCE 19 PCE 19 PCE 19 PCE 45/46		AN ND (0.5)	All ND (0.5)	
WCHD WCDL&R 502 & 503 NYSDEC CAMONG03.1 MTBE 150 NYSDEC CAMONG03.1 MTBE 150 NYSDEC CAMONG03.1 MTBE 180 NYSDEC CAMONG03.1 MTBE 180 NYSDEC CAMONG03.1 MTBE 180 WCHD WCDL&R 502 & 503 MTBE 92 WCHD WCDL&R 502 & 503 MTBE 92 WCHD WCDL&R 502/803 MTBE 92 WCHD WCDL&R 502/803 MTBE 15 VUA Envirotest 91.4 (a) MTBE 15 WUA Envirotest 502.1 (c) BIG V BIG V Envirotest 502.1 (c) Envirotest 502.1 (c)		┨╏╏╏╏╏	PCE 17 TCE 0.63 PCE 21 PCE 23 TCE 0.69 AII ND PCE 19 TCE 19 TCE 1		AN ND (0.5)	Ali ND (0.5)	
WCHD WCDL&R 502 & 503 NYSDEC CAMOF603.1 MTBE 150 WCHD WCDL&R 502 & 503 MTBE 92 WCHD WCDL&R 502 & 503 WTBE 92 WCHD WCDL&R 502 & 503 WTBE 15 WCHD WCDL&R 502503 WTBE 15 WCHD WCDL&R 502 & 503 WTBE 15 WCHD WCDL&R 502 (6) WTBE 15 WCHD WCDL&R 502 (6) WTBE 15 WCHD WCHL&R 502 (6) WTBE 15 WCHD WCHL Envirotest 902 (6) WUA Envirotest 502 (6) WTBE 15 WUA Envirotest 502 (6) WTBE 15 WUA Envirotest 502 (7)		┠┼╏┞╎╏╏╏╏╏╏	PCE 17 TCE 0.53 TCE 0.53 PCE 21 PCE 23 TCE 0.59 All ND PCE 19 TCE 1			AII ND (0.5)	
NYSDEC CAMOGO3.1 MTBE 150 NYSDEC CAMOGO3.1 MTBE 190 NYSDEC CAMOGO3.1 MTBE 150 NYSDEC CAMOGO3.1 MTBE 150 NYSDEC CAMOGO3.1 MTBE 120 WCHD WCDL&R 502 & 503 WCHD WCDL&R 503 & 503 WC			TCE 0.53 PCE 21 PCE 23 TCE 0.66 AII ND PCE 19 TCE 19 TCE 19 PCE 45/46		AN ND (0.5)	All ND (0.5)	
NYSDEC CAMORGO3.1			PCE 21 PCE 23 TCE 0.60 All ND PCE 19 TCE 19 PCE 19 PCE 45/46		ALI ND (0.5)	All ND (0.5)	
NYSDEC CAMOJG03.1 MTBE 180 NYSDEC CAMOJG03.1 MTBE 150 NYSDEC CAMOJG03.1 MTBE 150 WCHD WCDL&R 502 & 503 MTBE 92 WCHD WCDL&R 502 & 503 MTBE 92 WCHD WCDL&R 502 & 503 MTBE 92 WCHD WCDL&R 502 E03 MTBE 15 WUA Envirotest 91.4 (a) MTBE 15 BIG V Envirotest 502.1 (c) Envirotest 502.1 (c) BIG V Envirotest 502.1 (c) Envirotest 502.1 (c)			PCE 21 PCE 23 TCE 0.68 AII ND PCE 19 TCE T			Ali ND (0.5)	
NYSDEC CAMO/603.1 MTBE 150			PCE 21 PCE 23 TCE 0.60 All ND PCE 19 TCE 7		AII ND (0.5)	All ND (0.5)	
NYSDEC CAMOJG03.1 WCHD WCDL&R 502 & 503 NYSDEC CAMOJG03.1 WCHD WCDL&R 503 WCHD WCDL&R 503 WCHD WCDL&R 502E03 WUA Environest 91.4 (a) WUA Environest 902.1 (c) BIG V Environest 502.1			PCE 21 PCE 23 TCE 0.60 AII ND PCE 19 TCE 7		AN ND (0.5)	Ali ND (0.5)	
WCHD WCDL&R 502 & 503 NYSDEC CAMC/603.1 WCHD WCDL&R 503 WCHD WCDL&R 503 WCHD WCDL&R 502 WCHD WCDL&R 502 503 WCHD WCDL&R 502/503 WCHA Envirotest 91.4 (a) WUA Envirotest 91.4 (a) WUA Envirotest 502.1 (c) BIG V Envirotest 502.1 (c) BIG V Envirotest 502.1			PCE 21 PCE 23 TCE 0.60 TCE 0.60 All ND PCE 19 TCE 7		AN ND (0.5)	All ND (0.5)	
WCHD WCDL&R 502 & 503 NYSDEC CAMORGA; 1 WIBE 120 WCHD WCDL&R 503 MIBE 92 WCHD WCDL&R 503 WCHD WCDL&R 502 & 503 WCHD WCDL&R 502 (6) WCHD Envirotest 91.4 (a) WHE 15 WHE Envirotest 502 (6)			PCE 21 PCE 23 TCE 0.66 AII ND PCE 19 TCE 19 PCE 45/46		AII ND (0.5)	All ND (0.5)	
NYSDEC CAMOIGO3.1 MTBE 120			PCE 21 PCE 23 TCE 0.68 AII ND PCE 19 TCE T		AII ND (0.5)	Ali ND (0.5)	
WCHD WCDL&R 503 WTBE 120			PCE 21 PCE 23 TCE 0.68 AII ND PCE 19 TCE 7		AII ND (0.5)	Ali ND (0.5)	
WCHD WCDL&R 503 MTBE 92 WCHD WCDL&R MTBE 92 WCHD WCDL&R 503 MTBE 92 WCHD WCDL&R 503/803 MTBE 15 WCHD WCDL&R 503/803 MTBE 15 WCHD WCDL&R 503/803 MTBE 15 WCHD WCDL&R 504 MTBE 15 WCHD WCDL&R 502 MTBE 15 VUA Envirotest 91.4 (a) MTBE 15 WUA Envirotest 502.1 (c) BIG V BIG V Envirotest 502.1 (c) Envirotest 502.1 (c)			PCE 21 PCE 23 TCE 0.66 AII ND PCE 19 TCE 7		AN ND (0.5)	Ali ND (0.5)	
WCHD WCDL&R EPA 1603 WCHD WCDL&R S02 & 503 WCHD WCDL&R 502 & 503 WCHD WCDL&R 502 & 503 WCHD WCDL&R 504 WCHD WCHCHS 191.4 (a) WCHD WCHCHS 191.4 (b) WCHD WCHCHS 191.4 (c)			PCE 21 PCE 23 TCE 0.66 AII ND PCE 19 TCE 1		AII ND (0.5)	All ND (0.5)	
FPA F603			POE 23 TOE 0.68 AII ND POE 19 TOE 7		AII ND (0.5)	All ND (0.5)	
WCHD WCDL&R 502 & 503 WCHD WCDL&R 502 E03 WCHD WCDL&R 502 E03 WCHD WCDL&R 504 WCHD WCDL&R 502 Big V Envirotest 91.4 (a) WUA Envirotest 502.1 (c) Big V Envirotest 502.1 (c)			TCE 0.66 TCE 0.66 All ND PCE 19 TCE T		AII ND (0.5)	All ND (0.5)	
WCHD WCDL&R 502 & 503 WCHD WCDL&R 502F03 WCHD WCDL&R 524 NYSDCH WCDL&R 524 NYSDCH WCDL&R 524 NYSDCH & Ketories VUA Envirotest 91.4 (a) VUA Envirotest 91.4 (a) VUA Envirotest 502.1 (c) BIG V Envirotest 502.1 (c)			All ND PCE 19 TCE T		AII ND (0.5)	Ali ND (0.5)	
WCHD WCDL&R 5025603 WCHD WCDL&R 5025603 WCHD WCDL&R 524 NYSDOH WCDL&R 502 & Kistones UJA Envirotest 91.4 (a) VUA Envirotest 91.4 (a) VUA Envirotest 90.2 (c) BIG V Envirotest 502.1 (c)			AII ND PCE 19 TCE T PCE 45/46		AII ND (0.5)	All ND (0.5)	
WCHD YORKTOWN/S02.2 WCHD WCDL&R 524 NYSDOH WCDL&R 524 & Ketones VUA Envirotes! 91.4 (a) WUA Envirotes! 502.1 (c) BIG V Envirotest 502.1 (c)		++++++++++++++++++++++++++++++++++++	All ND PCE 19 TCE T PCE 45/46		All ND (6.5)		
WCHD WCDL&R 524 NYSDOH WCDL&R 524 NYSDOH WCDL&R 502 & Ketones VUA Envirotest 91.4 (a) VUA Envirotest 91.4 (a) WUA Envirotest 502.1 (c) BiG V Envirotest 502.1 (c)		 	Ali ND PCE 19 TCE T PCE 45/46		All ND (6.5)		
WCHD WCDL&R 524 NYSDOH WCDL&R 502 & Kstories VUA Envirotest 91.4 (a) VUA Envirotest 91.4 (a) VUA Envirotest 502.1 (c) BIG V Envirotest 502.1 (c)			All ND PCE 19 TCE T PCE 45/46		All ND (0.5)		
WCHD WCDL&R 524 NYSDOH WCDL&R 524 NYSDOH WCDL&R 502 & Ketones & Ketones VUA Envirotest 91.4 (a) VUA Envirotest 91.4 (a) VUA Envirotest 502.1 (c) BIG V Envirotest 502.1 (c) BIG V Envirotest 502.1 (c)			All ND POE 19 TCE T POE 45/46		All ND (0.5)		
WCDL&R 524 NYSDCH WCDL&R 502 & Ketones VUA Envirotest 91.4 (a) VUA Envirotest 91.4 (a) VUA Envirotest 91.4 (a) BiG V Envirotest 502.1 (c) BiG V Envirotest 502.1			PCE 19 TCE T PCE 45/46		All ND (0.5)		
NYSDOH WCDL&R 502 & Kelones VUA Envirotes I 91.4 (a) MTBE 15 VUA Envirotes 502.1 (c) BIG V Emrirotes 502.1 (c) BIG V Emrirotes 502.1 (c)			TCE T		All ND (0.5)		
NYSDOH WCDL&R 502 & Ketones VUA Environes 191.4 (a) MTBE 15 VUA Environes 191.4 (a) VUA Environes 502.1 (c) BiG V Emvironest 502.1 (c)			PCE 45/48		All ND (0.5)		
VUA Environes 191.4 (a) MTBE 15 VUA Environes 91.4 (a) MTBE 15 VUA Environes 91.4 (a) BIG V BIG V Environest 502.1 (c) Environest 502.1 (c)			PCE 45/48				
VUA Envirotes I 91.4 (a) MTBE 15 VUA Envirotes I 91.4 (a) VUA BIG V Envirotest 502.1 (c) Envirotest 502.1 (c) BIG V Envirotest 502.1 (c) Envirotest 502.1 (c)			PCE 45/48				
VUA Environest 91.4 (a) VUA Environest 502.1 (c) BIG V Environest 502.1 (c) BIG V Environest 502.1				All ND (1)			
VUA Environest 91.4 (a) VUA Environest 502.1 (c) BIG V Environest 502.1 (c) BIG V Environest 502.1		***************************************	TCE 0.7/0.9				
VUA Envirotest 91.4 (a) VUA Envirotest 502.1 (c) BiG V Envirotest 502.1 (c) BiG V Envirotest 502.1 (c)		-	MTBE 1/2				
VUA Envirolest 502.1 (c) BIG V Emirotest 502.1 (c) BIG V Environest 502.1						AL ND 3	
BIG V Envirotest 502.1 (c) BIG V Envirotest 502.1	E 45 PCE 2.7"						
Big V Envirotest 502.1 (c) Big V Envirotest 502.1	-						,
Big V Environest 502.1			Actuals agreed the second the second				
Big V Environest 502.1	E 1.9 TCE 1.7						
BIG V Environment 502.1							
BIO V. Faritation COA.	E 65 PCE 1.4"						
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* 000 111111111111111111111111111111111							
DIG V EUNIONESI SOC. I	E 80 PCE 11*						
	_		The state of the s				
90	DCE 0.8						
MB	BE 37	***************************************					
K14494 BIG V Friviolest 502 1	-						
	TCE 1 7 MTRE 21				+		
	+		And in a state of the state of				
	MTOE 24						
WID	30 30	1			+	T	
Concentrations are shown in referencemental like (u.c.)			Domadial Investigation data set				
WOLD Westheries Court Health Desertment		(4)	(a) - Hollington interesting and the second complex which was tested by obtained.	those comples which	the passage areas do	phosinatod	
10 - Medicinesia County Insulti Department.		3	CINC CINCIPAL SINGLE	NILL BOTH THE WALL	N 1001001 001001	CHOIS MAN	
WOLLCAN - WENCHESIEN COUNTY DEPARTMENT OF LABORATORES AND MESERICIT.		3	volatile organic compounds.		+		
UOH - New York State Uelpaintreix of Health.		<u> </u>	- MIDE not aranyzed in the ev	em.	+		ı
- Vincent Uhl Associates.							
BIG V - Big V Supermarkets, Inc.		-		***************************************			
	The MTBE quantitation limit is typice	is typically higher.					
race Trihalomethanes associated with chlorination system were also detected.							
J - Estimated concentration below the reported detection limit.					Vincent Uhi Associates	ites	

	A STATE OF THE PROPERTY OF THE			3/8/84	2/10/94	-	N 68/8/E	N ARK/I	-	<u> </u>	10/26/88		6/20/88	-	2			4/20/93	20100	8/20/92		6/15/92	+			3/8/8/8 N 68/2/8	-	-		11/9/88		10/3/88	+			12/14/90		5/23/89	-	1/4/89	+	$\frac{1}{1}$	+	DATE S		BAI
				TH.	H	Ħ	NYSDEC	NYSUEC	NYSDEC		WCHD	MHPC	8	87	Caidwas			LBWD		ERM	EPK	E G	NYSOEC	NYSDEC	1000	NYSOEC	NYSDEC	NYSDEC	NYSDEC	P Q	엄	왕	SAMPLED		WCHD	WCHD HCHD	WCHD	WCHD	WCHD	WCHD	WCHD	WCHD	₩CHD.	SAMPLED		LDWIN PLA
		m marterd sy and determent as a manufactority is conference and producted town in		GTEL 503.1	GTEL 503.1	GTEL 503.1	CAMO 503.1	CAMO 603.1	CAMO 503.1		WCDL&R 502 & 503	Envirotest	Envirotest 6018602	BYMETHOD	ANALYZED			WCDL&R 524	CAMO ANT & ANY	CAMO 601 & 602	CAMO 601 & 602	WCDL&R 524	WCDI 48 594	CAMO 503.1	WCDL&R 503.1	CAMO 503.1	CAMO 503.1	CAMO 503.1	CAMO 503.1	WCDL&R 503	WCDL&H 502 & 503	WCDL&R 503	ANALYZED		 WCDL&R 503+	WCDL&R 502.2	WCDL&R 503.1	WCDL&R 502 & 503	WCDL&H 502 & 503	WCDL&R		WCDL&R 502 & 503	WCDL&R	ANALYZED	naturations rates rations in references in the matter manner but in bits	BALDWIN PLACE MALL; SOMERS, NEW YORK (a).
		and the second s					AH ND (1)		(t) ON RV						Route 118				MTRE 28		MTBE 27					MIBE 37	MTBE 61	MTBE 40	MTBE 29		MTBE 38"		RW-40 (a)			AII NO (0 A)						All ND (0.5)		RW-28		NEW YORK (a).
	***************************************			PCE 9.9 (b)	PCE 3.2 (b)	PCE 1.3 (b)	M. OC 040	MIRE SSO	MTBE 320/290	MTBE 320	PCE 7.2	PCE 17	PCE 21	20.460	Route 6	The state of the s			MTBE 59	PCE 1.0			WIRE 81			MIBE 110	MTBE 160	MTBE 150	MTBE 120/110	MTBE 160	MTBE 200		RW-41 (a)		 			All ND (0.5)		All NO (0.9)		van papitimentopravangananidas		FW-29		
																									11 m	AN IN			AI ND (3)				RW-42				***************************************			AH MU (0.0)				FW-29 FW-30 FW-31 FW-32		
	en celebrang denseron electandre municepidades	ameidial serve de três alteritados mere altitudos					***************************************									***************************************			***************************************						we was	(I) CN BA			AII ND (1)		MTBE 7.0		RW-43	Kennard Road	 All ND (0.5)		e i naprilana propaga de relacionar per escripcio de la constanta de la consta	ne de l'estrate de	***************************************		All ND (0.5)			AW-91		
		***************************************		BIW eq.	ND (X) - Not dete	(b) Results for M	(a) - Results are	GIEL - GIEL EN	LTR - Land Tech.	MHPC - Mid Hud	CAMO - CAMO L	WCDL&R - Week	LBWD - Lake Bel	PCHD - Putnam (Concentrations a			All ND (0.5)	***************************************			All ND (0.5)	A (1) (1)	A# ND (1)		A CO			AII ND (1)	мтве т	MTBE T	All ND (0.5)	PW-44					***************************************					Aff ND (0.5)	RW-32		
				The MTBE quantitation limit is typically higher.	ND (X) - Not detected at quantitation	(b) Results for MTBE were not shown on the data sheets provided.	shown for any th	GIEL - GIEL Envionmental Laboratores, Inc., Millord, New Hampshie. * - Trace Tribelomathanes were detacted	LTR - Land Tech. Remedial, Inc., Mor	MHPC - Mid Hudson Pollution Control	aboratories, Pougi	WCDL&R - Westchester County Department of Laboratories and Rese	dwin Water Dietric	PCHD - Putnam County Health Depa	Concentrations are shown in microg											AN ND (1)			711 22 13	AI ND (A)			FW-45			All ND (0.5)								FW-33		
				t is typically highe	n limit x for most	wn on the data sh	ose samples which	atones, Inc., Mino	omoe, Connecticut.	0,	keepsie, New Yor	partment of Labor	_	artment.	rems per liter										700 700 517	All ND			Ş	TOE T			PW-46		- Commission of the Commission	AI (1) (1)								RW-34		
	***************************************	the significant and the significant states of the significant states o			compounds (incl	meets provided.	h were tested to	rd, New Jemper	*		*	atories and Rese			(μg/L).											AII NO (1)							CW-47					All ND (0.5)						CW-35		
		-			limit x for most compounds (including PCE and TCE).		r chlorinated vola	10.	ľ	***************************************		arch.																	≧ ND (3)				CW-48	Route 118	-				All ND (0.5)					RW-36		
					CE).	***************************************	tile organio comp										-								AII ND (0.6)								CW-49				All ND (0.5)		All ND (0.5)					CW-37 RW		
Vincent UN Associates		***************************************			***************************************	***************************************	wunda.												-						All ND (0.5)								CW-49A						-	PCET < 0.5				RW-38		
cistes		***************************************			***************************************				-										***************************************					***************************************	MTBE 1.3				***************************************				CW-50						***************************************	AII ND (0.5)				FW-39		A1.10.11.01.11.11.11.11.11.11.11.11.11.11

		_		
		Westchester	Mahopac Ave.	RW-36
		Westchester	Mahopac Ave.	CW-35
an eigen an haire der gestellt d		Westchester	Lounsbury Drive	RW-34
		Westchester	Lounsbury Drive	RW-33
		Westchester	Lounsbury Drive	RW-32
		Westchester	Lounsbury Drive	RW-31
		Westchester	Lounsbury Drive	RW-30
		Westchester	Lounsbury Drive	RW-29
		Westchester	Tornahawk Street	RW-28
		Westchester	Route 6	CW-27
		Westchester	Route 6	CW-26
		Westchester	Route 6	CW-25
		Westchester	Route 6	CW-24
		Westchester	Route 6	CW-23
		Westchester	Route 6	CW-22
	GAC Filter System installed and maintained by Big V.	Westchester	Route 6	CW-21
		Westchester	Route 6	CW-20
	GAC Filter System installed and maintained by NYSDEC.	Westchester	Route 6	CW-19
		Westchester	Meadow Park Road	RW-18
	GAC Filter System installed and maintained by Big V.	Westchester	Tomahawk Street	RW-17
	GAC Filter System installed and maintained by Big V.	Westchester	Meadow Park Road	RW-16
	and maintained	Westchester	Tomahawk Street	RW-15
		Westchester	Meadow Park Road	RW-14
	GAC Filter System installed and maintained by homeowner.	Westchester	Meadow Park Road	RW-13
		Westchester	Meadow Park Road	RW-12
	GAC Filter System installed and maintained by Big V.	Westchester	Meadow Park Road	RW-11
	GAC Filter System installed and maintained by Big V.	Westchester	Meadow Park Road	RW-10
	GAC Filter System installed and maintained by Big V.	Westchester	Meadow Park Road	RW-09
	GAC Filter System installed and maintained by Big V.	Westchester	Meadow Park Road	RW-08
	GAC Filter System installed and maintained by Big V.	Westchester	Meadow Park Road	RW-07
		Westchester	Meadow Park Road	RW-06
g V.	GAC Filter System installed by homeowner, maintained by Big V.	Westchester	Meadow Park Road	RW-05
		Westchester	Meadow Park Road	RW-04
		Westchester	Meadow Park Road	RW-03
		Westchester	Meadow Park Road	RW-02
		Westchester	Meadow Park Road	RW-01
	COMMENTS	COUNTY	LOCATION	WELL NO.
- aga - ci - c	ORK.	SOMERS, NEW YO	BALDWIN PLACE MALL, SOMERS, NEW YORK.	

			TOT OF OUR DESIGNATION COMMERCIAL AND COMMENTS WELLS.	Dane o re
	BALDWIN PLACE MALL, SOMERS, NEW YORK	OMERS, NEW YOR	₹.	
	AND THE PROPERTY OF THE PROPER	aber en er de des bandes des en		
WELL NO.	LOCATION	COUNTY	COMMENTS	
CW_37	Mahanaa Ava	Wastchaster		
RW-38	Mahopac Ave.	Westchester		
RW-39	Mahopac Ave.	Westchester		
RW-40	Kennard Road	Putnam	GAC Filter System installed by NYSDEC; maintained by Spain Oil	n Oil.
RW-41	Kennard Road	Putnam	GAC Filter System installed by NYSDEC; maintained by Spain Oil.	n Oil.
RW-42	Kennard Road	Putnam		
RW-43	Kennard Road	Putnam		
PW-44	Kennard Road	Putnam		
RW-45	Kennard Road	Putnam		
RW-46	Kennard Road	Putnam		
CW-47		Putnam		
CW-48	Route 118	Putnam		
CW-49	Route 118	Putnam		
CW-49A	Route 118	Putnam		
CW-50	Route 118	Putnam		
RW-51	Route 118	Putnam		
CW-52	Route 6 BPM	Westchester	GAC Filter System installed and maintained by Mobil Oil Corporation.	poration.
CW-53	Route 6	Westchester		
CW-54	Route 6	Putnam	GAC Filter System installed and maintained by NYSDEC.	
CW-55	BPM Intersection	Putnam		
CW-56	BPM Intersection	Putnam		
			Vincent Uhl Associates	ciates

May 1994 PCE 63 ND ND TCE 1.7 ND ND TCE 1.4 ND N	lay 1994 PCE 63 TOE 1.7 TOE 1.7 TOE 1.7 TOE 1.7 DOE 1.4 MTBE 36 D-Not Detected. T- Not Tested. T- Not Tested. T- Not Tested. T- Sating and Sati	lay 1994 PCE 63 TOE 1,7 TOE	In the contraction below concentrations are shown in minus concentrations.	lay 1994 PCE 63 TOE 1,7 DCE 1,4 TOE 1,7 TOE	PCE DCE	PCE TOE	PCE TOE DOE	PCE TOE	PCE	P 200		t	T	repriary 1994 PCE 80			TŒ	7	38TM	October 1993 PCE NT	\dagger	TOE 10	CE CE	April 1993 PCE 45			DATE	Section	10 10		10E	1	TCE 3.6	2 2	╁	TCE	-+	TOE	+	+	10E	Н	ផ្ក	†	+	<u> </u>				DATE	BALDWIN	TABLE 6-15 SUNMARY
reported detections per liter terms per liter terms per liter 1991. December 1992. October 1992.	reported detection of the common per liter December 1991.	reported detection ograms per liter December 1991.	reported detection					1	-	+	+	-		 		ND.	1	+	+	+	-	\dotplus	\dagger	-	ļ		CW-20	+	+			\dashv	8 2	+	-		6.1 ND	+	+	35 ND	\vdash		+	+	+	0.64 ND		-	Before Between	RW-05	BALDWIN PLACE MALL, SOMERS, NEW YORK.	THE CHART
			(ARIL)) Imit			- -	5 6	5 6	5 6	8	S	8	8	S	8	8	S	2 2	8	NO	8	NO	S	Filters	After	ê	Ē	8	ND	S	8	3 8	5 6	NO	8	8	3 8	3 8	8	8	8	5 6	5 8	8	S	S	_	Affor		OMERS, NEV	
2	A	0		(6	1	(6	\perp	2 6	5 6	æ	╀	┼-	<u> </u> -	\vdash	\vdash	8	+	+	+-	8	╄-	+-	B	7		Before		Š	8	(d) 14	8	9.8	5	3	6.4	8	5 6	5.5	3	4.8	S	2	5	S	4			Filters	Reform		YORK.	
) - GAC file	- RW-07 v	- Innaon) - GAC filt) - RW-16) - GAC fit	ē	5 6	3	(3)	8	8	8	Š	S	3	5 8	5 8	5 6	8	8	O NO	8	Ş	Filters	Between	CW-91	§	8	Š	8	8	5 6	8	₹	8	8	3 8	8	ON	8	8	5 8	8	NO.		©	Filers	TW-d/	E	30118 F0	
***************************************	filter system ir	vas refested	etnanes we	GAC filter system installed in April 1993.	RW-16 was sampled in April 1993.	(e) - GAC filter system installed in	ē	3	8	3	8	중	8	8	8	8	3 8	3 3	12	§	8	S	8	용	Filters	Atter		8	8	8	8	3 8	3.5	§	B	8	3 3	8	8	ક	3	3	3 3	8	8	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Filtera			K MEADO	
J	installed in A	in Decem	re also det	nstalled in /	ed in April	stalled in I		-							-		-							-				š	1.9	3	1.6	\$ 5	32	1,2	27	1.6	3 2	33	1.3	32	1.6	36	31	-	38	1.6	28	Delote			W PARK ROAD	
	March 1994	(i) - RW-07 was retested in December 1993: the heticon	(n) - Irinalomethanes were also detected in sample	hpril 1993.	1993.	March 1993.																					***************************************	8	8	8	88	3 8	6	8	8	5 6	3 8	8	8	8	8	3 8	8	8	8	8	3	Derween	PW-08		OAD RES	
***************************************	o potneon	battion.	nple.		***************************************			***************************************								-	-	-				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			***************************************			8	S	8	3 8	3	ND	8	8	3 8	3	8	8	8	8	38	8	N	S	8	5	Affer			RESIDENCES A	
	מוות מוופו	2	***************************************																				***************************************			***************************************		8	1.8	300	1 43	3	21	1.8	30	17	1.6	32	1:1	28	1.6	3 .	32	1.8	39	22/23	Anmy Siens	Before			AND ROUTE	
	mer samples				***************************************							***************************************			-													8	8	3 3	56	8	B	8	8	3 8	3	ND	8	8	5 6	3 8	S	8	8	56	riners	Between	RW-09		G.	
	samples Were both				-	-																	-					S	8	ŝē	5 6	S	S	8	3 8	5 6	S	(d) ND	3	8	3 8	3	S	8	8	5 8	- mers	After			ERCIAL E	
	NC.									***************************************					***************************************				***************************************		-		-					8	8 -	1	5 5	8	=	8	200	12	0.6	13	8	13 8	5 2	8	14	8	10 6	9.3	-Mers	Before			STABLISHI	
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	The second secon		The state of the s			***************************************	day and the state of the second secon	The second secon
RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT (FIRST EVERTY). RETRS, NEW YORK RETRS, NEW YORK SWAGA BPM,SWAGA BPM,S						Wn.	ry artifacts are not sho	· - Blank contaminants and/or laborato
	is.	ely identified compound	Teria). Also used for tentative	on limit of based on CC cm	eiow the method quantitati	in sample.	or may not be present	H - Unrellable result. Compound may
	***************************************			r levels.	laboratory blanks at similar	detected in field and/or	e this compound was	B - Result is qualitatively suspect since
			er e	d in Appendix B.	(g), dry weight. a spreadsheets are provided	ams per kilogram (µg/k complete analytical dat	are snown in micrograms own on the table. The	Only those compounds detected are sh
	istor ber werden gebreite der en der eine gesche der bei der eine der eine der eine der eine der eine der eine	And the second s		per liter (μg/L).	are shown in micrograms	sample concentrations	ank (B) and trip blank	Surface Water (SW), aqueous field bi
		411 destruitante se de la constante de la cons	ansites was republicate dan emerke alkirke ett dan darklikelet elkkippen ka pjilleministasser og et	A STATE OF THE STA	a des de como de desta com servicio de la destada de constitución de constituc	THE RESIDENCE OF THE SELECTION OF THE SE		ND - None Detected
		7 J			16JR	19 J R	11 J R	2-Propanol
	ND		ND	ND				VOLATILE ORGANIC COMPOUNDS
					e de la companya de l	And the contract of the first of the feet of the contract of t	***************************************	
		***************************************	2J	the better the boundary of the property of the passenger				Xylene (Total)
	and the large teachers and the recent of the resident and the second second teachers.		and the secretary grown grown to the second terms of the second second second second second second second second	4 J	e de la composition della comp	***************************************		Tetrachioroethylene
		5 J		e just de sente plus de sente de la sente de se	mit mitri in i dite ordusen amiene mei rame inno e rame inno spirope i naomana papai o pape papa sino	D	ament have given by a strong and the proposed professions as the same or an analysis page on a	Chloroform
	ANTONIO CONTROLO CONT	ere de la companya d	21 J	27 J	ter en	7 J	21 J	Acetone
	ND							VOLA I ILE ONGANIC COMPOUNDS
						edicione des sons en services des sons de la company d	· · · · · · · · · · · · · · · · · · ·	TARGET COMPOUND LIST
	6/2/93	6/2/93	6/2/93	6/2/93	6/2/93	6/2/93	6/2/93	SAMPLE DATE
SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SUPFACE WATER AND SEDWENT (FIRST EVENT); BALDWIN PLACE WALL, SOMERS, NEW YORK. BPM_SW_04				Just North of Rt. 6	South (of Bridge)	WW Outfall	North (SG-1)	
SUMMARY OF RI ANALYTICAL RESULTS FOR YOLATILE ORGANIC COMPOUNDS IN SURFACE WATER AND SEDMENT (FIRST EVENT); BALDWIN PLACE MALL SOMERS, NEW YORK.	TRIP BLANK	BPM-SD-04 B	BPM-SD-05 Catch Basin	BPM-SD-04 Western Stream	BPM-SD-03 Eastern Stream	BPM-SD-02	BPM-SD-01 Eastern Stream	
				erlegiki, estima ayli ya "ajama asa mupusi (pama asa nageri ya ni ya masa nageri	es er i de freguesse se en esta esta se esta esta esta esta esta e	en etenen en		
								z,3-umyaro-4-memyi-in-ingene
	***************************************	AND THE PROPERTY OF THE PROPER	5 J		er der der der der der der der der der d			2,3-dihydro-1H-Indene
SUMMARY OF RI AVALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT (FIRST EVENT); BALDWIN PLACE MALL, SOMERS, NEW YORK.	NO	NO			NO	100	100	THE CINETAGE COMMISSION
Decinion	5			•	AD5	NO.	200	TENTATIVELY IDENTIFIED
SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SUPPACE WATER AND SEDIMENT (FIRST EVENT); BALDWIN PLACE WALL, SOMERS, NEW YORK.			c					
SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT (FIRST EVENT); BALDWIN PLACE MALL, SOMERS, NEW YORK.		And the state of t	8.1	7.1	~		delle som province del secolo de la companie de la	Xylene (Total)
SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SURPACE WATER AND SEDIMENT (FIRST EVENT); BALDWIN PLACE MALL, SOMERS, NEW YORK.	and the second temperature and second se	eas principe est (1958 principe actual principe communication principe actual principe princi		1.4				l etrachioroethylene
SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT (FIRST EVENT); BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-02 BPM-SW-04 Eastern Stream North (SG-1) NORTH North (SG-1) NW Outfall South (of Bridge) Just North of Rt. 6 Just No	***************************************	and the second s	17	18				Methyl Tert Butyl Ether
SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT (FIRST EVENT); BALDWIN PLACE MALL, SOMERS, NEW YORK.	***************************************	13		A THE PARTY OF THE	1 B	1 B		Methylene Chloride
BALDWIN PLACE MALL, SOMERS, NEW YORK. BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-04 BPM-SW-04 B BPM-SW	and the state of t	The state of the s		***************************************	8.1	11	and the state of t	Dibromochloromethane
BALDWIN PLACE MALLY SOMERS, NEW YORK. BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-04 BPM-SW-04 BPM-SW-07 BPM-SW-09 BPM-SW-0	AND THE STREET OF STREET OF STREET, STREET OF STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET,		AL MAN AND THE REAL PROPERTY OF THE PROPERTY O	erranea jumpooliji teela joogo da propinsi pali ka abilika ka ka een palaaksa ka ka ka een palaaksa ka ka een	31	46	***************************************	Chloroform ethane
BALDWIN PLACE MALL, SOMERS, NEW YORK. BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-0				e en	a de la compressa de la composição de la c	ſ B		Acetone
BALDWIN PLACE MALL, SOMERS, NEW YORK. BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04	N						ē	CONTROL CONTROL CONTROL
SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT (FIRST EVENT); BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-04 B BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-04 BPM-SW-04 B BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-04 B BPM-SW-01 BPM-SW-04 BPM-SW-04 BPM-SW-04 BPM-SW-04 B BPM-SW-01 BPM-SW-04 BPM-S		es a de la companya d	and the second description is the second control of the second control of the second o	and the state of the	and the stands of the stands of the section of the			TARGET COMPOUND LIST
SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT (FIRST EVENT); BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-								
SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT (FIRST EVENT); BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-S	6/2/93	6/2/03		6/2/93	6/2/93	6/2/93	6/2/93	SAMPLE DATE
SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT (FIRST EVENT); BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-S	Trip Blank	Field Blank		Western Stream	castern Stream	Castern Stream	Eastern Stream	
SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT (FIRST EVENT); BALDWIN PLACE MALL, SOMERS, NEW YORK.	TRIP BLANK	BPM-SW-04 B	BPM-SW-04 R	BPM-SW-04	BPM-SW-03	BPM-SW-02	BPM-SW-01	anteriories esperamente marioriste marioriste des son angeles in the confess for i stample against the debate of sons
SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT (FIRST EVENT	Application of the state of the			era eta anagon delegani appropriete i attenda mperte del aptico del composito del composito del composito del constante del cons	YORK.	ALL, SOMERS, NEW	BALDWIN PLACE M	
		MENT (FIRST EVENT)	FACE WATER AND SEDIN	NIC COMPOUNDS IN SUF	S FOR VOLATILE ORGA	NALYTICAL RESULT	SUMMARY OF RI A	TABLE 7-1.

Also used for tentatively identified compounds	riteria).	IIION IIMIT OF DASED ON QC (siow ine memoo quamila	ATT.	ry artifacts are not show	*- Blank contaminants and/or laboratory artifacts are not shown.
		ar levels.	aboratory blanks at simil	uring data validation (h	limitations identified de	J - Quantitation is approximate due to limitations identified during data volidation (below the mathed application limits).
	And the state of t	ed in Appendix B.	spreadsheets are provide	complete analytical data	a this compound was a	B - Result is qualitatively suspect since this compound was detected in full and out the compound was detected in full and the compound was detected in
			g), dry weight.	ams per kilogram (μg/K	are shown in microgra	Sediment (SU) sample concentrations are shown in micrograms per kilogram (µg/kg), dry weight.
		ms per liter (μg/L).	are shown in microgra	sample concentrations	lank (B) and trip blank	Surface Water (SW), aqueous field blank (B) and trip blank sample concentrations are shown in micrograms per liter (µg/L).
		The second s		en de l'estre de l'étre de l'estre de l'estr	The second of the second secon	ND - None Detected.
	and specific for the state of the	ardin 1800 sporter se proposite sporte deser Morrestans appear amount (se als Laistes) especiales, opera		14 J		Unknowns (Total)
ND*	ND	ND	ND		No	VOLA II LE CHISANIC COM OUNUS
						TENTATIVELY IDENTIFIED
	1,5					1, 1, 1 - Included and B
		f 6		***************************************		1 1 1 Trichicrother
			L 85	38		
ND						
					ND	TARGET COMPOUND LIST VOLATILE ORGANIC COMPOUNDS
10/15/93	10/15/93	10/15/93	10/15/93	10/15/93	10/13/33	CAMIL FE DATE
		BPM Intersection	Lake Baldwin	First Pond	First Pond	SAMDIE DATE
		Western Stream	Upstream of	Downstream of	Upstream of	
Trip Blank	Field Blank	Drainage to	Western Stream	Western Stream	Western Stream	
TRIP BLANK	BPM-SD-08 B	BPM-SD-09	BPM-SD-08	BPM-SD-07	BPM-SD-06	
		ne de la companya de			***************************************	
ND*	ND*	ND*	ND*	ND*	ND*	TENTATIVELY IDENTIFIED VOLATILE ORGANIC COMPOUNDS
					2 J	letrachioroethylene
		2 J	the territories of the last process and the second		L8	Methyl Tert Butyl Ether
		8 8				
S	ND		ON	ND		VOLATILE ORGANIC COMPOUNDS
				The same of the sa		TARGET COMPOUND LIST
10/15/93	10/15/93	10/15/93	10/15/93	10/15/93	10/15/93	SAMPLE DATE
	es sonomer proprietation in the land of th	BPM Intersection	Lake Baldwin	First Pond	First Pond	
Trip Blank	Fleid Blank	Western Stream	Unstream of	Downstream of	Upstream of	de Maria de Maria de la compansión de la c
TRIP BLANK	BPM-SW-08 B	BPM-SW-09	BPM-SW-08	BPM-SW-07	BPM-SW-06	
			YORK.	BALDWIN PLACE MALL, SOMERS, NEW YORK.	BALDWIN PLACE M	
CONTRACT THE OFFICE (OUT FEMENIAL EVENIO),			The state of the s			

BPH SW-10 DPH SW-11 Trip Blank	TABLE 7-2.	SUMMARY OF RI BALDWIN PLACE I	SUMMARY OF RI ANALYTICAL RESULTS FOR VOLATILE BALDWIN PLACE MALL, SOMERS, NEW YORK.	VOLATILE	ORGANIC COMPOUNDS IN	SURFACE WATER AN	WATER AND SEDIMENT (SUPPLEMENTAL
TRIP BLANK Trip Blank 12993 12993 12993 ND ND ND ND ND ND ND ND ND N			and the second s	en e			
129/93 129/93 129/93 ND* ND* ND* ND* ND* ND* ND* ND		OF-W-IU	BPM-aW-11	HIP BLANK	and the same resident and the same of the same and the same	enter en	
12/9/93 12/9/93 17 FILE BLANK Trip Blank Trip Blank ND* ND* ND* ND* ND* ND* ND* ND			Drainage to	Inp Slank	The first own the state of the	and the same abstract to the same about the same abstract to the same about the same and the same about the same	
ND ND* ND* ND* ND* ND* ND* ND*	en e	Western Stream	Western Stream	A Principal of the Control of the Co	A CONTRACTOR OF THE PROPERTY O	AND THE RESIDENCE OF THE PROPERTY OF THE PROPE	and the state of particular description of the particular description of the state of the state of the state of
ND* ND* ND* ND* ND* ND* ND* ND*		Near Seepage	West on Route 6	A THE PARTY OF THE	the section of the se	and the state of the	
ND* ND* ND* ND* ND* ND* ND* ND*	2 1171 - 7141	at noute o					And the second s
ND* ND* ND* ND* ND* ND* ND* ND*	SAMPLE DATE	12/9/93	12/9/93	12/9/93	the second se		
ND* TRIP BLANK Trip Blank 129/93 129/93 ND* ND* ND* ND* ND* ND* ND* ND	TARGET COMPOUND LIST	***		de telle et eran entre des destable de laye and eyes appearant forestant destables annues e destables.			
NID* NID* TRIP BLANK Trip Blank 12/9/93 12/9/93 12/9/93 12/9/93 ND* ND ND ND ND ND ND ND ND N	VOLATILE ORGANIC COMPOUNDS		NO	NO			***************************************
ND* TRIP BLANK Trip Blank Trip Blank ND* ND* ND* ND* ND* ND* ND* ND				145	والماؤوانية والمائية والمائدة والمائدة والمائية والمائية والمائية والمائية والمائية والمائية والمائية	es militar i Pinteles es este é imprimer que la divida débendes es especiales que aprimeramente	ta fual indicator came (profinar material consequence).
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TRIP BLANK Trip Blank Trip Blank 12/9/93 12/9/93 ND* ND* ND* ND* ND* ND* ND* ND				A THE REAL PROPERTY OF THE LAST CONTRACTOR AND ADDRESS OF THE PARTY OF		de de la companya de La companya de la comp	A. J. Freeze errore margaretus generale and date mandatus error error promotory generale generale grant de la compression della compression de la compression della compression della compression della compressio
ITRIP BLANK Trip Blank Trip Blank 12993 12993 12993 Iller (µg/L). µg/Kg), dry weight. data spreadsheets are provided in Appendix B. dior laboratory blanks at similar levels. In (below the method quantitation limit or based on QC oriteria).	TENTATIVELY IDENTIFIED		A STATE OF THE PARTY AND AN OWNER OF THE PARTY OF THE PAR	and media process and respect to person, which constructs the process the process to	d trans i estado de artes estada de la destada de la d		
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TRIP BLANK Trip Blank n 129933 129933 ND* ND* ND* ND* ND* ND* ND* N	a refer de la remanda ague sono que de la lama que una esta esta de la lama de la lama de la lama de la laboración de la lama de la laboración de laboración de la laboración de la laboración de laboración de laboración de laboración de laboración de la laboración de l	and described from the first property of the second section of the section of	te dinamental est a sum de manifest en abbase en mandeleste sand umb est e sind sandes	de la companya de la			
n 6 12/9/93 12/9/93 ND* ND* ND* ND* ND* Altions are shown in micrograms per liter (µg/L). µg/Kg), dry weight. data spreadsheets are provided in Appendix B. dior laboratory blanks at similar levels. dior laboratory blanks at similar levels. dior laboratory blanks at similar levels.		BPM-SD-10	BPM-SD-11	TRIP BLANK	- maneri (men anterna para papa e san indonesia (men papa papa e san e san e san anterna anterna anterna anterna	and the state of t	
ND* ND* ND* ND* ND* ND* ND* ND*		Drainage to	Drainage to	Trio Blank	de la companya de la	and the section of the section of the section of the section of the section is an investment o	***************************************
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NID NID* N	ichte von bereit eine der ein	Near Seepage	West on Route 6	en e			
ND ND* ND* ND* ND* ND* ND* ND*		at Route 6					
ND* ND* ND* ND* ND* ND* ND* ND*	SAMPLE DATE	12/9/93	12/9/93	12/9/93			
ND* ND* ND* ND* ND* ND* ND* ND*	TARGET COMPOUND LIST						
ND* ND* ND* ND* ND* ND* ND* ND*	VOLATILE ORGANIC COMPOUNDS		ND	ND			
ND* ND* ND* Itions are shown in micrograms per liter (µg/L). µg/Kg), dry weight. data spreadsheets are provided in Appendix B. dior laboratory blanks at similar levels. in (below the method quantitation limit or based on QC oriteria).			and the second state considerable states and a substantial second states and a second states and a second s		The state of the s		
ND* ND* ND* Itions are shown in micrograms per liter (µg/L). µg/Kg), dry weight. data spreadsheets are provided in Appendix B. dior laboratory blanks at similar levels. In (below the method quantitation limit or based on QC oriteria).	Acetone	r	And to the state of the state o	personal company and the contract of the contr	de la companya de la		
ND* ND* ND* Itions are shown in micrograms per liter (µg/L). µg/Kg), dry weight. data spreadsheets are provided in Appendix B. dior laboratory blanks at similar levels. n (below the method quantitation limit or based on QC oriteria).	Tetrachioroethylene	4 J			and the second	edensia suomen desta delle delle primerio mendella propriata della propriata della propriata della propriata d	AND THE PROPERTY OF THE PROPER
ND* ND* ations are shown in micrograms per liter (µg/L). µg/Kg), dry weight. data spreadsheets are provided in Appendix B. dior laboratory blanks at similar levels. n (below the method quantitation limit or based on QC criteria).	TENTATIVELY IDENTIFIED	efterproduktere eterske per jast en skippende og de overlede	de est des est est est est est est est est est e	Control and the second control to the control of th			
ations are shown in micrograms per liter (µg/L). µg/Kg), dry weight. data spreadshests are provided in Appendix B. dor laboratory blanks at similar levels. n (below the method quantitation limit or based on QC oriteria).	VOLATILE ORGANIC COMPOUNDS		ND*	ND*		deres je sem menare samepapens samapapenjenjenjenjenjenjenjenjenje je slovet i skljubina kirk	are described in the second control of the s
ations are shown in micrograms per liter (μg/L). μg/Kg), dry weight. data spreadsheets are provided in Appendix B. dry aboratory blanks at similar levels. n (below the method quantitation limit or based on QC oriteria).		7 k	The second secon	a reservit de la	and the state of t		
ations are shown in micrograms per liter (µg/L). µg/Kg), dry weight. data spreadsheets are provided in Appendix B. d/or laboratory blanks at similar levels. in (below the method quantitation limit or based on QC criteria).	CIRCOVITA (TOTAL)	, ,			AND AS AN AND AND AND AND AND AND AN AND AN AND AN AND AN AN AND AN AND AND	***************************************	
ations are shown in micrograms per liter (µg/L). µg/Kg), dry weight. data spreadsheets are provided in Appendix B. dior laboratory blanks at similar levels. n (below the method quantitation limit or based on QC criteria).	ND - None Detected.	estadordura propriede des seus professos des destadorduras dessonas parte estador	Andreas in the section of the sectio				
μg/Kg), dry weight. data spreadsheets are provided in Appendix B. dor laboratory blanks at similar levels. n (below the method quantitation limit or based on QC oriteria).	Surface Water (SW), aqueous field b	lank (B) and trìp blar	k sample concentration	ns are shown in microgr	ams per liter (μg/L).		
data spreadsheets are provided in Appendix B. dior laboratory blanks at similar levels. n (below the method quantitation limit or based on QC criteria).	Sediment (SD) sample concentrations	are shown in microg	rams per kilogram (μg/h	Kg), dry weight.	the second section of the sect		
d/or laboratory blanks at similar levels. n (below the method quantitation limit or based on QC criteria).	Only those compounds detected are sh	own on the table. The	complete analytical data	a spreadsheets are provid	led in Appendix B.		***************************************
n (below the method quantitation limit or based on QC criteria).	B - Result is qualitatively suspect sino	e this compound was	detected in field and/or	laboratory blanks at sim	ilar levels.		
	J - Quantitation is approximate due to	limitations identified	during data validation (t	below the method quantit	ation limit or based on QC	1	entatively identified co
	* . Alank contaminante and/or laborato	ry artifacts are not sh	JWn.			i 1	

NO		mendix R	adsheets are provided in A	ete analytical data spre	The second of th	
NO			/ weight.	er kingram (ng/kg), or	on the table. The comp	Only those compounds detected are shown on the table. The complete analytical data spreadsheets are provided in Amendix B.
NO			rograms per liter (µg/L).	tions are shown in mic	k (B) sample concentra	Sediment (SD) sample concentrations are shown in micrograms per liter (µg/t),
NO						ND - None Detected.
NO			478 J			Unknowns (Total)
NO	**************************************				£ 088	1,2-Benzenedicarboxylic Acid
NO	amp) of expensionally expensive consequences and expensive consequences of expensive consequences of expensive consequences.		230 J			i-(Ethenyloxy)-Octadecane
	ND	ND		NO		TENTATIVELY IDENTIFIED
	9,400 J	8,500 J			r 0.82	Justice
	4,800	4,500			200	Pyrana
	1,800	1,900				phony (1,2,3-cd) Pyrene
	and the second section of the second	290 J				Fluorene
	8.500	8,400 J		der er eine eine der er met der er e	260 J	Fluoranthene
The state of the Lawrence and the state of t	1100	100.0	esem me menere representation per seperatura de meste sema seperatura en escribir de constituir de mesos de co		540	Di-N-Octyl Phthalate
***************************************	770 D	780 B	anne de la cesta de la cesta de la compansión de desenvaria de la cesta de la cesta de la cesta de la cesta de	79.8		Di-N-Butyl Phthalate
***************************************		530 J		established and an extensive first that the second section is a second section of the		Dibenzohuran
	4,300	3,800			f 091	Dihanz (a h) Arthracana
	1,100 J	1,200	The state of the s			Carpazore
And a province of the second state of the second	450 B	480 B				curyi penzyi primaiate
	1,400 B	1,400 B			370 B	-Ethyl hexyl) phthalate
	3.500	3,300			110 J	Benzo (a) Pyrene
	2.000	2,100	Mandangar el deser i i i blamada chendri qui apprent pontra pedda del del deprince personale anno associate pon			Benzo (g,h,i) Perylene
The section of the se	3,000	2.200				Benzo (k) Fluoranthene
	4,200	4,200			210 J	Benzo (b) Fluoranthene
	1,000 J	990			120.1	Benzo (a) Anthracena
	and the same of the same o	200 J		The second of the second secon		Acenaprinene Ambracane
ND ND	ter freeder der der der der der der der der d	ers a destruit est de l'adjestitus de telle des l'appresses que est destruit de l'appresses de l	ND		energe (alamate and angual angual and a second angual angual angual angual angual angual angual angual angual	TARGET COMPOUND LIST
6/2/93	6/2/93	6/2/93	0/2/3	0.61710	OE/SO	
	6	Just North of Rt. 6	South (of Bridge)	WW OUTSI	North (Su-1)	SAMPLE DATE
Field Blank		Western Stream	Eastern Stream	Eastern Stream	Easiern Stream	d transit free of transit case on the state and department of the special property of the state and the state of the state
BPM-SD-04 B		BPM-SD-04	BPM-SD-03	BPM-SD-02	BPM-SD-01	
	2 J	8.	21 J	33.0	00	
	6 J			3	3	Unknowns (Total)
			38 J	· · · · · · · · · · · · · · · · · · ·		Tripheny phosphine ovide
***************************************				38 J		3 Chloropolehorocyclonexane
And the state of t		OPTION TO THE PARTY TO THE PARTY AND ADDRESS OF THE PARTY PARTY PARTY PARTY TO THE PARTY P		13 J		1-Chloro-2-(1propenyl)cyclopropane
	F 0	6 J	antelej. Majorikariski em 12 menosy menosy ny maj maj maj unata Majoribiski na coma espesaj andadej doca b	4 J	f 9	Triphenylphosphoranyl Formaldehyde
Annual termina de l'annual	5 – 5	9 .		a questrate de establica en establica de establica de establica de establica de establica de establica de estab	- The second of the second	Ethylbenzene
NO			of the state of th			IEN I A LIVELY IDENTIFIED
***************************************						7 - 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
NO	ND	ND	ND	ND	ND	TARGET COMPOUND LIST
6/2/93	6/2/93	6/2/93	6/2/93	6/2/93	6/2/93	SAMPLE DATE
	Just North of Rt. 6	Just North of Rt. 6	South (of Bridge)	WW Outfall	North (SG-1)	CAMBI C DATE
Fleid Blank	ern Stream	Western Stream	Eastern Stream	Eastern Stream	Eastern Stream	AND THE PARTY OF T
BPM-SW-04 B	8PM-SW-04 R B	BPM-SW-04	BPM-SW-03	BPM-SW-02	BPM-SW-01	
		t den sen en e			man indicate i parti de li como periodo de mando de la como de la	
C COMPOUNDS IN SURFACE WAIER AND SEDIMENT,		BALDWIN PLACE MAIL SOMERS NEW YORK	YORK	MALL SOMERS NEW YORK	BALDWIN PLACE N	

BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-03 BPM-SW-04 BPM-SW-04 BPM-SW-04 BPM-SW-04 R Eastern Stream Eastern Stream Eastern Stream Wednern Stream Wedn	Associates	Vincent Uhl Associates				rewburgh, New York.	oraci Laboratories, ilic., N	ייףיסט זייסיט מוומוץבסט טץ בווצווי
PM-SW-04 R BPM-SW-04 restern Stream Field Blank Field Blank R. 6 6/2/93 6/2/93 ND ND ND ND ND ND ND Field Blank 6/2/93			riteria).	tion limit or based on QC c	below the method quantita	during data validation (Je to limitations identified	Indes were englyzed by Envir
PM-SW-04 BPM-SW-04 R BPM-SW-04 Ritern Stream Western Stream Field Blank North of Rt. 6 6/2/93 6/2/93 6/2/93 6/2/93 6/2/93 8/2/93 8/2/93 RD ND				ar levels.	r laboratory blanks at simil	detected in field and/o	since this compound was	Result is qualitatively suspect
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-04 BPM-SW-05 GE 2003	***************************************			ed in Appendix B.	ta spreadsheets are provide	grams per kilogram (µg e complete analytical da	re shown on the table. The	those compounds detected a
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-04	-			g/L).	n in micrograms per liter (μ	moentrations are show	ield blank (B) sample oc	ace Water (SW) and aqueous
BALDWIN PLACE WALL, SOMERS, REW YORK. BPM-SW-04								ND - None Detected.
BALDWIN PLACE MALL SOMERS, REW YORK. BPM-SW-04 B								White of the contract of the c
BALDWIN PLACE HALL, SOMERS, NEW YORK. BPM-SW-04 BPM-SW-05 G2293				7.2 J				Methoxychlor
BADWIN PLACE WALL, SOWERS, NEW YORK. BPM-SW-04 BPM-SW-05 ACR93			and Herrican des especial programme appropriation of Mandress and programme depression appropriate and expenses	4.8 J				Endrin Ketone
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-04 BPM-SW-05 BPM-SD-05			ter en	3.1 J				Endrin Aldehyde
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-02 BPM-SW-03 BPM-SW-04	***************************************		A COMPANY OF THE PROPERTY OF T	1.0 J		ente e più anno a mano a partico de casa e partico de casa e partico de casa e partico de casa e partico de ca	0.48 J	Endrin
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-02 BPM-SW-04) ramel kery spel i freezammy spels j multerspråf san ät av langett bale til stjörskelskelskelskelskelske van	1.6 J	medited des sem medited algoritation for selected and the selected decided and selected as per metaple spaces paragraphs			Endosulfan Sulfate
BALDWIN PLACE MAIL, SOMERS, NEW YORK. SHEW SWOOD	***************************************			0.55 J			0.48 ป	Dieldrin
BALDWIN PLACE MALL, SOMERS, NEW YORK.				4.0 J	0.86 B	1.3B	1.7 B	DOT
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-03 BPM-SW-04 BPM-SD-02 BPM-SD-03 BPM-SD-04	APPENDING TO THE PERSON OF THE				0.83 B	1.1B	1.1B	ODE
BADWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-04 BPM-SD-05 B	***************************************			1.6 J	0.45 B	0.88 B	2.4 J	4,4'-DDD
BADWIN PLACE MALL SOMERS, NEW YORK. BPM-SW-04 BPM-SD-04 BP				لـ 0.79	The second desiration of the second s	0.63 J	0.58 J	ma-Chlordane
BADWIN PLACE MALL, SOMERS, NEW YORK. BADWIN PLACE MALL, SOME MALL,				0.62 J	ل 0.37	J. 83.0	0.60 J	alpha-Chlordane
BALDWIN PLACE MALL SOMERS, NEW YORK. BALDWIN PLACE MALL SOMERS, NEW YORK.		***************************************	A PRINCIPAL TO THE PROPERTY OF	وي مدينة والمراجعة			0.58 J	beta-BHC
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-04 BPM-SW-04 BPM-SW-04 BPM-SW-04 BPM-SW-04 BPM-SW-04 BPM-SW-04 R BPM-SW-04 BPM-SW-04 R BPM-SW-05 GE2/93 GE2/			N.					
BALDWIN PLACE MAIL, SOMERS, NEW YORK.			eritation desirente im major series proprietes expenses destributes des la company expenses des series desires expenses des series desires de la company de	er de serran legis de participat de la companya de la cale de la companya de la companya de la companya de la c	The second secon	Andrew and the second s		TICIDES AND PCB.
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-04 BPM-SW-04 R BPM-SW-04 BPM-SW-04 R BPM-SD-04 R BPM-SD			A COLUMN TO THE PROPERTY OF TH	is recommendent of the first separation is a separate separate and the separate separate separate separate sep	en e			GET COMPOLIND LIST
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-04 BPM-SD-04			6/2/93		6/2/93	6/2/93	6/2/93	SAMPLE DATE
BALDWIN PLACE MALL, SOMERS, NEW YORK. BAM-SW-04 BPM-SW-04 BPM-SD-04	Management of the state of the		e de la companya de l		South (of Bridge)	WW Outfall	North (SG-1)	
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-03 BPM-SW-04 BPM-SD-04			Field Blank	Western Stream	Eastern Stream	Eastern Stream	Eastern Stream	re-ultra presentation de la companya de la company
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 Eastern Stream Cannel (SG-1) North (SG-1)			BPM-SD-04 B	BPM-SD-04	BPM-SD-03	BPM-SD-02	BPM-SD-01	
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-04 R				editions in the control of the contr	e demonstration of the control of th	en e		er fer eine er fer eine er fer eine er fer er f
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-04 R BPM-SW-04 Eastern Stream Eastern Stream Western Stream Western Stream Field Blank North (SG-1) WW Outfall South (of Bridge) Just North of Rt. 6 Just North of Rt. 6 G/2/93 6/2/93 AMPLE DATE 6/2/93 6/2/93 6/2/93 6/2/93 OMPOUND LIST ND ND ND ND O.011 J 0.009 J rdane 0.0011 J 0.009 J	Mary de la company de la compa		ARTINE CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONT	e de la companya de la constanta de la constanta de la companya de la companya de la companya de la companya d La companya de la comp	e de la companya de			
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-04	Appel hard galaxy along first and an appel property and a second							
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-				and the state of t	0.0030	0.011 J		alpha-Chlordane
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-04 R BPM-SW-04 BPM-SW-04 BPM-SW-04 BPM-SW-04 BPM-SW-04 BPM-SW-04 BPM-SW-04 BPM-SW-04 R B	dest secondar of the site and december of the second secon		and the second control of the second control of the		0.000 1	0.014	No. of the control of	a-BHC
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-04 R BPM-SW-04 BPM-SW-04 BPM-SW-04 BPM-SW-04 BPM-SW-05 BPM-S		N	ND	DN	e de de la companya		ND	TICIDES AND PCBs
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-				and the state of t				TARGET COMPOUND LIST
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-05 BPM-SW-	3	6/2/9:	6/2/93		6/2/93	6/2/93	6/2/93	SAMPLE DATE
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-	THE PERSON NAMED AND PARTY OF THE PE		Just North of Rt. 6		South (of Bridge)	WW Outfall	North (SG-1)	
BALDWIN PLACE MALL, SOMERS, NEW YORK. BPM-SW-01 BPM-SW-02 BPM-SW-03 BPM-SW-04 BPM-SW-04 R BPM-SW-04	~ !	Field BI	Western Stream	Western Stream	Eastern Stream	Eastern Stream	Eastern Stream	
BALDWIN PLACE MALL, SOMERS, NEW YORK.		BPM-SW-	BPM-SW-04 R	BPM-SW-04	BPM-SW-03	BPM-SW-02	BPM-SW-01	Andreas designed as a series of the series o
RAI DWIN PI ACE MAI I SOMERS NEW YORK				en de la companya de	THE COURSE OF THE PROPERTY OF	The Complete		
							CALLYNIN	

-						Samples were analyzed by Environment I aboratories Inc. Newburth New York	amples were applyzed by Engly
	the same of the sa	riteda)	tion limit or based on OC of	below the method quantitat	during data validation (ue to limitations identified o	J - Quantilation is approximate due to limitations identified during data validation (below the method guantilation limit or based on OC criteda
	***************************************		77 000	Tahoratory Manka at simila	detected in field and/o	since this compound was	B. Result is qualifatively suspect since this compound was detected in flaid and/or takentory blanks at similar levels.
			· A CONTRACTOR OF THE PROPERTY	(g), dry weight.	ams per kilogram (mg/l	itions are snown in milligra	The complete engintical data speeds heats are snown in miligrams per kilogram (mg/Kg), dry weight.
			g/L).	in micrograms per liter (μο	ncentrations are showr	s field blank (B) sample co	Surface Water (SW) and aqueous field blank (B) sample concentrations are shown in micrograms per liter (µg/L).
			Van jeli kolikista samalamparisi, gasi sipa kiri selektri mapanapi sibas pa apar anangas sebabasak mamana	***************************************			ND - None Detected.
***************************************			the city is an experience of the city of t		Andread and the state of the st	aterial.	NA - Not Analyzed; Insufficient material.
	9.6	650	120	20.8	21.0	102	Zinc
		16.5	2.8	9.2	6.3	9.5	Valiaciditi
***************************************	And the second s	0.30 J	0.21 ป	0.33 J			
	62.1	77.1B	63.1 B	76.5 B	63.2 B	63.9 B	Sodium
***************************************		understein i rendem as dass principal de des membres questies, con sastres quante i quientessiqua enc	***************************************				Silver
	and an injury representative for the same and alternative representative represen	F (C		Abent married between 1994 (1994 (1904 (1904 (1904 (1904 (1904 (1904 (1904 (1904 (1904 (1904 (1904 (1904 (1904			Selenium
	· President agent an amount of the control of the c	215	94.8	115	109	360	Potassium
		6.9	AND THE PARTY OF T	mili ir iddinidardi maa mya ngaraya yan daa (maa badiwa u maayadha qaa ay aa gu ugu aa aa jaan aa daa			Nickel
***************************************	J.0		VALUETON TOUR CONTRACTOR AND VALUE V		a seesse kiserajan aan seesse priigiste eterraniste eterskii eriskii eriskii kasaaniaan esesse priiski		Mercury
-	20.	1 350	460	630	171	371	Manganese
***************************************	28 1	5 500	9.640	914	782	3,610	Magnesium
	00	155	9.3	4.8	7.0	41.8	Lead
	21 1	9.030.1	3.120 J	2,650 J	1,620 J	5,730 J	ron
And the second	**************************************	NA		TO THE MENT PROPERTY OF THE PARTY OF THE PAR			Cyanide (Total)
	The second secon	225	10.3	5.0	8.3	13.6	Copper
California de la Constantina de Calendario d				. То в подава в пода		4.1	Cobalt
Andrewson Britain made of dismarks which		7.7	9.5	THE TOTAL CONTRACTOR AND THE CON	2.4	3.2	Chromium
	108	31.700	19,500	2,350	1,990	7,650	Calcium
		2.1 J			The state of the s	And the section of th	Cadmum
	de en entre de de en en entre entre en en en en en en entre en entre entre entre entre entre entre entre entre	0.30		0.30	And the same of th		Berymum
	0.92	178	24.6	56.8	41.4	92.8	Banum
***************************************	And the second section of the second section of the second section of the second section secti	1. 1	The second secon		efers desprise desprise desprise de contrat de la contrat	2.0	Arsenic
** ************************************							Antimony
-	to the design of the second	2.880	540	2,860	1,680	3,080	Aluminum
							METALS AND INCHGANICS
Princes and the April 1986 Section more bearing	. Pro-1 in security and a second control of the second control of			lde, de anadem en	A CONTRACTOR OF THE PROPERTY O	and manual. The second seco	TARGET COMPOUND LIST
	6/2/93	6/2/93	6/2/93	6/2/93	6/2/93	6/2/93	SAMPLE DATE
t alleged de de allegene de de central personal de les de desses de de centre		den mederapple de diese et est et en erranging er een erranging en	Just North of Rt. 6	South (of Bridge)	WW Outfall	North (SG-1)	7
***************************************	Field Blank	Catch Basin	Western Stream	Eastern Stream	Eastern Stream	Eastern Stream	fireder (befolgenesse, place) a fact survives services i efectives services services de selectives par se fact
	BPM-SD-04 B	BPM-SD-05	BPM-SD-04	BPM-SD-03	BPM-SD-02	BPM-SD-01	den de la companya d
***************************************		Property of the State State of the State State of the State		TOTAL	The second secon		
SEDIMENT;	ANICS (TOTAL) IN SURFACE WATER AND SEDIMENT;		BALDWIN PLACE MAIL SOMERS NEW YORK	YORK	BALDWIN PLACE MAIL SOMERS NEW YORK	BALDWIN PLACE M.	erinianin armatan da en
	T-100-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-						

Table 10-1 Summary of Hazard and Risk Calculations Big V Supermarkets, Baldwin Place Mall, NY

2E-02	↓E+00	Sub-Total	
90-∃6	1E+00	Future Resident	Inhalation of vapors and airborne chemicals from groundwater
90-3Z	1E-01	Future Resident	mori noitgroedA ismneO reservation
SE-02	1E-01	Future Resident	Ingestion of groundwater
20-39	SE-01	IstoT-du2	
₹E-15	SE-06	Children	Inhalation of vapors from surface water
2E-08	3E-04	Children	Dermal Absorption from surface water
9E-10	∆E-09	nənblidə	Incidental Ingestion of surface water
1E-13	4E-09	Children	Dermal Absorption from sediment
6E-13	SE-08	nərblidO	Incidental Ingestion of sediment
3E-07	1E-01	Children	lios mort stogsy to noitaladal
4E-08	 0-∃9	Children	Dermal Absorption from soil
ZE-07	ZE-03	Children	Incidental Ingestion of soil
90-36	SE+00	Sub-Total	
90- 3 6	SE+00	Future Worker	ins mort vapors from soil infiltrating through building including through building
(a) 4E-06 (a)	8E-02	lstoT-du&	
1E-06	9E-0 5	Current Resident	Inhalation of vapors and airborne chemicals from groundwater
1E-06	8E-03	Current Resident	Dermal Absorption from groundwater
1E-06	1E-02	Current Resident	Ingestion of groundwater
60- 3 9	7E-04	Current Resident	lina mort aragev to noitaladril
1E-02	9E+00	IstoT-du&	·
1E-02	00+∃9	Construction Worker	Inhalation of vapors due to excavation activities
1E-08	SE-04	Construction Worker	lios mort notiquosdA IsmneO
	≯0-∃L	Construction Worker	Incidental Ingestion of soil
90-39	70 32		line to neitheart totaching

⁽a) Risk is attributable only to groundwater pathways which utilized Federal and NYSDEC/NYSDOH MCLs for Tetrachloroethylene and Trichloroethylene.