MW-19/HOT SPOT 1
OFF-SITE SUBSURFACE INVESTIGATION

L.E.CARPENTER
WARTON, NEW JERSEY

June 1999

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Final

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Section 1
Introduction

1.1 Introduction

L.E. Carpenter has been conducting subsurface investigation and remedial action activities at their facility located at 170 North Main Street in Wharton, New Jersey (Figure 1), in accordance with the New Jersey Department of Environmental Protection (NJDEP) Amended Administrative Consent Order (ACO) issued in 1986. Subsurface investigations and remedial action activities performed at the facility since that time have included the advancement of soil borings, the installation of groundwater monitoring wells, soil, sediment and groundwater sampling activities, and the installation of a free-product recovery system to facilitate the monthly mobile enhanced fluid recovery (EFR) events that began in November 1997.

In April 1994 the NJDEP issued a Record of Decision (ROD) for the L.E. Carpenter site. The ROD summarized the results of the remedial investigation (RI) and the base line risk assessment, outlined feasible remedial alternatives (FS), and presented the selected remedy (ROD Alternative No. 4 – Treatment of Groundwater with Reinfiltration and Soil Bioremediation). The ROD required the remediation of groundwater and excavation and disposal of "hot spot" soils.

Detailed breakdowns of historical subsurface and remedial action activities can be referenced in the following reports: Report of Revised Remedial Investigation Findings Volume I (GeoEngineering and Roy F. Weston, June 1990); Final Supplemental Remedial Investigation Addendum Report (Roy F. Weston, September 1992); Quarterly Progress Report (Roy F. Weston, April 1995); Second Quarter 1996 Progress Report (Roy F. Weston, August 1996); the Fourth Quarter 1997 Groundwater Monitoring Report (RMT, Inc., April 1998); and both Hot Spot 1 and MW19 Delineation Reports (RMT, Inc., June 1998).

Certain "hot spot" areas have been addressed, however, there are a number of areas on site that are still undergoing further investigation and corrective action. One of these areas is the MW-19/Hot Spot 1 area (MW19/HS1). Historically these two areas have been reported separately. For the purposes of this report, and from this point forward, these two areas will be combined and reported as one distinct site location. A site plan showing the location of the combined MW19/HS1 area is presented as Figure 2.

1.2 MW19/Hot Spot 1 Investigative Background

The MW19/HS1 area is located immediately west of Building 9 and is associated with two former 10,000-gallon underground storage tanks (USTs) which contained methyl ethyl ketone (MEK) and waste MEK and waste pigments (UST E-3 and UST E-4). In accordance with the 1986 ACO, GeoEngineering, Inc. and Roy F. Weston (Weston) conducted a site wide Remedial Investigation (RI) and separated the L.E. Carpenter site into three areas. The MW19/HS1 area was classified as Area III. Four (4) test pits (TP-63 to TP-66) were excavated around the two USTs. Soil samples were collected from immediately above the water table (between 7 feet and 9 feet bgs) and analyzed for volatile organic compounds (VOCs), base neutral organics (BNO), and priority pollutant metals. No VOCs were detected above quantification limits and residual concentrations of cadmium were detected in TP-63. However, test pit sample results did identify elevated concentrations of bis (2-ethylhexyl) phthalate (DEHP). Subsequently, DEHP was identified as the MW19/HS1 area contaminant of concern. The Area III soils investigation drawing and corresponding test pit sample results are presented as Appendix A.

USTs E-3 and E-4 and visually impacted soil surrounding the USTs were removed from the site in 1991. A detailed account of site UST removal activities is presented in the Final Technical Report for Tank Removal Operations (Roy F. Weston, September 1991). In 1991, after tank removal activities had been completed, Weston installed groundwater monitoring well MW-19 in the area immediately adjacent to the excavation to determine whether groundwater had been impacted by previous operations conducted at the facility. The results of the groundwater sampling activities conducted at that time did not identify the presence of VOCs at concentrations above the method detection limits with the exception of 2-Butanone (MEK). Copies of the 1991 MW-19 boring log, monitoring well certification and corresponding volatile organic groundwater sampling results are presented as Appendix B.

In November 1994, Weston began the excavation of DEHP impacted soils in the MW19/HS1 area. The final size of the excavation was approximately 70 feet long, ranged from 16 to 33 feet in width, and had an average depth of 9 feet below grade. Analytical results for DEHP from the sidewall samples ranged from 0.24 mg/kg to 140 mg/kg. Approximately 190 cubic yards of soil were removed from the excavation (Appendix C). Quarterly groundwater sampling events conducted at MW-19 by Weston during first and second quarter 1995 (see Appendix D) identified the presence of benzene, toluene, ethylbenzene, and xylene (BTEX), in addition to MEK, at concentrations exceeding the NJDEP Groundwater Quality Standards (NJGWQS) stipulated in the ROD. In October 1996, Weston submitted a delineation plan to the NJDEP to further define the extent of VOC impact to groundwater and further delineate both VOC and DEHP impact to saturated and non-saturated soils in the MW19/HS1 area. Temporary monitoring wells were installed and sampled and soil samples were collected an analyzed.

Drawings depicting the location of the nine temporary 2-inch diameter PVC wells (BW-1 through BW-9) and the locations of corresponding soil samples are presented as Appendix E. The results of chemical analyses performed on the groundwater samples collected from the temporary monitoring wells identified the presence of VOCs at concentrations similar to those identified in monitoring well MW-19 in 1995. Additionally, the soil samples collected at both B3 and B2A indicated DEHP concentrations of 790 mg/kg and 220 mg/kg respectively, exceeding the Impact to Groundwater Soil Cleanup Objective of 100 mg/kg outlined in the ROD. Both the soil and groundwater analytical results from the Weston delineation event are presented as Appendix E.

RMT received approval of an additional MW19/HS1 area groundwater delineation plan in January 1998. Subsequently, in February 1998, RMT conducted a subsurface investigation that included the installation and sampling of an additional five (5) groundwater monitoring wells (MW19-1 through MW-19-5). VOC concentrations exceeding the NJGWQS were identified at MW19-1 (center of the plume); MW19-2; MW19 and at MW19-5. However, when compared to the VOC concentrations found during Weston's 1996 sampling (BW-1 through BW-9), significant reductions in the concentrations of VOCs were found at monitoring wells MW19 and MW19-2. As no remedial action had been performed (other than the 1994 soils excavation), it was concluded that natural attenuation of the volatile groundwater contaminants (toluene, ethylbenzene, xylene) was likely occurring. Groundwater samples were also analyzed for the presence of DEHP. DEHP concentrations exceeding NJGWQS were found at MW19-1 (center of the plume) and at MW19-5 (downgradient well). Drawings showing the locations of the monitoring wells and corresponding BTEX and DEHP concentrations are presented as Appendix F.

The NJDEP letter dated July 15, 1998 required L.E. Carpenter to further delineate the downgradient extent of BTEX and DEHP impact to groundwater in the MW19/HS1 area and establish a clean zone for both parameters per the Technical Requirements for Site Remediation (N.J.A.C. 7:26E-4.4). RMT, on behalf of L.E. Carpenter, prepared an investigation workplan and submitted it to the NJDEP in November 1998. Per discussions and correspondence with the NJDEP (December 21, 1998), RMT was authorized to perform a groundwater screening investigation utilizing Hydropunch® or other similar methodology. Both the July 15, 1998 and December 21, 1998 NJDEP letters are presented as Appendix G.

1.3 Purpose and Scope

The purpose of this report is to address the NJDEP/USEPA concerns regarding the downgradient extent of BTEX and DEHP impact to groundwater in the vicinity of the MW-19 area. The scope of work included obtaining groundwater samples from five off-site locations utilizing Hydropunch® groundwater sampling techniques to establish downgradient clean

zones for both BTEX and DEHP per the Technical Requirements for Site Remediation. The scope of work conducted by RMT included the following tasks:

- Obtain five (5) Road Opening Requests from the Borough of Wharton to permit the off-site advancement of the Hydropunch® apparatus.
- Sample each location and perform chemical analysis of groundwater samples collected from the new Hydropunch® wells for BTEX and DEHP.
- Restore the off-site areas back to their original condition.

Section 2
Hydropunch® Installation and Groundwater Sampling

The Hydropunch® is a sampling tool constructed of stainless steel and Teflon and is used to collect groundwater samples. The Hydropunch® tool collects groundwater through the effect of hydrostatic head. The apparatus is advanced to a depth at least five feet below the top of the water table using a hammer. Once the tool has been advanced to the required depth it is pulled back approximately 2 feet to allow the sample camber to fill. Once the sample chamber is full, the apparatus is pulled to the surface. This retrieval action increases the hydrostatic head within the tool, allowing the two check valves to close and protect the groundwater sample during retrieval.

2.1 Road Opening Permits and Utilities

RMT submitted an application package to the Borough of Wharton on March 22, 1999 and requested approval for the installation of the Hydropunch® apparatus. The Borough provided written approval for the off-site investigation on April 7, 1999 (Permit No. OP-99-4). Copies of both the permit application and permit are presented as Appendix H. All off-site utilities were located on April 16, 1999 (NJ One Call Dig # 991-050168).

2.2 Hydropunch® Installation Activities

Hydropunch® sampling activities were performed on April 21, 1999. All Hydropunch® installations were performed by Active Environmental Technologies, Mount Holly, New Jersey (subcontractor).

The subcontractor encountered significant difficulties advancing the Hydropunch® tool in the permitted off-site sample locations. As noted in Section 3.1 of RMT's Hot Spot 1 Delineation report dated June 1998, the stratigraphy in the vicinity of the MW19/HS1 area primarily consists of fine to coarse grained sand and gravel with some silt, cobbles and boulders. Similar glacial deposits (cobbles and boulders) ranging in size from 1-inch to 1-foot at depths ranging from 6-14 feet below ground surface (bgs) were encountered during Hydropunch® installation activities. A generalized subsurface profile provided by the subcontractor of the Township right-of-way is presented as Appendix I. A total of 24 off-site advancement attempts were made, four (4) of which, penetrated the water table (11 to 13 feet bgs). The four Hydropunch® sample locations (HP-1 through HP-4) are shown on Figure 3. Additionally, Figure 3 shows

those locations where Hydropunch® refusal occurred and the number of attempts made at each location. As a result of persistent refusal, the four Hydropunch® locations shown in Figure 3 vary slightly from the five locations initially presented in Figure 1 of the Road Opening Request (Ref: Appendix H).

Once all off-site Hydropunch® activities were complete, each location was restored to original condition and grade.

2.3 Chemical Analyses of Groundwater

Groundwater sampling activities were performed by Active Environmental Technology. Sample analysis was performed by Q.C., Inc., Southampton, Pennsylvania. Extracted groundwater samples from each of the four Hydropunch® locations were analyzed for BTEX (EPA Method 602) and DEHP (EPA Method 625). BTEX were not detected in any of the samples. DEHP was detected in samples collected from HP-2 and HP-3 but the values were estimated and DEHP was also detected in the blank (SBLK02 - 1.13 µg/L). No detections for BTEX nor DEHP were reported in excedence of NJGWQS. Analytical results are presented in Table 1. The laboratory report is presented as Appendix J.

TABLE 1
Hydropunch® Analytical Results (µg/L)

	HP-1	HP-2	HP-3	HP-4	NJQWQS (µg/L)
Benzene	ND	ND	ND	ND	1
Toluene	ND	ND	ND	ND	1000
Ethylbenzene	ND	ND	ND	ND	700
M&P Xylenes	ND	ND	ND	ND	40
O-Xylenes	ND	ND	ND	ND	40
DEHP	ND	**1.51JB**	**4.64JB**	ND	30

ND: Not Detected B: Compound detected in the blank J: Estimated value

2.4 Groundwater Elevations

Table 2 shows the static water level measurements obtained in the MW19/HS1 area during the 2nd quarter 1999 groundwater monitoring event performed on April 15.

TABLE 2

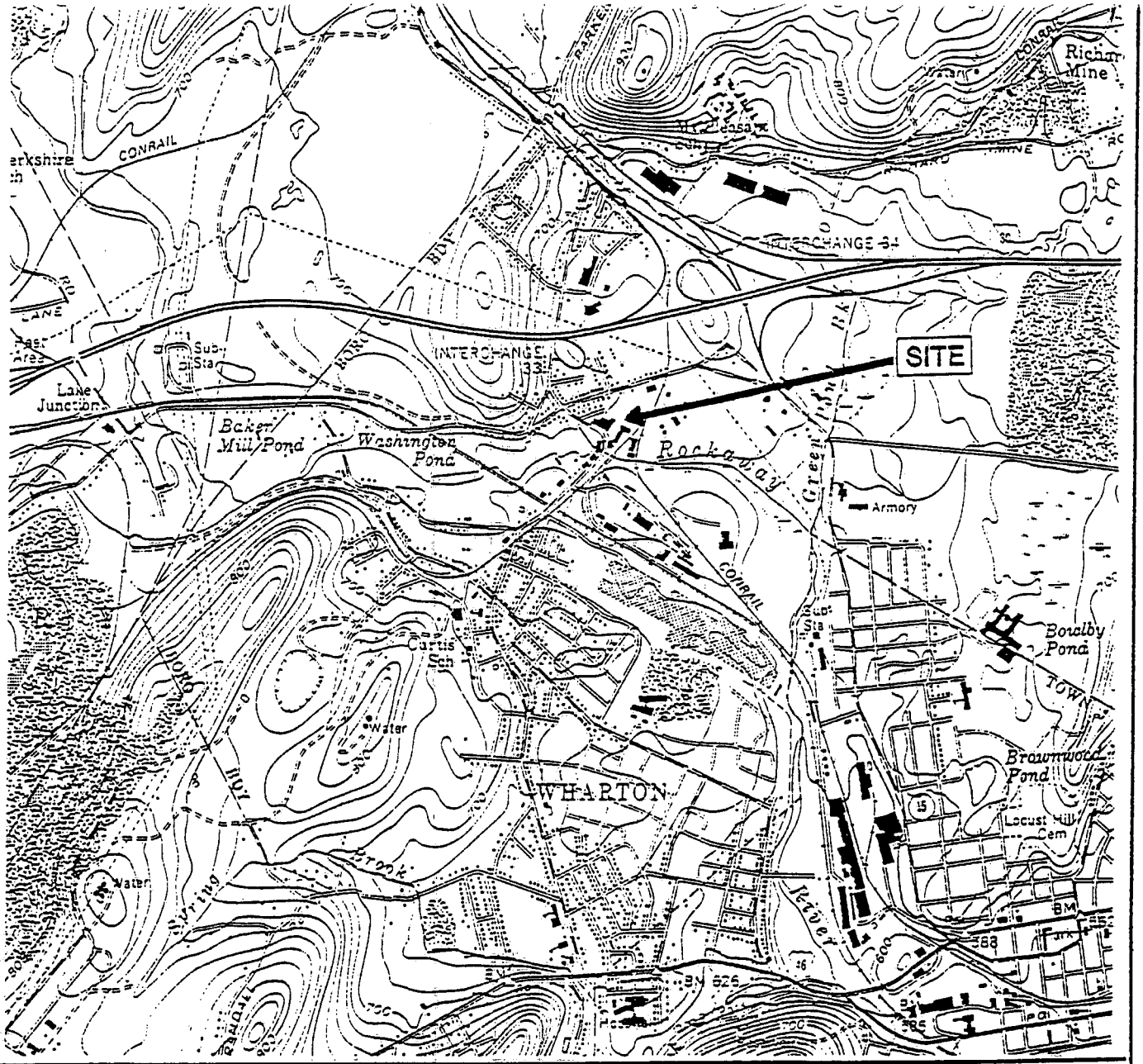
MW19/HS1 Groundwater Elevations *(April 15, 1999)*

Location	Inner Well Elevation	Depth to Groundwater	Groundwater Elevation
MW-19	638.88	11.56	627.32
MW-19-1	638.86	11.46	627.40
MW-19-2	638.76	11.44	627.32
MW-19-3	639.65	12.21	627.44
MW-19-4	637.74	10.24	627.50
MW-19-5	638.74	11.50	627.24

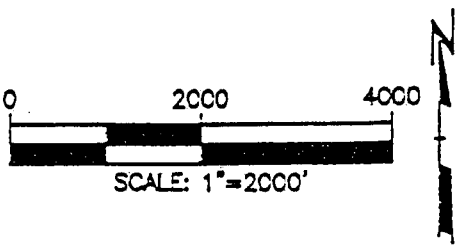
The groundwater flow direction observed in April 1999 is to the northeast, consistent with previous flow direction observed in this area. The hydraulic gradient observed in April 1999 was approximately 0.003 ft/ft.

Section 3
Conclusions

Analytical results obtained from groundwater samples HP-1 through HP-4 did not reveal concentrations of either BTEX or DEHP above NJQWQS. The most recent round of static groundwater level measurements (Table 2) taken at the MW19/HS1 area in April 1999, indicated a northeasterly groundwater flow direction, consistent with previous observations, and a hydraulic gradient of approximately 0.003 ft/ft. Based on the results of the Hydropunch® sampling, historical on-site groundwater sampling, and the observed groundwater flow direction, there is no evidence suggesting that off-site migration of BTEX and DEHP is occurring.



QUADRANGLE LOCATION



SITE LOCATOR MAP

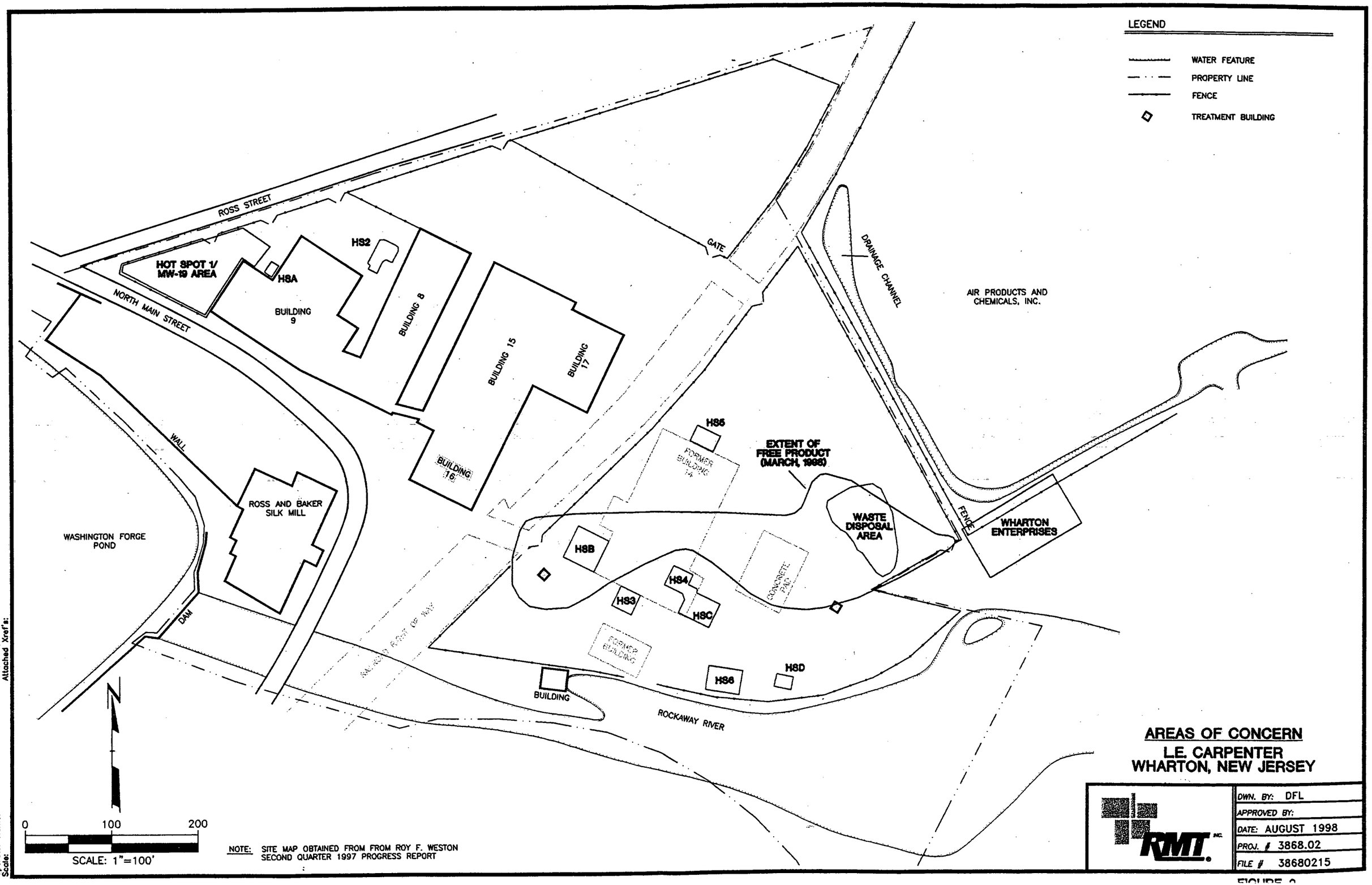
LE CARPENTER
WHARTON, NEW JERSEY

SOURCE: BASE MAP FROM DOVER, NEW JERSEY, 7.5 MINUTE USGS QUADRANGLE, DATED 1981.

RMT INC.

DWN. BY:	DFL
APPROVED BY:	
DATE:	APRIL 1998
PROJ.#	3868.02
FILE #	38680208

FIGURE 1



NOTE: SITE MAP OBTAINED FROM FROM ROY F. WESTON
SECOND QUARTER 1997 PROGRESS REPORT

AREAS OF CONCERN

L.E. CARPENTER
WHARTON, NEW JERSEY

RMT INC.

DWN. BY:	DFL
APPROVED BY:	
DATE:	AUGUST 1998
PROJ. #	3868.02
FILE #	38680215

FIGURE 2

PLOT DATA
Drawing Name:
Operator Name:
Scale:
Dwg Size:
Plot Date:
Plot Time:
Attached Xref's:

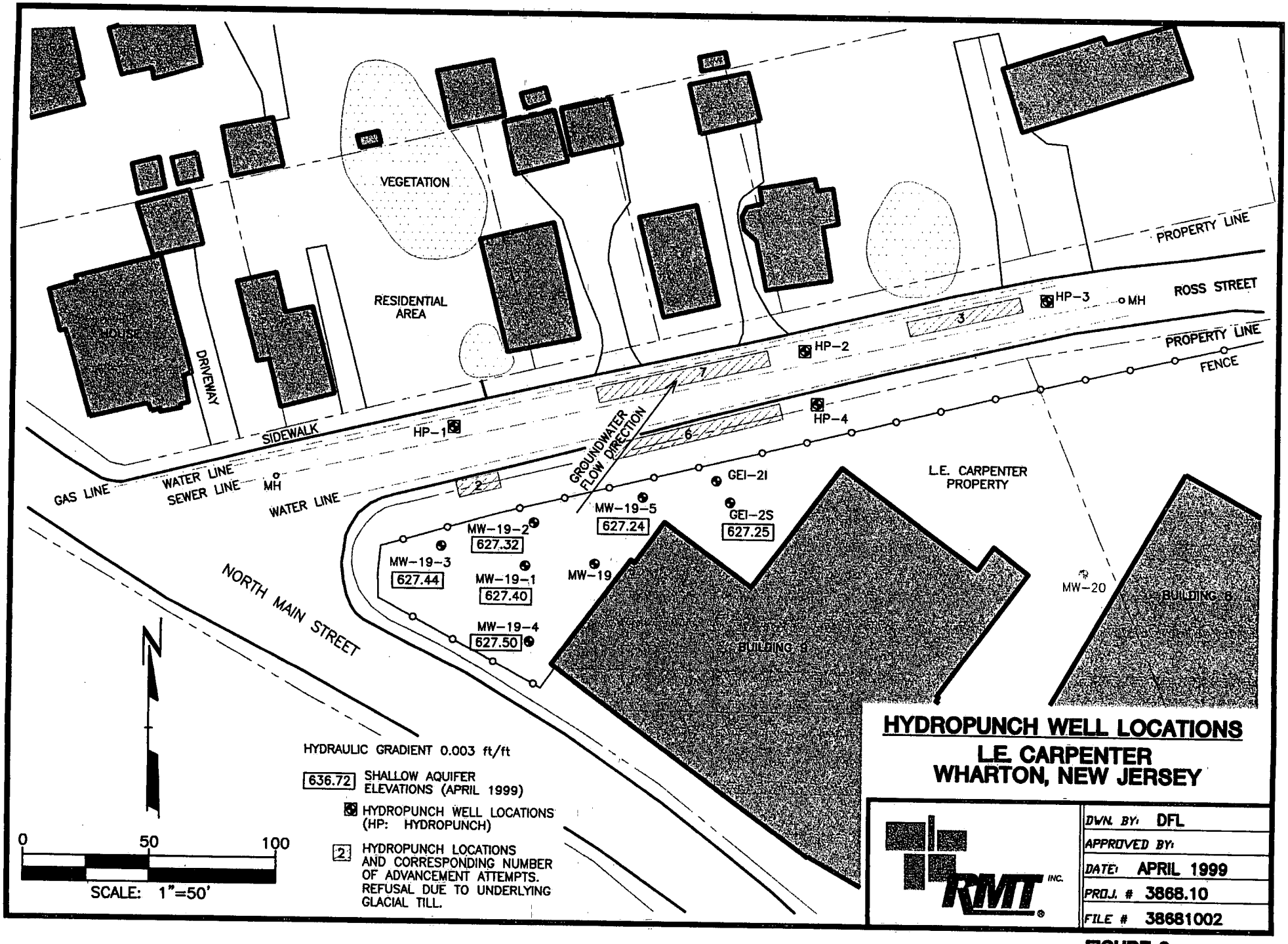

VEGETATION
RESIDENTIAL AREA
HOUSE
DRIVEWAY
SIDEWALK
PROPERTY LINE
ROSS STREET
PROPERTY LINE
FENCE
HP-1
HP-2
HP-3
HP-4
MH
GAS LINE
WATER LINE
SEWER LINE
MH
WATER LINE
GROUNDWATER FLOW DIRECTION
7
6
3
2
GEI-2I
GEI-2S
627.25
MW-19-5
627.24
MW-19-2
627.32
MW-19-3
627.44
MW-19-1
627.40
MW-19
MW-19-4
627.50
MW-20
L.E. CARPENTER PROPERTY
BUILDING 9
BUILDING 6
NORTH MAIN STREET
N
HYDRAULIC GRADIENT 0.003 ft/ft
636.72 SHALLOW AQUIFER ELEVATIONS (APRIL 1999)
HYDROPUNCH WELL LOCATIONS (HP: HYDROPUNCH)
2 HYDROPUNCH LOCATIONS AND CORRESPONDING NUMBER OF ADVANCEMENT ATTEMPTS. REFUSAL DUE TO UNDERLYING GLACIAL TILL.
0
50
100
SCALE: 1"=50'
HYDROPUNCH WELL LOCATIONS
L.E. CARPENTER
WHARTON, NEW JERSEY
RMT INC.
DWN. BY: DFL
APPROVED BY:
DATE: APRIL 1999
PROJ. # 3868.10
FILE # 38681002

FIGURE 3

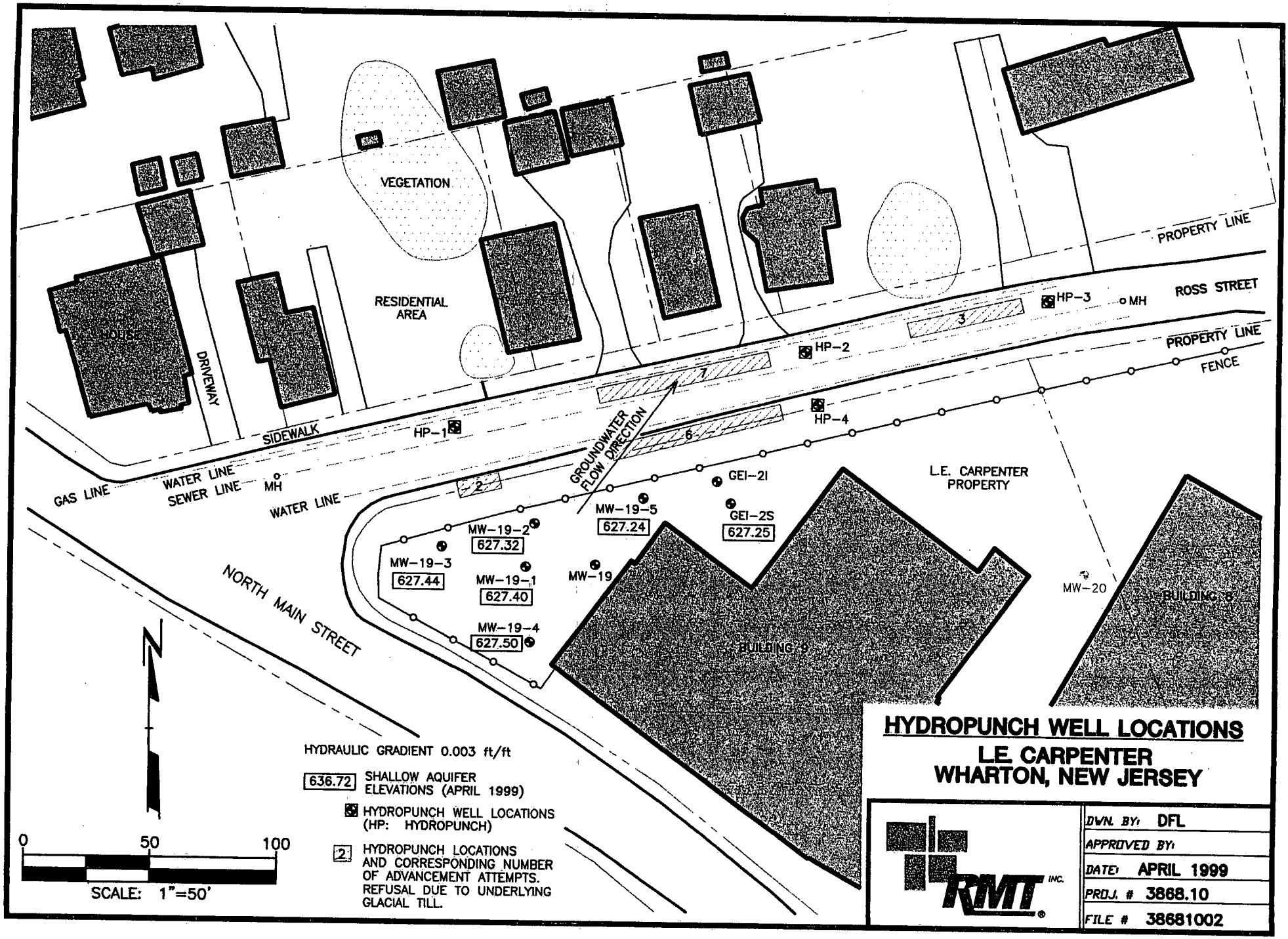

VEGETATION
RESIDENTIAL AREA
PROPERTY LINE
ROSS STREET
HP-3
MH
HP-2
PROPERTY LINE
FENCE
HP-4
DRIVEWAY
SIDEWALK
HP-1
GROUNDWATER FLOW DIRECTION
GAS LINE
WATER LINE
SEWER LINE
MH
WATER LINE
GEI-2I
L.E. CARPENTER PROPERTY
MW-19-5
627.24
GEI-2S
627.25
MW-19-2
627.32
MW-19-3
627.44
MW-19-1
627.40
MW-19
MW-19-4
627.50
MW-20
BUILDING 8
BUILDING 5
NORTH MAIN STREET
N
HYDRAULIC GRADIENT 0.003 ft/ft
636.72 SHALLOW AQUIFER ELEVATIONS (APRIL 1999)
HYDROPUNCH WELL LOCATIONS (HP: HYDROPUNCH)
2 HYDROPUNCH LOCATIONS AND CORRESPONDING NUMBER OF ADVANCEMENT ATTEMPTS. REFUSAL DUE TO UNDERLYING GLACIAL TILL.
0 50 100
SCALE: 1"=50'
HYDROPUNCH WELL LOCATIONS
L.E. CARPENTER
WHARTON, NEW JERSEY
RMT INC.
DWN. BY: DFL
APPROVED BY:
DATE: APRIL 1999
PROJ. # 3868.10
FILE # 38681002

FIGURE 3

Appendix A
Area III Soils Investigation Drawing and Sample Results

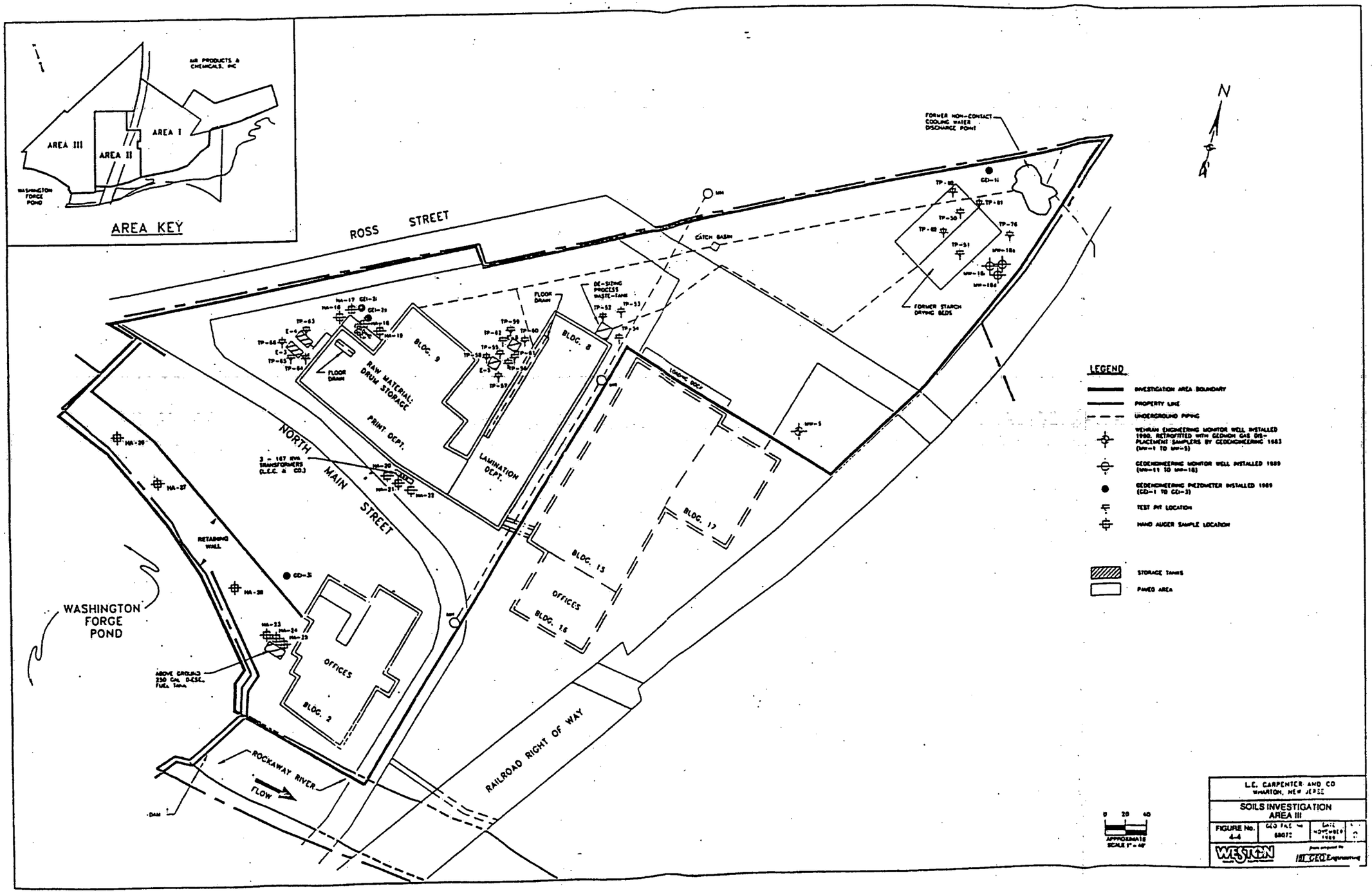

AREA KEY
AREA I
AREA II
AREA III
WASHINGTON FORGE POND
ROSS STREET
NORTH MAIN STREET
WASHINGTON FORGE POND
RAILROAD RIGHT OF WAY
ROCKAWAY RIVER
FLOW
DAM
RETAINING WALL
OFFICES
BLDG. 2
BLDG. 9
BLDG. 8
BLDG. 15
BLDG. 16
BLDG. 17
PRINT DEPT.
LAMINATION DEPT.
RAW MATERIAL DRUM STORAGE
FLOOR DRAIN
LOADING DOCK
CATCH BASIN
FORMER NON-CONTACT COOLING WATER DISCHARGE POINT
FORMER STARCH DRYING BEDS
ABOVE GROUND 250 GAL DIESEL FUEL TANK
3 - 167 KVA TRANSFORMERS (L.E.C. & CO.)
LEGEND
INVESTIGATION AREA BOUNDARY
PROPERTY LINE
UNDERGROUND PIPING
WEHRAN ENGINEERING MONITOR WELL INSTALLED 1980. RETROFITTED WITH GEOMON GAS DIS-PLACEMENT SAMPLERS BY GEOENGINEERING 1983 (MW-1 TO MW-5)
GEOENGINEERING MONITOR WELL INSTALLED 1989 (MW-11 TO MW-18)
GEOENGINEERING PIEZOMETER INSTALLED 1989 (GD-1 TO GD-3)
TEST PIT LOCATION
HAND AUGER SAMPLE LOCATION
STORAGE TANKS
PAVED AREA
APPROXIMATE SCALE 1" = 40'
L.E. CARPENTER AND CO
WHARTON, NEW JERSEY
SOILS INVESTIGATION
AREA III
FIGURE No. 4-4
WESTON
GEO Engineering

TABLE 7: SUMMARY OF VOLATILE ORGANICS ANALYTICAL TESTING - TEST PIT RESULTS
BY EPA METHOD 8240•15
L.E. CARPENTER, WHARTON, NEW JERSEY.

GeoEngineering, Inc.
November 1989

SAMPLE ID:	TP-59	TP-60	TP-61	TP-62	TP-63 ‡	TP-64 ‡	FIELD •• BLANK	FIELD •• BLANK	TRIP •• BLANK	TRIP •• BLANK
DATE SAMPLED:	4/7/89	4/7/89	4/7/89	4/7/89	4/5/89	4/5/89	4/5/89	4/7/89	4/5/89	4/7/89
SAMPLE DEPTH (feet):	4.5 - 5.0	4.5 - 5.0	4.5 - 5.0	5.5 - 6.0	7.5 - 8.0	8.5 - 9.0	--	--	--	--
PARAMETER (ug/kg)										
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	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	8	5 J	4 J	4 Jp	8	7 p	5
Acetone	25 JB	180 Jp	2800 B	ND	22 p	26 p	ND	ND	ND	ND
Carbon Disulfide	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 (total)	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
2-Butanone	ND	380 Jp	250 Jp	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Acetate	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
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	6	3 J	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	350 J	ND	ND	2 J	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ND	350 J	ND	ND	4 Jp	ND	ND	ND	ND	ND
TOTAL TARGETED VOLATILE ORGANICS •••	25	700	2800	8	13	7	ND	8	ND	5
NON-TARGETED VOLATILE ORGANICS										
3-Pentanone, 2,4-Dimethyl-	33 J	3800 J	2900 J	ND	ND	ND	ND	ND	ND	ND
Hexane, 2,3,4-Trimethyl-	34 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Decanal	32 Jp	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Benzene	ND	ND	ND	14.6 J	ND	ND	ND	ND	ND	ND
Total Other compounds	41 J	4300 J	ND	21.5 J	ND	ND	ND	ND	ND	ND
Total Unknown	ND	ND	ND	27 J	ND	ND	158.1 J	ND	116.5 J	ND
TOTAL NON-TARGETED VOLATILE ORGANICS •••	108	8100	2900	63.10	ND	ND	158.1	ND	116.5	ND

NOTES: J - Detected below reporting limit or is an estimated concentration.
p - Compound also detected in laboratory method blank.
B - Compound also detected in laboratory method blank and sample is at least 5 times greater than laboratory method blank concentration.
ND - Not detected.
•• - Analyzed by EPA Method 624 and reported in ug/l.
••• - Excludes compounds detected in laboratory method blank (p); includes compounds detected at trace concentrations (J) and (B).
‡ - Re-examined due to contamination of laboratory equipment.

TABLE 8: SUMMARY OF BASE NEUTRAL ANALYTICAL TESTING - TEST PIT RESULTS
BY EPA METHOD 8270+15
L.E. CARPENTER, WHARTON, NEW JERSEY.

GeoEngineering, Inc.
November 1989

SAMPLE ID:	TP-60	TP-61	TP-62	TP-63	TP-64	TP-65	TP-66	FIELD ** BLANK	FIELD ** BLANK
DATE SAMPLED:	4/7/89	4/7/89	4/7/89	4/5/89	4/5/89	4/5/89	4/5/89	4/5/89	4/7/89
SAMPLE DEPTH (feet):	4.5 - 5.0	4.5 - 5.0	5.5 - 6.0	7.5 - 8.0	8.5 - 9.0	8.5 - 9.0	7.5 - 8.0	--	--
PARAMETER (ug/kg)									
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitroso-di-n-propylamine	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	10000 J	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloronapthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	7000 J	ND	ND	ND	44 J	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	58 J	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	140000	30000	120 J	85000	150 J	ND	ND	ND	ND
3,3'-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	1300000 B	120000 B	11000 B	430000 B	650 p	68 Jp	ND	ND	ND
Chrysene	ND	ND	ND	ND	44 J	ND	ND	ND	ND
Di-n-octyl phthalate	25000 J	7800 J	230 J	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL TARGETED BASE NEUTRALS ***	1472000	157800	11350	525000	296	ND	ND	ND	ND
NON-TARGETED BASE NEUTRALS									
Total Benzene compounds	ND	ND	ND	13000	1810	ND	ND	ND	ND
Sulfur	27000	ND	1300	ND	ND	ND	ND	ND	ND
Total Decane compounds	24000	ND	ND	ND	ND	ND	ND	ND	ND
Total Phenol	118000	ND	340	ND	ND	ND	ND	ND	ND
Total Propanoic acid	8914000	3509000	3330	ND	ND	ND	ND	ND	ND
Total Phosphoric acid	150000	35000	810	ND	ND	ND	ND	ND	ND
Total Hexanoic acid	ND	23000	ND	ND	ND	ND	ND	ND	ND
Total Phthalate compounds	30000	ND	ND	ND	ND	ND	ND	ND	ND
Total Alkane compounds	ND	ND	ND	ND	ND	230	150	ND	ND
Total Aldehyde compounds	ND	ND	ND	ND	270	ND	190	ND	ND
Total Other compounds	68000	43000	ND	ND	ND	ND	ND	ND	ND
Total Unknown compounds	24000	179000	330	ND	1130	260	3500 B	ND	ND
TOTAL NON-TARGETED BASE NEUTRALS	9355000	3789000	6110	13000	3210	490	3840	ND	ND

NOTES: J - Detected below reporting limit or is an estimated concentration.
p - Compound also detected in laboratory method blank.
B - Compound also detected in laboratory method blank and sample concentration is at least 5 times the laboratory method blank concentration.
ND - Not detected.
** - Analyzed by EPA Method 625 reported in ug/l.
*** - Excludes compounds detected in laboratory method blank (p); includes compounds detected at trace concentrations (J) and (B).

TABLE 7: SUMMARY OF VOLATILE ORGANICS ANALYTICAL TESTING - TEST PIT RESULTS
BY EPA METHOD 8240*15
L.E. CARPENTER, WHARTON, NEW JERSEY.

GeoEngineering, Inc.
November 1989

SAMPLE ID:	TP-65 §	TP-66 §	TP-67 §	TP-68	TP-69	TP-70	FIELD ** BLANK	FIELD ** BLANK	TRIP ** BLANK	TRIP ** BLANK
DATE SAMPLED:	4/5/89	4/5/89	4/5/89	4/4/89	4/4/89	4/4/89	4/4/89	4/5/89	4/4/89	4/5/89
SAMPLE DEPTH (feet):	8.5 - 9.0	7.5 - 8.0	3.0 - 3.5	7.5 - 8.0	5.5 - 6.0	7.5 - 8.0	--	--	--	--
PARAMETER (ug/kg)										
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	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	3 J	5 J	15000 J	1 J	7	2 J	13	4 Jp	15	7 p
Acetone	26 p	20 p	86000	12 p	12 Jp	6 Jp	3 Jp	ND	1 Jp	ND
Carbon Disulfide	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 (total)	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
2-Butanone	ND	1 J	95000	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Acetate	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
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	1 J	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	390000	ND	ND	ND	ND	ND	ND	ND
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ND	2 Jp	1200000	ND	ND	ND	ND	ND	1 J	ND
TOTAL TARGETED VOLATILE ORGANICS ***	3	6	1786000	1	8	2	13	ND	16	ND
NON-TARGETED VOLATILE ORGANICS										
Total Cyclooctane compounds	ND	ND	ND	19 J	ND	ND	ND	ND	ND	ND
Total Cyclopentane compounds	ND	ND	ND	12 J	ND	ND	ND	ND	ND	ND
Total Decane compounds	ND	ND	ND	12 J	ND	ND	ND	ND	ND	ND
Total Naphthalene compounds	ND	ND	ND	27 J	ND	ND	ND	ND	ND	ND
Total Cyclohexane compounds	ND	ND	ND	20 J	ND	ND	ND	ND	ND	ND
Total Unknown compounds	ND	ND	ND	ND	ND	ND	ND	158.1 J	ND	116.5 J
Total Other compounds	ND	ND	ND	91 J	ND	ND	ND	ND	ND	ND
TOTAL NON-TARGETED VOLATILE ORGANICS ***	ND	ND	ND	181.00	ND	ND	ND	158.1	ND	116.5

NOTES: J - Detected below reporting limit or is an estimated concentration.
p - Compound also detected in laboratory method blank.
B - Compound also detected in laboratory method blank and sample is at least 5 times greater than laboratory method blank concentration.
ND - Not detected.
** - Analyzed by EPA Method 624 and reported in ug/l.
*** - Excludes compounds detected in laboratory method blank (p); includes compounds detected at trace concentrations (J) and (B).
§ - Re-examined due to contamination of laboratory equipment.

TABLE 9: SUMMARY OF PRIORITY POLLUTANT METALS TESTING - TEST PIT RESULTS
L.E. CARPENTER, WHARTON, NEW JERSEY.

GeoEngineering, Inc.
November 1989

SAMPLE ID:	TP-48	TP-63	TP-64	TP-65	TP-66	TP-67	FIELD ** BLANK
DATE SAMPLED:	4/5/89	4/5/89	4/5/89	4/5/89	4/5/89	4/5/89	4/5/89
SAMPLE DEPTH (feet):	5.5 - 6.0	7.5 - 8.0	8.5 - 9.0	8.5 - 9.0	7.5 - 8.0	3.0 - 3.5	--
PARAMETER (mg/kg)							
Antimony	7.4 J	ND	ND	ND	ND	38.7	ND
Arsenic	4.2	3.3	3.6	3.3	0.91 J	3.4	ND
Beryllium	1.1 J	0.96 J	1.1 J	0.86 J	0.62 J	1.1 J	1.2 J
Cadmium	ND	98.9	ND	ND	ND	2	ND
Chromium	21.9	12.2	19.1	10.7	6.1	27.9	ND
Copper	15.2	21	18.5	21.2	10.3	44.3	6.8 J
Lead	36.4	21.6	8.7	8.6	2.6	124	ND
Mercury	ND	0.1	ND	ND	ND	1	ND
Nickel	11.9	10.4	12.2	11.4	4.6 J	14.9	ND
Selenium	ND	0.95 J	ND	ND	ND	0.81 J	ND
Silver	ND	1.1 J	1.1 J	1 J	1.2 J	1.8 J	4.3 J
Thallium	ND	ND	ND	ND	ND	ND	ND
Zinc	61.4	67.2	41.6	48.9	32.9	234	30

NOTES: J - Detected below reporting limit or is an estimated concentration.
ND - Not detected.
** - Results reported in ug/l.
*** - Includes compounds detected at trace concentrations (J).

Appendix B
MW-19 Boring Log, Monitoring Well Certification and Sample Results

MONITOR WELL INSTALLATION

Client: L. E. CARPENTER Job No: 3600-05-67 Date Drilled: 5/20/91 Well No: MW-19

Site: WHARTON, NJ Interval: 7-17 FT Top of Steel Casing:

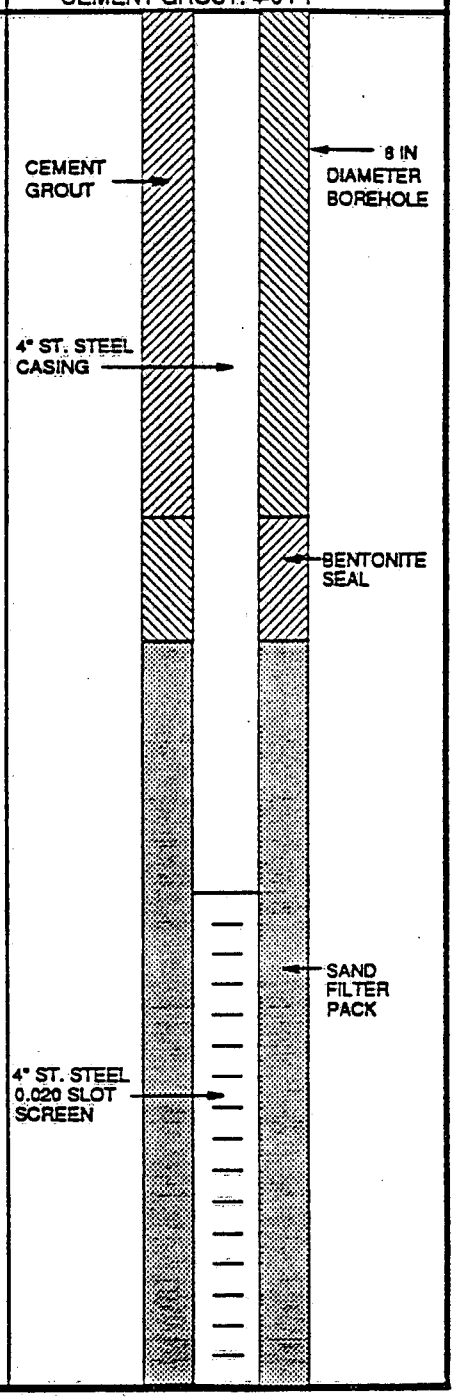
Total Depth: 17.0 FT Casing Size & Type: 4" ST. STEEL Screen Size: 0.020

Comments:

Depth	Blow Count	Sample Description
	2	25% RECOVERY. COARSE SAND FILL. LAST 2" IS BLACK SILTY SAND.
	6	
1	10	
	9	
2	13	25% RECOVERY. COARSE SAND FILL OVER SANDY CLAY WITH SMALL PEBBLES
	14	
3	19	
	27	
4	14	25% RECOVERY. YELLOW-BROWN SILTY CLAY.
	10	
5	8	
	20	
6	28	COBBLE AND BOULDER ZONE BEGINS
	58	25% RECOVERY. HNU=8G. REDDISH-BROWN CLAY (SAPROLITE) W/ COBBLE FRAGMENTS. SPOON WAS SITTING ON TOP OF COBBLE. REFUSAL ENCOUNTERED.
7	50/2	
8		
		BOULDERS - DRY HNU=8G NO RECOVERY
9		
10		WATER AT 10 FT

Completion Data

SCREEN: 17-7 FT
SAND FILTER PACK: 17-5 FT
BENTONITE SEAL: 5-4 FT
CEMENT GROUT: 4-0 FT



MONITOR WELL INSTALLATION

Client: L. E. CARPENTER Job No: 3600-05-67 Date Drilled: 5/20/91 Well No: MW-19

Site: WHARTON, NJ Interval: 7-17 FT Top of Steel Casing: _____

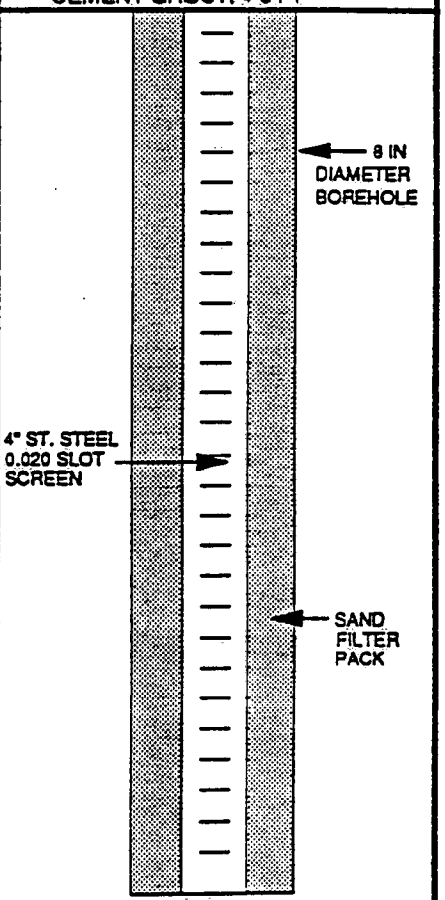
Total Depth: 17.0 FT Casing Size & Type: 4" ST. STEEL Screen Size: 0.020

Comments: _____

Depth	Blow Count	Sample Description
		HOLE ADVANCED THROUGH COBBLES TO 11 FT
11		
		75% RECOVERY. BROWN COARSE SAND WITH STRONG ODOR OF MEK. HNU=200 UNITS ON SPOON, 100 UNITS IN BREATHING ZONE. CREW UPGRADED TO LEVEL C.
12	23	
	18	
13	52	
		100% RECOVERY. LIGHT BROWN SANDY GRAVEL WITH STAINING FROM 14-15 FT. HNU=50 UNITS
	73	
14		
15		
		CUTTINGS - AS ABOVE
16		
17		TD = 17.0 FT
18		MATERIALS: 10 FT 0.020 SLOT ST. STEEL 4" SCREEN 10 FT ST. STEEL 4" CASING 1 BUCKET BENTONITE PELLETS
19		
20		

Completion Data

SCREEN: 17-7 FT
SAND FILTER PACK: 17-5 FT
BENTONITE SEAL: 5-4 FT
CEMENT GROUT: 4-0 FT



MONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION
(One form must be completed for each well)

Name of Permittee: L.E. Carpenter
Name of Facility: L.E. Carpenter
Location: Wharton, New Jersey
NJPDES Permit No.: NJ00 **or ECRA case No.:** 87561

CERTIFICATION

Well Permit Number (As assigned by NJDEP's Bureau of Water Allocation:	2 5 - 3 8 8 0 3 -
Owner's Well Number (As shown on the application or plans):	MW-19
Well Completion Date:	5-22-91
Distance from Top of Casing (cap off) to ground surface (one-hundredth of a foot):	-0-
Total Depth of Well to the nearest 1/2 foot:	17.0'
Depth to Top of Screen From Top of Casing (one-hundredth of a foot):	7.0'
Screen Length (or length of open hole) in feet:	10.0'
Screen or Slot Size:	.020
Screen or Slot Material:	Stainless Steel
Casing Material: (PVC, Steel or Other-Specify):	Stainless Steel
Casing Diameter (inches):	4"
Static Water Level From Top of Casing at the Time of Installation (one-hundredth of a foot):	9'
Yield (gallons per minute):	Less Than 3 GPM
Development Technique (specify)	Bailed
Length of Time Well is Developed/ Pumped or Bailed:	0 Hours 30 Minutes
Lithologic Log:	Attach

Authentication

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Donald J. Grahamer
Name (Type or Print)

Signature

Journeyman #1213
Certification or License No.

Seal

Certification by Executive Officer or Duly Authorized Representative

Robert Kreilick
Name (Type or Print)

Signature

Vice President of Operations
Title

June 9, 1992
Date

THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS/HER AGENT

GROUND WATER MONITORING WELL CERTIFICATION-FORM B-LOCATION CERTIFICATIO

Name of Permittee:
Name of Facility:
Location:
NJPDES Number:

LAND SURVEYOR'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing. 2 5 6 3 5 5 0 3

Longitude (one-tenth of a second): West 74°34'43.7"
Latitude (one-tenth of a second): North 40°54'17.1"
Elevation of Top of Casing (cap off) (one-hundredth of a foot): INNER WELL 638.88
Owners Well Number (As shown on application or plans): MW-19

AUTHENTICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

KEITH W. CONDIT
PROFESSIONAL LAND SURVEYOR'S NAME
(Please print or type)

SEAL

12808
PROFESSIONAL LAND SURVEYOR'S LICENSE #

The Department reserves the right in cases of violation of permit specified ground water limits or Ground Water Quality Standards (N.J.A.C. 7:9-6.1 et seq.) to require that wells be resurveyed to an accuracy of one-hundredth of a second latitude and longitude. This shall not be considered to be a major modification of the NJPDES permit.

TABLE 1
VOLITILE ORGANICS RESULTS
GROUNDWATER SAMPLING
ROUNDS 1,2,3, AND 4 (ug/L)

	MW-19		MW-20		MW-21		MW-22		MW-23		MW-24		MW-25	
	3	MEAN	3	MEAN	3	MEAN	4	MEAN	4	MEAN	4	MEAN	4	MEAN
	7/3/91		7/3/91		7/3/91		2/19/92		2/19/92		2/19/92		2/19/92	
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	30	30	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	2J	2J	35	35	ND	ND
1,2-Dichloroethene (total)	ND	ND	ND	ND	ND	ND	ND	ND	3J	3J	36	36	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	3200	3200	ND	ND	ND	ND	ND	ND
Heptane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	160B	160B	8B	8B	56B	56B	7B	7B
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	450	450	ND	ND
Toluene	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	730	730	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	28	28	ND	ND
Xylenes (total)	ND	ND	10	10	ND	ND	18000	18000	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2 Trichloro-1,1,2-triflouroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MEK ✓	6800								1J					
ACETONE			83											

J - ESTIMATED VALUE

ND - NOT DETECTED

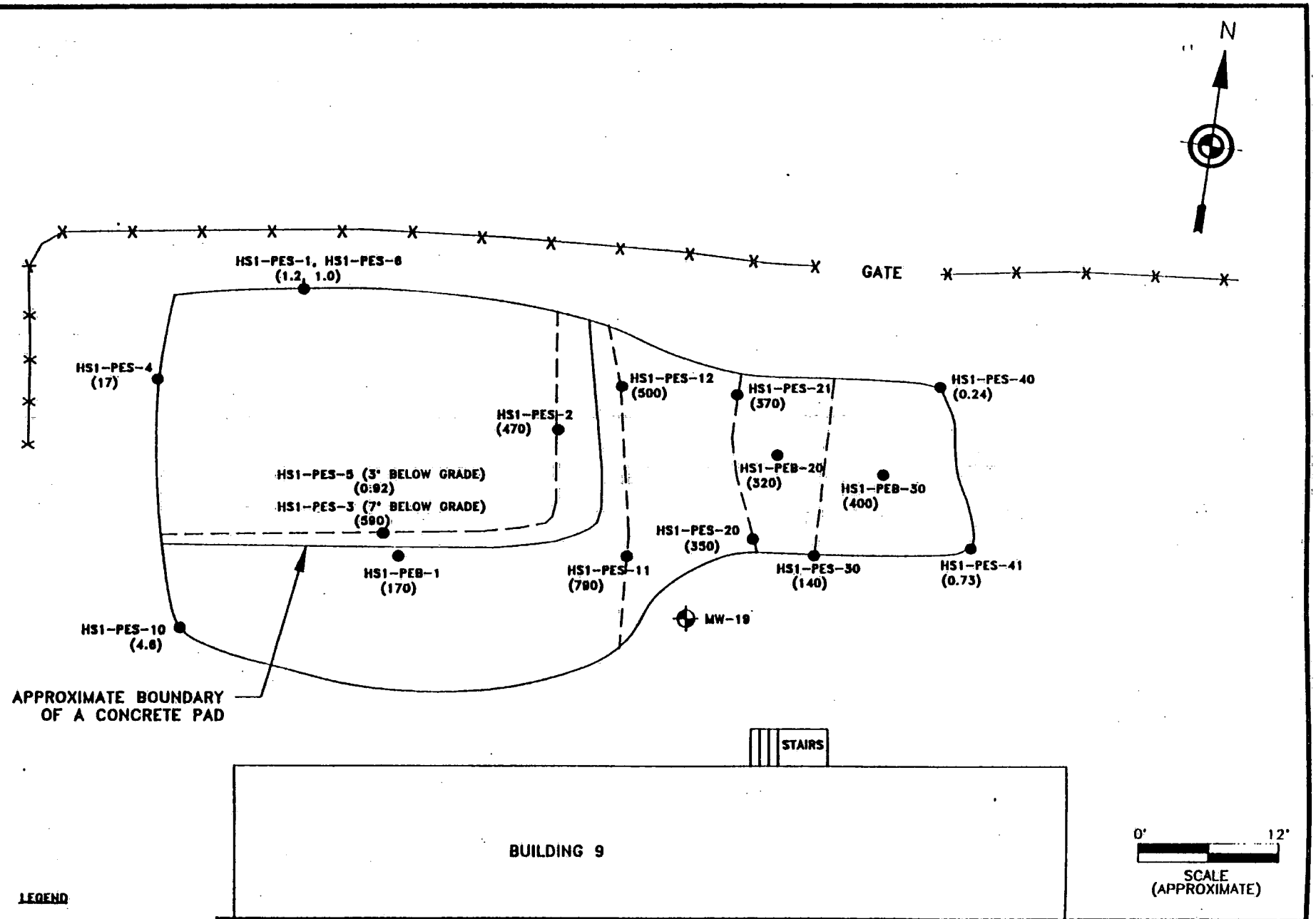
NA - NOT ANALYZED

B - DETECTED IN BLANK

NOTE - ONLY THE ROUNDS SAMPLED ARE SHOWN ON THIS TABLE

MEAN = ARITHMETIC MEAN

Appendix C
Hot Spot 1 Limit of Excavation



LEGEND

- MONITORING WELL
- POST EXCAVATION SAMPLING LOCATION
- (4.6) CONCENTRATION (MG/KG) DEHP

WESTON
MANAGERS DESIGNERS/CONSULTANTS

PROJECT NAME:
PHASE I
REMEDIAL ACTION
WHARTON, NEW JERSEY

CLIENT NAME:
L.E. CARPENTER AND COMPANY

LIMIT OF EXCAVATION
HOT SPOT 1

DATE: 4/7/95

FIGURE #: 2-5

JOB/DIVISION #: 1 DATE: 4/7/95
FILE NAME: HOT-SPOT.DWG DRAWN BY: B. MAC

Appendix D
MW-19 1st and 2nd Quarter 1995 Sample Results

TABLE 4-1
VOLATILE ORGANIC COMPOUND LABORATORY ANALYTICAL RESULTS
GROUNDWATER SUMMARY TABLE
L.E. CARPENTER
WHARTON, NEW JERSEY

ample ID	NJDEP Class IIA Groundwater Criteria (ug/l)	MW-19	FB_2-23	TB_2-23	MW-16S	MW-16I	MW-8	MW-9	Field_Blank	Trip_Blank
ab Sample Number		20831	20787	20788	20910	20911	20912	20913	20919	20920
ampling Date		02/24/95	02/24/95	02/23/95	02/27/95	02/27/95	02/27/95	02/27/95	02/27/95	02/27/95
lution Factor		2000.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
its		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
RAMETER:										
LATILE COMPOUNDS										
Chloromethane	15 (1)	1300 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Bromomethane	10	1800 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
VinylChloride	5	1400 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Chloroethane	NA	1500 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
MethyleneChloride	2	1900 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
Trichlorofluoromethane	NA	560 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,1-Dichloroethene	2	780 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1-Dichloroethane	35 (1)	320 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
trans-1,2-Dichloroethene	50 (1)	800 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
cis-1,2-Dichloroethene	5 (1)	2000 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	6	640 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,2-Dichloroethane	2	520 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,1,1-Trichloroethane	15 (1)	1500 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
CarbonTetrachloride	2	260 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Bromodichloromethane	1	500 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichloropropane	1	680 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
cis-1,3-Dichloropropene	NA	260 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Trichloroethene	1	680 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Dibromochloromethane	10	300 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1,2-Trichloroethane	3	560 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Benzene	1	660 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene	NA	1400 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
2-Chloroethylvinylether	NA	720 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Bromoform	4	460 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Tetrachloroethene	1	700 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,2-Tetrachloroethane	2	1000 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Toluene	500 (1)	110000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	2 (1)	600 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Ethylbenzene	350 (1)	1700	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Xylene(Total)	20 (1)	10000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Target Conc. VOC(s)		121700	0	0	0	0	0	0	0	0

TES:

ples analyzed by Method 624 plus xylenes.
Discharge criteria established in the ROD.
denotes microgram per liter.
ple MW-19 was also analyzed for 2-Butanone (Not Detected).
2-23 (20787) was misidentified in the field. It was prepared on 02/24/95 for that day of sampling.
2-23 (20788) was misidentified in the field. It was prepared on 02/23/95 and accompanied samples collected on 02/24/95.
ple Trip Blank was prepared on 02/27/95, and accompanied samples collect on 02/27/95.
ple Field Blank was prepared on 02/27/95 for that day of sampling.
notes not detected.
notes not applicable.
ues listed reflect the combined standards for the cis and trans isomers of 1,3-Dichloropropene.

TABLE 2-9 (continued)
VOLATILE ORGANIC COMPOUND LABORATORY ANALYTICAL RESULTS
GROUNDWATER SUMMARY TABLE
L.E. CARPENTER
WHARTON, NEW JERSEY

Sample ID Lab Sample Number Sampling Date Dilution Factor Units	NJDEP Class IIA Groundwater Criteria (ug/l)	MW-15I 25802 06/13/95 1.0 ug/l	MW-15S 25803 06/13/95 1.0 ug/l	MW-19 25871 06/14/95 100.0 ug/l	MW-20 25872 06/14/95 1.0 ug/l	MW-25 25873 06/14/95 1.0 ug/l	6-14-FB01 25874 06/14/95 1.0 ug/l	6-14-TB01 25875 06/13/95 1.0 ug/l
VOLATILE COMPOUNDS								
Chloromethane	15 (1)	NR	NR	93 U	0.9 U	NR	0.9 U	0.9 U
Bromomethane	10	NR	NR	27 U	0.3 U	NR	0.3 U	0.3 U
VinylChloride	5	NR	NR	39 U	0.4 U	NR	0.4 U	0.4 U
Chloroethane	NA	NR	NR	100 U	1.0 U	NR	1.0 U	1.0 U
MethyleneChloride	2	NR	NR	100 U	1.0 U	NR	1.0 U	1.0 U
Trichlorofluoromethane	NA	NR	NR	23 U	0.2 U	NR	0.2 U	0.2 U
1,1-Dichloroethene	2	NR	NR	56 U	0.6 U	NR	0.6 U	0.6 U
1,1-Dichloroethane	36 (1)	NR	NR	31 U	0.3 U	NR	0.3 U	0.3 U
trans-1,2-Dichloroethene	50 (1)	NR	NR	30 U	0.3 U	NR	0.3 U	0.3 U
cis-1,2-Dichloroethene	5 (1)	NR	NR	100 U	1.0 U	NR	1.0 U	1.0 U
Chloroform	6	NR	NR	100	0.2 U	NR	0.2 U	0.2 U
1,2-Dichloroethane	2	NR	NR	22 U	0.2 U	NR	0.2 U	0.2 U
1,1,1-Trichloroethane	15 (1)	NR	NR	500	0.2 U	NR	0.2 U	0.2 U
CarbonTetrachloride	2	NR	NR	16 U	0.2 U	NR	0.2 U	0.2 U
Bromodichloromethane	1	NR	NR	19 U	0.2 U	NR	0.2 U	0.2 U
1,2-Dichloropropane	1	NR	NR	46 U	0.5 U	NR	0.5 U	0.5 U
* cis-1,3-Dichloropropene	NA	NR	NR	33 U	0.3 U	NR	0.3 U	0.3 U
Trichloroethene	1	NR	NR	550	0.4 U	NR	0.4 U	0.4 U
Dibromochloromethane	10	NR	NR	23 U	0.2 U	NR	0.2 U	0.2 U
1,1,2-Trichloroethane	3	NR	NR	43 U	0.4 U	NR	0.4 U	0.4 U
Benzene	1	0.10 U	0.10 U	160	0.2 U	0.2 U	0.2 U	0.2 U
* trans-1,3-Dichloropropene	NA	NR	NR	31 U	0.3 U	NR	0.3 U	0.3 U
2-ChloroethylVinylEther	NA	NR	NR	46 U	0.5 U	NR	0.5 U	0.5 U
Bromoform	4	NR	NR	30 U	0.3 U	NR	0.3 U	0.3 U
Tetrachloroethene	1	NR	NR	38	0.1 U	NR	0.1 U	0.1 U
1,1,2,2-Tetrachloroethane	2	NR	NR	33 U	0.3 U	NR	0.3 U	0.3 U
Toluene	600 (1)	0.14 U	0.14 U	140000	0.2 U	0.2 U	0.2	0.2 U
Chlorobenzene	2 (1)	NR	NR	130	0.1 U	NR	0.1 U	0.1 U
Ethylbenzene	350 (1)	0.14 U	0.14 U	3400	0.2 U	0.2 U	0.2 U	0.2 U
Xylene(Total)	20 (1)	0.50 U	0.50 U	17000	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone	NA	NR	NR	620	5.0 U	NR	5.0 U	5.0 U
Total Confident Conc. VOAs (s)		0	0	162488	0	0	0.2	0

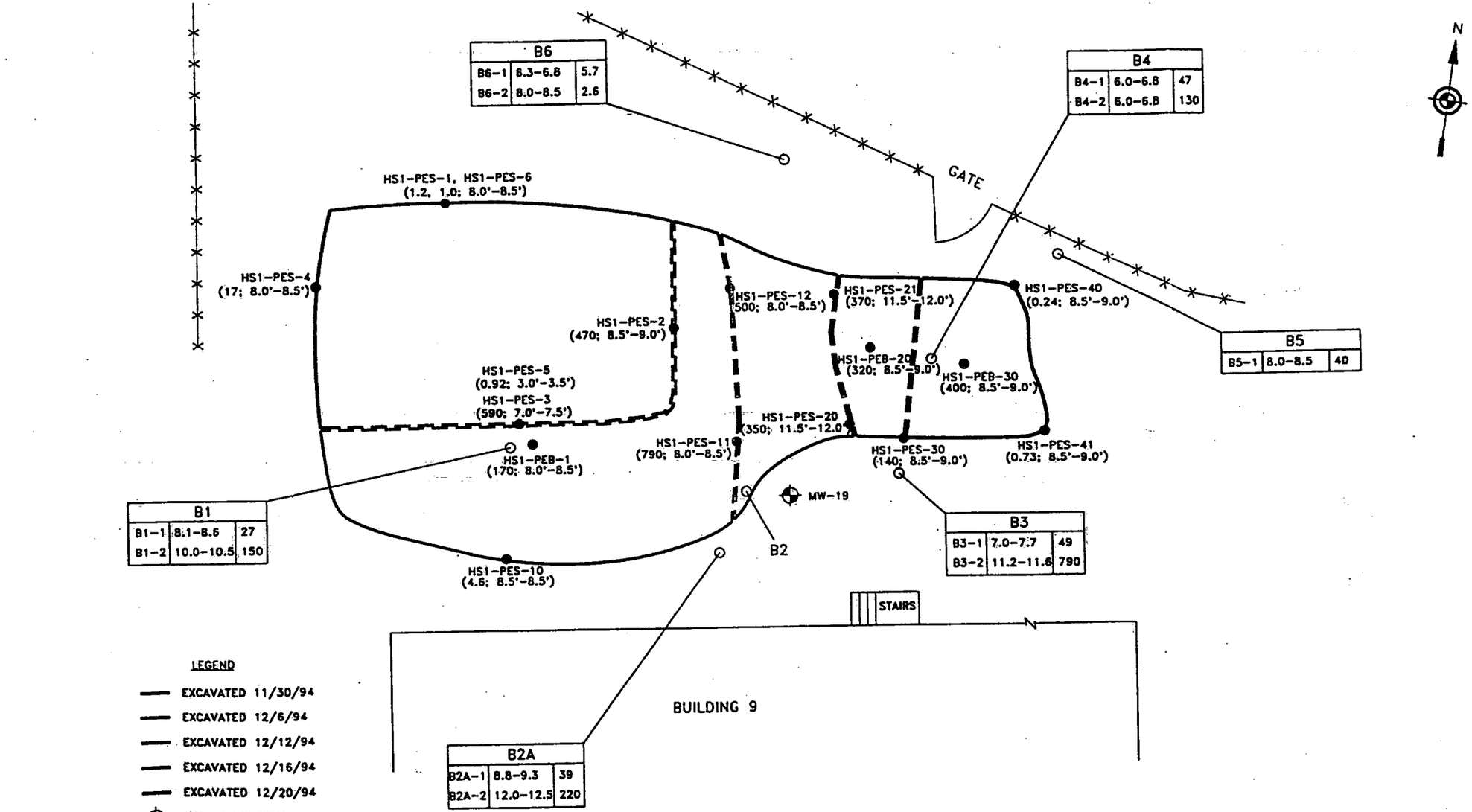
NOTES:
All samples analyzed by Method 602, except MW-19 and MW-20 which were analyzed by Method 624.
ug/l denotes microgram per liter.
U denotes not detected.
NR denotes analysis Not Run.
6-14-TB01 (25875) was prepared on 06/13/95, and accompanied samples collected on 06/14/95.
* Values listed reflect the combined standards for the cis and trans isomers of 1,3-Dichloropropene.

Appendix E
1996 Delineation Drawings and Sample Results

Table 2-6
Analytical Results Summary For Soils
DEHP (mg/kg)
L.E. Carpenter, Wharton, New Jersey
Hot Spot 1

Sample ID	Sample Date	Lab sample ID	Sample Depth	USCS Soil Type	Result	Qualifier
B1-1	05/13/96	9605L215-002	8.1 - 8.6	SW	14	E
B1-1	05/13/96	9605L215-002	8.1 - 8.6	SW	27	D
B1-2	05/13/96	9605L215-003	10.3 - 10.8	SW	64	E
B1-2	05/13/96	9605L215-003	10.3 - 10.8	SW	**150**	D
B2A-1	05/14/96	9605L233-001	8.8 - 9.3	ML/SW	27	E
B2A-1	05/14/96	9605L233-001	8.8 - 9.3	ML/SW	39	D
B2A-2	05/14/96	9605L233-002	12.0 - 12.5	SW	36	E
B2A-2	05/14/96	9605L233-002	12.0 - 12.5	SW	**220**	D
B3-1	05/14/96	9605L233-003	7.0 - 7.7	GP	25	E
B3-1	05/14/96	9605L233-003	7.0 - 7.7	GP	49	D
B3-2	05/14/96	9605L233-004	11.2 - 11.6	SP	100	E
B3-2	05/14/96	9605L233-004	11.2 - 11.6	SP	**790**	D
B4-1	05/14/96	9605L233-005	6.0 - 6.8	SW	24	E
B4-1	05/14/96	9605L233-005	6.0 - 6.8	SW	47	D
B4-2 (duplicate)	05/14/96	9605L233-006	6.0 - 6.8	SW	36	E
B4-2 (duplicate)	05/14/96	9605L233-006	6.0 - 6.8	SW	**130**	D
B5-1	05/14/96	9605L233-007	8.0 - 8.5	SP/GP	23	E
B5-1	05/14/96	9605L233-007	8.0 - 8.5	SP/GP	40	D
B6-1	05/14/96	9605L233-008	6.3 - 6.8	SW	6.8	E
B6-1	05/14/96	9605L233-008	6.3 - 6.8	SW	5.7	D
B6-2	05/14/96	9605L233-009	8.0 - 8.5	SW	2.6	
FB03S*	05/13/96	9605L215-004	NA	NA	8	J
FB-04S*	05/14/96	9605L233-010	NA	NA	18	B

Notes:
DEHP = bis(2-ethylhexyl)phthalate
E - Concentration exceeded the instrument calibration range and was subsequently diluted.
D - Compound analyzed at a dilution.
B - Compound was found in the blank and the sample.
* - Field blank sample reported in microgram per liter (ug/l).
mg/kg - milligram per kilogram.
- indicates an exceedance of the remedial goal of 100 mg/kg as specified in the ROD.
NA - Not Applicable
Sample depth presented is in feet below grade.
B4-2 is a duplicate sample of B4-1.



WESTON MANAGERS DESIGNERS/CONSULTANTS

PROJECT NAME: SECOND QUARTER 1996 PROGRESS REPORT

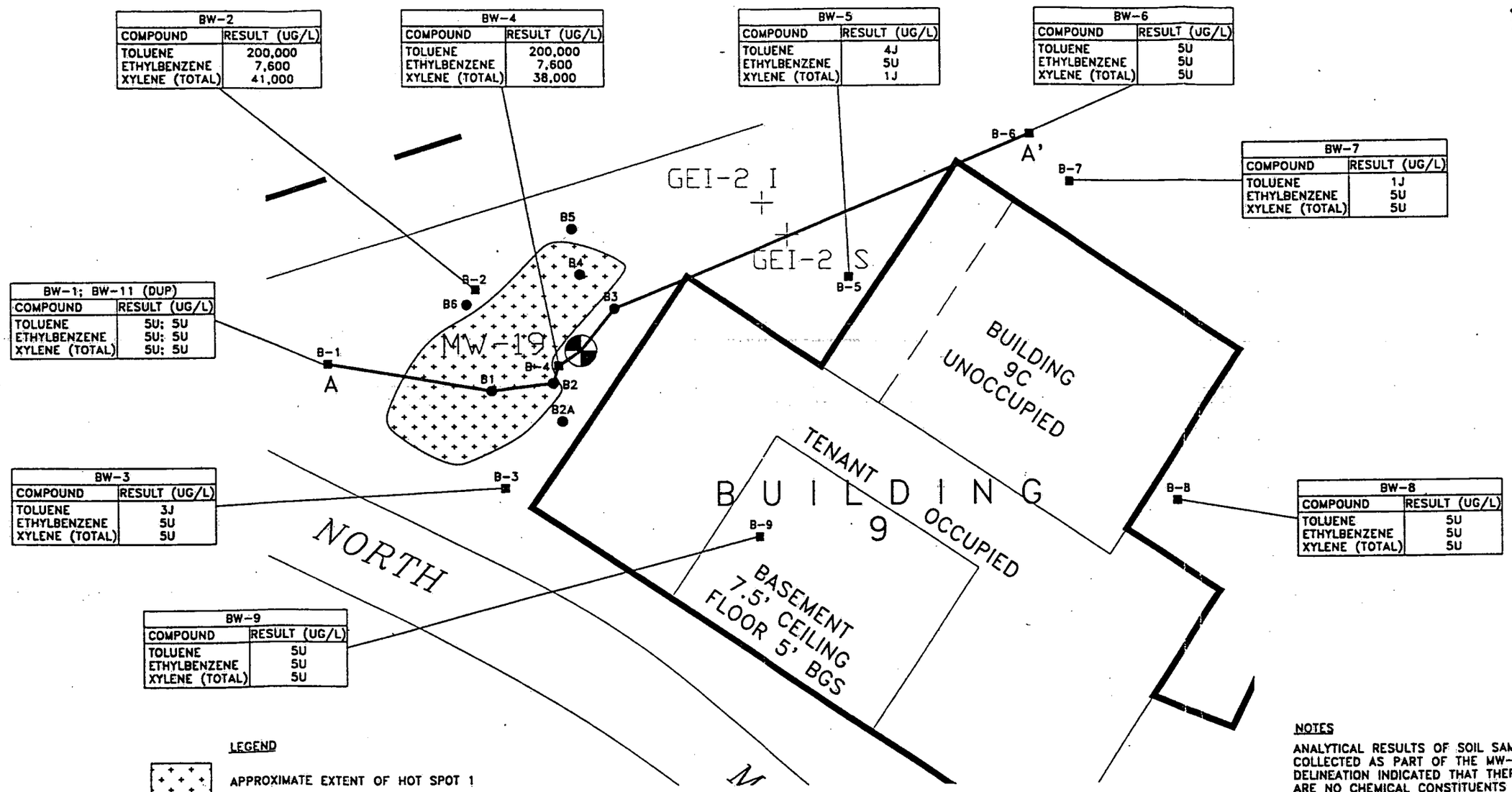
WHARTON, NEW JERSEY

CLIENT NAME: L.E. CARPENTER AND COMPANY

HOT SPOT 1 DELINEATION SAMPLING LOCATIONS AND ANALYTICAL RESULTS

DATE: JULY 1996

FIGURE #: 2-6



BW-2	
COMPOUND	RESULT (UG/L)
TOLUENE	200,000
ETHYLBENZENE	7,600
XYLENE (TOTAL)	41,000

BW-4	
COMPOUND	RESULT (UG/L)
TOLUENE	200,000
ETHYLBENZENE	7,600
XYLENE (TOTAL)	38,000

BW-5	
COMPOUND	RESULT (UG/L)
TOLUENE	4J
ETHYLBENZENE	5U
XYLENE (TOTAL)	1J

BW-6	
COMPOUND	RESULT (UG/L)
TOLUENE	5U
ETHYLBENZENE	5U
XYLENE (TOTAL)	5U

BW-7	
COMPOUND	RESULT (UG/L)
TOLUENE	1J
ETHYLBENZENE	5U
XYLENE (TOTAL)	5U

BW-1; BW-11 (DUP)	
COMPOUND	RESULT (UG/L)
TOLUENE	5U; 5U
ETHYLBENZENE	5U; 5U
XYLENE (TOTAL)	5U; 5U

BW-3	
COMPOUND	RESULT (UG/L)
TOLUENE	3J
ETHYLBENZENE	5U
XYLENE (TOTAL)	5U

BW-8	
COMPOUND	RESULT (UG/L)
TOLUENE	5U
ETHYLBENZENE	5U
XYLENE (TOTAL)	5U

BW-9	
COMPOUND	RESULT (UG/L)
TOLUENE	5U
ETHYLBENZENE	5U
XYLENE (TOTAL)	5U

LEGEND

- APPROXIMATE EXTENT OF HOT SPOT 1
- LINE OF GEOLOGIC CROSS-SECTION A-A'
- MW-19 DELINEATION SOIL BORING/ GROUNDWATER SCREENING LOCATION
- HOT SPOT 1 DELINEATION SOIL BORING BORING
- PIEZOMETER LOCATION
- MONITORING WELL LOCATION

GRAPHIC SCALE

25 0 12.5 25

1 inch = 25 ft.

NOTES

ANALYTICAL RESULTS OF SOIL SAMPLES COLLECTED AS PART OF THE MW-19 DELINEATION INDICATED THAT THERE ARE NO CHEMICAL CONSTITUENTS OF CONCERN IN THIS PORTION OF THE SITE'S SOILS.

UG/L DENOTES MICROGRAMS PER LITER.

WESTON MANAGERS DESIGNERS/CONSULTANTS

PROJECT NAME: SECOND QUARTER 1996 PROGRESS REPORT

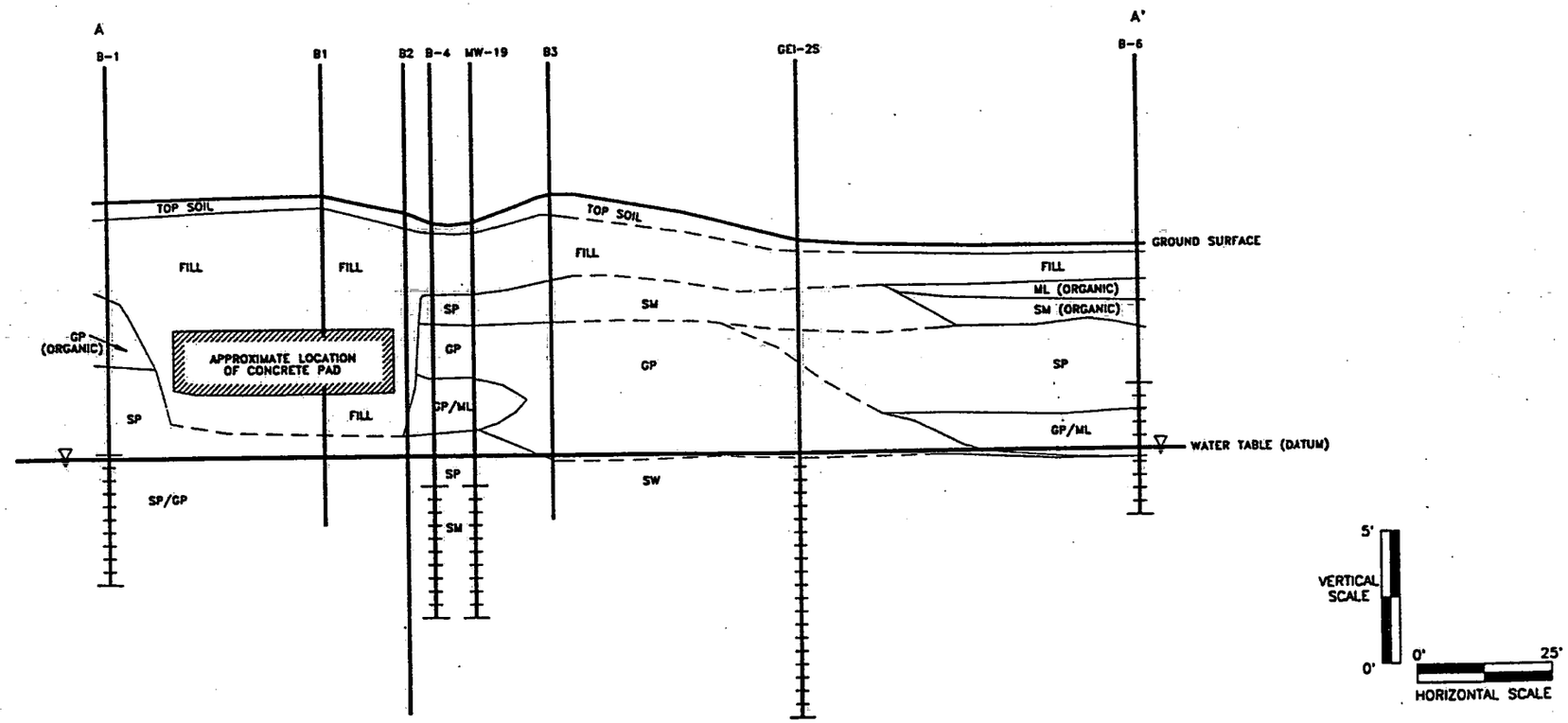
WHARTON, NEW JERSEY

CLIENT NAME: L.E. CARPENTER

MW-19 DELINEATION SAMPLING LOCATIONS AND ANALYTICAL RESULTS MAP

DATE: JULY 1996

FIGURE #: 2-7



SCALES

HORIZONTAL	1" = 25'
VERTICAL	1" = 5'
VERTICAL EXAGGERATION	5X
DATUM	WATER TABLE: MAY 1996 (BASED ON DEPTH TO WATER READINGS IN TEMPORARY WELL POINTS AND MONITORING WELL MW-19 AND GEI-2S)

LEGEND

SCREENED INTERVALS IN TEMPORARY WELL POINTS AND MONITORING WELLS

GEOLOGIC CONTACTS (DASHED WHERE INFERRED)

NOTE: STRATIGRAPHIC SEQUENCE AT MW-19 AND GEI-2S ARE BASED ON NEARBY SECOND QUARTER, 1996 SOIL BORING DATA.

WESTON MANAGERS DESIGNERS/CONSULTANTS

PROJECT NAME: SECOND QUARTER 1996 PROGRESS REPORT

WHARTON, NEW JERSEY

CLIENT NAME: L.E. CARPENTER

GEOLOGIC CROSS SECTION A-A' VICINITY OF HOT SPOT 1 AND MW-19

DATE: JULY 1996

FIGURE #: 2-8

Table 2-10
Analytical Results Summary For Soils
Volatile Organic Compounds (mg/kg)
L.E. Carpenter, Wharton, New Jersey
MW-19 Delineation

Sample ID	B-1A	B-1C	B-2A	B-2B	B-3A	B-3B	B-4A	REMEDIAL GOAL AS SPECIFIED IN EITHER THE ROD OR NJDEP CLEANUP CRITERIA
Lab Sample ID	9605L188-001	9605L188-005	9605L188-007	9605L188-006	9605L188-008	9605L188-009	9605L215-009	
Sample Date	05/10/96	05/10/96	05/10/96	05/10/96	05/10/96	05/10/96	05/13/96	
Sample Depth (feet bgs)	0.6 - 1.2	0.6 - 1.2	4.7 - 5.3	9.8 - 10.3	1.0 - 1.4	8.3 - 8.7	1.5 - 2.0	
Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	
PARAMETERS:								
Chloromethane	0.012 U	0.013 U	0.011 U	0.01 U	0.011 U	0.012 U	0.012 U	10
Vinyl chloride	0.012 U	0.013 U	0.011 U	0.01 U	0.011 U	0.012 U	0.012 U	10
Bromomethane	0.012 U	0.013 U	0.011 U	0.01 U	0.011 U	0.012 U	0.012 U	1
Chloroethane	0.012 U	0.013 U	0.011 U	0.01 U	0.011 U	0.012 U	0.012 U	NLE
1,1-Dichloroethene	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	10
Acetone	0.015	0.023	0.011 U	0.01 J	0.012	0.012 U	0.012 U	100
Carbon Disulfide	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	NLE
Methylene Chloride	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	1
1,2-Dichloroethene (total)	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	NLE
1,1-Dichloroethane	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	10
Vinyl acetate	0.012 U	0.013 U	0.011 U	0.01 U	0.011 U	0.012 U	0.012 U	NLE
2-Butanone	0.012 U	0.013 U	0.011 U	0.01 U	0.011 U	0.012 U	0.012 U	50
Chloroform	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	1
1,1,1-Trichloroethane	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	50
Carbon Tetrachloride	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	1
Benzene	0.006 U	0.006 U	0.002 J	0.005 U	0.006 U	0.006 U	0.006 U	1
1,2-Dichloroethane	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	1
Trichloroethene	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	1
1,2-Dichloropropane	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	10
Bromodichloromethane	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	1
cis-1,3-Dichloropropene (a)	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	1
4-Methyl-2-pentanone	0.012 U	0.013 U	0.011 U	0.01 U	0.011 U	0.012 U	0.012 U	50
Toluene	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.017	500*
trans-1,3-Dichloropropene (a)	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	1
1,1,2-Trichloroethane	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	1
Tetrachloroethene	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.002 J	1
2-Hexanone	0.012 U	0.013 U	0.011 U	0.01 U	0.011 U	0.012 U	0.012 U	NLE
Dibromochloromethane	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	1
Chlorobenzene	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	1
Ethylbenzene	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	100*
Styrene	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	97
Bromoform	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	1
1,1,2,2-Tetrachloroethane	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 U	1
Xylene (total)	0.006 U	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.006 J	10*
Total Target VOCs	0.015	0.023	0.002	0.01	0.012	0	0.025	
Total TICs	0	0.026	0	0	0	0	0	

Table 2-10
Analytical Results Summary For Soils
Volatile Organic Compounds (mg/kg)
L.E. Carpenter, Wharton, New Jersey
MW-19 Delineation

Sample ID	B-4B	B-5A	B-5B	B-6A	B-6B	B-7A	B-7B	REMEDIAL GOAL
Lab Sample ID	9605L215-006	9605L215-001	9605L215-014	9605L149-009	9605L149-008	9605L149-001	9605L149-002	AS SPECIFIED
Sample Date	05/13/96	05/13/96	05/13/96	05/09/96	05/09/96	05/09/96	05/09/96	IN EITHER THE
Sample Depth (feet bgs)	8.5 - 9.0	4.1 - 4.4	6.1 - 6.6	1.1 - 1.5	6.0 - 6.4	1.5 - 2.0	5.9 - 6.3	ROD OR NJDEP
Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	CLEANUP CRITERIA
PARAMETERS:								
Chloromethane	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	10
Vinyl chloride	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	10
Bromomethane	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	1
Chloroethane	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	NLE
1,1-Dichloroethene	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	10
Acetone	0.012 U	0.011 U	0.011 U	0.011 U	0.018	0.011 U	0.011	100
Carbon Disulfide	0.006 U	0.005 U	0.005 U	0.002 J	0.006 U	0.005 U	0.006 U	NLE
Methylene Chloride	0.006 U	0.005 U	0.005 U	0.013	0.006	0.005 U	0.011	1
1,2-Dichloroethene (total)	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	NLE
1,1-Dichloroethane	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	10
Vinyl acetate	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	NLE
2-Butanone	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	50
Chloroform	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	1
1,1,1-Trichloroethane	0.006 U	0.005 U	0.005 U	0.004 J	0.006 U	0.005 U	0.006 U	50
Carbon Tetrachloride	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	1
Benzene	0.006 U	0.005 U	0.005 U	0.003 J	0.006 U	0.005 U	0.006 U	1
1,2-Dichloroethane	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	1
Trichloroethene	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	1
1,2-Dichloropropane	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	10
Bromodichloromethane	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	1
cis-1,3-Dichloropropene	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	1
4-Methyl-2-pentanone	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	50
Toluene	0.006 U	0.005 U	0.005 U	0.006 U	0.002 J	0.005 U	0.01	500*
trans-1,3-Dichloropropene	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	1
1,1,2-Trichloroethane	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	1
Tetrachloroethene	0.003 J	0.005 U	0.005 U	0.002 J	0.006 U	0.005 U	0.006 U	1
2-Hexanone	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	NLE
Dibromochloromethane	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	1
Chlorobenzene	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	1
Ethylbenzene	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	100*
Styrene	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	97
Bromoform	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	1
1,1,2,2-Tetrachloroethane	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	1
Xylene (total)	0.006 U	0.005 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	10*
Total Target VOCs	0.003	0	0	0.024	0.026	0	0.032	
Total TICs	0	0	0	0	0	0	0	

Table Z-10
Analytical Results Summary For Soils
Volatile Organic Compounds (mg/kg)
L.E. Carpenter, Wharton, New Jersey
MW-19 Delineation

Sample ID	B-8A	B-8B	B-9A	FB-01S	FB-02S	FB-03S	REMEDIAL GOAL
Lab Sample ID	9605L149-003	9605L149-004	9605L215-005	9605L149-006	9605L188-003	9605L215-012	AS SPECIFIED
Sample Date	05/09/96	05/09/96	05/13/96	05/09/96	05/10/96	05/13/96	IN EITHER THE
Sample Depth (feet bgs)	1.0 - 1.5	2.3 - 2.7	1.2 - 1.7	NA	NA	NA	ROD OR NJDEP
Units	MG/KG	MG/KG	MG/KG	MG/L	MG/L	MG/L	CLEANUP CRITERIA
PARAMETERS:				0			
Chloromethane	0.011 U	0.012 U	0.014 U	0.005 U	0.005 U	0.005 U	10
Vinyl chloride	0.011 U	0.012 U	0.014 U	0.005 U	0.005 U	0.005 U	10
Bromomethane	0.011 U	0.012 U	0.014 U	0.005 U	0.005 U	0.005 U	1
Chloroethane	0.011 U	0.012 U	0.014 U	0.005 U	0.005 U	0.005 U	NLE
1,1-Dichloroethene	0.006 U	0.006 U	0.007 U	0.002 U	0.002 U	0.002 U	10
Acetone	0.015	0.012 U	0.014 U	0.005 U	0.005 U	0.005 U	100
Carbon Disulfide	0.006 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	NLE
Methylene Chloride	0.009	0.011	0.007 U	0.002 U	0.002 U	0.003	1
1,2-Dichloroethene (total)	0.006 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	NLE
1,1-Dichloroethane	0.006 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	10
Vinyl acetate	0.011 U	0.012 U	0.014 U	NA	NA	NA	NLE
2-Butanone	0.011 U	0.012 U	0.014 U	0.005 U	0.005 U	0.005 U	50
Chloroform	0.006 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	1
1,1,1-Trichloroethane	0.006 U	0.003 J	0.007 U	0.005 U	0.005 U	0.005 U	50
Carbon Tetrachloride	0.006 U	0.006 U	0.007 U	0.002 U	0.002 U	0.002 U	1
Benzene	0.006 U	0.006 U	0.007 U	0.001 U	0.001 U	0.001 U	1
1,2-Dichloroethane	0.006 U	0.006 U	0.007 U	0.002 U	0.002 U	0.002 U	1
Trichloroethene	0.006 U	0.006 U	0.007 U	0.001 U	0.001 U	0.001 U	1
1,2-Dichloropropane	0.006 U	0.006 U	0.007 U	0.001 U	0.001 U	0.001 U	10
Bromodichloromethane	0.006 U	0.006 U	0.007 U	0.001 U	0.001 U	0.001 U	1
cis-1,3-Dichloropropene	0.006 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	1
4-Methyl-2-pentanone	0.011 U	0.012 U	0.014 U	0.005 U	0.005 U	0.005 U	50
Toluene	0.01	0.004 J	0.007 U	0.005 U	0.005 U	0.001 J	500*
trans-1,3-Dichloropropene	0.006 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	1
1,1,2-Trichloroethane	0.006 U	0.006 U	0.007 U	0.003 U	0.003 U	0.003 U	1
Tetrachloroethene	0.007	0.005 J	0.007 U	0.001 U	0.001 U	0.001 U	1
2-Hexanone	0.011 U	0.012 U	0.014 U	0.005 U	0.005 U	0.005 U	NLE
Dibromochloromethane	0.006 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	1
Chlorobenzene	0.006 U	0.006 U	0.007 U	0.004 U	0.004 U	0.004 U	1
Ethylbenzene	0.006 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	100*
Styrene	0.006 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	97
Bromoform	0.006 U	0.006 U	0.007 U	0.004 U	0.004 U	0.004 U	1
1,1,2,2-Tetrachloroethane	0.006 U	0.006 U	0.007 U	0.002 U	0.002 U	0.002 U	1
Xylene (total)	0.006 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	10*
Total Target VOCs	0.041	0.023	0	0	0	0.004	
Total TICs	0	0	0	0	0	0	

Notes:
U - Not detected at or above reported detection limit or quantitation limit.
J - Estimated value.
NLE - No Level Established.
(a) - Values reflect the combined standards for the cis and trans isomers of 1,3-Dichloropropene.
* - Remedial goal as specified in the ROD.

Table 3-3
Analytical Results Summary For Groundwater
Volatile Organic Compounds (ug/l)
L.E. Carpenter, Wharton, New Jersey
MW-19 Delineation

Sample ID	BW-1	BW-2	BW-3	BW-4	BW-5	BW-6	BW-7	BW-8	NJDEP
Lab Sample ID	9605L188-013	9605L188-011	9605L188-010	9605L215-008	9605L215-011	9605L149-012	9605L149-011	9605L149-010	GROUNDWATER
Sample Date	05/10/96	05/10/96	05/10/96	05/13/96	05/13/96	05/09/96	05/09/96	05/09/96	QUALITY
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	CRITERIA* (ug/L)
PARAMETERS:									
Chloromethane	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	30
Vinyl chloride	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	5
Bromomethane	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	10
Chloroethane	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	NLE
1,1-Dichloroethene	2 U	2000 U	2 U	2000 U	2 U	2 U	2 U	2 U	2
Acetone	5 U	5000 U	5 U	10000 B	24 B	5 U	30	12	700
Carbon Disulfide	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	NLE
Methylene Chloride	2 U	2000 U	2 U	2000 U	2 U	2 U	2 U	2 U	2
1,2-Dichloroethene (total)	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	10
1,1-Dichloroethane	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	70
2-Butanone	5 U	5000 U	5 U	5000 U	64	5 U	5 U	5 U	300
Chloroform	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	6
1,1,1-Trichloroethane	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	30
Carbon Tetrachloride	2 U	2000 U	2 U	2000 U	2 U	2 U	2 U	2 U	2
Benzene	1 U	1000 U	1 U	1000 U	1 U	1 U	1 U	1 U	1
1,2-Dichloroethane	2 U	2000 U	2 U	2000 U	2 U	2 U	2 U	2 U	2
Trichloroethene	1 U	1000 U	1 U	1000 U	1 U	1 U	1 U	1 U	1
1,2-Dichloropropane	1 U	1000 U	1 U	1000 U	1 U	1 U	1 U	1 U	1
Bromodichloromethane	1 U	1000 U	1 U	1000 U	1 U	1 U	1 U	1 U	1
cis-1,3-Dichloropropene	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	5
4-Methyl-2-pentanone	5 U	5000 U	5 U	5000 U	190	5 U	5 U	5 U	400
Toluene	5 U	200000	3 J	200000	4 J	5 U	1 J	5 U	1000
trans-1,3-Dichloropropene	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	7
1,1,2-Trichloroethane	3 U	3000 U	3 U	3000 U	3 U	3 U	3 U	3 U	3
Tetrachloroethene	1 U	1000 U	1 U	1000 U	1 U	1 U	1 U	1 U	1
2-Hexanone	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	NLE
Dibromochloromethane	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	10
Chlorobenzene	4 U	4000 U	4 U	4000 U	4 U	4 U	4 U	4 U	5
Ethylbenzene	5 U	7600	5 U	7600	5 U	5 U	5 U	5 U	700
Styrene	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	100
Bromoform	4 U	4000 U	4 U	4000 U	4 U	4 U	4 U	4 U	4
1,1,2,2-Tetrachloroethane	2 U	2000 U	2 U	2000 U	2 U	2 U	2 U	2 U	2
Xylene (total)	5 U	10000	5 U	38000	1 J	5 U	5 U	5 U	40
Total Target VOCs	0	248600	3	245600	259	0	31	12	
Total TICs	0	0	0	0	0	0	6	0	

Table 3-3 (continued)
Analytical Results Summary For Groundwater
Volatile Organic Compounds (ug/l)
L.E. Carpenter, Wharton, New Jersey
MW-19 Delineation

Sample ID	BW-9	BW-11	TB-01	TB-02	TB5-13	FB-01W	FB-02W	FB-03W	NJDEP
Lab Sample ID	9605L215-010	9605L188-012	9605L149-005	9605L188-002	9605L215-013	9605L149-007	9605L188-004	9605L215-007	GROUNDWATER
Sample Date	05/13/96	05/10/96	05/09/96	05/10/96	05/13/96	05/09/96	05/10/96	05/13/96	QUALITY
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	CRITERIA* (ug/L)
PARAMETERS:									
Chloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	30
Vinyl chloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5
Bromomethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10
Chloroethane	5 U	5 U	U	5 U	5 U	5 U	5 U	5 U	NLE
1,1-Dichloroethene	2 U	2 U	5 U	2 U	2 U	2 U	2 U	2 U	2
Acetone	9 B	5 U	2 U	5 U	5 U	5	5 U	5 U	700
Carbon Disulfide	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NLE
Methylene Chloride	2 U	2 U	2 U	2 J	2 U	2 U	2 U	2	2
1,2-Dichloroethene (total)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	70
2-Butanone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	300
Chloroform	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	30
Carbon Tetrachloride	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2
Benzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1
1,2-Dichloroethane	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2
Trichloroethene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1
1,2-Dichloropropane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1
Bromodichloromethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5
4-Methyl-2-pentanone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	400
Toluene	5 U	5 U	5 U	5 U	2 J	5 U	5 U	5 U	1000
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	7
1,1,2-Trichloroethane	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3
Tetrachloroethene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1
2-Hexanone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NLE
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10
Chlorobenzene	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	5
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	700
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	100
Bromoform	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4
1,1,2,2-Tetrachloroethane	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	40
Total Target VOCs	0	0	0	2	2	5	0	2	
Total TICs	0	0	0	0	0	0	0	0	

Notes:

U - Not detected at or above reported detection limit or quantitation limit.

J - Estimated value.

Shading indicates detected concentration exceeds applicable NJDEP Groundwater Quality Criteria.

* - The higher of the Practical Quantitation Level and the Groundwater Quality Criteria was used.

Appendix F
1998 Monitoring Well Locations and Sample Results

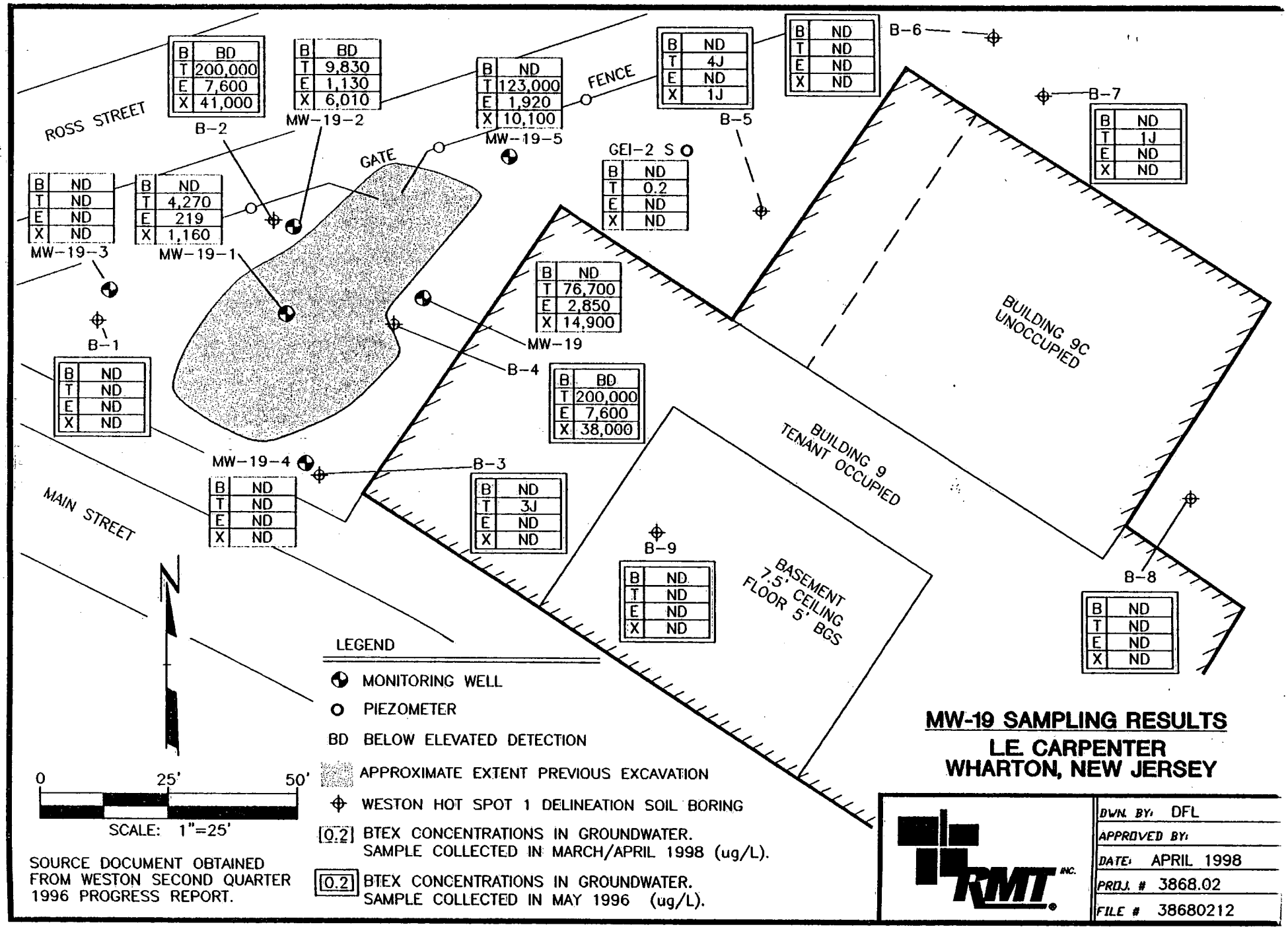

ROSS STREET
MAIN STREET
GATE
FENCE
B-2
B BD
T 200,000
E 7,600
X 41,000
MW-19-2
B BD
T 9,830
E 1,130
X 6,010
MW-19-5
B ND
T 123,000
E 1,920
X 10,100
B-5
B ND
T 4J
E ND
X 1J
B-6
B ND
T ND
E ND
X ND
B-7
B ND
T 1J
E ND
X ND
GEI-2 S
B ND
T 0.2
E ND
X ND
MW-19-3
B ND
T ND
E ND
X ND
MW-19-1
B ND
T 4,270
E 219
X 1,160
B-1
B ND
T ND
E ND
X ND
MW-19
B ND
T 76,700
E 2,850
X 14,900
B-4
B BD
T 200,000
E 7,600
X 38,000
MW-19-4
B ND
T ND
E ND
X ND
B-3
B ND
T 3J
E ND
X ND
B-9
B ND
T ND
E ND
X ND
B-8
B ND
T ND
E ND
X ND
BUILDING 9C
UNOCCUPIED
BUILDING 9
TENANT OCCUPIED
BASEMENT
7.5' CEILING
FLOOR 5' BGS
N
0
25'
50'
SCALE: 1"=25'
LEGEND
MONITORING WELL
PIEZOMETER
BD BELOW ELEVATED DETECTION
APPROXIMATE EXTENT PREVIOUS EXCAVATION
WESTON HOT SPOT 1 DELINEATION SOIL BORING
[0.2] BTEX CONCENTRATIONS IN GROUNDWATER. SAMPLE COLLECTED IN MARCH/APRIL 1998 (ug/L).
[0.2] BTEX CONCENTRATIONS IN GROUNDWATER. SAMPLE COLLECTED IN MAY 1996 (ug/L).
SOURCE DOCUMENT OBTAINED FROM WESTON SECOND QUARTER 1996 PROGRESS REPORT.
MW-19 SAMPLING RESULTS
L.E. CARPENTER
WHARTON, NEW JERSEY
RMT INC.
DWN. BY: DFL
APPROVED BY:
DATE: APRIL 1998
PROJ. # 3868.02
FILE # 38680212

FIGURE 2

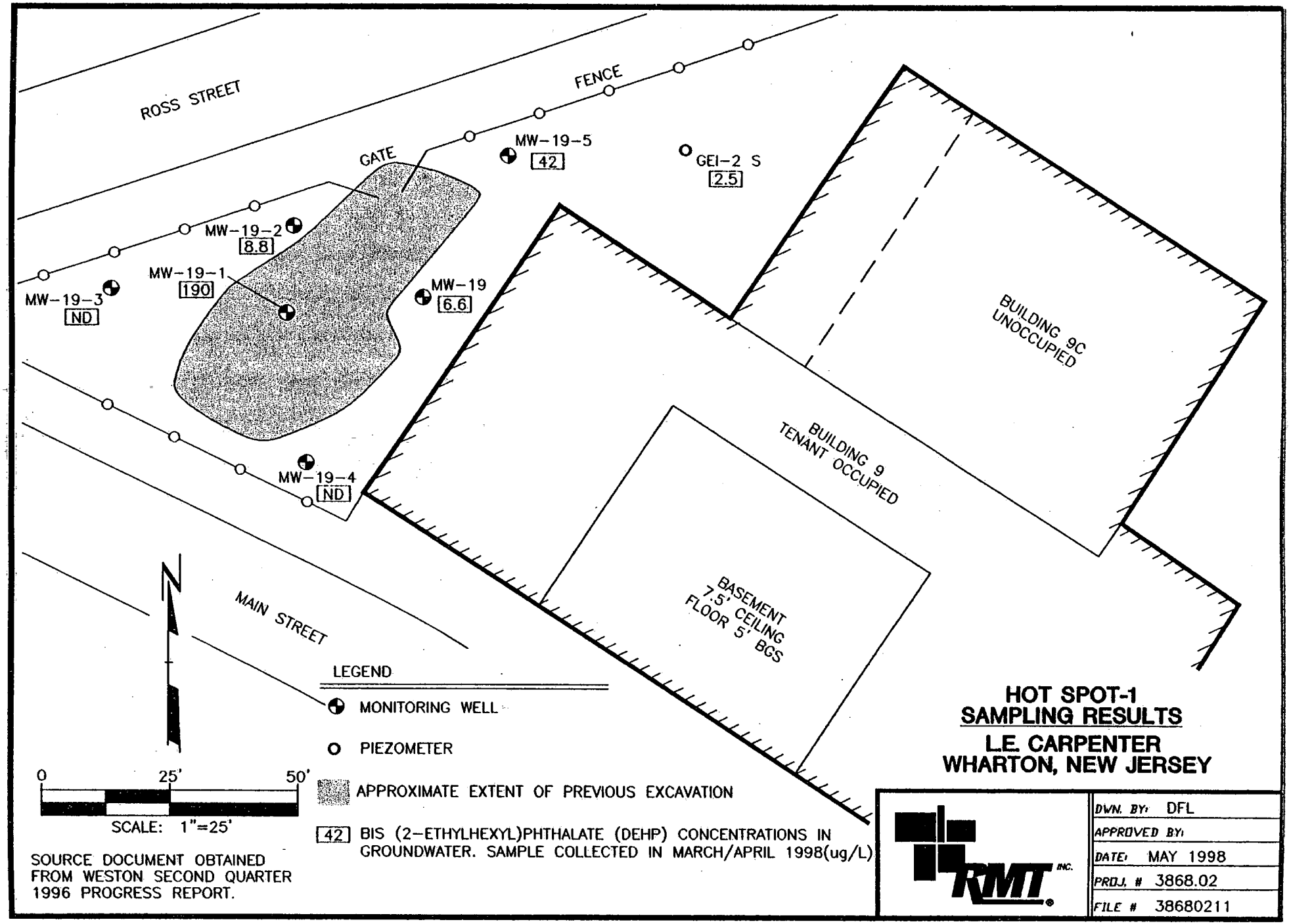

ROSS STREET
FENCE
GATE
MW-19-5
42
GEI-2 S
2.5
MW-19-2
8.8
MW-19-1
190
MW-19-3
ND
MW-19
6.6
MW-19-4
ND
BUILDING 9C
UNOCCUPIED
BUILDING 9
TENANT OCCUPIED
BASEMENT
7.5' CEILING
FLOOR 5' BGS
MAIN STREET
N
LEGEND
MONITORING WELL
PIEZOMETER
APPROXIMATE EXTENT OF PREVIOUS EXCAVATION
42 BIS (2-ETHYLHEXYL)PHTHALATE (DEHP) CONCENTRATIONS IN GROUNDWATER. SAMPLE COLLECTED IN MARCH/APRIL 1998(ug/L)
0
25'
50'
SCALE: 1"=25'
SOURCE DOCUMENT OBTAINED FROM WESTON SECOND QUARTER 1996 PROGRESS REPORT.
HOT SPOT-1
SAMPLING RESULTS
L.E. CARPENTER
WHARTON, NEW JERSEY
RMT INC.
DWN. BY: DFL
APPROVED BY:
DATE: MAY 1998
PROJ. # 3868.02
FILE # 38680211

FIGURE 5

Appendix G
NJDEP Letters Dated July 15, 1998 and December 21, 1998

State of New Jersey
Department of Environmental Protection

Christine Todd Whitman
Governor

Robert C. Shinn, Jr.
Commissioner

Mr. Cristopher Anderson
Director of Environmental Affairs
L.E. Carpenter & Company
Suite 36-5000
200 Public Square
Cleveland, OH 44114-2304

JUL 15 1998

Dear Mr. Anderson:

Re: L.E. Carpenter & Co. Superfund Site
Wharton Borough, Warren County

The New Jersey Department of Environmental Protection has reviewed the MW-19 and Hot Spot 1 Delineation Reports, prepared by Residuals Management Technology, Inc. dated June 1998 and has the following comments:

MW-19 Delineation

1. Based on the ground water data generated from the April 1998 sampling event, the down-gradient extent of volatile organic contamination has not been established. Although it appears that BTEX levels have decreased since the May 1996 sampling event, a clean zone must be established as per the Technical Requirements for Site Remediation, N.J.A.C. 7:26E-4.4. Additional permanent monitoring wells must be proposed by L.E. Carpenter to delineate the horizontal/down-gradient extent of ground water contamination in this area of concern.

2. As part of the MW-19 and Hot Spot 1 delineation, L.E. Carpenter installed four permanent ground water monitoring wells (MW-19-1 through MW-19-4) and one temporary ground water monitoring well (MW-19-5). Since MW-19-5 was a temporary monitoring well, it is assumed that MW-19-5 was properly abandoned according to the Department's well abandonment procedures.

Hot Spot 1 Delineation

3. Results for MW-19-5 reported the presence of DEHP at 42 ug/L, which is above the Department's Ground Water Quality Standard of 30 ug/L. Based on these results, L.E. Carpenter has not determined the down-gradient extent of DEHP contamination in ground water. In addition, a soil sample that was collected at B-3 soil boring demonstrated a DEHP level of 790 ppm which may be a continuing source to ground water. L.E. Carpenter must conduct further delineation of DEHP in ground water at Hot Spot 1.

RECEIVED
JUL 17 [illegible]
C.R. ANDERSON

4. Please submit a schedule as to when this additional delineation will be conducted as well as the other issues discussed in the Department's January 20, 1998 letter, specifically items 1 and 3.

Please feel free to contact me at (609) 633-7261 if you have any questions.

Sincerely,

Gwen B Zervas

Gwen B. Zervas, P.E.
Case Manager
Bureau of Federal Case Management

C: George Blyskun, BGWPA
John Prendergast, BEERA

Christine Todd Whitman
Governor

State of New Jersey
Department of Environmental Protection

Robert C. Shinn, Jr.
Commissioner

Mr. Cristopher Anderson
Director, Environmental Affairs
L.E. Carpenter & Company
200 Public Square
Suite 36-5000
Cleveland, OH 44114-2304

DEC 21 1998

Dear Mr. Anderson:

Re: L.E. Carpenter Superfund Site
Wharton, Morris County

The New Jersey Department of Environmental Protection (Department) and EPA have reviewed the Workplan to Implement Further Investigative and Remedial Action at MW-19/Hot Spot 1, Hot Spot B and C, and Hot Spot 4 prepared by RMT, Inc. dated November 1998 and have the following comments:

1. MW-19/Hot Spot 1 Complete delineation of the organic contaminant plume is the objective of the proposed investigation, however, this may not be possible with the three monitoring wells as proposed. Therefore, the work plan should outline a prior ground water screening investigation, in the nature of geoprobe, hydro punch, or other similar methodology, in the downgradient area before the installation of permanent monitoring wells. The screening, if conducted properly, would provide valuable information necessary to ensure complete delineation of the organic plume, and could reduce or eliminate the need for locating additional monitoring wells in the near future.

2. Hot Spots B and C – RMT proposes to utilize a grid sampling approach. A map must be provided that includes previous soil sample points (i.e., lead post-excavation soil samples) along with the proposed grid sample points. In addition, the work plan states that field observations will be used to select samples for lead analysis. It is recommended that field screening be used in order to more accurately determine what samples should be analyzed.

   Please note that once the field work is completed, lead soil data from the proposed sampling event as well as all historical lead soil data for the entire site must be presented on a comprehensive site map.

Please feel free to contact me at (609) 633-7261 if you have any questions.

Sincerely,

Gwen B Zervas

Gwen B. Zervas, P.E.
Case Manager
Bureau of Federal Case Management

C: Stephen Cipot, EPA
George Blyskun, BGWPA
John Prendergast, BEERA

Appendix H
Borough of Wharton Road Opening Request Application and Permit

March 22, 1999

Mr. Bill Skewes
Borough of Wharton
Housing and Building Office
10 Robert Street
Wharton, NJ 07885-1997

Subject: L.E. Carpenter and Company
Road Opening Request Application

Dear Mr. Skewes:

RMT, Inc., (RMT) on behalf of L.E. Carpenter and Company (LEC), requests authorization to obtain groundwater samples at five (5) locations within the Ross Street right-of-way, adjacent to the LEC facility located at 170 North Main Street, in Wharton, New Jersey. RMT proposes to use a HydroPunch® Direct Push Sampler at each of the five locations as this sampling method does not involve the installation of any subsurface structures and minimizes the amount of time between obtaining a sample and restoring the road/easement. The HydroPunch® is considered an effective field screening tool to aid in the placement of monitoring wells. A complete description of the HydroPunch® sampling methodology is presented as Attachment 1.

All utilities within the investigation area will be located and marked prior to performing any subsurface activities. The five proposed HydroPunch® locations (Attachment 2) were located based on a cursory site visit conducted by both RMT and the Borough (Ms. Teresa Steel). On the day of investigation, however, some locations may require slight refinement based on the confirmation of surficial or subsurface obstructions (i.e. parked cars, utility markings). Appropriate notifications will be made if significant location modifications are required. All five locations will be sampled and restored on the same day. Upon approval, RMT will provide the Borough appropriate notification prior to the commencement of any off-site investigation activities.

Road Opening Request application forms for each of the proposed HydroPunch® locations (HP-1 through HP-5) are presented as Attachment 3. Additionally, please find enclosed a check for $325 to cover the $65 per location application fee for all five locations. Based on previous conversations between yourself and Mr. Dan Leskovec (RMT - Chicago), it is my understanding that a bond to complete this work will not be required. RMT requests that written confirmation

RMT®

of a bond waiver be included in the appropriate authorization for off-site activities. Please send all permits and/or authorizations to my attention.

If you have any questions, or require further information or clarification of the proposed scope of work, please contact me at (312) 575-0200

Sincerely,

RMT, Inc.

Nicholas J. Clevett
Project Manager

Encl. Application Fee

Attachments:

1 - HydroPunch® Sampling Methodology
2 - Temporary Well Location Drawing
3 - Five (5) Road Opening Requests

xc: Cris Anderson - L.E. Carpenter
Gwen Zervas - NJDEP
Jeff Lux - Active Environmental Technologies
Al Schmidt - RMT
Central Files (2)

ATTACHMENT 1

HydroPunch® Sampling Methodology

Alternative Ground Water Sampling Techniques Guide

State of New Jersey
Christine Todd Whitman
Governor

New Jersey Department of Environmental Protection
Robert C. Shinn, Jr.
Commissioner
July, 1994

The Alternative Ground Water Sampling Techniques Guide (July, 1994) has been printed on recycled paper.

Title: Ground Water Sampling with the use of a HydroPunch^R Direct Push Sampler (3/94)

Method Number: AGWST 6.00

Summary:

The HydroPunch^R is a sampling tool constructed of stainless steel and teflon used for collecting ground water samples. This document provides guidance for the use of this tool in ground water investigations.

I *PURPOSE AND SCOPE*

This document summarizes the minimum requirements for the use of the HydroPunch^R (HP-I and HP-II) for the collection of ground water data for site investigations.

II *METHOD OVERVIEW*

A. Tool

1. The HydroPunch^R I (HP-I) sampling tool collects the sample in only one mode, within the sample chamber (Figure I). This tool collects ground water through the effect of in-situ hydrostatic head, therefore, the top of the sample chamber must be below the ground water table for sample acquisition. A sample cannot be collected across the ground water table with the HP-I. The HP-I is designed to be used by cone penetrometer or drill rig.

2. The HydroPunch^R II (HP-II) sampling tool can be operated in two modes, hydrocarbon and water sampling (Figure II). The water sampling mode is similar in operation to the HP-I. In the hydrocarbon mode a PVC screen is exposed so samples can be collected across the ground water table of an unconfined aquifer to determine the presence of floating product. The HP-II was specifically designed to be used by drilling contractors. Its larger diameter limits the effective depth when pushed from the surface with cone penetrometer rigs.

B. Applications

1. Collection of ground water samples for the determination of the presence/absence and extent of ground water contamination.

2. Field screening tool to aid in the placement of monitor wells.

3. Temporary placement for the collection of ground water samples and estimating ground water flow directions (less than 48 hours).

C. Capabilities

1. Obtain ground water samples from unconfined aquifers.

2. Obtain ground water samples from confined aquifers provided the upper aquifer is cased off and the casing is driven a minimum of two feet into the confining layer.

3. Obtain samples across the water table to determine the presence of floating product (HP-II).

4. Capable of collecting samples to determine the vertical profiling of contaminants in an aquifer.

5. Ability to collect ground water samples from small discrete water bearing zones. (HP-I & HP-II)

6. Capable of being used with a cone penetrometer rig or a conventional drill rig.

7. A comparison of the advantages and limitations for both the HP-1 and HP-II are listed in Table I.

III *SAMPLING METHOD REQUIREMENTS*

A. Installation

1. The HydroPunch^R is capable of use in unconsolidated formations only. When being installed, the drilling must stop above the target sample depth thereby not disturbing the zone to be sampled. It is therefore imperative to have some idea of the depth at which the sample will be collected. If little is known of the site geology, then an initial boring should be made to determine 1) depth of water bearing zones 2) permeability of sample zone 3) density of soil 4) identify the subsurface stratigraphy 5) other pertinent data for the investigation.

2. When used with a conventional drill rig the hole must be advanced (with hollow stem augers, mud rotary etc.) to the depth which is above the zone of interest, eliminating any interference from the drilling. The HydroPunch^R may then be driven to the desired sampling interval for sample collection.

3. DO NOT set the HydroPunch^R down on the bottom of the borehole and pick it up. This will open the tool and compromise the sample integrity. Damage to the tool may be incurred if it is driven after being opened. Also, caution must be taken not to back hammer when driving the HydroPunch^R for the above stated reason.

4. Always accurately measure the distance the tool is pushed or driven and the distance pulled back.

5. Never pull the HydroPunch^R back farther than it is pushed or driven into the undisturbed soil. This may result in cross contamination of the sample from other zones in the borehole, or loss of the casing (in the hydrocarbon mode) resulting in the inability for sample collection.

6. Installation of the tool is required to comply with all permit, license, sealing and grouting requirements as per Appendices I and II. Any tool left in the ground longer than 48 hours is considered a monitor well and therefore must comply the permit, installation and license requirements for monitor wells.

B. Sampling Procedures

1. Hydrocarbon Mode (HP-II)

a. The hydrocarbon mode is used to collect ground water samples when:

- A sample must be obtained from the water table interface of an unconfined aquifer.
- A large volume of sample is required.
- The presence of floating product is suspected.

b. A sacrificial 0.010-inch PVC screen (approx. 5') is attached to a disposable drive cone. The screen and drive cone are then inserted into the body of the HP-II until the O-Ring on the cone is sealed in drive shoe. Place the sleeve over the juncture of the drive cone and body of the unit.

c. Once driven to the desired depth, the body of the unit is pulled back exposing the screen. Friction with the seal will hold the

cone in position while the screen is exposed. Do not pull back a distance greater than the length of the screen.

d. The EW, BW, or NW casing used to drive the tool allows for the placement of a small diameter bailer (3/4" or 1") to be lowered down through the casing and body of the HP-II and into the screen for sample collection.

e. The Hydropunch does <u>not</u> have to be purged or developed prior to sampling.

2. Water Sampling Mode (HP-1 and HP-II)

a. The HP-II in the ground water sampling mode or HP-I can be used when samples are required at a minimum of five (5) feet below the top of the water table and when a small sample volume (500 ml-1,200 ml dependent upon tool) is adequate.

b. Place the lower check valve with attached filter screen into the bottom of the tool body and place the upper check valve in the top of the tool. Insert the disposable drive cone into the drive shoe ensuring a seal is made by the O-Ring. Place sleeve over the juncture of the drive cone and drive shoe.

c. Push or drive (with 140 lb hammer, 30 inch travel) the unit to the desired depth and pull back approximately two (2) feet. Soil friction will hold the drive cone in place.

d. Ground water flows into the intake screen past the lower check valve, into the sample chamber and finally out the top check valve.

e. When full the tool is pulled to the surface, increasing the hydrostatic head within the tool closing the two check valves.

f. At the surface the HP-II is inverted and the sample is decanted through a discharge valve and tubing into the sample containers.

c. Quality Assurance/Quality Control

1. Decontamination

The HydroPunch^{R}, drill rods and drive casing must be decontaminated between samples using the following procedure:

a) Disassemble the HydroPunch^R unit and remove O-Rings. The PVC screen is disposable and must be discarded.

b) Scrub with a laboratory grade glassware detergent.

c) Rinse with potable water and/or steam clean.

d) Rinse entire unit with distilled and deionized ASTM Type II water.

e) Replace O-Rings.

f) Reassemble unit.

g) The PVC screen is supplied by the manufacturer already cleaned. If the packaging is compromised then it should be cleaned in the same manner as the HydroPunch and casing.

2. Field Blanks

Field blanks must be obtained in the same manner as samples (i.e., if hydrocarbon mode is used blank water must pass through bailer, screen and HydroPunch^R body).

Parameters and frequency for field blanks are designated in the May 1992 edition of the NJDEPE Field Sampling Procedures Manual (FSPM).

3. Sample Equipment

The NJDEPE Field Sampling Procedures Manual can be used as a reference for the selection of sampling equipment and procedures for use with the HP-II in the hydrocarbon mode. The HydroPunch^R in the water sampling mode is in itself a sampler.

All sampling equipment must be decontaminated in accordance with the NJDEPE Field Sampling Procedures Manual and dedicated to each sample point.

4. Rod Sealing

When using the HydroPunch^R in the hydrocarbon or ground water mode for obtaining samples deep in the unconfined aquifer or in a confined aquifer, or using the unit with hollow stem augers on mud rotary drilling, the drill rod/casing joints must be sealed. This will prevent fluid from entering the rods and potentially contaminating the sample.

The rods should be sealed with Teflon[R] tape on the threads. Once put together the joints must be sealed with gas pipe tape. Another option is the use of drill rod with O-Rings at the threads for sealing.

5. Formation Types

The HydroPunch[R] can be installed in unconsolidated materials. Varying amounts of pebbles, cobbles and boulders may impede advancement or damage the tool.

IV *REFERENCES*

1. Cordry, Kent; "Hydropunch [R] User's Guide

2. Cordry, Kent; "Technical Information and Application Guidelines - Hydropunch"

3. Bergen, C.L.; Tuckfield, R.C.; Park, NM; "Suitability of the Hydropunch for Assessing Ground Water Contaminated by Volatile Organics

4. Cordry, Kent; HydroPunch II - The Second Generation. A New In Situ Ground Water Sampling Tool. In Procedures of the Fifth National Outdoor Action Conference on Aquifer Restoration Ground Water Monitoring, and Geophysical Methods. pp 715-723 May 13-16, 1991, Las Vegas, Nevada.

5. Strutynsky, A.I.; Sainey, T.J.; Use of Piezometeric Cone Penetration Testing and Penetrometer Ground Water Sampling for Volatile Organic Contaminant Plume Detection. In Procedures of the Petroleum Hydrocarbons and Organic Chemicals in Ground Water: Prevention, Detection and Restoration. p70-84. October 1990, Houston, TX.

6. Edge, R; Cordry, K; The HydroPunch: An In Situ Sampling Tool for Collecting Ground Water from Unconsolidated Sediments. Ground Water Monitoring Review, Vol. IX (3) pp 177-183, 1989.

7. Smolley, M; Kappmeyer, J; Cone Penatrometer Tests and HydroPunch[R] Sampling: A Screening Technique for Plume Definition. Ground Water Monitoring Review, Vol XI, No. 3, pp 101-106.

8. Van Sciver, C., Wallace, E.; The Evaluation of the HydroPunch II to Obtain a Representative Ground Water Sample. 9th Annual Waste Testing and Quality Assurance Symposium; July 12-16, 1993, Arlington, VA

TABLE I

ADVANTAGES AND LIMITATIONS
COMPARISON OF HP-I AND HP-II

	HP-I	HP-II
ADVANTAGES	1. Small diameter - can be used with cone penetrometer rig. 2. Reusable cone. 3. Vertical profiling from a single borehole without concern about drilling through disposable cones and screens.	General: 1. Simpler design and fewer parts for fast decontamination. 2. No moving parts are attached permanently to the tool making it more durable and reliable. 3. Removable check valves providing 2 sample modes which increases flexibility. Hydrocarbon Mode: 1. Can collect sample at top of aquifer, including product. 2. Can collect an unlimited volume of sample. 3. Can collect sample from thin aquifer. 4. Can directly measure fill rate. Ground Water Mode: 1. Tool does not have to be driven on special casing. 2. Only tool needs to be decontaminated. 3. Tool can be driven using downhole wireline hammers.

Table I contd.

	HP-I	HP-II
LIMITATIONS	1. Thin diameter and sliding parts with close tolerances make tool susceptible to damage when driven by drilling rig. 2. Short intake interval (11-inch) makes sampling from thin water bearing zones difficult. 3. The intake screen must be at least 5 feet below the top of the aquifer to collect a complete sample. 4. Sample volume is limited to approximately 500 ml. 5. Yields a turbid sample. 6. Sample time intervals in low aquifers may cause degeneration of sample integrity. 7. Requires drill rig for installation.	Hydrocarbon Mode: 1. Hollow drive pipe must extend to surface. 2. Drive pipe must be decontaminated. 3. A cone and screen is lost each time the tool is used. 4. The rate and amount of sample obtained is dependent upon the permeability of the formation. 5. Yields a turbid sample therefore samples for various analytes may be biased high. 6. Long sample acquisition times in low yielding aquifers may cause degeneration of sample integrity. 7. Requires drill rig for installation. Ground Water Mode: 1. The intake must be at least 5 feet below the top of the aquifer to obtain a full sample. 2. Direct monitoring of the tool fill rate is difficult. 3. Sample volume is limited to 1.2 liters. 4. Yields a turbid sample therefore samples for various analytes may be biased high. 5. Long sample acquisition times in low yielding aquifers may cause degeneration of sample integrity. 6. Requires drill rig for installation. 7. Formations with 20-30% silts and clays may not yield sufficient water for sampling and limit use of the tool.

ATTACHMENT 2

Temporary Well Location Drawing

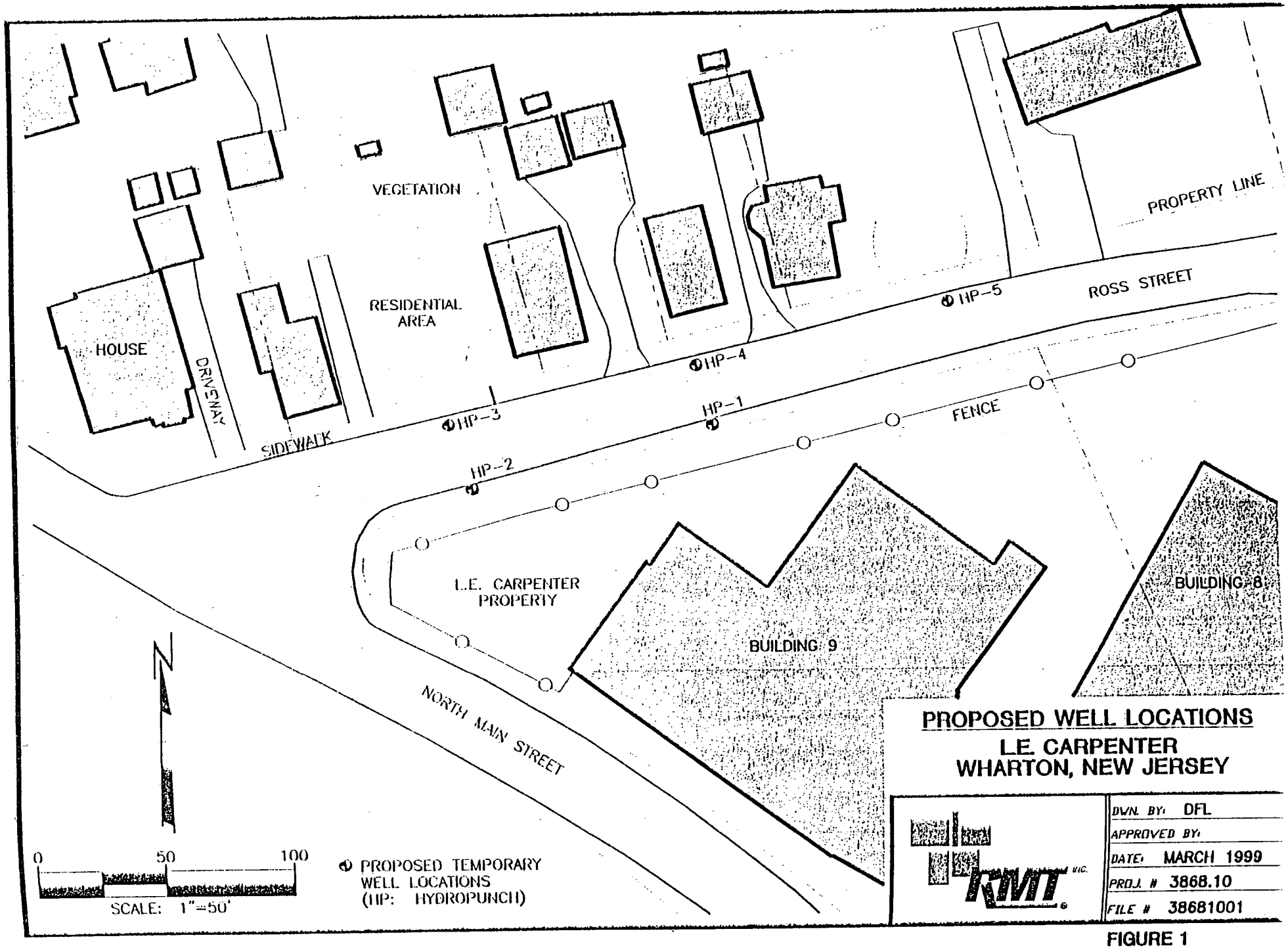

VEGETATION
PROPERTY LINE
ROSS STREET
HP-5
HP-4
HP-3
HP-1
HP-2
HOUSE
DRIVEWAY
SIDEWALK
RESIDENTIAL AREA
FENCE
L.E. CARPENTER PROPERTY
BUILDING 9
BUILDING 8
NORTH MAIN STREET
N
0
50
100
SCALE: 1"=50'
PROPOSED TEMPORARY WELL LOCATIONS (HP: HYDROPUNCH)
PROPOSED WELL LOCATIONS
L.E. CARPENTER
WHARTON, NEW JERSEY
RMT INC.
DWN. BY: DFL
APPROVED BY:
DATE: MARCH 1999
PROJ. # 3868.10
FILE # 38681001

FIGURE 1

FIGURE I
HYDROPUNCH I

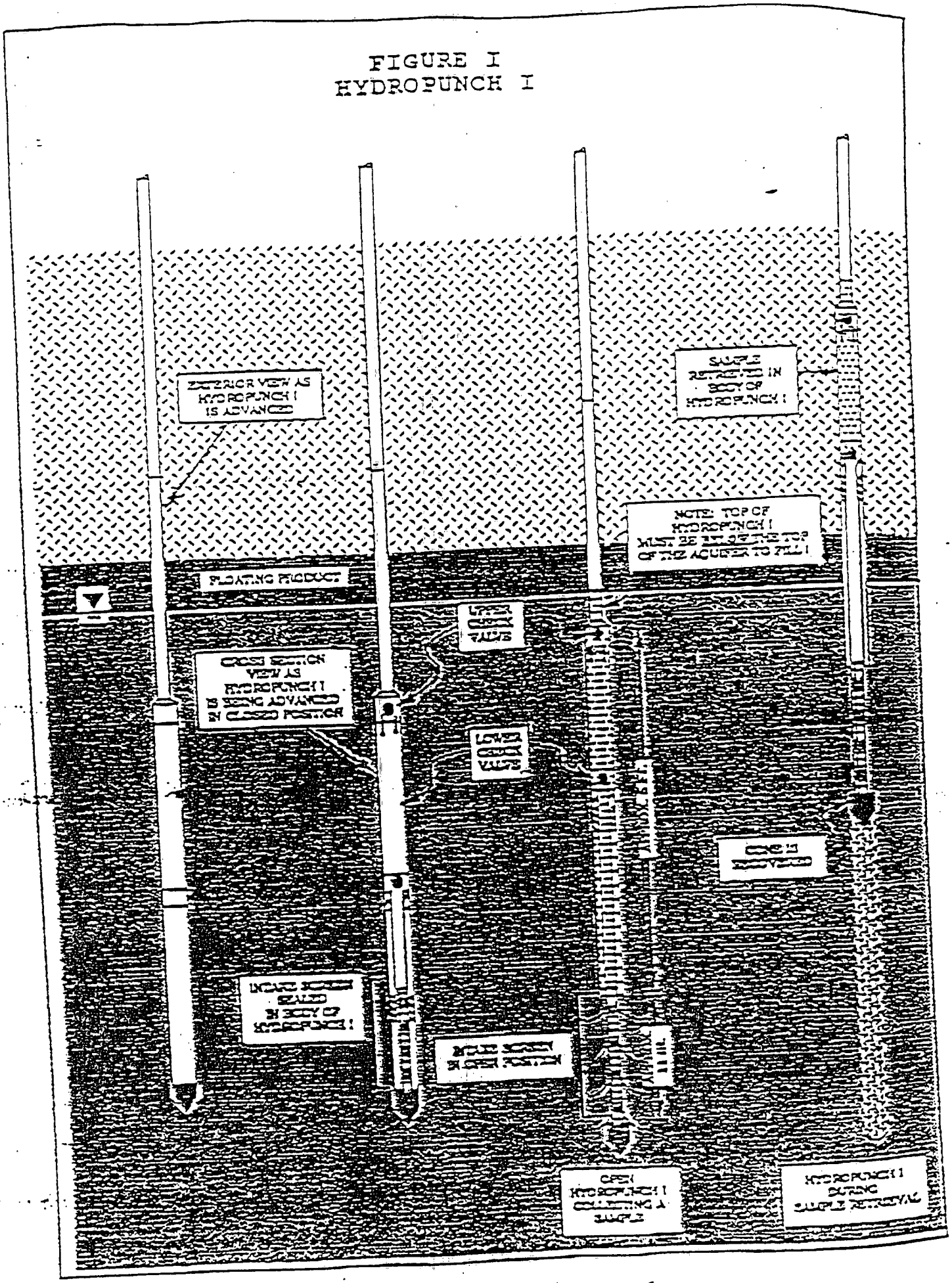
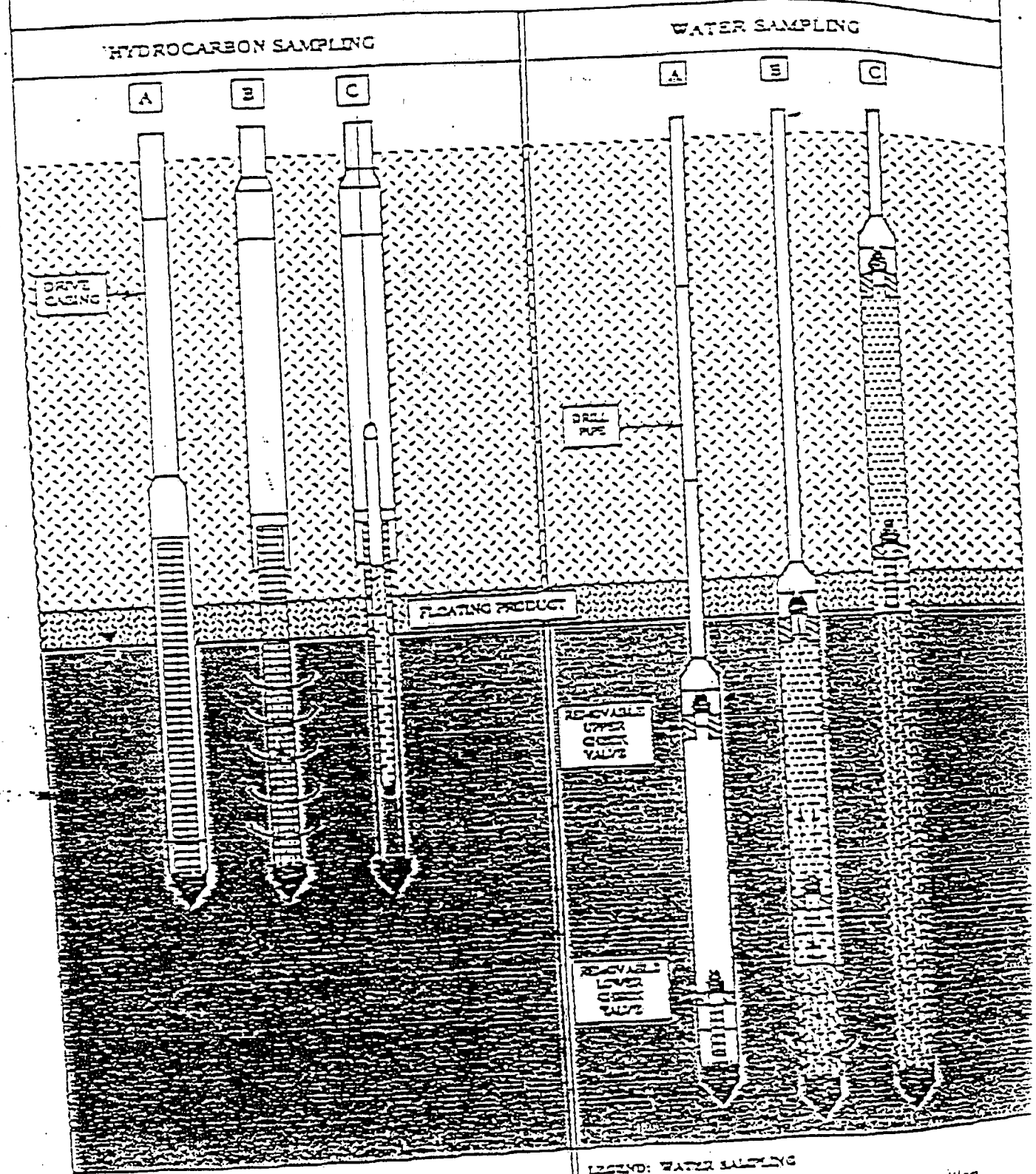


FIGURE II
HYDROPUNCH II



LEGEND: HYDROCARBON SAMPLING

A HydroPunch II closed while being driven into position.

B Tool opened and 5 foot screen vibrated into position for collection of hydrocarbon or water sample at the very top of the aquifer.

C Hydrocarbon sample being collected using bailer lowered through drive casing.

LEGEND: WATER SAMPLING

A HydroPunch II closed while being driven into position.

B Cone expanded and tool open to collect sample.

C Check valve closed as sample is retrieved within body of tool.

ATTACHMENT 3

Five (5) Road Opening Requests

Temporary Well Location: HP-1

BOROUGH OF WHARTON
ROAD OPENING REQUEST

DATE March 19, 1999

NAME OF APPLICANT: L.E. Carpenter and Company

ADDRESS: 170 North Main Street, Wharton, NJ 07885

LOCATION WHERE OPENING IS TO BE MADE: On the south side of Ross Street, East of the Ross Street and North Main Intersection; in the Ross Street south easement (See attached scale drawing - Figure 1)

CONTRACTOR: Active Environmental Technologies, Inc., 40 High Street Suite 100, Mount Holly, NJ 08060

PHONE NUMBER: HOME: (800) 967-4202 (24-hr pager) Jeff Lux BUSINESS: (609) 702-1500

STARING DATE: April 1, 1999 COMPLETION DATE: April 1, 1999

LENGTH AND WIDTH OF OPENING: 3 inches wide by 12 feet deep (approximately) Info based on site depth to groundwater

DOES OPENING COMPLETELY BLOCK ROAD OR STREET: No

WILL OPENING BE OPEN MORE THAN 24 HOURS: No

TYPE OF ROAD SURFACE TO BE OPENED : Asphalt

PURPOSE OF ROAD OPENING: To obtain a shallow groundwater sample

REMARK: RMT, Inc. (Consultant) Point of Contact: Mr. Nicholas J. Clevett (312) 575-0200
Subsurface structure are temporary and will be removed the same day installation takes place. Road surface will be restored back to its original condition.

Warning signs will be posted in accordance with ordinance.
Contractor will be responsible for trench until permanently patched
-No old materials will be used to refill a trench (shoulder stone must be used).
Bond will not be returned without approval of Engineer.

cc - Police Department
Public Works Department
Clerk

JCLH
signed

Date: 3/23/99

Project Manager (RMT)
title

Permission granted to make street openings and do work as described above.

BOROUGH OF WHARTON

Application Fee Paid _____

Inspection Fee Paid Amt. _____

Bond Filed _____

_____
Engineer

Temporary Well Location: HP-2

BOROUGH OF WHARTON
ROAD OPENING REQUEST

DATE March 19, 1999

NAME OF APPLICANT: L.E. Carpenter and Company

ADDRESS: 170 North Main Street, Wharton, NJ 07885

LOCATION WHERE OPENING IS TO BE MADE: On the south side of Ross Street, East of the Ross Street and North Main Intersection; in the Ross Street south easement (See attached scale drawing - Figure 1)

CONTRACTOR: Active Environmental Technologies, Inc., 40 High Street Suite 100, Mount Holly, NJ 08060

PHONE NUMBER: HOME: (800) 967-4202 (24-hr pager) Jeff Lux BUSINESS: (609) 702-1500

STARING DATE: April 1, 1999 COMPLETION DATE: April 1, 1999

LENGTH AND WIDTH OF OPENING: 3 inches wide by 12 feet deep (approximately) Info based on site depth to groundwater

DOES OPENING COMPLETELY BLOCK ROAD OR STREET: No

WILL OPENING BE OPEN MORE THAN 24 HOURS: No

TYPE OF ROAD SURFACE TO BE OPENED : Asphalt

PURPOSE OF ROAD OPENING: To obtain a shallow groundwater sample

REMARK: RMT, Inc. (Consultant) Point of Contact: Mr. Nicholas J. Clevett (312) 575-0200
Subsurface structure are temporary and will be removed the same day installation takes place. Road surface will be restored back to its original condition.

Warning signs will be posted in accordance with ordinance.
Contractor will be responsible for trench until permanently patched
-No old materials will be used to refill a trench (shoulder stone must be used).
Bond will not be returned without approval of Engineer.

cc - Police Department
Public Works Department
Clerk

NCLH
signed

Date: 3/23/99

Project Manager (RMT)
title

Permission granted to make street openings and do work as described above.

BOROUGH OF WHARTON

Application Fee Paid _____

Inspection Fee Paid Amt. _____

Bond Filed _____

_____
Engineer

Temporary Well Location: HP-3

BOROUGH OF WHARTON
ROAD OPENING REQUEST

DATE March 19, 1999

NAME OF APPLICANT: L.E. Carpenter and Company

ADDRESS: 170 North Main Street, Wharton, NJ 07885

LOCATION WHERE OPENING IS TO BE MADE: On the north side of Ross Street, East of the Ross Street and North Main Intersection; Approximately 5 feet south of the Ross Street North Curb (easement) (See attached scale drawing - Figure 1)

CONTRACTOR: Active Environmental Technologies, Inc., 40 High Street Suite 100, Mount Holly, NJ 08060

PHONE NUMBER: HOME: (800) 967-4202 (24-hr pager) Jeff Lux BUSINESS: (609) 702-1500

STARING DATE: April 1, 1999 COMPLETION DATE: April 1,1999

LENGTH AND WIDTH OF OPENING: 3 inches wide by 12 feet deep (approximately) Info based on site depth to groundwater

DOES OPENING COMPLETELY BLOCK ROAD OR STREET: No

WILL OPENING BE OPEN MORE THAN 24 HOURS: No

TYPE OF ROAD SURFACE TO BE OPENED : Asphalt

PURPOSE OF ROAD OPENING: To obtain a shallow groundwater sample

REMARK: RMT, Inc. (Consultant) Point of Contact: Mr. Nicholas J. Clevett (312) 575-0200
Subsurface structure are temporary and will be removed the same day installation takes place. Road surface will be restored back to its original condition.

Warning signs will be posted in accordance with ordinance.
Contractor will be responsible for trench until permanently patched
-No old materials will be used to refill a trench (shoulder stone must be used).
Bond will not be returned without approval of Engineer.

cc - Police Department
Public Works Department
Clerk

NClett
signed

Date: 3/23/99

Project Manager (RMT)
title

Permission granted to make street openings and do work as described above.

BOROUGH OF WHARTON

Application Fee Paid _____

Inspection Fee Paid Amt. _____

Bond Filed _____

_____
Engineer

Temporary Well Location: HP-4

BOROUGH OF WHARTON
ROAD OPENING REQUEST

DATE March 19, 1999

NAME OF APPLICANT: L.E. Carpenter and Company

ADDRESS: 170 North Main Street, Wharton, NJ 07885

LOCATION WHERE OPENING IS TO BE MADE: On the north side of Ross Street, East of the Ross Street and North Main Intersection; Approximately 5 feet south of the Ross Street North Curb (easement) (See attached scale drawing - Figure 1)

CONTRACTOR: Active Environmental Technologies, Inc., 40 High Street Suite 100, Mount Holly, NJ 08060

PHONE NUMBER: HOME: (800) 967-4202 (24-hr pager) Jeff Lux BUSINESS: (609) 702-1500

STARING DATE April 1, 1999 COMPLETION DATE: April 1, 1999

LENGTH AND WIDTH OF OPENING: 3 inches wide by 12 feet deep (approximately) Info based on site depth to groundwater

DOES OPENING COMPLETELY BLOCK ROAD OR STREET: No

WILL OPENING BE OPEN MORE THAN 24 HOURS: No

TYPE OF ROAD SURFACE TO BE OPENED : Asphalt

PURPOSE OF ROAD OPENING: To obtain a shallow groundwater sample

REMARK: RMT, Inc. (Consultant) Point of Contact: Mr. Nicholas J. Clevett (312) 575-0200
Subsurface structure are temporary and will be removed the same day installation takes place. Road surface will be restored back to its original condition.

Warning signs will be posted in accordance with ordinance.
Contractor will be responsible for trench until permanently patched
-No old materials will be used to refill a trench (shoulder stone must be used).
Bond will not be returned without approval of Engineer.

cc - Police Department
Public Works Department
Clerk

Date: 3/23/99

signed

Project Manager (RMT)
title

Permission granted to make street openings and do work as described above.

BOROUGH OF WHARTON

Application Fee Paid _____

Inspection Fee Paid Amt. _____

Bond Filed _____

_____
Engineer

Temporary Well Location: HP-5

BOROUGH OF WHARTON
ROAD OPENING REQUEST

DATE March 19, 1999

NAME OF APPLICANT: L.E. Carpenter and Company

ADDRESS: 170 North Main Street, Wharton, NJ 07885

LOCATION WHERE OPENING IS TO BE MADE: On the north side of Ross Street, East of the Ross Street and North Main Intersection; Approximately 5 feet south of the Ross Street North Curb (easement) (See attached scale drawing - Figure 1)

CONTRACTOR: Active Environmental Technologies, Inc., 40 High Street Suite 100, Mount Holly, NJ 08060

PHONE NUMBER: HOME: (800) 967-4202 (24-hr pager) Jeff Lux BUSINESS: (609) 702-1500

STARING DATE April 1, 1999 COMPLETION DATE: April 1, 1999

LENGTH AND WIDTH OF OPENING: 3 inches wide by 12 feet deep (approximately) Info based on site depth to groundwater

DOES OPENING COMPLETELY BLOCK ROAD OR STREET: No

WILL OPENING BE OPEN MORE THAN 24 HOURS: No

TYPE OF ROAD SURFACE TO BE OPENED : Asphalt

PURPOSE OF ROAD OPENING: To obtain a shallow groundwater sample

REMARK: RMT, Inc. (Consultant) Point of Contact: Mr. Nicholas J. Clevett (312) 575-0200
Subsurface structure are temporary and will be removed the same day installation takes place. Road surface will be restored back to its original condition.

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Bond will not be returned without approval of Engineer.

cc - Police Department
Public Works Department
Clerk

Nicholas J. Clevett
signed

Date: 3/23/99

RMT Project Manager _____
title

Permission granted to make street openings and do work as described above.

BOROUGH OF WHARTON

Application Fee Paid _____

Inspection Fee Paid Amt. _____

Bond Filed _____

_____
Engineer

RMT, Inc.
P.O. Box 8923
Madison, WI 53708-8923
608 / 831-4444

Check Number 2065497
Date 03/25/99
Vendor Number 0033559

Voucher No.	Invoice Date	Invoice Number	Invoice Amount	Credits	Previous Payments	Net Amount
53653						325.00
					TOTAL	325.00

RMT, Inc.
P.O. Box 8923
Madison, WI 53708-8923
608 / 831-4444

NORWEST BANK OHIO, N.A.
56-382/412

2502065497

Date	Check No.
03/25/99	2065497

Amount
325.00

VOID AFTER 90 DAYS

Pay Three Hundred Twenty-Five 00/100

RMT

TO THE ORDER OF
Borough of Wharton
10 Robert Street
Wharton NJ 07885-1997

⑈250206549⑆ ⑆011203821⑈ 9600009286⑈

BOROUGH OF WHARTON
ROAD OPENING PERMIT

DATE:March 30,1999 PERMIT NO OP-99-4

APPLICANT RMT Inc.

APPLICANT'S ADDRESS:PO Box 8923
Madison Wi.

ROAD OPENING LOCATION: 5 Locations on Ross Street environmental test borings

STARTING DATE: March 30,1999
COMPLETION DATE: March 30,1999

DOES OPENING COMPLETELY BLOCK ROAD: YES NO X

DURATION OF OPENING:8 HOURS

APPROVED BY:

Borough of Wharton

PLEASE NOTE :

THE BOROUGH HOUSING/ZONING OFFICIAL MUST BE NOTIFIED 24 HOURS PRIOR TO THE COMMENCEMENT OF WORK ON ALL ROAD OPENINGS. PLEASE CALL 201-361-8444 EXT 21.

Appendix I
Township Right-Of-Way Generalized Subsurface Profile

GENERALIZED SUBSURFACE PROFILE

L. E. CARPENTER
TOWNSHIP RIGHT-OF-WAY

0 - 6"	Asphalt
6" - 4'	Undifferentiated made land
4' - 6'	Mixed origin sand gravel, alluvium deposits
6' - 14'	Intermingled glacial deposit (1" - 1' diameter cobbles)
14' - ?	Not encountered

Groundwater encountered: 11-13' below grade

Appendix J
HydroPunch® Laboratory Report

QC Inc.

1205 INDUSTRIAL HIGHWAY • P.O. BOX 514 • SOUTHAMPTON, PA 18966-0514 • (215) 355-3900

Laboratory Deliverables Checklist

		Check if Complete
1.	Cover Page, Title Page listing Lab Certification #, facility name and address, & date of report	x
2.	Table of Contents	x
3.	Summary Sheets listing analytical results for all targeted and non-targeted compounds	x
4.	Summary Table cross-referencing field ID#'s vs Lab ID#'s	x
5.	Document bound, paginated and legible	x
6.	Chain of Custody	x
7.	Methodology Summary	x
8.	Laboratory Chronicle and Holding Time Check	x
9.	Results submitted on a dry weight basis (if applicable)	n/a
10.	Method Detection Limits	x
11.	Lab certified by NJDEP for parameters or appropriate category of parameters or a member of the USEPA CLP	x
12.	Non-Conformance Summary	x

QA Review: Mary A. Serembus Date 5/14/99

Mary A. Serembus

05/14/99 11:19am

NICHOLAS CLEVETT
RESIDUAL MANAGEMENT TECHNOLOGY, INC.
222 SOUTH RIVERSIDE PLAZA
SUITE 820
CHICAGO, IL 60606

Regarding:

NICHOLAS CLEVETT
RESIDUAL MANAGEMENT TECHNOLOGY, INC.
222 SOUTH RIVERSIDE PLAZA
SUITE 820
CHICAGO, IL 60606

ccount No: C00541, RESIDUAL MANAGEMENT TECHNOLOGY RMT
roject No: C00541, RESIDUAL MANAGEMENT TECHNOLOGY RMT

P.O. No:
PWSID No:

Inv. No: 214669

Sample Number L526805-1
Sample Description L.E. CARPENTER WHARTON NJ HP-1
Samp. Date/Time/Temp 04/21/99 03:25pm NA°F
Sampled by Customer Sampled

Parameter	Method	Result	PQL	Test Date, Time, Analyst
BIS(2-ETHYLHEXYL)PHTHALATE	EPA Method 625	ND ug/l	15.0 ug/l	04/29/99 07:32PM JAL
BENZENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 01:12PM MRS
TOLUENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 01:12PM MRS
ETHYL BENZENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 01:12PM MRS
M&P-XYLENES	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 01:12PM MRS
O-XYLENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 01:12PM MRS

result of "ND" indicates the concentration of the analyte tested was either not detected or below the PQL.
Inc's laboratory certification numbers are: PADER 09-131; NJDEP 77166, NC 488, NY,CT,DE,and MD upon request.
Definitions: ND=not detected; NEG=negative; POS=positive; COL=colonies; PQL=practical quanitation level; L/A=laboratory accident; NTC=too numerous to count.
A result marked with "DRY" indicates that the result was calculated and reported on a dry weight basis.

05/14/99 11:19am

NICHOLAS CLEVETT
RESIDUAL MANAGEMENT TECHNOLOGY, INC.
222 SOUTH RIVERSIDE PLAZA
SUITE 820
CHICAGO, IL 60606

Regarding:

NICHOLAS CLEVETT
RESIDUAL MANAGEMENT TECHNOLOGY, INC.
222 SOUTH RIVERSIDE PLAZA
SUITE 820
CHICAGO, IL 60606

---

ccount No: C00541, RESIDUAL MANAGEMENT TECHNOLOGY RMT
roject No: C00541, RESIDUAL MANAGEMENT TECHNOLOGY RMT

P.O. No:
PWSID No:

Inv. No: 214669

Sample Number L526805-2
Sample Description HP-2
Samp. Date/Time/Temp 04/21/99 03:35pm NA°F
Sampled by Customer Sampled

Parameter	Method	Result	PQL	Test Date, Time, Analyst
BIS(2-ETHYLHEXYL)PHTHALATE	EPA Method 625	1.51 JB ug/l	5.00 ug/l	04/30/99 07:03AM JAL
BENZENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 01:38PM MRS
TOLUENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 01:38PM MRS
ETHYL BENZENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 01:38PM MRS
M&P-XYLENES	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 01:38PM MRS
O-XYLENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 01:38PM MRS

**** NOTES CONCERNING THE ABOVE SAMPLE ****

. QUALIFIERS: "B" is used when the compound is found in the blank as well as in the sample; "J" indicates an estimated value; "E" dentifies compounds whose concentrations exceed the range of calibration of the instrument; "N" indicates presumptive evidence of compound.

result of "ND" indicates the concentration of the analyte tested was either not detected or below the PQL.
C Inc's laboratory certification numbers are: PADER 09-131; NJDEP 77166, NC 488, NY,CT,DE,and MD upon request.
Definitions: ND=not detected; NEG=negative; POS=positive; COL=colonies; PQL=practical quanitation level; L/A=laboratory accident; TC=too numerous to count.
A result marked with "DRY" indicates that the result was calculated and reported on a dry weight basis.

05/14/99 11:19am

NICHOLAS CLEVETT
RESIDUAL MANAGEMENT TECHNOLOGY, INC.
222 SOUTH RIVERSIDE PLAZA
SUITE 820
CHICAGO, IL 60606

Regarding:

NICHOLAS CLEVETT
RESIDUAL MANAGEMENT TECHNOLOGY, INC.
222 SOUTH RIVERSIDE PLAZA
SUITE 820
CHICAGO, IL 60606

---

ccount No: C00541, RESIDUAL MANAGEMENT TECHNOLOGY RMT
roject No: C00541, RESIDUAL MANAGEMENT TECHNOLOGY RMT

P.O. No:
PWSID No:

Inv. No: 214669

Sample Number L526805-3
Sample Description HP-3
Samp. Date/Time/Temp 04/21/99 03:40pm NA°F
Sampled by Customer Sampled

Parameter	Method	Result	PQL	Test Date, Time, Analyst
BIS(2-ETHYLHEXYL)PHTHALATE	EPA Method 625	4.64 JB ug/l	5.00 ug/l	04/30/99 07:51AM JAL
BENZENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 02:03PM MRS
TOLUENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 02:03PM MRS
ETHYL BENZENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 02:03PM MRS
M&P-XYLENES	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 02:03PM MRS
O-XYLENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 02:03PM MRS

**** NOTES CONCERNING THE ABOVE SAMPLE ****

QUALIFIERS: "B" is used when the compound is found in the blank as well as in the sample; "J" indicates an estimated value; "E" entifies compounds whose concentrations exceed the range of calibration of the instrument; "N" indicates presumptive evidence of compound.

result of "ND" indicates the concentration of the analyte tested was either not detected or below the PQL.
C Inc's laboratory certification numbers are: PADER 09-131; NJDEP 77166, NC 488, NY,CT,DE,and MD upon request.
Definitions: ND=not detected; NEG=negative; POS=positive; COL=colonies; PQL=practical quanitation level; L/A=laboratory accident; TC=too numerous to count.
A result marked with "DRY" indicates that the result was calculated and reported on a dry weight basis.

05/14/99 11:19am

NICHOLAS CLEVETT
RESIDUAL MANAGEMENT TECHNOLOGY, INC.
222 SOUTH RIVERSIDE PLAZA
SUITE 820
CHICAGO, IL 60606

Regarding:

NICHOLAS CLEVETT
RESIDUAL MANAGEMENT TECHNOLOGY, INC.
222 SOUTH RIVERSIDE PLAZA
SUITE 820
CHICAGO, IL 60606

ccount No: C00541, RESIDUAL MANAGEMENT TECHNOLOGY RMT
roject No: C00541, RESIDUAL MANAGEMENT TECHNOLOGY RMT

P.O. No:
PWSID No:

Inv. No: 214669

Sample Number L526805-4
Sample Description HP-4
Samp. Date/Time/Temp 04/21/99 04:00pm NA°F
Sampled by Customer Sampled

Parameter	Method	Result	PQL	Test Date, Time, Analyst
BIS(2-ETHYLHEXYL)PHTHALATE	EPA Method 625	ND ug/l	15.0 ug/l	04/29/99 09:54PM JAL
BENZENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 02:29PM MRS
TOLUENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 02:29PM MRS
ETHYL BENZENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 02:29PM MRS
M&P-XYLENES	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 02:29PM MRS
O-XYLENE	EPA Method 602	ND ug/l	1.00 ug/l	04/27/99 02:29PM MRS

esult of "ND" indicates the concentration of the analyte tested was either not detected or below the PQL.
Inc's laboratory certification numbers are: PADER 09-131; NJDEP 77166, NC 488, NY,CT,DE,and MD upon request.
Definitions: ND=not detected; NEG=negative; POS=positive; COL=colonies; PQL=practical quanitation level; L/A=laboratory accident;
TNTC=too numerous to count.
A result marked with "DRY" indicates that the result was calculated and reported on a dry weight basis.

05/14/99 11:19am

NICHOLAS CLEVETT
RESIDUAL MANAGEMENT TECHNOLOGY, INC.
222 SOUTH RIVERSIDE PLAZA
SUITE 820
CHICAGO, IL 60606

Regarding:

NICHOLAS CLEVETT
RESIDUAL MANAGEMENT TECHNOLOGY, INC.
222 SOUTH RIVERSIDE PLAZA
SUITE 820
CHICAGO, IL 60606

ccount No: C00541, RESIDUAL MANAGEMENT TECHNOLOGY RMT
roject No: C00541, RESIDUAL MANAGEMENT TECHNOLOGY RMT

P.O. No:
PWSID No:

Inv. No: 214669

Sample Number L526805-5
Sample Description TRIP BLANK
Samp. Date/Time/Temp 04/21/99 00:00am NA°F
Sampled by Customer Sampled

Parameter	Method	Result	PQL	Test Date, Time, Analyst
BENZENE	EPA Method 602	ND ug/l	0.500 ug/l	04/27/99 02:56PM MRS
TOLUENE	EPA Method 602	ND ug/l	0.500 ug/l	04/27/99 02:56PM MRS
ETHYL BENZENE	EPA Method 602	ND ug/l	0.500 ug/l	04/27/99 02:56PM MRS
M&P-XYLENES	EPA Method 602	ND ug/l	0.500 ug/l	04/27/99 02:56PM MRS
O-XYLENE	EPA Method 602	ND ug/l	0.500 ug/l	04/27/99 02:56PM MRS

result of "ND" indicates the concentration of the analyte tested was either not detected or below the PQL.
Inc's laboratory certification numbers are: PADER 09-131; NJDEP 77166, NC 488, NY,CT,DE,and MD upon request.
Definitions: ND=not detected; NEG=negative; POS=positive; COL=colonies; PQL=practical quanitation level; L/A=laboratory accident;
TC=too numerous to count.
A result marked with "DRY" indicates that the result was calculated and reported on a dry weight basis.

SEMIVOLATILE GC/MS CONFORMANCE/NON-CONFORMANCE SUMMARY

Project Login Number: L526805

	N	Y
1. Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks)		X
2. DFTPP Tune Specifications Met		X
3. GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series		X
4. GC/MS Calibration Requirements - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series		X
5. GC/MS Calibration Requirements 625 Initial and calibrations meet requirements.		X
6. Blank Contamination - If yes, list blank identification number(s) where contamination appears.		X

SBLK02 contained 1.13 ug/L bis(2-ethylhexyl)phthalate.

	N	Y
7. Surrogate Recoveries Meet Criteria	X	

If not met, list Surrogate Recovery Summary page reference.

SBLK01 had two BN surrogate recoveries fail criteria. Surrogate recoveries met criteria in the associated batch QC. No further action is required.

	N	Y
8. Matrix Spike Recoveries Meet Criteria		X

if not met, list MS Recovery Summary page reference.

	N	Y
9. Internal Standard Areas Meet Criteria		X

If not met, list Internal Standard Area Summary page reference.

	N	Y
10. Extraction Holding Times Met		X

If not met, list each sample and the number of days exceeded.

SEMIVOLATILE GC/MS CONFORMANCE/NON-CONFORMANCE SUMMARY (CONTINUED)

Project Login Number: L526805

	N	Y
11. Analysis Holding Times Met		X

If not met, list each sample and the number of days exceeded.

12. Additional Comments Including Method Modifications:

Package Prepared By: John A. Layman Date 5-3-04

VOLATILE GC CONFORMANCE/NON-CONFORMANCE

Project Login Number: L526805-1 to L526805-5 **Method:** 602

	N	Y
1.Chromatograms labeled/Compounds identified:		X
2.Calibration summary submitted:		X
3.Calibration:		
a)Continuing calibration performed within 30 days of initial calibration		X
b)Samples run within 12 hours of a calibration or check standard		X
c)Calibration meets either %RSD or r^2 criteria specified in method		X
4.Blank contamination-If yes, list contaminant compound and samples affected	X	
5.Surrogate recoveries meet criteria specified by method. If recoveries are not met, list samples affected.		X
6.Matrix spike/matrix spike duplicate recoveries meet criteria specified by method.		X
If not, does QC check standard meet criteria.		
7.Analysis holding time met		X

8.Additional comments

Package prepared by Catherine M Walker Date: 5/5/99

Inc.

1205 INDUSTRIAL HIGHWAY • P.O. BOX 514 • SOUTHAMPTON, PA 18966-0514 • (215) 355-3900

ANALYTICAL DATA REPORT PACKAGE

FOR

RESIDUAL MANAGEMENT TECHNOLOGY RMT

Field Sample ID	Laboratory Sample ID	Date of Collection
L.E. CARPENTER WHARTON NJ HP-1	L526805-1	04/21/99
HP-2	L526805-2	04/21/99
HP-3	L526805-3	04/21/99
HP-4	L526805-4	04/21/99
TRIP BLANK	L526805-5	04/21/99

Certification No. PADEP No. 09-131
NJDEP No. 77166

Laboratory Director Signature

Printed Name Thomas J. Hines

Date 5/14/99

QC Inc.

1205 INDUSTRIAL HIGHWAY • P.O. BOX 514 • SOUTHAMPTON, PA 18966-0514 • (215) 355-3900

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L526805

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GC/MS Semivolatile Organics Results and Data Package	12
GC Volatile Organics Results and Data Package	77
Last Page of Report	107

Cu 34.

QC Inc.
1205 Industrial Blvd.
Southampton, PA 18966-0514
Voice: (215) 355-3900
Fax: (215) 355-7231

CHAIN OF CUSTODY

Page 1 of 1

Lab LIMS No: L526805

Client/Acct. No. RMT Inc.
Address 222 S. Riverside Plaza Suite 820
City/State/Zip Chicago, IL 60606
Phone/Fax 312 575-0750 / 312 575-0303
Client Contact Nick Clowell

Bill to/Report to: (if different)

Sampling Site Address: (if different) L.E. Carpenter - Wharton N.J.

P.O. No. 3868.10

QC Contact

LAB USE ONLY:

___ Ascorbic/HCl Vials # 11 HCl Vials
___ $Na_2S_2O_3$
___ Na OH/Zn acetate pH
___ HNO_3 pH
___ H_2SO_4 pH
___ NaOH pH
11 Unpreserved amber

MATRIX CODES

DW: DRINKING WATER
GW: GROUND WATER
WW: WASTEWATER
SO: SOIL
SL: SLUDGE
OIL: OIL
SOL: NON SOIL SOLID
MI: MISCELLANEOUS
X: OTHER

PROJECT

FIELD ID	Collection Date	Military Time	GRAB	COMP	Matrix Code	Total	H_2SO_4	HCl	HNO_3	NaOH	ZnAc	Unpres	Bact	ANALYSIS REQUESTED	Field pH, Temp (C or F), DO, Cl_2, S. Cond. etc.
HP-1	4-21-99	15:20	X		GW	6		3				3		BTEX (846) + DEPH (8270)	625 BN
HP-2	4-21-99	15:30	X			6		3				3		BTEX (846) + DEAR (8270)	602 BTEX
HP-3	4-21-99	15:40	X			6		3				3		BTEX (846) + DEHP (8270)	per Amy 4/22/99 GW
HP-4	4-21-99	16:00	X		GW	6		3				3		BTEX (846) + DEHP (8270)	

SAMPLED BY: (Name/Company) Dan Lestone / RMT
JEFF LUX / Aqtive

Verbal/fax data due: ___/___/___
Hardcopy due: ___/___/___

Report Format: ☐ Standard ☐ Forms
☐ Standard + QC ☒ NJ Reduced ☒ Disk

Please call for pricing and availability on rush (<14-21 day) turnaround and on all but standard format.

Field Parameters Analyzed By:
Sig: Date/Time:

SAMPLE CUSTODY EXCHANGES MUST BE DOCUMENTED BELOW. USE FULL LEGAL SIGNATURE, DATE AND MILITARY TIME (24 HOUR CLOCK, I.E. 8AM IS 0800, 4 PM IS 1600)

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
1	4-21-99	16:00	1 HEC	4-22-99	9:05
2 Nick Clowell	4-22-99	3:55	2		
3	4-23-99	7:45	3	4-23-99	7:45
4	4/23/99	7:00	4	4/23/99	7:00
5			5		

DELIVERY METHOD: ☐ QC COURIER ☐ CLIENT ☐ UPS ☐ FEDEX ☐ OTHER

Custody Seal Number

COMMENTS:

FOR EXAMPLE TO AID COMPLETION, SEE REVERSE SIDE.

Inc.

1205 INDUSTRIAL HIGHWAY • P.O. BOX 514 • SOUTHAMPTON, PA 18966-0514 • (215) 355-3900

Terminology Summary For Organic Analysis

Qualifiers (Q) - Present on Sample Analysis Data Sheet

B - This flag is used when the compound is found in the associated blank as well as in the sample. It indicates possible laboratory contamination.

E - This flag identifies compounds whose concentrations exceed the range of calibration of the instrument.

J - Indicates an estimated value. This flag is used either when estimating concentrations for tentatively identified compounds, or when quantitative data indicates the presence of a compound at a level below the usual sample reporting level, but above the method detection level.

U - Indicates that compound was analyzed for but not detected; i.e. undetected.

N - Indicates presumptive evidence of a tentatively identified compound.

Definitions

Internal Standards - Pure analyses added to every sample (sample extract for semivolatile analysis), blank, and standard at known concentrations prior to analysis for the purpose of measuring relative responses of the method target compounds.

Method Detection Limit (MDL) - The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.

Method Blank - An analytical control containing all the reagents in the same amounts as used in processing samples. The method blank is carried through the complete sample preparation and analytical process. The method blank is used to define the level of laboratory background.

Surrogate Standards - A pure analyte that is added to a sample, blank, and standard in known amounts before sample preparation / analysis and is measured with the same procedure used to measure other sample components. The purpose of a surrogate analyte is to monitor method performance with each sample.

GC/MS SEMIVOLATILE ORGANICS RESULTS AND DATA PACKAGE

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HP-1

Lab Name: QC INC
Contract:
Matrix: (soil/water) WATER
Lab Sample ID: L526805-1
Sample wt/vol: 1000.00 (g/mL) ML
Lab File ID: J12512.D
Level: (low/med)
Date Received: 04/22/99
% Moisture:
Date Extracted: 04/26/99
Concentrated Extract Volume: 1000 (uL)
Date Analyzed: 04/29/99
Injection Volume: 1.0 (uL)
Dilution Factor: 3.0
GPC Cleanup: (Y/N) N

CAS No.	Compound	PQL	Concentration Units: (ug/L or ug/Kg) ug/L	Q
117-81-7	bis(2-Ethylhexyl)phthalate	15.0		UD

U - Compound is not Detected
J - Compound is Detected but is Below the PQL
D - Compound Result is from Dilution
E - Compound Concentration is Estimated
B - Compound is Present in Blank

FORM I SV

0014

Data File : C:\HPCHEM\1\DATA\042999J\J12512.D
Acq On : 29 Apr 99 19:32 pm
Sample : L526805-1 HP-1
Misc : 1000ML-1ML/3X/RESIDUAL/0422-625
Quant Time: Apr 30 8:11 1999

Vial: 11
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:51:47 1999
Response via : Initial Calibration

4-30-99

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	9.86	152	569953	40.00 ng/uL	-0.16
17) Naphthalene-d8	12.77	136	2434757	40.00 ng/uL	-0.16
32) Acenaphthene-d10	16.93	164	1327740	40.00 ng/uL	-0.15
52) Phenanthrene-d10	20.44	188	2363872	40.00 ng/uL	-0.17
65) Chrysene-d12	26.93	240	1495438	40.00 ng/uL	-0.20
74) Perylene-d12	31.24	264	1104323	40.00 ng/uL	-0.25

System Monitoring Compounds					%Recovery
3) 2-Fluorophenol	0.00	112	0	0.00 ng/uL	0.00%
5) Phenol-d5	9.86	99	18822	0.81 ng/uL	0.41%
18) Nitrobenzene-d5	11.26	82	549219	26.47 ng/uL	26.47%
36) 2-Fluorobiphenyl	15.36	172	1056484	23.78 ng/uL	23.78%
56) 2,4,6-Tribromophenol	0.00	330	0	0.00 ng/uL	0.00%
68) Terphenyl-d14	24.27	244	981162	26.67 ng/uL	26.67%

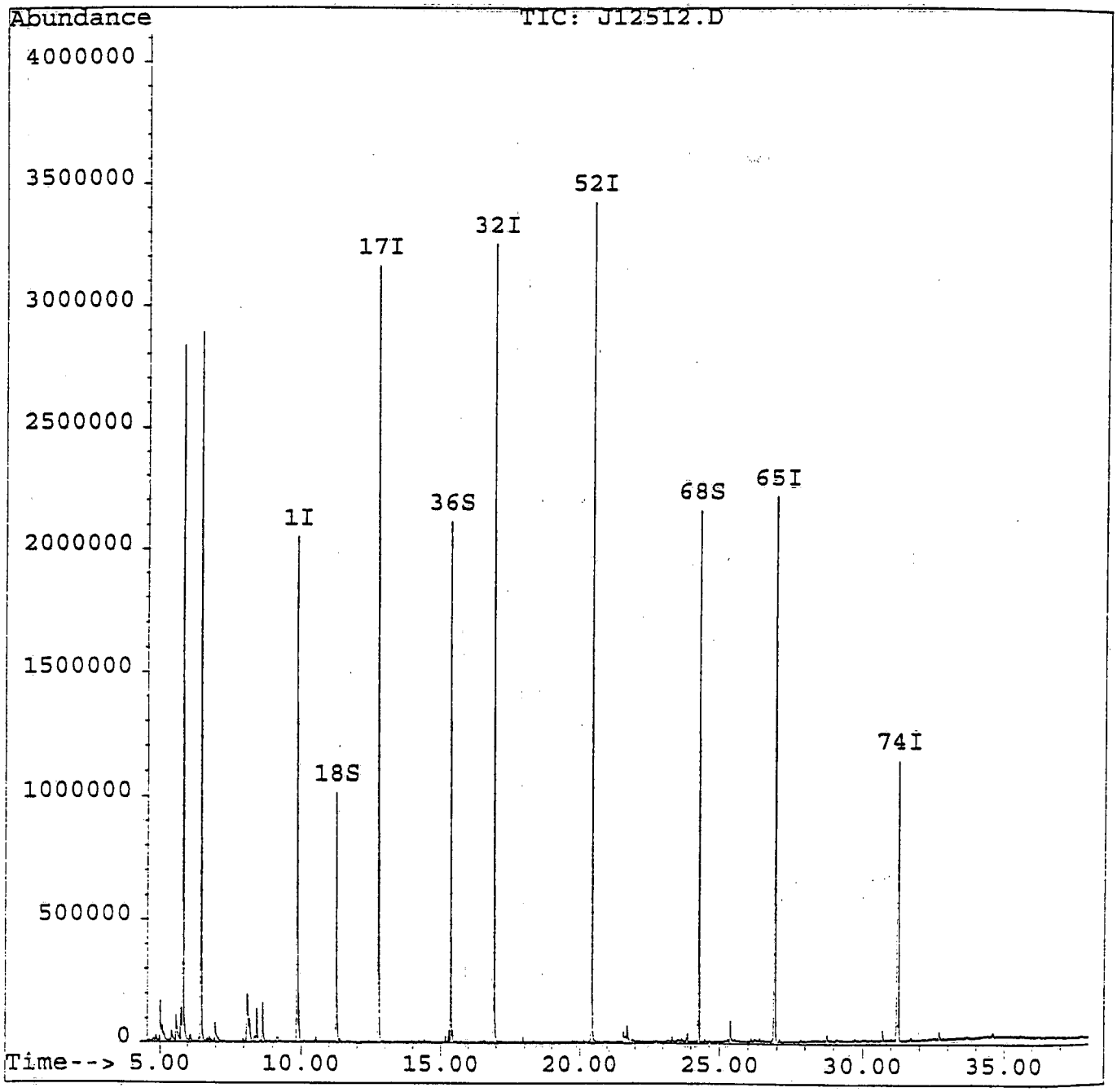
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\042999J\J12512.D
Acq On : 29 Apr 99 19:32 pm
Sample : L526805-1 HP-1
Misc : 1000ML-1ML/3X/RESIDUAL/0422-625
Quant Time: Apr 30 8:11 1999

Vial: 11
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:51:47 1999
Response via : Multiple Level Calibration



1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

HP-2

Lab Name: QC INC

Contract:

Matrix: (soil/water) WATER

Lab Sample ID: L526805-2

Sample wt/vol: 1000.00 (g/mL) ML

Lab File ID: J12521.D

Level: (low/med)

Date Received: 04/22/99

% Moisture:

Date Extracted: 04/26/99

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 04/30/99

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS No.	Compound	PQL	Concentration Units: (ug/L or ug/Kg) ug/L	Q
117-81-7	bis(2-Ethylhexyl)phthalate	5.00	1.51	JB

U - Compound is not Detected
J - Compound is Detected but is Below the PQL
D - Compound Result is from Dilution
E - Compound Concentration is Estimated
B - Compound is Present in Blank

FORM I SV

Data File : c:\hpchem\1\data\042999j\j12521.d
Acq On : 30 Apr 99 7:03 am
Sample : L526805-2 HP-2
Misc : 1000ML-1ML/RESIDUAL/0422-625
Quant Time: Apr 30 8:44 1999

Vial: 20
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:51:47 1999
Response via : Initial Calibration

4-30 99

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	9.84	152	480695	40.00	ng/uL	-0.17
17) Naphthalene-d8	12.75	136	1925574	40.00	ng/uL	-0.17
32) Acenaphthene-d10	16.93	164	1104059	40.00	ng/uL	-0.16
52) Phenanthrene-d10	20.43	188	1891890	40.00	ng/uL	-0.18
65) Chrysene-d12	26.92	240	1070598	40.00	ng/uL	-0.21
74) Perylene-d12	31.22	264	601872	40.00	ng/uL	-0.28

System Monitoring Compounds						%Recovery
3) 2-Fluorophenol	0.00	112	0	0.00	ng/uL	0.00%
5) Phenol-d5	9.84	99	18693	0.96	ng/uL	0.48%
18) Nitrobenzene-d5	11.25	82	1468454	89.48	ng/uL	89.48%
36) 2-Fluorobiphenyl	15.36	172	3180166	86.09	ng/uL	86.09%
56) 2,4,6-Tribromophenol	0.00	330	0	0.00	ng/uL	0.00%
68) Terphenyl-d14	24.28	244	3150405	119.62	ng/uL	119.62%

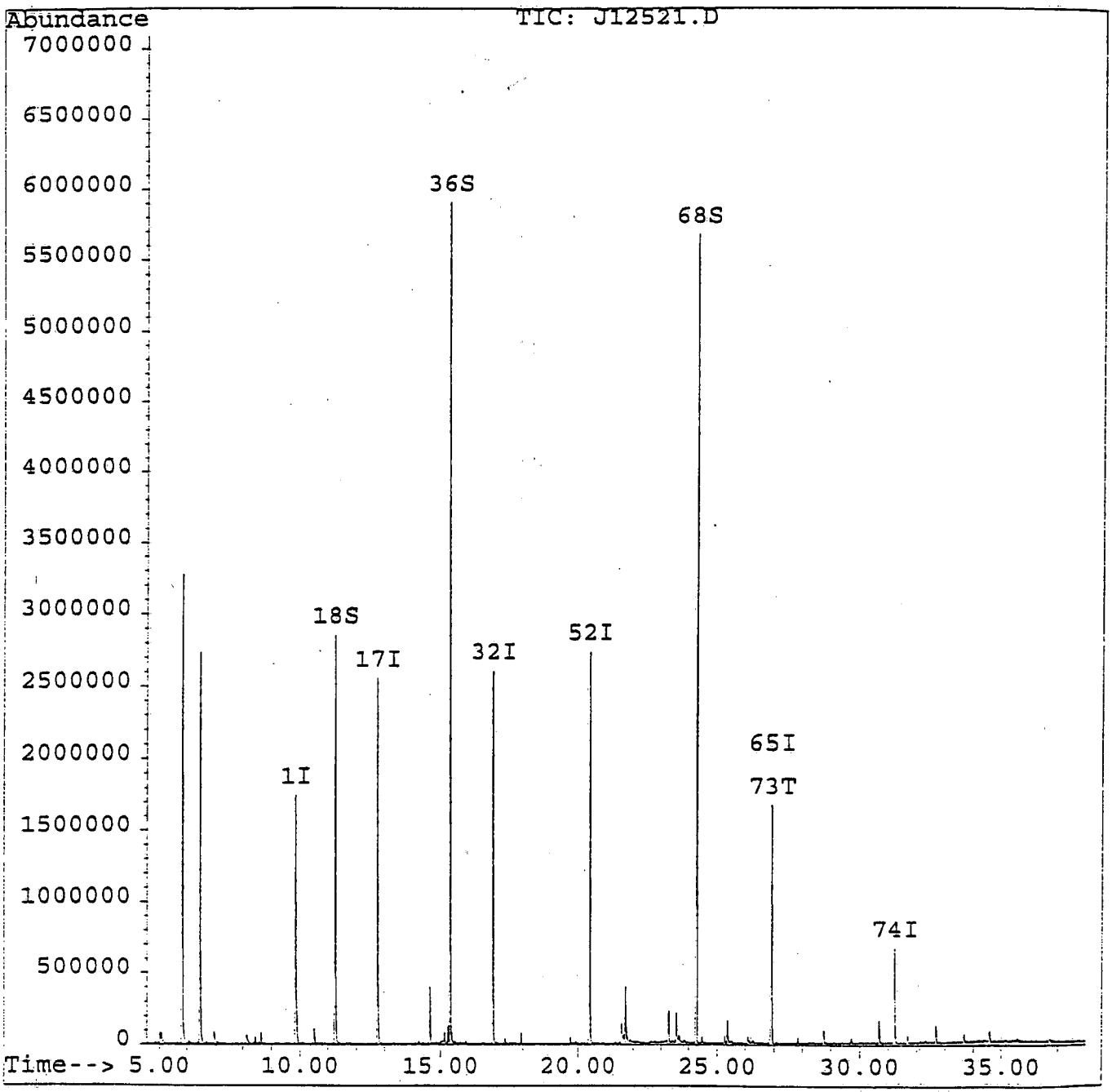
Target Compounds						Qvalue
73) bis(2-Ethylhexyl)phthalate	26.91	149	41192	1.51	ng/uL	98

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042999j\j12521.d
Acq On : 30 Apr 99 7:03 am
Sample : L526805-2 HP-2
Misc : 1000ML-1ML/RESIDUAL/0422-625
Quant Time: Apr 30 8:44 1999

Vial: 20
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:51:47 1999
Response via : Multiple Level Calibration



1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HP-3

Lab Name: QC INC
Contract:
Matrix: (soil/water) WATER
Lab Sample ID: L526805-3
Sample wt/vol: 1000.00 (g/mL) ML
Lab File ID: J12522.D
Level: (low/med)
Date Received: 04/22/99
% Moisture:
Date Extracted: 04/26/99
Concentrated Extract Volume: 1000 (uL)
Date Analyzed: 04/30/99
Injection Volume: 1.0 (uL)
Dilution Factor: 1.0
GPC Cleanup: (Y/N) N

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound	PQL		Q
117-81-7	bis(2-Ethylhexyl)phthalate	5.00	4.64	JB

U - Compound is not Detected
J - Compound is Detected but is Below the PQL
D - Compound Result is from Dilution
E - Compound Concentration is Estimated
B - Compound is Present in Blank

FORM I SV

Quantitation Report

Data File : c:\hpchem\1\data\042999j\j12522.d
Acq On : 30 Apr 99 7:51 am
Sample : L526805-3 HP-3
Misc : 1000ML-1ML/RESIDUAL/0422-625
Quant Time: Apr 30 8:45 1999

Vial: 21
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:51:47 1999
Response via : Initial Calibration

4-30 an

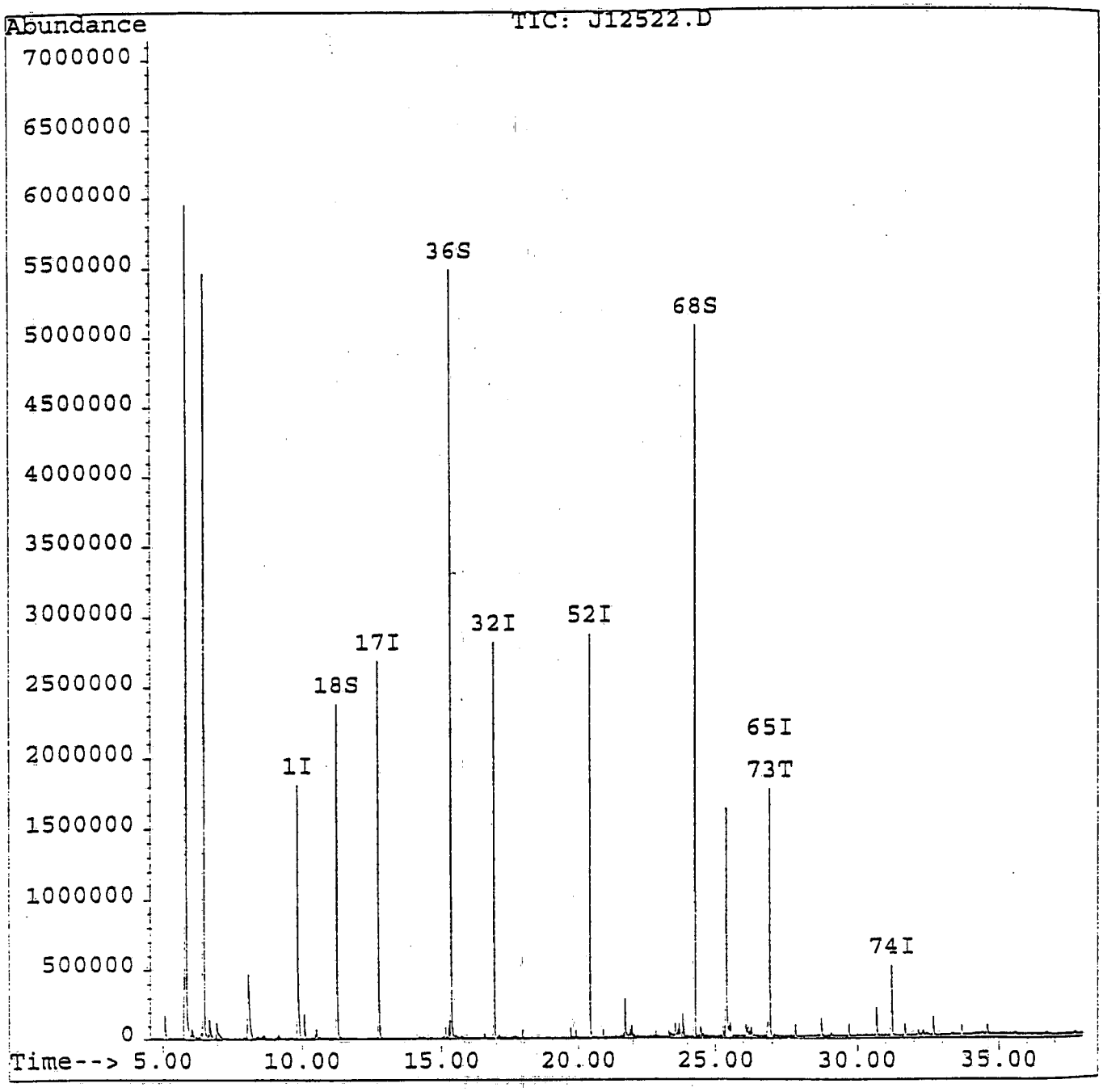
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	9.84	152	482008	40.00 ng/uL	-0.17
17) Naphthalene-d8	12.75	136	1970924	40.00 ng/uL	-0.17
32) Acenaphthene-d10	16.92	164	1121697	40.00 ng/uL	-0.17
52) Phenanthrene-d10	20.43	188	1923923	40.00 ng/uL	-0.18
65) Chrysene-d12	26.92	240	1016423	40.00 ng/uL	-0.21
74) Perylene-d12	31.20	264	466445	40.00 ng/uL	-0.29
System Monitoring Compounds					%Recovery
3) 2-Fluorophenol	0.00	112	0	0.00 ng/uL	0.00%
5) Phenol-d5	9.85	99	17670	0.90 ng/uL	0.45%
18) Nitrobenzene-d5	11.25	82	1218926	72.56 ng/uL	72.56%
36) 2-Fluorobiphenyl	15.36	172	2889859	77.01 ng/uL	77.01%
56) 2,4,6-Tribromophenol	0.00	330	0	0.00 ng/uL	0.00%
68) Terphenyl-d14	24.27	244	2734532	109.36 ng/uL	109.36%
Target Compounds					Qvalue
73) bis(2-Ethylhexyl)phthalate	26.91	149	120217	4.64 ng/uL	99

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042999j\j12522.d
Acq On : 30 Apr 99 7:51 am
Sample : L526805-3 HP-3
Misc : 1000ML-1ML/RESIDUAL/0422-625
Quant Time: Apr 30 8:45 1999

Vial: 21
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:51:47 1999
Response via : Multiple Level Calibration



1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HP-4

Lab Name: QC INC
Contract:
Matrix: (soil/water) WATER
Lab Sample ID: L526805-4
Sample wt/vol: 1000.00 (g/mL) ML
Lab File ID: J12515.D
Level: (low/med)
Date Received: 04/22/99
% Moisture:
Date Extracted: 04/26/99
Concentrated Extract Volume: 1000 (uL)
Date Analyzed: 04/29/99
Injection Volume: 1.0 (uL)
Dilution Factor: 3.0
GPC Cleanup: (Y/N) N

CAS No.	Compound	PQL	Concentration Units: (ug/L or ug/Kg) ug/L	Q
117-81-7	bis(2-Ethylhexyl)phthalate	15.0		UD

U - Compound is not Detected
J - Compound is Detected but is Below the PQL
D - Compound Result is from Dilution
E - Compound Concentration is Estimated
B - Compound is Present in Blank

FORM I SV

Data File : c:\hpchem\1\data\042999j\j12515.d
Acq On : 29 Apr 99 21:54 pm
Sample : L526805-4 HP-4
Misc : 1000ML-1ML/3X/RESIDUAL/0422-625
Quant Time: Apr 30 8:16 1999

Vial: 14
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:51:47 1999
Response via : Initial Calibration

4-30-00

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	9.86	152	453814	40.00 ng/uL	-0.16
17) Naphthalene-d8	12.76	136	1825862	40.00 ng/uL	-0.16
32) Acenaphthene-d10	16.93	164	1006975	40.00 ng/uL	-0.15
52) Phenanthrene-d10	20.44	188	1745829	40.00 ng/uL	-0.17
65) Chrysene-d12	26.93	240	1043575	40.00 ng/uL	-0.20
74) Perylene-d12	31.23	264	618086	40.00 ng/uL	-0.26

System Monitoring Compounds					%Recovery
3) 2-Fluorophenol	0.00	112	0	0.00 ng/uL	0.00%
5) Phenol-d5	9.86	99	15146	0.82 ng/uL	0.41%
18) Nitrobenzene-d5	11.26	82	400932	25.76 ng/uL	25.76%
36) 2-Fluorobiphenyl	15.36	172	689206	20.46 ng/uL	20.46%
56) 2,4,6-Tribromophenol	0.00	330	0	0.00 ng/uL	0.00%
68) Terphenyl-d14	24.26	244	609627	23.75 ng/uL	23.75%

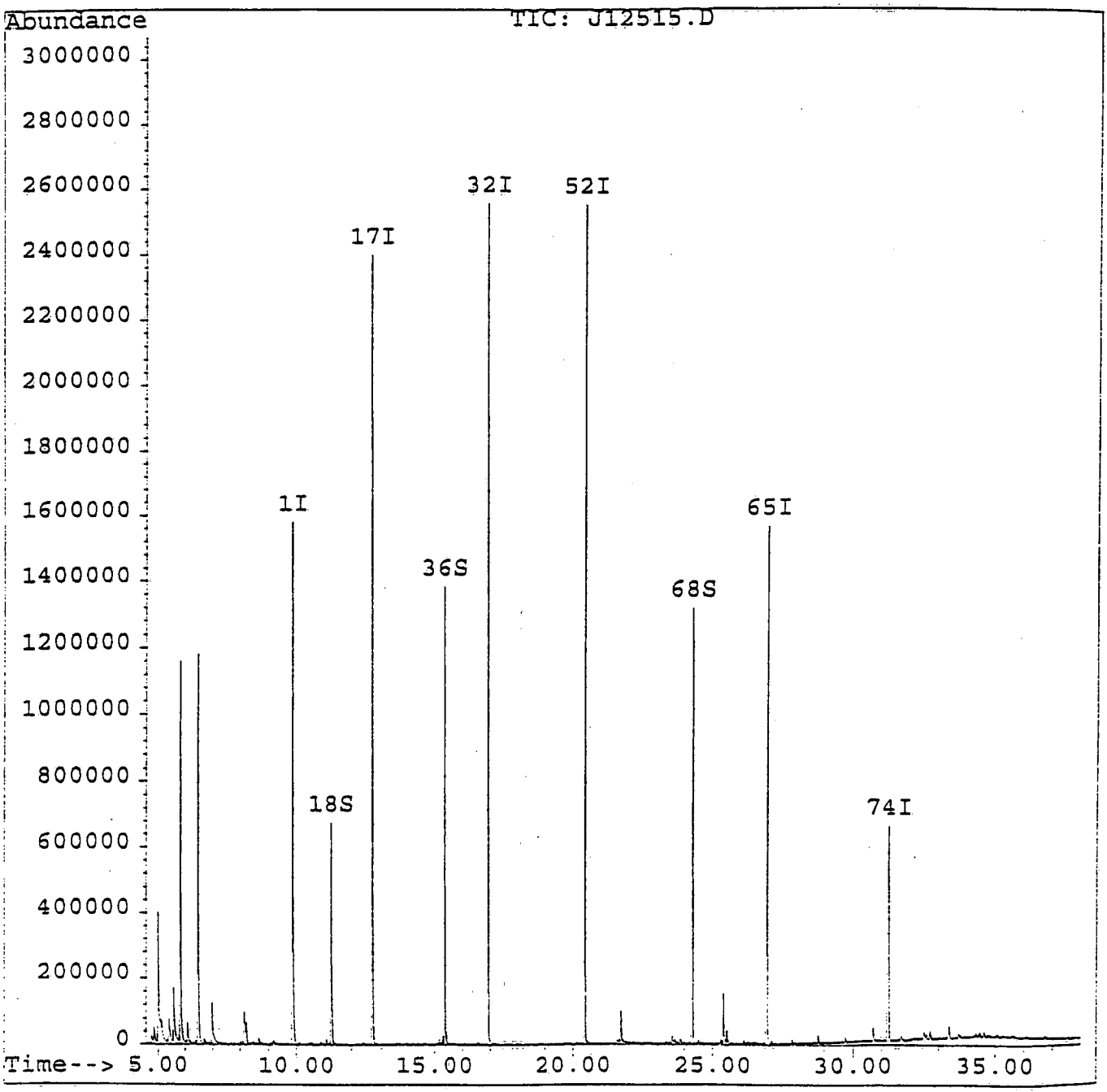
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042999j\j12515.d
Acq On : 29 Apr 99 21:54 pm
Sample : L526805-4 HP-4
Misc : 1000ML-1ML/3X/RESIDUAL/0422-625
Quant Time: Apr 30 8:16 1999

Vial: 14
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:51:47 1999
Response via : Multiple Level Calibration



WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QC INC Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Level: (low/med) _____

	SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	#	#	#	#	#	TOT OUT
01	SBLK01	16 *	16	15 *						2
02	L517451-1MS	77	80	74						
03	SBLK02	75	75	105						
04	HP-1	79 D	71 D	80 D						
05	HP-4	77 D	61 D	71 D						
06	HP-2	89	86	120						
07	HP-3	73	77	109						
08										
09										
10										
11										
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30										

	QC LIMITS
S1 (NBZ) = Nitrobenzene-d5	(27-138)
S2 (FBP) = 2-Fluorobiphenyl	(16-149)
S3 (TPH) = Terphenyl-d14	(17-156)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

FORM II SV-2

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: QC Inc. Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: 0422-625

Matrix Spike - EPA Sample No.: L517451-1MS Dilution: 1

Compound	Sample Result	Spike Result	% Rec. Limits	% Rec.	Q
N-Nitrosodimethylamine	0	72.26	1 - 149	72.3	
bis(2-Chloroethyl)ether	0	75.83	16 - 155	75.8	
1,3-Dichlorobenzene	0	71.01	18 - 135	71.0	
1,4-Dichlorobenzene	0	69.88	17 - 126	69.9	
1,2-Dichlorobenzene	0	73.22	18 - 132	73.2	
bis(2-chloroisopropyl)ether	0	92.28	9 - 170	92.3	
Hexachloroethane	0	73.99	7 - 137	74.0	
N-Nitroso-di-n-propylamine	0	73.13	16 - 161	73.1	
Nitrobenzene	0	74.35	15 - 159	74.4	
Isophorone	0	80.17	22 - 145	80.2	
bis(2-Chloroethoxy)methane	0	71.31	20 - 148	71.3	
1,2,4-Trichlorobenzene	0	73.25	16 - 130	73.3	
Naphthalene	0	75.43	22 - 128	75.4	
Hexachlorobutadiene	0	74.82	16 - 130	74.8	
2-Chloronaphthalene	0	77.33	24 - 137	77.3	
Acenaphthylene	0	73.76	8 - 149	73.8	
Dimethylphthalate	0	53.81	1 - 125	53.8	
2,6-Dinitrotoluene	0	78.47	37 - 114	78.5	
Acenaphthene	0	75.58	16 - 129	75.6	
2,4-Dinitrotoluene	0	77.05	27 - 135	77.1	
Fluorene	0	78.17	18 - 140	78.2	
4-Chlorophenyl-phenylether	0	80.11	19 - 141	80.1	
Diethylphthalate	0	65.84	11 - 137	65.8	
n-Nitrosodiphenylamine	0	73.13	1 - 134	73.1	
4-Bromophenyl-phenylether	0	85.97	17 - 145	86.0	
Hexachlorobenzene	0	83.21	27 - 145	83.2	
Phenanthrene	0	83.29	26 - 135	83.3	
Anthracene	0	77.85	32 - 117	77.9	
Di-n-butylphthalate	0	80.92	8 - 162	80.9	
Fluoranthene	0	80.93	25 - 131	80.9	
Pyrene	0	79.24	9 - 146	79.2	
Butylbenzylphthalate	0	80.19	24 - 152	80.2	
3,3'-Dichlorobenzidine	0	28.07	1 - 144	28.1	
Benzo[a]anthracene	0	76.77	21 - 130	76.8	
Chrysene	0	82.94	21 - 120	82.9	
bis(2-Ethylhexyl)phthalate	1.06	83.36	6 - 183	82.3	
Di-n-octylphthalate	0	85.42	16 - 196	85.4	
Benzo[b]fluoranthene	0	76.59	14 - 170	76.6	
Benzo[k]fluoranthene	0	78.90	14 - 164	78.9	
Benzo[a]pyrene	0	66.18	13 - 157	66.2	
Indeno[1,2,3-cd]pyrene	0	86.15	12 - 150	86.2	
Dibenz[a,h]anthracene	0	82.19	12 - 147	82.2	
Benzo[g,h,i]perylene	0	89.67	10 - 146	89.7	

4B

SEMIVOLATILE METHOD BLANK SUMMARY

SAMPLE NO.

SBLK01

Lab Name: QC INC Contract:

Lab File ID: H12366.D Lab Sample ID: MBLK 4-22

Instrument ID: HP-H Date Extracted: 04/22/99

Matrix: (soil/water) WATER Date Analyzed: 04/27/99

Level: (low/med) Time Analyzed: 14:59

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	L517451-1MS	L517451-1MS	H12369.D	04/27/99
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
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17				
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30				

COMMENTS:

FORM IV SV

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
SBLK01

Lab Name: QC INC
Contract:
Matrix: (soil/water) WATER
Lab Sample ID: MBLK 4-22
Sample wt/vol: 1000.00 (g/mL) ML
Lab File ID: H12366.D
Level: (low/med)
Date Received:
% Moisture:
Date Extracted: 04/22/99
Concentrated Extract Volume: 1000 (uL)
Date Analyzed: 04/27/99
Injection Volume: 1.0 (uL)
Dilution Factor: 1.0
GPC Cleanup: (Y/N) N

CAS No.	Compound	PQL	Concentration Units: (ug/L or ug/Kg) ug/L	Q
117-81-7	bis(2-Ethylhexyl)phthalate	5.00		U

U - Compound is not Detected
J - Compound is Detected but is Below the PQL
D - Compound Result is from Dilution
E - Compound Concentration is Estimated
B - Compound is Present in Blank

FORM I SV

Data File : C:\HPCHEM\1\DATA\042799H\H12366.D
Acq On : 27 Apr 99 2:59 pm
Sample : MBLK 4-22
Misc : 1000ML-1ML/0422-625
Quant Time: Apr 27 15:40 1999

Vial: 6
Operator: WRF
Inst : HP-H
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042399H.M
Title : CLP BNA Calibration
Last Update : Mon Apr 26 08:06:06 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	11.44	152	702304	40.00 ng/uL	-0.05
17) Naphthalene-d8	14.39	136	2596912	40.00 ng/uL	-0.04
32) Acenaphthene-d10	18.67	164	1206798	40.00 ng/uL	-0.05
52) Phenanthrene-d10	22.26	188	1769989	40.00 ng/uL	-0.04
65) Chrysene-d12	28.78	240	1367819	40.00 ng/uL	-0.05
74) Perylene-d12	33.01	264	1279248	40.00 ng/uL	-0.05
System Monitoring Compounds					%Recovery
3) 2-Fluorophenol	8.82	112	804822	31.62 ng/uL	15.81%
5) Phenol-d5	10.72	99	1004225	32.59 ng/uL	16.30%
18) Nitrobenzene-d5	12.76	82	429998	15.97 ng/uL	15.97%
36) 2-Fluorobiphenyl	17.02	172	552209	15.91 ng/uL	15.91%
56) 2,4,6-Tribromophenol	20.62	330	219400	33.43 ng/uL	16.71%
68) Terphenyl-d14	26.17	244	507929	14.60 ng/uL	14.60%
Target Compounds					Qvalue

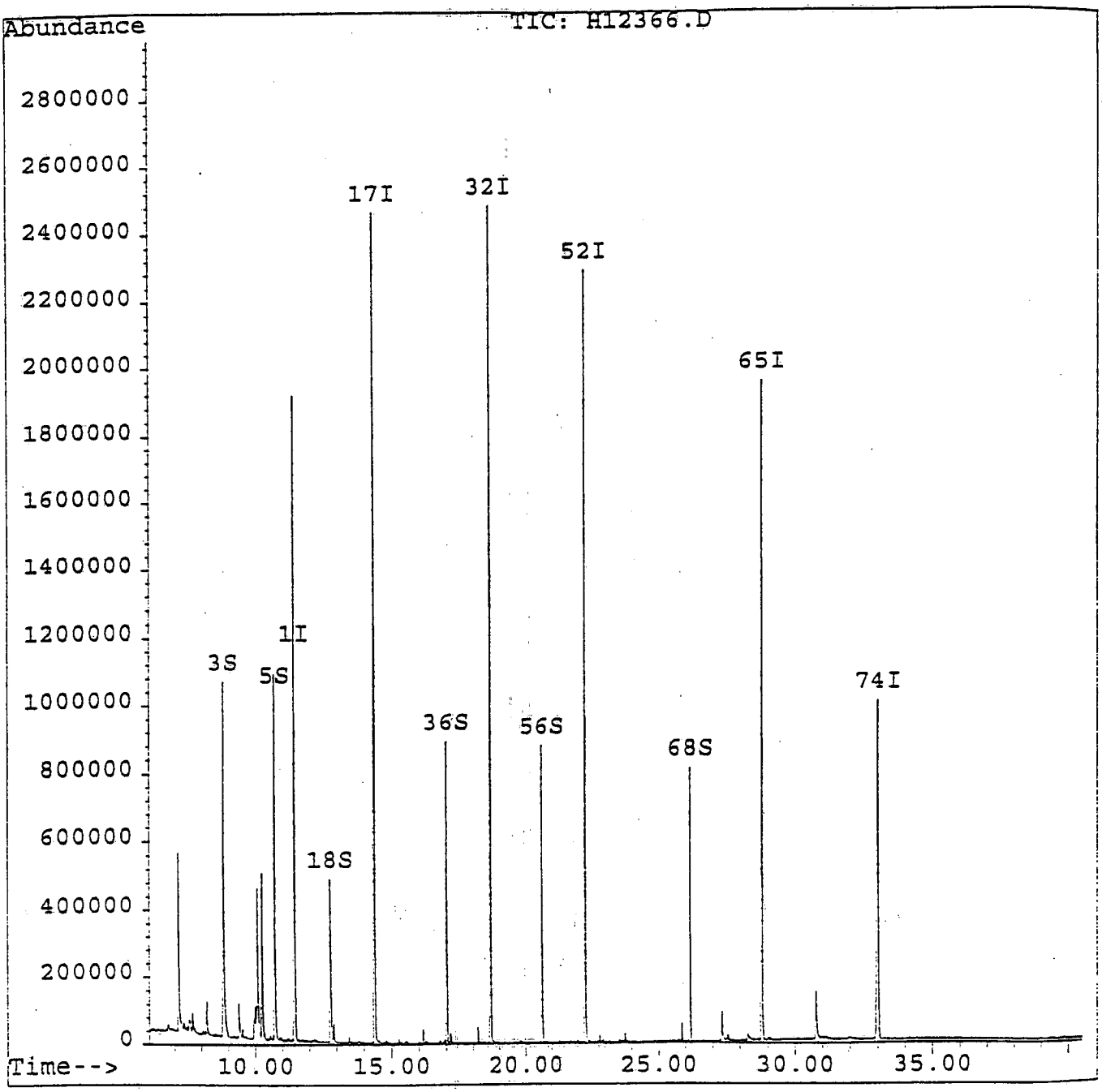
4-29-99

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\042799H\H12366.D
Acq On : 27 Apr 99 2:59 pm
Sample : MBLK 4-22
Misc : 1000ML-1ML/0422-625
Quant Time: Apr 27 15:40 1999

Vial: 6
Operator: WRF
Inst : HP-H
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042399H.M
Title : CLP BNA Calibration
Last Update : Mon Apr 26 08:06:06 1999
Response via : Multiple Level Calibration



4B

SEMIVOLATILE METHOD BLANK SUMMARY

SAMPLE NO.

SBLK02

Lab Name: QC INC Contract:

Lab File ID: J12509.D Lab Sample ID: MBLK 4-26

Instrument ID: HP-J Date Extracted: 04/26/99

Matrix: (soil/water) WATER Date Analyzed: 04/29/99

Level: (low/med) Time Analyzed: 17:06

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	HP-1	L526805-1	J12512.D	04/29/99
02	HP-4	L526805-4	J12515.D	04/29/99
03	HP-2	L526805-2	J12521.D	04/30/99
04	HP-3	L526805-3	J12522.D	04/30/99
05				
06				
07				
08				
09				
10				
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COMMENTS:

FORM IV SV

Data File : c:\hpchem\1\data\042999j\j12509.d
Acq On : 29 Apr 99 17:06 pm
Sample : MBLK 4-26
Misc : 1000ML-1ML/METHOD BLANK 4-26/0422-625
Quant Time: Apr 30 8:04 1999

Vial: 8
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:51:47 1999
Response via : Initial Calibration

John A Lynn 4-30-99

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	9.85	152	492601	40.00	ng/uL	-0.16
17) Naphthalene-d8	12.76	136	2236840	40.00	ng/uL	-0.16
32) Acenaphthene-d10	16.93	164	1257351	40.00	ng/uL	-0.16
52) Phenanthrene-d10	20.44	188	2079197	40.00	ng/uL	-0.17
65) Chrysene-d12	26.92	240	1202862	40.00	ng/uL	-0.21
74) Perylene-d12	31.23	264	1093902	40.00	ng/uL	-0.26

System Monitoring Compounds						%Recovery
3) 2-Fluorophenol	7.49	112	2563333	154.49	ng/uL	77.25%
5) Phenol-d5	9.54	99	3274747	164.01	ng/uL	82.01%
18) Nitrobenzene-d5	11.26	82	1432581	75.14	ng/uL	75.14%
36) 2-Fluorobiphenyl	15.37	172	3170690	75.37	ng/uL	75.37%
56) 2,4,6-Tribromophenol	18.87	330	1183638	176.00	ng/uL	88.00%
68) Terphenyl-d14	24.28	244	3111969	105.17	ng/uL	105.17%

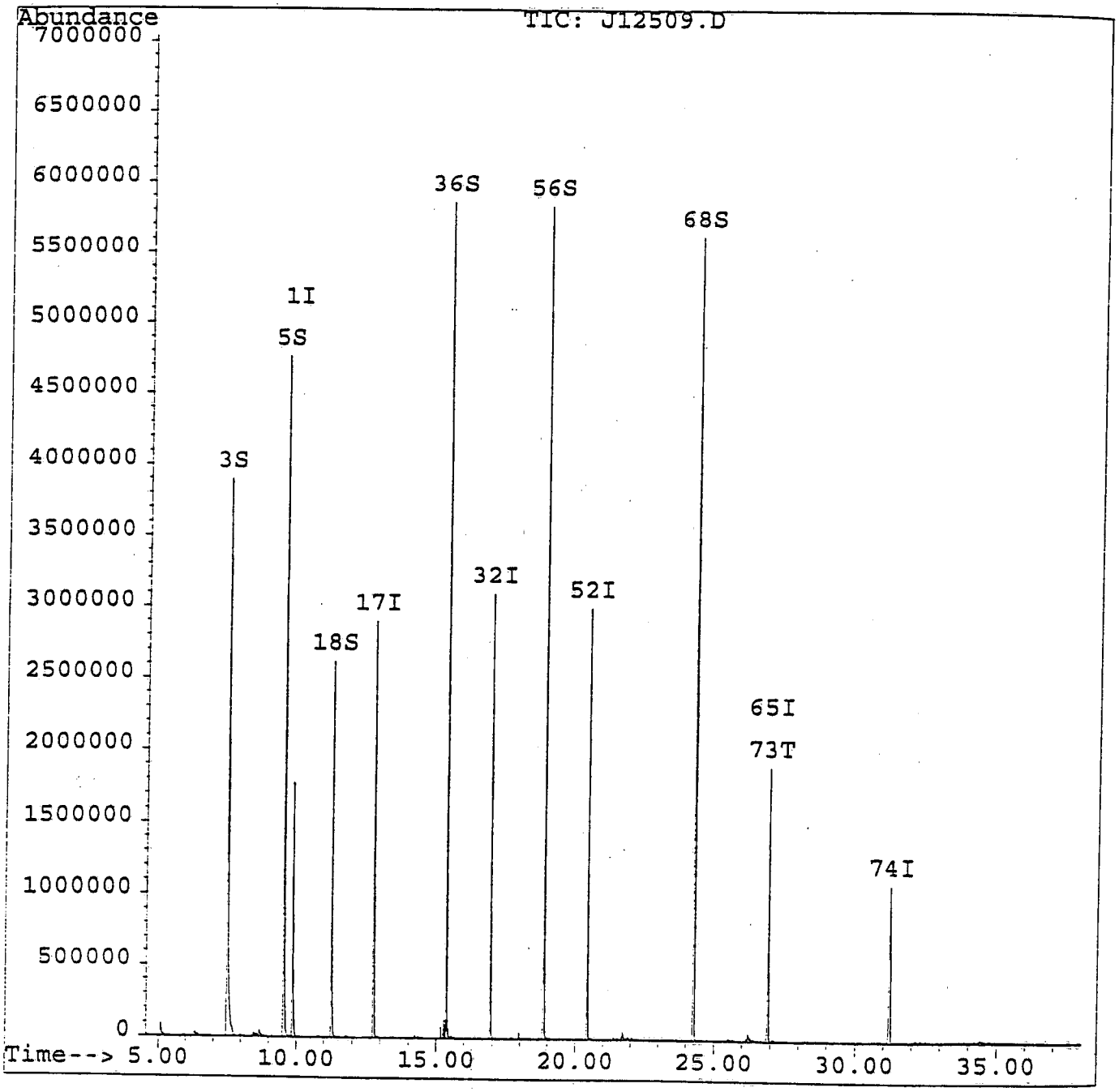
Target Compounds						Qvalue
73) bis(2-Ethylhexyl)phthalate	26.92	149	34515	1.13	ng/uL	95

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042999j\j12509.d
Acq On : 29 Apr 99 17:06 pm
Sample : MBLK 4-26
Misc : 1000ML-1ML/METHOD BLANK 4-26/0422-625
Quant Time: Apr 30 8:04 1999

Vial: 8
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:51:47 1999
Response via : Multiple Level Calibration



SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : QC INC Contract:

Lab File ID: H12323.D DFTPP Injection Date: 04/23/99

Instrument ID: HP-H DFTPP Injection Time: 11:40

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	50.6
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	71.8
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	51.5
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100 % relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	19.3
365	Greater than 1% of mass 198	2.5
441	Present, but less than mass 443	10.4
442	Greater than 40% of mass 198	65.3
443	17.0 - 23.0% of mass 442	12.7 (19.4)2

1-Value is % mass 69 2-Value is % mass 442

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD160	160PPB INIT CAL	H12324.D	04/23/99	12:08
02	SSTD120	120PPB INIT CAL	H12325.D	04/23/99	13:10
03	SSTD080	80PPB INIT CAL	H12326.D	04/23/99	14:01
04	SSTD050	50PPB INIT CAL	H12327.D	04/23/99	14:56
05	SSTD020	20PPB INIT CAL	H12328.D	04/23/99	15:51
06					
07					
08					
09					
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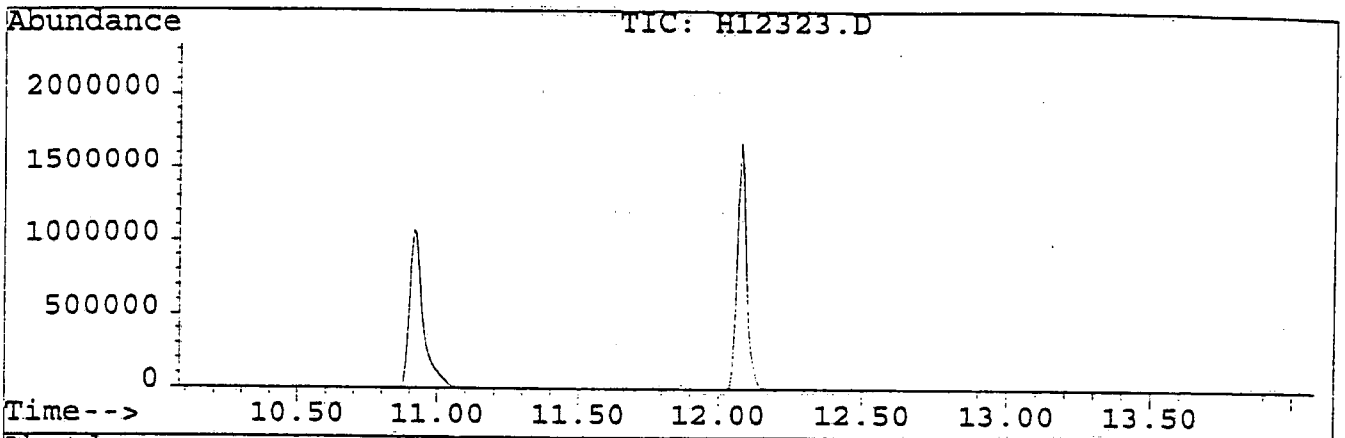
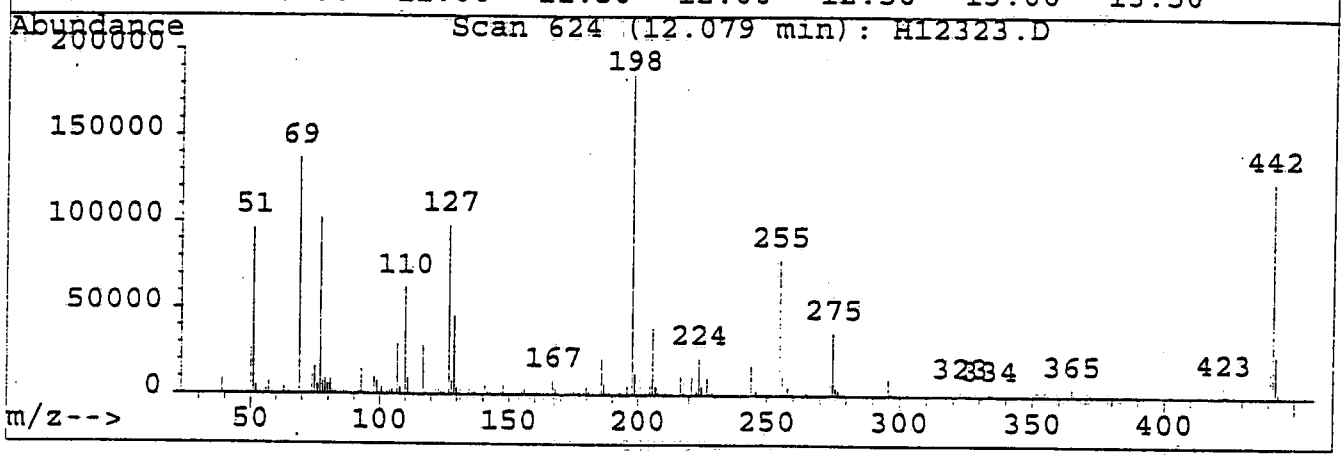
FORM V SV

Data File : C:\HPCHEM\1\DATA\042399H\H12323.D
Acq On : 23 Apr 99 11:40 am
Sample : DFTPP TUNE
Misc : 50NG INJECTED

Vial: 1
Operator: WRF
Inst : HP-H
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042399H.M
Title : CLP BNA Calibration





Scan Evaluated: 624

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	50.6	96584	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	71.8	137024	PASS
70	69	0	2	0.5	650	PASS
127	198	40	60	51.5	98168	PASS
197	198	0	1	0.0	0	PASS
198	198	100	100	100.0	190720	PASS
199	198	5	9	6.6	12579	PASS
275	198	10	30	19.3	36744	PASS
365	198	1	100	2.5	4730	PASS
441	443	0	100	82.2	19856	PASS
442	198	40	110	65.3	124624	PASS
443	442	17	23	19.4	24160	PASS

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : QC INC Contract:

Lab File ID: H12359.D DFTPP Injection Date: 04/27/99

Instrument ID: HP-H DFTPP Injection Time: 09:05

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	44.6
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	62.9
70	Less than 2.0% of mass 69	0.2 (0.4)1
127	40.0 - 60.0% of mass 198	50.7
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100 % relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	20.4
365	Greater than 1% of mass 198	2.4
441	Present, but less than mass 443	12.4
442	Greater than 40% of mass 198	74.8
443	17.0 - 23.0% of mass 442	15.0 (20.1)2

1-Value is % mass 69 2-Value is % mass 442

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD080	80NG 4-27	H12360.D	04/27/99	09:32
02	SBLK01	MBLK 4-22	H12366.D	04/27/99	14:59
03	L517451-1MS	L517451-1MS	H12369.D	04/27/99	17:31
04					
05					
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07					
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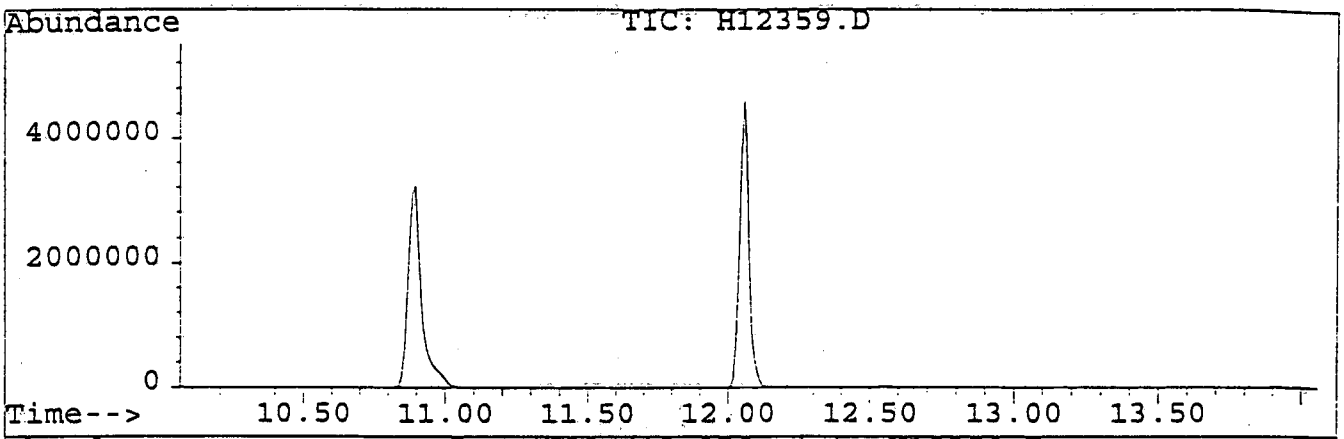
FORM V SV

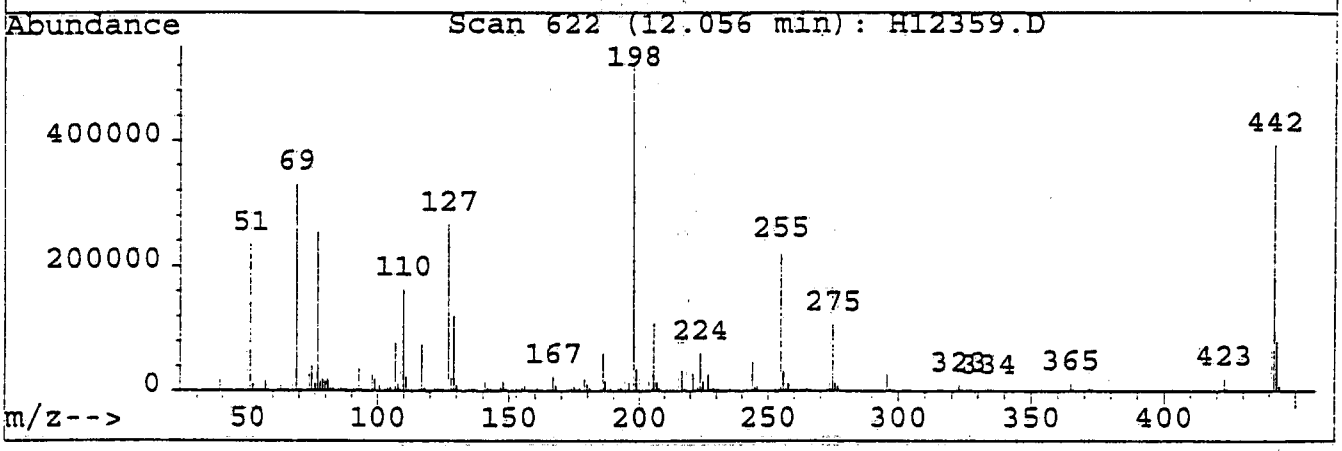
DFTPP

Data File : C:\HPCHEM\1\DATA\042799H\H12359.D
Acq On : 27 Apr 99 9:05 am
Sample : DFTPP TUNE
Misc : 50NG INJECTED

Vial: 1
Operator: WRF
Inst : HP-H
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042399H.M
Title : CLP BNA Calibration





Scan Evaluated: 622

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	44.6	234304	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	62.9	330560	PASS
70	69	0	2	0.4	1238	PASS
127	198	40	60	50.7	266112	PASS
197	198	0	1	0.0	0	PASS
198	198	100	100	100.0	525312	PASS
199	198	5	9	6.8	35752	PASS
275	198	10	30	20.4	107360	PASS
365	198	1	100	2.4	12510	PASS
441	443	0	100	82.3	65000	PASS
442	198	40	110	74.8	393088	PASS
443	442	17	23	20.1	79016	PASS

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : QC INC Contract:

Lab File ID: J12502.D DFTPP Injection Date: 04/29/99

Instrument ID: HP-J DFTPP Injection Time: 11:18

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	54.5
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	56.1
70	Less than 2.0% of mass 69	0.4 (0.7)1
127	40.0 - 60.0% of mass 198	51.5
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100 % relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	21.5
365	Greater than 1% of mass 198	3.4
441	Present, but less than mass 443	10.0
442	Greater than 40% of mass 198	66.4
443	17.0 - 23.0% of mass 442	11.9 (17.9)2

1-Value is % mass 69 2-Value is % mass 442

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD080	80NG 4-29	J12503.D	04/29/99	11:46
02	SSTD020	20NG 4-29	J12504.D	04/29/99	12:34
03	SSTD050	50NG 4-29	J12505.D	04/29/99	13:23
04	SSTD120	120NG 4-29	J12506.D	04/29/99	14:11
05	SSTD160	160NG 4-29	J12507.D	04/29/99	15:00
06	SBLK02	MBLK 4-26	J12509.D	04/29/99	17:06
07	HP-1	L526805-1	J12512.D	04/29/99	19:32
08	HP-4	L526805-4	J12515.D	04/29/99	21:54
09	HP-2	L526805-2	J12521.D	04/30/99	07:03
10	HP-3	L526805-3	J12522.D	04/30/99	07:51
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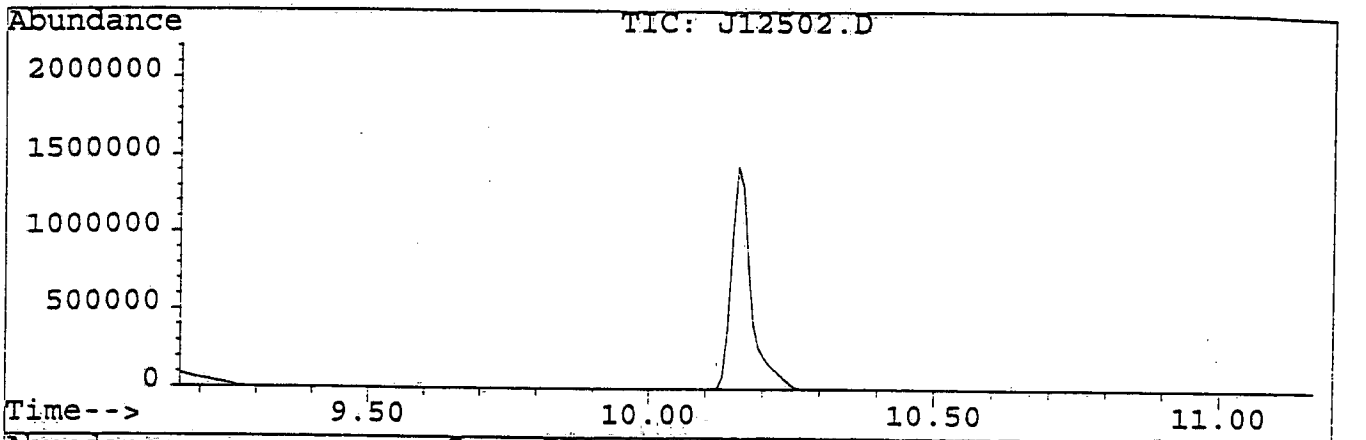
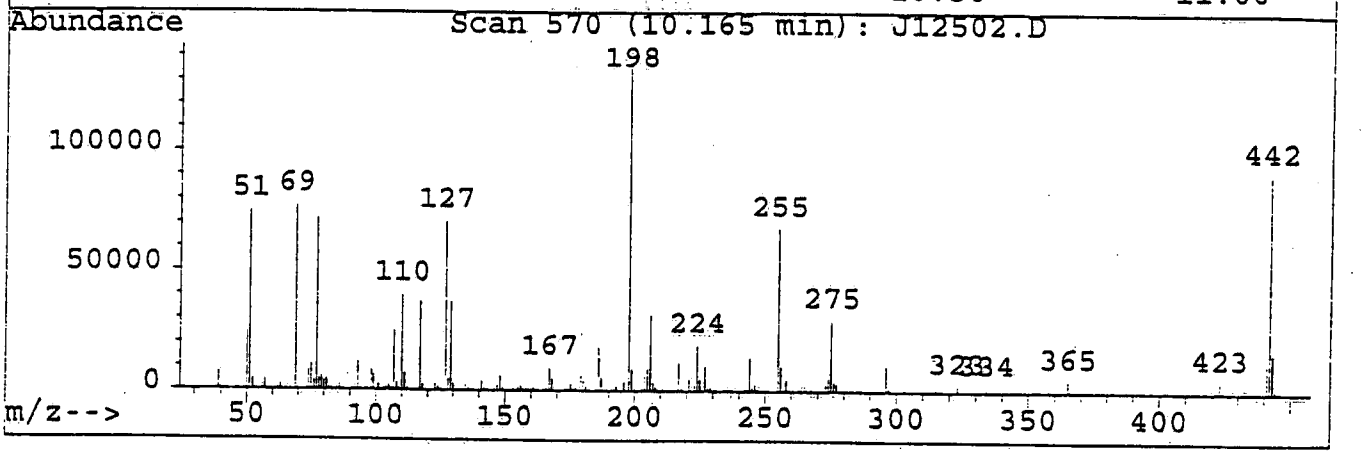
DFT625

Data File : C:\HPCHEM\1\DATA\042999J\J12502.D
Acq On : 29 Apr 99 11:18 am
Sample : DFTPP TUNE
Misc : 50 NG DFTPP

Vial: 1
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\DFTPP.M
Title : DFTPP





Scan Number: 570

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	54.5	74624	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	56.1	76888	PASS
70	69	0.00	2	0.7	528	PASS
127	198	40	60	51.5	70488	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	136960	PASS
199	198	5	9	6.6	9028	PASS
275	198	10	30	21.5	29456	PASS
365	198	1.00	100	3.4	4685	PASS
441	443	0.00	100	83.9	13637	PASS
442	198	40	100	66.4	90968	PASS
443	442	17	23	17.9	16250	PASS

J12502.D DFTPP.M Thu Apr 29 11:36:59 1999 HP-J

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: QC INC Contract:

Instrument ID: HP-H Calibration Date(s): 04/23/99 04/23/99

Calibration Times: 12:08 15:51

Lab File ID: RRF20 = H12328.D RRF50 = H12327.D
RRF80 = H12326.D RRF120 = H12325.D RRF160 = H12324.D

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD	
N-Nitrosodimethylamine	0.984	1.002	0.985	0.946	1.002	0.984	2.3	
bis(2-Chloroethyl)ether	1.433	1.467	1.552	1.466	1.497	1.483	3.0	
Phenol	1.921	1.996	2.042	1.981	1.946	1.977	2.4	
2-Chlorophenol	1.345	1.431	1.474	1.430	1.414	1.419	3.3	
1,3-Dichlorobenzene	1.331	1.407	1.410	1.393	1.359	1.380	2.5	
1,4-Dichlorobenzene	1.386	1.434	1.466	1.439	1.410	1.427	2.1	
1,2-Dichlorobenzene	1.249	1.317	1.322	1.283	1.241	1.283	2.9	
Benzyl alcohol	0.799	0.908	0.953	0.936	0.931	0.905	6.8	
bis(2-chloroisopropyl)ether	1.716	1.781	1.810	1.740	1.659	1.741	3.4	
2-Methylphenol	1.193	1.323	1.356	1.321	1.301	1.299	4.8	
Hexachloroethane	0.586	0.621	0.628	0.605	0.601	0.608	2.7	
N-Nitroso-di-n-propylamine *	0.990	1.060	1.097	1.038	1.030	1.043	3.8	*
4-Methylphenol	1.337	1.417	1.486	1.453	1.409	1.421	3.9	
Nitrobenzene	0.386	0.416	0.416	0.392	0.376	0.397	4.6	
Isophorone	0.776	0.844	0.824	0.789	0.768	0.800	4.1	
2-Nitrophenol	0.210	0.240	0.239	0.229	0.227	0.229	5.3	
2,4-Dimethylphenol	0.349	0.381	0.376	0.364	0.355	0.365	3.7	
bis(2-Chloroethoxy)methane	0.438	0.487	0.473	0.464	0.446	0.462	4.3	
2,4-Dichlorophenol	0.259	0.288	0.288	0.281	0.281	0.279	4.2	
Benzoic Acid	0.213	0.276	0.295	0.290	0.289	0.272	12.4	
1,2,4-Trichlorobenzene	0.272	0.299	0.296	0.288	0.281	0.287	3.9	
Naphthalene	0.854	0.938	0.939	0.916	0.884	0.906	4.0	
4-Chloroaniline	0.411	0.469	0.471	0.461	0.456	0.454	5.4	
Hexachlorobutadiene	0.154	0.171	0.170	0.170	0.167	0.166	4.2	
4-Chloro-3-methylphenol	0.296	0.335	0.341	0.326	0.317	0.323	5.4	
2-Methylnaphthalene	0.615	0.689	0.685	0.648	0.631	0.653	5.0	
Hexachlorocyclopentadiene *	0.277	0.346	0.357	0.365	0.349	0.339	10.4	*
2,4,6-Trichlorophenol	0.370	0.429	0.407	0.411	0.391	0.401	5.6	
2,4,5-Trichlorophenol	0.409	0.471	0.452	0.462	0.441	0.447	5.3	
2-Chloronaphthalene	1.006	1.115	1.072	1.083	1.015	1.058	4.4	
2-Nitroaniline	0.443	0.504	0.501	0.482	0.453	0.476	5.8	
Acenaphthylene	1.685	1.815	1.792	1.726	1.643	1.732	4.2	
Dimethylphthalate	1.230	1.345	1.275	1.250	1.175	1.255	5.0	
2,6-Dinitrotoluene	0.306	0.348	0.349	0.340	0.329	0.334	5.3	
Acenaphthene	0.940	1.032	1.004	0.991	0.961	0.986	3.7	
3-Nitroaniline	0.475	0.548	0.545	0.532	0.494	0.519	6.3	
2,4-Dinitrophenol *	0.153	0.247	0.264	0.269	0.260	0.239	20.4	*

* Compounds with required minimum RRF of 0.05

Boldface Compounds have a maximum %RSD of 30%

FORM VI SV

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: QC INC

Contract:

Instrument ID: HP-H

Calibration Date(s): 04/23/99 04/23/99

Calibration Times: 12:08 15:51

Lab File ID: RRF20 = H12328.D RRF50 = H12327.D
RRF80 = H12326.D RRF120 = H12325.D RRF160 = H12324.D

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Dibenzofuran	1.478	1.637	1.615	1.619	1.529	1.575	4.4
2,4-Dinitrotoluene	0.368	0.440	0.432	0.433	0.426	0.420	6.9
4-Nitrophenol *	0.264	0.305	0.316	0.314	0.301	0.300	7.1 *
Fluorene	1.127	1.241	1.210	1.205	1.179	1.192	3.6
4-Chlorophenyl-phenylether	0.530	0.614	0.608	0.610	0.591	0.590	5.9
Diethylphthalate	1.314	1.405	1.374	1.340	1.258	1.338	4.2
4-Nitroaniline	0.323	0.382	0.398	0.387	0.382	0.374	7.9
4,6-Dinitro-2-methylphenol	0.129	0.190	0.195	0.210	0.202	0.185	17.5
n-Nitrosodiphenylamine	0.480	0.540	0.510	0.541	0.525	0.519	4.9
1,2-Diphenylhydrazine	1.084	1.167	1.085	1.125	1.033	1.099	4.5
4-Bromophenyl-phenylether	0.195	0.222	0.211	0.223	0.212	0.213	5.2
Hexachlorobenzene	0.228	0.249	0.248	0.257	0.246	0.245	4.3
Pentachlorophenol	0.135	0.171	0.173	0.181	0.176	0.167	10.9
Phenanthrene	0.954	1.022	0.981	1.021	0.964	0.988	3.2
Anthracene	0.946	1.032	0.993	1.004	0.947	0.984	3.8
Carbazole	0.792	0.880	0.902	0.900	0.894	0.873	5.3
Di-n-butylphthalate	1.459	1.552	1.484	1.467	1.397	1.472	3.8
Fluoranthene	1.058	1.157	1.106	1.123	1.062	1.101	3.8
Benzidine	0.323	0.405	0.448	0.425	0.370	0.394	12.4
Pyrene	1.423	1.459	1.416	1.383	1.343	1.405	3.1
Butylbenzylphthalate	0.815	0.881	0.860	0.831	0.805	0.838	3.8
3,3'-Dichlorobenzidine	0.314	0.384	0.473	0.473	0.490	0.427	17.7
Benzo[a]anthracene	1.219	1.293	1.323	1.273	1.209	1.263	3.9
Chrysene	1.035	1.169	1.191	1.196	1.132	1.144	5.8
bis(2-Ethylhexyl)phthalate	1.081	1.168	1.186	1.136	1.090	1.132	4.1
Di-n-octylphthalate	1.974	2.229	2.172	2.102	2.637	2.223	11.3
Benzo[b]fluoranthene	1.167	1.296	1.298	1.407	1.704	1.374	14.7
Benzo[k]fluoranthene	1.005	1.138	1.178	1.014	0.974	1.062	8.5
Benzo[a]pyrene	1.021	1.137	1.162	1.143	1.173	1.127	5.4
Indeno[1,2,3-cd]pyrene	0.969	1.067	1.039	1.003	0.572	0.930	21.9
Dibenz[a,h]anthracene	0.784	0.896	0.907	0.882	0.526	0.799	20.1
Benzo[g,h,i]perylene	0.785	0.870	0.795	0.761	0.348	0.712	29.2

* Compounds with required minimum RRF of 0.05

Boldface Compounds have a maximum %RSD of 30%

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: QC INC

Contract:

Instrument ID: HP-H

Calibration Date(s): 04/23/99 04/23/99

Calibration Times: 12:08 15:51

Lab File ID:
RRF80 = H12326.D
RRF20 = H12328.D
RRF120 = H12325.D
RRF50 = H12327.D
RRF160 = H12324.D

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
-Fluorophenol	1.385	1.474	1.478	1.455	1.456	1.449	2.6
Phenol-d5	1.683	1.767	1.788	1.793	1.744	1.755	2.5
Nitrobenzene-d5	0.395	0.436	0.431	0.414	0.398	0.415	4.5
-Fluorobiphenyl	1.090	1.202	1.168	1.185	1.107	1.150	4.3
2,4,6-Tribromophenol	0.123	0.151	0.153	0.158	0.158	0.148	9.9
Terphenyl-d14	0.961	1.044	1.041	1.036	1.005	1.017	3.5

* Compounds with required minimum RRF of 0.05

Boldface Compounds have a maximum %RSD of 30%

FORM VI SV

Data File : c:\hpchem\1\data\042399h\h12328.d
Acq On : 23 Apr 99 3:51 pm
Sample : SSTD020
Misc : 20PPB INIT CAL
Quant Time: Apr 26 7:53 1999

Vial: 6
Operator: WRF
Inst : HP-H
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\042399H.M
Title : CLP BNA Calibration
Last Update : Mon Apr 26 08:06:06 1999
Response via : Multiple Level Calibration
Analyst Signature 4-26-99

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	11.48	152	740255	40.00	ng/uL	0.00
17) Naphthalene-d8	14.42	136	2655958	40.00	ng/uL	0.00
32) Acenaphthene-d10	18.71	164	1268634	40.00	ng/uL	0.00
52) Phenanthrene-d10	22.30	188	1958933	40.00	ng/uL	0.00
65) Chrysene-d12	28.83	240	1505761	40.00	ng/uL	0.00
74) Perylene-d12	33.06	264	1403707	40.00	ng/uL	0.00
System Monitoring Compounds						%Recovery
3) 2-Fluorophenol	8.86	112	512600	19.08	ng/uL	9.54%
5) Phenol-d5	10.75	99	622936	19.21	ng/uL	9.60%
18) Nitrobenzene-d5	12.80	82	524917	19.19	ng/uL	19.19%
36) 2-Fluorobiphenyl	17.05	172	691238	18.93	ng/uL	18.93%
56) 2,4,6-Tribromophenol	20.65	330	120172	16.44	ng/uL	8.22%
68) Terphenyl-d14	26.21	244	723329	18.98	ng/uL	18.98%
Target Compounds						Qvalue
2) N-Nitrosodimethylamine	6.38	74	364028	20.04	ng/uL	99
4) bis(2-Chloroethyl)ether	10.96	93	530246	18.67	ng/uL	97
6) Phenol	10.77	94	711040	19.44	ng/uL	81
7) 2-Chlorophenol	11.08	128	497685	18.89	ng/uL	94
8) 1,3-Dichlorobenzene	11.40	146	492653	19.13	ng/uL	97
9) 1,4-Dichlorobenzene	11.52	146	512997	19.36	ng/uL	96
10) 1,2-Dichlorobenzene	11.93	146	462434	19.46	ng/uL	98
11) Benzyl alcohol	11.83	108	295616	17.63	ng/uL	93
12) bis(2-chloroisopropyl)ethe	12.16	45	635111	19.05	ng/uL	93
13) 2-Methylphenol	12.09	108	441470	18.13	ng/uL	98
14) Hexachloroethane	12.62	117	216869	19.17	ng/uL	97
15) N-Nitroso-di-n-propylamine	12.50	70	366506	18.76	ng/uL	99
16) 4-Methylphenol	12.42	108	494873	18.63	ng/uL	98
19) Nitrobenzene	12.85	77	513029	19.52	ng/uL	98
20) Isophorone	13.38	82	1030547	19.42	ng/uL	99
21) 2-Nitrophenol	13.59	139	278518	18.12	ng/uL	78
22) 2,4-Dimethylphenol	13.64	107	462814	19.12	ng/uL	93
23) bis(2-Chloroethoxy)methane	13.88	93	581436	18.93	ng/uL	98
24) 2,4-Dichlorophenol	14.11	162	344478	18.70	ng/uL	94
25) Benzoic Acid	13.94	105	283382	15.46	ng/uL	96
26) 1,2,4-Trichlorobenzene	14.32	180	360489	19.02	ng/uL	96
27) Naphthalene	14.48	128	1134431	18.80	ng/uL	99
28) 4-Chloroaniline	14.67	127	545762	18.74	ng/uL	98
29) Hexachlorobutadiene	14.87	225	204912	18.82	ng/uL	99
30) 4-Chloro-3-methylphenol	15.81	107	393595	18.52	ng/uL	99
31) 2-Methylnaphthalene	16.12	142	816136	18.79	ng/uL	98
33) Hexachlorocyclopentadiene	16.67	237	175931	16.27	ng/uL	98

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042399h\h12328.d
Acq On : 23 Apr 99 3:51 pm
Sample : SSTD020
Misc : 20PPB INIT CAL
Quant Time: Apr 26 7:53 1999

Vial: 6
Operator: WRF
Inst : HP-H
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\042399H.M
Title : CLP BNA Calibration
Last Update : Mon Apr 26 08:06:06 1999
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
34) 2,4,6-Trichlorophenol	16.88	196	234429	18.48 ng/uL	99
35) 2,4,5-Trichlorophenol	16.96	196	259553	18.30 ng/uL	98
37) 2-Chloronaphthalene	17.31	162	638407	18.99 ng/uL	98
38) 2-Nitroaniline	17.66	65	280811	18.63 ng/uL	88
39) Acenaphthylene	18.33	152	1069101	19.47 ng/uL	99
40) Dimethylphthalate	18.14	163	780345	19.60 ng/uL	99
41) 2,6-Dinitrotoluene	18.33	165	193983	18.39 ng/uL#	36
42) Acenaphthene	18.78	153	596284	19.05 ng/uL	97
43) 3-Nitroaniline	17.66	138	301138	18.39 ng/uL#	66
44) 2,4-Dinitrophenol	18.92	184	96798	12.84 ng/uL#	72
45) Dibenzofuran	19.17	168	937181	18.73 ng/uL	86
46) 2,4-Dinitrotoluene	19.29	165	233588	17.53 ng/uL	85
47) 4-Nitrophenol	19.06	65	167340	17.59 ng/uL	97
48) Fluorene	20.01	166	714891	18.95 ng/uL	99
49) 4-Chlorophenyl-phenylether	20.00	204	336328	18.03 ng/uL	92
50) Diethylphthalate	19.84	149	833363	19.68 ng/uL	98
51) 4-Nitroaniline	20.19	138	204931	17.44 ng/uL	93
53) 4,6-Dinitro-2-methylphenol	20.27	198	126034	13.72 ng/uL	94
54) n-Nitrosodiphenylamine	20.31	169	470191	18.45 ng/uL	99
55) 1,2-Diphenylhydrazine	20.38	77	1061531	19.60 ng/uL	94
57) 4-Bromophenyl-phenylether	21.18	248	191411	18.34 ng/uL	92
58) Hexachlorobenzene	21.56	284	223098	18.64 ng/uL	91
59) Pentachlorophenol	21.99	266	132286	16.09 ng/uL	100
60) Phenanthrene	22.36	178	934508	19.32 ng/uL	99
61) Anthracene	22.46	178	926534	19.10 ng/uL	99
62) Carbazole	22.87	167	776175	18.03 ng/uL	97
63) Di-n-butylphthalate	23.80	149	1428745	19.87 ng/uL	99
64) Fluoranthene	25.29	202	1036353	19.27 ng/uL	98
66) Benzidine	25.63	184	243491	16.08 ng/uL	97
67) Pyrene	25.84	202	1071331	20.38 ng/uL	98
69) Butylbenzylphthalate	27.46	149	613714	19.41 ng/uL	87
70) 3,3'-Dichlorobenzidine	28.74	252	236309	15.26 ng/uL#	96
71) Benzo[a]anthracene	28.76	228	917565	19.32 ng/uL	98
72) Chrysene	28.88	228	778985	18.05 ng/uL	98
73) bis(2-Ethylhexyl)phthalate	28.86	149	813911	18.99 ng/uL	94
75) Di-n-octylphthalate	30.39	149	1385279	17.87 ng/uL	98
76) Benzo[b]fluoranthene	31.73	252	819103	17.20 ng/uL	99
77) Benzo[k]fluoranthene	31.80	252	705568	18.87 ng/uL	98
78) Benzo[a]pyrene	32.83	252	716885	18.09 ng/uL	97
79) Indeno[1,2,3-cd]pyrene	37.77	276	680401	20.29 ng/uL	85
80) Dibenz[a,h]anthracene	37.86	278	549916	19.07 ng/uL	98
81) Benzo[g,h,i]perylene	39.23	276	550625	21.32 ng/uLm	99

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042399h\h12327.d
Acq On : 23 Apr 99 2:56 pm
Sample : SSTD050
Misc : 50PPB INIT CAL
Quant Time: Apr 23 15:37 1999

Vial: 5
Operator: WRF
Inst : HP-H
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\042399H.M
Title : CLP BNA Calibration
Last Update : Mon Apr 26 08:06:06 1999
Response via : Multiple Level Calibration

Analyst Signature 4-26-99

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	11.47	152	696138	40.00	ng/uL	-0.04
17) Naphthalene-d8	14.43	136	2422882	40.00	ng/uL	-0.04
32) Acenaphthene-d10	18.72	164	1148514	40.00	ng/uL	-0.04
52) Phenanthrene-d10	22.31	188	1779366	40.00	ng/uL	-0.06
65) Chrysene-d12	28.83	240	1412859	40.00	ng/uL	-0.06
74) Perylene-d12	33.06	264	1265030	40.00	ng/uL	-0.11
System Monitoring Compounds						%Recovery
3) 2-Fluorophenol	8.86	112	1282326	51.36	ng/uL	25.68%
5) Phenol-d5	10.77	99	1537195	49.77	ng/uL	24.88%
18) Nitrobenzene-d5	12.80	82	1321151	54.05	ng/uL	54.05%
36) 2-Fluorobiphenyl	17.07	172	1725711	52.05	ng/uL	52.05%
56) 2,4,6-Tribromophenol	20.67	330	334889	51.47	ng/uL	25.74%
68) Terphenyl-d14	26.22	244	1843793	51.92	ng/uL	51.92%
Target Compounds						Qvalue
2) N-Nitrosodimethylamine	6.38	74	872148	49.83	ng/uL	100
4) bis(2-Chloroethyl)ether	10.97	93	1276620	46.79	ng/uL	99
6) Phenol	10.80	94	1737188	50.17	ng/uL	76
7) 2-Chlorophenol	11.10	128	1244842	50.56	ng/uL	98
8) 1,3-Dichlorobenzene	11.41	146	1224154	50.25	ng/uL	99
9) 1,4-Dichlorobenzene	11.52	146	1247443	50.21	ng/uL	98
10) 1,2-Dichlorobenzene	11.94	146	1146006	51.39	ng/uL	100
11) Benzyl alcohol	11.83	108	790078	51.44	ng/uL	93
12) bis(2-chloroisopropyl)ethe	12.16	45	1550111	45.53	ng/uL	95
13) 2-Methylphenol	12.09	108	1151601	50.25	ng/uL	98
14) Hexachloroethane	12.61	117	540145	50.46	ng/uL	83
15) N-Nitroso-di-n-propylamine	12.51	70	922049	49.55	ng/uL	98
16) 4-Methylphenol	12.44	108	1233395	49.60	ng/uL	100
19) Nitrobenzene	12.85	77	1259404	53.36	ng/uL	99
20) Isophorone	13.39	82	2557015	52.47	ng/uL	99
21) 2-Nitrophenol	13.60	139	726653	52.38	ng/uL	84
22) 2,4-Dimethylphenol	13.67	107	1152810	52.92	ng/uL	97
23) bis(2-Chloroethoxy)methane	13.89	93	1474601	52.74	ng/uL	99
24) 2,4-Dichlorophenol	14.14	162	871287	53.27	ng/uL	98
25) Benzoic Acid	14.02	105	834936	49.60	ng/uL	96
26) 1,2,4-Trichlorobenzene	14.33	180	905215	53.31	ng/uL	96
27) Naphthalene	14.48	128	2841328	52.44	ng/uL	99
28) 4-Chloroaniline	14.67	127	1420863	54.65	ng/uL	98
29) Hexachlorobutadiene	14.89	225	518929	54.76	ng/uL	98
30) 4-Chloro-3-methylphenol	15.81	107	1012976	53.87	ng/uL	99
31) 2-Methylnaphthalene	16.12	142	2086550	53.28	ng/uL	99
33) Hexachlorocyclopentadiene	16.65	237	496373	51.50	ng/uL	99

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042399h\h12327.d
Acq On : 23 Apr 99 2:56 pm
Sample : SSTD050
Misc : 50PPB INIT CAL
Quant Time: Apr 23 15:37 1999

Vial: 5
Operator: WRF
Inst : HP-H
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\042399H.M
Title : CLP BNA Calibration
Last Update : Mon Apr 26 08:06:06 1999
Response via : Multiple Level Calibration

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
34)	2,4,6-Trichlorophenol	16.88	196	615852	55.40	ng/uL	99
35)	2,4,5-Trichlorophenol	16.96	196	675441	54.30	ng/uL	99
37)	2-Chloronaphthalene	17.31	162	1601303	52.45	ng/uL	99
38)	2-Nitroaniline	17.67	65	723192	54.32	ng/uL	98
39)	Acenaphthylene	18.33	152	2606219	52.25	ng/uL	99
40)	Dimethylphthalate	18.16	163	1930967	53.72	ng/uL	98
41)	2,6-Dinitrotoluene	18.35	165	500163	53.48	ng/uL#	72
42)	Acenaphthene	18.79	153	1482112	52.07	ng/uL	99
43)	3-Nitroaniline	17.67	138	786034	54.68	ng/uL#	62
44)	2,4-Dinitrophenol	18.94	184	354795	54.13	ng/uL	95
45)	Dibenzofuran	19.17	168	2350125	51.59	ng/uL	88
46)	2,4-Dinitrotoluene	19.31	165	631275	53.25	ng/uL	98
47)	4-Nitrophenol	19.08	65	438450	51.73	ng/uL	96
48)	Fluorene	20.02	166	1781060	52.82	ng/uL	100
49)	4-Chlorophenyl-phenylether	20.00	204	880999	53.49	ng/uL	90
50)	Diethylphthalate	19.86	149	2017567	52.08	ng/uL	99
51)	4-Nitroaniline	20.21	138	547768	54.33	ng/uL	91
53)	4,6-Dinitro-2-methylphenol	20.30	198	421674	50.51	ng/uL	94
54)	n-Nitrosodiphenylamine	20.33	169	1201054	51.66	ng/uL	98
55)	1,2-Diphenylhydrazine	20.38	77	2595057	50.24	ng/uL	92
57)	4-Bromophenyl-phenylether	21.19	248	494321	51.38	ng/uL	92
58)	Hexachlorobenzene	21.57	284	554248	50.53	ng/uL	93
59)	Pentachlorophenol	22.01	266	379548	49.95	ng/uL	99
60)	Phenanthrene	22.36	178	2273756	51.52	ng/uL	100
61)	Anthracene	22.48	178	2295498	51.66	ng/uL	99
62)	Carbazole	22.89	167	1956902	52.73	ng/uL	99
63)	Di-n-butylphthalate	23.80	149	3450989	51.99	ng/uL	99
64)	Fluoranthene	25.28	202	2573328	52.83	ng/uL	99
66)	Benzidine	25.63	184	714717	48.01	ng/uL	97
67)	Pyrene	25.84	202	2576048	52.21	ng/uL	99
69)	Butylbenzylphthalate	27.47	149	1556408	51.13	ng/uL	88
70)	3,3'-Dichlorobenzidine	28.75	252	677268	58.19	ng/uL#	95
71)	Benzo[a]anthracene	28.77	228	2283469	50.66	ng/uL	98
72)	Chrysene	28.88	228	2063960	50.36	ng/uL	99
73)	bis(2-Ethylhexyl)phthalate	28.87	149	2063466	49.40	ng/uL	96
75)	Di-n-octylphthalate	30.40	149	3524229	55.88	ng/uL	98
76)	Benzo[b]fluoranthene	31.75	252	2048766	50.70	ng/uL	99
77)	Benzo[k]fluoranthene	31.83	252	1799192	56.07	ng/uL	98
78)	Benzo[a]pyrene	32.85	252	1797234	51.33	ng/uL	97
79)	Indeno[1,2,3-cd]pyrene	37.81	276	1687352	44.02	ng/uL	88
80)	Dibenz[a,h]anthracene	37.88	278	1416492	43.68	ng/uL	99
81)	Benzo[g,h,i]perylene	39.27	276	1376293	43.29	ng/uL	99

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042399h\h12326.d
Acq On : 23 Apr 99 2:01 pm
Sample : SSTD080
Misc : 80PPB INIT CAL
Quant Time: Apr 23 16:14 1999

Vial: 4
Operator: WRF
Inst : HP-H
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\042399H.M
Title : CLP BNA Calibration
Last Update : Mon Apr 26 08:06:06 1999
Response via : Multiple Level Calibration
Analyst Signature 4-26-99

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	11.48	152	672404	40.00	ng/uL	-0.04
17) Naphthalene-d8	14.43	136	2429436	40.00	ng/uL	-0.04
32) Acenaphthene-d10	18.70	164	1194230	40.00	ng/uL	-0.06
52) Phenanthrene-d10	22.30	188	1906123	40.00	ng/uL	-0.07
65) Chrysene-d12	28.83	240	1467073	40.00	ng/uL	-0.06
74) Perylene-d12	33.08	264	1356744	40.00	ng/uL	-0.09
System Monitoring Compounds						%Recovery
3) 2-Fluorophenol	8.85	112	1987418	82.41	ng/uL	41.21%
5) Phenol-d5	10.77	99	2404908	80.61	ng/uL	40.31%
18) Nitrobenzene-d5	12.81	82	2093288	85.40	ng/uL	85.40%
36) 2-Fluorobiphenyl	17.06	172	2789450	80.92	ng/uL	80.92%
56) 2,4,6-Tribromophenol	20.66	330	581403	83.42	ng/uL	41.71%
68) Terphenyl-d14	26.22	244	3054544	82.84	ng/uL	82.84%
Target Compounds						Qvalue
2) N-Nitrosodimethylamine	6.39	74	1324198	78.33	ng/uL	98
4) bis(2-Chloroethyl)ether	10.98	93	2087507	79.22	ng/uL	100
6) Phenol	10.81	94	2746133	82.10	ng/uL	76
7) 2-Chlorophenol	11.10	128	1981838	83.34	ng/uL	99
8) 1,3-Dichlorobenzene	11.39	146	1896006	80.57	ng/uL	98
9) 1,4-Dichlorobenzene	11.51	146	1971813	82.17	ng/uL	98
10) 1,2-Dichlorobenzene	11.93	146	1777760	82.53	ng/uL	99
11) Benzyl alcohol	11.84	108	1281840	86.41	ng/uL	95
12) bis(2-chloroisopropyl)ethe	12.15	45	2434150	74.01	ng/uL	94
13) 2-Methylphenol	12.10	108	1823116	82.36	ng/uL	99
14) Hexachloroethane	12.62	117	843993	81.62	ng/uL	97
15) N-Nitroso-di-n-propylamine	12.53	70	1475616	82.09	ng/uL	99
16) 4-Methylphenol	12.44	108	1998474	83.21	ng/uL	99
19) Nitrobenzene	12.86	77	2022383	85.46	ng/uL	98
20) Isophorone	13.41	82	4001301	81.89	ng/uL	99
21) 2-Nitrophenol	13.60	139	1158823	83.30	ng/uL	89
22) 2,4-Dimethylphenol	13.67	107	1825616	83.58	ng/uL	98
23) bis(2-Chloroethoxy)methane	13.89	93	2299798	82.04	ng/uL	99
24) 2,4-Dichlorophenol	14.13	162	1400503	85.39	ng/uL	98
25) Benzoic Acid	14.08	105	1431314	84.80	ng/uLm	0
26) 1,2,4-Trichlorobenzene	14.32	180	1436311	84.36	ng/uL	98
27) Naphthalene	14.48	128	4560147	83.93	ng/uL	99
28) 4-Chloroaniline	14.67	127	2290217	87.86	ng/uL	99
29) Hexachlorobutadiene	14.88	225	825831	86.91	ng/uL	100
30) 4-Chloro-3-methylphenol	15.81	107	1656294	87.85	ng/uL	96
31) 2-Methylnaphthalene	16.12	142	3326410	84.71	ng/uL	98
33) Hexachlorocyclopentadiene	16.66	237	853159	85.13	ng/uL	99

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042399h\h12326.d
Acq On : 23 Apr 99 2:01 pm
Sample : SSTD080
Misc : 80PPB INIT CAL
Quant Time: Apr 23 16:14 1999

Vial: 4
Operator: WRF
Inst : HP-H
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\042399H.M
Title : CLP BNA Calibration
Last Update : Mon Apr 26 08:06:06 1999
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
34) 2,4,6-Trichlorophenol	16.88	196	971876	84.08 ng/uL	99
35) 2,4,5-Trichlorophenol	16.97	196	1079492	83.46 ng/uL	98
37) 2-Chloronaphthalene	17.32	162	2559986	80.64 ng/uL	99
38) 2-Nitroaniline	17.68	65	1196508	86.42 ng/uL	96
39) Acenaphthylene	18.33	152	4279151	82.50 ng/uL	99
40) Dimethylphthalate	18.16	163	3046217	81.50 ng/uL	98
41) 2,6-Dinitrotoluene	18.35	165	832526	85.61 ng/uL#	70
42) Acenaphthene	18.78	153	2397364	81.00 ng/uL	99
43) 3-Nitroaniline	17.68	138	1300523	87.01 ng/uL#	63
44) 2,4-Dinitrophenol	18.94	184	631124	92.61 ng/uL	87
45) Dibenzofuran	19.17	168	3856962	81.43 ng/uL	88
46) 2,4-Dinitrotoluene	19.31	165	1031107	83.65 ng/uL	91
47) 4-Nitrophenol	19.10	65	755723	85.75 ng/uL	92
48) Fluorene	20.02	166	2890344	82.44 ng/uL	99
49) 4-Chlorophenyl-phenylether	20.00	204	1451669	84.76 ng/uL	91
50) Diethylphthalate	19.86	149	3280837	81.45 ng/uL	99
51) 4-Nitroaniline	20.24	138	950276	90.65 ng/uL	98
53) 4,6-Dinitro-2-methylphenol	20.31	198	742786	83.06 ng/uL	81
54) n-Nitrosodiphenylamine	20.33	169	1942484	78.00 ng/uL	99
55) 1,2-Diphenylhydrazine	20.38	77	4136183	74.75 ng/uL	92
57) 4-Bromophenyl-phenylether	21.19	248	805484	78.15 ng/uL	96
58) Hexachlorobenzene	21.56	284	944620	80.39 ng/uL	95
59) Pentachlorophenol	22.01	266	657440	80.77 ng/uL	99
60) Phenanthrene	22.37	178	3739044	79.09 ng/uL	100
61) Anthracene	22.47	178	3785786	79.54 ng/uL	100
62) Carbazole	22.89	167	3437797	86.47 ng/uL	98
63) Di-n-butylphthalate	23.80	149	5656321	79.54 ng/uL	99
64) Fluoranthene	25.29	202	4217572	80.82 ng/uL	99
66) Benzidine	25.63	184	1314111	85.01 ng/uL	98
67) Pyrene	25.84	202	4155181	81.10 ng/uL	99
69) Butylbenzylphthalate	27.47	149	2522986	79.83 ng/uL	89
70) 3,3'-Dichlorobenzidine	28.76	252	1386485	114.72 ng/uL	97
71) Benzo[a]anthracene	28.78	228	3882621	82.95 ng/uL	99
72) Chrysene	28.90	228	3494323	82.12 ng/uL	99
73) bis(2-Ethylhexyl)phthalate	28.86	149	3478672	80.20 ng/uL	96
75) Di-n-octylphthalate	30.41	149	5892678	87.12 ng/uL	99
76) Benzo[b]fluoranthene	31.76	252	3523251	81.30 ng/uL	99
77) Benzo[k]fluoranthene	31.84	252	3197243	92.91 ng/uL	99
78) Benzo[a]pyrene	32.87	252	3152110	83.94 ng/uL	97
79) Indeno[1,2,3-cd]pyrene	37.85	276	2818187	68.55 ng/uL	87
80) Dibenz[a,h]anthracene	37.95	278	2461667	70.78 ng/uL	98
81) Benzo[g,h,i]perylene	39.31	276	2157868	63.29 ng/uL	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\042399h\h12324.d
Acq On : 23 Apr 99 12:08 pm
Sample : SSTD160
Misc : 160PPB INIT CAL
Quant Time: Apr 23 16:13 1999

Vial: 2
Operator: WRF
Inst : HP-H
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042399H.M
Title : CLP BNA Calibration
Last Update : Mon Apr 26 08:06:06 1999
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
34) 2,4,6-Trichlorophenol	16.91	196	2013100	161.52	ng/uL	97
35) 2,4,5-Trichlorophenol	17.00	196	2272184	162.91	ng/uL	98
37) 2-Chloronaphthalene	17.32	162	5228696	152.74	ng/uL	96
38) 2-Nitroaniline	17.71	65	2331711	156.19	ng/uL	99
39) Acenaphthylene	18.35	152	8461003	151.29	ng/uL	97
40) Dimethylphthalate	18.18	163	6050857	150.13	ng/uL	98
41) 2,6-Dinitrotoluene	18.38	165	1694704	161.61	ng/uL	84
42) Acenaphthene	18.82	153	4951261	155.14	ng/uL	100
43) 3-Nitroaniline	17.71	138	2546280	157.99	ng/uL#	61
44) 2,4-Dinitrophenol	18.97	184	1339170	182.24	ng/uL	87
45) Dibenzofuran	19.20	168	7875191	154.19	ng/uL	87
46) 2,4-Dinitrotoluene	19.34	165	2196250	165.23	ng/uL	88
47) 4-Nitrophenol	19.15	65	1550622	163.16	ng/uL	91
48) Fluorene	20.03	166	6073985	160.66	ng/uL	99
49) 4-Chlorophenyl-phenylether	20.01	204	3041692	164.70	ng/uL	91
50) Diethylphthalate	19.91	149	6478510	149.15	ng/uL	96
51) 4-Nitroaniline	20.31	138	1969347	174.21	ng/uL	97
53) 4,6-Dinitro-2-methylphenol	20.36	198	1624951	172.59	ng/uL	80
54) n-Nitrosodiphenylamine	20.36	169	4216097	160.79	ng/uL	96
55) 1,2-Diphenylhydrazine	20.41	77	8295976	142.41	ng/uL	96
57) 4-Bromophenyl-phenylether	21.21	248	1701532	156.80	ng/uL	95
58) Hexachlorobenzene	21.59	284	1970806	159.30	ng/uL	94
59) Pentachlorophenol	22.02	266	1412593	164.84	ng/uL	99
60) Phenanthrene	22.38	178	7736796	155.43	ng/uL	99
61) Anthracene	22.50	178	7602816	151.71	ng/uL	98
62) Carbazole	22.92	167	7176052	171.42	ng/uL	98
63) Di-n-butylphthalate	23.82	149	11210384	149.73	ng/uL	98
64) Fluoranthene	25.32	202	8522706	155.12	ng/uL	99
66) Benzidine	25.65	184	2325208	140.44	ng/uL	98
67) Pyrene	25.87	202	8438596	153.77	ng/uL	99
69) Butylbenzylphthalate	27.49	149	5056503	149.37	ng/uL	97
70) 3,3'-Dichlorobenzidine	28.79	252	3079477	237.90	ng/uL	99
71) Benzo[a]anthracene	28.81	228	7600446	151.61	ng/uL	99
72) Chrysene	28.93	228	7114340	156.09	ng/uL	99
73) bis(2-Ethylhexyl)phthalate	28.87	149	6852525	147.50	ng/uL	98
75) Di-n-octylphthalate	30.42	149	11219299	211.58	ng/uL	99
76) Benzo[b]fluoranthene	31.81	252	7247565	213.32	ng/uL	100
77) Benzo[k]fluoranthene	31.88	252	4142986	153.57	ng/uLm	100
78) Benzo[a]pyrene	32.90	252	4989111	169.47	ng/uL	98
79) Indeno[1,2,3-cd]pyrene	37.81	276	2432799	75.48	ng/uL	87
80) Dibenz[a,h]anthracene	37.91	278	2236188	82.02	ng/uL	98
81) Benzo[g,h,i]perylene	39.25	276	1479990	55.37	ng/uL	98

(#) = qualifier out of range (m) = manual integration

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: QC INC Contract:

strument ID: HP-J Calibration Date(s): 04/29/99 04/29/99

Calibration Times: 11:46 15:00

Lab File ID: RRF20 = J12504.D RRF50 = J12505.D

RRF80 = J12503.D RRF120 = J12506.D RRF160 = J12507.D

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
ibenzofuran	1.453	1.714	1.874	1.911	1.870	1.764	10.8
2,4-Dinitrotoluene	0.322	0.360	0.395	0.430	0.432	0.388	12.2
Nitrophenol *	0.243	0.269	0.292	0.307	0.307	0.283	9.7 *
uorene	1.058	1.363	1.563	1.529	1.381	1.379	14.5
4-Chlorophenyl-phenylether	0.555	0.814	0.955	0.954	0.840	0.824	19.8
iethylphthalate	1.179	1.291	1.473	1.529	1.405	1.375	10.3
Nitroaniline	0.253	0.265	0.287	0.337	0.347	0.298	14.2
4,6-Dinitro-2-methylphenol	0.124	0.167	0.182	0.250	0.261	0.197	29.2
-Nitrosodiphenylamine	0.384	0.518	0.589	0.597	0.555	0.529	16.4
2-Diphenylhydrazine	0.858	1.022	1.091	1.018	0.943	0.986	9.0
4-Bromophenyl-phenylether	0.158	0.199	0.217	0.223	0.213	0.202	12.8
exachlorobenzene	0.213	0.258	0.285	0.287	0.272	0.263	11.5
entachlorophenol	0.104	0.144	0.167	0.183	0.182	0.156	21.1
Phenanthrene	0.804	1.006	1.124	1.118	1.067	1.024	12.9
nthracene	0.809	1.003	1.095	1.109	1.033	1.010	11.9
arbazole	0.686	0.711	0.809	0.900	0.856	0.792	11.6
Di-n-butylphthalate	1.155	1.292	1.412	1.330	1.197	1.277	8.1
luoranthene	1.040	1.184	1.309	1.339	1.202	1.215	9.8
enzidine	0.426	0.387	0.327	0.317	0.284	0.348	16.4
Pyrene	1.607	1.682	1.611	1.466	1.361	1.545	8.4
Butylbenzylphthalate	0.765	0.784	0.744	0.676	0.637	0.721	8.6
3'-Dichlorobenzidine	0.188	0.300	0.345	0.440	0.420	0.339	29.9
Benzo[a]anthracene	1.279	1.272	1.202	1.161	1.108	1.204	6.1
Chrysene	0.897	1.112	1.142	1.183	1.118	1.090	10.2
s(2-Ethylhexyl)phthalate	1.042	1.104	1.077	0.969	0.909	1.020	7.8
Di-n-octylphthalate	1.511	1.816	2.009	1.970	1.919	1.845	10.9
Benzo[b]fluoranthene	1.098	1.259	1.399	1.639	1.897	1.458	21.6
enzo[k]fluoranthene	0.962	1.141	1.166	1.051	0.812	1.026	14.1
enzo[a]pyrene	0.990	1.136	1.206	1.211	1.197	1.148	8.1
Indeno[1,2,3-cd]pyrene	0.802	1.052	1.122	1.118	1.078	1.034	12.9
ibenz[a,h]anthracene	0.600	0.845	0.944	1.040	1.012	0.888	20.0
enzo[g,h,i]perylene	0.608	0.764	0.795	0.790	0.735	0.738	10.4

* Compounds with required minimum RRF of 0.05

Boldface Compounds have a maximum %RSD of 30%

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: QC INC

Contract:

Instrument ID: HP-J

Calibration Date(s): 04/29/99 04/29/99

Calibration Times: 11:46 15:00

Lab File ID:

RRF20 = J12504.D

RRF50 = J12505.D

RRF80 = J12503.D

RRF120 = J12506.D

RRF160 = J12507.D

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
2-Fluorophenol	1.362	1.382	1.391	1.324	1.278	1.347	3.5
Phenol-d5	1.550	1.495	1.717	1.679	1.666	1.621	5.8
Nitrobenzene-d5	0.325	0.350	0.365	0.335	0.330	0.341	4.8
2-Fluorobiphenyl	1.078	1.346	1.443	1.448	1.377	1.338	11.4
2,4,6-Tribromophenol	0.088	0.112	0.126	0.134	0.130	0.118	15.7
Terphenyl-d14	0.981	1.079	1.063	0.937	0.860	0.984	9.2

* Compounds with required minimum RRF of 0.05

Boldface Compounds have a maximum %RSD of 30%

FORM VI SV

Compound List Report HP-J

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:41:30 1999
Response via : Initial Calibration
Total Cpnds : 81

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	1,4-Dichlorobenzene-d4	152	10.01	1.000	A	1	A	B
2	T	N-Nitrosodimethylamine	74	5.04	0.503	A	1	A	B
3	S	2-Fluorophenol	112	7.64	0.763	A	1	A	B
4	T	bis(2-Chloroethyl)ether	93	9.59	0.958	A	2	A	B
5	S	Phenol-d5	99	9.66	0.965	A	2	A	B
6	T	Phenol	94	9.69	0.968	A	2	A	B
7	T	2-Chlorophenol	128	9.75	0.973	A	2	A	B
8	T	1,3-Dichlorobenzene	146	9.92	0.990	A	2	A	B
9	T	1,4-Dichlorobenzene	146	10.04	1.003	A	2	A	B
10	T	1,2-Dichlorobenzene	146	10.47	1.046	A	2	A	B
11	T	Benzyl alcohol	108	10.56	1.055	A	2	A	B
12	T	bis(2-chloroisopropyl)ether	45	10.70	1.069	A	2	A	B
13	T	2-Methylphenol	108	10.89	1.088	A	1	A	B
14	T	Hexachloroethane	117	11.12	1.110	A	2	A	B
15	T	N-Nitroso-di-n-propylamine	70	11.09	1.107	A	2	A	B
16	T	4-Methylphenol	108	11.25	1.123	A	1	A	B
17	I	Naphthalene-d8	136	12.92	1.000	A	1	A	B
18	S	Nitrobenzene-d5	82	11.42	0.884	A	2	A	B
19	T	Nitrobenzene	77	11.47	0.887	A	2	A	B
20	T	Isophorone	82	11.92	0.922	A	1	A	B
21	T	2-Nitrophenol	139	12.16	0.941	A	2	A	B
22	T	2,4-Dimethylphenol	107	12.39	0.958	A	2	A	B
23	T	bis(2-Chloroethoxy)methane	93	12.49	0.966	A	2	A	B
24	T	2,4-Dichlorophenol	162	12.74	0.985	A	2	A	B
25	T	Benzoic Acid	105	12.98	1.004	A	2	A	B
26	T	1,2,4-Trichlorobenzene	180	12.80	0.990	A	2	A	B
27	T	Naphthalene	128	12.97	1.003	A	2	A	B
28	T	4-Chloroaniline	127	13.33	1.031	A	1	A	B
29	T	Hexachlorobutadiene	225	13.34	1.032	A	2	A	B
30	T	4-Chloro-3-methylphenol	107	14.54	1.125	A	2	A	B
31	T	2-Methylnaphthalene	142	14.56	1.127	A	1	A	B
32	I	Acenaphthene-d10	164	17.09	1.000	A	2	A	B
33	T	Hexachlorocyclopentadiene	237	15.06	0.882	LO	2	A	B
34	T	2,4,6-Trichlorophenol	196	15.39	0.901	A	2	A	B
35	T	2,4,5-Trichlorophenol	196	15.52	0.908	LO	2	A	B
36	S	2-Fluorobiphenyl	172	15.54	0.909	A	1	A	B
37	T	2-Chloronaphthalene	162	15.73	0.921	A	2	A	B
38	T	2-Nitroaniline	65	16.30	0.954	A	2	A	B
39	T	Acenaphthylene	152	16.75	0.980	A	2	A	B
40	T	Dimethylphthalate	163	16.70	0.977	A	2	A	B
41	T	2,6-Dinitrotoluene	165	16.88	0.988	A	2	A	B
42	T	Acenaphthene	153	17.18	1.005	A	2	A	B
43	T	3-Nitroaniline	138	17.34	1.015	A	2	A	B
44	T	2,4-Dinitrophenol	184	17.44	1.020	QO	2	A	B
45	T	Dibenzofuran	168	17.57	1.028	A	1	A	B
46	T	2,4-Dinitrotoluene	165	17.79	1.041	A	1	A	B
47	T	4-Nitrophenol	65	17.92	1.049	A	2	A	B
48	T	Fluorene	166	18.38	1.076	A	2	A	B
49	T	4-Chlorophenyl-phenylether	204	18.38	1.076	QO	2	A	B
50	T	Diethylphthalate	149	18.34	1.073	A	2	A	B
51	T	4-Nitroaniline	138	18.88	1.105	A	2	A	B

52	I	Phenanthrene-d10	188	20.61	1.000	A	1	A	B
53	T	4,6-Dinitro-2-methylphenol	198	18.73	0.909	QO	2	A	B
54	T	n-Nitrosodiphenylamine	169	18.76	0.910	QO	2	A	B
55	T	1,2-Diphenylhydrazine	77	18.76	0.910	A	2	A	B
56	S	2,4,6-Tribromophenol	330	19.03	0.923	LO	2	A	B
57	T	4-Bromophenyl-phenylether	248	19.52	0.947	A	2	A	B
58	T	Hexachlorobenzene	284	19.83	0.962	A	2	A	B
59	T	Pentachlorophenol	266	20.39	0.990	QO	2	A	B
60	T	Phenanthrene	178	20.67	1.003	A	2	A	B
61	T	Anthracene	178	20.78	1.008	A	2	A	B
62	T	Carbazole	167	21.31	1.034	A	1	A	B
63	T	Di-n-butylphthalate	149	22.09	1.072	A	2	A	B
64	T	Fluoranthene	202	23.52	1.141	A	3	A	B
65	I	Chrysene-d12	240	27.13	1.000	A	2	A	B
66	T	Benzidine	184	24.03	0.886	QO	2	A	B
67	T	Pyrene	202	24.07	0.887	A	3	A	B
68	S	Terphenyl-d14	244	24.44	0.901	A	2	A	B
69	T	Butylbenzylphthalate	149	25.69	0.947	A	2	A	B
70	T	3,3'-Dichlorobenzidine	252	27.21	1.003	QO	2	A	B
71	T	Benzo[a]anthracene	228	27.08	0.998	A	2	A	B
72	T	Chrysene	228	27.23	1.004	A	2	A	B
73	T	bis(2-Ethylhexyl)phthalate	149	27.13	1.000	A	1	A	B
74	I	Perylene-d12	264	31.49	1.000	A	2	A	B
75	T	Di-n-octylphthalate	149	28.88	0.917	A	1	A	B
76	T	Benzo[b]fluoranthene	252	30.33	0.963	QO	1	A	B
77	T	Benzo[k]fluoranthene	252	30.40	0.965	A	1	A	B
78	T	Benzo[a]pyrene	252	31.33	0.995	A	2	A	B
79	T	Indeno[1,2,3-cd]pyrene	276	34.68	1.101	A	1	A	B
80	T	Dibenz[a,h]anthracene	278	34.69	1.102	LO	2	A	B
81	T	Benzo[g,h,i]perylene	276	35.45	1.126	A	2	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

042999J.M Thu Apr 29 15:51:57 1999 HP-J

Data File : c:\hpchem\1\data\042999j\j12504.d
Acq On : 29 Apr 99 12:34 pm
Sample : SSTD020
Misc : 20 NG STD
Quant Time: Apr 29 15:36 1999

Vial: 3
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:35:19 1999
Response via : Initial Calibration

4-30-99

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	9.84	152	372904	40.00 ng/uL	-0.17
17) Naphthalene-d8	12.75	136	1504927	40.00 ng/uL	-0.17
32) Acenaphthene-d10	16.92	164	888730	40.00 ng/uL	-0.17
52) Phenanthrene-d10	20.43	188	1576975	40.00 ng/uL	-0.18
65) Chrysene-d12	26.91	240	1003528	40.00 ng/uL	-0.22
74) Perylene-d12	31.22	264	1067360	40.00 ng/uL	-0.27
System Monitoring Compounds					%Recovery
3) 2-Fluorophenol	7.50	112	253928	12.35 ng/uL	6.17%
5) Phenol-d5	9.51	99	289022	11.40 ng/uL	5.70%
18) Nitrobenzene-d5	11.24	82	244570	11.36 ng/uL	11.36%
36) 2-Fluorobiphenyl	15.35	172	478805	9.48 ng/uL	9.48%
56) 2,4,6-Tribromophenol	18.84	330	69688	8.87 ng/uL	4.44%
68) Terphenyl-d14	24.25	244	492156	11.81 ng/uL	11.81%
Target Compounds					Qvalue
2) N-Nitrosodimethylamine	4.84	74	116662	14.21 ng/uLm	71
4) bis(2-Chloroethyl)ether	9.43	93	579291	11.73 ng/uL	86
6) Phenol	9.54	94	255141	11.26 ng/uL	91
7) 2-Chlorophenol	9.58	128	240813	10.64 ng/uL	89
8) 1,3-Dichlorobenzene	9.75	146	231382	11.28 ng/uL	96
9) 1,4-Dichlorobenzene	9.88	146	235573	10.59 ng/uL	97
10) 1,2-Dichlorobenzene	10.31	146	234393	11.37 ng/uL	95
11) Benzyl alcohol	10.38	108	145686	11.50 ng/uL	92
12) bis(2-chloroisopropyl)ethe	10.55	45	265945	12.55 ng/uL	91
13) 2-Methylphenol	10.75	108	240486	11.99 ng/uL	97
14) Hexachloroethane	10.96	117	146912	11.64 ng/uL	84
15) N-Nitroso-di-n-propylamine	10.89	70	170104	11.69 ng/uL	94
16) 4-Methylphenol	11.09	108	243723	10.67 ng/uL	88
19) Nitrobenzene	11.29	77	257342	11.85 ng/uL	91
20) Isophorone	11.72	82	444206	11.97 ng/uL	93
21) 2-Nitrophenol	12.00	139	162326	10.80 ng/uL#	74
22) 2,4-Dimethylphenol	12.21	107	272435	10.97 ng/uL	81
23) bis(2-Chloroethoxy)methane	12.30	93	252190	10.93 ng/uL	95
24) 2,4-Dichlorophenol	12.57	162	193455	9.99 ng/uL	97
25) Benzoic Acid	12.63	105	147362	9.79 ng/uL#	47
26) 1,2,4-Trichlorobenzene	12.63	180	221868	10.03 ng/uL	98
27) Naphthalene	12.80	128	650742	9.60 ng/uL	97
28) 4-Chloroaniline	13.16	127	317398	8.93 ng/uL	99
29) Hexachlorobutadiene	13.17	225	143171	8.68 ng/uL	98
30) 4-Chloro-3-methylphenol	14.39	107	244741	10.14 ng/uL	62
31) 2-Methylnaphthalene	14.39	142	715311	9.04 ng/uL	92
33) Hexachlorocyclopentadiene	14.89	237	123502	9.30 ng/uL	99

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042999j\j12504.d
Acq On : 29 Apr 99 12:34 pm
Sample : SSTD020
Misc : 20 NG STD
Quant Time: Apr 29 15:36 1999

Vial: 3
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:35:19 1999
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
34) 2,4,6-Trichlorophenol	15.22	196	162300	9.64 ng/uL	98
35) 2,4,5-Trichlorophenol	15.35	196	184961	8.37 ng/uL	99
37) 2-Chloronaphthalene	15.55	162	385296	9.84 ng/uL	96
38) 2-Nitroaniline	16.10	65	193410	11.61 ng/uL	76
39) Acenaphthylene	16.57	152	607159	10.18 ng/uL	98
40) Dimethylphthalate	16.51	163	492590	10.71 ng/uL	98
41) 2,6-Dinitrotoluene	16.68	165	111727	10.22 ng/uL	81
42) Acenaphthene	16.99	153	363065	9.39 ng/uL	92
43) 3-Nitroaniline	17.13	138	116502	10.49 ng/uL	73
44) 2,4-Dinitrophenol	17.23	184	63622	7.51 ng/uL	86
45) Dibenzofuran	17.38	168	645705	9.80 ng/uL	89
46) 2,4-Dinitrotoluene	17.58	165	143048	10.16 ng/uL	95
47) 4-Nitrophenol	17.75	65	107932	10.42 ng/uL	84
48) Fluorene	18.18	166	469923	8.66 ng/uL	98
49) 4-Chlorophenyl-phenylether	18.20	204	246559	7.46 ng/uL	87
50) Diethylphthalate	18.12	149	523668	10.07 ng/uL	99
51) 4-Nitroaniline	18.65	138	112590	10.83 ng/uL#	62
53) 4,6-Dinitro-2-methylphenol	18.50	198	97666	8.18 ng/uL	70
54) n-Nitrosodiphenylamine	18.58	169	302804	8.31 ng/uL	98
55) 1,2-Diphenylhydrazine	18.57	77	676550	10.07 ng/uL	95
57) 4-Bromophenyl-phenylether	19.35	248	124904	9.24 ng/uL	90
58) Hexachlorobenzene	19.64	284	167881	9.49 ng/uL	94
59) Pentachlorophenol	20.20	266	82108	7.86 ng/uL	97
60) Phenanthrene	20.47	178	633663	9.11 ng/uL	97
61) Anthracene	20.57	178	637557	9.37 ng/uL	98
62) Carbazole	21.12	167	541181	10.53 ng/uL	95
63) Di-n-butylphthalate	21.91	149	910885	10.44 ng/uL	96
64) Fluoranthene	23.32	202	819713	10.02 ng/uL	98
66) Benzidine	23.85	184	213565	16.06 ng/uL	99
67) Pyrene	23.86	202	806392	12.65 ng/uL	98
69) Butylbenzylphthalate	25.50	149	384046	13.02 ng/uL	88
70) 3,3'-Dichlorobenzidine	26.97	252	94464	6.72 ng/uL	98
71) Benzo[a]anthracene	26.84	228	641757	13.32 ng/uL	97
72) Chrysene	26.97	228	450240	9.90 ng/uL	99
73) bis(2-Ethylhexyl)phthalate	26.91	149	522719	12.31 ng/uL	98
75) Di-n-octylphthalate	28.63	149	806327	9.58 ng/uL	98
76) Benzo[b]fluoranthene	29.99	252	586046	9.68 ng/uLm	100
77) Benzo[k]fluoranthene	30.07	252	513445	10.60 ng/uL	100
78) Benzo[a]pyrene	31.00	252	528295	10.37 ng/uL	93
79) Indeno[1,2,3-cd]pyrene	34.29	276	427737	9.10 ng/uL#	62
80) Dibenz[a,h]anthracene	34.32	278	320031	8.00 ng/uL	88
81) Benzo[g,h,i]perylene	35.03	276	324225	9.70 ng/uL	87

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042999j\j12505.d Vial: 4
Acq On : 29 Apr 99 13:23 pm Operator: JL
Sample : SSTD050 Inst : HP-J
Misc : 50 NG STD Multiplr: 1.00
Quant Time: Apr 29 15:37 1999

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:36:34 1999
Response via : Initial Calibration

4-30-99

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	9.85	152	473665	40.00	ng/uL	-0.16
17) Naphthalene-d8	12.76	136	1917268	40.00	ng/uL	-0.16
32) Acenaphthene-d10	16.93	164	1104700	40.00	ng/uL	-0.15
52) Phenanthrene-d10	20.44	188	1885424	40.00	ng/uL	-0.16
65) Chrysene-d12	26.93	240	1319577	40.00	ng/uL	-0.20
74) Perylene-d12	31.25	264	1183138	40.00	ng/uL	-0.24
System Monitoring Compounds						%Recovery
3) 2-Fluorophenol	7.50	112	818051	59.79	ng/uL	29.90%
5) Phenol-d5	9.53	99	885048	53.71	ng/uL	26.86%
18) Nitrobenzene-d5	11.26	82	838756	60.63	ng/uL	60.63%
36) 2-Fluorobiphenyl	15.37	172	1857960	61.17	ng/uL	61.17%
56) 2,4,6-Tribromophenol	18.86	330	264230	58.48	ng/uL	29.24%
68) Terphenyl-d14	24.27	244	1780516	64.00	ng/uL	64.00%
Target Compounds						Qvalue
2) N-Nitrosodimethylamine	4.84	74	331935	57.58	ng/uL	69
4) bis(2-Chloroethyl)ether	9.43	93	2008789	62.81	ng/uL	91
6) Phenol	9.56	94	872497	59.24	ng/uL	100
7) 2-Chlorophenol	9.59	128	857636	57.94	ng/uL	95
8) 1,3-Dichlorobenzene	9.75	146	787330	58.93	ng/uL	98
9) 1,4-Dichlorobenzene	9.89	146	839020	59.03	ng/uL	99
10) 1,2-Dichlorobenzene	10.32	146	798655	59.40	ng/uL	99
11) Benzyl alcohol	10.40	108	519672	62.66	ng/uL	93
12) bis(2-chloroisopropyl)ethe	10.55	45	858947	61.33	ng/uL	93
13) 2-Methylphenol	10.76	108	803112	60.09	ng/uL	98
14) Hexachloroethane	10.96	117	468780	56.19	ng/uL	92
15) N-Nitroso-di-n-propylamine	10.92	70	586976	61.88	ng/uL	96
16) 4-Methylphenol	11.11	108	899981	61.91	ng/uL	98
19) Nitrobenzene	11.30	77	850219	59.39	ng/uL	93
20) Isophorone	11.73	82	1468918	60.85	ng/uLm	93
21) 2-Nitrophenol	12.01	139	589105	60.58	ng/uL	87
22) 2,4-Dimethylphenol	12.23	107	967995	61.12	ng/uL	83
23) bis(2-Chloroethoxy)methane	12.32	93	888575	60.21	ng/uL	96
24) 2,4-Dichlorophenol	12.58	162	725118	59.03	ng/uL	97
25) Benzoic Acid	12.75	105	577189	61.99	ng/uL#	52
26) 1,2,4-Trichlorobenzene	12.64	180	813706	58.36	ng/uL	98
27) Naphthalene	12.81	128	2499358	59.07	ng/uL	98
28) 4-Chloroaniline	13.18	127	1373184	64.13	ng/uL	98
29) Hexachlorobutadiene	13.19	225	578844	58.72	ng/uL	99
30) 4-Chloro-3-methylphenol	14.41	107	925055	62.55	ng/uL	61
31) 2-Methylnaphthalene	14.40	142	2993602	63.50	ng/uL	88
33) Hexachlorocyclopentadiene	14.90	237	507386	62.10	ng/uL	100

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042999j\j12505.d
Acq On : 29 Apr 99 13:23 pm
Sample : SSTD050
Misc : 50 NG STD
Quant Time: Apr 29 15:37 1999

Vial: 4
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:36:34 1999
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
34)	2,4,6-Trichlorophenol	15.24	196	611125	58.94 ng/uL	98
35)	2,4,5-Trichlorophenol	15.36	196	784528	60.80 ng/uL	99
37)	2-Chloronaphthalene	15.57	162	1430141	59.45 ng/uL	97
38)	2-Nitroaniline	16.12	65	642630	59.91 ng/uL	79
39)	Acenaphthylene	16.59	152	2175078	58.02 ng/uL	98
40)	Dimethylphthalate	16.53	163	1677504	57.60 ng/uL	99
41)	2,6-Dinitrotoluene	16.70	165	398804	58.20 ng/uL	89
42)	Acenaphthene	17.01	153	1382615	59.19 ng/uL	99
43)	3-Nitroaniline	17.16	138	413792	57.90 ng/uL	80
44)	2,4-Dinitrophenol	17.26	184	289743	57.54 ng/uL	92
45)	Dibenzofuran	17.40	168	2367113	58.92 ng/uL	87
46)	2,4-Dinitrotoluene	17.61	165	496506	56.35 ng/uL	91
47)	4-Nitrophenol	17.77	65	371207	57.25 ng/uL	85
48)	Fluorene	18.21	166	1881731	59.61 ng/uL	97
49)	4-Chlorophenyl-phenylether	18.22	204	1124183	60.63 ng/uL	85
50)	Diethylphthalate	18.16	149	1782217	55.49 ng/uL	96
51)	4-Nitroaniline	18.69	138	365190	54.07 ng/uL	71
53)	4,6-Dinitro-2-methylphenol	18.54	198	394038	55.24 ng/uL	63
54)	n-Nitrosodiphenylamine	18.59	169	1221566	60.14 ng/uL	98
55)	1,2-Diphenylhydrazine	18.59	77	2407689	61.71 ng/uL	98
57)	4-Bromophenyl-phenylether	19.36	248	469005	60.16 ng/uL	92
58)	Hexachlorobenzene	19.66	284	607080	59.22 ng/uL	92
59)	Pentachlorophenol	20.23	266	338634	57.98 ng/uL	98
60)	Phenanthrene	20.50	178	2370901	59.76 ng/uL	99
61)	Anthracene	20.60	178	2362657	60.10 ng/uL	99
62)	Carbazole	21.13	167	1676276	53.29 ng/uL	95
63)	Di-n-butylphthalate	21.93	149	3045829	59.29 ng/uL	98
64)	Fluoranthene	23.34	202	2790942	57.71 ng/uL	99
66)	Benzidine	23.86	184	637652	62.37 ng/uL	98
67)	Pyrene	23.88	202	2774276	63.14 ng/uL	99
69)	Butylbenzylphthalate	25.52	149	1292893	62.90 ng/uL	93
70)	3,3'-Dichlorobenzidine	27.00	252	494003	57.11 ng/uL	99
71)	Benzo[a]anthracene	26.87	228	2097578	61.24 ng/uL	99
72)	Chrysene	27.01	228	1834222	62.10 ng/uL	98
73)	bis(2-Ethylhexyl)phthalate	26.93	149	1820739	63.00 ng/uL	98
75)	Di-n-octylphthalate	28.66	149	2686214	59.61 ng/uL	99
76)	Benzo[b]fluoranthene	30.04	252	1862153	55.04 ng/uLm	99
77)	Benzo[k]fluoranthene	30.12	252	1687199	64.03 ng/uL	99
78)	Benzo[a]pyrene	31.05	252	1679471	59.73 ng/uL	95
79)	Indeno[1,2,3-cd]pyrene	34.35	276	1555704	62.59 ng/uL	67
80)	Dibenz[a,h]anthracene	34.37	278	1250126	59.87 ng/uL	88
81)	Benzo[g,h,i]perylene	35.10	276	1130495	62.77 ng/uL	89

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042999j\j12503.d
Acq On : 29 Apr 99 11:46 am
Sample : SSTD080
Misc : 80 NG STD
Quant Time: Apr 29 15:39 1999

Vial: 2
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:38:21 1999
Response via : Initial Calibration

4-30-99

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	9.84	152	339776	40.00	ng/uL	-0.17
17) Naphthalene-d8	12.76	136	1320896	40.00	ng/uL	-0.17
32) Acenaphthene-d10	16.93	164	774045	40.00	ng/uL	-0.16
52) Phenanthrene-d10	20.44	188	1370522	40.00	ng/uL	-0.17
65) Chrysene-d12	26.92	240	1114826	40.00	ng/uL	-0.21
74) Perylene-d12	31.23	264	884138	40.00	ng/uL	-0.26
System Monitoring Compounds						%Recovery
3) 2-Fluorophenol	7.49	112	945359	81.55	ng/uL	40.78%
5) Phenol-d5	9.53	99	1166598	85.30	ng/uL	42.65%
18) Nitrobenzene-d5	11.26	82	963296	84.89	ng/uL	84.89%
36) 2-Fluorobiphenyl	15.36	172	2234287	86.91	ng/uL	86.91%
56) 2,4,6-Tribromophenol	18.86	330	343971	87.26	ng/uL	43.63%
68) Terphenyl-d14	24.27	244	2370621	83.79	ng/uL	83.79%
Target Compounds						Qvalue
2) N-Nitrosodimethylamine	4.83	74	373802	77.97	ng/uL	76
4) bis(2-Chloroethyl)ether	9.43	93	2291742	83.32	ng/uL	91
6) Phenol	9.55	94	1039566	82.95	ng/uL	96
7) 2-Chlorophenol	9.58	128	1019419	80.93	ng/uL	93
8) 1,3-Dichlorobenzene	9.75	146	939231	82.73	ng/uL	98
9) 1,4-Dichlorobenzene	9.88	146	1020094	84.09	ng/uL	98
10) 1,2-Dichlorobenzene	10.31	146	945292	82.62	ng/uL	98
11) Benzyl alcohol	10.39	108	580301	81.16	ng/uL	92
12) bis(2-chloroisopropyl)ethe	10.54	45	982802	82.48	ng/uL	93
13) 2-Methylphenol	10.75	108	914514	80.41	ng/uL	96
14) Hexachloroethane	10.95	117	574745	82.14	ng/uL	93
15) N-Nitroso-di-n-propylamine	10.91	70	671461	82.54	ng/uL	93
16) 4-Methylphenol	11.11	108	1052109	83.87	ng/uL	99
19) Nitrobenzene	11.30	77	962394	82.53	ng/uL	92
20) Isophorone	11.73	82	1665312	84.35	ng/uL	95
21) 2-Nitrophenol	12.00	139	662124	82.60	ng/uL	86
22) 2,4-Dimethylphenol	12.23	107	1109478	85.01	ng/uL	83
23) bis(2-Chloroethoxy)methane	12.32	93	1028148	84.82	ng/uL	96
24) 2,4-Dichlorophenol	12.58	162	852960	84.36	ng/uL	95
25) Benzoic Acid	12.78	105	667148	86.01	ng/uLm	54
26) 1,2,4-Trichlorobenzene	12.63	180	979918	85.69	ng/uL	96
27) Naphthalene	12.80	128	2999502	85.93	ng/uL	98
28) 4-Chloroaniline	13.17	127	1593579	88.10	ng/uL	98
29) Hexachlorobutadiene	13.18	225	740113	90.73	ng/uL	99
30) 4-Chloro-3-methylphenol	14.40	107	1093899	88.93	ng/uL	67
31) 2-Methylnaphthalene	14.40	142	3585856	90.43	ng/uL	87
33) Hexachlorocyclopentadiene	14.90	237	574766	82.52	ng/uL	98

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042999j\j12503.d
Acq On : 29 Apr 99 11:46 am
Sample : SSTD080
Misc : 80 NG STD
Quant Time: Apr 29 15:39 1999

Vial: 2
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:38:21 1999
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
34) 2,4,6-Trichlorophenol	15.23	196	732952	84.26 ng/uL	99
35) 2,4,5-Trichlorophenol	15.35	196	977529	89.00 ng/uL	99
37) 2-Chloronaphthalene	15.56	162	1714464	84.93 ng/uL	97
38) 2-Nitroaniline	16.12	65	727492	81.51 ng/uL	80
39) Acenaphthylene	16.58	152	2582391	82.65 ng/uL	98
40) Dimethylphthalate	16.52	163	2001408	82.92 ng/uL	99
41) 2,6-Dinitrotoluene	16.70	165	475104	83.18 ng/uL	92
42) Acenaphthene	17.01	153	1701748	86.69 ng/uL	98
43) 3-Nitroaniline	17.16	138	474479	79.74 ng/uL	82
44) 2,4-Dinitrophenol	17.26	184	363143	85.12 ng/uL	97
45) Dibenzofuran	17.39	168	2901671	86.27 ng/uL	89
46) 2,4-Dinitrotoluene	17.61	165	611552	83.89 ng/uL	96
47) 4-Nitrophenol	17.77	65	452192	84.15 ng/uL	82
48) Fluorene	18.20	166	2419951	90.75 ng/uL	98
49) 4-Chlorophenyl-phenylether	18.21	204	1478226	93.22 ng/uL	87
50) Diethylphthalate	18.16	149	2280191	86.15 ng/uL	96
51) 4-Nitroaniline	18.69	138	444154	80.44 ng/uL#	63
53) 4,6-Dinitro-2-methylphenol	18.54	198	499934	80.72 ng/uL	66
54) n-Nitrosodiphenylamine	18.59	169	1614730	90.26 ng/uL	99
55) 1,2-Diphenylhydrazine	18.59	77	2991418	87.55 ng/uL	94
57) 4-Bromophenyl-phenylether	19.35	248	594912	87.11 ng/uL	93
58) Hexachlorobenzene	19.65	284	780164	87.38 ng/uL	96
59) Pentachlorophenol	20.22	266	457620	89.39 ng/uL	99
60) Phenanthrene	20.49	178	3081952	88.81 ng/uL	98
61) Anthracene	20.60	178	3001120	87.26 ng/uL	98
62) Carbazole	21.13	167	2216081	83.30 ng/uL	93
63) Di-n-butylphthalate	21.92	149	3870851	87.07 ng/uL	98
64) Fluoranthene	23.34	202	3589204	86.00 ng/uL	99
66) Benzidine	23.86	184	728364	71.80 ng/uL	99
67) Pyrene	23.89	202	3592852	80.99 ng/uL	99
69) Butylbenzylphthalate	25.52	149	1659801	80.21 ng/uL	99
70) 3,3'-Dichlorobenzidine	26.99	252	769787	86.79 ng/uL	99
71) Benzo[a]anthracene	26.87	228	2680265	78.29 ng/uL	98
72) Chrysene	27.00	228	2546837	84.33 ng/uL	99
73) bis(2-Ethylhexyl)phthalate	26.92	149	2400414	82.20 ng/uL	96
75) Di-n-octylphthalate	28.65	149	3552865	88.00 ng/uL	99
76) Benzo[b]fluoranthene	30.04	252	2473705	82.97 ng/uL	100
77) Benzo[k]fluoranthene	30.12	252	2061171	86.35 ng/uL	99
78) Benzo[a]pyrene	31.05	252	2132617	84.97 ng/uL	93
79) Indeno[1,2,3-cd]pyrene	34.34	276	1983926	87.72 ng/uL	68
80) Dibenz[a,h]anthracene	34.37	278	1668749	88.07 ng/uL	89
81) Benzo[g,h,i]perylene	35.09	276	1406067	86.05 ng/uL	88

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\042999j\j12506.d
Acq On : 29 Apr 99 14:11 pm
Sample : SSTD120
Misc : 120 NG STD
Quant Time: Apr 29 15:41 1999

Vial: 5
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:40:10 1999
Response via : Initial Calibration

4-30-99

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	9.87	152	582513	40.00	ng/uL	-0.15
17) Naphthalene-d8	12.78	136	2191547	40.00	ng/uL	-0.15
32) Acenaphthene-d10	16.95	164	1175663	40.00	ng/uL	-0.14
52) Phenanthrene-d10	20.47	188	2188961	40.00	ng/uL	-0.14
65) Chrysene-d12	26.96	240	2088137	40.00	ng/uL	-0.17
74) Perylene-d12	31.28	264	1543283	40.00	ng/uL	-0.21
System Monitoring Compounds						%Recovery
3) 2-Fluorophenol	7.50	112	2313482	116.41	ng/uL	58.21%
5) Phenol-d5	9.56	99	2933989	125.13	ng/uL	62.56%
18) Nitrobenzene-d5	11.29	82	2201458	116.93	ng/uL	116.93%
36) 2-Fluorobiphenyl	15.40	172	5105950	130.77	ng/uL	130.77%
56) 2,4,6-Tribromophenol	18.90	330	881336	139.99	ng/uL	69.99%
68) Terphenyl-d14	24.30	244	5869120	110.75	ng/uL	110.75%
Target Compounds						Qvalue
2) N-Nitrosodimethylamine	4.86	74	910538	110.78	ng/uLm	79
4) bis(2-Chloroethyl)ether	9.45	93	5383554	114.16	ng/uL	98
6) Phenol	9.59	94	2673158	124.42	ng/uL	94
7) 2-Chlorophenol	9.61	128	2955732	136.87	ng/uL	100
8) 1,3-Dichlorobenzene	9.77	146	2435186	125.11	ng/uL	97
9) 1,4-Dichlorobenzene	9.90	146	2675622	128.65	ng/uL	96
10) 1,2-Dichlorobenzene	10.32	146	2430411	123.90	ng/uL	97
11) Benzyl alcohol	10.44	108	1491997	121.72	ng/uL	86
12) bis(2-chloroisopropyl)ethe	10.57	45	2250876	110.18	ng/uL	94
13) 2-Methylphenol	10.78	108	2382409	122.19	ng/uL	99
14) Hexachloroethane	10.97	117	1519124	126.64	ng/uL	89
15) N-Nitroso-di-n-propylamine	10.96	70	1640675	117.64	ng/uL	86
16) 4-Methylphenol	11.14	108	2677247	124.48	ng/uL	96
19) Nitrobenzene	11.33	77	2311138	119.45	ng/uL	99
20) Isophorone	11.77	82	3668397	112.00	ng/uLm	94
21) 2-Nitrophenol	12.02	139	1701679	127.95	ng/uL	91
22) 2,4-Dimethylphenol	12.27	107	2596314	119.91	ng/uL	93
23) bis(2-Chloroethoxy)methane	12.35	93	2453958	122.01	ng/uL	96
24) 2,4-Dichlorophenol	12.61	162	2250044	134.12	ng/uL	96
25) Benzoic Acid	12.90	105	1632276	127.13	ng/uLm	85
26) 1,2,4-Trichlorobenzene	12.65	180	2497419	131.63	ng/uL	94
27) Naphthalene	12.83	128	7790011	134.52	ng/uL	98
28) 4-Chloroaniline	13.20	127	3899284	129.93	ng/uL	97
29) Hexachlorobutadiene	13.20	225	1815503	134.14	ng/uL	98
30) 4-Chloro-3-methylphenol	14.43	107	2397478	117.48	ng/uL	65
31) 2-Methylnaphthalene	14.42	142	8192044	124.52	ng/uL	85
33) Hexachlorocyclopentadiene	14.91	237	1492122	141.05	ng/uL	98

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042999j\j12506.d
Acq On : 29 Apr 99 14:11 pm
Sample : SSTD120
Misc : 120 NG STD
Quant Time: Apr 29 15:41 1999

Vial: 5
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:40:10 1999
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
34)	2,4,6-Trichlorophenol	15.26	196	1822944	137.97 ng/uL	97
35)	2,4,5-Trichlorophenol	15.39	196	2308690	138.39 ng/uL	94
37)	2-Chloronaphthalene	15.59	162	4101017	133.75 ng/uL	97
38)	2-Nitroaniline	16.16	65	1672635	123.39 ng/uL	90
39)	Acenaphthylene	16.61	152	6521096	137.41 ng/uL	98
40)	Dimethylphthalate	16.56	163	4843434	132.11 ng/uL	99
41)	2,6-Dinitrotoluene	16.74	165	1176433	135.60 ng/uL	97
42)	Acenaphthene	17.04	153	4021793	134.88 ng/uL	96
43)	3-Nitroaniline	17.21	138	1275268	141.11 ng/uL	91
44)	2,4-Dinitrophenol	17.31	184	1038018	160.19 ng/uL	88
45)	Dibenzofuran	17.42	168	6738492	131.91 ng/uL	96
46)	2,4-Dinitrotoluene	17.65	165	1517912	137.09 ng/uL	98
47)	4-Nitrophenol	17.82	65	1082531	132.64 ng/uL	81
48)	Fluorene	18.23	166	5391493	133.12 ng/uL	96
49)	4-Chlorophenyl-phenylether	18.24	204	3364757	139.70 ng/uL	91
50)	Diethylphthalate	18.20	149	5392523	134.14 ng/uL	92
51)	4-Nitroaniline	18.75	138	1187267	141.57 ng/uL	75
53)	4,6-Dinitro-2-methylphenol	18.60	198	1638837	165.68 ng/uL	88
54)	n-Nitrosodiphenylamine	18.63	169	3921163	137.23 ng/uL	97
55)	1,2-Diphenylhydrazine	18.63	77	6686003	122.51 ng/uL	94
57)	4-Bromophenyl-phenylether	19.38	248	1463135	134.14 ng/uL	93
58)	Hexachlorobenzene	19.69	284	1886322	132.27 ng/uL	92
59)	Pentachlorophenol	20.26	266	1200861	146.87 ng/uL	97
60)	Phenanthrene	20.53	178	7338176	132.39 ng/uL	98
61)	Anthracene	20.64	178	7284827	132.61 ng/uL	98
62)	Carbazole	21.17	167	5909170	139.06 ng/uL	95
63)	Di-n-butylphthalate	21.95	149	8735441	123.03 ng/uL	96
64)	Fluoranthene	23.37	202	8794931	131.93 ng/uL	98
66)	Benzidine	23.88	184	1986558	104.54 ng/uL	99
67)	Pyrene	23.92	202	9183875	110.53 ng/uL	98
69)	Butylbenzylphthalate	25.55	149	4235961	109.29 ng/uL	94
70)	3,3'-Dichlorobenzidine	27.04	252	2756244	165.90 ng/uL	96
71)	Benzo[a]anthracene	26.91	228	7270855	113.39 ng/uL	98
72)	Chrysene	27.07	228	7409903	130.99 ng/uL	97
73)	bis(2-Ethylhexyl)phthalate	26.96	149	6070638	110.98 ng/uL	92
75)	Di-n-octylphthalate	28.70	149	9118818	129.40 ng/uL	97
76)	Benzo[b]fluoranthene	30.13	252	7588088	145.82 ng/uL	99
77)	Benzo[k]fluoranthene	30.20	252	4866466	116.80 ng/uL	96
78)	Benzo[a]pyrene	31.12	252	5604806	127.93 ng/uL	94
79)	Indeno[1,2,3-cd]pyrene	34.45	276	5173978	131.06 ng/uL	86
80)	Dibenz[a,h]anthracene	34.46	278	4816877	145.63 ng/uL	91
81)	Benzo[g,h,i]perylene	35.19	276	3657701	128.24 ng/uL	88

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data\042999j\j12507.d
Acq On : 29 Apr 99 15:00 pm
Sample : SSTD160
Misc : 160 NG STD
Quant Time: Apr 29 15:43 1999

Vial: 6
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:41:30 1999
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	9.87	152	599035	40.00	ng/uL	-0.15
17) Naphthalene-d8	12.79	136	2291449	40.00	ng/uL	-0.13
32) Acenaphthene-d10	16.95	164	1225438	40.00	ng/uL	-0.13
52) Phenanthrene-d10	20.48	188	2371239	40.00	ng/uL	-0.13
65) Chrysene-d12	26.97	240	2268795	40.00	ng/uL	-0.16
74) Perylene-d12	31.30	264	1615772	40.00	ng/uL	-0.19
System Monitoring Compounds						%Recovery
3) 2-Fluorophenol	7.51	112	3061817	149.82	ng/uL	74.91%
5) Phenol-d5	9.57	99	3991836	165.55	ng/uL	82.77%
18) Nitrobenzene-d5	11.30	82	3025871	153.72	ng/uL	153.72%
36) 2-Fluorobiphenyl	15.41	172	6751481	165.89	ng/uL	165.89%
56) 2,4,6-Tribromophenol	18.91	330	1232664	180.74	ng/uL	90.37%
68) Terphenyl-d14	24.32	244	7800536	135.48	ng/uL	135.48%
Target Compounds						Qvalue
2) N-Nitrosodimethylamine	4.86	74	1200239	142.01	ng/uLm	92
4) bis(2-Chloroethyl)ether	9.46	93	7059840	145.58	ng/uL	92
6) Phenol	9.59	94	3560264	161.14	ng/uL	92
7) 2-Chlorophenol	9.62	128	4272226	192.38	ng/uL	98
8) 1,3-Dichlorobenzene	9.77	146	3282585	163.99	ng/uL	96
9) 1,4-Dichlorobenzene	9.90	146	3614808	169.01	ng/uL	93
10) 1,2-Dichlorobenzene	10.33	146	3258957	161.56	ng/uL	95
11) Benzyl alcohol	10.46	108	2033531	161.33	ng/uL	85
12) bis(2-chloroisopropyl)ethe	10.57	45	3000966	142.84	ng/uL	96
13) 2-Methylphenol	10.79	108	3254368	162.31	ng/uL	98
14) Hexachloroethane	10.97	117	2014066	163.27	ng/uL	87
15) N-Nitroso-di-n-propylamine	10.98	70	2209864	154.09	ng/uL	86
16) 4-Methylphenol	11.15	108	3696237	167.12	ng/uL	93
19) Nitrobenzene	11.34	77	3181818	157.28	ng/uL	97
20) Isophorone	11.81	82	5033824	146.97	ng/uLm	100
21) 2-Nitrophenol	12.04	139	2374523	170.75	ng/uL	95
22) 2,4-Dimethylphenol	12.29	107	3449068	152.34	ng/uL	97
23) bis(2-Chloroethoxy)methane	12.36	93	3301331	156.99	ng/uL	95
24) 2,4-Dichlorophenol	12.62	162	3123859	178.09	ng/uL	95
25) Benzoic Acid	12.96	105	2237637	166.66	ng/uLm	86
26) 1,2,4-Trichlorobenzene	12.66	180	3475027	175.17	ng/uL	95
27) Naphthalene	12.84	128	10399745	171.75	ng/uL	96
28) 4-Chloroaniline	13.21	127	5010349	159.67	ng/uL	95
29) Hexachlorobutadiene	13.20	225	2318549	163.84	ng/uL	98
30) 4-Chloro-3-methylphenol	14.44	107	3169386	148.53	ng/uL	95
31) 2-Methylnaphthalene	14.43	142	10673646	155.17	ng/uL	85
33) Hexachlorocyclopentadiene	14.92	237	2030150	184.11	ng/uL	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\042999j\j12507.d
Acq On : 29 Apr 99 15:00 pm
Sample : SSTD160
Misc : 160 NG STD
Quant Time: Apr 29 15:43 1999

Vial: 6
Operator: JL
Inst : HP-J
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042999J.M
Title : BNA Calibration
Last Update : Thu Apr 29 15:41:30 1999
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
34)	2,4,6-Trichlorophenol	15.27	196	2505864	181.96 ng/uL	94
35)	2,4,5-Trichlorophenol	15.40	196	3030707	174.29 ng/uL	94
37)	2-Chloronaphthalene	15.60	162	5644696	176.61 ng/uL	94
38)	2-Nitroaniline	16.17	65	2296697	162.55 ng/uL	93
39)	Acenaphthylene	16.61	152	9266813	187.34 ng/uL	97
40)	Dimethylphthalate	16.58	163	6938252	181.56 ng/uL	98
41)	2,6-Dinitrotoluene	16.77	165	1670968	184.78 ng/uL	95
42)	Acenaphthene	17.04	153	5502696	177.06 ng/uL	94
43)	3-Nitroaniline	17.22	138	1845667	195.93 ng/uL	91
44)	2,4-Dinitrophenol	17.32	184	1542896	228.43 ng/uL	91
45)	Dibenzofuran	17.44	168	9165485	172.13 ng/uL	99
46)	2,4-Dinitrotoluene	17.67	165	2117743	183.49 ng/uL	91
47)	4-Nitrophenol	17.83	65	1502698	176.64 ng/uL	82
48)	Fluorene	18.25	166	6769502	160.35 ng/uL	95
49)	4-Chlorophenyl-phenylether	18.25	204	4115806	163.94 ng/uL	95
50)	Diethylphthalate	18.23	149	6888153	164.39 ng/uL	94
51)	4-Nitroaniline	18.78	138	1701774	194.67 ng/uL	78
53)	4,6-Dinitro-2-methylphenol	18.62	198	2471286	230.63 ng/uL	91
54)	n-Nitrosodiphenylamine	18.64	169	5261929	170.00 ng/uL	97
55)	1,2-Diphenylhydrazine	18.64	77	8939378	151.21 ng/uL	95
57)	4-Bromophenyl-phenylether	19.39	248	2016586	170.67 ng/uL	93
58)	Hexachlorobenzene	19.70	284	2583921	167.26 ng/uL	97
59)	Pentachlorophenol	20.27	266	1722464	194.47 ng/uL	97
60)	Phenanthrene	20.55	178	10117739	168.51 ng/uL	98
61)	Anthracene	20.65	178	9795027	164.60 ng/uL	96
62)	Carbazole	21.19	167	8114026	176.27 ng/uL	98
63)	Di-n-butylphthalate	21.97	149	11348846	147.55 ng/uL	95
64)	Fluoranthene	23.39	202	11404345	157.93 ng/uL	97
66)	Benzidine	23.89	184	2574340	124.69 ng/uL	98
67)	Pyrene	23.94	202	12347225	136.77 ng/uL	97
69)	Butylbenzylphthalate	25.56	149	5779409	137.24 ng/uL	94
70)	3,3'-Dichlorobenzidine	27.06	252	3815396	211.37 ng/uL	95
71)	Benzo[a]anthracene	26.93	228	10050601	144.26 ng/uL	98
72)	Chrysene	27.09	228	10143129	165.03 ng/uL	97
73)	bis(2-Ethylhexyl)phthalate	26.97	149	8253117	138.87 ng/uL	90
75)	Di-n-octylphthalate	28.70	149	12399630	168.06 ng/uL	95
76)	Benzo[b]fluoranthene	30.16	252	12261293	225.05 ng/uL	97
77)	Benzo[k]fluoranthene	30.23	252	5247577	120.30 ng/uL	96
78)	Benzo[a]pyrene	31.15	252	7735003	168.63 ng/uL	95
79)	Indeno[1,2,3-cd]pyrene	34.48	276	6965597	168.53 ng/uL	86
80)	Dibenz[a,h]anthracene	34.49	278	6537628	188.79 ng/uL	92
81)	Benzo[g,h,i]perylene	35.21	276	4750707	159.08 ng/uL	90

(#) = qualifier out of range (m) = manual integration

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: QC INC Contract:

Instrument ID: HP-H Calibration Date: 04/27/99 Time: 09:32

Lab File ID: H12360.D Init. Calib. Date(s): 04/23/99 04/23/99

Init. Calib. Times: 12:08 15:51

COMPOUND	$\overline{RRF}$	RRF80	MIN RRF	%D	MAX %D
N-Nitrosodimethylamine	0.984	1.073		-9.0	20.0
bis(2-Chloroethyl)ether	1.483	1.505		-1.5	20.0
Phenol	1.977	2.008		-1.6	20.0
2-Chlorophenol	1.419	1.443		-1.7	20.0
1,3-Dichlorobenzene	1.380	1.420		-2.9	20.0
1,4-Dichlorobenzene	1.427	1.456		-2.0	20.0
1,2-Dichlorobenzene	1.283	1.299		-1.2	20.0
bis(2-chloroisopropyl)ether	1.741	1.746		-0.3	20.0
Hexachloroethane	0.608	0.645		-6.1	20.0
N-Nitroso-di-n-propylamine	1.043	1.067		-2.3	20.0
Nitrobenzene	0.397	0.411		-3.5	20.0
Isophorone	0.800	0.832		-4.0	20.0
2-Nitrophenol	0.229	0.242		-5.7	20.0
2,4-Dimethylphenol	0.365	0.387		-6.0	20.0
bis(2-Chloroethoxy)methane	0.462	0.478		-3.5	20.0
2,4-Dichlorophenol	0.279	0.289		-3.6	20.0
1,2,4-Trichlorobenzene	0.287	0.294		-2.4	20.0
Naphthalene	0.906	0.974		-7.5	20.0
Hexachlorobutadiene	0.166	0.172		-3.6	20.0
4-Chloro-3-methylphenol	0.323	0.340		-5.3	20.0
2,4,6-Trichlorophenol	0.401	0.409		-2.0	20.0
2-Chloronaphthalene	1.058	1.083		-2.4	20.0
Acenaphthylene	1.732	1.787		-3.2	20.0
Dimethylphthalate	1.255	1.289		-2.7	20.0
2,6-Dinitrotoluene	0.334	0.352		-5.4	20.0
Acenaphthene	0.986	1.026		-4.1	20.0
2,4-Dinitrophenol	0.239	0.237		0.8	20.0
2,4-Dinitrotoluene	0.420	0.439		-4.5	20.0
4-Nitrophenol	0.300	0.315		-5.0	20.0
Fluorene	1.192	1.231		-3.3	20.0
4-Chlorophenyl-phenylether	0.590	0.602		-2.0	20.0
Diethylphthalate	1.338	1.367		-2.2	20.0
4,6-Dinitro-2-methylphenol	0.185	0.198		-7.0	20.0
n-Nitrosodiphenylamine	0.519	0.549		-5.8	20.0
4-Bromophenyl-phenylether	0.213	0.230		-8.0	20.0

All other compounds must meet a minimum RRF of 0.010.

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: QC INC Contract:

Instrument ID: HP-H Calibration Date: 04/27/99 Time: 09:32

Lab File ID: H12360.D Init. Calib. Date(s): 04/23/99 04/23/99

Init. Calib. Times: 12:08 15:51

COMPOUND	RRF	RRF80	MIN RRF	%D	MAX %D
Hexachlorobenzene	0.245	0.263		-7.3	20.0
Pentachlorophenol	0.167	0.174		-4.2	20.0
Phenanthrene	0.988	1.057		-7.0	20.0
Anthracene	0.984	1.034		-5.1	20.0
Di-n-butylphthalate	1.472	1.589		-7.9	20.0
Fluoranthene	1.101	1.155		-4.9	20.0
Benzidine	0.394	0.362		8.1	50.0
Pyrene	1.405	1.430		-1.8	20.0
Butylbenzylphthalate	0.838	0.875		-4.4	20.0
3,3'-Dichlorobenzidine	0.427	0.470		-10.1	50.0
Benzo[a]anthracene	1.263	1.325		-4.9	20.0
Chrysene	1.144	1.202		-5.1	20.0
bis(2-Ethylhexyl)phthalate	1.132	1.228		-8.5	20.0
Di-n-octylphthalate	2.223	2.315		-4.1	20.0
Benzo[b]fluoranthene	1.374	1.411		-2.7	20.0
Benzo[k]fluoranthene	1.062	1.060		0.2	20.0
Benzo[a]pyrene	1.127	1.134		-0.6	20.0
Indeno[1,2,3-cd]pyrene	0.930	1.049		-12.8	20.0
Dibenz[a,h]anthracene	0.799	0.880		-10.1	20.0
Benzo[g,h,i]perylene	0.712	0.839		-17.8	20.0
2-Fluorophenol	1.450	1.488		-2.6	20.0
Phenol-d5	1.755	1.838		-4.7	20.0
Nitrobenzene-d5	0.415	0.424		-2.2	20.0
2-Fluorobiphenyl	1.150	1.205		-4.8	20.0
2,4,6-Tribromophenol	0.148	0.161		-8.8	20.0
Terphenyl-d14	1.017	1.051		-3.3	20.0

All other compounds must meet a minimum RRF of 0.010.

FORM VII SV

Quantitation Report

0071

Data File : C:\HPCHEM\1\DATA\042799H\H12360.D
Acq On : 27 Apr 99 9:32 am
Sample : SSTD080
Misc : 80PPB 4-27
Quant Time: Apr 27 10:20 1999

Vial: 2
Operator: WRF
Inst : HP-H
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042399H.M
Title : CLP BNA Calibration
Last Update : Mon Apr 26 08:06:06 1999
Response via : Multiple Level Calibration
Analyst Signature 4-27-99

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	11.45	152	680788	40.00	ng/uL	-0.03
17) Naphthalene-d8	14.40	136	2456073	40.00	ng/uL	-0.03
32) Acenaphthene-d10	18.68	164	1212434	40.00	ng/uL	-0.03
52) Phenanthrene-d10	22.28	188	1800060	40.00	ng/uL	-0.03
65) Chrysene-d12	28.80	240	1426671	40.00	ng/uL	-0.03
74) Perylene-d12	33.03	264	1251305	40.00	ng/uL	-0.03
System Monitoring Compounds						%Recovery
3) 2-Fluorophenol	8.83	112	2026377	82.14	ng/uL	41.07%
5) Phenol-d5	10.74	99	2502992	83.80	ng/uL	41.90%
18) Nitrobenzene-d5	12.78	82	2083405	81.82	ng/uL	81.82%
36) 2-Fluorobiphenyl	17.04	172	2921029	83.78	ng/uL	83.78%
56) 2,4,6-Tribromophenol	20.64	330	578915	86.73	ng/uL	43.37%
68) Terphenyl-d14	26.19	244	2997498	82.62	ng/uL	82.62%
Target Compounds						Qvalue
2) N-Nitrosodimethylamine	6.35	74	1460905	87.26	ng/uL	98
4) bis(2-Chloroethyl)ether	10.95	93	2048896	81.18	ng/uL	99
6) Phenol	10.78	94	2733953	81.24	ng/uL	78
7) 2-Chlorophenol	11.06	128	1965177	81.40	ng/uL	94
8) 1,3-Dichlorobenzene	11.37	146	1934096	82.36	ng/uL	99
9) 1,4-Dichlorobenzene	11.49	146	1982437	81.63	ng/uL	99
10) 1,2-Dichlorobenzene	11.90	146	1769281	81.05	ng/uL	99
11) Benzyl alcohol	11.81	108	1265156	82.11	ng/uL	94
12) bis(2-chloroisopropyl)ethe	12.13	45	2377099	80.21	ng/uL	94
13) 2-Methylphenol	12.07	108	1833580	82.96	ng/uL	99
14) Hexachloroethane	12.59	117	877947	84.84	ng/uL	96
15) N-Nitroso-di-n-propylamine	12.50	70	1452816	81.84	ng/uL	100
16) 4-Methylphenol	12.42	108	2038518	84.31	ng/uL	99
19) Nitrobenzene	12.83	77	2019901	82.83	ng/uL	99
20) Isophorone	13.38	82	4088959	83.23	ng/uL	99
21) 2-Nitrophenol	13.57	139	1187611	84.55	ng/uL	86
22) 2,4-Dimethylphenol	13.64	107	1901778	84.89	ng/uL	95
23) bis(2-Chloroethoxy)methane	13.86	93	2347983	82.86	ng/uL	99
24) 2,4-Dichlorophenol	14.10	162	1418569	82.69	ng/uL	97
25) Benzoic Acid	14.05	105	1386729	82.92	ng/uLm	0
26) 1,2,4-Trichlorobenzene	14.29	180	1446577	82.10	ng/uL	97
27) Naphthalene	14.45	128	4784590	86.00	ng/uL	99
28) 4-Chloroaniline	14.63	127	2354303	84.49	ng/uL	99
29) Hexachlorobutadiene	14.86	225	846742	82.86	ng/uL	98
30) 4-Chloro-3-methylphenol	15.77	107	1668780	84.16	ng/uL	90
31) 2-Methylnaphthalene	16.10	142	3361227	83.78	ng/uL	98
33) Hexachlorocyclopentadiene	16.64	237	865821	84.27	ng/uL	98

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\042799H\H12360.D
Acq On : 27 Apr 99 9:32 am
Sample : SSTD080
Misc : 80PPB 4-27
Quant Time: Apr 27 10:20 1999

Vial: 2
Operator: WRF
Inst : HP-H
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\042399H.M
Title : CLP BNA Calibration
Last Update : Mon Apr 26 08:06:06 1999
Response via : Multiple Level Calibration

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
34)	2,4,6-Trichlorophenol	16.86	196	992063	81.53 ng/uL	99
35)	2,4,5-Trichlorophenol	16.95	196	1120321	82.69 ng/uL	98
37)	2-Chloronaphthalene	17.28	162	2627109	81.89 ng/uL	97
38)	2-Nitroaniline	17.64	65	1166681	80.78 ng/uL	93
39)	Acenaphthylene	18.32	152	4332871	82.53 ng/uL	99
40)	Dimethylphthalate	18.13	163	3124456	82.13 ng/uL	99
41)	2,6-Dinitrotoluene	18.32	165	854038	84.28 ng/uL#	47
42)	Acenaphthene	18.77	153	2488884	83.31 ng/uL	99
43)	3-Nitroaniline	17.64	138	1280320	81.44 ng/uL#	65
44)	2,4-Dinitrophenol	18.92	184	575673	72.57 ng/uL	92
45)	Dibenzofuran	19.15	168	3900516	81.69 ng/uL	87
46)	2,4-Dinitrotoluene	19.29	165	1063678	83.60 ng/uL	96
47)	4-Nitrophenol	19.08	65	764368	84.02 ng/uL	94
48)	Fluorene	19.99	166	2984173	82.57 ng/uL	99
49)	4-Chlorophenyl-phenylether	19.98	204	1459126	81.53 ng/uL	93
50)	Diethylphthalate	19.84	149	3315177	81.74 ng/uL	99
51)	4-Nitroaniline	20.22	138	922370	81.28 ng/uL	95
53)	4,6-Dinitro-2-methylphenol	20.29	198	711613	78.15 ng/uL	73
54)	n-Nitrosodiphenylamine	20.31	169	1978098	84.66 ng/uL	99
55)	1,2-Diphenylhydrazine	20.36	77	4229394	85.53 ng/uL	94
57)	4-Bromophenyl-phenylether	21.16	248	828769	86.59 ng/uL	86
58)	Hexachlorobenzene	21.54	284	948483	85.89 ng/uL	98
59)	Pentachlorophenol	21.99	266	626641	83.41 ng/uL	100
60)	Phenanthrene	22.35	178	3805429	85.56 ng/uL	100
61)	Anthracene	22.45	178	3724014	84.07 ng/uL	99
62)	Carbazole	22.86	167	3310586	84.22 ng/uL	98
63)	Di-n-butylphthalate	23.78	149	5721555	86.40 ng/uL	99
64)	Fluoranthene	25.26	202	4158718	83.93 ng/uL	99
66)	Benzidine	25.60	184	1031667	73.36 ng/uL	97
67)	Pyrene	25.83	202	4079638	81.43 ng/uL	99
69)	Butylbenzylphthalate	27.45	149	2495367	83.46 ng/uL	94
70)	3,3'-Dichlorobenzidine	28.73	252	1340305	78.95 ng/uL#	96
71)	Benzo[a]anthracene	28.75	228	3779448	83.88 ng/uL	99
72)	Chrysene	28.86	228	3430655	84.05 ng/uL	99
73)	bis(2-Ethylhexyl)phthalate	28.85	149	3502612	86.74 ng/uL	98
75)	Di-n-octylphthalate	30.37	149	5794395	83.34 ng/uL	99
76)	Benzo[b]fluoranthene	31.72	252	3530640	82.12 ng/uL	100
77)	Benzo[k]fluoranthene	31.82	252	2651851	79.84 ng/uL	99
78)	Benzo[a]pyrene	32.83	252	2837936	80.50 ng/uL	98
79)	Indeno[1,2,3-cd]pyrene	37.77	276	2625186	106.66 ng/uLm	88
80)	Dibenz[a,h]anthracene	37.87	278	2202686	100.59 ng/uLm	99
81)	Benzo[g,h,i]perylene	39.24	276	2099839	120.60 ng/uLm	100

(#) = qualifier out of range (m) = manual integration

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QC INC Contract:

Lab File ID (Standard): H12360.D Date Analyzed: 04/27/99

Instrument ID: HP-H Time Analyzed: 09:32

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	24 HOUR STD	680788	11.45	2456073	14.40	1212434	18.68
	UPPER LIMIT	1361576	11.95	4912146	14.90	2424868	19.18
	LOWER LIMIT	340394	10.95	1228037	13.90	606217	18.18
	SAMPLE NO.						
01	SBLK01	702304	11.44	2596912	14.39	1206798	18.67
02	L517451-1MS	738994	11.44	2733127	14.39	1391016	18.66
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM VIII SV

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QC INC Contract:

Lab File ID (Standard): H12360.D Date Analyzed: 04/27/99

Instrument ID: HP-H Time Analyzed: 09:32

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	24 HOUR STD	1800060	22.28	1426671	28.80	1251305	33.03
	UPPER LIMIT	3600120	22.78	2853342	29.30	2502610	33.53
	LOWER LIMIT	900030	21.78	713336	28.30	625653	32.53
	SAMPLE NO.						
01	SBLK01	1769989	22.26	1367819	28.78	1279248	33.01
02	L517451-1MS	2001949	22.28	1628379	28.80	1375929	33.01
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM VIII SV

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QC INC Contract:

Lab File ID (Standard): J12503.D Date Analyzed: 04/29/99

Instrument ID: HP-J Time Analyzed: 11:46

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	24 HOUR STD	339776	9.84	1320896	12.76	774045	16.93
	UPPER LIMIT	679552	10.34	2641792	13.26	1548090	17.43
	LOWER LIMIT	169888	9.34	660448	12.26	387023	16.43
	SAMPLE NO.						
01	SBLK02	492601	9.85	2236840	12.76	1257351	16.93
02	HP-1	569953	9.86	2434757	12.77	1327740	16.93
03	HP-4	453814	9.86	1825862	12.76	1006975	16.93
04	HP-2	480695	9.84	1925574	12.75	1104059	16.93
05	HP-3	482008	9.84	1970924	12.75	1121697	16.92
06							
07							
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18							
19							
20							
21							
22							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM VIII SV

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QC INC Contract:

Lab File ID (Standard): J12503.D Date Analyzed: 04/29/99

Instrument ID: HP-J Time Analyzed: 11:46

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	24 HOUR STD	1370522	20.44	1114826	26.92	884138	31.23
	UPPER LIMIT	2741044	20.94	2229652	27.42	1768276	31.73
	LOWER LIMIT	685261	19.94	557413	26.42	442069	30.73
	SAMPLE NO.						
01	SBLK02	2079197	20.44	1202862	26.92	1093902	31.23
02	HP-1	2363872	20.44	1495438	26.93	1104323	31.24
03	HP-4	1745829	20.44	1043575	26.93	618086	31.23
04	HP-2	1891890	20.43	1070598	26.92	601872	31.22
05	HP-3	1923923	20.43	1016423	26.92	466445	31.20
06							
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20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM VIII SV

GC VOLATILE ORGANICS RESULTS AND DATA PACKAGE

1A

GC VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

HP-1

Lab Name: QC Inc. Contract: Residual

Matrix: (soil/water) WATER Lab Sample ID: L526805-1

Sample wt/vol: 2.5 (g/ml) ML Lab File ID: ED27004.RST

Level: (low/med) LOW Date Received: 04/22/99

% Moisture: Date Analyzed: 04/27/99

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	PQL	UNITS UG/L	Q
71-43-2	Benzene	1.00	1.00	U
108-88-3	Toluene	1.00	1.00	U
100-41-4	Ethylbenzene	1.00	1.00	U
1330-20-7	m&p-Xylenes	1.00	1.00	U
95-47-6	o-Xylene	1.00	1.00	U

Software Version: 4.0<3H19>
Sample Name : Residual
Sample Number: L526805-1
Operator :

Time : 5/5/99 01:06 PM
Study :

Instrument : GC_0
AutoSampler :
Rack/Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 3231271097 Data Acquisition Time: 4/27/99 01:12 PM
Delay Time : 0.00 min.
End Time : 20.00 min.
Sampling Rate : 1.0000 pts/sec

Raw Data File : C:\RESULTS\GC0\042599\ED27004.RAW
Result File : C:\RESULTS\GC0\042599\ED27004.RST
Inst Method : C:\TC4\METHODS\aa10 from C:\RESULTS\GC0\042599\ED27004.RST
Proc Method : C:\TC4\METHODS\aa10.mth
Calib Method : C:\TC4\METHODS\aa10.mth
Sequence File : C:\TC4\GC0\APR27GC0.SEQ

Sample Volume : 1.0000 ml
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 2.00

EXTERNAL STANDARD REPORT

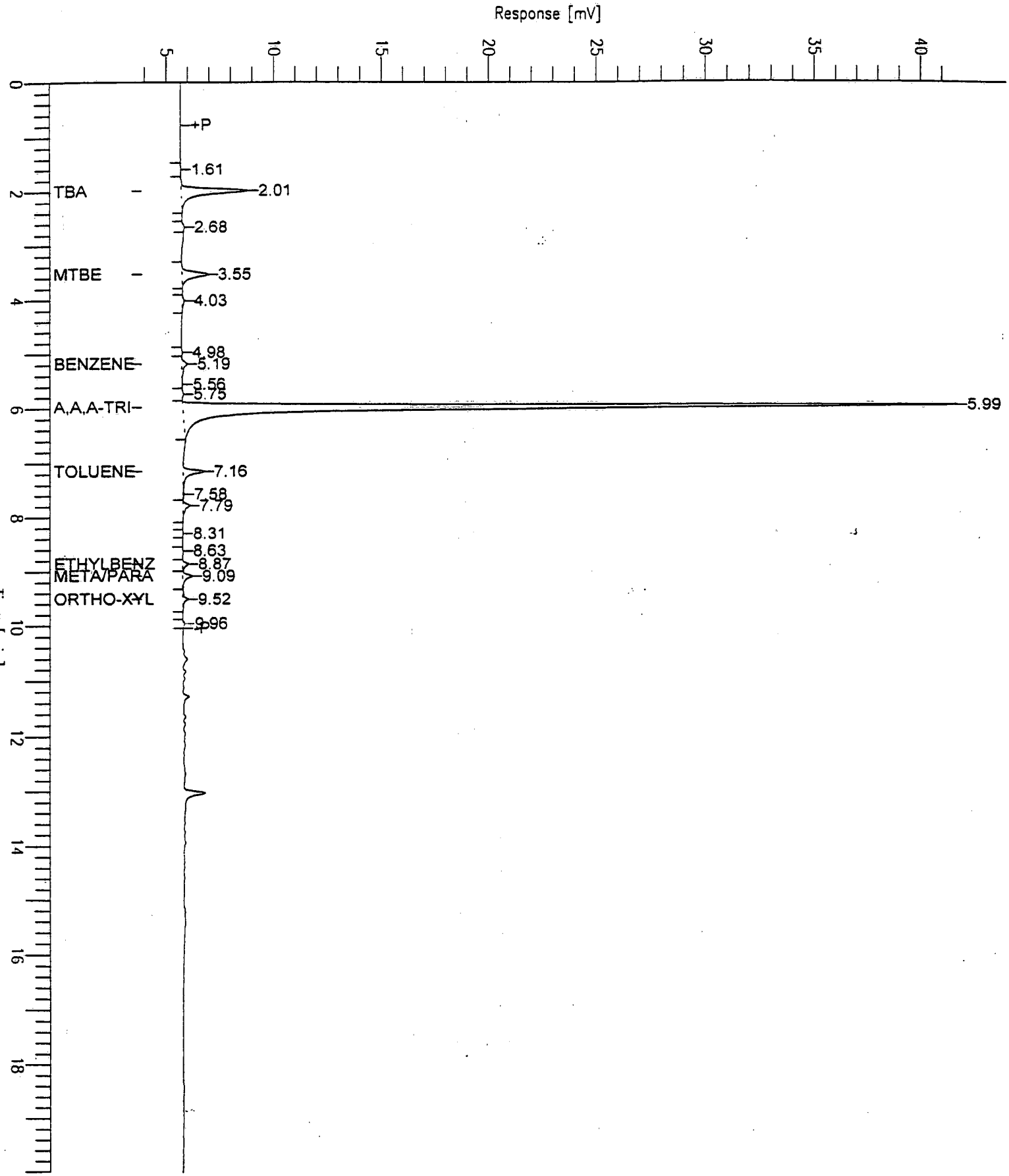
GC: Varian 3300 Serial# 5651
Column: DB-VRX 30M x 0.45mm Serial# 8828834J

Peak #	Time [min]	Component Name	Concentration in ppb	Area [µV·s]	Height [µV]	Delta RT [%]	% Surr.
2	2.012	TBA	8.3613	22068.00	3147.68	-1.518	14
4	3.545	MTBE	13.2084	8551.00	1215.63	-1.548	22
7	5.191	Benzene	0.2304	2296.22	255.33	-1.166	0
10	5.991	a,a,a-Trifluoro(SS	52.3630	2.05e+05	36766.22	-0.759	87
11	7.163	Toluene	0.5673	5809.96	970.94	-0.867	1
16	8.868	Ethylbenzene	0.1666	1410.67	255.28	-0.599	0
17	9.088	meta/para-Xylene	0.2116	2574.72	443.07	-0.680	0
18	9.519	ortho-Xylene	0.1214	1542.47	231.47	-0.629	0

Chromatogram

Sample Name : Residual
FileName : C:\RESULTS\GC0\042599\ED27004.raw
Method : aal0
Start Time : 0.00 min End Time : 20.00 min
Scale Factor: 1.0 Plot Offset: 4 mV

Sample #: L526805-1
Date : 5/5/99 01:06 PM
Time of Injection: 4/27/99 01:12 PM
Low Point : 3.86 mV High Point : 41.69 mV
Plot Scale: 37.8 mV



1A

GC VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

HP-2

Lab Name: QC Inc. Contract: Residual

Matrix: (soil/water) WATER Lab Sample ID: L526805-2

Sample wt/vol: 2.5 (g/ml) ML Lab File ID: ED27005.RST

Level: (low/med) LOW Date Received: 04/22/99

% Moisture: Date Analyzed: 04/27/99

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	PQL	UNITS UG/L	Q
71-43-2	Benzene	1.00	1.00	U
108-88-3	Toluene	1.00	1.00	U
100-41-4	Ethylbenzene	1.00	1.00	U
1330-20-7	m&p-Xylenes	1.00	1.00	U
95-47-6	o-Xylene	1.00	1.00	U

Software Version: 4.0<3H19>
Sample Name : Residual
Sample Number: L526805-2
Operator :

Time : 5/5/99 01:06 PM
Study :

Instrument : GC_0
AutoSampler :
Rack/Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 3231271097 Data Acquisition Time: 4/27/99 01:38 PM
Delay Time : 0.00 min.
End Time : 20.00 min.
Sampling Rate : 1.0000 pts/sec

Raw Data File : C:\RESULTS\GC0\042599\ED27005.RAW
Result File : C:\RESULTS\GC0\042599\ED27005.RST
Inst Method : C:\TC4\METHODS\aal0 from C:\RESULTS\GC0\042599\ED27005.RST
Proc Method : C:\TC4\METHODS\aal0.mth
Calib Method : C:\TC4\METHODS\aal0.mth
Sequence File : C:\TC4\GC0\APR27GC0.SEQ

Sample Volume : 1.0000 ml
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 2.00

EXTERNAL STANDARD REPORT

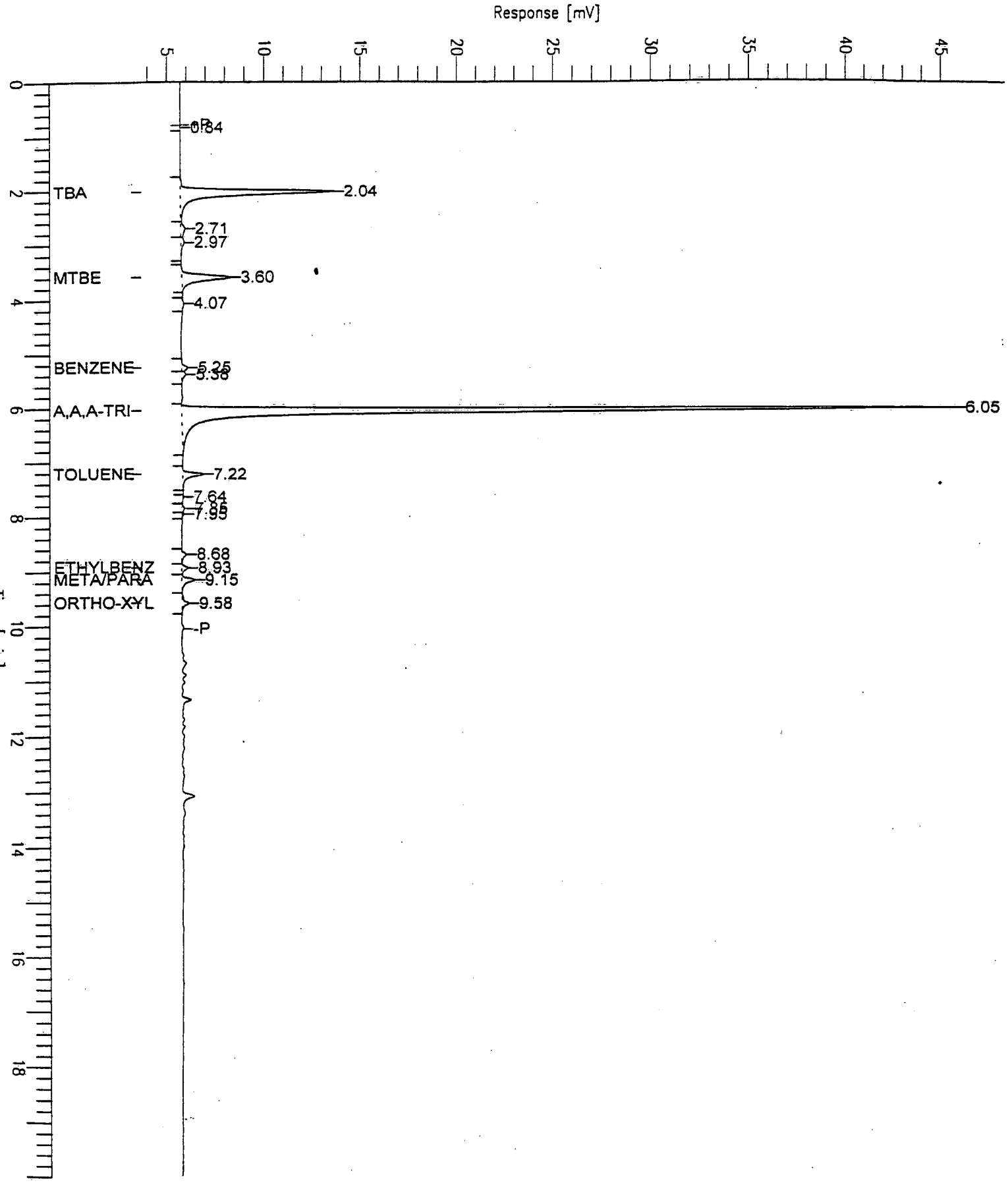
GC: Varian 3300 Serial# 5651
Column: DB-VRX 30M x 0.45mm Serial# 8828834J

Peak #	Time [min]	Component Name	Concentration in ppb	Area [µV·s]	Height [µV]	Delta RT [%]	% Surr.
2	2.038	TBA	21.1592	55845.92	8000.01	-0.256	35
5	3.597	MTBE	26.9100	18040.00	2524.51	-0.110	45
7	5.251	Benzene	0.1743	1737.00	309.23	-0.022	0
9	6.050	a,a,a-Trifluoro(SS	56.9614	2.13e+05	39994.94	0.229	95
10	7.223	Toluene	0.6382	5836.50	1092.57	-0.032	1
15	8.928	Ethylbenzene	0.2110	1751.55	323.40	0.068	0
16	9.147	meta/para-Xylene	0.3221	3918.13	681.26	-0.033	1
17	9.578	ortho-Xylene	0.1931	2171.74	368.12	-0.012	0

Chromatogram

Sample Name : Residual
FileName : C:\RESULTS\GC0\042599\ED27005.raw
Method : aa10
Start Time : 0.00 min End Time : 20.00 min
Scale Factor: 1.0 Plot Offset: 4 mV

Sample #: L526805-2
Date : 5/5/99 01:06 PM
Time of Injection: 4/27/99 01:38 PM
Low Point : 3.67 mV High Point : 45.75 mV
Plot Scale: 42.1 mV



1A

GC VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

HP-3

Lab Name: QC Inc. Contract: Residual

Matrix: (soil/water) WATER Lab Sample ID: L526805-3

Sample wt/vol: 2.5 (g/ml) ML Lab File ID: ED27006.RST

Level: (low/med) LOW Date Received: 04/22/99

% Moisture: Date Analyzed: 04/27/99

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	PQL	UNITS UG/L	Q
71-43-2	Benzene	1.00	1.00	U
108-88-3	Toluene	1.00	1.00	U
100-41-4	Ethylbenzene	1.00	1.00	U
1330-20-7	m&p-Xylenes	1.00	1.00	U
95-47-6	o-Xylene	1.00	1.00	U

Software Version: 4.0<3H19>
Sample Name : Residual
Sample Number: L526805-3
Operator :

Time : 5/5/99 01:06 PM
Study :

LMOC MS 5-5-99

Instrument : GC_0
AutoSampler :
Rack/Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 3231271097 Data Acquisition Time: 4/27/99 02:03 PM
Delay Time : 0.00 min.
End Time : 20.00 min.
Sampling Rate : 1.0000 pts/sec

Raw Data File : C:\RESULTS\GC0\042599\ED27006.RAW
Result File : C:\RESULTS\GC0\042599\ED27006.RST
Inst Method : C:\TC4\METHODS\aal0 from C:\RESULTS\GC0\042599\ED27006.RST
Proc Method : C:\TC4\METHODS\aal0.mth
Calib Method : C:\TC4\METHODS\aal0.mth
Sequence File : C:\TC4\GC0\APR27GC0.SEQ

Sample Volume : 1.0000 ml
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 2.00

EXTERNAL STANDARD REPORT

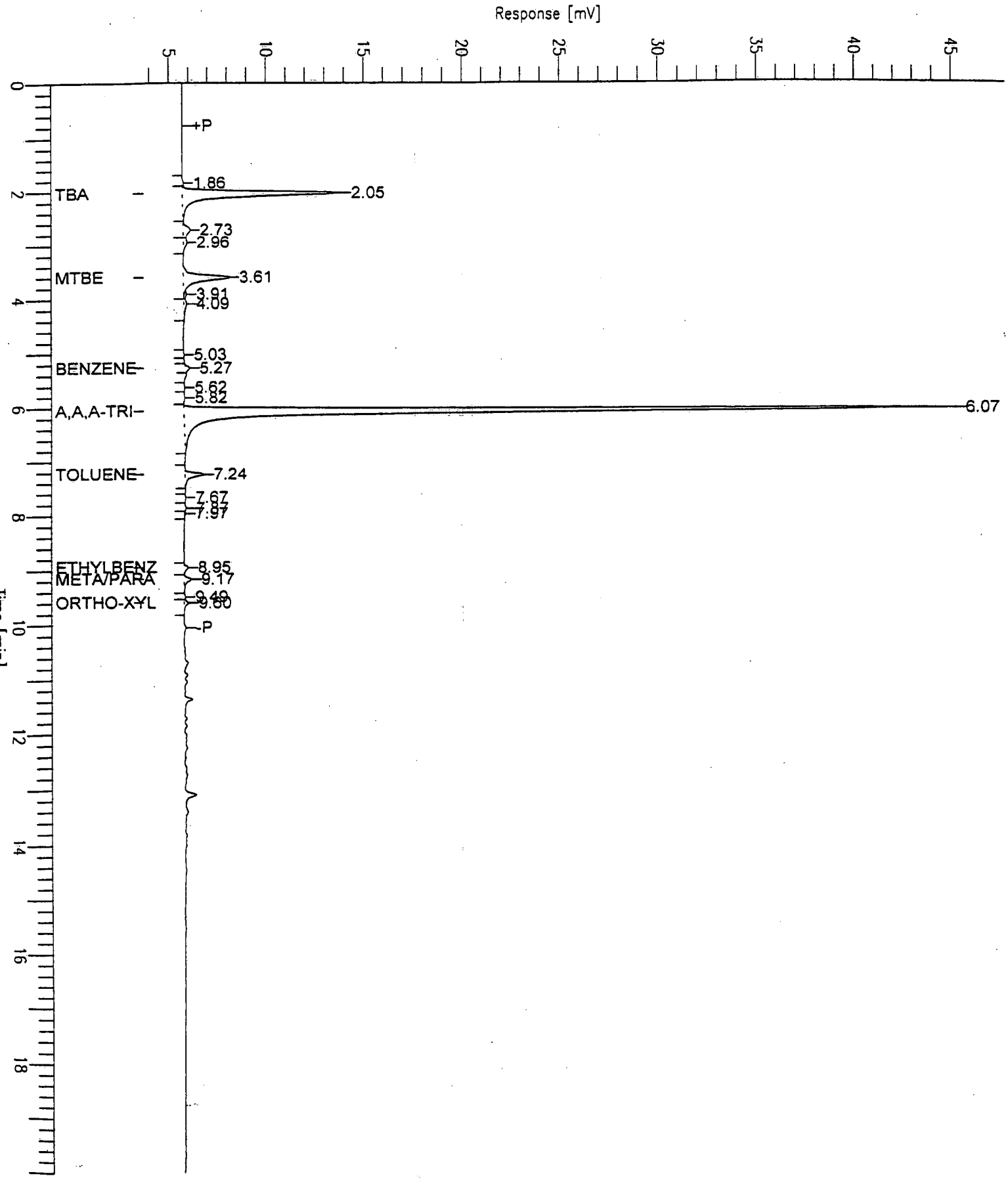
GC: Varian 3300 Serial# 5651
Column: DB-VRX 30M x 0.45mm Serial# 8828834J

Peak #	Time [min]	Component Name	Concentration in ppb	Area [µV·s]	Height [µV]	Delta RT [%]	% Surr.
2	2.050	TBA	21.2353	56046.55	8175.92	0.341	35
5	3.608	MTBE	25.9690	19206.86	2433.06	0.199	43
9	5.268	Benzene	0.1111	1107.00	226.35	0.307	0
12	6.066	a,a,a-Trifluoro(SS	56.2698	2.10e+05	39509.33	0.488	94
13	7.240	Toluene	0.5940	5497.00	1016.68	0.207	1
17	8.950	Ethylbenzene	0.1449	1240.00	222.00	0.318	0
18	9.167	meta/para-Xylene	0.1961	2386.00	397.01	0.184	0
20	9.597	ortho-Xylene	0.1301	1355.00	248.01	0.188	0

Chromatogram

Sample Name : Residual
FileName : C:\RESULTS\GC0\042599\ED27006.raw
Method : aal0
Start Time : 0.00 min End Time : 20.00 min
Scale Factor: 1.0 Plot Offset: 4 mV

Sample #: L526805-3
Date : 5/5/99 01:06 PM
Time of Injection: 4/27/99 02:03 PM
Low Point : 3.70 mV High Point : 45.26 mV
Plot Scale: 41.6 mV



1A

GC VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

HP-4

Lab Name: QC Inc. Contract: Residual

Matrix: (soil/water) WATER Lab Sample ID: L526805-4

Sample wt/vol: 2.5 (g/ml) ML Lab File ID: ED27007.RST

Level: (low/med) LOW Date Received: 04/22/99

% Moisture: Date Analyzed: 04/27/99

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	PQL	UNITS UG/L	Q
71-43-2	Benzene	1.00	1.00	U
108-88-3	Toluene	1.00	1.00	U
100-41-4	Ethylbenzene	1.00	1.00	U
1330-20-7	m&p-Xylenes	1.00	1.00	U
95-47-6	o-Xylene	1.00	1.00	U

Software Version: 4.0<3H19>
Sample Name : Residual
Sample Number: L526805-4
Operator :

Time : 5/5/99 01:06 PM
Study :

Instrument : GC_0
AutoSampler :
Rack/Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 3231271097 Data Acquisition Time: 4/27/99 02:29 PM
Delay Time : 0.00 min.
End Time : 20.00 min.
Sampling Rate : 1.0000 pts/sec

Raw Data File : C:\RESULTS\GC0\042599\ED27007.RAW
Result File : C:\RESULTS\GC0\042599\ED27007.RST
Inst Method : C:\TC4\METHODS\aal0 from C:\RESULTS\GC0\042599\ED27007.RST
Proc Method : C:\TC4\METHODS\aal0.mth
Calib Method : C:\TC4\METHODS\aal0.mth
Sequence File : C:\TC4\GC0\APR27GC0.SEQ

Sample Volume : 1.0000 ml
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 2.00

EXTERNAL STANDARD REPORT

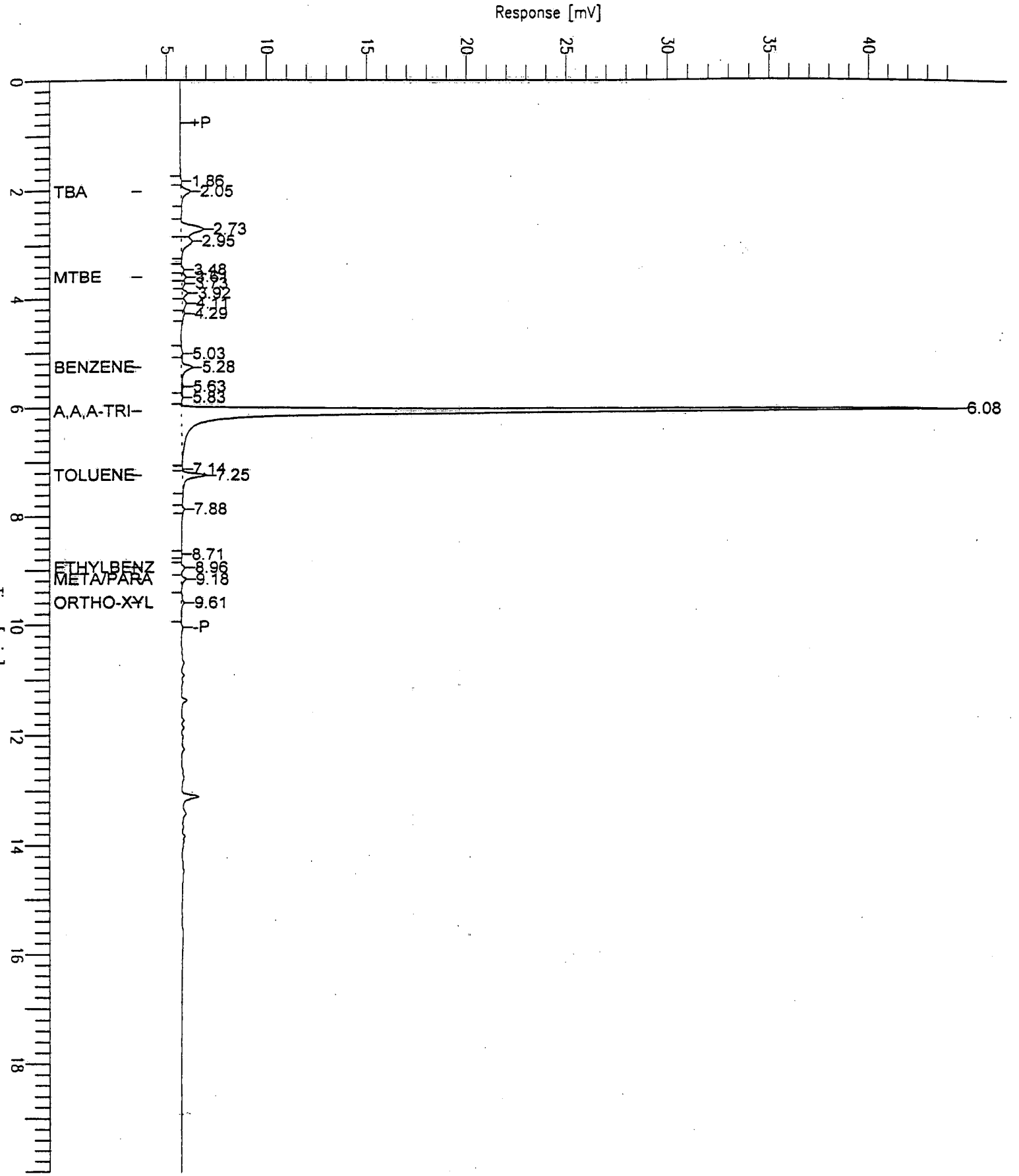
GC: Varian 3300 Serial# 5651
Column: DB-VRX 30M x 0.45mm Serial# 8828834J

Peak #	Time [min]	Component Name	Concentration in ppb	Area [µV·s]	Height [µV]	Delta RT [%]	% Surr.
2	2.048	TBA	1.3977	3688.98	479.28	0.243	2
6	3.613	MTBE	2.3253	1403.95	210.72	0.329	4
12	5.279	Benzene	0.4539	4527.15	559.24	0.519	1
15	6.078	a,a,a-Trifluoro(SS	55.9015	2.10e+05	39250.77	0.698	93
17	7.253	Toluene	0.7053	6618.92	1207.83	0.378	1
20	8.962	Ethylbenzene	0.1238	1056.51	189.72	0.453	0
21	9.179	meta/para-Xylene	0.1138	1384.87	227.20	0.316	0
22	9.607	ortho-Xylene	0.0854	1172.12	162.80	0.286	0

Chromatogram

Sample Name : Residual
FileName : C:\RESULTS\GC0\042599\ED27007.raw
Method : aa10
Start Time : 0.00 min End Time : 20.00 min
Scale Factor: 1.0 Plot Offset: 4 mV

Sample #: L526805-4
Date : 5/5/99 01:06 PM
Time of Injection: 4/27/99 02:29 PM
Low Point : 3.74 mV High Point : 44.50 mV
Plot Scale: 40.8 mV



1A

GC VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

Trip Blank

Lab Name: QC Inc. Contract: Residual

Matrix: (soil/water) WATER Lab Sample ID: L526805-5

Sample wt/vol: 5 (g/ml) ML Lab File ID: ED27008.RST

Level: (low/med) LOW Date Received: 04/22/99

% Moisture: Date Analyzed: 04/27/99

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	PQL	UNITS UG/L	Q
71-43-2	Benzene	0.500	0.500	U
108-88-3	Toluene	0.500	0.500	U
100-41-4	Ethylbenzene	0.500	0.500	U
1330-20-7	m&p-Xylenes	0.500	0.500	U
95-47-6	o-Xylene	0.500	0.500	U

Software Version: 4.0<3H19>
Sample Name : Residual
Sample Number: L526805-5
Operator :

Time : 4/27/99 03:16 PM
Study :

jmOL MS 4-28-99

Instrument : GC_0
AutoSampler :
Rack/Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 3231271097 Data Acquisition Time: 4/27/99 02:56 PM
Delay Time : 0.00 min.
End Time : 20.00 min.
Sampling Rate : 1.0000 pts/sec

Raw Data File : C:\RESULTS\GC0\042599\ED27008.RAW
Result File : C:\RESULTS\GC0\042599\ED27008.RST
Inst Method : C:\TC4\METHODS\aa10 from C:\RESULTS\GC0\042599\ED27008.RST
Proc Method : C:\TC4\METHODS\aa10
Calib Method : C:\TC4\METHODS\aa10
Sequence File : C:\TC4\GC0\APR27GC0.SEQ

Sample Volume : 1.0000 ml
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

EXTERNAL STANDARD REPORT

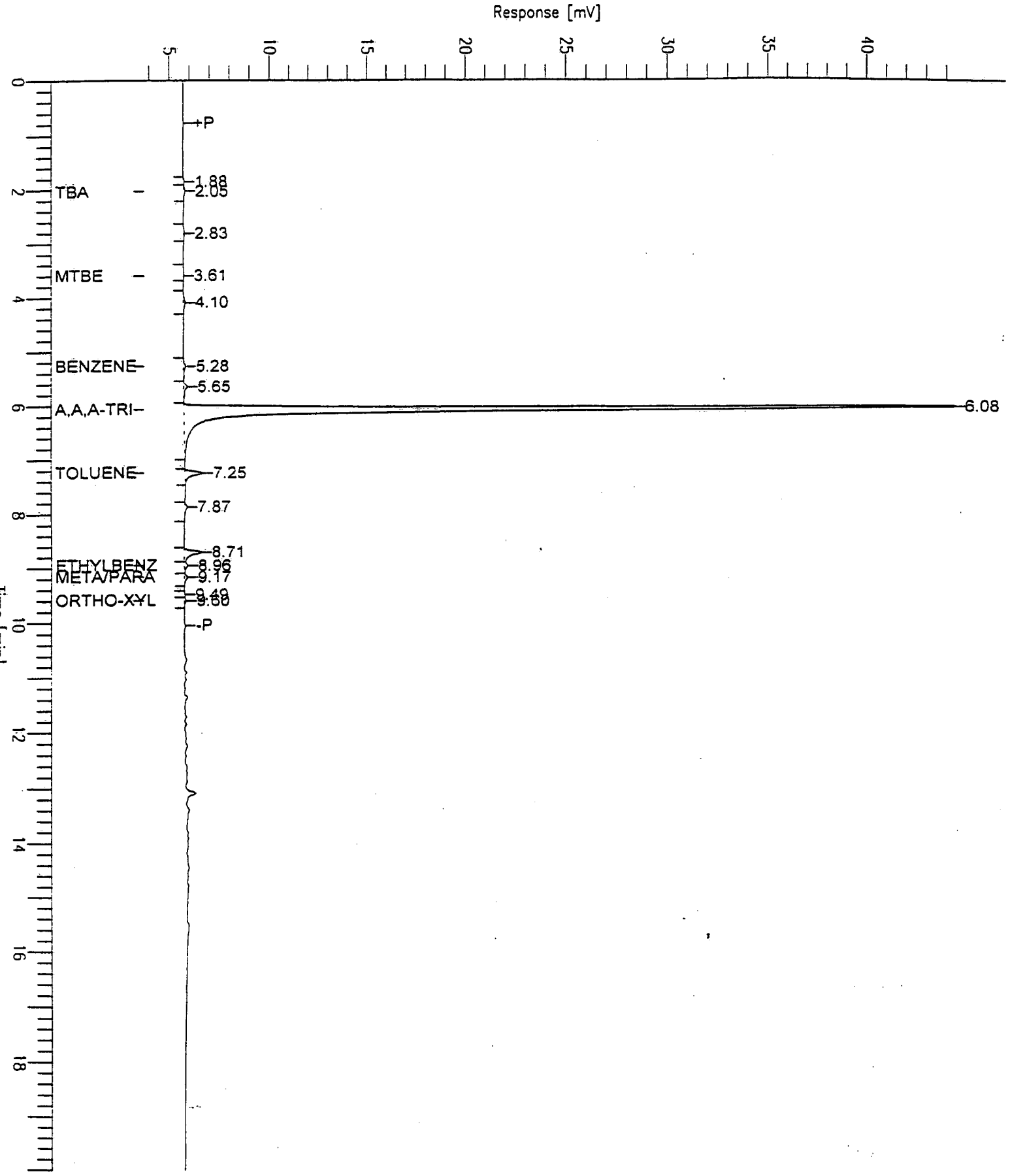
GC: Varian 3300 Serial# 5651
Column: Rtx-VRX 30M x 0.45mm Serial# 8828834J

Peak #	Time [min]	Component Name	Concentration in ppb	Area [µV·s]	Height [µV]	Delta RT [%]	% Surr.
2	2.052	TBA	0.1288	680.00	72.60	0.425	0
4	3.608	MTBE	0.0969	194.00	17.51	0.201	0
6	5.276	Benzene	0.0471	939.08	115.90	0.449	0
8	6.075	a,a,a-Trifluoro(SS	28.4943	2.16e+05	40014.11	0.873	95
9	7.249	Toluene	0.2659	4687.00	910.13	0.324	1
12	8.955	Ethylbenzene	0.0600	1157.13	183.80	0.376	0
13	9.170	meta/para-Xylene	0.0350	852.65	161.18	0.223	0
15	9.601	ortho-Xylene	0.0263	449.47	100.09	0.227	####

Chromatogram

Sample Name : Residual
FileName : C:\RESULTS\GC0\042599\ED27008.raw
Method : aa10
Start Time : 0.00 min End Time : 20.00 min
Scale Factor: 1.0 Plot Offset: 4 mV

Sample #: L526805-5
Date : 4/27/99 03:16 PM
Time of Injection: 4/27/99 02:56 PM
Low Point : 3.74 mV High Point : 44.44 mV
Plot Scale: 40.7 mV



4A

VOLATILE METHOD BLANK SUMMARY

SAMPLE NO.

VBLK01

Lab Name: QC Inc. Contract: Residual

Lab File ID: ED27003.RST Lab Sample ID: WBlank01 04/27/99

Date Analyzed: 04/27/99 Time Analyzed: 09:44

GC Column: DB-VRX ID: 0.45 (mm) Heated Purge: (Y/N) N

Instrument ID: GC_0

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	HP-1	L526805-1	ED27004.RST	13:12
02	HP-2	L526805-2	ED27005.RST	13:38
03	HP-3	L526805-3	ED27006.RST	14:03
04	HP-4	L526805-4	ED27007.RST	14:29
05	TRIP BLANK	L526805-5	ED27008.RST	14:56
06	HP-2MS	L526805-2MS	ED27009.RST	15:21
07	HP-2MSD	L526805-2MSD	ED27010.RST	15:48

COMMENTS:

1A

GC VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

VBLK01

Lab Name: QC Inc. Contract: Residual

Matrix: (soil/water) WATER Lab Sample ID: WBlank01 04/27/99

Sample wt/vol: 5 (g/ml) ML Lab File ID: ED27003.RST

Level: (low/med) LOW Date Received:

% Moisture: Date Analyzed: 04/27/99

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	PQL	UNITS UG/L	Q
71-43-2	Benzene	0.500	0.500	U
108-88-3	Toluene	0.500	0.500	U
100-41-4	Ethylbenzene	0.500	0.500	U
1330-20-7	m&p-Xylenes	0.500	0.500	U
95-47-6	o-Xylene	0.500	0.500	U

Software Version: 4.0<3H19>
Sample Name : VBLK
Sample Number: WBlank
Operator :

Time : 4/27/99 10:04 AM
Study :

LMOC
MS
4-28-99

Instrument : GC_0
AutoSampler :
Rack/Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 3231271097 Data Acquisition Time: 4/27/99 09:44 AM
Delay Time : 0.00 min.
End Time : 20.00 min.
Sampling Rate : 1.0000 pts/sec

Raw Data File : C:\RESULTS\GC0\042599\ED27003.RAW
Result File : C:\RESULTS\GC0\042599\ED27003.RST
Inst Method : C:\TC4\METHODS\aal0 from C:\RESULTS\GC0\042599\ED27003.RST
Proc Method : C:\TC4\METHODS\aal0
Calib Method : C:\TC4\METHODS\aal0
Sequence File : C:\TC4\GC0\APR27GC0.SEQ

Sample Volume : 1.0000 ml
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

EXTERNAL STANDARD REPORT

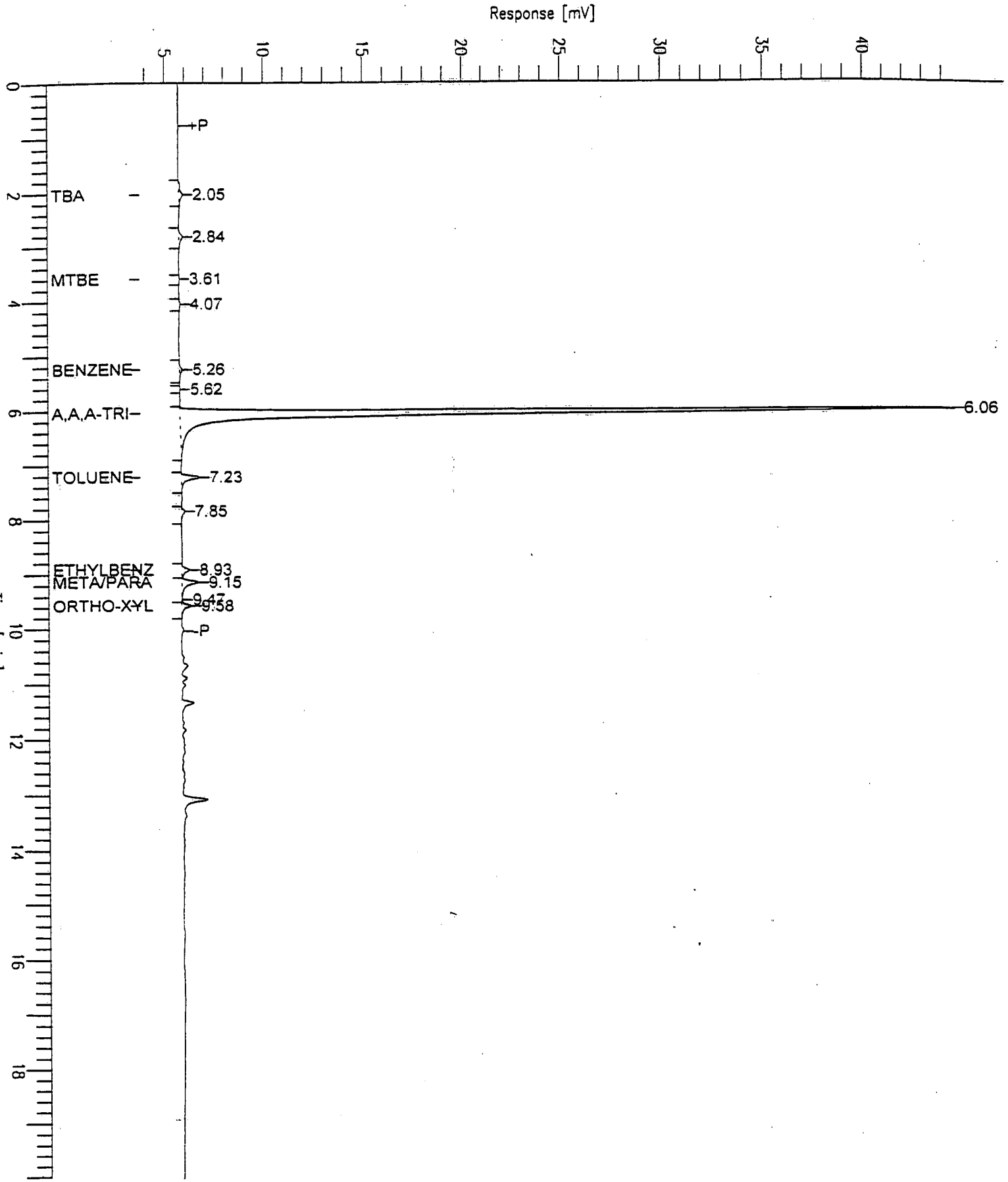
GC: Varian 3300 Serial# 5651
Column: Rtx-VRX 30M x 0.45mm Serial# 8828834J

Peak #	Time [min]	Component Name	Concentration in ppb	Area [µV·s]	Height [µV]	Delta RT [%]	% Surr.
1	2.054	TBA	0.4109	2169.00	201.58	0.539	1
3	3.608	MTBE	0.1424	145.50	25.73	0.201	0
5	5.260	Benzene	0.0540	1077.00	158.92	0.143	0
7	6.060	a,a,a-Trifluoro(SS	28.4189	2.18e+05	39908.09	0.620	95
8	7.229	Toluene	0.2782	5143.00	952.26	0.058	1
10	8.928	Ethylbenzene	0.1256	2097.12	385.14	0.072	0
11	9.149	meta/para-Xylene	0.2042	4967.97	867.94	-0.009	1
13	9.581	ortho-Xylene	0.1269	2396.90	483.93	0.020	0

Chromatogram

Sample Name : VBLK
FileName : C:\RESULTS\GC0\042599\ED27003.raw
Method : aa10
Start Time : 0.00 min End Time : 20.00 min
Scale Factor: 1.0 Plot Offset: 4 mV

Sample #: WBlank
Date : 4/27/99 10:04 AM
Time of Injection: 4/27/99 09:44 AM
Low Point : 3.73 mV High Point : 44.67 mV
Plot Scale: 40.9 mV



6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: QC Inc. Contract: Residual

Instrument ID: GC0 Calibration Date(s): 04/20/99 04/20/99

Heated Purge (Y/N): N Calibration Times: 10:29 12:13

GC Column: DB-VRX ID: 0.45 (mm)

LAB FILE ID: CFlevel1 = ED20003.RST CFlevel2 = ED20004.RST
CFlevel3 = ED20005.RST CFlevel4 = ED20006.RST CFlevel5 = ED20007.RST

COMPOUND	CFlevel1	CFlevel2	CFlevel3	CFlevel4	CFlevel5	$\overline{CF}$	% RSD
Benzene	23874	18926	19028	23166	25915	22182	14.0
Toluene	4628	3233	3116	4147	4707	3966	19.0
Ethylbenzene	3844	3013	2878	3831	4537	3621	18.8
m&p-Xylenes	26992	18728	19150	22969	24812	22530	15.9
o-Xylene	4050	3397	3373	4565	4997	4076	17.5
a,a,a-Trifluorotoluene	1412	1367	1270	1406	1566	1404	7.6

Software Version: 4.0<3H19> 0100
Date: 5/3/99 09:03 AM
Sample Name : 50 ppb STD.
Data File : C:\RESULTS\GC0\041899\ED20007.RAW Date: 4/20/99 12:13 PM
Sequence File: C:\TC4\GC0\APR20GC0.SEQ Cycle: 7 Channel : A
Instrument : GC0 Rack/Vial: 0/0 Operator:
Sample Amount : 1.0000 Dilution Factor : 1.00

AUTO-CALIBRATION REPORT

==========
Updating method : C:\TC4\METHODS\aa10.mth
Calibration performed at level: level5
Values will replace previous averages in the method
Retention times in the method will be updated
Reported response values are the method averages.
==========

Calibration Status:

Component	C0	C1	C2	C3	r^2	Status
TBA	0.000000	5278.630040	----------	----------	0.996001	9
MTBE	0.000000	180.639305	0.519290	----------	0.998248	9
Benzene	0.000000	19921.155778	120.571295	----------	0.999262	9
a,a,a-Trifluoro(SS)	0.000000	1404.282258	----------	----------	--------	9
Toluene	0.000000	3415.670736	26.006583	----------	0.998528	9
Ethylbenzene	0.000000	3062.239539	29.647533	----------	0.998899	9
meta/para-Xylene	0.000000	24331.456080	----------	----------	0.995139	9
ortho-Xylene	0.000000	3810.889437	23.949716	----------	0.997950	9

Calibration Status Explanations:

1 = Component not calibrated: Rejected based on user criteria
2 = Component not calibrated: Was not found in peak/group list
3 = Component not calibrated: No ISTD specified in method
4 = Component not calibrated: ISTD was not found in peak list
5 = Component not calibrated: Uses constant calibration factor
6 = Component not calibrated: Uses calibration reference
7 = Component not calibrated: No calibration at this level
8 = Component not calibrated: Incomplete named group
9 = Component calibrated successfully

Software Version: 4.0<3H19>
Sample Name : 1 ppb STD.
Sample Number: 1 ppb IC
Operator :

Time : 5/3/99 09:02 AM
Study :

Instrument : GC0
AutoSampler :
Rack/Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 3231271097 Data Acquisition Time: 4/20/99 10:29 AM
Delay Time : 0.00 min.
End Time : 20.00 min.
Sampling Rate : 1.0000 pts/sec

Raw Data File : C:\RESULTS\GC0\041899\ED20003.RAW
Result File : C:\RESULTS\GC0\041899\ED20003.RST
Inst Method : C:\TC4\METHODS\aal0 from C:\RESULTS\GC0\041899\ED20003.RST
Proc Method : C:\TC4\METHODS\aal0.mth
Calib Method : C:\TC4\METHODS\aal0.mth
Sequence File : C:\TC4\GC0\APR20GC0.SEQ

Sample Volume : 1.0000 ml
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

EXTERNAL STANDARD REPORT

GC: Varian 3300 Serial# 5651
Column: Rtx-VRX 30M x 0.45mm Serial# 8828834J

Peak #	Time [min]	Component Name	Concentration in ppb	Area [µV·s]	Height [µV]	Delta RT [%]	% Surr.
1	2.035	TBA	1.7995	9499.00	1194.57	-0.405	6
3	3.585	MTBE	2.4516	3182.34	445.98	-0.443	8
5	5.226	Benzene	1.1899	23874.00	3749.00	-0.496	4
7	6.022	a,a,a-Trifluoro(SS	30.1544	2.30e+05	42345.35	0.000	101
8	7.194	Toluene	1.3413	27623.50	4628.14	-0.431	4
11	8.887	Ethylbenzene	1.2404	19921.48	3844.13	-0.392	4
12	9.117	meta/para-Xylene	2.2187	53984.58	8745.70	-0.357	7
13	9.545	ortho-Xylene	1.0558	22718.36	4050.08	-0.359	4

Software Version: 4.0<3H19>
Sample Name : 5 ppb STD.
Sample Number: 5 ppb IC
Operator :

Time : 5/3/99 09:02 AM
Study :

Instrument : GC0
AutoSampler :
Rack/Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 3231271097 Data Acquisition Time: 4/20/99 10:55 AM
Delay Time : 0.00 min.
End Time : 20.00 min.
Sampling Rate : 1.0000 pts/sec

Raw Data File : C:\RESULTS\GC0\041899\ED20004.RAW
Result File : C:\RESULTS\GC0\041899\ED20004.RST
Inst Method : C:\TC4\METHODS\aal0 from C:\RESULTS\GC0\041899\ED20004.RST
Proc Method : C:\TC4\METHODS\aal0.mth
Calib Method : C:\TC4\METHODS\aal0.mth
Sequence File : C:\TC4\GC0\APR20GC0.SEQ

Sample Volume : 1.0000 ml
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

EXTERNAL STANDARD REPORT

GC: Varian 3300 Serial# 5651
Column: Rtx-VRX 30M x 0.45mm Serial# 8828834J

Peak #	Time [min]	Component Name	Concentration in ppb	Area [µV·s]	Height [µV]	Delta RT [%]	% Surr.
2	2.040	TBA	8.5363	45060.00	6656.71	-0.155	28
4	3.596	MTBE	9.8304	13188.00	1825.93	-0.150	33
6	5.253	Benzene	4.6209	94627.50	14890.96	0.023	15
7	6.056	a,a,a-Trifluoro(SS	29.2088	2.17e+05	41017.34	0.556	97
9	7.232	Toluene	4.5734	91807.00	16165.19	0.096	15
12	8.933	Ethylbenzene	4.7054	71036.49	15065.61	0.124	16
13	9.162	meta/para-Xylene	7.6971	1.87e+05	34196.37	0.133	26
14	9.591	ortho-Xylene	4.3385	79084.88	16984.33	0.122	14

Software Version: 4.0<3H19>
Sample Name : 50 ppb STD.
Sample Number: 50 ppb IC
Operator :

Time : 5/3/99 09:03 AM
Study :

Instrument : GC0
AutoSampler :
Rack/Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 3231271097 Data Acquisition Time: 4/20/99 12:13 PM
Delay Time : 0.00 min.
End Time : 20.00 min.
Sampling Rate : 1.0000 pts/sec

Raw Data File : C:\RESULTS\GC0\041899\ED20007.RAW
Result File : C:\RESULTS\GC0\041899\ED20007.RST
Inst Method : C:\TC4\METHODS\aal0 from C:\RESULTS\GC0\041899\ED20007.RST
Proc Method : C:\TC4\METHODS\aal0.mth
Calib Method : C:\TC4\METHODS\aal0.mth
Sequence File : C:\TC4\GC0\APR20GC0.SEQ

Sample Volume : 1.0000 ml
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

EXTERNAL STANDARD REPORT

GC: Varian 3300 Serial# 5651
Column: Rtx-VRX 30M x 0.45mm Serial# 8828834J

Peak #	Time [min]	Component Name	Concentration in ppb	Area [µV·s]	Height [µV]	Delta RT [%]	% Surr.
1	2.048	TBA	101.3058	5.35e+05	83511.47	0.236	338
3	3.612	MTBE	100.1479	1.65e+05	23298.93	0.292	334
5	5.253	Benzene	49.9453	1.30e+06	2.17e+05	0.023	166
6	6.050	a,a,a-Trifluoro(SS	33.4648	2.35e+05	46994.03	0.466	112
7	7.221	Toluene	49.9275	1.17e+06	2.35e+05	-0.065	166
8	8.917	Ethylbenzene	49.9402	9.74e+05	2.27e+05	-0.049	166
9	9.145	meta/para-Xylene	101.9735	2.48e+06	4.88e+05	-0.051	340
10	9.575	ortho-Xylene	49.9061	1.10e+06	2.50e+05	-0.046	166

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: QC Inc. Contract: Residual

Instrument ID: GC_0 Calibration Date: 04/27/99 Time: 09:11

Lab File ID: ED27002.RST Init. Calib. Date(s): 04/20/99 04/20/99

Heated Purge: (Y/N) N Init. Calib. Times: 10:29 12:13

GC Column: DB-VRX ID: 0.45 (mm)

COMPOUND	TRUE VALUE	RESULT	% D	MAX % D
Benzene	20.0	22.137	-11	23.0
Toluene	20.0	22.978	-15	23.0
Ethylbenzene	20.0	22.959	-15	37.0
m&p-Xylenes	40.0	40.824	-2.1	37.0
o-Xylene	20.0	22.524	-13	30.0
a,a,a-Trifluorotoluene	30.0	31.243	-4.1	30.0