JUNE 1993

FIRST QUARTER 1993 PROGRESS REPORT
L.E. CARPENTER SITE
WHARTON, NEW JERSEY

Prepared on behalf of L.E. CARPENTER AND COMPANY
for the New Jersey Department of Environmental
Protection and Energy

June 1993

W.O. No.: 06720-013-001

Prepared by:

ROY F. WESTON, INC.
Raritan Plaza I, 4th Floor
Edison, New Jersey 08837

346072

TABLE OF CONTENTS

Section	Title	Page
1.0	Groundwater Activities	1-1
	1.1 Groundwater Level Measurement	1-1
	1.2 Groundwater Sampling	1-1
	1.3 Product Recovery	1-1
	1.4 Gamma Logging	1-1
2.0	Results	2-1
	2.1 Groundwater Elevation Data	2-1
	2.2 BTEX Analytical Results	2-1
3.0	Discussion	3-1
	3.1 Groundwater Flow Measurements	3-1
	3.2 Product Delineation Activities	3-1
	3.3 Summary	3-2

APPENDICES

APPENDIX A Water Level and Product Thickness Data
APPENDIX B Equipotential and Product Thickness Isopach Maps
APPENDIX C BTEX Analytical Results

LIST OF TABLES

Table No.	Title	Page
1-1	Wells Logged and Elevation of Clay Intervals, L.E. Carpenter Site, Wharton, New Jersey	1-3
2-1	Summary of BTEX Analytical Results, First Quarter 1993, L.E. Carpenter Site, Wharton, New Jersey	2-2
3-1	Comparison of Monitoring Well Data Since Second Quarter 1992	3-3

WESTON
MANAGERS DESIGNERS/CONSULTANTS

L.E. CARPENTER QUARTERLY REPORT

1.0 GROUNDWATER ACTIVITIES

1.1 Groundwater Level Measurements

Water level and product thickness measurements were conducted at all of the monitoring wells at the L.E. Carpenter Site on 23 April 1993. Water level measurements were also conducted at eight (8) staff gauges and at the RP-1 measurement point on the concrete wall adjacent to the Rockaway River. Surface water elevations were determined by measuring the vertical distance between the top of the staff gauge (or paint mark) and the water surface. In general, water levels were much higher then normal due to the heavy rainfall which occurred prior to the elevation measurements.

1.2 Groundwater Sampling

Groundwater monitoring wells MW-4, MW-14S, MW-22, MW-25 and MW-15S were sampled for benzene, toluene, ethylbenzene and xylene (BTEX) analysis (EPA Method 602) on 7 April 1993. Dedicated Well Wizard bladder pumps were utilized to purge a minimum of three well volumes prior to sampling from groundwater monitoring wells MW-4, MW-14S, MW-22 and MW-25. Groundwater monitoring well MW-15S was sampled using a laboratory decontaminated Teflon bailer to purge a minimum of three well volumes prior to sample collection. The samples were placed in 40-ml glass vials and preserved at 4°C in a sample cooler for overnight shipment to the laboratory.

All samples were shipped with the necessary trip and field blanks to the WESTON Analytical Laboratory in Lionville, PA via overnight courier under a WESTON chain-of-custody.

1.3 Product Recovery

Product recovery pumps for MW-6 and MW-10 were found to be inoperable and were subsequently disconnected and sent to the manufacturer for repair. The product recovery system was operational in RW-1, RW-2 and MW-11S. However, due to heavy rainfall throughout the quarter and the operational difficulties mentioned above, less than 100 gallons of product was recovered during the first quarter 1993.

1.4 Gamma Logging

In order to develop a better understanding of site stratigraphy, a natural gamma-ray logging program was completed on selected groundwater monitoring wells during the reporting period.

As shown on Table 1-1, 34 wells were logged with natural gamma-ray techniques. These wells included older monitor wells with poor descriptive logs, newer monitor wells with accurate descriptive logs (for calibration purposes), and most of the recently installed well points. The gamma-ray logging program was performed on March 25 and 26, 1993 by Mr. Kenneth J. Woodruff of WESTON. The following subsections discuss the gamma-ray logging method, and the interpretation of results of the logging program.

The down-hole gamma-ray log is a continuous vertical measurement with respect to depth of the radioactivity of the rock units in a borehole or well. The radioactivity occurs most commonly as a result of the decay of naturally radioactive isotopes of potassium-40 and the daughter products of uranium-235 and thorium-232. These isotopes are relatively more abundant in the fine-grained fraction of sedimentary rocks than in the coarser fractions. The total radiation intensity varies predictably with lithology or rock type. Clays or shales normally exhibit the highest radioactivity while unconsolidated sands, sandstones, and quartzites show the least. Exceptions to these generalities occur, and a knowledge of local geology is necessary for confident log interpretation.

Wells of many vintages, construction materials, and diameters exist at the L.E. Carpenter site. Gamma-ray logging is useful at such sites because gamma radiation is not easily shielded, and gamma-ray logs can be obtained in existing wells, and in steel or PVC-cased holes. Well construction may affect the log amplitude but lithologic interpretations are usually possible. Gamma-ray logging in existing wells is often an efficient way to collect lithologic information where descriptive logs are poor or do not exist.

Geophysical Logging Methods. Natural gamma-ray logs were run in the wells listed in Table 1-1. A Mount Sopris Model 2500 portable logging system was utilized. Logging speed was approximately 15 feet per minute with a four-second time constant. The electronic time constant is used in an analog system to store discreet radiation pulses over a given time interval and produce an average output signal. Log detail and repeatability depend on the combination of logging speed and time constant. The order of logging proceeded from wells with no floating product present to those with increasing thicknesses of floating product present. The probe was decontaminated between logs with an Alconox wash and a high-pressure hot-water rinse with potable water.

For quality assurance purposes, logs were repeated occasionally in the same hole in order to verify equipment operation. The repeat log runs yielded reproducible results. Gamma-ray emission is a random process, and logs should not be expected to repeat in every detail. The radiation scale on the Model 2500 is in counts per second (CPS) and may not be directly comparable to scales on logs obtained with other equipment. In this study, the logs are used only for qualitative interpretations and absolute scales (such as API units) are not necessary.

WESTON
MANAGERS DESIGNERS/CONSULTANTS

Table 1-1

Wells Logged and Elevation of Clay Intervals
L.E. Carpenter Site
Wharton, New Jersey

Well Number	Elevation of Clay Intervals (feet)		
	1st Clay Interval	2nd Clay Interval	3rd Clay Interval
MW-03	619-615	612-606	
MW-04	625-623(1)		
MW-05	627-624		
MW-06	623-612(1)		
MW-07	624-620		
MW-10	621-611		
MW-11D	619-615		
MW-15I	629-626	611-605	
MW-17D	625-623	603-602	
MW-18D	624-621		
MW-21	621-618	616-614	
RW-01	625-621		
RW-02	628-625		
GEI-2I	630-627	624-621	617-613
MW-22	626-620		
WP-A1	631-626(1)		
WP-A2	636-635		
WP-A4	635-629		
WP-A5	631-629		
WP-A6	629-627		
WP-A7	633-122		

Table 1-1 (Continued)

Wells Logged and Elevation of Clay Intervals
L.E. Carpenter Site
Wharton, New Jersey

Well Number	Elevation of Clay Intervals (feet)		
	1st Clay Interval	2nd Clay Interval	3rd Clay Interval
WP-A8	632-631		
WP-A9	635-632		
WP-B1	629-622[1]		
WP-B2	629-621[1]		
WP-B4	627-625		
WP-B5	628-626		
WP-B6	628-627	623-621	
WP-B7	626-619[1]		
WP-B8	626-621		
Wells Where Clays were Absent or Thin			
RW-03	-	-	-
MW-09	-		-
MW-14I	-	-	-
MW-12I	-	-	-

[1] Bottom of log terminated in clay.

Interpretation of Geophysical Logging Results. Major gamma radiation peaks were identified on the geophysical logs. The depths of occurrence of these peaks were compared with clay intervals recorded in descriptive lithologic logs. The depth resolution of the gamma-ray peaks is about 1.5 feet. Only a few wells had both a gamma-ray log and a complete descriptive log of good quality, but clays noted in the descriptive lithologic logs were detected by the gamma-ray log in every case.

More clay was observed on the gamma logs than was recorded in the older, poor quality descriptive logs. Based on the gamma-ray logs, clays or silts were present in all but three or four of the wells that were logged. As shown in Table 1, up to three clay units were identified in some of the deeper holes. The interpretation of gamma signatures was based on the correlation with descriptive logs and general experience.

The new gamma log data, when combined with descriptive well log data and test pit data gathered during the Remedial Investigation, indicates that the upper clay is relatively continuous across most of the site, but is truncated to the north and south. The undulatory surface of the upper clay and its variable thickness (truncated to the north and south) are typical of river flood deposits reworked by subsequent river meandering.

The greatest concentration of free product generally occurs in the vicinity of well cluster 11 and corresponds to a topographic low at the top of the upper clay. The greatest thickness of clay also trends northeast-southwest beneath the same area. The combination of a topographic low and a relatively thick clay section (8-12 feet) serves to trap the free product and keep it from moving laterally and vertically.

2.0 RESULTS

2.1 Groundwater Elevation Data

Groundwater level elevation data for the 23 April 1993 measurement round are presented in Table 1 in Appendix A and equipotential maps for the shallow, intermediate and deep zones are presented in Appendix B for those wells with measurable product. Water table depression caused by the floating product layer was corrected using the method presented in previous quarterly reports (see WESTON, April 1992).

2.2 BTEX Analytical Results

The full data package for groundwater samples collected from MW-4, MW-14S, MW-22, MW-25 and MW-15S are presented in Appendix C. This data is summarized in Table 2-1. The highest BTEX concentration was detected in MW-15S (1090 ppb total). BTEX concentrations were detected in MW-4, MW-14S and MW-25 at low levels (17.4 ppb total, 14.0 ppb total, and 37.0 ppb total, respectively). Total BTEX concentration for MW-22 was 560 ppb.

WESTON

MANAGERS DESIGNERS/CONSULTANTS

TABLE 2-1

SUMMARY OF BTEX ANALYTICAL RESULTS
FIRST QUARTER 1993
L.E. CARPENTER SITE, WHARTON, NEW JERSEY

Parameter	Concentration (ppm)				
	MW-4	MW-14S	MW-15S	MW-22	MW-25
Benzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	12	1.0 U	280	120	13
Xylene	5.4	14	810	440	24

Data Qualifiers

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

3.0 DISCUSSION

3.1 Groundwater Flow Measurements

Groundwater elevations were measured at each monitoring well and well point on 26 April 1993. Equipotential maps of the shallow, intermediate and deep aquifer zones are presented in Figures 1, 2 and 3, respectively in Appendix B. As would be anticipated, due to the unusual amount of precipitation the region received during the latter part of 1992 and the early part of 1993, groundwater elevations measured in shallow, intermediate and deep aquifer zones were extremely high. Comparison of equipotential maps generated for first quarter 1993 indicated water levels on the order of one foot higher than water levels measured during the fourth quarter 1992. In addition, comparison of equipotential maps generated with first quarter 1993 data indicate that groundwater flow directions remained fairly consistent with groundwater flow directions measured in previous quarters for the respective aquifer zones. Finally, comparison of intermediate with shallow aquifer equipotential zone maps for the first quarter 1993 indicate an upward gradient within these aquifer zones.

3.2 Product Delineation Activities

Product thickness measurements were collected on 9 February 1993 and 26 April 1993. A preliminary product thickness (isopach) map was presented to NJDEPE in a letter dated 10 May 1993. An isopach map of mean product thickness measured on 26 April is presented as Figure 4 in Appendix B of this report. Both isopach maps indicate a thin band of floating product centered around WP-A4 and WP-A6 in the west and WP-B4 and MW-11 in the east. A small area of very localized product was detected in MW-12 during the 9 February field activity. Product was also detected in MW-12 during the 26 April field effort; however, difficulties with the field instrumentation on that sampling location did not allow for the quantification of product depth in that well. It is important to note that the "C-series" well points (C-1, C-2, C-3, C-4) clustered around MW-12 indicated no product, as did MW-9, immediately northeast of MW-12.

3.3 Summary

The analytical results presented in Table 2-1 indicate that the overall BTEX concentrations for the first quarter of 1993 are slightly higher than those for the fourth quarter of 1992. Ethylbenzene and xylene were detected in MW-15S at concentrations of 280 ppb and 810 ppb, respectively. Analytical data from the second quarter in 1992 indicates that ethylbenzene and xylene were not detected in MW-15S. Concentrations of ethylbenzene have slightly increased in wells MW-4 and MW-25 in comparison with fourth quarter 1992 analytical results. However, the concentration of ethylbenzene is MW-4 (12 ppb) is significantly lower than the value (33 ppb) for the same well detected during the second quarter of 1992. Similarly, concentrations of xylene have slightly increased in MW-14S and MW-25 (14.0 ppb and 24 ppb), respectively. Xylene was not detected in groundwater samples collected from MW-14S and MW-25 during

the fourth quarter 1992; however, xylene was detected at a much higher concentration (160 ppb) from a groundwater sample collected during the second quarter 1992 from MW-14S. A significant decrease in concentration for both ethylbenzene and xylene occurred in groundwater samples collected from MW-22. Analytical data from groundwater samples collected during the fourth quarter 1992 indicate concentrations of ethylbenzene and xylene of 470 ppb and 2,600 ppb, respectively, while this quarter reveals concentrations of 120 ppb and 400 ppb, respectively. Levels of xylene are continuing to decrease in MW-4. A summary of analytical data collected since second quarter 1992 is presented in Table 3-1.

WESTON
MANAGERS DESIGNERS CONSULTANTS

TABLE 3-1

COMPARISON OF MONITORING WELL DATA SINCE SECOND QUARTER 1992
L.E. CARPENTER

All results in ug/l (ppb)

	2ndQ92	3rdQ92	4thQ92	1stQ93
MW-4				
Benzene	1.0U	1.0U	1.0U	1.0U
Toluene	1.0U	1.0U	1.0U	1.0U
Ethylbenzene	33	2.0N	3.9	12
Xylene	83	29Y	6.0	5.4
MW-14s				
Benzene	1.0U	1.0U	1.0U	1.0U
Toluene	1.0U	1.0U	1.0U	1.0U
Ethylbenzene	34	1.0U	1.0U	1.0U
Xylene	160	2.0U	2.0U	14.0
MW-22				
Benzene	2.0	1.0U	1.0U	1.0U
Toluene	2.7	1.0U	1.0U	1.0U
Ethylbenzene	2500	1.0U	470	120
Xylene	20000	1500	2600	440
MW-25				
Benzene	1.0U	1.0U	1.0U	1.0U
Toluene	1.0U	1.0U	1.0U	1.0U
Ethylbenzene	1.0U	1.0U	1.0U	13
Xylene	2.0U	2.0U	2.0U	24
MW-15s				
Benzene	1.0U	na	na	1.0U
Toluene	1.0U	na	na	1.0U
Ethylbenzene	1.0U	na	na	280
Xylene	2.0U	na	na	810

REFERENCES

WESTON, 1992. **Second Quarter 1992 Progress Report, L.E. Carpenter Site, Wharton, New Jersey.** Report prepared for the New Jersey Department of Environmental Protection and Energy on behalf of L.E. Carpenter & Co., Cincinnati, OH.

APPENDIX A

WATER LEVEL AND PRODUCT THICKNESS DATA

TABLE 1. DEPTH TO WATER, WATER LEVEL ELEVATION AND PRODUCT THICKNESS DATA, MEASURED ON APRIL 26, 1993, L.E. CARPENTER SITE, WHARTON, NJ.

WELL	MEASURING PT. ELEVATION (FT MSL)	DEPTH TO PRODUCT (FT)	DEPTH TO WATER (FT)	PRODUCT THICKNESS OR SHEEN OBSERVATIONS (FT)	OBSERVED WATER LEVEL ELEVATION (FT MSL)	CORRECTED WATER LEVEL ELEVATION * (FT MSL)
MW-001	638.97	11.05	12.40	1.35	626.57	627.73
MW-002	633.39		6.55	none	626.84	626.84
MW-003	632.27	5.75	5.83	0.08	626.44	626.51
MW-004	632.31		4.95	none	627.36	627.36
MW-005	632.20		5.79	none	626.41	626.41
MW-006	632.77		6.34	SHEEN	626.43	626.43
MW-007	630.68		4.13	none	626.55	626.55
MW-008	630.56		4.41	none	626.15	626.15
MW-009	631.69		4.83	none	626.86	626.86
MW-010	633.65		7.35	SHEEN	626.30	626.30
MW-11S	632.96		6.21	SHEEN	626.75	626.75
MW-11I	632.82		5.43	none	627.39	627.39
MW-11D	632.42		3.51	none	628.91	628.91
MW-12S	633.18	problem with pro	be,product coate	unknown	633.18	633.18
MW-12I	633.06		5.47	none	627.59	627.59
MW-13S	631.23		1.05	none	630.18	630.18
MW-13I	630.66		3.70	none	626.96	626.96
MW-14S	628.41		2.51	none	625.90	625.90
MW-14I	628.23		1.53	none	626.70	626.70
MW-14D	628.53		ARTESIAN	none	628.53	628.53
MW-15S	636.77		9.13	none	627.64	627.64
MW-15I	636.66		8.91	none	627.75	627.75
MW-16S	634.47		5.83	none	628.64	628.64
MW-16I	634.96		6.41	none	628.55	628.55
MW-17S	634.79		6.26	none	628.53	628.53
MW-17D	634.86		6.53	none	628.33	628.33
MW-18S	631.26		4.75	none	626.51	626.51
MW-18I	631.04		3.95	none	627.09	627.09
MW-18D	630.77		0.50	none	630.27	630.27
MW-019	638.88		10.41	none	628.47	628.47
MW-020	636.77		8.75	none	628.02	628.02
MW-021	628.80		2.43	none	626.37	626.37
MW-022	628.74		1.95	none	626.79	626.79
MW-023	630.64		2.65	none	627.99	627.99
MW-024	629.03		1.43	none	627.60	627.60
MW-025	627.33		0.70	SHEEN	626.63	626.63
RW-001	637.38		7.94	none	629.44	629.44
RW-002	631.68		4.15	none	627.53	627.53
RW-003	631.99		4.05	SHEEN	627.94	627.94
GEI-1I	630.78		3.65	none	627.13	627.13
GEI-2S	637.67		9.25	none	628.42	628.42
GEI-2I	638.20		8.95	none	629.25	629.25
GEI-3I	639.85		10.80	none	629.05	629.05

* Estimated water level elevation calculated using a product specific gravity of 0.86.

TABLE 1, CONTINUED. DEPTH TO WATER, WATER LEVEL ELEVATION AND PRODUCT THICKNESS DATA, MEASURED ON APRIL 26, 1993, L.E. CARPENTER SITE, WHARTON, NJ.

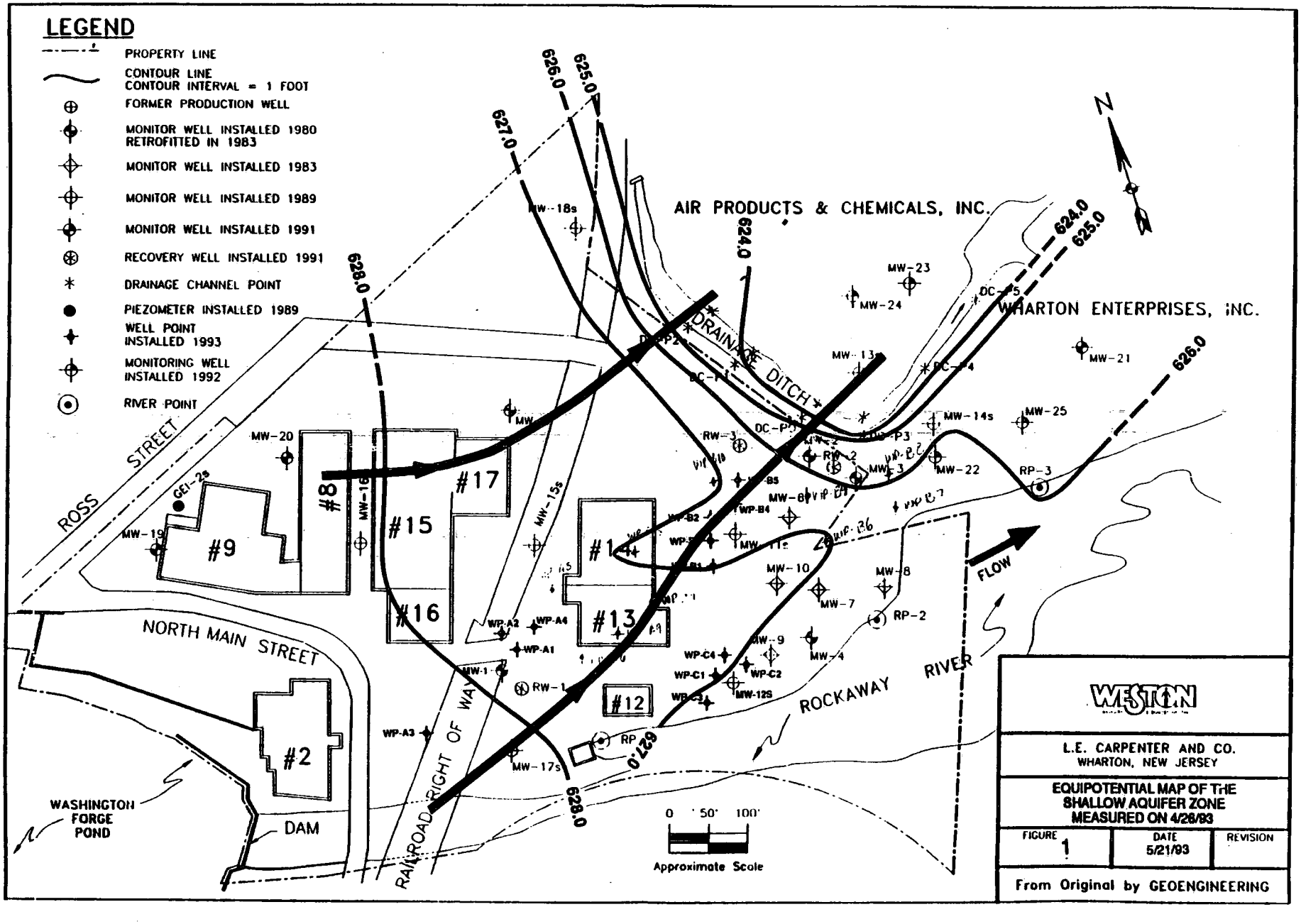
WELL POINT	MEASURING PT. ELEVATION (FT MSL)	DEPTH TO PRODUCT (FT)	DEPTH TO WATER (FT)	PRODUCT THICKNESS OR SHEEN OBSERVATIONS (FT)	OBSERVED WATER LEVEL ELEVATION (FT MSL)	CORRECTED WATER LEVEL ELEVATION * (FT MSL)
WP-A1	635.81	7.93	9.81	1.88	626.00	627.62
WP-A2	639.20		11.54	none	627.66	627.66
WP-A3	635.56		7.86	none	627.70	627.70
WP-A4	635.10	7.15	11.35	4.20	623.75	627.36
WP-A5	637.85		10.20	none	627.65	627.65
WP-A6	637.28	9.50	13.90	4.40	623.38	627.16
WP-A7	634.88		7.50	SHEEN	627.38	627.38
WP-A8	637.56		10.84	SHEEN	626.72	626.72
WP-A9	639.45		11.90	SHEEN	627.55	627.55
WP-B1	633.65	6.63	6.73	0.10	626.92	627.01
WP-B2	632.25		5.64	none	626.61	626.61
WP-B3	633.33		6.49	SHEEN	626.84	626.84
WP-B4	631.92	4.93	9.41	4.48	622.51	626.36
WP-B5	632.11	5.43	5.55	0.12	626.56	626.66
WP-B6	631.86	4.64	5.01	0.37	626.85	627.17
WP-B7	629.49	3.15	3.56	0.41	625.93	626.28
WP-B8	629.29		3.40	none	625.89	625.89
WP-B9	632.37	5.73	6.21	0.48	626.16	626.57
WP-B10	632.63		5.43	none	627.20	627.20
WP-C1	634.44		7.15	none	627.29	627.29
WP-C2	634.46		7.94	none	626.52	626.52
WP-C3	632.64		7.20	none	625.44	625.44
WP-C4	634.59		7.15	none	627.44	627.44

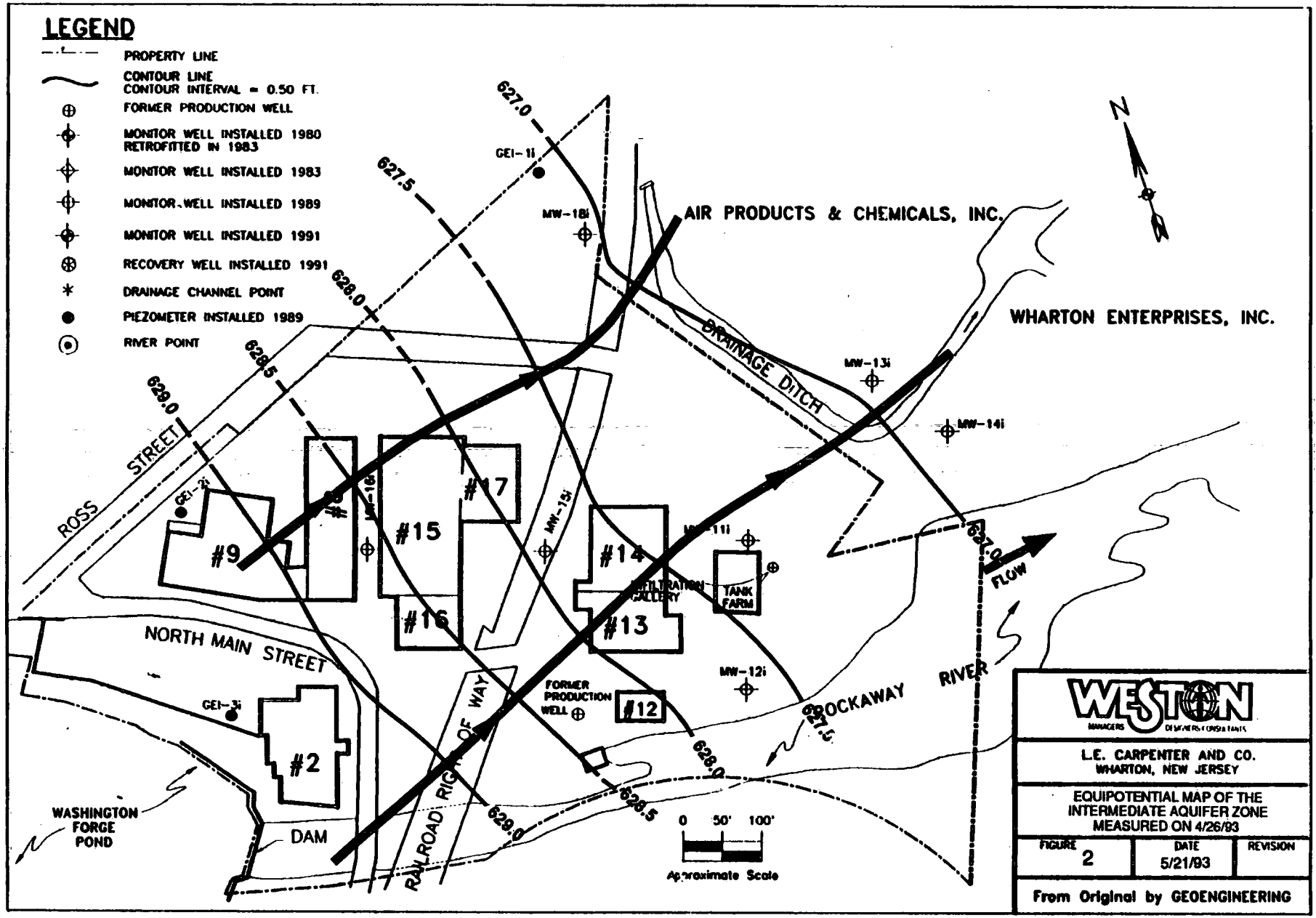
* Estimated water level elevation calculated using a product specific gravity of 0.86.

MEASURING POINT	ELEVATION OF MEASURING POINT	DEPTH TO WATER	WATER LEVEL ELEVATION
DC-P0	625.75	2.50	623.25
DC-P1	625.26	1.80	623.46
DC-P2	626.79	2.30	624.49
DC-P3	625.22	1.73	623.49
DC-P4	625.10	1.60	623.50
DC-P5	625.16	1.75	623.41
RP-01	629.65	1.76	627.89
RP-02	627.75	1.05	626.70
RP-03	627.11	1.15	625.96

APPENDIX B

EQUIPOTENTIAL MAPS


LEGEND
PROPERTY LINE
CONTOUR LINE
CONTOUR INTERVAL = 1 FOOT
FORMER PRODUCTION WELL
MONITOR WELL INSTALLED 1980
RETROFITTED IN 1983
MONITOR WELL INSTALLED 1983
MONITOR WELL INSTALLED 1989
MONITOR WELL INSTALLED 1991
RECOVERY WELL INSTALLED 1991
DRAINAGE CHANNEL POINT
PIEZOMETER INSTALLED 1989
WELL POINT
INSTALLED 1993
MONITORING WELL
INSTALLED 1992
RIVER POINT
AIR PRODUCTS & CHEMICALS, INC.
WHARTON ENTERPRISES, INC.
DRAINAGE DITCH
ROSS STREET
NORTH MAIN STREET
RAILROAD RIGHT OF WAY
ROCKAWAY RIVER
FLOW
WASHINGTON FORGE POND
DAM
#2
#8
#9
#12
#13
#14
#15
#16
#17
N
0 50' 100'
Approximate Scale
WESTON
L.E. CARPENTER AND CO.
WHARTON, NEW JERSEY
EQUIPOTENTIAL MAP OF THE SHALLOW AQUIFER ZONE MEASURED ON 4/26/93
FIGURE 1
DATE 5/21/93
REVISION
From Original by GEOENGINEERING



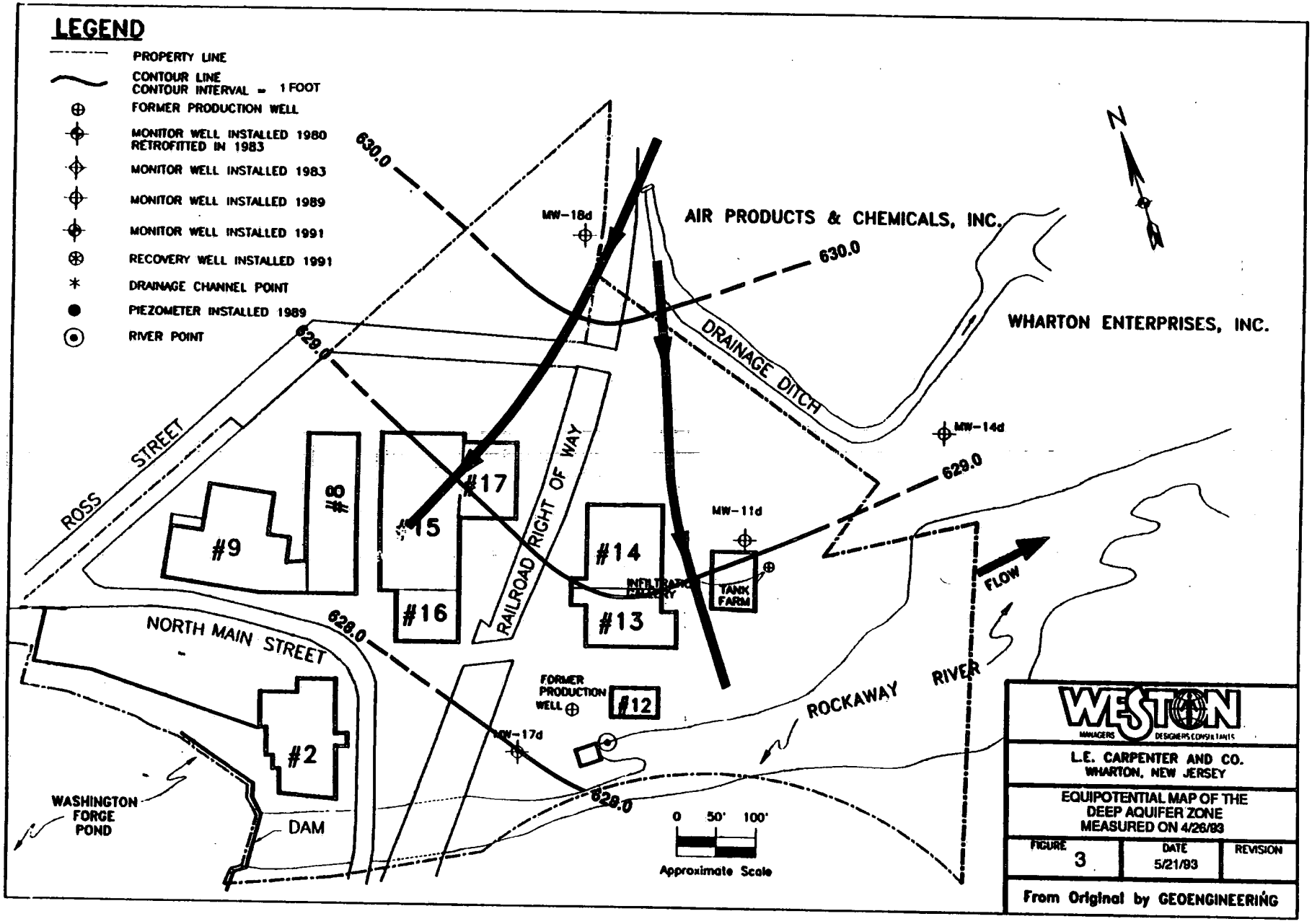
WESTON
MANAGERS DESIGNERS/CONSULTANTS

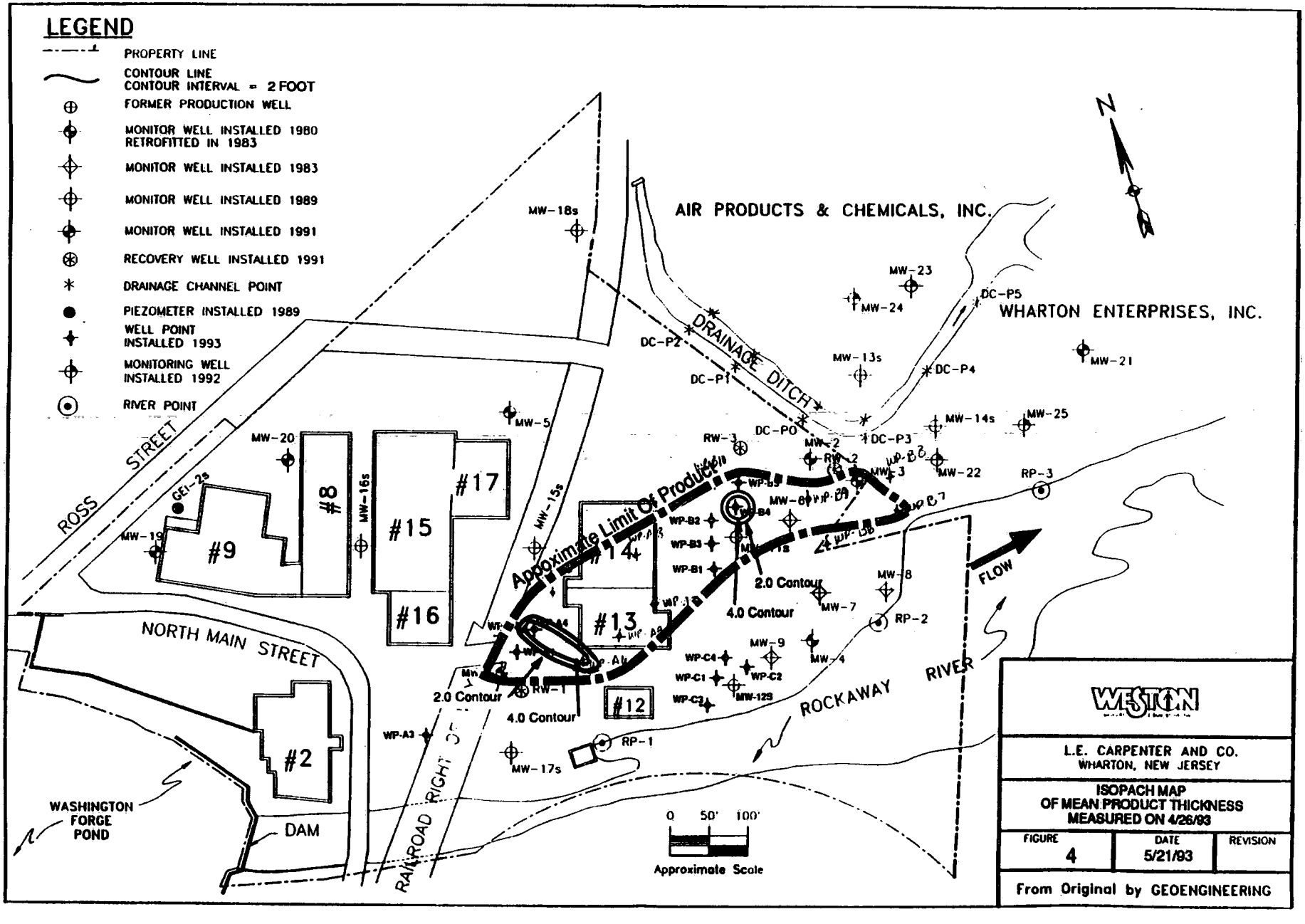
L.E. CARPENTER AND CO.
WHARTON, NEW JERSEY

EQUIPOTENTIAL MAP OF THE INTERMEDIATE AQUIFER ZONE MEASURED ON 4/26/93

FIGURE	DATE	REVISION
2	5/21/93	

From Original by GEOENGINEERING


LEGEND
PROPERTY LINE
CONTOUR LINE
CONTOUR INTERVAL = 1 FOOT
FORMER PRODUCTION WELL
MONITOR WELL INSTALLED 1980 RETROFITTED IN 1983
MONITOR WELL INSTALLED 1983
MONITOR WELL INSTALLED 1989
MONITOR WELL INSTALLED 1991
RECOVERY WELL INSTALLED 1991
DRAINAGE CHANNEL POINT
PIEZOMETER INSTALLED 1989
RIVER POINT
N
AIR PRODUCTS & CHEMICALS, INC.
WHARTON ENTERPRISES, INC.
630.0
629.0
628.0
MW-18d
MW-14d
MW-11d
MW-17d
DRAINAGE DITCH
ROSS STREET
NORTH MAIN STREET
RAILROAD RIGHT OF WAY
#9
#8
#15
#17
#16
#14
#13
#12
#2
TANK FARM
FLOW
ROCKAWAY RIVER
FORMER PRODUCTION WELL
WASHINGTON FORGE POND
DAM
0 50' 100'
Approximate Scale
WESTON
MANAGERS DESIGNERS CONSULTANTS
L.E. CARPENTER AND CO.
WHARTON, NEW JERSEY
EQUIPOTENTIAL MAP OF THE DEEP AQUIFER ZONE MEASURED ON 4/26/93
FIGURE 3
DATE 5/21/93
REVISION
From Original by GEOENGINEERING


LEGEND
PROPERTY LINE
CONTOUR LINE
CONTOUR INTERVAL = 2 FOOT
FORMER PRODUCTION WELL
MONITOR WELL INSTALLED 1980 RETROFITTED IN 1983
MONITOR WELL INSTALLED 1983
MONITOR WELL INSTALLED 1989
MONITOR WELL INSTALLED 1991
RECOVERY WELL INSTALLED 1991
DRAINAGE CHANNEL POINT
PIEZOMETER INSTALLED 1989
WELL POINT INSTALLED 1993
MONITORING WELL INSTALLED 1992
RIVER POINT
AIR PRODUCTS & CHEMICALS, INC.
WHARTON ENTERPRISES, INC.
DRAINAGE DITCH
ROSS STREET
NORTH MAIN STREET
ROCKAWAY RIVER
FLOW
WASHINGTON FORGE POND
DAM
RAILROAD RIGHT OF WAY
Approximate Limit Of Product
2.0 Contour
4.0 Contour
#2
#8
#9
#12
#13
#14
#15
#16
#17
MW-18s
MW-23
MW-24
DC-P5
MW-13s
DC-P4
MW-21
DC-P2
DC-P1
DC-PO
DC-P3
MW-14s
MW-25
MW-22
RP-3
RW-3
RW-2
MW-2
MW-3
MW-5
MW-20
GEI-2s
MW-19
MW-16s
MW-15s
MW-6
MW-8
MW-7
RP-2
MW-9
MW-4
MW-12S
RW-1
RP-1
MW-17s
WP-A3
WP-B1
WP-B2
WP-B3
WP-B4
WP-C1
WP-C2
WP-C3
WP-C4
0 50' 100'
Approximate Scale
N
WESTON
L.E. CARPENTER AND CO.
WHARTON, NEW JERSEY
ISOPACH MAP
OF MEAN PRODUCT THICKNESS
MEASURED ON 4/26/93
FIGURE 4
DATE 5/21/93
REVISION
From Original by GEOENGINEERING

APPENDIX C

BTEX ANALYTICAL RESULTS

Roy F. Weston, Inc. - Lionville Laboratory
602X ANALYTICAL DATA PACKAGE FOR
LE CARPENTER

DATE RECEIVED: 04/08/93 RFW LOT # :9304L130

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MW-4	001	W	93LV1619	04/07/93	N/A	04/12/93
MW-4	001 MS	W	93LV1619	04/07/93	N/A	04/12/93
MW-4	001 MSD	W	93LV1619	04/07/93	N/A	04/12/93
MW-14S	002	W	93LV1619	04/07/93	N/A	04/12/93
MW-22	003	W	93LV1619	04/07/93	N/A	04/12/93
MW-22	003 D1	W	93LV1619	04/07/93	N/A	04/12/93
MW-25	004	W	93LV1619	04/07/93	N/A	04/12/93
MW-15S	005	W	93LV1620	04/07/93	N/A	04/14/93
MW-15S	005 D1	W	93LV1620	04/07/93	N/A	04/14/93
FB-1	006	W	93LV1619	04/07/93	N/A	04/12/93
TBLK	007	W	93LV1619	04/07/93	N/A	04/12/93
LAB QC:						
BLK	MB1	W	93LV1619	N/A	N/A	04/12/93
BLK	MB1 BS	W	93LV1619	N/A	N/A	04/12/93
BLK	MB1	W	93LV1620	N/A	N/A	04/14/93
BLK	MB1 BS	W	93LV1620	N/A	N/A	04/14/93

TABLE OF CONTENTS

	Page No.
Chain Of Custody	1
Data Summary	3
Case Narrative	9
QC Summary	12
Sample Data	17
Standard Data	45
Raw QC Data	86

WESTON

CHAIN OF CUSTODY

WESTON Analytics Use Only
9304130

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: G.E. Carpenter
Est. Final Proj. Sampling Date:
Work Order #: 06720-013-001-0001-00
Project Contact/Phone #: Chris Ayers / 908-225-3880
AD Project Manager: Mike Yoder
QC: CLP Del: CLP TAT: 30 DH
Date Rec'd: 4/8/93 Date Due: 5/8/93
Account #: LEC0112.CLP

Refrigerator #																		
# Type Container	Liquid	4																
	Solid																	
Volume	Liquid	40 ml																
	Solid																	
Preservatives		HCl																
ANALYSES REQUESTED		ORGANIC								INORG								
		VOA	BNA	Pest/PCB	Herb					Metal	CN							

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only: BTEX Method 602												
001	MW-4	✓	✓	W	4/7/93	1300	✓												
002	MW-14S			W		1205	✓												
003	MW-2d			W		0950	✓												
004	MW-25			W		1040	✓												
005	MW-15S			W		1130	✓												
006	FB-1			W		0830	✓												
007	TBLK			W			✓												

BTEX by 602 = 602X

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Temp = 17.3
*7B is preserved with B/DI for BTEX Method 602
Rec'd 1 bt 1 total for MS/MSD #1

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were: 1) Shipped ✓ or Hand Delivered; Airbill # 0 7 1 0 3 1 1 1 4; 2) Ambient or Chilled; 3) Received in Good Condition Y or N; 4) Labels Indicate Properly Preserved (Y) or N; 5) Received Within Holding Times (Y) or N

COC Tape was: 1) Present on Outer Package Y or (N); 2) Unbroken on Outer Package Y or (N); 3) Present on Sample Y or (N); 4) Unbroken on Sample Y or (N); COC Record Present Upon Sample Rec't (Y) or N

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Mike Yoder	FedEx						
FedEx	[illegible]	4/8/93	0930		[illegible]	4/8/93	

RFW 21-21 001/A 7/91 L372 L373 L375 L377 L378 Ref# 1551 Cooler# 1/P

DATA SUMMARY

Roy F. Weston, Inc. - Lionville Laboratory

Purgeable Aromatics by GC, Method 602

Report Date: 04/16/93 12:46

RFW Batch Number: 9304L130 Client: LE CARPENTER Work Order: 06720013001 Page: 1

	Cust ID:	MW-4	MW-4	MW-4	MW-14S	MW-22	MW-22
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	003 DL
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	10.0
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
aaa-Trifluorotoluene		82 %	87 %	81 %	88 %	66 %	76 %
Benzene		1.0 U	76 %	73 %	1.0 U	1.0 U	NA
Ethylbenzene		12	40 * %	38 * %	1.0 U	E	120
Toluene		1.0 U	83 %	80 %	1.0 U	1.0 U	NA
Xylene (total)		5.4	57 %	54 %	14	E	440

	Cust ID:	MW-25	MW-15S	MW-15S	FB-1	TBLK	BLK
Sample Information	RFW#:	004	005	005 DL	006	007	93LV1619-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	10.0	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
aaa-Trifluorotoluene		84 %	96 %	91 %	85 %	83 %	83 %
Benzene		1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
Ethylbenzene		13	E	280	1.0 U	1.0 U	1.0 U
Toluene		1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
Xylene (total)		24	E	810	2.0 U	2.0 U	2.0 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Purgeable Aromatics by GC, Method 602

Report Date: 04/16/93 12:46

RFW Batch Number: 9304L130 Client: LE CARPENTER Work Order: 06720013001 Page: 2

	Cust ID:	BLK BS	BLK	BLK BS
Sample Information	RFW#:	93LV1619-MB1	93LV1620-MB1	93LV1620-MB1
	Matrix:	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L
aaa-Trifluorotoluene		90 %	94 %	93 %
Benzene		82 %	1.0 U	89 %
Ethylbenzene		84 %	1.0 U	93 %
Toluene		82 %	1.0 U	87 %
Xylene (total)		83 %	2.0 U	88 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

WESTON

GC-VOA

SURROGATE RECOVERY (%) CONTROL LIMITS

COMPOUND	BLANKS, BS,BSD	WATER MS/MSD	SOILS MS/MSD
bromochloromethane	60-130	60-140	40-130
aaa-trifluorotoluene	70-130	60-140	40-130

Roy F. Weston, Inc. - Michigan Laboratory

GC VOA Statistical Evaluations of QA/QC Data

Report Date: 02/03/93 11:20:36

Matrix = WATER	Blank Spike					Blank Spike				MSD
Parameter	U.C.	L.C.	U.W.	L.W.	RPD +/-	U.L.	L.L.	U.W.	L.W.	RPD +/-
1,1,1-TRICHLOROETHANE	165.2	54.8	146.8	73.2	29.9	146.1	68.5	133.2	81.5	35.6
1,1,1-TRICHLOROETHANE	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1,1,1-TRICHLOROETHANE	165.2	54.8	146.8	73.2	29.9	146.1	68.5	133.2	81.5	35.6
1,1,2,2-TETRACHLOROETHANE	165.1	37.0	143.7	58.4	158.3	236.5	0.0	193.3	20.7	25.0
1,1-DICHLOROETHENE	168.0	28.5	144.7	51.7	31.8	208.9	1.5	174.3	36.0	41.2
1,2-DICHLOROETHANE	174.8	42.5	152.7	64.5	57.5	152.9	46.1	135.1	63.9	18.0
BENZENE	180.5	21.8	154.1	48.2	92.4	143.7	51.5	128.3	66.9	20.4
BROMODICHLOROMETHANE	148.1	45.4	131.0	62.5	46.8	145.8	50.0	129.8	66.0	14.8
BROMOFORM	170.6	0.0	139.2	13.4	169.5	150.9	7.8	127.1	31.7	13.9
CHLOROBENZENE	135.8	53.3	122.0	67.1	0.0	95.2	78.5	92.4	81.3	24.1
CIS-1,3-DICHLOROPROPENE	158.7	42.5	139.4	61.8	60.4	161.7	22.1	138.4	45.4	14.1
ETHYLBENZENE	124.3	56.0	112.9	67.4	11.2	122.6	60.4	112.2	70.8	17.9
TETRACHLOROETHENE	138.2	57.7	124.8	71.1	35.2	127.7	66.4	117.5	76.6	9.9
TOLUENE	160.0	28.2	138.0	50.1	89.3	137.3	52.5	123.2	66.6	15.5
TRANS-1,2-DICHLOROETHENE	163.2	38.5	142.4	59.3	32.0	130.3	56.6	118.1	68.9	25.7
TRANS-1,3-DICHLOROPROPENE	164.2	19.9	140.1	44.0	61.1	129.9	45.0	115.8	59.2	10.5
TRICHLOROETHENE	155.0	58.2	138.9	74.4	29.6	171.5	45.0	150.5	66.1	24.5
XYLENES (TOTAL)	131.3	52.0	118.1	65.2	10.9	134.3	35.8	117.9	52.2	29.3

Matrix = WATER	Blank Surrogate					Matrix Surrogate				
Parameter	U.C.	L.C.	U.W.	L.W.		U.C.	L.C.	U.W.	L.W.	
1-CHLORO-2-BROMOPROPANE	141.9	50.9	126.8	66.1	-----	159.4	56.2	142.2	73.4	-----
BROMOCHLOROMETHANE	132.2	58.4	119.9	70.7	-----	144.8	57.7	130.3	72.3	-----
FLUOROBENZENE	135.5	66.5	124.0	78.0	-----	114.6	81.5	109.1	87.0	-----
aaa-TRIFLUOROTOLUENE	125.2	61.4	114.5	72.0	-----	127.3	52.0	114.7	64.6	-----

0097

WESTON

GC-VOA

BLANK SPIKE RECOVERIES (method control limits)

(METHOD : 602)

COMPOUND	QC limits (ppb)	QC limits (%)
trans-1,2-dichloroethene	12.8 - 27.2	64.0 - 136.0
bromoform	14.7 - 25.3	73.5 - 126.5
1,1,2,2-tetrachloroethane	9.8 - 30.2	49.0 - 151.0
1,2-dichloroethane	14.3 - 25.7	71.5 - 128.5
bromodichloromethane	15.2 - 24.8	76.0 - 124.0
trans-1,3-dichloropropene	12.8 - 27.2	64.0 - 136.0
cis-1,3-dichloropropene	12.8 - 27.2	64.0 - 136.0
benzene	15.4 - 24.6	77.0 - 123.0
toluene	15.5 - 24.5	77.5 - 122.5
ethylbenzene	12.6 - 27.4	63.0 - 137.0
1,1,1-trichloroethane	14.2 - 25.8	71.0 - 129.0

CASE NARRATIVE

ROY F. WESTON, INC.
LIONVILLE ANALYTICAL LABORATORY
ANALYTICAL CASE NARRATIVE

Client: LE CARPENTER
RFW #: 9304L130

W.O. #: 06720-013-001-0001-00
Date Received: 04-08-93

GC VOLATILE

The set of samples consisted of seven (7) water samples collected on 04-07-93.

The samples were analyzed according to criteria set forth in Method 602 for Selected Aromatic Organic Volatile target compounds on 04-12,14-93.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. All surrogate recoveries were within laboratory control limits.

2. All blank spike recoveries were within method control limits.

3. Two (2) of eight (8) matrix spike recoveries were outside laboratory control limits. Ethylbenzene was detected in the unspiked sample at a concentration slightly higher than in the spiked samples.

4. Samples MW-22 and MW-15S required ten-fold dilutions because they contained high levels of target compounds.

04.19.93

for J. Peter Hershey, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

Date

sma/misc/04-130vo.cn

WESTON

GLOSSARY OF GC VOA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero; for example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

N = Not Confirmed.

Y = Confirmed Positive.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that surrogate recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not applicable.

DF = Dilution factor.

NR = Not required.

QC SUMMARY

WATER VOLATILE SURROGATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6720-13-01

Case No.: LE CARPENTER

RFW Lot No.: 9304L130

	CLIENT SAMPLE NO.	S1 (TFT)#	S2 ( )#	S3 ( )#	OTHER	TOT OUT
01	MW-4	82				0
02	MW-4MS	87				0
03	MW-4MSD	81				0
04	MW-14S	88				0
05	MW-22	66				0
06	MW-22DL	76				0
07	MW-25	84				0
08	MW-15S	96				0
09	MW-15SDL	91				0
10	FB-1	85				0
11	TBLK	83				0
12	BLKLV1619-MB1	83				0
13	BLKLV1619-MB1 BS	90				0
14	BLKLV1620-MB1	94				0
15	BLKLV1620-MB1 BS	93				0

QC LIMITS

S1 (TFT) = aaa-Trifluorotoluene (60-140)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogates diluted out

MAS 4/16/93

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6720-13-01

Case No.: LE CARPENTER RFW Lot No.: 9304L130-001

MATRIX Spike - Sample No.: MW-4 Level:(low/med) LOW

COMPOUND	SPIKE ADDED UG/L	SAMPLE CONCENTRATION UG/L	MS CONCENTRATION UG/L	MS % REC #	QC LIMITS REC
Benzene	20.0	0	15.2	76 *	77 -123
Ethylbenzene	20.0	12.2	20.1	40 *	63 -137
Toluene	20.0	0	16.7	83	77 -123
Xylene (total)	20.0	5.44	16.8	57	0 -200

COMPOUND	SPIKE ADDED UG/L	MSD CONCENTRATION UG/L	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
Benzene	20.0	14.6	73 *	4	200	77 -123
Ethylbenzene	20.0	19.7	38 *	5	200	63 -137
Toluene	20.0	16.1	80	3	200	77 -123
Xylene (total)	20.0	16.2	54	5	200	0 -200

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 4 outside limits
Spike Recovery: ~~4~~ 2 out of 8 outside limits
HOA 4/16/93

COMMENTS:

The % recoveries for Benzene are within laboratory control limits. HOA 4/16/93

FORM III VOA-1 5/88 Rev.

HOA 4/16/93

0014

WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6720-13-01

Case No.: LE CARPENTER RFW Lot No.: 9304L130

BLANK Spike - Sample No.: BLKLV1619-MB1 Level:(low/med) LOW

COMPOUND	SPIKE ADDED UG/L	SAMPLE CONCENTRATION UG/L	BS CONCENTRATION UG/L	BS % REC #	QC LIMITS REC
Benzene	20.0	0	16.3	82	77 -123
Ethylbenzene	20.0	0	16.9	84	63 -137
Toluene	20.0	0	16.4	82	77 -123
Xylene (total)	20.0	0	16.6	83	0 -200

Column to be used to flag recovery value with an asterisk
* Values outside of QC limits

Spike Recovery: 0 out of 4 outside limits

COMMENTS:

9408411619 3

WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6720-13-01

Case No.: LE CARPENTER RFW Lot No.: 9304L130

BLANK Spike - Sample No.: BLKLV1620-MB1 Level:(low/med) LOW

COMPOUND	SPIKE ADDED UG/L	SAMPLE CONCENTRATION UG/L	BS CONCENTRATION UG/L	BS % REC #	QC LIMITS REC
Benzene	20.0	0	17.7	89	77 -123
Ethylbenzene	20.0	0	18.6	93	63 -137
Toluene	20.0	0	17.5	87	77 -123
Xylene (total)	20.0	0	17.6	88	0 -200

Column to be used to flag recovery value with an asterisk
* Values outside of QC limits

Spike Recovery: 0 out of 4 outside limits

COMMENTS:

JCAT 4/16/93

0016

SAMPLE DATA
in increasing RFW# order

CLIENT SAMPLE NO.

MW-4

GC VOLATILES SHEET

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 9304L130-001

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DC336083

Level: (low/med) LOW

Date Received: 04/08/93

% Moisture: not dec. _____

Date Analyzed: 04/12/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	12	
108-88-3	Toluene	1.0	U
1330-20-7	Xylene (total)	5.4	

12/88 Rev.

Orev 4/12/93

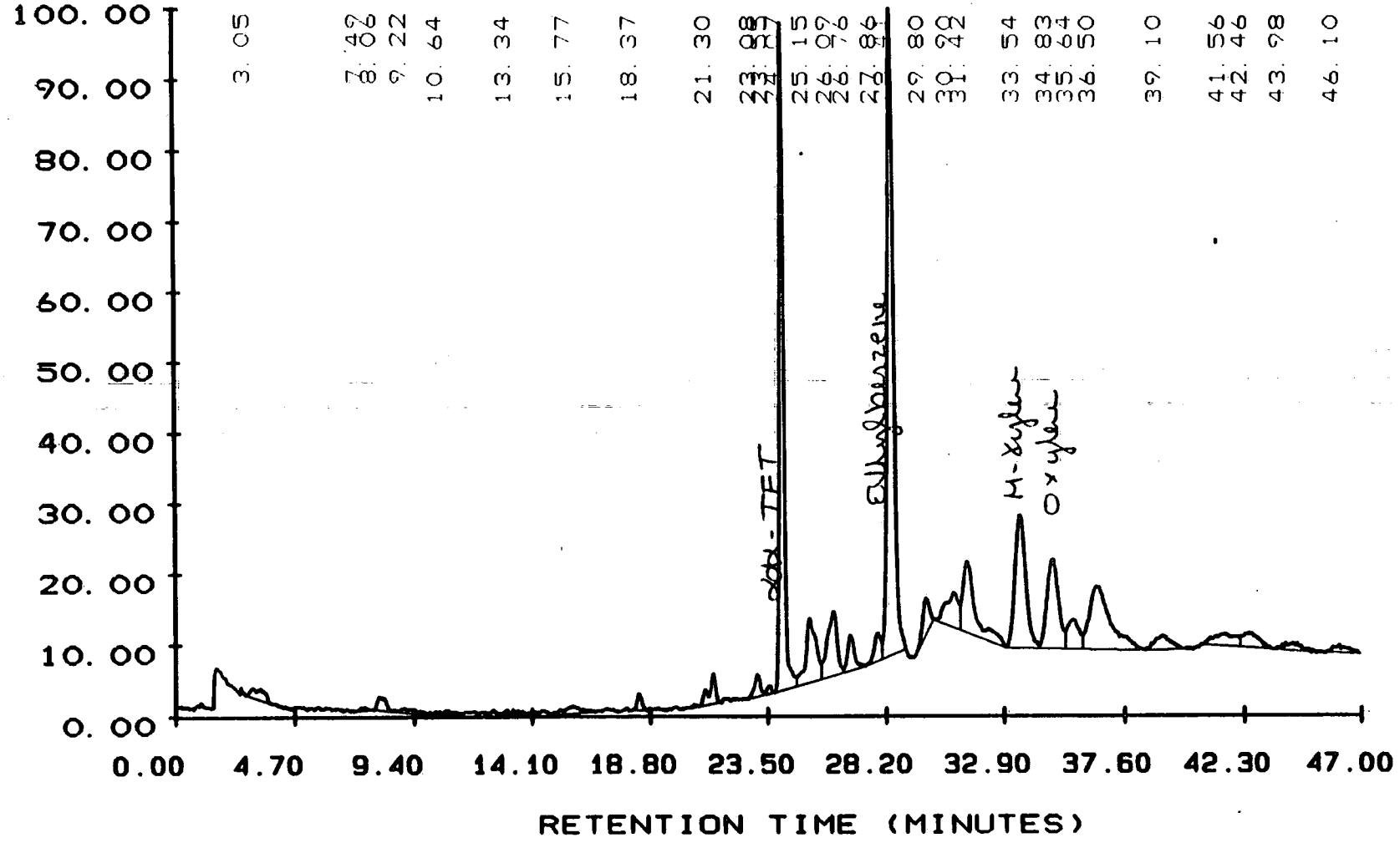
0018

9304L130-001

SAMPLE NO. : 04129316 .05 INSTRUMENT: 16

TEST NO. : DATE TIME: 04/12/93 12:13:01

METHOD NO. : 16B / 16B PAGE NO. : 01



Y MAXIMUM: 53671. START TIME: 0.00

Y MINIMUM: 50038. END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/12/93 13:00:30

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04129316 .05 INST:16 VIAL:F0 SEQ NUMBER:005
TEST : 0602X DATE-TIME INJECTED : 04/12/93 12:13:01
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/12/93 13:00:30
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: MW-4 SAMPLE VOL: 5.0 ML
CLIENT: LE CARPENTER COLUMN TYPE: 1% SP1000, PI
LAB ID: 9304L130-001 RAW FILE: RAW3:DC336083
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	19789	488		3.053			
002	3162	173	V	7.490			
003	16666	670	T	8.058			
004	9254	200	V	9.224			
005	8314	200		10.636			
				12.190	M	TRANS-1,2-DICHLOROET	
006	8269	263	V	13.338			
				14.570	M	MTBE	
007	19706	386		15.765			
008	10746	813		18.368	M	BENZENE	~~0.385~~ < reporting limit MCL 4/16/93
009	30611	1496		21.305			
010	18221	1101	T	23.077			
011	4890	409	V	23.547			
012	401261	34280	T	24.070	M	a,a,a-TRIFLUOROTOLUE	16.498
013	88749	3234	T	25.151	M	TOLUENE	~~1.817~~ < 1ppb std. MCL 4/16/93
014	88205	3242	T	26.094			
015	34278	1749	V	26.758			
016	25651	1410	T	27.859			
017	588000	33262		28.410	M	ETHYLBENZENE	12.180
018	34618	1854	V	29.799			
019	60614	1833	T	30.896			
020	128877	3677	V	31.417			
021	199386	6844	T	33.535	M	M-XYLENE	3.038 } 5.437
022	144621	4606	T	34.832	M	O-XYLENE	2.399 }
023	46630	1491	T	35.637			
024	182624	3260	V	36.499			
025	32928	726		39.102			
026	38042	625	T	41.560	M	1,2-DICHLOROBENZENE	0.855
027	34528	738		42.455			
028	17485	367		43.977			
029	14669	384		46.103			

MCL 4/16/93

CLIENT SAMPLE NO.

MW-14S

GC VOLATILES SHEET

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 9304L130-002

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DC336096

Level: (low/med) LOW

Date Received: 04/08/93

% Moisture: not dec. _____

Date Analyzed: 04/12/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylene (total)	14	

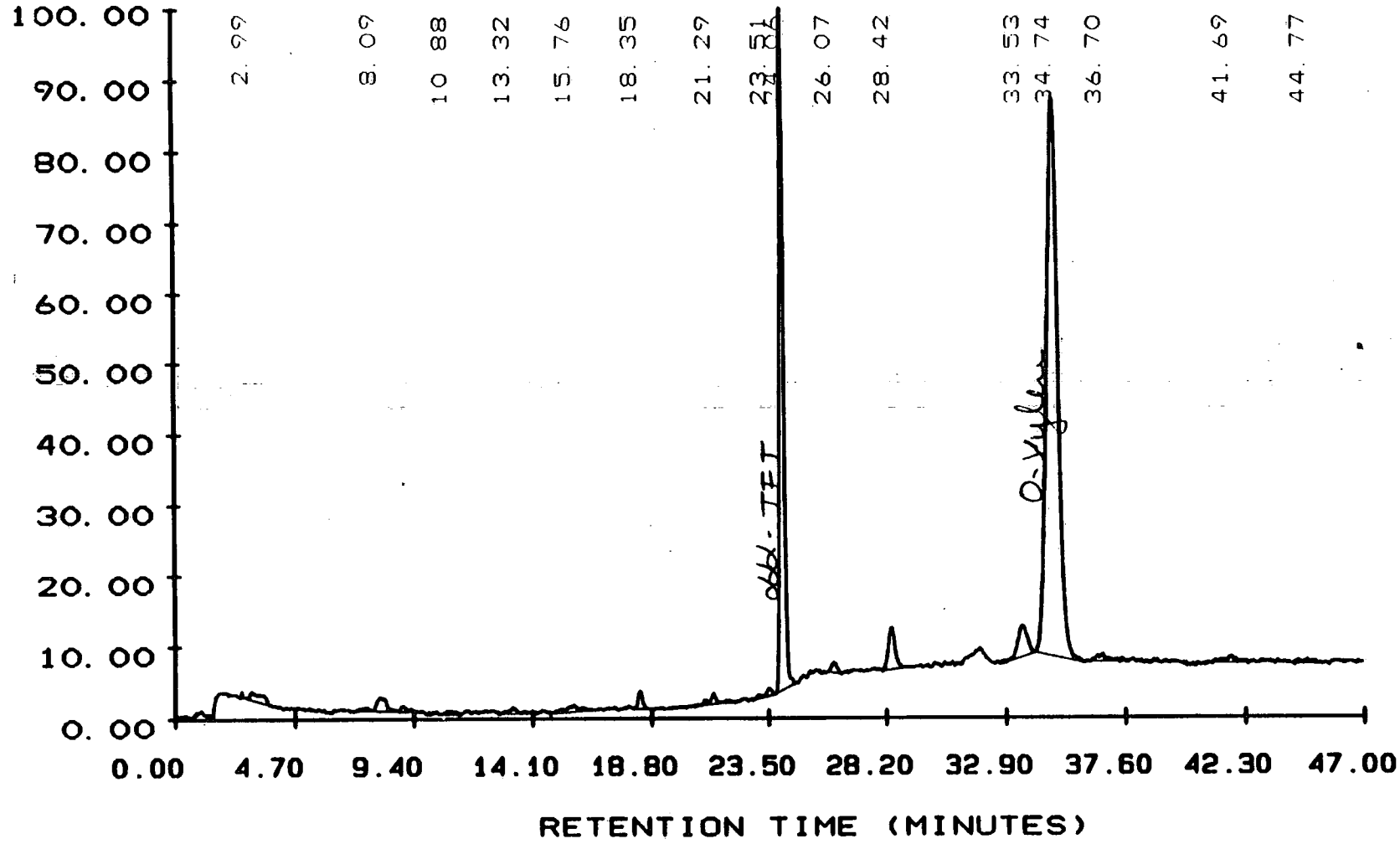
12/88 Rev.

4/16/93

9304L130-002

SAMPLE NO. : 04129316 . 06
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/12/93 13:40:32
PAGE NO. : 01



Y MAXIMUM: 54000.
Y MINIMUM: 50073.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/12/93 14:28:03

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04129316 .06 INST:16 VIAL:F0 SEQ NUMBER:006
TEST : 0602X DATE-TIME INJECTED : 04/12/93 13:40:32
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/12/93 14:28:03
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: MW-14S SAMPLE VOL: 5.0 ML
CLIENT: LE CARPENTER COLUMN TYPE: 1% SP1000, PI
LAB ID: 9304L130-002 RAW FILE: RAW3:DC336096
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	16544	435		2.990			
002	30976	772		8.087			
003	4653	209		10.875			
				12.190	M	TRANS-1,2-DICHLOROET	
004	11066	345	V	13.317			
				14.570	M	MTBE	
005	16122	366		15.764			
006	12109	960		18.353	M	BENZENE	~~0.406~~ < reporting limit
007	12864	567		21.291			
008	8006	408	V	23.506			
009	428813	37742		24.064	M	a,a,a-TRIFLUOROTOLUE	17.633
				24.850	M	TOLUENE	
010	8717	542		26.072			
011	42291	2264		28.417	M	ETHYLBENZENE	~~1.107~~ < 1 ppb std.
012	43194	1699	V	33.531	M	M-XYLENE	~~0.798~~ } 14.476
013	934522	30903		34.735	M	O-XYLENE	14.476 }
014	13293	412		36.699			
015	14592	367		41.692	M	1,2-DICHLOROBENZENE	0.461
016	8749	234		44.766			

GAL 4/16/93

GAL 4/16/93

0023

GC VOLATILES SHEET

CLIENT SAMPLE NO.

MW-22

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 9304L130-003

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DC336259

Level: (low/med) LOW

Date Received: 04/08/93

% Moisture: not dec. _____

Date Analyzed: 04/12/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene		E
108-88-3	Toluene	1.0	U
1330-20-7	Xylene (total)		E

12/88 Rev.

DJY 4/16/93

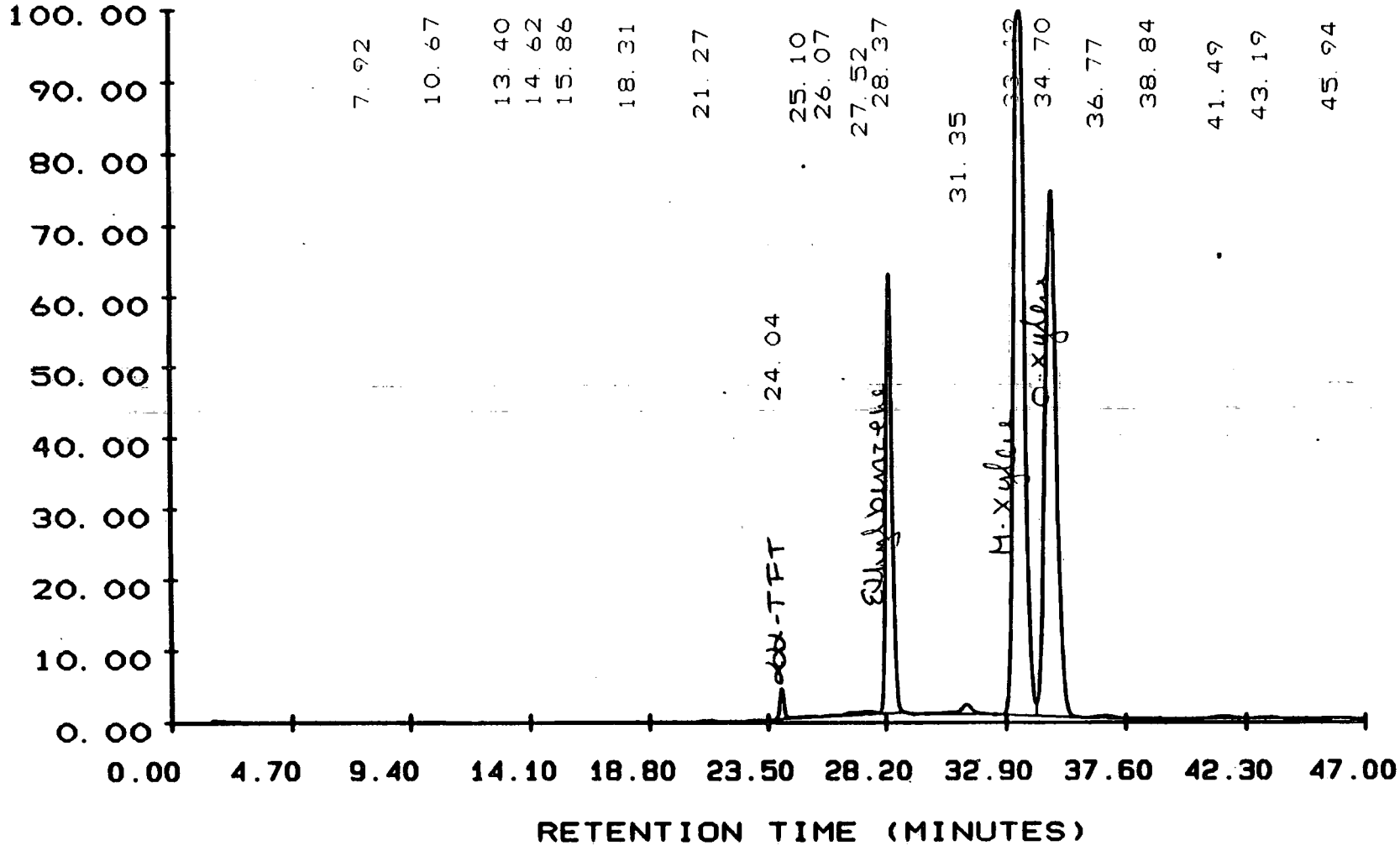
0024

9304L130-003

SAMPLE NO. : 04129316 . 16 INSTRUMENT: 16

TEST NO. : DATE TIME: 04/12/93 23:08:20

METHOD NO. : 16B / 16B PAGE NO. : 01



Y MAXIMUM: 110739. START TIME: 0.00

Y MINIMUM: 50059. END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/12/93 23:55:51

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04129316 .16 INST:16 VIAL:F0 SEQ NUMBER:016
TEST : 0602X DATE-TIME INJECTED : 04/12/93 23:08:20
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/12/93 23:55:51
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: MW-22 SAMPLE VOL: 5.0 ML
CLIENT: LE CARPENTER COLUMN TYPE: 1% SP1000, PI
LAB ID: 9304L130-003 RAW FILE: RAW3:DC336259
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	15360	454		7.920			
002	15059	219	V	10.670			
				12.190	M	TRANS-1,2-DICHLOROET	
003	20326	300	V	13.399			
004	10093	250	V	14.619	M	MTBE	0.570
005	14189	261		15.856			
006	10048	552		18.314	M	BENZENE	~~0.374~~ < reporting limit GAD 4/16/
007	37210	1245		21.266			
008	320915	25319	T	24.044	M	a,a,a-TRIFLUOROTOLUE	13.186
009	55181	1541	V	25.103	M	TOLUENE	~~1.374~~ < 1 ppb std. GAD 4/16/93
010	31379	1252	T	26.067			
011	186477	2748	T	27.522			
012	6425075	374995		28.371	M	ETHYLBENZENE	130.614 E
013	326771	8293	V	31.355			
014	18119120	600886	T	33.486	M	M-XYLENE	260.007 E
015	13866617	449648	V	34.700	M	O-XYLENE	212.208
016	92518	1999	V	36.774			
017	13395	326	V	38.844			
018	127341	2185	T	41.494	M	1,2-DICHLOROBENZENE	2.352
019	90573	1347	T	43.193			
020	33709	586		45.943			

GAD 4/16/93

CLIENT SAMPLE NO.

MW-22DL

GC VOLATILES SHEET

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 9304L130-003 DL

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DC336114

Level: (low/med) LOW

Date Received: 04/08/93

% Moisture: not dec. _____

Date Analyzed: 04/12/93

Column: (pack/cap) PACK

Dilution Factor: 10.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
71-43-2	Benzene	NA	
100-41-4	Ethylbenzene	120	
108-88-3	Toluene	NA	
1330-20-7	Xylene (total)	440	

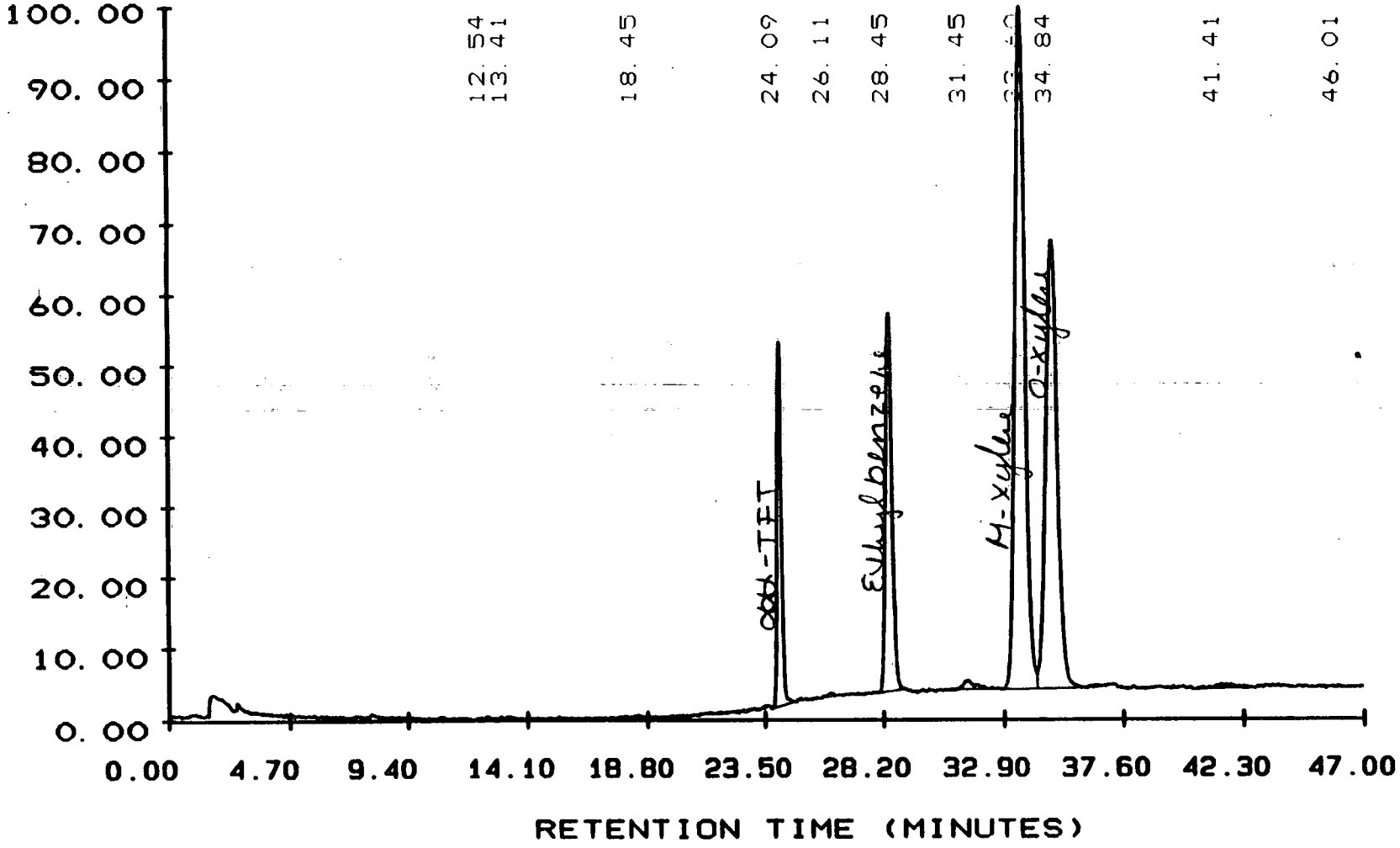
12/88 Rev.

0027 RW 4/14/93

9304L130-003D1

SAMPLE NO. : 04129316 .07
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/12/93 14:37:08
PAGE NO. : 01



Y MAXIMUM: 56374.
Y MINIMUM: 50044.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/12/93 15:24:39

MULTILEVEL MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04129316 .07 INST:16 VIAL:F0 SEQ NUMBER:007
TEST : 0602X DATE-TIME INJECTED : 04/12/93 14:37:08
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/12/93 15:24:39
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: MW-22 SAMPLE VOL: 5.0 ML
CLIENT: LE CARPENTER COLUMN TYPE: 1% SP1000, PI
LAB ID: 9304L130-003 RAW FILE: RAW3:DC336114
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 10.0000

D1

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
				12.190	M	TRANS-1,2-DICHLOROET	
001	5965	261	V	12.539			
002	5728	202		13.413			
				14.570	M	MTBE	
003	8448	238		18.451	M	BENZENE	~~3.499~~ < reporting limit MAX 4/10/93
004	370893	32454		24.091	M	a,a,a-TRIFLUOROTOLUE	152.458/10 = 15.246
				24.850	M	TOLUENE	
005	5434	309		26.111			
006	579219	33755		28.448	M	ETHYLBENZENE	120.014
007	29318	776	V	31.450			
008	1695073	60631	T	33.597	M	M-XYLENE	244.862 } 440.75
009	1268897	40038		34.838	M	O-XYLENE	195.888 }
010	21043	402		41.409	M	1,2-DICHLOROBENZENE	5.696
011	3347	185		46.007			

MAX 4/10/93

CLIENT SAMPLE NO.

MW-25

GC VOLATILES SHEET

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 9304L130-004

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DC336129

Level: (low/med) LOW

Date Received: 04/08/93

% Moisture: not dec. _____

Date Analyzed: 04/12/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	13	
108-88-3	Toluene	1.0	U
1330-20-7	Xylene (total)	24	

12/88 Rev.

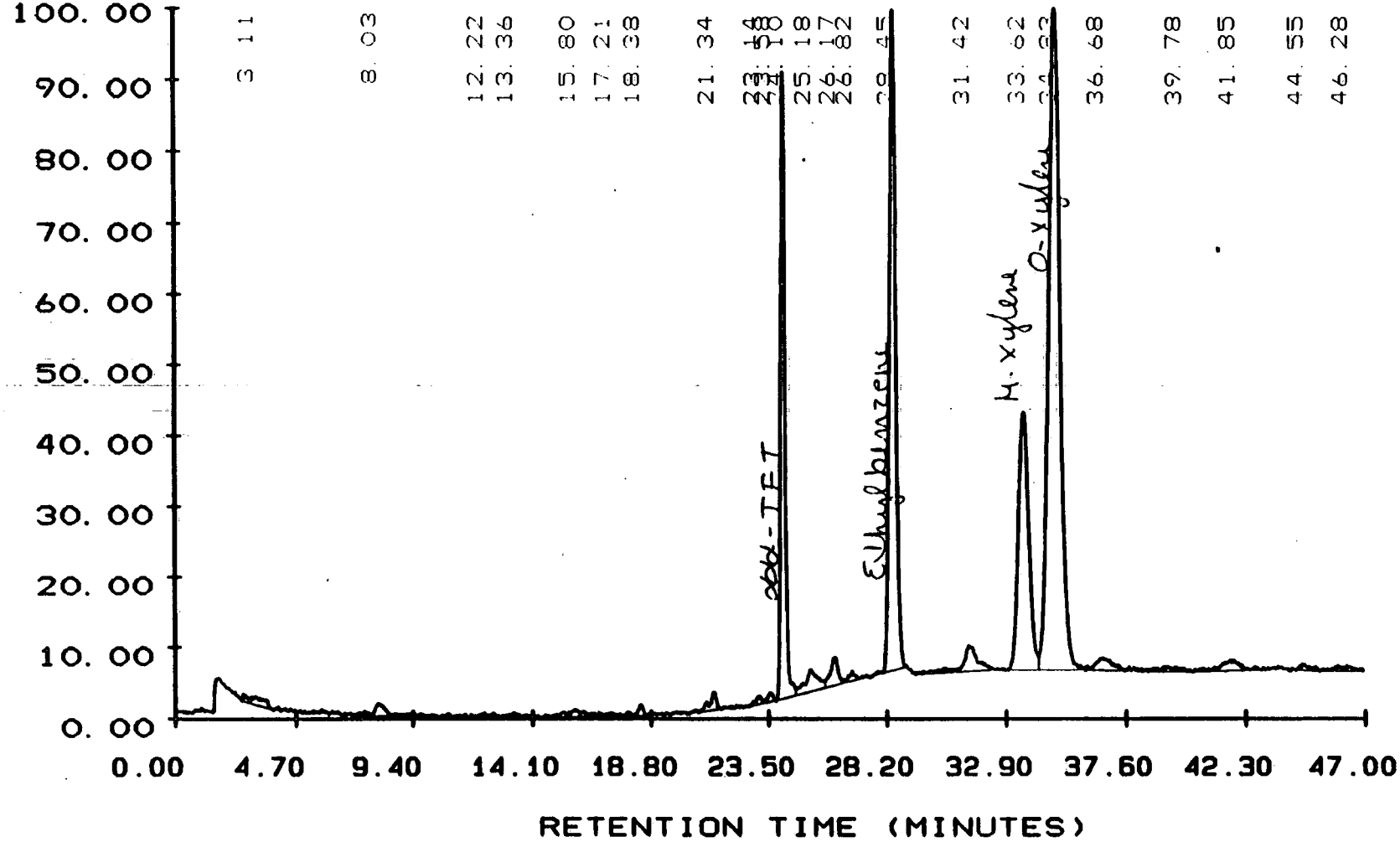
[illegible] 4/6/93

9304L130-004

SAMPLE NO. : 04129316 . 08 INSTRUMENT: 16

TEST NO. : DATE TIME: 04/12/93 15:33:44

METHOD NO. : 16B / 16B PAGE NO. : 01



Y MAXIMUM: 54058. START TIME: 0.00

Y MINIMUM: 50058. END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/12/93 16:21:14

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04129316 .08 INST:16 VIAL:F0 SEQ NUMBER:008
TEST : 0602X DATE-TIME INJECTED : 04/12/93 15:33:44
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/12/93 16:21:14
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: MW-25 SAMPLE VOL: 5.0 ML
CLIENT: LE CARPENTER COLUMN TYPE: 1% SP1000, PI
LAB ID: 9304L130-004 RAW FILE: RAW3:DC336129
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	21946	457		3.112			
002	31072	692		8.030			
003	11104	293	T	12.216	M	TRANS-1,2-DICHLOROET	0.507
004	9434	277		13.364			
				14.570	M	MTBE	
005	21741	396	T	15.801			
006	7917	192	T	17.205			
007	11341	601		18.380	M	BENZENE	~~0.394~~ < reporting limit HCK 4/16/93
008	19878	1023	V	21.336			
009	8160	449	T	23.141			
010	7021	479	V	23.576			
011	410790	35321	T	24.096	M	a,a,a-TRIFLUOROTOLUE	16.890 ✓
012	44710	1229	T	25.178	M	TOLUENE	~~1.104~~ < 1ppb std HCK 4/16/93
013	34406	1541	T	26.166			
014	7232	486	T	26.823			
015	635584	37211		28.451	M	ETHYLBENZENE	13.145 ✓
016	62118	1444		31.419			
017	413459	14582	T	33.615	M	M-XYLENE	6.108 } 24.104
018	1164731	37276	V	34.827	M	O-XYLENE	17.996 }
019	31962	693		36.675			
020	16275	221	V	39.780			
				40.880	M	1,2-DICHLOROBENZENE	
021	34720	608		41.851			
022	9850	324	V	44.549			
023	14560	296		46.277			

HCK 4/16/93

GC VOLATILES SHEET

CLIENT SAMPLE NO.

MW-15S

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 9304L130-005

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DE370747

Level: (low/med) LOW

Date Received: 04/08/93

% Moisture: not dec. _____

Date Analyzed: 04/14/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene		E
108-88-3	Toluene	1.0	U
1330-20-7	Xylene (total)		E

12/88 Rev.

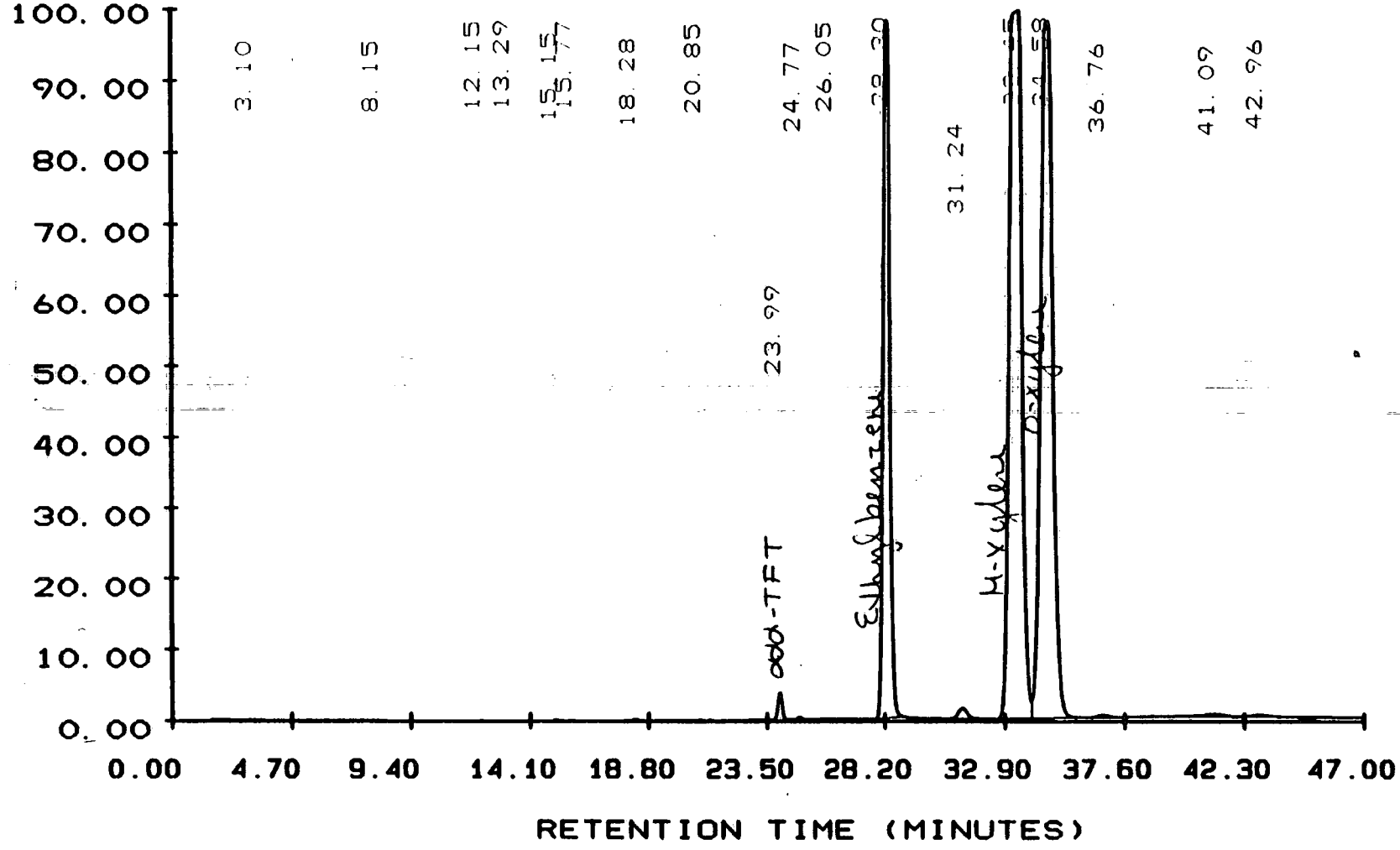
0033

by 7/14/93

9304L130-005

SAMPLE NO. : 04149316 . 08
TEST NO. :
METHOD NO. : 16 / 16

INSTRUMENT: 16
DATE TIME: 04/14/93 17:13:42
PAGE NO. : 01



Y MAXIMUM: 111261.
Y MINIMUM: 50067.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/15/93 09:14:08

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04149316 .08 INST:16 VIAL:F0 SEQ NUMBER:008
TEST : 0602X DATE-TIME INJECTED : 04/14/93 17:13:42
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/15/93 09:14:08
METHOD: 16 / 16 REV #: 00055 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: MW-15S SAMPLE VOL: 5.0 ML
CLIENT: LE CARPENTER COLUMN TYPE: 1% SP1000, PI
LAB ID: 9304L130-005 RAW FILE: RAW3:DE370747
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	13818	412		3.101			
002	12966	411		8.154			
003	5517	304	V	12.146	M	TRANS-1,2-DICHLOROET	0.310
004	7059	196		13.291			
				14.570	M	MTBE	
005	21600	1249	T	15.149			
006	8896	301		15.767			
007	26234	1734		18.278	M	BENZENE	~~0.790~~ < reporting limit lad 4/16/93
008	13459	502		20.852			
009	268102	22881	T	23.992	M	aaa-TRIFLUOROTOLUENE	19.127 ✓
010	27776	2101	V	24.769	M	TOLUENE	~~0.905~~ < reporting limit lad 4/16/93
011	11430	351		26.053			
012	11115539	600061		28.299	M	ETHYLBENZENE	313.774 E
013	225843	9012	V	31.239			
014	20943648	609418	T	33.446	M	M-XYLENE	419.444 E
015	19865360	600003	T	34.576	M	O-XYLENE	424.701 E
016	75994	2081		36.755			
017	108768	2341	V	41.094	M	1,2-DICHLOROBENZENE	3.408 <
018	91898	1752		42.957			

lad 4/16/93

CLIENT SAMPLE NO.

MW-15SDL

GC VOLATILES SHEET

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 9304L130-005 DL

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DE370729

Level: (low/med) LOW

Date Received: 04/08/93

% Moisture: not dec. _____

Date Analyzed: 04/14/93

Column: (pack/cap) PACK

Dilution Factor: 10.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
71-43-2	Benzene	NA	
100-41-4	Ethylbenzene	280	
108-88-3	Toluene	NA	
1330-20-7	Xylene (total)	810	

12/88 Rev.

0036

9304L130-005D1

SAMPLE NO. : 04149316 .07

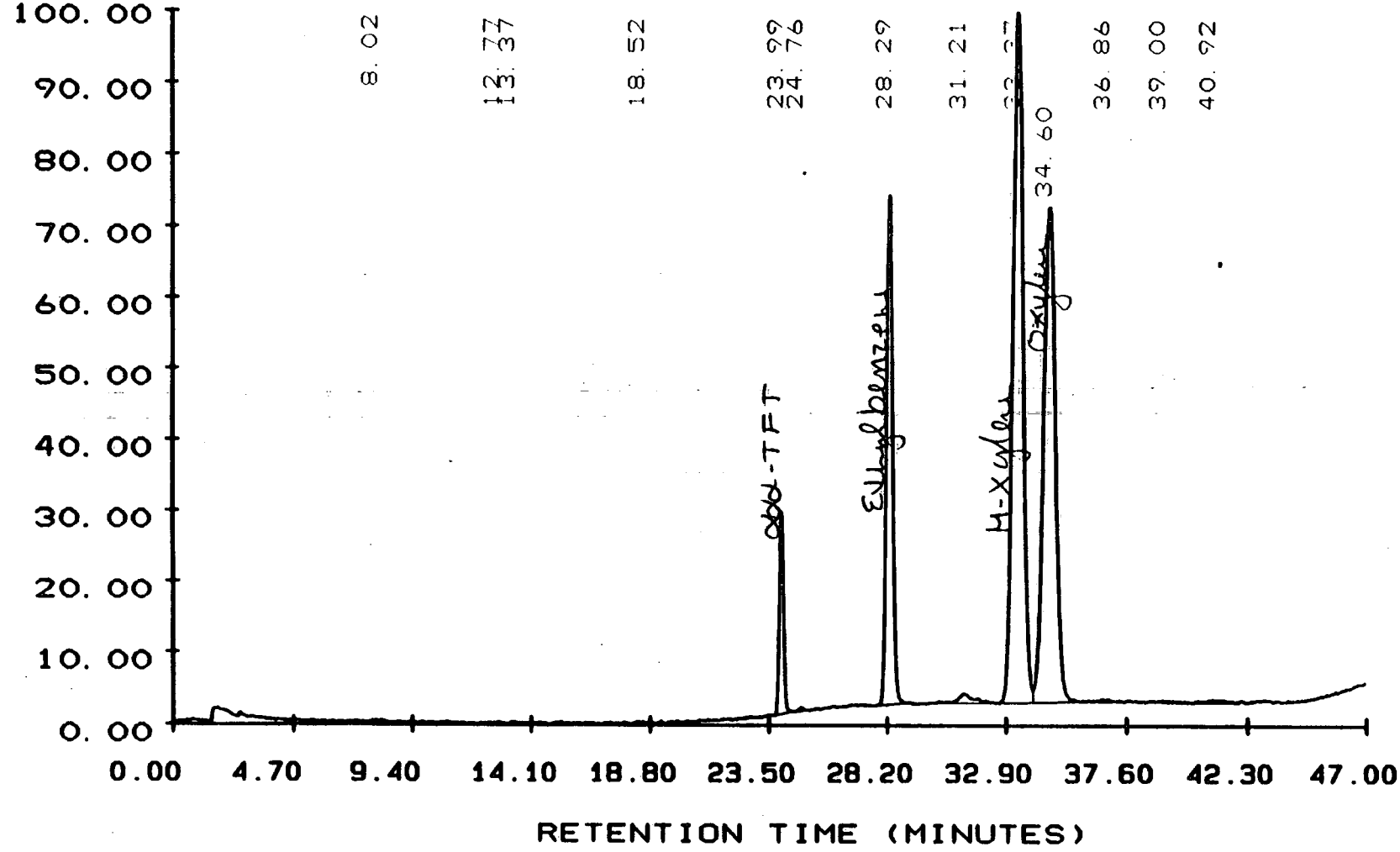
TEST NO. :

METHOD NO. : 16 / 16

INSTRUMENT: 16

DATE TIME: 04/14/93 16:16:42

PAGE NO. : 01



Y MAXIMUM: 58063.

Y MINIMUM: 50060.

START TIME: 0.00

END TIME: 47.00

0037

Roy F. Weston, Inc. - Lionville Laboratory 04/15/93 09:13:52

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04149316 .07 INST:16 VIAL:F0 SEQ NUMBER:007
TEST : 0602X DATE-TIME INJECTED : 04/14/93 16:16:42
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/15/93 09:13:52
METHOD: 16 / 16 REV #: 00055 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: MW-15S SAMPLE VOL: 5.0 ML
CLIENT: LE CARPENTER COLUMN TYPE: 1% SP1000, PI
LAB ID: 9304L130-005 RAW FILE: RAW3:DE370729
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 10.0000

D1

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB	
001	12768	271		8.018				
				12.190	M	TRANS-1,2-DICHLOROET		
002	6042	206	V	12.771				
003	12416	196		13.371				
				14.570	M	MTBE		
004	7923	190		18.524	M	BENZENE	3.942	< reporting limit GAL 4/16/93
005	256653	22591	V	23.994	M	aaa-TRIFLUOROTOLUENE	182.869	/10 = 18.29
006	4800	404		24.762	M	TOLUENE	3.838	< reporting limit GAL 4/16/93
007	999142	57240		28.295	M	ETHYLBENZENE	283.901 ✓	
008	49382	1028	V	31.212				
009	2142017	77514	T	33.368	M	M-XYLENE	430.354	805.969
010	1749331	55652		34.595	M	O-XYLENE	375.613	
011	9453	295		36.861				
012	10106	212	V	39.002				
013	19859	335		40.920	M	1,2-DICHLOROBENZENE	13.899	

GAL 4/16/93

0038

GC VOLATILES SHEET

CLIENT SAMPLE NO.

FB-1

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 9304L130-006

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DC336062

Level: (low/med) LOW

Date Received: 04/08/93

% Moisture: not dec. _____

Date Analyzed: 04/12/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylene (total)	2.0	U

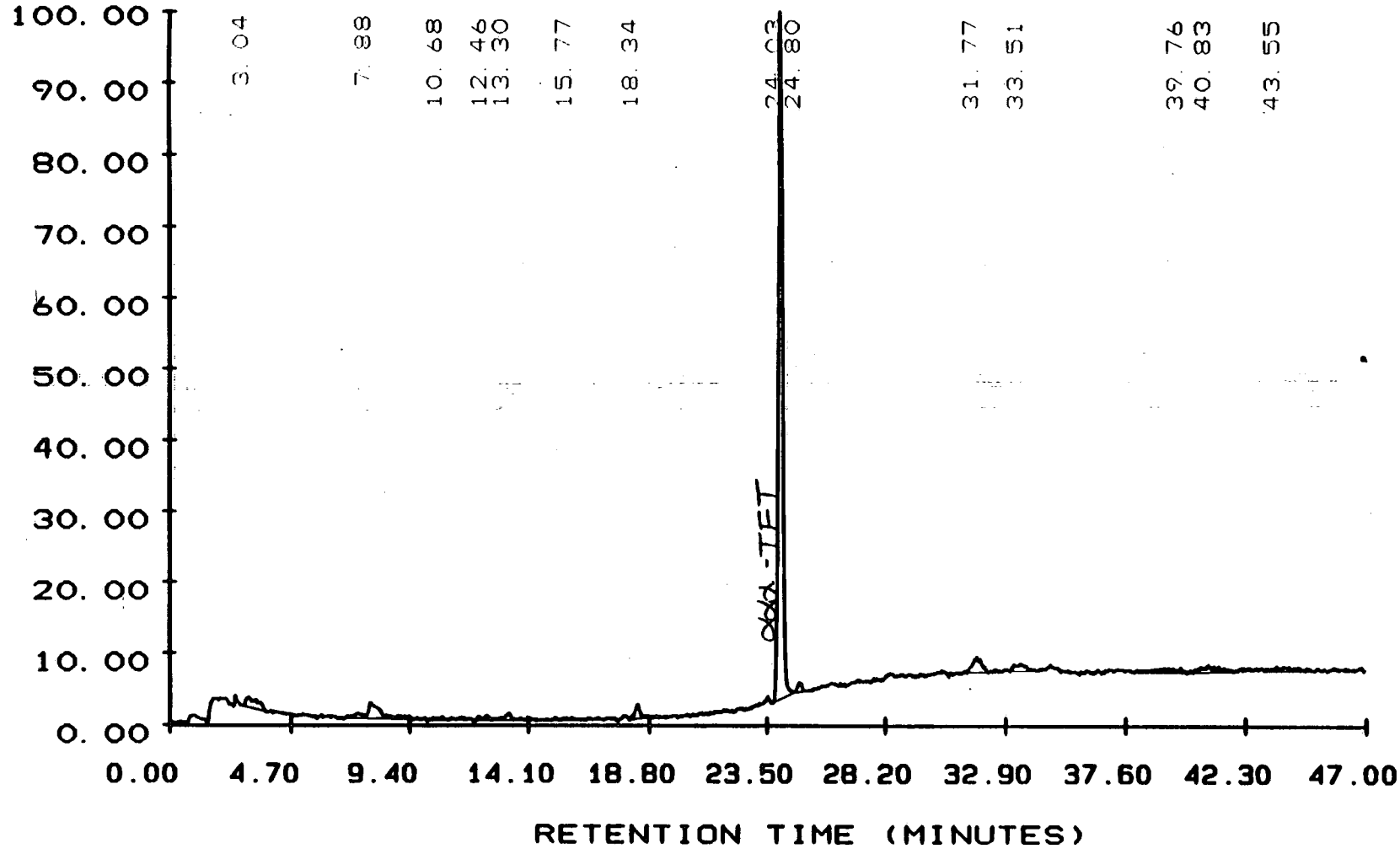
12/88 Rev.

0 [illegible] 4/12/93

9304L130-006

SAMPLE NO. : 04129316 . 03
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/12/93 10:19:01
PAGE NO. : 01



Y MAXIMUM: 53857.
Y MINIMUM: 50082.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/12/93 11:13:02

MULTILEVEL MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04129316 .03 INST:16 VIAL:F0 SEQ NUMBER:003
TEST : 0602X DATE-TIME INJECTED : 04/12/93 10:19:01
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/12/93 11:13:02
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: FB-1 SAMPLE VOL: 5.0 ML
CLIENT: LE CARPENTER COLUMN TYPE: 1% SP1000, PI
LAB ID: 9304L130-006 RAW FILE: RAW3:DC336062
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	17389	535		3.038			
002	39040	842		7.879			
003	8941	196		10.683			
004	6240	258	T	12.457	M	TRANS-1,2-DICHLOROET	0.402
005	10458	367		13.304			
				14.570	M	MTBE	
006	5440	139		15.765			
007	12205	754		18.337	M	BENZENE	~~0.407~~ < reporting limit JGA 4/16/93
008	411949	36362	V	24.034	M	a,a,a-TRIFLUOROTOLUE	16.938
009	6099	493		24.797	M	TOLUENE	~~0.480~~ < reporting limit JGA 4/16/93
				28.420	M	ETHYLBENZENE	
010	19872	814		31.772			
011	12006	366		33.514	M	M-XYLENE	~~0.351~~ < reporting limit JGA 4/16/93
				34.730	M	O-XYLENE	
012	14125	261	V	39.763			
013	17683	371		40.833	M	1,2-DICHLOROBENZENE	0.513
014	13606	261		43.546			

JGA 4/16/93

GC VOLATILES SHEET

CLIENT SAMPLE NO.

TBLK

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 9304L130-007

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DC336072

Level: (low/med) LOW

Date Received: 04/08/93

% Moisture: not dec. _____

Date Analyzed: 04/12/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

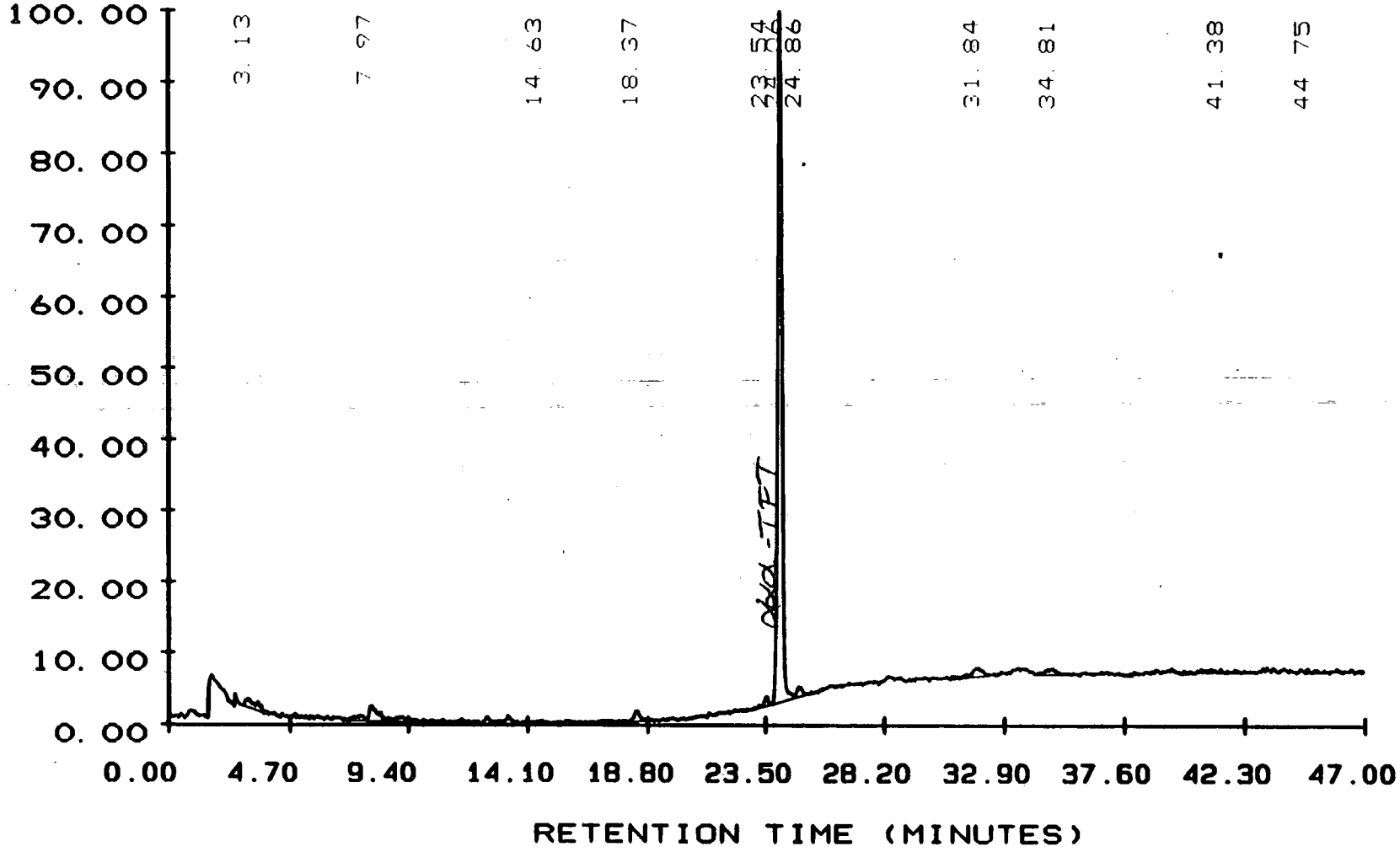
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylene (total)	2.0	U

12/88 Rev.

9304L130-007

SAMPLE NO. : 04129316 .04
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/12/93 11:15:58
PAGE NO. : 01



Y MAXIMUM: 53720.
Y MINIMUM: 50072.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/12/93 12:03:30

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04129316 .04 INST:16 VIAL:F0 SEQ NUMBER:004
TEST : 0602X DATE-TIME INJECTED : 04/12/93 11:15:58
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/12/93 12:03:30
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: TBLK SAMPLE VOL: 5.0 ML
CLIENT: LE CARPENTER COLUMN TYPE: 1% SP1000, PI
LAB ID: 9304L130-007 RAW FILE: RAW3:DC336072
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	13101	417		3.133			
002	41062	803		7.970			
				12.190	M	TRANS-1,2-DICHLOROET	
003	4838	144		14.627	M	MTBE	0.369
004	11034	553		18.370	M	BENZENE	~~0.389~~ < reporting limit HCA 4/16/93
005	7053	508	V	23.536			
006	404435	35308	T	24.061	M	a,a,a-TRIFLUOROTOLUE	16.628
007	8115	483		24.857	M	TOLUENE	~~0.513~~ < reporting limit HCA 4/16/93
				28.420	M	ETHYLBENZENE	
008	18054	467		31.839			
				33.550	M	M-XYLENE	
009	11616	294		34.809	M	O-XYLENE	~~0.365~~ < reporting limit HCA 4/16/93
010	9939	194		41.377	M	1,2-DICHLOROBENZENE	0.383
011	4563	226		44.754			

HCA 4/16/93

WESTON

STANDARD DATA

Continuing Calibration Verification (CCV) MCL 4/16/93

FORM7GC

GC Volatiles Continuing Calibration

RFW: 9304L130
Work Order Number: 06720-013-001-0
Client Name: LE CARPENTER
Date of Init. Calibration: 04/07/93

Instrument Number: 16
Column Used: 1% SP1000, PID
Matrix: WATER
True Concentration: 20 (ppb)

MIX NO.	GC SAMPLE ID	DESCRIPTION	DATE/TIME ANALYZED
1	04129316.15	STDB 20 PPB	04/12/93 22:11:47
2	04129316.18	STDB 20 PPB	04/13/93 01:01:26

COMPOUND NAME	MIX	RT#	RT WINDOW	CON(ppb)	% REC		QC LIMITS(ppb)	QC LIMITS(%)
aaa-Trifluorotoluene			-			NR	14.0 - 26.0	70.0 - 130.0
Benzene	01	18.321	18.27-18.37	14.98	74.9	*	15.4 - 24.6	77.0 - 123.0
nzene	02	18.313	18.26-18.36	12.59	63.0	*	15.4 - 24.6	77.0 - 123.0
hylbenzene	01	28.371	28.32-28.42	17.48	87.4		12.6 - 27.4	63.0 - 137.0
Ethylbenzene	02	28.364	28.31-28.41	13.12	65.6		12.6 - 27.4	63.0 - 137.0
luene	01	24.820	24.77-24.87	16.06	80.3		15.5 - 24.5	77.5 - 122.5
luene	02	24.812	24.76-24.86	12.84	64.2	*	15.5 - 24.5	77.5 - 122.5
Xylene (total)	02		24.76-24.86	15.0	75.2	NR	-	-

* - outside QC limits NR - not reported

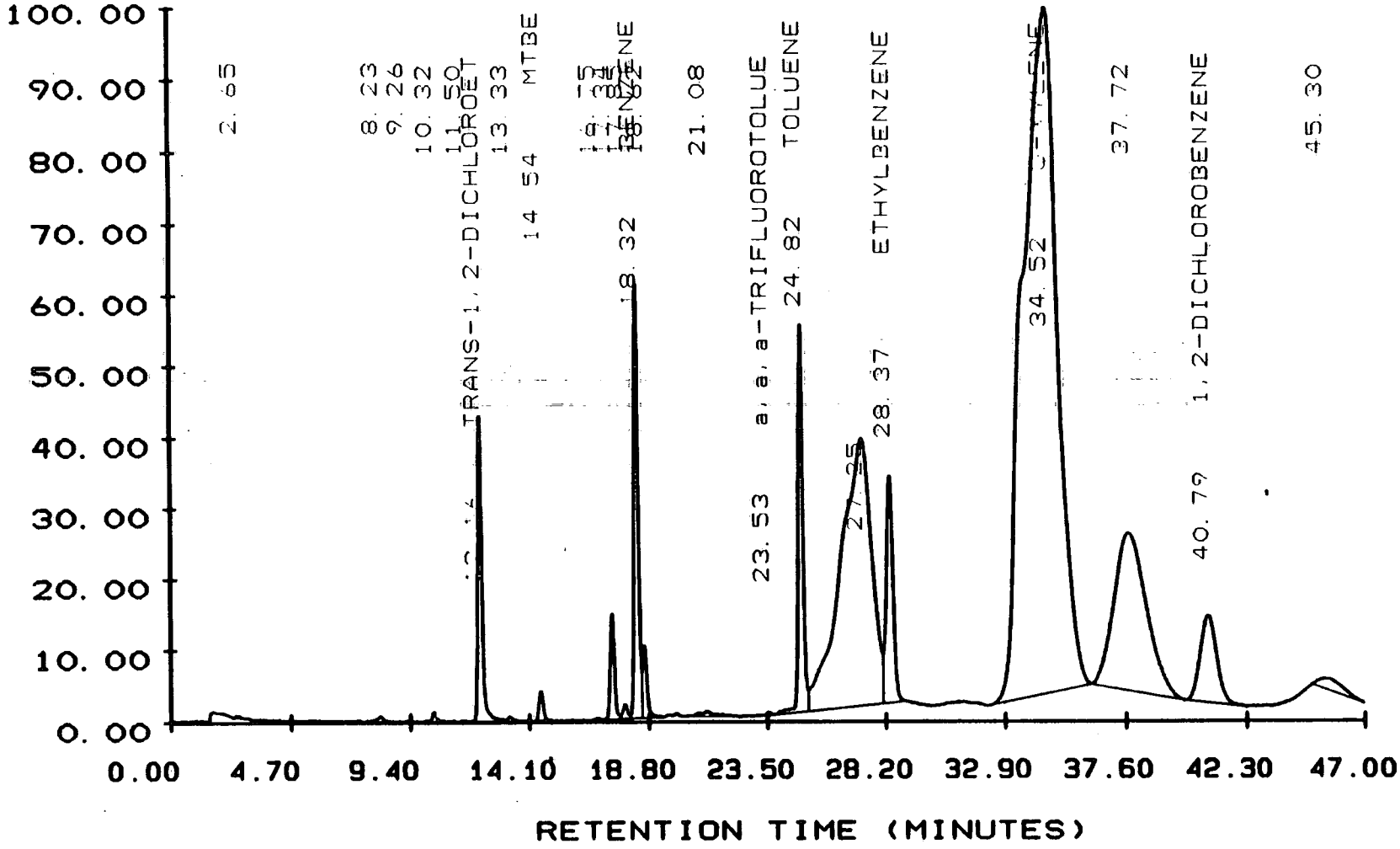
MCL 4/16/93

0046

STDB 20 PPB

SAMPLE NO. : 04129316 . 15
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/12/93 22:11:47
PAGE NO. : 01



Y MAXIMUM: 64200.
Y MINIMUM: 50060.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/12/93 22:59:19

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04129316 .15 INST:16 VIAL:F0 SEQ NUMBER:015
TEST : DATE-TIME INJECTED : 04/12/93 22:11:47
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/12/93 22:59:19
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 20 PPB RAW FILE: RAW3:DC336238
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	7296	433		2.654			
002	26554	1091	V	8.231			
003	11546	328	V	9.256			
004	35200	1936	V	10.325			
005	4486	292	V	11.501			
006	687878	60484	T	12.156	M	TRANS-1,2-DICHLOROET	15.173
007	18733	834		13.334			
008	63974	5613		14.544	M	MTBE	2.626
009	6854	460	T	16.753			
010	232909	20551	T	17.341			
011	36730	2739	T	17.854			
012	968595	86127	T	18.321	M	BENZENE	14.983
013	165043	13975		18.624			
014	42400	1013		21.083			
015	7642	529	V	23.532	M	a,a,a-TRIFLUOROTOLUE	0.273
016	969754	76951	T	24.820	M	TOLUENE	16.062
017	4619513	53205	T	27.247			
018	849574	45055		28.371	M	ETHYLBENZENE	17.487
				33.550	M	M-XYLENE	
019	12448767	135939	V	34.522	M	O-XYLENE	190.529
020	2715033	31375	V	37.720			
021	749261	17035		40.785	M	1,2-DICHLOROBENZENE	12.782
022	144397	1814		45.302			

I carry-over HAD 4/16/93

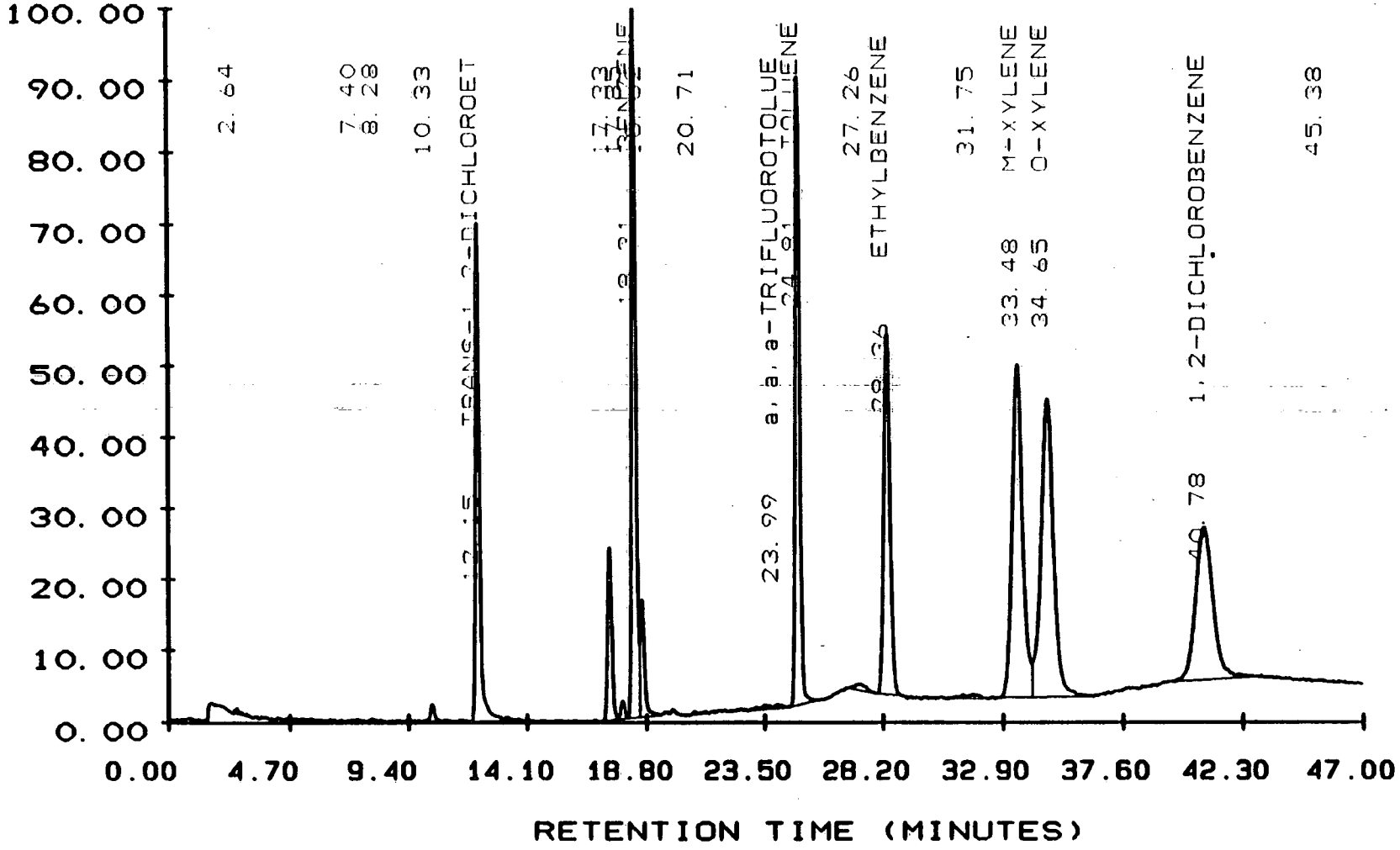
HAD 4/16/93

0048

STDB 20 PPB

SAMPLE NO. : 04129316 . 18
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/13/93 01:01:26
PAGE NO. : 01



Y MAXIMUM: 57429.
Y MINIMUM: 50064.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/13/93 01:48:55

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04129316 .18 INST:16 VIAL:F0 SEQ NUMBER:018
TEST : DATE-TIME INJECTED : 04/13/93 01:01:26
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/13/93 01:48:55
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 20 PPB RAW FILE: RAW3:DD336293
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	8486	558		2.638			
002	7200	235	V	7.403			
003	6349	201		8.281			
004	25280	1705	V	10.330			
005	602125	51566		12.154	M	TRANS-1,2-DICHLOROET	13.315
				14.570	M	MTBE	
006	196422	17622	T	17.334			
007	21498	1806	T	17.845			
008	811994	73191	T	18.313	M	BENZENE	12.596
009	142989	11928		18.616			
010	6163	318	V	20.709			
011	19386	380	V	23.987	M	a,a,a-TRIFLUOROTOLUE	0.757
012	770630	64901		24.812	M	TOLUENE	12.843
013	21882	656	V	27.262			
014	634400	37316		28.364	M	ETHYLBENZENE	13.121
015	20570	444		31.748			
016	974106	34370	T	33.484	M	M-XYLENE	14.148 } 15.031
017	1028480	30751		34.652	M	O-XYLENE	15.913 }
018	748813	15806		40.777	M	1,2-DICHLOROBENZENE	12.774
019	9440	221		45.376			

JCA 4/16/93

Continuing Calibration Verification (CCV)

GAL 4/16/93

FORM7GC

GC Volatiles Continuing Calibration

RFW: 9304L130 06720-013-001-0 Instrument Number: 16

Work Order Number: ~~NONE~~ GAL 4/16/93 Column Used: 1% SP1000, PID

Client Name: ~~LAB~~ LE Carpenter GAL 4/16/93 04/13/93 Matrix: WATER

Date of Init. Calibration: ~~03/12/93~~ BLY 4/15/93 True Concentration: 20 (ppb)

MIX NO.	GC SAMPLE ID	DESCRIPTION	DATE/TIME ANALYZED
1	04149316.17	STDB 20 PPB	04/15/93 07:01:06

COMPOUND NAME	MIX	RT#	RT WINDOW	CON(ppb)	% REC		QC LIMITS(ppb)	QC LIMITS(%)
a[illegible]-Trifluorotoluene	01	23.983	23.93-24.03	18.5	92.8	NR	-	-
Benzene	01	18.255	18.20-18.31	16.0	80.1	NR	-	-
Toluene	01	24.755	24.70-24.81	16.5	82.6	NR	-	-
X[illegible]ene (total)	01		-	15.9	79.8	NR	-	-
E[illegible]ylbenzene	01	28.280	28.23-28.33	16.4	82.2	NR	-	-
Methyl-T-Butylether	01		-	15.8	79.4	NR	-	-

* - outside QC limits NR - not reported

GAL 4/16/93

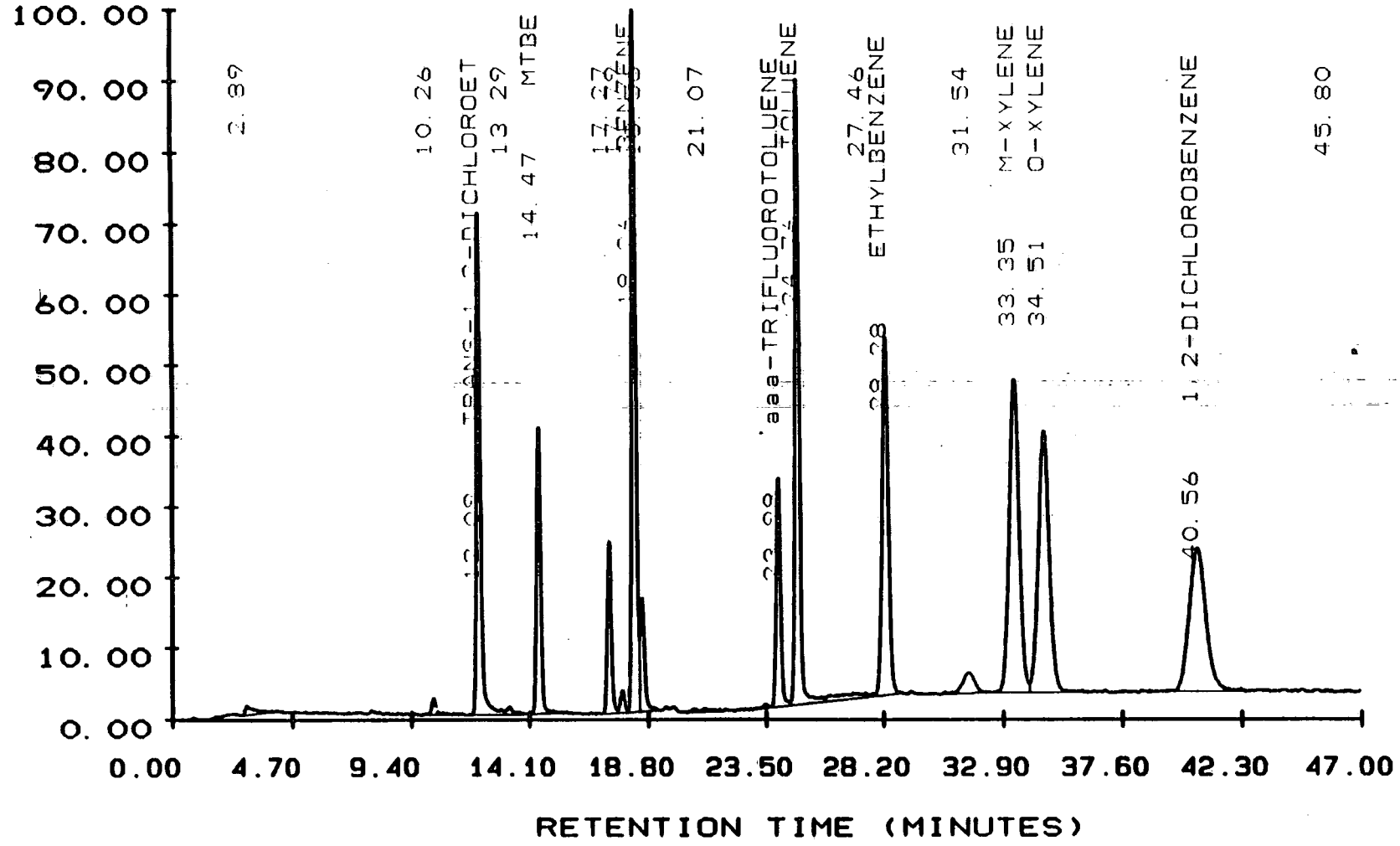
0051

STDB 20 PPB

SAMPLE NO. : 04149316 . 17 INSTRUMENT: 16

TEST NO. : DATE TIME: 04/15/93 07:01:06

METHOD NO. : 16 / 16 PAGE NO. : 01



Y MAXIMUM: 56722. START TIME: 0.00

Y MINIMUM: 50070. END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/15/93 09:16:27

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04149316 .17 INST:16 VIAL:F0 SEQ NUMBER:017
TEST : DATE-TIME INJECTED : 04/15/93 07:01:06
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/15/93 09:16:27
METHOD: 16 / 16 REV #: 00055 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 20 PPB RAW FILE: RAW1:DF370904
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	23213	855		2.885			
002	21178	1472		10.263			
003	526912	47137	T	12.089	M	TRANS-1,2-DICHLOROET	16.343
004	13082	666	V	13.291			
005	290976	26748		14.474	M	MTBE	15.887
006	178726	16032	T	17.273			
007	23949	2035	T	17.786			
008	731181	65854	T	18.255	M	BENZENE	16.017
009	123475	10534		18.559			
010	11974	307	V	21.071			
011	260314	21442	T	23.983	M	aaa-TRIFLUOROTOLUENE	18.556
012	716454	58613	T	24.755	M	TOLUENE	16.517
013	48909	443	T	27.461			
014	575866	33627		28.280	M	ETHYLBENZENE	16.449
015	66342	1907	V	31.544			
016	789818	29380	T	33.351	M	M-XYLENE	15.964
017	730272	24478		34.514	M	O-XYLENE	15.784
018	609069	13399		40.562	M	1,2-DICHLOROBENZENE	14.765
019	7834	192		45.798			

20ppb spike

4/16/93

0053

Roy F. Weston, Inc. - Lionville Laboratory

METHOD NUMBER	: 16B
METHOD TITLE	: 5.0 ML, 1% SP1000,
USER PROGRAMS	: USER:MULTIV10
ORDER OF FIT	: 1
NUMBER OF LEVELS	: 10
REPORT PARAMETERS	:
NO.OF TIMES MODIFIED	: 6
NO.OF TIMES CALIBRAT	: 12

#	COMPONENT NAME	LEVEL A LEVEL F	LEVEL B LEVEL G	LEVEL C LEVEL H	LEVEL D LEVEL I	LEVEL E LEVEL J
1	TRANS-1,2-DICHLOROET	0.2000 10.0000	0.5000 20.0000	1.0000 40.0000	2.0000 50.0000	5.0000 60.0000
2	MTBE	0.2000 10.0000	0.5000 20.0000	1.0000 40.0000	2.0000 50.0000	5.0000 60.0000
3	BENZENE	0.2000 10.0000	0.5000 20.0000	1.0000 40.0000	2.0000 50.0000	5.0000 60.0000
4	a,a,a-TRIFLUOROTOLUE	0.2000 10.0000	0.5000 20.0000	1.0000 40.0000	2.0000 50.0000	5.0000 60.0000
5	TOLUENE	0.2000 10.0000	0.5000 20.0000	1.0000 40.0000	2.0000 50.0000	5.0000 60.0000
6	ETHYLBENZENE	0.2000 10.0000	0.5000 20.0000	1.0000 40.0000	2.0000 50.0000	5.0000 60.0000
7	M-XYLENE	0.1996 9.9840	0.4992 19.9680	0.9984 39.9360	1.9968 49.9200	4.9920 59.9040
8	O-XYLENE	0.2020 10.1000	0.5050 20.2000	1.0100 40.4000	2.0200 50.5000	5.0500 60.6000
9	1,2-DICHLOROBENZENE	0.2000 10.0000	0.5000 20.0000	1.0000 40.0000	2.0000 50.0000	5.0000 60.0000

MULTILEVEL CALIBRATION METHOD 16B 04/08/93 08:31:51
1ST ORDER EXTERNAL STANDARD CALIBRATION USING PEAK AREA

TEST:

LEVEL	REPLICATE 1	REPLICATE 2	REPLICATE 3
A			
B			
C	04079316.07		
D			
E	04079316.03		
F			
G	04079316.04		
H	04079316.05		
I			
J			

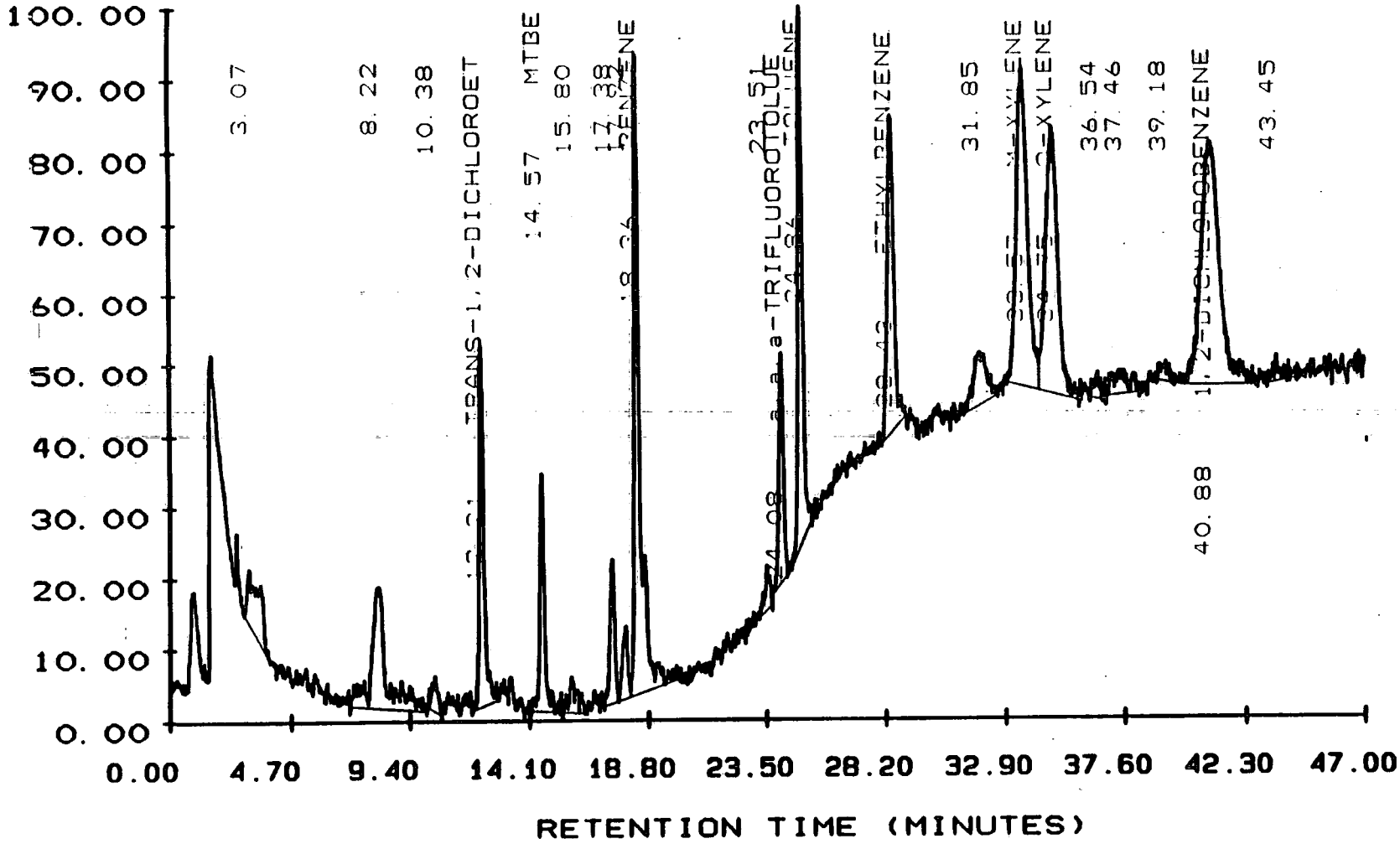
PEAK NAME	COEFFICIENTS a	b	c	d	SD OF FIT	CORR COEFF
TRANS-1,2-DICHLOROET			2.167E-05	2.668E-01	0.21757	0.99989
MTBE			3.816E-05	1.848E-01	0.37251	0.99970
BENZENE			1.524E-05	2.212E-01	0.64279	0.99911
a,a,a-TRIFLUOROTOLUE			4.122E-05	-4.241E-02	0.78011	0.99870
TOLUENE			1.617E-05	3.815E-01	0.38507	0.99968
ETHYLBENZENE			2.029E-05	2.490E-01	0.34312	0.99974
M-XYLENE			1.434E-05	1.789E-01	0.47092	0.99952
O-XYLENE			1.529E-05	1.874E-01	0.44555	0.99958
1,2-DICHLOROBENZENE			1.677E-05	2.167E-01	1.2339	0.99675

ah
BIY
4/16/

STDB 1.0 PPB

SAMPLE NO. : 04079316 .07
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/07/93 17:04:04
PAGE NO. : 01



Y MAXIMUM: 50714.
Y MINIMUM: 50052.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/08/93 08:35:02

MULTILEVEL EXTERNAL STANDARD

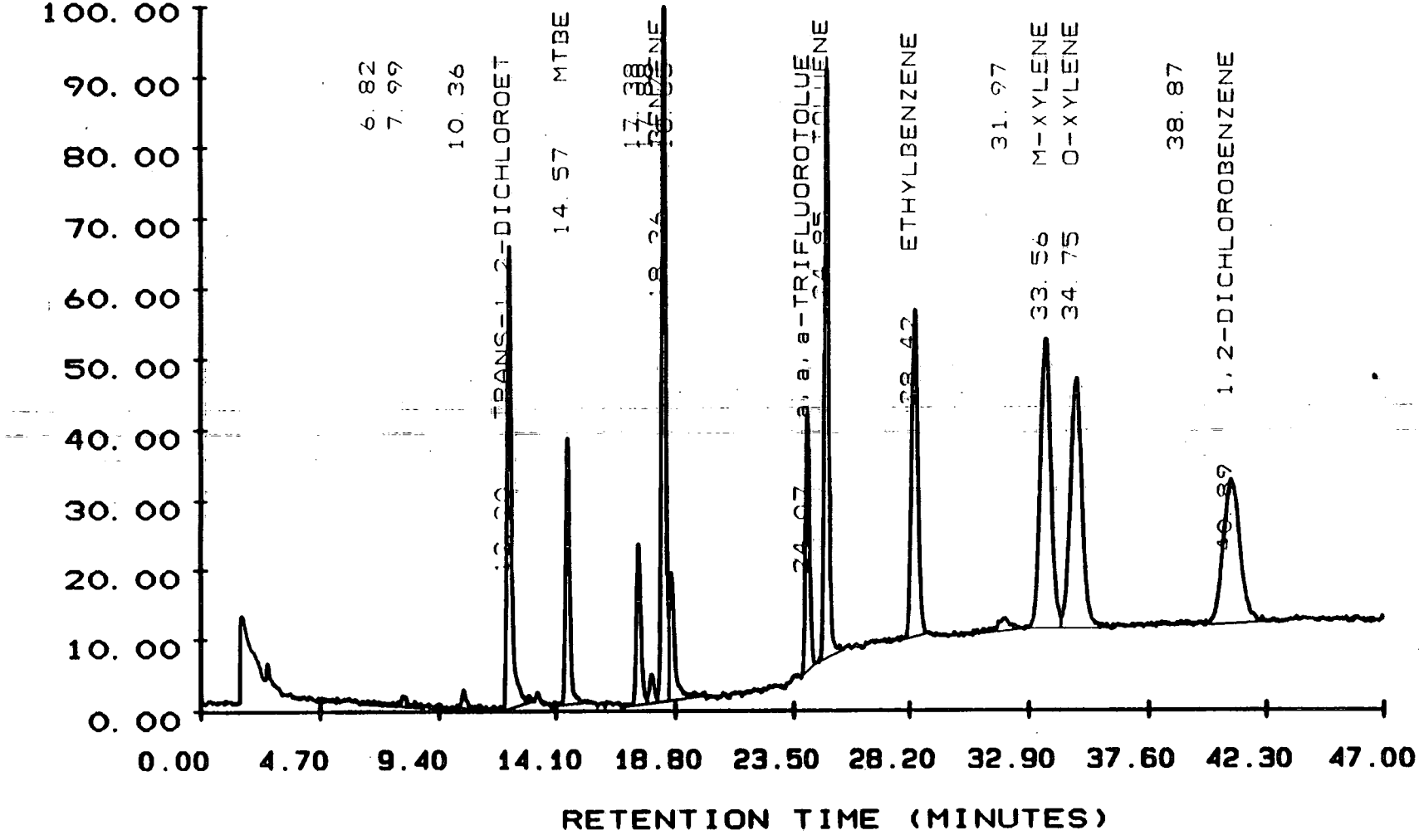
SAMPLE: 04079316 .07 INST:16 VIAL:F0 SEQ NUMBER:007
TEST : DATE-TIME INJECTED : 04/07/93 17:04:04
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/08/93 08:35:02
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 1.0 PPB RAW FILE: RAW3:D7362822
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	18195	506		3.067			
002	45408	1121		8.216			
003	4896	305	V	10.380			
004	43379	3352		12.211	M	TRANS-1,2-DICHLOROET	1.207
005	29280	2190	T	14.571	M	MTBE	1.302
006	7501	278	V	15.803			
007	16390	1309	V	17.384			
008	9069	654	T	17.923			
009	92320	5920		18.364	M	BENZENE	1.628
010	5427	393	V	23.509			
011	25453	2127	V	24.080	M	a,a,a-TRIFLUOROTOLUE	1.007
012	62163	4993		24.858	M	TOLUENE	1.387
013	53722	2952		28.427	M	ETHYLBENZENE	1.339
014	18803	499		31.846			
015	90285	2930	T	33.567	M	M-XYLENE	1.474
016	82477	2455		34.746	M	O-XYLENE	1.448
017	3418	230	V	36.538			
018	10387	226		37.456			
019	4781	167	V	39.185			
020	113261	2264		40.879	M	1,2-DICHLOROBENZENE	2.116
021	5510	221		43.446			

STDB 5 PPB

SAMPLE NO. : 04079316 . 03
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/07/93 13:16:08
PAGE NO. : 01



Y MAXIMUM: 52660.
Y MINIMUM: 50062.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/08/93 08:32:29

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04079316 .03 INST:16 VIAL:F0 SEQ NUMBER:003
TEST : DATE-TIME INJECTED : 04/07/93 13:16:08
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/08/93 08:32:29
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 5 PPB RAW FILE: RAW3:D7362740
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

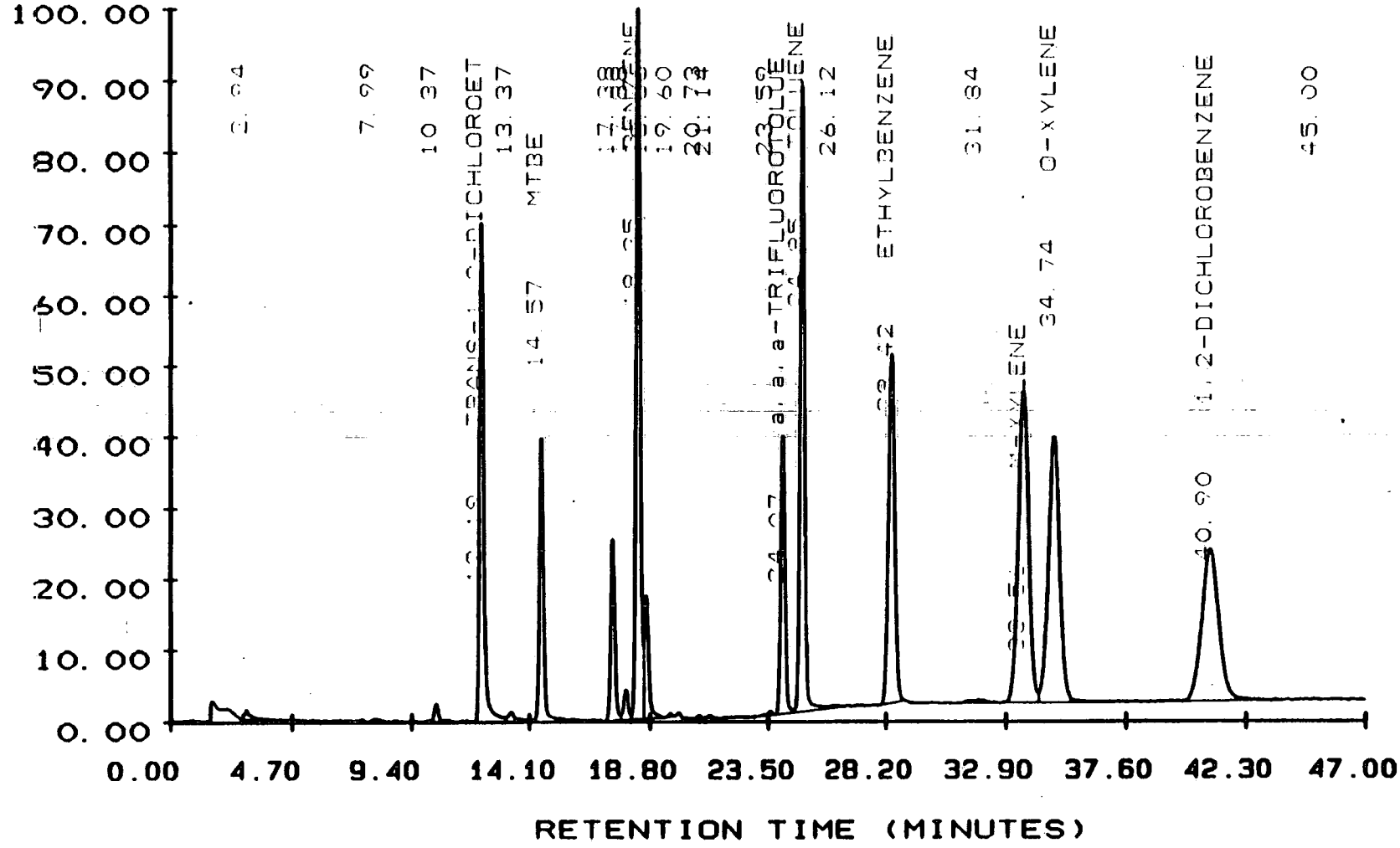
PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	6714	155	V	6.824			
002	9587	375		7.989			
003	14214	650	V	10.365			
004	207974	17038		12.202	M	TRANS-1,2-DICHLOROET	4.774
005	115507	9838		14.573	M	MTBE	4.593
006	71226	5922	T	17.376			
007	13446	1011	T	17.877			
008	285971	25665	T	18.356	M	BENZENE	4.579
009	69024	4688		18.655			
010	110560	9493	V	24.072	M	a,a,a-TRIFLUOROTOLUE	4.515
011	263776	21841		24.851	M	TOLUENE	4.647
012	217530	12133		28.423	M	ETHYLBENZENE	4.663
013	20115	473		31.967			
014	307878	10757	T	33.563	M	M-XYLENE	4.594
015	297376	9272		34.754	M	O-XYLENE	4.734
016	7405	170	V	38.867			
017	254483	5397		40.889	M	1,2-DICHLOROBENZENE	4.484

STDB 20 PPB

SAMPLE NO. : 04079316 .04 INSTRUMENT: 16

TEST NO. : DATE TIME: 04/07/93 14:13:02

METHOD NO. : 16B / 16B PAGE NO. : 01



Y MAXIMUM: 61400. START TIME: 0.00

Y MINIMUM: 50055. END TIME: 47.00

0050

Roy F. Weston, Inc. - Lionville Laboratory 04/08/93 08:33:12

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04079316 .04 INST:16 VIAL:F0 SEQ NUMBER:004
TEST : DATE-TIME INJECTED : 04/07/93 14:13:02
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/08/93 08:33:12
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 20 PPB RAW FILE: RAW3:D7362767
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	25037	1325		2.941			
002	14144	481		7.990			
003	40186	2739		10.367			
004	910669	79537	T	12.189	M	TRANS-1,2-DICHLOROET	20.001
005	31968	1420	T	13.370			
006	522906	44923	V	14.573	M	MTBE	20.139
007	317472	28677	T	17.375			
008	56691	4629	T	17.881			
009	1269083	112965	T	18.352	M	BENZENE	19.562
010	227853	19457	V	18.658			
011	4998	547		19.602			
012	4986	420	V	20.731			
013	4653	340		21.136			
014	9850	642	V	23.593			
015	508064	44071	T	24.071	M	a,a,a-TRIFLUOROTOLUE	20.900
016	1205965	99517	T	24.849	M	TOLUENE	19.882
017	10464	441		26.121			
018	970458	55590		28.419	M	ETHYLBENZENE	19.940
019	28838	586	V	31.837			
020	1366203	49478	T	33.559	M	M-XYLENE	19.770
021	1290509	42269		34.739	M	O-XYLENE	19.919
022	1112577	24186		40.902	M	1,2-DICHLOROBENZENE	18.875
023	2586	212		45.004			

$[970458 \times (2.204 \times 10^{-5})] + 0.249 = 19.94$

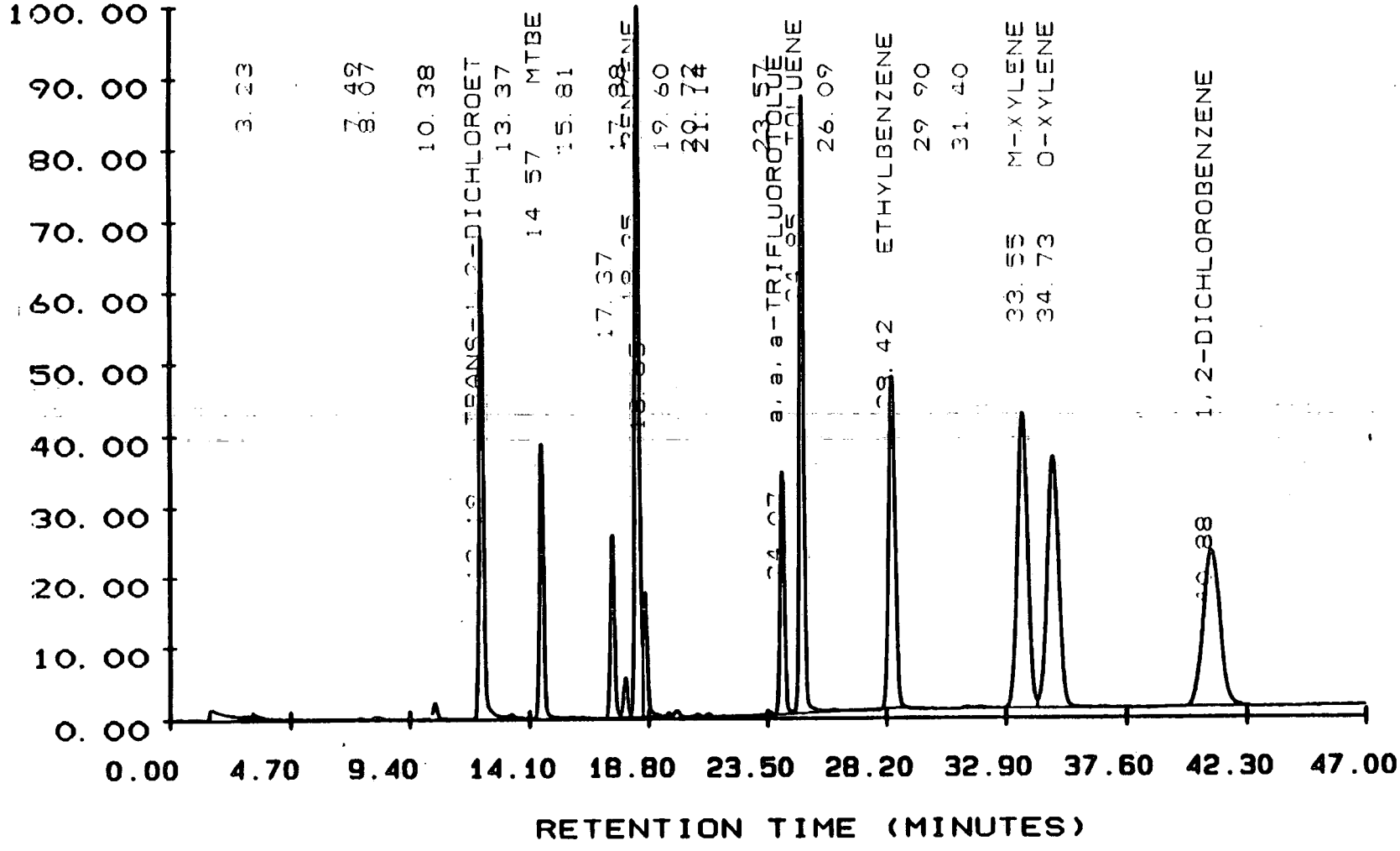
calculation verification BMJ 4/14

0061

STDB 40 PPB

SAMPLE NO. : 04079316 .05
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/07/93 15:10:06
PAGE NO. : 01



Y MAXIMUM: 74026.
Y MINIMUM: 50062.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/08/93 08:33:47

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04079316 .05 INST:16 VIAL:F0 SEQ NUMBER:005
TEST : DATE-TIME INJECTED : 04/07/93 15:10:06
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/08/93 08:33:47
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 40 PPB RAW FILE: RAW3:D7362788
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	31194	1563		3.226			
002	7347	403	V	7.487			
003	21421	765		8.069			
004	75328	5383	T	10.376			
005	1834753	162137	T	12.188	M	TRANS-1,2-DICHLOROET	40.026
006	32717	1565	T	13.373			
007	1042566	92678	T	14.573	M	MTBE	39.969
008	31123	602	V	15.809			
009	662790	61745	T	17.370			
010	147987	12743	T	17.885			
011	2626663	238952	T	18.353	M	BENZENE	40.252
012	456947	41447	V	18.655			
013	7546	850		19.605			
014	8307	747	V	20.719			
015	10061	865	V	21.143			
016	14259	1007	V	23.574			
017	961376	81798	T	24.071	M	a,a,a-TRIFLUOROTOLUE	39.586
018	2455777	207183	T	24.849	M	TOLUENE	40.091
019	13600	655	T	26.091			
020	1961889	111748		28.418	M	ETHYLBENZENE	40.056
021	5958	226		29.904			
022	35718	640	V	31.403			
023	2782375	99479	T	33.552	M	M-XYLENE	40.078
024	2640633	85003		34.733	M	O-XYLENE	40.563
025	2403105	52772		40.880	M	1,2-DICHLOROBENZENE	40.517

Roy F. Weston, Inc. - Lionville Laboratory

METHOD NUMBER	: 16B
METHOD TITLE	: 5.0 ML, 1% SP1000,
USER PROGRAMS	: USER:MULTIV10
ORDER OF FIT	: 1
NUMBER OF LEVELS	: 10
REPORT PARAMETERS	:
NO.OF TIMES MODIFIED	: 6
NO.OF TIMES CALIBRAT	: 13

#	COMPONENT NAME	LEVEL A LEVEL F	LEVEL B LEVEL G	LEVEL C LEVEL H	LEVEL D LEVEL I	LEVEL E LEVEL J
1	TRANS-1,2-DICHLOROET	0.2000 10.0000	0.5000 20.0000	1.0000 40.0000	2.0000 50.0000	5.0000 60.0000
2	MTBE	0.2000 10.0000	0.5000 20.0000	1.0000 40.0000	2.0000 50.0000	5.0000 60.0000
3	BENZENE	0.2000 10.0000	0.5000 20.0000	1.0000 40.0000	2.0000 50.0000	5.0000 60.0000
4	TOLUENE	0.2000 10.0000	0.5000 20.0000	1.0000 40.0000	2.0000 50.0000	5.0000 60.0000
5	ETHYLBENZENE	0.2000 10.0000	0.5000 20.0000	1.0000 40.0000	2.0000 50.0000	5.0000 60.0000
6	M-XYLENE	0.1996 9.9840	0.4992 19.9680	0.9984 39.9360	1.9968 49.9200	4.9920 59.9040
7	O-XYLENE	0.2020 10.1000	0.5050 20.2000	1.0100 40.4000	2.0200 50.5000	5.0500 60.6000
8	1,2-DICHLOROBENZENE	0.2000 10.0000	0.5000 20.0000	1.0000 40.0000	2.0000 50.0000	5.0000 60.0000

MULTILEVEL CALIBRATION METHOD 16B 04/14/93 08:07:27
1ST ORDER EXTERNAL STANDARD CALIBRATION USING PEAK AREA

TEST:

LEVEL	REPLICATE 1	REPLICATE 2	REPLICATE 3
A			
B			
C	04139316.03		
D			
E	04139316.04		
F			
G	04139316.05		
H	04139316.06		
I	04139316.07		
J			

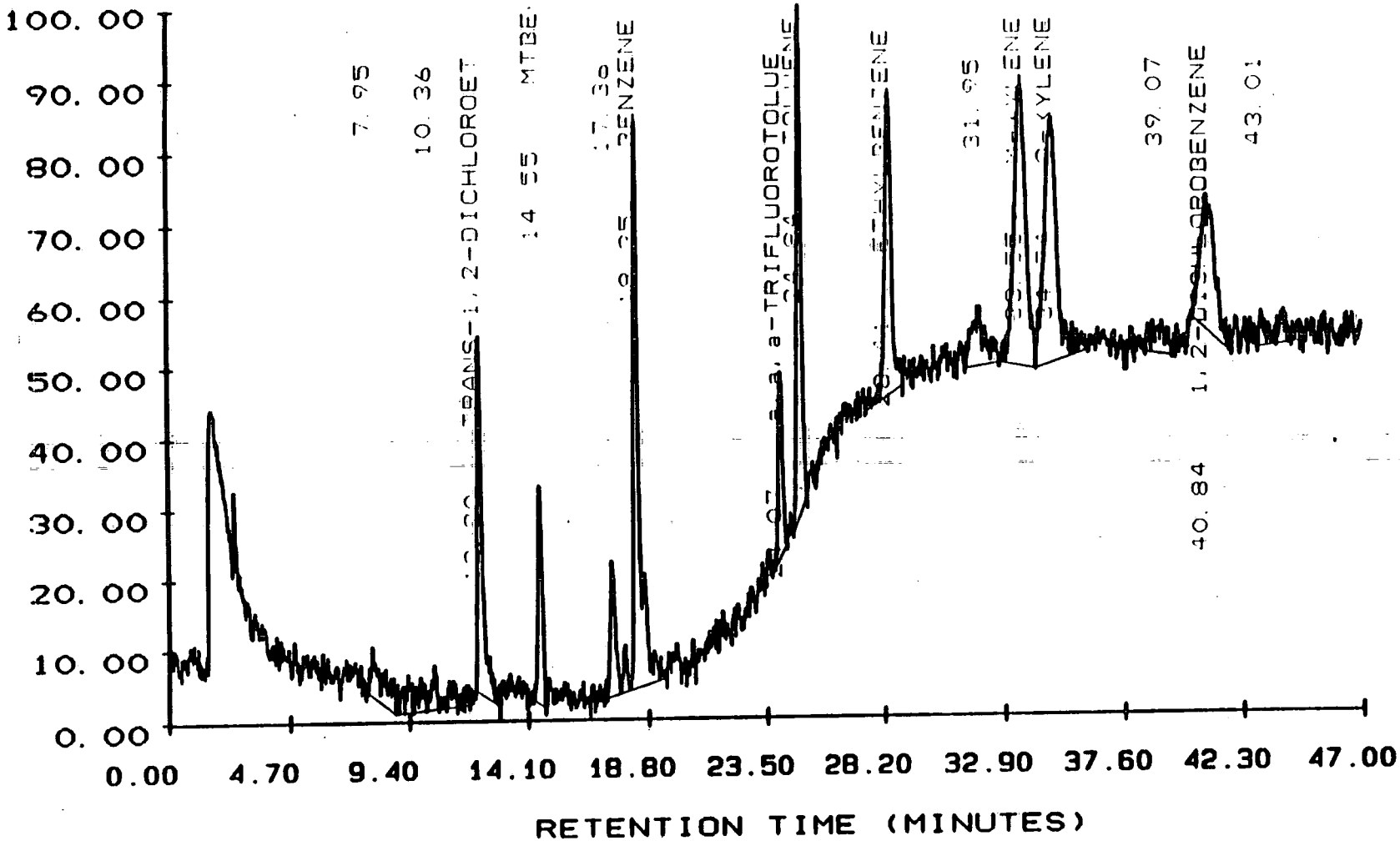
PEAK NAME	COEFFICIENTS a	b	c	d	SD OF FIT	CORR COEFF
TRANS-1,2-DICHLOROET			3.075E-05	1.408E-01	0.49544	0.99959
MTBE			5.465E-05	-1.454E-02	0.26054	0.99988
BENZENE			2.160E-05	2.231E-01	0.92582	0.99859
TOLUENE			2.267E-05	2.750E-01	0.66118	0.99928
ETHYLBENZENE			2.821E-05	2.043E-01	0.77721	0.99901
M-XYLENE			2.002E-05	1.522E-01	0.86393	0.99877
O-XYLENE			2.137E-05	1.781E-01	0.95750	0.99853
1,2-DICHLOROBENZENE			2.270E-05	9.391E-01	1.87163	0.99427

STDB 1 PPB

SAMPLE NO. : 04139316 .03
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/13/93 12:05:02
PAGE NO. : 01

0066



Y MAXIMUM: 50532.
Y MINIMUM: 50059.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/14/93 08:45:10

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04139316 .03 INST:16 VIAL:F0 SEQ NUMBER:003
TEST : DATE-TIME INJECTED : 04/13/93 12:05:02
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/14/93 08:45:10
METHOD: 16B / 16B REV #: 00055 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 1 PPB RAW FILE: RAW3:DD336470
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	10317	235	V	7.953			
002	16544	282		10.360			
003	31181	2367		12.198	M	TRANS-1,2-DICHLOROET	1.100
004	16736	1435		14.552	M	MTBE	0.900
005	12237	899	T	17.358			
006	59840	3761		18.351	M	BENZENE	1.516
007	14157	1200	V	24.069			
008	41408	3376		24.842	M	TOLUENE	1.214
009	39296	1985		28.410	M	ETHYLBENZENE	1.313
010	14733	389	V	31.948			
011	58547	1837	V	33.554	M	M-XYLENE	1.324
012	58541	1614		34.742	M	O-XYLENE	1.429
013	7923	209		39.071			
014	35866	874	V	40.844	M	1,2-DICHLOROBENZENE	1.753
015	9536	230		43.015			

STDB 5 PPB

SAMPLE NO. : 04139316 .04

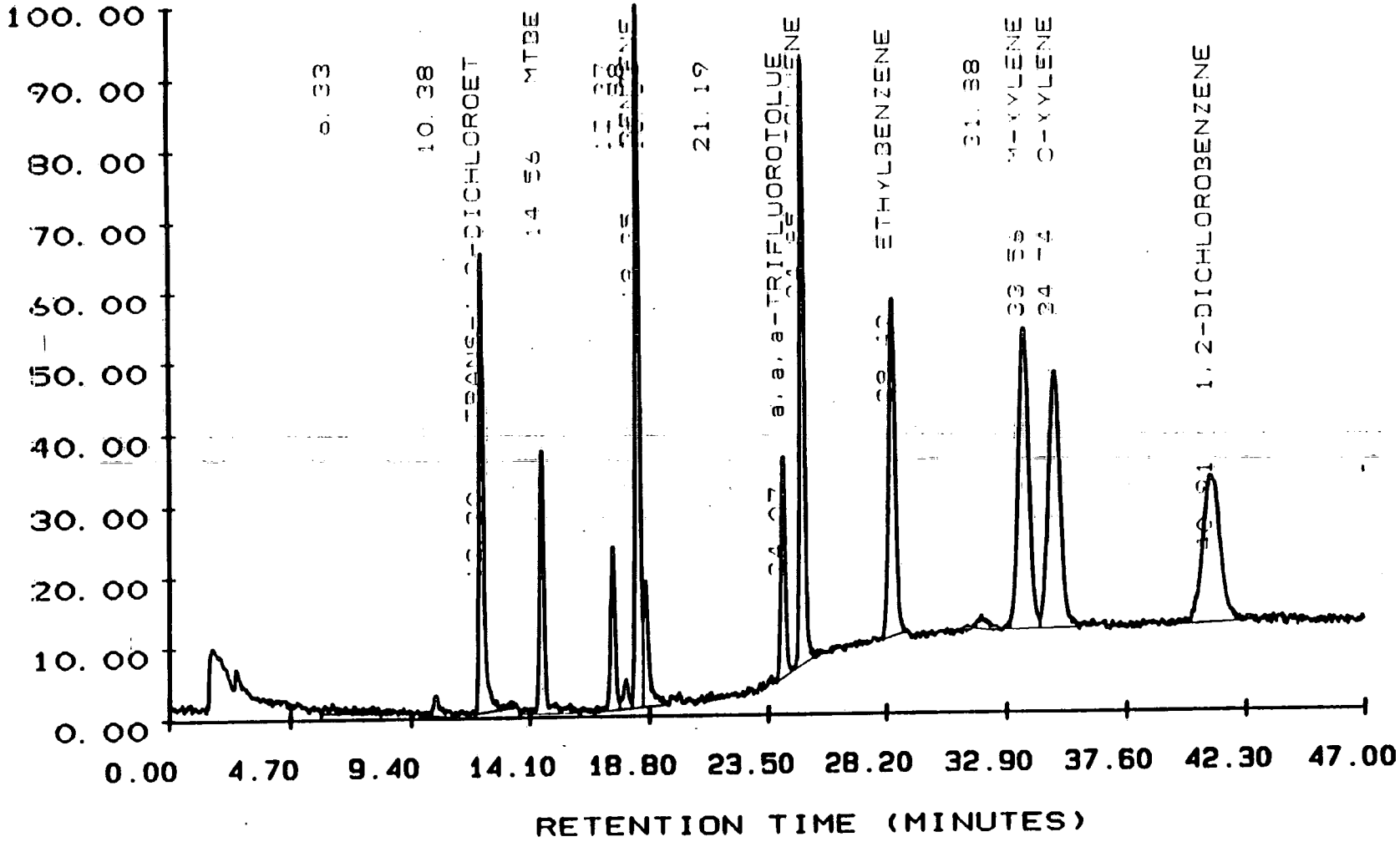
TEST NO. :

METHOD NO. : 16B / 16B

INSTRUMENT: 16

DATE TIME: 04/13/93 13:01:59

PAGE NO. : 01



Y MAXIMUM: 52035.

Y MINIMUM: 50058.

START TIME: 0.00

END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/14/93 08:45:43

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04139316 .04 INST:16 VIAL:F0 SEQ NUMBER:004
TEST : DATE-TIME INJECTED : 04/13/93 13:01:59
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/14/93 08:45:43
METHOD: 16B / 16B REV #: 00055 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 5 PPB RAW FILE: RAW3:DD336482
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	14176	250		6.327			
002	13184	530	V	10.376			
003	155840	12785		12.196	M	TRANS-1,2-DICHLOROET	4.933
004	95584	7260		14.563	M	MTBE	5.209
005	56570	4566	T	17.365			
006	.12403	776	T	17.877			
007	218214	19545	T	18.352	M	BENZENE	4.937
008	49370	3521		18.643			
009	4058	212		21.193			
010	73901	6152	V	24.072			
011	203680	16876		24.848	M	TOLUENE	4.892
012	167066	9383		28.419	M	ETHYLBENZENE	4.917
013	9818	378	V	31.881			
014	239181	8342	T	33.562	M	M-XYLENE	4.941
015	225926	7113		34.739	M	O-XYLENE	5.006
016	197837	4079		40.911	M	1,2-DICHLOROBENZENE	5.430

STDB 20 PPB

SAMPLE NO. : 04139316 .05

TEST NO. :

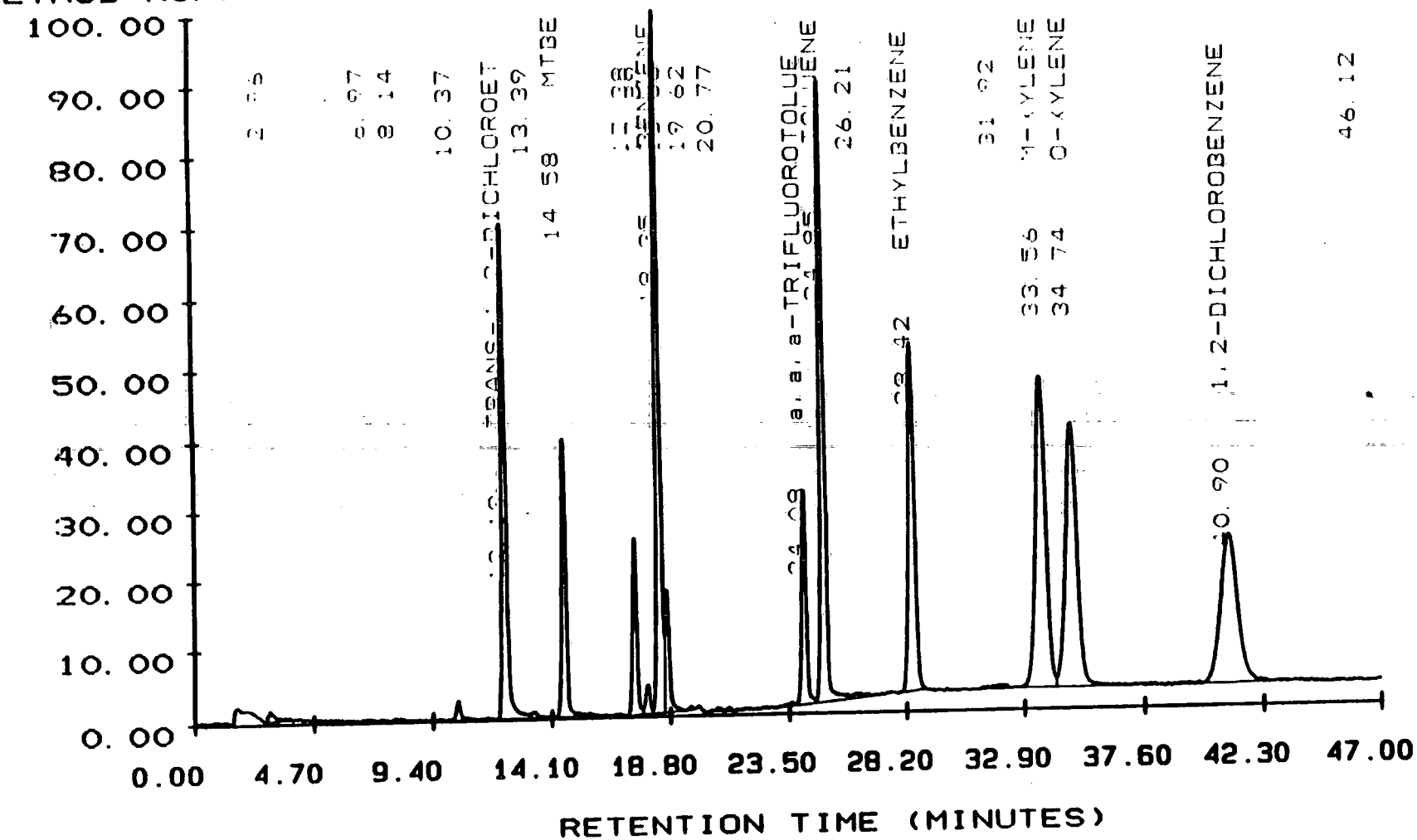
METHOD NO. : 16B / 16B

INSTRUMENT: 16

DATE TIME: 04/13/93 13:59:08

PAGE NO. : 01

0070



Y MAXIMUM: 58198.

Y MINIMUM: 50068.

START TIME: 0.00

END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/14/93 08:46:10

MULTILEVEL EXTERNAL STANDARD

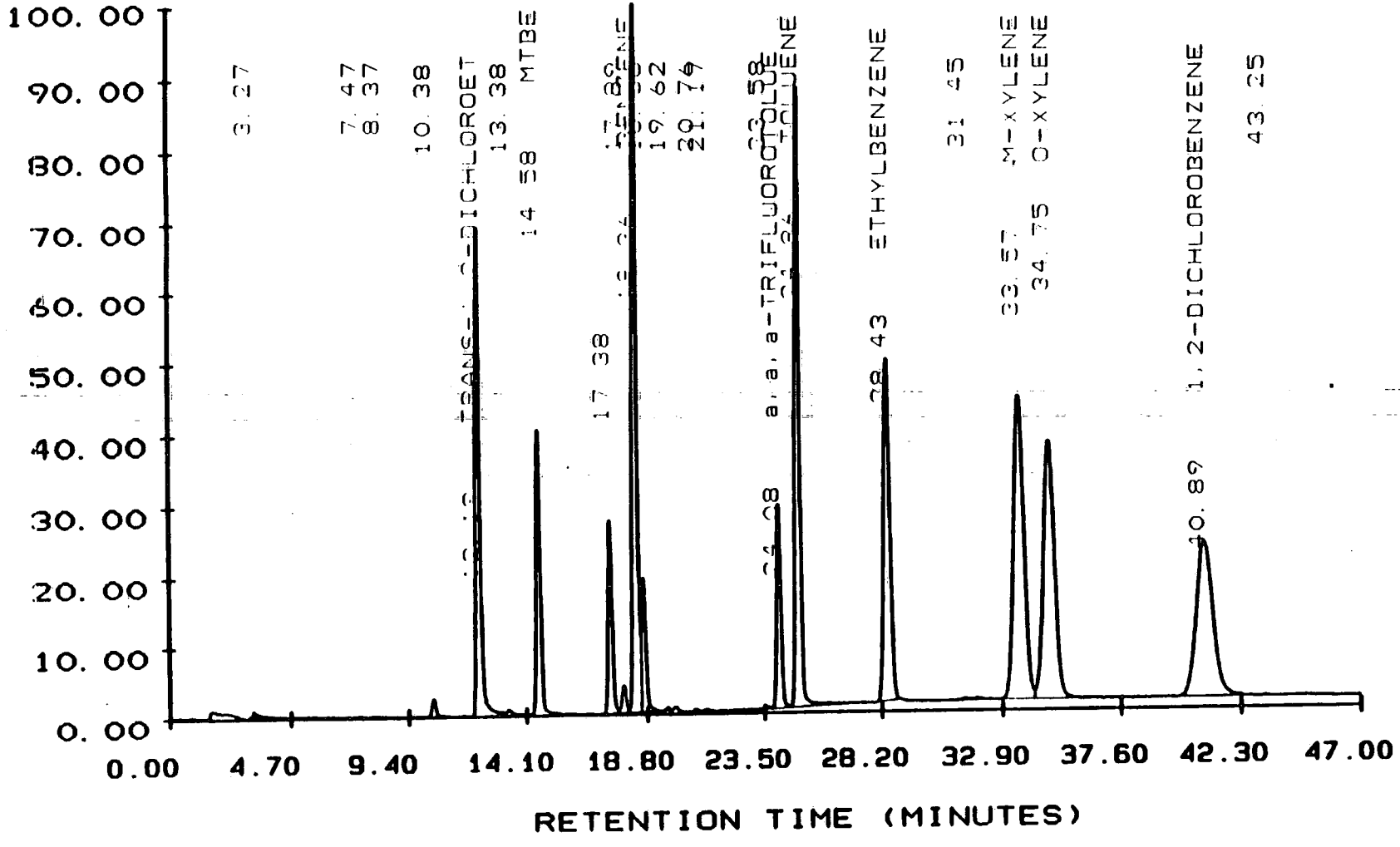
SAMPLE: 04139316 .05 INST:16 VIAL:F0 SEQ NUMBER:005
TEST : DATE-TIME INJECTED : 04/13/93 13:59:08
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/14/93 08:46:10
METHOD: 16B / 16B REV #: 00055 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 20 PPB RAW FILE: RAW3:DD336500
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	25101	1091		2.964			
002	7168	178	V	6.968			
003	7386	194		8.136			
004	29997	2046		10.372			
005	651923	56800	T	12.192	M	TRANS-1,2-DICHLOROET	20.187
006	16710	700	T	13.393			
007	365434	31997		14.577	M	MTBE	19.956
008	225363	20247	T	17.375			
009	37178	3113	T	17.891			
010	902547	80878	T	18.355	M	BENZENE	19.718
011	165824	13906	V	18.659			
012	3373	396		19.620			
013	10771	372		20.772			
014	298528	24673	T	24.081			
015	876781	71490	T	24.853	M	TOLUENE	20.152
016	21286	547	V	26.206			
017	702349	40284		28.422	M	ETHYLBENZENE	20.018
018	24058	424	V	31.920			
019	990138	35950	T	33.556	M	M-XYLENE	19.975
020	932000	30514		34.741	M	O-XYLENE	20.095
021	807117	17307		40.898	M	1,2-DICHLOROBENZENE	19.261
022	3174	201		46.117			

STDB 40 PPB

SAMPLE NO. : 04139316 .06
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/13/93 14:55:36
PAGE NO. : 01



Y MAXIMUM: 66206.
Y MINIMUM: 50062.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/14/93 08:47:15

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04139316 .06 INST:16 VIAL:F0 SEQ NUMBER:006
TEST : DATE-TIME INJECTED : 04/13/93 14:55:36
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/14/93 08:47:15
METHOD: 16B / 16B REV #: 00055 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 40 PPB RAW FILE: RAW3:DD336513
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	27174	1549		3.266			
002	8518	302	V	7.467			
003	9907	219	V	8.368			
004	60026	4017	V	10.379			
005	1273729	111413	T	12.194	M	TRANS-1,2-DICHLOROET	39.308
006	30438	1247	T	13.380			
007	726624	64781		14.576	M	MTBE	39.695
008	471226	44102	T	17.375			
009	72832	6210	T	17.889			
010	1789025	160850	T	18.358	M	BENZENE	38.866
011	340806	30644	V	18.660			
012	6771	731		19.621			
013	6131	538	V	20.757			
014	6810	528		21.168			
015	10688	641	T	23.582			
016	542637	46543	T	24.078			
017	1712057	141135	V	24.857	M	TOLUENE	39.087
018	1373677	77884		28.427	M	ETHYLBENZENE	38.956
019	27091	533	V	31.449			
020	1929063	68946	T	33.567	M	M-XYLENE	38.772
021	1823591	58872		34.748	M	O-XYLENE	39.148
022	1616955	35618	V	40.891	M	1,2-DICHLOROBENZENE	37.644
023	6157	353		43.249			

STDB 50 PPB

SAMPLE NO. : 04139316 . 07

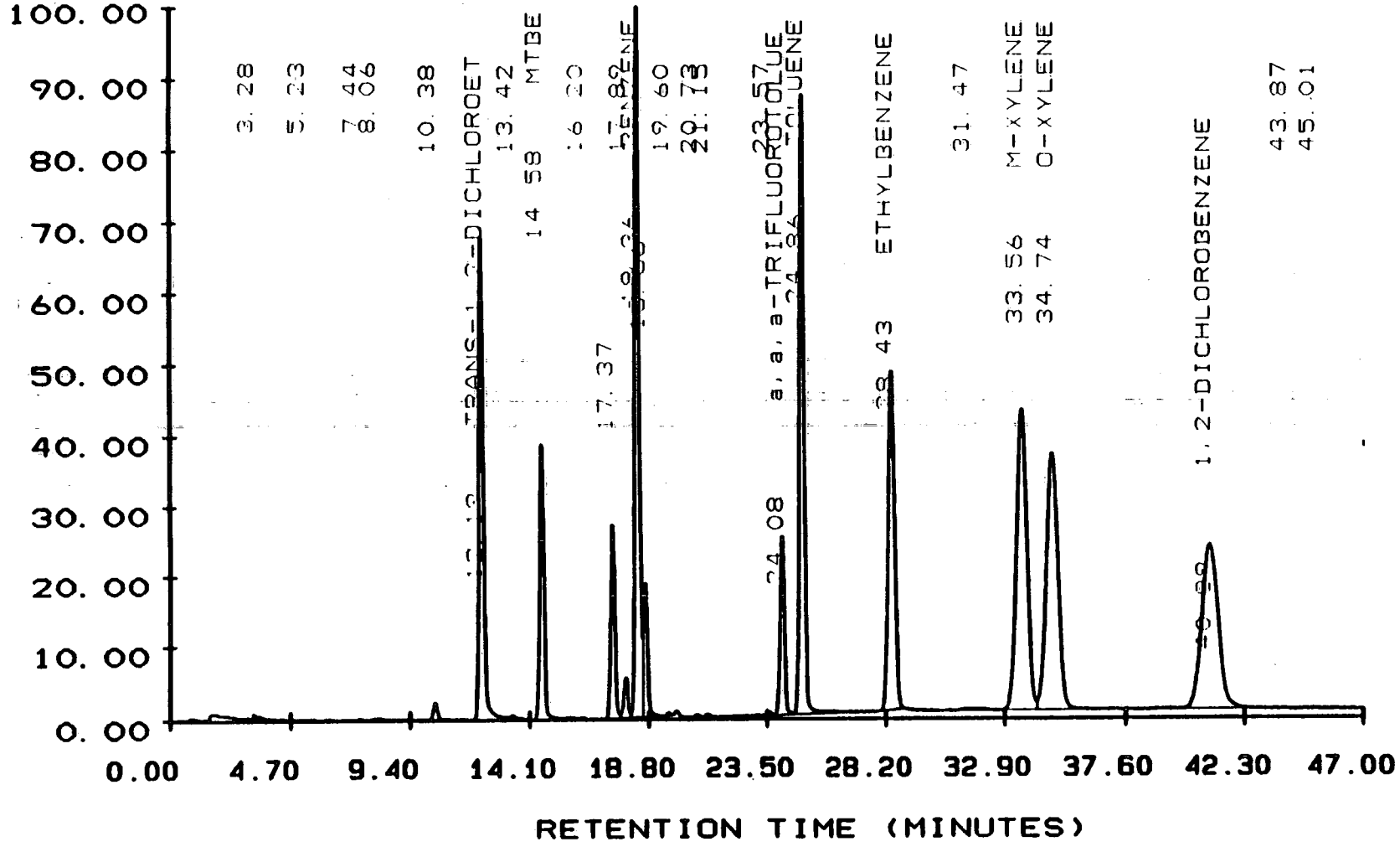
TEST NO. :

METHOD NO. : 16B / 16B

INSTRUMENT: 16

DATE TIME: 04/13/93 15:52:37

PAGE NO. : 01



Y MAXIMUM: 71397.

Y MINIMUM: 50074.

START TIME: 0.00

END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/14/93 08:47:56

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04139316 .07 INST:16 VIAL:F0 SEQ NUMBER:007
TEST : DATE-TIME INJECTED : 04/13/93 15:52:37
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/14/93 08:47:56
METHOD: 16B / 16B REV #: 00055 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 50 PPB RAW FILE: RAW3:DD336527
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	26355	1338		3.277			
002	8813	212	V	5.235			
003	10899	357	T	7.437			
004	12211	496		8.056			
005	62605	4877	V	10.377			
006	1636269	144398	T	12.192	M	TRANS-1,2-DICHLOROET	50.456
007	26650	1216	T	13.422			
008	919482	82155	T	14.577	M	MTBE	50.235
009	20070	478	V	16.198			
010	620058	57778	T	17.373			
011	130451	11264	T	17.890			
012	2349281	212663	T	18.358	M	BENZENE	50.968
013	438387	39354	V	18.657			
014	7635	808		19.603			
015	7635	675	V	20.731			
016	8710	786		21.152			
017	15258	1006	T	23.572			
018	617434	53100	T	24.077			
019	2221273	185529	V	24.856	M	TOLUENE	50.631
020	1793017	101570		28.427	M	ETHYLBENZENE	50.785
021	30797	625		31.474			
022	2529889	90384	T	33.561	M	M-XYLENE	50.801
023	2401473	77042		34.741	M	O-XYLENE	51.498
024	2245543	49085		40.892	M	1,2-DICHLOROBENZENE	51.913
025	5587	200	V	43.870			
026	15085	228		45.014			

Roy F. Weston, Inc. - Lionville Laboratory

METHOD NUMBER	: 16C
METHOD TITLE	: 5.0 ML, 1% SP1000,
USER PROGRAMS	: USER:MULTIV10
ORDER OF FIT	: 1
NUMBER OF LEVELS	: 5
REPORT PARAMETERS	:
NO.OF TIMES MODIFIED	: 3
NO.OF TIMES CALIBRAT	: 2

#	COMPONENT NAME	LEVEL A	LEVEL B	LEVEL C	LEVEL D	LEVEL E
1	aaa-TRIFLUOROTOLUENE	1.0000	5.0000	20.0000	40.0000	50.0000

MULTILEVEL CALIBRATION METHOD 16C 04/14/93 11:32:31
1ST ORDER EXTERNAL STANDARD CALIBRATION USING PEAK AREA

TEST:

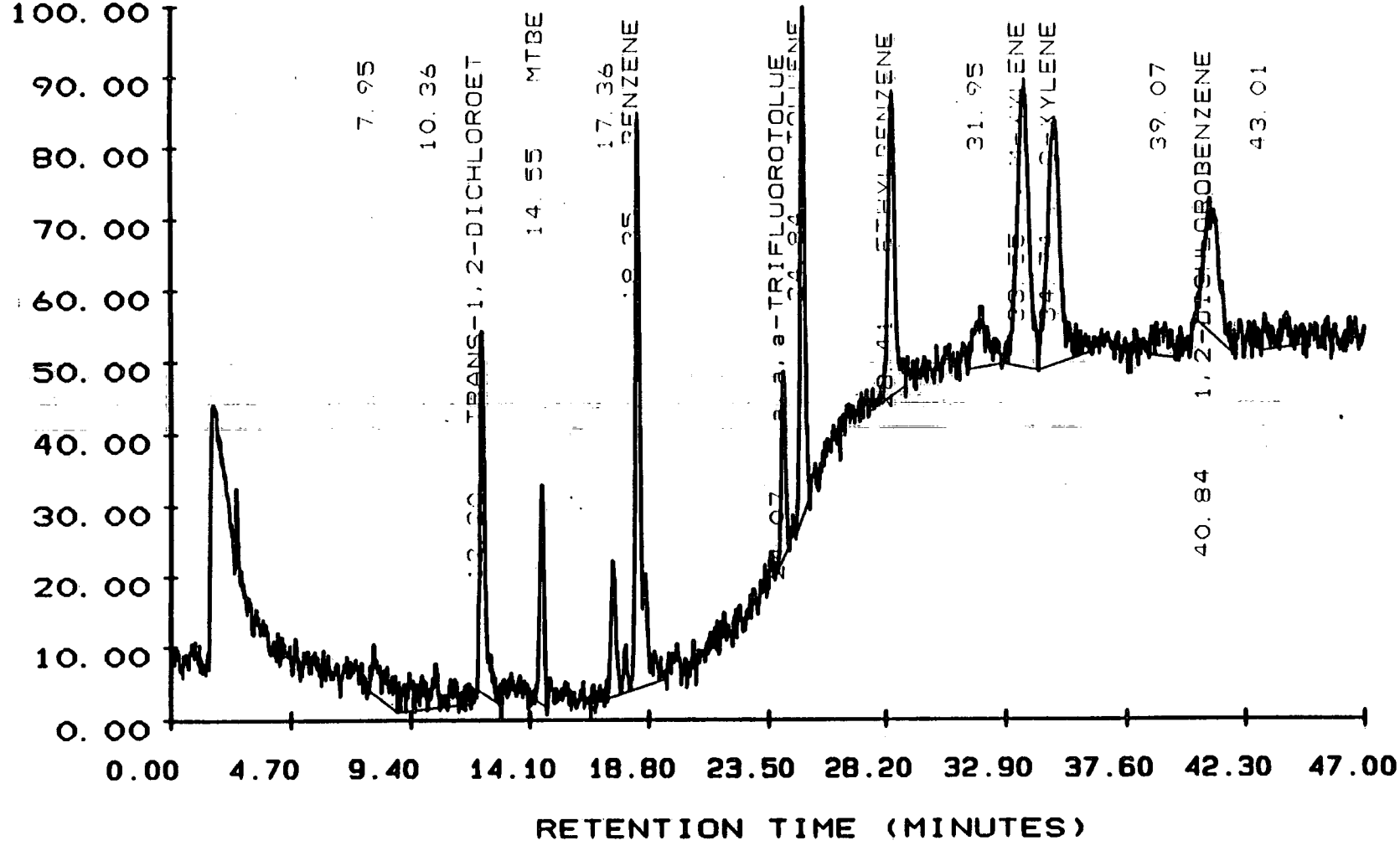
LEVEL	REPLICATE 1	REPLICATE 2	REPLICATE 3
A	04139316.03		
B	04139316.04		
C	04139316.05		
D	04139316.06		
E			

PEAK NAME	COEFFICIENTS a	b	c	d	SD OF FIT	CORR COEFF
aaa-TRIFLUOROTOLUENE			7.341E-05	-5.540E-01	1.15124	0.99717

STDB 1 PPB

SAMPLE NO. : 04139316 .03
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/13/93 12:05:02
PAGE NO. : 01



Y MAXIMUM: 50532.
Y MINIMUM: 50059.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/14/93 11:34:37

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04139316 .03 INST:16 VIAL:F0 SEQ NUMBER:003
TEST : DATE-TIME INJECTED : 04/13/93 12:05:02
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/14/93 11:34:37
METHOD: 16B / 16C REV #: 00032 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 1 PPB RAW FILE: RAW3:DD336470
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

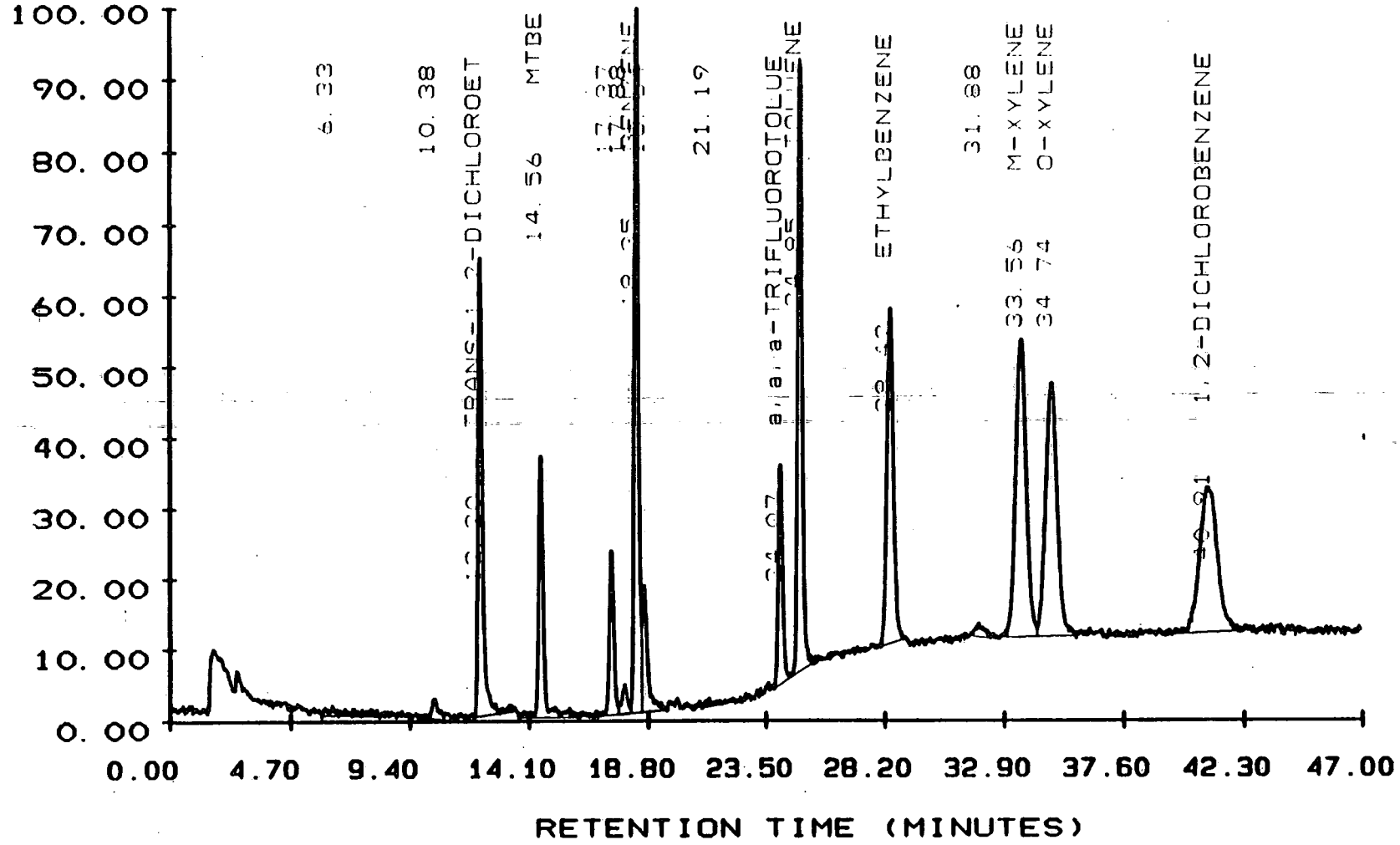
PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	10317	235	V	7.953			
002	16544	282		10.360			
003	31181	2367		12.198			
004	16736	1435		14.552			
005	12237	899	T	17.358			
006	59840	3761		18.351			
007	14157	1200	V	24.069	M	aaa-TRIFLUOROTOLUENE	0.485
008	41408	3376		24.842			
009	39296	1985		28.410			
010	14733	389	V	31.948			
011	58547	1837	V	33.554			
012	58541	1614		34.742			
013	7923	209		39.071			
014	35866	874	V	40.844			
015	9536	230		43.015			

STDB 5 PPB

SAMPLE NO. : 04139316 .04 INSTRUMENT: 16

TEST NO. : DATE TIME: 04/13/93 13:01:59

METHOD NO. : 16B / 16B PAGE NO. : 01



Y MAXIMUM: 52035. START TIME: 0.00

Y MINIMUM: 50058. END TIME: 47.00

0080

Roy F. Weston, Inc. - Lionville Laboratory 04/14/93 11:35:38

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04139316 .04 INST:16 VIAL:FO SEQ NUMBER:004
TEST : DATE-TIME INJECTED : 04/13/93 13:01:59
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/14/93 11:35:38
METHOD: 16B / 16C REV #: 00032 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 5 PPB RAW FILE: RAW3:DD336482
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	14176	250		6.327			
002	13184	530	V	10.376			
003	155840	12785		12.196			
004	95584	7260		14.563			
005	56570	4566	T	17.365			
006	12403	776	T	17.877			
007	218214	19545	T	18.352			
008	49370	3521		18.643			
009	4058	212		21.193			
010	73901	6152	V	24.072	M	aaa-TRIFLUOROTOLUENE	4.871
011	203680	16876		24.848			
012	167066	9383		28.419			
013	9818	378	V	31.881			
014	239181	8342	T	33.562			
015	225926	7113		34.739			
016	197837	4079		40.911			

STDB 20 PPB

SAMPLE NO. : 04139316 .05

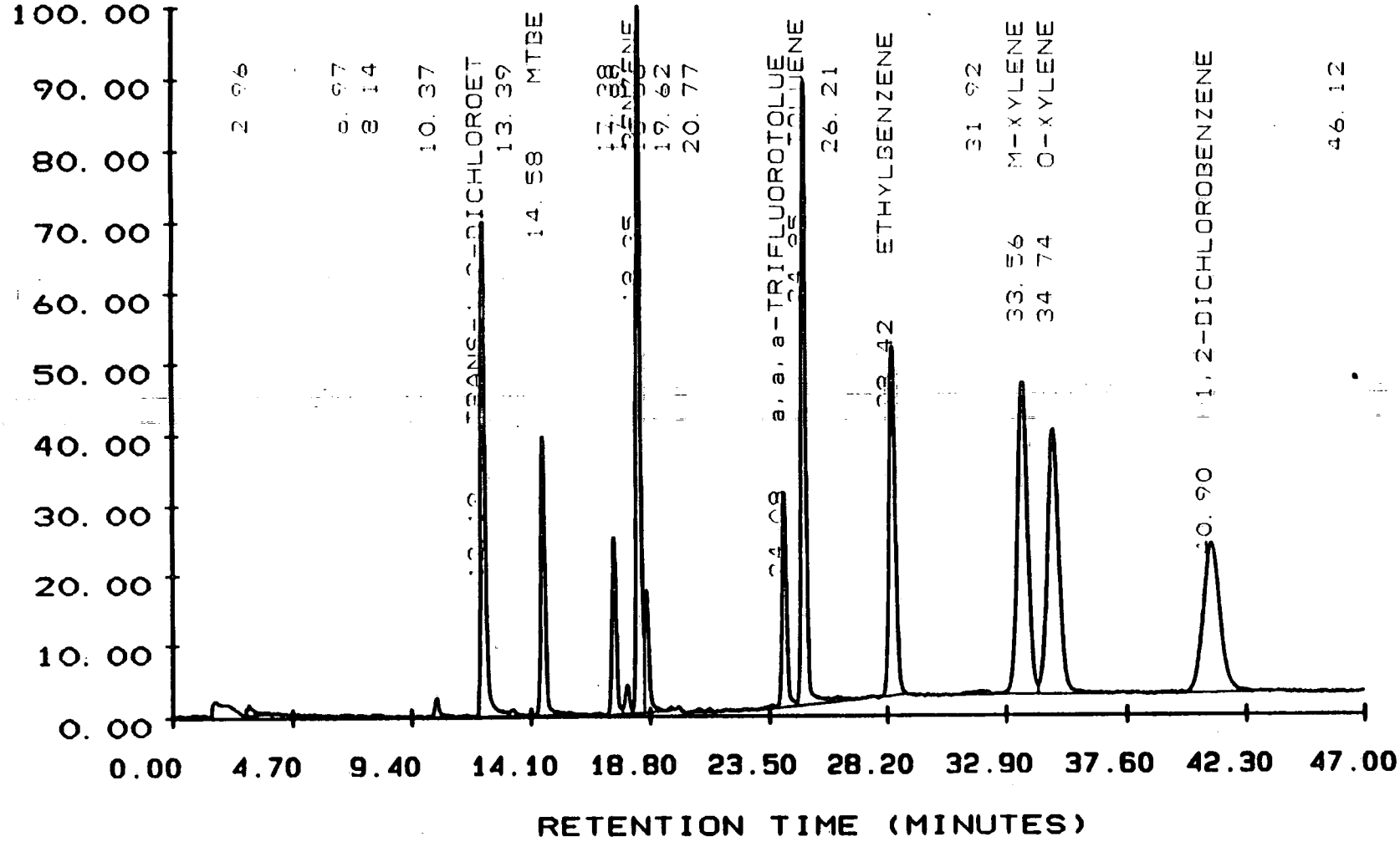
TEST NO. :

METHOD NO. : 16B / 16B

INSTRUMENT: 16

DATE TIME: 04/13/93 13:59:08

PAGE NO. : 01



Y MAXIMUM: 58198.

Y MINIMUM: 50068.

START TIME: 0.00

END TIME: 47.00

0082

Roy F. Weston, Inc. - Lionville Laboratory 04/14/93 11:36:44

MULTILEVEL EXTERNAL STANDARD

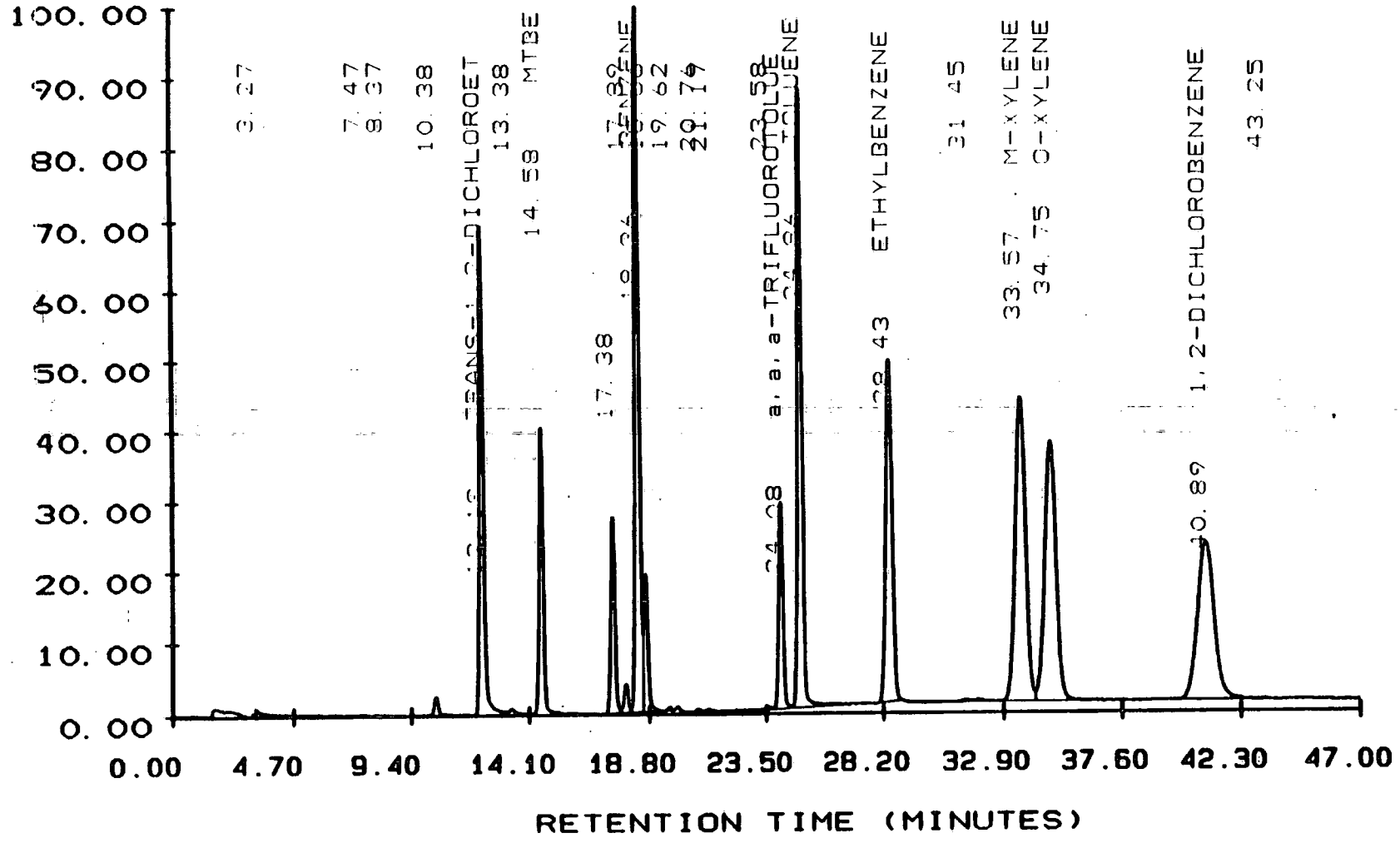
SAMPLE: 04139316 .05 INST:16 VIAL:F0 SEQ NUMBER:005
TEST : DATE-TIME INJECTED : 04/13/93 13:59:08
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/14/93 11:36:44
METHOD: 16B / 16C REV #: 00032 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 20 PPB RAW FILE: RAW3:DD336500
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	25101	1091		2.964			
002	7168	178	V	6.968			
003	7386	194		8.136			
004	29997	2046		10.372			
005	651923	56800	T	12.192			
006	16710	700	T	13.393			
007	365434	31997		14.577			
008	225363	20247	T	17.375			
009	37178	3113	T	17.891			
010	902547	80878	T	18.355			
011	165824	13906	V	18.659			
012	3373	396		19.620			
013	10771	372		20.772			
014	298528	24673	T	24.081	M	aaa-TRIFLUOROTOLUENE	21.361
015	876781	71490	T	24.853			
016	21286	547	V	26.206			
017	702349	40284		28.422			
018	24058	424	V	31.920			
019	990138	35950	T	33.556			
020	932000	30514		34.741			
021	807117	17307		40.898			
022	3174	201		46.117			

STDB 40 PPB

SAMPLE NO. : 04139316 . 06
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/13/93 14:55:36
PAGE NO. : 01



Y MAXIMUM: 66206.
Y MINIMUM: 50062.

START TIME: 0.00
END TIME: 47.00

0084

Roy F. Weston, Inc. - Lionville Laboratory 04/14/93 11:37:31

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04139316 .06 INST:16 VIAL:F0 SEQ NUMBER:006
TEST : DATE-TIME INJECTED : 04/13/93 14:55:36
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/14/93 11:37:31
METHOD: 16B / 16C REV #: 00032 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: STDB 40 PPB RAW FILE: RAW3:DD336513
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	27174	1549		3.266			
002	8518	302	V	7.467			
003	9907	219	V	8.368			
004	60026	4017	V	10.379			
005	1273729	111413	T	12.194			
006	30438	1247	T	13.380			
007	726624	64781		14.576			
008	471226	44102	T	17.375			
009	72832	6210	T	17.889			
010	1789025	160850	T	18.358			
011	340806	30644	V	18.660			
012	6771	731		19.621			
013	6131	538	V	20.757			
014	6810	528		21.168			
015	10688	641	T	23.582			
016	542637	46543	T	24.078	M	aaa-TRIFLUOROTOLUENE	39.281
017	1712057	141135	V	24.857			
018	1373677	77884		28.427			
019	27091	533	V	31.449			
020	1929063	68946	T	33.567			
021	1823591	58872		34.748			
022	1616955	35618	V	40.891			
023	6157	353		43.249			

WESTON

RAW QC DATA

CLIENT SAMPLE NO.

BLK

GC VOLATILES SHEET

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 93LV1619-MB1

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DC336034

Level: (low/med) LOW

Date Received: 04/12/93

% Moisture: not dec. _____

Date Analyzed: 04/12/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylene (total)	2.0	U

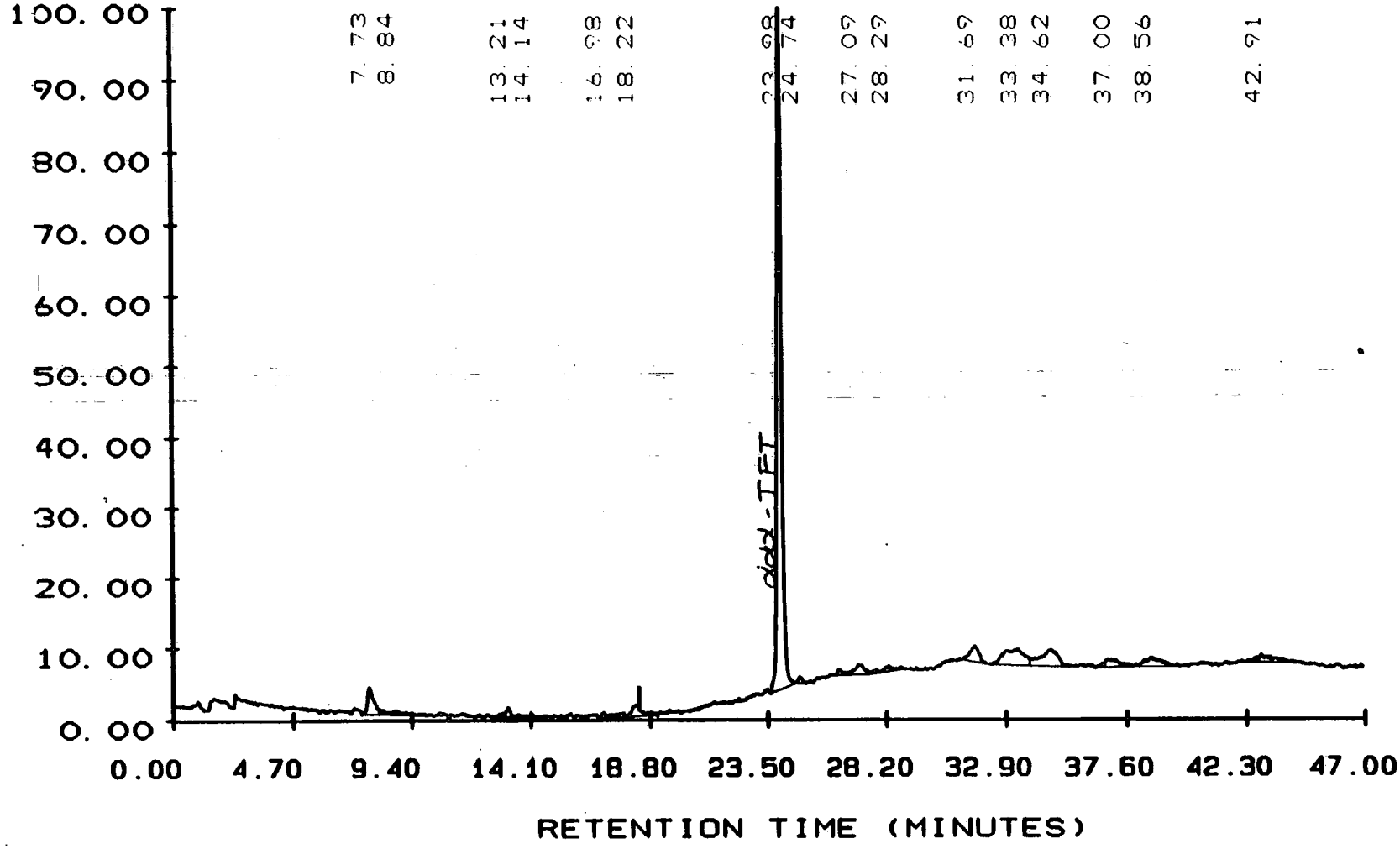
12/88 Rev.

0087

93LV1619-MB1

SAMPLE NO. : 04129316 .01
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/12/93 07:51:08
PAGE NO. : 01



Y MAXIMUM: 53467.
Y MINIMUM: 50032.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/12/93 08:49:00

MULTILEVEL MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04129316 .01 INST:16 VIAL:F0 SEQ NUMBER:001
TEST : DATE-TIME INJECTED : 04/12/93 07:51:08
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/12/93 08:49:00
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: 93LV1619-MB1 RAW FILE: RAW3:DC336034
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	25869	1273	V	7.732			
002	7264	156		8.837			
				12.190	M	TRANS-1,2-DICHLOROET	
003	7917	453	V	13.206			
004	5350	140		14.145			
				14.570	M	MTBE	
005	5709	271	T	16.976			
006	20730	549		18.224	M	BENZENE	~~0.537~~
007	401818	32926	V	23.980	M	a,a,a-TRIFLUOROTOLUE	16.521
008	3546	264		24.741	M	TOLUENE	~~0.439~~
009	17184	459	V	27.090			
010	9261	250		28.291	M	ETHYLBENZENE	~~0.437~~
011	19232	759	V	31.688			
012	43910	787	T	33.378	M	M-XYLENE	~~0.809~~
013	37549	777		34.622	M	O-XYLENE	~~0.762~~
014	17171	384	V	36.996			
015	21248	432		38.561			
				40.880	M	1,2-DICHLOROBENZENE	
016	17523	365		42.909			

all < reporting limit MAL 4/16/93

MAL 4/16/93

0089

CLIENT SAMPLE NO.

BLKMS

GC VOLATILES SHEET

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 93LV1619-MB1 BS

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DC336046

Level: (low/med) LOW

Date Received: 04/12/93

% Moisture: not dec. _____

Date Analyzed: 04/12/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
71-43-2	Benzene		SP
100-41-4	Ethylbenzene		SP
108-88-3	Toluene		SP
1330-20-7	Xylene (total)		SP

SP: SPIKE COMPOUND

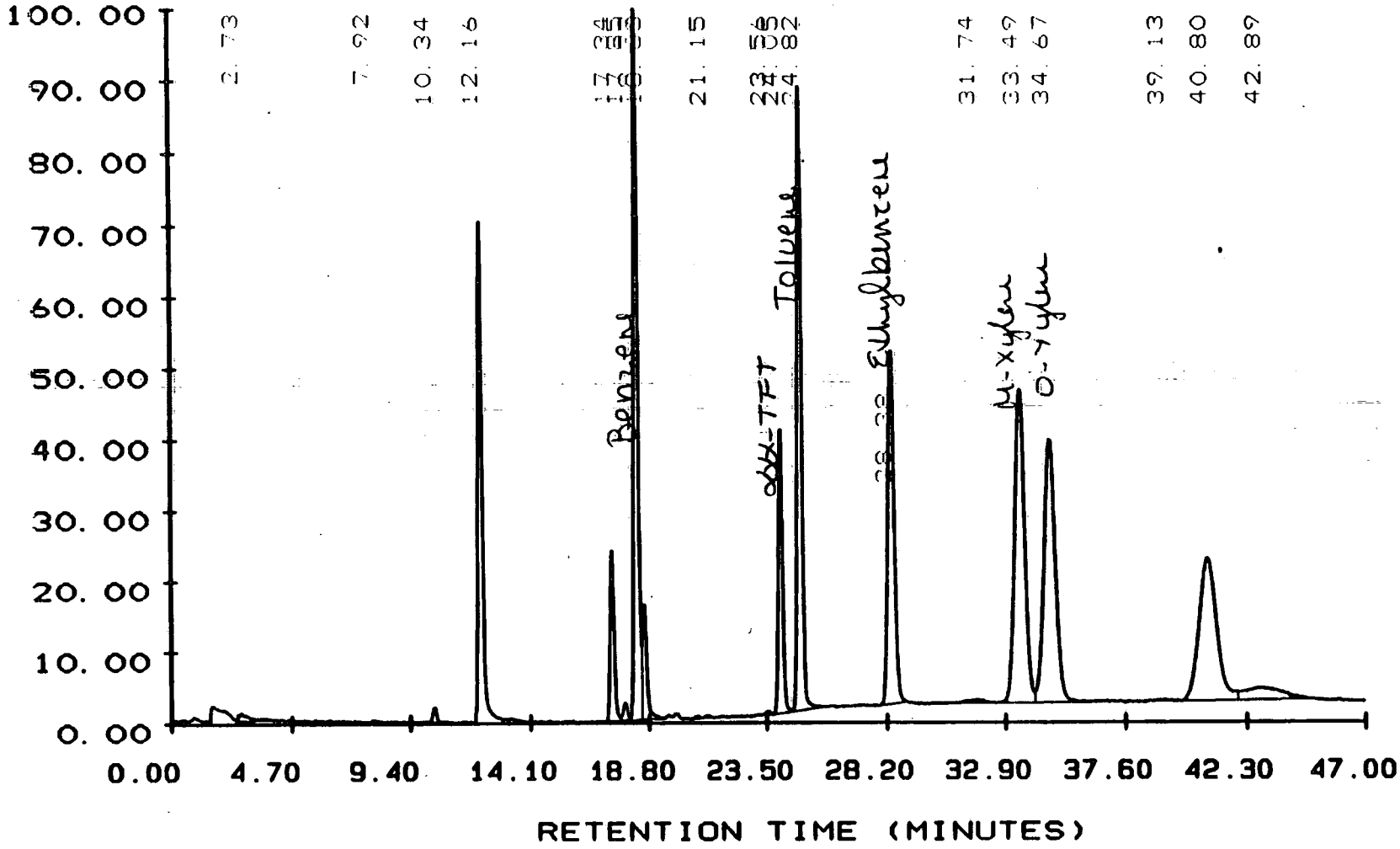
12/88 Rev.

0 0 0 8/16/93

93LV1619-MB1S

SAMPLE NO. : 04129316 . 02
TEST NO. :
METHOD NO. : 16B / 16B

INSTRUMENT: 16
DATE TIME: 04/12/93 08:47:48
PAGE NO. : 01



Y MAXIMUM: 59570.
Y MINIMUM: 50060.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/12/93 09:39:55

MULTILEVEL MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04129316 .02 INST:16 VIAL:F0 SEQ NUMBER:002
TEST : DATE-TIME INJECTED : 04/12/93 08:47:48
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/12/93 09:39:55
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: 93LV1619-MB1MS RAW FILE: RAW3:DC336046
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	31834	1072		2.735			
002	5952	272		7.920			
003	24237	1953		10.335			
004	786778	66976		12.156	M	TRANS-1,2-DICHLOROET	17.316
				14.570	M	MTBE	
005	253587	22735	T	17.343			
006	28602	2295	T	17.853			
007	1056353	94507	T	18.323	M	BENZENE	16.320
008	183757	15282		18.628			
009	7827	312		21.149			
010	8941	511	V	23.560			
011	436019	38004	T	24.046	M	a,a,a-TRIFLUOROTOLUE	17.930
012	991904	83084		24.823	M	TOLUENE	16.421
013	819686	47271		28.378	M	ETHYLBENZENE	16.880
014	22656	476	V	31.742			
015	1153595	41967	T	33.494	M	M-XYLENE	16.721 } 16.619
016	1067937	35213		34.671	M	O-XYLENE	16.516 }
017	9824	245	V	39.132			
018	888954	19136	T	40.801	M	1,2-DICHLOROBENZENE	15.124
019	165306	1596		42.892			

JCS 4/16/93

GC VOLATILES SHEET

CLIENT SAMPLE NO.

BLK

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 93LV1620-MB1

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DE370614

Level: (low/med) LOW

Date Received: 04/14/93

% Moisture: not dec. _____

Date Analyzed: 04/14/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylene (total)	2.0	U

12/88 Rev.

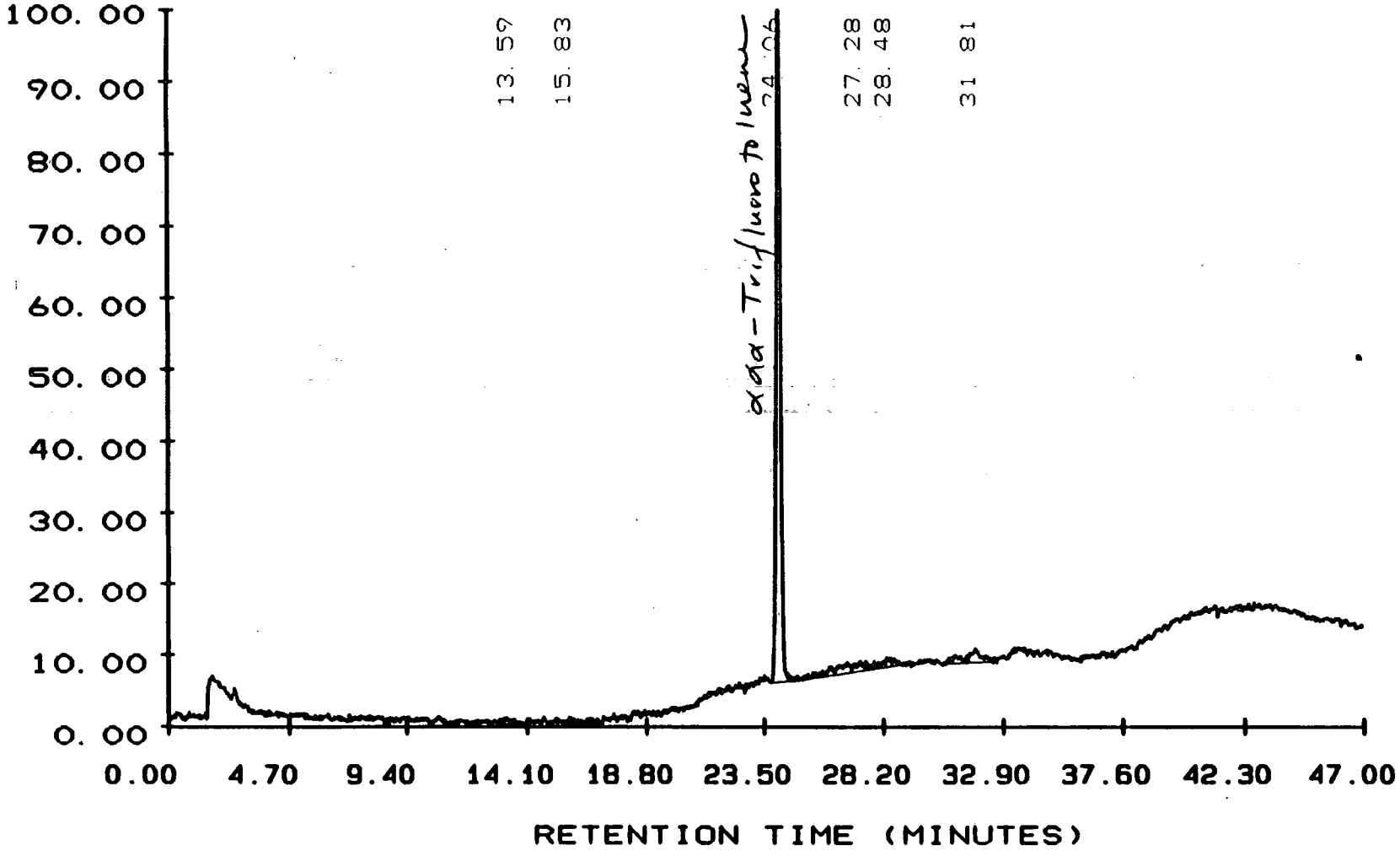
RW 4/12/93

0093

93LV1620-MB1

SAMPLE NO. : 04149316 .01
TEST NO. :
METHOD NO. : 16 / 16

INSTRUMENT: 16
DATE TIME: 04/14/93 10:34:30
PAGE NO. : 01



Y MAXIMUM: 52503.
Y MINIMUM: 50060.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/15/93 09:12:15

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04149316 .01 INST:16 VIAL:F0 SEQ NUMBER:001
TEST : DATE-TIME INJECTED : 04/14/93 10:34:30
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/15/93 09:12:15
METHOD: 16 / 16 REV #: 00055 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: Blank SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PID
LAB ID: 93LV1620-MB1 RAW FILE: RAW3:DE370614
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
				12.190	M	TRANS-1,2-DICHLOROET	
001	5101	181		13.594			
				14.570	M	MTBE	
002	7808	205		15.828			
				18.350	M	BENZENE	
003	263130	22907	V	24.057	M	aaa-TRIFLUOROTOLUENE	18.762
				24.850	M	TOLUENE	
004	29293	348	T	27.278			
005	11629	290		28.476	M	ETHYLBENZENE	~~0.532~~ < reporting limit
006	21005	449		31.813			
				33.550	M	M-XYLENE	
				34.730	M	O-XYLENE	
				40.880	M	1,2-DICHLOROBENZENE	

JGAD 4/16/93

JGAD 4/16/93

0095

CLIENT SAMPLE NO.

BLKMS

GC VOLATILES SHEET

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 93LV1620-MB1 BS

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DE370713

Level: (low/med) LOW

Date Received: 04/14/93

% Moisture: not dec. _____

Date Analyzed: 04/14/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
71-43-2	Benzene		SP
100-41-4	Ethylbenzene		SP
108-88-3	Toluene		SP
1330-20-7	Xylene (total)		SP

SP: SPIKE COMPOUND

12/88 Rev.

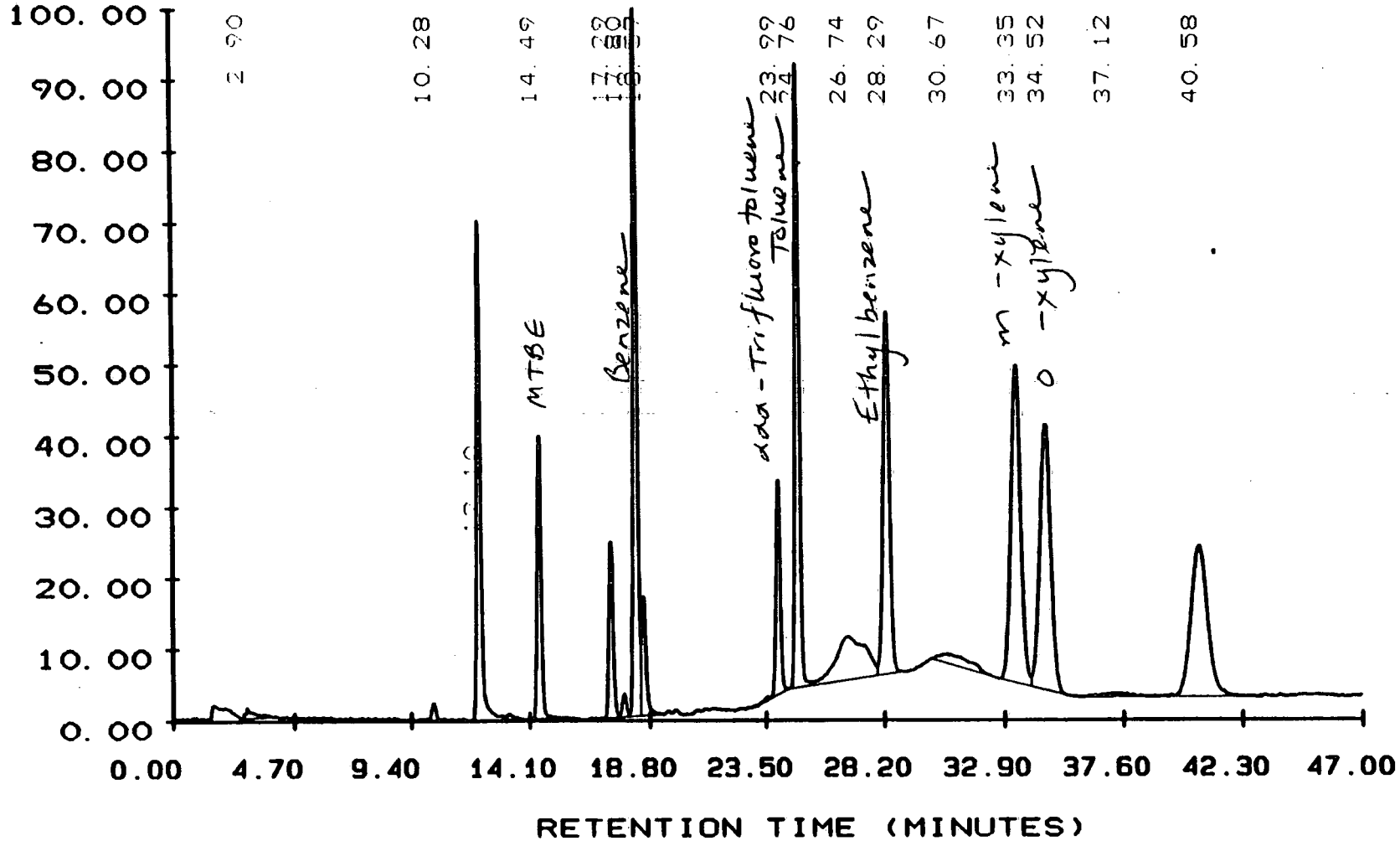
Rev 4/16/93

0096

93LV1620-MB1S

SAMPLE NO. : 04149316 . 06
TEST NO. :
METHOD NO. : 16 / 16

INSTRUMENT: 16
DATE TIME: 04/14/93 15:19:40
PAGE NO. : 01



Y MAXIMUM: 57433.
Y MINIMUM: 50072.

START TIME: 0.00
END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/15/93 09:13:39

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04149316 .06 INST:16 VIAL:F0 SEQ NUMBER:006
TEST : DATE-TIME INJECTED : 04/14/93 15:19:40
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/15/93 09:13:39
METHOD: 16 / 16 REV #: 00055 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: BLANK SPIKE SAMPLE VOL: 5.0 ML
CLIENT: COLUMN TYPE: 1% SP1000, PI
LAB ID: 93LV1620-MB1MS RAW FILE: RAW3:DE370713
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

601/602 #3053-11-02
MIX B #3053-09-07
MTBE #3053-09-11
20ppb spike

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	26925	1039		2.896			
002	25434	1676		10.285			
003	597043	51674		12.105	M	TRANS-1,2-DICHLOROET	18.500
004	316794	29225		14.487	M	MTBE	17.298
005	199853	18115	T	17.285			
006	27488	2371	T	17.799			
007	809632	73165	T	18.265	M	BENZENE	17.711
008	144832	12137		18.570			
009	261683	22117	V	23.992	M	aaa-TRIFLUOROTOLUENE	18.656
010	759526	64460	T	24.762	M	TOLUENE	17.493
011	373914	4494	T	26.735			
012	652051	37497		28.290	M	ETHYLBENZENE	18.599
013	91469	969		30.666			
014	880358	32805	T	33.353	M	M-XYLENE	17.777 } 17.548
015	802048	27426	V	34.522	M	O-XYLENE	17.318 }
016	30086	393		37.121			
017	700781	15553		40.578	M	1,2-DICHLOROBENZENE	16.847

[illegible] 4/16/93

0098

CLIENT SAMPLE NO.

MW-4MS

GC VOLATILES SHEET

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 9304L130-001 MS

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DC336171

Level: (low/med) LOW

Date Received: 04/08/93

% Moisture: not dec. _____

Date Analyzed: 04/12/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
71-43-2	Benzene		SP
100-41-4	Ethylbenzene		SP
108-88-3	Toluene		SP
1330-20-7	Xylene (total)		SP

SP: SPIKE COMPOUND

12/88 Rev.

BMJ 4/12/93

0099

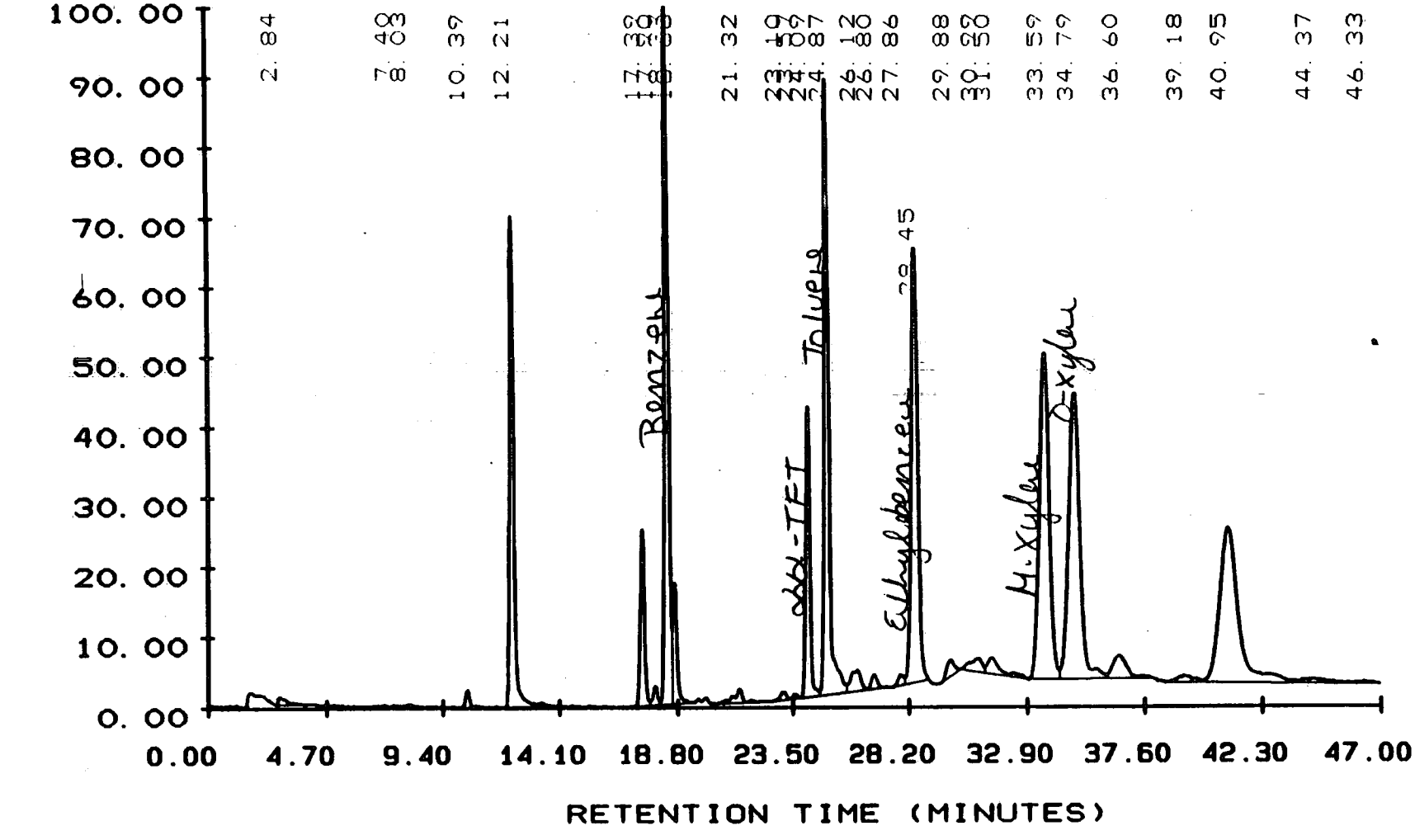
0100

9304L130-001S

SAMPLE NO. : 04129316 . 11 INSTRUMENT: 16

TEST NO. : DATE TIME: 04/12/93 18:25:06

METHOD NO. : 16B / 16B PAGE NO. : 01



Y MAXIMUM: 58902. START TIME: 0.00

Y MINIMUM: 50065. END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/12/93 19:12:37

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04129316 .11 INST:16 VIAL:F0 SEQ NUMBER:011
TEST : 0602X DATE-TIME INJECTED : 04/12/93 18:25:06
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/12/93 19:12:37
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: MW-4 SAMPLE VOL: 5.0 ML
CLIENT: LE CARPENTER COLUMN TYPE: 1% SP1000, PI
LAB ID: 9304L130-001MS RAW FILE: RAW3:DC336171
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	24787	1001		2.841			
002	9338	224	V	7.398			
003	8026	386		8.027			
004	29645	2116		10.394			
005	716160	61753		12.212	M	TRANS-1,2-DICHLOROET	15.786
				14.570	M	MTBE	
006	245549	22052	T	17.394			
007	30182	2378	T	17.904			
008	982714	87924	T	18.374	M	BENZENE	15.198
009	174022	15004		18.676			
010	46861	1691		21.318			
011	18144	1062	T	23.095			
012	7706	573	V	23.566			
013	423539	36460	T	24.094	M	a,a,a-TRIFLUOROTOLUE	17.416
014	1008909	77503	T	24.872	M	TOLUENE	16.696
015	79648	2627	T	26.120			
016	30579	1783	V	26.800			
017	21862	1363	T	27.856			
018	980013	54861		28.445	M	ETHYLBENZENE	20.133
019	43782	1998	V	29.882			
020	56461	1709	T	30.993			
021	75821	2055	V	31.504			
022	1116915	41022	T	33.593	M	M-XYLENE	16.195
023	1119547	35926	T	34.787	M	O-XYLENE	17.305
024	113267	2868		36.601			
025	38842	832	T	39.175			
026	1009971	19515	T	40.946	M	1,2-DICHLOROBENZENE	17.154
027	38624	593	T	44.368			
028	10138	270		46.333			

Detected in sample non-uniform distribution

16.75

4/16/93

0101

CLIENT SAMPLE NO.

MW-4MSD

GC VOLATILES SHEET

Lab Name: Roy F. Weston, Inc. Work Order: 06720013001

Client: LE CARPENTER

Matrix: WATER

Lab Sample ID: 9304L130-001 MSD

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: DC336205

Level: (low/med) LOW

Date Received: 04/08/93

% Moisture: not dec. _____

Date Analyzed: 04/12/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
71-43-2	Benzene		SP
100-41-4	Ethylbenzene		SP
108-88-3	Toluene		SP
1330-20-7	Xylene (total)		SP

SP: SPIKE COMPOUND

12/88 Rev.

0102

4/14/93

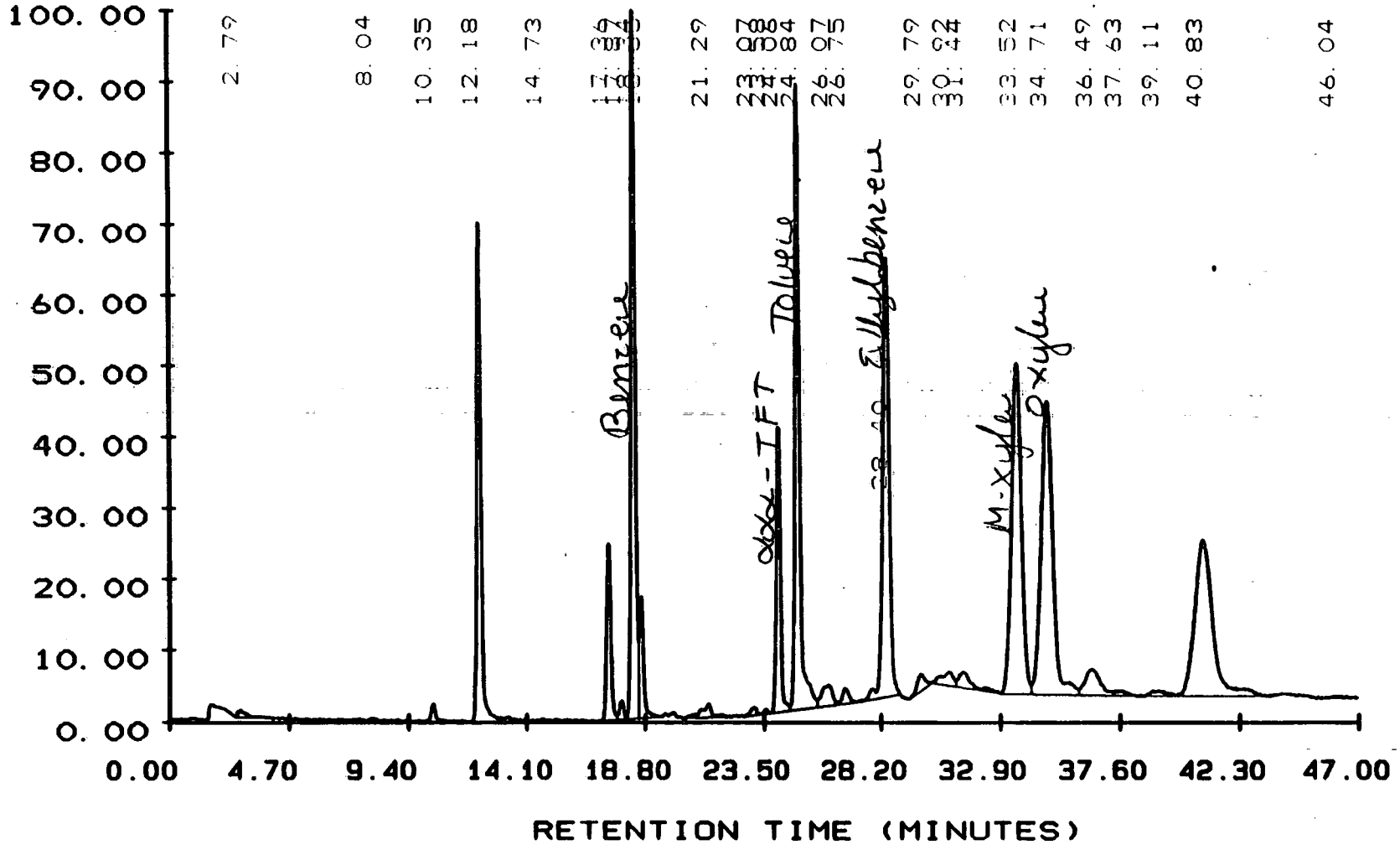
0103

9304L130-001T

SAMPLE NO. : 04129316 . 13 INSTRUMENT: 16

TEST NO. : DATE TIME: 04/12/93 20:18:24

METHOD NO. : 16B / 16B PAGE NO. : 01



Y MAXIMUM: 58551. START TIME: 0.00

Y MINIMUM: 50050. END TIME: 47.00

Roy F. Weston, Inc. - Lionville Laboratory 04/12/93 21:06:06

MULTILEVEL EXTERNAL STANDARD

SAMPLE: 04129316 .13 INST:16 VIAL:F0 SEQ NUMBER:013
TEST : 0602X DATE-TIME INJECTED : 04/12/93 20:18:24
COLLECTION TIME : 46.94 DATE-TIME PROCESSED : 04/12/93 21:06:06
METHOD: 16B / 16B REV #: 00054 ANALYST: GAIL SAMP RATE: 1.56
CLIENT ID: MW-4 SAMPLE VOL: 5.0 ML
CLIENT: LE CARPENTER COLUMN TYPE: 1% SP1000, PI
LAB ID: 9304L130-001MSD RAW FILE: RAW3:DC336205
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	AREA CONC PPB
001	19456	828		2.790			
002	5210	292		8.043			
003	36102	2064	V	10.352			
004	689069	59631		12.177	M	TRANS-1,2-DICHLOROET	15.199
005	12742	251		14.729	M	MTBE	0.671
006	232762	20863	T	17.362			
007	27053	2175	T	17.874			
008	941952	84619	T	18.341	M	BENZENE	14.577 ✓
009	171942	14274		18.646			
010	52429	1598		21.291			
011	16954	943	T	23.075			
012	6458	518	T	23.577			
013	394682	33815	T	24.063	M	a,a,a-TRIFLUOROTOLUE	16.226 ✓
014	971328	74693	T	24.840	M	TOLUENE	16.088 ✓
015	77197	2479	T	26.071			
016	32096	1770	V	26.752			
017	959546	52442		28.401	M	ETHYLBENZENE	19.718 ✓
018	41805	1883	V	29.790			
019	51821	1607	T	30.921			
020	66042	1842	V	31.436			
021	1065005	39402	T	33.525	M	M-XYLENE	15.451 } 16.179
022	1093421	34861	T	34.713	M	O-XYLENE	16.906 }
023	128410	3033	T	36.490			
024	20083	594	V	37.634			
025	28858	658	T	39.106			
026	914944	18559		40.829	M	1,2-DICHLOROBENZENE	15.560
027	9408	267		46.040			

Detected in sample. Non-uniform distribution

JAD 4/16/93

SAMPLE PREP RECORD

Sheet no.: 1

Extract. Date: 04/12/93 Extraction Batch No: 93LV1619 Analyst: GL Method: N/A

Test: O602 Cleanup Date: Analyst: Client: LE CARPENTER

LIMS Report Date: 04/19/93 Solvent: Adsorbent:

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
9304L130-	LE CARPENTER										
001 X	MW-4	2.00	5	1.0		5		1.0	N	0.0	1.0
001 XS	MW-4	2.00	5	1.0	1.0	5		1.0	N	0.0	1.0
001 XT	MW-4	2.00	5	1.0	1.0	5		1.0	N	0.0	1.0
002 X	MW-14S	2.00	5	1.0		5		1.0	N	0.0	1.0
003 X	MW-22	2.00	5	1.0		5		1.0	N	0.0	1.0
003 X D1	MW-22	2.00	5.0	1.0		5		1.0	N	0.0	1.0
004 X	MW-25	2.00	5	1.0		5		1.0	N	0.0	1.0
006 X	FB-1	2.00	5	1.0		5		1.0	N	0.0	1.0
007 X	TBLK	2.00	5	1.0		5		1.0	N	0.0	1.0
93LV1619-MB1 X		7.00	5	1.0		5		1.0	N	0.0	1.0
93LV1619-MB1 XS		7.00	5	1.0	1.0	5		1.0	N	0.0	1.0

Comments:
Surrogate: 5 UL aaa-TFT 08-05
Spike: 10 UL MIXB 09-07

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer

SAMPLE PREP RECORD

Sheet no.: 1

Extract. Date: 04/14/93 Extraction Batch No: 93LV1620 Analyst: GL Method: N/A

Test: 0602 Cleanup Date: Analyst: Client: LE CARPENTER

LIMS Report Date: 04/19/93 Solvent: Adsorbent:

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
9304L130-	LE CARPENTER										
005 X	MW-15S	2.00	5	1.0		5		1.0	N	0.0	1.0
005 X D1	MW-15S	2.00	5.0	1.0		5		1.0	N	0.0	1.0
9304L155-	AMOCO-NORRISTOWN										
001 X	FINAL EFFLUENT	2.00	5	1.0		5		1.0	N	0.0	1.0
001 X D1	FINAL EFFLUENT	2.00	5	1.0		5		1.0	N	0.0	1.0
001 X D2	FINAL EFFLUENT	2.00	5	1.0		5		1.0	N	0.0	1.0
93LV1620-MB1 X		7.00	5	1.0		5		1.0	N	0.0	1.0
93LV1620-MB1 XS		7.00	5	1.0	1.0	5		1.0	N	0.0	1.0

Comments:
Surrogate: 5 UL aaa-TFT 08-05
Spike: 10 UL MIXB 09-07; 10 UL MTBE 09-11

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer

0106

END OF PACKAGE