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August 3, 2001

Mr. Ken Girardin
Microtech, Inc.
1425 Milldale Road
Cheshire, Connecticut 06410

RE: SYNOPTIC GROUND WATER SAMPLING EVENT FOR THE MICROTECH, INC. SITE, 1425 MILLDALE ROAD, CHESHIRE, CONNECTICUT (HRP #MIC-0032.HG)

Dear Mr. Girardin:

Enclosed for your use is the original and one copy of the above referenced report. The conclusions and recommendations are found in Sections 4 and 5, respectively.

If you have any questions concerning the above, we may be reached at (860) 793-6899.

Thank you for the opportunity to be of service.

Sincerely,

HRP ASSOCIATES, INC.

DRAFT

Jason M. Coite
Project Geologist

DRAFT

Howard S. Hurd, C.P.G., L.E.P.
Associate Vice President

Enclosures
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SYNOPTIC GROUND WATER SAMPLING EVENT FOR THE MICROTECH, INC. SITE 1425 MILLDALE ROAD CHESHIRE, CONNECTICUT

HRP MIC-0032.RA

August 3, 2001

Prepared By

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1.0 INTRODUCTION

During April 2001, Microtech, Inc. directed HRP Associates, Inc. to conduct a synoptic round of ground water sampling at their Milldale Road site in Cheshire, Connecticut (Figure 1).

Thirty-two (32) site ground water monitoring wells, as shown on Figure 2, were sampled on April 23, 2001 using standard well development and sampling practices. The wells were tested according to the following schedule:

> MW-1 through MW-24 and OW-1 through OW-4 were tested for halogenated volatile organic compounds by EPA Method 8021B. Monitoring wells MW-15 and OW-3 were not included in this synoptic event. Monitoring well MW-15 was removed during soil remediation activities of the north door area in 1998. Monitoring well OW-3 was inaccessible at the time of sampling due to the expansion of the bentonite pack into the well casing.
>
> In addition, building interior wells MW-21 through MW-24 were tested for non-halogenated volatile organic compounds by EPA Method 8015B and for dissolved zinc.

The results of the synoptic ground water sampling event are provided in this report. This report also includes an analysis of historic ground water sampling results, particularly for MW-1 through MW-6.

The laboratory data from the current synoptic sampling event is summarized in Table 1. The historical ground water data from previous sampling events for all site wells is summarized in Table 2. The ground water sample laboratory reports are contained in Appendix A.

2.0 GROUND WATER QUALITY INVESTIGATION/SYNOPTIC SAMPLING EVENT

2.1 Analyses of Synoptic Ground Water Sampling Event Data

The analysis of the synoptic ground water sampling data will be discussed by aquifer unit starting with the unconsolidated aquifer (UA) and proceeding progressively downward to the weathered bedrock (WB) and the upper competent bedrock UB aquifers.

All site ground water quality data has been compiled into Tables 1 and 2 and Figures 3 through 8. The oldest wells are the MW-1 through MW-6 pairs. These wells have previously been designated "S" for shallow and "D" for deep (i.e. MW-1(S) for shallow and MW-1(D) for deep). The shallow wells were typically installed within the weathered bedrock (WB) at approximately 25 feet below grade. The deep wells were installed in the upper competent bedrock (UB) at approximately 50-feet below grade. The shallow (S) and deep (D) monitoring well designations for the MW-1 through MW-6 well pairs are now changed to WB and UB, respectively. This will allow for consistency in monitoring well designations in this and future reports.

2.1.1 Unconsolidated Aquifer (UA)

Ground water flow within the UA aquifer is generally to the south-southwest (Figure 3). The horizontal hydraulic gradient within the UA aquifer is on the order of a steep 0.030 ft/ft proximal to the north door of the site building between the 94- and 95-foot contours along the southwest ground water flow path. The horizontal hydraulic gradient decreases by about half to 0.017 ft/ft between the 90- and 92-foot contours along the southwest ground water flow path.

Ground water contamination was detected at the highest concentration within the UA aquifer (1,993 parts per billion [ppb] of PCE) at MW-11, located approximately 40-feet south of the north door (Figure 4, Table 1). Ground water from MW-16, located adjacent to the north door, had detectable concentrations of PCE at 337 ppb. Previous hydrogeologic and subsurface investigations identified the vicinity of the north door as a source area. The PCE detected in MW-11 and MW-16 indicates that at least a portion of the previously identified PCE contaminant-plume has migrated along the horizontal hydraulic gradient towards the south of the north door.

Ground water samples collected from the other UA-aquifer wells have detectable concentrations of PCE ≤50 ppb (Figure 4, Table 1). Based upon ground water flow direction, the contamination detected at MW-9 (50 ppb of PCE) and MW-20 (2 ppb of PCE) may be directly related to the contamination detected at or near the north door area. This interpretation is consistent with horizontal component of ground water flow within the UA aquifer. However, the concentrations detected at MW-9 and MW-20 relative to the much higher levels currently detected in MW-11 and in MW-16 suggests there may be a significant vertical,

downward transport instead of horizontal transport of contamination by ground water flow. It is also noted that MW-9 and MW-20 are located at potential contaminant source areas (the loading dock and former septic tanks, respectively), which could contribute to the contaminant concentrations detected at these locations.

Other detected contaminants consist of TCE, 1,1,1-TCA, and cis-1,2-dichloroethylene, all of which were detected in addition to PCE in monitoring wells MW-9, MW-11 and MW-12 (Figure 4, Table 1). The highest detected concentration of TCE is 362 ppb, which was detected in MW-11.

2.1.2 Weathered Bedrock Aquifer (WB)

Ground water flow within the WB aquifer is nearly radial beneath the northern portion of the building in the vicinity of MW-23 and MW-24 (Figure 5). The horizontal hydraulic gradient across the northern and western portions of the site between MW-24(WB) and MW-4(WB) is a steep 0.040 ft/ft in the westerly direction. Contaminant concentrations detected in the WB aquifer wells beneath the building further reflects the downward vertical component of contaminant migration from the overlying UA aquifer.

Beneath the eastern and southeastern portions of the site, ground water flow is predominantly to the south, and becomes more southwesterly beneath the western portion of the site (Figure 5). The hydraulic gradient then decreases beneath the southern portion of the building between MW-23(WB) and MW-10(WB) to a moderate 0.009 ft/ft.

Ground water from the WB aquifer beneath the northern portion of the building has detectable concentrations of PCE raging from 115 ppb in MW-14 to 1,430 ppb in MW-21 (Figure 6, Table 1). Ground water from the WB aquifer beneath the northern portion of the building also has detectable concentrations of TCE, TCA, and 1,1-dichloroethylene. In addition, 61 ppb of methyl ethyl ketone (MEK) were detected in ground water collected from MW-24. Monitoring wells MW-23 and MW-21 were also sampled and analyzed for the presence of MEK in the WB aquifers, however MEK concentrations, if any, in those wells were below laboratory detection levels.

The highest PCE concentration detected in the WB aquifer (1,895 ppb) was identified in MW-10, located approximately 30-feet south of the building (Figure 6, Table 1). PCE was also detected in MW-3(WB), which is located cross to down-gradient of MW-10, at 624 ppb. TCE and TCA were also detected in these two monitoring wells. While southerly flowing ground water from the north door source area potentially contributes to the PCE, TCE and TCA levels detected in the WB aquifer south of the building, the presumed primary source of the de-

tected concentration in MW-10 and MW-3(WB) is the former wastewater treatment system sump adjacent to the south wall of the building.

Lastly, PCE was detected in monitoring wells MW-2 and MW-4, located on the western portion of the site, at concentrations of 561 ppb and 163 ppb, respectively (Figure 6, Table 1). TCE was also detected at a low concentration in MW-2.

2.1.3 Upper Competent Bedrock (UB)

The horizontal component of ground water flow in the UB aquifer is to the southwest and west (Figure 7). The horizontal hydraulic gradient within the UB aquifer is on the order of a moderately steep 0.014 ft/ft proximal to the north door source area. Across the western portion of the site it increases by about 2.5 times to a steeper 0.040 ft/ft (Figure 7).

MW-22(UB) and MW-23(WB) are located next to one another as a well pair in order to investigate the vertical distribution and migration of contamination, and the vertical hydraulic gradient. The vertical hydraulic gradient can be calculated using ground water elevation data from these two wells. The vertical hydraulic gradient between weathered bedrock well MW-23 (screened 15-20 feet below grade) and upper competent bedrock well MW-22 (screened 39-49 feet below grade) was calculated as 0.043 ft/ft downward. This is a steep hydraulic gradient. The downward vertical ground water flow gradient may dominate horizontal ground water flow more strongly near the north door.

Monitoring well MW-22(UB), located inside the building, has detectable concentrations of PCE (73 ppb), TCE (28 ppb), TCA (6 ppb) and MEK (62 ppb) (Figure 8, Table 1). The data suggest a significant downward hydraulic gradient is present because these contaminants were found at great depth relative to their small horizontal distance from the north door source area.

Contaminant concentrations at down gradient locations MW-2(UB), MW-3(UB), MW-4(UB), and MW-6(UB) are significantly higher than those detected at MW-22(UB). The data suggest that source areas down gradient from the north door source area, such as the former lagoon in the case of MW-2 and the disused leaching field in the case of MW-4, are having a greater impact on the upper competent bedrock ground water quality leaving the site than the north door source area. An unconfirmed source or sources up-gradient of MW-3(UB) and MW-6(UB) may also be affecting ground water quality leaving the southern and southeastern portions of the site (presumably the former wastewater treatment sump).

The above data suggests other contaminant source areas have created separate ground water contamination plumes which are superim-

posed upon one broadly distributed plume originating from the north door source area. By the time contamination from the north door source area migrates to downgradient monitoring wells MW-5(UB) (side-gradient) and MW-6(UB) it has likely been attenuated to relatively low levels.

When examining the ground water flow direction, it appears an up gradient source related to MW-1 and MW-5 may be present (Figures 7 and 8). However, this is not necessarily the case due to the unpredictable nature of ground water flow in fractured bedrock. Analyzing contaminant migration in a bedrock aquifer is more complex than in unconsolidated, porous materials such as sediments. In a bedrock aquifer, water flow is preferentially along fractures in the bedrock and the occurrence of interconnected fractures cannot be predicted.

2.2 Analysis of Historical Ground Water Quality Trends

When compared to the results obtained from the last synoptic event completed in April 1998, PCE concentrations have decreased in all ground water samples collected from the UA aquifer with the exception of MW-11, which increased to 1,993 ppb from 1,924 ppb in 1998 (Table 2). The highest concentration of PCE detected in the UA aquifer in 1998 (7,145 ppb) was identified in MW-16, which is located proximal to the location of the north door. In conjunction with soil sampling completed in 1998, the soil and ground water contamination detected beneath the northern portion of the building was presumed to originate from a source area at or near the north door. Contamination appears to be migrating laterally to the south and west of this area as well as migrating downwards to the deeper aquifers.

PCE concentrations generally increased at WB aquifer monitoring wells located beneath and near the building, with the exception of outlying wells MW-3(WB), MW-4(WB), MW-5(WB), and MW-6(WB) (Table 2). Previous results obtained during the April 1998 synoptic event indicate that the highest ground water contamination concentration at that time (10,223 ppb of PCE) was located at MW-15, which was installed within the north door source area. Monitoring well MW-15 was removed during the excavation of contaminated soil from the north door source area. The closest well to MW-15 is MW-21, located approximately 20-feet southwest from the north door. Monitoring well MW-21 has a detected concentration of 1,430 ppb of PCE, which is an increase from 1,135 ppb detected in 1998. Concentration increases were also detected in the WB monitoring wells located to the south of the building (MW-3(WB) - 235 ppb to 624 ppb) and down-gradient of the former leaching field (MW-2(WB) – 289 ppb to 561 ppb).

The PCE concentrations in the UB aquifer monitoring wells located to the south of the building (MW-3(UB) – 802 ppb to 1,472 ppb) and down-gradient of the former leaching field (MW-2(UB) – 279 ppb to 832 ppb) have also increased compared to the 1998 results (Table 2). In addition, an increase in PCE – 882 ppb to 1,266 ppb, was also detected in MW-4(UB) located down

gradient of the former wastewater lagoon. The UB aquifer well located in the building (MW-22) had a slight increase of PCE from 66 ppb in 1998 to 73 ppb in the 2001 event.

A brief discussion of the water quality trends for MW-1 through MW-6 is provided below.

MW-1(WB) - This well has always produced below detectable levels (BDL) for all analytes.

MW-1(UB) - The PCE concentration remains very low in the less than 10 ppb range. The TCE concentration has been trending upward over the last four years from 7 ppb in 1994 to 143 ppb in 1998. TCE concentration with the current synoptic event (142 ppb) is consistent with the last results obtained in 1998. The presence of TCE at this location is an anomalous trend and may be indicative of a separate contaminant source or of variations in ground water flow within the bedrock aquifer.

MW-2(WB) and MW-2(UB) - The concentrations at this well pair had been trending downward steadily from 1987 to 1998. However, the current PCE concentrations (561 and 832 ppb, respectively) at MW-2(WB) and MW-2(UB) have increased since the last synoptic event.

MW-3(WB) and MW-3(UB) - The PCE concentration at MW-3(WB) is currently at 624 ppb, an increase from the 235 ppb detected during the 1998 event. PCE concentrations had been steadily declining prior to this most recent event. MW-3(UB) has been consistently higher than MW-3(WB) and has ranged between 704 and 2,085 ppb of PCE over the last six years. The current PCE level in MW-3(UB) is 1,475 ppb, which is the second highest recorded level. These data suggest residual source levels of contamination may be present up gradient of MW-3(UB) and MW-10 because PCE levels at these locations have increased recently rather than declining steadily.

MW-4(WB) and MW-4(UB) - The MW-4(WB) PCE concentration has continued to decrease from 1,576 ppb in 1997 to 163 ppb in 2001. The PCE concentration in MW-4(UB) has slightly increased from 832 ppb to 1,266 ppb. The PCE concentration MW-4(UB) has been increasing since 1997. It is likely these variations in the shallow and deep PCE levels have been caused by residual contamination within the leaching field system.

MW-5(WB) and MW-5(UB) - The MW-5(WB) PCE and TCE concentration are below detection limits and have remained relatively stable at the less than 10 ppb level since 1990. The MW-5(UB) TCE concentration remains consistently higher than the PCE concentration (Table 2). This relationship is only found at the MW-5(UB) and MW-1(UB) locations. Both PCE and TCE concentrations at MW-5(UB) have ranged between 52 and 208 ppb. There were no other significant trends identified at these wells.

MW-6(WB) and MW-6(UB) – The detectable level of PCE in MW-6(WB) has been 2 ppb in 1998 and in 2001. Prior to 1998, the PCE concentration in MW-6(WB) had been below detection limits since 1994. The PCE, TCE and DCE concentrations in MW-6(UB) have generally decreased since 1994.

2.3 Surrounding Property Use

The eastern abutting residential property owners have been connected to public water supply. The southern abutting automobile dealership currently and historically has been connected to public water supply. The western abutter is a commercial warehouse and office operation and is also connected to public water supply. The upgradient, northern residential abutting property utilizes a private water supply well. This well was sampled on June 10, 1998 and analyzed by EPA Method 502.2 and eight (8) selected heavy metals. The only analyte detected was copper at 0.02 milligrams per liter, below the Connecticut Public Health Code Copper Standard of 1.3 milligrams per liter. Previous sampling results for this water supply did not exceed the GWPC for the target analytes (HRP Receptor Survey Report issued August 20, 1998).

The ground water quality classification of the site and the western abutter is GB. The northern abutting property is assigned to ground water class GA. Abutting properties to the east and south are assigned to ground water class GA, but may not be meeting standards.

3.0 QUALITY ASSURANCE/QUALITY CONTROL

Three quality assurance/quality control (QA/QC) samples were prepared and collected for this ground water sampling event.

MW-31 (BDL for PCE) = Duplicate of MW-14 (2 ppb of PCE)
MW-32 (BDL for TCE) = Trip Blank
MW-33 (1,530 ppb of PCE) = Duplicate of MW-21 (1,430 ppb of PCE)

The trip blank was prepared at the HRP field services offices using new sample vials and laboratory grade deionized water. The trip blank was analyzed for halogenated volatile organic compounds (HVOCs) by EPA method 8021B and for non-halogenated volatile organic compounds by EPA method 8015B. The result for the trip blank was reported as below detectable levels (BDL) and indicated that proper sample collection and transportation procedures were used.

Two duplicate samples were collected during the synoptic event. Sample MW-31 was analyzed for HVOCs via EPA method 8021B as a duplicate of MW-14. The result for MW-31 was BDL, which is comparable to the very low level of 2 ppb detected in sample MW-14. Sample MW-33 is a duplicate of MW-21(WB) inside the building. MW-33 was analyzed for non-halogenated VOCs via EPA method 8015B and for dissolved zinc in addition to HVOCs. The duplicate results for this sample showed a low range of variation (7 percent for PCE) that indicates the laboratory analysis methods and procedures were sufficiently reproducible.

4.0 CONCLUSIONS

Based upon the findings presented in this report, the following conclusions are made:

1. Ground water quality investigations were conducted in the form of a synoptic ground water sampling event. Thirty-two monitoring wells were sampled and analyzed for halogenated volatile organic compounds (HVOCs). In addition, four (4) building interior wells were sampled and analyzed for non-halogenated VOCs and zinc due the detected concentrations identified during previous ground water monitoring events.

2. The highest concentrations of PCE detected within the shallowest of the three designated aquifers beneath the site are located at the northern portion of the building. Based on the identified ground water flow direction, this area is down-gradient from the north door source area. A high vertical hydraulic gradient in this area indicates a dominant downward ground water flow direction resulting in PCE contamination in the weathered bedrock aquifer and the upper competent bedrock aquifer beneath this area.

3. Significant concentrations of PCE were also detected in the weathered bedrock and upper competent bedrock aquifers beneath the southeastern portion of the site. This area is also down-gradient from the north door source area. However the primary contribution to the contamination is presumed to originate from a separate up-gradient source area located adjacent to the south of the building.

4. Ground water from the weathered bedrock and the upper competent bedrock aquifers beneath the western portion of the site have significant concentrations of PCE. This area is down-gradient to the source areas identified on the eastern portion of the site. As such, contamination in this area likely has several contributing sources which are potentially dominated by the former metal hydroxide sludge lagoon and septic field located on the western portion of the site.

5. Trend analysis of historical ground water quality entering and leaving the site indicates the following:

   - Data from previous sampling events had indicated a steady decline in contaminant concentration. Although contaminant concentrations in ground water have generally increased across the site, particularly in the deeper unconsolidated bedrock aquifer wells, this does not necessarily establish a sustainable trend. Future ground water monitoring results are likely to demonstrate a resumed decline in contaminant concentrations.

   - The contaminant concentrations for both the shallow and deep downgradient wells (MW-2(WB) and MW-2(UB), respectively) have rebounded since the last sampling event. Contaminant concentrations at this location were previously identified as exhibiting a steady declining trend.

- The data obtained from MW-3(WB), MW-3(UB) and MW-10 suggests the potential presence of a residual contamination source near the south side of the building, which has caused a rebound in PCE concentration at these locations.

- The downgradient MW-4(WB) and MW-4(UB) data suggest the presence of residual contamination within the disused leaching field.

- The up-gradient MW-5(WB) and MW-5(UB) well concentrations are relatively stable. They exhibit the same anomalous condition as MW-1(UB) where the TCE concentration is higher than the PCE concentration. A potentially unidentified TCE source exists for contamination detected in up-gradients well MW-1(UB) and MW-5(UB).

- The down gradient MW-6(WB) and MW-6(UB) well concentrations have been relatively stable for the past three years.

6. MEK was detected in ground water beneath the building at concentrations of 62 and 61 ppb. These levels do not exceed applicable standards. The source(s) for the MEK contaminants have not been identified.

7. Zinc was previously detected in ground water beneath the building between 0.05 and 0.06 mg/l. No detectable zinc was identified in the four ground samples collected from beneath the building during this synoptic event.

8. DCE, TCE and PCE are present at concentrations above the Ground Water Volatilization Criteria (GWVC). The more stringent residential criteria must be used unless environmental land use restrictions are emplaced upon the site, allowing the use of industrial/commercial criteria. The residential GWVC for TCE, PCE, and DCE are 219, 1,500, and 1 ppb, respectively. Exceedances of the GWVC criteria were detected as follows:

Constituent	GWVC	UB	UB	UB	WB	UB	WB	WB	WB
		MW-3	MW-5	MW-6	MW-10	MW-11	MW-21	MW-23	MW-24
DCE (ppb)	1	28.0	6.0	12.0	10.0		77.0	15.0	
TCE (ppb)	219	332.0				362.0			
PCE (ppb)	1,500				1895.0	1993.0			

The TCE and PCE residential GWVC were slightly exceeded as indicated, however, the less stringent industrial/commercial GWVC of 540 ppb and 3,820 ppb, respectively, were not. The industrial/commercial DCE GWVC of 6 ppb was also exceeded as indicated.

The ground water classification of the site and abutting western property is GB. Land to the north, east, and south of the site is assigned to class GA or class GA but may not be meeting standards. Since private ground water supply wells are in use to the north, east and south of the site, the site ground water quality results were also compared to the Ground Water Protection Cri-

teria (GWPC) drinking water standards. Exceedances of the GWPC are as follows:

Constituent	GWPC	UB	WB	UB	WB	UB	WB	UB	UB	UB	UB	WB
		MW-1	MW-2	MW-2	MW-3	MW-3	MW-4	MW-4	MW-5	MW-6	MW-9	MW-10
DCE	7					28.0				12.0		10.0
cis-1,2-DCE	70										80.0	
TCA	200											
TCE	5	142.0	18.0	32.0	74.0	332.0		78.0	171.0	70.0		
PCE	5	9.0	561.0	832.0	624.0	1475.0	163.0	1266.0	75.0	109.0	50.0	1895.0

Constituent	GWPC	UA	UA	WB	UA	WB	UB	WB	WB	UA	UA
		MW-11	MW-12	MW-13	MW-16	MW-21	MW-22	MW-23	MW-24	OW-1	OW-2
DCE	7					77.0		15.0			
cis-1,2-DCE	70	72.0									
TCA	200					426.0					
TCE	5	362.0	15.0	7.0		106.0	28.0	118.0	28.0	6.0	59.0
PCE	5	1993.0	11.0	30.0	337.0	1430.0	73.0	596.0	115.0	24.0	22.0

The MW-3(WB), MW-5(UB), and MW-6(UB) monitoring wells are located adjacent to the down gradient property boundary (Figures 7 and 8). Since the eastern, southern and western property abutters are connected to public water supply, they are not at risk from drinking contaminated ground water. The northern abutting property private water supply well has never detected an exceedance of an applicable GWPC. In addition, the southern and western abutters are industrial/commercial land uses and would not be expected to be affected by ground water volatilization concerns.

5.0 RECOMMENDATIONS

Based upon the findings and conclusions presented in this report, the following recommendations are made:

1. Quarterly ground water monitoring is recommended to track the environmental quality of site ground water. This data will be needed to make decisions concerning the off site migration of contaminated ground water, the potential need for ground water remediation including natural attenuation, and to assess the benefit of proposed remedial actions.

2. HRP recommends additional subsurface investigations consisting of installation of monitoring wells which are screened deep into the upper competent bedrock aquifer. HRP recommends a fracture analysis of the upper competent bedrock aquifer in conjunction with the additional subsurface investigation in order to assist in determining the vertical extent of the ground water contamination.

3. Sampling of the previously identified water supply wells located on properties adjacent to the subject site is recommended to further delineate the lateral and/or vertical extent of HVOC contamination in ground water.

4. It is recommended the hydraulic conductivity of the three site aquifer units be determined using rising and falling head slug testing techniques. In addition, HRP recommends implementing a local well pumping program to further characterize the aquifer units. This data will be used to further analyze contaminant fate and transport processes within the site aquifer system.

5. HRP recommends additional investigations and remediation as necessary of potential soil contamination source areas that appear to be adversely impacting ground water quality. It is recommended that the former wastewater treatment sump be addressed first.

TABLES

TABLE 1
GROUND WATER SAMPLE ANALYTICAL RESULTS
MICROTECH, INC.
1425 MILLDALE AVENUE
CHESHIRE, CONNECTICUT
April 23, 2001

Constituent	GWPC	SWPC	Res VC	I/C VC	MW-1S WB	MW-1D UB	MW-2S WB	MW-2D UB	MW-3S WB	MW-3D UB	MW-4S WB	MW-4D UB	MW-5S WB	MW-5D UB	MW-6S WB	MW-6D UB	MW-7S UA	MW-8S UA	MW-9 UA	MW-10 WB	MW-11 UA
HVOCs - 8021B (ug/L)																					
Vinyl chloride	2	15,750	2	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.0	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethylene	70	96	1	6	BDL	BDL	BDL	BDL	BDL	28.0	BDL	BDL	BDL	6.0	BDL	12.0	BDL	BDL	BDL	10.0	BDL
cis-1,2-Dichloroethylene	70	NE	NE	NE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	11.0	BDL	BDL	BDL	13.0	BDL	BDL	80.0	BDL	72.0
1,1,1-Trichloroethane	200	62,000	20,400	50,000	BDL	BDL	BDL	BDL	10.0	26.0	BDL	BDL	BDL	23.0	BDL	2.0	BDL	BDL	2.0	91.0	45.0
Trichloroethylene	5	2,340	219	540	BDL	142.0	18.0	32.0	74.0	332.0	BDL	78.0	BDL	171.0	BDL	70.0	BDL	BDL	4.0	BDL	362.0
Tetrachloroethylene	5	88	1,500	3,820	BDL	9.0	561.0	832.0	624.0	1475.0	163.0	1266.0	BDL	75.0	2.0	109.0	BDL	BDL	50.0	1895.0	1993.0
VOCs - 8015 (ug/L)																					
Methyl ethyl ketone	400	NE	50,000	50,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dissolved zinc (mg/L)	5000	123	NE	NE	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Constituent	GWPC	SWPC	Res VC	I/C VC	MW-12 UA	MW-13 WB	MW-14 WB	MW-15[1] WB	MW-16 UA	MW-17 UA	MW-18 UA	MW-19 UA	MW-20 UA	MW-21 WB	MW-22 UB	MW-23 WB	MW-24 WB	OW-1 UA	OW-2 UA	OW-3[2] UA	OW-4 UA
HVOCs - 8021B (ug/L)																					
Vinyl chloride	2	15,750	2	2	BDL	BDL	BDL	---	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	---	BDL
1,1-Dichloroethylene	70	96	1	6	BDL	1.0	BDL	---	BDL	BDL	BDL	BDL	BDL	77.0	BDL	15.0	BDL	BDL	BDL	---	BDL
cis-1,2-Dichloroethylene	70	NE	NE	NE	2.0	6.0	3.0	---	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	---	BDL
1,1,1-Trichloroethane	200	62,000	20,400	50,000	2.0	2.0	BDL	---	BDL	BDL	BDL	BDL	3.0	426.0	6.0	51.0	8.0	11.0	3.0	---	BDL
Trichloroethylene	5	2,340	219	540	15.0	7.0	BDL	---	BDL	BDL	BDL	BDL	BDL	106.0	28.0	118.0	28.0	6.0	59.0	---	BDL
Tetrachloroethylene	5	88	1,500	3,820	11.0	30.0	2.0	---	337.0	BDL	BDL	BDL	2.0	1430.0	73.0	596.0	115.0	24.0	22.0	---	BDL
VOCs - 8015 (ug/L)																					
Methyl ethyl ketone	400	NE	50,000	50,000	---	---	---	---	---	---	---	---	---	BDL	62	BDL	61	---	---	---	---
Dissolved zinc (mg/L)	5000	123	NE	NE	---	---	---	---	---	---	---	---	---	BDL	BDL	BDL	BDL	---	---	---	---

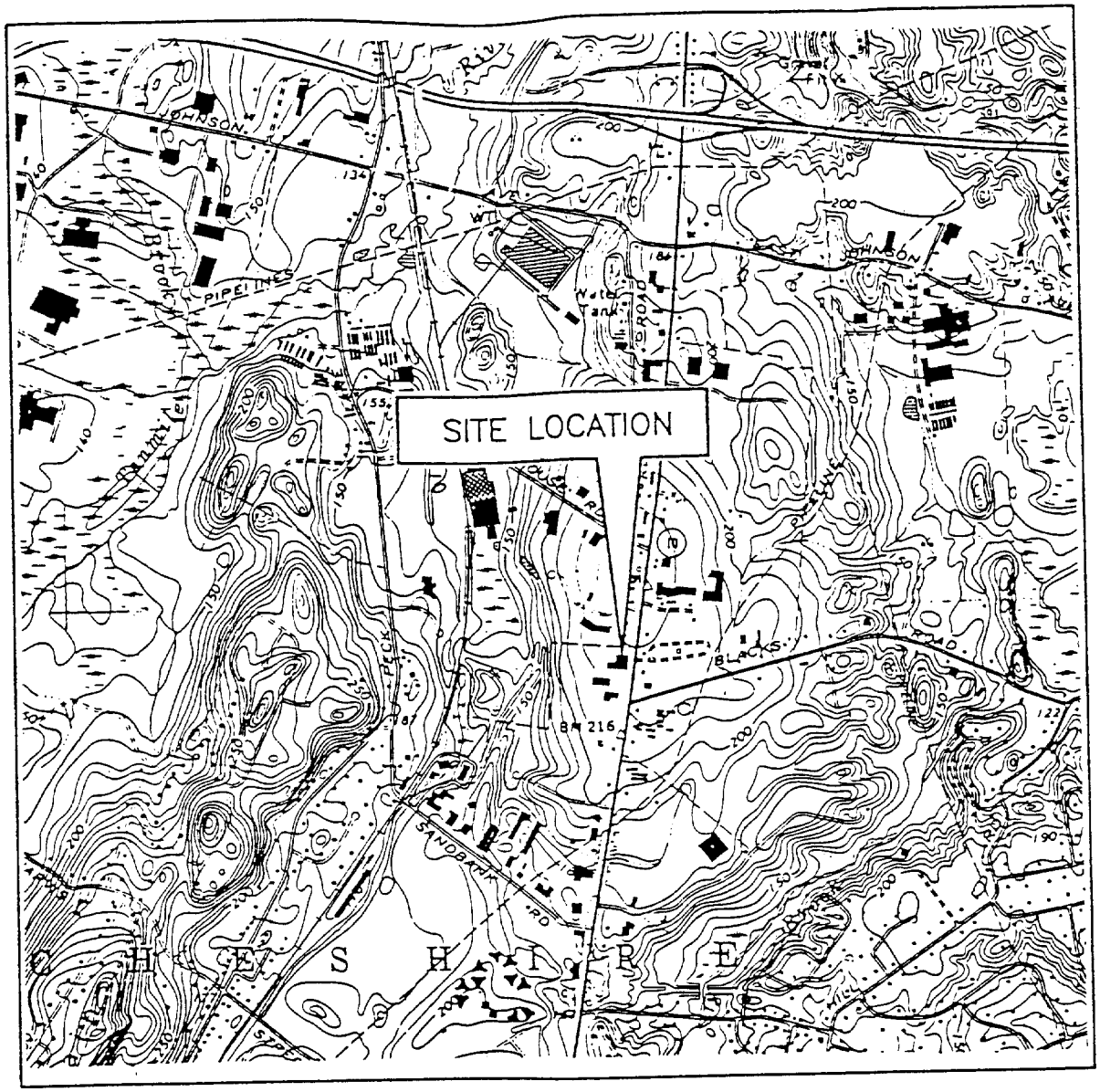
Key

GWPC = Ground Water Protection Criteria, January 30, 1996 CT DEP Remedial Standard Regulations
SWPC = Surface Water Protection Criteria, January 30, 1996 CT DEP Remedial Standard Regulations (RSR)
Res VC = Residential Volatilization Criteria, January 30, 1996 CT DEP Remedial Standard Regulations (RSR)
I/C VC = Industrial/Commercial Volatilization Criteria, January 30, 1996 CT DEP Remedial Standard Regulations (RSR)
ug/l = micrograms per liter, or parts per billion (ppb)
NE = None Established
NE = None Established
UA = Unconsolidated Aquifer
WB = Weathered Bedrock Aquifer
UB = Upper Confident Bedrock Aquifer
[1] Removed during soil excavation in 1998
[2] Not accesible due to bentonite expansion

---	Parameter Not Analyzed
BDL	Parameter Below Detectioin Limits
1	Parameter Detected below Standards
1	Parameter Exceeds Res VC
1	Parameter Exceeds I/C VC
1	Parameter Exceeds GWPC or SWPC
1	Parameter Exceeds GWPC and SWPC
1	Parameter Exceeds Res VC and GWPC
1	Parameter Exceeds I/C VC and GWPC

Note: All parameters exceeding the I/C VC also exceed the Res VC.

FIGURES

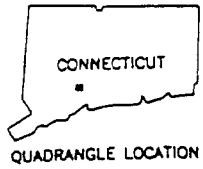


SCALE 1 : 24000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

CONTOUR INTERVAL 10 FEET



QUADRANGLE LOCATION

SOUTHINGTON, CONN.
41072-E8-TF-024

1968
REVISED 1992
DMA 6467 III SW-SERIES V816

FIGURE 1
SITE LOCATION MAP
MICROTECH, INC.
1425 MILLDALE AVENUE
CHESHIRE, CONNECTICUT
HRP # MIC0026.CA

HRP

US EPA New England
RCRA Document Management System (RDMS)
Image Target Sheet

RDMS Document ID# 785

Facility Name: Microtech Inc

Phase Classification: R-13

Document Title: Environmental Indicator (EI) Determination, Current Human Exposures Under Control (CA 725 YE) & Migration of Contaminated Groundwater Under Control (CA 750 IN) - Microtech Inc

Date of Document: 08-26-2002

Document Type: EI Determination

Purpose of Target Sheet:

[x] Oversized **[ ] Privileged**

[ ] Page(s) Missing **[ ] Other (Please Provide Purpose Below)**

Comments:
Oversized Map of Microtech Site Plan

*** Please Contact the EPA New England RCRA Records Center to View This Document ***

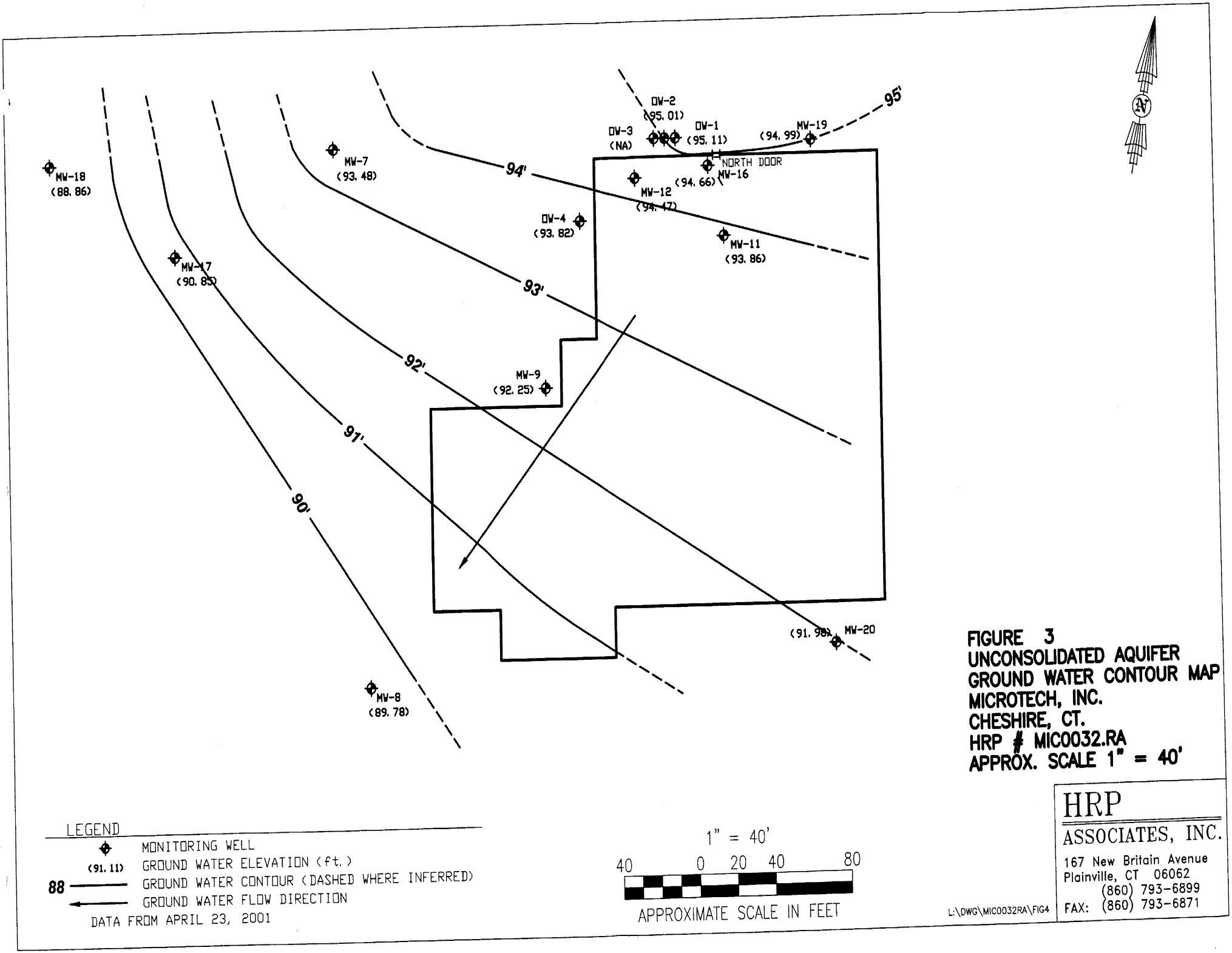


FIGURE 3
UNCONSOLIDATED AQUIFER
GROUND WATER CONTOUR MAP
MICROTECH, INC.
CHESHIRE, CT.
HRP # MIC0032.RA
APPROX. SCALE 1" = 40'

LEGEND

- ◆ MONITORING OR PILOT TEST OBSERVATION WELL
- MW-9 WELL NUMBER
- BDL BELOW DETECTABLE LEVEL
- PCE TETRACHLOROETHYLENE
- TCE TRICHLOROETHYLENE
- CIS CIS-1,2-DICHLOROETHYLENE
- TCA 1,1,1-TRICHLOROETHANE
- ALL RESULTS ARE REPORTED IN PARTS PER BILLION
- (UA) DESIGNATES THIS WELL IS INSTALLED IN THE UPPER AQUIFER

DATA FROM APRIL 23, 2001

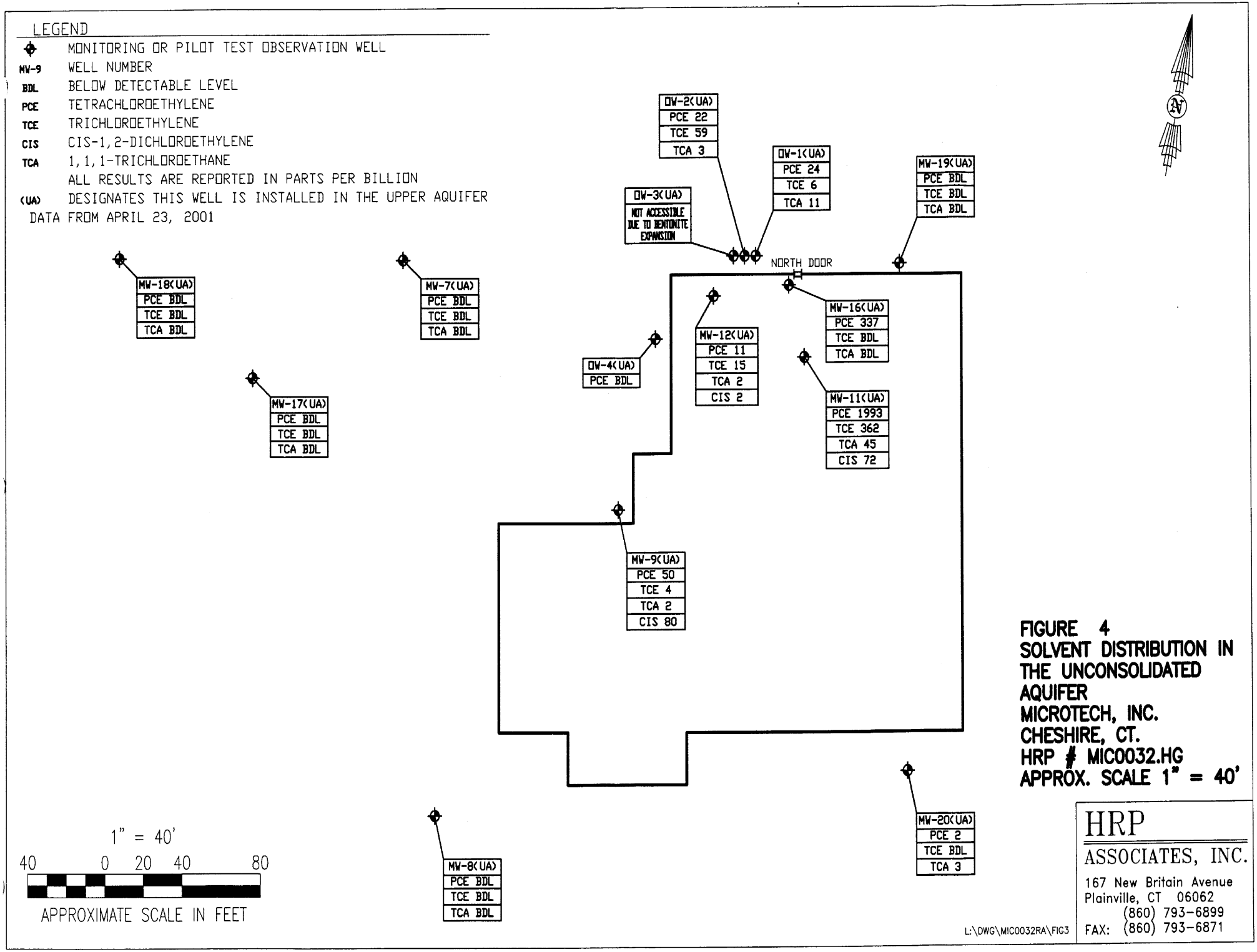


FIGURE 4
SOLVENT DISTRIBUTION IN THE UNCONSOLIDATED AQUIFER
MICROTECH, INC.
CHESHIRE, CT.
HRP # MIC0032.HG
APPROX. SCALE 1" = 40'

L:\DWG\MIC0032RA\FIG3

HRP ASSOCIATES, INC.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899
FAX: (860) 793-6871

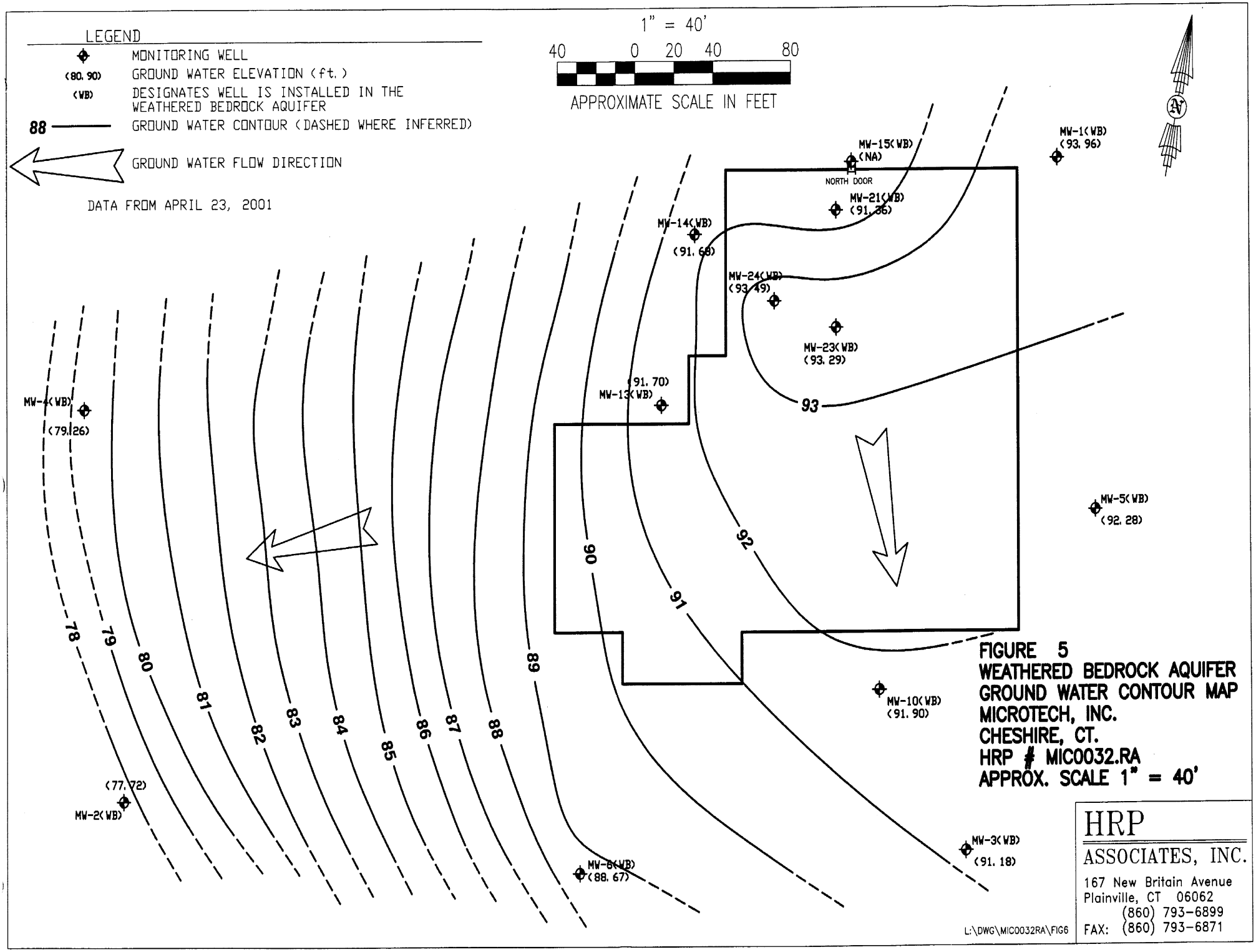


FIGURE 5
WEATHERED BEDROCK AQUIFER
GROUND WATER CONTOUR MAP
MICROTECH, INC.
CHESHIRE, CT.
HRP # MIC0032.RA
APPROX. SCALE 1" = 40'

HRP
ASSOCIATES, INC.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899
FAX: (860) 793-6871

LEGEND

- MONITORING WELL
- MW-2 WELL NUMBER
- BDL BELOW DETECTABLE LEVEL
- PCE TETRACHLOROETHYLENE
- TCE TRICHLOROETHYLENE
- TCA 1,1,1-TRICHLOROETHANE
- DCE 1,1-DICHLOROETHYLENE
- CIS CIS-1,2-DICHLOROETHYLENE
- MEK METHYL ETHYL KETONE (ONLY WELLS MW-21, MW-22 AND MW-24 WERE TESTED FOR MEK)
- ALL RESULTS ARE REPORTED IN PARTS PER BILLION
- (WB) DESIGNATES THIS WELL IS INSTALLED IN THE WEATHERED BEDROCK AQUIFER

DATA FROM APRIL 23, 2001

1" = 40'

40 0 20 40 80

APPROXIMATE SCALE IN FEET

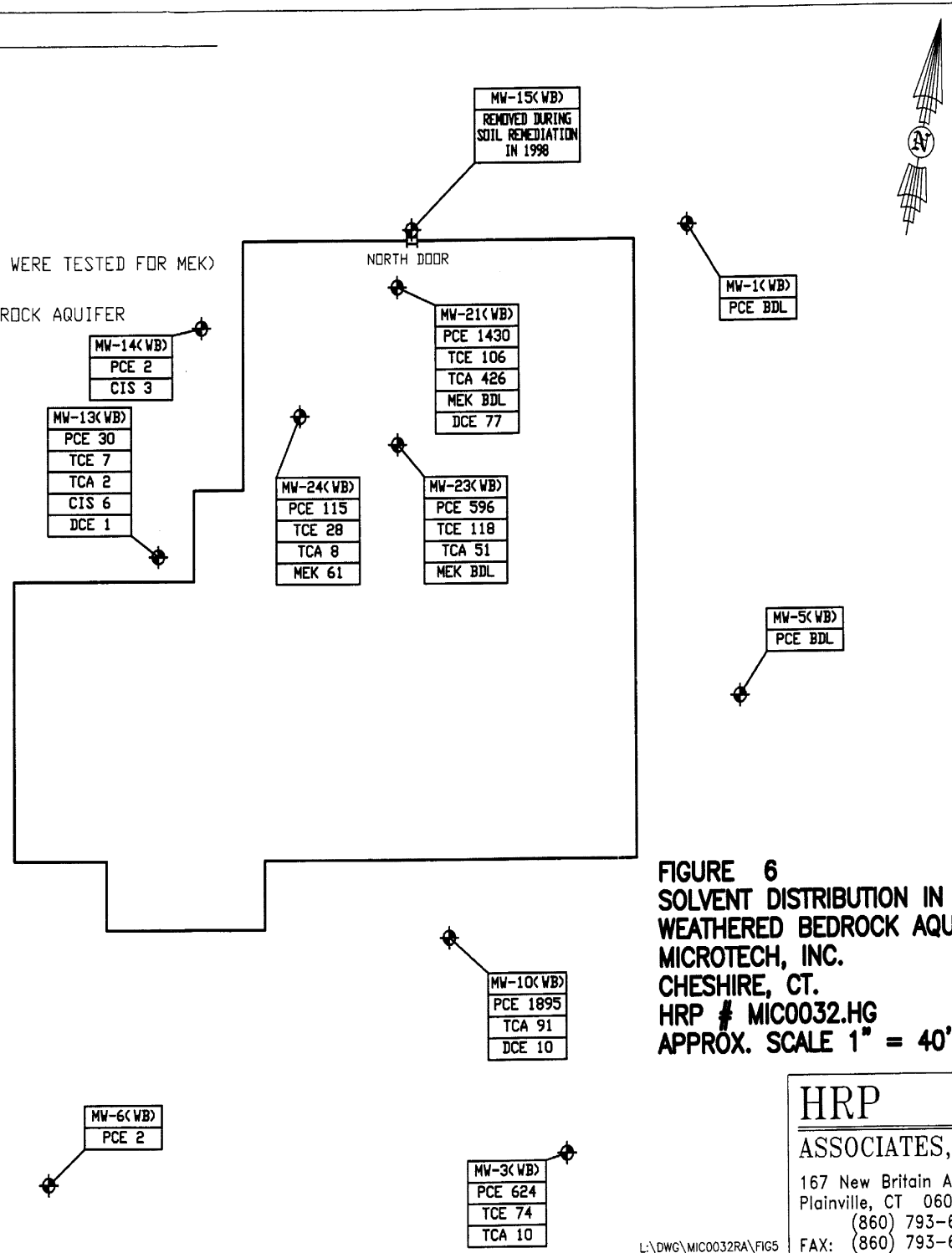
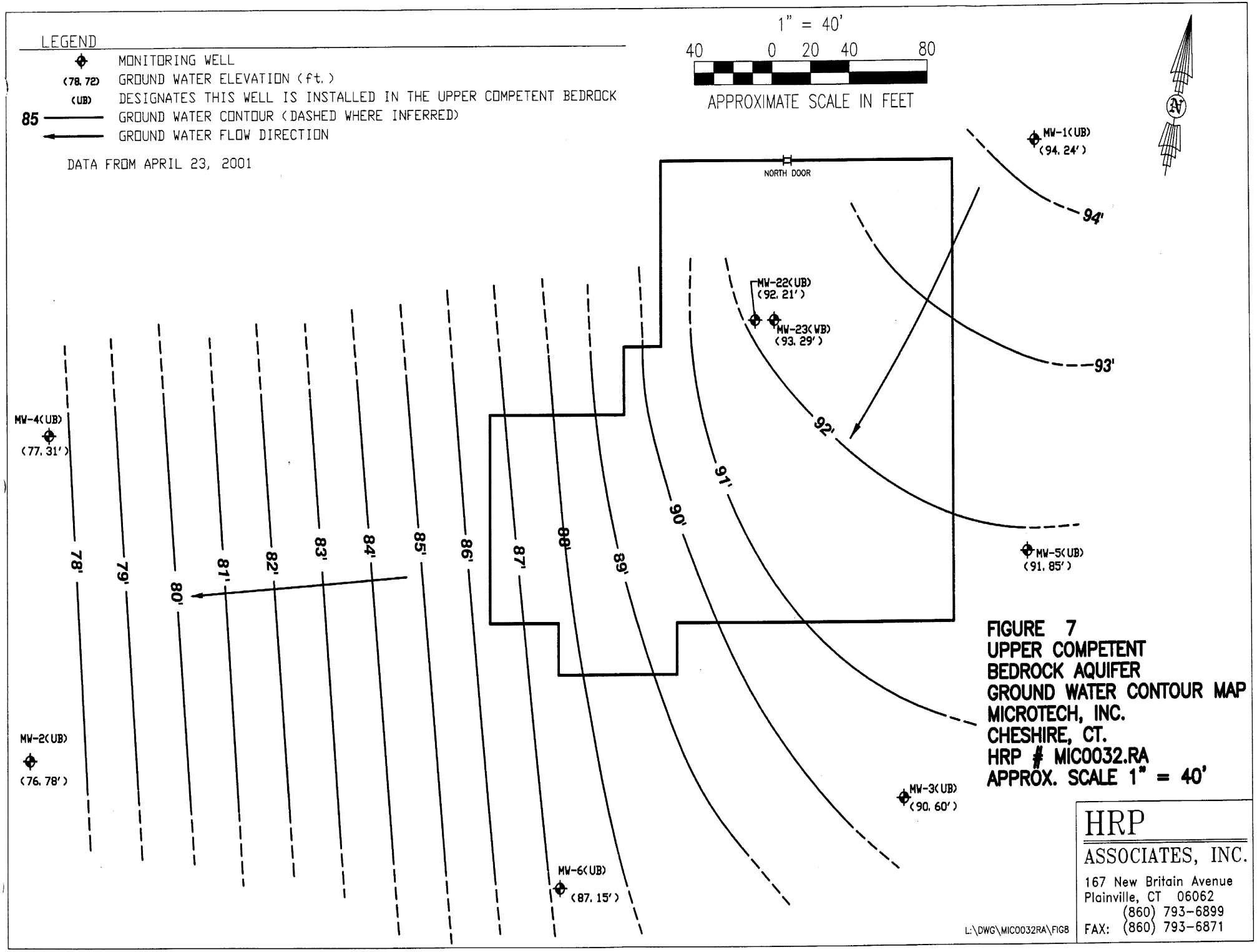


FIGURE 6
SOLVENT DISTRIBUTION IN THE WEATHERED BEDROCK AQUIFER
MICROTECH, INC.
CHESHIRE, CT.
HRP # MIC0032.HG
APPROX. SCALE 1" = 40'

L:\DWG\MIC0032RA\FIG5

HRP ASSOCIATES, INC.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899
FAX: (860) 793-6871


LEGEND
MONITORING WELL
(78.72) GROUND WATER ELEVATION (ft.)
(UB) DESIGNATES THIS WELL IS INSTALLED IN THE UPPER COMPETENT BEDROCK
85 GROUND WATER CONTOUR (DASHED WHERE INFERRED)
GROUND WATER FLOW DIRECTION
DATA FROM APRIL 23, 2001
1" = 40'
40 0 20 40 80
APPROXIMATE SCALE IN FEET
N
NORTH DOOR
MW-1(UB) (94.24')
MW-22(UB) (92.21')
MW-23(WB) (93.29')
MW-4(UB) (77.31')
MW-5(UB) (91.85')
MW-2(UB) (76.78')
MW-3(UB) (90.60')
MW-6(UB) (87.15')
94'
93'
92'
91'
90'
89'
88'
87'
86'
85'
84'
83'
82'
81'
80'
79'
78'
FIGURE 7
UPPER COMPETENT
BEDROCK AQUIFER
GROUND WATER CONTOUR MAP
MICROTECH, INC.
CHESHIRE, CT.
HRP # MIC0032.RA
APPROX. SCALE 1" = 40'
HRP
ASSOCIATES, INC.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899
FAX: (860) 793-6871
L:\DWG\MIC0032RA\FIG8

LEGEND

- ⊕ MONITORING WELL
- BDL BELOW DETECTABLE LEVEL
- PCE TETRACHLOROETHYLENE
- TCE TRICHLOROETHYLENE
- TCA 1,1,1-TRICHLOROETHANE
- DCE 1,1-DICHLOROETHYLENE
- CIS CIS-1,2-DICHLOROETHYLENE
- VC VINYL CHLORIDE
- MEK METHYL ETHYL KETONE (ONLY WELL MW-22 WAS TESTED FOR MEK)
- (ALL RESULTS ARE REPORTED IN PARTS PER BILLION)
- (UB) DESIGNATES THIS WELL IS INSTALLED IN THE UPPER COMPETENT BEDROCK AQUIFER

DATA IS FROM APRIL 23, 2001

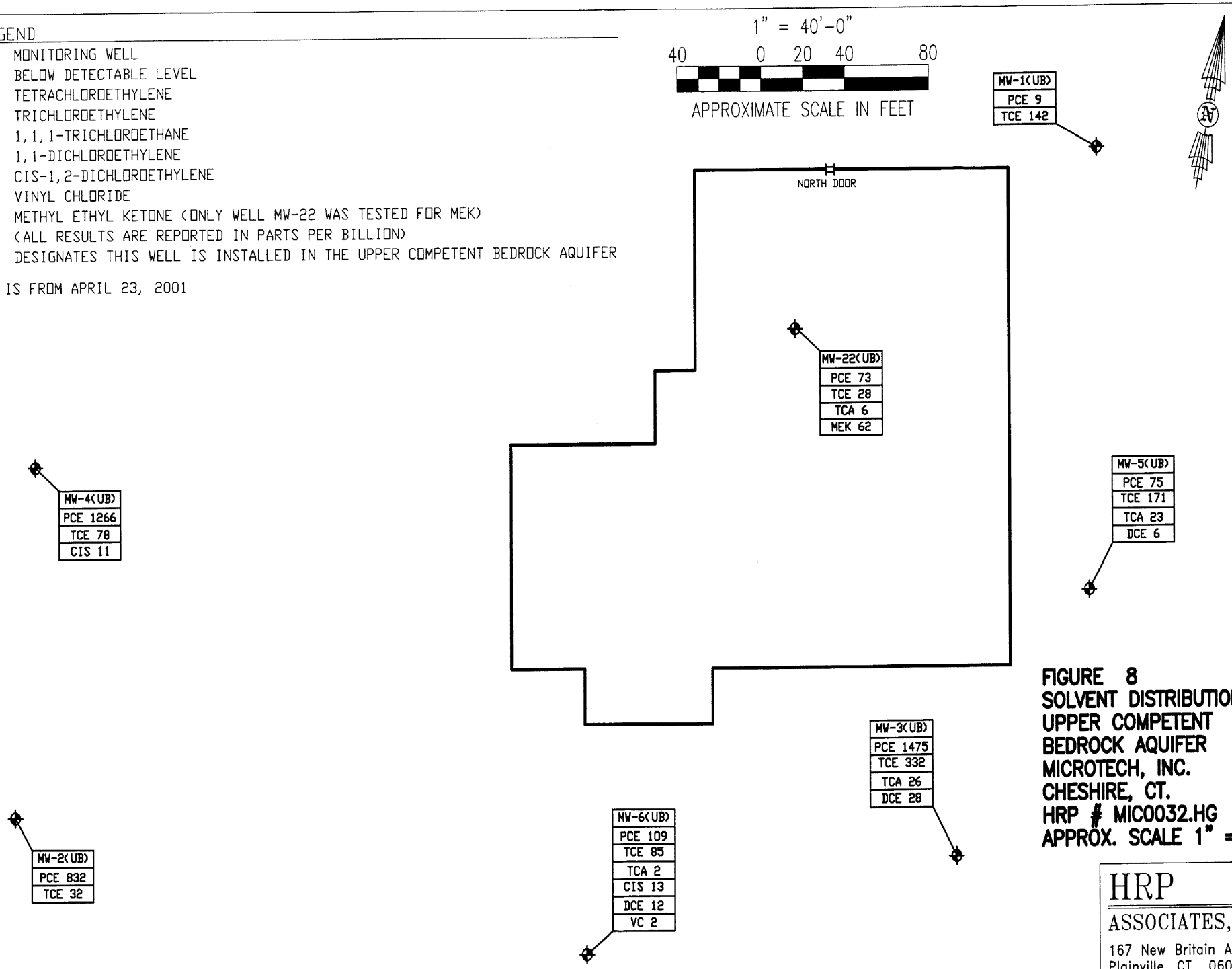


FIGURE 8
SOLVENT DISTRIBUTION IN UPPER COMPETENT BEDROCK AQUIFER
MICROTECH, INC.
CHESHIRE, CT.
HRP # MIC0032.HG
APPROX. SCALE 1" = 40'

L:\DWG\MIC0032RA\FIG7

HRP ASSOCIATES, INC.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899
FAX: (860) 793-6871