OPERATION AND MAINTENANCE PLAN
FORMER BULOVA CORPORATION FACILITY
VALLEY STREAM, NEW YORK

Prepared for

Bulova Corporation
Woodside, New York

Prepared by

ENVIRON International Corporation
Princeton, New Jersey

March 2000
Project No. 02-1961A

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I. INTRODUCTION

A. Purpose

ENVIRON International Corporation (ENVIRON) has prepared this report, on behalf of Bulova Corporation (Bulova), to serve as an Operation and Maintenance Plan for the former Bulova manufacturing facility in Valley Stream, New York (the "Site"). Based on the results of prior investigations and remedial actions at the Site, the New York State Department of Environmental Conservation (NYSDEC) has determined that no further remedial actions are warranted at the Site. As detailed in the *Record of Decision*, NYSDEC has determined that the remedial actions completed to date at the Site have eliminated or mitigated all significant threats to the public health or the environment.

In conjunction with the reclassification of the Site from a Class 2 to a Class 4 site on the New York State Registry of Inactive Hazardous Waste Disposal Sites, NYSDEC has required that ground water monitoring be completed at and in the vicinity of the Site for a period of two years. These monitoring activities would also include the installation of an off-site monitoring well. This report details the environmental setting of the former Bulova manufacturing facility, summarizes the results of prior investigations at the Site, and presents the field procedures associated with the proposed downgradient monitoring well installation and the ground water monitoring program.

B. Background

1. Location and Physical Setting

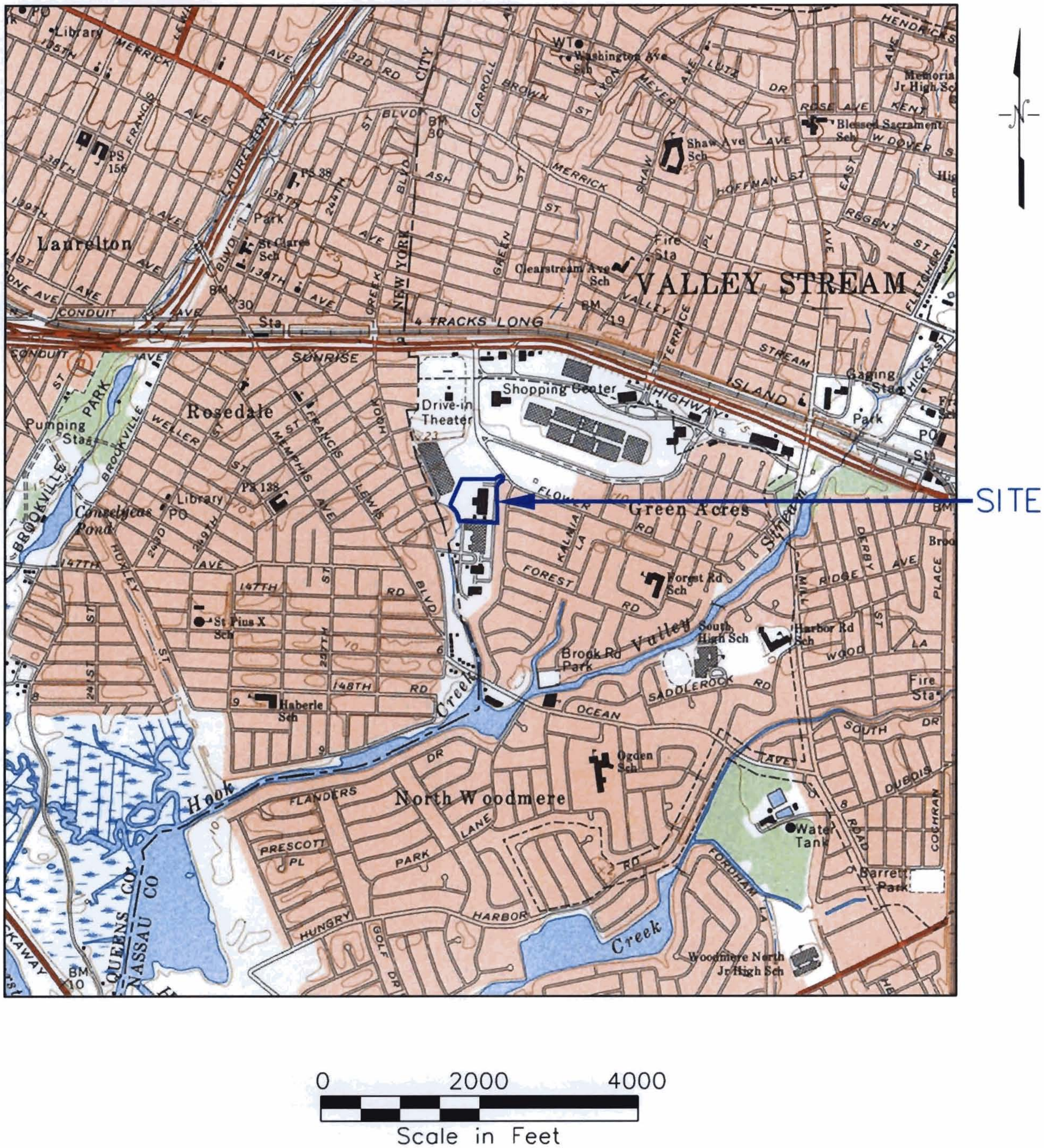
The Site is located in the town of Hempstead, Nassau County, New York in a mixed-use urban area with residential, commercial, and light industrial properties. The Site is included in the Lynbrook, New York USGS topographic quadrangle and the Site location is depicted on Figure 1. The Site covers approximately 7.2 acres and is bordered to the northwest and northeast by retail stores and paved parking areas. The Green Acres shopping mall is immediately northeast of the Site. The northern limits of the retail stores and parking areas are bordered by the Sunrise Highway and the Far Rockaway branch of the Long Island Railroad. A residential area is adjacent to the eastern property boundary. Light industrial facilities, including distribution and shipping companies, are located to the south of the Site at the Airport Industrial Office park (AIOP). John F. Kennedy International Airport is approximately 2 miles southwest of the Site. The Site layout is depicted on Figure 2.

Hook Creek, an intermittent stream, is located beyond the western edge of the Site. The creek receives storm water drainage from the Site as well as from upgradient areas including paved parking areas, Sunrise Highway, and the Long Island Railroad adjacent to the Sunrise highway. Hook Creek flows south, merges with Valley Stream approximately 0.5 miles south of the Site, and then flows to the west, discharging to Jamaica Bay. Clear Stream, located approximately 0.3 miles southeast of the Site, flows to the south and joins Valley Stream approximately 0.2 miles upstream of Hook Creek. In the vicinity of the Site, the Nassau/Queens County line roughly follows Hook Creek.

2. Geology

The Site is located within Long Island's glacial outwash plain, which extends 10 miles southward from the Ronkonkama and Harbor Hill terminal moraines to the south shore. Surface topography at the Site is flat, with surface elevations ranging from approximately 8 to 10 feet above mean sea level (amsl). Topography in the vicinity of the Site is also generally flat and gently slopes toward the south and southeast in the direction of Hook Creek and Valley Stream.

The Site is underlain by upper Pleistocene deposits, which form the upper glacial aquifer. The upper Pleistocene deposits consist mainly of stratified beds of fine to coarse sand and of sand and gravel. Thin beds of silt and clay are often interbedded with the coarse-grained material. The upper glacial aquifer is underlain by the "20-foot" clay and the Gardiners Clay. The "20-foot" clay is lithologically similar to the underlying Gardiners



SOURCE: 40°39'35" N, 73°43'28" W WGS84 TOPO! map printed on 01/20/00 from "NYC.tpo"

ENVIRON	SITE LOCATION MAP FORMER BULOVA CORPORATION FACILITY VALLEY STREAM, NEW YORK	FIGURE 1
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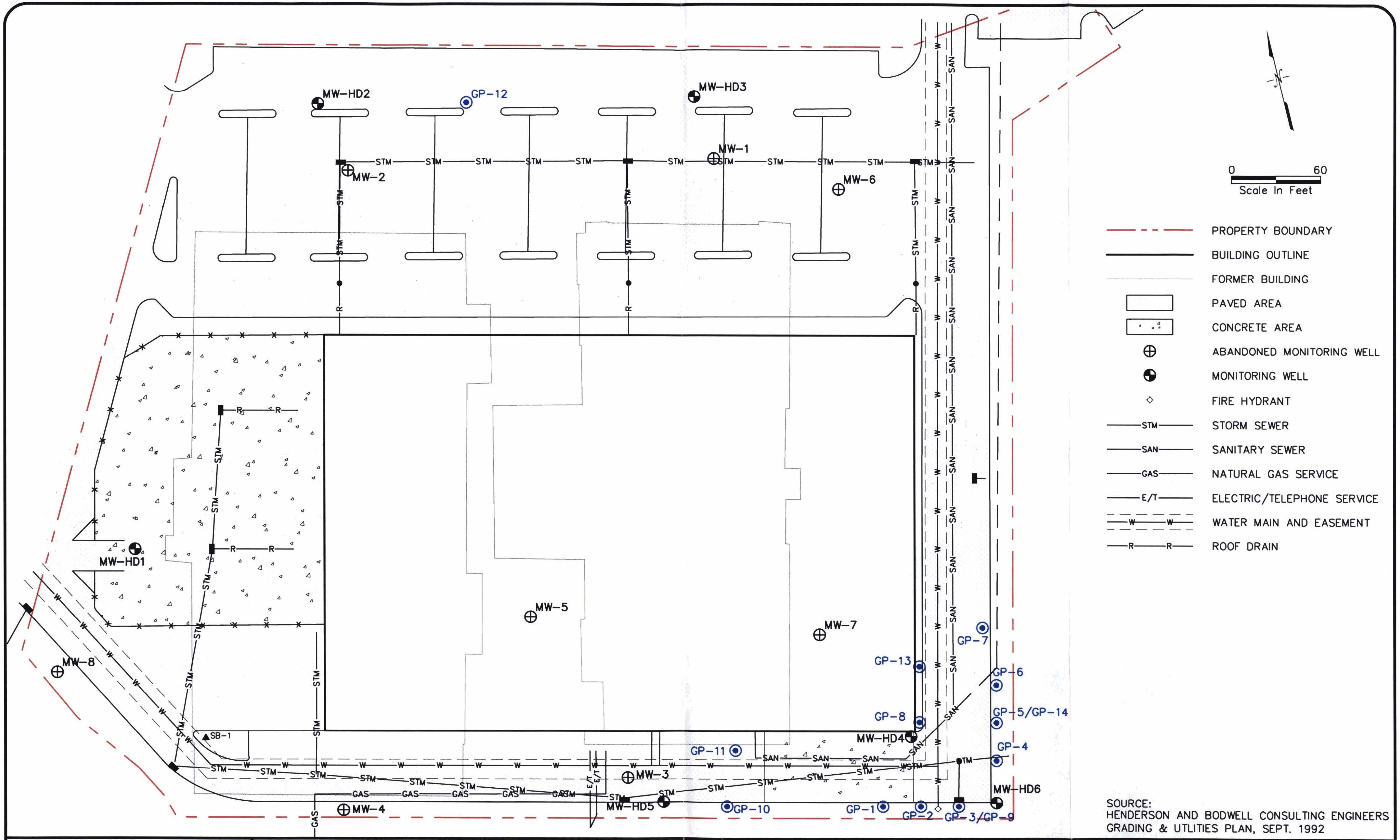

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GRADING & UTLITIES PLAN, SEPT. 1992

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DATE: 8/5/98

SITE MAP
FORMER BULOVA CORPORATION FACILITY
VALLEY STREAM, NEW YORK

FIGURE
2

1961AW02

Clay and the two units are distinguished primarily by stratigraphic position. In some portions of southern Nassau County, the "20-foot" clay is separated from the Gardiners Clay by a layer of upper Pleistocene deposits. The "20-foot" clay and the Gardiners Clay represent the major confining layers within the upper portion of the ground water reservoir beneath Nassau County. Additional information related to the regional geology is detailed in the *Geologic Review and Well Record Search Results* letter report (ENVIRON, April 16, 1998).

Based on observations during the prior site investigations, geologic conditions at and in the vicinity of the Site are consistent with the findings of regional geologic investigations. The Site is underlain by fine to medium sands. Ground water is located approximately 5 feet below ground surface (bgs). Regional geologic investigation reports indicate that the northern boundary of the "20-foot" clay is present in the vicinity of the Site, and the site investigation results indicate that the "20-foot" clay is discontinuous beneath the Site. Where the "20-foot" clay is present, a thin layer of upper Pleistocene deposits appear to be positioned between the "20-foot" clay and the Gardiners Clay. The top of the "20-foot" clay has been encountered at depths of 38 – 45 feet bgs and the top of the Gardiners Clay has been encountered at depths of 45 – 52 feet bgs.

Ground water level measurements collected during the investigations at the Site indicate that shallow ground water flow beneath the Site is directed toward the southeast at a very small hydraulic gradient of less than 0.001 ft/ft. Shallow ground water elevations at the Site did not appear to be tidally-influenced. The ground water potentiometric surface is depicted on Figure 3.

3. Site History

Industrial operations at the Site are believed to have started in the late 1920s with the construction of the Curtiss-Wright Airport in 1929.[1] Airport related structures at the Site included airplane hangars and a portion of the runway. Although Curtiss Flying Service abandoned the airfield in approximately 1938, several other air service companies continued

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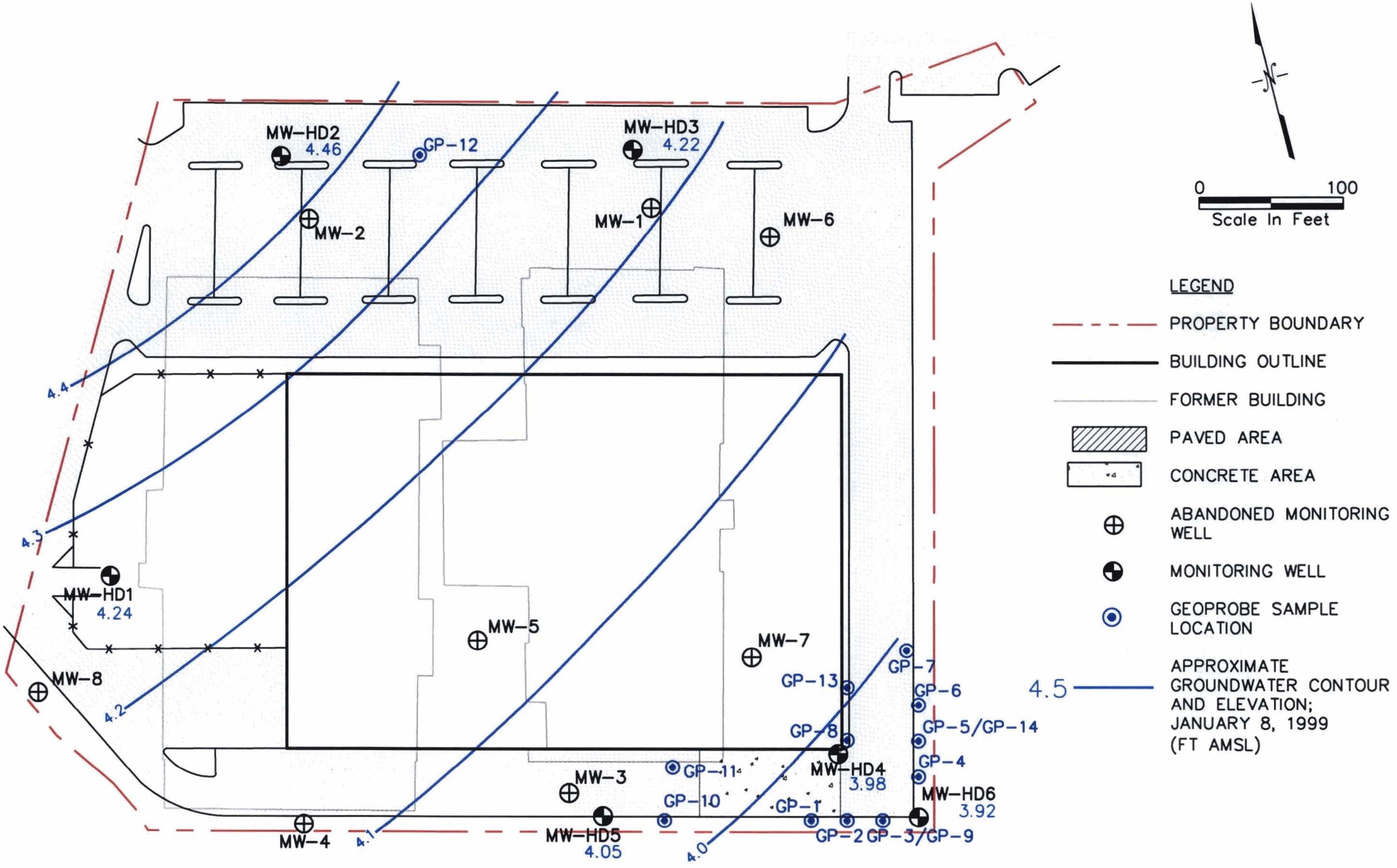
[1] Information related to prior site operations was obtained from a Phase I environmental assessment performed by Certified Engineering and Testing Company during 1990.



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DATE: 5/25/99

GROUND WATER POTENTIOMETRIC SURFACE—JANUARY 1999

FORMER BULOVA CORPORATION FACILITY
VALLEY STREAM, NEW YORK

FIGURE
3

1961AW03

to operate the airfield. Occupants included the Columbia Aircraft Corporation, which built airplanes for military and private concerns between 1940 and 1948. The Bulova Watch Company leased the property from 1948 until 1960, when Bulova took title of the property.

When Bulova took occupancy of the Site in 1948, two airplane hangars existed on the eastern portion of the Site. Based on discussions with Bulova personnel, it is believed that Bulova connected the airplane hangars in 1952, creating Building No. 1. Building No. 2 was erected west of Building No. 1 in 1967. During Bulova's occupancy, the eastern and northern portions of the Site were paved; a portion of the paved area incorporated the original concrete airfield runway, which traversed the eastern portion of the property from north to south. Bulova ceased operations at the Site during 1990 and title of the property was transferred to Home Depot in April 1993.

The Site was redeveloped during 1993. Redevelopment included demolition of all existing Site structures and construction of a Home Depot retail store. The entire Site is currently covered by the Home Depot building and the associated paved parking areas. Potable water and sanitary service at the Site are provided by the local municipal authority. Storm water drainage from the building roof and paved parking areas is collected in a series of catch basins and directed via reinforced concrete piping beyond the eastern property boundary.

C. Investigation Results

The following sections summarize the results of historical investigations completed at the Site, as well as results of a ground water delineation investigation and a remedial investigation completed by ENVIRON.

1. Historical Investigations

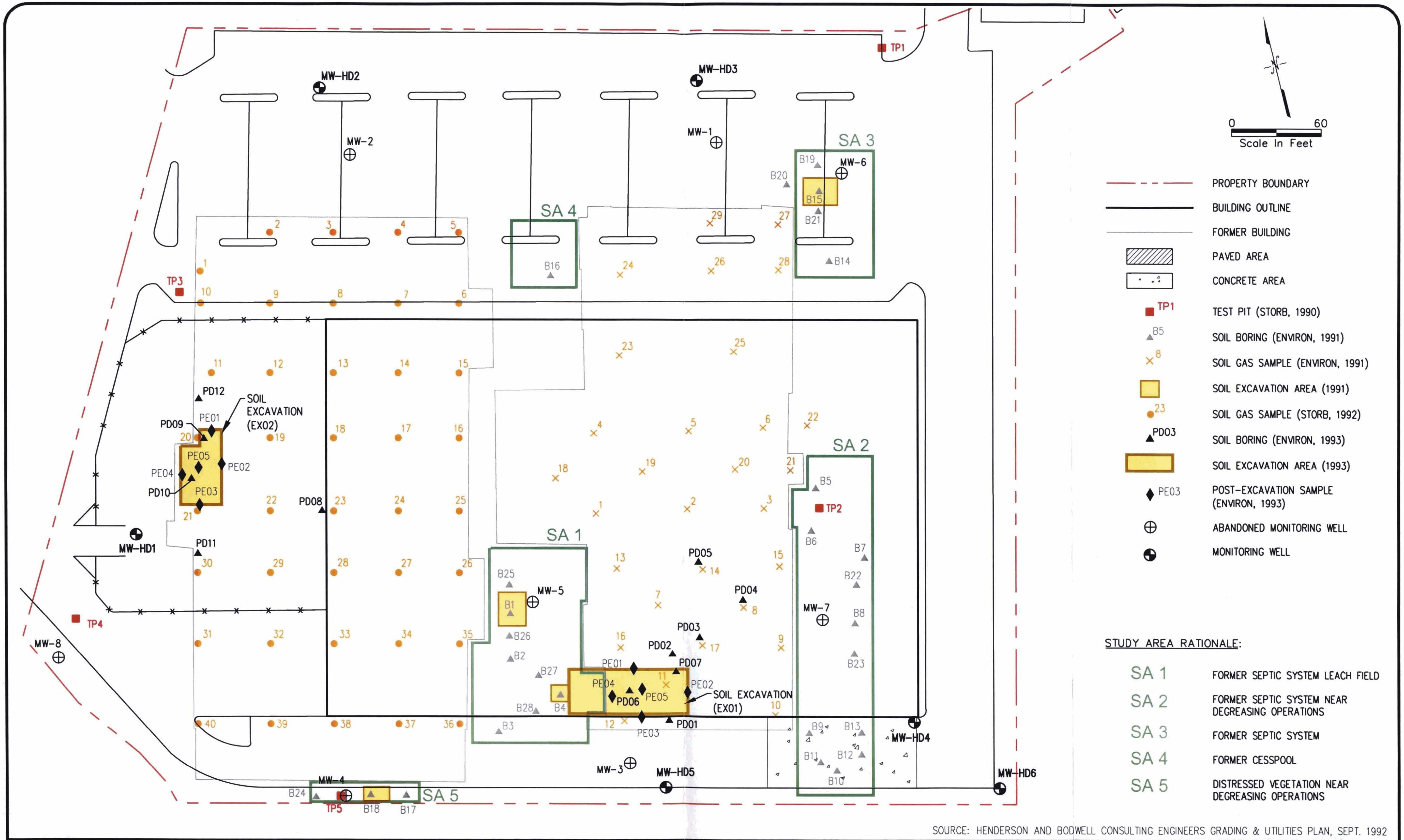
Initial Site Investigations and Initial Soil Remediation

A Phase II site investigation was completed by Storb Environmental Incorporated (Storb) in December 1990. The scope of the Phase II investigation was developed based on the findings of a Phase I environmental site assessment completed by Certified Engineering and Testing Company in July 1990. The Phase II site investigation included the completion of five test pits for the purpose of shallow soil logging and ground water sampling. Additionally, two surface water samples were reportedly collected from Hook Creek. The Phase II site investigation completed by Storb identified volatile organic compound (VOC) concentrations in ground water above the applicable ground water quality criteria. The VOCs were limited to 1,1,1-trichloroethane (TCA), trichloroethene (TCE), and trans-1,2-dichloroethene at two sampling points (test pits TP2 and TP5).

Based on the results of Storb's Phase II site investigation, ENVIRON completed a Phase III site investigation to identify areas of potential environmental concern and further characterize the nature and extent of the Site-related contamination. The Phase III investigation focused on four areas identified as former septic systems/cesspools (Areas SA1 – SA4) and one area described as stressed vegetation near a former degreasing area (Area SA5). Each area is depicted on Figure 4. The field investigation included the collection of 42 soil samples from 27 locations, the installation of 8 shallow monitoring wells, the collection of ground water samples from each monitoring well, and the collection of soil gas samples from 29 points within the former eastern building (Building No. 1). Sample locations are presented in Figure 4.

Soil sampling activities during an initial stage of the Phase III investigation identified elevated concentrations of several VOCs at four locations (soil borings B1, B4, B15, and B18). Reported constituents in the soil samples included TCA, TCE, tetrachloroethene (PCE), 1,1-dichloroethane, acetone, ethylbenzene, and xylenes. Freon compounds were not detected in any of the soil samples. Soil sampling during a subsequent stage of the Phase III investigation delineated the extent of impacted soils as the area in the immediate vicinity of soil borings B1, B4, B15, and B18. Soil sampling data, as presented in the Phase III report, are provided in Attachment A to this plan.

Based on the results of the Phase III sample collection activities, soils at and in the vicinity of soil borings B1, B4, B15, and B18 were excavated and transported for off-site disposal. The remediation activities were performed under the oversight of the Nassau County Department of Health (NCDOH) and included the removal of approximately 130 cubic yards of impacted soil. The limits of each excavation area included in the 1991 remedial action are depicted on Figure 4.



STUDY AREA RATIONALE:

SA 1	FORMER SEPTIC SYSTEM LEACH FIELD
SA 2	FORMER SEPTIC SYSTEM NEAR DEGREASING OPERATIONS
SA 3	FORMER SEPTIC SYSTEM
SA 4	FORMER CESSPOOL
SA 5	DISTRESSED VEGETATION NEAR DEGREASING OPERATIONS

SOURCE: HENDERSON AND BODWELL CONSULTING ENGINEERS GRADING & UTILITIES PLAN, SEPT. 1992

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HISTORICAL SAMPLE LOCATIONS
FORMER BULOVA CORPORATION FACILITY
VALLEY STREAM, NEW YORK

FIGURE
4

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Consistent with the soil sampling data, ground water sampling completed during the Phase III investigation detected TCA, TCE, PCE, and xylenes. Summarized ground water sampling data, as presented in the Phase II report, are provided in Attachment A. Freon compounds were detected at former monitoring well MW-3 only. Former monitoring well MW-3 was positioned downgradient of a former septic system leach field beyond the southwest wall of Building No. 1 (Area SA1). Ground water sampling subsequent to the Phase III investigation identified decreasing Freon 113 concentrations at MW-3. Reported Freon 113 concentrations decreased from 35 µg/l during January 1991 to not detected during August 1993.

Soil gas sample collection identified elevated VOC concentrations beneath the southern portion of Building No. 1. The field analyses, which were limited to specific compounds, identified elevated concentrations of TCA, TCE, and PCE. Freon compounds were not included in the field analysis program. Soil gas sampling data, as presented in the Phase II report, are provided in Attachment A. Soil sampling activities to further evaluate reported VOC concentrations in soil gas beneath Building No. 1 are described below.

Supplemental Soil Gas Survey

Subsequent to ENVIRON's Phase III investigation, Storb completed a soil gas survey within the western building at the Site (Building No. 2). The soil gas survey was completed during May 1992 and included 40 sampling locations on an approximate 50-foot grid within Building No. 2. Sample locations are depicted in Figure 4. Consistent with prior sampling events at the Site, the 1992 soil gas survey detected TCA, TCE, PCE, and xylenes. Freon compounds were not included in the field analysis program. Soil gas sampling data, as presented in the investigation results report prepared by Tracer Research Corporation (Tracer; May 24 – 28, 1992), are provided in Attachment B. Soil sampling activities to further evaluate reported VOC concentrations in soil gas beneath Building No. 2 are described below.

Post-Demolition Soil Sample Collection and Soil Remediation

ENVIRON collected soil samples from 12 locations at the Site during August 1993 following demolition of Building Nos. 1 & 2 and removal of the associated concrete floor slabs. Sampling locations at the former location of Building No. 1 were targeted toward stained soils identified during demolition activities (PD01 – PD02) and soil gas hot spots identified during the Phase III site investigation (PD03 – PD07). Post-demolition soil sampling locations at the former location of Building No. 2 were targeted toward soil gas hot spots identified during Storb's soil gas survey (PD08 – PD09) and stained soils identified during demolition activities (PD10 – PD12). Sample locations are depicted on Figure 4.

The post-demolition soil sampling activities identified two areas of impacted soils: one beneath the southern portion of Building No. 1 containing elevated concentrations of several VOCs and total petroleum hydrocarbons (TPHCs) and one in the vicinity of a former underground storage tank beyond the western wall of Building No. 2 containing elevated concentrations of TPHCs. Consistent with the prior sampling activities, identified VOCs included TCA, TCE, PCE, and ethylbenzene. Freon compounds were not detected in any of the post-demolition soil samples. Soil sampling data, as presented in a prior summary letter, are provided in Attachment C.

VOC and TPHC-impacted soils beneath Building Nos. 1 and 2 were excavated and removed from the Site during September and October 1993 under the oversight of NYSDEC and NCDOH. The remedial activities completed by Bulova included the removal of approximately 400 yd^3 of impacted soil.[2] Analysis of 10 post-excavation samples confirmed the effectiveness of the soil removal activities. In addition, Freon compounds were not detected in any of post-excavation samples. The limits of each excavation area included in the 1993 remedial action are depicted on Figure 4.

Ground Water Monitoring

Routine ground water monitoring was completed by Soil Mechanics Environmental Services (Soil Mechanics), on behalf of Home Depot, in conjunction with NYSDEC Spill Case No. 93-07732. Based on the ground water monitoring results, NYSDEC closed the spill case

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[2] Concurrent with the soil remediation activities completed by Bulova at the southern portion of Building No. 1, additional soils were excavated at the western end of the excavation by Home Depot in conjunction with the removal of two underground storage tanks. The approximately 160 – 200 yd^3 of impacted soils excavated by Home Depot during October 1993 were consolidated with the soils excavated by Bulova and transported for off-site disposal. Characterization of the UST release was performed by Home Depot under NYSDEC Spill Case No. 93-07732. The spill case was closed on November 22, 1995.

and noted that Division of Spills Management had no further requirements for the Site (NYSDEC; Nov. 22, 1995). However, although NYSDEC closed the spill case, Soil Mechanics continued the routine monitoring activities. Ground water samples were collected on a quarterly basis from five monitoring wells (MW-HD1 through MW-HD5) for a period of approximately 30 months following the November 1995 no further action approval. Results of the additional ground water monitoring activities, as tabulated by Soil Mechanics, are provided in Attachment D.[3] In a letter to NYSDEC dated January 26, 1999, Soil Mechanics concluded that constituent concentrations at several monitoring wells had decreased as a result of natural attenuation and that no further monitoring was warranted at monitoring wells MW-HD1, MW-HD2, MW-HD-3, and MW-HD5.

2. Ground Water Delineation Investigation

Based on results of a meeting between NYSDEC, ENVIRON, and Bulova on May 13, 1998, ENVIRON completed a ground water delineation investigation at the Site. The June 1998 ground water delineation investigation was developed to: (1) characterize hydrogeologic conditions at the Site; (2) delineate the elevated concentrations of VOCs detected near the southeastern corner of the Site; and (3) evaluate ground water quality within the upper glacial aquifer at locations downgradient of the Site. Sample locations included in the ground water delineation investigation are depicted on Figure 5. Results of the ground water delineation investigation were provided to NYSDEC in a letter dated August 5, 1998, and are summarized below.

Hydrogeologic Conditions

During the ground water delineation investigation, ENVIRON advanced one soil boring (SB-1) near the southwestern property boundary to confirm the presence of the regional confining layer beneath the Site. Soil sampling identified a consistent section of fine to medium sands extending from immediately beneath the pavement/

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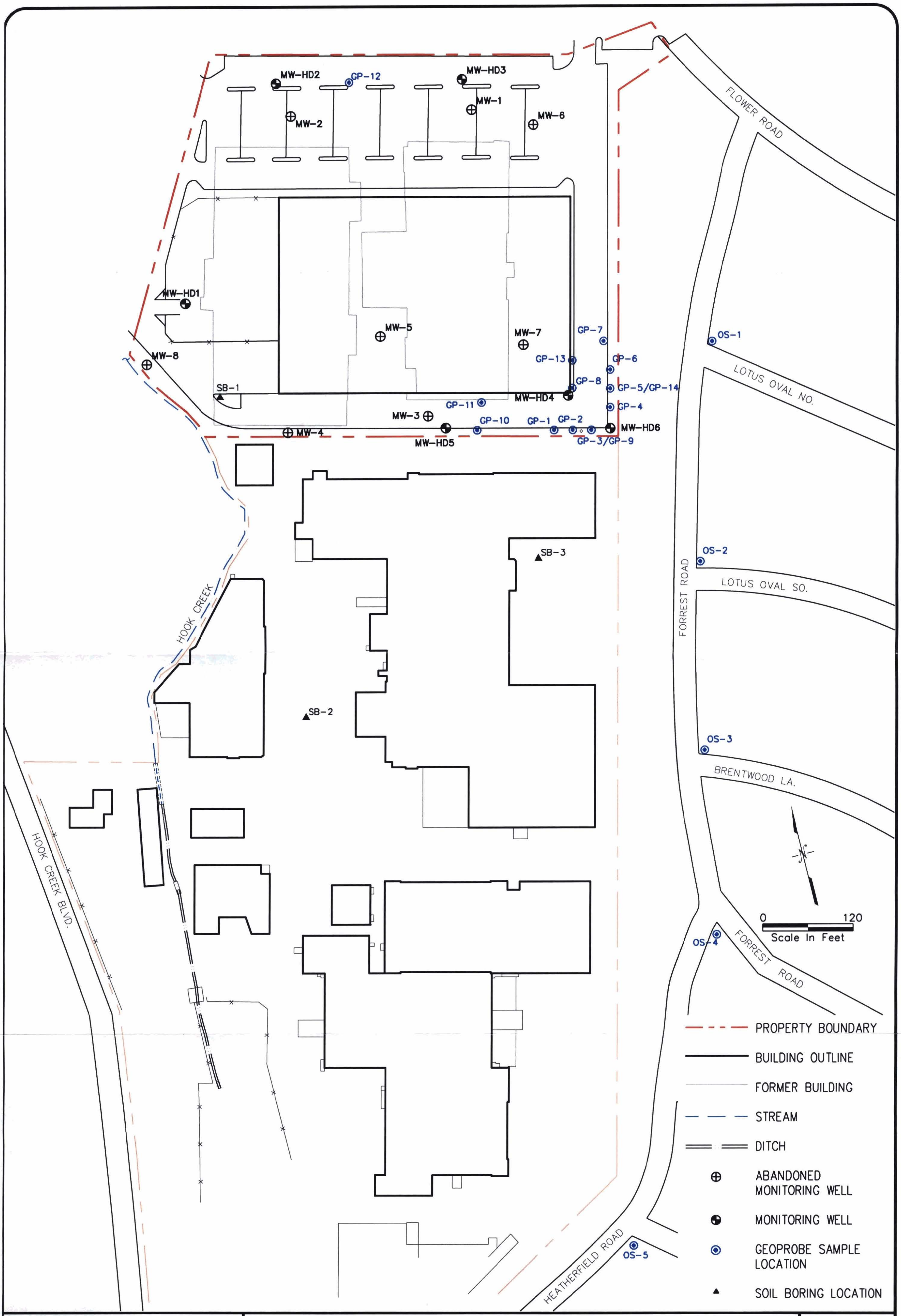
[3] The sampling data provided in Attachment D are related to existing monitoring wells MW-HD1 through MW-HD5. The tables prepared by Soil Mechanics abbreviate each well identification to remove the "HD" labeling associated with the existing monitoring wells.



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DATE: 6/14/99

SOIL AND GROUND WATER SAMPLE LOCATIONS

FORMER BULOVA CORPORATION FACILITY
VALLEY STREAM, NEW YORK

FIGURE
5

1961AB07

sub-base material to approximately 42 feet bgs. Ground water was encountered at approximately 5 feet bgs. The "20-foot" clay was encountered at approximately 42 feet bgs. Geotechnical testing of an undisturbed sample from the clay unit determined the vertical permeability to be 6 x 10^{-7} cm/sec, confirming the conclusions of prior regional geologic investigations which have identified the clay unit beneath the Site as a significant hydrogeologic confining unit.

On-Site Ground Water Quality Evaluation

Additional on-site ground water delineation sampling was completed in the shallow portion of the upper glacial aquifer to further define the horizontal extent of VOC concentrations at the southeastern corner of the Site. In addition, due to the physical nature of the chemicals of concern (*i.e.,* more dense than water in their pure form), ENVIRON collected ground water samples from deeper portions of the upper glacial aquifer to determine to vertical extent of elevated VOC concentrations. Deeper ground water sampling completed at the southeastern portion of the Site indicated that slightly higher VOC concentrations are present in the deeper portions of the upper glacial aquifer. Consistent with concentrations trends identified based on historical sampling completed by ENVIRON and Soil Mechanics, reported VOC concentrations in ground water at the southeastern corner of the Site continued to display an overall downward trend with time. In addition to the ground water sampling performed at the southeastern portion of the Site, ground water sampling at the upgradient portion of the Site detected VOC contamination, suggesting that some of the VOCs detected in ground water at the Site may result from an off-site upgradient source.

Off-Site Ground Water Quality Evaluation

Based on prior ground water sampling events and the estimated ground water flow direction at the Site, ENVIRON advanced 6 off-site Geoprobe borings for the purpose of ground water sample collection. Shallow and deep ground water sampling did not detect VOC concentrations above the applicable New York Ground Water Quality Criteria at the downgradient sampling locations closest to the Site.

Although VOC concentrations above applicable New York Ground Water Quality Criteria were detected at one off-site sampling point, several industrial establishments are located between that sampling point and the Site.

3. Remedial Investigation

ENVIRON completed a remedial investigation at the Site between January 1999 and April 1999. The scope of the remedial investigation was developed based on requests from the NYSDEC to characterize hydrogeologic conditions at and in the vicinity of the Site, delineate the vertical extent of impacted ground water, and evaluate soil vapor quality at the southeast corner of the Site. The remedial investigation included the completion of deep soil borings and collection of ground water level measurements to characterize local hydrogeology, collection of soil gas samples to determine VOC concentrations in the unsaturated zone at the southeastern portion of the Site, and the collection of ground water samples to characterize shallow and deep ground water quality at and in the vicinity of the Site. Sample locations included in the remedial investigation are depicted on Figure 5. Results of the remedial investigation were provided to NYSDEC in a letter dated June 15, 1999, and are summarized below.

Off-Site Hydrogeologic Characterization

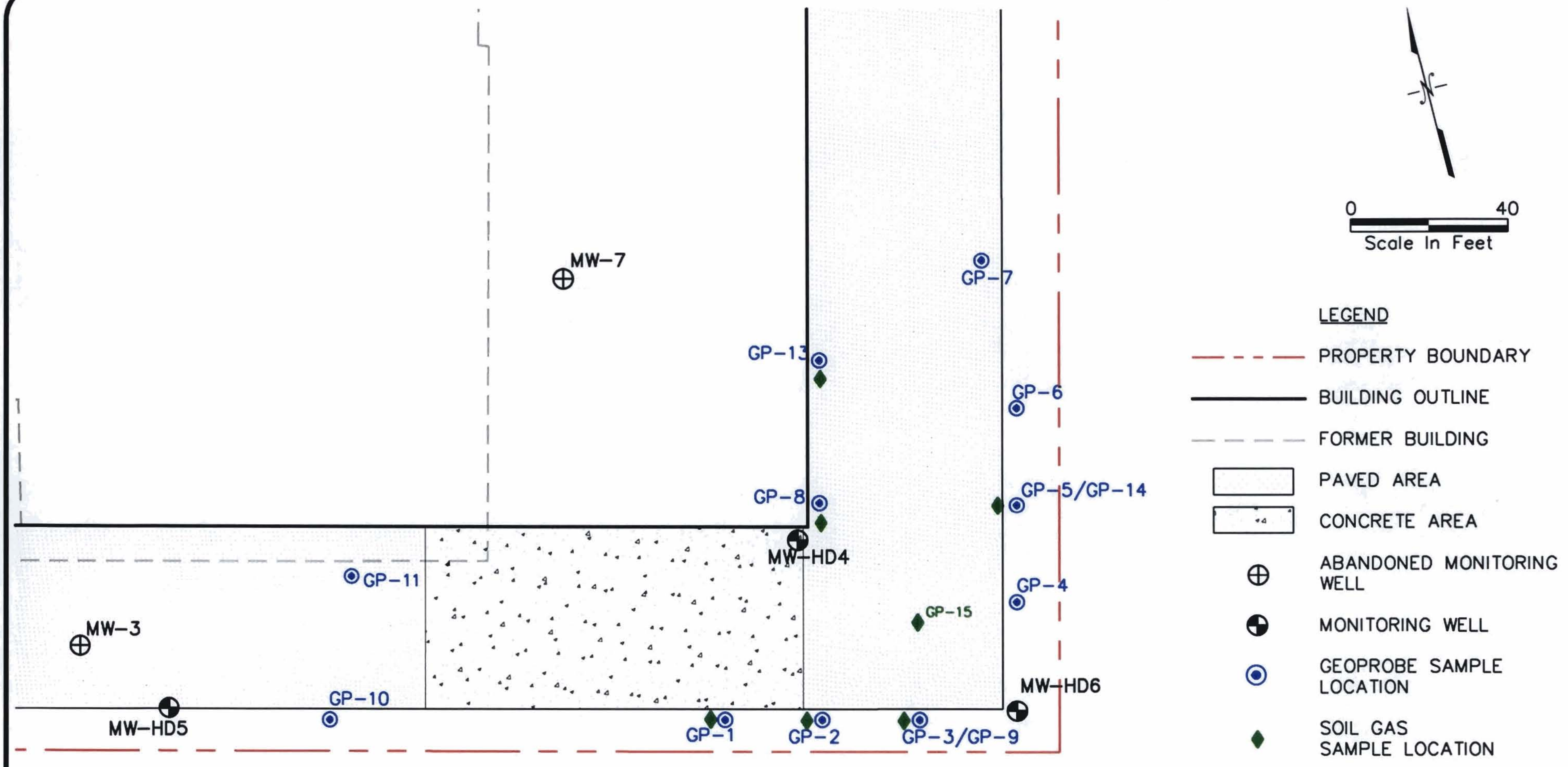
Based on NYSDEC requests, ENVIRON advanced two soil borings (SB-2 and SB-3) south of the Site at the AIOP property to confirm the continuity and thickness of the "20-foot" clay, determine if a transmissive zone was located between the "20-foot" clay and the Gardiners Clay in the vicinity of the Site, and locate the top of the Gardiners Clay. The off-site borings were completed to a depth of approximately 65 feet bgs. Consistent with results of regional geologic investigation and prior Site-related sampling, soil sampling identified fine to medium sands to a depth of approximately 44 to 45 feet bgs. A clay unit suspected to be the "20-foot" clay was encountered at a depth of 44 to 45 feet bgs. The thickness of the clay ranged from approximately 4 to 7 feet at the off-site soil borings. An approximately 5-foot-thick layer of silty fine sands was encountered at each soil boring location and is suspected to be associated with upper Pleistocene deposits between the "20-foot" clay and Gardiners Clay. These intermediate upper Pleistocene deposits were underlain by glauconitic silty fine sands with trace amounts of clay, believed to represent the Gardiners Clay.

On-Site Conductivity Borings

Two soil conductivity borings were completed to depths of approximately 75 feet bgs at the southeastern portion of the Site to further characterize the lithology at each location and to select appropriate ground water sampling intervals. The conductivity borings were positioned immediately adjacent to Geoprobe borings GP-5 and GP-9. Lithologic conditions encountered during the conductivity survey were generally consistent with prior drilling activities at and in the vicinity of the Site. Logging at GP-5B identified sandy deposits underlain by a clay unit, suspected to be the "20-foot" clay, at approximately 38 to 44 feet bgs. Logging at GP-9B did not detect this upper clay unit. A silty sand unit, consistent with the suspected Gardiners Clay unit, was identified at approximately 45 to 52 feet bgs.

Soil Gas Sample Collection

Based on results of a March 1999 meeting between NYSDEC and the New York State Department of Health (NYSDOH), NYSDEC requested that soil gas samples be collected from the southeastern corner of the Site to characterize concentrations of VOCs in the unsaturated zone. Soil gas samples were collected from seven locations and analyzed for VOCs using EPA Method TO-14. Soil gas sample locations are depicted on Figure 6. Consistent with historical ground water sampling activities at the Site, the primary VOCs detected in the soil gas samples included TCA, PCE, and TCE. Freon 113 was also detected in the soil gas samples. As no soil gas cleanup criteria or screening values were available from the NYSDEC, ENVIRON compared the soil gas data generated during the remedial investigation to the Residential Volatilization Criteria for Soil Vapors used by the State of Connecticut (RCSA 22a-133k-3). Reported soil vapor concentrations were at least two orders of magnitude below the corresponding soil vapor criteria at each soil gas sample point.



SOURCE:
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GRADING & UTILITIES PLAN, SEPT. 1992

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SOIL GAS AND GEOPROBE SAMPLE LOCATIONS
FORMER BULOVA CORPORATION FACILITY
VALLEY STREAM, NEW YORK

FIGURE
6

1961AW04

Based on the decreasing VOC concentrations in the direction of the residential area adjacent to the eastern property boundary and results of the volatilization criteria evaluation, which indicated that reported VOC vapor concentrations are well below an appropriate set of cleanup criteria, ENVIRON and Bulova believe that vapors related to the impacted ground water at the southeastern corner of the Site do not represent a significant health concern. Subsequent to the remedial investigation, NCDOH and NYSDOH completed air sampling within several residences immediately adjacent to the Site. The NCDOH/NYSDOH investigation did not detect VOCs in the air samples.

Off-Site Deep Ground Water Sampling

Off-site drilling activities completed during the remedial investigation included ground water sample collection from several intervals at the two soil borings at AIOP to characterize ground water quality to the south of the Site. Ground water sampling intervals were selected to target intervals above the "20-foot" clay, within the transmissive zone between the "20-foot" clay and the Gardiners Clay, and within the Gardiners Clay.

Reported chloroform and TCE concentrations in samples collected from boring SB-2 exceeded the applicable New York Ground Water Quality Standard. The only constituent to exceed an applicable ground water quality standard at soil boring SB-3 was cis-1,2-dichloroethene, in the deepest ground water sample. Based on the review of Site-specific ground water flow information and evaluation of constituents detected in the ground water beneath AIOP and the Site, ENVIRON and Bulova believe that VOCs detected in the off-site ground water samples are not associated with the impacted ground water at the southeastern corner of the Site.

On-Site Vertical Delineation Sampling

Additional on-site vertical delineation sampling was completed during the remedial investigation, as per the request of NYSDEC. Sample locations were positioned near the southeastern property boundary in the vicinity of prior Geoprobe sampling locations GP-5 and GP-9. As described above, soil conductivity logging was completed in the vicinity of GP-5 and GP-9 prior to ground water sampling in order to select appropriate sampling intervals. Sampling depths were selected by ENVIRON and NYSDEC and were targeted toward the top of the saturated zone, above the first potential confining unit encountered, below the suspected Gardiners Clay unit, and at the bottom of each boring. Ground water samples were also collected from monitoring wells MW-HD4 and MW-HD6 during the April 1999 field investigation to support evaluation of the vertical delineation and soil gas sampling results.

The April 1999 monitoring well sampling results were consistent with recent sampling results. Although the reported concentrations of several VOCs were above applicable New York Ground Water Quality Standards, the VOC concentrations at MW-HD4 were much lower than historical sampling results. Reported concentrations of 1,1-dichloroethane, 1,1-dichloroethene, PCE, TCA, Freon 113, and TCE in the shallow ground water sample collected at GP-9 exceeded the applicable New York ground water quality criteria. TCE, Freon 113, and vinyl chloride were the only compounds detected at concentrations above an applicable New York Ground Water Quality Criteria in the shallow sample collected at GP-5. Lower VOC concentrations were detected in samples from the next deeper sampling interval at both GP-5 and GP-9. TCE was the only compound to exceed an applicable New York Ground Water Quality Criteria in the deep samples collected at GP-5 and GP-9. Samples collected beneath the Gardiners Clay at GP-5 and GP-9 did not detect VOCs at concentrations above an applicable New York Ground Water Quality Criteria. Based on results of the on-site delineation sampling, the impacted ground water at the southeast corner of the Site extends to approximately 50 feet bgs and does not appear to extend below the Gardiners Clay.

Monitoring Well Sampling

Ground water samples were collected from the six on-site monitoring wells in January 1999. Analysis of ground water samples collected from upgradient monitoring wells MW-HD1 and MW-HD2 detected chlorobenzene, 1,2-dichlorobenzene, 1,4-dichlorobenzene, and dichlorodifluoromethane (Freon 12) at concentrations above the applicable New York Ground Water Quality Criteria. Based on ground water flow direction at the Site and historical Site operations, the reported VOC concentrations at

MW-HD1 and MW-HD2 are not believed to be indicative of Site-related contamination. VOCs were not detected in the sample collected from upgradient monitoring well MW-HD3.

VOCs were not detected in the sample collected from monitoring well MW-HD5. Sampling during 1997 and 1998 at MW-HD5 had detected trace concentrations of several VOCs, and historical sampling had identified VOC concentrations above the applicable New York water quality standards.

Consistent with historical sampling results at the Site, analysis of ground water samples from monitoring wells MW-HD4 and MW-HD6 detected several VOCs (1,1-dichloroethane, 1,1-dichloroethene, TCA, TCE, and PCE) at concentrations equal to or above the applicable New York ground water quality standards. Reported concentrations of these VOCs displayed a decreasing trend since 1995, as would be anticipated following the 1991 and 1993 excavation activities to remove impacted soils which would have acted as an on-going source of ground water contamination. Reported VOC concentrations have decreased by as much as approximately two orders of magnitude since a September 1995 sampling event. Table 1 provides a summary of the historical ground water sampling results at the Site.

Reported Freon concentrations at the southeast corner of the Site also exceed the applicable New York ground water quality standards. Reported Freon compound concentrations at the southeast corner of the Site have significantly increased during the recent Geoprobe and monitoring well sampling events. However, the Freon compound concentration patterns and the recent timing of the Freon detections indicate that the reported Freon concentrations are likely related to activities subsequent to Bulova's ownership and operation of the Site.

D. Scope of Work

Based on the decreasing VOC concentration trends at the Site, NYSDEC concluded that active ground water remediation is not warranted and that natural attenuation represents an appropriate alternative to address impacted ground water at the Site. As detailed in the *Record of Decision*, NYSDEC has determined that the remedial actions completed to date at the Site have eliminated or mitigated all significant threats to the public health or the environment. NYSDEC

TABLE 1
Summary of Historical Ground Water Sampling Results
Former Bulova Corporation Facility - Valley Stream, New York

Location	MW-HD1			MW-HD2							MW-HD3						
Sample Collection Date	**3/19/97**	**9/24/98**	**1/8/99**	**5/18/94**	**6/23/94**	**9/5/95**	**3/19/97**	**6/23/97**	**9/24/98**	**1/8/99**	**5/18/94**	**6/23/94**	**9/5/95**	**3/19/97**	**6/23/97**	**9/24/98**	**1/8/99**
Volatile Organic Compounds																	
Chlorobenzene	ND	ND	ND	ND	ND	5	ND	ND	7	16.4	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	5	ND	ND	NA	NA	47	ND	ND	ND	19.3	NA	NA	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	NA	NA	ND	ND	ND	ND	0.9	NA	NA	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	NA	NA	96	ND	ND	ND	41.9	NA	NA	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	1	2.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	5	ND	3	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.7	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	7.16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	25.6	32.8	6	4	1.1	4	ND
Trichlorofluoromethane	ND	ND	ND	ND	1.3 (j)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

1. All concentrations are reported in micrograms per liter (µg/L) (parts per billion [ppb]).
2. Only Priority Pollutant compounds detected in one or more samples are listed in this table.
3. Abbreviation:
   ND = Not Detected.
   NA = Not Analyzed.

TABLE 1 (continued)
Summary of Ground Water Sampling Results
Former Bulova Technologies Facility - Valley Stream, New York

Location	**MW-HD4**										**MW-HD5**						
Sample Collection Date	**5/18/94**	**6/23/94**	**9/5/95**	**3/19/97**	**6/23/97**	**9/9/97**	**11/21/97**	**9/24/98**	**1/8/99**	**4/20/99**	**5/18/94**	**6/23/94**	**9/5/95**	**3/19/97**	**6/23/97**	**9/24/98**	**1/8/99**
Volatile Organic Compounds																	
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	NA	NA	ND	ND	ND	ND	ND	ND	0.68	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	0.9	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	NA	NA	ND	ND	ND	ND	ND	ND	1.4	1	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.8	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	34.9	340	26	71.7	78.8	44.7	61	18	28.4	8.81	7.76	2	2	ND	ND	ND
1,2-Dichloroethane	ND	ND	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	120	281	3,000	150	360	640	313	450	64.8	92	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	84	2	ND	ND	ND	28	ND	ND	ND	ND	7	2	ND	3	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	6	18.6	13.6	ND	ND	2.9	ND	ND	ND	ND	0.65	ND	ND
trans-1,2-Dichloroethene	ND	9.67	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.57	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	2	ND	ND	ND	ND	8	4.8	7.8	113	32.6	1	ND	1.2	ND	ND
Toluene	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	1,010	3,100	16,000	260	929	2,680	572	1,600	80.7	98.2	24.7	37	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	27.4	99.4	800	12	46	163	52.2	120	13.6	17.2	3.68	3.05	4	2	2.3	1	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	302	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	2	ND	ND	ND	ND	1	ND	ND	ND	ND	3	ND	ND	2	ND

Notes:

1. All concentrations are reported in micrograms per liter (µg/L) (parts per billion [ppb]).
2. Only Priority Pollutant compounds detected in one or more samples are listed in this table.
3. Abbreviation:
    ND = Not Detected.
    NA = Not Analyzed.

TABLE 1 (continued)
Summary of Ground Water Sampling Results
Former Bulova Technologies Facility - Valley Stream, New York

Location	**MW-HD06**				
Sample Collection Date	**7/14/97**	**9/9/97**	**11/21/97**	**1/8/99**	**4/20/99**
Volatile Organic Compounds					
Chlorobenzene	ND	ND	ND	ND	ND
Chloroethane	ND	14	10.8	ND	ND
Chloroform	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	0.99	ND
Dichlorodifluoromethane	ND	ND	ND	ND	2.7
1,1-Dichloroethane	11.8	14.5	9.1	12.5	5.6
1,2-Dichloroethane	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	1.7	ND	25	10.9
1,2-Dichloroethene	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND
Tetrachloroethene	1.0	1.3	ND	12	7.5
Toluene	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	8.1	6.6	12.2	86.1	38
1,1,2-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	2.4	21.6	7	80.6	11.1
Trichlorofluoromethane	ND	ND	ND	679	ND
Vinyl Chloride	ND	ND	ND	ND	ND

Notes:

1. All concentrations are reported in micrograms per liter (µg/L) (parts per billion [ppb]).
2. Only Priority Pollutant compounds detected in one or more samples are listed in this table.
3. Abbreviation:
    ND = Not Detected.
    NA = Not Analyzed.

has selected no further remedial action for the Site with ground water monitoring for a period of two years. NYSDEC has also determined that the Site will be reclassified from a Class 2 site to a Class 4 site on the New York State Registry of Inactive Hazardous Waste Disposal Sites. Class 4 sites represent sites which have been properly closed but require continued management.

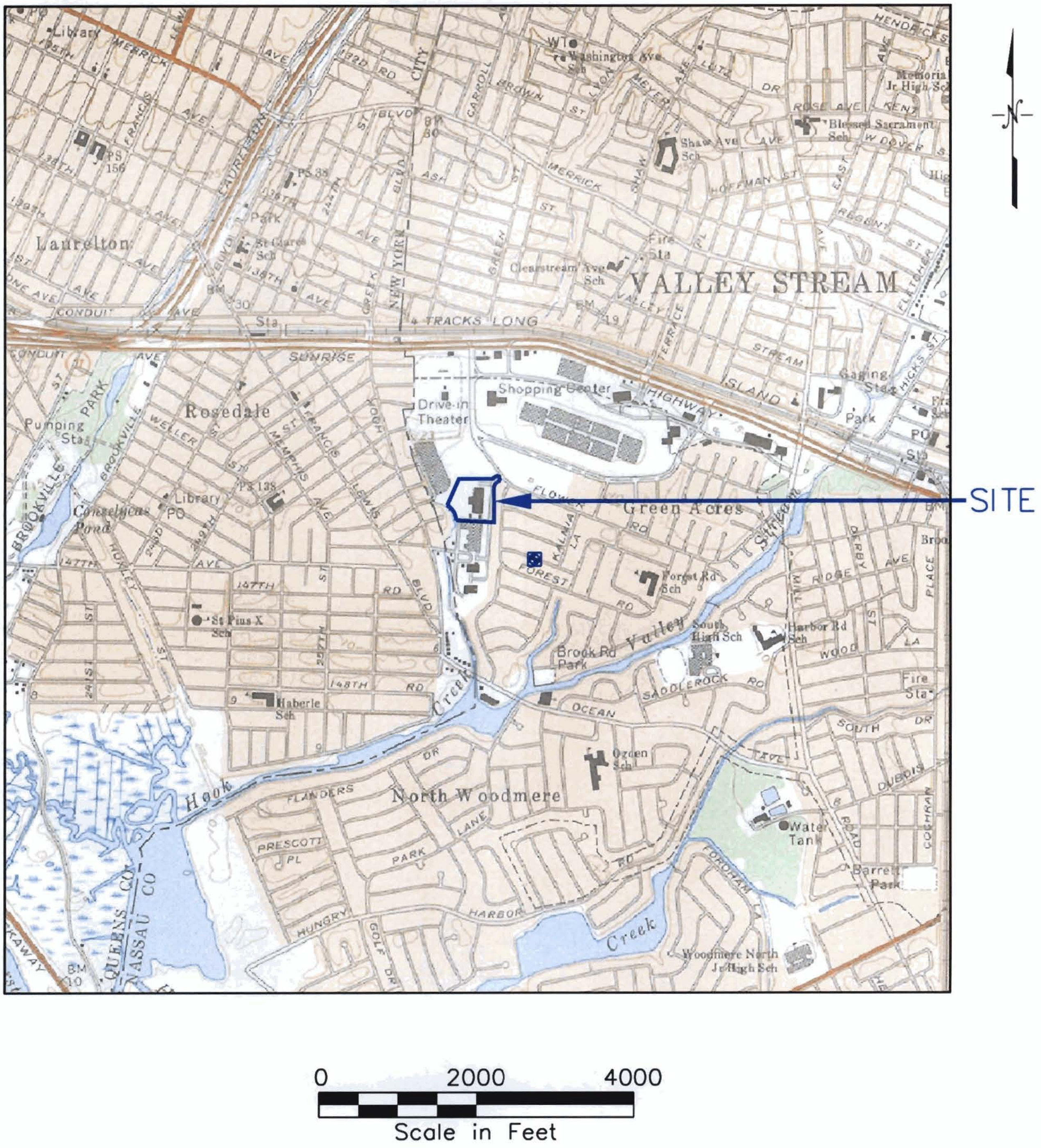
ENVIRON has prepared this report to serve as the Operation and Maintenance Plan to monitor ground water quality at and in the vicinity of the Site. The initial scope of work for the Operation and Maintenance Plan was developed to monitor decreasing VOC concentrations in monitoring wells MW-HD4 and MW-HD6, as outlined in ENVIRON's *Remedial Investigation Results Report* dated June 15, 1999. During ENVIRON's December 21, 1999 meeting with the NYSDEC, NCDOH, and NYSDOH, the NCDOH requested that an off-site monitoring well be included in the proposed sampling plan to serve as a "sentinel" well, and that MW-HD2 be included in the proposed sampling plan to monitor upgradient ground water quality. The following sections detail the scope of work and the field procedures associated with the proposed well installation and ground water monitoring program.

II. WELL INSTALLATION

A. Proposed Well Installation

The NCDOH has requested that an off-site monitoring well be included in the proposed monitoring plan to serve as a "sentinel" point downgradient of the Site. Although ENVIRON and Bulova believe that the investigation data do not support a request for further off-site sampling, ENVIRON and Bulova propose to install one shallow off-site monitoring well to address NCDOH's request.

As detailed in ENVIRON's correspondence to NYSDEC dated February 2, 2000, the proposed monitoring well location will be positioned approximately 850 feet downgradient of the Site on Brentwood Lane. The proposed drilling location, as depicted on Figure 7, has been selected based on the ground water flow direction at the Site and within a reasonable vicinity of the Site to minimize the potential for detecting contamination unrelated to the Site. The proposed drilling location on Brentwood lane will also position the well between the Site and the Long Island Water Corporation's Mill Road well field, located approximately 1 mile southeast of the Site. Based on the results of prior investigations, ENVIRON and Bulova believe that the VOC concentrations at the Site do not represent a threat to the Mill Road well field. As mentioned above, ground water sampling immediately downgradient of the Site did not detect Site-related constituents. In addition, impacted ground water beneath the Site is present only in the upper glacial aquifer. Supply wells at the Mill Road well field are screened in a lower aquifer which is separated from the upper glacial aquifer by a regional hydrogeologic confining unit.



LEGEND

▣ PROPOSED MONITORING WELL LOCATION

SOURCE: 40°39'35" N, 73°43'28" W WGS84 TOPO! map printed on 01/20/00 from "NYC.tpo"

ENVIRON

DRAFTED BY: KPM

DATE: 2/18/00

PROPOSED OFF-SITE MONITORING WELL LOCATION
FORMER BULOVA CORPORATION FACILITY
VALLEY STREAM, NEW YORK

FIGURE
7

1961AJS1

B. Field Procedures

1. Drilling and Sampling

Proposed monitoring well MW-HD7 will be installed by a truck-mounted drill rig using 4.25-inch I.D. hollow-stem augers. Split-spoon samples will be collected at continuous intervals from 30 – 40 feet bgs to characterize soils within the proposed well screen interval. Soil cores obtained from split-spoon samples will be screened over 6-inch intervals using a photoionization detector (PID) to identify the potential presence of volatile organic compounds. All drilling will be performed by Advanced Drilling of Pittstown, New Jersey, under direct supervision of an ENVIRON field geologist.

2. Soil Logging

The ENVIRON field geologist will log soils to assess hydrogeologic characteristics. Unconsolidated material will be logged and described in accordance with the Unified Soil Classification System (USCS).

3. Well Construction

All items and materials used in well construction will be properly protected by the driller so that no damage, deterioration, or contamination occurs from the time of shipment until installation is complete. No solvents/cleaners or lubricants will be permitted to be used in construction of the monitoring well. Proposed monitoring well MW-HD7 will be installed to a depth of approximately 40 feet bgs and will be screened from approximately 30 to 40 feet bgs. The well will be constructed with 2-inch diameter, Schedule 40 PVC casing and screen.

4. Well Development

Following installation, MW-HD7 will be developed by pumping using a submersible pump until a non-turbid discharge is produced. Additionally, a water quality meter will be used to monitor pH, conductivity, temperature, dissolved oxygen, turbidity, and oxidation-reduction potential to determine the completeness of development. Development will be considered complete when these parameters have stabilized such that the pH, conductivity, dissolved oxygen, oxidation-reduction potential, and turbidity values are within approximately 10 percent of the previous reading, and the water is, to the extent reasonably possible, visibly clear and free of turbidity and sediment during active development. Well development water will be containerized, characterized, and disposed of appropriately.

5. Decontamination Procedures

All down-hole drilling equipment (e.g., augers, split-spoons, drill rods) will be steam-cleaned prior to the initial use on-site and after monitoring well installation. Water to be used during steam cleaning will be obtained from a potable water source. Soil sampling equipment used to collect samples of the drill cuttings will be decontaminated before the initial use on-site. The ground water purge pump will also be decontaminated prior to well development. The decontamination procedure will consist of an Alconox (detergent) and tap water wash, tap water rinse, and final distilled/deionized water rinse. Decontamination fluids will be containerized, characterized, and disposed of appropriately.

6. Management of Investigation-Derived Wastes

Soil cuttings generated during drilling activities associated with MW-HD7 well installation will be containerized in 55-gallon drums and temporarily staged on site. A waste classification sample will be collected to aid in characterizing the soil for appropriate off-site disposal.

III. MONITORING PROGRAM

A. Ground Water Sampling Program

As detailed in Section I, ground water sampling activities have been conducted at the Site since 1991, including quarterly ground water monitoring between 1995 and 1998. Contaminant concentration trends at the southeast corner of the Site, with the exception of Freon compounds, have displayed an overall decreasing trend and reported VOC concentrations have decreased by as much as approximately two orders of magnitude since a September 1995 sampling event.

Based on the results of the investigations at the Site, ENVIRON and Bulova proposed to conduct semi-annual ground water sampling at the Site to further monitor the decreasing constituent concentrations. The *Remedial Investigation Results Report* recommended semi-annual sample collection at monitoring wells MW-HD4 and MW-HD6. Based on discussions during the December 21, 1999 meeting between ENVIRON, Bulova, NYSDEC, NCDOH, and NYSDOH, the semi-annual monitoring program was revised to include upgradient monitoring well MW-HD2 and a downgradient monitoring point (MW-HD7). Sampling procedures associated with semi-annual ground water sampling are discussed in detail below.

B. Sampling Procedures

1. Ground Water Level Measurements

Ground water level measurements will be collected at each monitoring well (*i.e.*, MW-HD1 through MW-HD7) at the beginning of each semi-annual sampling event. Ground water level measurements will be taken using an electric water level indicator. The tape on the electronic meter will have gradations to the nearest 0.02 foot, and interpolation will be used to measure the level of the ground water to the nearest 0.01 foot. Measurements will be made until two consecutive readings are within 0.01 foot of each other. The last measurement will be recorded.

2. Monitoring Well Purging

Each monitoring well included in the semi-annual sampling events will be purged prior to sampling to ensure that the water samples collected will be representative of formation ground water. Prior to purging, the standing water volume within each monitoring well will be calculated to estimate the purge volume. Monitoring wells will be purged using a peristaltic pump with dedicated, disposable tubing.

The dedicated tubing will be gently lowered into the monitoring well to minimize disturbance to the standing water column, as well as any sediment that may have settled to the bottom of the monitoring well. The tubing intake will be set as close to the top of the water column as possible and the purge rate will be set at an even, sustainable flow rate. These procedures are intended to minimize turbulence in the monitoring well and prevent fine solids at the bottom of the monitoring well and in the surrounding gravel pack from being mixed into the water column. Purged ground water will be temporarily containerized in 55-gallon drums and appropriately disposed of upon review of analytical data.

Samples of ground water will be collected periodically during monitoring well purging and tested for select indicator parameters (*i.e.*, pH, conductivity, temperature, dissolved oxygen, turbidity, and oxidation-reduction potential) to assess when formation water flowing into the well has stabilized. These measurements will be collected using a water quality meter equipped with a flow through cell. Prior to use each day, the water quality meter will be calibrated according to the manufacturer's recommended procedures. Calibration information will be recorded in the field log book. Field equipment calibration frequencies are provided below.

Purging of monitoring wells will continue until at least three casing volumes have been evacuated and indicator parameters indicate steady-state conditions (i.e., ±10 percent of the previous reading). If steady-state conditions are not attained after the minimum volume has been removed, purging will continue until field parameters are consistent.

All data relating to the monitoring well purging, including date and time of activity, monitoring well number, ground water purge volume, estimated pumping rate, field parameter measurements, and purging method will be carefully recorded in a bound field logbook.

3. Ground Water Sample Collection

Ground water samples will be collected using standard sampling techniques and equipment to ensure that samples are representative of aquifer conditions. Disposable Teflon™ bailers will be used to minimize potential reactions with ground water samples.

Samples will be collected in containers supplied by Accutest Laboratory of Dayton, New Jersey, a NYSDOH ELAP CLP-certified laboratory. Sample containers will be filled slowly until a positive meniscus is achieved, minimizing the possibility of aeration during sample collection and transport. Once full, sample bottles will be capped, inverted, and tapped to ensure no air bubbles are present. In accordance with prior requests from NYSDEC, sample containers will be unpreserved. Ground water samples will be analyzed for Priority Pollutant Volatile Organic Compounds plus a 15-Compound Forward Library Search (VOC+15). Laboratory deliverables will be provided in a NYSDEC ASP Category B format.

4. Field Equipment Calibration

Each item of equipment used in field activities will be calibrated at a frequency and to the specifications presented in owner/operator manuals provided by the manufacturer. If the calibration schedule is not adequately maintained, or if accuracy as required in the operations manual cannot be attained, that instrument will be identified and will be unavailable for use until repaired so the specifications are attained. Calibration information will be recorded by ENVIRON field personnel in bound field logbooks. Calibration frequencies for field equipment to be used are presented below.

Organic Vapor Meter

Thermo Environmental OVM 580B: Factory-calibrated at least annually. Field calibrated at beginning of each day and after field operations have been completed for the day following manufacturer's directions.

Water Level Measurements

Electronic depth-to-water meter: Factory calibrated. No re-calibration required.

Ground Water Field Parameters

Horiba U-22 Monitoring System: Field calibrated at the beginning of each day. A 2-point calibration will be performed for pH, conductivity, dissolved oxygen, turbidity (calibration of oxidation-reduction potential is included as part of the pH calibration). The temperature probe is factory calibrated and no re-calibration is required.

5. Equipment Decontamination

All equipment used during sampling will be decontaminated prior to use on-site. Decontamination water will be containerized in 55-gallon drums and characterized for appropriate disposal. Decontamination procedures are outlined below.

Water Level Indicator

Ground water levels in monitoring wells will be measured using an electronic water level indicator. Prior to use, all parts of the water level indicator that may come into contact with ground water inside the well casing, including the measurement probe and permanent line/cable, will be rinsed with non-phosphate detergent solution, rinsed with tap water to remove detergent, and air dried.

Field Parameter Measurement Equipment

Measurements of previously specified field parameters will be taken during purging of monitoring wells. Prior to use, all parts of the water quality meter and flow through cell that may come into contact with extracted ground water will be rinsed with non-phosphate detergent solution, rinsed with tap water to remove detergent, and air dried. Between measurements at sampling points, all parts of the equipment that come into contact with extracted ground water will be rinsed (or spray cleaned) with deionized water.

Purging Equipment

Dedicated, disposable polyethylene discharge tubing will be used at each monitoring well.

C. Sample Custody Procedures

1. Field Documentation

Sample identification documents will be carefully prepared to maintain sample identification and chain-of-custody, and to control sample disposition. Sample identification documents are detailed below.

a) Sample Labels

Sample tags are necessary to prevent misidentification of samples. Sample labels will be affixed to the sample bottles either before sampling activities or immediately following sample collection. At a minimum, sample labels will contain the following information:

- Sample identification number;
- Project code, an assigned ENVIRON project number;
- Name and initials of collector;
- Date;
- Time;
- Preservative; and
- Analysis requested.

b) Field Logbook

Information pertinent to the semi-annual monitoring program, measurements, and /or sampling will be recorded in a bound logbook. Entries in the logbook will contain:

- Name and title of author, date and time of entry, and physical/environmental conditions during field activity;

- Location of sampling or measurement activity;
- Name(s) and title(s) of site visitors;
- Type of sampled or measured medium (surface water, ground water, etc);
- Sample collection or measurement method(s);
- Number and volume of sample(s) taken;
- Description of sampling point(s);
- Date and time of collection or measurement;
- Sample identification number(s);
- Sample preservative;
- Sample distribution (e.g., laboratory);
- Field observations/comments;
- Field measurement data; and
- Sample documentation including dates and methods of sample shipment.

c) Chain-of-Custody Form

The Chain-of-Custody Form for each sample will originate at the Site, where samples will be prepared for shipment to the laboratory. This form will be completed to establish the documentation necessary to trace sample possession from sample collection through sample analysis. ENVIRON will be responsible for completion of the Chain-of-Custody Form throughout the sampling program until the samples have been picked up by the laboratory personnel or delivered to the laboratory. The Chain-of-Custody Form will contain:

- Project name;
- List of sampling team members;
- Sample identification number (which includes a project/site-specific identifier);
- Date and time of sample collection;
- Total number of containers per sample;
- Sample type (grab, composite);
- Medium type;
- Analyses requested;

- Remarks (if applicable);
- Turnaround time requested;
- Data package requirements;
- Signature of sampler; and
- Signatures of persons involved in the chain of possessions.

2. Sample Packaging and Shipping

Samples will be packaged, labeled and placed in coolers with ice as indicated below. All samples will be shipped via overnight carrier or by courier to reduce processing time, unless otherwise determined. The following procedures shall be followed for packing samples for shipment to the laboratory:

- Make sure all sample container caps are tight.
- Place the sample containers in the cooler, allowing sufficient space for the addition of packing material between the sample containers.
- Place blue ice packs (or equivalent) on top of and between the samples.
- Place a copy of the Chain-of-Custody Form in a sealed clear plastic envelope and place in the cooler.

Immediately upon arrival of the samples at the laboratory, the laboratory will record the condition of the shipping container and sample containers. The original Chain-of-Custody Form will be returned from the laboratory as part of the final analytical report. This record will be used to document sample custody transfers from the sampler to the laboratory and will become a permanent part of the project file.

3. Corrections and Documentation

Original data recorded in the field logbook, Chain-of-Custody Forms, and other forms will be written in ink. None of these documents will be altered, destroyed, or discarded even if they are illegible or contain inaccuracies that require a replacement document.

If an error is made on a document, the individual responsible for the error will make the correction by drawing a line through the error, entering the correct information, and initialing and dating the change. The erroneous information will not be obliterated. Any additional error(s) discovered on a document will be corrected by the person who made the entry. All corrections will be initialed and dated by the author in permanent ink.

D. Quality Assurance/Quality Control Samples

To evaluate laboratory performance and matrix variability, duplicate samples will be collected during the ground water sampling events at a frequency of no less than 1 per 20 samples.

To determine the effectiveness of the decontamination procedures, equipment rinsate blank samples will be collected during the ground water sampling events. Rinsate blanks will be collected at a frequency of no less than 1 per 20 samples. These samples will be obtained by pouring laboratory-supplied deionized water over or through the sampling equipment into the appropriate sample containers. The rinsate blank samples will be analyzed for VOC+15.

To identify possible VOC contamination during sample handling, transportation, or storage, one trip blank sample will accompany each sample shipment. The laboratory will prepare the trip blanks by placing deionized water in appropriate sample containers. The trip blank samples will be transported to the field and placed with the sample collected. The blanks will be handled in the same manner as samples collected in the field. Trip blank samples will be analyzed for VOC+15.

IV. HEALTH AND SAFETY

Health and safety issues associated with the proposed well installation and ground water sampling program will be addressed as per ENVIRON's June 1998 *Health and Safety Plan* (HASP). ENVIRON field personnel will take all responsible precautions to ensure worker safety and protection, and to prevent injury or loss, and will comply with the requirements of the HASP.

V. REPORT PREPARATION

Upon completion of proposed off-site well installation, ENVIRON will provide NYSDEC with a letter report detailing the monitoring well installation procedure, as well as updated well logs and maps. Analytical tables will be provided to the NYSDEC following receipt and review of the data associated with each semi-annual ground water sampling event. ENVIRON will prepare a report detailing the methods, results, conclusions, and recommendations following the two-year monitoring period.

02-1961A\PRIN_WP\12807v1.DOC

ATTACHMENT A

Phase III Sampling Data

TABLE 3
Summarized Soil Sampling Results
Bulova Technologies, Inc., Valley Stream, New York

SOIL AREA	SAMPLE LOCATION	Ethyl-benzene	m-Xylene	o,p-Xylene	Toluene	OTHERS
SA1	1961-B001-SB01	760	2,300	2,200	ND	860 Methylene Chloride
SA1	1961-B002-SB01	ND	ND	ND	ND	230JB Methylene Chloride
SA1	1961-B003-SB01	ND	ND	ND	ND	250JB Methylene Chloride
SA1	1961-B004-SB01	960	2,700	2,700	ND	
SA1	1961-B025-SB01	ND	ND	4.9J	2.1J	9.4 Methylene Chloride
SA1	1961-B025-SB02	ND	ND	ND	ND	17.0B Methylene Chloride
SA1	1961-B026-SB01	ND	2.1J	ND	3.4J	18.0B Methylene Chloride
SA1	1961-B026-SB02	ND	5.2J	ND	ND	18.0B Methylene Chloride
SA1	1961-B027-SB01	ND	ND	ND	ND	8.1 Methylene Chloride
SA1	1961-B027-SB02	ND	ND	ND	ND	
SA1	1961-B028-SB01	ND	ND	ND	3.5J	29 PCE
SA1	1961-B028-SB02	ND	ND	ND	ND	
SA1	1961-MW05-SB01	ND	5.6J	6.8	3.5J	
SA1	1961-MW05-SB02	ND	ND	ND	ND	
SA2	1961-B008-SB01	ND	340	300	ND	300J Methylene Chloride
SA2	1961-B009-SB01	ND	ND	ND	ND	
SA2	1961-B010-SB01	ND	ND	ND	ND	460 Methylene Chloride
SA2	1961-B012-SB01	ND	ND	ND	ND	

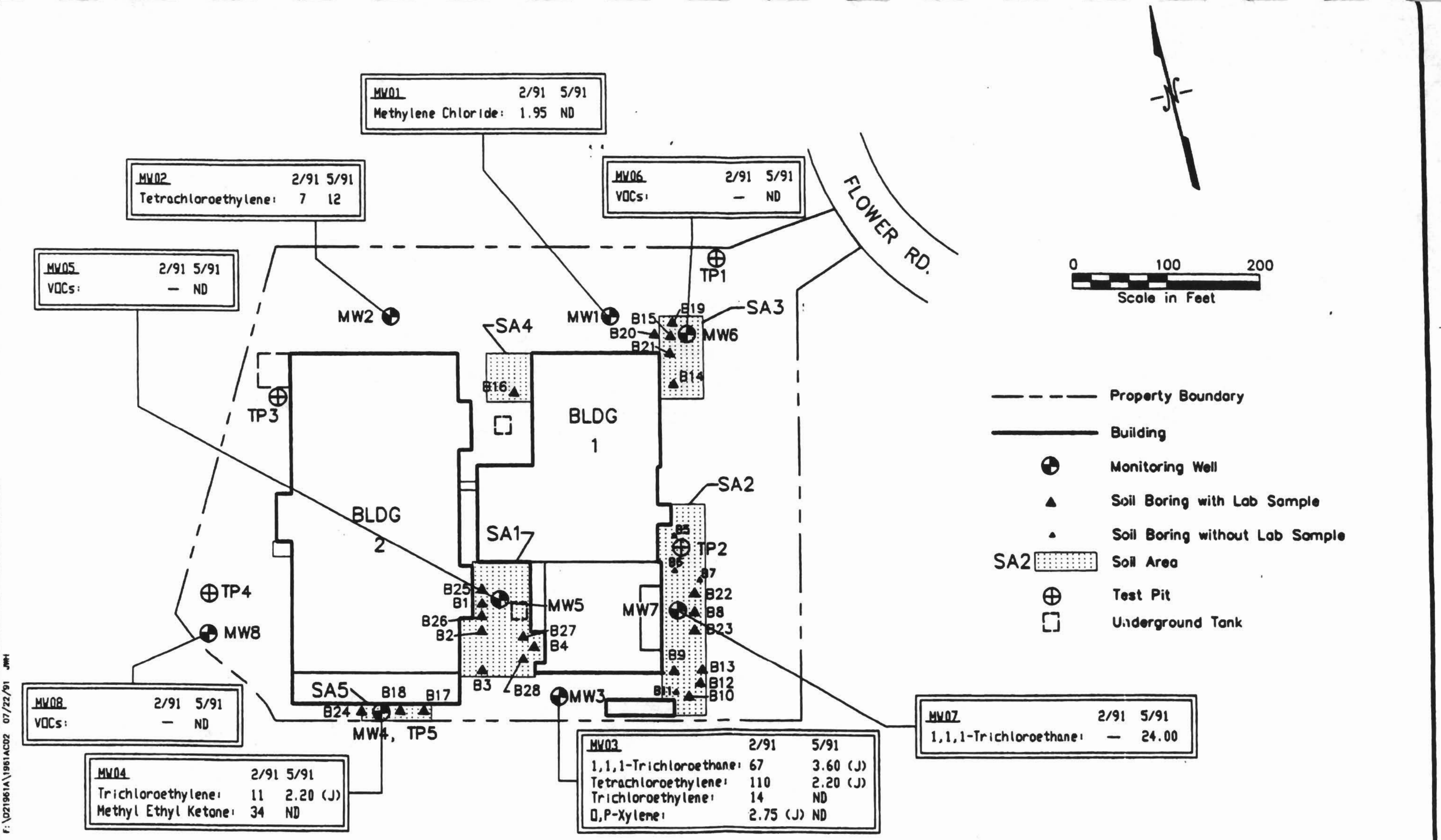
TABLE 3
Summarized Soil Sampling Results
Bulova Technologies, Inc., Valley Stream, New York

SOIL AREA	SAMPLE LOCATION	Ethyl-benzene	m-Xylene	o,p-Xylene	Toluene	OTHERS
SA2	1961-B013-SB01	ND	ND	ND	ND	
SA2	1961-B022-SB01	ND	ND	ND	ND	
SA2	1961-B022-SB02	ND	ND	ND	ND	
SA2	1961-B023-SB01	ND	ND	ND	9.4	13 TCA, 8.2 Methylene Chloride
SA2	1961-B023-SB02	ND	ND	ND	ND	9.5 TCA
SA2	1961-MW07-SB01	ND	ND	ND	ND	
SA2	1961-MW07-SB02	ND	ND	ND	ND	
SA3	1961-B014-SB01	ND	ND	ND	ND	140J Methylene Chloride
SA3	1961-B015-SB01	1,100	2,900	2,700	ND	1,900 Methylene Chloride, 4,900 MEK, 11,000 Acetone
SA3	1961-B019-SB01	ND	ND	ND	ND	18.0B Methylene Chloride
SA3	1961-B019-SB02	ND	ND	ND	ND	
SA3	1961-B019-SB22	ND	ND	ND	ND	14.0B Methylene Chloride
SA3	1961-B020-SB01	ND	ND	ND	ND	
SA3	1961-B020-SB02	ND	ND	ND	ND	
SA3	1961-B021-SB01	ND	ND	ND	ND	9.9 Methylene Chloride
SA3	1961-B021-SB02	ND	ND	ND	ND	27.0B Methylene Chloride
SA3	1961-MW06-SB01	ND	ND	ND	ND	
SA3	1961-MW06-SB02	ND	ND	ND	ND	

TABLE 3
Summarized Soil Sampling Results
Bulova Technologies, Inc., Valley Stream, New York

SOIL AREA	SAMPLE LOCATION	Ethyl-benzene	m-Xylene	o,p-Xylene	Toluene	OTHERS
SA4	1961-B016-SB01	ND	ND	ND	ND	160J Methylene Chloride
SA4	1961-B016-SB02	ND	ND	ND	ND	400 Methylene Chloride
SA5	1961-B017-SB01	ND	ND	ND	ND	360 Methylene Chloride
SA5	1961-B018-SB01	ND	ND	ND	ND	1,500 Methylene Chloride, 660 TCE, 130J PCE
SA5	1961-B018-SB02	ND	ND	ND	ND	240JB Methylene Chloride
SA5	1961-B024-SB01	ND	ND	ND	ND	
SA5	1961-B024-SB02	ND	ND	ND	49	11.0B Methylene Chloride, 9.1 1,1-DCA, 13 TCA

Notes: All concentrations in ug/kg (ppb).
ND - Not detected.
J - Estimated concentration below method detection limit.
B - Compound detected in corresponding method blanks.
PCE - Tetrachloroethylene
TCE - Trichloroethylene
TCA - 1,1,1-Trichloroethane
1,1-DCA - 1,1-Dichloroethane



MW01	2/91	5/91
Methylene Chloride:	1.95	ND

MW02	2/91	5/91
Tetrachloroethylene:	7	12

MW03	2/91	5/91
1,1,1-Trichloroethane:	67	3.60 (J)
Tetrachloroethylene:	110	2.20 (J)
Trichloroethylene:	14	ND
O,P-Xylene:	2.75 (J)	ND

MW04	2/91	5/91
Trichloroethylene:	11	2.20 (J)
Methyl Ethyl Ketone:	34	ND

MW05	2/91	5/91
VOCs:	—	ND

MW06	2/91	5/91
VOCs:	—	ND

MW07	2/91	5/91
1,1,1-Trichloroethane:	—	24.00

MW08	2/91	5/91
VOCs:	—	ND

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SUMMARY OF GROUND WATER QUALITY DATA

BULOVA TECHNOLOGIES, VALLEY STREAM, NEW YORK

Figure
4

TABLE 4
Summarized Soil Gas Sampling Results
Bulova Technologies, Inc., Valley Stream, New York

Sample	TCA	TCE	PCE	Benzene	Toluene	Ethyl Benzene	Xylenes	TVHC
SG-1	4	0.7	0.2	<0.01	0.1	<0.07	0.08	0.7
SG-2	4	13	6	<0.01	0.2	<0.07	0.1	1
SG-3	3	7	5	<0.01	0.8	<0.07	1	3
SG-4	3	0.7	0.1	<0.01	<0.03	<0.07	<0.09	0.5
SG-5	7	30	10	<0.01	<0.03	<0.07	<0.09	2
SG-6	5	21	14	<0.01	<0.03	<0.07	<0.09	2
SG-7	1	0.01	0.02	<0.01	0.3	<0.07	0.6	0.9
SG-8	660	<0.3	<0.1	<0.01	<0.03	<0.07	<0.09	11
SG-9	28	0.03	0.2	<0.01	0.7	<0.07	0.8	3
SG-10	0.3	0.2	0.5	<0.01	0.7	<0.07	0.5	2
SG-11	1	9	0.3	<0.01	<0.03	<0.07	<0.09	5
SG-12	0.9	7	0.4	<0.01	<0.03	<0.07	<0.09	2
SG-13	2	0.2	0.5	<0.01	0.05	<0.06	<0.08	
SG-14	3700	<5	4	<0.1	<0.3	<0.6	<0.8	0.7
SG-15	0.4	0.004	0.005	<0.01	0.06	<0.06	<0.8	<0.2
SG-16	21	21	0.3	<0.01	<0.03	<0.06	<0.08	3
SG-17	130	1	2	<0.01	<0.03	<0.06	<0.08	6

TABLE 4
Summarized Soil Gas Sampling Results
Bulova Technologies, Inc., Valley Stream, New York

Sample	TCA	TCE	PCE	Benzene	Toluene	Ethyl Benzene	Xylenes	TVHC
SG-18	0.3	1	0.1	<0.01	<0.03	<0.06	<0.08	<0.08
SG-19	5	34	9	<0.01	<0.03	<0.06	<0.08	1
SG-20	4	22	16	<0.01	0.4	<0.06	0.2	2
SG-21	3	20	13	<0.01	0.04	<0.06	<0.08	0.5
SG-22	2	4	2	<0.01	0.07	<0.06	<0.08	0.5
SG-23	7	<0.05	0.3	<0.01	<0.03	<0.06	<0.08	0.3
SG-24	8	0.6	2	<0.01	<0.03	<0.06	<0.08	0.2
SG-25	10	0.1	1	<0.01	<0.03	<0.06	<0.08	0.3
SG-26	5	0.6	0.2	<0.01	<0.03	<0.06	<0.08	0.2
SG-27	0.5	0.09	0.02	<0.01	<0.03	<0.06	<0.08	<0.08
SG-28	1	0.06	0.02	<0.01	0.06	<0.06	<0.08	0.06
SG-29	0.4	0.01	0.02	<0.01	0.06	<0.06	0.07	0.4

Notes:

All concentrations in μg/l

TCA: 1,1,1-Trichloroethane

TCE: Trichloroethylene

PCE: Tetrachloroethylene

TVHC: Total Volatile Hydrocarbons

1961A:PAA01685.W51

ATTACHMENT B

Supplemental Soil Gas Survey Data

TRACER RESEARCH CORPORATION -ANALYTICAL RESULTS
STORB ENVIRONMENTAL/BULLOVA TECHNOLOGIES/HEMPSTEAD, NEW YORK/JOB#2-92-368-S
05/26/92

SAMPLE	TCA ug/l	TCE ug/l	PCE ug/l	BENZENE ug/l	TOLUENE ug/l	ETHYL BENZENE ug/l	XYLENES ug/l	TVHC ug/l
AIR	0.003	0.0002	0.0009	0.6	0.8	<0.06	0.6	8
SG-2-5'	0.2	0.4	3	0.1	0.2	<0.06	<0.07	1
SG-3-5'	0.7	0.6	4	0.2	1	<0.6	<0.7	11
SG-4-3.5'	0.7	<0.04	0.6	0.05	0.09	<0.06	0.4	0.7
SG-5-4'	0.04	0.009	0.01	0.3	0.5	<0.1	<0.1	2
SG-6-4'	0.6	0.08	0.6	0.04	0.08	<0.06	<0.07	0.2
SG-7-4'	0.002	<0.002	0.005	0.2	0.3	<0.06	0.6	2
SG-8-4'	<0.09	2	4	<0.2	<0.3	4	8	52
SG-9-4'	1	22	44	0.03	<0.03	<0.06	<0.07	2
SG-10-4'	1	<0.2	1	<0.03	<0.06	<0.1	<0.1	0.3
SG-11-4'	8	<0.2	0.3	<0.2	<0.3	<0.6	<0.7	2
AIR	0.0006	<0.0002	0.0005	<0.02	<0.03	<0.06	<0.07	0.1

Analyzed by:Mike Gervasini
Proofed by:

TRACER RESEARCH CORPORATION - ANALYTICAL RESULTS
STORB ENVIRONMENTAL/BULLOVA INDUSTRIES/HEMPSTEAD, NEW YORK/JOB#2-92-368-S
05/27/92

SAMPLE	TCA ug/l	TCE ug/l	PCE ug/l	BENZENE ug/l	TOLUENE ug/l	ETHYL BENZENE ug/l	XYLENES ug/l	TVHC ug/l
AIR	0.001	<0.0002	0.001	0.04	0.01	<0.06	<0.08	0.6
SG-12-4'	0.08	0.002	0.002	0.1	0.1	<0.06	<0.08	0.6
SG-13-4'	2	<0.003	0.03	<0.02	0.05	<0.06	<0.08	0.6
SG-14-4'	0.5	<0.03	0.2	0.08	0.2	<0.06	0.08	0.7
SG-15-4'	0.3	0.2	0.4	0.03	0.02	<0.06	<0.08	0.1
SG-16-4'	0.3	0.02	0.04	0.04	0.1	<0.06	<0.08	0.5
SG-17-4'	0.2	0.1	0.03	0.05	0.2	<0.06	0.8	3
SG-18-4'	1	0.6	0.06	<0.02	0.02	<0.06	<0.08	2
SG-19-4	0.04	0.02	0.01	0.3	2	4	5	9
SG-20-4'	8	0.7	96	<0.2	0.5	<0.6	<0.8	11
SG-21-4'	0.5	<0.2	0.8	0.03	0.05	<0.06	<0.08	0.2
AIR	0.004	<0.0002	0.002	<0.02	<0.02	<0.06	<0.08	<0.08
SG-22-4'	2	0.09	2	<0.02	0.03	<0.06	<0.08	0.9
SG-23-4'	8	140	4	<0.2	<0.2	<0.7	<0.8	30
SG-24-4'	2	6	0.3	<0.02	<0.03	<0.07	<0.08	3
SG-25-4'	0.06	0.08	0.005	0.06	0.2	<0.07	<0.08	0.4
SG-26-5'	2	0.6	0.4	<0.2	<0.2	<0.7	<0.8	7
SG-27-3.5'	3	0.07	0.2	<0.02	0.03	<0.07	<0.08	2
SG-28-4'	12	2	0.2	<0.02	0.02	<0.07	<0.08	4
SG-29-4'	6	0.07	0.2	<0.02	<0.02	<0.07	<0.08	1
SG-30-5'	4	<0.04	0.08	<0.02	<0.02	<0.07	<0.08	0.5
SG-31-4'	7	0.07	0.2	<0.02	<0.02	<0.07	<0.08	1
AIR	0.002	<0.0002	0.002	<0.02	<0.02	<0.07	<0.08	<0.08

Analyzed by: Mike Gervasini
Proofed by:

TRACER RESEARCH CORPORATION - ANALYTICAL RESULTS
STORB ENVIRONMENTAL/BULOVA INDUSTRIES/HEMPSTEAD, NEW YORK/JOB#2-92-368-S
05/28/92

SAMPLE	TCA ug/l	TCE ug/l	PCE ug/l	BENZENE ug/l	TOLUENE ug/l	ETHYL BENZENE ug/l	XYLENES ug/l	TVHC ug/l
AIR	0.001	0.0002	0.002	0.04	0.04	<0.08	<0.1	0.08
SG-32-5'	0.8	0.0006	0.01	<0.02	0.07	<0.08	<0.1	2
SG-33-5'	0.03	<0.004	0.007	0.02	0.04	<0.08	<0.1	0.1
SG-34-5'	5	0.1	0.4	<0.02	0.04	<0.08	<0.1	3
SG-35-5'	2	0.4	0.4	<0.02	<0.04	<0.08	<0.1	0.6
SG-36-5'	0.9	0.3	0.5	<0.02	<0.04	<0.08	<0.1	0.4
SG-37-5'	5	1	2	<0.02	<0.04	<0.08	<0.1	2
SG-38-5'	4	0.5	0.4	<0.02	<0.04	<0.08	<0.1	0.8
SG-39-5'	14	0.2	0.5	<0.02	<0.04	<0.08	<0.1	2
SG-40-5'	2	0.04	0.1	<0.02	<0.04	<0.08	<0.1	0.3
SG-1-5'	0.003	<0.004	0.007	<0.02	<0.04	<0.08	<0.1	<0.1
AIR	0.001	<0.0002	0.004	0.02	0.04	<0.08	<0.1	0.2

Analyzed by:Mike Gervasini
Proofed by:

ATTACHMENT C

Post-Demolition Sampling Data

TABLE 2
Summary of Sampling Results

Compound	Soil Sample Location												Ground Water Sample Location
	PD01	PD02	PD03	PD04	PD05	PD06	PD07	PD08	PD09	PD10	PD11	PD12	MW03
thylbenzene	ND	ND	ND	ND	ND	941	322	ND	ND	1,170	ND	ND/ND	ND
ethylene Chloride	ND	ND	ND	ND	ND	ND	88.6	ND	ND	ND	ND	ND/ND	ND
trachloroethene	104	ND	ND	ND	ND	327	ND	ND	21.5	ND	ND	ND/ND	7.2
luene	ND	ND	ND	ND	ND	337	ND	ND	ND	505	ND	ND/ND	ND
trans-dichloroethene	ND	ND	ND	ND	ND	940	ND	ND	ND	ND	ND	ND/ND	ND
ichloroethene	ND	ND	ND	ND	ND	4,670	ND	ND	ND	ND	ND	ND/ND	ND
,1-Trichloroethane	ND	80.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tal Petroleum Hydrocarbons	3,250	BMDL	NA	NA	NA	18,900	18,400	NA	41.6	19,500	32.4	116/75	NA

tes:

sults in parts per billion, except total petroleum hydrocarbons which are in parts per million.
- Not Detected
DL - Below Method Detection Limit
- Not Analyzed

PAA03F78.W51

ATTACHMENT D

Soil Mechanics Sampling Data

TABLE # 1 – VOC'S (EPA 601/602)
MW-1

Parameter	3/14/96	6/24/96	9/23/96	12/26/96	3/19/97	6/9/97	9/3/97	12/11/97	3/23/98	6/22/98	9/24/98	12/10/98	Allowable
Chloromethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	4	-
Bromomethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Dichlordifluomethane	ND	ND	7	6	ND	ND	ND	*	ND	ND	ND	-	5.0
Vinyl Chloride	ND	ND	ND	ND	ND	ND	3	*	ND	ND	ND	2	2.0
Chloroethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Trichlorofluomethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
1,1 Dichloroethene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
1,1 Dichloroethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	1	1	5.0
1,2 Dichloroethene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Chloroform	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
1,2 Dichloroethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
111 Trichloroethane	ND	ND	ND	ND	ND	ND	1	*	ND	ND	ND	-	5.0
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
1,2 Dichloropropane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
t-1, 3Dichloropropene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
112 Trichloroethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
c-1, 3Dichloropropene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
2chloroethvinylether	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Bromoform	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
1122Tetrachloroethan	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
1,3 Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
1,2 Dichlorobenzene	ND	ND	ND	2	5	3	ND	*	ND	8	ND	-	4.7
1,4 Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Benzene	ND	ND	ND	ND	ND	ND	2	*	ND	ND	ND	-	0.7
Toluene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Ethyl Benzene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
m Xylene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
ter.Butylmethylether	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-

SMES # 93-006 All Concentrations in ug/L * = No Data Available

TABLE # 2 – VOC'S (EPA 601/602)
MW-2

Parameter	3/14/96	6/24/96	9/23/96	12/26/96	3/19/97	6/9/97	9/3/97	12/11/97	3/23/98	6/22/98	9/24/98	12/10/98	Allowable
Chloromethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Bromomethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Dichlordifluomethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Chloroethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Trichlorofluomethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
1,1 Dichloroethene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
1,1 Dichloroethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
1,2 Dichloroethene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Chloroform	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
1,2 Dichloroethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
111 Trichloroethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
1,2 Dichloropropane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
t-1, 3Dichloropropene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
112 Trichloroethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
c-1, 3Dichloropropene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
2chloroethvinylether	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Bromoform	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
1122Tetrachloroethan	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Tetrachloroethene	ND	ND	ND	ND	ND	1	2	*	ND	ND	ND	-	5.0
Chlorobenzene	2	2	2	ND	ND	ND	ND	*	ND	ND	7	22	5.0
1,3 Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
1,2 Dichlorobenzene	21	9	ND	ND	ND	ND	ND	*	ND	ND	ND	-	4.7
1,4 Dichlorobenzene	69	21	ND	ND	ND	ND	ND	*	ND	ND	ND	96	5.0
Benzene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	
Toluene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
Ethyl Benzene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
m Xylene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-
ter.Butylmethylether	ND	ND	ND	ND	ND	ND	ND	*	ND	ND	ND	-	-

smes # 93-006 * = NO DATA AVAILABLE CONCENTRATIONS IN ug/L

TABLE # 3 – VOC'S (EPA 601/601)
MW-3

Parameter	3/14/96	6/24/96	9/23/96	12/26/96	3/19/97	6/9/97	9/3/97	12/11/97	3/23/98	6/22/98	9/24/98	12/10/98	Allowable
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Dichlordifluomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Methylene Chloride	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	-	5
Trichlorofluomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,1 Dichloroethene	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	-	-
1,1 Dichloroethane	ND	ND	ND	ND	ND	1	ND	ND	1	ND	ND	-	5.0
1,2 Dichloroethene	2	4	3	9	5	11	6	ND	2	3	3	-	5.0
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,2 Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
111 Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Carbon Tetrachloride	ND	ND	ND	ND	ND	3	ND	ND	ND	ND	ND	-	5
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,2 Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
t-1, 3Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Trichloroethylene	3	5	3	6	4	6	5	ND	ND	1	4	6	5.0
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
112 Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
c-1, 3Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
2chloroethvinylether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1122Tetrachloroethan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4	5.0
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,3 Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,2 Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,4 Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Toluene	ND	ND	ND	ND	ND	ND	4	ND	ND	ND	ND	-	5.0
Ethyl Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
m Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
ter.Butylmethylether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-

SMES # 93-006 CONCENTRATIONS IN ug/L

TABLE # 4 – VOC'S (EPA 601/602)
MW-4

Parameter	3/14/96	6/24/96	9/23/96	12/26/96	3/19/97	6/9/97	9/3/97	12/11/97	3/23/98	6/22/98	9/24/98	12/10/98	Allowable
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Dichlordifluomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	-	2.0
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Trichlorofluomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,1 Dichloroethene	270	530	139	190	150	130	550	530	48	150	450	77	5.0
1,1 Dichloroethane	41	36	20	13	26	68	110	42	22	57	61	27	5.0
1,2 Dichloroethene	9	6	7	3	2	4	76	7	3	2	28	-	5.0
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,2 Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
111 Trichloroethane	780	690	230	390	360	260	2600	640	110	200	1600	60	5.0
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,2 Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
t-1, 3Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Trichloroethylene	53	38	21	22	17	25	170	14	8	20	120	13	5
Chlorodibromomethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	5.0
112 Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
c-1, 3Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
2chloroethvinylether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1122Tetrachloroethan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Tetrachloroethene	1	2	3	ND	ND	1	ND	ND	4	8	8	3	5.0
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,3 Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,2 Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,4 Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Ethyl Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
m Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
ter.Butylmethylether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3	-	50.0

SMES # 93-006 CONCENTRATIONS IN ug/L

TABLE # 5 – VOC'S (EPA 601/602)
MW-5

Parameter	3/14/96	6/24/96	9/23/96	12/26/96	3/19/97	6/9/97	9/3/97	12/11/97	3/23/98	6/22/98	9/24/98	12/10/98	Allowable
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Dichlordifluomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Vinyl Chloride	1	1	ND	ND	ND	ND	ND	ND	ND	ND	2	2	2
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Trichlorofluomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,1 Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,1 Dichloroethane	ND	1	2	1	2	ND	1	ND	ND	ND	ND	-	5
1,2 Dichloroethene	8	3	9	4	2	ND	4	2	ND	ND	3	-	5
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,2 Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
111 Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,2 Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
t-1, 3Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Trichloroethylene	2	3	4	3	2	2	2	ND	ND	ND	1	2	5.0
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
112 Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
c-1, 3Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
2chloroethvinylether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1122Tetrachloroethan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Tetrachloroethene	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	-	5.0
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,3 Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,2 Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
1,4 Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Ethyl Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
m Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
ter.Butylmethylether	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	50.0

SMES # 93-006 CONCENTRATIONS IN ug/L