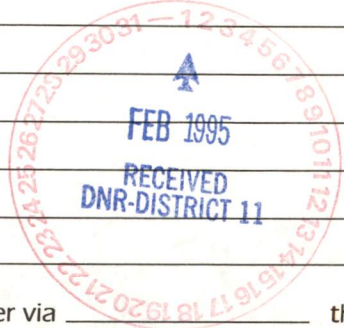


ROY F. WESTON, INC.
 3 HAWTHORN PARKWAY
 VERNON HILLS, IL 60061
(708) 918-4000

LETTER OF TRANSMITTAL

DATE: 01/31/95	JOB NO: 01138-079-001
ATTENTION:	
RE:	

TO Mr. Farsad Fotouhi
MDNR
Shiawassee District office, MI



WE ARE SENDING YOU Attached Under separate cover via _____ the following items:

Shop Drawings Prints Plans Samples Specifications
 Copy of Letter Change order _____

COPIES	DATE	NO.	DESCRIPTION
1	2/26/93		Round III G.W. Sampling results Linden Road Landfill

THESE ARE TRANSMITTED as checked below:

- For approval Approved as submitted Resubmit _____ copies for approval
- For your use Approved as noted Submit _____ copies for distribution
- As requested Returned for corrections Return _____ corrected prints
- For review and comment _____
- FOR BIDS DUE _____ 19 _____ PRINTS RETURNED AFTER LOAN TO US

REMARKS _____

Dear Farsad :

As discussed during our meeting on 1/26/95, I have enclosed a copy of the Groundwater Sampling Results for Round III (December 1992) for the GIM-Linden Road Landfill site in Flint, Michigan. If you have any question or require additional information, please call me at (708) 918-4000. Thank.

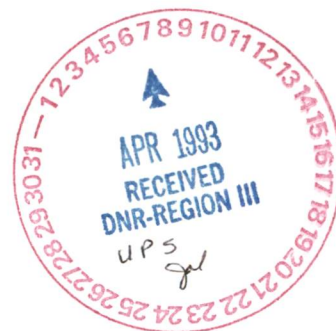
COPY TO _____ SIGNED: S. Babusonumma
 (S. BABUSONUMMA)



**General Motors
Environmental and Energy Staff**

30500 Mound Road, Box 9055
Warren, Michigan 48090-9055
Fax: (313) 947-1422

April 5, 1993



Ms. Barbara Cowles
Michigan Department of Natural Resources
Shiawassee District Office
Environmental Response Division
10650 South Bennett Drive
Morrice, Michigan 48857

RE: Linden Road Landfill, Flint Township

Dear Ms. Cowles:

Enclosed are the results of the third round of groundwater sampling which was performed at the captioned site in December of 1992. The results are consistent with previous groundwater sampling events.

The report describing the Interim Measures Removal Action, also performed in December, will be forwarded to you after the waste manifests are returned from the disposal firm.

If you have any questions, please call me at (313) 947-1865.

Sincerely,

Edward Peterson
Project Engineer

Attachment

cc: Mark Hester (w/o Attachment)
Rick Eisenman (w/o Attachment)





THREE HAWTHORN PARKWAY, SUITE 400
VERNON HILLS, IL 60061-1450
708-918-4000 • FAX: 708-918-4055

FILE COPY

26 February 1993

Mr. Edward Peterson
Environmental Activities Staff
General Motors Corporation
General Motors Technical Center
30400 Mound Road
Warren, Michigan 48090-9015



Work Order No.: 01138-058-002

Re: Groundwater Sampling Results - Round III - December 1992
Linden Road Landfill Site
Flint, Michigan

Dear Mr. Peterson:

As requested by AC Rochester Division of General Motors (GM), Roy F. Weston, Inc. (WESTON®) has completed the third round of groundwater sampling at the Linden Road Landfill site in Flint Township, Michigan. The first two rounds of groundwater samples were collected in June 1991 and September 1991. The results of the first two sampling events were incorporated in a report entitled "Interim Remedial Measures Evaluation and Site Investigation Report, Linden Road Landfill Site, Flint Township, Michigan" submitted to GM and the Michigan Department of Natural Resources (MDNR) in March 1992. This letter presents the results of the third round of groundwater sampling conducted at the Linden Road Landfill site in December 1992.

The third round of groundwater samples was collected on 1 December 1992 concurrent with the interim removal actions implemented at this site. Details of the interim removal actions will be documented separately in a forthcoming report. Groundwater samples were collected from each of the four shallow monitoring wells (MW-01S, MW-02S, MW-03S, and MW-04S), from each of the three deep wells (MW-01D, MW-02D, and MW-03D), and, from each of the two on-site piezometers (PZ-01 and PZ-02). The locations of the monitoring wells and the piezometers are shown in Figure 1. In addition to the above investigative samples, two quality assurance samples including a field duplicate and a trip blank were collected for analysis. The field duplicate was collected from the shallow monitoring well MW-01S.

The well sampling procedures were in accordance with those described in the Site Investigation Work Plan (WESTON, 1990). Prior to sampling the wells, the static water levels were measured to the nearest one-hundredth of a foot. The water levels were used to calculate the volume of water in the respective wells. The wells were then purged using clean bailers. Specific conductance, pH, and temperature measurements were taken of the





Mr. Edward Peterson
General Motors Corporation

-2-

26 February 1993

purged water. Well purging continued until the pH, specific conductance, and temperature readings stabilized, or until a minimum of three well volumes were purged. Following well purging, samples for VOC analyses were collected.

All eleven samples were analyzed for volatile organic compounds (VOCs). Sample analyses were performed by WESTON-Gulf Coast Laboratories, University Park, Illinois using U.S. EPA and MDNR-approved methods consistent with the two previous sampling events. Data validation of the laboratory analyses determined that the results were acceptable. A summary of the analytical data is presented in Table 1. The laboratory data summaries and the data validation summary for this third round of groundwater sampling are included as Attachment A to this letter.

Shallow Monitoring Wells and Piezometers

A total of 6 investigative groundwater samples and a field duplicate (from MW-01S) were analyzed from the 4 shallow monitoring wells and the two piezometers. Three laboratory method blanks were also analyzed along with these samples. Analytical results indicate that a total of 12 VOCs were detected at trace concentrations. Methylene chloride was detected only in PZ-02 at a concentration of 0.061 mg/L. Trace levels of 1,1 Dichloroethene (0.004 mg/L in MW-01S and 0.003 mg/L in MW-01S-Dup) and 1,1 Dichloroethane (0.006 mg/L in both MW-03S and PZ-02) were detected during this round of sampling. These compounds were not detected during the previous sampling events.

Trichloroethene was detected in MW-01S and its duplicate sample MW-01S-Dup at concentrations of 0.210 mg/L and an estimated 0.280 mg/L respectively. These concentrations are lower than those detected in the same monitoring wells during the previous rounds of sampling. Trichloroethene was also detected at an estimated concentration of 0.005 mg/L in MW-03S. This compound was detected in MW-03S during the first round of sampling at a concentration of 0.010 mg/L.

Other compounds detected in the shallow wells and piezometers during the current sampling event include 4-methyl 2-pentanone, toluene, chlorobenzene, ethyl benzene, and xylene. These compounds were detected at estimated concentrations either below the detection limits or slightly above detection limits. The compound 4-methyl-2-pentanone was detected only in MW-03S and PZ-02 at the same estimated concentration of 0.006 mg/L. Toluene was detected only in monitoring wells MW-01S, MW-02S, and MW-03S at concentrations ranging from an estimated 0.004 mg/L to 0.014 mg/L. Chlorobenzene was detected only in PZ-02 at an estimated concentration of 0.003 mg/L. Ethylbenzene and xylenes were



Mr. Edward Peterson
General Motors Corporation

-3-

26 February 1993

detected only in MW-03S. Both ethylbenzene and total xylene concentrations in MW-03S were 0.003 mg/L.

Deep Monitoring Wells

One groundwater sample was collected and analyzed from each of the deep monitoring wells. No VOCs were detected in samples from MW-01D and MW-03D. A single compound, 2-butanone, was detected at an estimated concentration of 0.008 mg/L in MW-02D.

Based upon the results of the current groundwater sampling at the Linden Road Landfill site, there appears to be no significant changes in the quality of shallow or deep groundwater at the site since the previous sampling events in June and September 1991.

If you have any questions or require additional information, please call either of the undersigned at (708) 918-4000.

Very truly yours,

ROY F. WESTON, INC.

S. Babusukumar, P.G.
Project Manager

Scott D. Springer
Project Director

SB:SDS:ebg

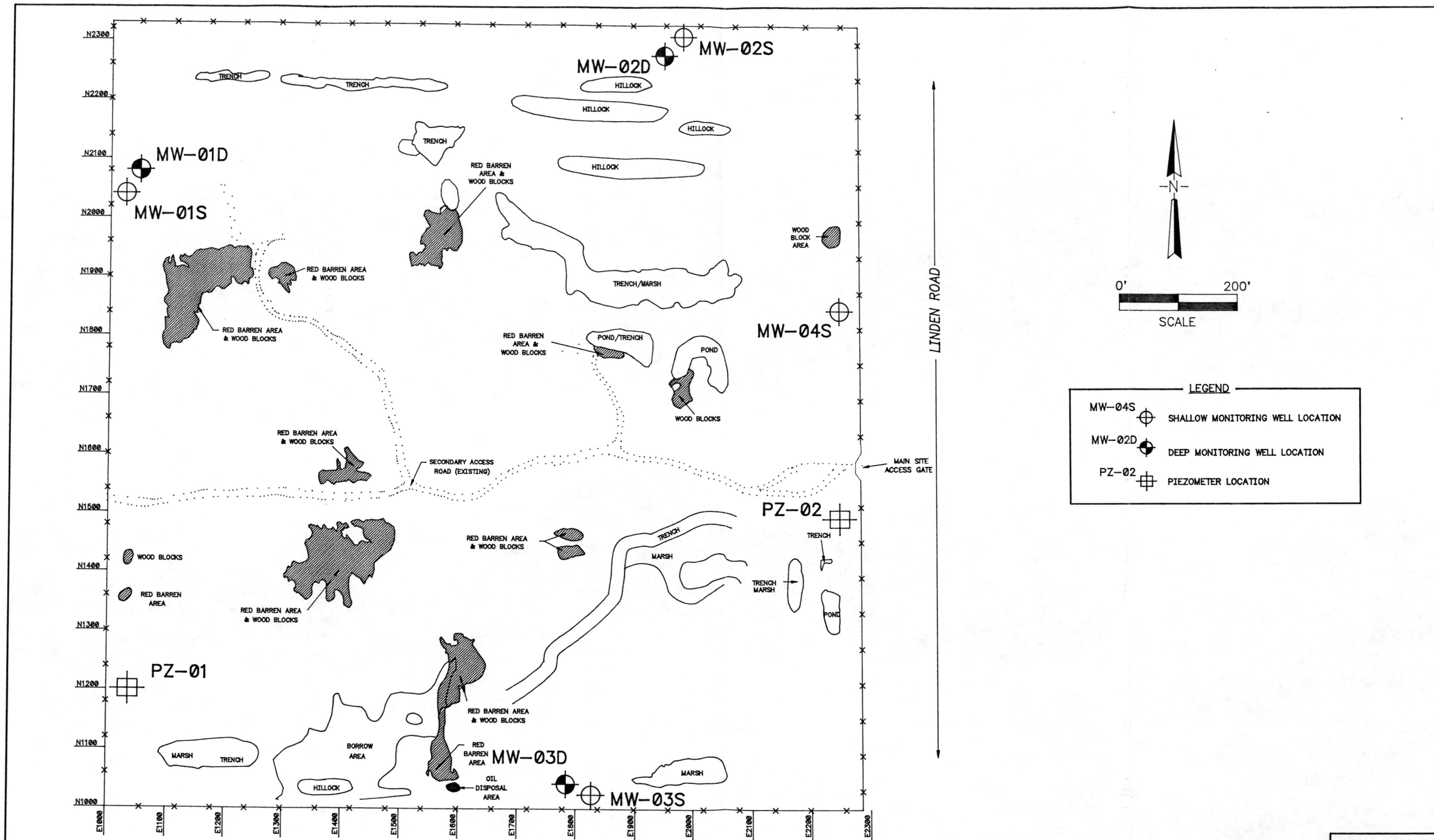
cc: R. Eisenman
J. Jaffurs
M. Hester
R. Hubler
T. Carlisle
Project File

Table 1

Summary of Volatile Organic Compound Analyses
 Groundwater Samples - Round III (December 1993)
 Site Investigation
 Linden Road Landfill
 (All Values in mg/L)

Sample No.	MW-01S	MW-01S-DP	MW-01D	MW-02S	MW-02D	MW-03S	MW-03D	MW-04S	PZ-01	PZ-02	Trip Blank	Quantitation Limit (Range)
Date Collected	12/1/92	12/1/92	12/1/92	12/1/92	12/1/92	12/1/92	12/1/92	12/1/92	12/1/92	12/1/92	12/1/92	
Methylene chloride	—	—	—	—	—	—	—	—	—	0.061	—	0.005
1,1-Dichloroethene	0.004 J	0.003 J	—	—	—	—	—	—	—	—	—	0.005
1,1-Dichloroethane	—	—	—	—	—	0.006	—	—	—	0.006	—	0.005
1,2-Dichloroethene (total)	0.035 J	0.029	—	—	—	0.003 J	—	—	—	—	—	0.005
2-Butanone	—	—	—	—	0.008 J	0.022	—	—	—	0.013	—	0.010
1,2-Dichloropropane	—	—	—	—	—	—	—	—	0.009 J	—	—	0.005
Trichloroethene	0.210	0.280 J	—	—	—	0.005 J	—	—	—	—	—	0.005-0.010
4-Methyl-2-pentanone	—	—	—	—	—	0.006 J	—	—	—	0.006 J	—	0.010
Toluene	0.009 J	0.003 J	—	0.004 J	—	0.014	—	—	—	—	—	0.005
Chlorobenzene	—	—	—	—	—	—	—	—	—	0.003 J	—	0.005
Ethylbenzene	—	—	—	—	—	0.003 J	—	—	—	—	—	0.005
Xylenes (total)	—	—	—	—	—	0.003 J	—	—	—	—	—	0.005

- - Compound was analyzed for but not detected.
- J - Indicates an estimated value.
- DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.
- TB - Trip blank.
- S - Shallow well.
- D - Deep well.



LEGEND

MW-04S	⊕	SHALLOW MONITORING WELL LOCATION
MW-02D	⊙	DEEP MONITORING WELL LOCATION
PZ-02	⊠	PIEZOMETER LOCATION

FIGURE 4-6



Three Hawthorn Parkway
 Vernon Hills, Illinois
 60061

MONITORING WELL &
 PIEZOMETER LOCATIONS
 LINDEN ROAD LANDFILL
 Flint, Michigan

ATTACHMENT A

1. **Laboratory Data Summaries**
2. **Data Validation Summary**



WESTON-GULF COAST, INC.
2417 Bond St., University Park, Illinois 60466
Phones: (708) 534-5200 (219) 885-7077 (815) 723-753.
Fax: (708) 534-5211

ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-1S
Project # 1138-58-02-9999
Lab ID: 92126633-001
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
Chloromethane	BRL	10	U
Bromomethane	BRL	10	U
Vinyl Chloride	BRL	10	U
Chloroethane	BRL	10	U
Methylene Chloride	BRL	5	U
Acetone	22	10	B U
Carbon Disulfide	BRL	5	U
1,1-Dichloroethene	4	5	J
1,1-Dichloroethane	BRL	5	U
1,2-Dichloroethene (total)	35	5	
Chloroform	BRL	5	U
1,2-Dichloroethane	BRL	5	U
2-Butanone	30	10	B U
1,1,1-Trichloroethane	BRL	5	U
Carbon Tetrachloride	BRL	5	U
Vinyl Acetate	BRL	10	U
Bromodichloromethane	BRL	5	U

1/2/93
LK



WESTON-GULF COAST, INC.
2417 Bond St., University Park, Illinois 60466
Phones: (708) 534-5200 (219) 885-7077 (815) 723-7530
Fax: (708) 534-5211

ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

RE: GMLRLF/1292/MW-1S
Project # 1138-58-02-9999
Lab ID: 9212G633-001
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

Attn: Mr. S. Babusukumar

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
1,2-Dichloropropane	BRL	5	U
cis-1,3-Dichloropropene	BRL	5	U
Trichloroethene	F	5	
Dibromochloromethane	BRL	5	U
1,1,2-Trichloroethane	BRL	5	U
Benzene	BRL	5	U
Trans-1,3-Dichloropropene	BRL	5	U
Bromoform	BRL	5	U
4-Methyl-2-pentanone	BRL	10	U
2-Hexanone	BRL	10	U
Tetrachloroethene	BRL	5	U
1,1,2,2-Tetrachloroethane	BRL	5	U
Toluene	9	5	
Chlorobenzene	BRL	5	U
Ethylbenzene	BRL	5	U
Styrene	BRL	5	U
Xylene (total)	BRL	5	U

11/2/92
ck

J





WESTON-GULF COAST, INC.
 2417 Bond St., University Park, Illinois 60466
 Phones: (708) 534-5200 (219) 885-7077 (815) 723-7533
 Fax: (708) 534-5211

ANALYTICAL REPORT

To: General Motors
 Roy F. Weston, Incorporated
 3 Hawthorn Parkway, Suite 400
 Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-1S
 Project # 1138-58-02-9999
 Lab ID: 9212G633-001
 Sample Date: 12/01/92
 Date Received: 12/02/92
 Units: UG/L

Tentatively Identified Compounds

7 Volatile Compounds greater than 10% of the nearest internal standard were tentatively identified by mass spectral library search. This is exclusive of any target compounds, surrogates or internal standards.

Retention	Estimated	
Volatile Compound	Time	Concentration
Unknown	5.66	80 J
Unknown	8.71	50 J
Unknown	10.22	40 J
Unknown	13.47	60 J
Unknown	13.93	8 J
Unknown	14.39	40 J
Unknown	15.36	20 J



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-1SDup
Project # 1138-58-02-9999
Lab ID: 92126633-002
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
Chloromethane	BRL	10	U
Bromomethane	BRL	10	U
Vinyl Chloride	BRL	10	U
Chloroethane	BRL	10	U
Methylene Chloride	BRL	5	U
Acetone	6	10	JB U ^{lk} 1/13/92
Carbon Disulfide	BRL	5	U
1,1-Dichloroethene	3	5	J
1,1-Dichloroethane	BRL	5	U
1,2-Dichloroethene (total)	29	5	
Chloroform	BRL	5	U
1,2-Dichloroethane	BRL	5	U
2-Butanone	BRL	10	U
1,1,1-Trichloroethane	BRL	5	U
Carbon Tetrachloride	BRL	5	U
Vinyl Acetate	BRL	10	U
Bromodichloromethane	BRL	5	U



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3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

RE: GMLRLF/1292/MW-1SDup
Project # 1138-58-02-9999
Lab ID: 9212G633-002
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

Attn: Mr. S. Babusukumar

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
1,2-Dichloropropane	BRL	5	U
cis-1,3-Dichloropropene	BRL	5	U
Trichloroethene	F	5	
Dibromochloromethane	BRL	5	U
1,1,2-Trichloroethane	BRL	5	U
Benzene	BRL	5	U
Trans-1,3-Dichloropropene	BRL	5	U
Bromoform	BRL	5	U
4-Methyl-2-pentanone	BRL	10	U
2-Hexanone	BRL	10	U
Tetrachloroethene	BRL	5	U
1,1,2,2-Tetrachloroethane	BRL	5	U
Toluene	3	5	J
Chlorobenzene	BRL	5	U
Ethylbenzene	BRL	5	U
Styrene	BRL	5	U
Xylene (total)	BRL	5	U



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To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

RE: GMLRLF/1292/MW-1SDup
Project # 1138-58-02-9999
Lab ID: 92126633-002
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

Attn: Mr. S. Babusukumar

Tentatively Identified Compounds

No Volatile Compounds greater than 10% of the nearest
internal standard were tentatively identified by mass
spectral library search. This is exclusive of any target
compounds, surrogates or internal standards.



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2417 Bond St., University Park, Illinois 60466
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Fax: (708) 534-5211

ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-2S
Project # 1138-58-02-9999
Lab ID: 9212G633-003
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
Chloromethane	BRL	10	U
Bromomethane	BRL	10	U
Vinyl Chloride	BRL	10	U
Chloroethane	BRL	10	U
Methylene Chloride	BRL	5	U
Acetone	20	10	B U ^{OK} 1/13/93
Carbon Disulfide	BRL	5	U
1,1-Dichloroethene	BRL	5	U
1,1-Dichloroethane	BRL	5	U
1,2-Dichloroethene (total)	BRL	5	U
Chloroform	BRL	5	U
1,2-Dichloroethane	BRL	5	U
2-Butanone	12	10	B U
1,1,1-Trichloroethane	BRL	5	U
Carbon Tetrachloride	BRL	5	U
Vinyl Acetate	BRL	10	U
Bromodichloromethane	BRL	5	U



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Fax: (708) 534-5211

ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-2S
Project # 1138-58-02-9999
Lab ID: 92126633-003
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
1,2-Dichloropropane	BRL	5	U
cis-1,3-Dichloropropene	BRL	5	U
Trichloroethene	BRL	5	U
Dibromochloromethane	BRL	5	U
1,1,2-Trichloroethane	BRL	5	U
Benzene	BRL	5	U
Trans-1,3-Dichloropropene	BRL	5	U
Bromoform	BRL	5	U
4-Methyl-2-pentanone	BRL	10	U
2-Hexanone	BRL	10	U
Tetrachloroethene	BRL	5	U
1,1,2,2-Tetrachloroethane	BRL	5	U
Toluene	4	5	J
Chlorobenzene	BRL	5	U
Ethylbenzene	BRL	5	U
Styrene	BRL	5	U
Xylene (total)	BRL	5	U



WESTON-GULF COAST. INC.
2417 Bond St., University Park, Illinois 60466
Phones: (708) 534-5200 (219) 885-7077 (815) 723-753.
Fax: (708) 534-5211

ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-2S
Project # 1138-58-02-9999
Lab ID: 92126633-003
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

Tentatively Identified Compounds

3 Volatile Compounds greater than 10% of the nearest internal standard were tentatively identified by mass spectral library search. This is exclusive of any target compounds, surrogates or internal standards.

	Retention	Estimated
Volatile Compound	Time	Concentration
Unknown	13.48	10 J
Unknown	15.33	6 J
Unknown	24.50	7 J



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2417 Bond St., University Park, Illinois 60466
Phones: (708) 534-5200 (219) 885-7077 (815) 723-753
Fax: (708) 534-5211

ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-1D
Project # 1138-58-02-9999
Lab ID: 92126633-004
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
Chloromethane	BRL	10	U
Bromomethane	BRL	10	U
Vinyl Chloride	BRL	10	U
Chloroethane	BRL	10	U
Methylene Chloride	BRL	5	U
Acetone	5	10	JB-U LX 11/3/93
Carbon Disulfide	BRL	5	U
1,1-Dichloroethene	BRL	5	U
1,1-Dichloroethane	BRL	5	U
1,2-Dichloroethene (total)	BRL	5	U
Chloroform	BRL	5	U
1,2-Dichloroethane	BRL	5	U
2-Butanone	BRL	10	U
1,1,1-Trichloroethane	BRL	5	U
Carbon Tetrachloride	BRL	5	U
Vinyl Acetate	BRL	10	U
Bromodichloromethane	BRL	5	U



WESTON-GULF COAST, INC.
2417 Bond St., University Park, Illinois 60466
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Fax: (708) 534-5211

ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-ID
Project # 1138-58-02-9999
Lab ID: 9212G633-004
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
1,2-Dichloropropane	BRL	5	U
cis-1,3-Dichloropropene	BRL	5	U
Trichloroethene	BRL	5	U
Dibromochloromethane	BRL	5	U
1,1,2-Trichloroethane	BRL	5	U
Benzene	BRL	5	U
Trans-1,3-Dichloropropene	BRL	5	U
Bromoform	BRL	5	U
4-Methyl-2-pentanone	BRL	10	U
2-Hexanone	BRL	10	U
Tetrachloroethene	BRL	5	U
1,1,2,2-Tetrachloroethane	BRL	5	U
Toluene	BRL	5	U
Chlorobenzene	BRL	5	U
Ethylbenzene	BRL	5	U
Styrene	BRL	5	U
Xylene (total)	BRL	5	U



WESTON-GULF COAST, INC.
2417 Bond St., University Park, Illinois 60466
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Fax: (708) 534-5211

ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-1D
Project # 1138-58-02-9999
Lab ID: 9212G633-004
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

Tentatively Identified Compounds

No Volatile Compounds greater than 10% of the nearest
internal standard were tentatively identified by mass
spectral library search. This is exclusive of any target
compounds, surrogates or internal standards.



WESTON-GULF COAST, INC.
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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-2D
Project # 1138-58-02-9999
Lab ID: 9212G633-005
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
Chloromethane	BRL	10	U
Bromomethane	BRL	10	U
Vinyl Chloride	BRL	10	U
Chloroethane	BRL	10	U
Methylene Chloride	BRL	5	U
Acetone	15	10	-B U LC 11/13/93
Carbon Disulfide	BRL	5	U
1,1-Dichloroethene	BRL	5	U
1,1-Dichloroethane	BRL	5	U
1,2-Dichloroethene (total)	BRL	5	U
Chloroform	BRL	5	U
1,2-Dichloroethane	BRL	5	U
2-Butanone	8	10	J
1,1,1-Trichloroethane	BRL	5	U
Carbon Tetrachloride	BRL	5	U
Vinyl Acetate	BRL	10	U
Bromodichloromethane	BRL	5	U



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-2D
Project # 1138-58-02-9999
Lab ID: 9212G633-005
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
1,2-Dichloropropane	BRL	5	U
cis-1,3-Dichloropropene	BRL	5	U
Trichloroethene	BRL	5	U
Dibromochloromethane	BRL	5	U
1,1,2-Trichloroethane	BRL	5	U
Benzene	BRL	5	U
Trans-1,3-Dichloropropene	BRL	5	U
Bromoform	BRL	5	U
4-Methyl-2-pentanone	BRL	10	U
2-Hexanone	BRL	10	U
Tetrachloroethene	BRL	5	U
1,1,2,2-Tetrachloroethane	BRL	5	U
Toluene	BRL	5	U
Chlorobenzene	BRL	5	U
Ethylbenzene	BRL	5	U
Styrene	BRL	5	U
Xylene (total)	BRL	5	U



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-2D
Project # 1138-58-02-9999
Lab ID: 9212G633-005
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

Tentatively Identified Compounds

1 Volatile Compounds greater than 10% of the nearest internal standard were tentatively identified by mass spectral library search. This is exclusive of any target compounds, surrogates or internal standards.

	Retention	Estimated
Volatile Compound	Time	Concentration
Unknown	14.41	10 J



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ANALYTICAL REPORT

To: General Motors
 Roy F. Weston, Incorporated
 3 Hawthorn Parkway, Suite 400
 Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-3S
 Project # 1138-58-02-9999
 Lab ID: 9212G633-006
 Sample Date: 12/01/92
 Date Received: 12/02/92
 Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
Chloromethane	BRL	10	U
Bromomethane	BRL	10	U
Vinyl Chloride	BRL	10	U
Chloroethane	BRL	10	U
Methylene Chloride	BRL	5	U
Acetone	19	10	B U LC 113493
Carbon Disulfide	BRL	5	U
1,1-Dichloroethene	BRL	5	U
1,1-Dichloroethane	6	5	
1,2-Dichloroethene (total)	3	5	J
Chloroform	BRL	5	U
1,2-Dichloroethane	BRL	5	U
2-Butanone	22	10	
1,1,1-Trichloroethane	BRL	5	U
Carbon Tetrachloride	BRL	5	U
Vinyl Acetate	BRL	10	U
Bromodichloromethane	BRL	5	U



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-3S
Project # 1138-58-02-9999
Lab ID: 9212G633-006
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
1,2-Dichloropropane	BRL	5	U
cis-1,3-Dichloropropene	BRL	5	U
Trichloroethene	5	5	J
Dibromochloromethane	BRL	5	U
1,1,2-Trichloroethane	BRL	5	U
Benzene	BRL	5	U
Trans-1,3-Dichloropropene	BRL	5	U
Bromoform	BRL	5	U
4-Methyl-2-pentanone	6	10	J
2-Hexanone	BRL	10	U
Tetrachloroethene	BRL	5	U
1,1,2,2-Tetrachloroethane	BRL	5	U
Toluene	14	5	
Chlorobenzene	BRL	5	U
Ethylbenzene	3	5	J
Styrene	BRL	5	U
Xylene (total)	3	5	J



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-3S
Project # 1138-58-02-9999
Lab ID: 92126633-006
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

Tentatively Identified Compounds

3 Volatile Compounds greater than 10% of the nearest internal standard were tentatively identified by mass spectral library search. This is exclusive of any target compounds, surrogates or internal standards.

Volatile Compound	Retention Time	Estimated Concentration
Unknown	14.42	10 J
Unknown	23.16	20 J
Unknown	27.64	6 J



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-3D
Project # 1138-58-02-9999
Lab ID: 9212G633-007
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
Chloromethane	BRL	10	U
Bromomethane	BRL	10	U
Vinyl Chloride	BRL	10	U
Chloroethane	BRL	10	U
Methylene Chloride	BRL	5	U
Acetone	5	10	JB U UC 11/3/93
Carbon Disulfide	BRL	5	U
1,1-Dichloroethene	BRL	5	U
1,1-Dichloroethane	BRL	5	U
1,2-Dichloroethene (total)	BRL	5	U
Chloroform	BRL	5	U
1,2-Dichloroethane	BRL	5	U
2-Butanone	BRL	10	U
1,1,1-Trichloroethane	BRL	5	U
Carbon Tetrachloride	BRL	5	U
Vinyl Acetate	BRL	10	U
Bromodichloromethane	BRL	5	U



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-3D
Project # 1138-58-02-9999
Lab ID: 92126633-007
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
1,2-Dichloropropane	BRI	5	U
cis-1,3-Dichloropropene	BRI	5	U
Trichloroethene	BRI	5	U
Dibromochloromethane	BRI	5	U
1,1,2-Trichloroethane	BRI	5	U
Benzene	BRI	5	U
Trans-1,3-Dichloropropene	BRI	5	U
Bromoform	BRI	5	U
4-Methyl-2-pentanone	BRI	10	U
2-Hexanone	BRI	10	U
Tetrachloroethene	BRI	5	U
1,1,2,2-Tetrachloroethane	BRI	5	U
Toluene	BRI	5	U
Chlorobenzene	BRI	5	U
Ethylbenzene	BRI	5	U
Styrene	BRI	5	U
Xylene (total)	BRI	5	U



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-3D
Project # 1138-58-02-9999
Lab ID: 92126633-007
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

Tentatively Identified Compounds

No Volatile Compounds greater than 10% of the nearest
internal standard were tentatively identified by mass
spectral library search. This is exclusive of any target
compounds, surrogates or internal standards.



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-4S
Project # 1138-58-02-9999
Lab ID: 9212G633-008
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
Chloromethane	BRL	10	U
Bromomethane	BRL	10	U
Vinyl Chloride	BRL	10	U
Chloroethane	BRL	10	U
Methylene Chloride	BRL	5	U
Acetone	BRL	10	U
Carbon Disulfide	BRL	5	U
1,1-Dichloroethene	BRL	5	U
1,1-Dichloroethane	BRL	5	U
1,2-Dichloroethene (total)	BRL	5	U
Chloroform	BRL	5	U
1,2-Dichloroethane	BRL	5	U
2-Butanone	BRL	10	U
1,1,1-Trichloroethane	BRL	5	U
Carbon Tetrachloride	BRL	5	U
Vinyl Acetate	BRL	10	U
Bromodichloromethane	BRL	5	U



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-4S
Project # 1138-58-02-9999
Lab ID: 9212G633-008
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
1,2-Dichloropropane	BRL	5	U
cis-1,3-Dichloropropene	BRL	5	U
Trichloroethene	BRL	5	U
Dibromochloromethane	BRL	5	U
1,1,2-Trichloroethane	BRL	5	U
Benzene	BRL	5	U
Trans-1,3-Dichloropropene	BRL	5	U
Bromoform	BRL	5	U
4-Methyl-2-pentanone	BRL	10	U
2-Hexanone	BRL	10	U
Tetrachloroethene	BRL	5	U
1,1,2,2-Tetrachloroethane	BRL	5	U
Toluene	BRL	5	U
Chlorobenzene	BRL	5	U
Ethylbenzene	BRL	5	U
Styrene	BRL	5	U
Xylene (total)	BRL	5	U



WESTON-GULF COAST. INC.
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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/MW-4S
Project # 1138-58-02-9999
Lab ID: 92126633-008
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

Tentatively Identified Compounds

No Volatile Compounds greater than 10% of the nearest
internal standard were tentatively identified by mass
spectral library search. This is exclusive of any target
compounds, surrogates or internal standards.



WESTON-GULF COAST, INC.
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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/PZ-01
Project # 1138-58-02-9999
Lab ID: 92126633-009
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
Chloromethane	BRL	10	U ^J
Bromomethane	BRL	10	U
Vinyl Chloride	BRL	10	U
Chloroethane	BRL	10	U
Methylene Chloride	BRL	5	U
Acetone	51	10	B-U
Carbon Disulfide	BRL	5	U
1,1-Dichloroethene	BRL	5	U
1,1-Dichloroethane	BRL	5	U
1,2-Dichloroethene (total)	BRL	5	U
Chloroform	BRL	5	U
1,2-Dichloroethane	BRL	5	U
2-Butanone	BRL	10	U
1,1,1-Trichloroethane	BRL	5	U
Carbon Tetrachloride	BRL	5	U
Vinyl Acetate	BRL	10	U
Bromodichloromethane	BRL	5	U

✓ 1/13/93
ck



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/PZ-01
Project # 1138-58-02-9999
Lab ID: 9212G633-009
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
1,2-Dichloropropane	9	5	J
cis-1,3-Dichloropropene	BRL	5	U
Trichloroethene	BRL	5	U
Dibromochloromethane	BRL	5	U
1,1,2-Trichloroethane	BRL	5	U
Benzene	BRL	5	U
Trans-1,3-Dichloropropene	BRL	5	U
Bromoform	BRL	5	U
4-Methyl-2-pentanone	BRL	10	U
2-Hexanone	BRL	10	U
Tetrachloroethene	BRL	5	U
1,1,2,2-Tetrachloroethane	BRL	5	U
Toluene	BRL	5	U
Chlorobenzene	BRL	5	U
Ethylbenzene	BRL	5	U
Styrene	BRL	5	U
Xylene (total)	BRL	5	U

✓
ck
1/13/93



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/PZ-01
Project # 1138-58-02-9999
Lab ID: 9212G633-009
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

Tentatively Identified Compounds

5 Volatile Compounds greater than 10% of the nearest internal standard were tentatively identified by mass spectral library search. This is exclusive of any target compounds, surrogates or internal standards.

	Retention	Estimated
Volatile Compound	Time	Concentration
Unknown	13.05	20 J
Unknown	14.06	70 J
Unknown	14.91	9 J
Unknown	24.34	10 J
Unknown	25.92	20 J



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/PZ-02
Project # 1138-58-02-9999
Lab ID: 9212G633-010
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
Chloromethane	BRL	10	U
Bromomethane	BRL	10	U
Vinyl Chloride	BRL	10	U
Chloroethane	BRL	10	U
Methylene Chloride	61	5	
Acetone	8	10	JB U U 11/19/93
Carbon Disulfide	BRL	5	U
1,1-Dichloroethene	BRL	5	U
1,1-Dichloroethane	6	5	
1,2-Dichloroethene (total)	BRL	5	U
Chloroform	BRL	5	U
1,2-Dichloroethane	BRL	5	U
2-Butanone	13	10	
1,1,1-Trichloroethane	BRL	5	U
Carbon Tetrachloride	BRL	5	U
Vinyl Acetate	BRL	10	U
Bromodichloromethane	BRL	5	U



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/PZ-02
Project # 1138-58-02-9999
Lab ID: 9212G633-010
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
1,2-Dichloropropane	BRL	5	U
cis-1,3-Dichloropropene	BRL	5	U
Trichloroethene	BRL	5	U
Dibromochloromethane	BRL	5	U
1,1,2-Trichloroethane	BRL	5	U
Benzene	BRL	5	U
Trans-1,3-Dichloropropene	BRL	5	U
Bromoform	BRL	5	U
4-Methyl-2-pentanone	6	10	J
2-Hexanone	BRL	10	U
Tetrachloroethene	BRL	5	U
1,1,2,2-Tetrachloroethane	BRL	5	U
Toluene	BRL	5	U
Chlorobenzene	3	5	J
Ethylbenzene	BRL	5	U
Styrene	BRL	5	U
Xylene (total)	BRL	5	U



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: GMLRLF/1292/PZ-02
Project # 1138-58-02-9999
Lab ID: 9212G633-010
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

Tentatively Identified Compounds

1 Volatile Compounds greater than 10% of the nearest internal standard were tentatively identified by mass spectral library search. This is exclusive of any target compounds, surrogates or internal standards.

	Retention	Estimated
Volatile Compound	Time	Concentration
Unknown	7.75	10 J



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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: TB112392
Project # 1138-58-02-9999
Lab ID: 9212G633-011
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
Chloromethane	BRL	10	U
Bromomethane	BRL	10	U
Vinyl Chloride	BRL	10	U
Chloroethane	BRL	10	U
Methylene Chloride	BRL	5	U
Acetone	7	10	JB U <i>lx 1/13/93</i>
Carbon Disulfide	BRL	5	U
1,1-Dichloroethene	BRL	5	U
1,1-Dichloroethane	BRL	5	U
1,2-Dichloroethene (total)	BRL	5	U
Chloroform	BRL	5	U
1,2-Dichloroethane	BRL	5	U
2-Butanone	BRL	10	U
1,1,1-Trichloroethane	BRL	5	U
Carbon Tetrachloride	BRL	5	U
Vinyl Acetate	BRL	10	U
Bromodichloromethane	BRL	5	U



WESTON-GULF COAST, INC.
2417 Bond St., University Park, Illinois 60466
Phones: (708) 534-5200 (219) 885-7077 (815) 723-7530
Fax: (708) 534-5211

ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: TB112392
Project # 1138-58-02-9999
Lab ID: 92126633-011
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

VOLATILES BY GC/MS, HSL LIST

Volatile Compound	Result	Reporting Limit	Flag
1,2-Dichloropropane	BRL	5	U
cis-1,3-Dichloropropene	BRL	5	U
Trichloroethene	BRL	5	U
Dibromochloromethane	BRL	5	U
1,1,2-Trichloroethane	BRL	5	U
Benzene	BRL	5	U
Trans-1,3-Dichloropropene	BRL	5	U
Bromoform	BRL	5	U
4-Methyl-2-pentanone	BRL	10	U
2-Hexanone	BRL	10	U
Tetrachloroethene	BRL	5	U
1,1,2,2-Tetrachloroethane	BRL	5	U
Toluene	BRL	5	U
Chlorobenzene	BRL	5	U
Ethylbenzene	BRL	5	U
Styrene	BRL	5	U
Xylene (total)	BRL	5	U



WESTON-GULF COAST, INC.
2417 Bond St., University Park, Illinois 60466
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ANALYTICAL REPORT

To: General Motors
Roy F. Weston, Incorporated
3 Hawthorn Parkway, Suite 400
Vernon Hills, IL 60061-1450

Date: Wednesday December 30th, 1992

Attn: Mr. S. Babusukumar

RE: TB112392
Project # 1138-58-02-9999
Lab ID: 9212G633-011
Sample Date: 12/01/92
Date Received: 12/02/92
Units: UG/L

Tentatively Identified Compounds

No Volatile Compounds greater than 10% of the nearest
internal standard were tentatively identified by mass
spectral library search. This is exclusive of any target
compounds, surrogates or internal standards.

CLIENT/SUBJECT General Motors Analytical Results W.O. NO. _____

TASK DESCRIPTION Batch No. 92126633 TASK NO. _____

PREPARED BY _____ DEPT _____ DATE 1/12/93

MATH CHECK BY _____ DEPT _____ DATE _____

METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY	
DEPT _____	DATE _____

Volatiles by GC/MS
HSL List

	Date of Collection	Date Analyzed
1. <u>Samples:</u>		
GMLRLF/1292/MW-1S	12/1/92	12/13/92
GMLRLF/1292/MW-1S DI		12/14/92
GMLRLF/1292/MW-1S Dup		12/14/92
GMLRLF/1292/MW-1S Dup DI		12/16/92
GMLRLF/1292/MW-2S		12/13/92
GMLRLF/1292/MW-1D		12/14/92
GMLRLF/1292/MW-2D		12/14/92
GMLRLF/1292/MW-3S		12/14/92
GMLRLF/1292/MW-3D		12/14/92
GMLRLF/1292/MW-4S		
GMLRLF/1292/P2-01	-	
GMLRLF/1292/P2-02	-	
TB 112392	-	

2. Holding Times.

All samples were analyzed within holding times except the diluted sample MW-1S Dup (92126633-002 DL). The result for trichloroethene on sample MW-1S DUP is therefore estimated (J) due to blown holding times.

All samples were received in good condition at the lab, however one trip blank vial was received broken according to the COC.

3. Method Blanks:

Three method blanks were run with these samples. Acetone at 10 µg/L and 2-Butanone at 5J µg/L were detected in method blank 92GVB356-MB1. Acetone at 8J µg/L was detected in method blank 92GVB357-MB1. Also, methylene chloride at 5 µg/L and acetone at 9J µg/L were detected in method blank 92GVB362-MB1.

CLIENT/SUBJECT General Motors W.O. NO. _____

 TASK DESCRIPTION Batch No. 9212G633 TASK NO. _____

 PREPARED BY _____ DEPT _____ DATE 11/13/92^{3^u}

MATH CHECK BY _____ DEPT _____ DATE _____

METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY	

DEPT _____	DATE _____

Samples MW-1S, and MW-2S are associated with method blank 92GUB356. Samples MW-1S DIL, MW-1S DUP, MW-1D, MW-2D, MW-3S, MW-3D, MW-4S, PZ-01 and PZ-02 are associated with method blank 92GUB357. And, sample MW-1SDUP DIL is associated with method blank 92GUB362.

Results for acetone, 2-Butanone, and methylene chloride in the samples associated with these blanks are qualified by elevating the limit of detection when the sample concentration is less than 10 times the blank concentration.

4. Matrix Spike / Matrix Spike Duplicate:

The matrix spike / matrix spike duplicate sample was MW-1D. All percent recoveries for all compounds were within QC limits. All percent RPDs for all spike compounds were within acceptable limits.

5. Surrogate Recovery:

Surrogate recoveries for toluene-d8 (86%) and bromofluorobenzene (78%) were outside QC limits for sample MW-1S. Therefore, positive results for sample MW-1S are flagged as estimated (J) while negative results are flagged with the sample quantitation limits as estimated (UJ).

Surrogate recovery for 1,2-Dichloroethane-d4 (39%) was outside QC limits for sample PZ-01. Therefore, positive results for sample PZ-01 are flagged as estimated (J) while negative results are flagged with the sample quantitation limits as estimated (UJ).

6. Initial and Continuing Calibration

In the continuing calibration file BYAC13 ran 12/13/92, 2-Butanone had a %D of -48.5. Therefore, positive results for 2-Butanone in samples MW-1S and MW-2S are estimated (J).

CLIENT/SUBJECT General Motors W.O. NO. _____

TASK DESCRIPTION Batch No. 9212G633 TASK NO. _____

PREPARED BY _____ DEPT _____ DATE 1/13/93

MATH CHECK BY _____ DEPT _____ DATE _____

METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY	
DEPT _____	DATE _____

6. Initial and Continuing Calibration (Continued):

In the continuing calibration file BYBC13 ran 12/13/92, Bromomethane had a %D of 34.5; Acetone had a %D of -36.1; 2-Butanone had a %D of -74.7; 4-Methyl-2-pentanone had a %D of -59.6 ^{and} 2-Hexanone had a %D of -53.3. Therefore, positive results for bromomethane, acetone, 2-butanone, 4-methyl-2-pentanone and 2-hexanone in samples MW-2D, MW-3S, MW-1S DIL, MW-1S Dup, MW-3D, MW-4S, PZ-01, PZ-02, TB112392 and MW-1D, are estimated (J).

In the continuing calibration file BYAC16 ran 12/16/92, bromomethane had a %D of 36.1. Therefore, positive results for bromomethane in sample MW-1S DUP DIL is estimated (J).

7. Hits:

	MW-1S	MW-1S DIL	MW-1S Dup
Methylene Chloride	-		
Acetone			
1,1-Dichloroethene	4J		3J
1,2-Dichloroethene (total)	35J		29
2-Butanone			
Trichloroethene		210	
Toluene	9J		3J
1,1-Dichloroethane			
4-Methyl-2-pentanone			
Ethylbenzene			
Xylene (Total)			
1,2-Dichloropropane			
Chlorobenzene			

CLIENT/SUBJECT General Motors W.O. NO. _____
 TASK DESCRIPTION Batch No. 9212G633 TASK NO. _____

PREPARED BY _____ DEPT _____ DATE 1/13/93
 MATH CHECK BY _____ DEPT _____ DATE _____
 METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY	
DEPT _____	DATE _____

Hits (Continued):

	MW-1S Dup Dil	MW-2D	MW-3S
Methylene Chloride			
Acetone			
1,1-Dichloroethene			
1,2-Dichloroethene (total)			3J
2-Butanone		8J	22
Trichloroethene	280J		5J
Toluene			14
1,1-Dichloroethane			6
4-Methyl-2-pentanone			6J
Ethyl benzene			3J
Xylene (Total)			3J
1,2-Dichloropropane			
Chlorobenzene			

	mw-2S	P2-01	P2-02
Methylene Chloride			61
Acetone			
1,1-Dichloroethene			
1,2-Dichloroethene (total)			
2-Butanone			13
Trichloroethene			
Toluene	4J		
1,1-Dichloroethane			6
4-Methyl-2-pentanone			6J
Ethyl benzene			
Xylene (Total)			
1,2-Dichloropropane		9J	
Chlorobenzene			3J



CLIENT/SUBJECT General Motors W.O. NO. _____

TASK DESCRIPTION Batch 9212G633 TASK NO. _____

PREPARED BY _____ DEPT _____ DATE 1/13/93

MATH CHECK BY _____ DEPT _____ DATE _____

METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY	

DEPT _____	DATE _____

8. Trip Blank:
Sample TB112392 was used as a trip blank for these samples.
No contaminants were detected in the trip blank.

Sample Information	Cust ID:	GMLRLF/1292/	GMLRLF/1292/	GMLRLF/1292/	GMLRLF/1292/	GMLRLF/1292/	GMLRLF/1292/
		MW-1S	MW-1S	MW-1SDup	MW-1SDup	MW-2S	MW-1D
	RFW#:	001	001 DL	002	002 DL	003	004
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	2.00	1.00	2.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L

Surrogate	Recovery	Toluene-d8	Bromofluorobenzene	1,2-Dichloroethane-d4	86 * %	98 %	94 %	93 %	98 %	103 %	94 %	105 %	94 %	96 %	94 %
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		f1	f1	f1	f1	f1	f1
Chloromethane	10 U	J	NA	10 U	NA	10 U	10 U
Bromomethane	10 U		NA	10 U	NA	10 U	10 U
Vinyl Chloride	10 U		NA	10 U	NA	10 U	10 U
Chloroethane	10 U		NA	10 U	NA	10 U	10 U
Methylene Chloride	5 U		NA	5 U	NA	5 U	5 U
Acetone	22	B-U	NA	6	J-B-U	20	B-U
Carbon Disulfide	5 U		NA	5 U	NA	5 U	5 U
1,1-Dichloroethene	4	J	NA	3	J	5	U
1,1-Dichloroethane	5 U		NA	5 U	NA	5 U	5 U
1,2-Dichloroethene (total)	35		NA	29		5	U
Chloroform	5 U		NA	5 U	NA	5 U	5 U
1,2-Dichloroethane	5 U		NA	5 U	NA	5 U	5 U
2-Butanone	30	B-U	NA	10 U	NA	12	B-U
1,1,1-Trichloroethane	5 U		NA	5 U	NA	5 U	5 U
Carbon Tetrachloride	5 U		NA	5 U	NA	5 U	5 U
Vinyl Acetate	10 U		NA	10 U	NA	10 U	10 U
Bromodichloromethane	5 U		NA	5 U	NA	5 U	5 U
1,2-Dichloropropane	5 U		NA	5 U	NA	5 U	5 U
cis-1,3-Dichloropropene	5 U		NA	5 U	NA	5 U	5 U
Trichloroethene		E	210		E	280	
Dibromochloromethane	5 U		NA	5 U	NA	5 U	5 U
1,1,2-Trichloroethane	5 U		NA	5 U	NA	5 U	5 U
Benzene	5 U		NA	5 U	NA	5 U	5 U
Trans-1,3-Dichloropropene	5 U		NA	5 U	NA	5 U	5 U
Bromoform	5 U		NA	5 U	NA	5 U	5 U
4-Methyl-2-pentanone	10 U		NA	10 U	NA	10 U	10 U
2-Hexanone	10 U		NA	10 U	NA	10 U	10 U
Tetrachloroethene	5 U		NA	5 U	NA	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U		NA	5 U	NA	5 U	5 U

*= Outside of EPA CLP QC Limits.

LK
1/13/92

Cust ID: GMLRLF/1292/ GMLRLF/1292/ GMLRLF/1292/ GMLRLF/1292/ GMLRLF/1292/ GMLRLF/1292/
 MW-1S MW-1S MW-1SDup MW-1SDup MW-2S MW-1D
 RFW#: 001 001 DL 002 002 DL 003 004

	9	U	NA	3	J	NA	4	J	5	U
Toluene	9		NA	3	J	NA	4	J	5	U
Chlorobenzene	5	U	NA	5	U	NA	5	U	5	U
Ethylbenzene	5	U	NA	5	U	NA	5	U	5	U
Styrene	5	U	NA	5	U	NA	5	U	5	U
Xylene (total)	5	U	NA	5	U	NA	5	U	5	U

*= Outside of EPA CLP QC Limits.

J

↓

LK
1/13/92

Cust ID:	GMLRLF/1292/	GMLRLF/1292/	GMLRLF/1292/	GMLRLF/1292/	GMLRLF/1292/	GMLRLF/1292/
	MW-1D	MW-1D	MW-2D	MW-3S	MW-3D	MW-4S
RFW#:	004 MS	004 MSD	005	006	007	008

	004 MS	004 MSD	005	006	007	008
Toluene	102 %	101 %	5 U	14	5 U	5 U
Chlorobenzene	96 %	97 %	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	3 J	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	3 J	5 U	5 U

*= Outside of EPA CLP QC Limits.

Sample Information	Cust ID: GMLRLF/1292/ PZ-01	GMLRLF/1292/ PZ-02	TB112392	VBLK	VBLK	VBLK BS
	RFW#: 009	010	011	92GVB356-MB1	92GVB357-MB1	92GVB357-MB1
	Matrix: WATER	WATER	WATER	WATER	WATER	WATER
	D.F.: 1.00	1.00	1.00	1.00	1.00	1.00
	Units: ug/L	ug/L	ug/L	ug/L	ug/L	ug/L

Surrogate	Toluene-d8	95 %	96 %	95 %	99 %	101 %	92 %
Recovery	Bromofluorobenzene	92 %	91 %	92 %	99 %	95 %	99 %
	1,2-Dichloroethane-d4	39 * %	96 %	93 %	94 %	94 %	98 %

	f]	f]	f]	f]	f]	f]
Chloromethane	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5 U	61	5 U	5 U	5 U	3 J
Acetone	51 BU	8 JB U	7 JB U	10	8 J	32 B
Carbon Disulfide	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	82 %
1,1-Dichloroethane	5 U	6	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5 U	5 U	5 U	5 U	5 U	3 J
Chloroform	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10 U	13	10 U	5 J	10 U	52
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	9	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5 U	5 U	5 U	5 U	5 U	93 %
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5 U	5 U	5 U	5 U	5 U	97 %
Trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone	10 U	6 J	10 U	10 U	10 U	7 J
2-Hexanone	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC Limits.

1/13/92
LK

Cust ID: GMLRLF/1292/ GMLRLF/1292/ TB112392 VBLK VBLK VBLK BS
 PZ-01 PZ-02
 RFW#: 009 010 011 92GVB356-MB1 92GVB357-MB1 92GVB357-MB1

	009	010	011	92GVB356-MB1	92GVB357-MB1	92GVB357-MB1	
Toluene	5 U	5 U	5 U	5 U	5 U	5 U	137 * %
Chlorobenzene	5 U	3 J	5 U	5 U	5 U	5 U	92 %
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	6
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U	5

1/13/93

*= Outside of EPA CLP QC Limits.

Cust ID: VBLK VBLK BS

Sample Information RFW#: 92GVB362-MB1 92GVB362-MB1
 Matrix: WATER WATER
 D.F.: 1.00 1.00
 Units: ug/L ug/L

Surrogate	Toluene-d8	100 %	102 %
Bromofluorobenzene	101 %	98 %	
Recovery 1,2-Dichloroethane-d4	96 %	97 %	
Chloromethane	10 U	10 U	
Bromomethane	10 U	10 U	
Vinyl Chloride	10 U	10 U	
Chloroethane	10 U	10 U	
Methylene Chloride	5 U	4 JB	
Acetone	9 J	12 B	
Carbon Disulfide	5 U	5 U	
1,1-Dichloroethene	5 U	124 %	
1,1-Dichloroethane	5 U	5 U	
1,2-Dichloroethene (total)	5 U	5 U	
Chloroform	5 U	5 U	
1,2-Dichloroethane	5 U	5 U	
2-Butanone	10 U	10 U	
1,1,1-Trichloroethane	5 U	5 U	
Carbon Tetrachloride	5 U	5 U	
Vinyl Acetate	10 U	10 U	
Bromodichloromethane	5 U	5 U	
1,2-Dichloropropane	5 U	5 U	
cis-1,3-Dichloropropene	5 U	5 U	
Trichloroethene	5 U	98 %	
Dibromochloromethane	5 U	5 U	
1,1,2-Trichloroethane	5 U	5 U	
Benzene	5 U	106 %	
Trans-1,3-Dichloropropene	5 U	5 U	
Bromoform	5 U	5 U	
4-Methyl-2-pentanone	10 U	10 U	
2-Hexanone	10 U	10 U	
Tetrachloroethene	5 U	5 U	
1,1,2,2-Tetrachloroethane	5 U	5 U	

*= Outside of EPA CLP QC Limits.

Cust ID: VBLK

VBLK BS

RFW#: 92GVB362-MB1 92GVB362-MB1

Toluene	5	U	103	%
Chlorobenzene	5	U	100	%
Ethylbenzene	5	U	5	U
Styrene	5	U	5	U
Xylene (total)	5	U	5	U

* = Outside of EPA CLP QC limits.