5/1/89-00697

Line Shack
Site Inspection

Naval Air Station, Oceana

Appendix B: Laboratory Data

Prepared for:
Atlantic Division Naval Facilities
Engineering Command,
Norfolk, Virginia

Contract N62470-85-C-7975

CH2M HILL
May 1989

WDR05/087/1

CH2M HILL
Engineers
Planners
Economists
Scientists

September 26, 1988

W20368.D0

Mr. Doug Dronfield
CH2M HILL/WDC
P.O. Box 4400
Reston, Virginia 22090

RE: Analytical Data for Laboratory No. 11805

Dear Mr. Dronfield:

On August 27, 1988, the CH2M HILL Montgomery Laboratory received twenty-five samples with a request for analysis of selected organic parameters.

Please note that the CH2M HILL Montgomery Laboratory reporting format has changed. The format alteration is in response to new reporting technology and will keep CH2M HILL in-line with new industry standards. We apologize for any inconvenience this change may cause.

The analytical results and the associated quality control data are enclosed. You will also find enclosed an attachment which explains the various EPA-defined reporting qualifiers. Volatile samples 11805-02 (STA-1-B1S2), 11805-09 (S3-1540-B3S3), 11805-10 (S4-1345-B4S1), 11805-17 (S6-1015-B6S2) and 11805-22 (S8-1615-SS1) required dilutions. The initial aquisitions are reported using the "E" qualifier followed by the appropriate dilution using the "D" qualifier. The "D" qualified amount is typically the accurate measurement. Sample 11805-06 (S2-1420-B2S3) was screened and run initially at a 5X dilution, thus the "E" qualifier is not observed.

The Volatile sample 11805-07 (STA-3-1540) does not indicate the "D" qualifier because the individual xylene isomers did not exceed the linear calibration range of the instrument. With sample 11805-18 (S6-1015-B6S3) the methylene chloride amount was within the instrument calibration range. However, the application of percent moisture resulted in a final amount above the calibration limit. Therefore, the "E" or "D" qualifiers are not observed.

Samples 11805-10 (S4-1345-B4S1) and 11805-11 (S4-1345-B4S2) displayed volatile surrogates outside the normal recovery limits. The samples were reanalyzed and the samples continued to display surrogate values outside the acceptable CLP limits. This phenomenon is also observed in the dilution of sample 11805-10 (S4-1345-B4S1DL). The dilution for sample 11805-02 (STA-1-B1S2DL) displayed a toluene-d8 surrogate recovery outside normal recovery limits. The dilution was not reacquired since the orginal (ie. nondiluted) acquisition displayed acceptable recoveries. No other difficulties were encountered during the analysis of these samples.

The number to the left of the "EPA Sample Number" on the Surrogate Recovery form (Form II) are sequential numbers automatically supplied by the software; they do not refer to the CH2M HILL laboratory number. Control Charts for the semivolatile surrogates are not enclosed since only one sample was analyzed for semivolatiles.

If you should have any questions concerning the data, please call.

Sincerely,

Ward Dickens

Ward Dickens
Manager, Organic Analysis

Enclosures

cc: Craig Vinson
Frank Lewis/WDC
Mary Wisdom/MGM-LQAC

ORGANIC ANALYSIS

ANALYTICAL INSTRUMENTATION

- Finnigan Models 4021, 5100, 4510 Gas Chromatographs/Mass Spectrometer/Data Systems equipped with Tekmar's LSC-2, LSC-3, and the 4200 automatic Heated Sample Module.

- Varian Models 3700 and 6000 Gas Chromatographs equipped with flame ionization, electron capture, thermionic specific, flame photometric detectors and autosamplers. State of the art Varian Vista 402 Data System and Hewlett Packard integrators.

- Dohrman DX-20 Total Organic Halide System.

- Water High Pressure Liquid Chromatograph with UV and Fluorescence detectors.

ANALYTICAL METHODOLOGY

- Priority Pollutants: The water samples are analyzed in accordance with procedures described in methods 608, 624, and 625, EPA-600/4-82-057 (1982). The soil samples are analyzed in accordance with procedures described in Methods 8080, 8240, and 8270, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

- Phenoxyacid Herbicides: Samples are analyzed in accordance with procedures outlined in Method 7, Federal Register, Vol. 38, No. 75, Part II, November 28, 1973.

- Total Organic Halides: Samples are analyzed in accordance with procedures outlined in Method 9020, USEPA, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

- Trihalomethanes: Samples are analyzed in accordance with procedures described in Method 501.2, Federal Register, Vol. 44, No. 231, Part II, November 29, 1979.

- Ethylene dibromide: Water samples are analyzed in accordance with procedures outlined in Method 504, Federal Register (50 FR 46902), November 13, 1985.

ATTACHMENT A

Definitions for the EPA-defined reporting qualifiers:

U - Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the practical quantitation limit (PQL) for that compound. The PQL can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

J - Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound below the stated PQL. The "J" qualifier is not used with pesticide results.

C - This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

B - This flag is used when the analyte is found in the associated blank as well as in the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.

E - This flag applies to GC/MS analyses only. The "E" qualifier indicates a compound maybe above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.

D - This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form 1.

A - Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.

X - Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09028B2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09028B2

Sample wt/vol: _____ (g/mL) G Lab File ID: CBV0001341

Level: (low/med) LOW Date Received: 09/02/88

% Moisture: not dec. 0 Date Analyzed: 09/02/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09058B1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09058B1

Sample wt/vol: _____ (g/mL) G Lab File ID: CBV0001360

Level: (low/med) LOW Date Received: 09/05/88

% Moisture: not dec. 0 Date Analyzed: 09/05/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09068B1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: Y09068B1

Sample wt/vol: _____ (g/mL) ML Lab File ID: CBV0001380

Level: (low/med) LOW Date Received: 09/06/88

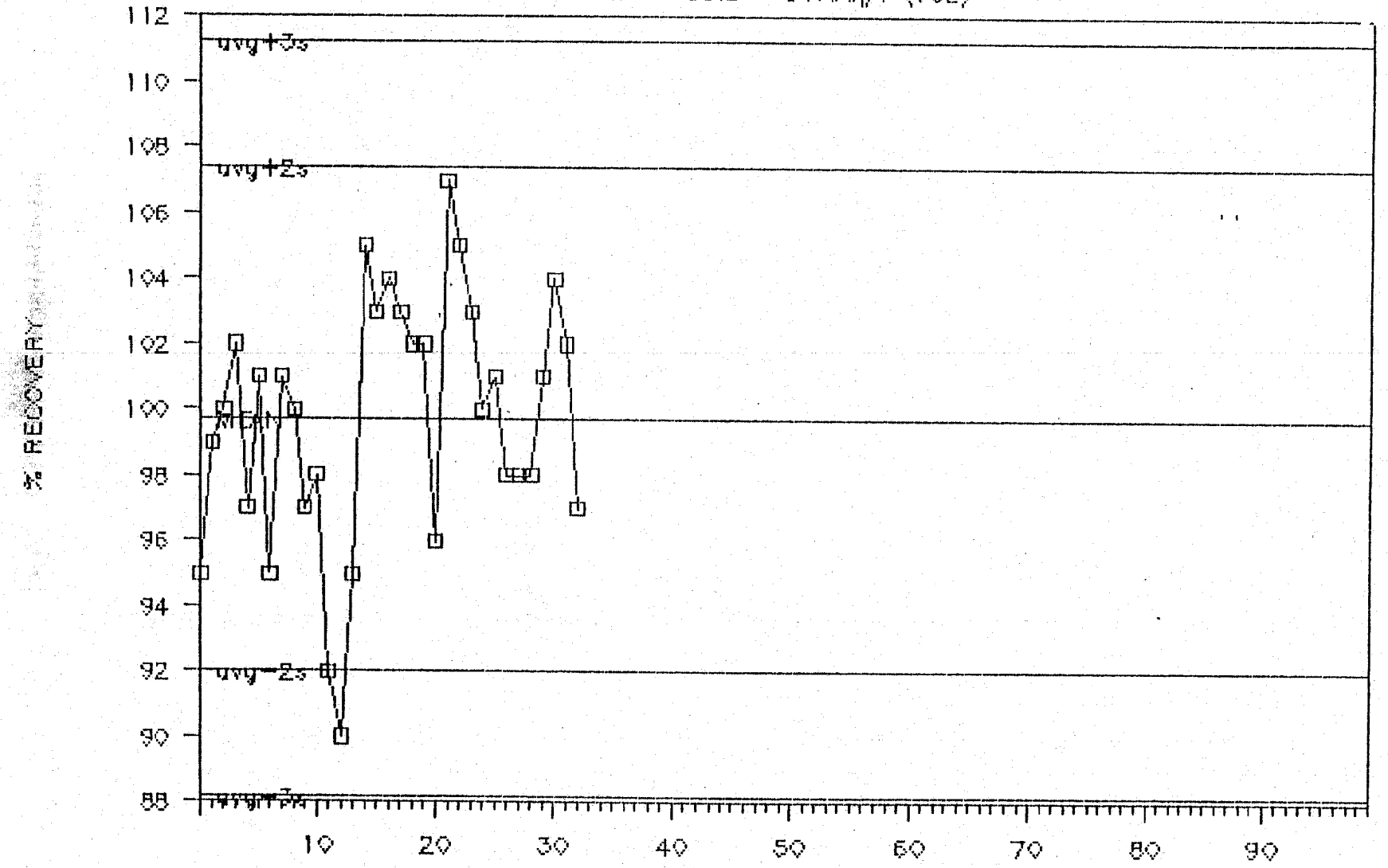
% Moisture: not dec. _____ Date Analyzed: 09/06/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

SURROGATE RECOVERY

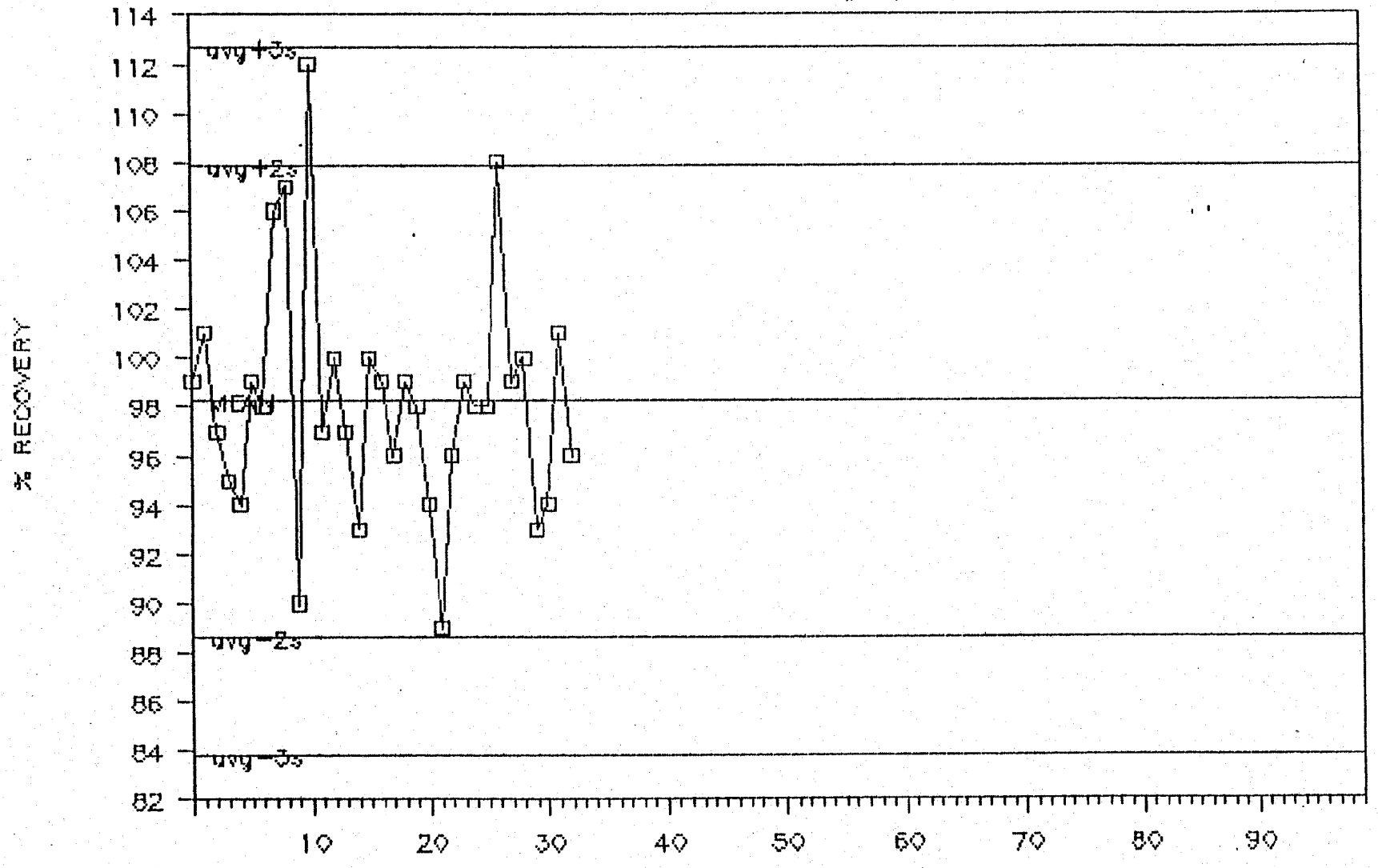
VOLATILES - SOIL - SURR.#1 (TOL)



000001

SURROGATE RECOVERY

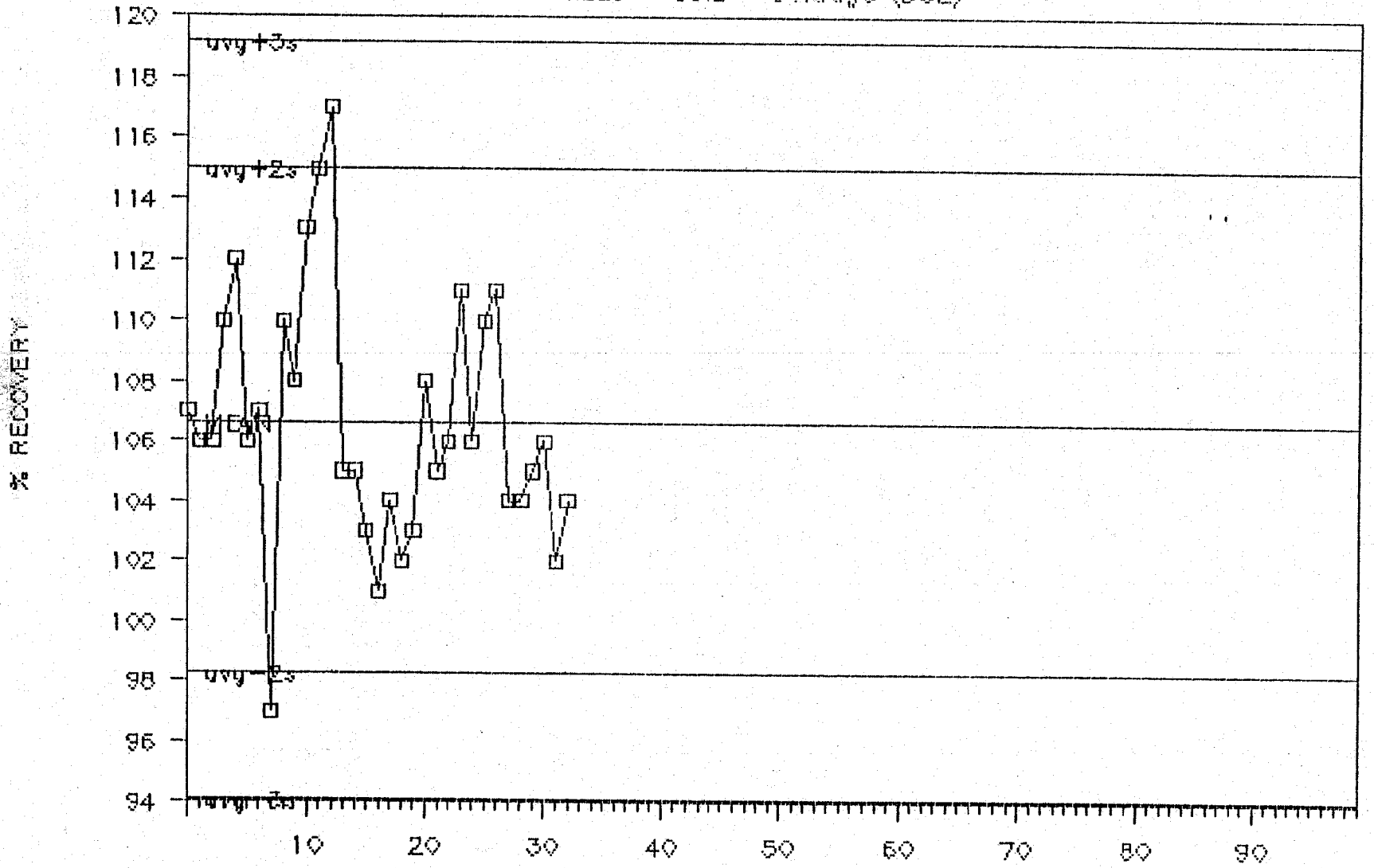
VOLATILES - SOIL - SURR.#2 (BFB)



000002

SURROGATE RECOVERY

VOLATILES - SOIL - SURR.#3 (DCE)



000003

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STA_1_B1S1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805001

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001342

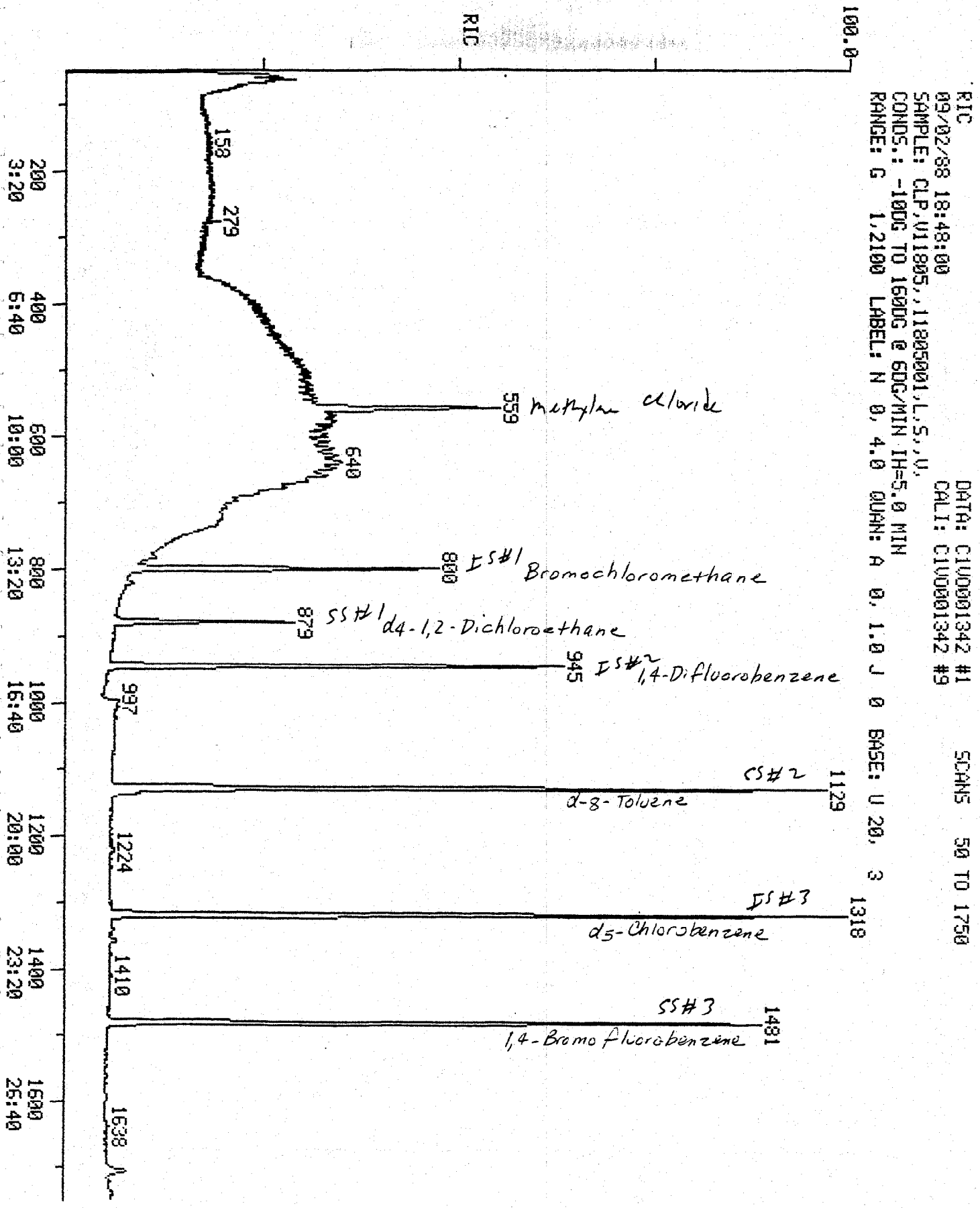
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 5 Date Analyzed: 09/02/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	64	
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

TCA FINISHED, 8 FOUND
FINISHED AT: 9/03/88 3:46:01



139776.

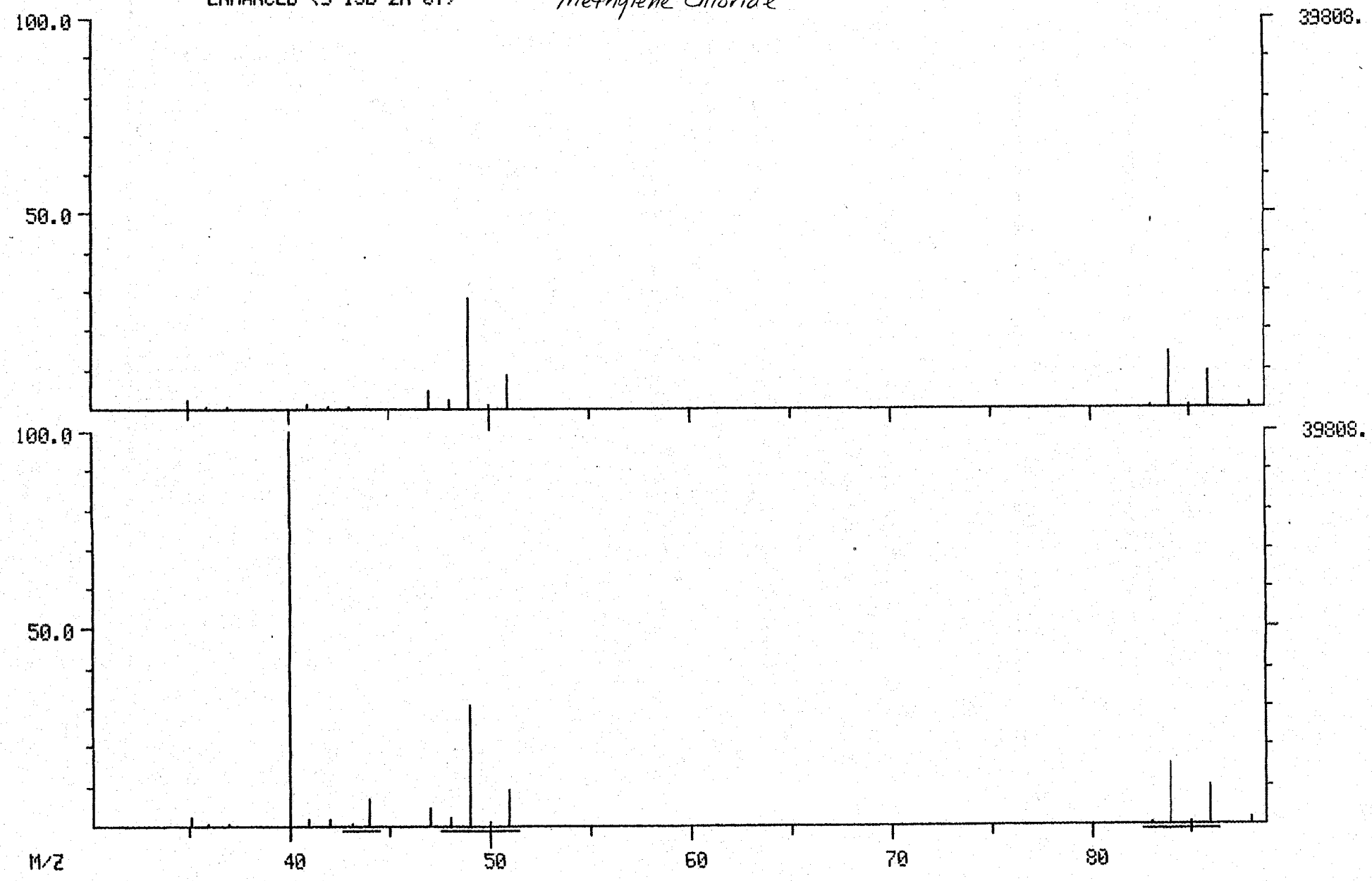
000005

DUAL MASS SPECTRUM
09/02/88 18:48:00 + 9:18
SAMPLE: CLP,V11805,,11805001,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Methylene Chloride

DATA: C1V0001342 #558 BASE M/Z: 49/ 40
CALI: C1V0001342 #9 RIC: 30751./ 76031.

000006



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STA_1_B1S2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805002

Sample wt/vol: _____ (g/mL) G Lab File ID: C2VO001371

Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 14 Date Analyzed: 09/05/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	320	E
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STA_1_B1S2DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805002DL

Sample wt/vol: _____ (g/mL) G Lab File ID: C3V0001386

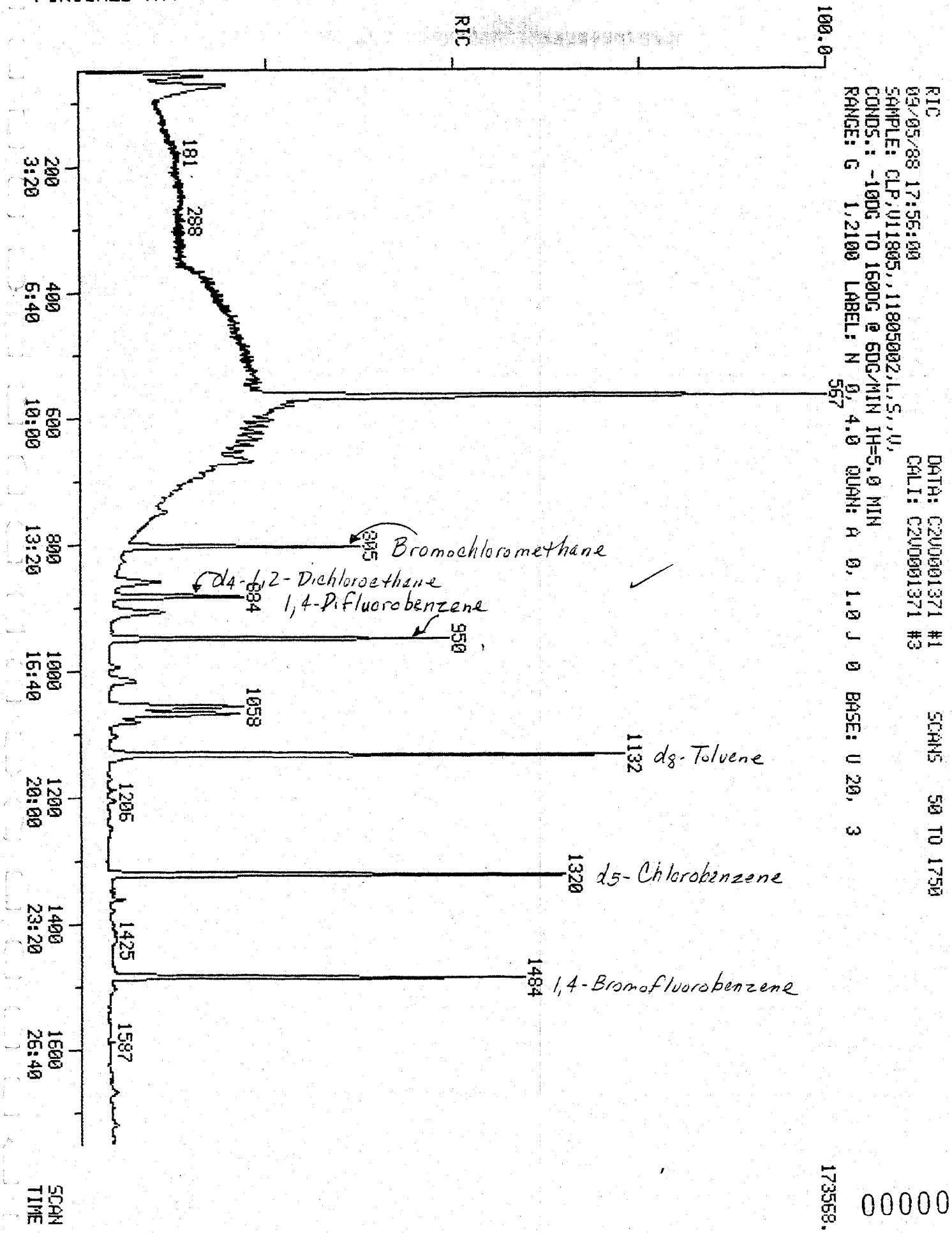
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 14 Date Analyzed: 09/06/88

Column: (pack/cap) CAP Dilution Factor: 5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	58	U
74-83-9	Bromomethane	58	U
75-01-4	Vinyl Chloride	58	U
75-00-3	Chloroethane	58	U
75-09-2	Methylene Chloride	580	D
67-64-1	Acetone	58	U
75-15-0	Carbon Disulfide	29	U
75-35-4	1,1-Dichloroethene	29	U
75-34-3	1,1-Dichloroethane	29	U
540-59-0	1,2-Dichloroethene (total)	29	U
67-66-3	Chloroform	29	U
107-06-2	1,2-Dichloroethane	29	U
78-93-3	2-Butanone	58	U
71-55-6	1,1,1-Trichloroethane	29	U
56-23-5	Carbon Tetrachloride	29	U
108-05-4	Vinyl Acetate	58	U
75-27-4	Bromodichloromethane	29	U
78-87-5	1,2-Dichloropropane	29	U
10061-01-5	cis-1,3-Dichloropropene	29	U
79-01-6	Trichloroethene	29	U
124-48-1	Dibromochloromethane	29	U
79-00-5	1,1,2-Trichloroethane	29	U
71-43-2	Benzene	29	U
10061-02-6	trans-1,3-Dichloropropene	29	U
75-25-2	Bromoform	29	U
591-78-6	2-Hexanone	58	U
108-10-1	4-Methyl-2-Pentanone	58	U
127-18-4	Tetrachloroethene	29	U
79-34-5	1,1,2,2-Tetrachloroethane	58	U
108-88-3	Toluene	29	U
108-90-7	Chlorobenzene	29	U
100-41-4	Ethylbenzene	29	U
100-42-5	Styrene	29	U
1330-20-7	Xylenes (total)	29	U

TCA FINISHED, 7 FOUND
FINISHED AT: 9/05/88 22:32:05



173568.

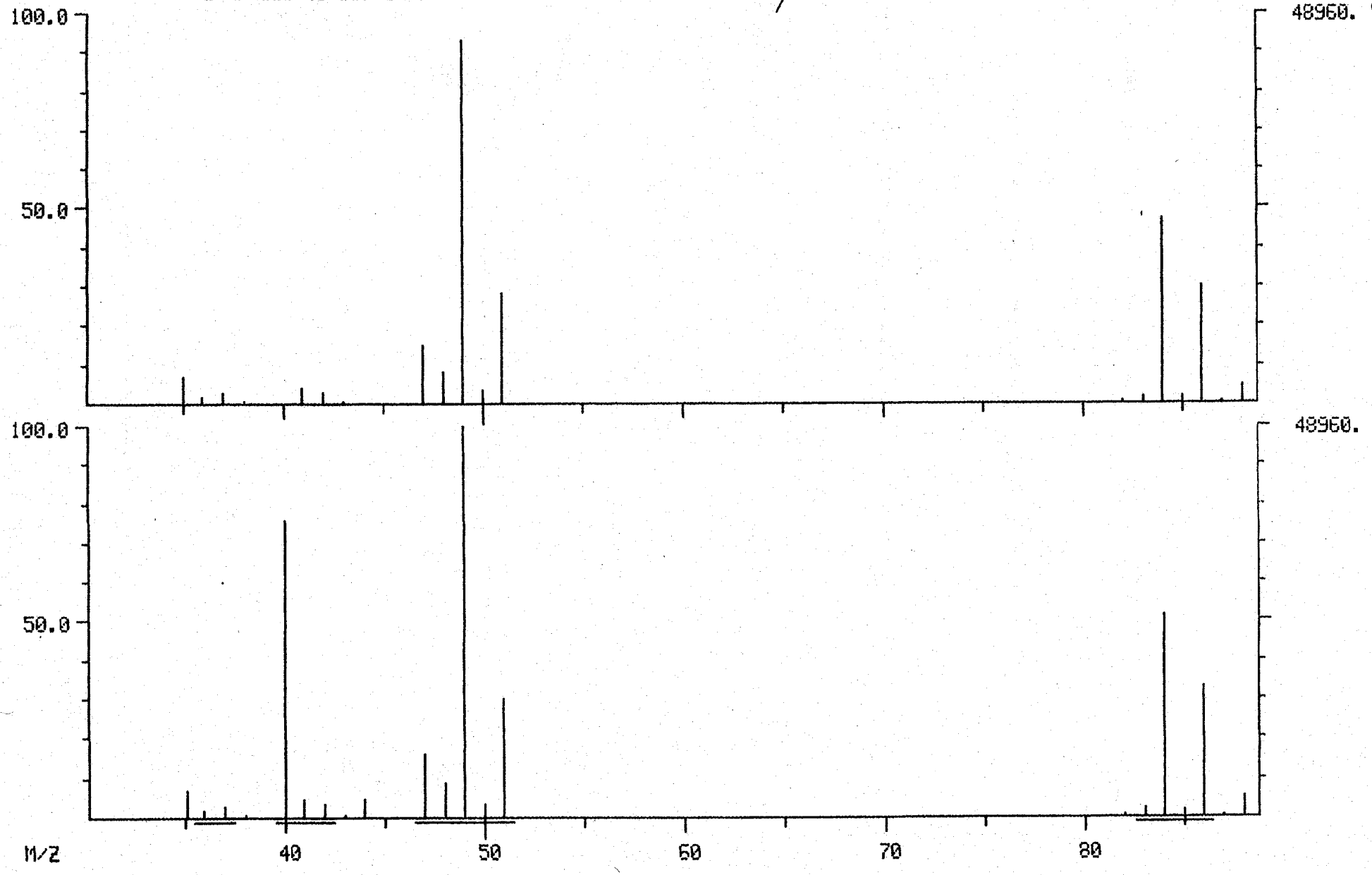
000009

DUAL MASS SPECTRUM
09/05/88 17:56:00 + 9:27
SAMPLE: CLP,V11805,,11805002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001371 #567 BASE M/Z: 49/ 49
CALI: C2V0001371 #3 RIC: 125183./ 174079.

Methylene chloride

000010



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STA_1_B1S3

Lab Name: CH2M HILL/MGM Contract: _____

ab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805003

ample wt/vol: _____ (g/mL) G Lab File ID: C1VO001344

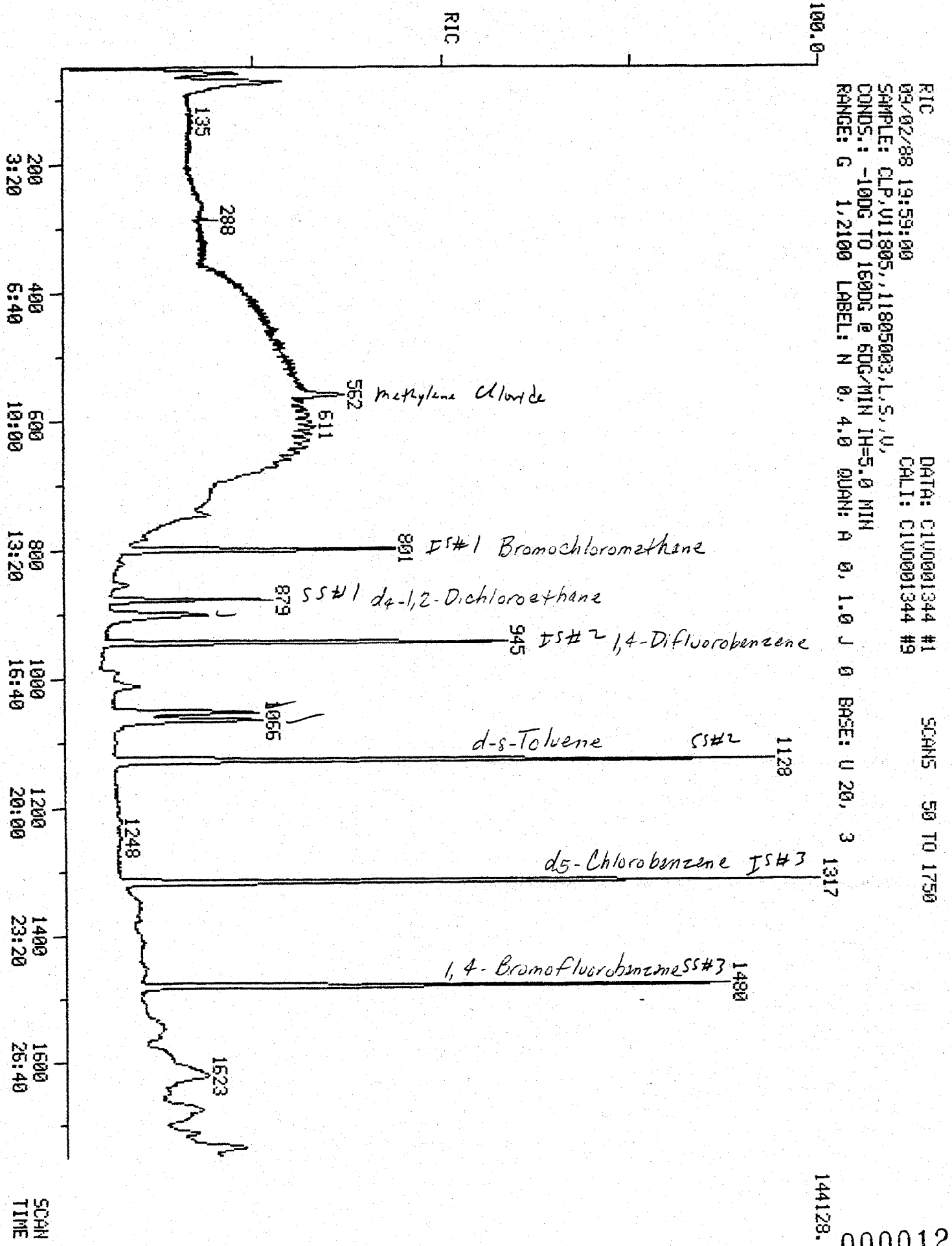
evel: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 19 Date Analyzed: 09/02/88

olumn: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	15	
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	7	X
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 7 FOUND
FINISHED AT: 9/03/88 10:15:42



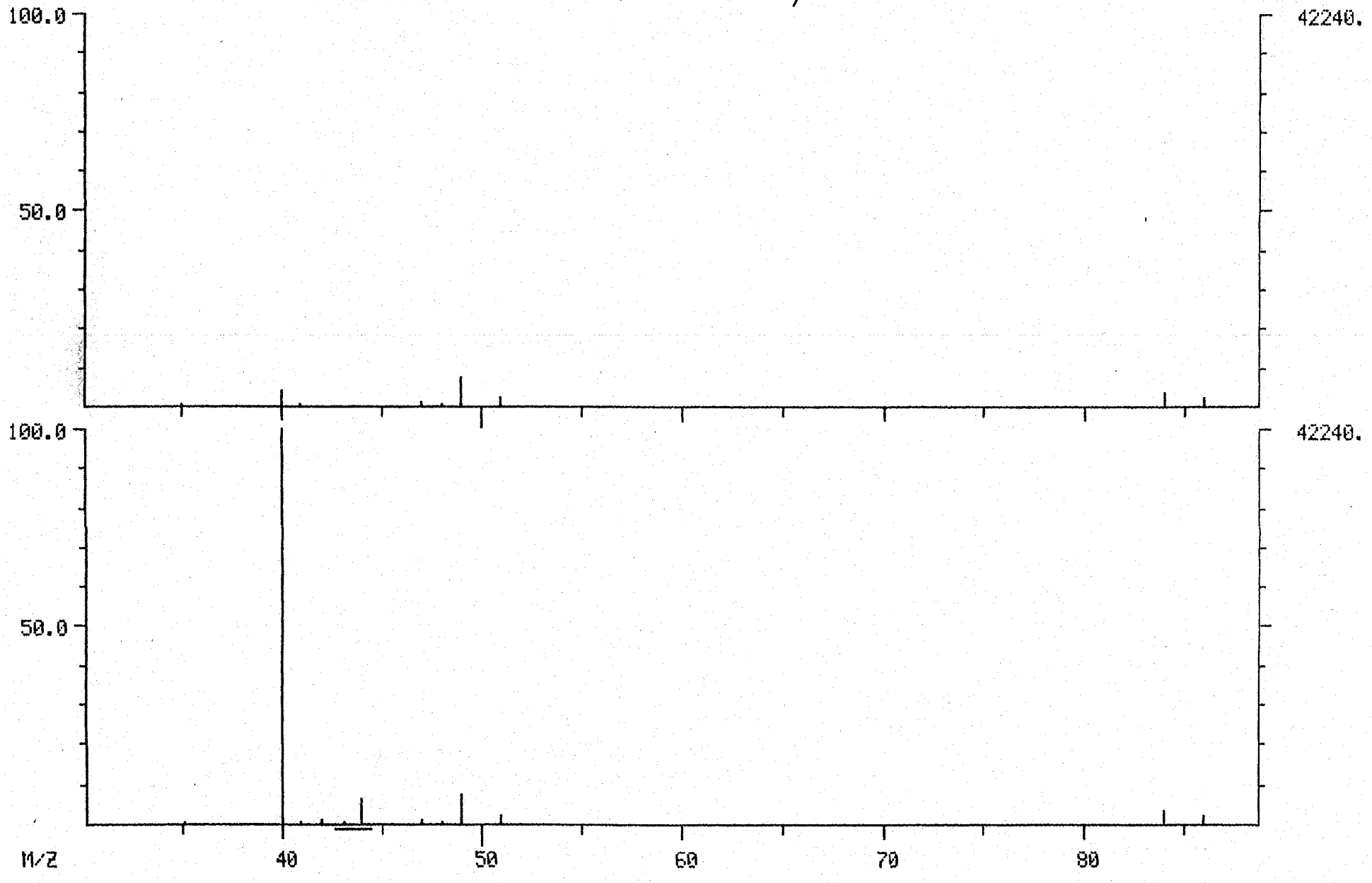
000012

DUAL MASS SPECTRUM
09/02/88 19:59:00 + 9:21
SAMPLE: CLP,V11805,,11805003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001344 #561 BASE M/Z: 49/ 40
CALI: C1V0001344 #9 RIC: 9695./ 53567.

Methylene chloride

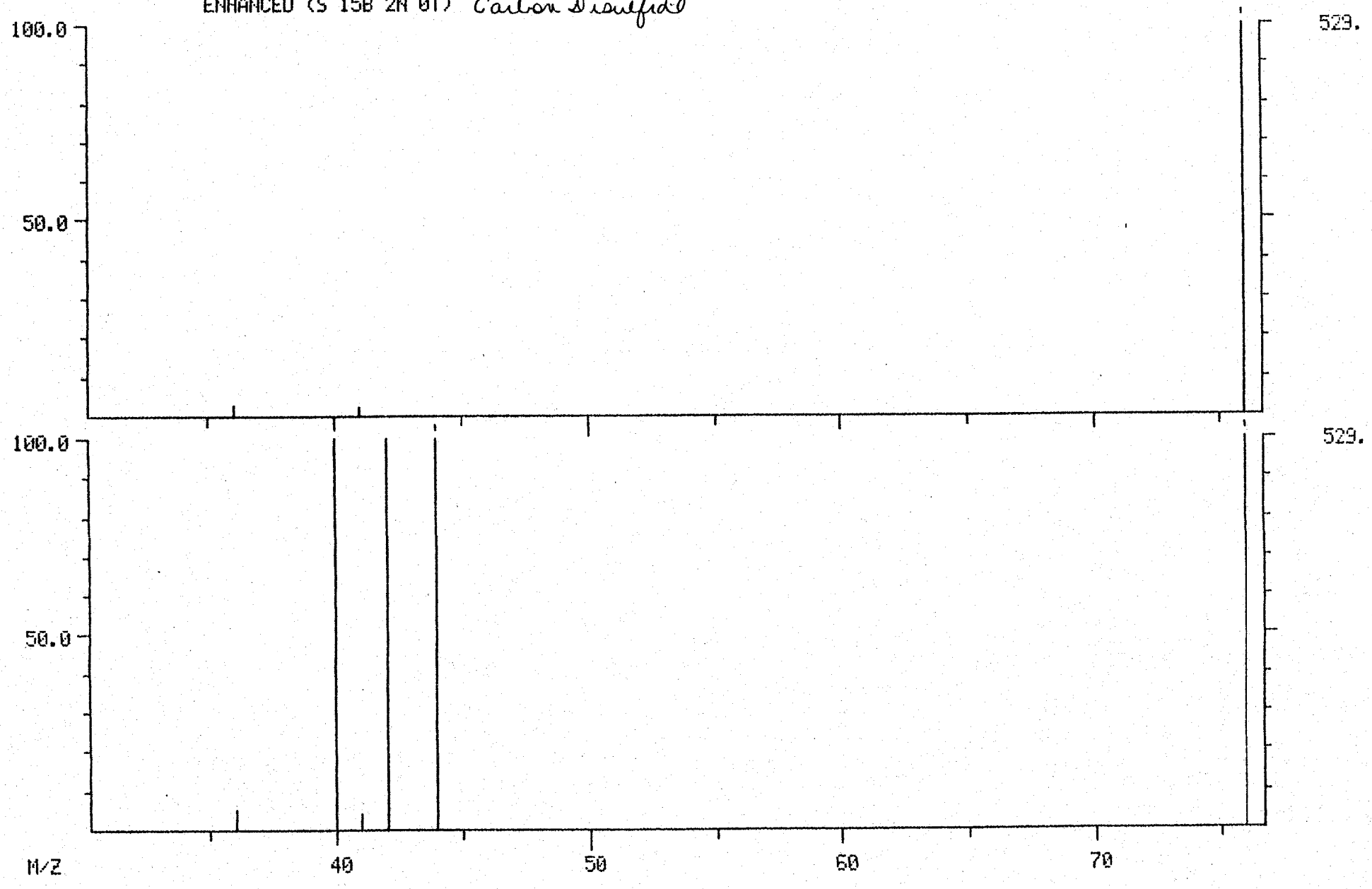
000013



DUAL MASS SPECTRUM
09/02/88 19:59:00 + 7:37
SAMPLE: CLP,V11805,,11805003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Carbon Disulfide

DATA: C1V0001344 #457 BASE M/Z: 76/ 40
CALI: C1V0001344 #9 RIC: 580./ 39359.

000014



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S2_1420_B2S1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805004

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001345

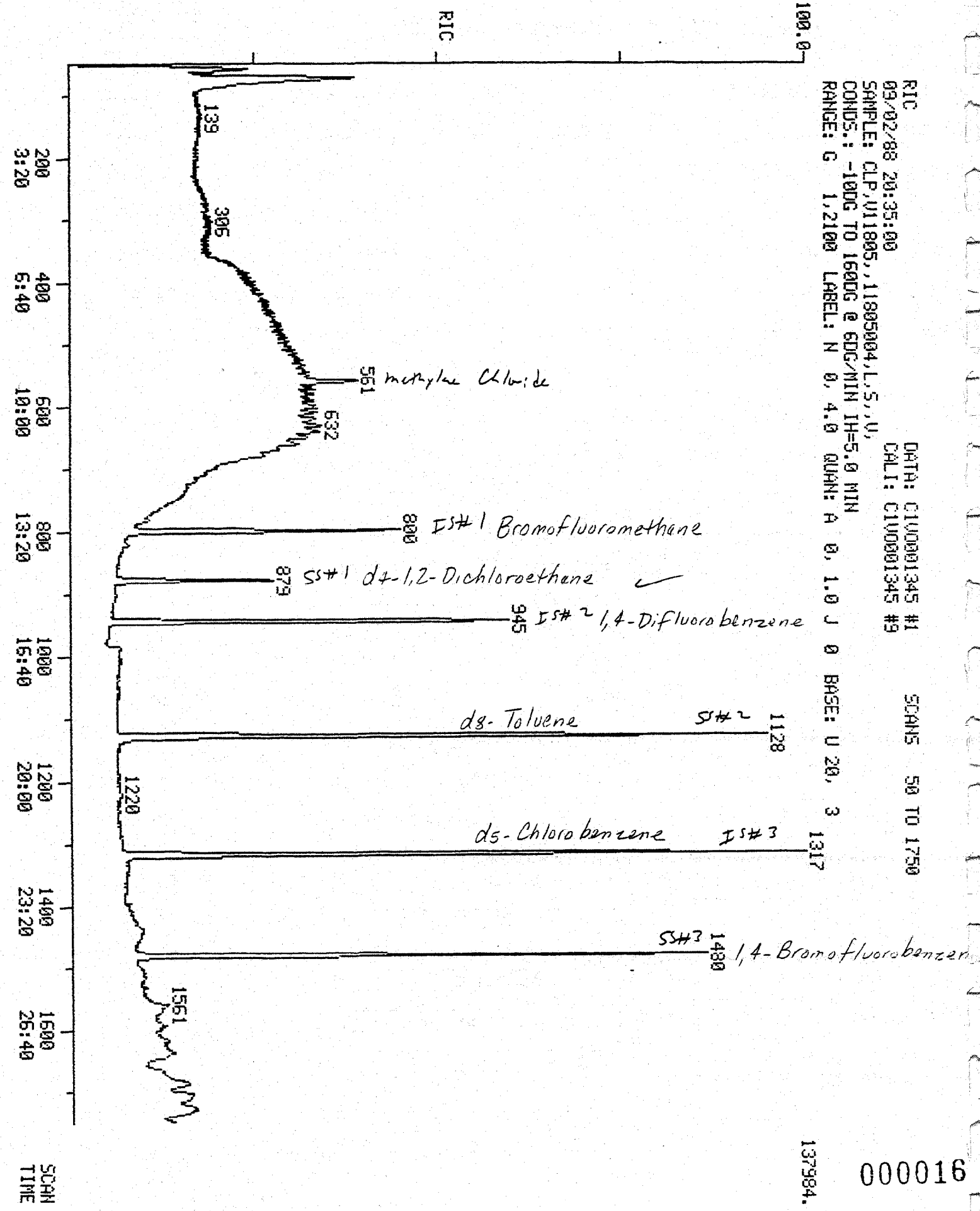
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 19 Date Analyzed: 09/02/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	22	X
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 7 FOUND
FINISHED AT: 9/03/88 10:21:49



137984.

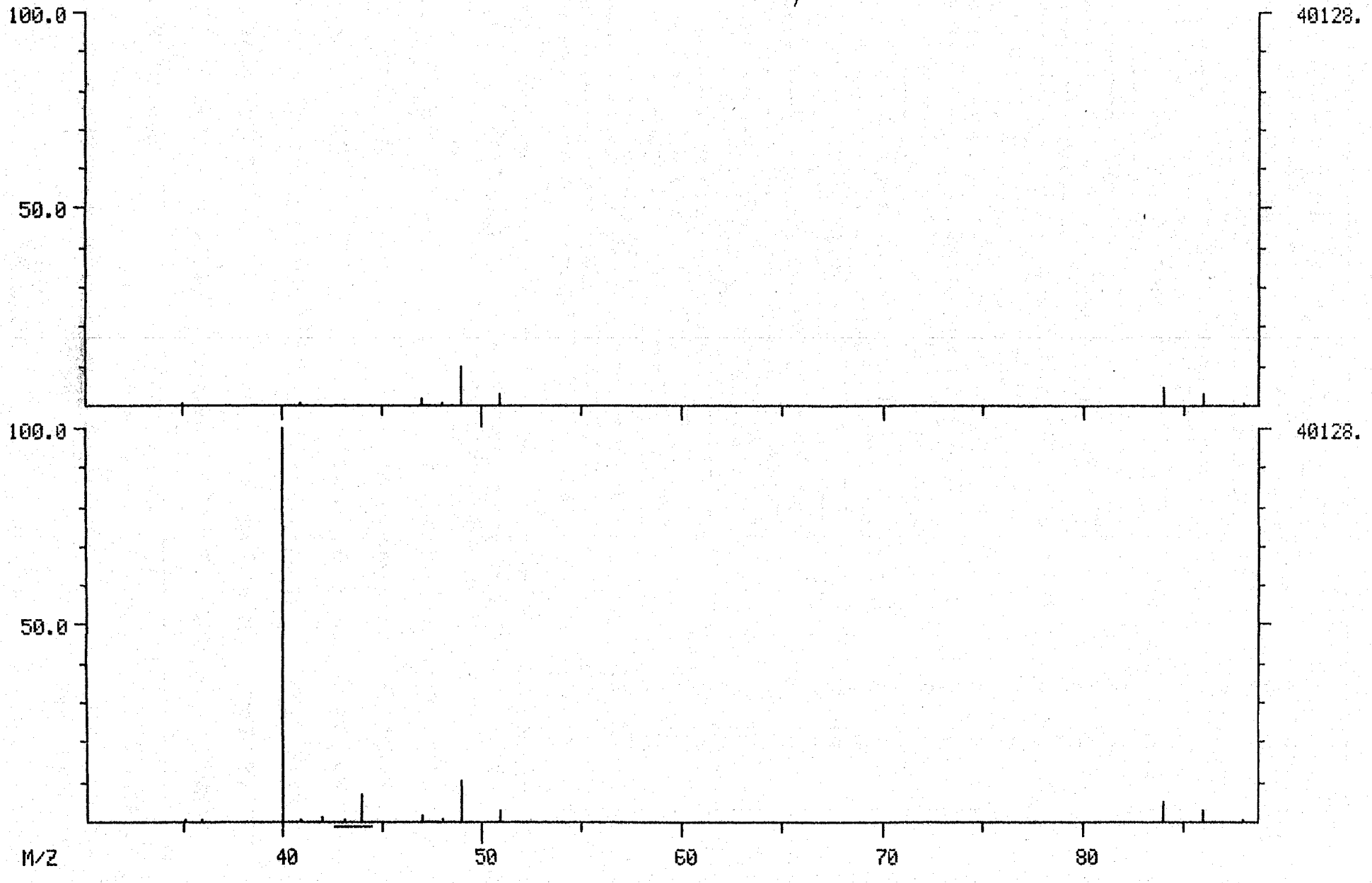
000016

DUAL MASS SPECTRUM
09/02/88 20:35:00 + 9:21
SAMPLE: CLP,V11805,,11805004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001345 #561 BASE M/Z: 49/ 40
CALI: C1V0001345 #9 RIC: 10127./ 54079.

Methylene chloride

000017



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S2_1420_B2S2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805005

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001346

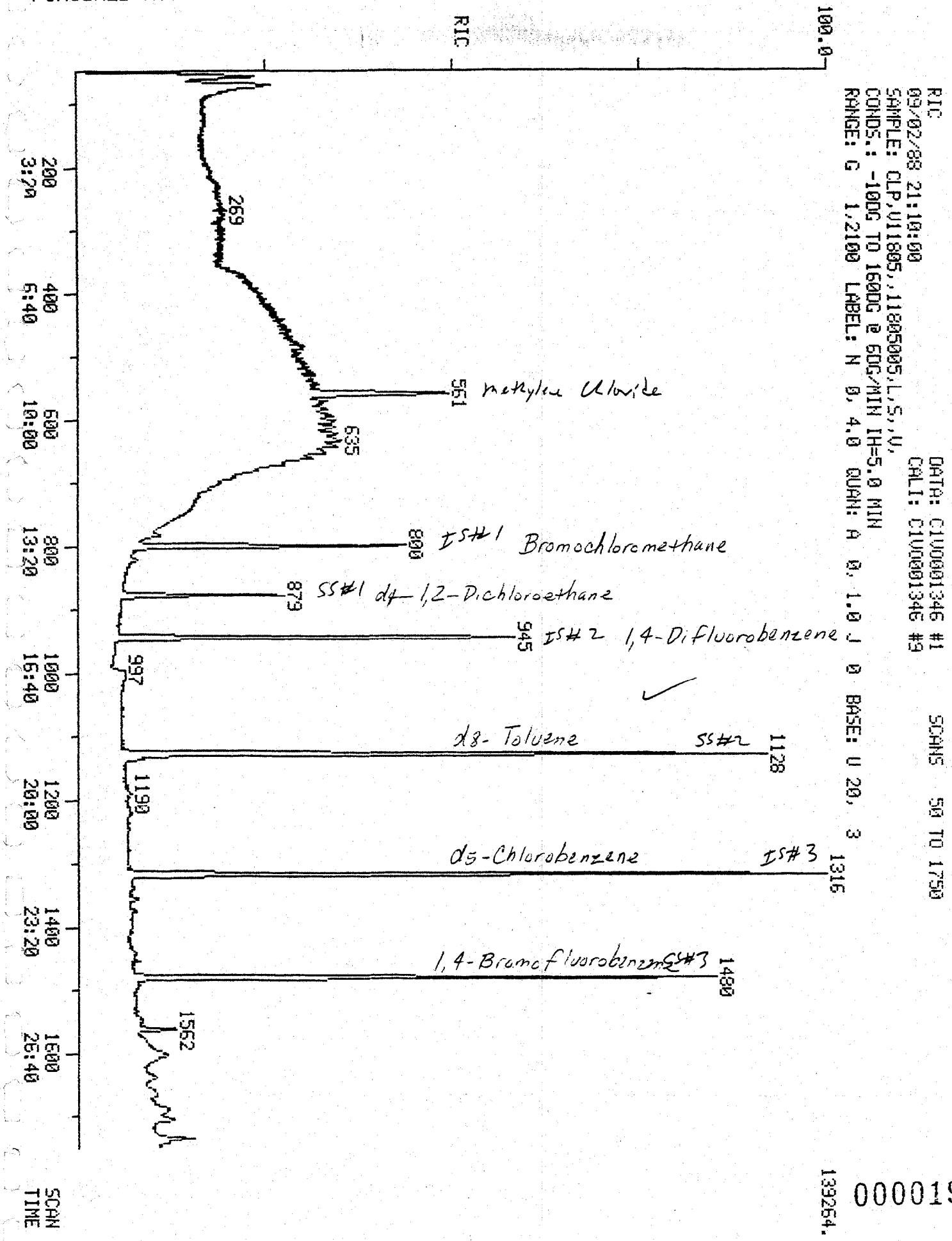
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 16 Date Analyzed: 09/02/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	56	X
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 7 FOUND
FINISHED AT: 9/03/88 10:27:52



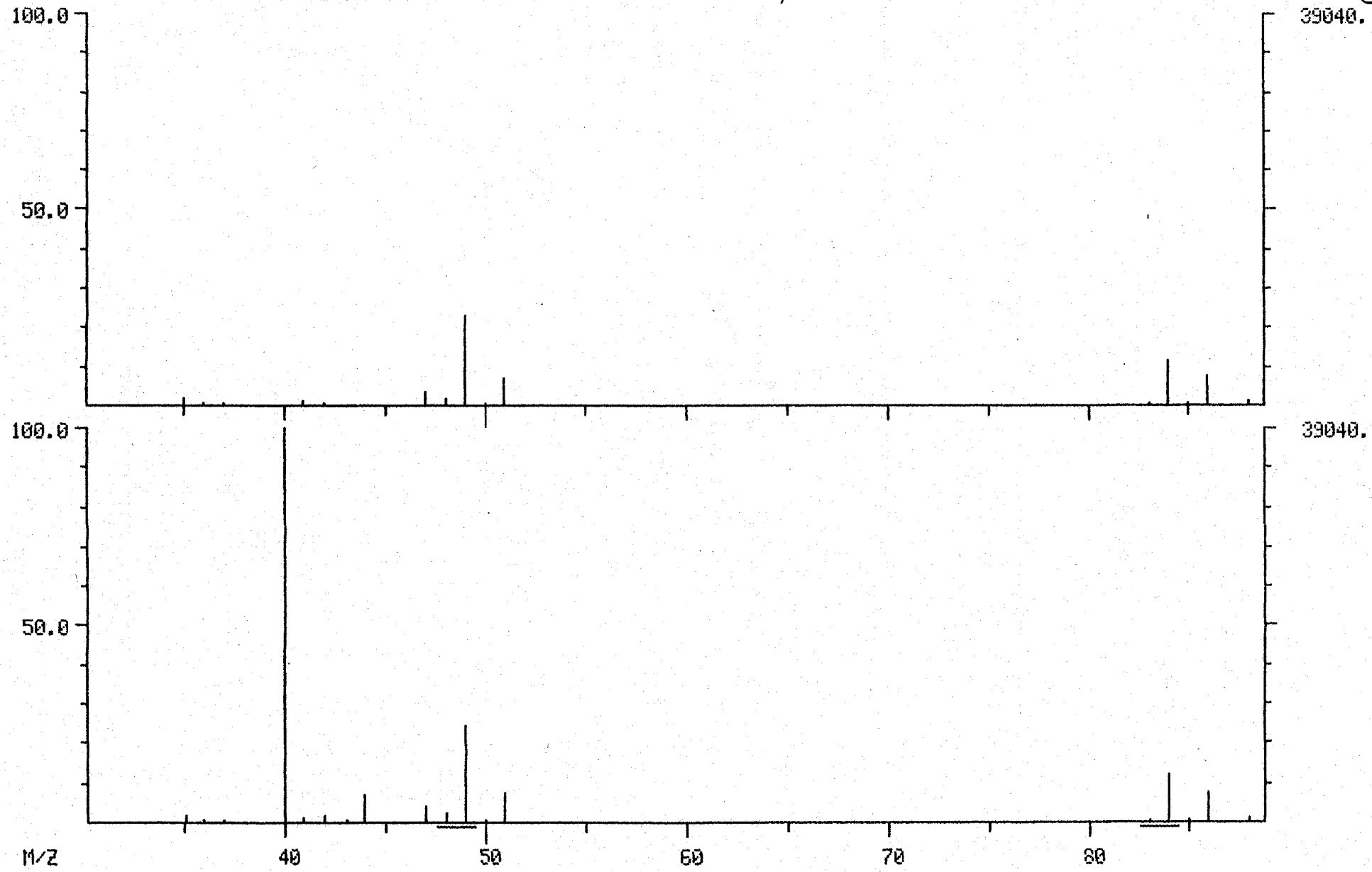
000019

DUAL MASS SPECTRUM
09/02/88 21:10:00 + 9:20
SAMPLE: CLP,V11805,,11805005,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001346 #560 BASE M/Z: 49/ 40
CALI: C1V0001346 #9 RIC: 24351./ 67839.

Methylene chloride

000020



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S2_1420_B2S3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805006

Sample wt/vol: _____ (g/mL) G Lab File ID: C2V0001372

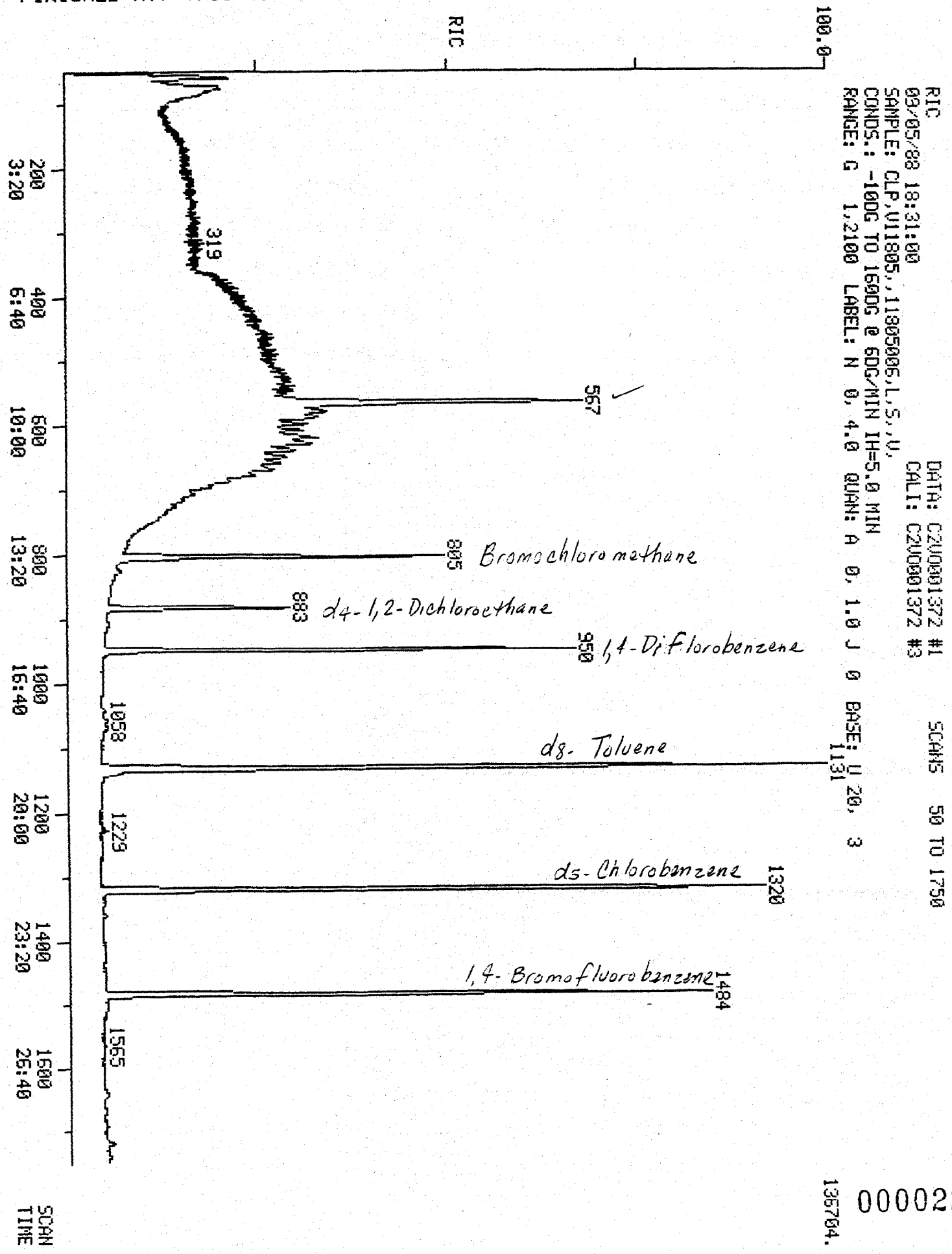
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 17 Date Analyzed: 09/05/88

Column: (pack/cap) CAP Dilution Factor: 5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	60	U
74-83-9	Bromomethane	60	U
75-01-4	Vinyl Chloride	60	U
75-00-3	Chloroethane	60	U
75-09-2	Methylene Chloride	840	D
67-64-1	Acetone	140	
75-15-0	Carbon Disulfide	30	U
75-35-4	1,1-Dichloroethene	30	U
75-34-3	1,1-Dichloroethane	30	U
540-59-0	1,2-Dichloroethene (total)	30	U
67-66-3	Chloroform	30	U
107-06-2	1,2-Dichloroethane	30	U
78-93-3	2-Butanone	60	U
71-55-6	1,1,1-Trichloroethane	30	U
56-23-5	Carbon Tetrachloride	30	U
108-05-4	Vinyl Acetate	60	U
75-27-4	Bromodichloromethane	30	U
78-87-5	1,2-Dichloropropane	30	U
10061-01-5	cis-1,3-Dichloropropene	30	U
79-01-6	Trichloroethene	30	U
124-48-1	Dibromochloromethane	30	U
79-00-5	1,1,2-Trichloroethane	30	U
71-43-2	Benzene	30	U
10061-02-6	trans-1,3-Dichloropropene	30	U
75-25-2	Bromoform	30	U
591-78-6	2-Hexanone	60	U
108-10-1	4-Methyl-2-Pentanone	60	U
127-18-4	Tetrachloroethene	30	U
79-34-5	1,1,2,2-Tetrachloroethane	60	U
108-88-3	Toluene	30	U
108-90-7	Chlorobenzene	30	U
100-41-4	Ethylbenzene	30	U
100-42-5	Styrene	30	U
1330-20-7	Xylenes (total)	30	U

TCA FINISHED, 7 FOUND
FINISHED AT: 9/05/88 22:38:08



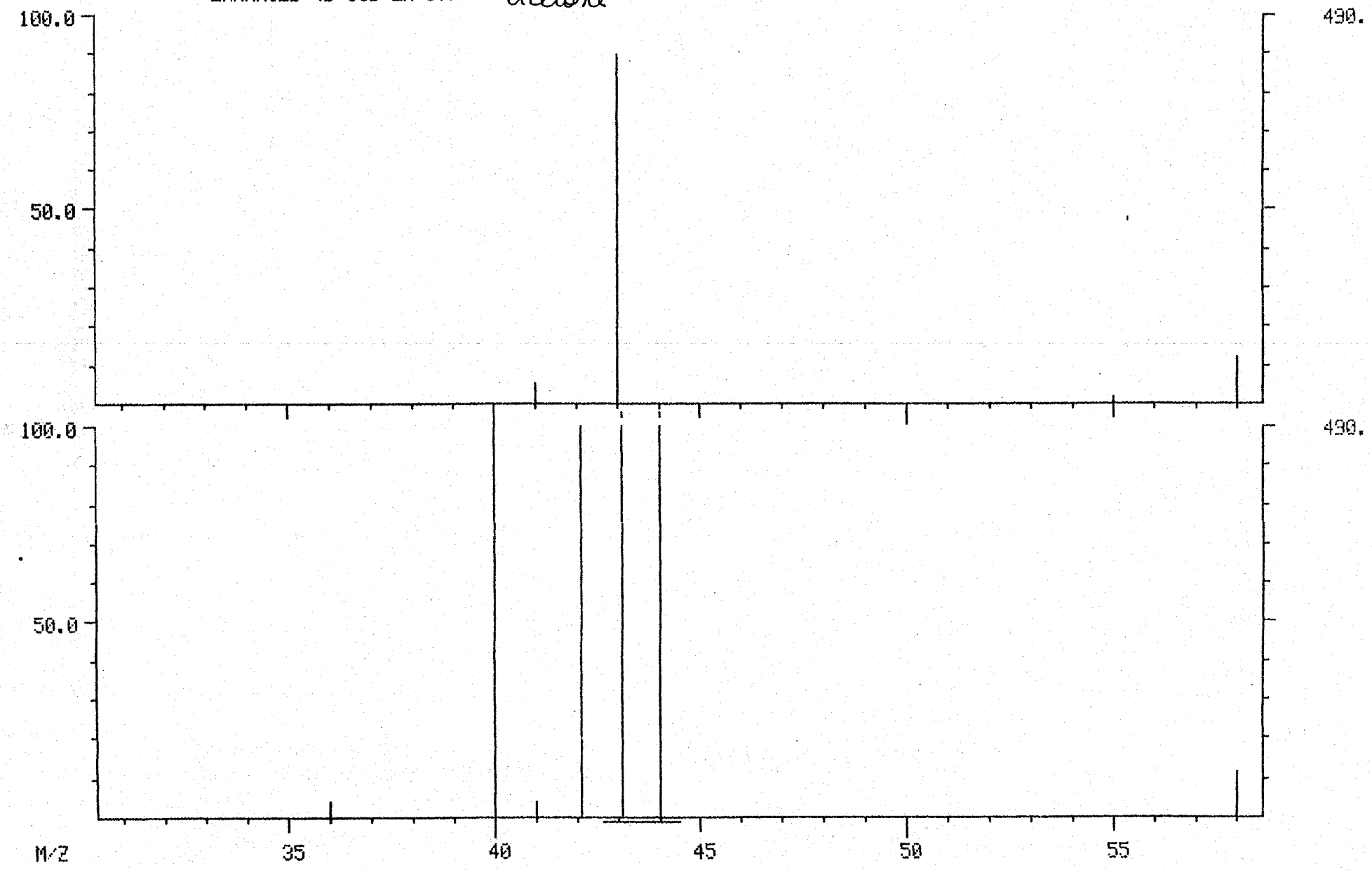
135704.

000022

DUAL MASS SPECTRUM
09/05/88 18:31:00 + 8:12
SAMPLE: CLP,V11805,,11805006,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

DATA: C2V0001372 #492 BASE M/Z: 43/ 40
CALI: C2V0001372 #3 RIC: 531./ 35903.

000023

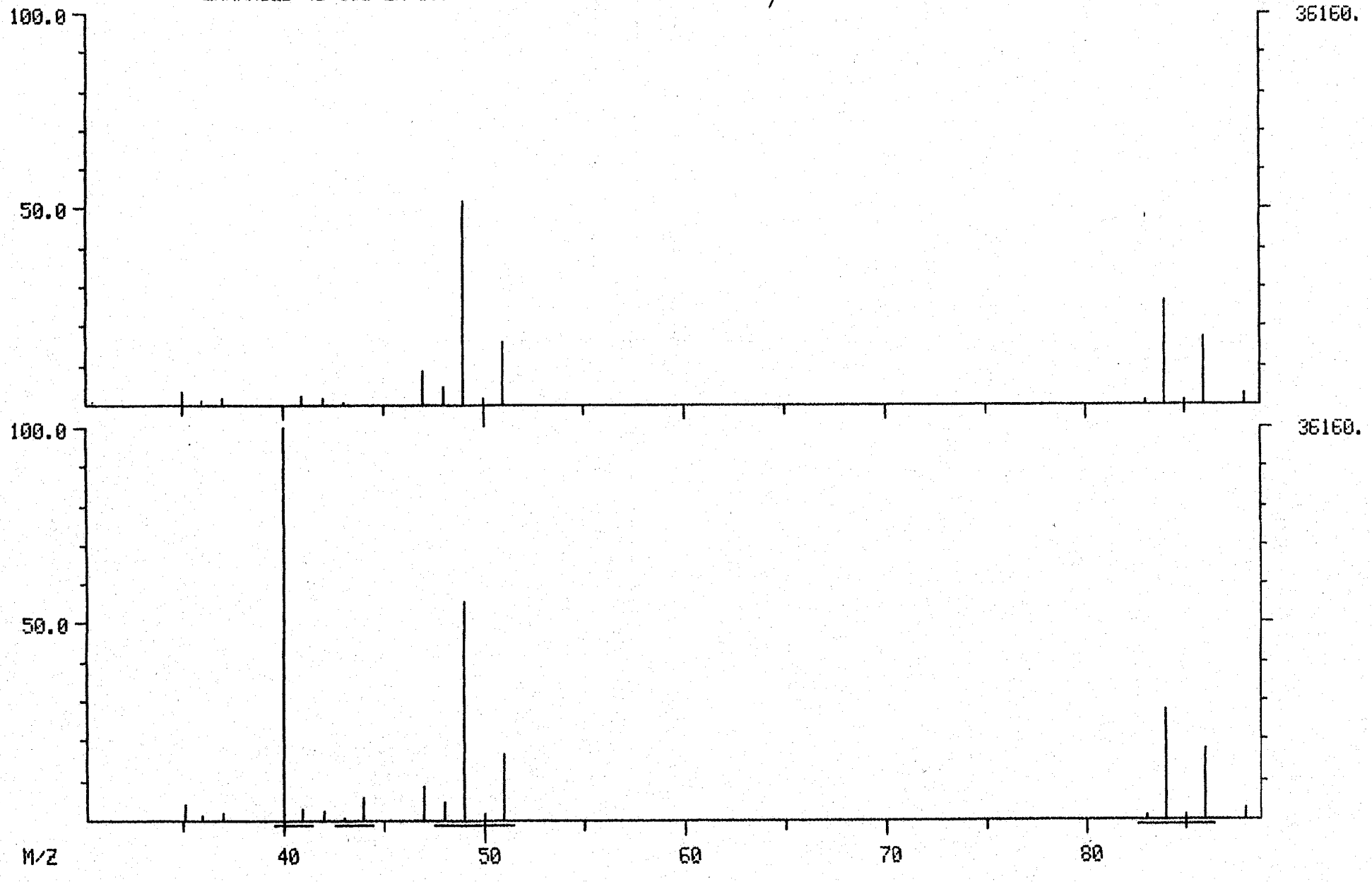


DUAL MASS SPECTRUM
09/05/88 18:31:00 + 9:27
SAMPLE: CLP,V11805,,11805006,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

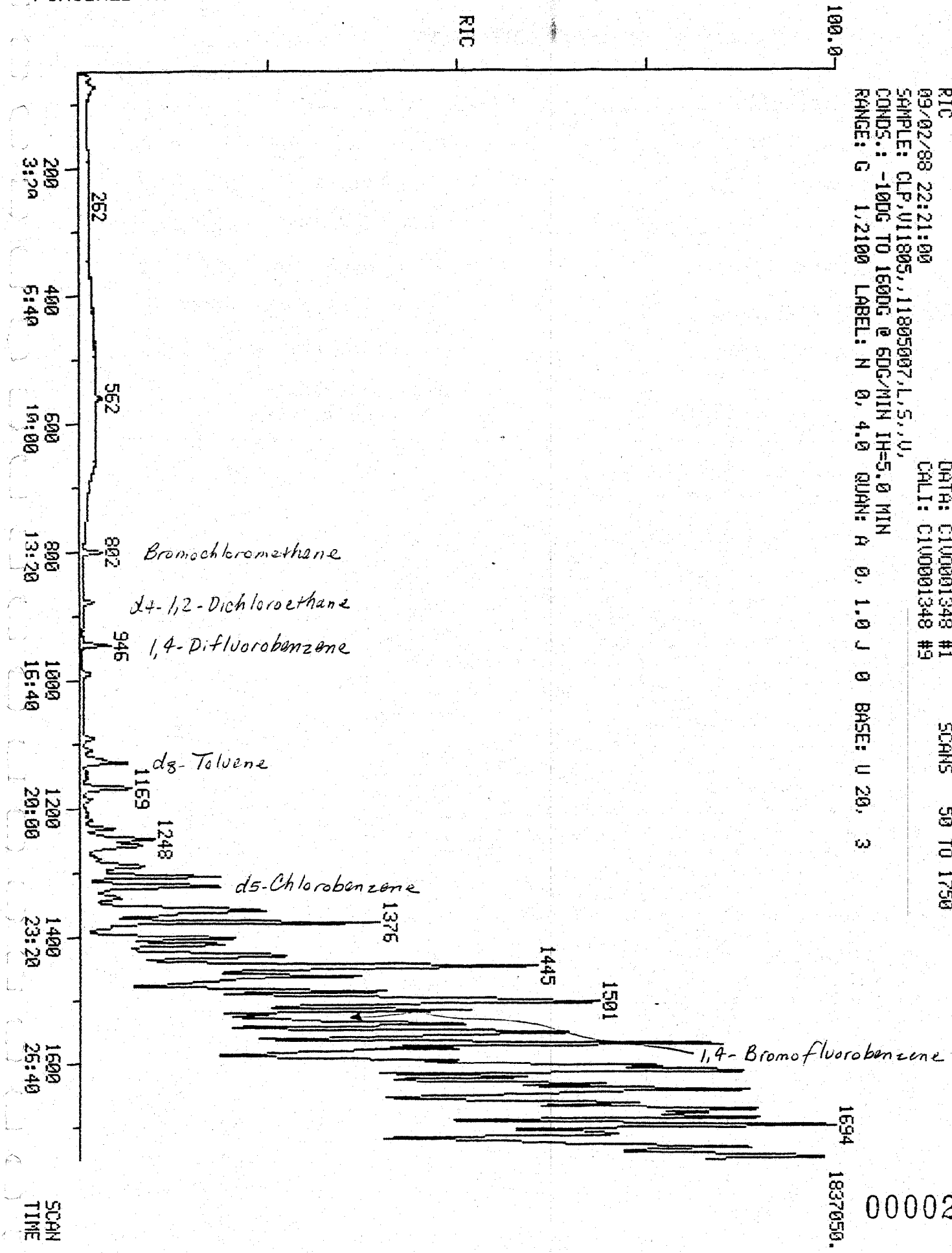
DATA: C2V0001372 #567 BASE M/Z: 49/ 40
CALI: C2V0001372 #3 RIC: 51391./ 92799.

Methylene chloride

000024



TCA FINISHED, 9 FOUND
FINISHED AT: 9/03/88 10:55:06



000025

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

33 S1
STA_3_1540

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805007

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001348

Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 8 Date Analyzed: 09/02/88

Column: (pack/cap) CAP Dilution Factor: 5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	54	U
74-83-9	Bromomethane	54	U
75-01-4	Vinyl Chloride	54	U
75-00-3	Chloroethane	54	U
75-09-2	Methylene Chloride	130	
67-64-1	Acetone	54	U
75-15-0	Carbon Disulfide	27	U
75-35-4	1,1-Dichloroethene	27	U
75-34-3	1,1-Dichloroethane	27	U
540-59-0	1,2-Dichloroethene (total)	27	U
67-66-3	Chloroform	27	U
107-06-2	1,2-Dichloroethane	27	U
78-93-3	2-Butanone	54	U
71-55-6	1,1,1-Trichloroethane	27	U
56-23-5	Carbon Tetrachloride	27	U
108-05-4	Vinyl Acetate	54	U
75-27-4	Bromodichloromethane	27	U
78-87-5	1,2-Dichloropropane	27	U
10061-01-5	cis-1,3-Dichloropropene	27	U
79-01-6	Trichloroethene	27	U
124-48-1	Dibromochloromethane	27	U
79-00-5	1,1,2-Trichloroethane	27	U
71-43-2	Benzene	27	U
10061-02-6	trans-1,3-Dichloropropene	27	U
75-25-2	Bromoform	27	U
591-78-6	2-Hexanone	54	U
108-10-1	4-Methyl-2-Pentanone	54	U
127-18-4	Tetrachloroethene	27	U
79-34-5	1,1,2,2-Tetrachloroethane	54	U
108-88-3	Toluene	27	U
108-90-7	Chlorobenzene	27	U
100-41-4	Ethylbenzene	85	
100-42-5	Styrene	27	U
1330-20-7	Xylenes (total)	480	

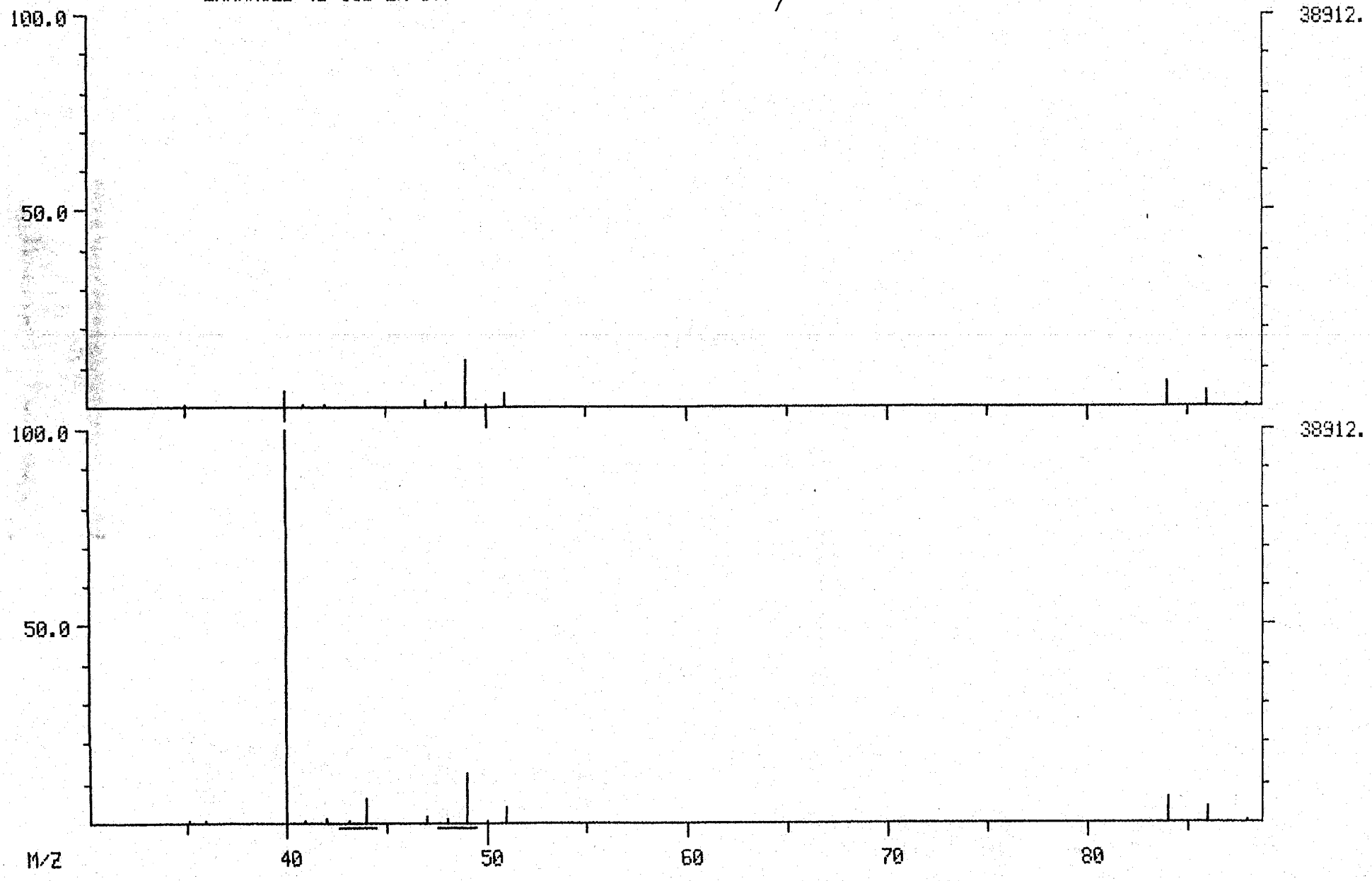
R5

DUAL MASS SPECTRUM
09/02/88 22:21:00 + 9:22
SAMPLE: CLP,V11805,,11805007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001348 #562 BASE M/Z: 49/ 40
CALI: C1V0001348 #9 RIC: 14239./ 55103.

Methylene chloride

000027

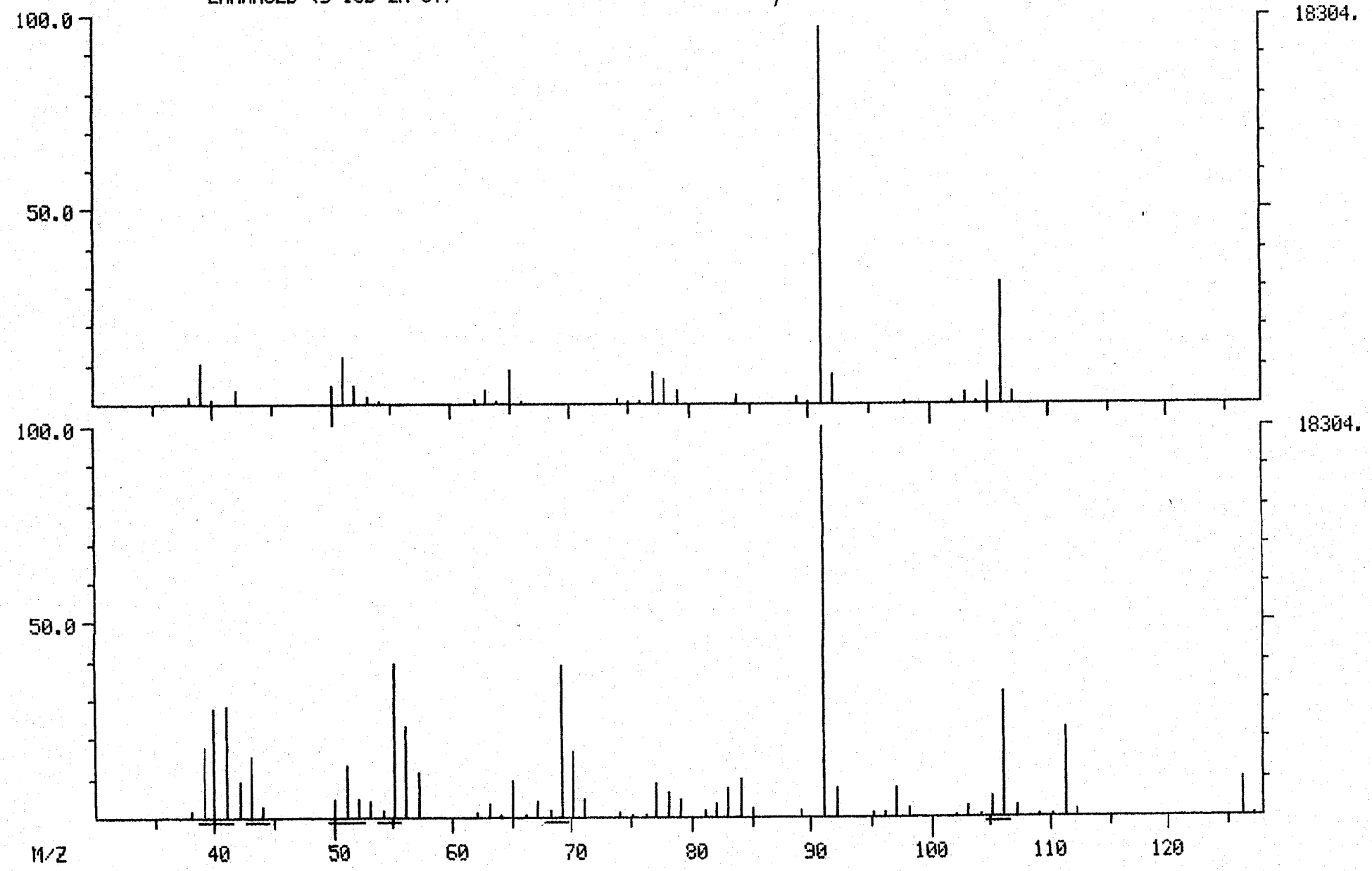


DUAL MASS SPECTRUM
09/02/88 22:21:00 + 22:21
SAMPLE: CLP,V11805,,11805007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001348 #1341 BASE M/Z: 91/ 91
CALI: C1V0001348 #9 RIC: 41599./ 97663.

000028

Ethyl Benzene

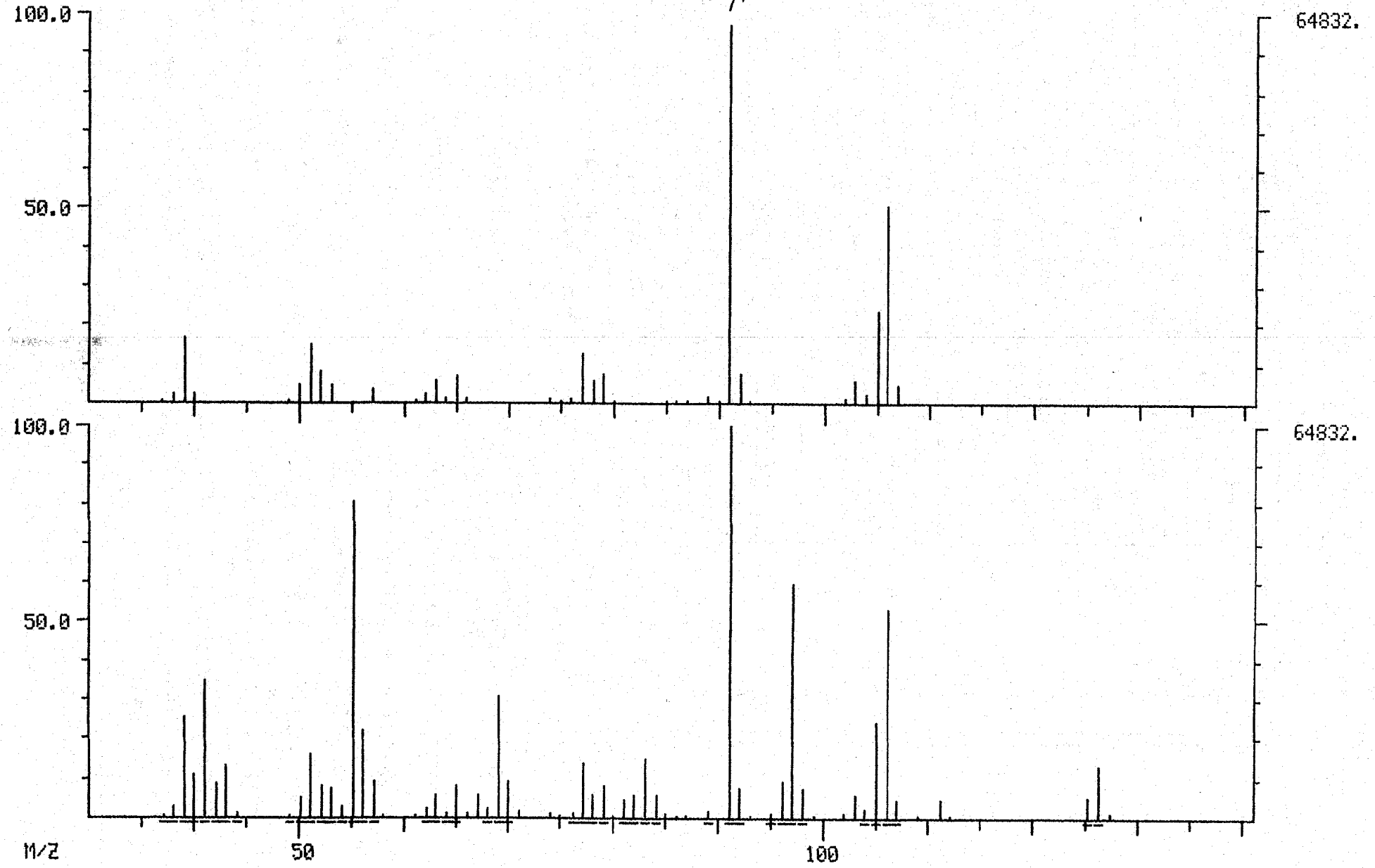


DUAL MASS SPECTRUM
09/02/88 22:21:00 + 22:39
SAMPLE: CLP,V11805,,11805007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001348 #1359 BASE M/Z: 91/ 91
CALI: C1V0001348 #9 RIC: 197119./ 447999.

000029

Xylene



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S3_1540_B3S2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805008

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001349

Level: (low/med) LOW Date Received: 08/27/88

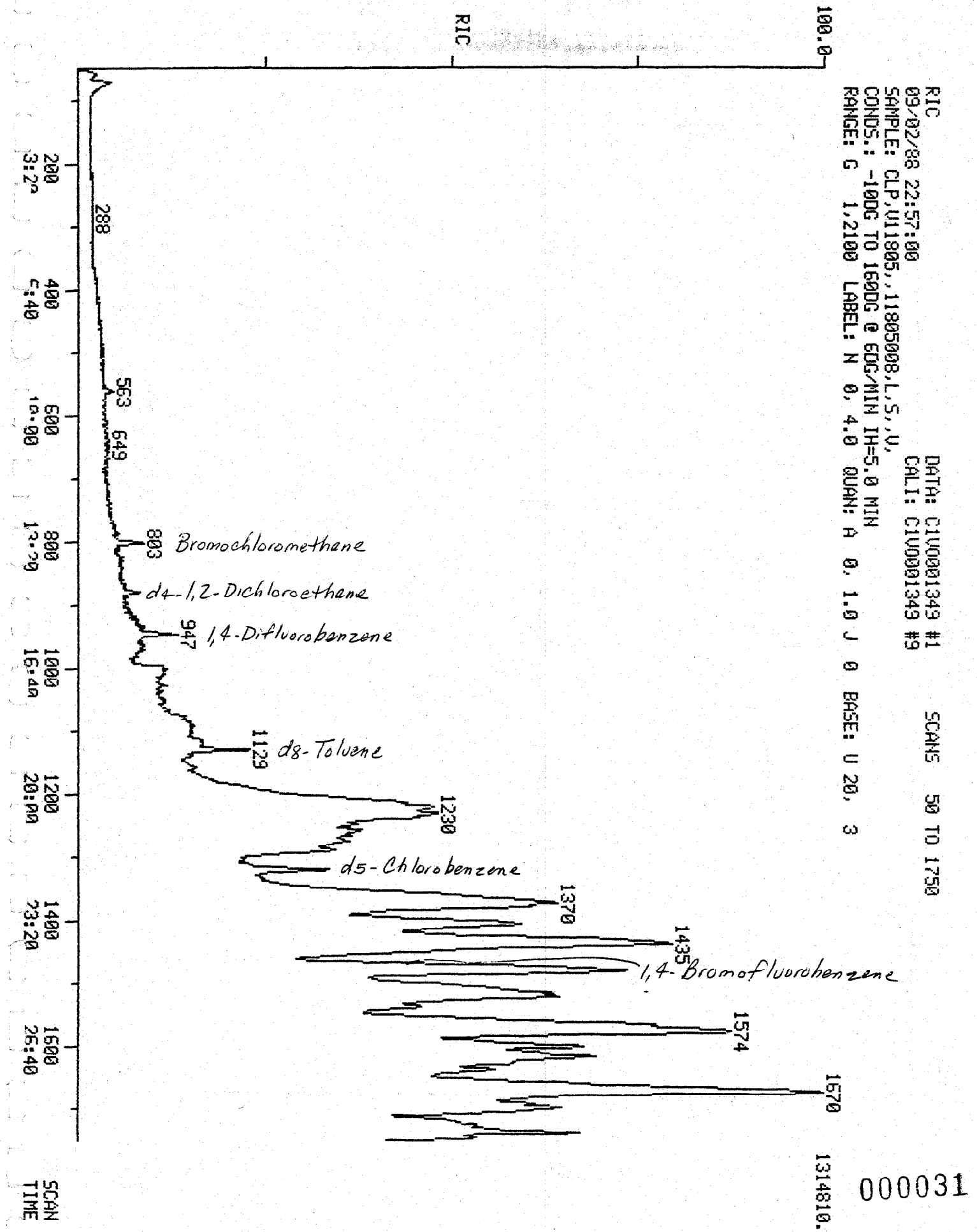
% Moisture: not dec. 30 Date Analyzed: 09/02/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	37	X
67-64-1	Acetone	14	U
75-15-0	Carbon Disulfide	10	
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	7	U
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	14	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	14	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	7	U
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
591-78-6	2-Hexanone	14	U
108-10-1	4-Methyl-2-Pentanone	14	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	14	U
108-88-3	Toluene	7	U
108-90-7	Chlorobenzene	7	U
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
1330-20-7	Xylenes (total)	7	U

FORM I VOA 1/87 Rev.

TCA FINISHED, 6 FOUND
FINISHED AT: 9/03/88 11:01:40



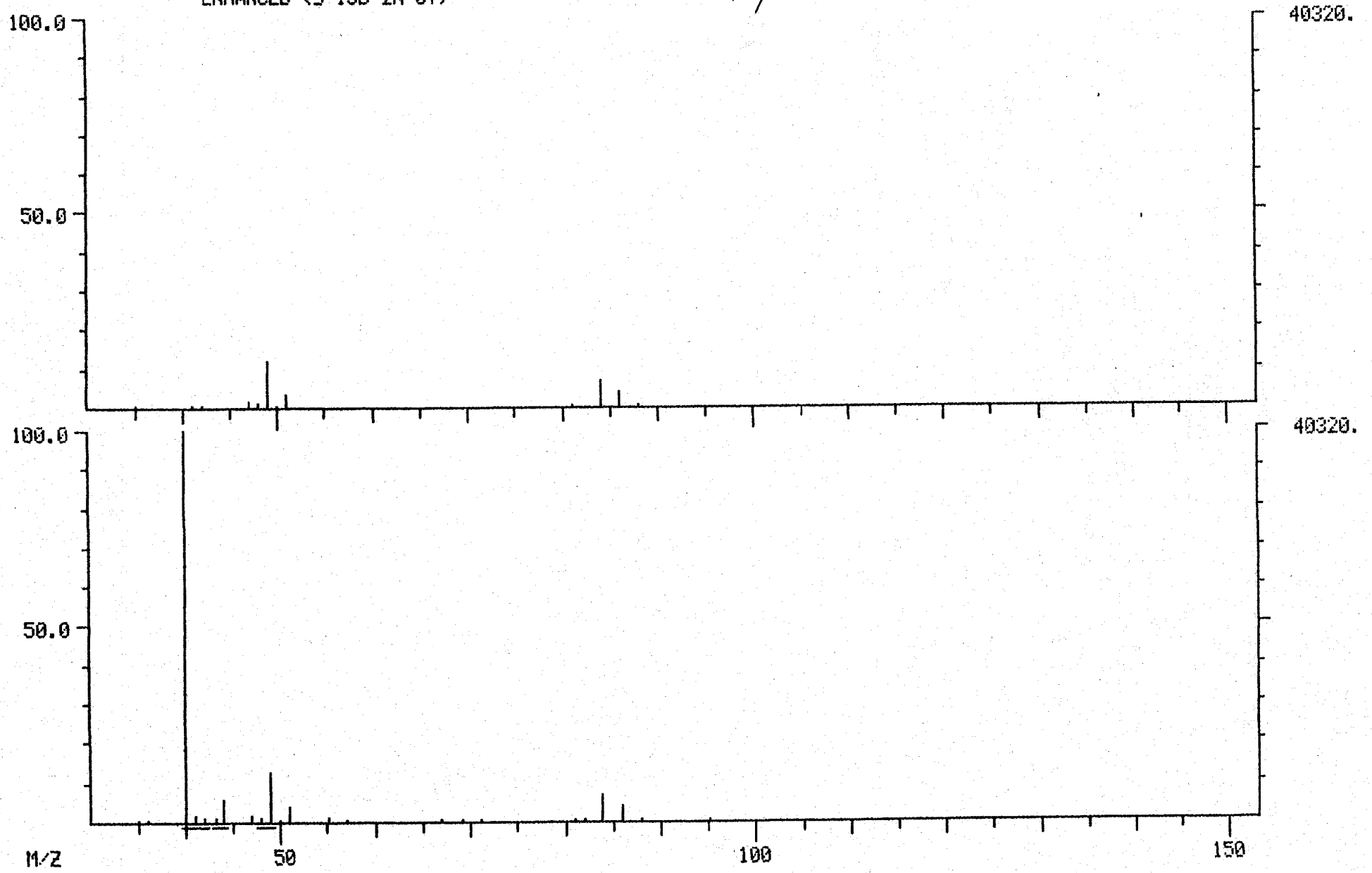
000031

DUAL MASS SPECTRUM
09/02/88 22:57:00 + 9:23
SAMPLE: CLP,V11805,,11805008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001349 #563 BASE M/Z: 49/ 40
CALI: C1V0001349 #9 RIC: 14383./ 60287.

000032

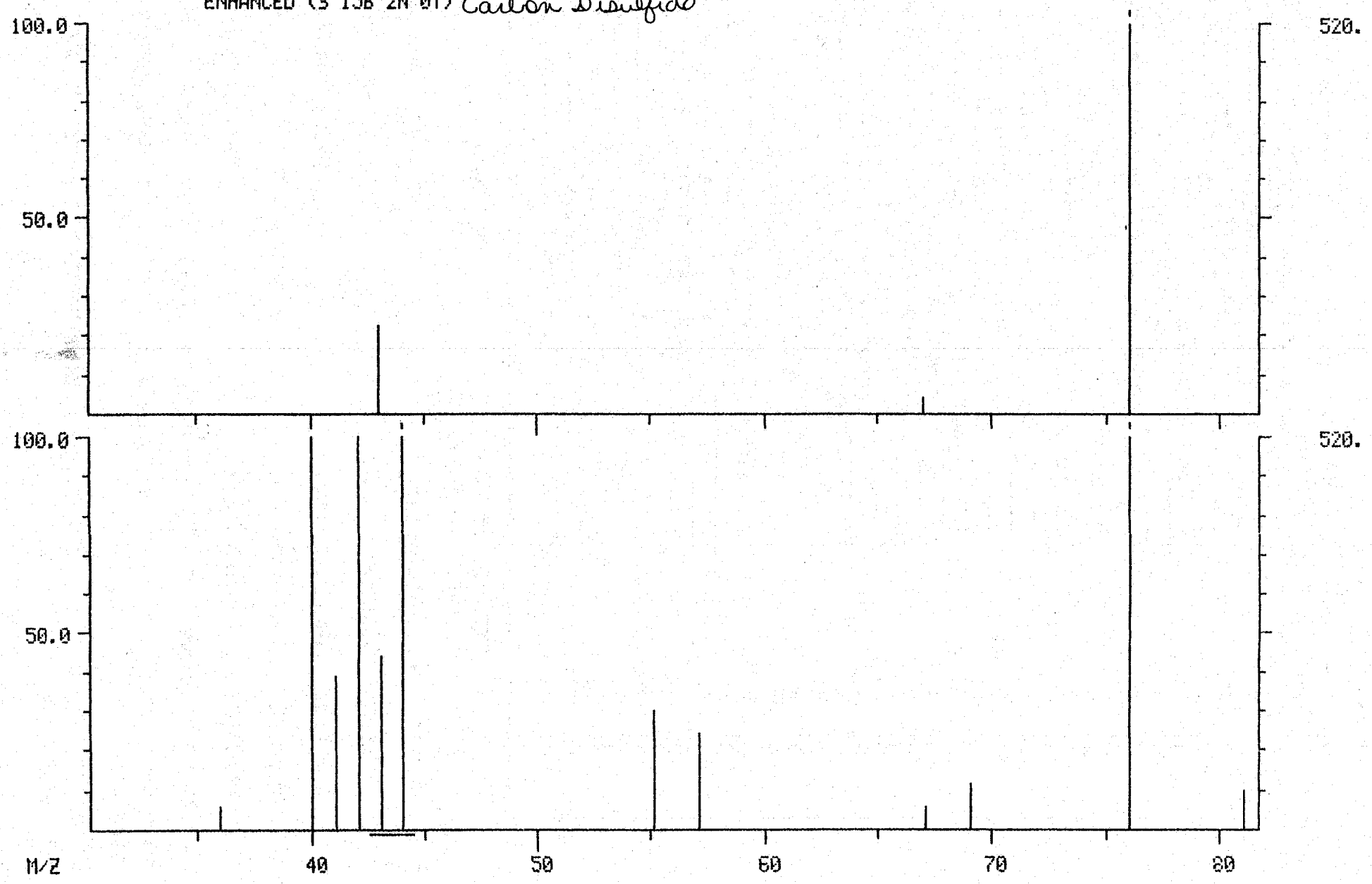
Methylene chloride



DUAL MASS SPECTRUM
09/02/88 22:57:00 + 7:40
SAMPLE: CLP,V11805,,11805008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Carbon Disulfide

DATA: C1V0001349 #460 BASE M/Z: 76/ 40
CALI: C1V0001349 #9 RIC: 788./ 38975.

000033



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S3_1540_B3S3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805009

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001350

Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 18 Date Analyzed: 09/02/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	240	
67-64-1	Acetone	590	E
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	32	
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	4	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	3	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S31540B3S3DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805009DL

Sample wt/vol: _____ (g/mL) G Lab File ID: C2V0001373

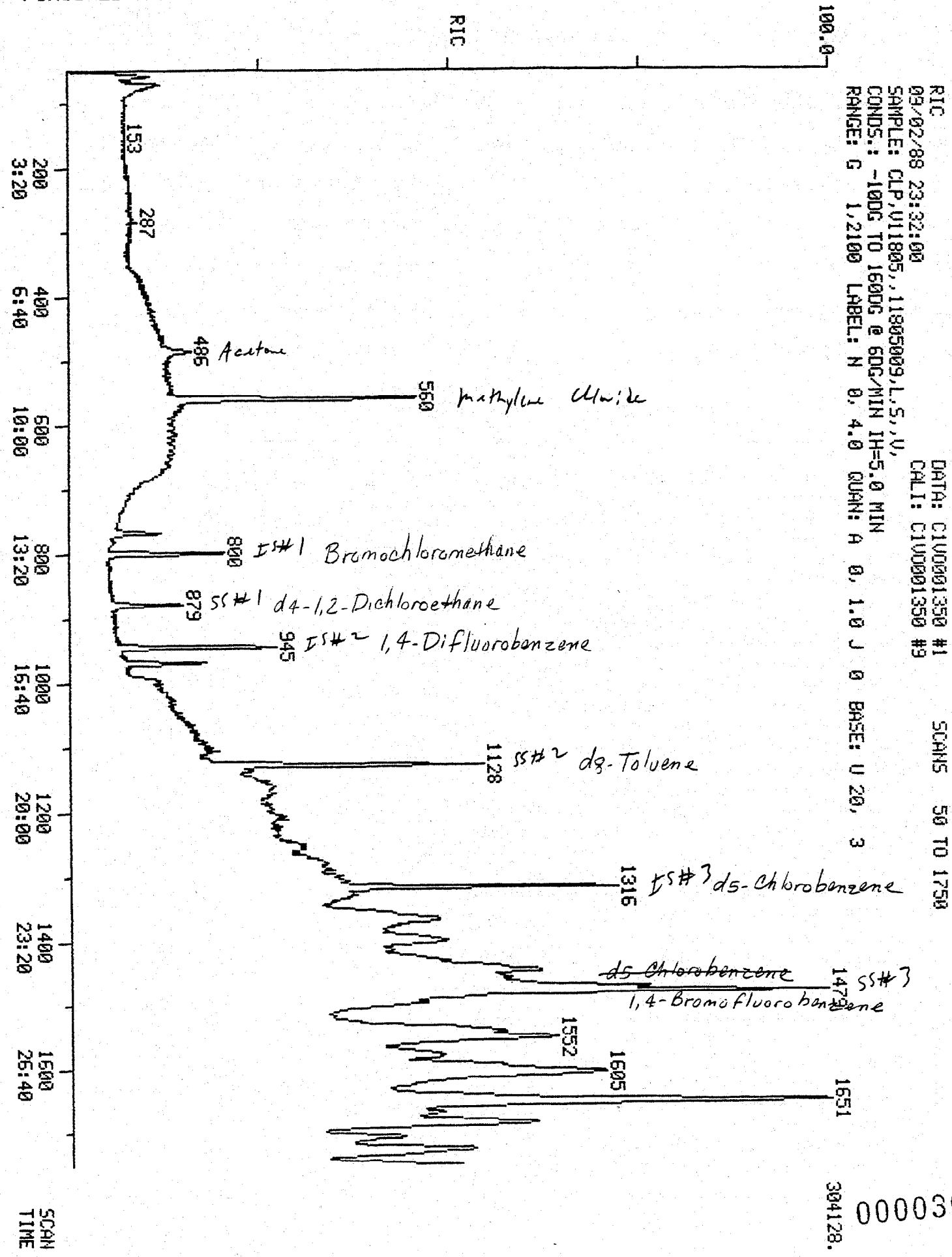
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 18 Date Analyzed: 09/05/88

Column: (pack/cap) CAP Dilution Factor: 2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	24	U
74-83-9	Bromomethane	24	U
75-01-4	Vinyl Chloride	24	U
75-00-3	Chloroethane	24	U
75-09-2	Methylene Chloride	660	DE
67-64-1	Acetone	180	D
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	24	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
108-05-4	Vinyl Acetate	24	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	13	D
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
591-78-6	2-Hexanone	24	U
108-10-1	4-Methyl-2-Pentanone	24	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	24	U
108-88-3	Toluene	6	DJ
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylenes (total)	12	U

TCA FINISHED, 11 FOUND
FINISHED AT: 9/03/88 11:08:12



304128.

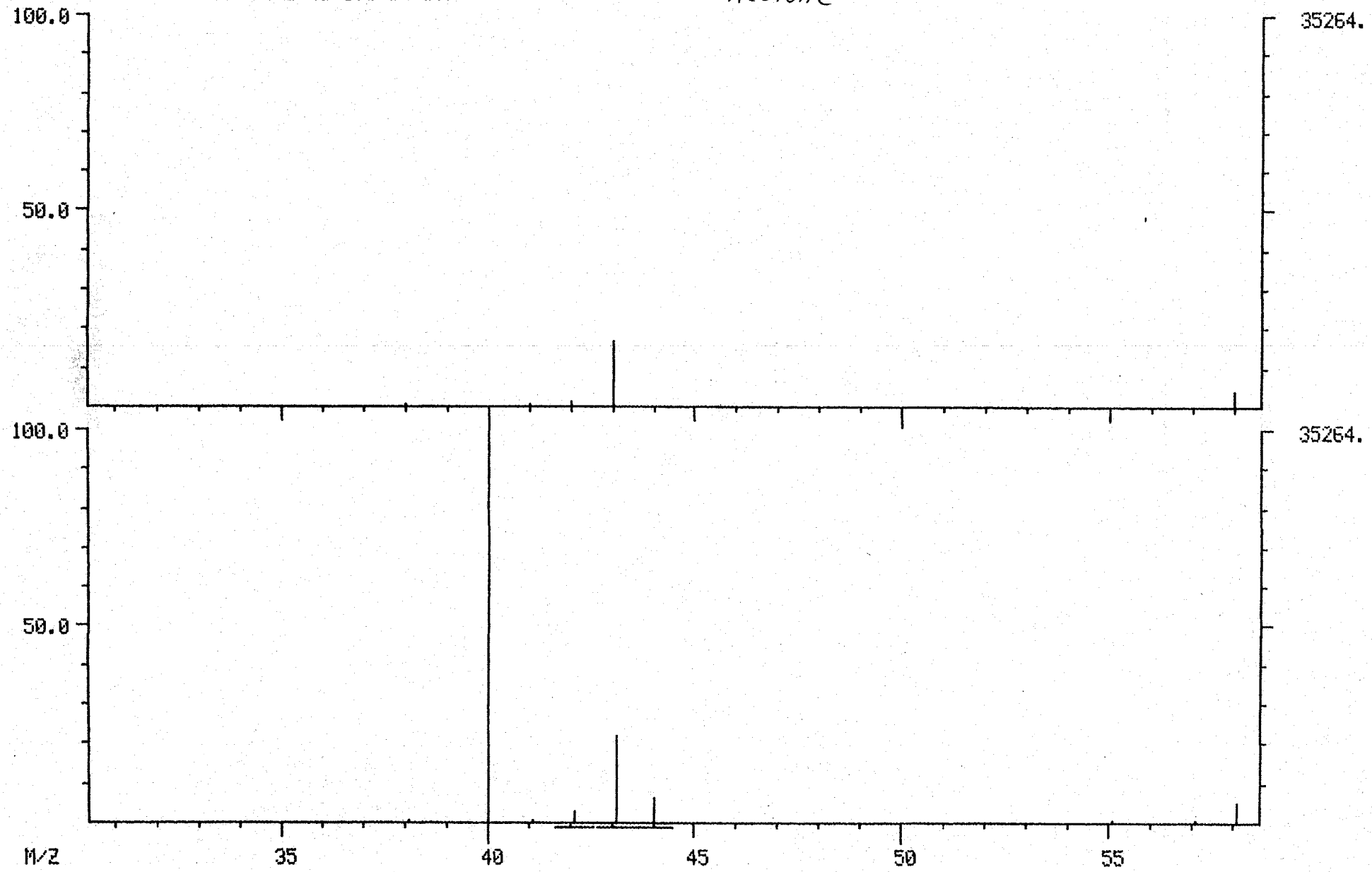
000036

DUAL MASS SPECTRUM
09/02/88 23:32:00 + 8:06
SAMPLE: CLP,V11805,,11805009,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001350 #486 BASE M/Z: 43/ 40
CALI: C1V0001350 #9 RIC: 8191./ 48831.

Acetone

000037

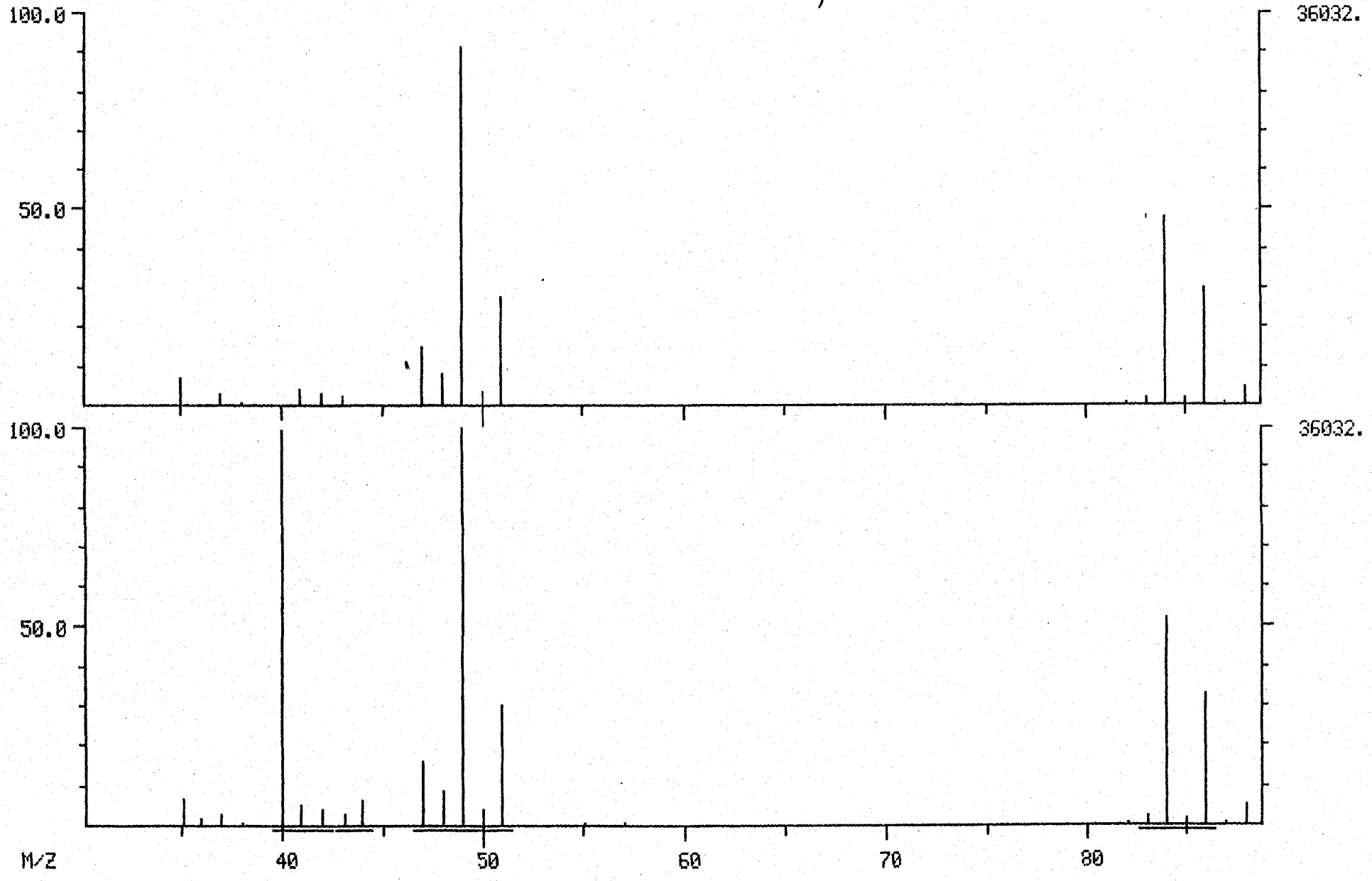


DUAL MASS SPECTRUM
09/02/88 23:32:00 + 9:20
SAMPLE: CLP,V11805,,11805009,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001350 #560 BASE M/Z: 49/ 49
CALI: C1V0001350 #9 RIC: 90879./ 138751.

Methylene chloride

000038

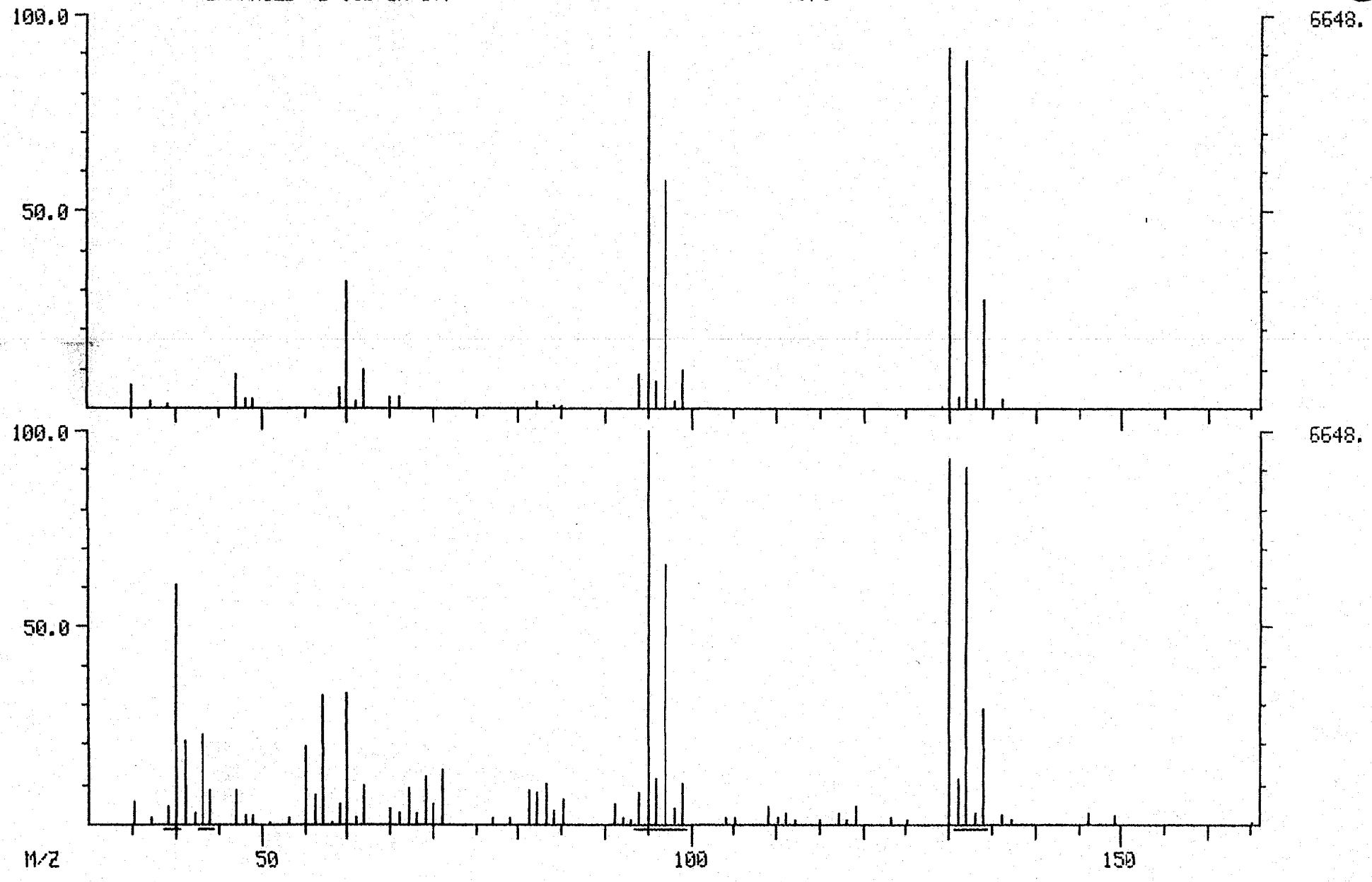


DUAL MASS SPECTRUM
09/02/88 23:32:00 + 16:10
SAMPLE: CLP,V11805,,11805009,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001350 #970 BASE M/Z: 130/ 95
CALI: C1V0001350 #9 RIC: 31423./ 54207.

Trichloroethene

000039

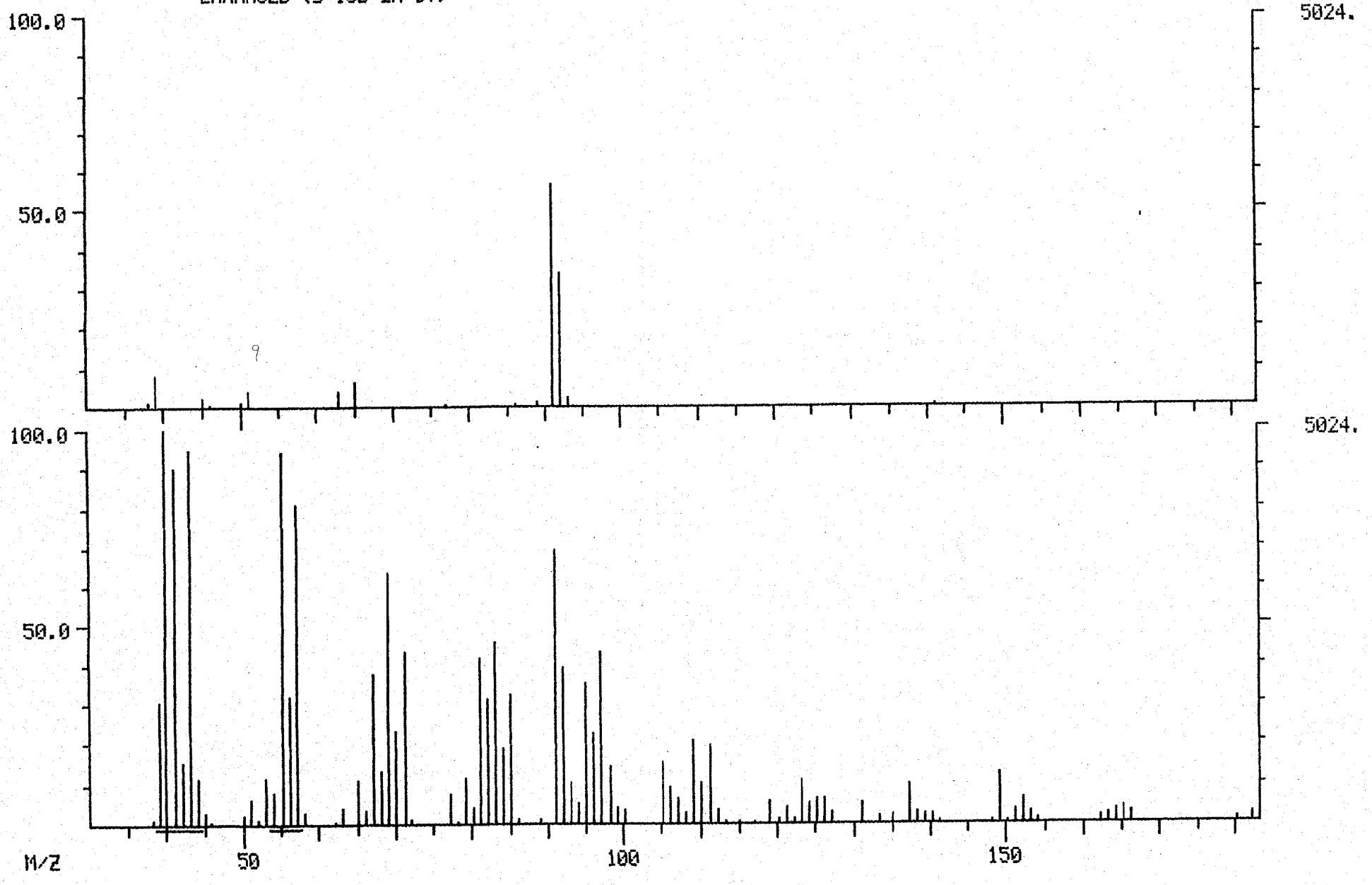


DUAL MASS SPECTRUM
09/02/88 23:32:00 + 18:56
SAMPLE: CLP,V11805,,11805009,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001350 #1136 BASE M/Z: 91/ 40
CALI: C1V0001350 #9 RIC: 6231./ 71935.

000040

Toluene

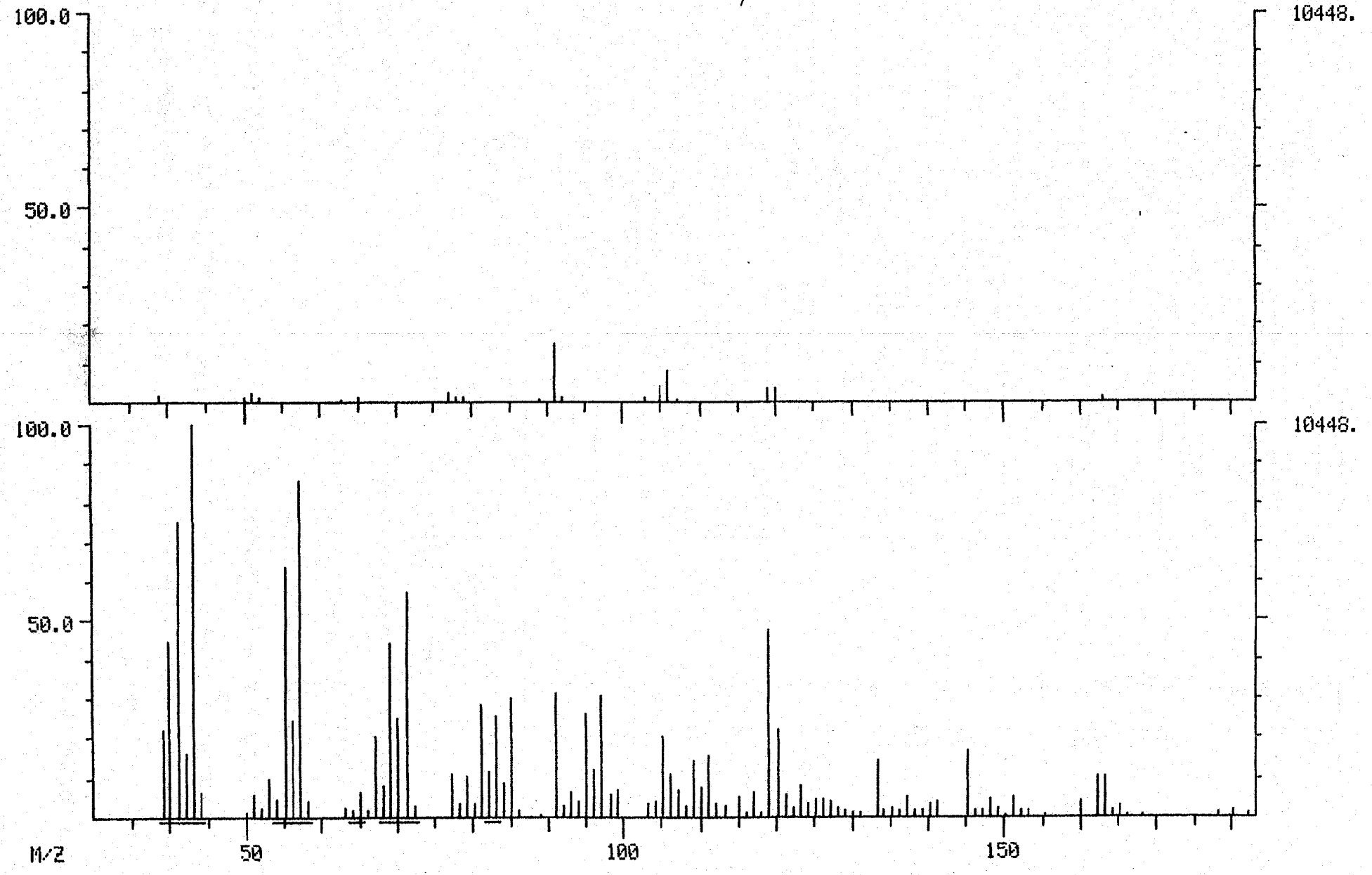


DUAL MASS SPECTRUM
09/02/88 23:32:00 + 22:36
SAMPLE: CLP,V11805,,11805009,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001350 #1356 BASE M/Z: 91/ 43
CALI: C1V0001350 #9 RIC: 5343./ 127103.

Xylene

000041



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S4_1345_B4S1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805010

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001351

Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 10 Date Analyzed: 09/03/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	280	E
67-64-1	Acetone	65	
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	10	
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	11	
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	18	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S41345B4S1DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805010DL

Sample wt/vol: _____ (g/mL) G Lab File ID: C2V0001374

Level: (low/med) LOW Date Received: 08/27/88

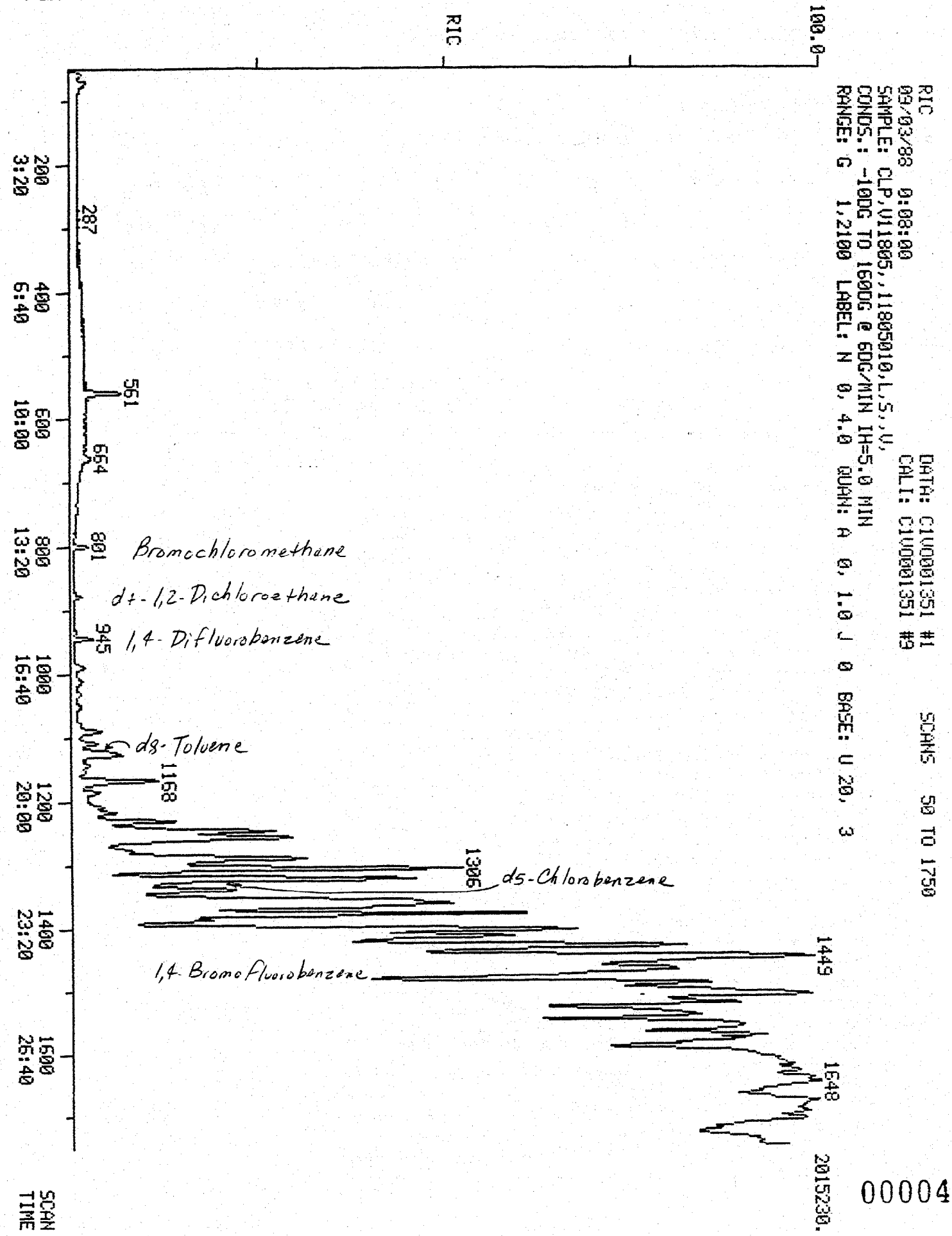
% Moisture: not dec. 10 Date Analyzed: 09/05/88

Column: (pack/cap) CAP Dilution Factor: 2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	22	U
74-83-9	Bromomethane	22	U
75-01-4	Vinyl Chloride	22	U
75-00-3	Chloroethane	22	U
75-09-2	Methylene Chloride	390	D
67-64-1	Acetone	22	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	9	DJ
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
108-05-4	Vinyl Acetate	22	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
591-78-6	2-Hexanone	22	U
108-10-1	4-Methyl-2-Pentanone	22	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	22	U
108-88-3	Toluene	19	D
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	9	DJ
100-42-5	Styrene	11	U
1330-20-7	Xylenes (total)	6	DJ

RS

TCA FINISHED, 7 FOUND
FINISHED AT: 9/03/88 11:14:39



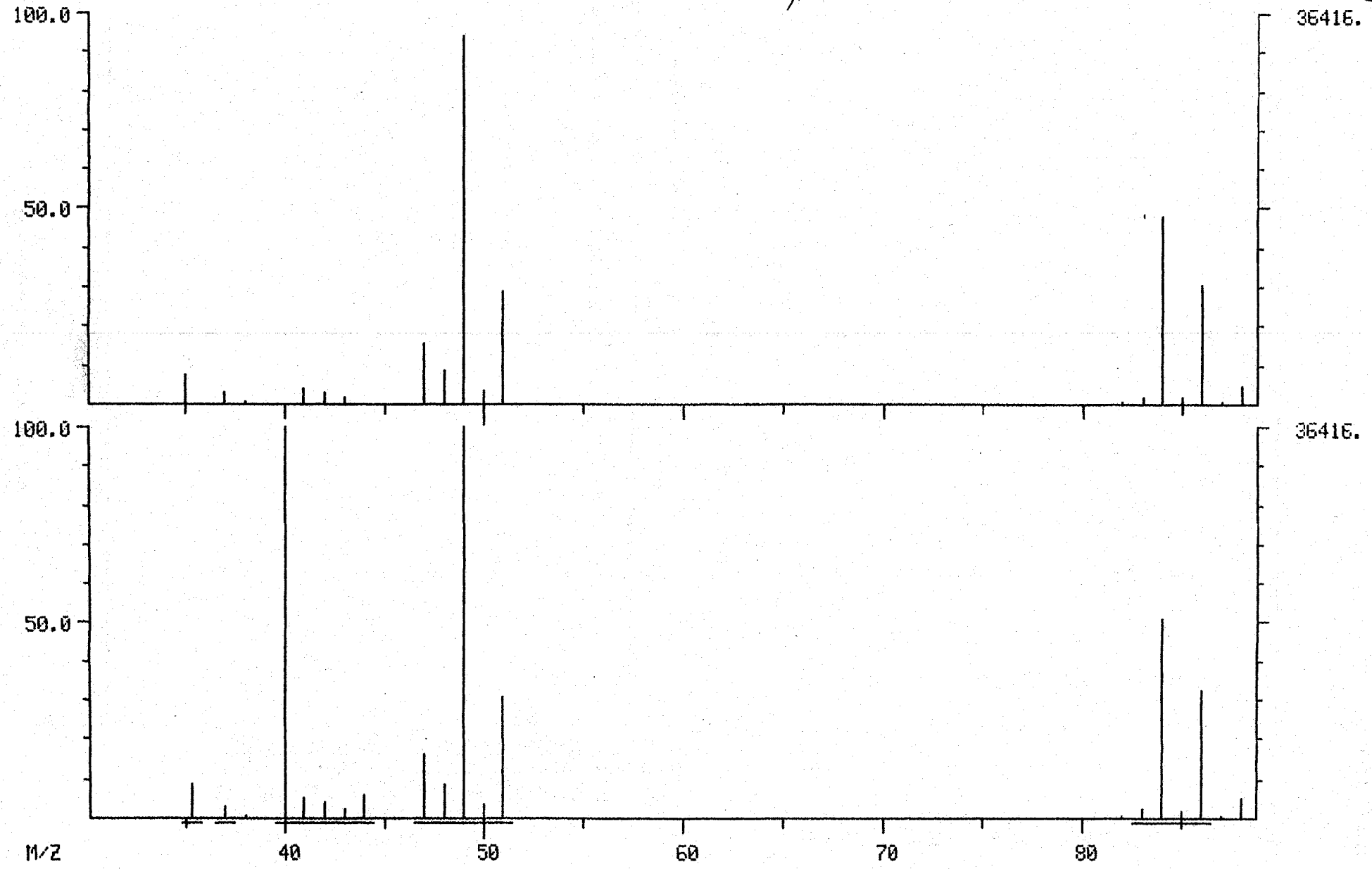
000044

DUAL MASS SPECTRUM
09/03/88 0:08:00 + 9:21
SAMPLE: CLP,V11805,,11805010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001351 #561 BASE M/Z: 49/ 49
CALI: C1V0001351 #9 RIC: 94207./ 139519.

Methylene chloride

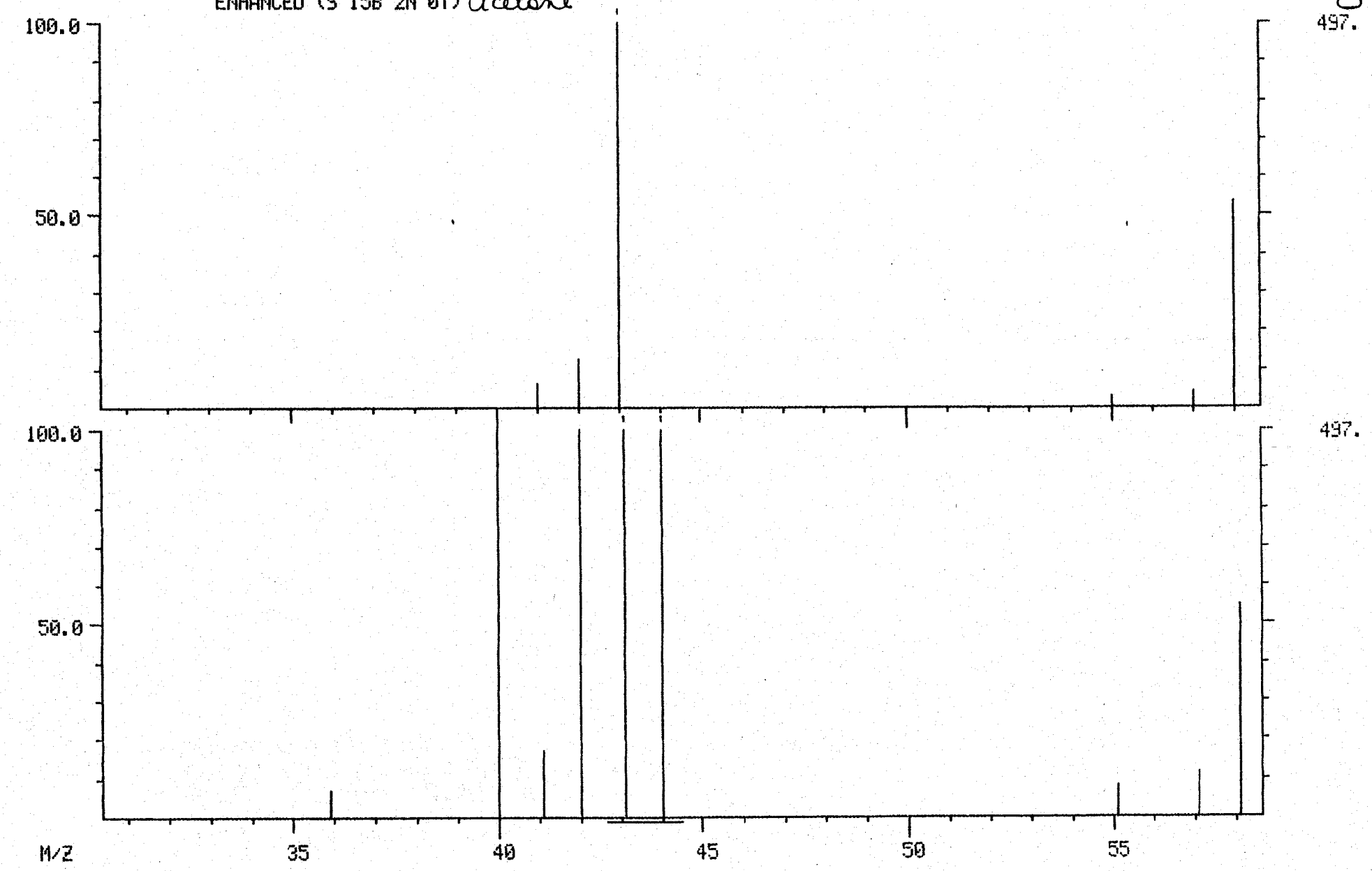
000045



DUAL MASS SPECTRUM
09/03/88 0:08:00 + 8:06
SAMPLE: CLP,V11805,,11805010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) acetone

DATA: C1V0001351 #486 BASE M/Z: 43/ 40
CALI: C1V0001351 #9 RIC: 1493./ 40639.

0000046

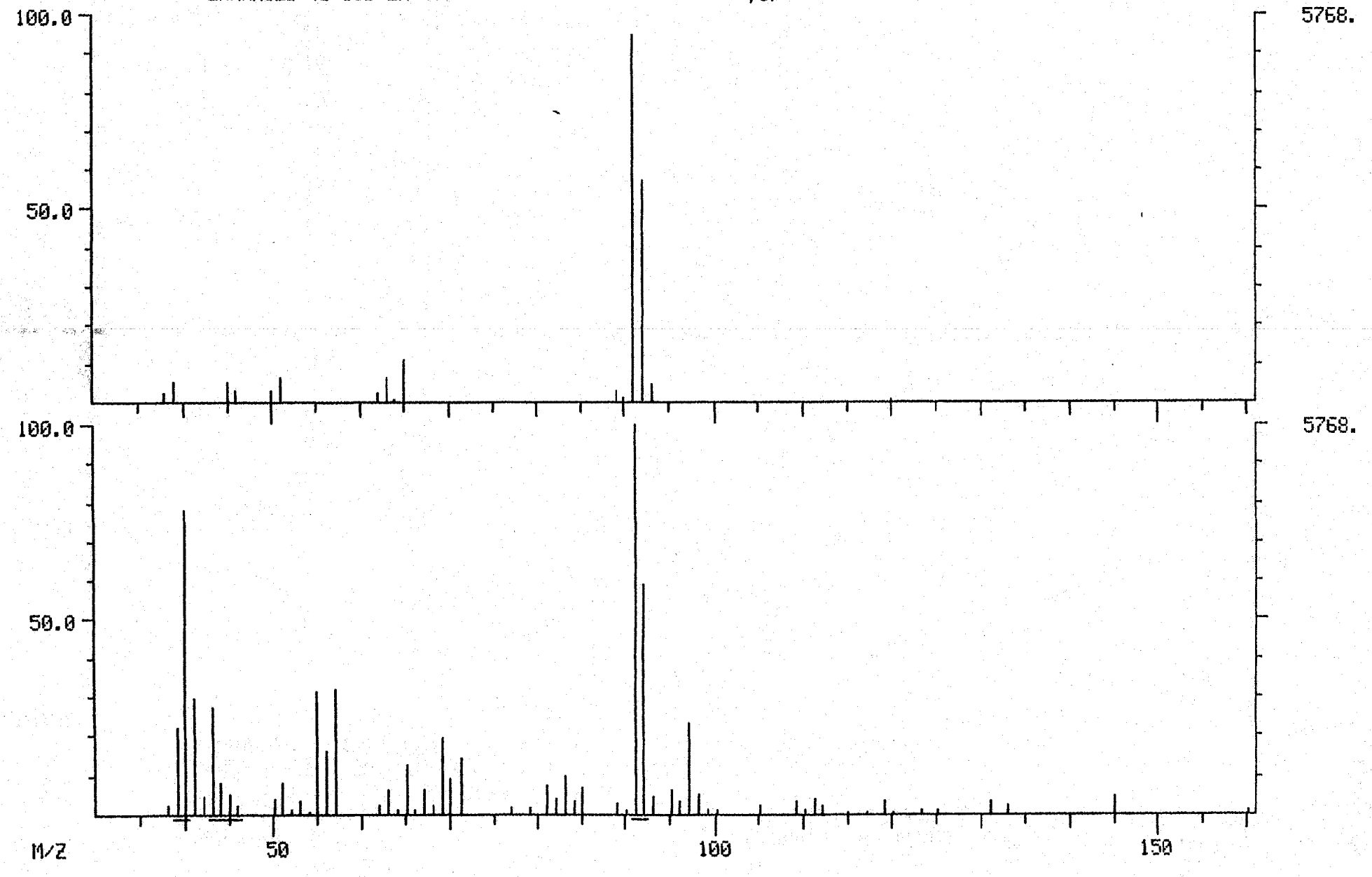


DUAL MASS SPECTRUM
09/03/88 0:08:00 + 18:57
SAMPLE: CLP,V11805,,11805010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001351 #1137 BASE M/Z: 91/ 91
CALI: C1V0001351 #9 RIC: 11903./ 36223.

Toluene

000047

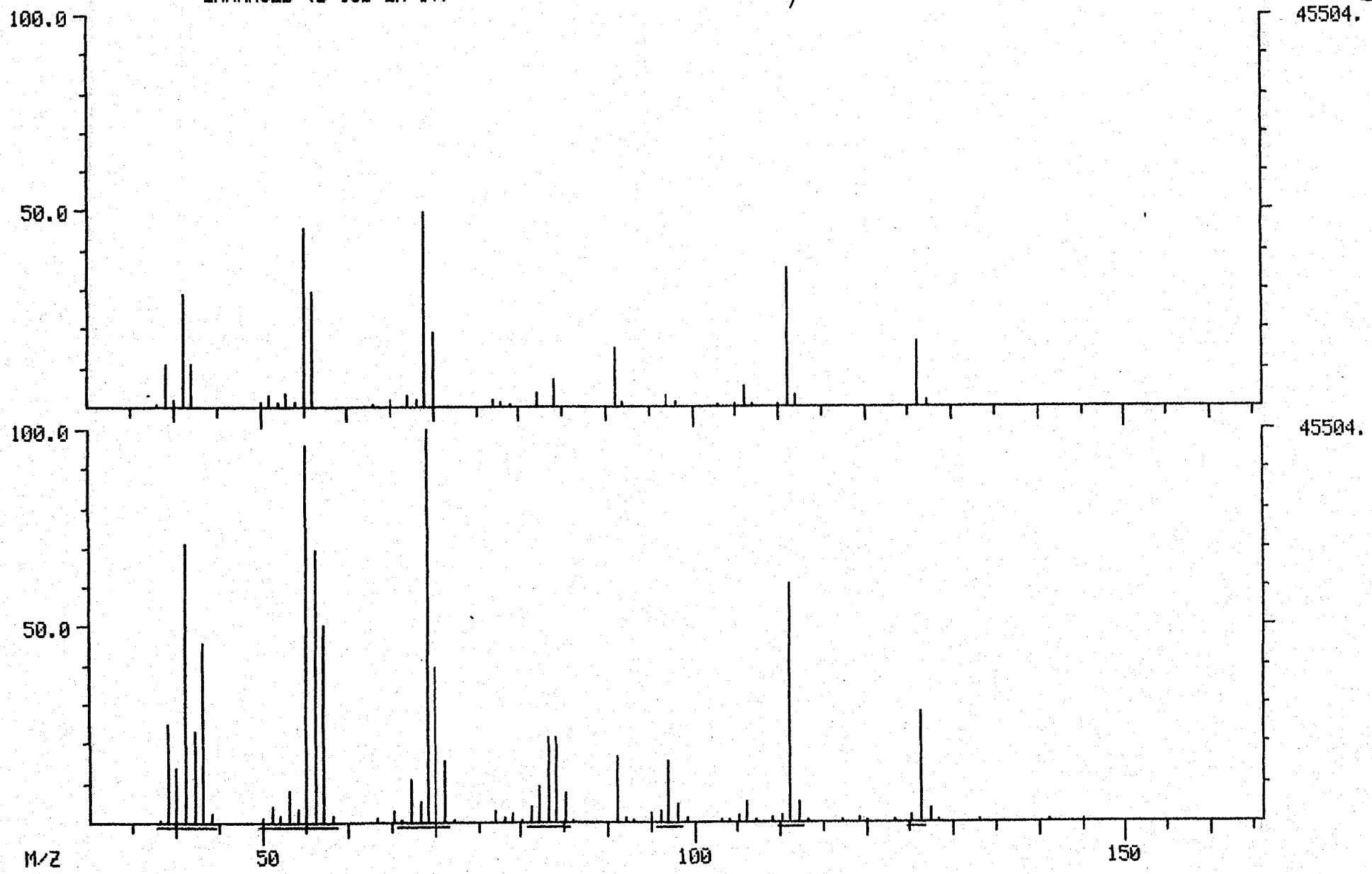


DUAL MASS SPECTRUM
09/03/88 0:08:00 + 22:21
SAMPLE: CLP,V11805,,11805010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001351 #1341 BASE M/Z: 69/ 69
CALI: C1V0001351 #9 RIC: 142335./ 375807.

Ethyl benzene

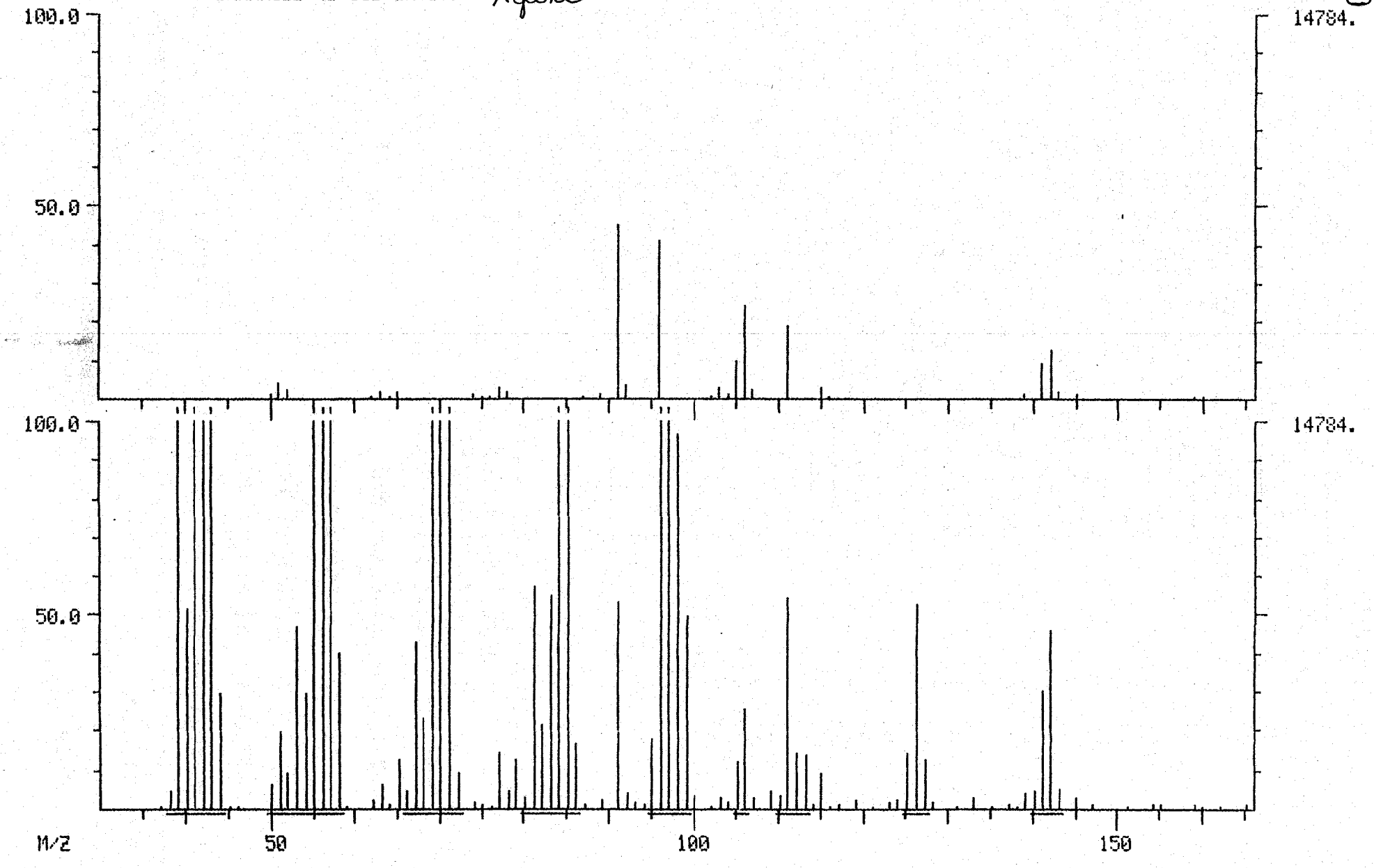
000048



DUAL MASS SPECTRUM
09/03/88 0:08:00 + 23:30
SAMPLE: CLP,V11805,,11805010,L,S,,V,
CONDS.: -100G TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Xylene

DATA: C1V0001351 #1410 BASE M/Z: 91/ 55
CALI: C1V0001351 #9 RIC: 30047./ 919551.

000049



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S4_1345_B4S2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805011

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001352

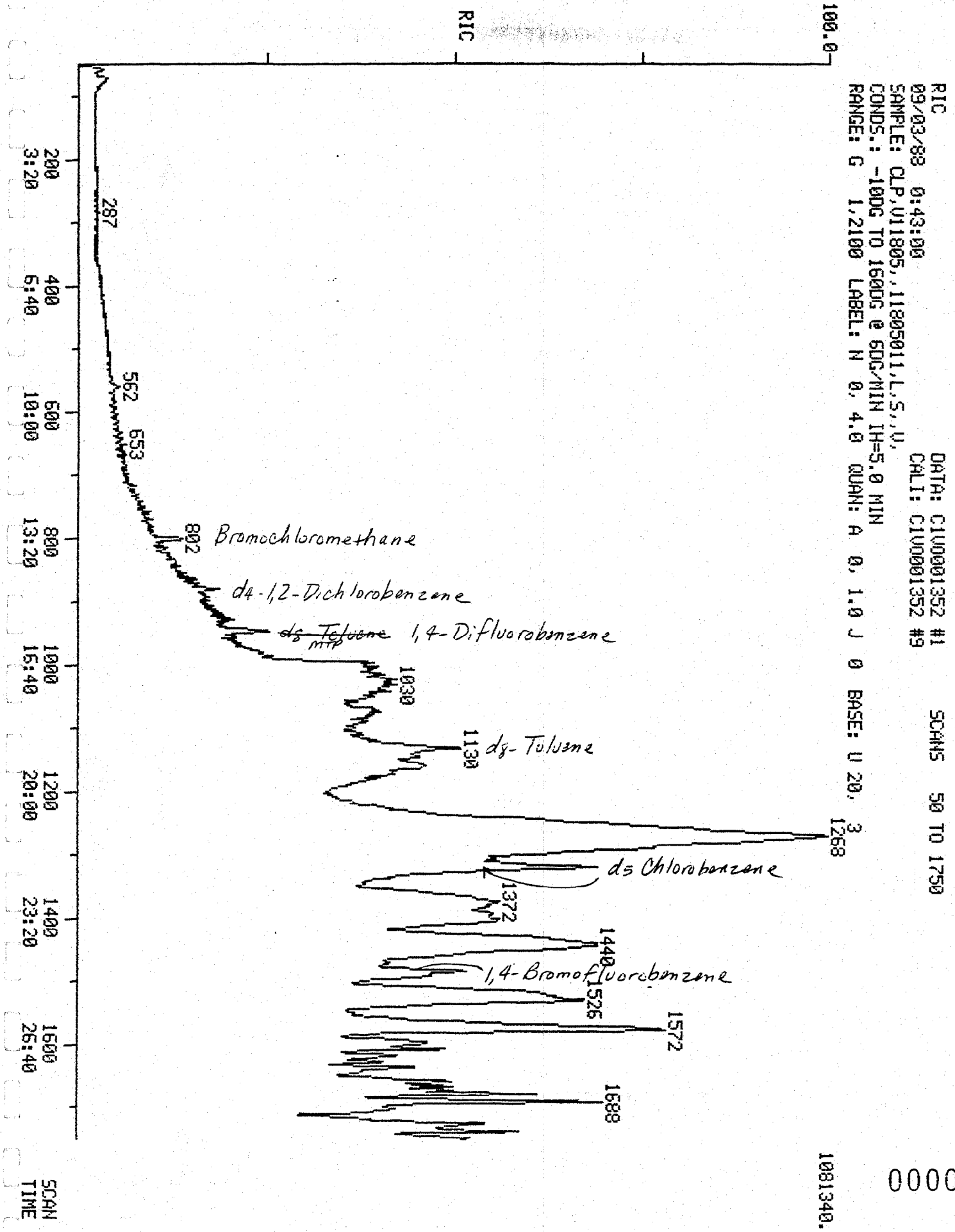
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 20 Date Analyzed: 09/03/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	30	
67-64-1	Acetone	26	
75-15-0	Carbon Disulfide	13	
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 8 FOUND
FINISHED AT: 9/03/88 11:21:22

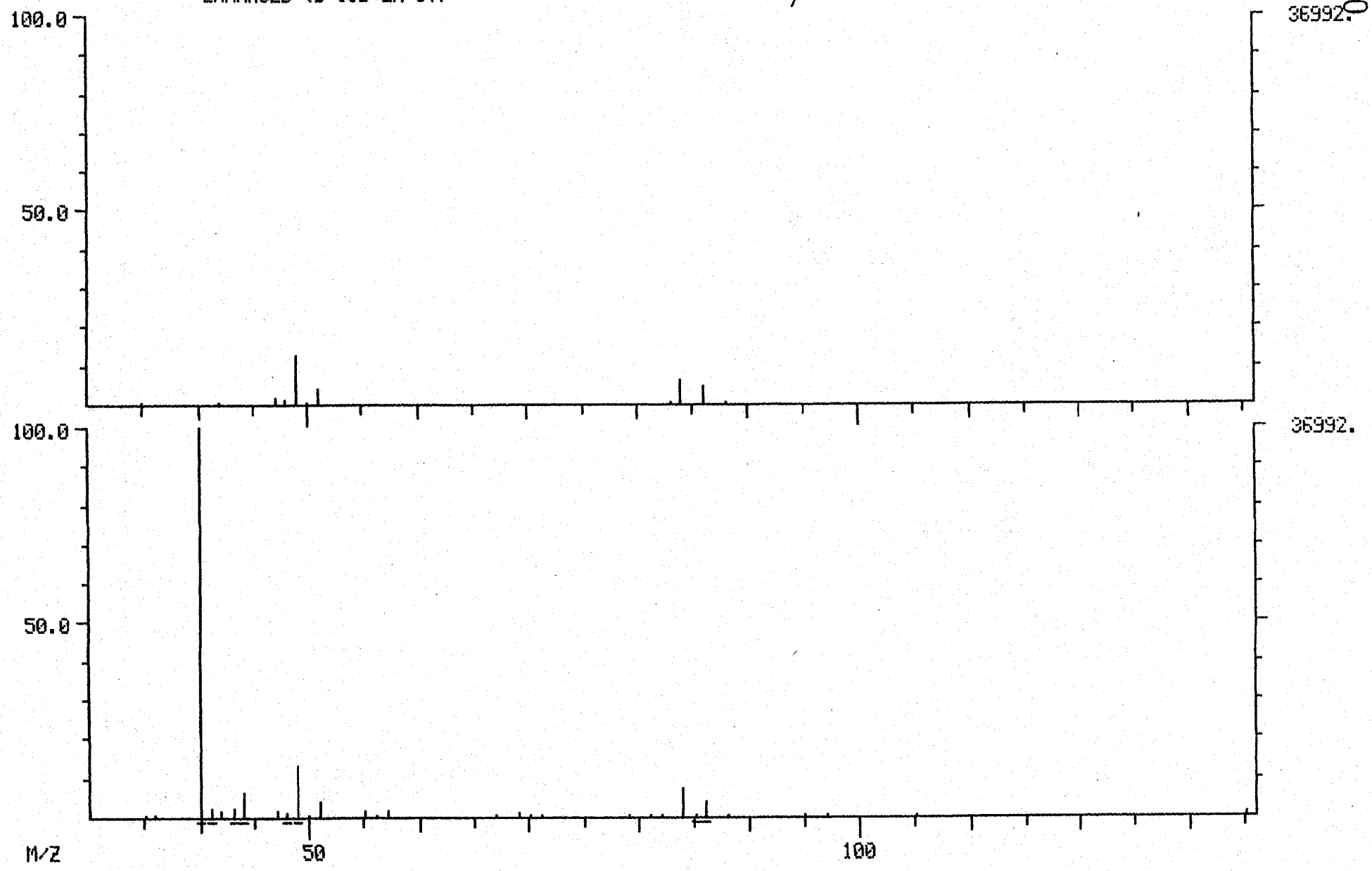


000051

DUAL MASS SPECTRUM
09/03/88 0:43:00 + 9:22
SAMPLE: CLP,V11805,,11805011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001352 #562 BASE M/Z: 49/ 40
CALI: C1V0001352 #9 RIC: 12239./ 58879.

Methylene chloride

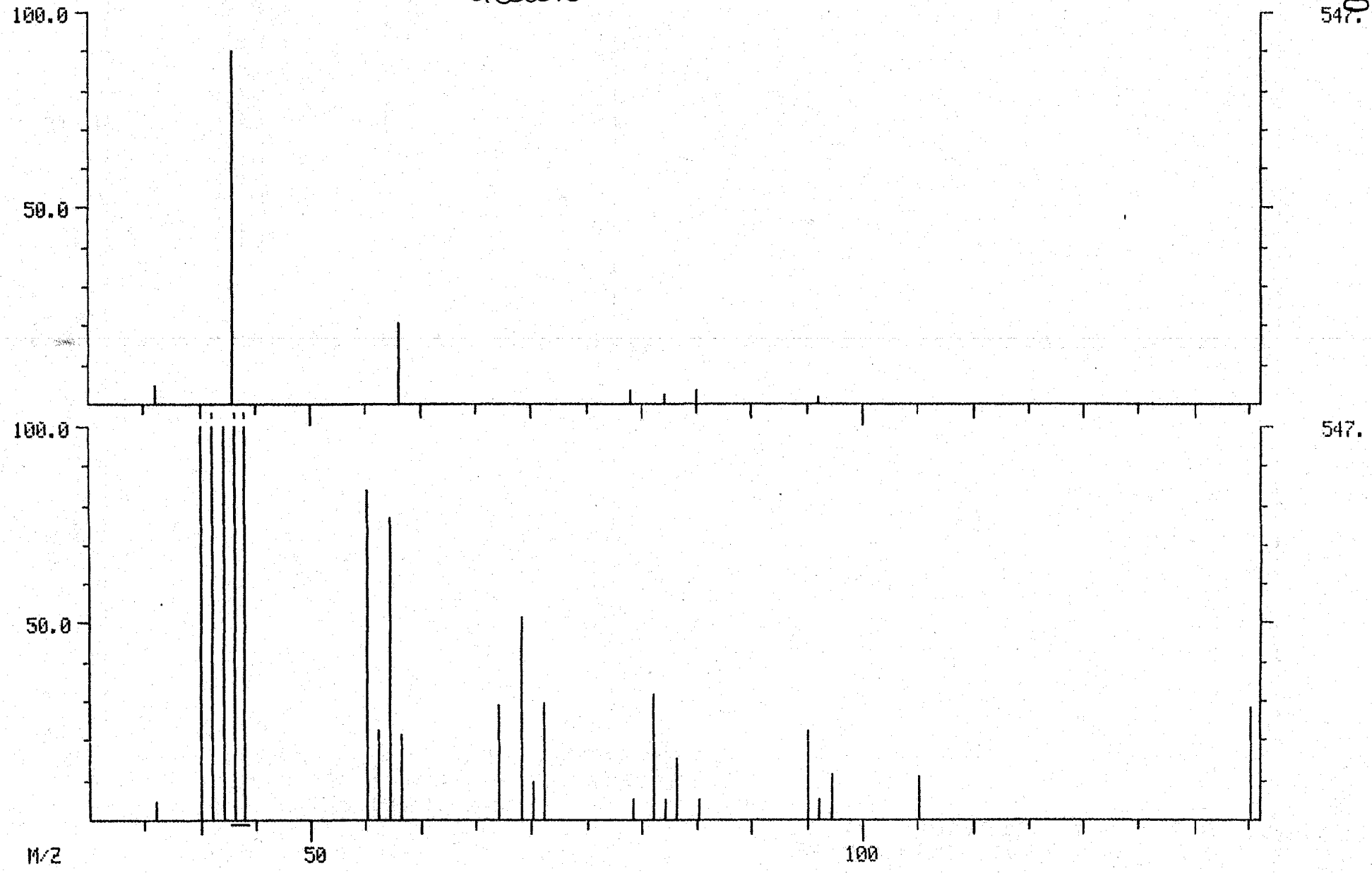


000052

DUAL MASS SPECTRUM
09/03/88 0:43:00 + 8:08
SAMPLE: CLP,V11805,,11805011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

DATA: C1V0001352 #488 BASE M/Z: 43/ 40
CALI: C1V0001352 #9 RIC: 693./ 42239.

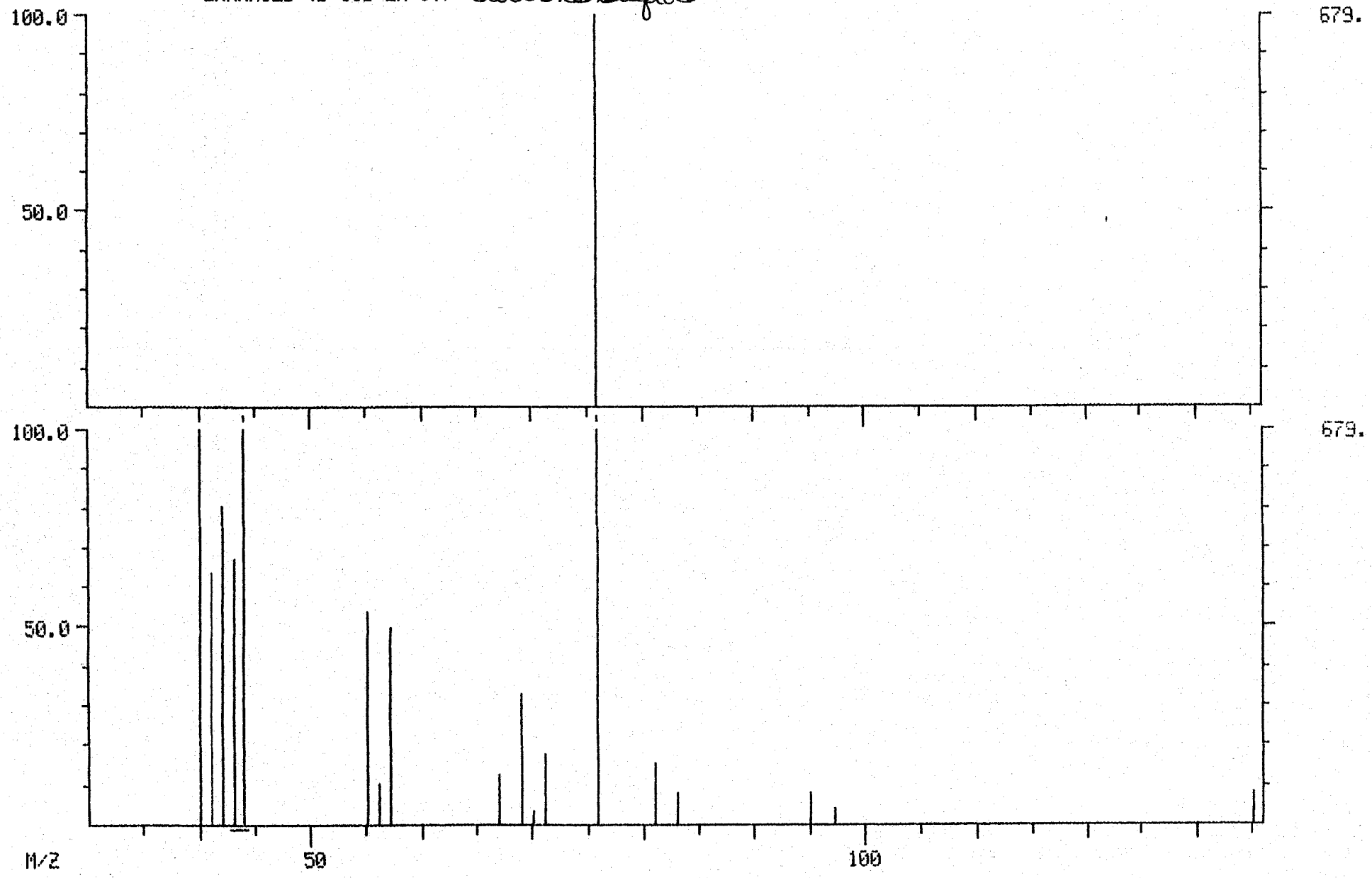
000053



DUAL MASS SPECTRUM
09/03/88 0:43:00 + 7:38
SAMPLE: CLP,V11805,,11805011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Carbon Disulfide

DATA: C1V0001352 #458 BASE M/Z: 76/ 40
CALI: C1V0001352 #9 RIC: 678./ 38079.

000054



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S4_1345_B4S3

Lab Name: CH2M HILL/MGM Contract: _____

ab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805012

Sample wt/vol: _____ (g/mL) G Lab File ID: C2VO001376

evel: (low/med) LOW Date Received: 08/27/88

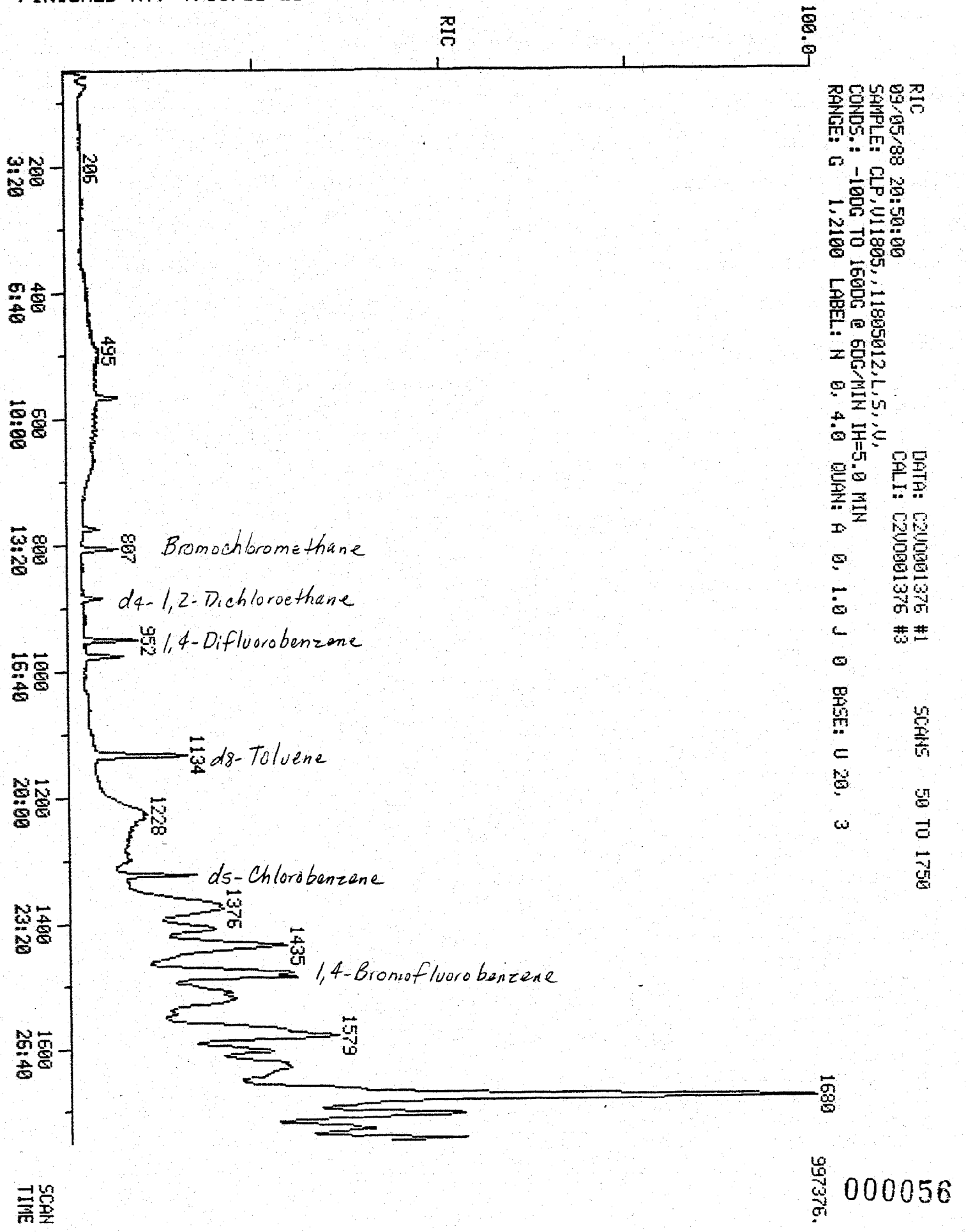
% Moisture: not dec. 20 Date Analyzed: 09/05/88

olumn: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	78	
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	54	
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS

TCA FINISHED, 8 FOUND
FINISHED AT: 9/05/88 23:03:25

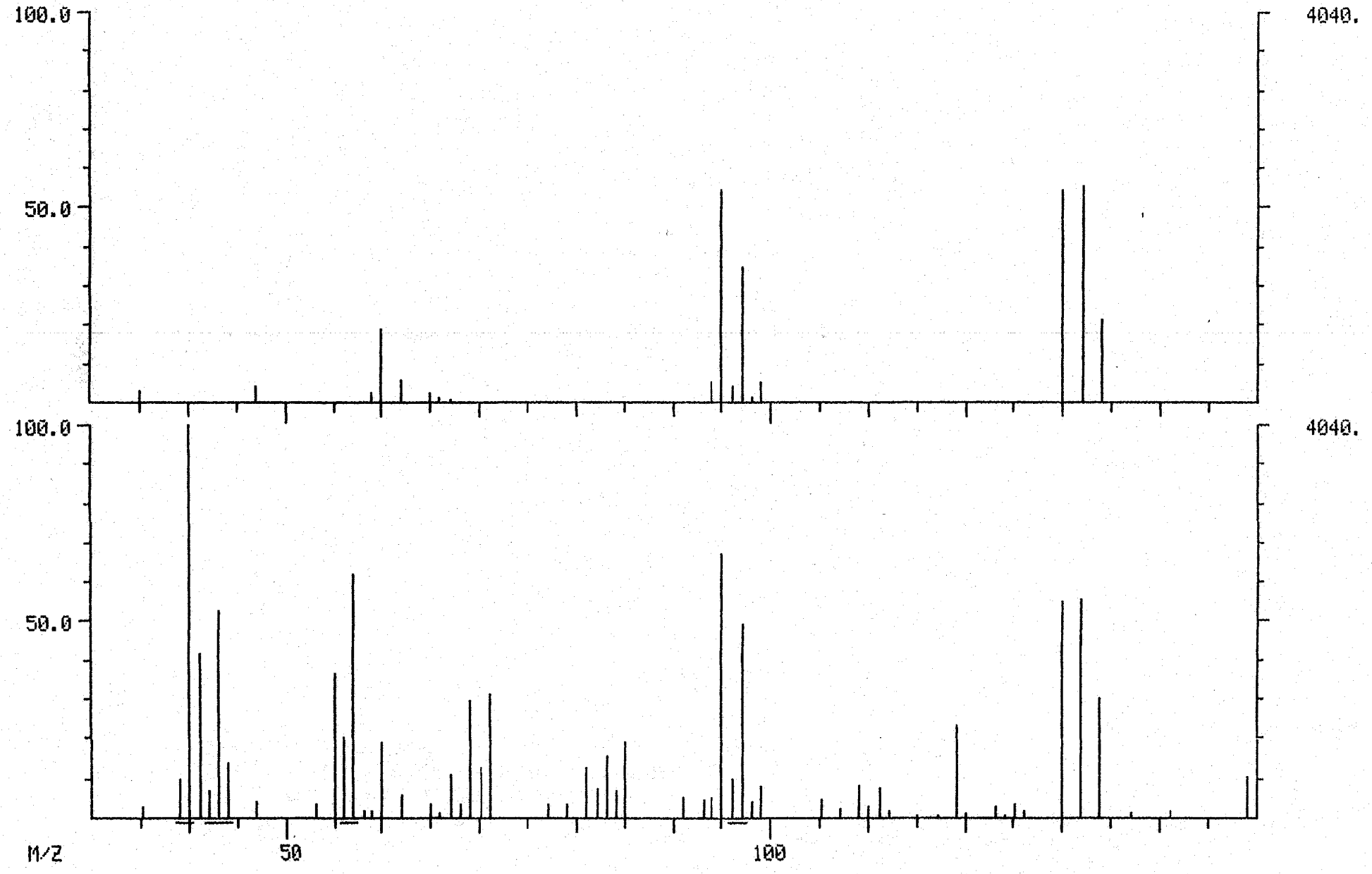


000056

DUAL MASS SPECTRUM
09/03/88 1:18:00 + 16:12
SAMPLE: CLP,V11805,,11805012,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001353 #972 BASE M/Z: 132/ 40
CALI: C1V0001353 #9 RIC: 11087./ 36927.

Trichloroethene



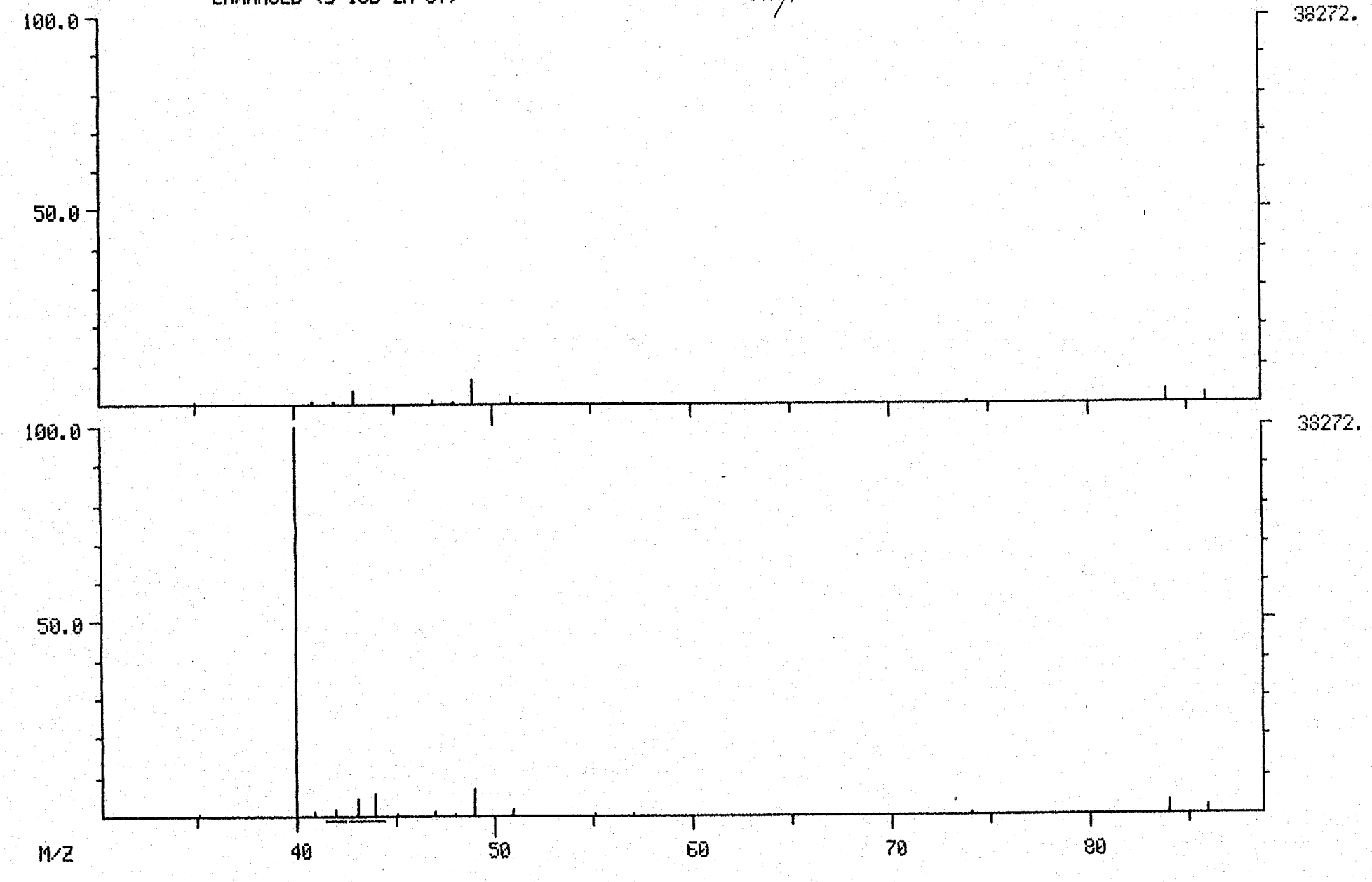
000057

DUAL MASS SPECTRUM
09/03/88 1:18:00 + 9:23
SAMPLE: CLP,V11805,,11805012,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001353 #563 BASE M/Z: 49/ 40
CALI: C1V0001353 #9 RIC: 8159./ 50623.

Methylene chloride

000058



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S5_1200_B5S1

Lab Name: CH2M HILL/MGM Contract: _____

ab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

atrix: (soil/water) SOIL Lab Sample ID: 11805013

ample wt/vol: _____ (g/mL) G Lab File ID: C1VO001354

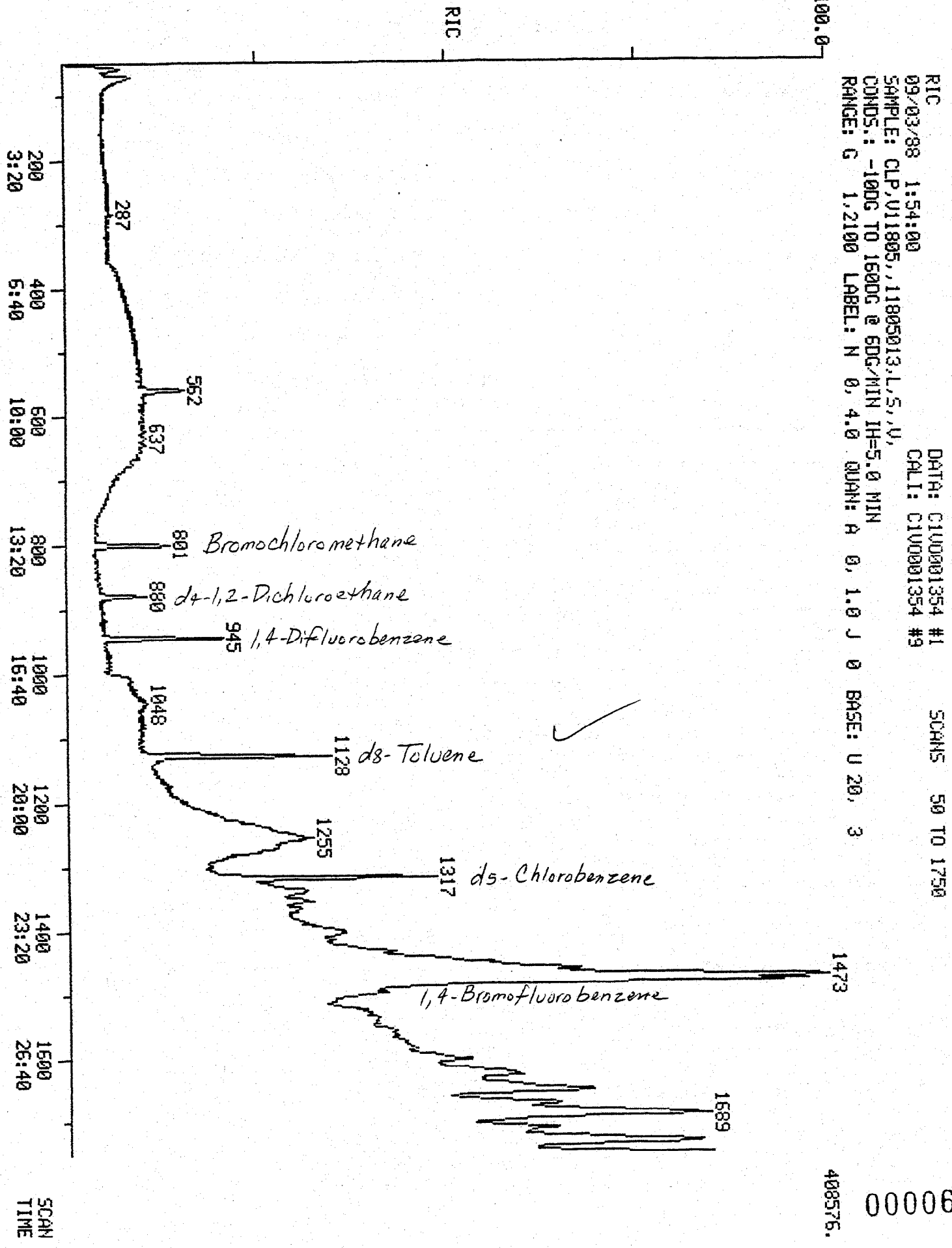
evel: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 17 Date Analyzed: 09/03/88

olumn: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	60	X
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 7 FOUND
FINISHED AT: 9/03/88 11:34:25



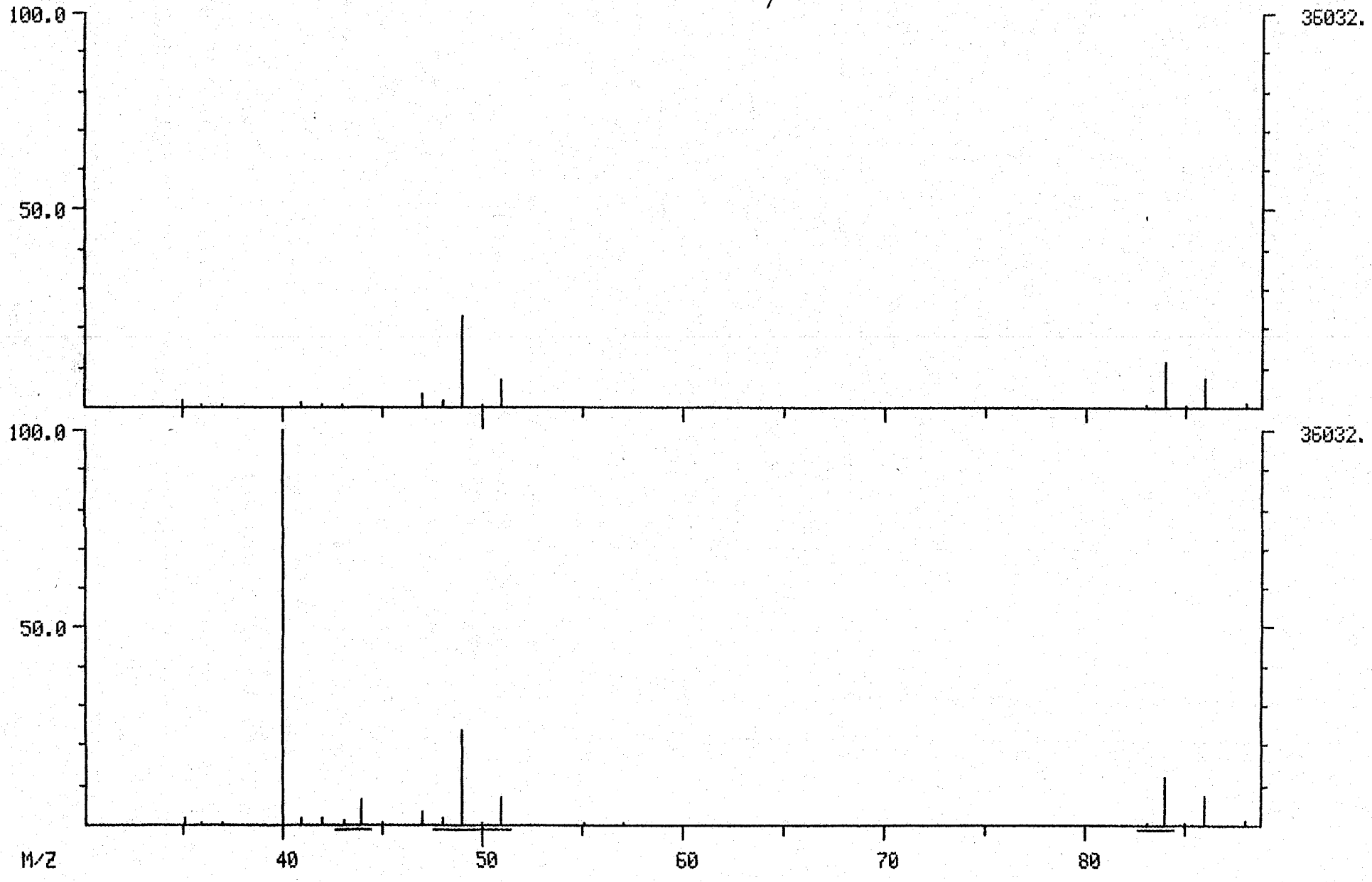
000060

DUAL MASS SPECTRUM
09/03/88 1:54:00 + 9:22
SAMPLE: CLP,V11805,,11805013,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001354 #562 BASE M/Z: 49/ 40
CALI: C1V0001354 #9 RIC: 22463./ 62399.

Methylene chloride

000061



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S5_1200_B5S2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805014

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001355

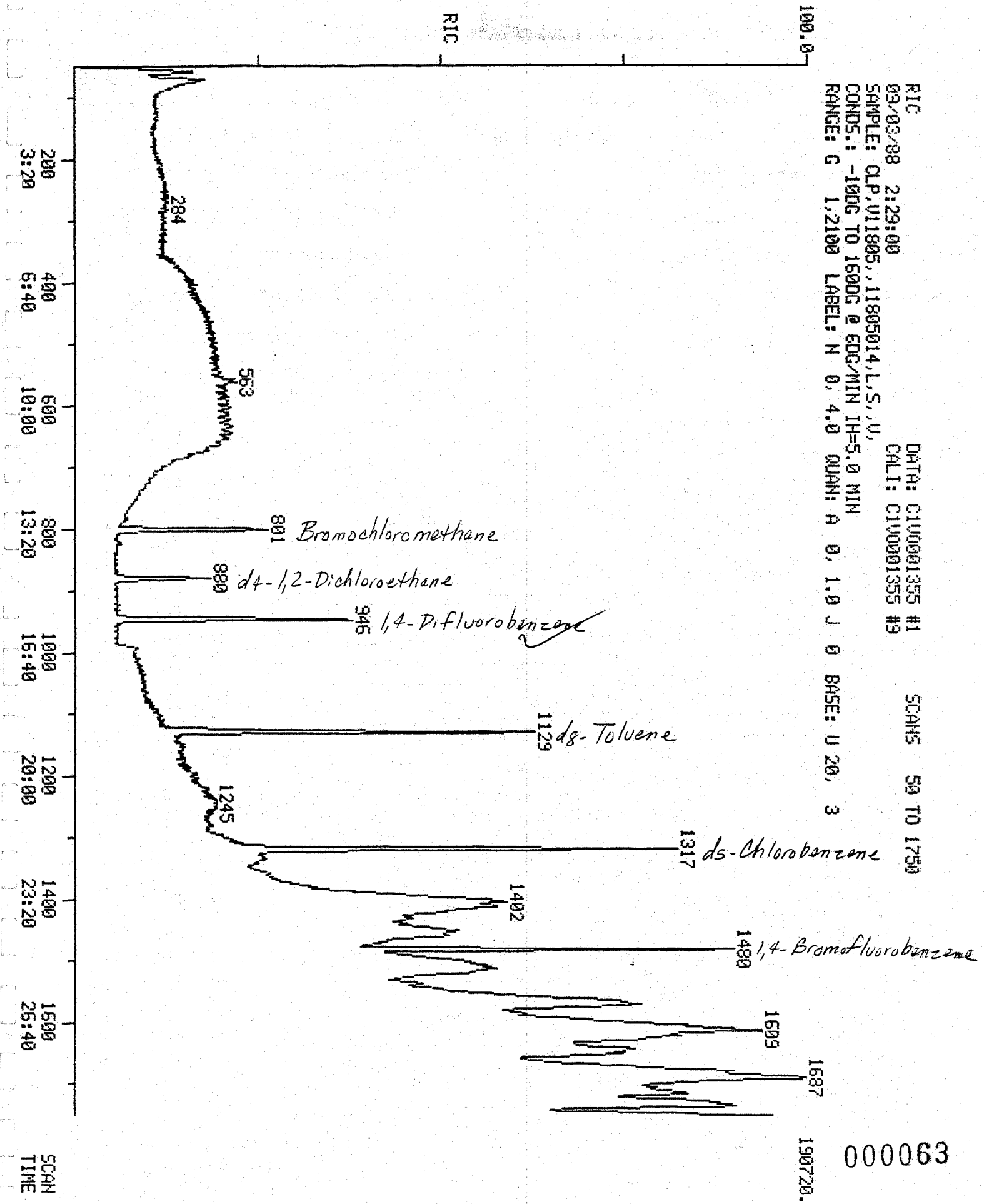
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 17 Date Analyzed: 09/03/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 7 FOUND
FINISHED AT: 9/03/88 11:40:51



000063

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S5_1200_B5S3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805015

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001356

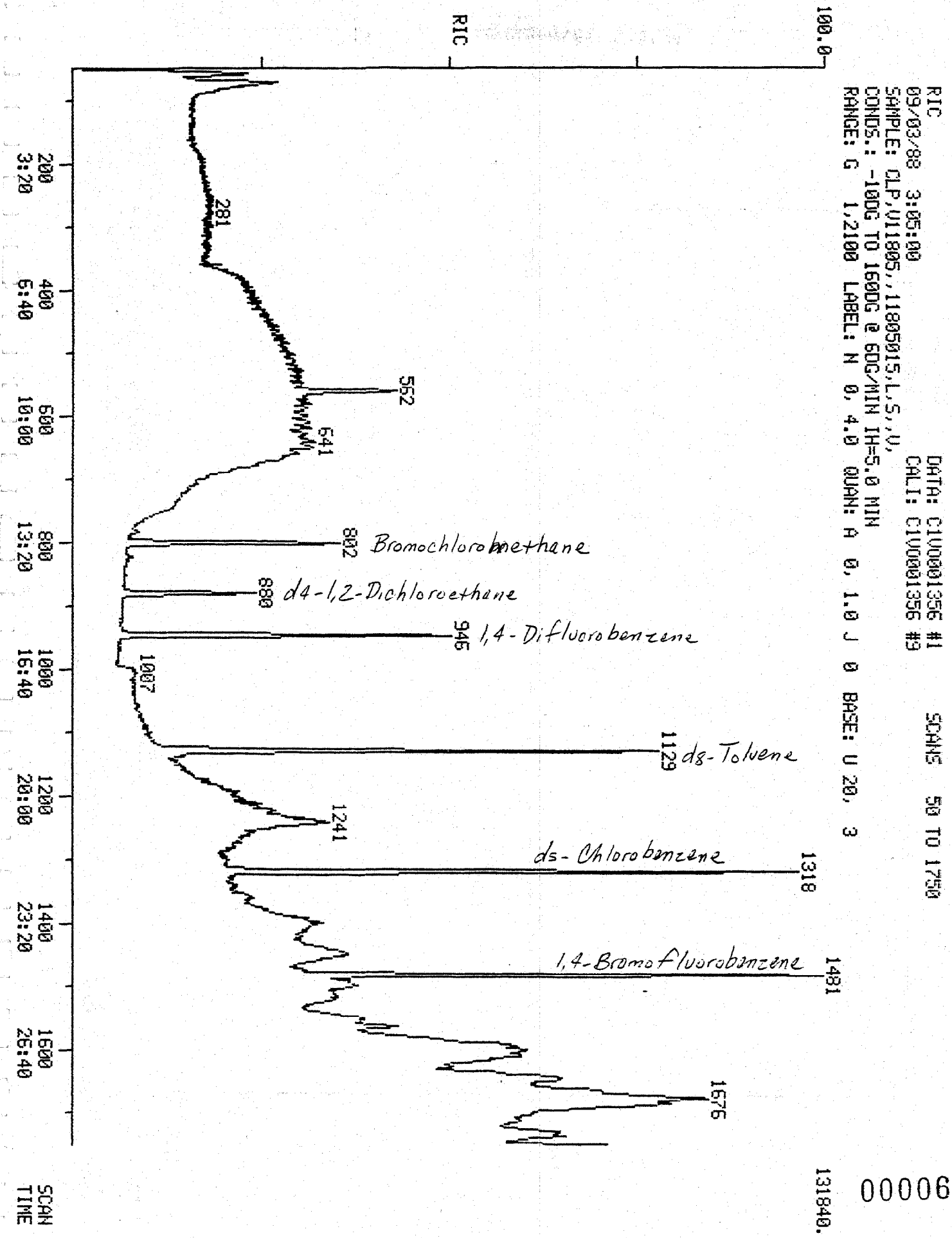
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 17 Date Analyzed: 09/03/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	50	X
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 7 FOUND
FINISHED AT: 9/03/88 11:47:09



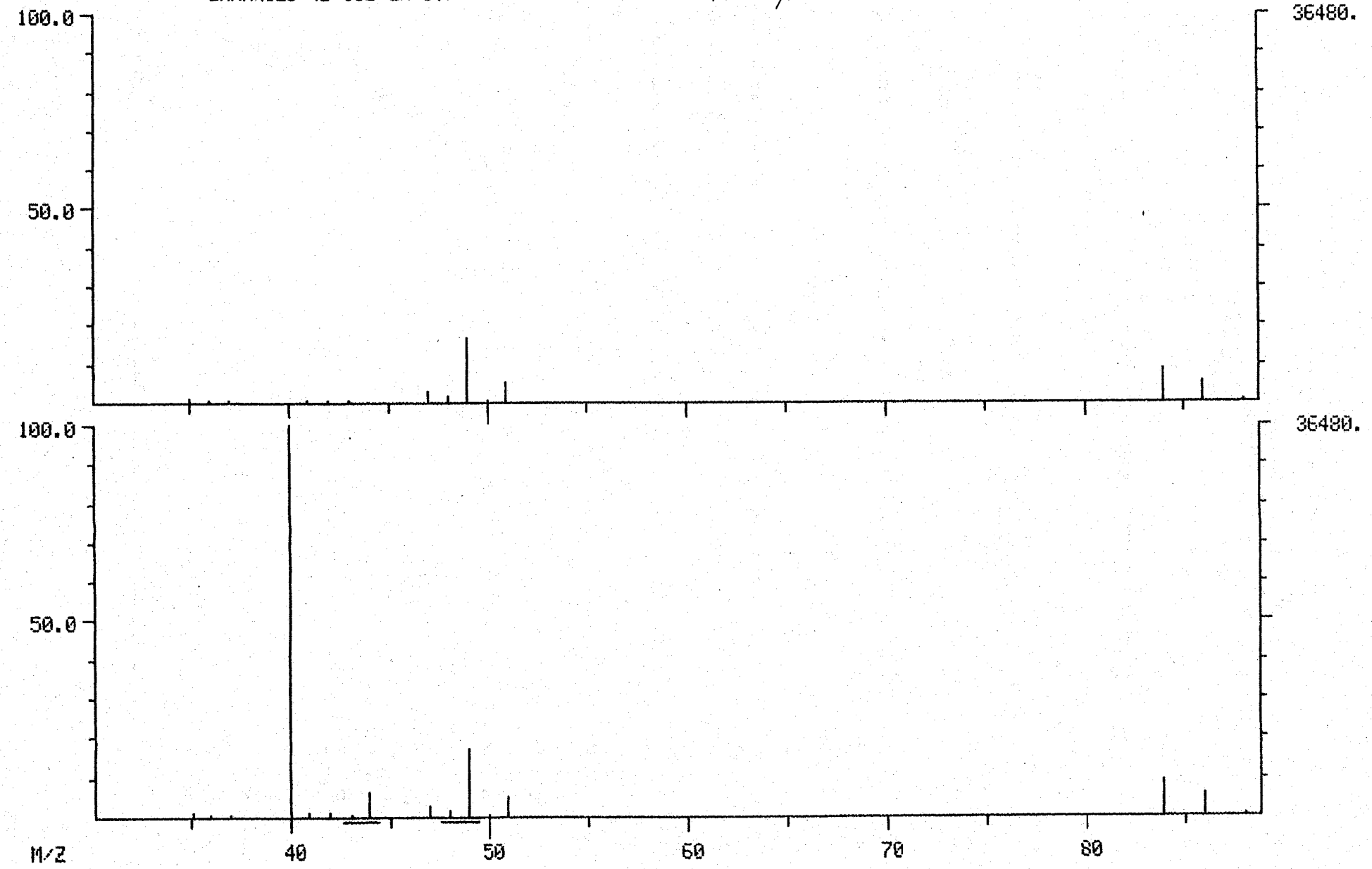
000065

DUAL MASS SPECTRUM
09/03/88 3:05:00 + 9:22
SAMPLE: CLP,V11805,,11805015,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001356 #562 BASE M/Z: 49/ 40
CALI: C1V0001356 #9 RIC: 16511./ 56447.

Methylene chloride

990000



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S6_1015_B6S1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805016

Sample wt/vol: _____ (g/mL) G Lab File ID: C2VO001370

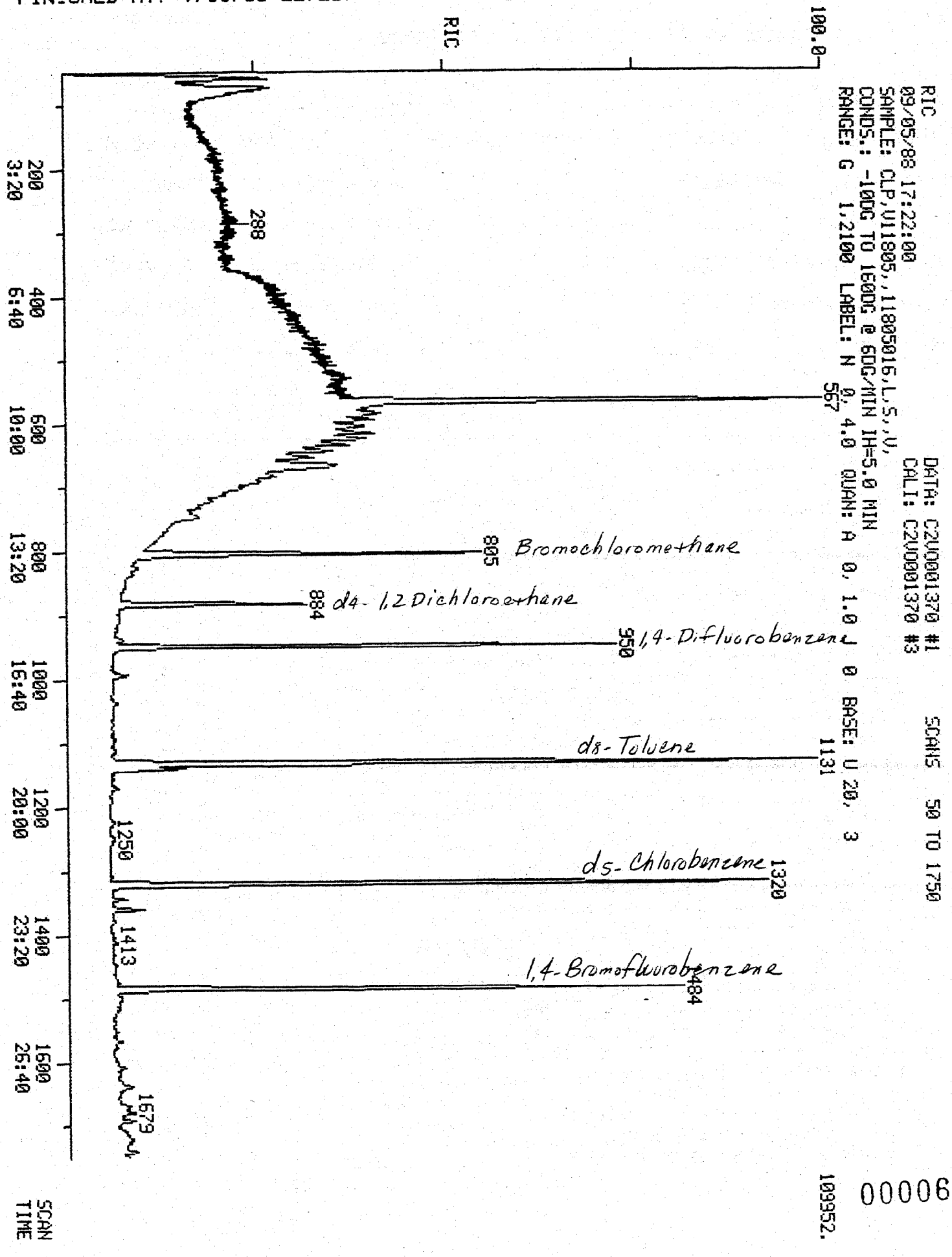
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 15 Date Analyzed: 09/05/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	220	
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	3	J

TCA FINISHED, 9 FOUND
FINISHED AT: 9/05/88 22:26:00



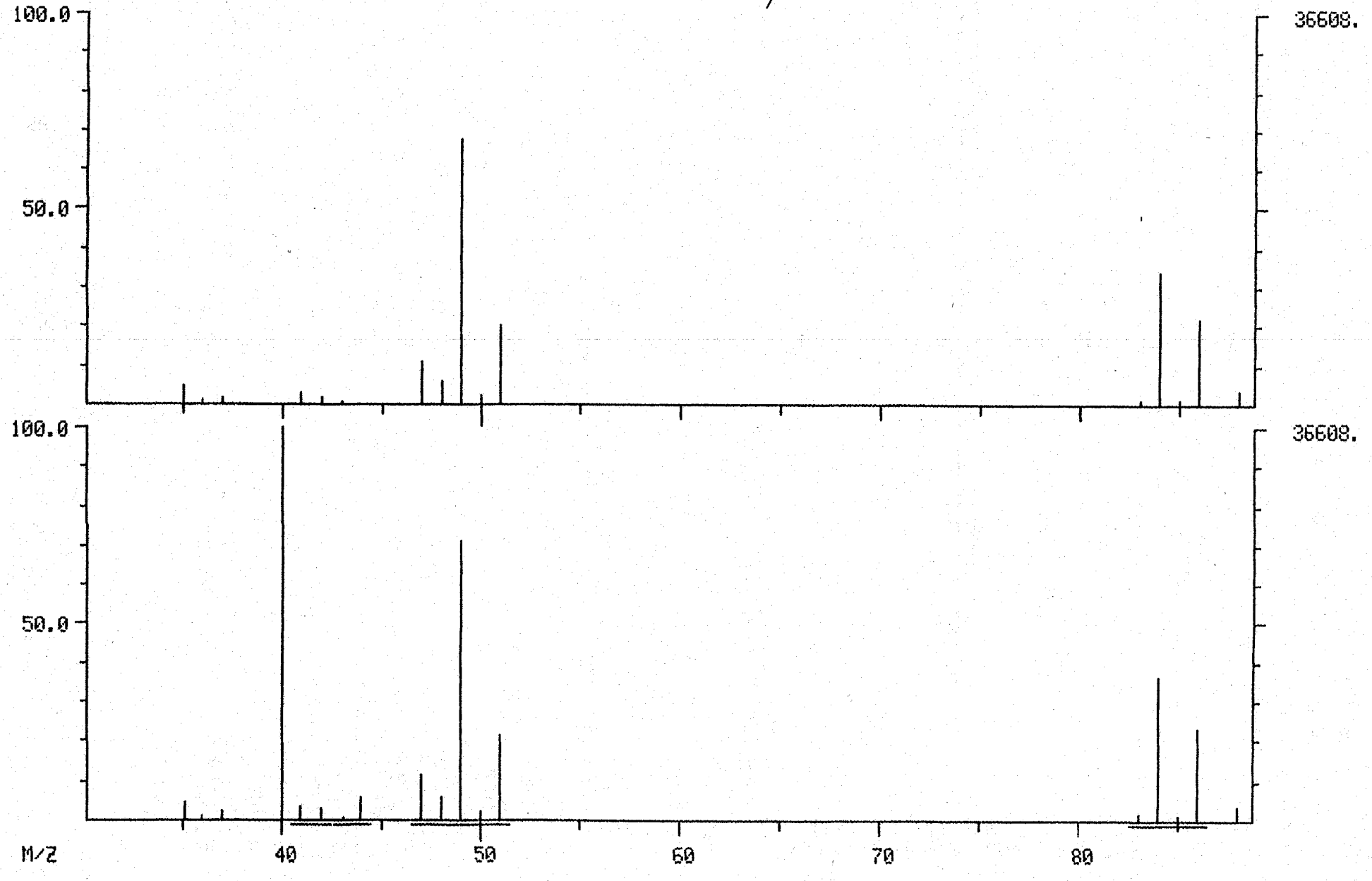
000068

DUAL MASS SPECTRUM
09/05/88 17:22:00 + 9:27
SAMPLE: CLP,V11805,,11805016,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001370 #567 BASE M/Z: 49/ 40
CALI: C2V0001370 #3 RIC: 67071./ 110207.

Methylene chloride

000069

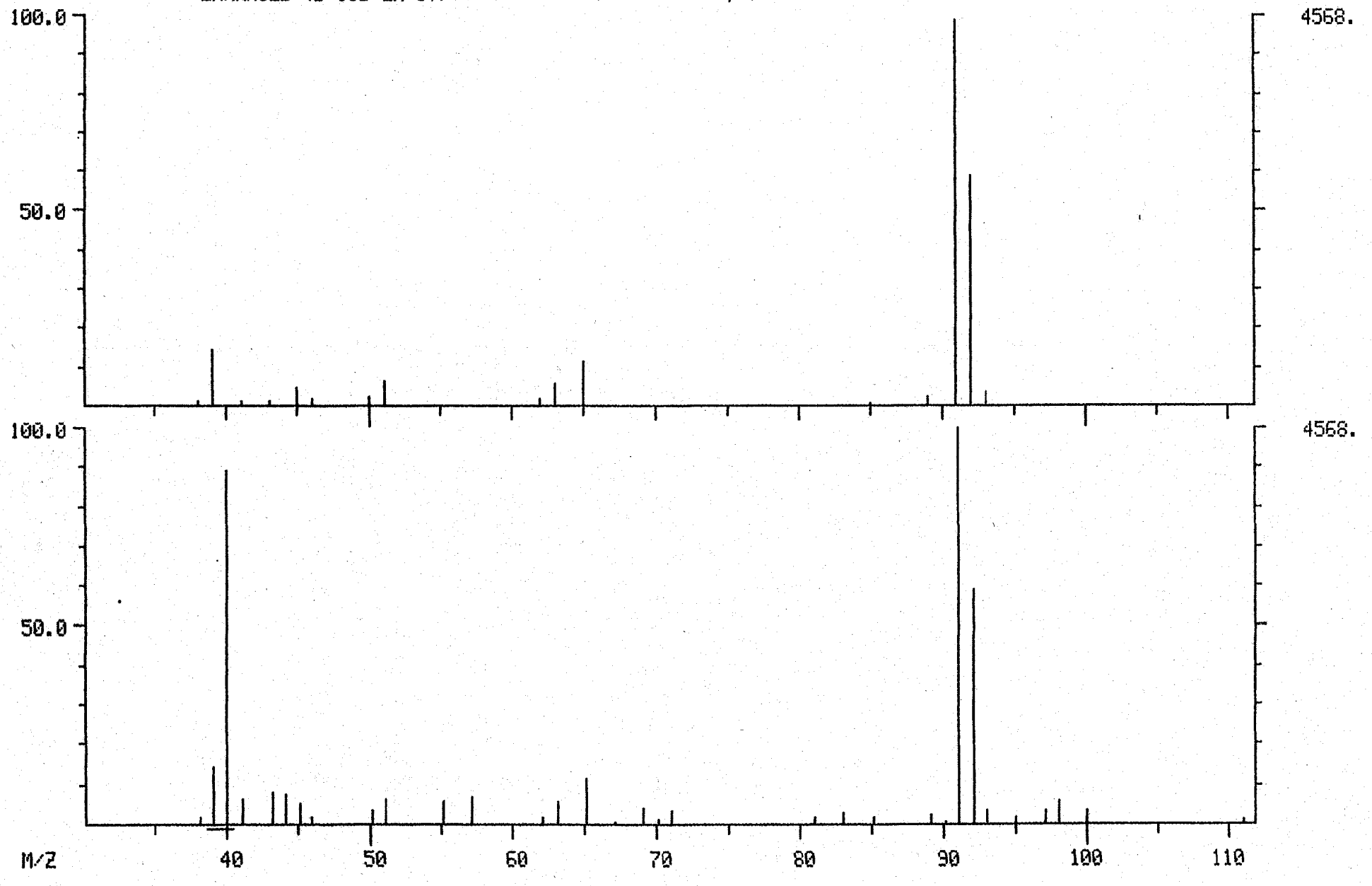


DUAL MASS SPECTRUM
09/05/88 17:22:00 + 19:00
SAMPLE: CLP,V11805,,11805016,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001370 #1140 BASE M/Z: 91/ 91
CALI: C2V0001370 #3 RIC: 9919./ 17023.

070000

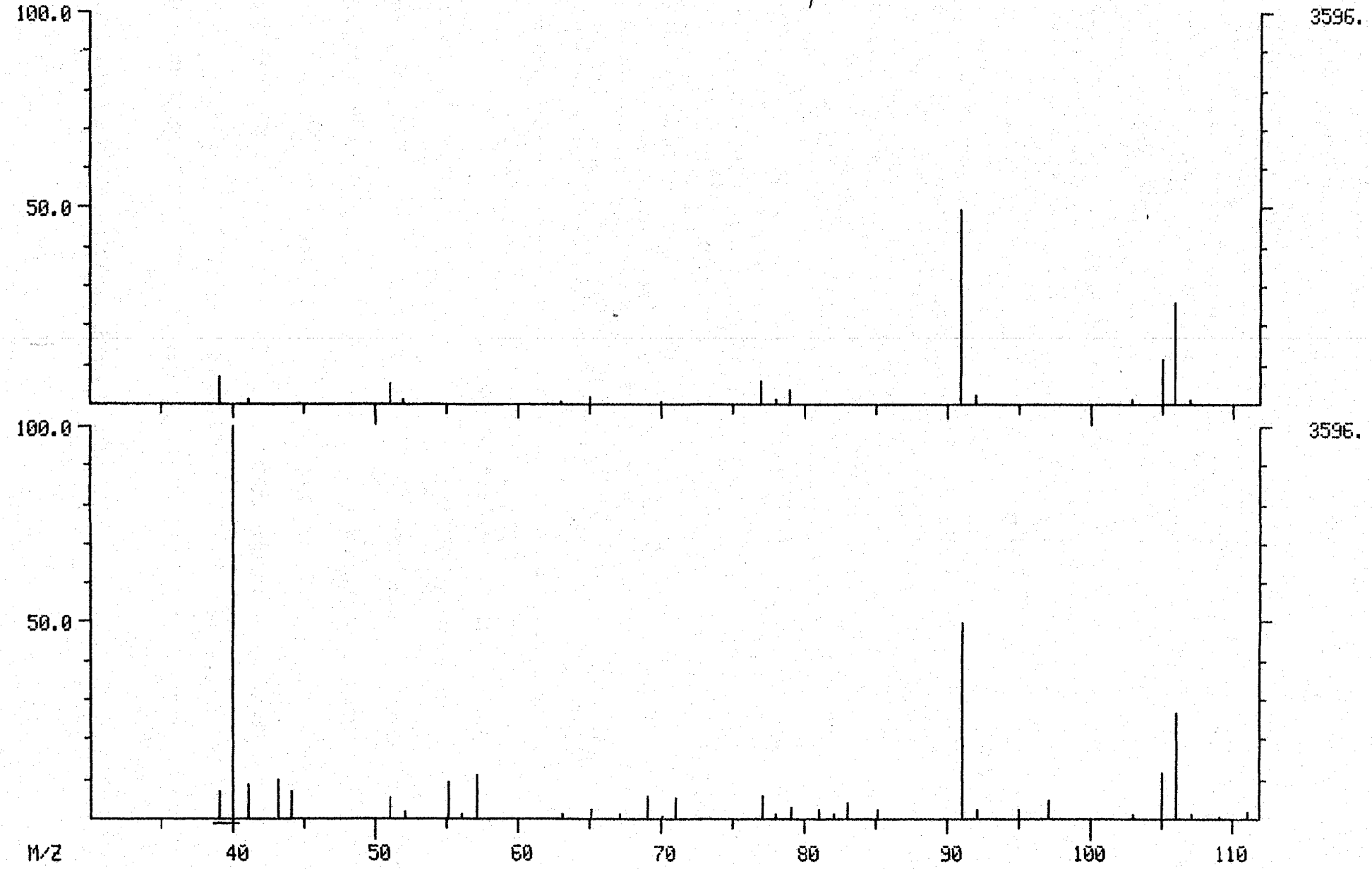
Toluene



DUAL MASS SPECTRUM
09/05/88 17:22:00 + 22:40
SAMPLE: CLP,V11805,,11805016,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001370 #1360 BASE M/Z: 91/ 40
CALI: C2V0001370 #3 RIC: 4303./ 10751.

Xylene



000071

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S6_1015_B6S2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805017

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001362

Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 16 Date Analyzed: 09/05/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	340	E
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	3	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S61015B6S2DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805017DL

Sample wt/vol: _____ (g/mL) G Lab File ID: C2V0001387

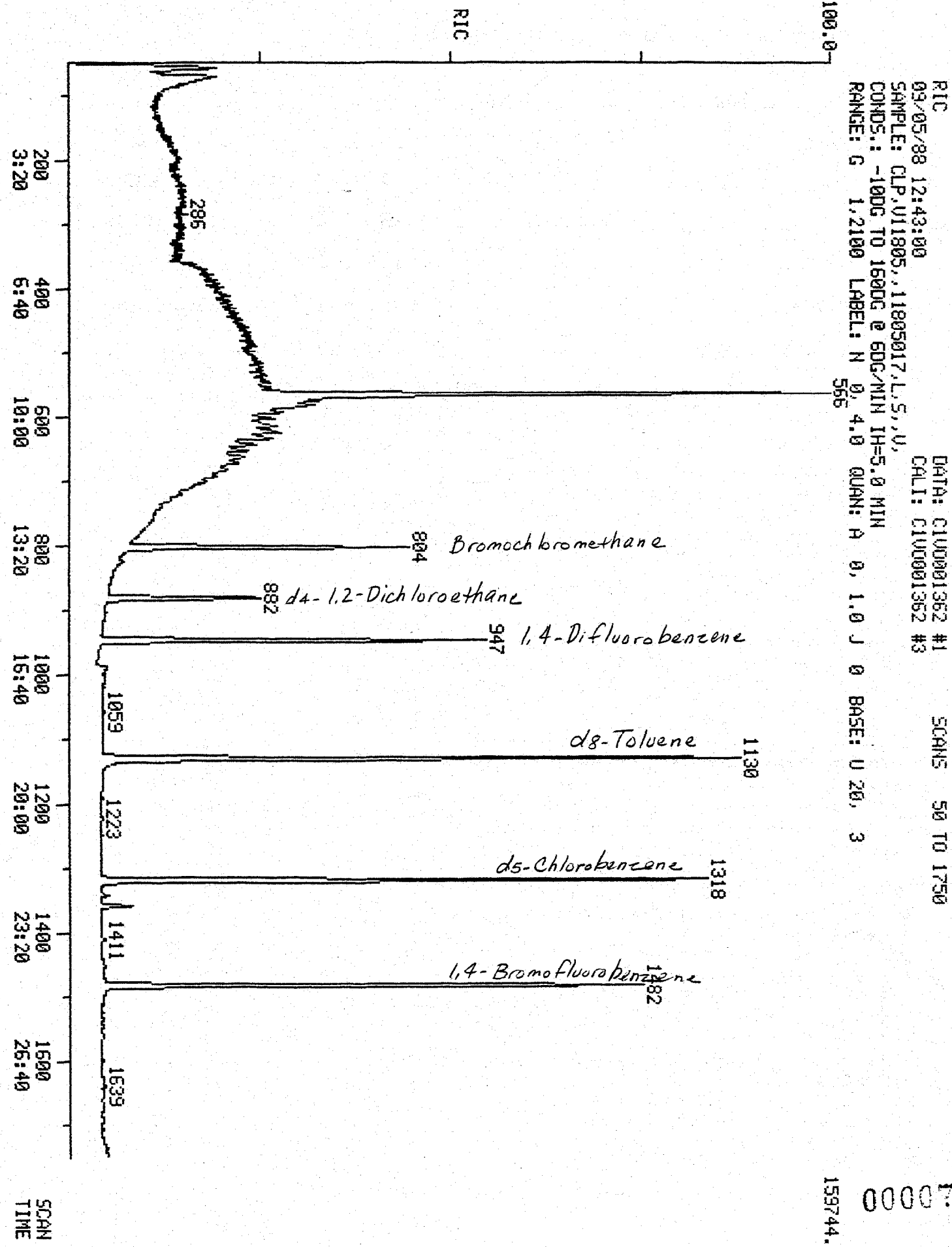
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 16 Date Analyzed: 09/06/88

Column: (pack/cap) CAP Dilution Factor: 5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	60	U
74-83-9	Bromomethane	60	U
75-01-4	Vinyl Chloride	60	U
75-00-3	Chloroethane	60	U
75-09-2	Methylene Chloride	300	D
67-64-1	Acetone	60	U
75-15-0	Carbon Disulfide	30	U
75-35-4	1,1-Dichloroethene	30	U
75-34-3	1,1-Dichloroethane	30	U
540-59-0	1,2-Dichloroethene (total)	30	U
67-66-3	Chloroform	30	U
107-06-2	1,2-Dichloroethane	30	U
78-93-3	2-Butanone	60	U
71-55-6	1,1,1-Trichloroethane	30	U
56-23-5	Carbon Tetrachloride	30	U
108-05-4	Vinyl Acetate	60	U
75-27-4	Bromodichloromethane	30	U
78-87-5	1,2-Dichloropropane	30	U
10061-01-5	cis-1,3-Dichloropropene	30	U
79-01-6	Trichloroethene	30	U
124-48-1	Dibromochloromethane	30	U
79-00-5	1,1,2-Trichloroethane	30	U
71-43-2	Benzene	30	U
10061-02-6	trans-1,3-Dichloropropene	30	U
75-25-2	Bromoform	30	U
591-78-6	2-Hexanone	60	U
108-10-1	4-Methyl-2-Pentanone	60	U
127-18-4	Tetrachloroethene	30	U
79-34-5	1,1,2,2-Tetrachloroethane	60	U
108-88-3	Toluene	30	U
108-90-7	Chlorobenzene	30	U
100-41-4	Ethylbenzene	30	U
100-42-5	Styrene	30	U
1330-20-7	Xylenes (total)	30	U

TCA FINISHED, 8 FOUND
FINISHED AT: 9/05/88 21:37:51



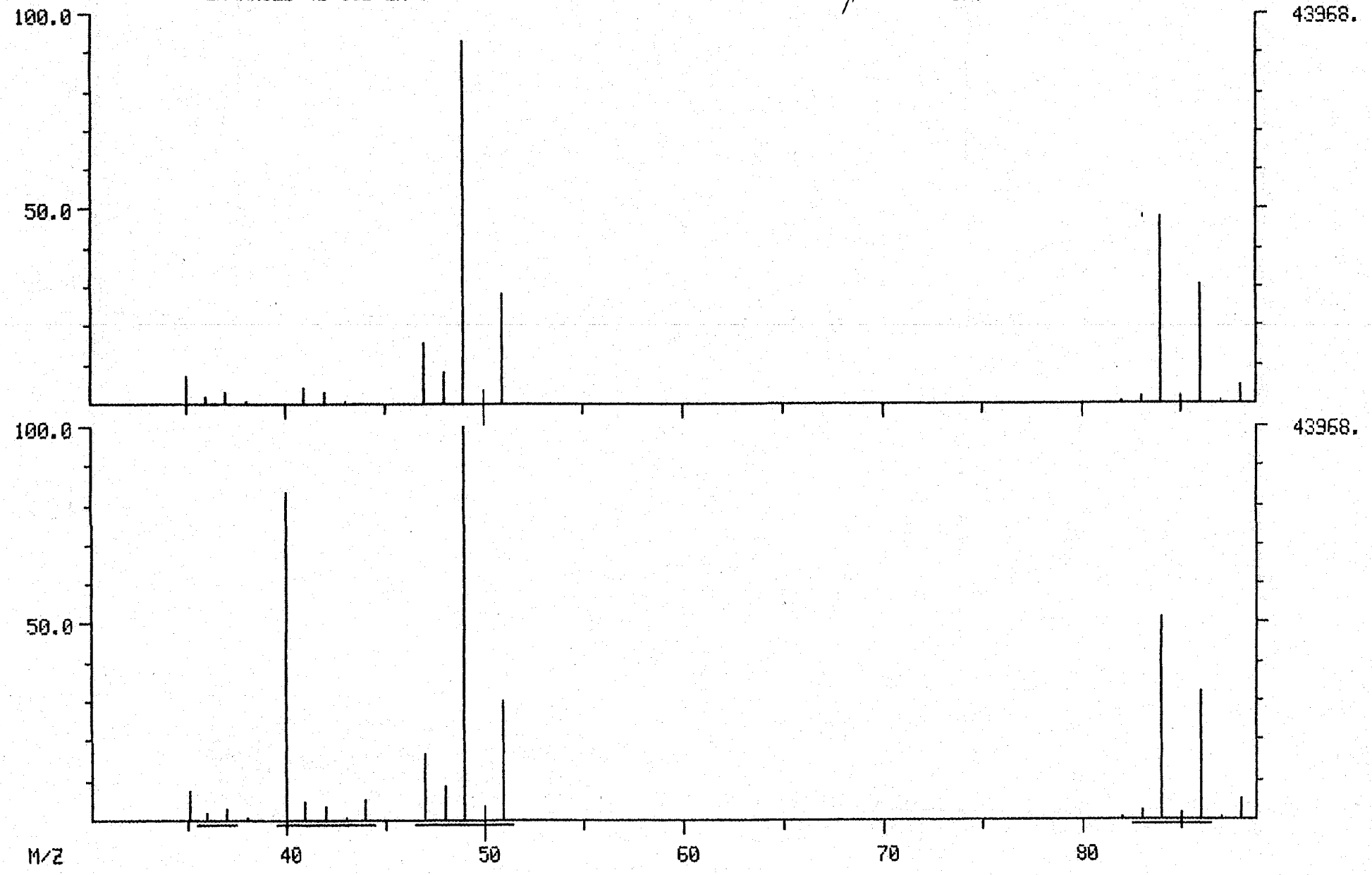
000074

DUAL MASS SPECTRUM
09/05/88 12:43:00 + 9:26
SAMPLE: CLP,V11805,,11805017,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001362 #566 BASE M/Z: 49/ 49
CALI: C1V0001362 #3 RIC: 113023./ 159999.

Methylene chloride

000075

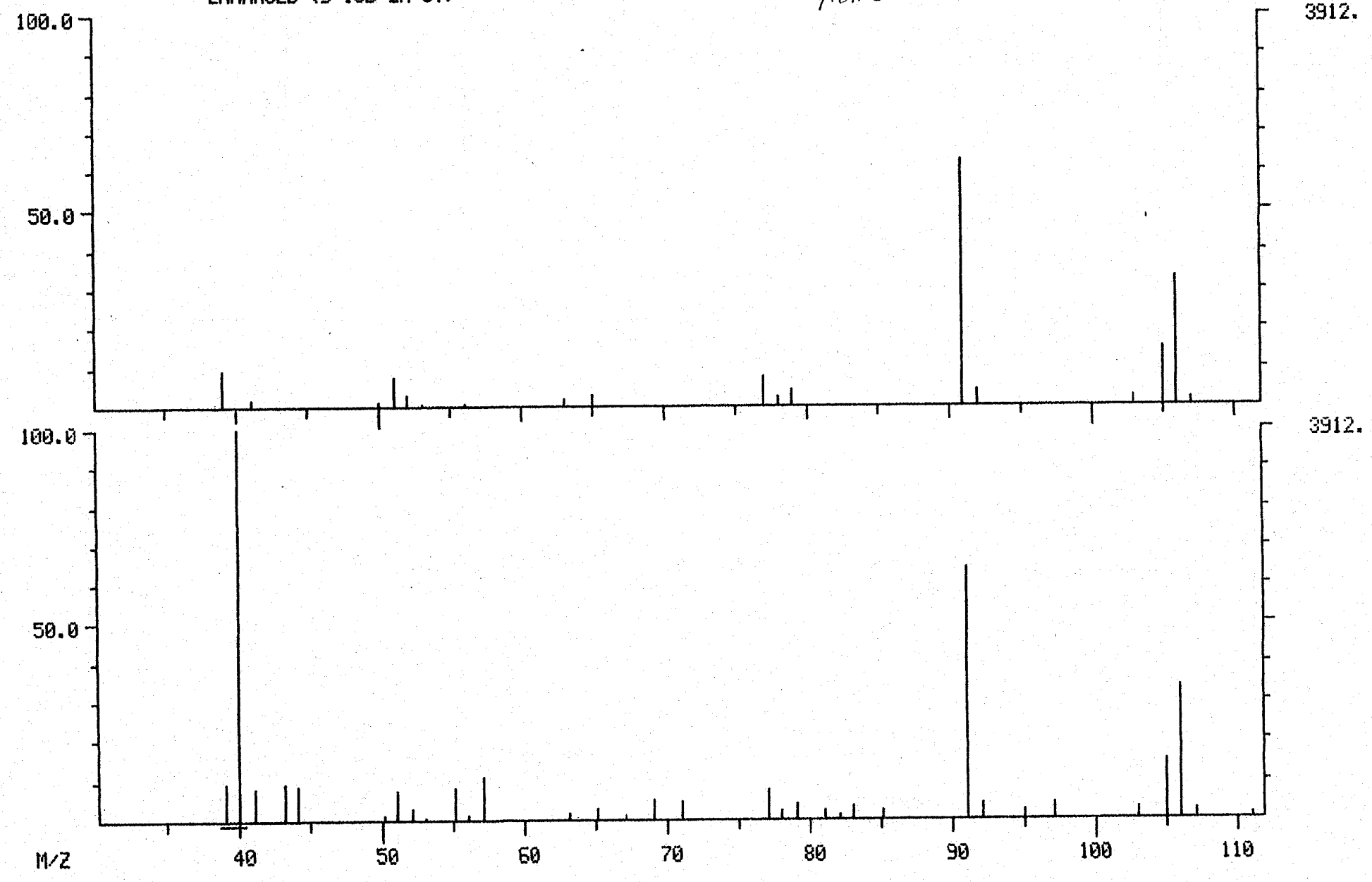


DUAL MASS SPECTRUM
09/05/88 12:43:00 + 22:38
SAMPLE: CLP,V11805,,11805017,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001362 #1358 BASE M/Z: 91/ 40
CALI: C1V0001362 #3 RIC: 6303./ 13199.

Xylene

000076



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S6_1015_B6S3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805018

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001363

Level: (low/med) LOW Date Received: 08/27/88

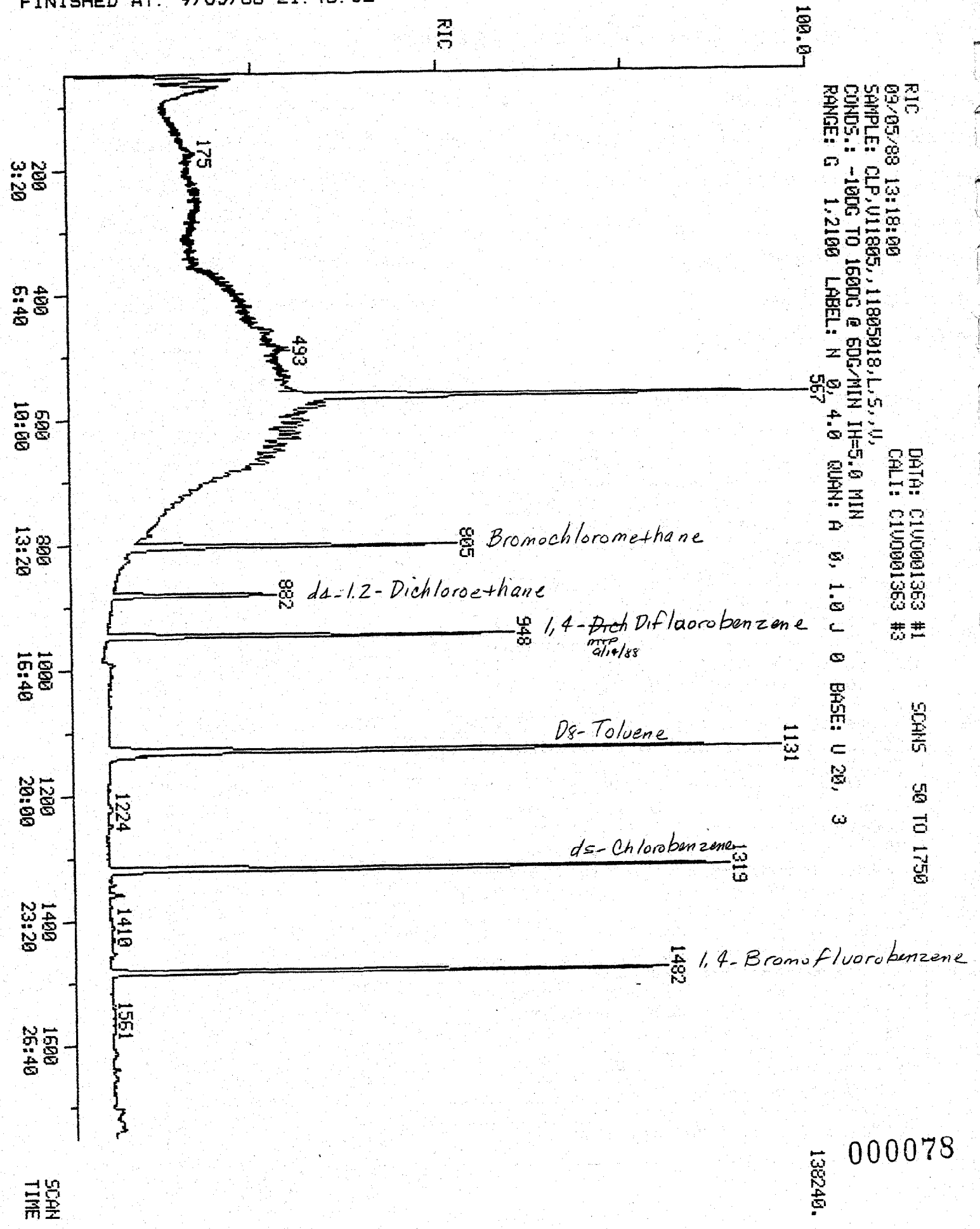
% Moisture: not dec. 15 Date Analyzed: 09/05/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	260	E
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

R5

TCA FINISHED, 8 FOUND
FINISHED AT: 9/05/88 21:43:52



138240.

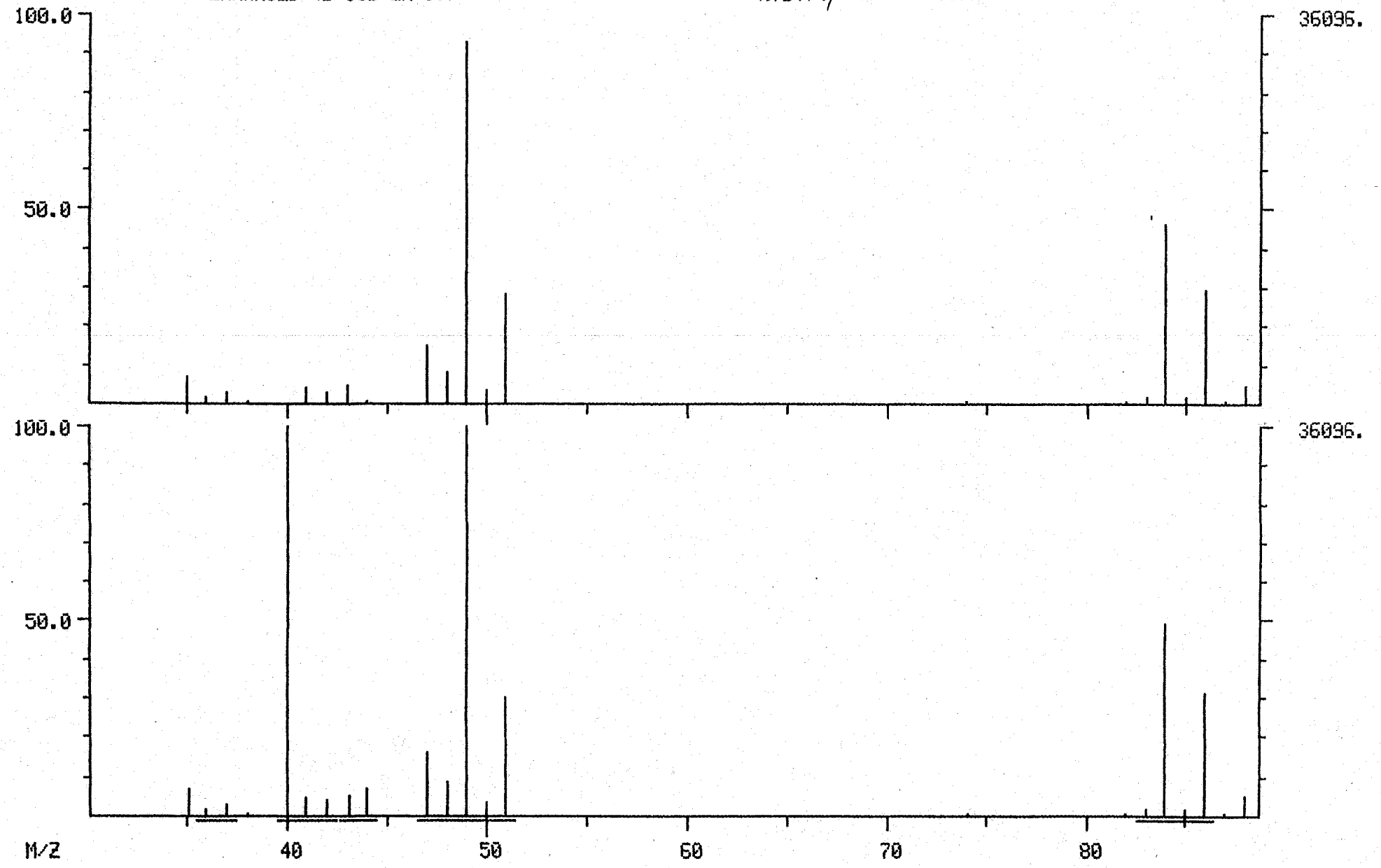
000078

DUAL MASS SPECTRUM
09/05/88 13:18:00 + 9:27
SAMPLE: CLP,V11805,,11805018,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001363 #567 BASE M/Z: 49/ 40
CALI: C1V0001363 #3 RIC: 93183./ 138239.

Methylene Chloride

000079

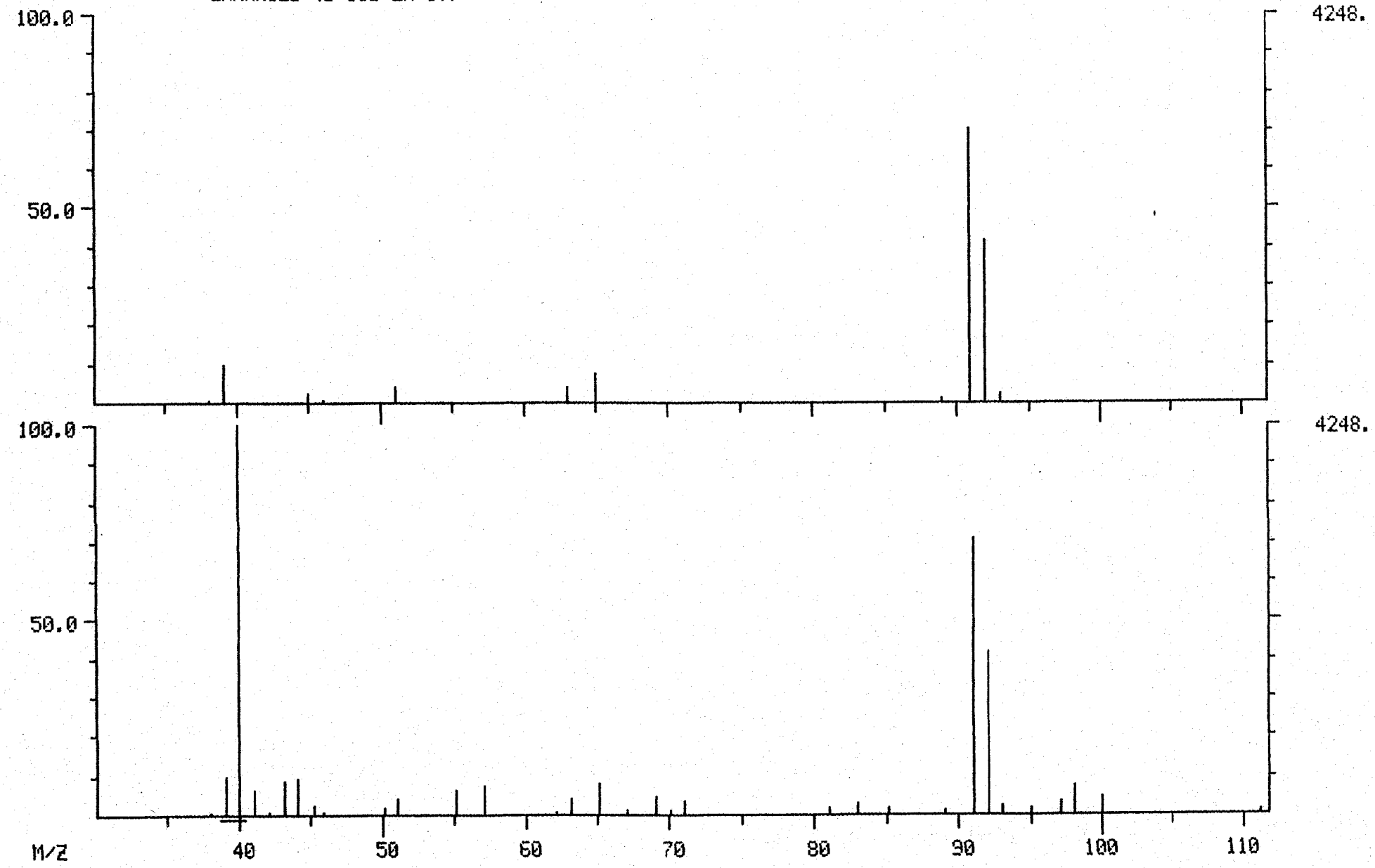


DUAL MASS SPECTRUM
09/05/88 13:18:00 + 18:59
SAMPLE: CLP,V11805,,11805018,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001363 #1139 BASE M/Z: 91/ 40
CALI: C1V0001363 #3 RIC: 6167./ 13759.

080000

Toluene



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S7_0915_B7S1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805019

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001364

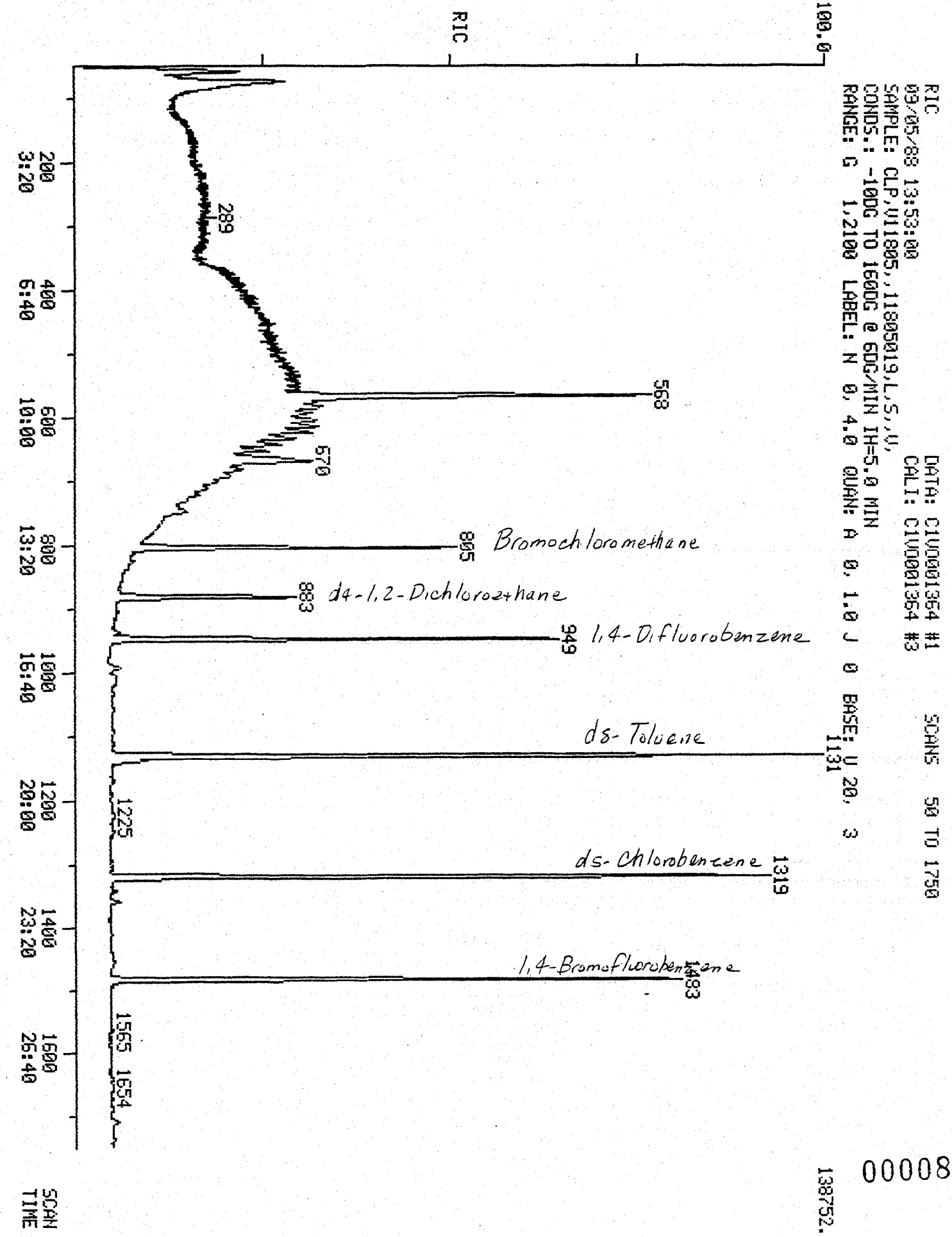
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 10 Date Analyzed: 09/05/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	160	
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 8 FOUND
FINISHED AT: 9/05/88 21:49:56



138752.

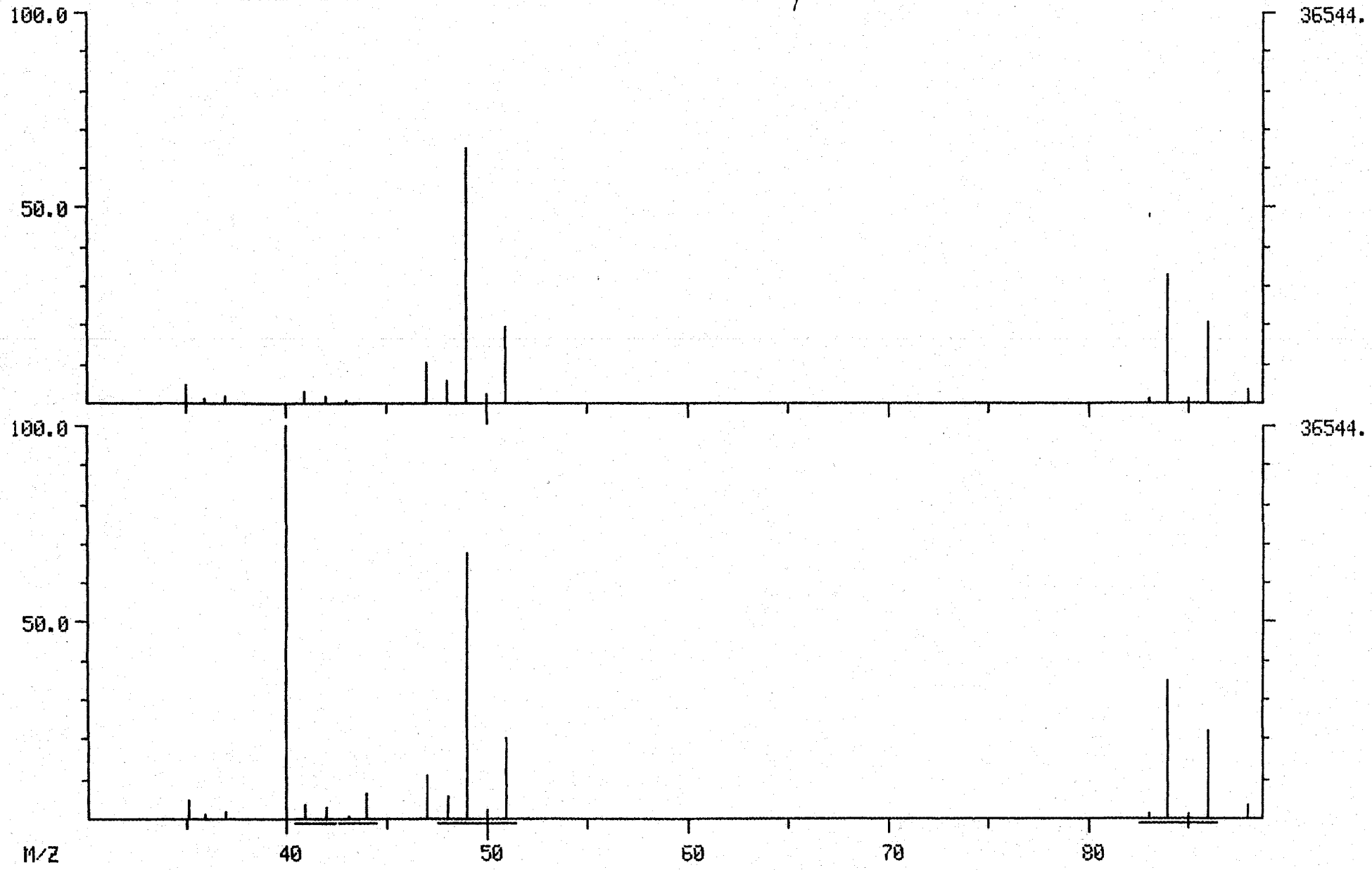
000082

DUAL MASS SPECTRUM
09/05/88 13:53:00 + 9:28
SAMPLE: CLP,V11805,,11805019,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001364 #568 BASE M/Z: 49/ 40
CALI: C1V0001364 #3 RIC: 65023./ 106623.

Methylene chloride

000083

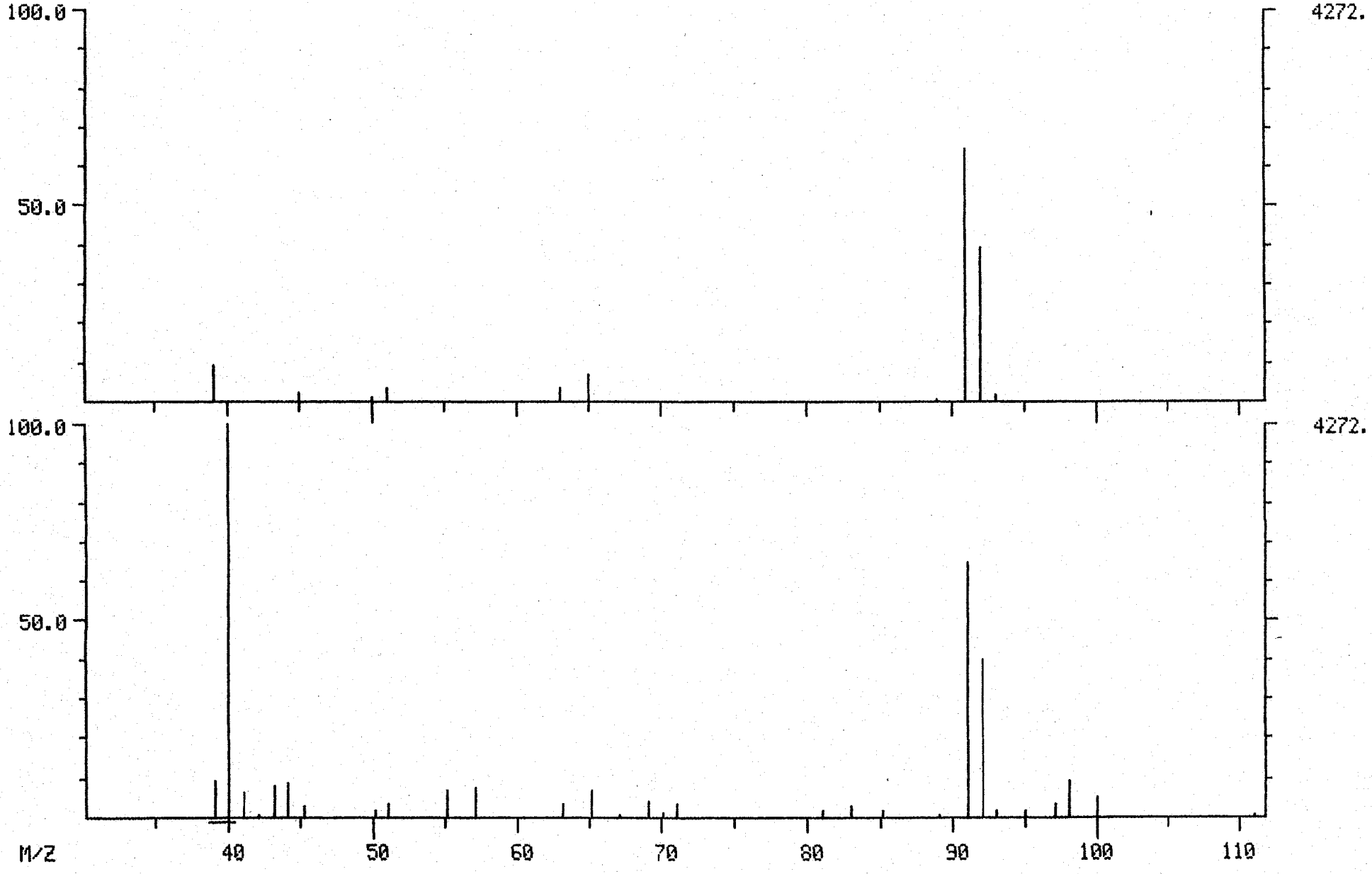


DUAL MASS SPECTRUM
09/05/88 13:53:00 + 18:59
SAMPLE: CLP,V11805,,11805019,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001364 #1139 BASE M/Z: 91/ 40
CALI: C1V0001364 #3 RIC: 5671./ 13199.

Toluene

000084



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S7_0915_B7S2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805020

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001365

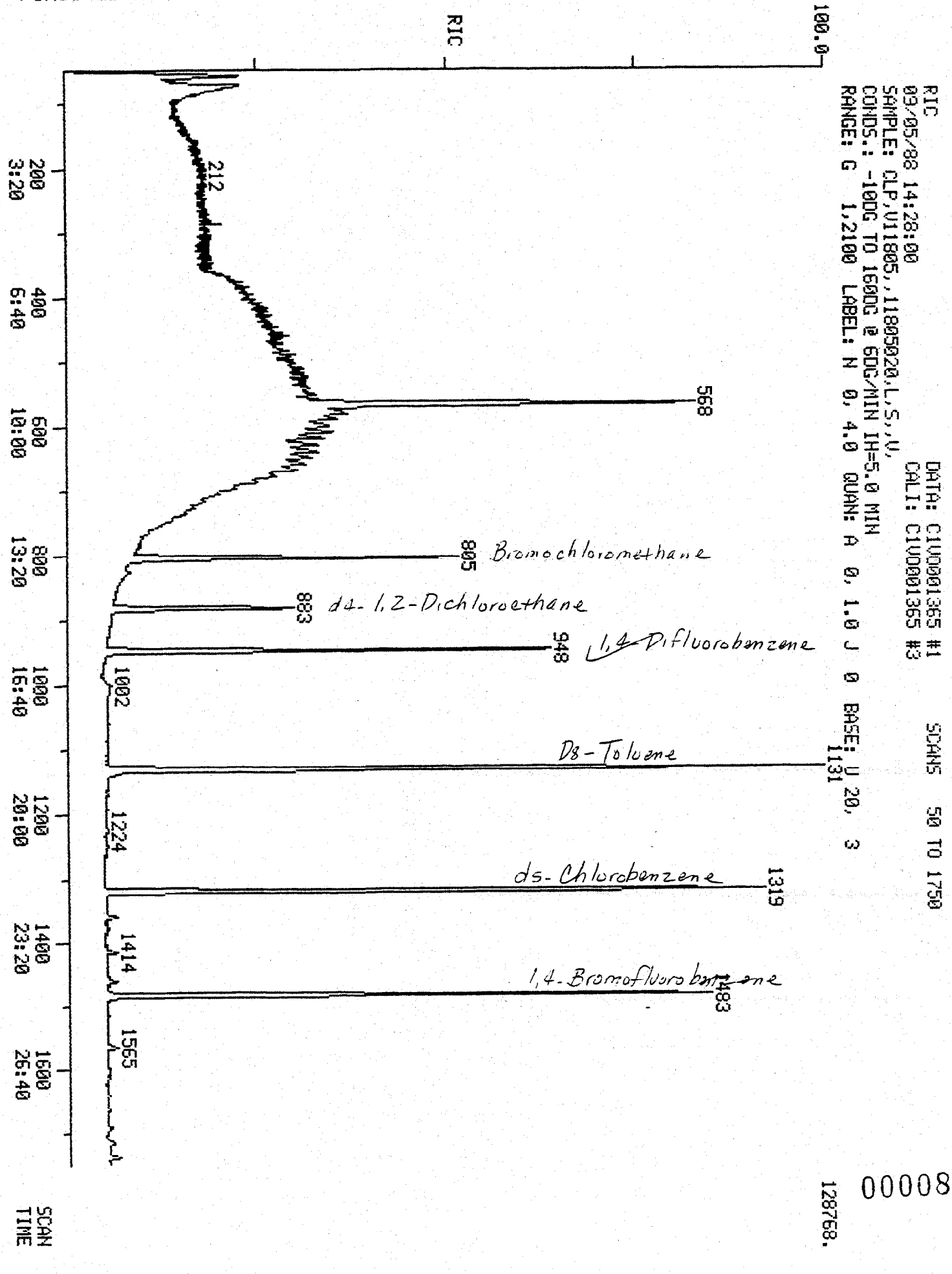
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 14 Date Analyzed: 09/05/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	180	
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 7 FOUND
FINISHED AT: 9/05/88 21:55:57



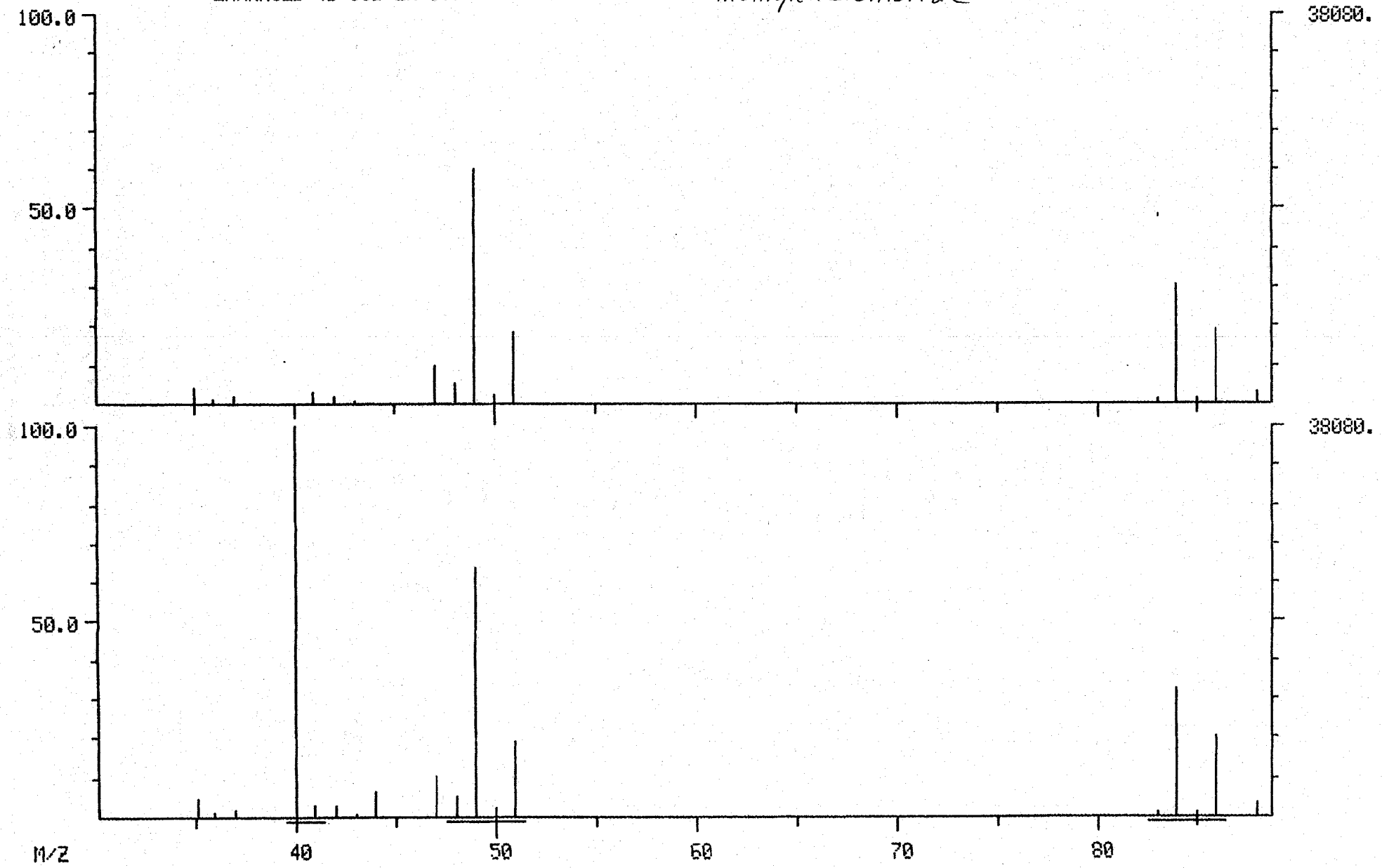
000086

128768.

DUAL MASS SPECTRUM
09/05/88 14:28:00 + 9:28
SAMPLE: CLP,V11805,,11805020,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001365 #568 BASE M/Z: 49/ 40
CALI: C1V0001365 #3 RIC: 62335./ 106879.

Methylene chloride



000087

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S7_0915_B7S3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805021

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001366

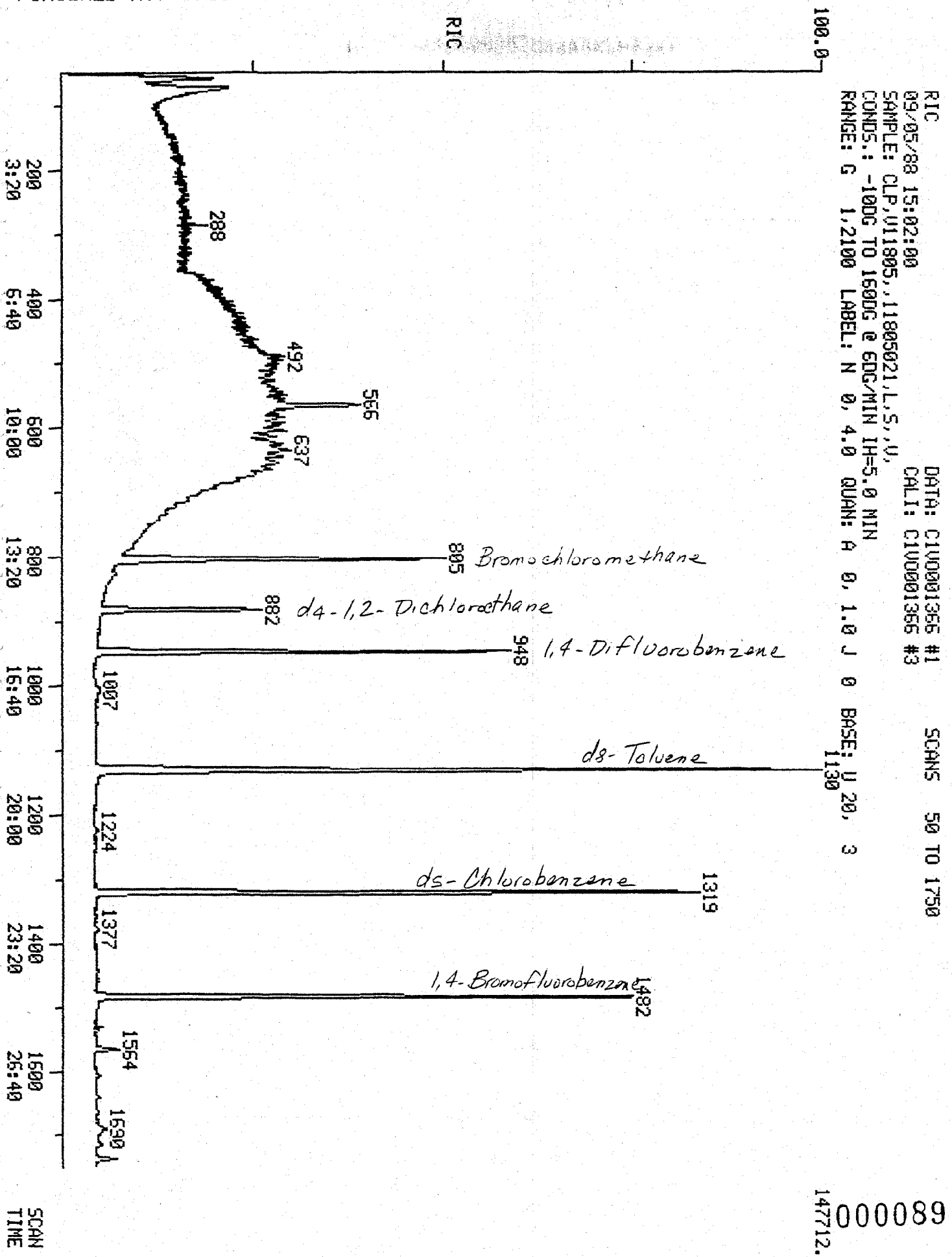
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 21 Date Analyzed: 09/05/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	26	
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	30	
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 7 FOUND
FINISHED AT: 9/05/88 22:01:57



147712.

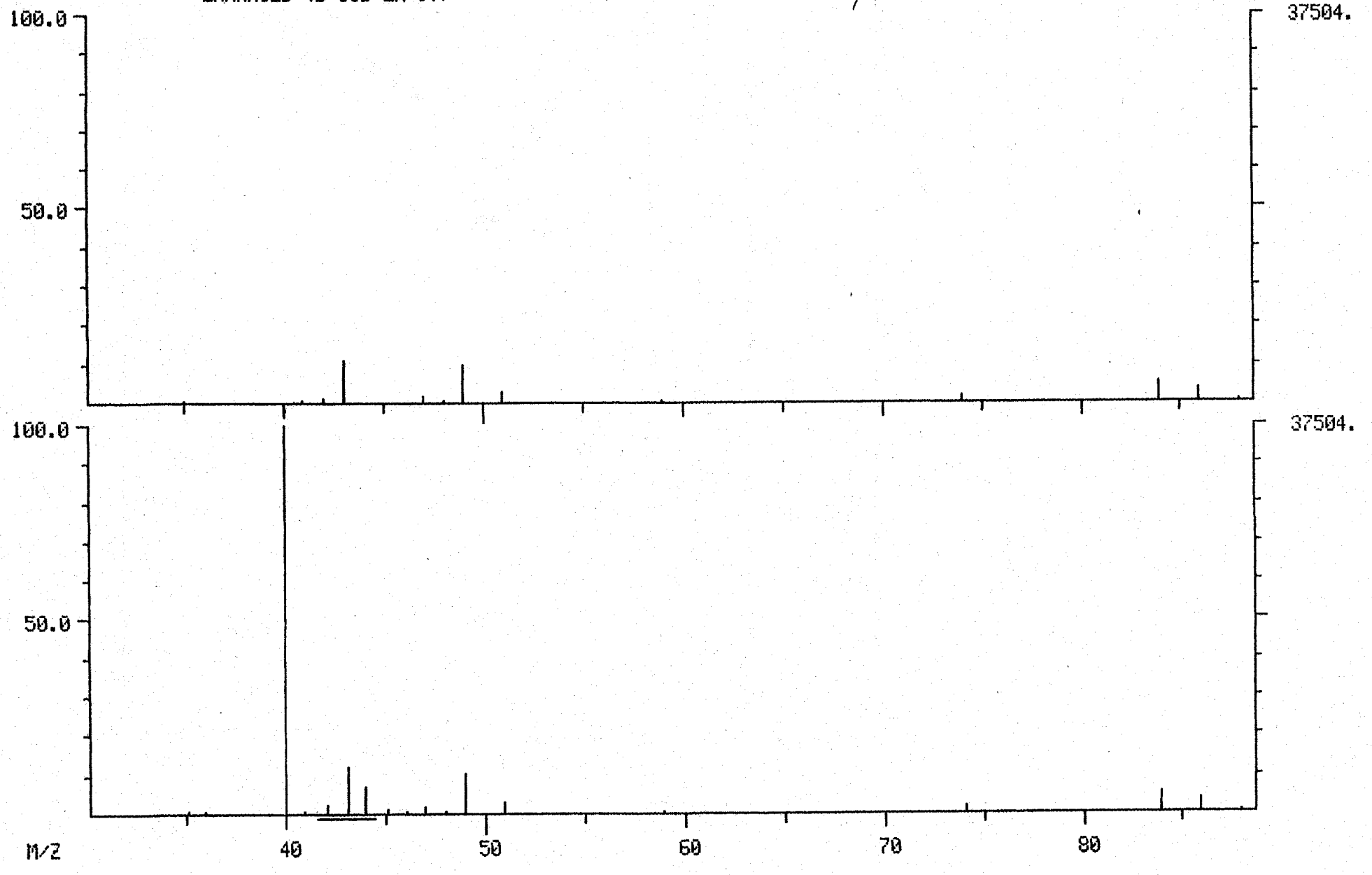
000089

DUAL MASS SPECTRUM
09/05/88 15:02:00 + 9:27
SAMPLE: CLP,V11805,,11805021,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001366 #567 BASE M/Z: 43/ 40
CALI: C1V0001366 #3 RIC: 15135./ 56959.

Methylene chloride

000090

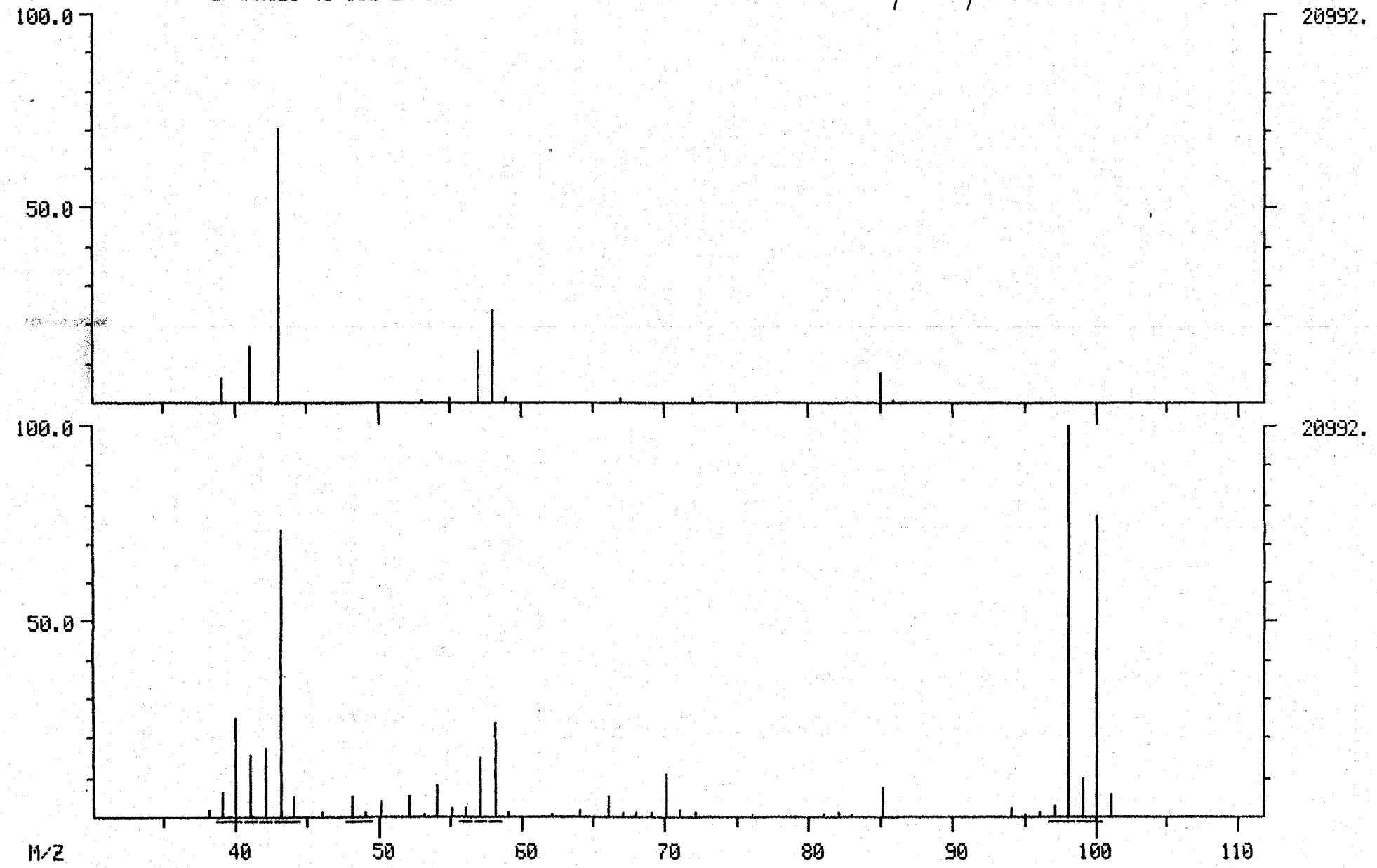


DUAL MASS SPECTRUM
09/05/88 15:02:00 + 18:48
SAMPLE: CLP,V11805,,11805021,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001366 #1128 BASE M/Z: 43/ 98
CALI: C1V0001366 #3 RIC: 29631./ 94463.

4-Methyl-2-pentanone

160000



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S8_1615_SS1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805022

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001367

Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 9 Date Analyzed: 09/05/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	270	E
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S81615SS1DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805022DL

Sample wt/vol: _____ (g/mL) G Lab File ID: C2V0001388

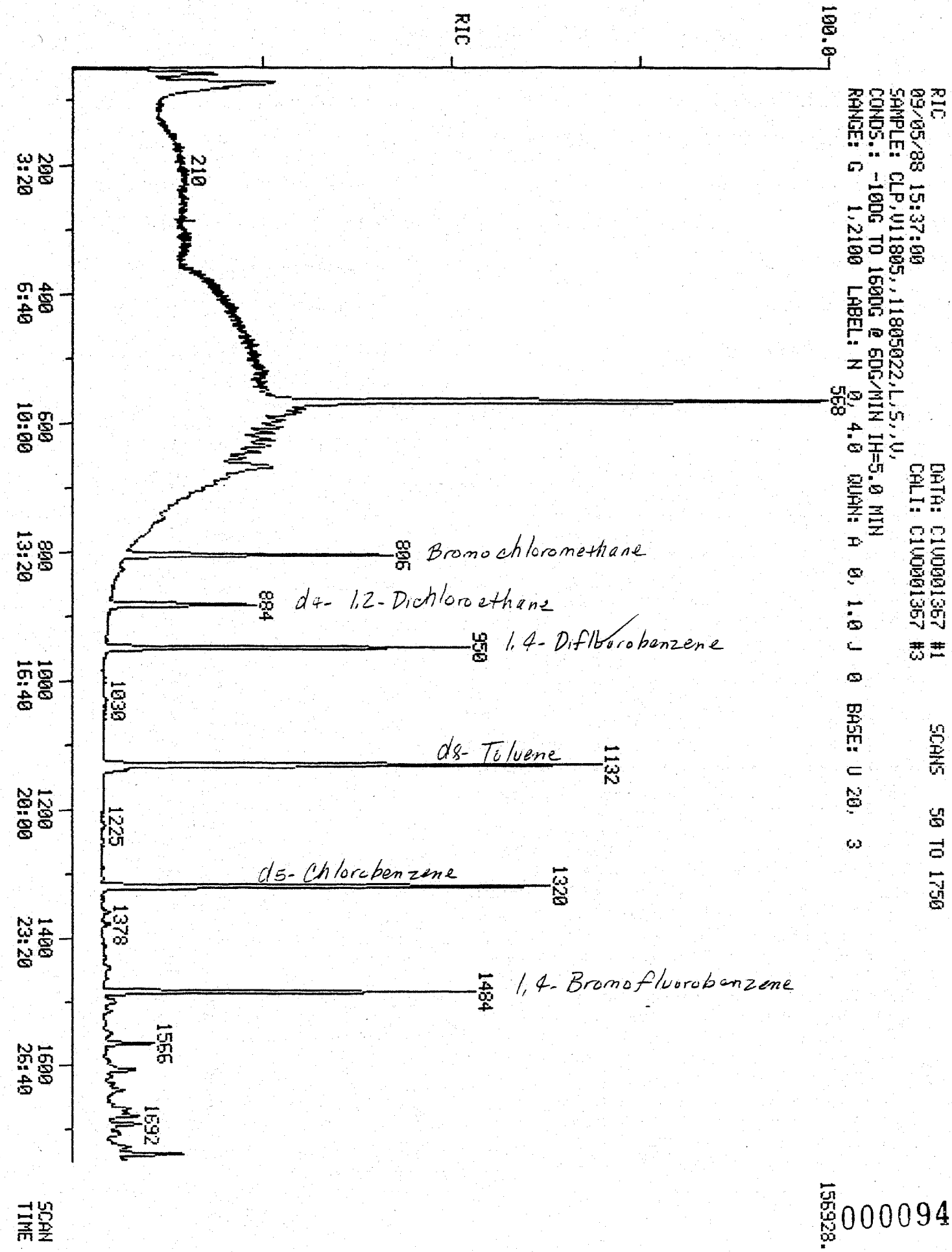
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 9 Date Analyzed: 09/06/88

Column: (pack/cap) CAP Dilution Factor: 5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	55	U
74-83-9	Bromomethane	55	U
75-01-4	Vinyl Chloride	55	U
75-00-3	Chloroethane	55	U
75-09-2	Methylene Chloride	430	D
67-64-1	Acetone	55	U
75-15-0	Carbon Disulfide	27	U
75-35-4	1,1-Dichloroethene	27	U
75-34-3	1,1-Dichloroethane	27	U
540-59-0	1,2-Dichloroethene (total)	27	U
67-66-3	Chloroform	27	U
107-06-2	1,2-Dichloroethane	27	U
78-93-3	2-Butanone	55	U
71-55-6	1,1,1-Trichloroethane	27	U
56-23-5	Carbon Tetrachloride	27	U
108-05-4	Vinyl Acetate	55	U
75-27-4	Bromodichloromethane	27	U
78-87-5	1,2-Dichloropropane	27	U
10061-01-5	cis-1,3-Dichloropropene	27	U
79-01-6	Trichloroethene	27	U
124-48-1	Dibromochloromethane	27	U
79-00-5	1,1,2-Trichloroethane	27	U
71-43-2	Benzene	27	U
10061-02-6	trans-1,3-Dichloropropene	27	U
75-25-2	Bromoform	27	U
591-78-6	2-Hexanone	55	U
108-10-1	4-Methyl-2-Pentanone	55	U
127-18-4	Tetrachloroethene	27	U
79-34-5	1,1,2,2-Tetrachloroethane	55	U
108-88-3	Toluene	27	U
108-90-7	Chlorobenzene	27	U
100-41-4	Ethylbenzene	27	U
100-42-5	Styrene	27	U
1330-20-7	Xylenes (total)	27	U

TCA FINISHED, 8 FOUND
FINISHED AT: 9/05/88 22:07:57



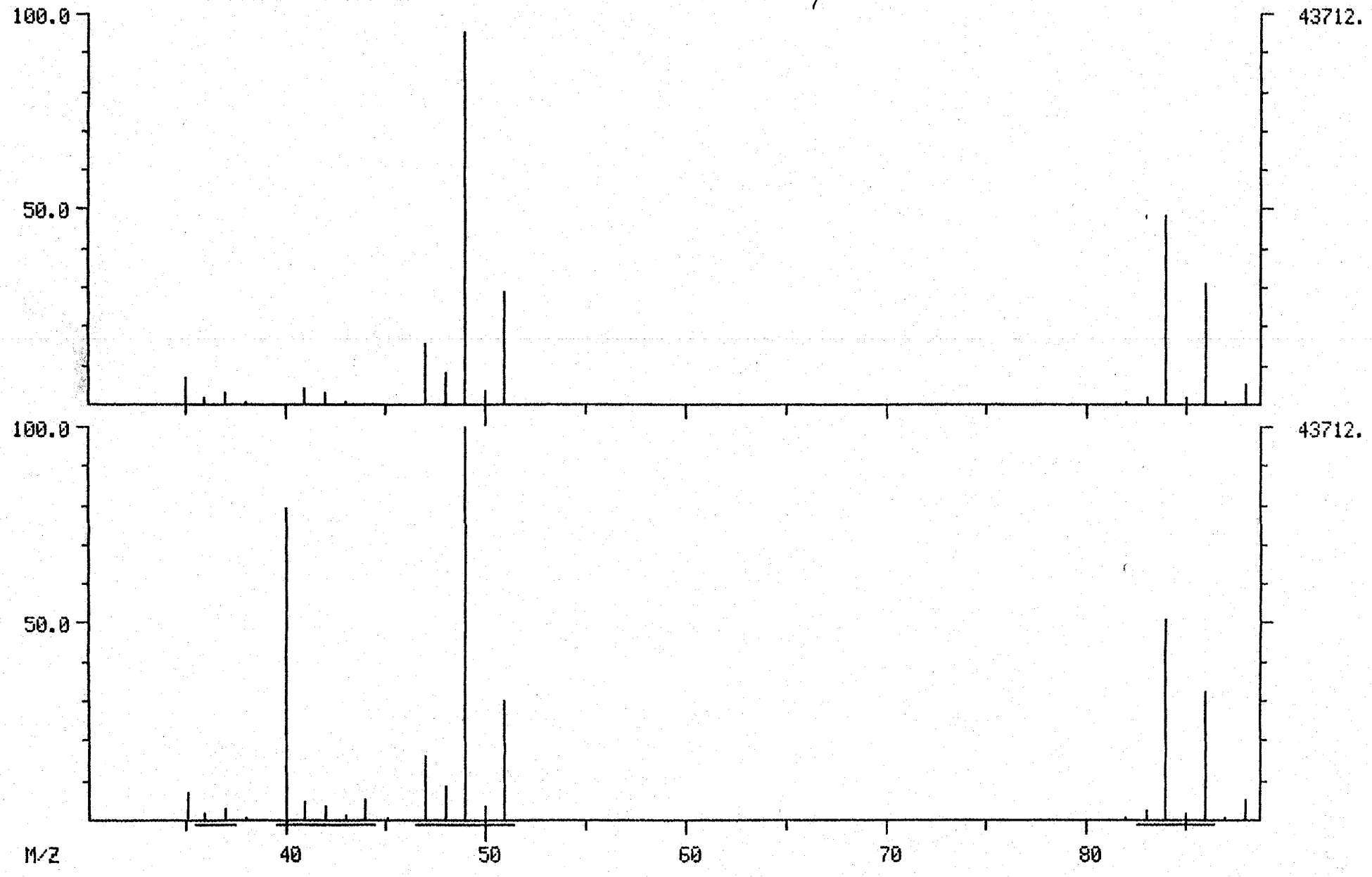
000094

DUAL MASS SPECTRUM
09/05/88 15:37:00 + 9:28
SAMPLE: CLP,V11805,,11805022,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001367 #568 BASE M/Z: 49/ 49
CALI: C1V0001367 #3 RIC: 114431./ 157183.

Methylene chloride

000095

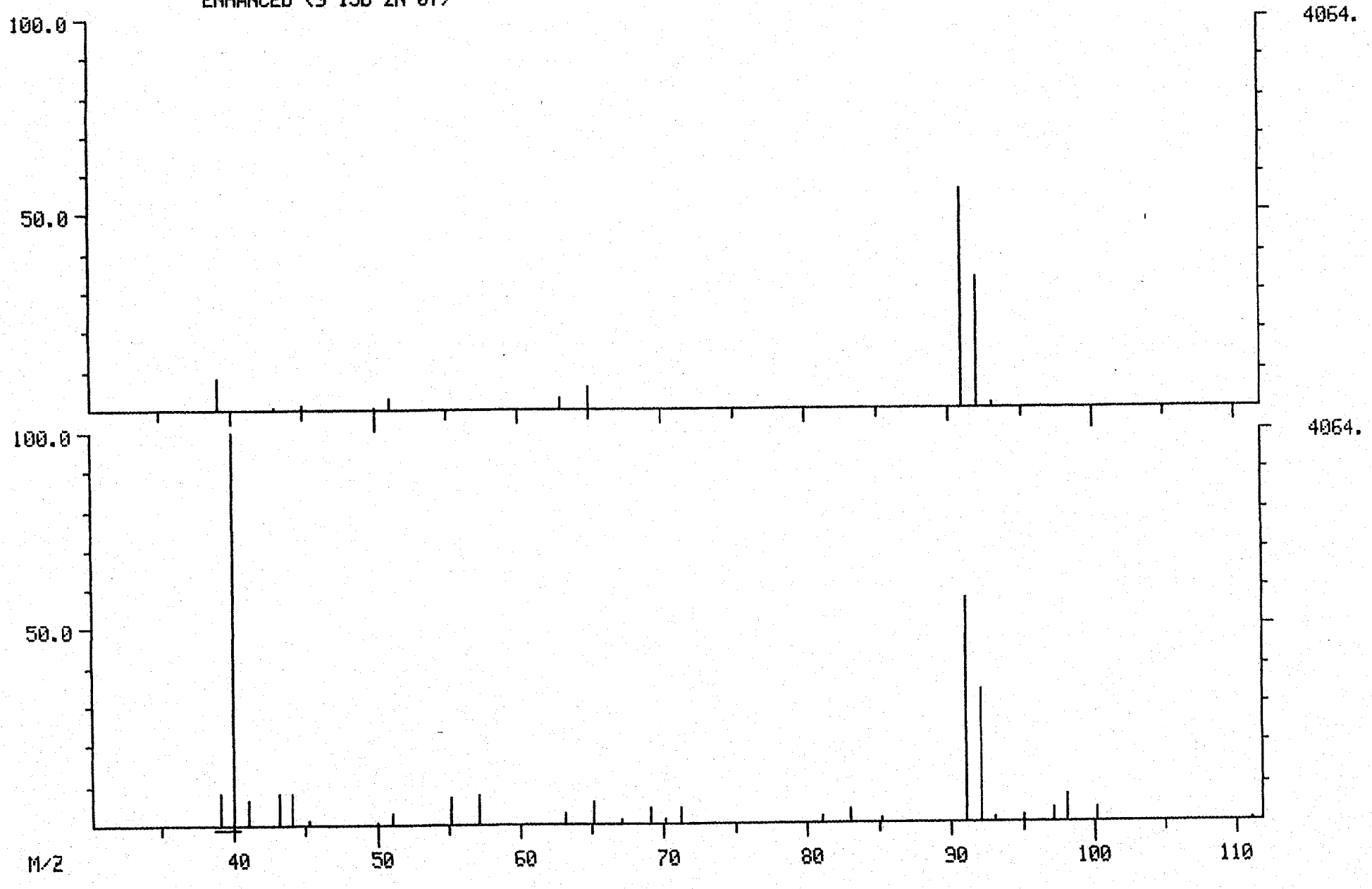


DUAL MASS SPECTRUM
09/05/88 15:37:00 + 19:00
SAMPLE: CLP,V11805,,11805022,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001367 #1140 BASE M/Z: 91/ 40
CALI: C1V0001367 #3 RIC: 4591./ 11567.

000096

Toluene



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S9_1615_SS2

Lab Name: CH2M HILL/MGM Contract: _____

ab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

atrix: (soil/water) SOIL Lab Sample ID: 11805023

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001368

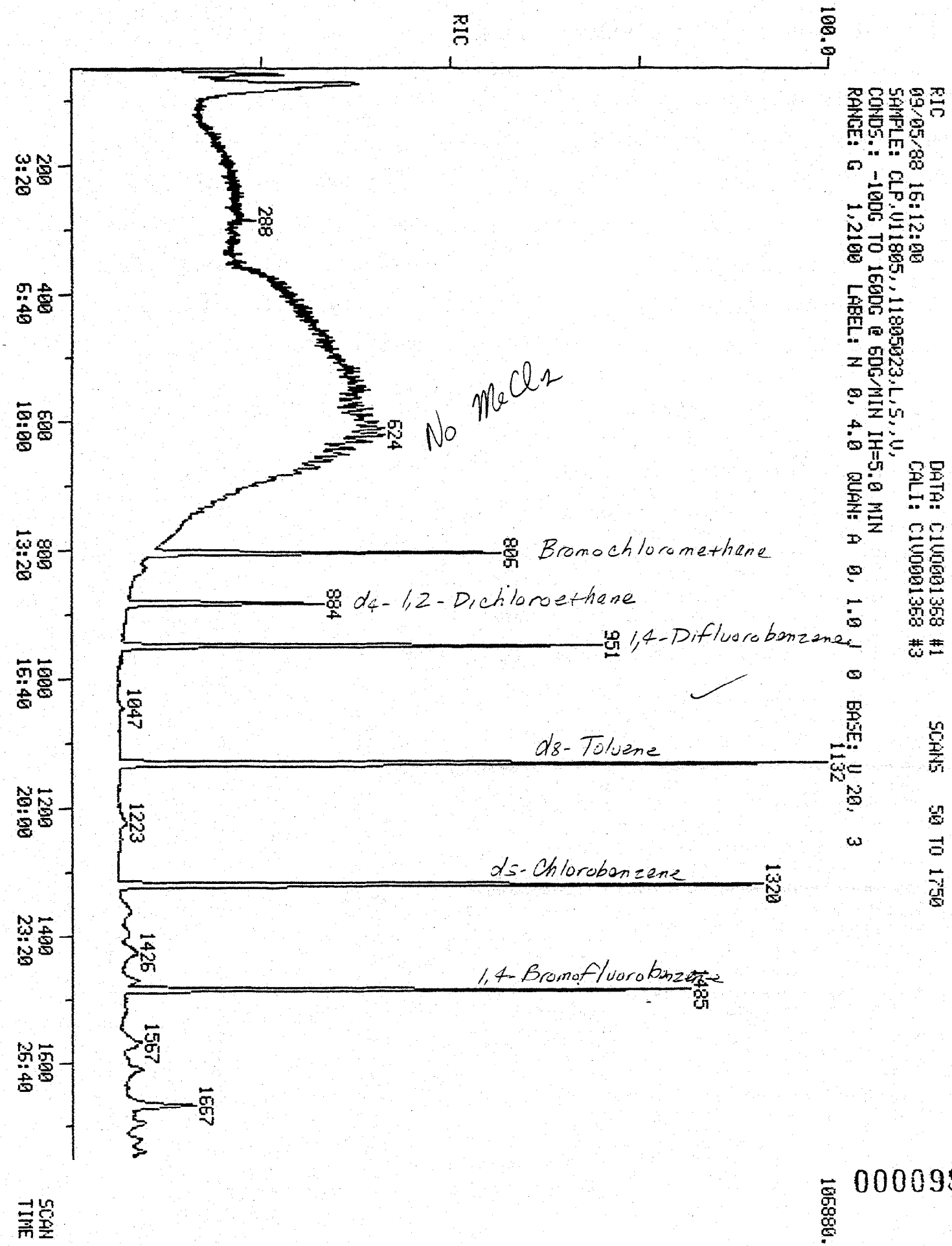
evel: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 14 Date Analyzed: 09/05/88

olumn: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 6 FOUND
FINISHED AT: 9/05/88 22:13:58



000098

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S10_1615_SS3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805024

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001369

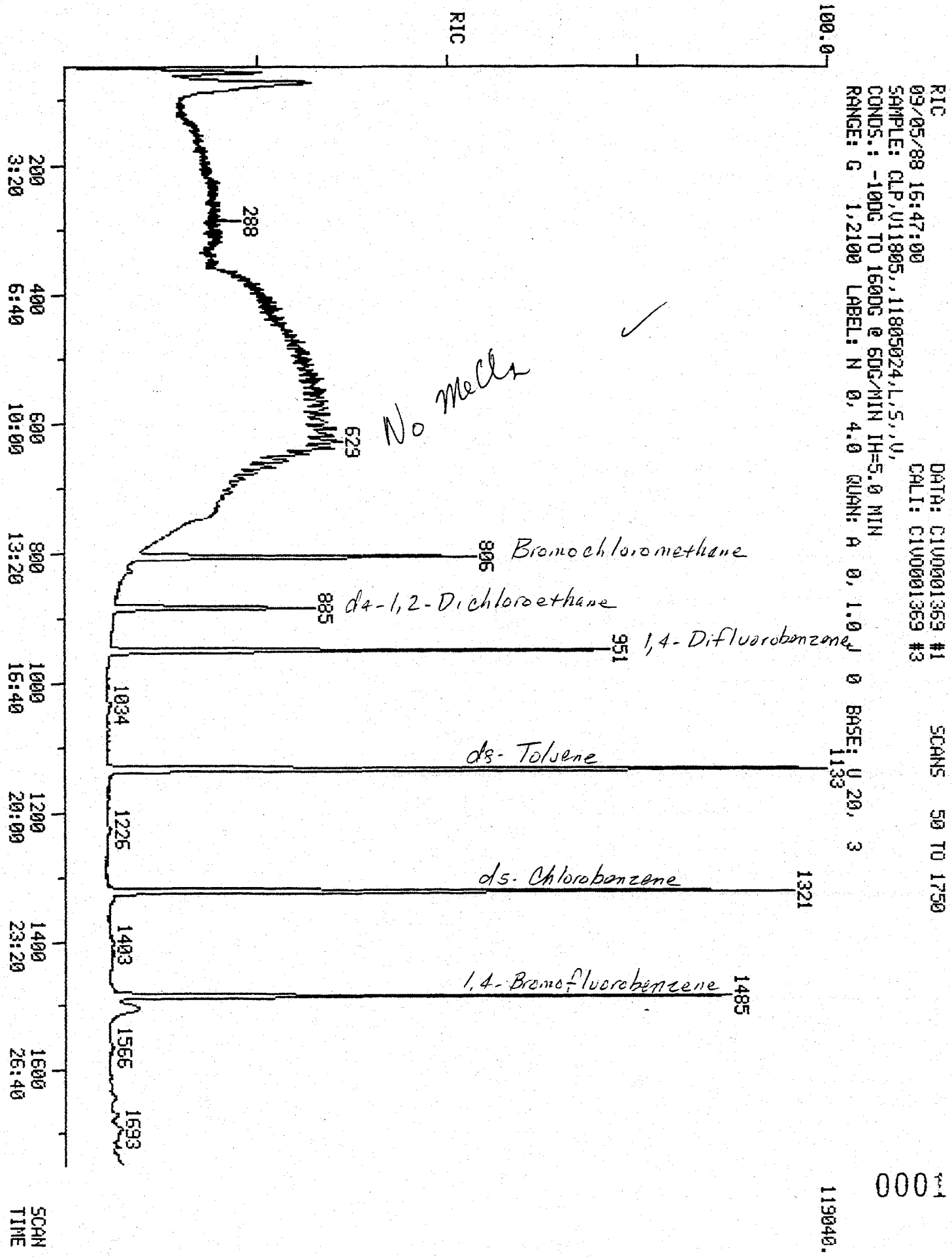
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 6 Date Analyzed: 09/05/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

TCA FINISHED, 6 FOUND
FINISHED AT: 9/05/88 22:19:59



000100

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP_BLANK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: 11805025

Sample wt/vol: _____ (g/mL) ML Lab File ID: C1VO001381

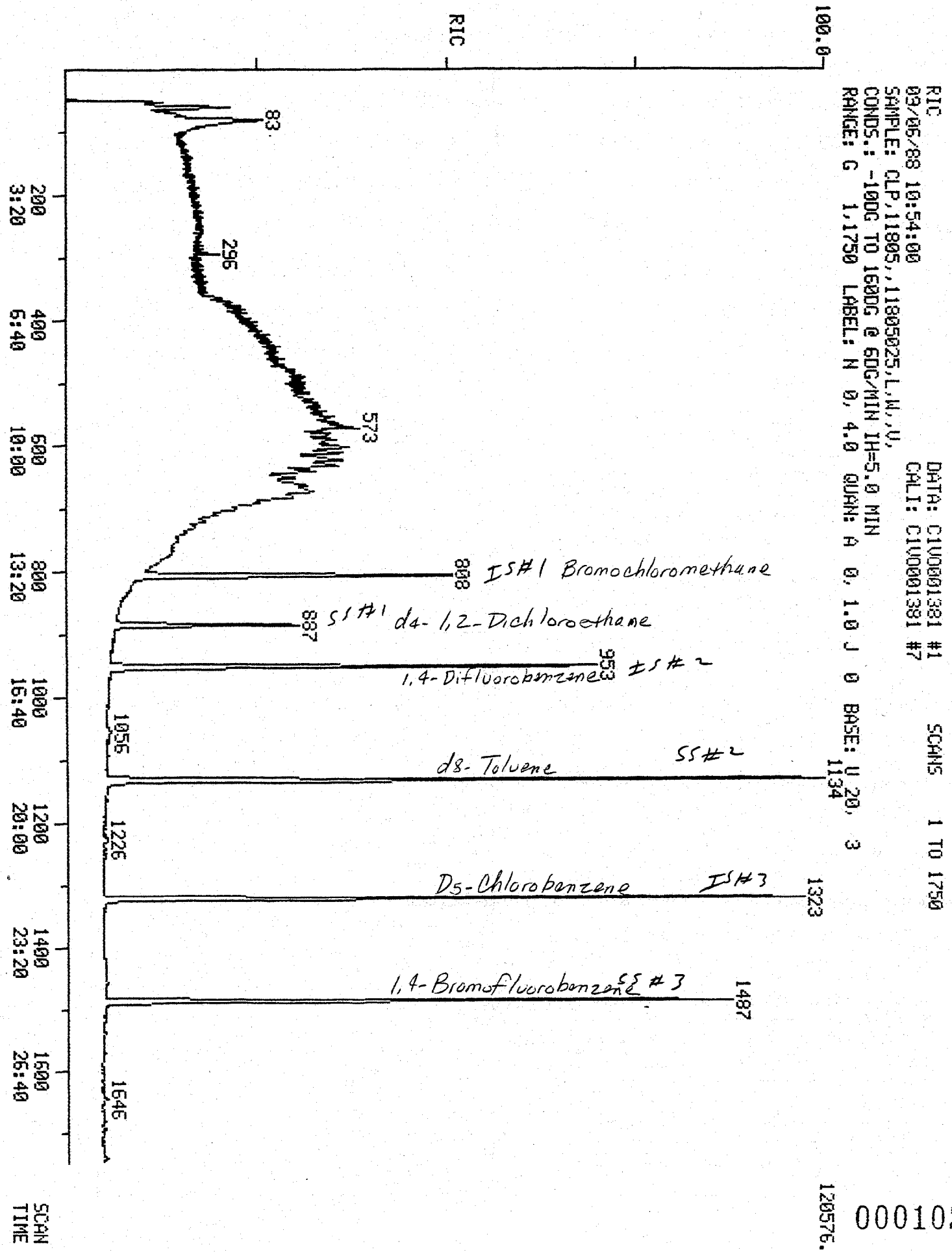
Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. _____ Date Analyzed: 09/06/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

TCA FINISHED, 7 FOUND
FINISHED AT: 9/06/88 11:41:55



000102

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	TRIP_BLANK	95	99	107		0

	QC LIMITS
S1 (TOL) = Toluene-d8	(88-110)
S2 (BFB) = Bromofluorobenzene	(86-115)
S3 (DCE) = 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GC-MS

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	Y09068B1	99	101	106		0

	QC LIMITS
S1 (TOL) = Toluene-d8	(88-110)
S2 (BFB) = Bromofluorobenzene	(86-115)
S3 (DCE) = 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2B

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	S10_1615_SS3	100	97	106		0
02	S2_1420_B2S1	102	95	110		0
03	S2_1420_B2S2	97	94	112		0
04	S2_1420_B2S3	101	99	106		0
05	S31540B3S3DL	95	98	107		0
06	S3_1540_B3S2	101	106	97		0
07	S3_1540_B3S3	100	107	110		0
08	S41345B4S1DL	101	147 *	106		1
09	S4_1345_B4S1	117	306 *	109		1
10	S4_1345_B4S2	64 *	118	92		1
11	S4_1345_B4S3	97	90	108		0
12	S5_1200_B5S1	98	112	113		0
13	S5_1200_B5S2	92	97	115		0
14	S5_1200_B5S3	90	100	117		0
15	S61015B6S2DL	95	97	105		0
16	S6_1015_B6S1	105	93	105		0
17	S6_1015_B6S2	103	100	103		0
18	S6_1015_B6S3	104	99	101		0
19	S7_0915_B7S1	103	96	104		0
20	S7_0915_B7S2	102	99	102		0
21	S7_0915_B7S3	102	98	103		0
22	S81615SS1DL	96	94	108		0
23	S8_1615_SS1	107	89	105		0
24	S9_1615_SS2	105	96	106		0
25	STA_1_B1S1	103	99	111		0
26	STA_1_B1S2	100	98	106		0
27	STA_1_B1S2DL	61 *	98	106		1
28	STA_1_B1S3	101	98	110		0
29	STA_3_1540	98	108	111		0
30	S3_M_SPIKE	98	99	104		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	S3_M_SPIKE_D	98	100	104		0
02	S6_M_SPIKE	101	93	105		0
03	S6_M_SPIKE_D	104	94	106		0

	QC LIMITS
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = Bromofluorobenzene	(74-121)
S3 (DCE) = 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GC-MS

Level: (low/med) _____

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	Y09028B2	102	101	102		0
02	Y09058B1	97	96	104		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix Spike - EPA Sample No.: S3_1540_B3S2 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	71.4	0	75.7	106	59-172
Trichloroethene	71.4	0	71.6	100	62-137
Benzene	71.4	0	74.0	104	66-142
Toluene	71.4	0	71.9	101	59-139
Chlorobenzene	71.4	0	71.3	100	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	71.4	75.4	106	0	22	59-172
Trichloroethene	71.4	69.0	97	3	24	62-137
Benzene	71.4	71.1	100	4	21	66-142
Toluene	71.4	69.0	97	4	21	59-139
Chlorobenzene	71.4	69.3	97	3	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: CLP,V11805,,11805008,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Matrix Spike - EPA Sample No.: S6_1015_B6S1 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	58.8	0	72.5	123	59-172
Trichloroethene	58.8	0	56.8	97	62-137
Benzene	58.8	0	61.4	104	66-142
Toluene	58.8	6.20	59.6	91	59-139
Chlorobenzene	58.8	0	58.7	100	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	58.8	69.5	118	4	22	59-172
Trichloroethene	58.8	57.9	98	-1	24	62-137
Benzene	58.8	61.4	104	0	21	66-142
Toluene	58.8	61.8	95	-4	21	59-139
Chlorobenzene	58.8	59.2	101	-1	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: CLP,V11805,,11805016,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBVO001380 Lab Sample ID: Y09068B1

Date Analyzed: 09/06/88 Time Analyzed: 0959

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	S61015B6S2DL	11805017DL	C2VO001387	1556
02	S81615SS1DL	11805022DL	C2VO001388	1632
03	STA_1_B1S2DL	11805002DL	C3VO001386	1520
04	TRIP_BLANK	11805025	C1VO001381	1054
05	S3_M_SPIKE	11805M08	CMVO001382	1445
06	S3_M_SPIKE_D	11805D08	CMVO001383	1207
07	S6_M_SPIKE	11805M16	CMVO001384	1335
08	S6_M_SPIKE_D	11805D16	CMVO001385	1410

COMMENTS: CLP,V11805,,Y09068B1,L,W,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBVO001341 Lab Sample ID: Y09028B2

Date Analyzed: 09/02/88 Time Analyzed: 1812

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	S2_1420_B2S1	11805004	C1VO001345	2035
02	S2_1420_B2S2	11805005	C1VO001346	2110
03	S3_1540_B3S2	11805008	C1VO001349	2257
04	S3_1540_B3S3	11805009	C1VO001350	2332
05	S4_1345_B4S1	11805010	C1VO001351	0008
06	S4_1345_B4S2	11805011	C1VO001352	0043
07	S5_1200_B5S1	11805013	C1VO001354	0154
08	S5_1200_B5S2	11805014	C1VO001355	0229
09	S5_1200_B5S3	11805015	C1VO001356	0305
10	STA_1_B1S1	11805001	C1VO001342	1848
11	STA_1_B1S3	11805003	C1VO001344	1959
12	STA_3_1540	11805007	C1VO001348	2221

COMMENTS: CLP,V11805,,Y09028B2,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001360 Lab Sample ID: Y09058B1

Date Analyzed: 09/05/88 Time Analyzed: 1134

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	S10_1615_SS3	11805024	C1V0001369	1647
02	S2_1420_B2S3	11805006	C2V0001372	1831
03	S31540B3S3DL	11805009DL	C2V0001373	1906
04	S41345B4S1DL	11805010DL	C2V0001374	1941
05	S4_1345_B4S3	11805012	C2V0001376	2050
06	S6_1015_B6S1	11805016	C2V0001370	1722
07	S6_1015_B6S2	11805017	C1V0001362	1243
08	S6_1015_B6S3	11805018	C1V0001363	1318
09	S7_0915_B7S1	11805019	C1V0001364	1353
10	S7_0915_B7S2	11805020	C1V0001365	1428
11	S7_0915_B7S3	11805021	C1V0001366	1502
12	S8_1615_SS1	11805022	C1V0001367	1537
13	S9_1615_SS2	11805023	C1V0001368	1612
14	STA_1_B1S2	11805002	C2V0001371	1756

COMMENTS: CLP,V11805,,Y09058B1,L,W,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

RS

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

ab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

ab File ID: CSV0001316 BFB Injection Date: 09/01/88

nstrument ID: 4500 BFB Injection Time: 1448

atrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.8
75	30.0 - 60.0% of mass 95	40.2
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	61.0
175	5.0 - 9.0% of mass 174	4.3 (7.1)1
176	Greater than 95.0%, but less than 101.0% of mass 174	58.4 (95.8)1
177	5.0 - 9.0% of mass 176	3.7 (6.3)2

1-Value is % mass 174 2-Value is % mass 176

HIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	50_VOA_STND		CSV0001318	09/01/88	1717
02	100_VOA_STND		CSV0001319	09/01/88	1754
03	150_VOA_STND		CSV0001320	09/01/88	1854
04	200_VOA_STND		CSV0001321	09/01/88	2016
05	20_VOA_STND		CSV0001323	09/01/88	2138

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Lab File ID: C2BF001139 BFB Injection Date: 09/02/88

Instrument ID: 4500 BFB Injection Time: 1645

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.1
75	30.0 - 60.0% of mass 95	39.9
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	64.8
175	5.0 - 9.0% of mass 174	4.5 (6.9)1
176	Greater than 95.0%, but less than 101.0% of mass 174	63.8 (98.4)1
177	5.0 - 9.0% of mass 176	3.8 (6.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSVO001140	09/02/88	1722
02	Y09028B2	Y09028B2	CBVO001341	09/02/88	1812
03	STA_1_B1S1	11805001	C1VO001342	09/02/88	1848
04	STA_1_B1S3	11805003	C1VO001344	09/02/88	1959
05	S2_1420_B2S1	11805004	C1VO001345	09/02/88	2035
06	S2_1420_B2S2	11805005	C1VO001346	09/02/88	2110
07	STA_3_1540	11805007	C1VO001348	09/02/88	2221
08	S3_1540_B3S2	11805008	C1VO001349	09/02/88	2257
09	S3_1540_B3S3	11805009	C1VO001350	09/02/88	2332
10	S4_1345_B4S1	11805010	C1VO001351	09/03/88	0008
11	S4_1345_B4S2	11805011	C1VO001352	09/03/88	0043
12	S5_1200_B5S1	11805013	C1VO001354	09/03/88	0154
13	S5_1200_B5S2	11805014	C1VO001355	09/03/88	0229
14	S5_1200_B5S3	11805015	C1VO001356	09/03/88	0305

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Lab File ID: C2BF001358 BFB Injection Date: 09/05/88

Instrument ID: 4500 BFB Injection Time: 1015

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.1
75	30.0 - 60.0% of mass 95	39.1
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.4
173	Less than 2.0% of mass 174	0.3 (0.5)1
174	Greater than 50.0% of mass 95	62.6
175	5.0 - 9.0% of mass 174	4.4 (7.0)1
176	Greater than 95.0%, but less than 101.0% of mass 174	60.3 (96.3)1
177	5.0 - 9.0% of mass 176	3.7 (6.1)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSVO001359	09/05/88	1054
02	Y09058B1	Y09058B1	CBVO001360	09/05/88	1134
03	S6_1015_B6S2	11805017	C1VO001362	09/05/88	1243
04	S6_1015_B6S3	11805018	C1VO001363	09/05/88	1318
05	S7_0915_B7S1	11805019	C1VO001364	09/05/88	1353
06	S7_0915_B7S2	11805020	C1VO001365	09/05/88	1428
07	S7_0915_B7S3	11805021	C1VO001366	09/05/88	1502
08	S8_1615_SS1	11805022	C1VO001367	09/05/88	1537
09	S9_1615_SS2	11805023	C1VO001368	09/05/88	1612
10	S10_1615_SS3	11805024	C1VO001369	09/05/88	1647
11	S6_1015_B6S1	11805016	C2VO001370	09/05/88	1722
12	STA_1_B1S2	11805002	C2VO001371	09/05/88	1756
13	S2_1420_B2S3	11805006	C2VO001372	09/05/88	1831
14	S31540B3S3DL	11805009DL	C2VO001373	09/05/88	1906
15	S41345B4S1DL	11805010DL	C2VO001374	09/05/88	1941
16	S4_1345_B4S3	11805012	C2VO001376	09/05/88	2050

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Lab File ID: C1BF001377 BFB Injection Date: 09/06/88

Instrument ID: 4500 BFB Injection Time: 0743

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.2
75	30.0 - 60.0% of mass 95	38.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	66.7
175	5.0 - 9.0% of mass 174	4.7 (7.1)1
176	Greater than 95.0%, but less than 101.0% of mass 174	64.6 (96.9)1
177	5.0 - 9.0% of mass 176	4.1 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSV0001379	09/06/88	0918
02	Y09068B1	Y09068B1	CBV0001380	09/06/88	0959
03	TRIP_BLANK	11805025	C1V0001381	09/06/88	1054
04	S3_M_SPIKE_D	11805D08	CMV0001383	09/06/88	1207
05	S6_M_SPIKE	11805M16	CMV0001384	09/06/88	1335
06	S6_M_SPIKE_D	11805D16	CMV0001385	09/06/88	1410
07	S3_M_SPIKE	11805M08	CMV0001382	09/06/88	1445
08	STA_1_B1S2DL	11805002DL	C3V0001386	09/06/88	1520
09	S61015B6S2DL	11805017DL	C2V0001387	09/06/88	1556
10	S81615SS1DL	11805022DL	C2V0001388	09/06/88	1632

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration Date(s): 09/01/88 09/01/88

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min $\overline{RRF}$ for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = CSV0001323 RRF50 = CSV0001318
RRF100= CSV0001319 RRF150= CSV0001320 RRF200= CSV0001321

COMPOUND	RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane #	0.354	0.503	0.480	0.448	0.420	0.441	13.1#
Bromomethane	0.175	0.247	0.251	0.233	0.221	0.225	13.6
Vinyl Chloride *	0.330	0.440	0.431	0.404	0.381	0.397	11.1*
Chloroethane	0.102	0.223	0.244	0.238	0.227	0.207	28.6
Methylene Chloride	1.392	1.199	0.974	0.898	0.796	1.052	22.9
Acetone	0.550	0.456	0.421	0.332	0.289	0.410	25.2
Carbon Disulfide	1.292	1.247	0.987	0.851	0.825	1.040	21.0
1,1-Dichloroethene *	0.335	0.319	0.271	0.238	0.234	0.279	16.5*
1,1-Dichloroethane #	2.776	2.652	2.419	2.356	2.230	2.487	9.0#
1,2-Dichloroethene (total)	0.842	0.798	0.718	0.670	0.639	0.733	11.6
Chloroform *	3.256	2.744	2.372	2.375	2.257	2.601	15.8*
1,2-Dichloroethane	1.754	1.564	1.390	1.392	1.300	1.480	12.2
2-Butanone	0.552	0.575	0.568	0.559	0.517	0.554	4.1
1,1,1-Trichloroethane	0.382	0.368	0.325	0.318	0.299	0.338	10.4
Carbon Tetrachloride	0.327	0.309	0.283	0.273	0.263	0.291	9.1
Vinyl Acetate	0.209	0.224	0.221	0.187	0.191	0.206	8.2
Bromodichloromethane	0.599	0.580	0.553	0.547	0.526	0.561	5.1
1,2-Dichloropropane *	0.594	0.569	0.559	0.541	0.524	0.557	4.8*
cis-1,3-Dichloropropene	0.710	0.698	0.626	0.615	0.585	0.647	8.4
Trichloroethene	0.506	0.393	0.353	0.355	0.399	0.401	15.5
Dibromochloromethane	0.383	0.351	0.339	0.330	0.317	0.344	7.3
1,1,2-Trichloroethane	0.413	0.399	0.380	0.380	0.367	0.388	4.7
Benzene	1.360	1.265	1.137	1.082	0.989	1.167	12.6
trans-1,3-Dichloropropene	0.150	0.154	0.137	0.134	0.129	0.141	7.6
Bromoform #	0.379	0.371	0.365	0.343	0.318	0.355	7.0#
2-Hexanone	0.729	0.782	0.759	0.808	0.767	0.769	3.8
4-Methyl-2-Pentanone	0.996	1.142	1.074	1.144	1.060	1.083	5.7
Tetrachloroethene	0.304	0.276	0.247	0.251	0.243	0.264	9.7
1,1,2,2-Tetrachloroethane #	0.601	0.677	0.605	0.673	0.641	0.639	5.6#
Toluene *	0.848	0.840	0.711	0.753	0.717	0.774	8.5*
Chlorobenzene #	1.024	0.907	0.850	0.843	0.791	0.883	10.1#
Ethylbenzene *	0.551	0.481	0.456	0.453	0.437	0.476	9.5*
Styrene	1.245	1.162	1.049	1.009	0.916	1.076	12.0
Xylenes (total)	0.691	0.646	0.596	0.585	0.546	0.613	9.2
Toluene-d8 - SS	0.539	0.605	0.543	0.586	0.588	0.572	5.2
1,4-Bromofluorobenzene - SS	0.291	0.327	0.305	0.319	0.323	0.313	4.7
1,2-Dichloroethane-d4 - SS	0.592	0.581	0.564	0.542	0.513	0.558	5.7

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/02/88 Time: 1722

Lab File ID: CSV0001140 Init. Calib. Date(s): 09/01/88 09/01/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.441	0.448	-1.6	#
Bromomethane		0.225	0.193	14.2	
Vinyl Chloride	*	0.397	0.381	4.0	*
Chloroethane		0.207	0.173	16.4	
Methylene Chloride		1.052	1.059	-0.7	
Acetone		0.410	0.431	-5.1	
Carbon Disulfide		1.040	1.158	-11.4	
1,1-Dichloroethene	*	0.279	0.267	4.3	*
1,1-Dichloroethane	#	2.487	2.472	0.6	#
1,2-Dichloroethene (total)		0.733	0.717	2.2	
Chloroform	*	2.601	3.117	-19.8	*
1,2-Dichloroethane		1.480	1.635	-10.5	
2-Butanone		0.554	0.516	6.9	
1,1,1-Trichloroethane		0.338	0.384	-13.6	
Carbon Tetrachloride		0.291	0.329	-13.1	
Vinyl Acetate		0.206	0.177	14.1	
Bromodichloromethane		0.561	0.662	-18.0	
1,2-Dichloropropane	*	0.557	0.680	-22.1	*
cis-1,3-Dichloropropene		0.647	0.797	-23.2	
Trichloroethene		0.401	0.393	2.0	
Dibromochloromethane		0.344	0.406	-18.0	
1,1,2-Trichloroethane		0.388	0.448	-15.5	
Benzene		1.167	1.373	-17.7	
trans-1,3-Dichloropropene		0.141	0.171	-21.3	
Bromoform	#	0.355	0.432	-21.7	#
2-Hexanone		0.769	0.674	12.4	
4-Methyl-2-Pentanone		1.083	0.962	11.2	
Tetrachloroethene		0.264	0.294	-11.4	
1,1,2,2-Tetrachloroethane	#	0.639	0.661	-3.4	#
Toluene	*	0.774	0.828	-7.0	*
Chlorobenzene	#	0.883	0.954	-8.0	#
Ethylbenzene	*	0.476	0.522	-9.7	*
Styrene		1.076	1.204	-11.9	
Xylenes (total)		0.613	0.677	-10.4	
Toluene-d8 - SS		0.572	0.544	4.9	
1,4-Bromofluorobenzene - SS		0.313	0.310	1.0	
1,2-Dichloroethane-d4 - SS		0.558	0.554	0.7	

RS

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/05/88 Time: 1054

Lab File ID: CSV0001359 Init. Calib. Date(s): 09/01/88 09/01/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.441	0.342	22.5	#
Bromomethane		0.225	0.174	22.7	
Vinyl Chloride	*	0.397	0.312	21.4	*
Chloroethane		0.207	0.154	25.6	
Methylene Chloride		1.052	0.759	27.9	
Acetone		0.410	0.369	10.0	
Carbon Disulfide		1.040	1.075	-3.4	
1,1-Dichloroethene	*	0.279	0.245	12.2	*
1,1-Dichloroethane	#	2.487	2.116	14.9	#
1,2-Dichloroethene (total)		0.733	0.619	15.6	
Chloroform	*	2.601	2.689	-3.4	*
1,2-Dichloroethane		1.480	1.485	-0.3	
2-Butanone		0.554	0.410	26.0	
1,1,1-Trichloroethane		0.338	0.344	-1.8	
Carbon Tetrachloride		0.291	0.294	-1.0	
Vinyl Acetate		0.206	0.139	32.5	
Bromodichloromethane		0.561	0.571	-1.8	
1,2-Dichloropropane	*	0.557	0.462	17.1	*
cis-1,3-Dichloropropene		0.647	0.686	-6.0	
Trichloroethene		0.401	0.339	15.5	
Dibromochloromethane		0.344	0.348	-1.2	
1,1,2-Trichloroethane		0.388	0.390	-0.5	
Benzene		1.167	1.221	-4.6	
trans-1,3-Dichloropropene		0.141	0.145	-2.8	
Bromoform	#	0.355	0.374	-5.4	#
2-Hexanone		0.769	0.638	17.0	
4-Methyl-2-Pentanone		1.083	0.950	12.3	
Tetrachloroethene		0.264	0.305	-15.5	
1,1,2,2-Tetrachloroethane	#	0.639	0.699	-9.4	#
Toluene	*	0.774	0.848	-9.6	*
Chlorobenzene	#	0.883	0.916	-3.7	#
Ethylbenzene	*	0.476	0.510	-7.1	*
Styrene		1.076	1.179	-9.6	
Xylenes (total)		0.613	0.672	-9.6	
Toluene-d8 - SS		0.572	0.600	-4.9	
1,4-Bromofluorobenzene - SS		0.313	0.321	-2.6	
1,2-Dichloroethane-d4 - SS		0.558	0.558	0.0	

RS

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/06/88 Time: 0918

Lab File ID: CSV0001379 Init. Calib. Date(s): 09/01/88 09/01/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.441	0.344	22.0	#
Bromomethane		0.225	0.149	33.8	
Vinyl Chloride	*	0.397	0.313	21.2	*
Chloroethane		0.207	0.117	43.5	
Methylene Chloride		1.052	0.839	20.3	
Acetone		0.410	0.285	30.5	
Carbon Disulfide		1.040	1.069	-2.8	
1,1-Dichloroethene	*	0.279	0.252	9.7	*
1,1-Dichloroethane	#	2.487	2.217	10.9	#
1,2-Dichloroethene (total)		0.733	0.644	12.1	
Chloroform	*	2.601	2.808	-8.0	*
1,2-Dichloroethane		1.480	1.582	-6.9	
2-Butanone		0.554	0.268	51.6	
1,1,1-Trichloroethane		0.338	0.327	3.3	
Carbon Tetrachloride		0.291	0.282	3.1	
Vinyl Acetate		0.206	0.103	50.0	
Bromodichloromethane		0.561	0.449	20.0	
1,2-Dichloropropane	*	0.557	0.467	16.2	*
cis-1,3-Dichloropropene		0.647	0.630	2.6	
Trichloroethene		0.401	0.352	12.2	
Dibromochloromethane		0.344	0.317	7.8	
1,1,2-Trichloroethane		0.388	0.346	10.8	
Benzene		1.167	1.167	0.0	
trans-1,3-Dichloropropene		0.141	0.129	8.5	
Bromoform	#	0.355	0.329	7.3	#
2-Hexanone		0.769	0.461	40.1	
4-Methyl-2-Pentanone		1.083	0.728	32.8	
Tetrachloroethene		0.264	0.326	-23.5	
1,1,2,2-Tetrachloroethane	#	0.639	0.622	2.7	#
Toluene	*	0.774	0.881	-13.8	*
Chlorobenzene	#	0.883	0.968	-9.6	#
Ethylbenzene	*	0.476	0.528	-10.9	*
Styrene		1.076	1.232	-14.5	
Xylenes (total)		0.613	0.695	-13.4	
Toluene-d8 - SS		0.572	0.617	-7.9	
1,4-Bromofluorobenzene - SS		0.313	0.315	-0.6	
1,2-Dichloroethane-d4 - SS		0.558	0.560	-0.4	

RS

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001140 Date Analyzed: 09/02/88

Instrument ID: 4500 Time Analyzed: 1722

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	40800	13.39	195000	15.77	241000	21.99
	UPPER LIMIT	81600		390000		482000	
	LOWER LIMIT	20400		97500		120500	
	EPA SAMPLE NO.						
01	S2_1420_B2S1	33500	13.34	179000	15.75	200000	21.95
02	S2_1420_B2S2	32800	13.34	177000	15.74	208000	21.94
03	S3_1540_B3S2	34200	13.39	150000	15.77	169000	21.97
04	S3_1540_B3S3	31100	13.34	150000	15.74	172000	21.94
05	S4_1345_B4S1	24700	13.35	123000	15.75	109000 *	21.95
06	S4_1345_B4S2	32200	13.35	140000	15.77	245000	21.95
07	S5_1200_B5S1	27000	13.35	146000	15.75	165000	21.94
08	S5_1200_B5S2	26100	13.35	147000	15.77	174000	21.95
09	S5_1200_B5S3	24700	13.37	137000	15.77	160000	21.95
10	STA_1_B1S1	35900	13.34	186000	15.75	211000	21.95
11	STA_1_B1S3	35000	13.34	182000	15.75	207000	21.95
12	STA_3_1540	31600	13.35	158000	15.77	170000	21.97
13	Y09028B2	38600	13.39	192000	15.77	229000	21.99

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001359 Date Analyzed: 09/05/88

Instrument ID: 4500 Time Analyzed: 1054

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	42900	13.42	207000	15.80	221000	21.95
	UPPER LIMIT	85800		414000		442000	
	LOWER LIMIT	21450		103500		110500	
	EPA SAMPLE NO.						
01	S10_1615_SS3	37000	13.44	184000	15.85	173000	22.02
02	S2_1420_B2S3	38600	13.40	201000	15.82	192000	22.00
03	S31540B3S3DL	34100	13.42	167000	15.84	163000	22.00
04	S41345B4S1DL	35600	13.42	169000	15.84	156000	22.00
05	S4_1345_B4S3	33000	13.45	169000	15.87	160000	22.04
06	S6_1015_B6S1	33700	13.42	169000	15.84	153000	22.00
07	S6_1015_B6S2	39000	13.40	193000	15.79	199000	21.97
08	S6_1015_B6S3	37200	13.40	181000	15.80	182000	21.99
09	S7_0915_B7S1	39200	13.42	199000	15.82	193000	21.99
10	S7_0915_B7S2	36500	13.42	179000	15.80	179000	21.99
11	S7_0915_B7S3	37600	13.40	188000	15.80	188000	21.99
12	S8_1615_SS1	36700	13.44	177000	15.84	149000	22.00
13	S9_1615_SS2	32900	13.44	161000	15.85	147000	22.00
14	STA_1_B1S2	36200	13.42	184000	15.84	169000	22.00
15	Y09058B1	42300	13.40	204000	15.79	220000	21.95

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

ab Code: CH2M Case No.: V11805 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001379 Date Analyzed: 09/06/88

nstrument ID: 4500 Time Analyzed: 0918

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	37700	13.44	204000	15.84	195000	22.00
	UPPER LIMIT	75400		408000		390000	
	LOWER LIMIT	18850		102000		97500	
	EPA SAMPLE NO.						
01	S61015B6S2DL	35200	13.42	192000	15.84	188000	22.04
02	S81615SS1DL	34700	13.42	175000	15.85	161000	22.04
03	STA_1_B1S2DL	35200	13.40	185000	15.85	176000	21.87
04	TRIP_BLANK	33900	13.47	182000	15.89	177000	22.05
05	S3_M_SPIKE	35800	13.42	179000	15.85	172000	22.04
06	S3_M_SPIKE_D	37100	13.44	192000	15.87	187000	22.05
07	S6_M_SPIKE	33900	13.42	175000	15.84	158000	22.05
08	S6_M_SPIKE_D	33600	13.40	175000	15.84	153000	22.04
09	Y09068B1	38800	13.44	202000	15.85	196000	22.02

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S4_1345_B4S1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805010

Sample wt/vol: _____ (g/mL) G Lab File ID: B1BA001138

Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 15 dec. _____ Date Extracted: 09/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/07/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	3900	U
111-44-4	bis(2-Chloroethyl)Ether	3900	U
95-57-8	2-Chlorophenol	3900	U
541-73-1	1,3-Dichlorobenzene	3900	U
106-46-7	1,4-Dichlorobenzene	3900	U
100-51-6	Benzyl Alcohol	3900	U
95-50-1	1,2-Dichlorobenzene	3900	U
95-48-7	2-Methylphenol	3900	U
108-60-1	bis(2-Chloroisopropyl)Ether	3900	U
106-44-5	4-Methylphenol	3900	U
621-64-7	N-Nitroso-Di-n-Propylamine	3900	U
67-72-1	Hexachloroethane	3900	U
98-95-3	Nitrobenzene	3900	U
78-59-1	Isophorone	3900	U
88-75-5	2-Nitrophenol	3900	U
105-67-9	2,4-Dimethylphenol	3900	U
65-85-0	Benzoic Acid	19000	U
111-91-1	bis(2-Chloroethoxy)Methane	3900	U
120-83-2	2,4-Dichlorophenol	3900	U
120-82-1	1,2,4-Trichlorobenzene	3900	U
91-20-3	Naphthalene	3900	U
106-47-8	4-Chloroaniline	3900	U
87-68-3	Hexachlorobutadiene	3900	U
59-50-7	4-Chloro-3-methylphenol	3900	U
91-57-6	2-Methylnaphthalene	3900	U
77-47-4	Hexachlorocyclopentadiene	3900	U
88-06-2	2,4,6-Trichlorophenol	3900	U
95-95-4	2,4,5-Trichlorophenol	19000	U
91-58-7	2-Chloronaphthalene	3900	U
88-74-4	2-Nitroaniline	19000	U
131-11-3	Dimethyl Phthalate	3900	U
208-96-8	Acenaphthylene	3900	U
606-20-2	2,6-Dinitrotoluene	3900	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S4_1345_B4S1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11805010

Sample wt/vol: _____ (g/mL) G Lab File ID: B1BA001138

Level: (low/med) LOW Date Received: 08/27/88

% Moisture: not dec. 15 dec. _____ Date Extracted: 09/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/07/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	19000	U
83-32-9	Acenaphthene	3900	U
51-28-5	2,4-Dinitrophenol	19000	U
100-02-7	4-Nitrophenol	19000	U
132-64-9	Dibenzofuran	3900	U
121-14-2	2,4-Dinitrotoluene	3900	U
84-66-2	Diethylphthalate	3900	U
7005-72-3	4-Chlorophenyl-phenylether	3900	U
86-73-7	Fluorene	3900	U
100-01-6	4-Nitroaniline	19000	U
534-52-1	4,6-Dinitro-2-methylphenol	19000	U
86-30-6	N-Nitrosodiphenylamine (1)	3900	U
122-66-7	1,2-Diphenylhydrazine	3900	U
101-55-3	4-Bromophenyl-phenylether	3900	U
118-74-1	Hexachlorobenzene	3900	U
87-86-5	Pentachlorophenol	3900	U
85-01-8	Phenanthrene	3900	U
120-12-7	Anthracene	3900	U
84-74-2	Di-n-Butylphthalate	3900	U
206-44-0	Fluoranthene	3900	U
129-00-0	Pyrene	3900	U
85-68-7	Butylbenzylphthalate	3900	U
91-94-1	3,3'-Dichlorobenzidine	7800	U
56-55-3	Benzo(a)anthracene	3900	U
218-01-9	Chrysene	3900	U
117-81-7	bis(2-Ethylhexyl)Phthalate	2200	EJ
117-84-0	Di-n-octylphthalate	3900	U
205-99-2	Benzo(b)fluoranthene	3900	U
207-08-9	Benzo(k)fluoranthene	3900	U
50-32-8	Benzo(a)pyrene	3900	U
193-39-5	Indeno(1,2,3-cd)Pyrene	3900	U
53-70-3	Dibenz(a,h)Anthracene	3900	U
191-24-2	Benzo(g,h,i)perylene	3900	U

(1) - Cannot be separated from Diphenylamine

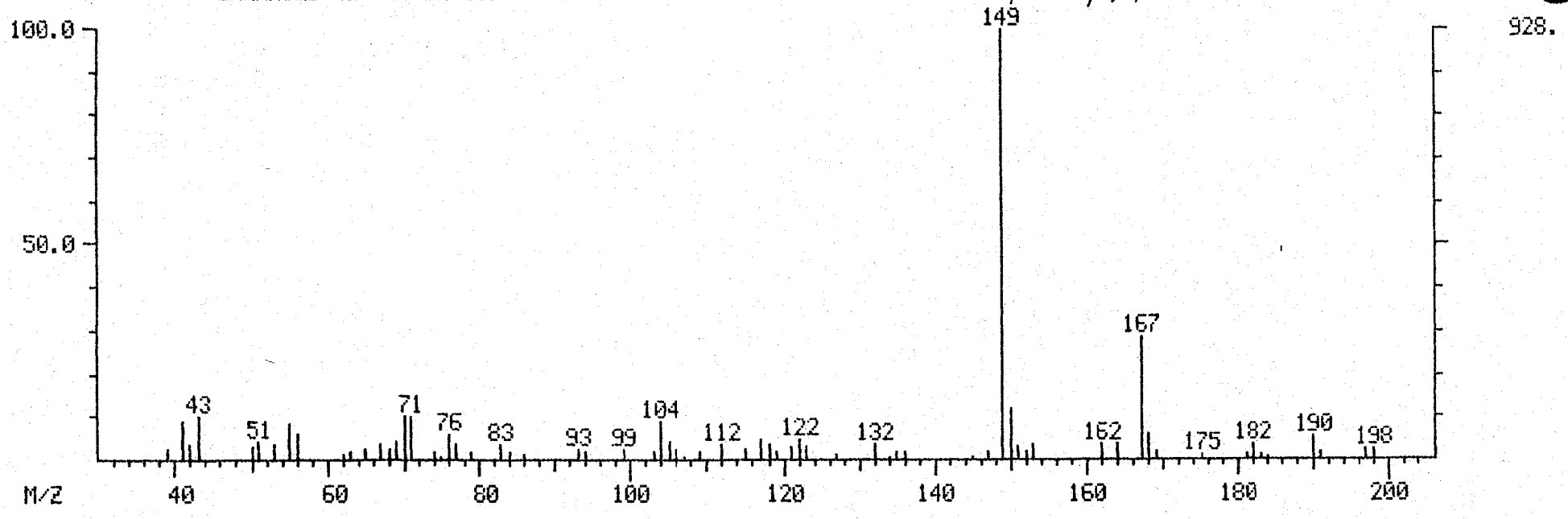
MID MASS SPECTRUM
09/07/88 23:24:00 + 27:44
SAMPLE: CLP,S11805,,11805010,L,S,,S,
CONDS.: 30DG TO 320 DG @ 8DG/MIN IH=1MIN
GC TEMP: 268 DEG. C
ENHANCED (S 15B 2N 0T)

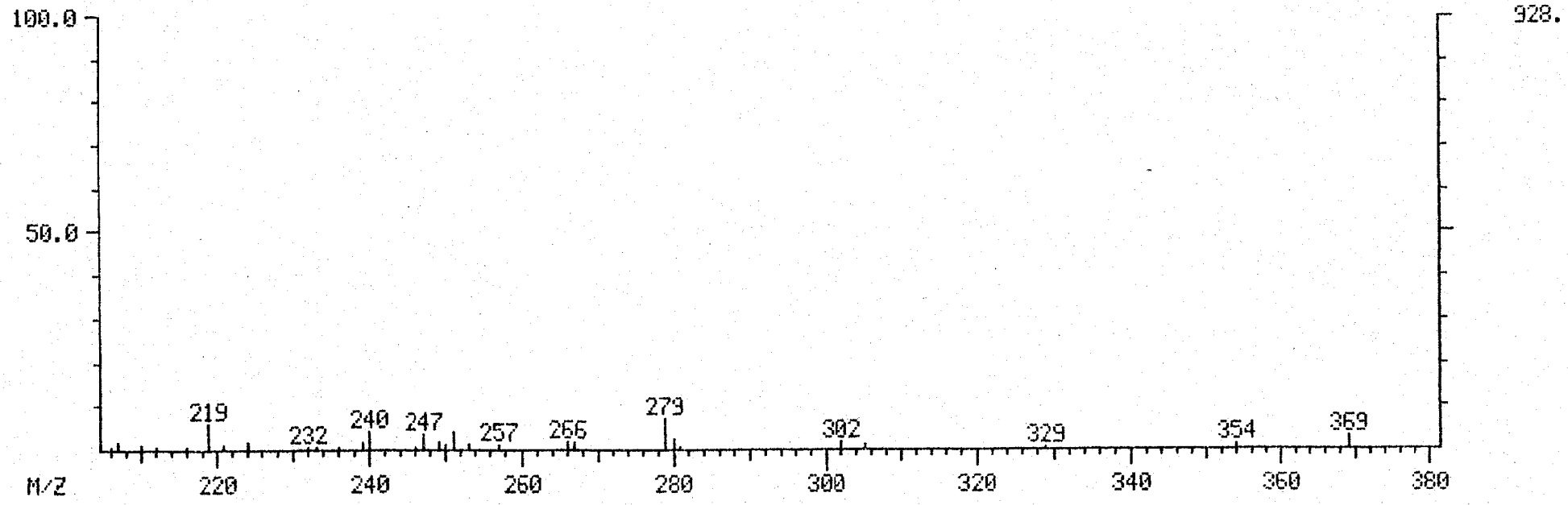
DATA: B1BA001138 #3439
CALI: B1BA001138 #2

BASE M/Z: 149
RIC: 3832.

000129

Bis (2-ethylhexyl) phthalate





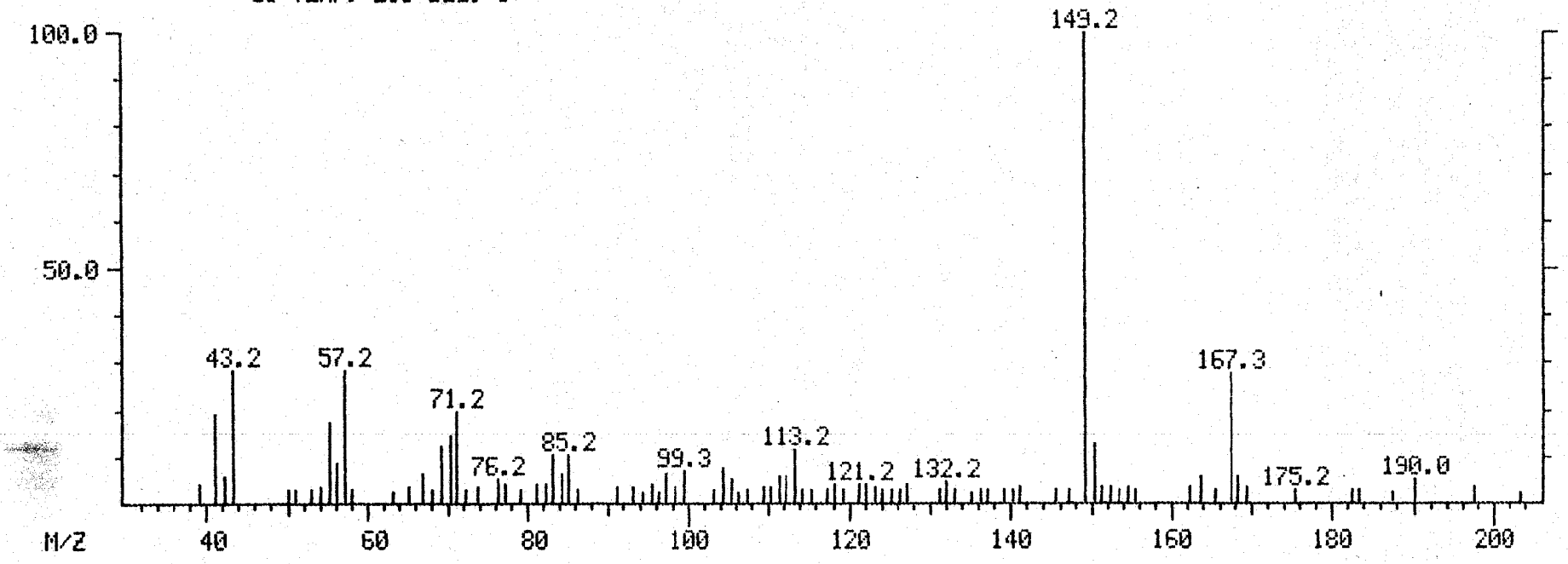
MID MASS SPECTRUM
09/07/88 23:24:00 + 27:44
SAMPLE: CLP,511805,,11805010,L,S,,S,
CONDS.: 30DG TO 320 DG @ 8DG/MIN IH=1MIN
GC TEMP: 268 DEG. C

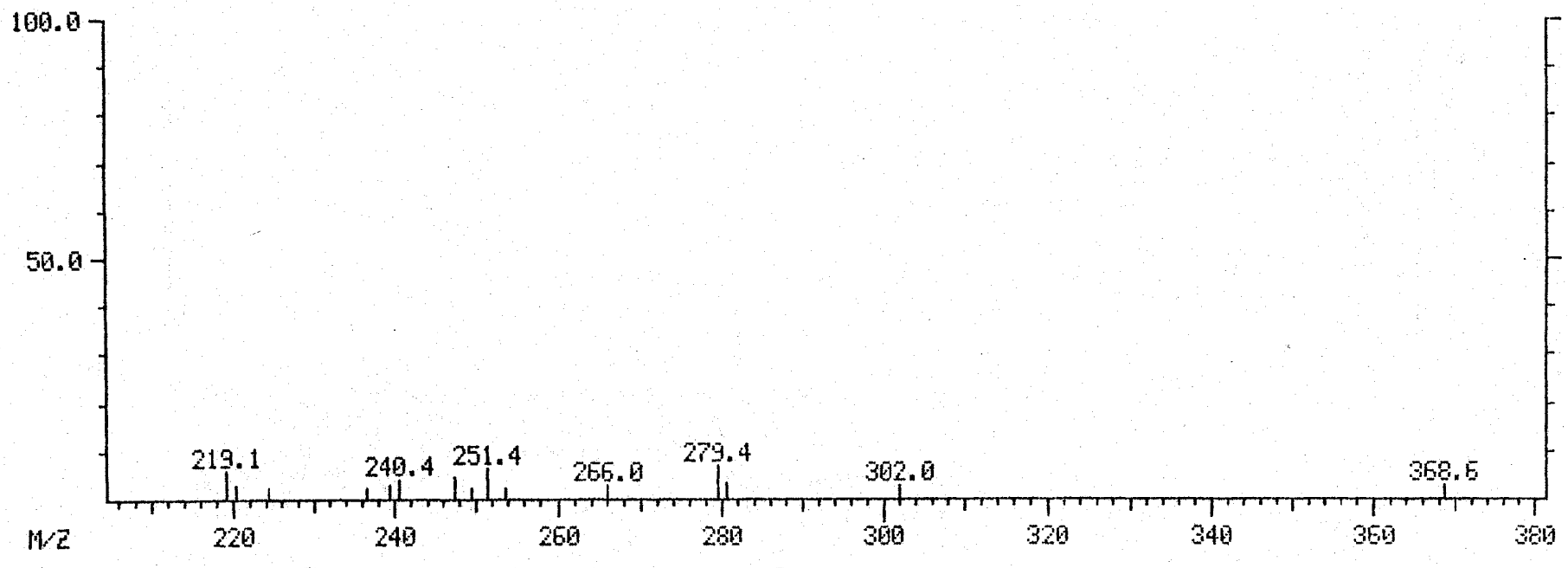
DATA: B1BA001138 #3439
CALI: B1BA001138 #2

BASE M/Z: 149
RIC: 6888.

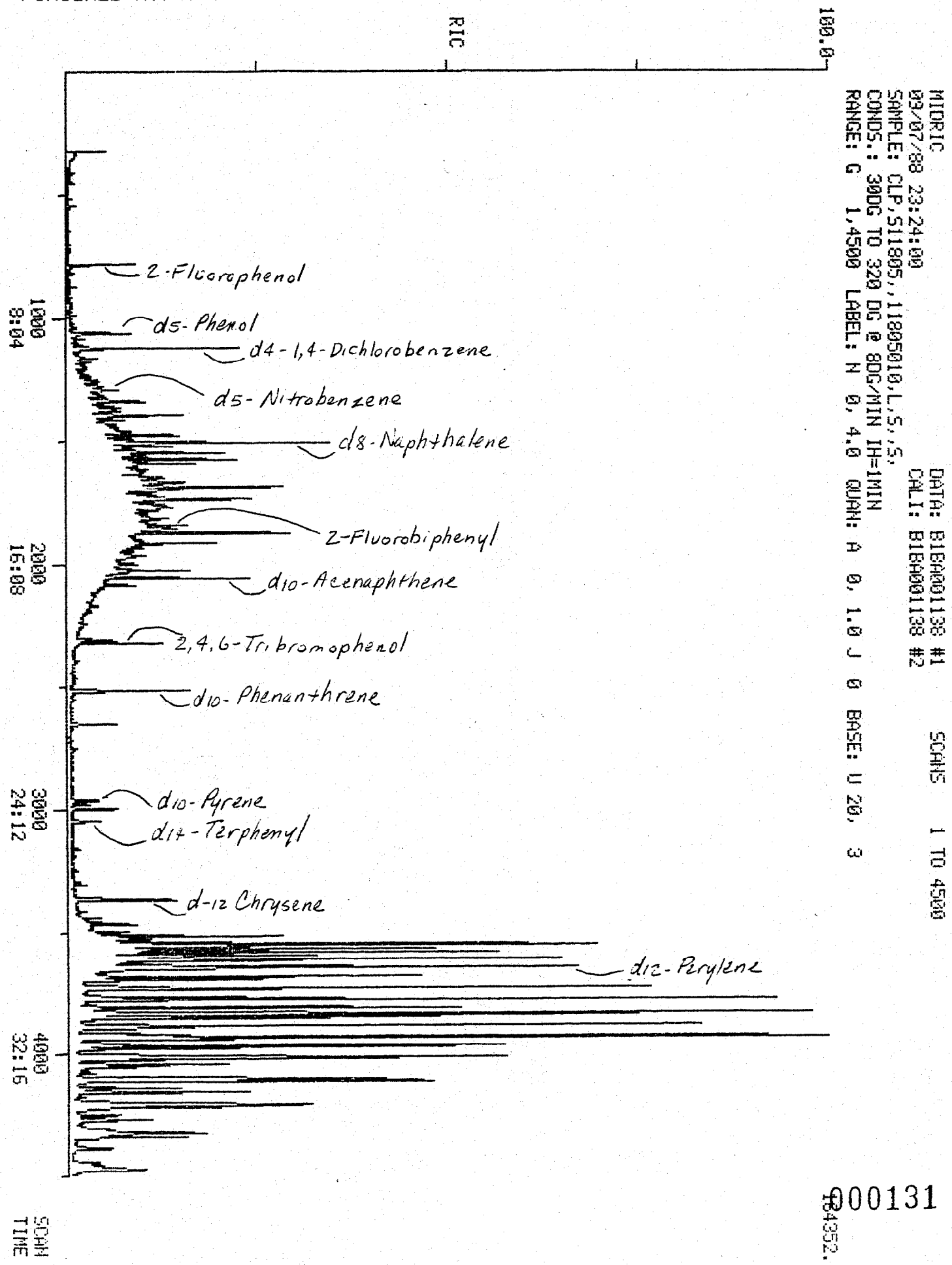
Bis (2-ethylhexyl) phthalate

0000130





TCA FINISHED, 15 FOUND
FINISHED AT: 9/08/88 10:35:25



000131

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S09068B1

Lab Name: CH2M HILL/MGM Contract: _____

ab Code: CH2M Case No.: S11805 SAS No.: _____ SDG No.: GC-MS

atrix: (soil/water) SOIL Lab Sample ID: S09068B1

ample wt/vol: _____ (g/mL) G Lab File ID: BBBA001132

evel: (low/med) LOW Date Received: 09/06/88

% Moisture: not dec. 0 dec. _____ Date Extracted: 09/06/88

xtraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/07/88

PC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	bis(2-Chloroisopropyl)Ether	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	1600	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethyl Phthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S09068B1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11805 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: S09068B1

Sample wt/vol: _____ (g/mL) G Lab File ID: BBBA001132

Level: (low/med) LOW Date Received: 09/06/88

% Moisture: not dec. 0 dec. _____ Date Extracted: 09/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/07/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
122-66-7	1,2-Diphenylhydrazine	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	330	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	660	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U
117-84-0	Di-n-octylphthalate	330	U
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

(1) - Cannot be separated from Diphenylamine

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11805 SAS No.: _____ SDG No.: GC-MS

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	OTHER	TOT OUT
01	METHOD_SPIKE	103	106	119	106	94	120		0
02	S4_1345_B4S1	81	113	102	93	99	94		0
03	S09068B1	105	112	116	88	97	109		0

		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(23-120)
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)
S3 (TPH)	= Terphenyl	(18-137)
S4 (PHL)	= Phenol-d5	(24-113)
S5 (2FP)	= 2-Fluorophenol	(25-121)
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)

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

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11805 SAS No.: _____ SDG No.: GC-MS

Lab File ID: BBBA001132 Lab Sample ID: S09068B1

Date Extracted: 09/06/88 Extraction:(SepF/Cont/Sonc) SONC

Date Analyzed: 09/07/88 Time Analyzed: 1842

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 5100

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	METHOD_SPIKE	BMBA001133	BMBA001133	09/07/88
02	S4_1345_B4S1	11805010	B1BA001138	09/07/88

COMMENTS: CLP,S11805,,S09068B1,L,S,,S,
30DG TO 320 DG @ 8DG/MIN IH=1MIN

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11805 SAS No.: _____ SDG No.: GC-MS

Lab File ID: B1DF001104 DFTPP Injection Date: 09/06/88

Instrument ID: 5100 DFTPP Injection Time: 1127

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	39.2
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	57.1
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	51.6
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	17.8
365	Greater than 1.00% of mass 198	3.00
441	Present, but less than mass 443	10.7
442	Greater than 40.0% of mass 198	64.2
443	17.0 - 23.0% of mass 442	12.9 (20.1)2

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

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	20_BNA_STND		BSBA001105	09/06/88	1144
02	50_BNA_STND		BSBA001106	09/06/88	1232
03	80_BNA_STND		BSBA001107	09/06/88	1319
04	120_BNA_STND		BSBA001108	09/06/88	1407
05	160_BNA_STND		BSBA001109	09/06/88	1454

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11805 SAS No.: _____ SDG No.: GC-MS

Lab File ID: B1DF001123 DFTPP Injection Date: 09/07/88

Instrument ID: 5100 DFTPP Injection Time: 1143

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	37.6
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	56.2
70	Less than 2.0% of mass 69	0.9 (1.6)1
127	40.0 - 60.0% of mass 198	55.1
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.3
275	10.0 - 30.0% of mass 198	23.0
365	Greater than 1.00% of mass 198	3.21
441	Present, but less than mass 443	10.0
442	Greater than 40.0% of mass 198	62.7
443	17.0 - 23.0% of mass 442	11.3 (18.0)2

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

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		BSBA001124	09/07/88	1204
02	S09068B1	S09068B1	BBBA001132	09/07/88	1842
03	METHOD_SPIKE	BMBA001133	BMBA001133	09/07/88	1929
04	S4_1345_B4S1	11805010	B1BA001138	09/07/88	2324

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11805 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 5100 Calibration Date(s): 09/06/88 09/06/88

in $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = BSBA001105 RRF50 = BSBA001106
RRF80 = BSBA001107 RRF120= BSBA001108 RRF160= BSBA001109

COMPOUND		RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Phenol	*	1.853	1.843	1.911	2.053	2.007	1.933	4.8*
bis(2-Chloroethyl)Ether		1.454	1.499	1.583	1.747	1.738	1.604	8.4
2-Chlorophenol		1.451	1.288	1.330	1.471	1.526	1.413	7.1
1,3-Dichlorobenzene		1.322	1.254	1.263	1.388	1.493	1.344	7.4
1,4-Dichlorobenzene	*	1.382	1.361	1.301	1.458	1.510	1.402	5.9*
Benzyl Alcohol		0.814	0.820	0.780	0.880	0.640	0.787	11.4
1,2-Dichlorobenzene		1.377	1.302	1.272	1.384	1.437	1.354	4.9
2-Methylphenol		1.114	1.153	1.123	1.248	1.297	1.187	6.8
bis(2-Chloroisopropyl)Ether		0.490	0.615	0.649	2.773	2.892	1.484	83.1
4-Methylphenol		1.158	1.193	1.177	1.302	1.325	1.231	6.2
N-Nitroso-Di-n-Propylamine	#	1.269	1.230	1.171	0.495	1.182	1.069	30.3#
Hexachloroethane		0.710	0.720	0.665	0.722	0.744	0.712	4.1
Nitrobenzene		0.479	0.523	0.480	0.496	0.481	0.492	3.8
Isophorone		0.894	0.891	0.605	0.144	0.638	0.634	48.3
2-Nitrophenol	*	0.193	0.201	0.184	0.195	0.191	0.193	3.2*
2,4-Dimethylphenol		0.404	0.408	0.383	0.409	0.382	0.397	3.4
Benzoic Acid			0.235	0.223	0.264	0.251	0.243	7.4
bis(2-Chloroethoxy)Methane		0.511	0.527	0.520	0.541	0.520	0.524	2.1
2,4-Dichlorophenol	*	0.287	0.279	0.261	0.281	0.271	0.276	3.6*
1,2,4-Trichlorobenzene		0.300	0.289	0.281	0.296	0.295	0.292	2.5
Naphthalene		0.952	0.956	0.980	1.019	1.010	0.983	3.1
4-Chloroaniline		0.252	0.216	0.351	0.402	0.387	0.322	25.8
Hexachlorobutadiene	*	0.168	0.163	0.160	0.173	0.164	0.166	3.0*
4-Chloro-3-methylphenol	*	0.347	0.362	0.329	0.346	0.324	0.342	4.5*
2-Methylnaphthalene		0.520	0.527	0.500	0.511	0.513	0.514	2.0
Hexachlorocyclopentadiene	#	0.275	0.296	0.303	0.344	0.303	0.304	8.2#
2,4,6-Trichlorophenol	*	0.382	0.385	0.378	0.451	0.394	0.398	7.6*
2,4,5-Trichlorophenol			0.361	0.350	0.326	0.324	0.340	5.4
2-Chloronaphthalene		1.217	1.198	1.208	1.255	1.168	1.209	2.6
2-Nitroaniline			0.450	0.478	0.465	0.444	0.459	3.3
Dimethyl Phthalate		1.375	1.361	1.302	1.109	1.260	1.281	8.3
Acenaphthylene		1.816	1.800	1.742	1.812	1.659	1.766	3.8
2,6-Dinitrotoluene		0.319	0.299	0.298	0.231	0.268	0.283	12.1
3-Nitroaniline			0.104	0.240	0.288	0.087	0.180	55.3
Acenaphthene	*	1.248	1.213	1.195	1.258	1.222	1.227	2.1*
2,4-Dinitrophenol	#		0.104	0.110	0.123	0.132	0.117	10.8#
4-Nitrophenol	#		0.138	0.139	0.141	0.165	0.146	8.8#

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11805 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 5100 Calibration Date(s): 09/06/88 09/06/88

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = BSBA001105 RRF50 = BSBA001106
RRF80 = BSBA001107 RRF120= BSBA001108 RRF160= BSBA001109

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Dibenzofuran	1.596	1.535	1.538	1.554	1.454	1.535	3.4
2,4-Dinitrotoluene	0.384	0.345	0.326	0.327	0.349	0.346	6.8
Diethylphthalate	1.600	1.474	1.415	1.391	1.465	1.469	5.5
4-Chlorophenyl-phenylether	0.569	0.532	0.546	0.567	0.557	0.554	2.8
Fluorene	1.189	1.178	1.113	1.074	1.090	1.129	4.6
4-Nitroaniline		0.037	0.041	0.050	0.087	0.054	42.3
4,6-Dinitro-2-methylphenol		0.116	0.104	0.116	0.125	0.115	7.5
N-Nitrosodiphenylamine (1) *	0.494	0.523	0.519	0.426	0.566	0.506	10.2*
1,2-Diphenylhydrazine	1.315	1.564	1.669	1.712	0.742	1.400	28.5
4-Bromophenyl-phenylether	0.239	0.249	0.247	0.233	0.235	0.241	3.0
Hexachlorobenzene	0.285	0.276	0.271	0.264	0.271	0.273	2.8
Pentachlorophenol *		0.134	0.117	0.133	0.140	0.131	7.5*
Phenanthrene	0.977	0.957	0.970	1.043	1.073	1.004	5.1
Anthracene	0.923	0.969	0.973	0.975	0.985	0.965	2.5
Di-n-Butylphthalate	1.422	1.398	1.430	1.515	1.563	1.466	4.8
Fluoranthene *	0.759	0.745	0.829	0.906	0.946	0.837	10.6*
Pyrene	1.597	1.493	1.414	1.315	1.367	1.437	7.7
Butylbenzylphthalate	0.949	0.920	0.930	0.869	0.825	0.899	5.6
3,3'-Dichlorobenzidine	0.159	0.124	0.141	0.176	0.113	0.143	17.9
Benzo(a)anthracene	1.055	1.075	1.069	1.073	0.986	1.052	3.6
Chrysene	0.976	0.941	0.933	0.745	0.842	0.887	10.6
bis(2-Ethylhexyl)Phthalate	1.394	1.342	1.382	1.312	1.254	1.337	4.2
Di-n-octylphthalate *	2.752	2.523	2.567	2.271	2.240	2.471	8.7*
Benzo(b)fluoranthene	1.069	1.068	1.188	1.115	0.992	1.086	6.6
Benzo(k)fluoranthene	0.995	0.942	0.971	0.900	0.997	0.961	4.2
Benzo(a)pyrene *	0.860	0.913	0.953	0.888	0.970	0.917	4.9*
Indeno(1,2,3-cd)Pyrene	0.636	0.727	0.864	0.865	0.963	0.811	15.9
Dibenz(a,h)Anthracene	0.547	0.652	0.792	0.743	0.806	0.708	15.3
Benzo(g,h,i)perylene	0.760	0.784	0.893	0.837	0.934	0.842	8.6
Nitrobenzene-d5 - SS	0.224	0.232	0.223	0.224	0.224	0.225	1.7
2-Fluorobiphenyl - SS	0.604	0.589	0.580	0.583	0.554	0.582	3.1
Terphenyl-d14 - SS	0.533	0.536	0.491	0.462	0.468	0.498	7.0
Phenol-d5 - SS	1.525	1.489	1.397	1.882	1.531	1.565	11.8
2-Fluorophenol - SS	1.262	1.235	1.127	1.203	1.264	1.218	4.7
2,4,6-Tribromophenol - SS	0.174	0.159	0.162	0.153	0.183	0.166	7.3

(1) Cannot be separated from Diphenylamine

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11805 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 5100 Calibration date: 09/07/88 Time: 1204

Lab File ID: BSBA001124 Init. Calib. Date(s): 09/06/88 09/06/88

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Phenol	*	1.933	1.956	-1.2	*
bis(2-Chloroethyl)Ether		1.604	1.635	-1.9	
2-Chlorophenol		1.413	1.444	-2.2	
1,3-Dichlorobenzene		1.344	1.451	-8.0	
1,4-Dichlorobenzene	*	1.402	1.564	-11.6	*
Benzyl Alcohol		0.787	0.854	-8.5	
1,2-Dichlorobenzene		1.354	1.432	-5.8	
2-Methylphenol		1.187	1.188	-0.1	
bis(2-Chloroisopropyl)Ether		1.484	0.471	68.3	
4-Methylphenol		1.231	1.226	0.4	
N-Nitroso-Di-n-Propylamine	#	1.069	1.192	-11.5	#
Hexachloroethane		0.712	0.728	-2.2	
Nitrobenzene		0.492	0.456	7.3	
Isophorone		0.634	0.785	-23.8	
2-Nitrophenol	*	0.193	0.191	1.0	*
2,4-Dimethylphenol		0.397	0.375	5.5	
Benzoic Acid		0.243	0.236	2.9	
bis(2-Chloroethoxy)Methane		0.524	0.488	6.9	
2,4-Dichlorophenol	*	0.276	0.273	1.1	*
1,2,4-Trichlorobenzene		0.292	0.289	1.0	
Naphthalene		0.983	0.964	1.9	
4-Chloroaniline		0.322	0.285	11.5	
Hexachlorobutadiene	*	0.166	0.172	-3.6	*
4-Chloro-3-methylphenol	*	0.342	0.330	3.5	*
2-Methylnaphthalene		0.514	0.533	-3.7	
Hexachlorocyclopentadiene	#	0.304	0.286	5.9	#
2,4,6-Trichlorophenol	*	0.398	0.400	-0.5	*
2,4,5-Trichlorophenol		0.340	0.377	-10.9	
2-Chloronaphthalene		1.209	1.210	-0.1	
2-Nitroaniline		0.459	0.350	23.8	
Dimethyl Phthalate		1.281	1.365	-6.6	
Acenaphthylene		1.766	1.690	4.3	
2,6-Dinitrotoluene		0.283	0.284	-0.4	
3-Nitroaniline		0.180	0.187	-3.9	
Acenaphthene	*	1.227	1.211	1.3	*
2,4-Dinitrophenol	#	0.117	0.121	-3.4	#
4-Nitrophenol	#	0.146	0.130	11.0	#

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11805 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 5100 Calibration date: 09/07/88 Time: 1204

Lab File ID: BSBA001124 Init. Calib. Date(s): 09/06/88 09/06/88

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Dibenzofuran		1.535	1.564	-1.9	
2,4-Dinitrotoluene		0.346	0.329	4.9	
Diethylphthalate		1.469	1.507	-2.6	
4-Chlorophenyl-phenylether		0.554	0.591	-6.7	
Fluorene		1.129	1.151	-1.9	
4-Nitroaniline		0.054	0.047	13.0	
4,6-Dinitro-2-methylphenol		0.115	0.111	3.5	
N-Nitrosodiphenylamine (1)	*	0.506	0.520	-2.8	*
1,2-Diphenylhydrazine		1.400	1.374	1.9	
4-Bromophenyl-phenylether		0.241	0.260	-7.9	
Hexachlorobenzene		0.273	0.294	-7.7	
Pentachlorophenol	*	0.131	0.142	-8.4	*
Phenanthrene		1.004	0.940	6.4	
Anthracene		0.965	0.978	-1.3	
Di-n-Butylphthalate		1.466	1.318	10.1	
Fluoranthene	*	0.837	0.873	-4.3	*
Pyrene		1.437	1.270	11.6	
Butylbenzylphthalate		0.899	0.745	17.1	
3,3'-Dichlorobenzidine		0.143	0.147	-2.8	
Benzo(a)anthracene		1.052	1.018	3.2	
Chrysene		0.887	0.891	-0.5	
bis(2-Ethylhexyl)Phthalate		1.337	1.092	18.3	
Di-n-octylphthalate	*	2.471	1.875	24.1	*
Benzo(b)fluoranthene		1.086	1.106	-1.8	
Benzo(k)fluoranthene		0.961	0.973	-1.2	
Benzo(a)pyrene	*	0.917	0.910	0.8	*
Indeno(1,2,3-cd)Pyrene		0.811	0.883	-8.9	
Dibenz(a,h)Anthracene		0.708	0.835	-17.9	
Benzo(g,h,i)perylene		0.842	0.799	5.1	
Nitrobenzene-d5 - SS		0.225	0.212	5.8	
2-Fluorobiphenyl - SS		0.582	0.593	-1.9	
Terphenyl-d14 - SS		0.498	0.465	6.6	
Phenol-d5 - SS		1.565	1.598	-2.1	
2-Fluorophenol - SS		1.218	1.295	-6.3	
2,4,6-Tribromophenol - SS		0.166	0.158	4.8	

(1) Cannot be separated from Diphenylamine

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

ab Name: CH2M HILL/MGM Contract: _____

ab Code: CH2M Case No.: S11805 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): BSBA001124 Date Analyzed: 09/07/88

nstrument ID: 5100 Time Analyzed: 1204

		IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
	12 HOUR STD	16600	9.12	60300	12.20	26200	16.64
	UPPER LIMIT	33200		120600		52400	
	LOWER LIMIT	8300		30150		13100	
	EPA SAMPLE NO.						
01	METHOD_SPIKE	18800	9.10	65500	12.19	29200	16.64
02	S4_1345_B4S1	17700	9.09	64200	12.19	29100	16.62
03	S09068B1	18800	9.10	62100	12.19	27100	16.64

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

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11805 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): BSBA001124 Date Analyzed: 09/07/88

Instrument ID: 5100 Time Analyzed: 1204

		IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
	12 HOUR STD	33700	20.34	21500	27.16	20000	30.57
	UPPER LIMIT	67400		43000		40000	
	LOWER LIMIT	16850		10750		10000	
	EPA SAMPLE NO.						
01	METHOD_SPIKE	40300	20.34	21500	27.14	18300	30.57
02	S4_1345_B4S1	37700	20.32	25400	27.14	23000	30.56
03	S09068B1	33200	20.34	19700	27.14	18300	30.56

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

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Page: 1
Date: 10/17/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11805

RE: Sample(s) received by CH2M HILL on 08/27/88.
LANTDIV

Analysis Description	[Method]	STA. 1 8/24/88 COMP B1S1	STA. 1 8/24/88 COMP B1S2	STA. 1 8/24/88 COMP B1S3	STA. 2 8/24/88 1420 COMP B2S1	STA. 2 8/24/88 1420 COMP B2S2 SOIL	STA. 2 8/24/88 1420 COMP B2S3	STA. 3 8/25/88 1540 COMP B3S1
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
EP Tox. Silver (ppb)	[EPA200.7]	<30	<30	<30	<30	<30	<30	70
EP Tox. Arsenic (ppb)	[EPA206.2]	<5	<5	<5	<5	<5	<5	<5
EP Tox. Barium (ppb)	[EPA200.7]	<100	280	<100	110	<100	<100	170
EP Tox. Cadmium (ppb)	[EPA200.7]	<20	<20	<20	<20	<20	<20	<20
EP Tox. Chromium (ppb)	[EPA200.7]	<10	<10	<10	<10	10	<10	10
EP Tox. Mercury (ppb)	[EPA245.1]	<0.4	0.2	0.3	<0.4	<0.4	<0.4	<0.4
EP Tox. Lead (ppb)	[EPA239.2]	<200	<200	<200	<200	<200	<200	<200
EP Tox. Selenium (ppb)	[EPA270.2]	<5	<5	<5	<5	<5	<5	<5

Engineers
Planners
CH2M HILL Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 10/17/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11805

RE: Sample(s) received by CH2M HILL on 08/27/88.
LANTDIV

Analysis Description	[Method]	STA. 3 8/25/88 1540 COMP B3S2	STA. 3 8/25/88 1540 COMP B3S3	STA. 4 8/25/88 1345 COMP B4S1	STA. 4 8/25/88 1345 COMP B4S2	STA. 4 8/25/88 1345 COMP B4S3	STA. 5 8/25/88 1200 COMP B5S1	STA. 5 8/25/88 1200 COMP B5S2
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
EP Tox. Silver (ppb)	[EPA200.7]	<30	<30	<30	<30	<30	<30	<30
EP Tox. Arsenic (ppb)	[EPA206.2]	<5	<5	<5	<5	<5	<5	<5
EP Tox. Barium (ppb)	[EPA200.7]	<100	<100	130	<100	<100	<100	<100
EP Tox. Cadmium (ppb)	[EPA200.7]	<20	<20	<20	<20	<20	<20	<20
EP Tox. Chromium (ppb)	[EPA200.7]	<10	<10	<10	<10	<10	<10	<10
EP Tox. Mercury (ppb)	[EPA245.1]	<0.4	0.2	0.4	<0.4	0.4	0.5	0.4
EP Tox. Lead (ppb)	[EPA239.2]	<200	<200	<200	<200	<200	<200	<200
EP Tox. Selenium (ppb)	[EPA270.2]	<5	<5	<5	<5	<5	<5	<5
Flashpoint (F)	[SW1010]	-------	-------	100	-------	-------	-------	-------

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 10/17/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11805

RE: Sample(s) received by CH2M HILL on 08/27/88.
LANTDIV

Analysis Description	[Method]	STA. 5 8/25/88 1200 COMP B5S3	STA. 6 8/25/88 1015 COMP B6S1	STA. 6 8/25/88 1015 COMP B6S2	STA. 6 8/25/88 1015 COMP B6S3	STA. 7 8/25/88 0915 COMP B7S1	STA. 7 8/25/88 0915 COMP B7S2	STA. 7 8/25/88 0915 COMP B7S3
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
EP Tox. Silver (ppb)	[EPA200.7]	<30	<30	<30	<30	<30	<30	<30
EP Tox. Arsenic (ppb)	[EPA206.2]	<5	<5	<5	<5	<5	<5	<5
EP Tox. Barium (ppb)	[EPA200.7]	120	<100	<100	190	<100	<100	<100
EP Tox. Cadmium (ppb)	[EPA200.7]	<20	<20	<20	<20	<20	<20	<20
EP Tox. Chromium (ppb)	[EPA200.7]	<10	<10	<10	<10	<10	<10	<10
EP Tox. Mercury (ppb)	[EPA245.1]	0.3	0.3	0.3	0.3	0.3	0.3	0.4
EP Tox. Lead (ppb)	[EPA239.2]	<200	<200	<200	<200	<200	<200	<200
EP Tox. Selenium (ppb)	[EPA270.2]	<5	<5	<5	<5	<5	<5	<5

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 10/17/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11805

RE: Sample(s) received by CH2M HILL on 08/27/88.
LANTDIV

Analysis Description	[Method]	STA. 8 8/25/88 1615 COMP SS1	STA. 9 8/25/88 1615 COMP SS2	STA. 10 8/25/88 1615 COMP SS3	STA. 3 8/25/88 1540 COMP B3S2 MATRIX SPIKE DUP	STA. 3 8/25/88 1540 COMP B3S2 MATRIX SPIKE
		SOIL	SOIL	SOIL	SOIL	SOIL
EP Tox. Silver (ppb)	[EPA200.7]	<30	<30	<30	0%	91%
EP Tox. Arsenic (ppb)	[EPA206.2]	<5	<5	<5	0%	88%
EP Tox. Barium (ppb)	[EPA200.7]	<100	100	110	0%	100%
EP Tox. Cadmium (ppb)	[EPA200.7]	<20	<20	<20	0%	105%
EP Tox. Chromium (ppb)	[EPA200.7]	30	<10	<10	0%	95%
EP Tox. Mercury (ppb)	[EPA245.1]	0.4	<0.4	0.5	0%	117%
EP Tox. Lead (ppb)	[EPA239.2]	<200	<200	<200	0%	93%
EP Tox. Selenium (ppb)	[EPA270.2]	<5	<5	<5	0%	95%

Analyses performed in accordance with methods approved by the USEPA.

Respectfully Submitted,

Mr. James M. Schoen
Inorganic Laboratory Manager

cc: MR. FRANK LEWIS/WDC, MARY WISDON/MGM-LQAC

INORG(MGM-8809C)

Engineers
Planners
CH2M HILL Economists
Scientists

October 3, 1988

W20368.D0

Mr. Doug Dronfield
CH2M HILL/WDC
P.O. Box 4400
Reston, Virginia 22090

RE: Analytical Data for Laboratory No. 11822

Dear Mr. Dronfield:

On August 31, 1988, CH2M HILL Montgomery Laboratory received twenty-one samples with a request for analysis of selected organic parameters.

Please note that the CH2M HILL Montgomery Laboratory reporting format has changed. The format alteration is in response to new reporting technology and will keep CH2M HILL in-line with new industry standards. We apologize for any inconvenience this change may cause.

The analytical results and the associated quality control data are enclosed. Sample 11822-13 (2B-1000-B8S3) was initially acquired at a 2x dilution as suggested by the screening results. Due to the low level of target compounds the sample was reanalyzed with no dilution. Variation was seen in the methylene chloride results for the two acquisitions. Based on the screening results and the system blank for that day, the variation is most likely due to sample nonhomogeneity.

Please note on Forms II, IV, V and VIII that the sequential numbering to the immediate left of the tables is not related to the Montgomery Laboratory sample labeling system. Therefore, the sequential numbers on these forms bares no realtionship to the Montgomery Laboratory sample numbers. If you should have any questions concerning the data, please call.

Sincerely,

Ward Dickens

Ward Dickens
Manager, Organic Analysis

Enclosures

cc: Mr. Craig Vinson
Mr. Frank Lewis/WDC
Ms. Mary Wisdom/MGM-LQAX

ORGANIC ANALYSIS

ANALYTICAL INSTRUMENTATION

- Finnigan Models 4021, 5100, 4510 Gas Chromatographs/Mass Spectrometer/Data Systems equipped with Tekmar's LSC-2, LSC-3, and the 4200 automatic Heated Sample Module.

- Varian Models 3700 and 6000 Gas Chromatographs equipped with flame ionization, electron capture, thermionic specific, flame photometric detectors and autosamplers. State of the art Varian Vista 402 Data System and Hewlett Packard integrators.

- Dohrman DX-20 Total Organic Halide System.

- Water High Pressure Liquid Chromatograph with UV and Fluorescence detectors.

ANALYTICAL METHODOLOGY

- Priority Pollutants: The water samples are analyzed in accordance with procedures described in methods 608, 624, and 625, EPA-600/4-82-057 (1982). The soil samples are analyzed in accordance with procedures described in Methods 8080, 8240, and 8270, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

- Phenoxyacid Herbicides: Samples are analyzed in accordance with procedures outlined in Method 7, Federal Register, Vol. 38, No. 75, Part II, November 28, 1973.

- Total Organic Halides: Samples are analyzed in accordance with procedures outlined in Method 9020, USEPA, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

- Trihalomethanes: Samples are analyzed in accordance with procedures described in Method 501.2, Federal Register, Vol. 44, No. 231, Part II, November 29, 1979.

- Ethylene dibromide: Water samples are analyzed in accordance with procedures outlined in Method 504, Federal Register (50 FR 46902), November 13, 1985.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1048_B14S1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822003

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001437

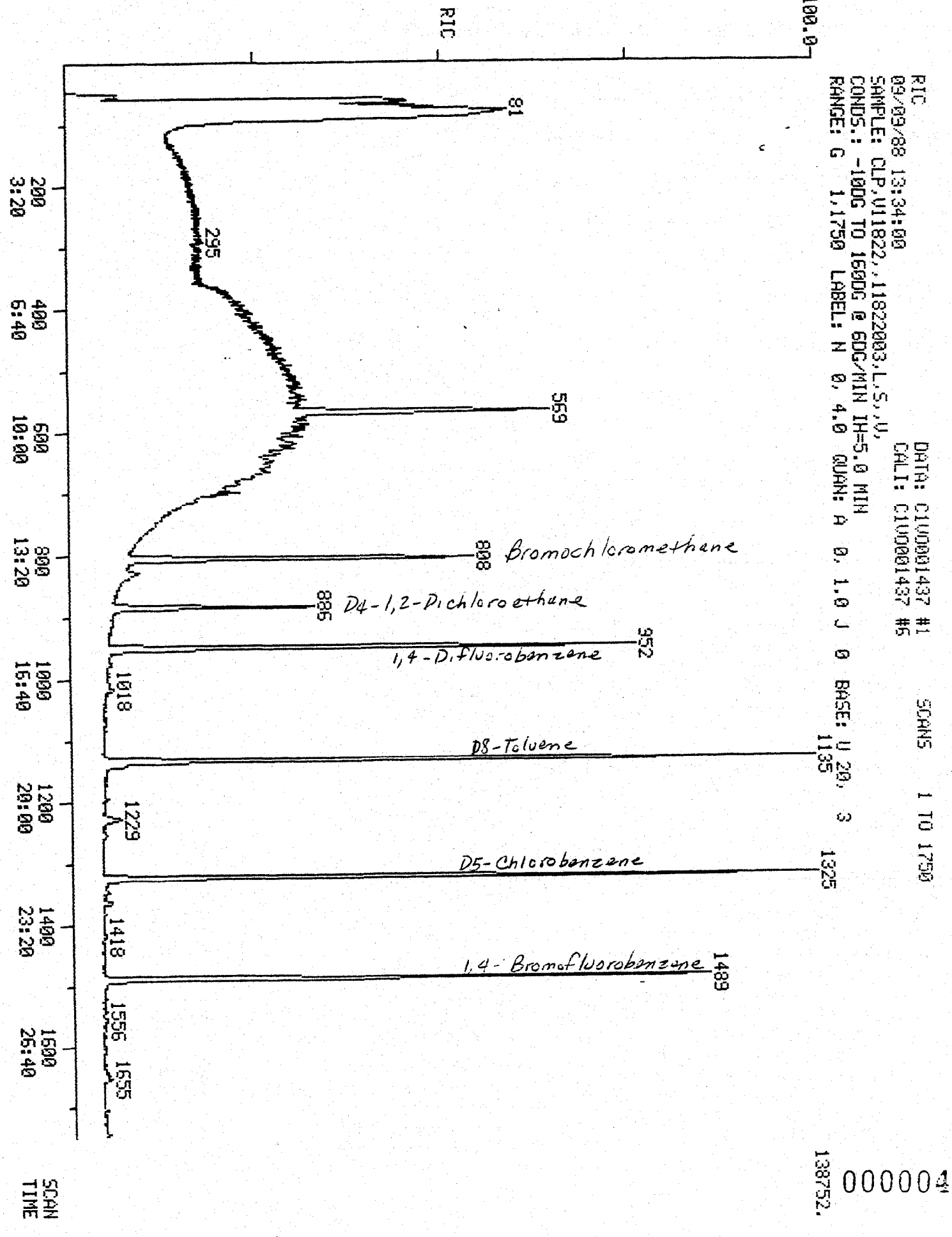
Level: (low/med) LOW Date Received: 08/31/88

% Moisture: not dec. 10 Date Analyzed: 09/09/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	55	B
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 11 FOUND
FINISHED AT: 9/09/88 14:09:25

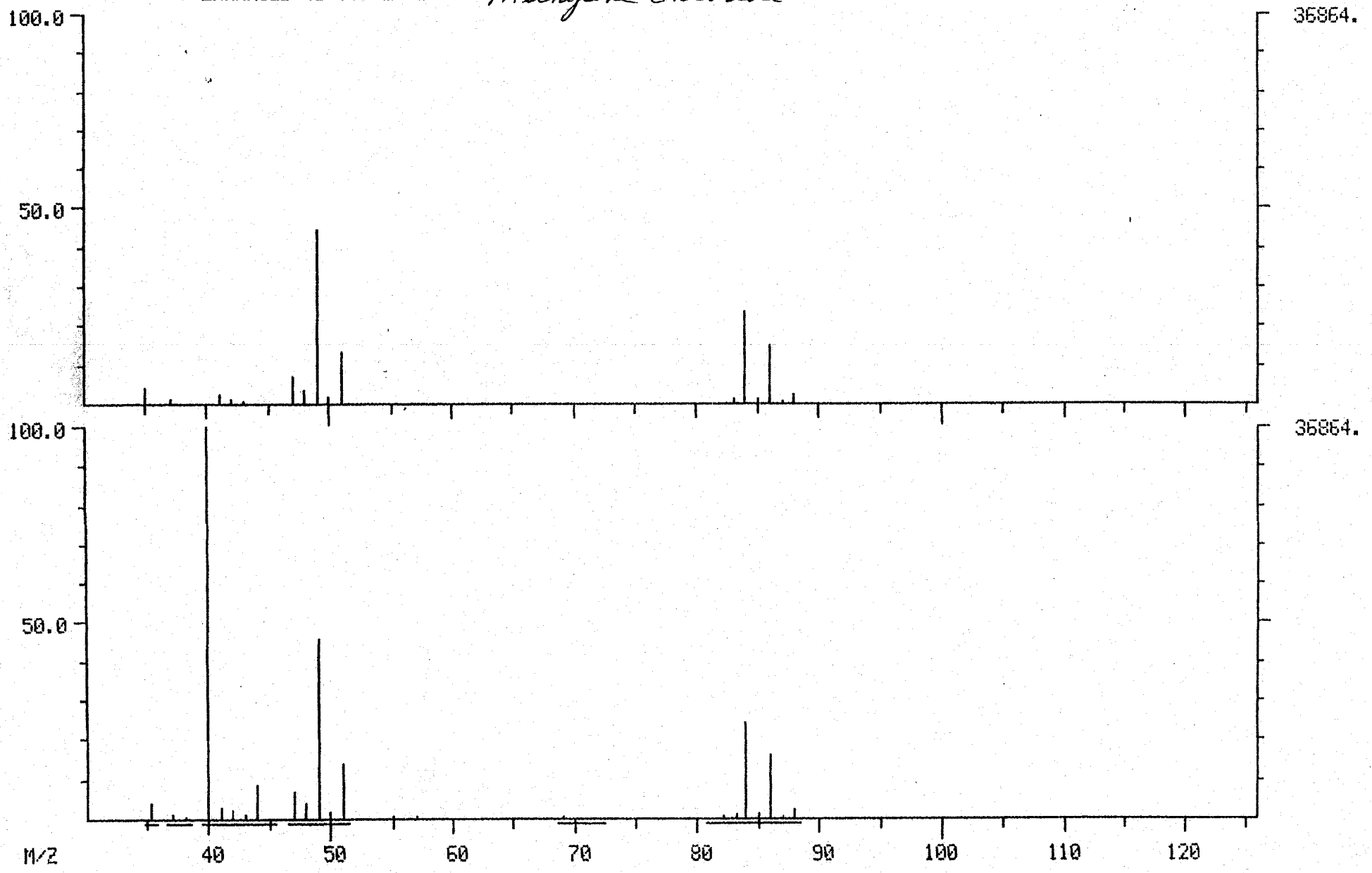


000004

DUAL MASS SPECTRUM
09/09/88 13:34:00 + 9:29
SAMPLE: CLP,V11822,,11822003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

DATA: C1V0001437 #569 BASE M/Z: 49/ 40
CALI: C1V0001437 #6 RIC: 45311./ 89471.

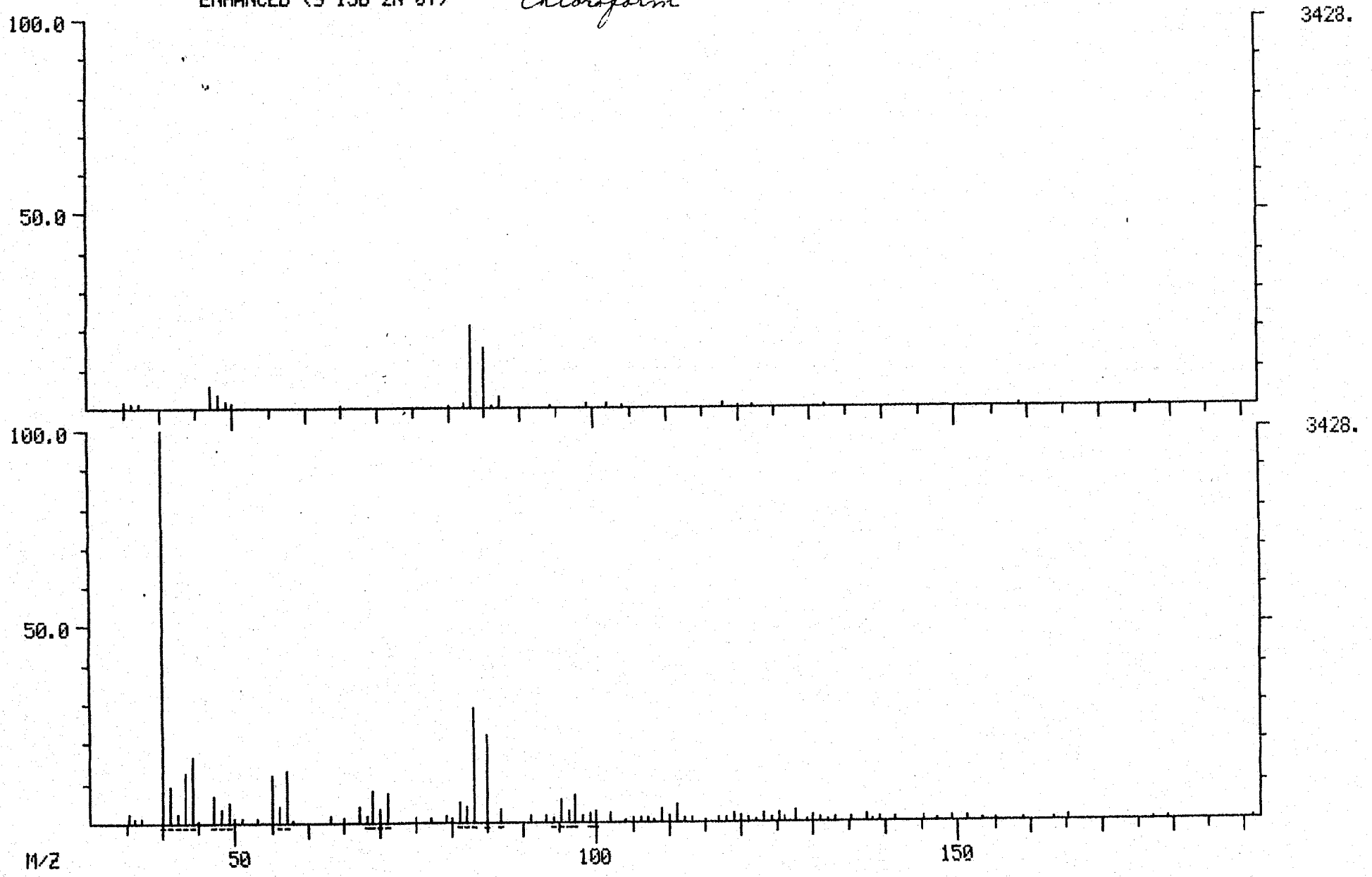
000005



DUAL MASS SPECTRUM
09/09/88 13:34:00 + 13:50
SAMPLE: CLP,V11822,,11822003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) *Chloroform*

DATA: C1V0001437 #830 BASE M/Z: 83/ 40
CALI: C1V0001437 #6 RIC: 2323./ 12391.

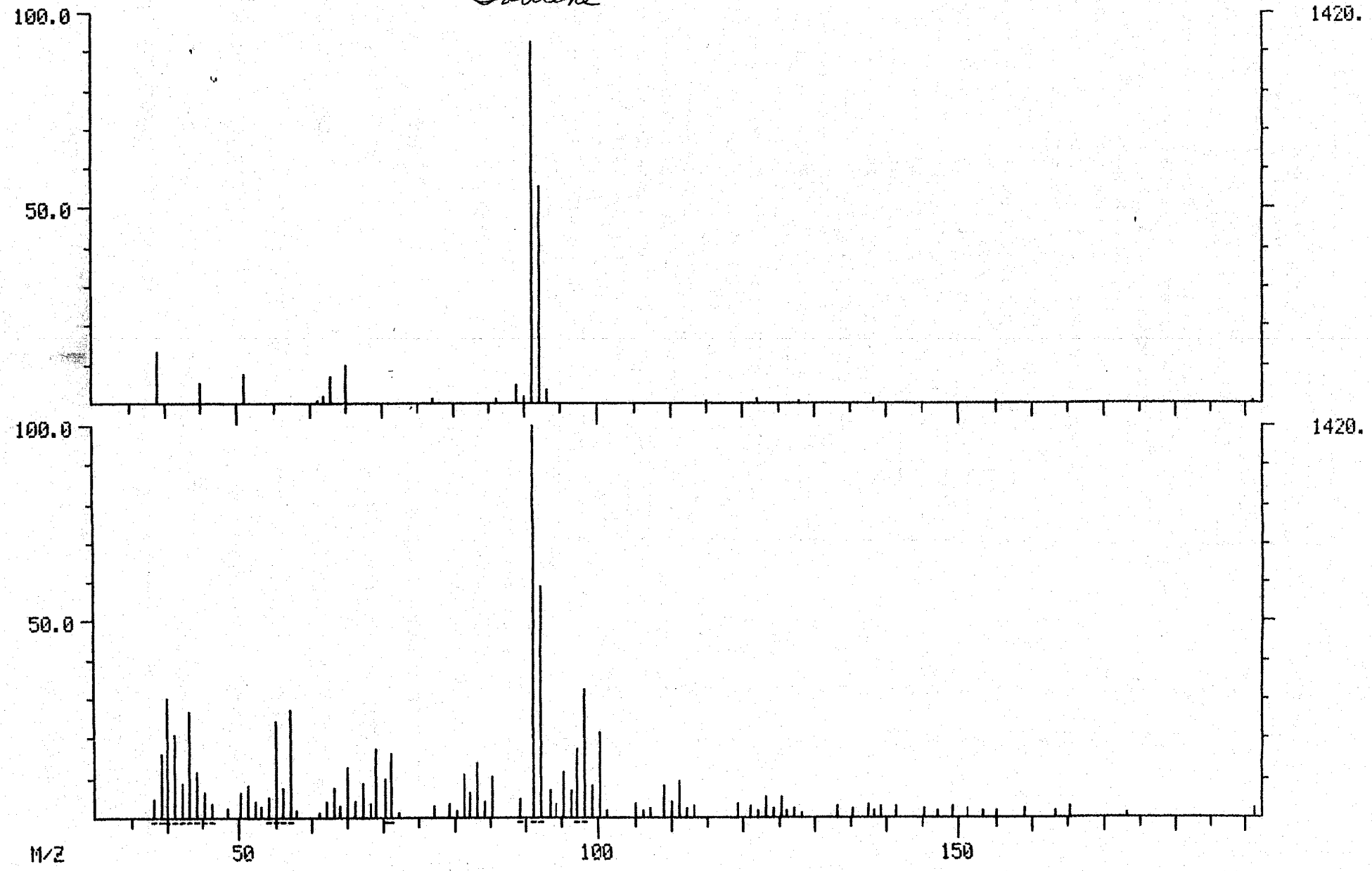
000006



DUAL MASS SPECTRUM
09/09/88 13:34:00 + 19:03
SAMPLE: CLP,V11822,,11822003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Toluene

DATA: C1V0001437 #1143 BASE M/Z: 91/ 91
CALI: C1V0001437 #6 RIC: 2983./ 10399.

000007



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1048_B14S2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822004

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001438

Level: (low/med) LOW Date Received: 08/31/88

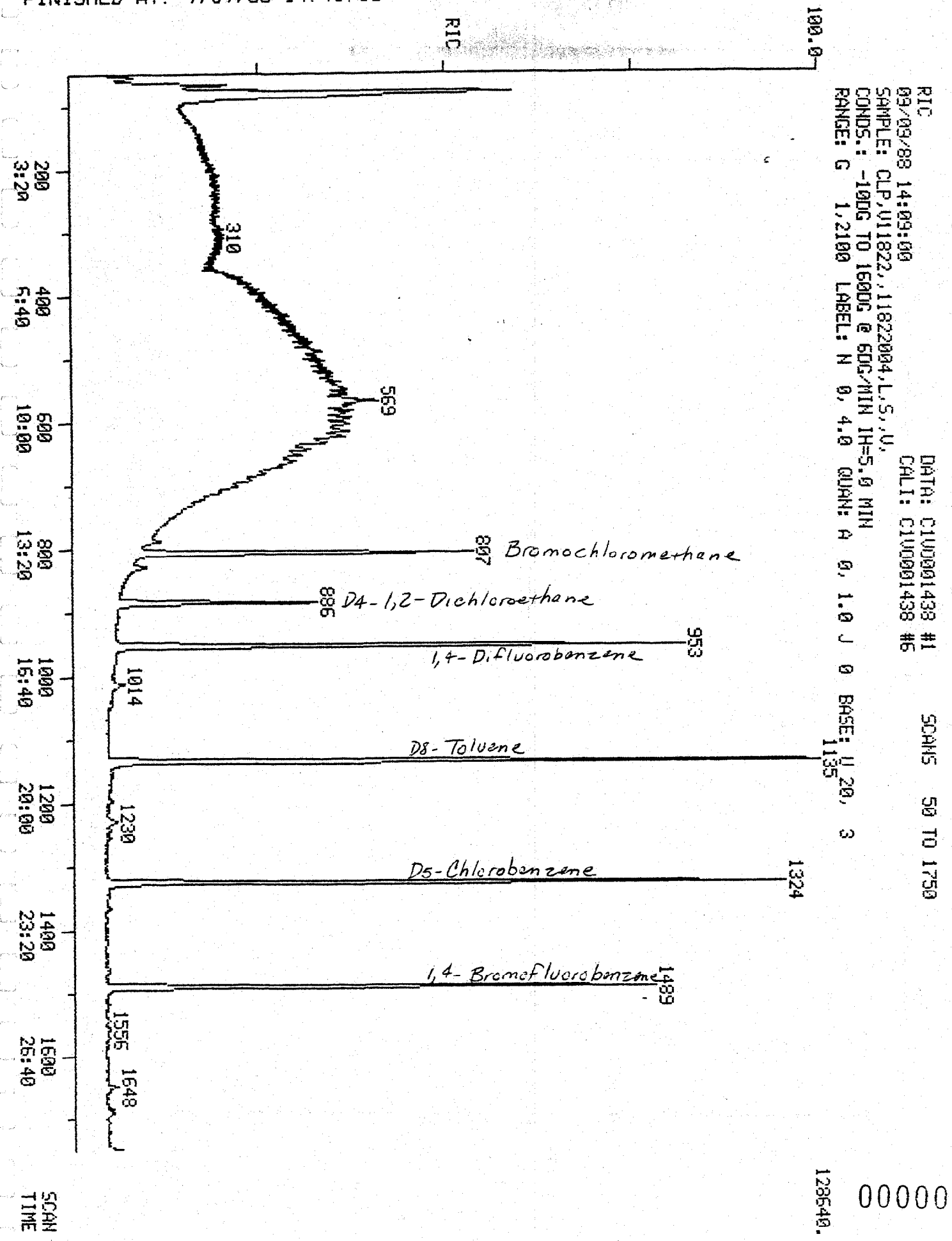
% Moisture: not dec. 15 Date Analyzed: 09/09/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	8	BJ
67-64-1	Acetone	57	
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	7	J
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

R5

TCA FINISHED, 10 FOUND
FINISHED AT: 9/09/88 14:45:16



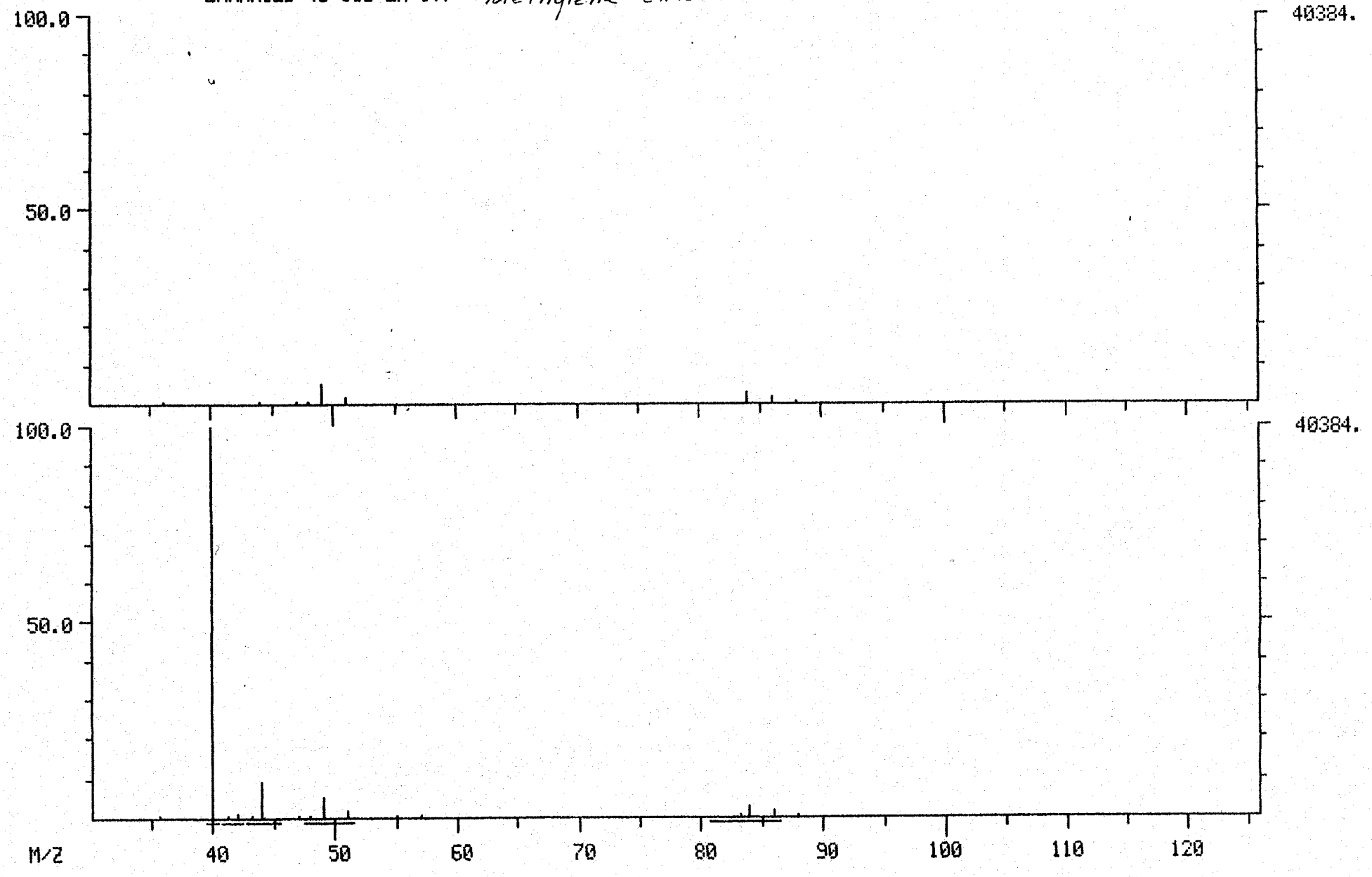
128640.

000009

DUAL MASS SPECTRUM
09/09/88 14:09:00 + 9:29
SAMPLE: CLP,V11822,,11822004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

DATA: C1V0001438 #569 BASE M/Z: 49/ 40
CALI: C1V0001438 #6 RIC: 6087./ 52607.

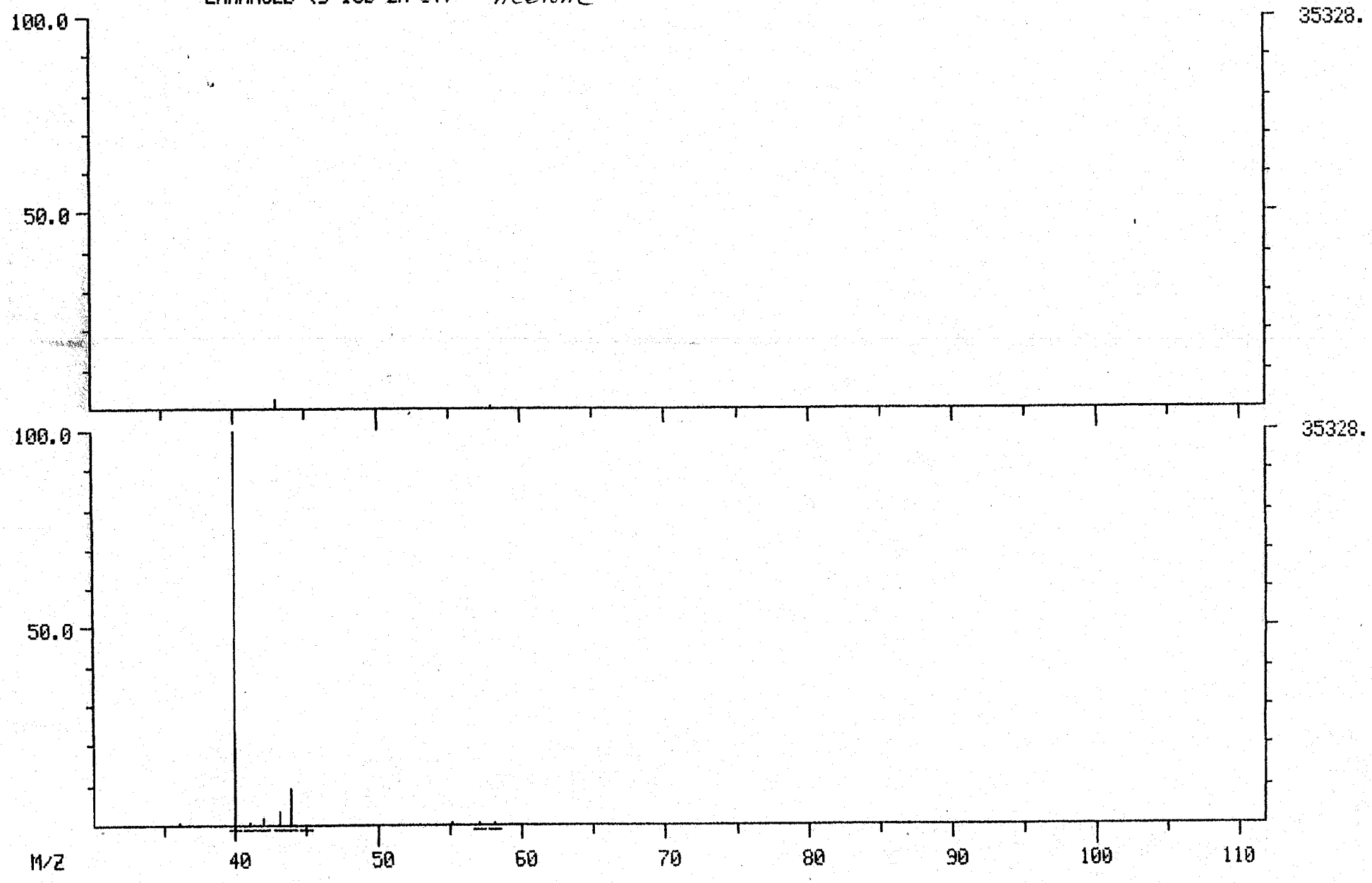
000010



DUAL MASS SPECTRUM
09/09/88 14:09:00 + 8:10
SAMPLE: CLP,V11822,,11822004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

DATA: C1V0001438 #490 BASE M/Z: 43/ 40
CALI: C1V0001438 #6 RIC: 1241./ 41983.

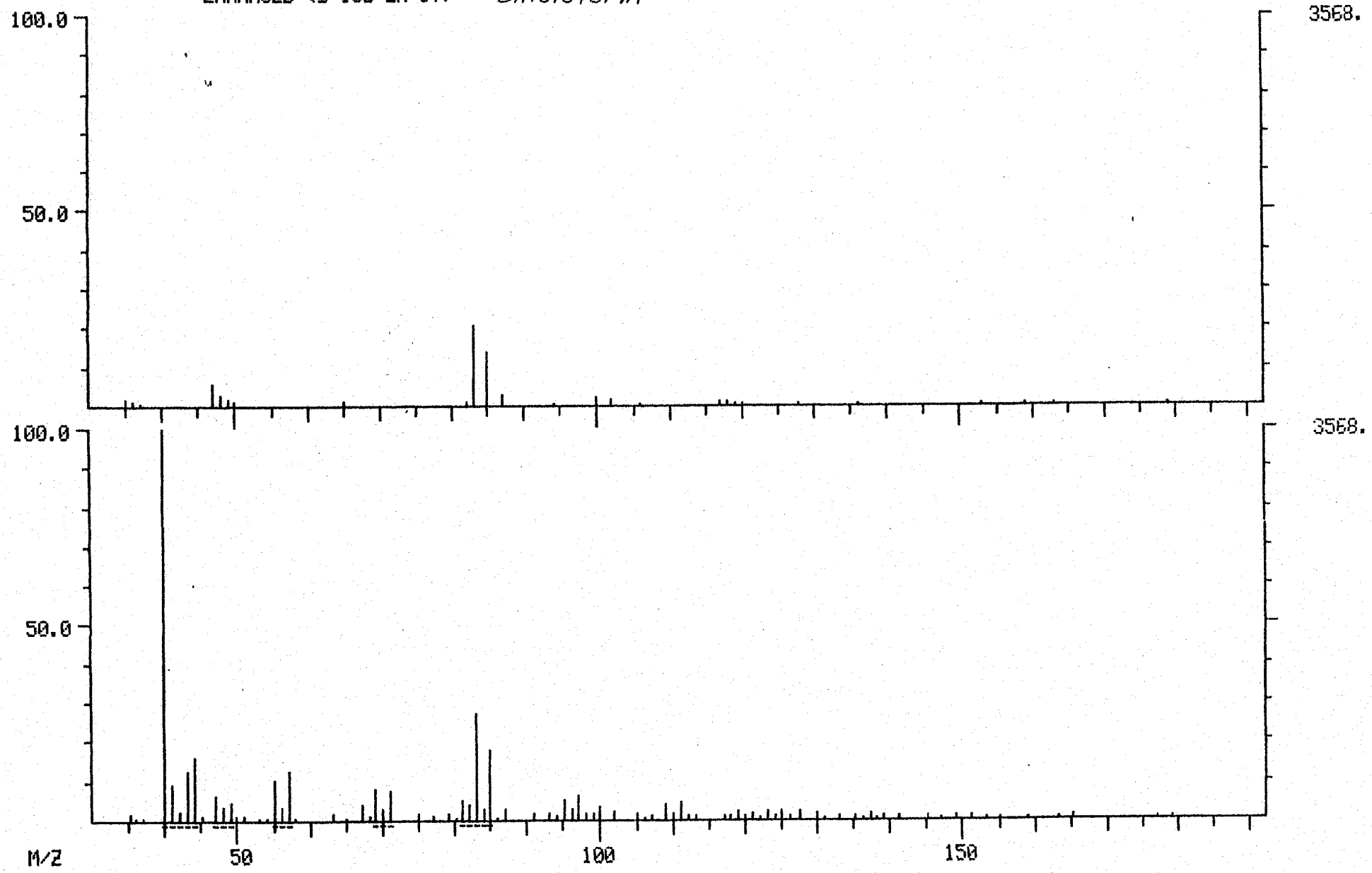
000011



DUAL MASS SPECTRUM
09/09/88 14:09:00 + 13:50
SAMPLE: CLP,V11822,,11822004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001438 #830 BASE M/Z: 83/ 40
CALI: C1V0001438 #6 RIC: 2367./ 12943.

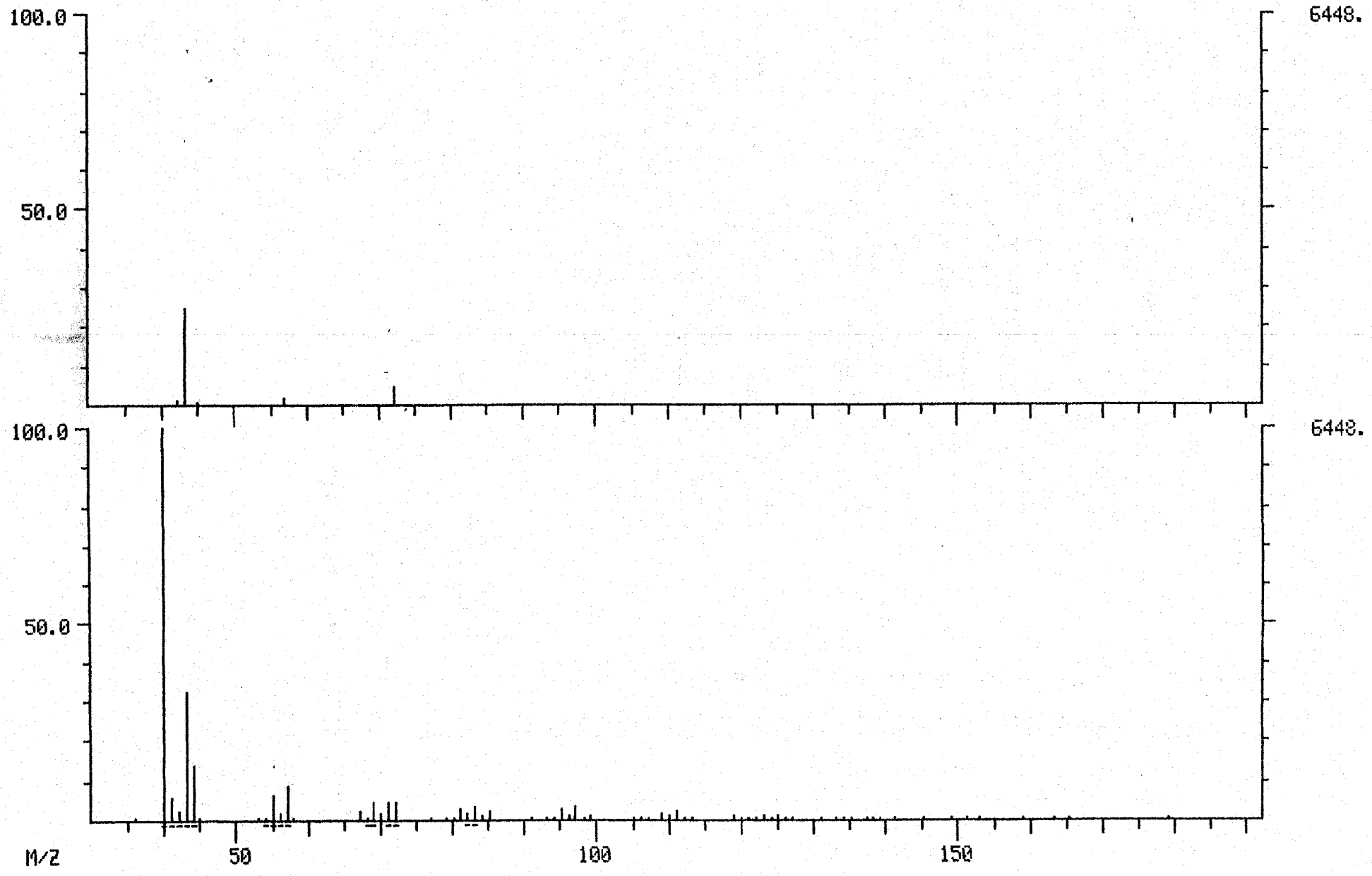
000012



DUAL MASS SPECTRUM
09/09/88 14:09:00 + 13:09
SAMPLE: CLP,V11822,,11822004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) 2-Butanone

DATA: C1V0001438 #789 BASE M/Z: 43/ 40
CALI: C1V0001438 #6 RIC: 2171./ 15311.

000013



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1048_B14S3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822005

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001439

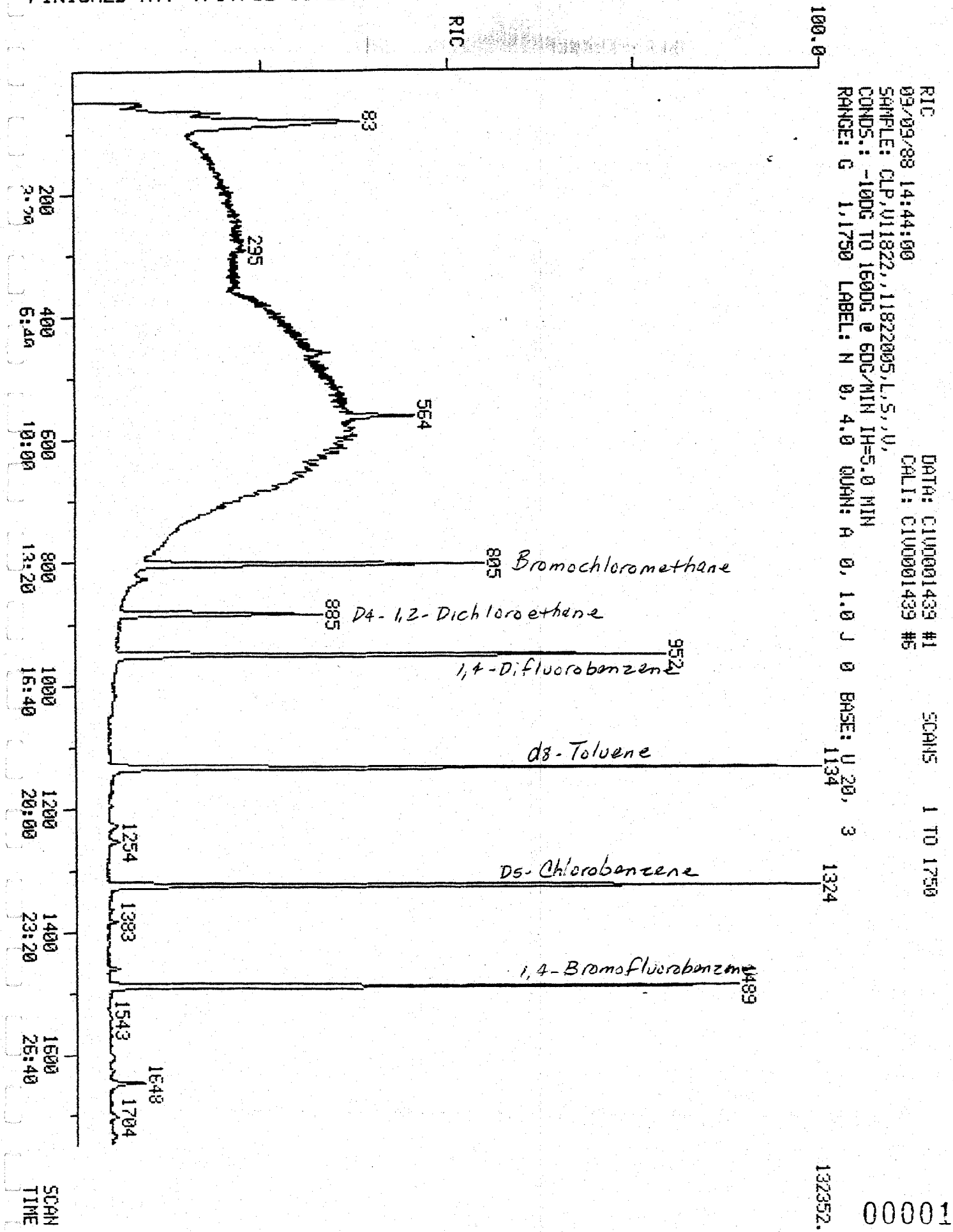
Level: (low/med) LOW Date Received: 08/31/88

% Moisture: not dec. 16 Date Analyzed: 09/09/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	15	B
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	2	J
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 9 FOUND
FINISHED AT: 9/09/88 15:28:38



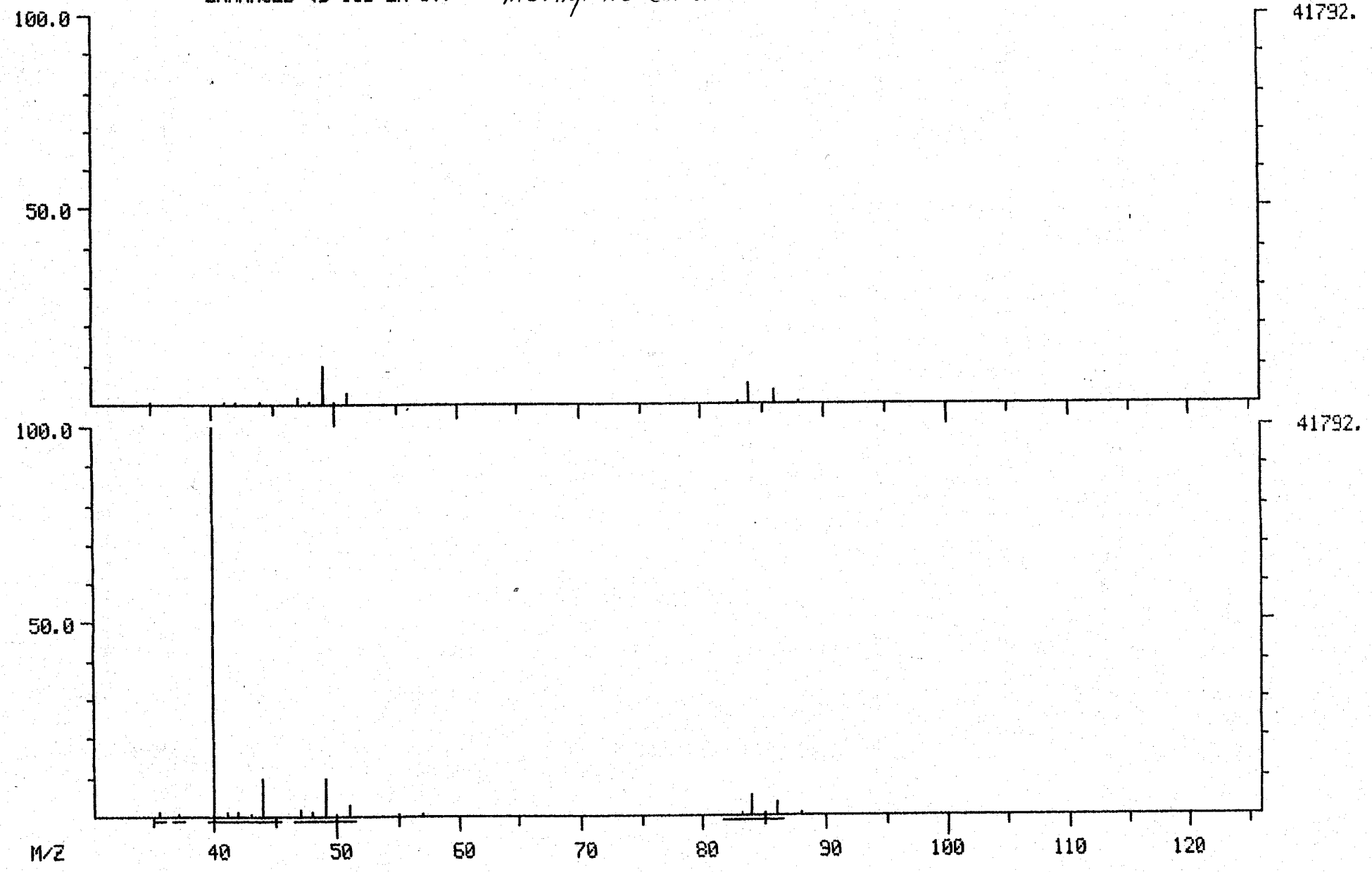
132352.

000015

DUAL MASS SPECTRUM
09/09/88 14:44:00 + 9:24
SAMPLE: CLP,V11822,,11822005,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

DATA: C1V0001439 #564 BASE M/Z: 49/ 40
CALI: C1V0001439 #6 RIC: 11455./ 60095.

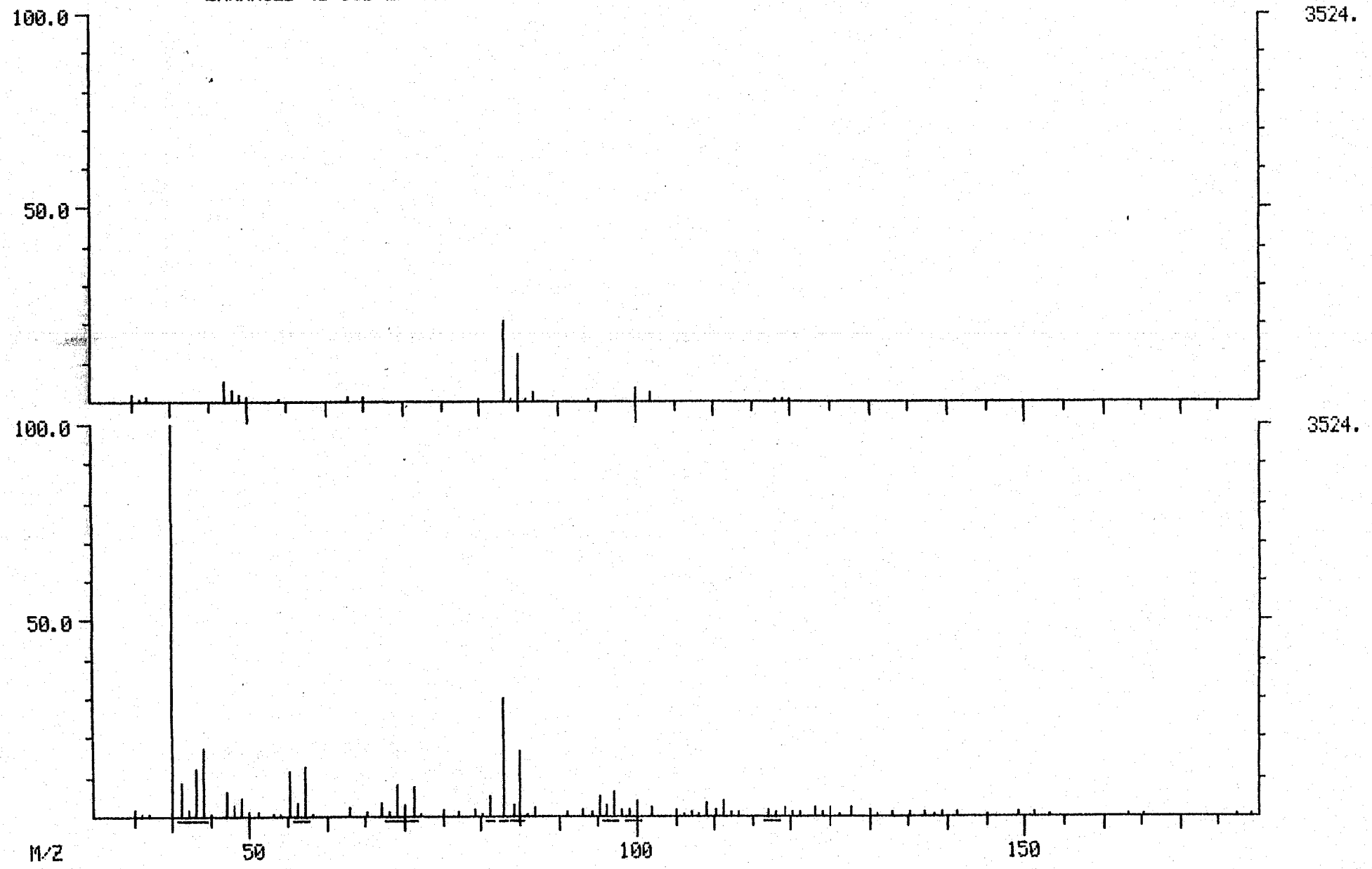
000016



DUAL MASS SPECTRUM
09/09/88 14:44:00 + 13:49
SAMPLE: CLP,V11822,,11822005,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001439 #829 BASE M/Z: 83/ 40
CALI: C1V0001439 #6 RIC: 2231./ 12639.

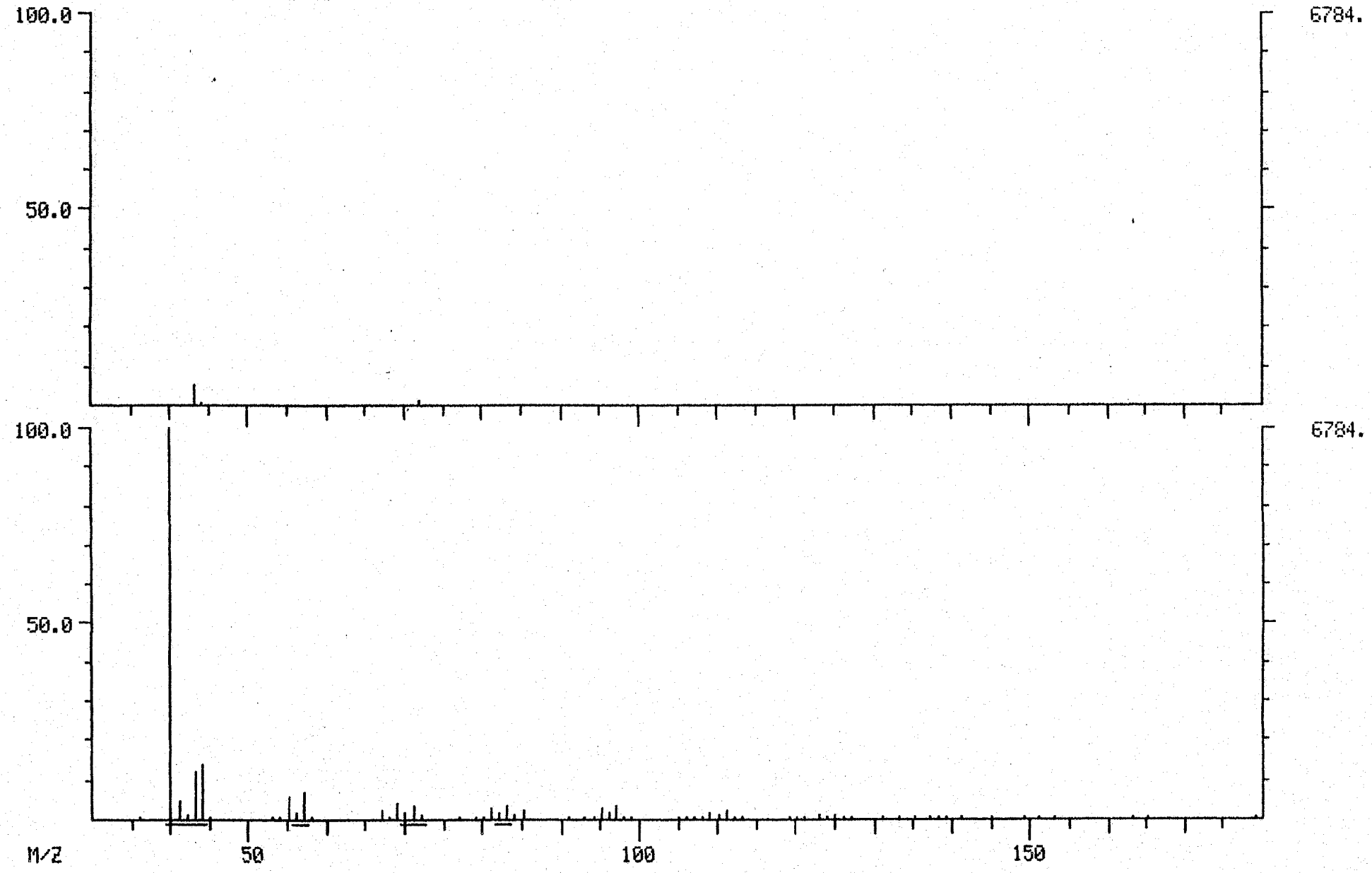
000017



DUAL MASS SPECTRUM
09/09/88 14:44:00 + 13:08
SAMPLE: CLP,V11822,,11822005,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) 2-Butanone

DATA: C1V0001439 #788 BASE M/Z: 43/ 40
CALI: C1V0001439 #6 RIC: 591./ 14015.

000018



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1143_B15S1

Lab Name: CH2M HILL/MGM Contract: _____

ab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822006

ample wt/vol: _____ (g/mL) G Lab File ID: C1VO001440

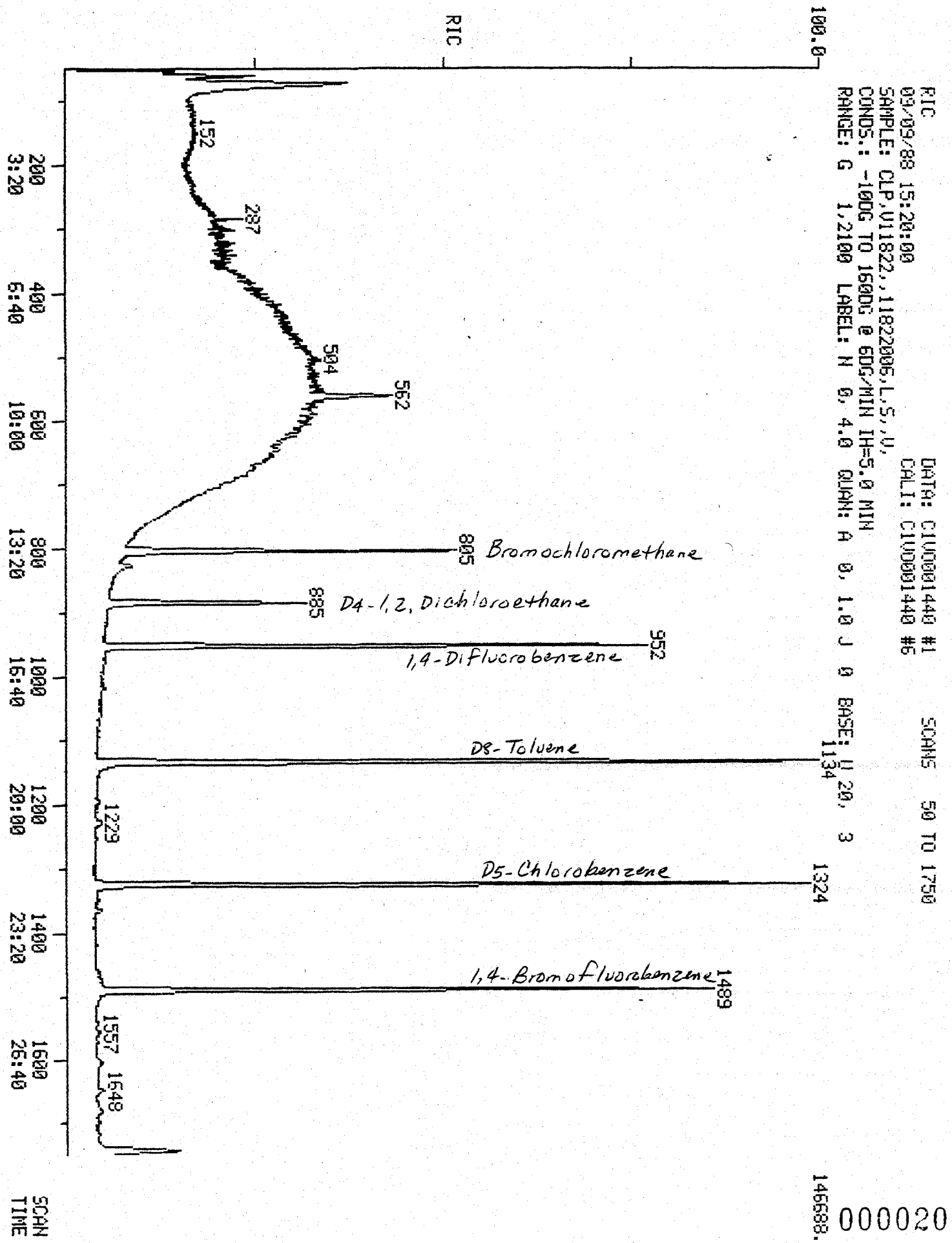
evel: (low/med) LOW Date Received: 08/31/88

% Moisture: not dec. 10 Date Analyzed: 09/09/88

olumn: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	17	B
67-64-1	Acetone	14	
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 10 FOUND
FINISHED AT: 9/09/88 16:56:50

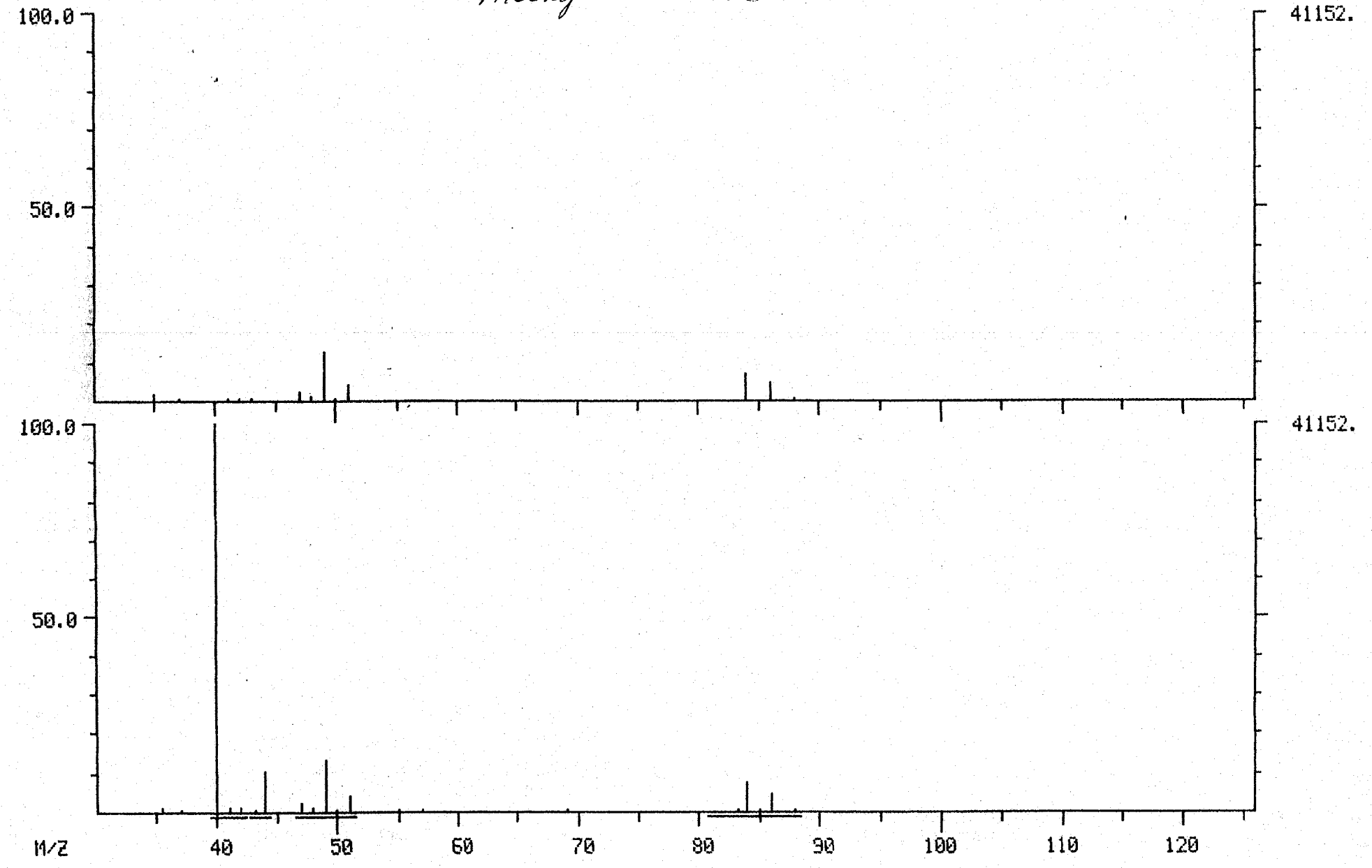


000020

DUAL MASS SPECTRUM
09/09/88 15:20:00 + 9:22
SAMPLE: CLP,V11822,,11822006,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

DATA: C1V0001440 #562 BASE M/Z: 49/ 40
CALI: C1V0001440 #6 RIC: 14831./ 63103.

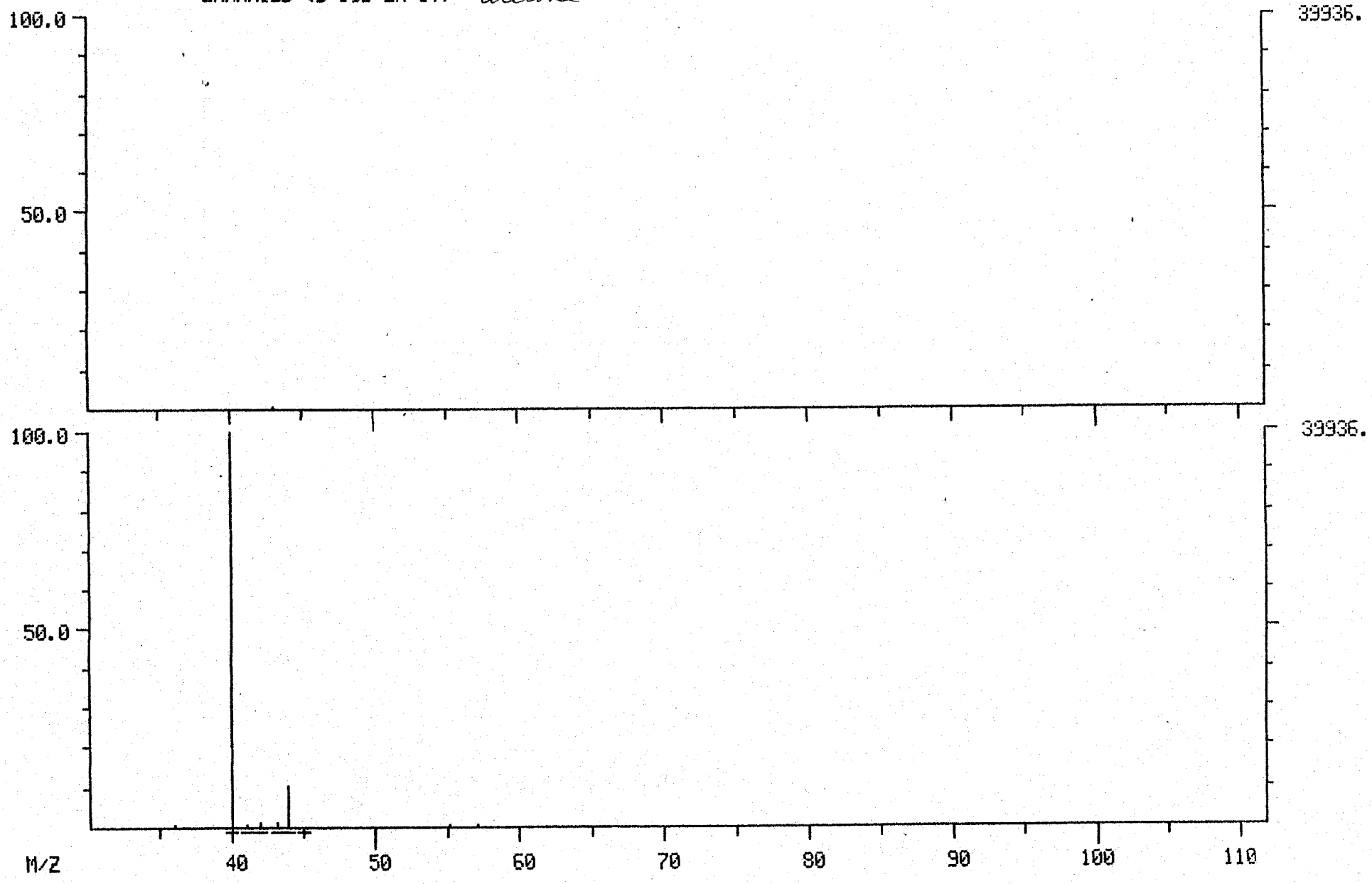
000021



000022

DUAL MASS SPECTRUM
09/09/88 15:20:00 + 8:05
SAMPLE: CLP,V11822,,11822006,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

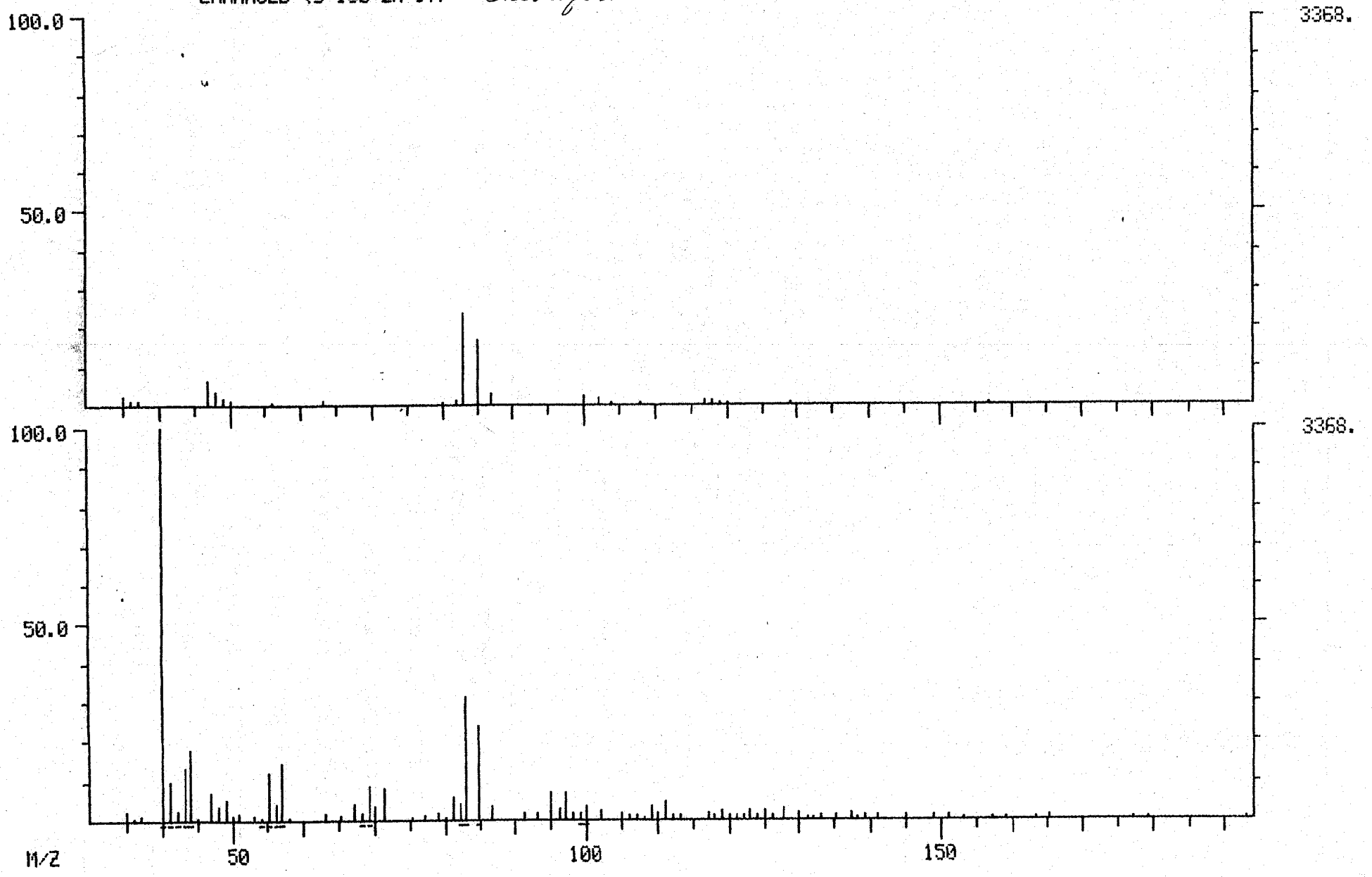
DATA: C1V0001440 #485 BASE M/Z: 43/ 40
CALI: C1V0001440 #6 RIC: 241./ 46591.



DUAL MASS SPECTRUM
09/09/88 15:20:00 + 13:48
SAMPLE: CLP,V11822,,11822006,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001440 #828 BASE M/Z: 83/ 40
CALI: C1V0001440 #6 RIC: 2495./ 13007.

000023



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1143_B15S2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822007

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001441

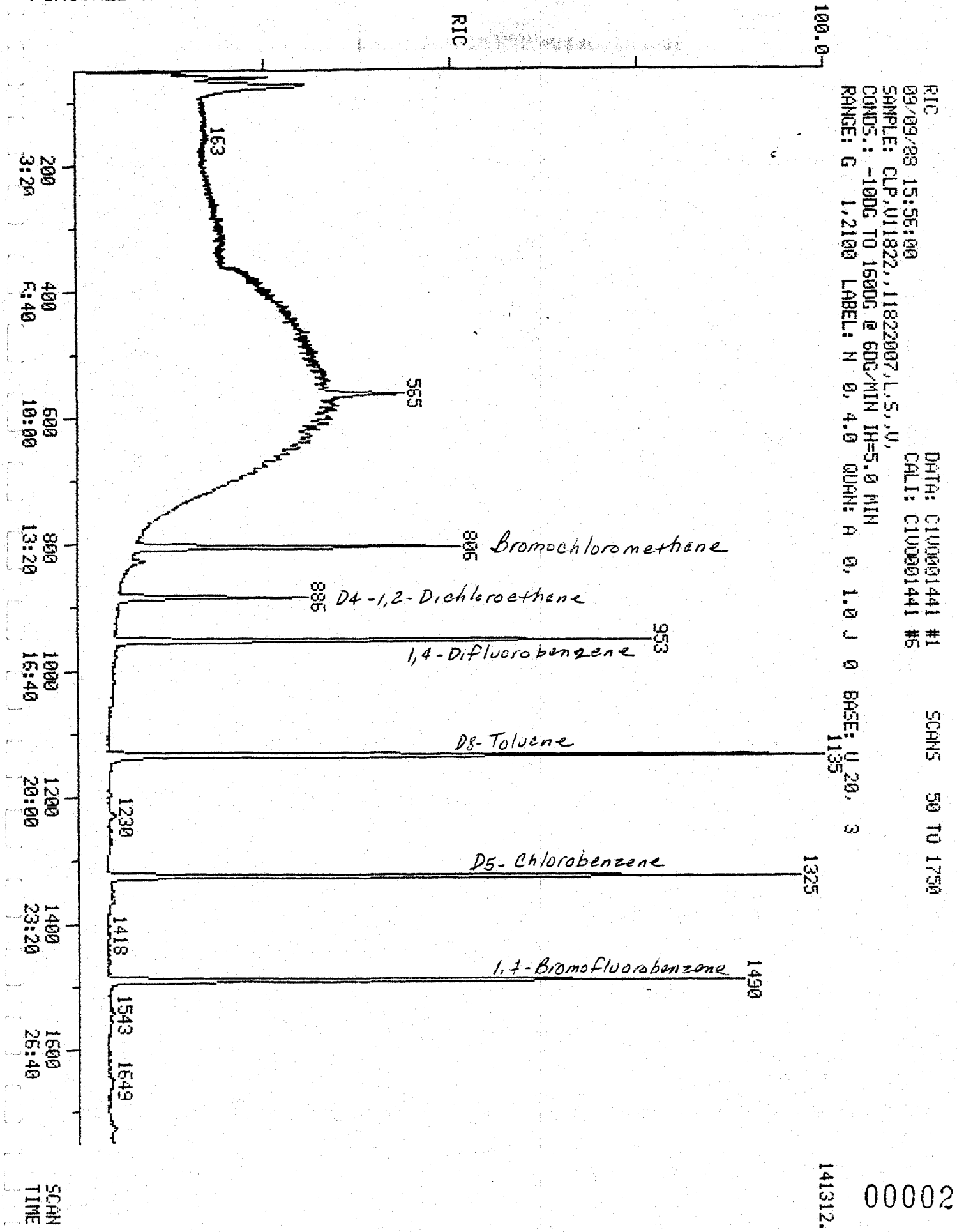
Level: (low/med) LOW Date Received: 08/31/88

% Moisture: not dec. 14 Date Analyzed: 09/09/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	17	B
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 10 FOUND
FINISHED AT: 9/09/88 17:03:48



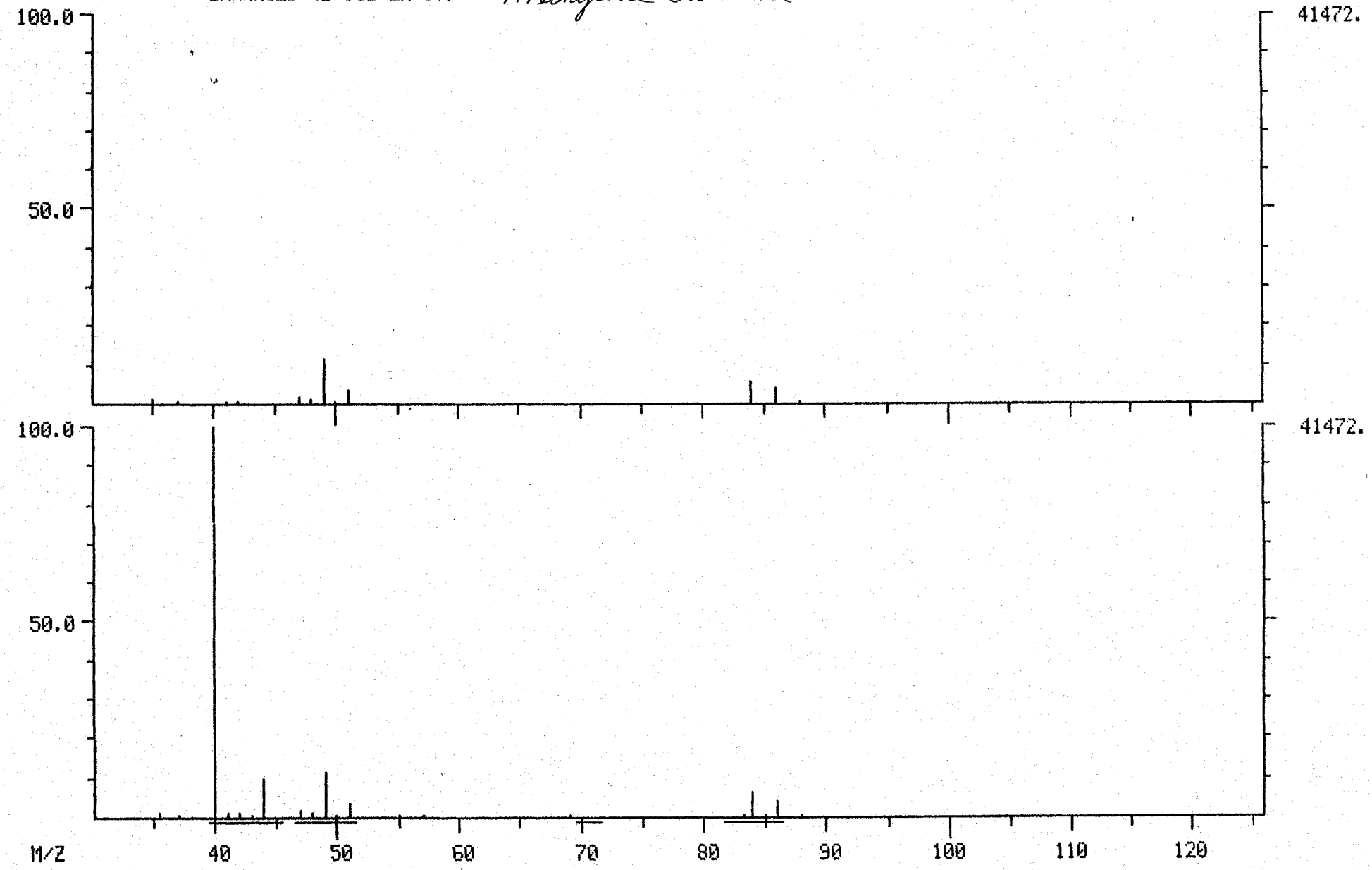
141312.

000025

DUAL MASS SPECTRUM
09/09/88 15:56:00 + 9:25
SAMPLE: CLP,V11822,,11822007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

DATA: C1V0001441 #565 BASE M/Z: 49/ 40
CALI: C1V0001441 #6 RIC: 13167./ 61567.

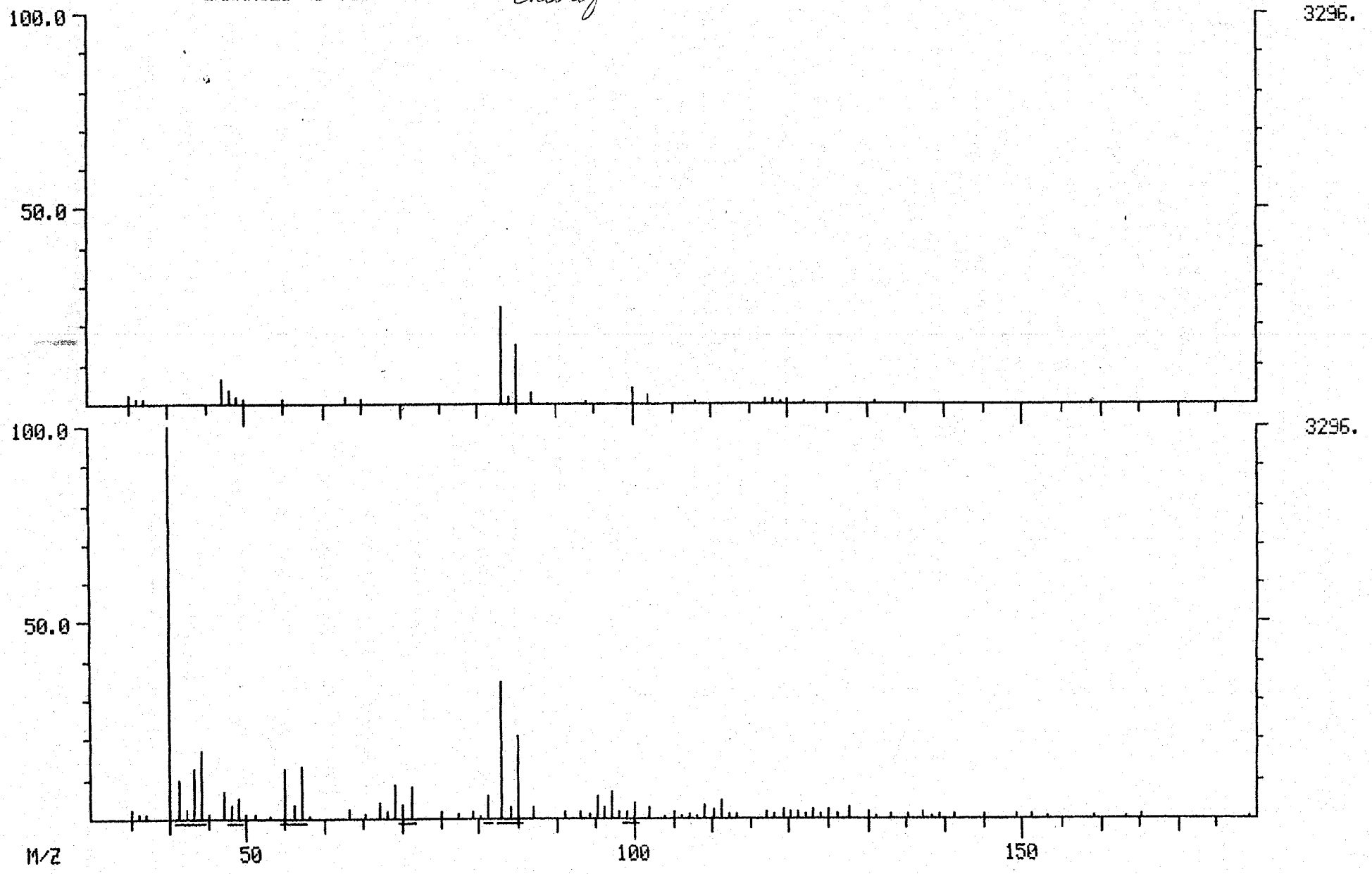
000026



DUAL MASS SPECTRUM
09/09/88 15:56:00 + 13:50
SAMPLE: CLP,V11822,,11822007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001441 #830 BASE M/Z: 83/ 40
CALI: C1V0001441 #6 RIC: 2651./ 12591.

000027



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1143_B15S3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822008

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001442

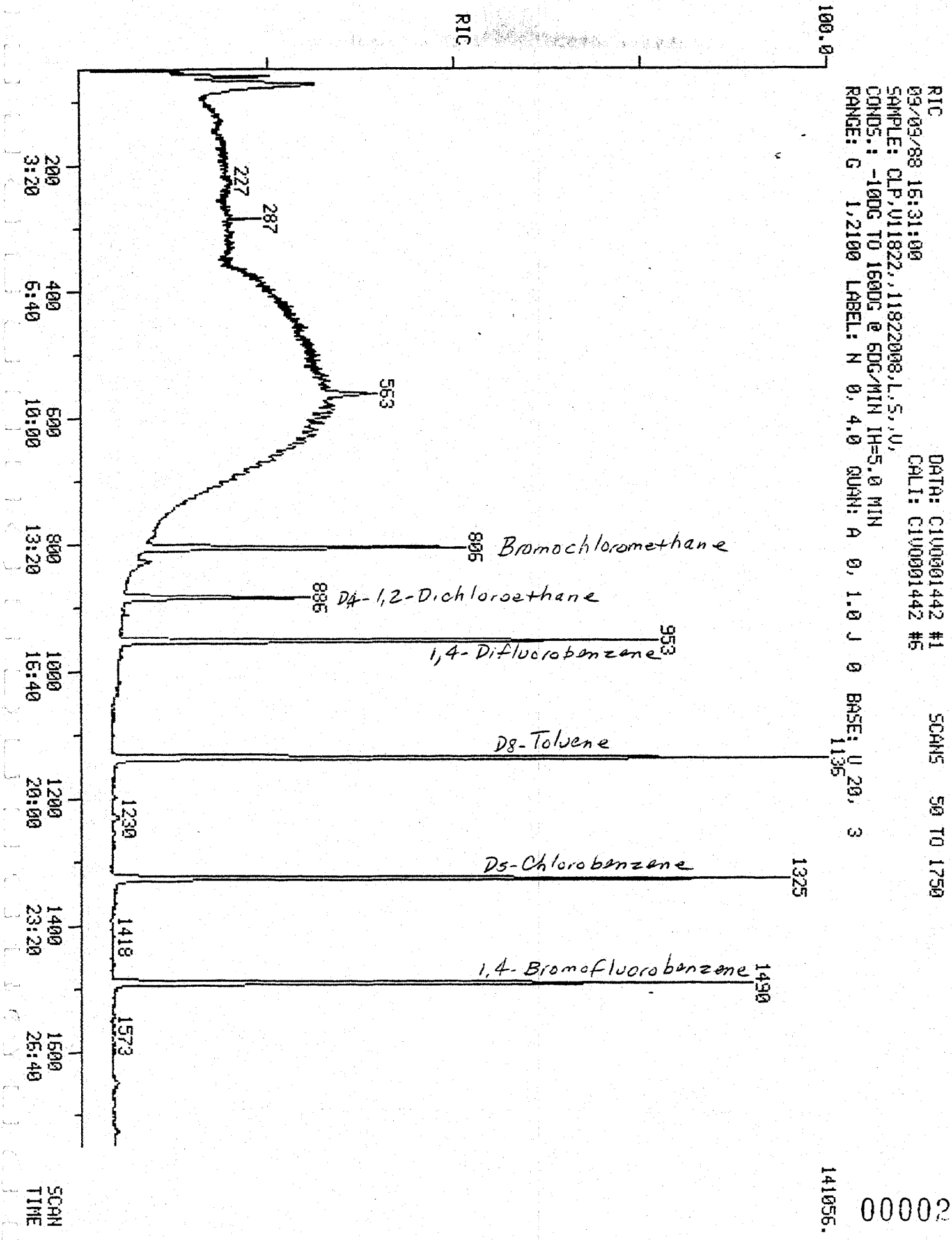
Level: (low/med) LOW Date Received: 08/31/88

% Moisture: not dec. 18 Date Analyzed: 09/09/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	BJ
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 9 FOUND
FINISHED AT: 9/09/88 21:25:08



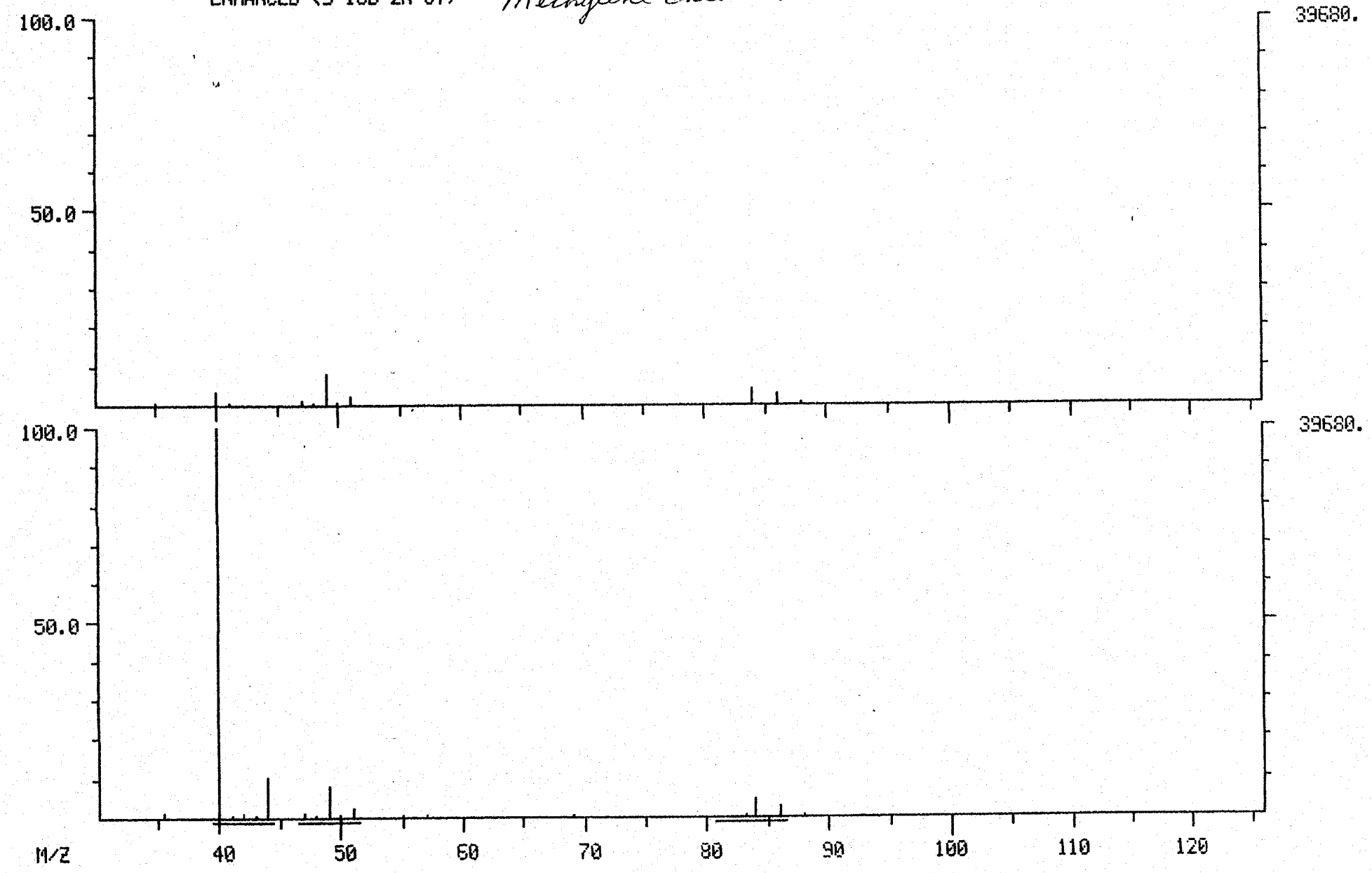
141056.

000029

DUAL MASS SPECTRUM
09/09/88 16:31:00 + 9:24
SAMPLE: CLP,V11822,,11822008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

DATA: C1V0001442 #564 BASE M/Z: 49/ 40
CALI: C1V0001442 #6 RIC: 9855./ 55231.

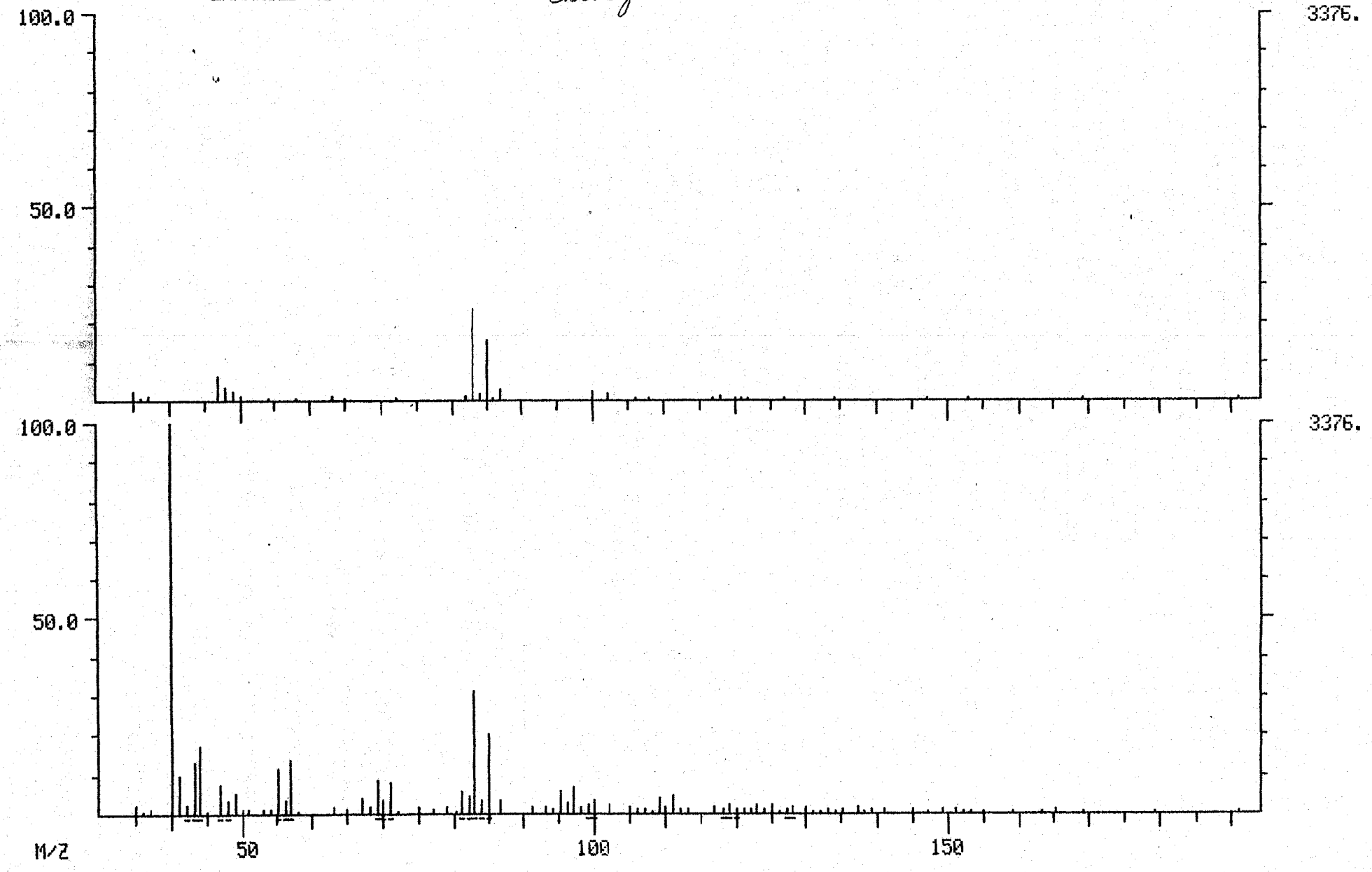
000000



DUAL MASS SPECTRUM
09/09/88 16:31:00 + 13:49
SAMPLE: CLP,V11822,,11822008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001442 #829 BASE M/Z: 83/ 40
CALI: C1V0001442 #6 RIC: 2607./ 13103.

000031



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1143_B15S3_D

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822009

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001443

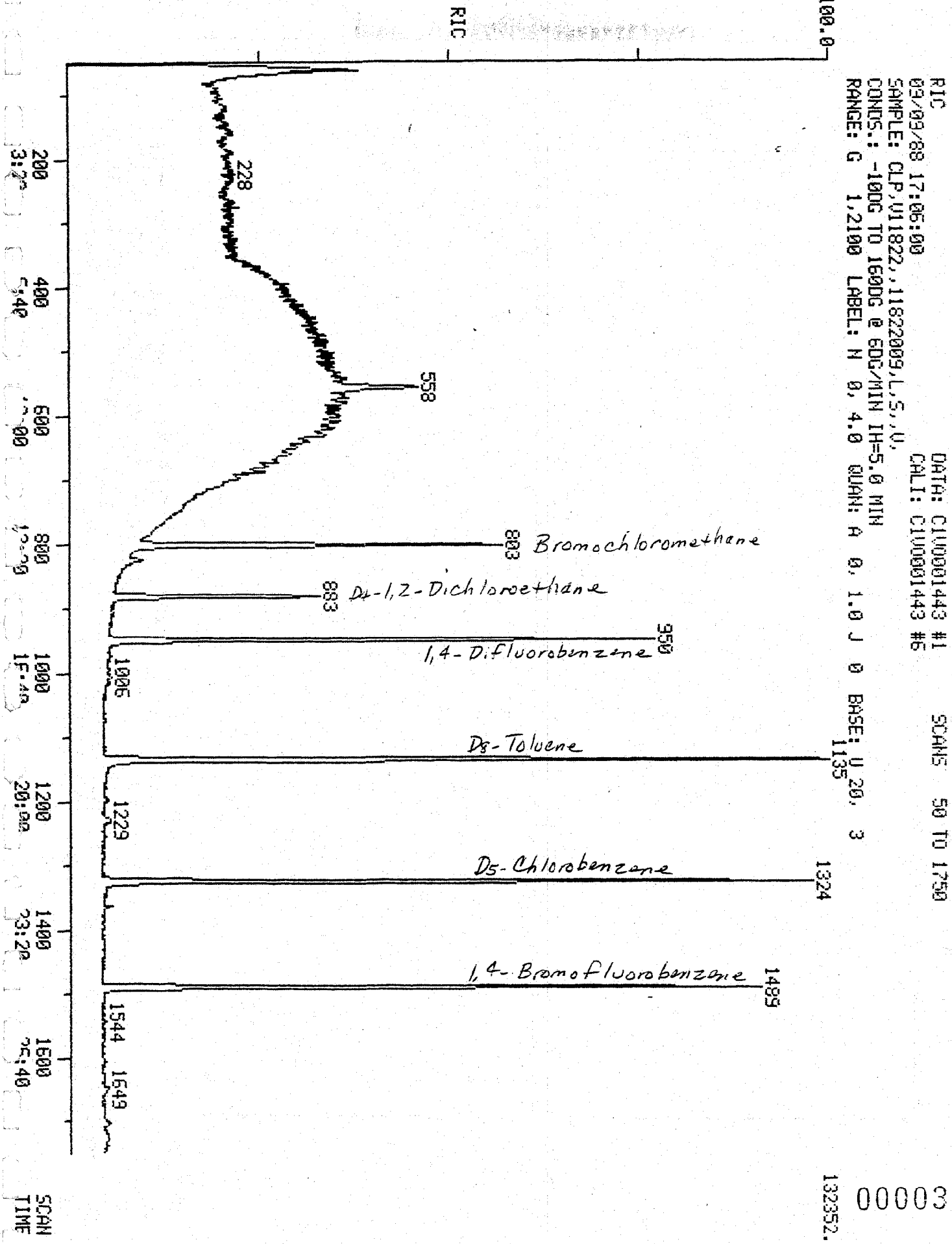
Level: (low/med) LOW Date Received: 08/31/88

% Moisture: not dec. 18 Date Analyzed: 09/09/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	21	B
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	1	J
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 9 FOUND
FINISHED AT: 9/09/88 21:31:34



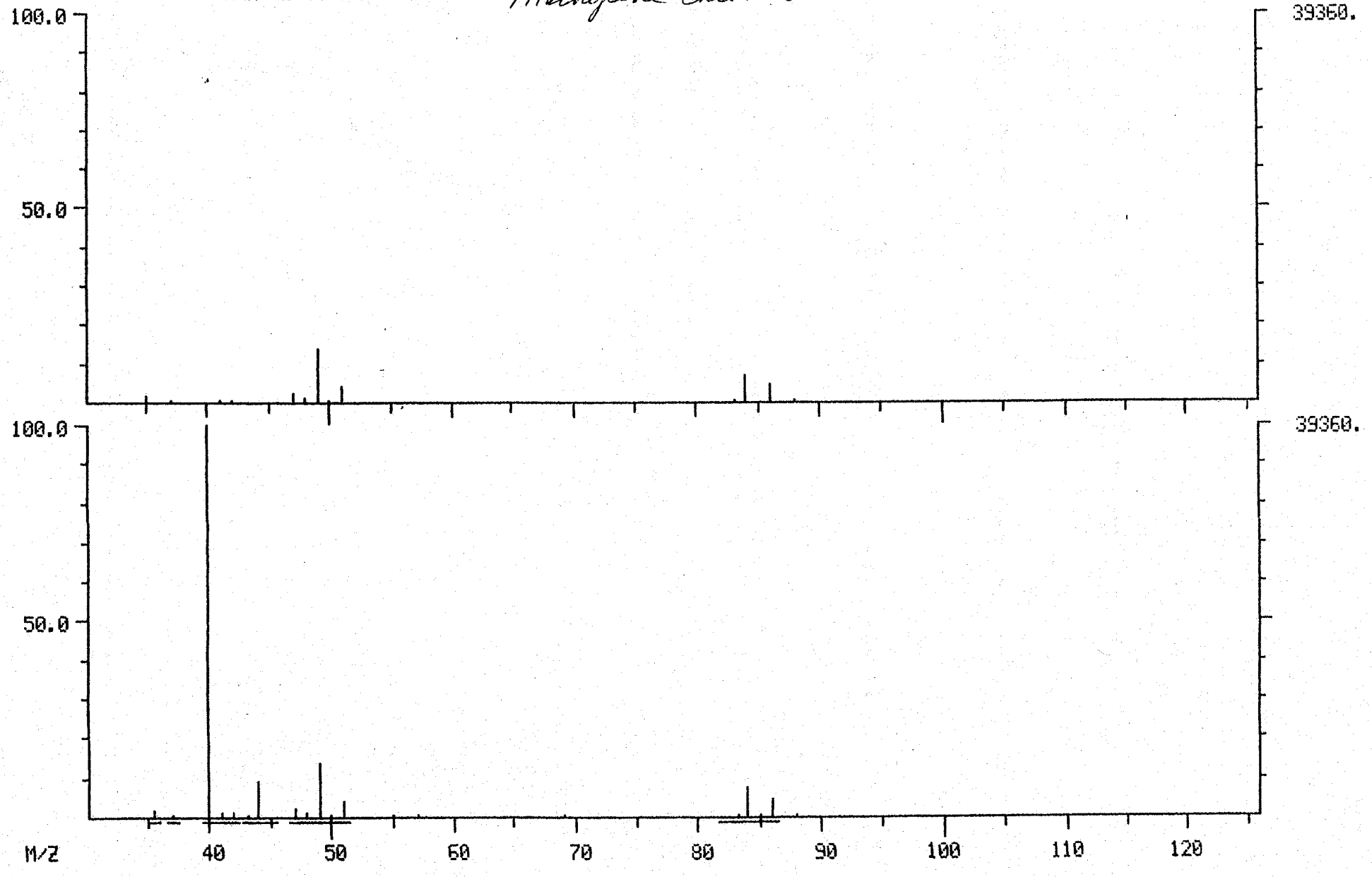
000033

DUAL MASS SPECTRUM
09/09/88 17:06:00 + 9:18
SAMPLE: CLP,V11822,,11822009,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Methylene chloride

DATA: C1V0001443 #558 BASE M/Z: 49/ 40
CALI: C1V0001443 #6 RIC: 15007./ 60799.

000034

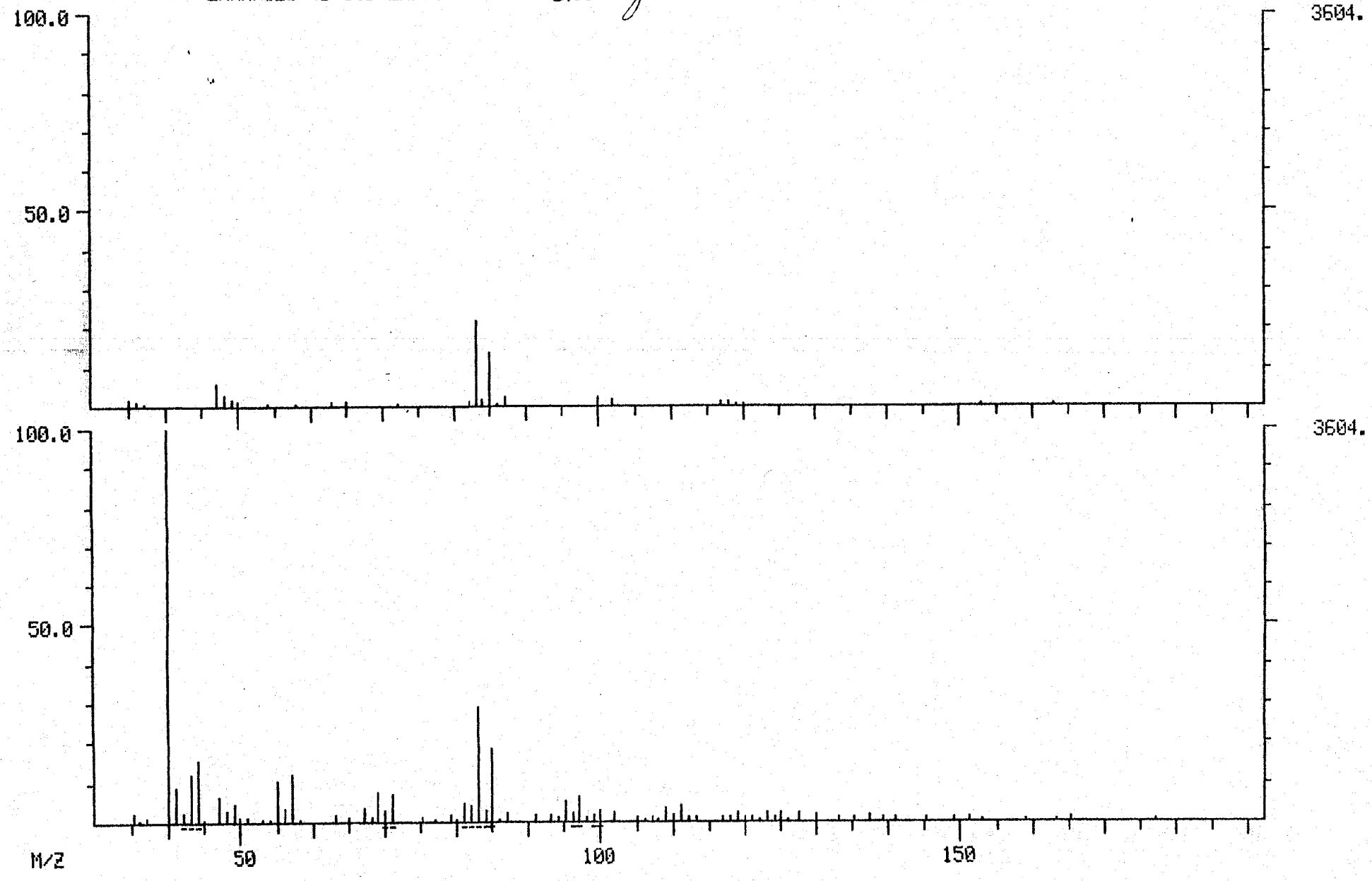


DUAL MASS SPECTRUM
09/09/88 17:06:00 + 13:46
SAMPLE: CLP,V11822,,11822009,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Chloroform

DATA: C1V0001443 #826 BASE M/Z: 83/ 40
CALI: C1V0001443 #6 RIC: 2451./ 12719.

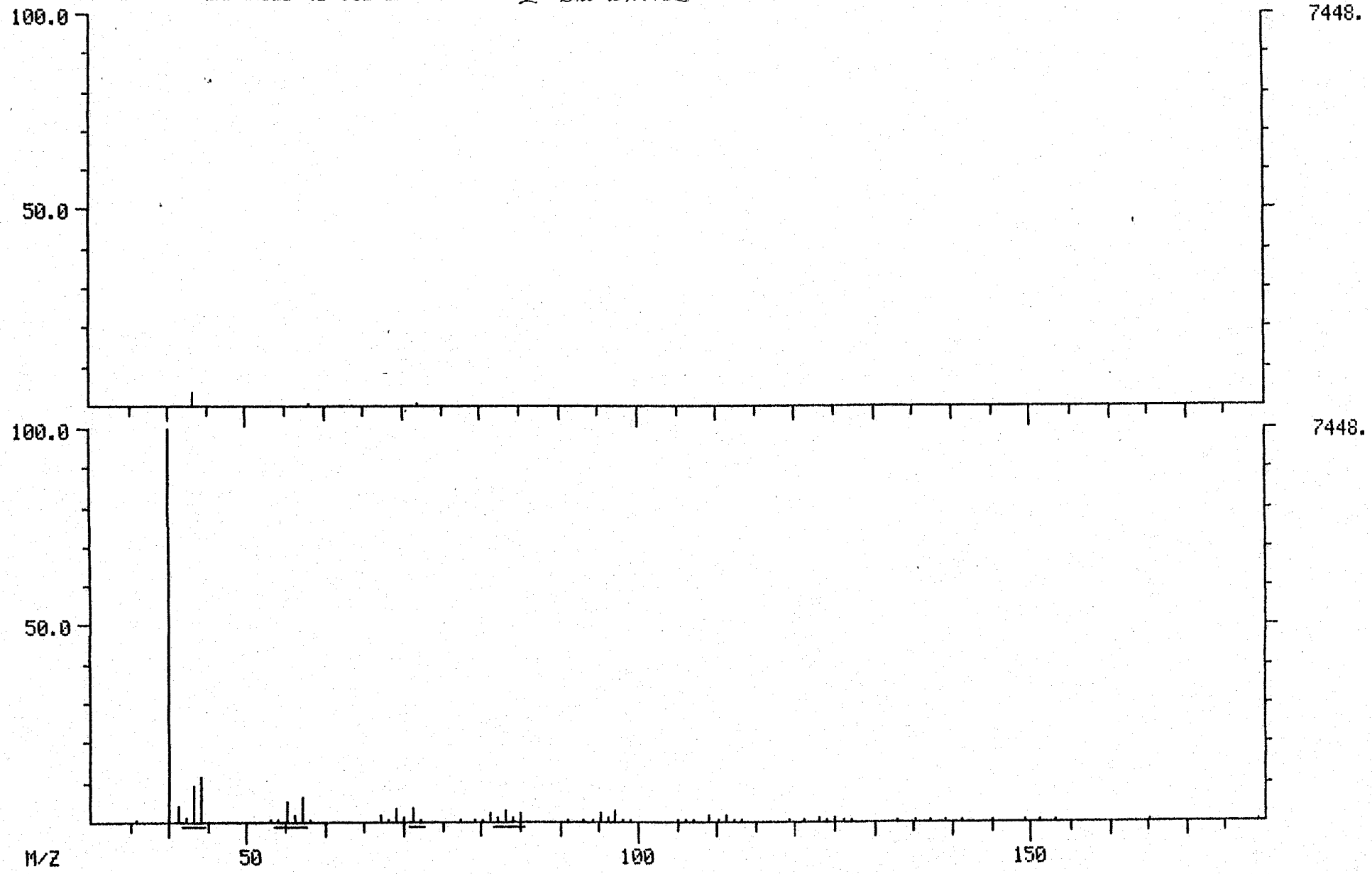
000035



DUAL MASS SPECTRUM
09/09/88 17:06:00 + 13:05
SAMPLE: CLP,V11822,,11822009,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) 2- Butanone

DATA: C1V0001443 #785 BASE M/Z: 43/ 40
CALI: C1V0001443 #6 RIC: 421./ 14191.

000036



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1429_SS4

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822010

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001444

Level: (low/med) LOW Date Received: 08/31/88

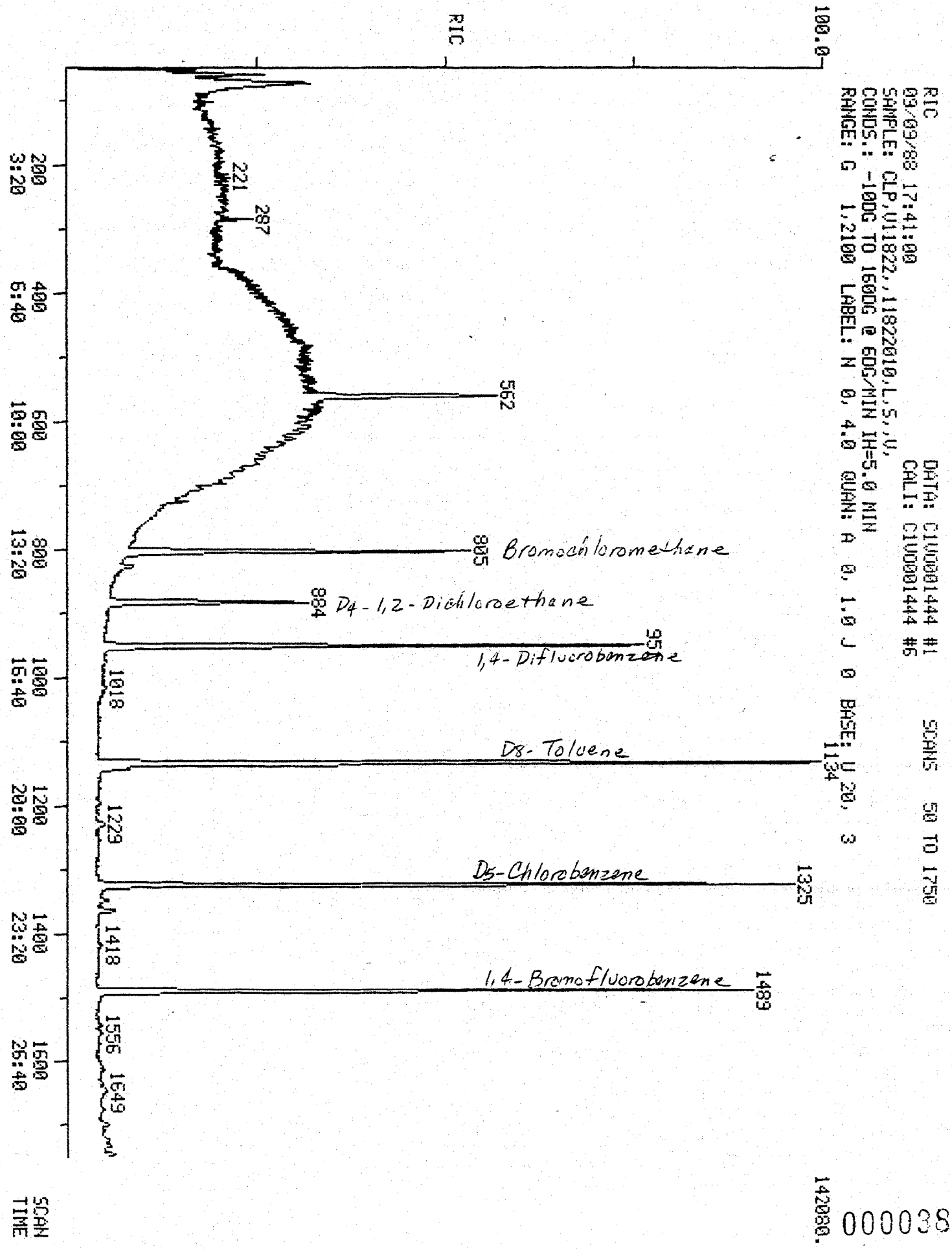
% Moisture: not dec. 11 Date Analyzed: 09/09/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	42	B
67-64-1	Acetone	57	
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	1	J

RS

TCA FINISHED, 11 FOUND
FINISHED AT: 9/09/88 21:37:58

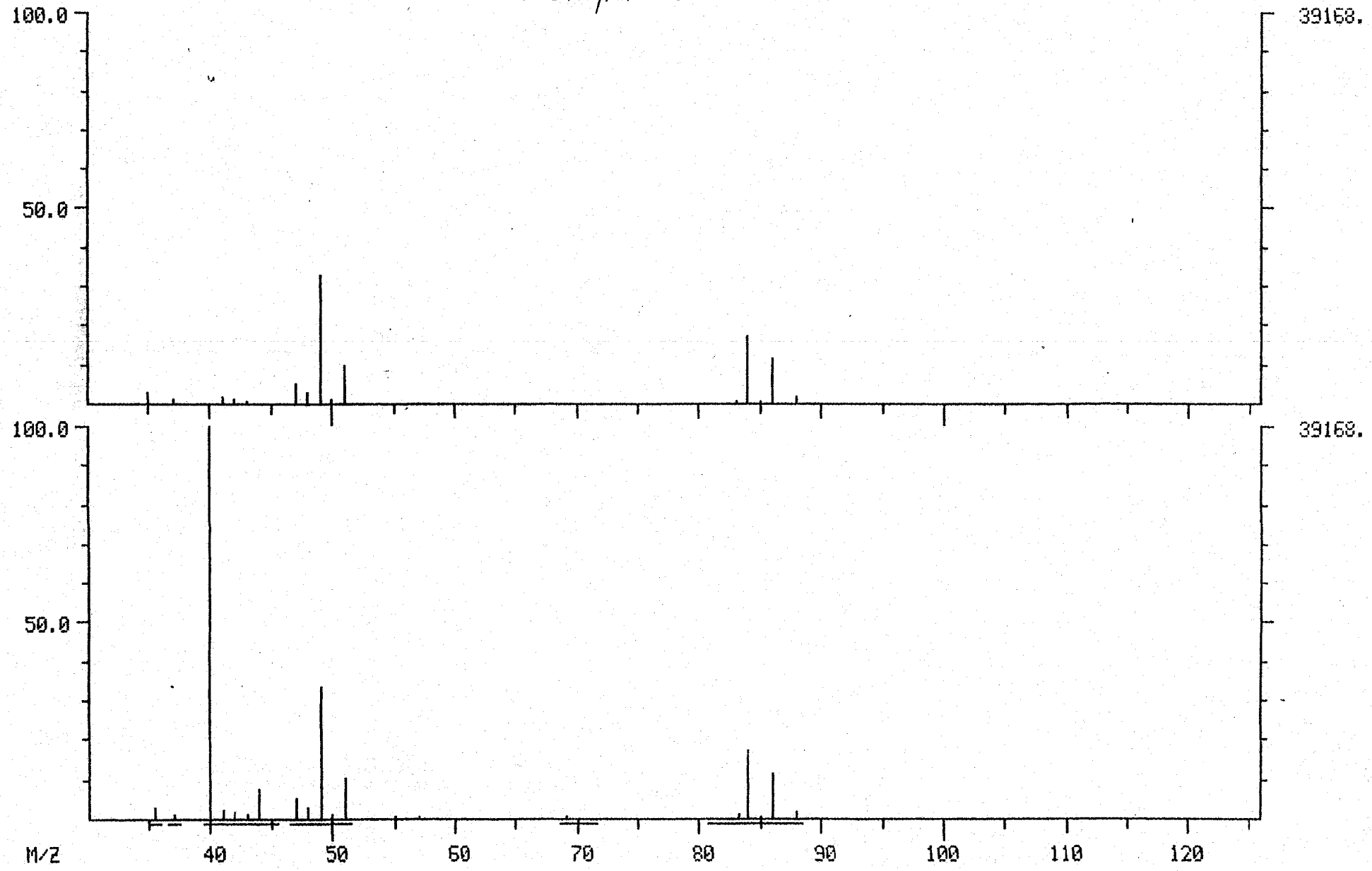


000038

DUAL MASS SPECTRUM
09/09/88 17:41:00 + 9:22
SAMPLE: CLP,V11822,,11822010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) *Methylene Chloride*

DATA: C1V0001444 #562 BASE M/Z: 49/ 40
CALI: C1V0001444 #6 RIC: 35775./ 80639.

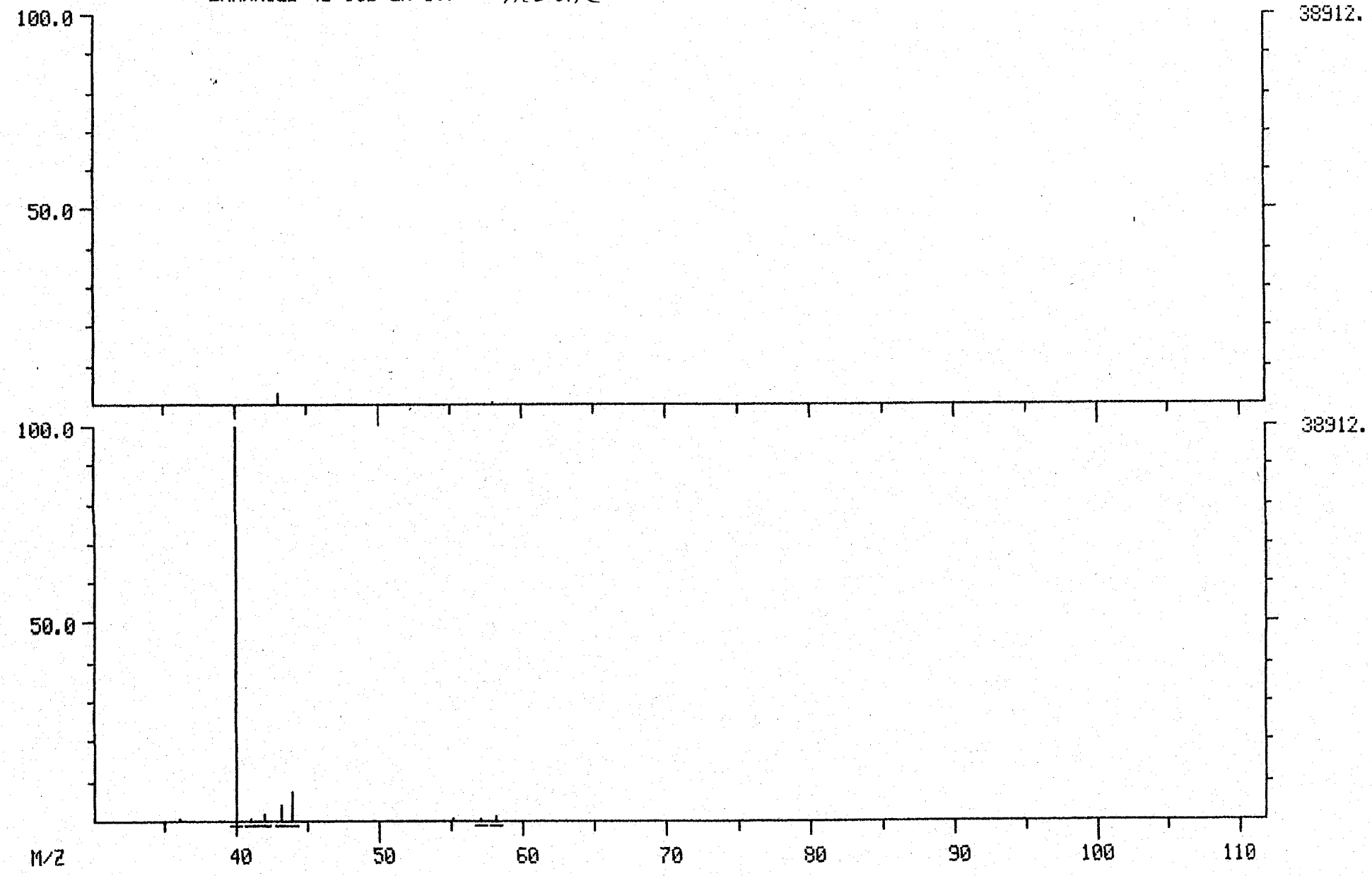
000039



DUAL MASS SPECTRUM
09/09/88 17:41:00 + 8:04
SAMPLE: CLP,V11822,,11822010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

DATA: C1V0001444 #484 BASE M/Z: 43/ 40
CALI: C1V0001444 #6 RIC: 1541./ 45823.

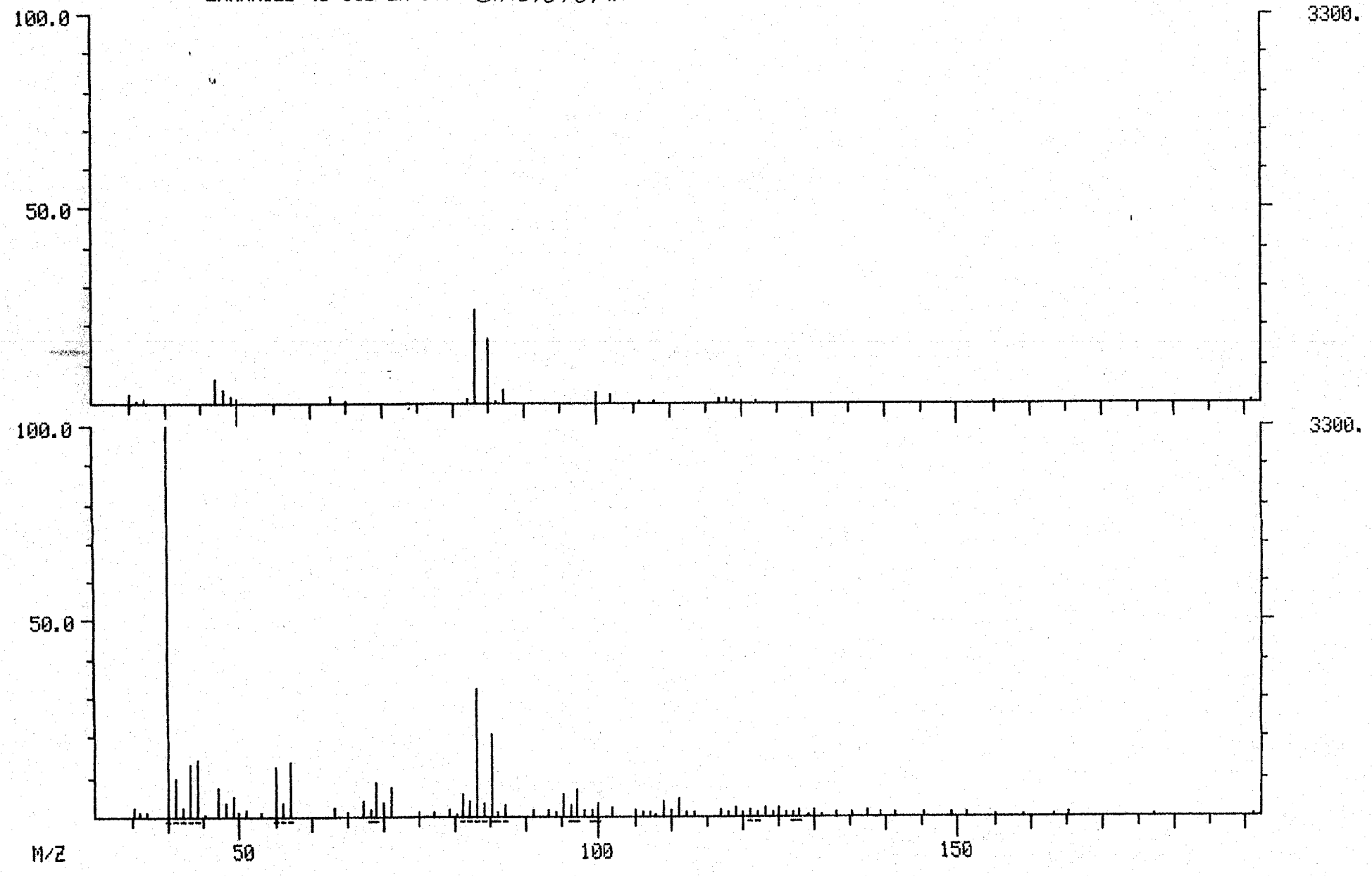
000040



DUAL MASS SPECTRUM
09/09/88 17:41:00 + 13:48
SAMPLE: CLP,V11822,,11822010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001444 #828 BASE M/Z: 83/ 40
CALI: C1V0001444 #6 RIC: 2567./ 12607.

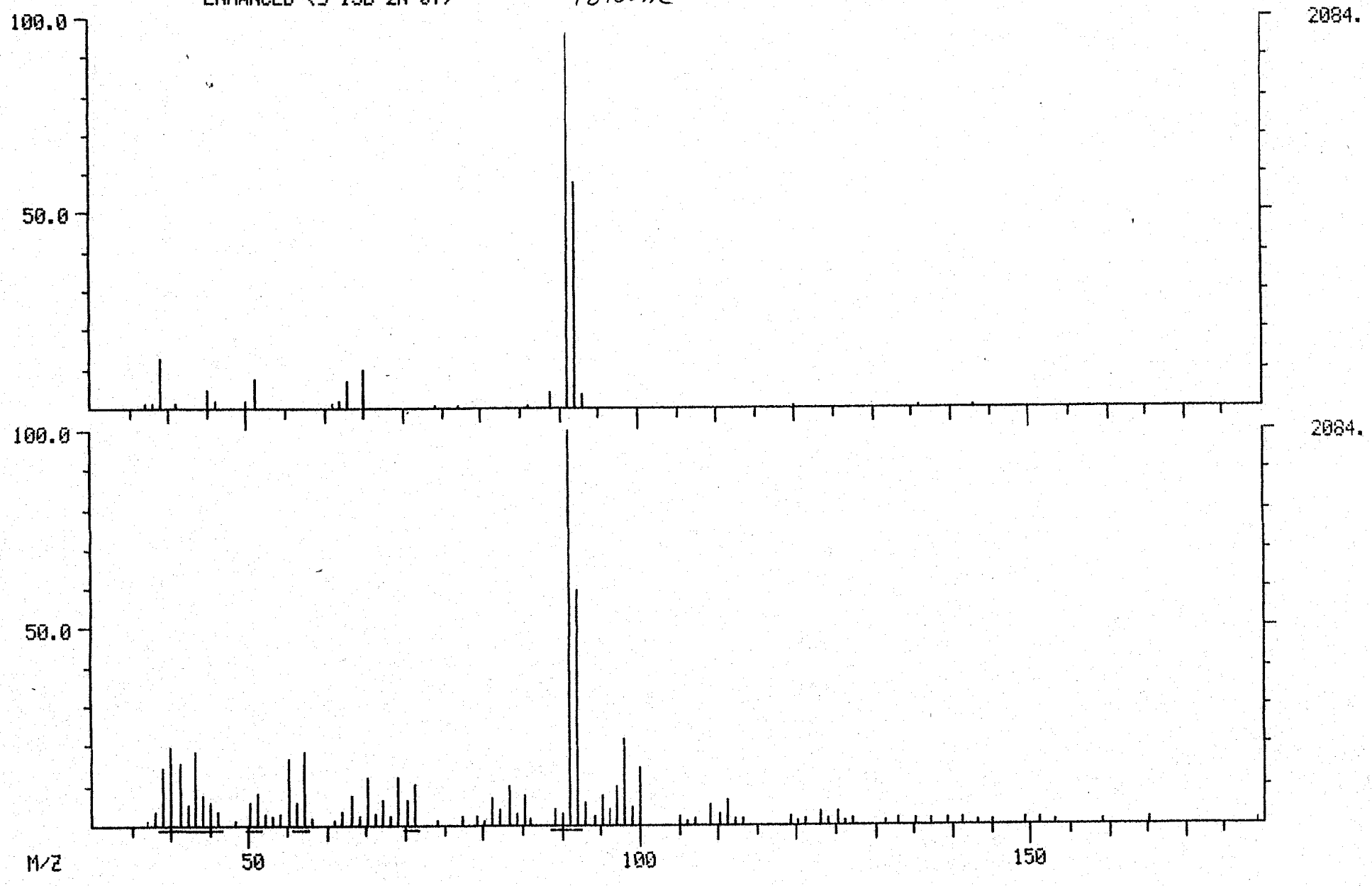
000041



DUAL MASS SPECTRUM
09/09/88 17:41:00 + 19:03
SAMPLE: CLP,V11822,,11822010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Toluene

DATA: C1V0001444 #1143 BASE M/Z: 91/ 91
CALI: C1V0001444 #6 RIC: 4535./ 11823.

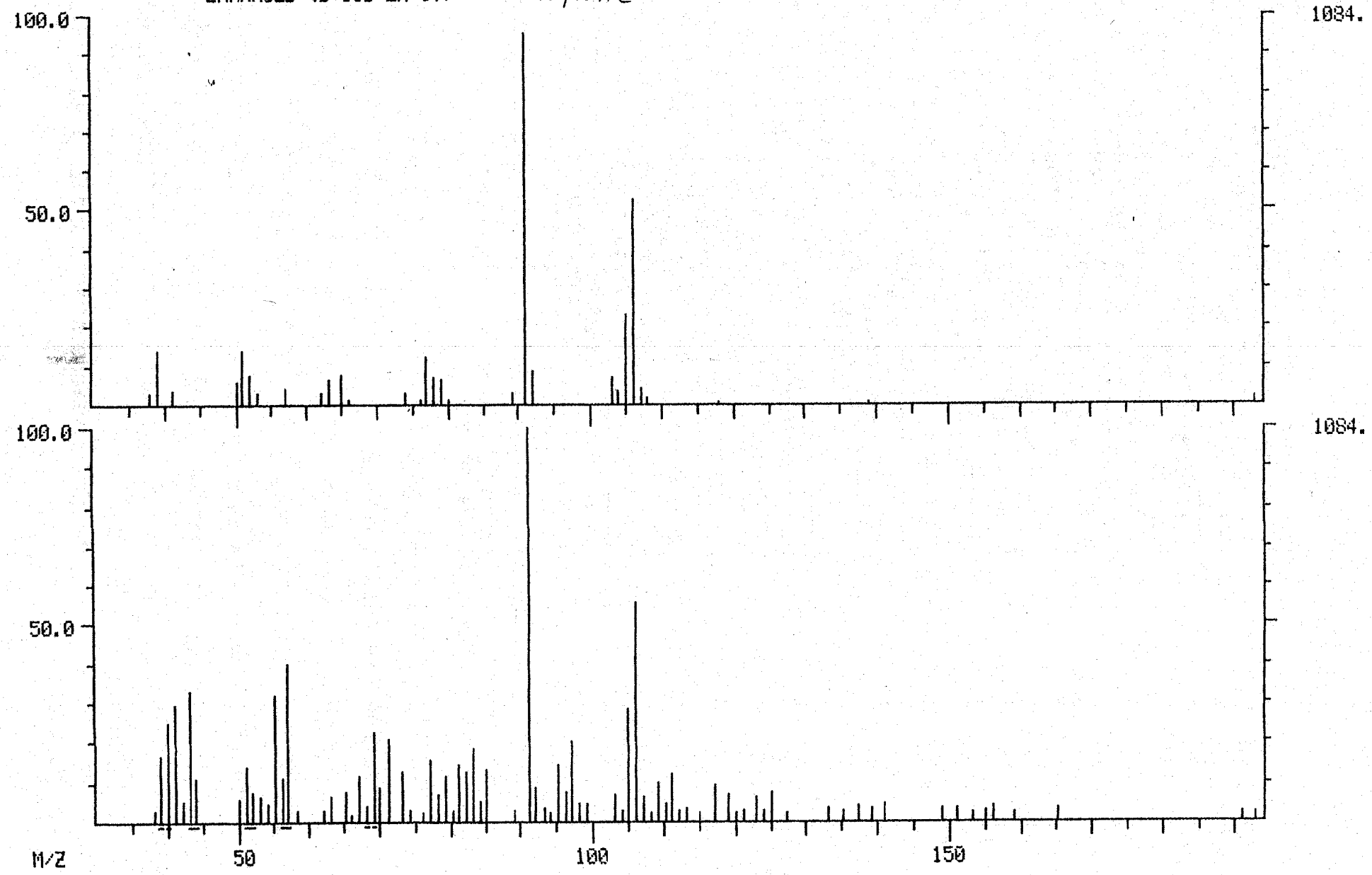
000042



DUAL MASS SPECTRUM
09/09/88 17:41:00 + 22:45
SAMPLE: CLP,V11822,,11822010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) xylene

DATA: C1V0001444 #1365 BASE M/Z: 91/ 91
CALI: C1V0001444 #6 RIC: 3315./ 9151.

000043



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1000_B8S1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822011

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001445

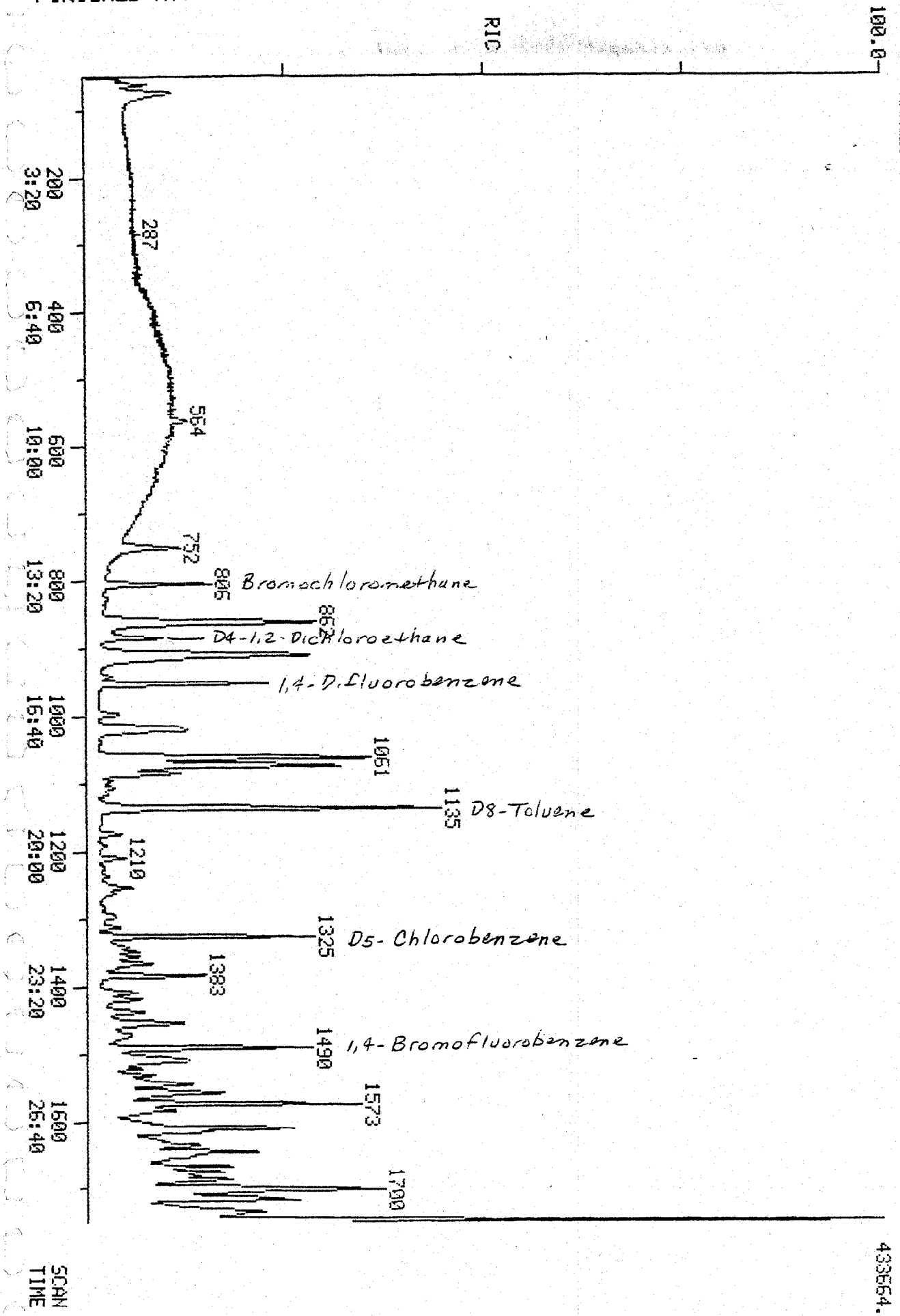
Level: (low/med) LOW Date Received: 08/31/88

% Moisture: not dec. 9 Date Analyzed: 09/09/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	12	B
67-64-1	Acetone	38	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	J
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	7	
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	7	

TCA FINISHED, 11 FOUND
FINISHED AT: 9/09/88 21:44:23



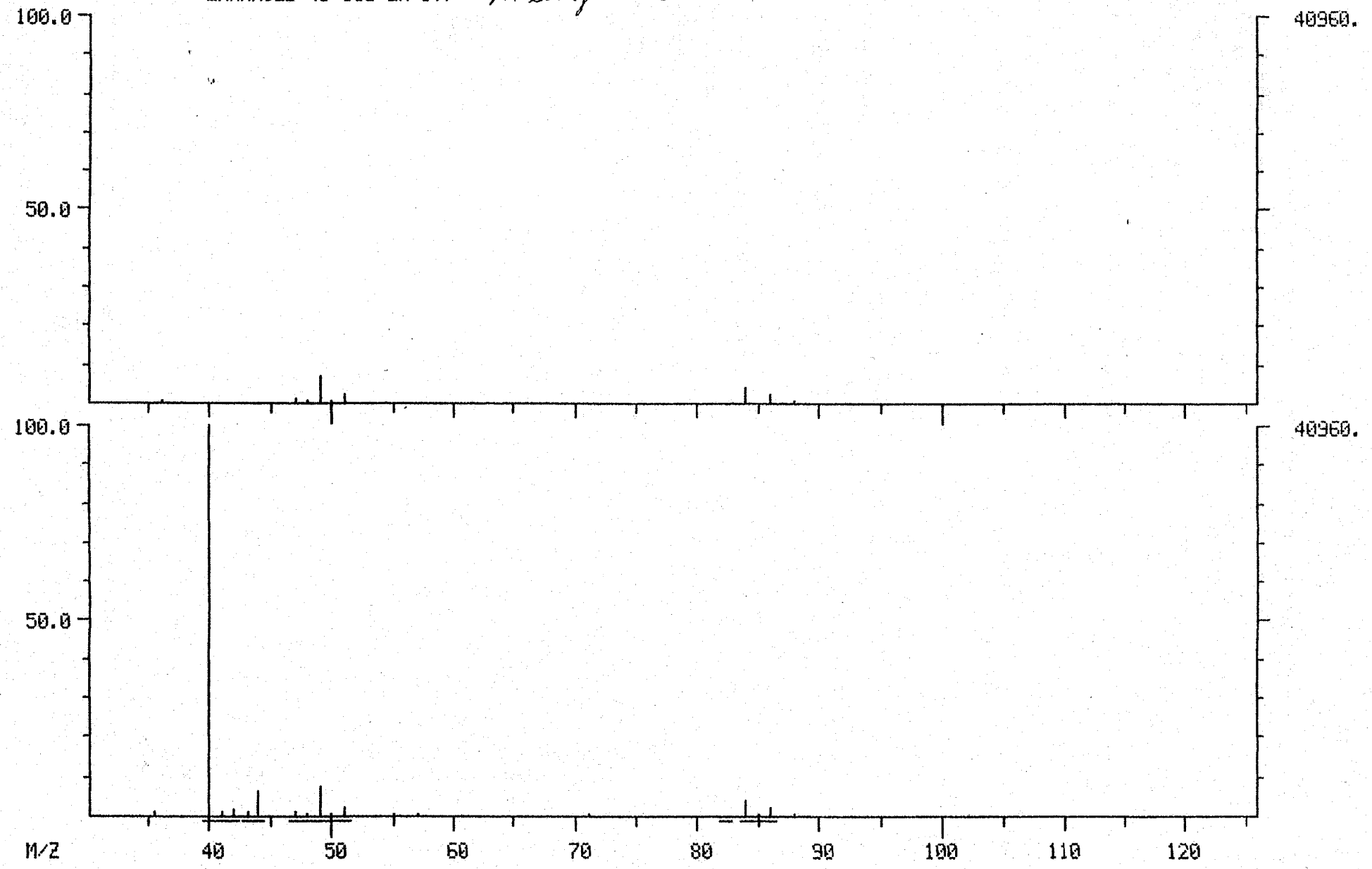
433664.

000045

DUAL MASS SPECTRUM
09/09/88 18:17:00 + 9:24
SAMPLE: CLP,V11822,,11822011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

DATA: C1V0001445 #564 BASE M/Z: 49/ 40
CALI: C1V0001445 #6 RIC: 7333./ 55039.

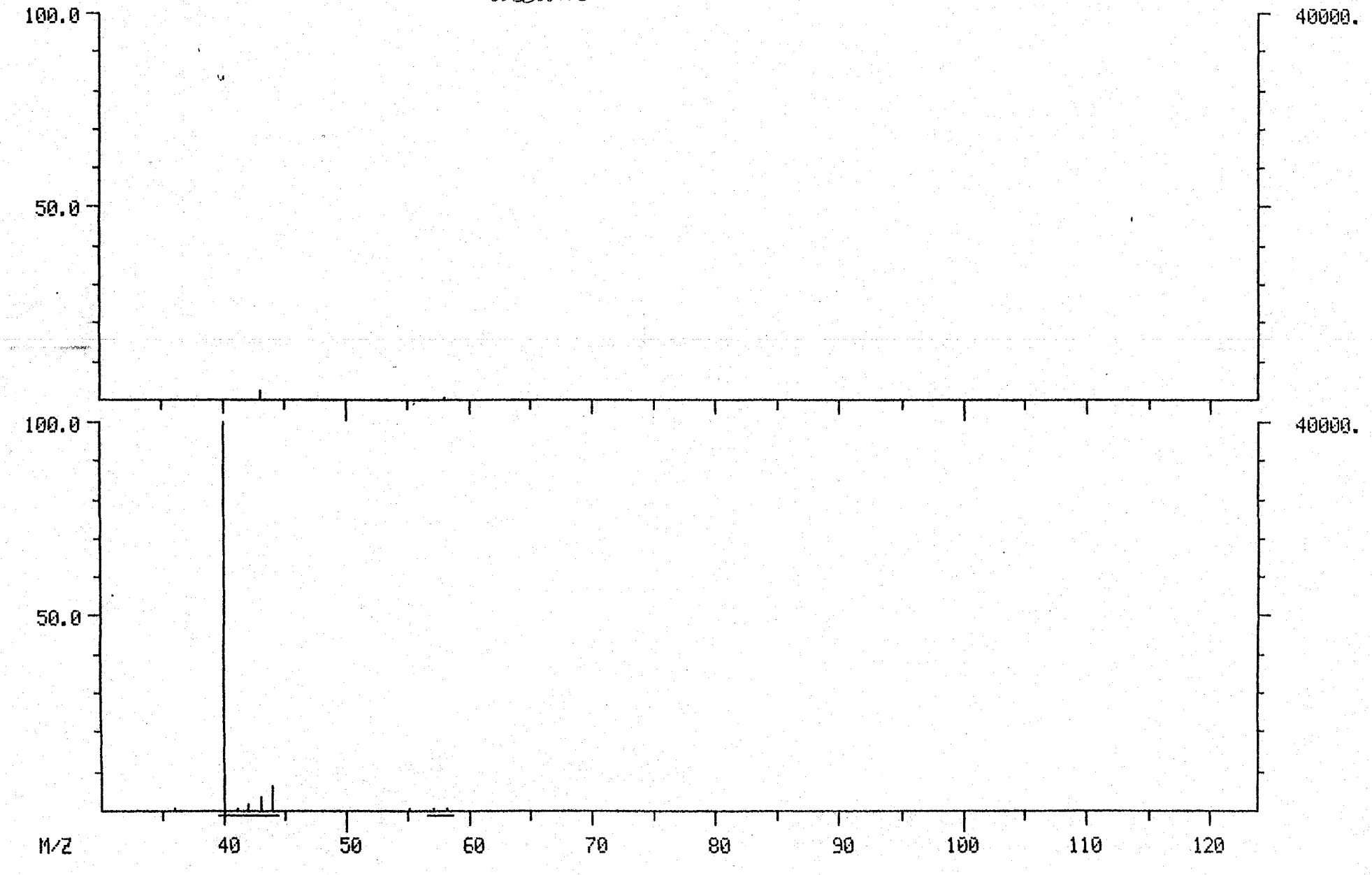
000046



DUAL MASS SPECTRUM
09/09/88 18:17:00 + 8:04
SAMPLE: CLP,V11822,,11822011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

DATA: C1V0001445 #484 BASE M/Z: 43/ 40
CALI: C1V0001445 #6 RIC: 1497./ 46463.

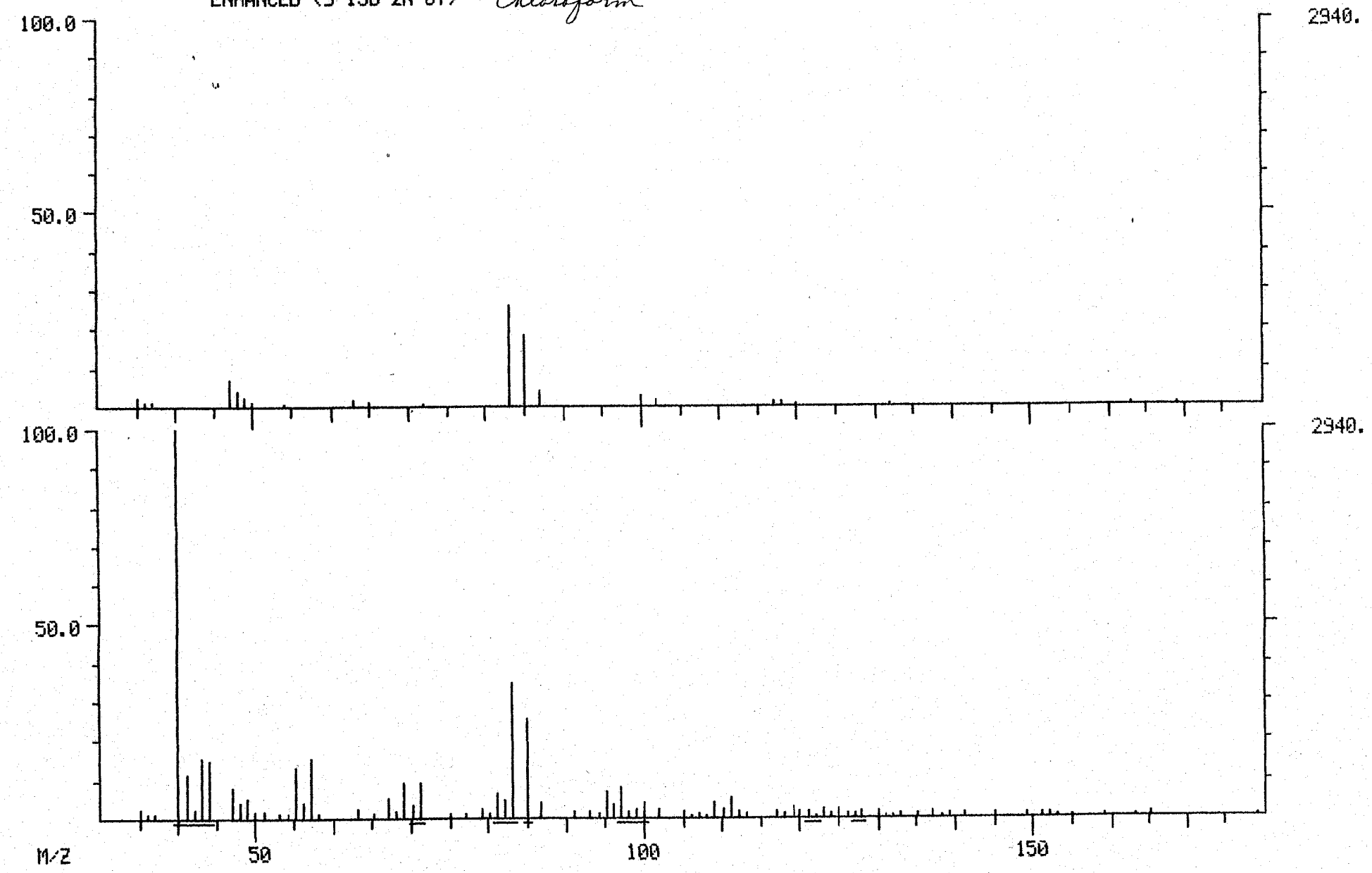
000047



DUAL MASS SPECTRUM
09/09/88 18:17:00 + 13:49
SAMPLE: CLP,V11822,,11822011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001445 #829 BASE M/Z: 83/ 40
CALI: C1V0001445 #6 RIC: 2363./ 12223.

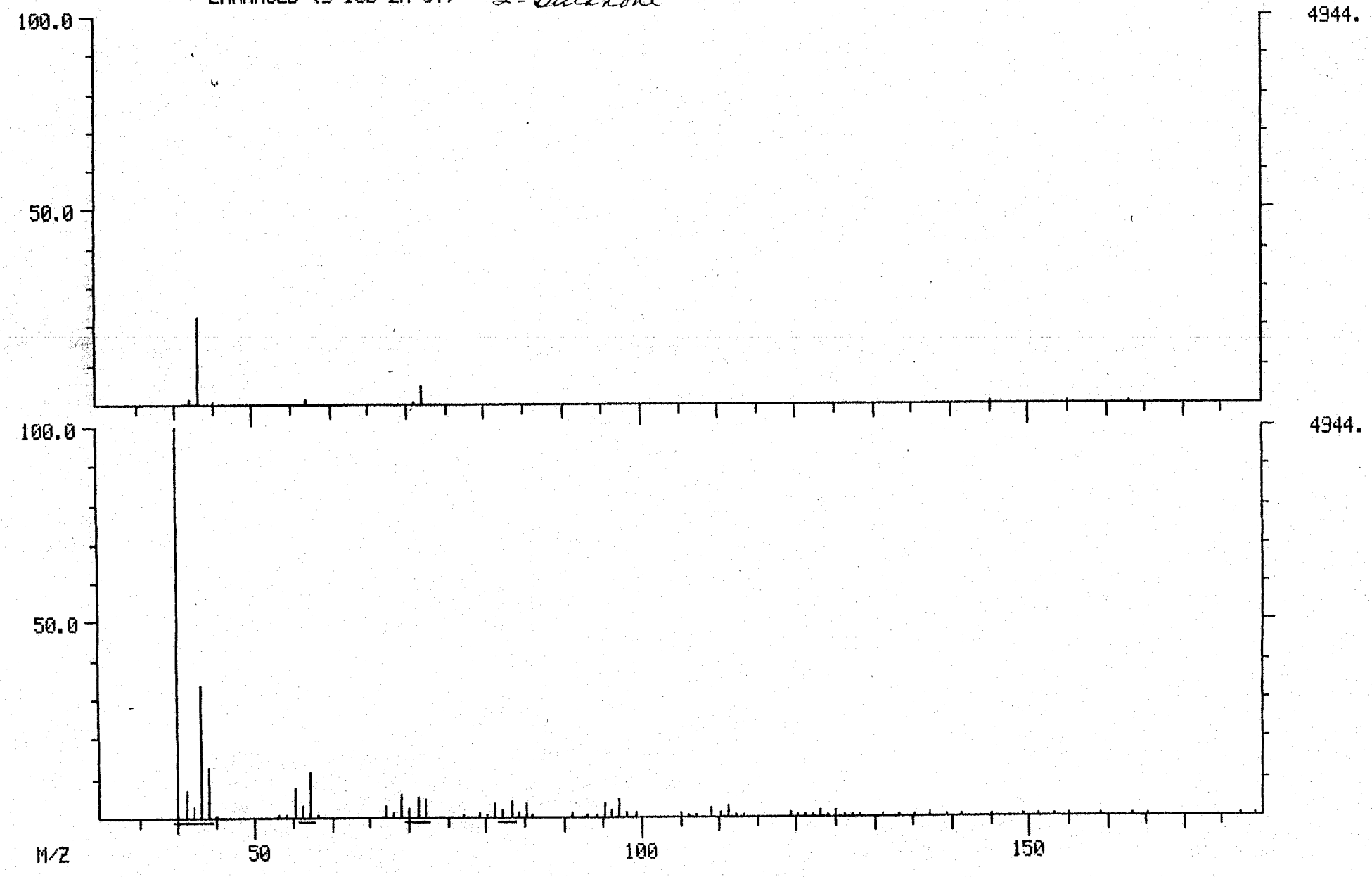
000048



DUAL MASS SPECTRUM
09/09/88 18:17:00 + 13:08
SAMPLE: CLP,V11822,,11822011,L,5,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) 2-Butanone

DATA: C1V0001445 #788 BASE M/Z: 43/ 40
CALI: C1V0001445 #6 RIC: 1573./ 12927.

000049

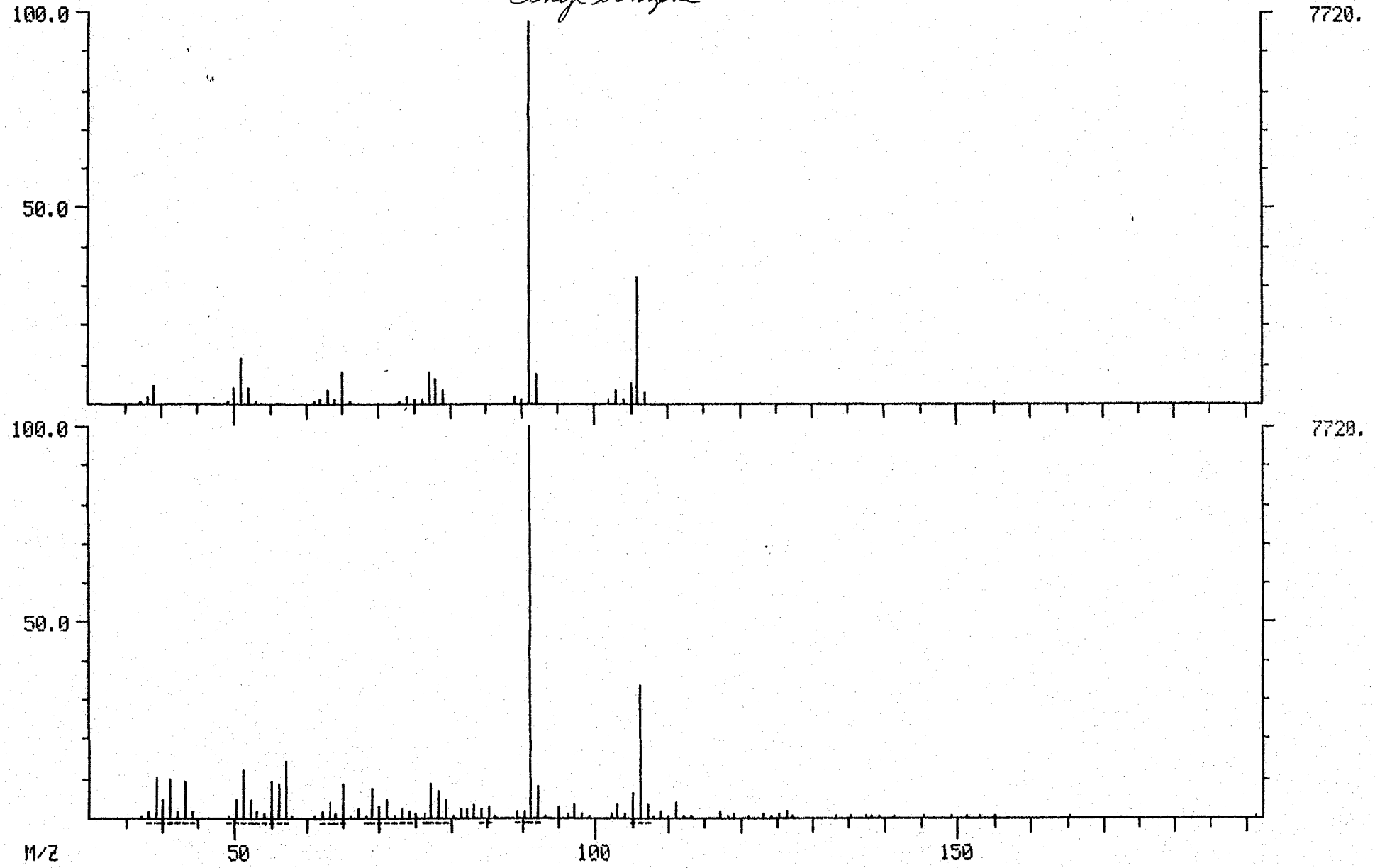


DUAL MASS SPECTRUM
09/09/88 18:17:00 + 22:29
SAMPLE: CLP,V11822,,11822011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Ethyl benzene

DATA: C1V0001445 #1349 BASE M/Z: 91/ 91
CALI: C1V0001445 #6 RIC: 16991./ 28383.

000050

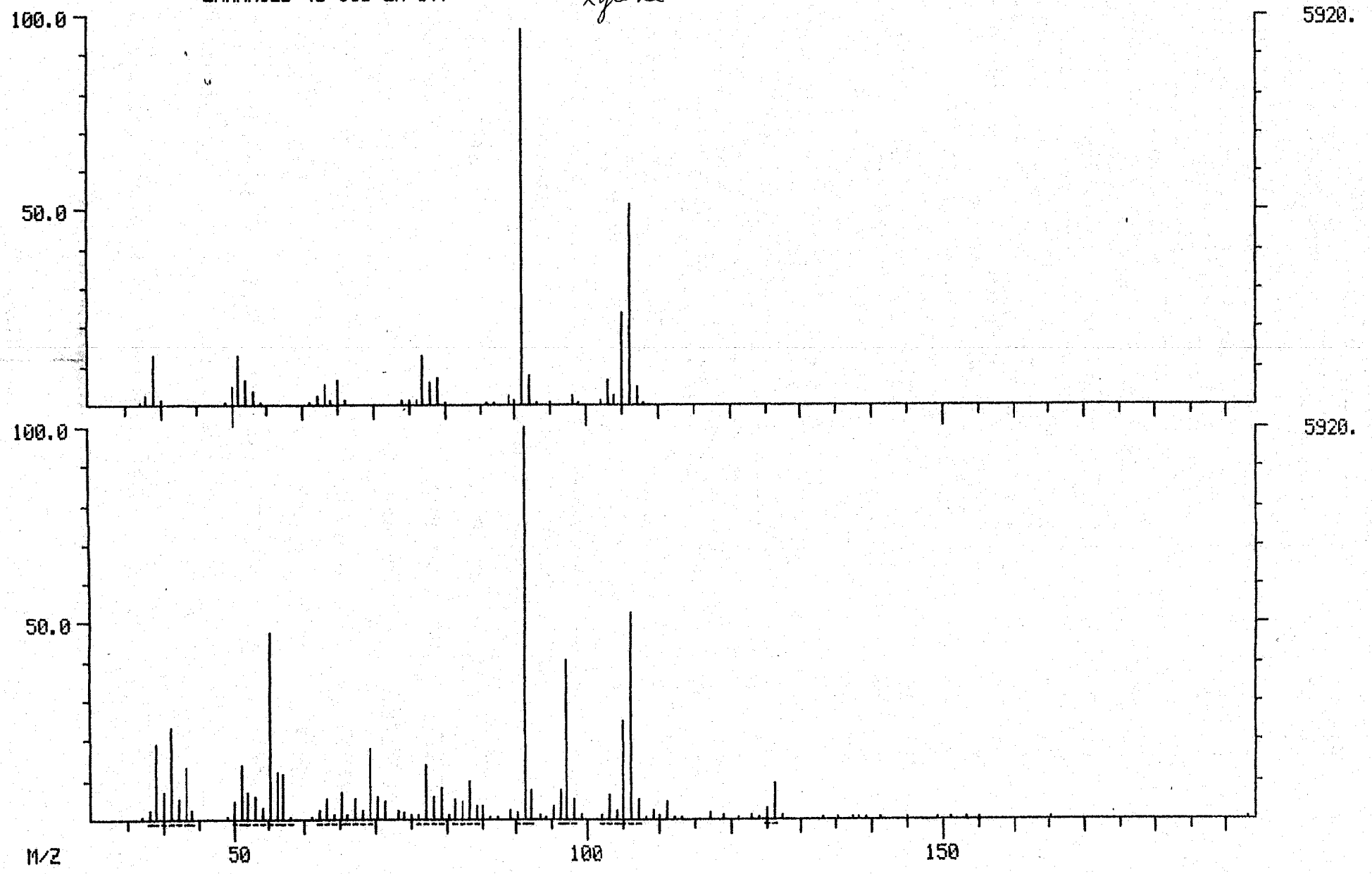


DUAL MASS SPECTRUM
09/09/88 18:17:00 + 22:46
SAMPLE: CLP,V11822,,11822011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Xylene

DATA: C1V0001445 #1366 BASE M/Z: 91/ 91
CALI: C1V0001445 #6 RIC: 17343./ 35391.

000051



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1000_B8S2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822012

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001446

Level: (low/med) LOW Date Received: 08/31/88

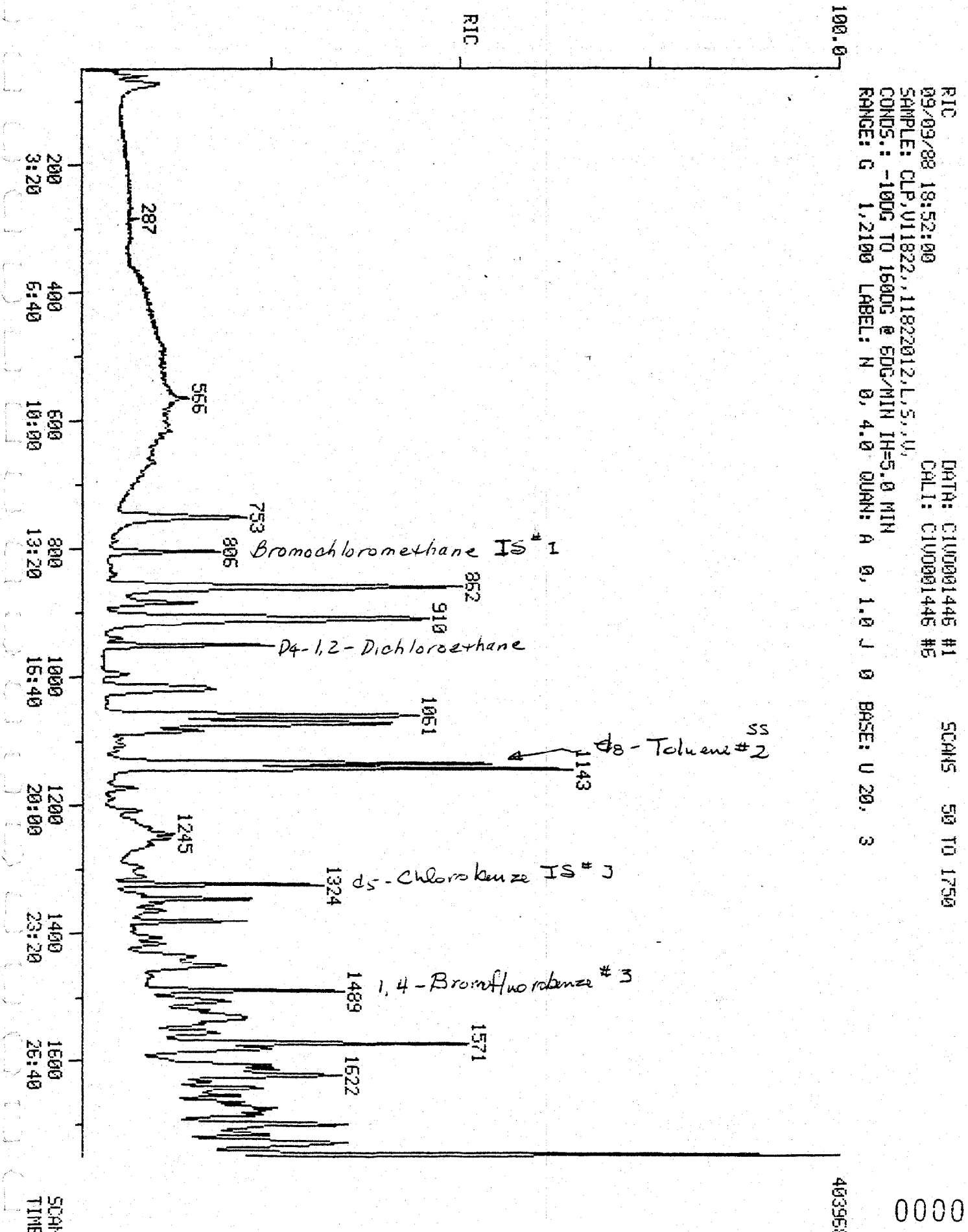
% Moisture: not dec. 20 Date Analyzed: 09/09/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	12	BJ
67-64-1	Acetone	63	
75-15-0	Carbon Disulfide	10	
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	J
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	12	
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	110	
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	32	
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	7	

FORM I VOA

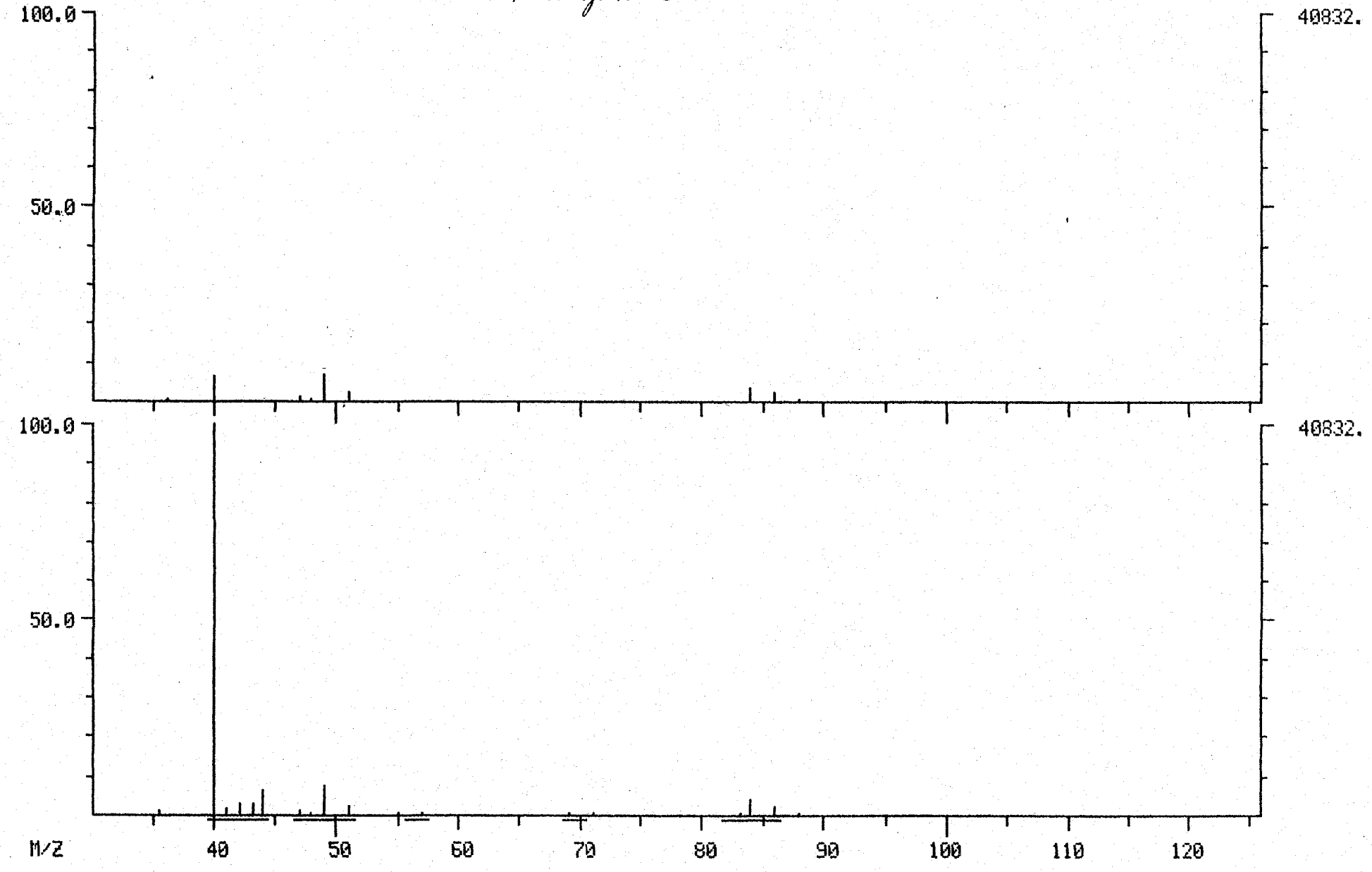
TCA FINISHED, 12 FOUND
FINISHED AT: 9/09/88 21:50:55



DUAL MASS SPECTRUM
09/09/88 18:52:00 + 9:26
SAMPLE: CLP,V11822,,11822012,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

DATA: C1V0001446 #566 BASE M/Z: 49/ 40
CALI: C1V0001446 #6 RIC: 10271./ 56639.

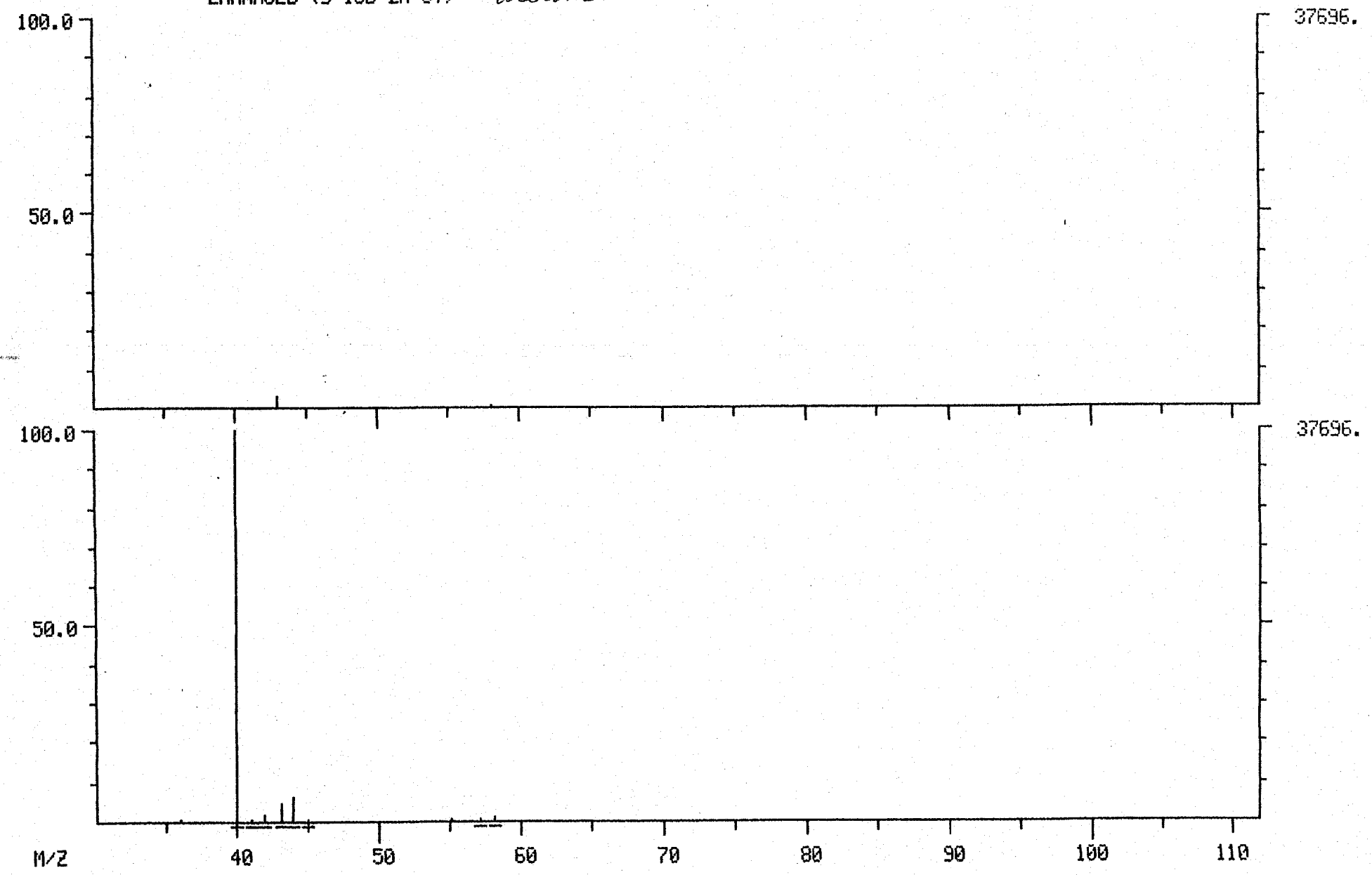
000054



DUAL MASS SPECTRUM
09/09/88 18:52:00 + 8:09
SAMPLE: CLP,V11822,,11822012,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

DATA: C1V0001446 #489 BASE M/Z: 43/ 40
CALI: C1V0001446 #6 RIC: 1567./ 44543.

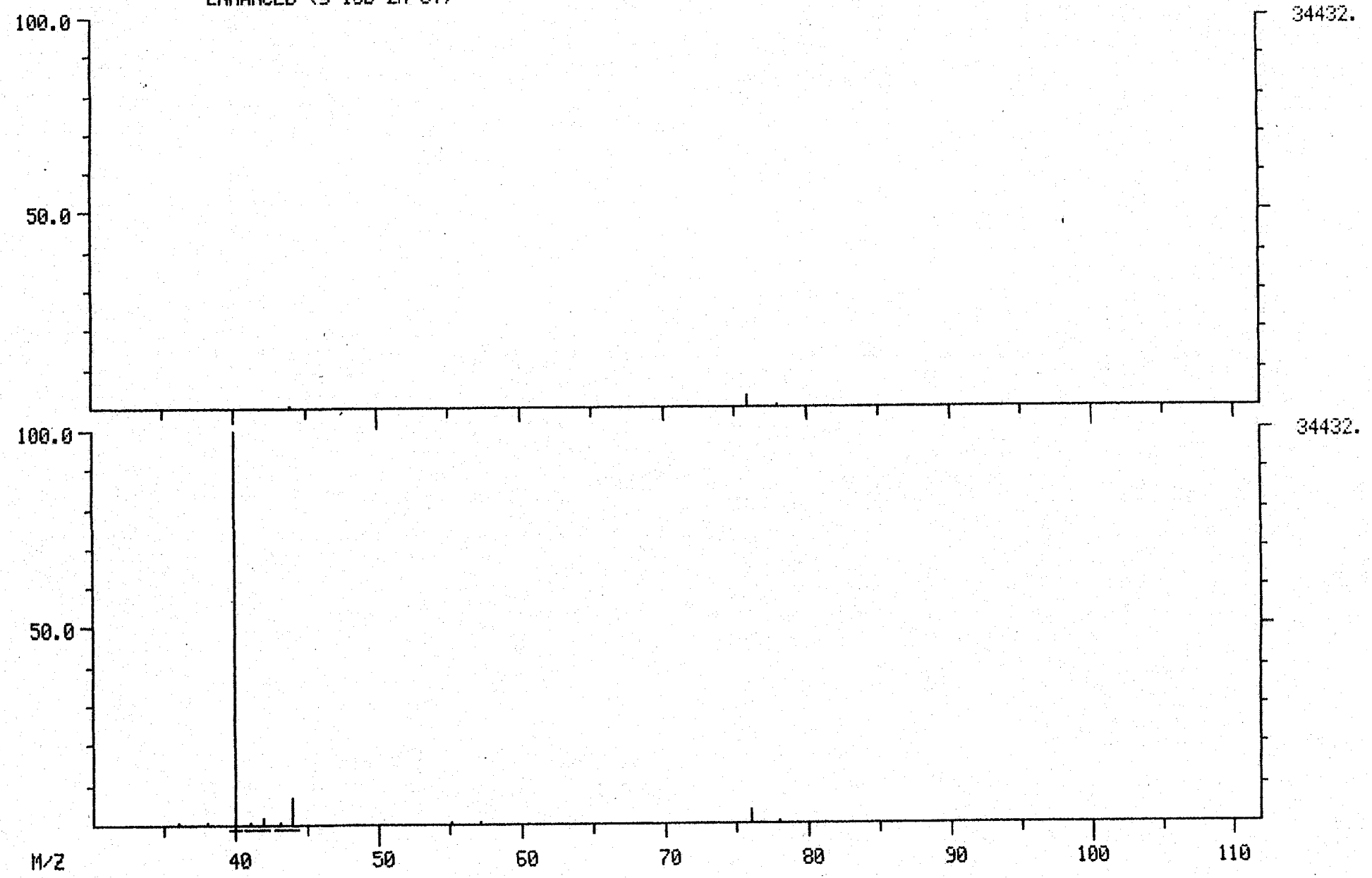
000055



DUAL MASS SPECTRUM
09/09/88 18:52:00 + 7:40
SAMPLE: CLP,V11822,,11822012,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

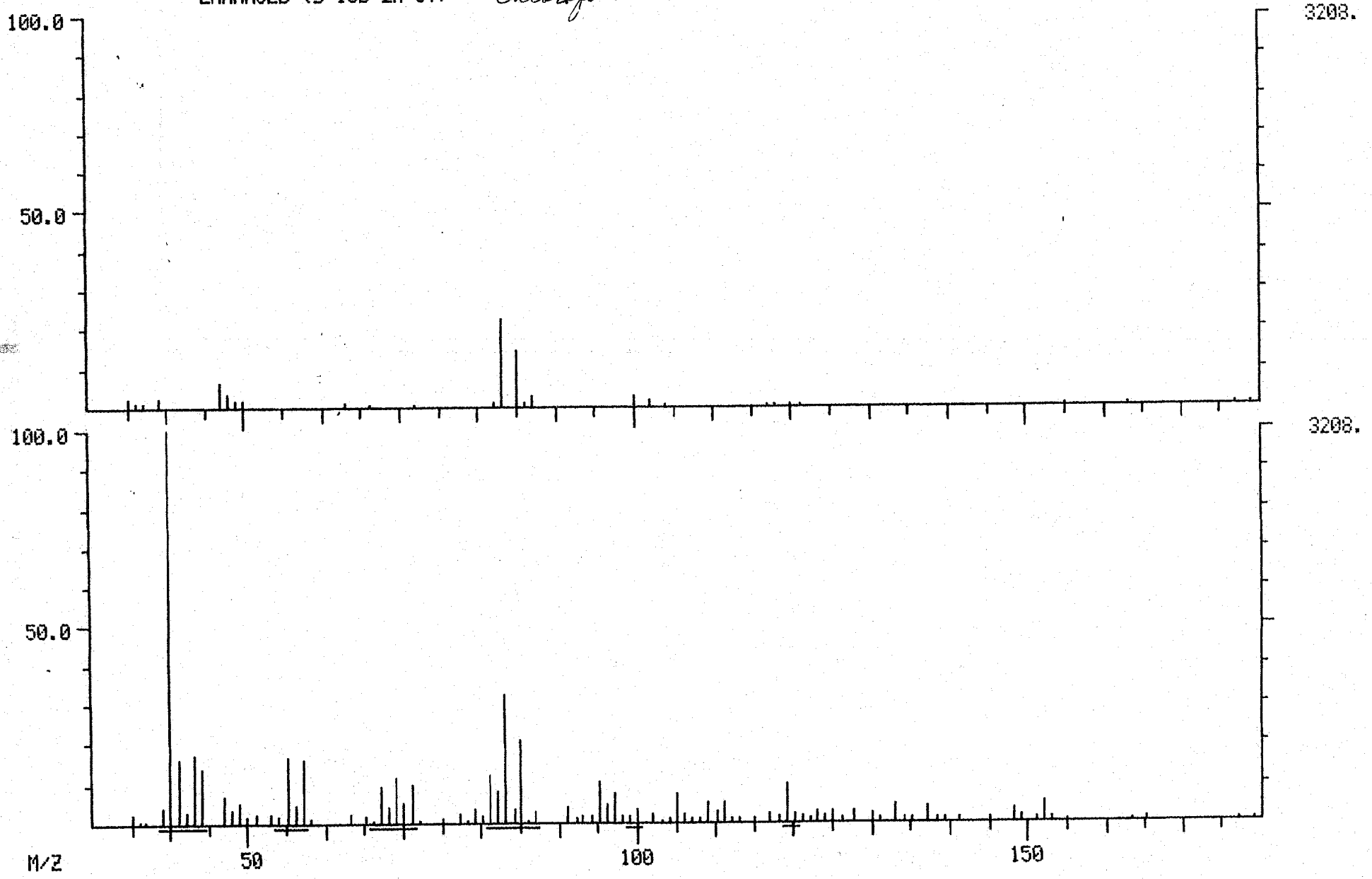
DATA: C1V0001446 #460 BASE M/Z: 76/ 40
CALI: C1V0001446 #6 RIC: 1609./ 40447.

000056



DUAL MASS SPECTRUM
09/09/88 18:52:00 + 13:49
SAMPLE: CLP,V11822,,11822012,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001446 #829 BASE M/Z: 83/ 40
CALI: C1V0001446 #6 RIC: 2339./ 15823.



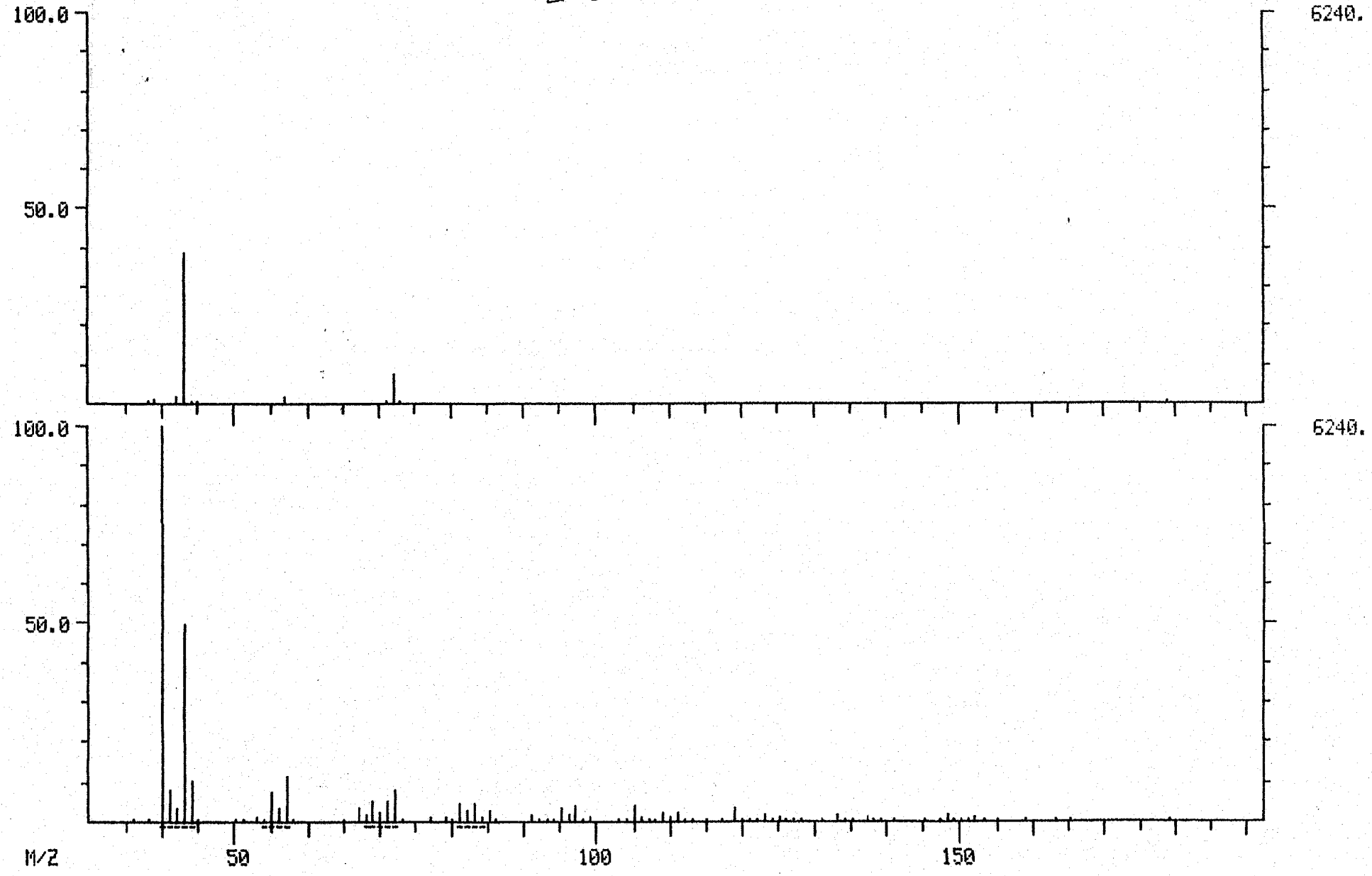
000057

DUAL MASS SPECTRUM
09/09/88 18:52:00 + 13:09
SAMPLE: CLP,V11822,,11822012,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

2- Butanone

DATA: C1V0001446 #789 BASE M/Z: 43/ 40
CALI: C1V0001446 #6 RIC: 3523./ 18879.

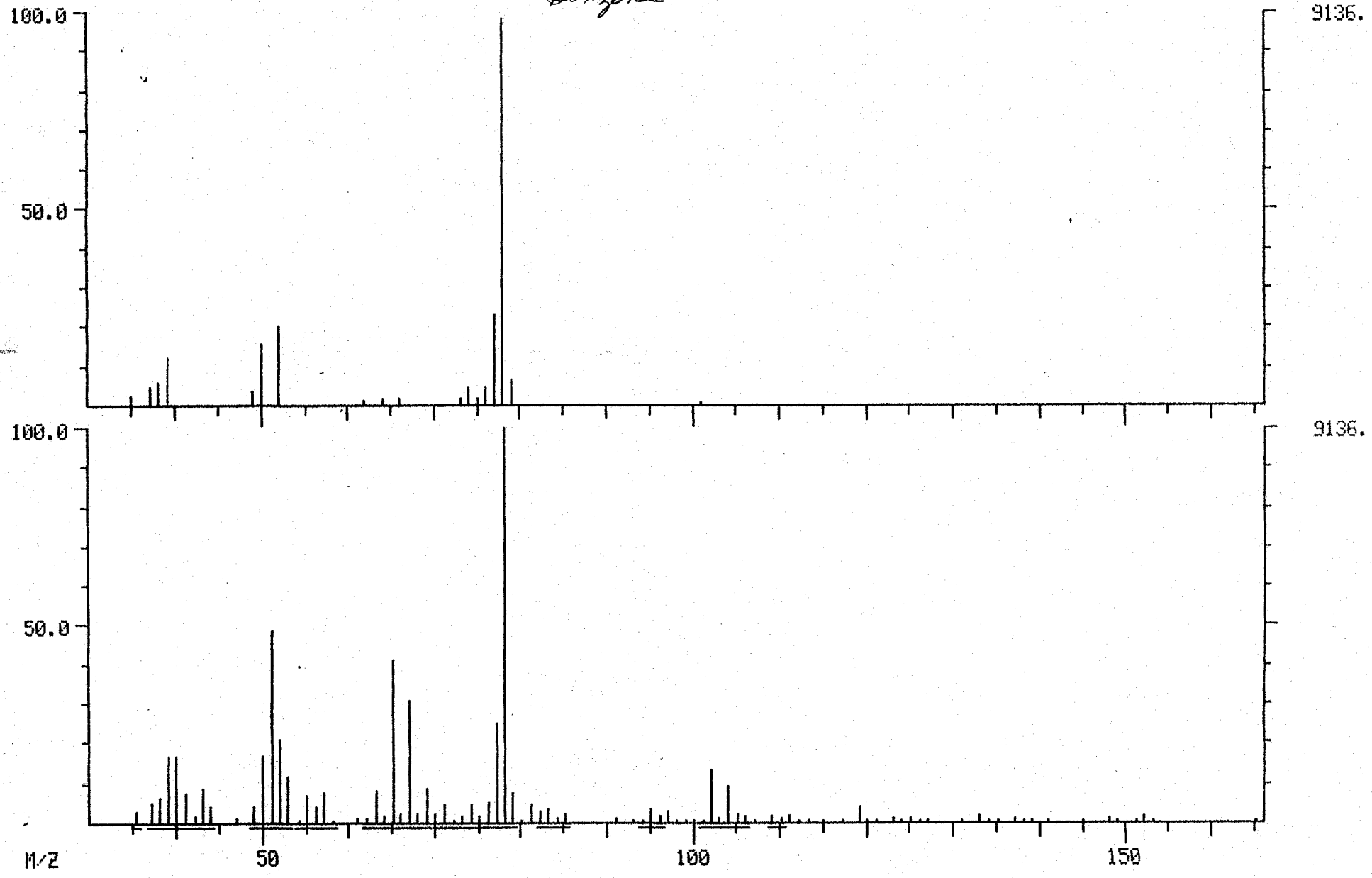
000058



DUAL MASS SPECTRUM
09/09/88 18:52:00 + 14:48
SAMPLE: CLP,V11822,,11822012,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Benzene

DATA: C1V0001446 #888 BASE M/Z: 78/ 78
CALI: C1V0001446 #6 RIC: 19359./ 48447.

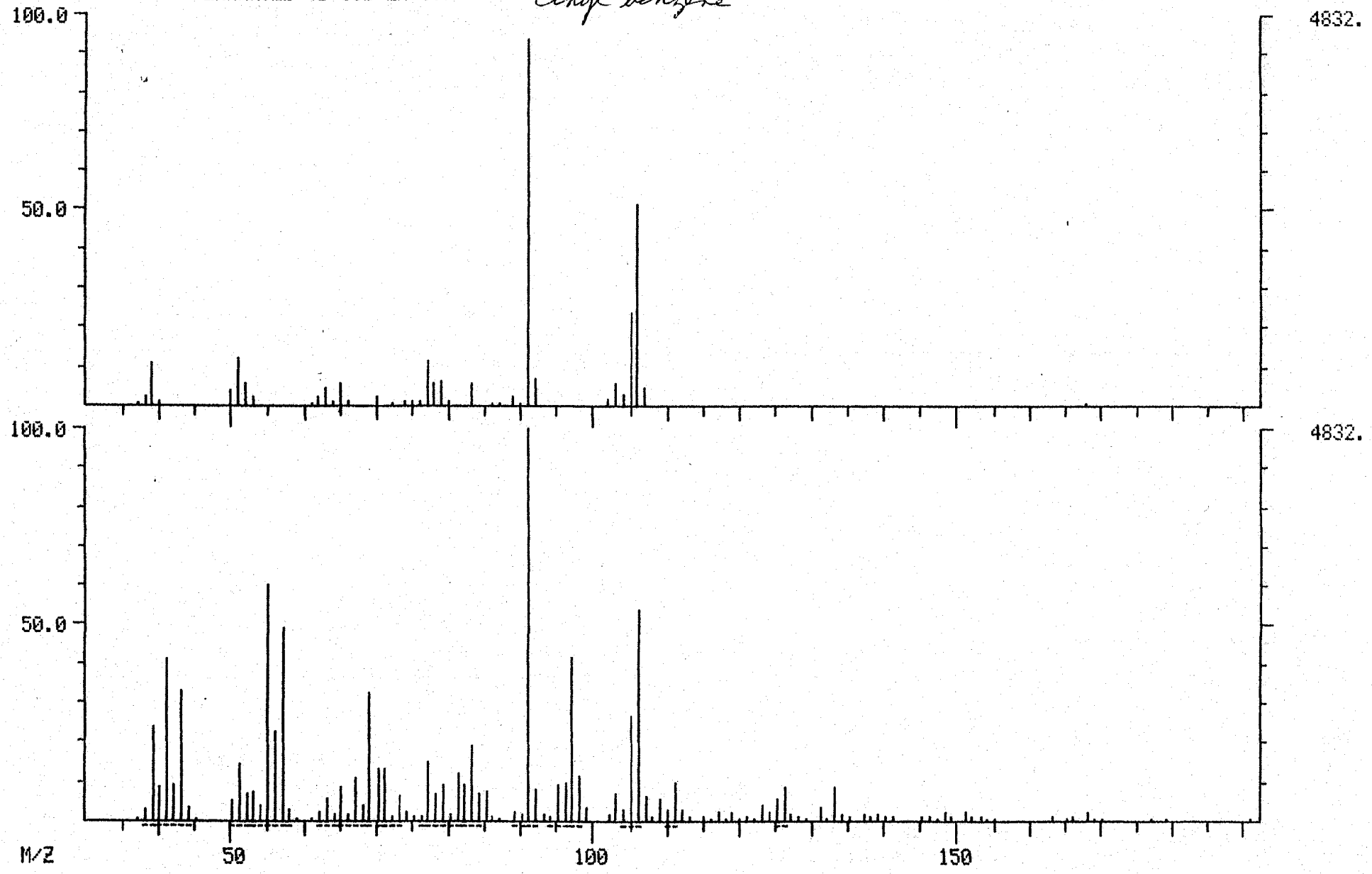


000059

DUAL MASS SPECTRUM
09/09/88 18:52:00 + 22:44
SAMPLE: CLP,V11822,,11822012,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Ethyl benzene

DATA: C1V0001446 #1364 BASE M/Z: 91/ 91
CALI: C1V0001446 #6 RIC: 13919./ 42815.



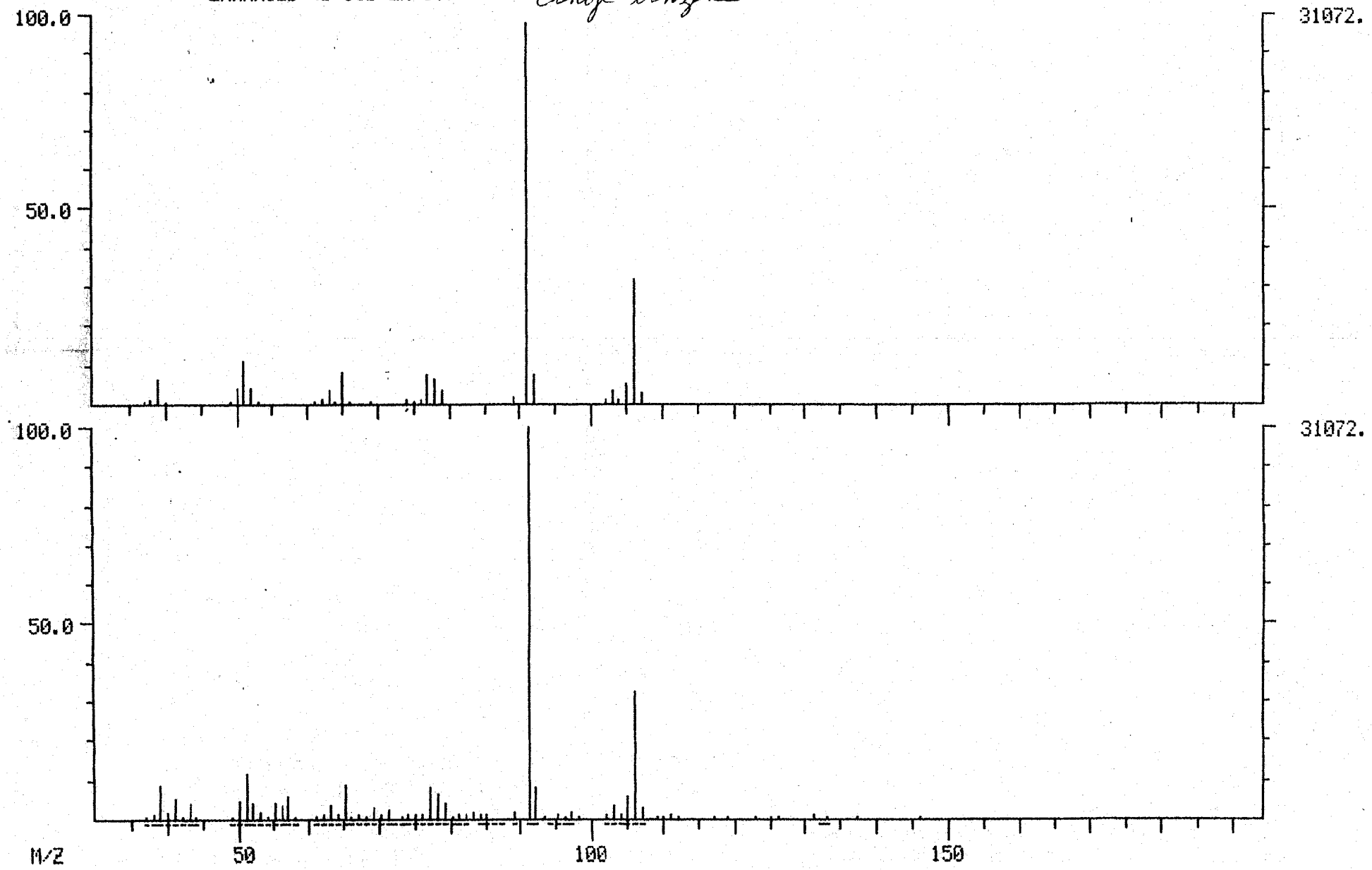
000000

DUAL MASS SPECTRUM
09/09/88 18:52:00 + 22:27
SAMPLE: CLP,V11822,,11822012,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Ethyl benzene

DATA: C1V0001446 #1347 BASE M/Z: 91/ 91
CALI: C1V0001446 #6 RIC: 67967./ 89087.

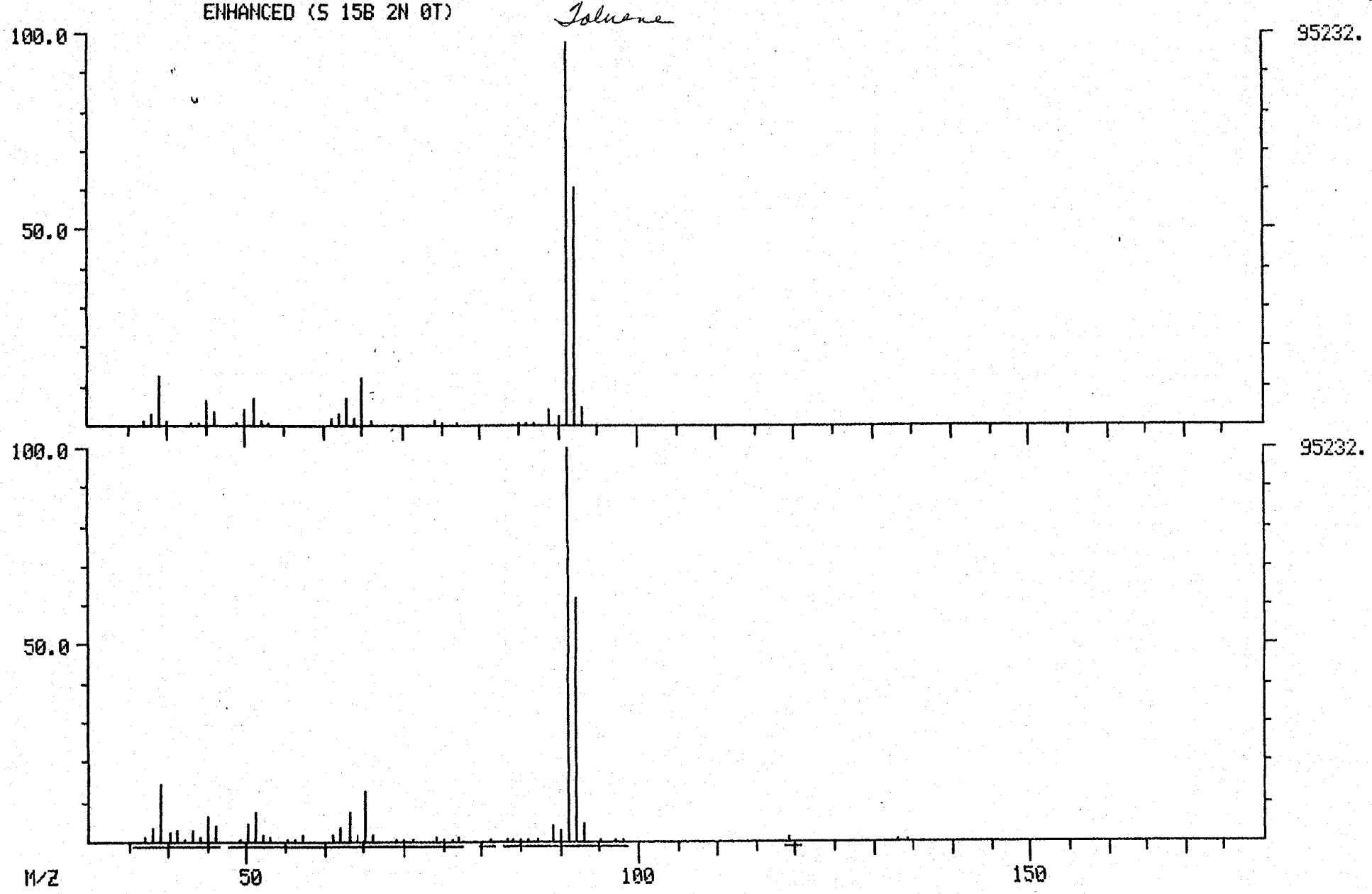
000061



DUAL MASS SPECTRUM
09/09/88 18:52:00 + 19:03
SAMPLE: CLP,V11822,,11822012,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001446 #1143 BASE M/Z: 91/ 91
CALI: C1V0001446 #6 RIC: 233471./ 260095.

290000



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B_1000_B8S3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822013

Sample wt/vol: _____ (g/mL) G Lab File ID: C2VO001486

Level: (low/med) LOW Date Received: 08/31/88

% Moisture: not dec. 16 Date Analyzed: 09/12/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	160	
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B1000B8S3DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822013DL

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001449

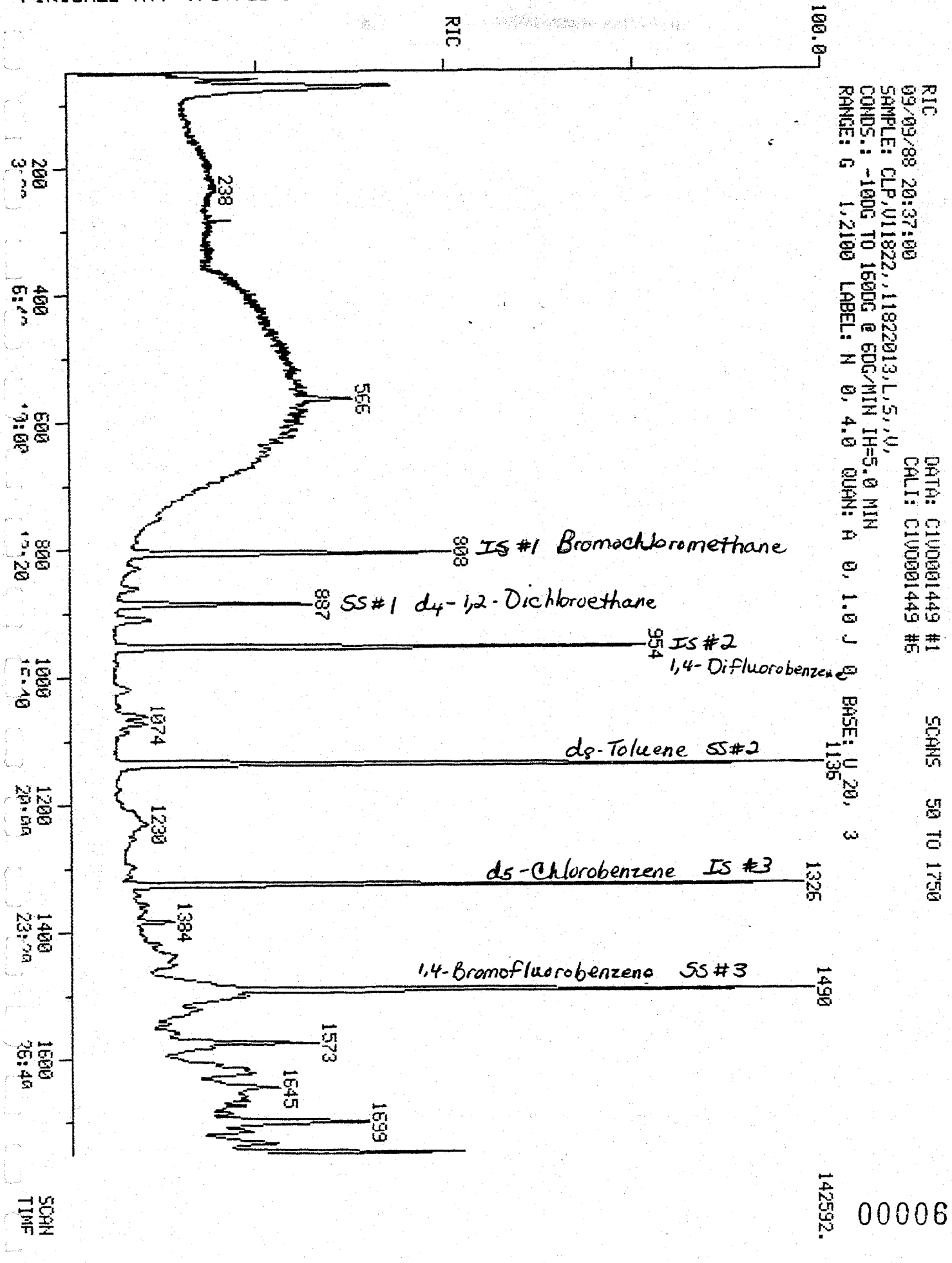
Level: (low/med) LOW Date Received: 08/31/88

% Moisture: not dec. 16 Date Analyzed: 09/09/88

Column: (pack/cap) CAP Dilution Factor: 2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	24	U
74-83-9	Bromomethane	24	U
75-01-4	Vinyl Chloride	24	U
75-00-3	Chloroethane	24	U
75-09-2	Methylene Chloride	26	BD
67-64-1	Acetone	24	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	4	BDJ
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	24	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
108-05-4	Vinyl Acetate	24	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
591-78-6	2-Hexanone	24	U
108-10-1	4-Methyl-2-Pentanone	24	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	24	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylenes (total)	12	U

TCA FINISHED, 10 FOUND
FINISHED AT: 9/09/88 22:10:41

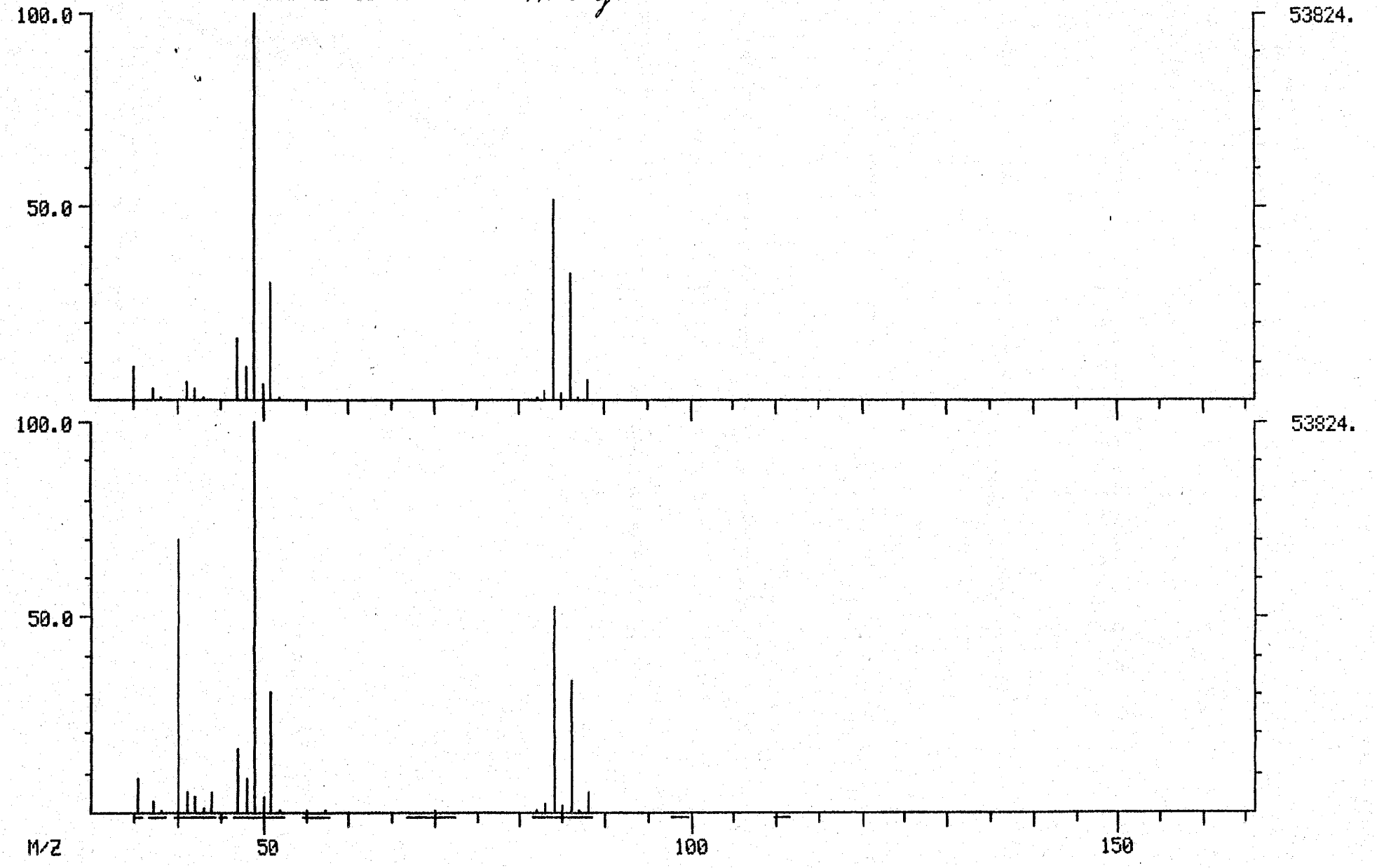


000065

DUAL MASS SPECTRUM
09/12/88 21:18:00 + 9:29
SAMPLE: CLP,V11822,,11822013,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

DATA: C2V0001486 #569 BASE M/Z: 49/ 49
CALI: C2V0001486 #4 RIC: 148991./ 191487.

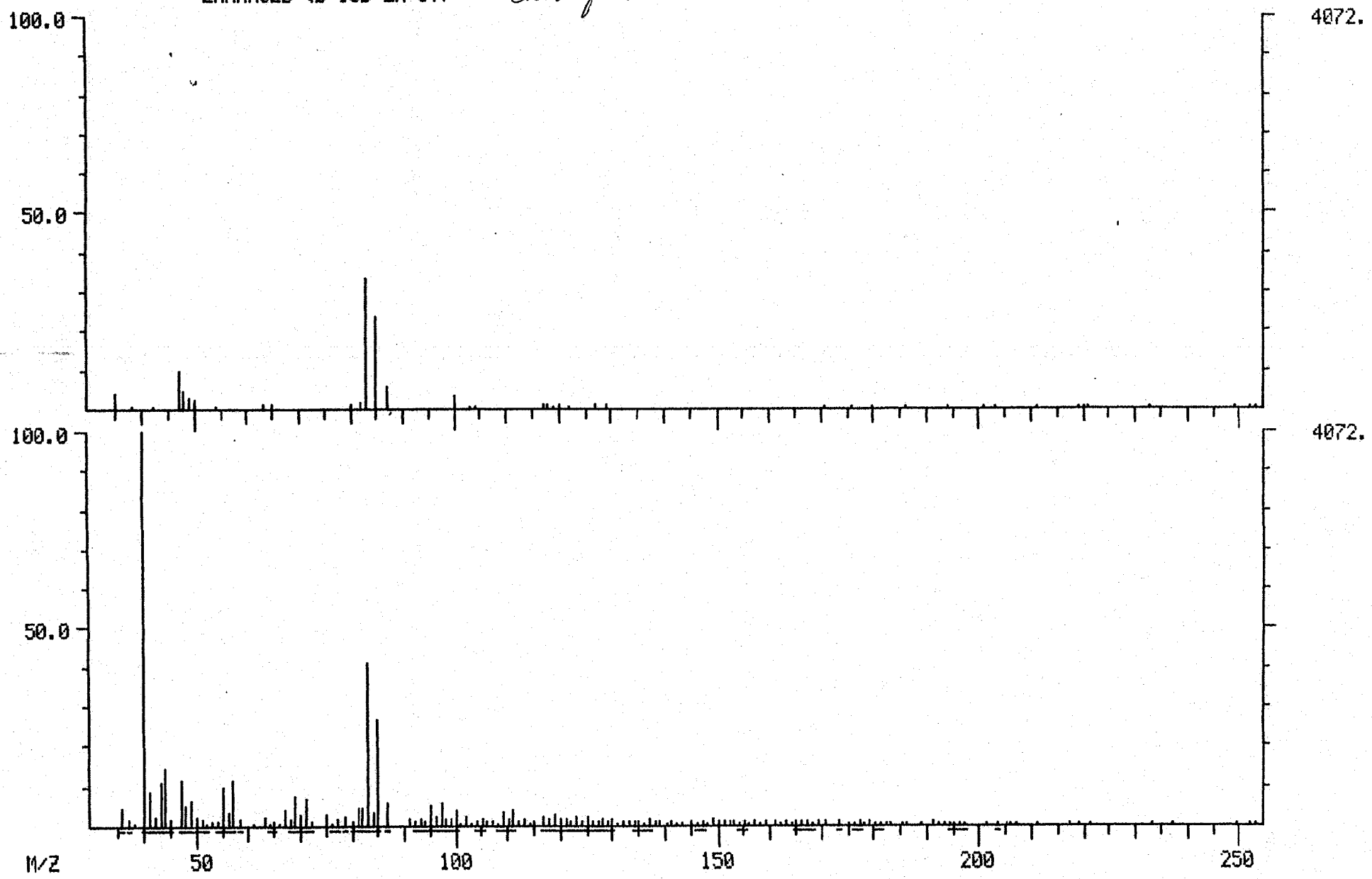
000000



DUAL MASS SPECTRUM
09/12/88 21:18:00 + 13:51
SAMPLE: CLP,V11822,,11822013,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C2V0001486 #831 BASE M/Z: 83/ 40
CALI: C2V0001486 #4 RIC: 4583./ 18847.

790000

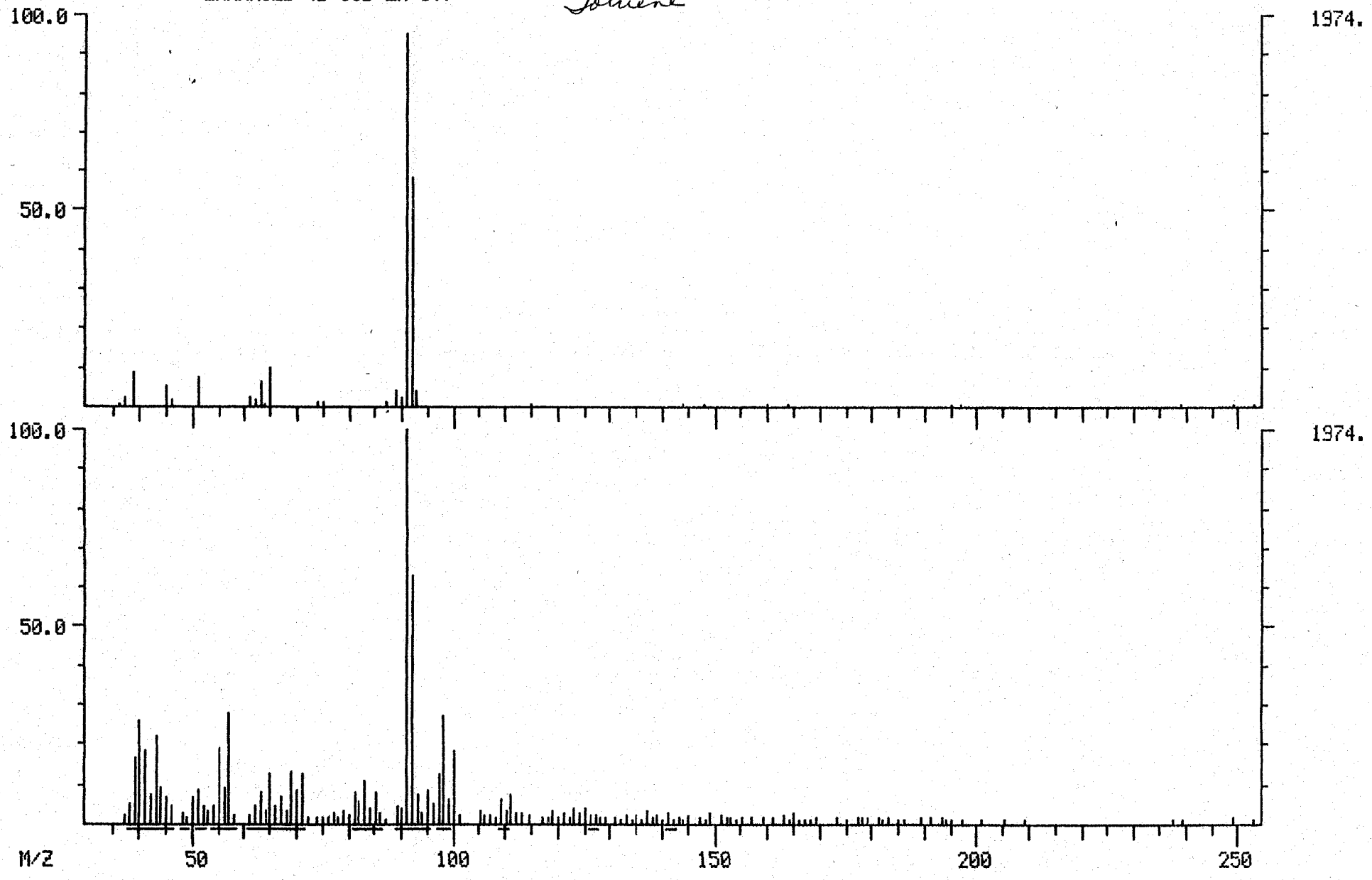


DUAL MASS SPECTRUM
09/12/88 21:18:00 + 19:04
SAMPLE: CLP,V11822,,11822013,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

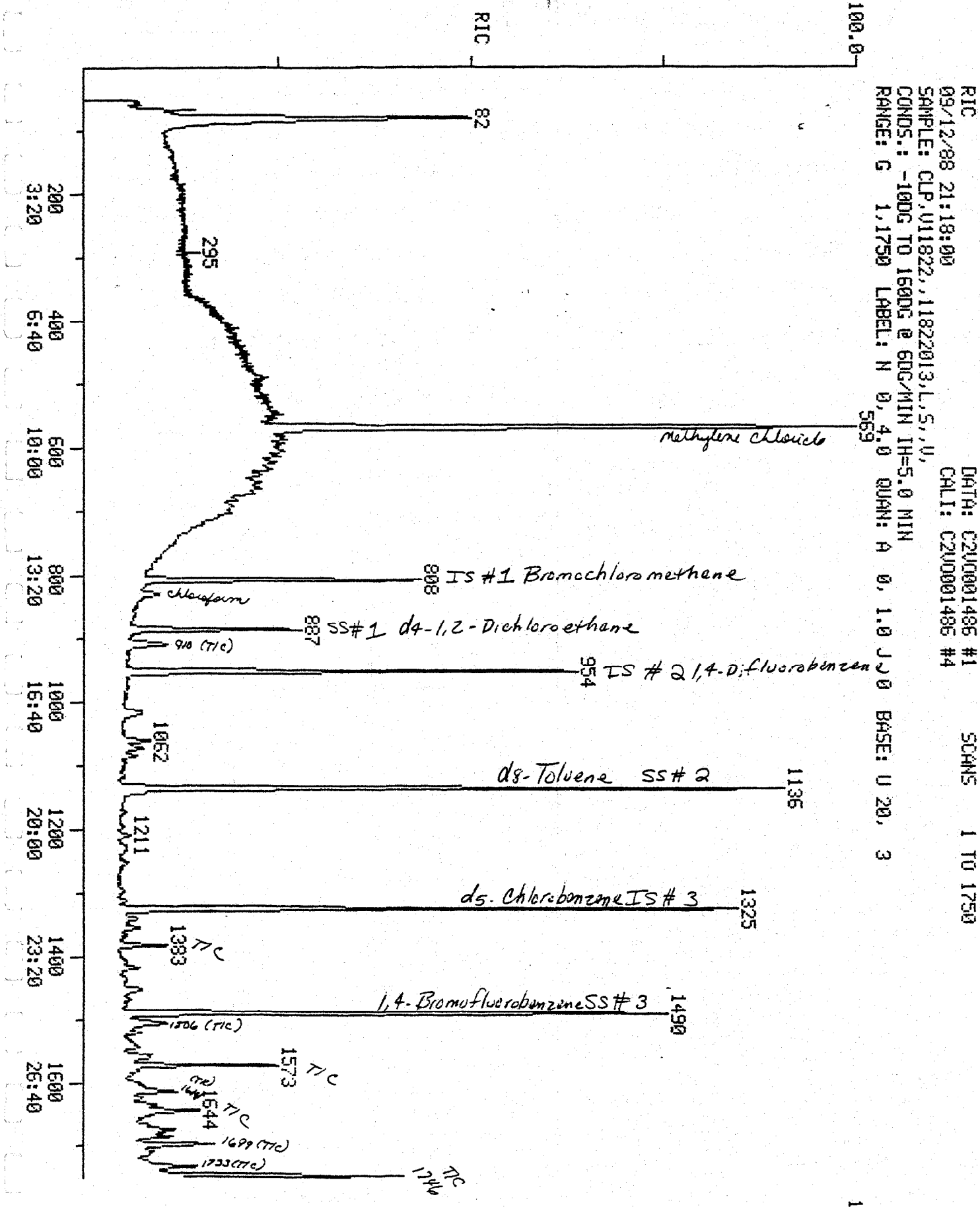
Toluene

DATA: C2V0001486 #1144 BASE M/Z: 91/ 91
CALI: C2V0001486 #4 RIC: 4375./ 15231.

000063



TCA FINISHED, 11 FOUND
FINISHED AT: 9/12/88 21:51:57



192512.

000069

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1115_B9S1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822014

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001447

Level: (low/med) LOW Date Received: 08/31/88

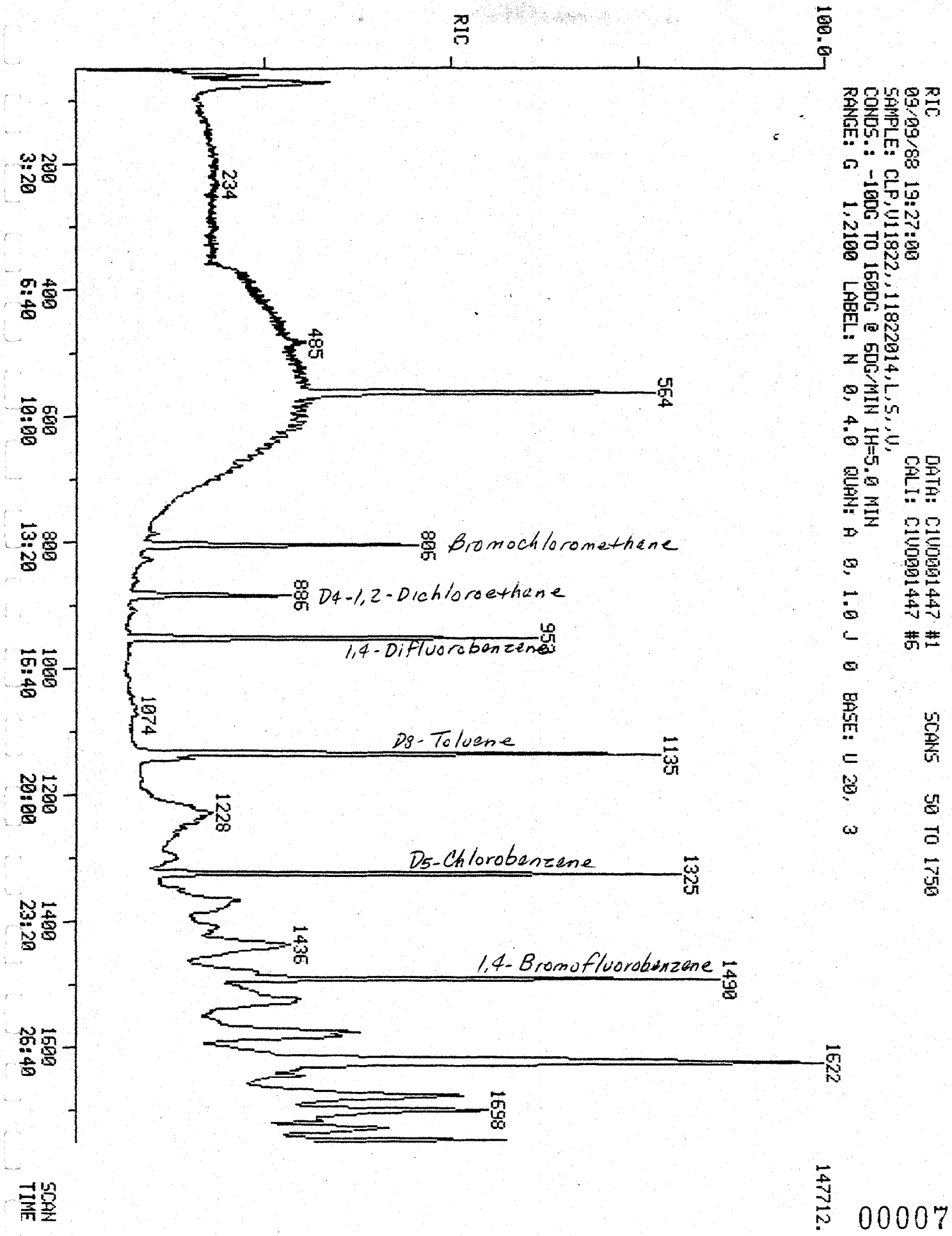
% Moisture: not dec. 10 Date Analyzed: 09/09/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	98	B
67-64-1	Acetone	82	
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	7	J
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	5	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	1	J
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	2	JX

R5

TCA FINISHED, 10 FOUND
FINISHED AT: 9/09/88 21:57:29

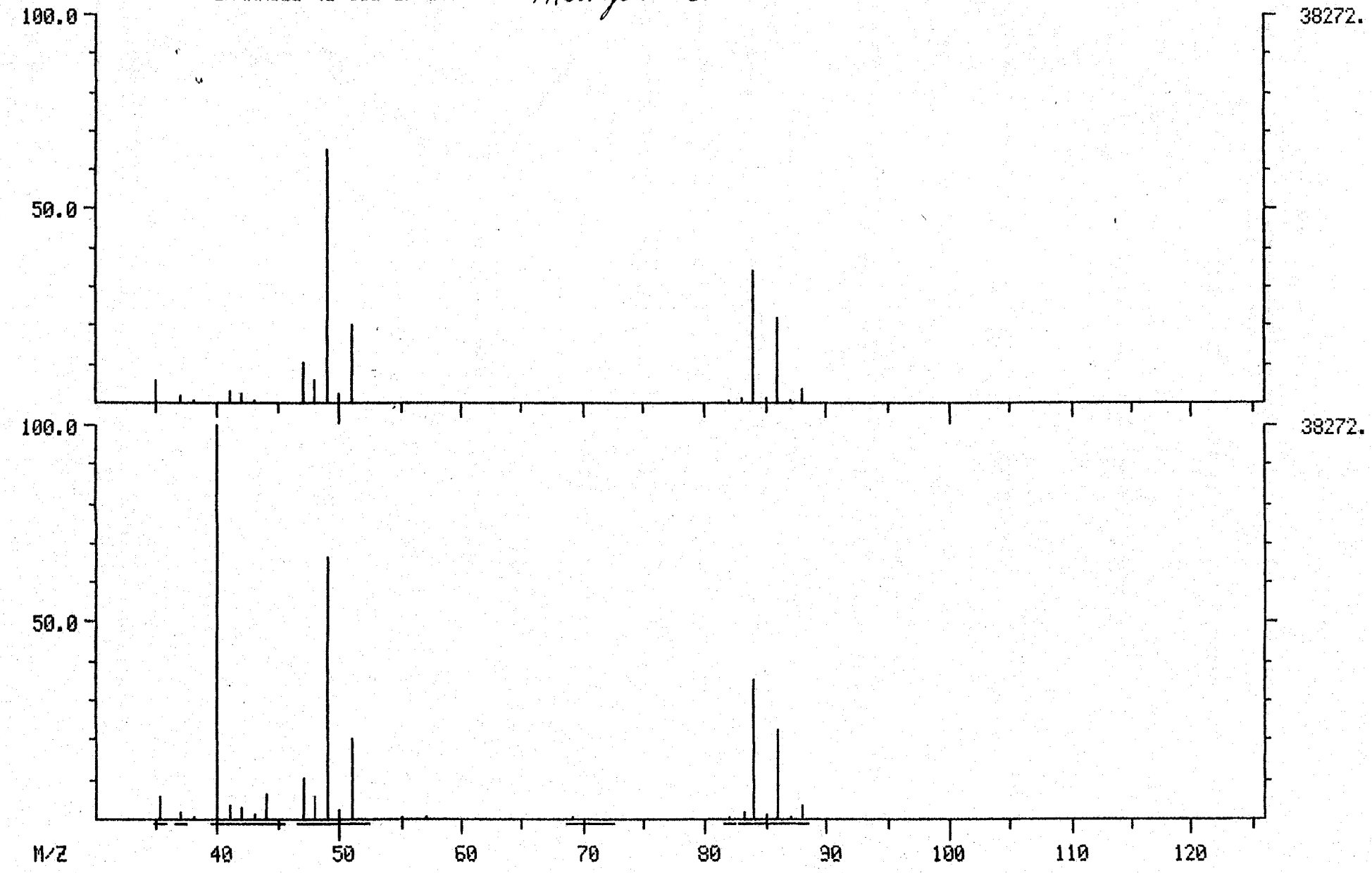


000071

DUAL MASS SPECTRUM
09/09/88 19:27:00 + 9:24
SAMPLE: CLP,V11822,,11822014,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

DATA: C1V0001447 #564 BASE M/Z: 49/ 40
CALI: C1V0001447 #6 RIC: 69631./ 113663.

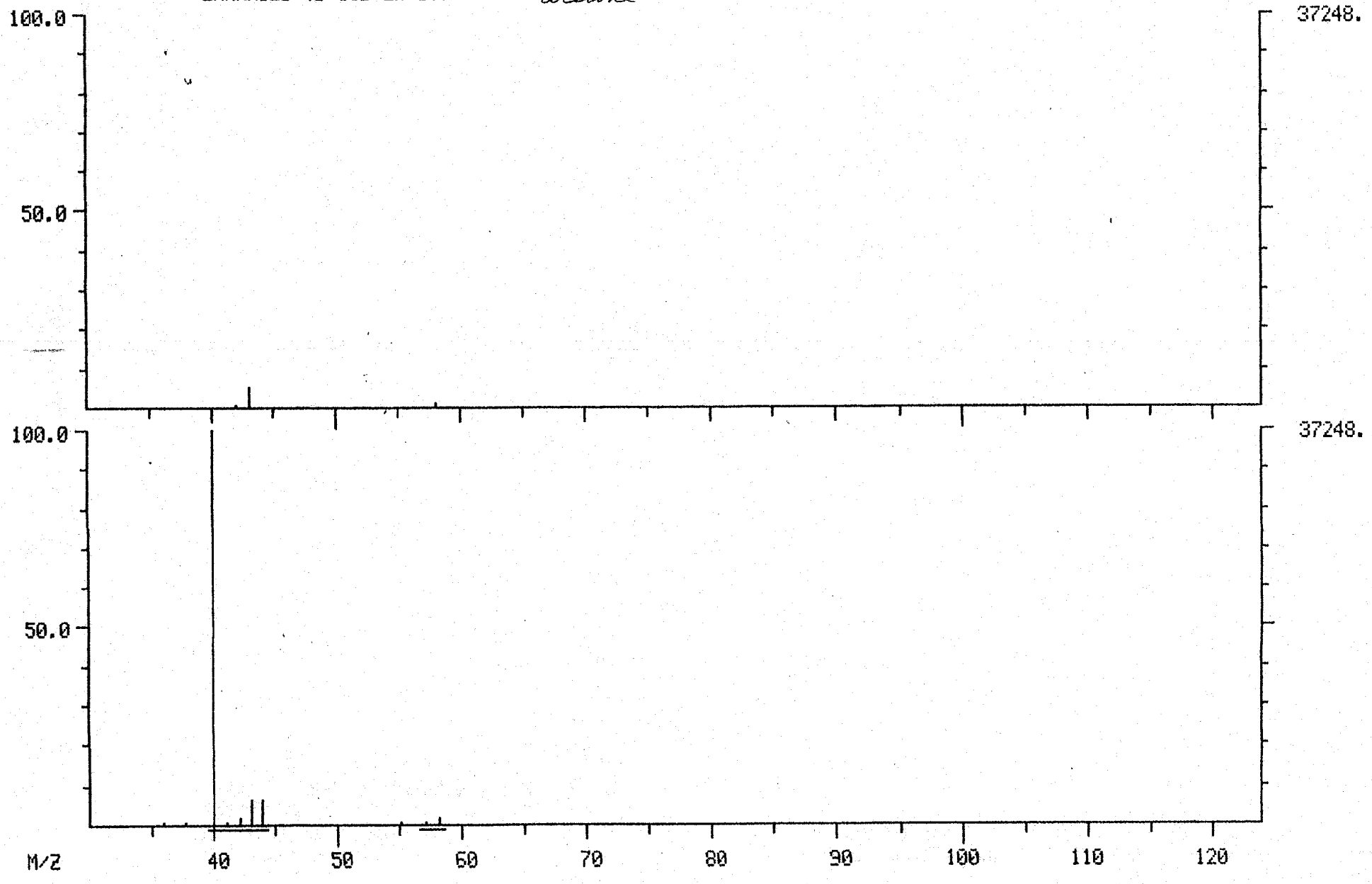
27.0000



DUAL MASS SPECTRUM
09/09/88 19:27:00 + 8:05
SAMPLE: CLP,V11822,,11822014,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

DATA: C1V0001447 #485 BASE M/Z: 43/ 40
CALI: C1V0001447 #6 RIC: 2907./ 45183.

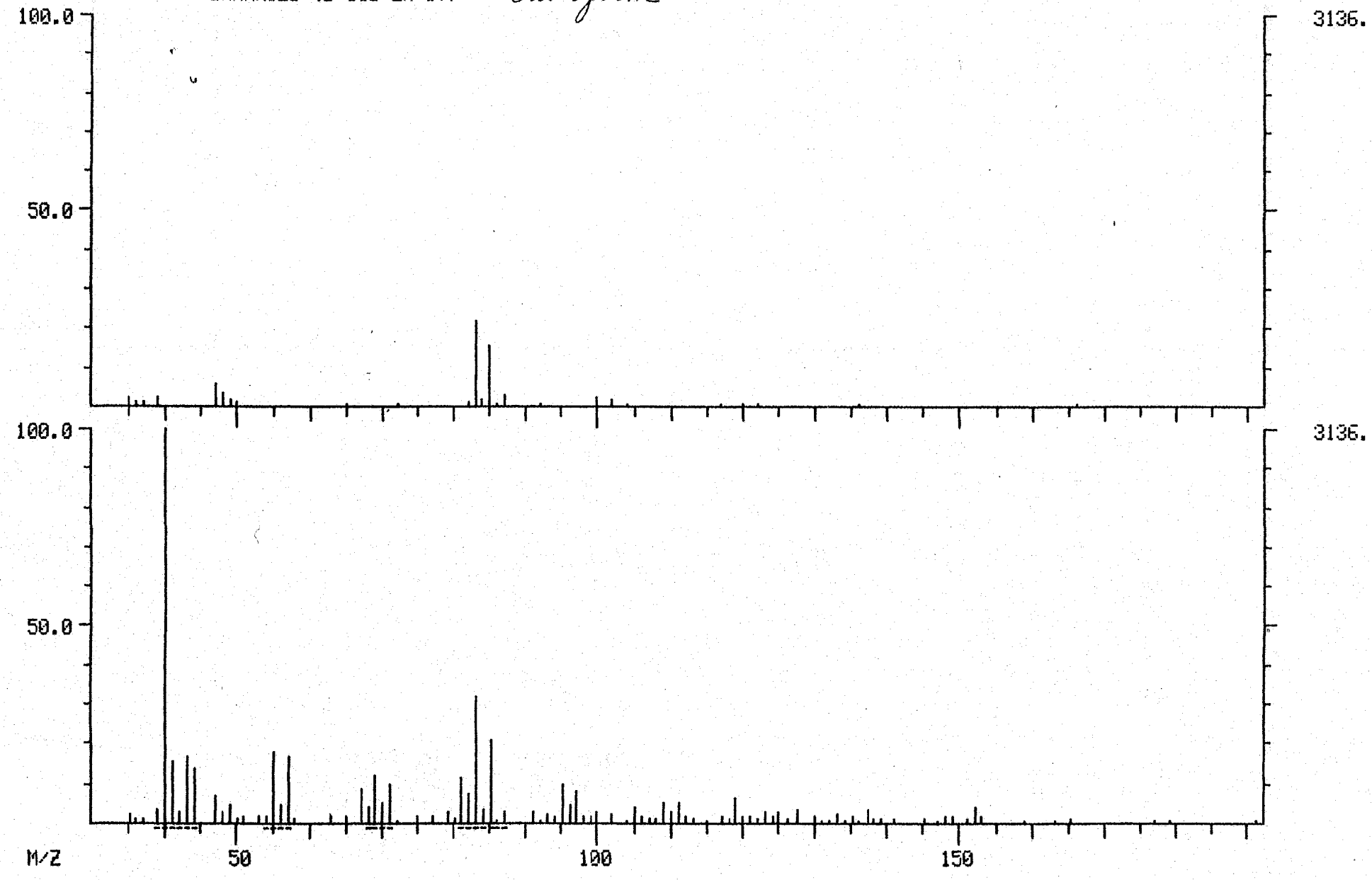
000073



DUAL MASS SPECTRUM
09/09/88 19:27:00 + 13:49
SAMPLE: CLP,V11822,,11822014,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001447 #829 BASE M/Z: 83/ 40
CALI: C1V0001447 #6 RIC: 2287./ 14835.

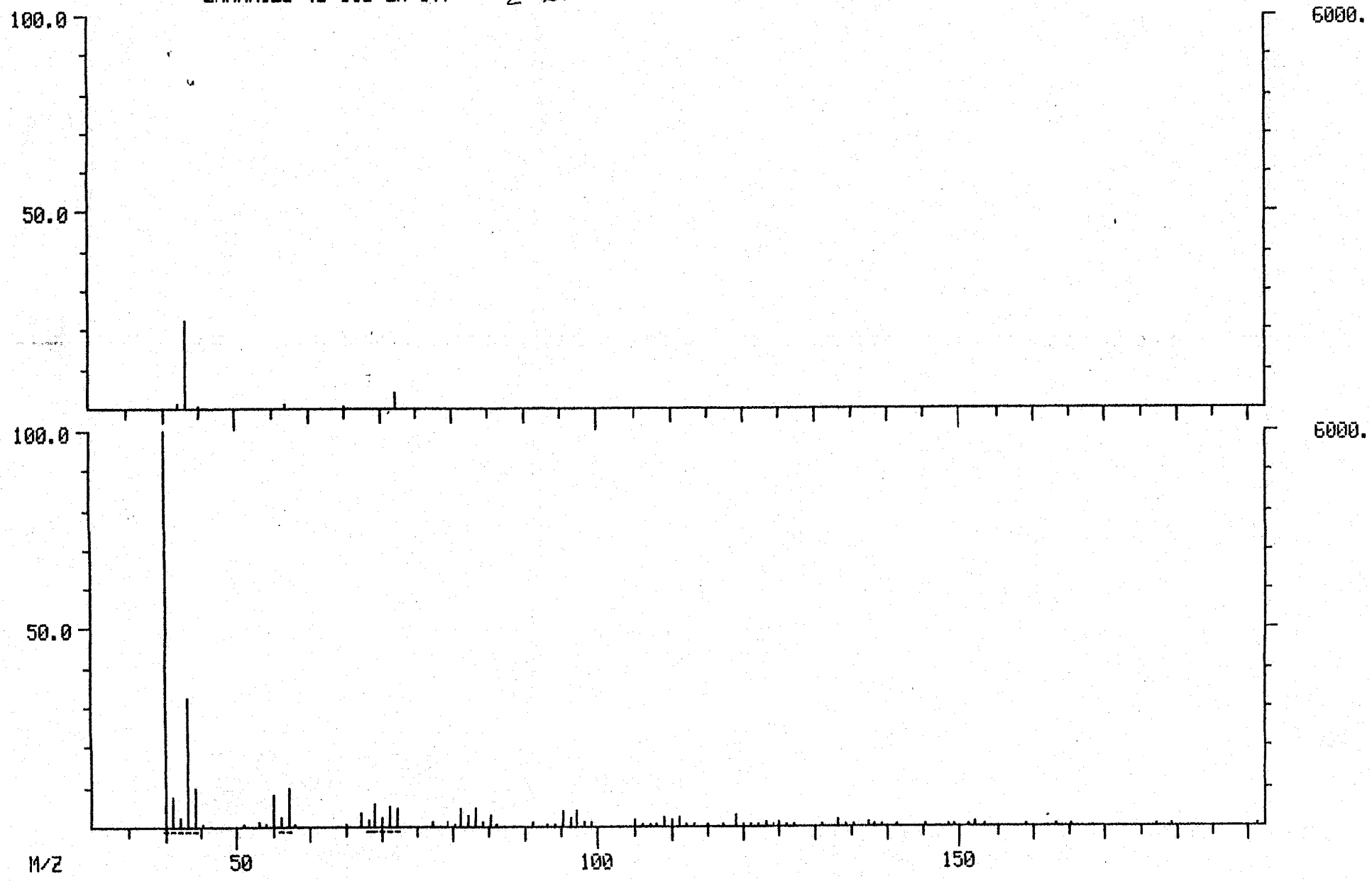
000074



DUAL MASS SPECTRUM
09/09/88 19:27:00 + 13:08
SAMPLE: CLP,V11822,,11822014,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) 2-Butanone

DATA: C1V0001447 #788 BASE M/Z: 43/ 40
CALI: C1V0001447 #6 RIC: 1897./ 16063.

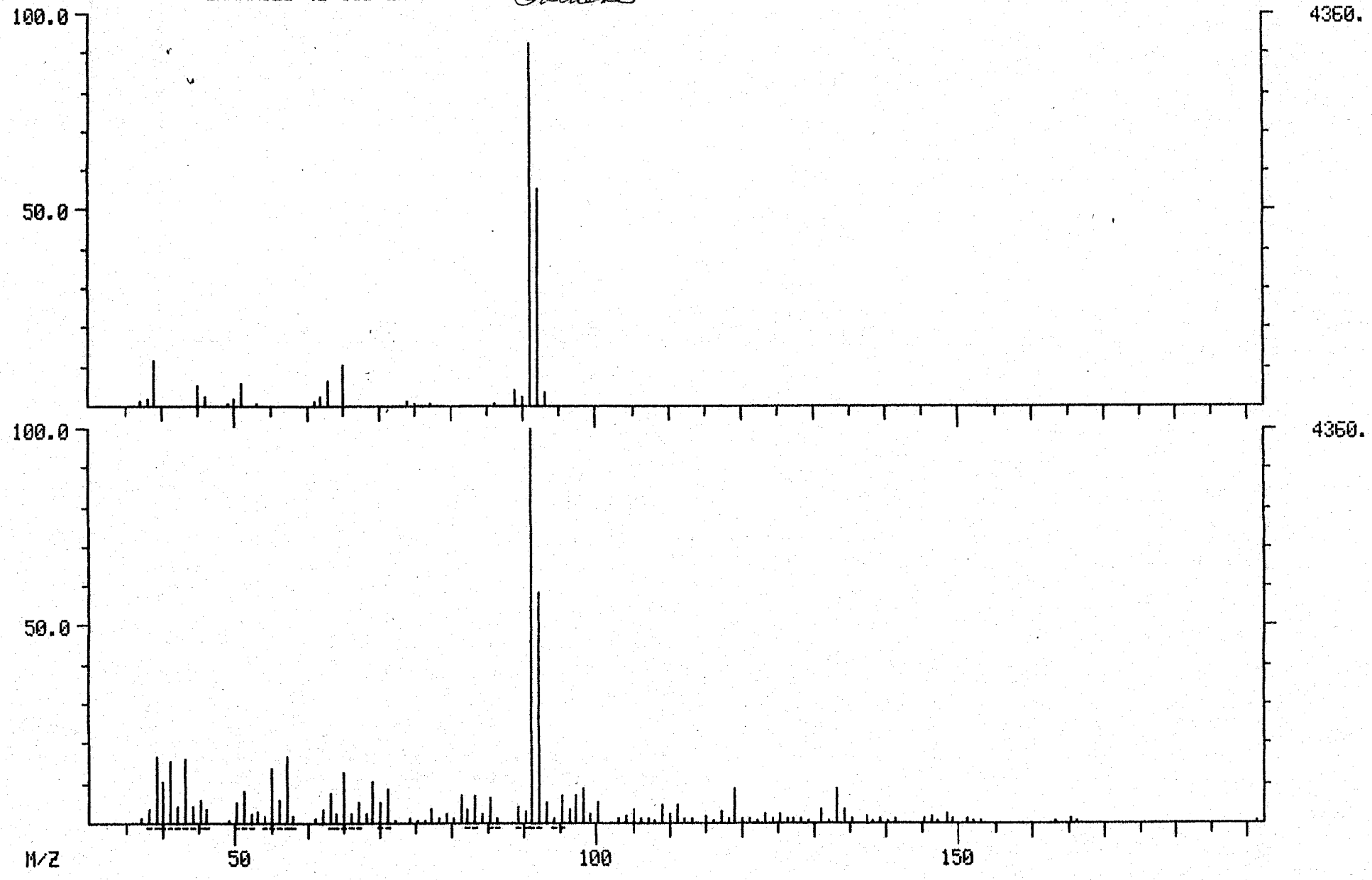
000075



DUAL MASS SPECTRUM
09/09/88 19:27:00 + 19:04
SAMPLE: CLP,V11822,,11822014,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Toluene

DATA: C1V0001447 #1144 BASE M/Z: 91/ 91
CALI: C1V0001447 #6 RIC: 9279./ 23455.

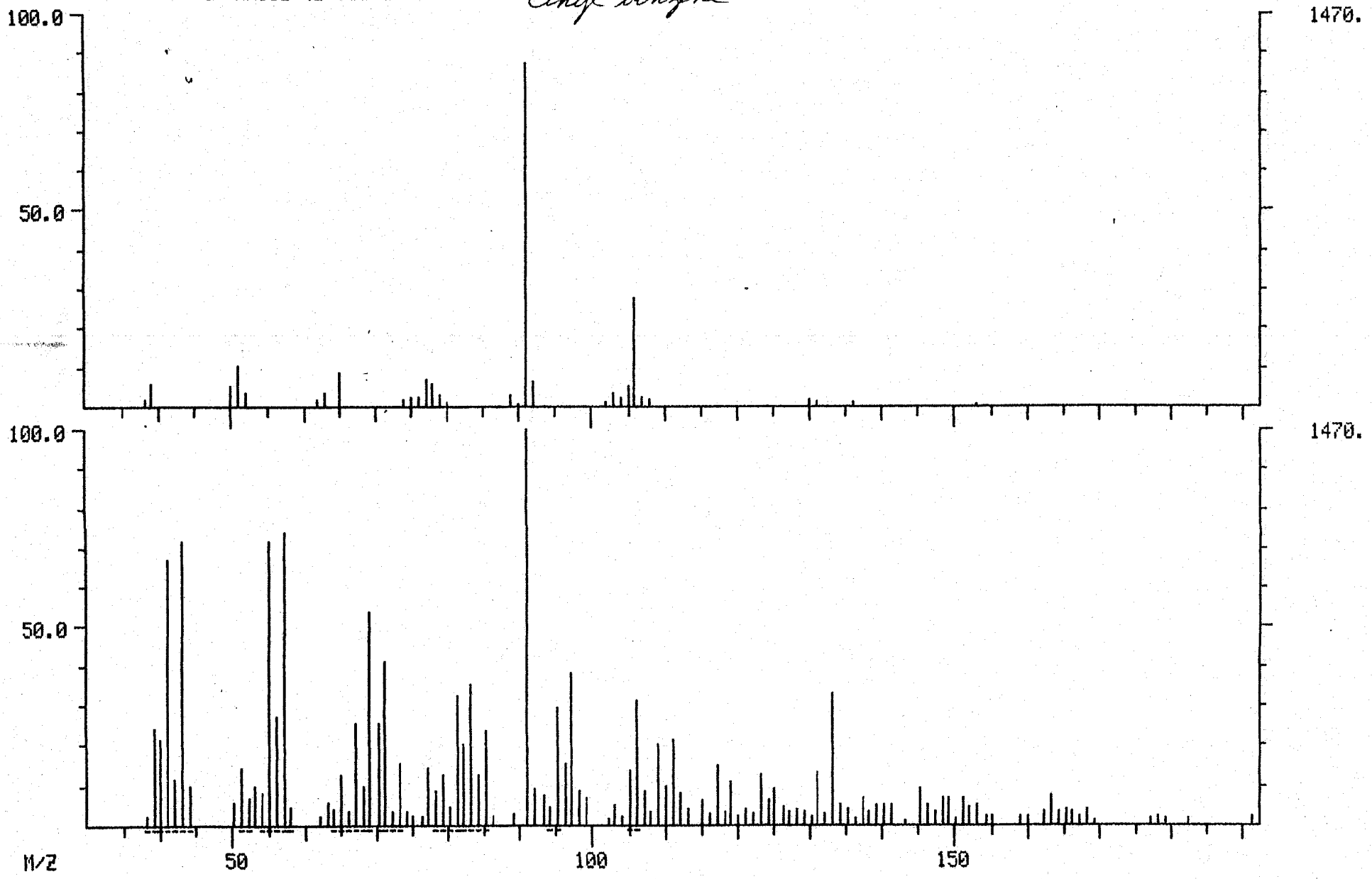


DUAL MASS SPECTRUM
09/09/88 19:27:00 + 22:29
SAMPLE: CLP,V11822,,11822014,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Ethyl benzene

DATA: C1V0001447 #1349 BASE M/Z: 91/ 91
CALI: C1V0001447 #6 RIC: 3107./ 21311.

000076

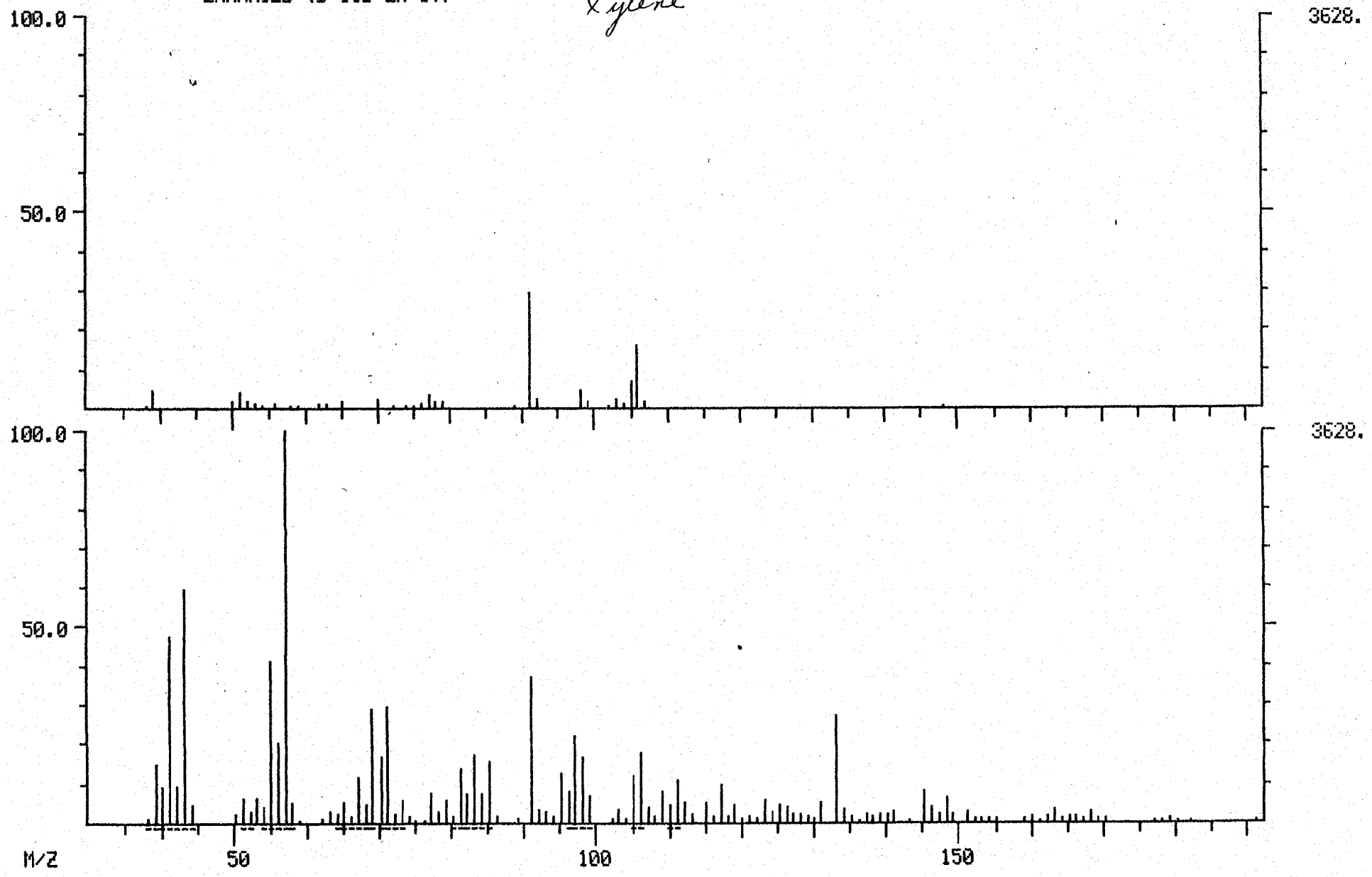


DUAL MASS SPECTRUM
09/09/88 19:27:00 + 22:45
SAMPLE: CLP,V11822,,11822014,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Xylene

DATA: C1V0001447 #1365 BASE M/Z: 91/ 57
CALI: C1V0001447 #6 RIC: 3691./ 31839.

000077



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1115_B9S2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822015

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001448

Level: (low/med) LOW Date Received: 08/31/88

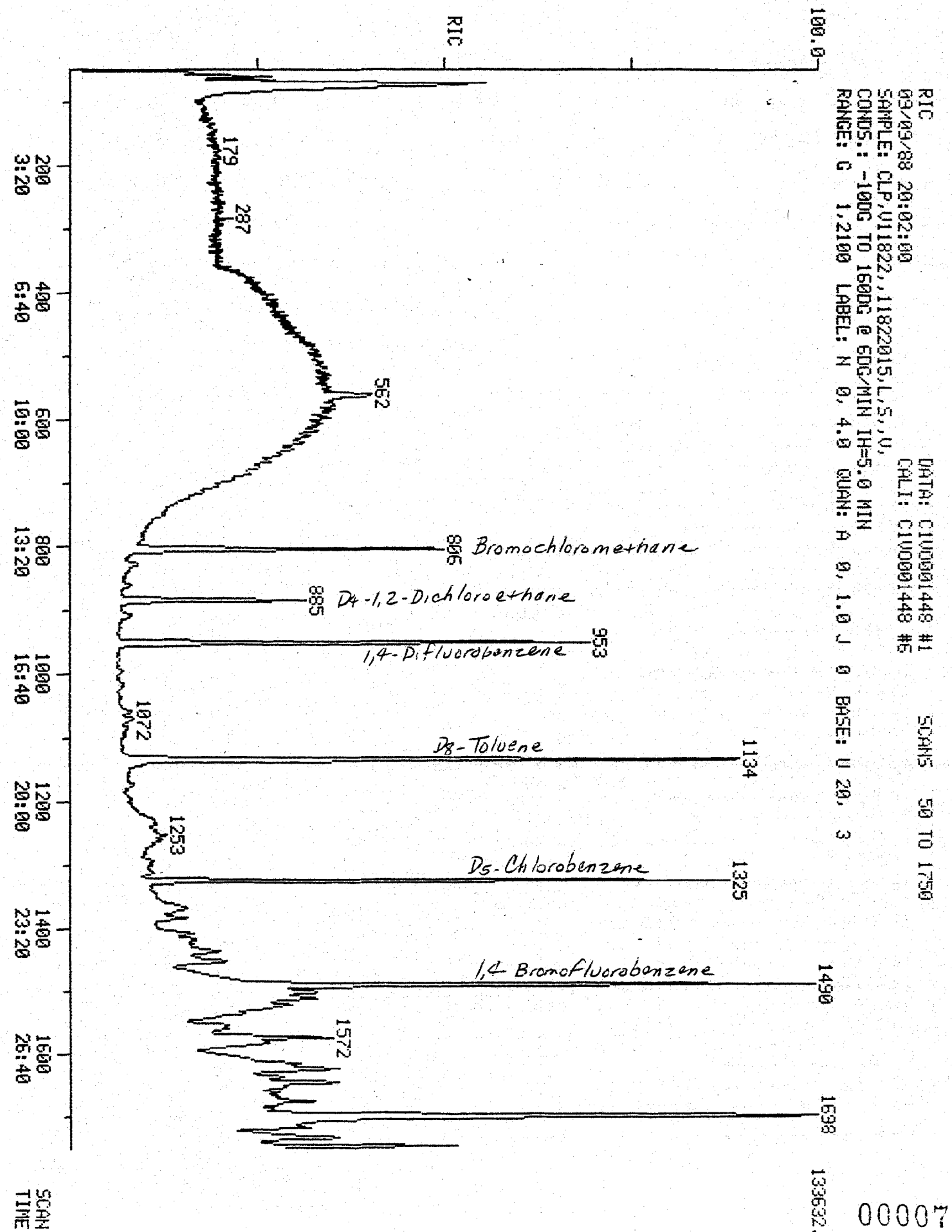
% Moisture: not dec. 17 Date Analyzed: 09/09/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	13	B
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	3	J
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS

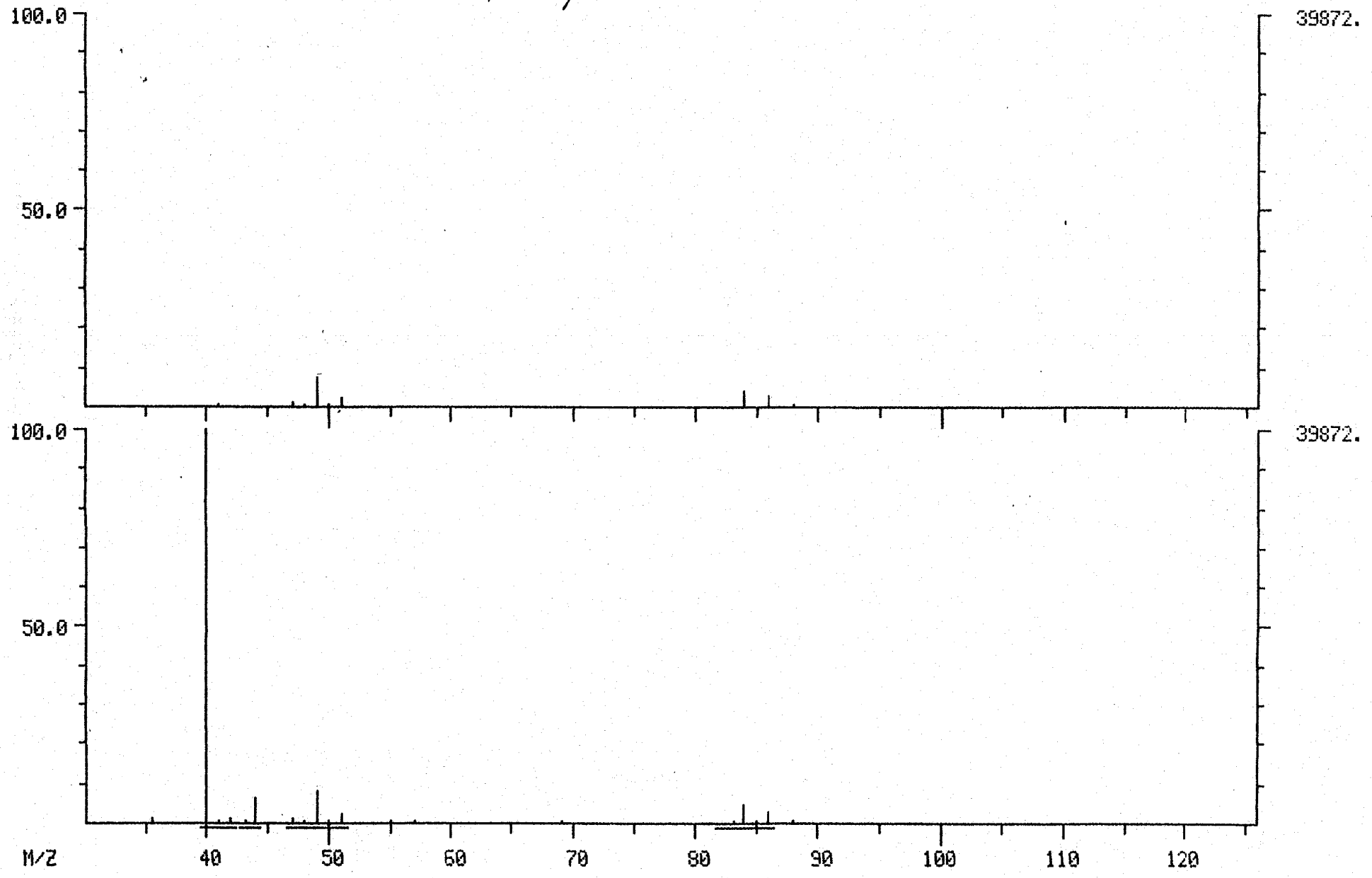
TCA FINISHED, 10 FOUND
FINISHED AT: 9/09/88 22:04:01



000079

DUAL MASS SPECTRUM
09/09/88 20:02:00 + 9:23
SAMPLE: CLP,V11822,,11822015,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

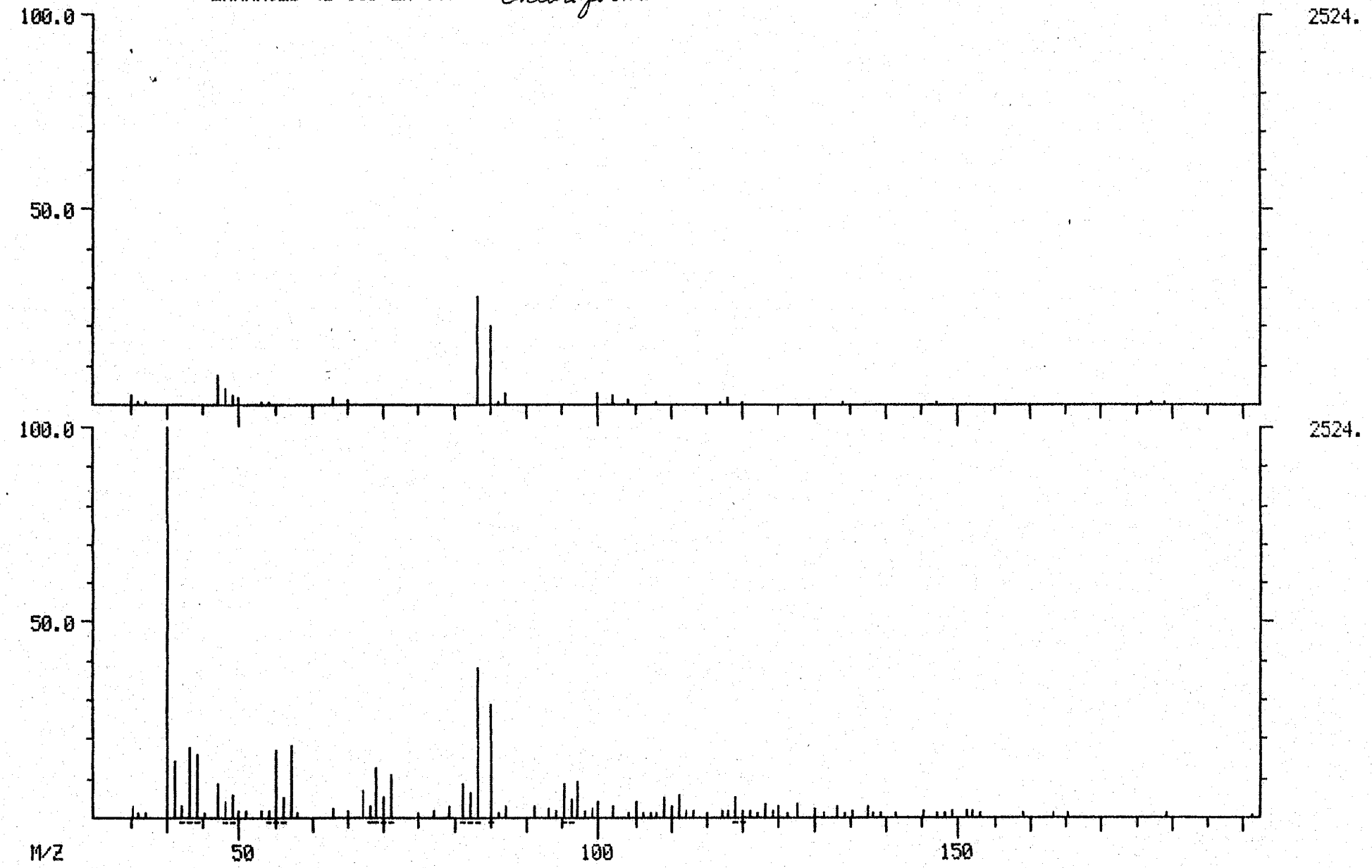
DATA: C1V0001448 #563 BASE M/Z: 49/ 40
CALI: C1V0001448 #6 RIC: 8319./ 53695.



DUAL MASS SPECTRUM
09/09/88 20:02:00 + 13:49
SAMPLE: CLP,V11822,,11822015,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001448 #823 BASE M/Z: 83/ 40
CALI: C1V0001448 #6 RIC: 2195./ 12239.

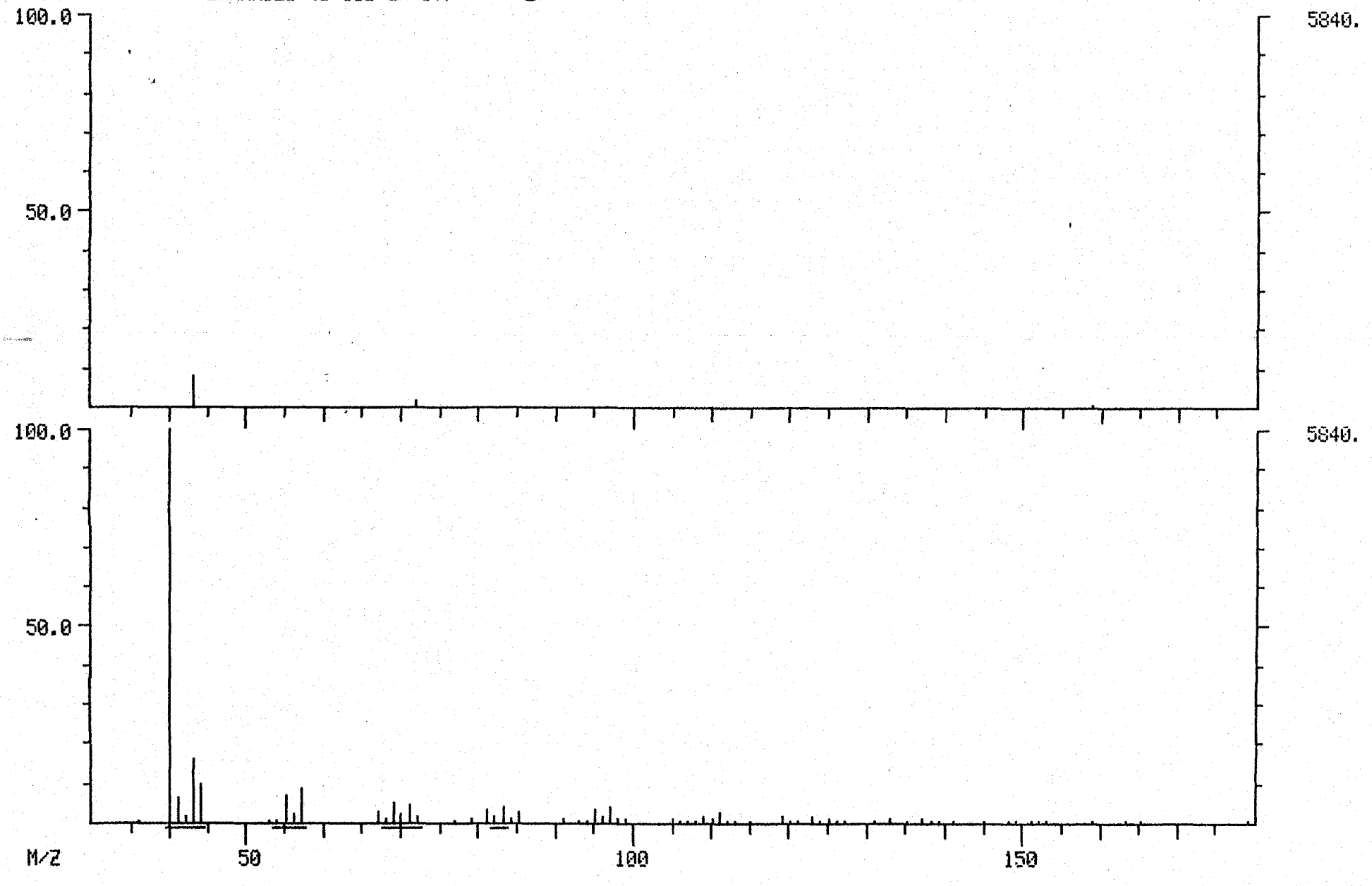
130000



DUAL MASS SPECTRUM
09/09/88 20:02:00 + 13:09
SAMPLE: CLP,V11822,,11822015,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) 2-Butanone

DATA: C1V0001448 #789 BASE M/Z: 43/ 40
CALI: C1V0001448 #6 RIC: 671./ 13295.

000082



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1115_B9S3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822031

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001458

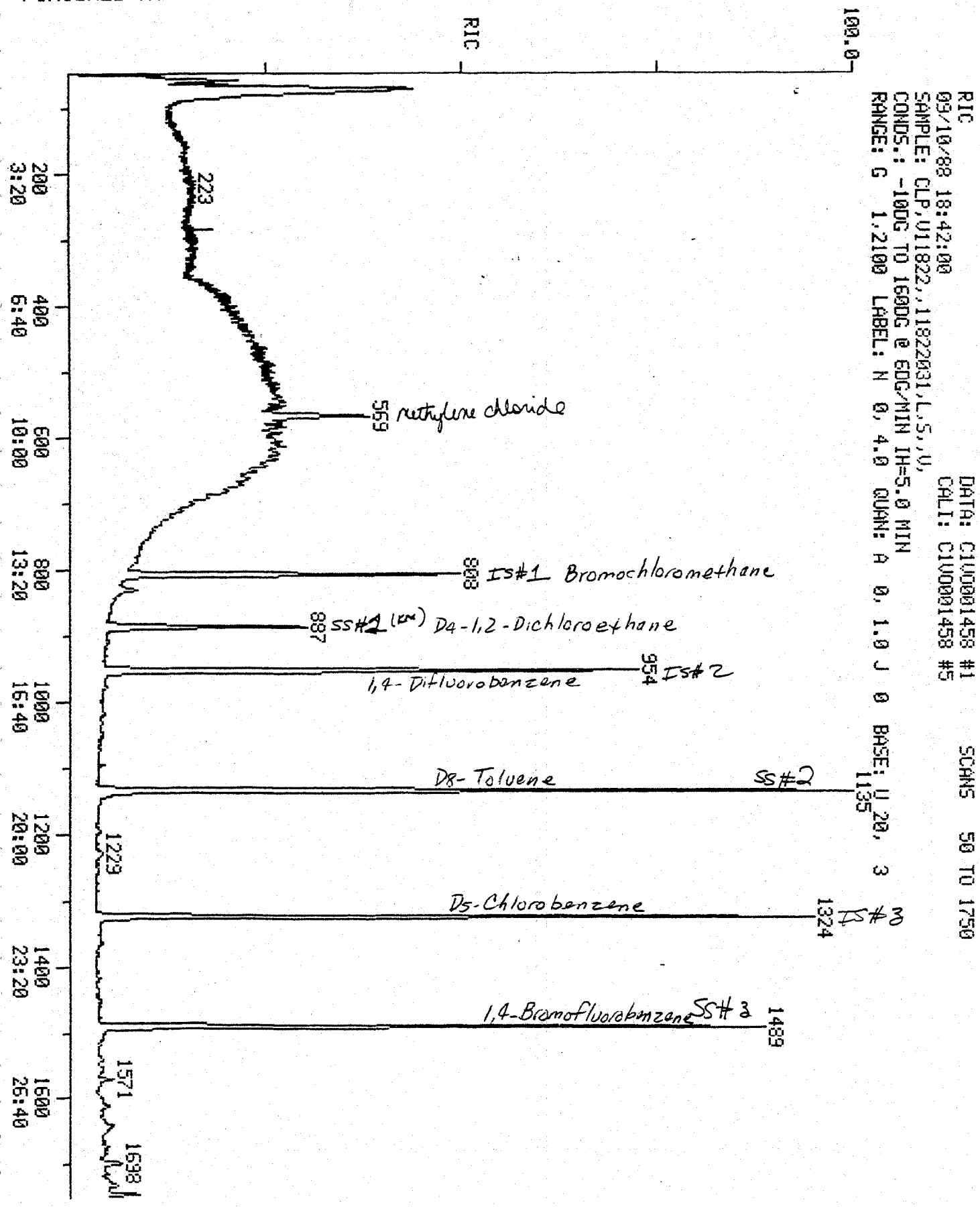
Level: (low/med) LOW Date Received: 08/31/88

% Moisture: not dec. 16 Date Analyzed: 09/10/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	31	B
67-64-1	Acetone	57	
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	3	J
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

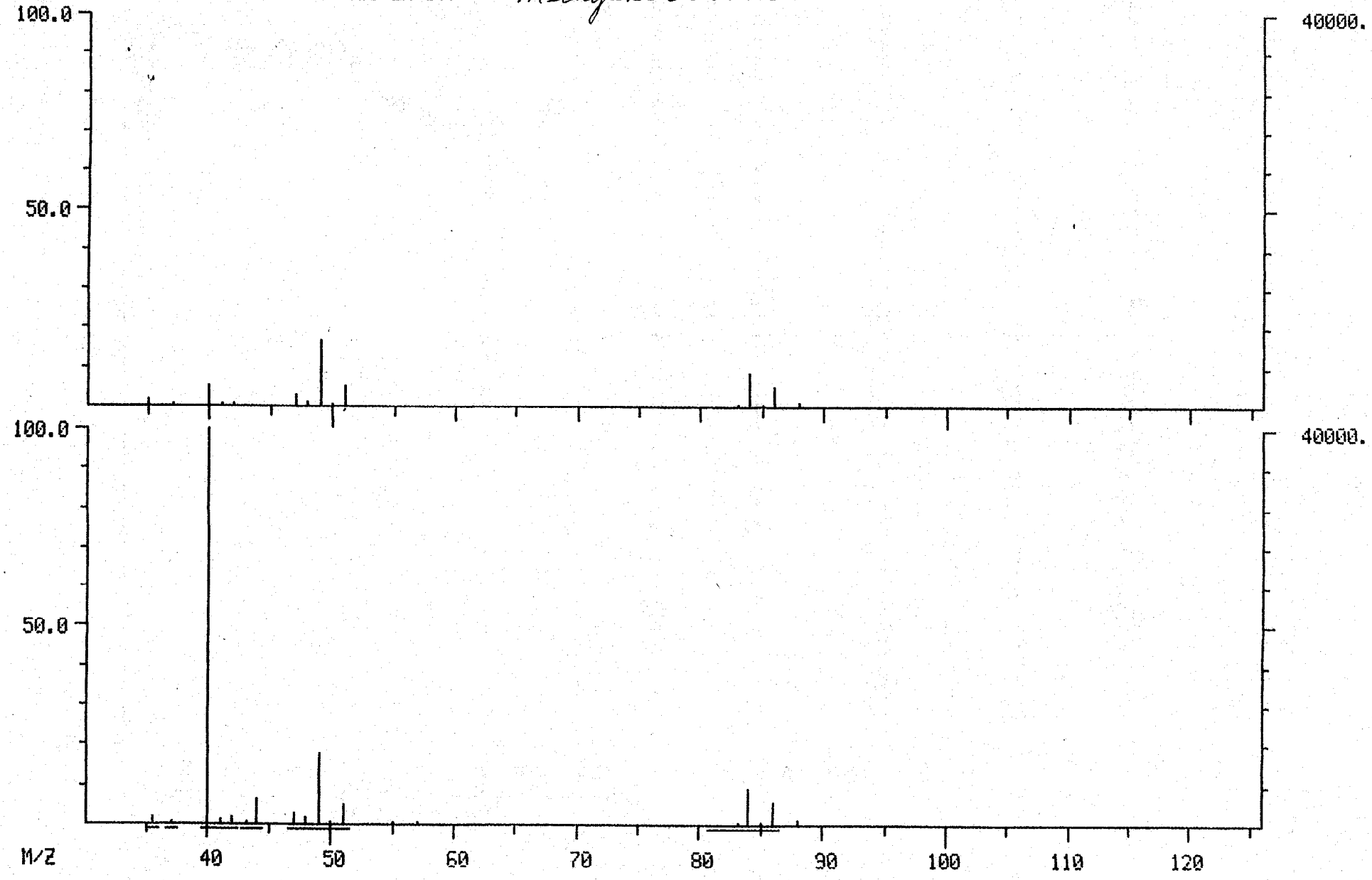
TCA FINISHED, 9 FOUND
FINISHED AT: 9/11/88 2:09:40



DUAL MASS SPECTRUM
09/10/88 18:42:00 + 9:29
SAMPLE: CLP,V11822,,11822031,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

DATA: C1V0001458 #569 BASE M/Z: 49/ 40
CALI: C1V0001458 #5 RIC: 20703./ 64575.

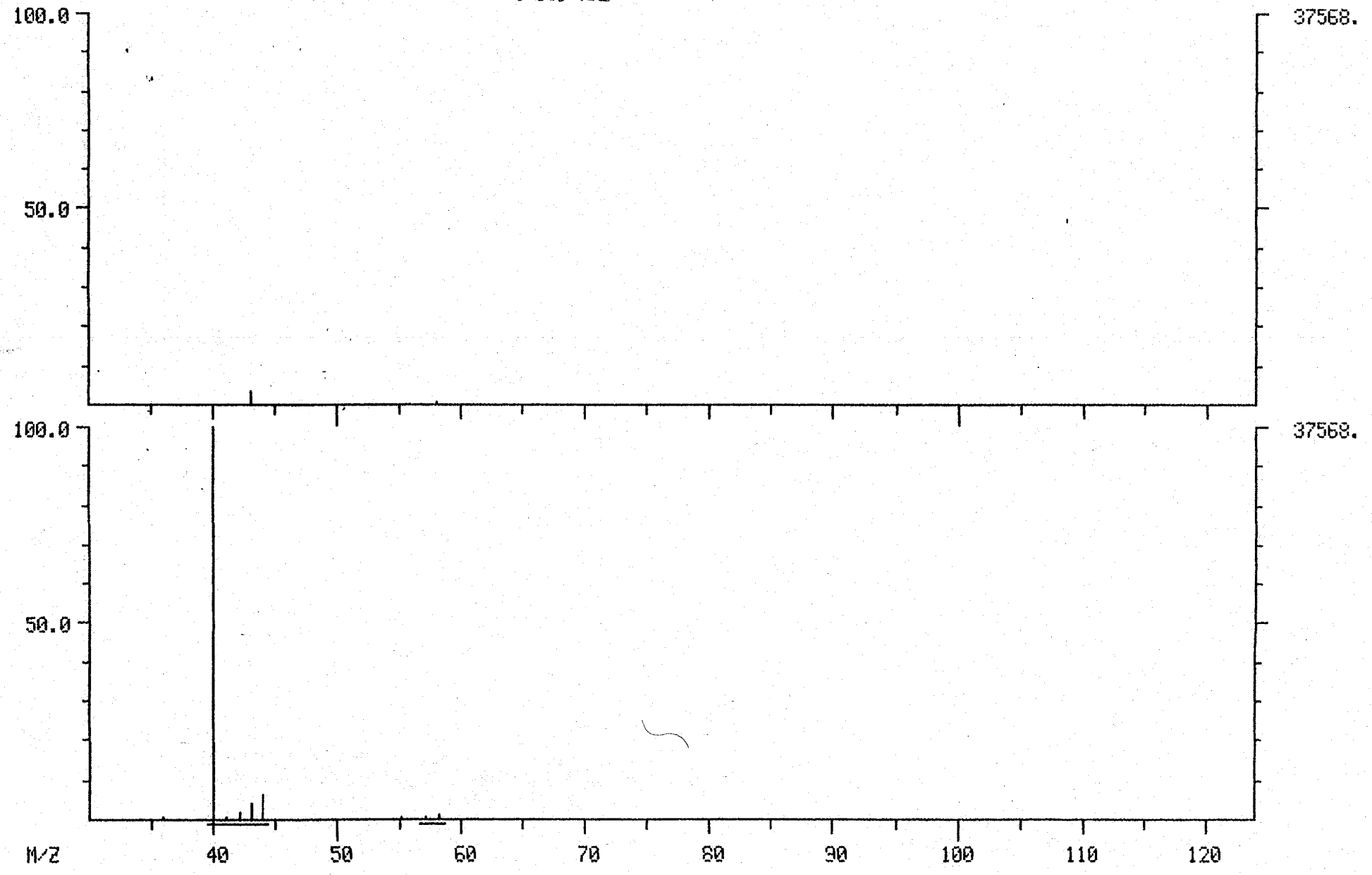
000085



DUAL MASS SPECTRUM
09/10/88 18:42:00 + 8:09
SAMPLE: CLP,V11822,,11822031,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) acetone

DATA: C1V0001458 #489 BASE M/Z: 43/ 40
CALI: C1V0001458 #5 RIC: 1735./ 43903.

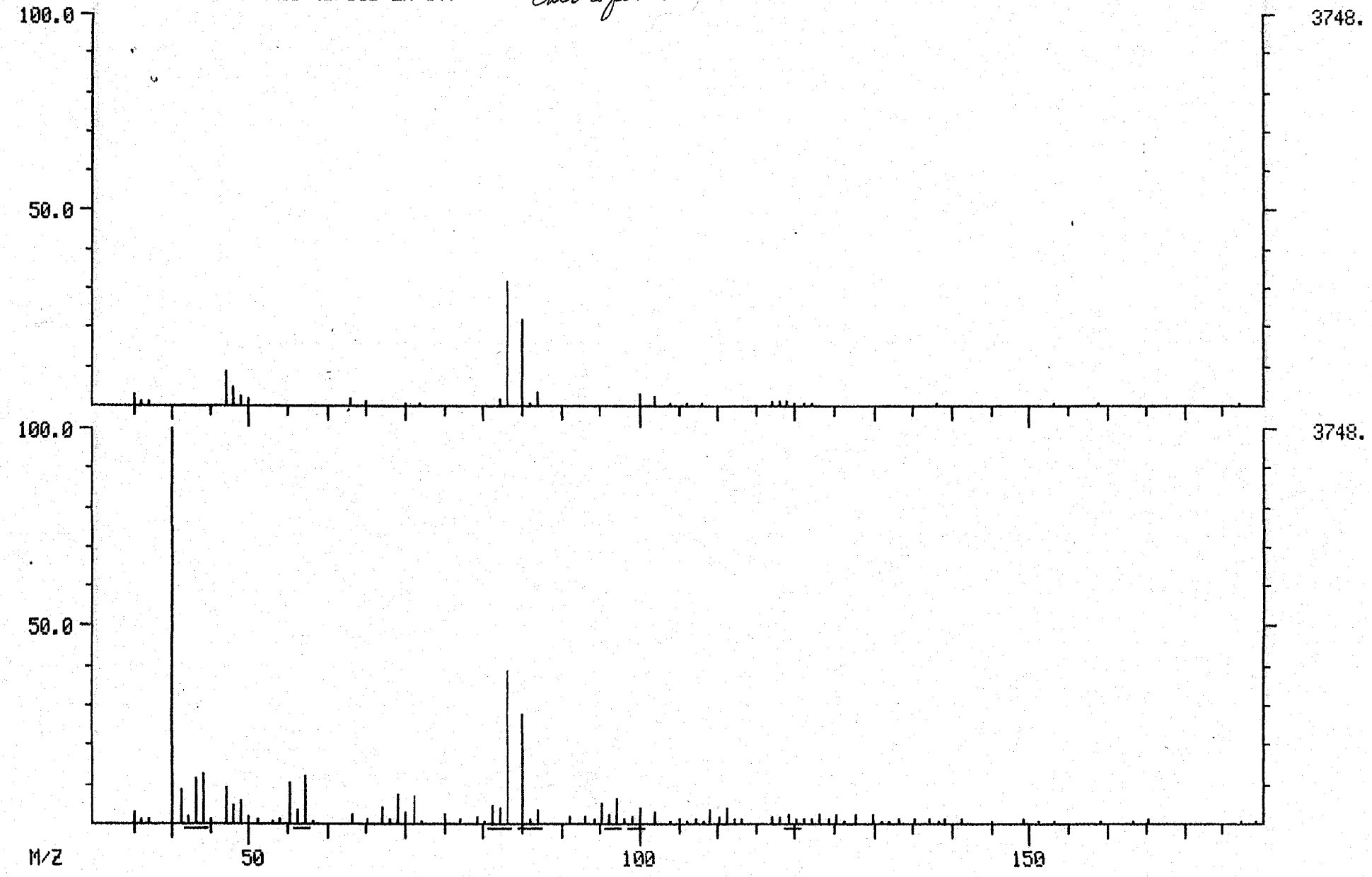
000089



DUAL MASS SPECTRUM
09/10/88 18:42:00 + 13:51
SAMPLE: CLP,V11822,,11822031,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Chloroform

DATA: C1V0001458 #831 BASE M/Z: 83/ 40
CALI: C1V0001458 #5 RIC: 3767./ 14431.



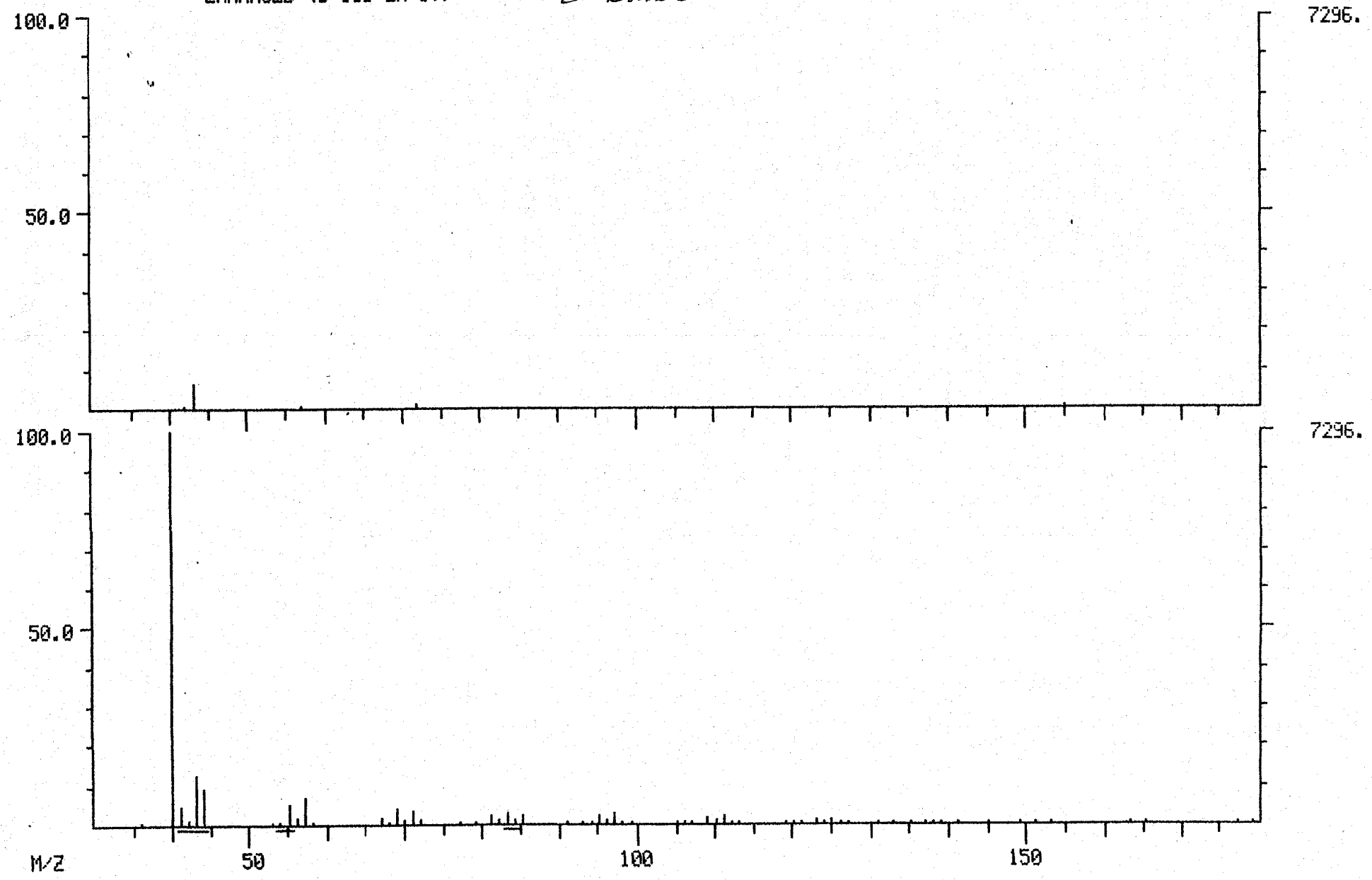
000087

DUAL MASS SPECTRUM
09/10/88 18:42:00 + 13:10
SAMPLE: CLP,V11822,,11822031,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (5 15B 2N 0T)

2- Butanone

DATA: C1V0001458 #790 BASE M/Z: 43/ 40
CALI: C1V0001458 #5 RIC: 752./ 14335.

000088



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1301_B10S1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822032

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001459

Level: (low/med) LOW Date Received: 08/31/88

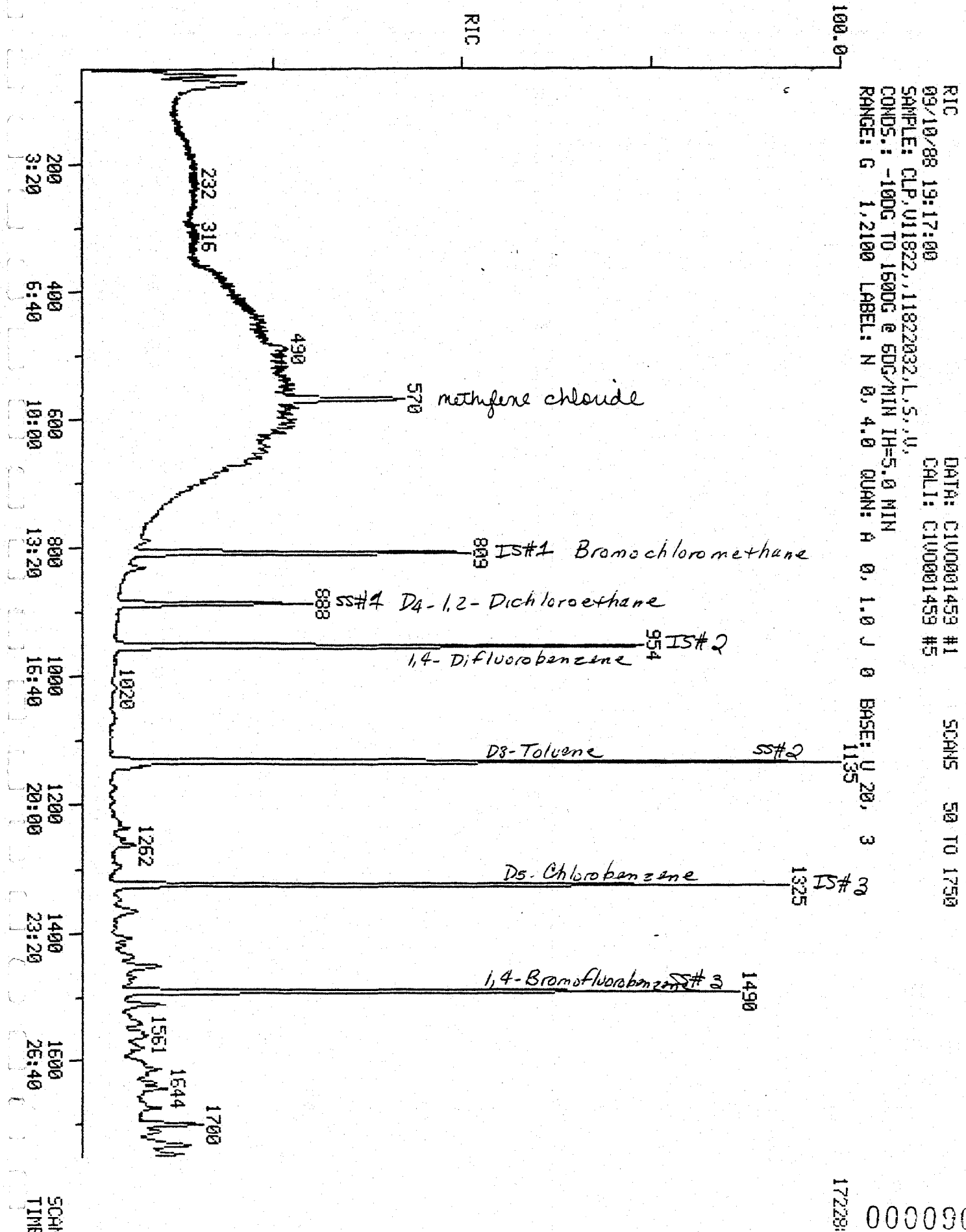
% Moisture: not dec. 8 Date Analyzed: 09/10/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	41	B
67-64-1	Acetone	92	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	8	J
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

TCA FINISHED, 10 FOUND
FINISHED AT: 9/11/88 2:16:07



17228

000090

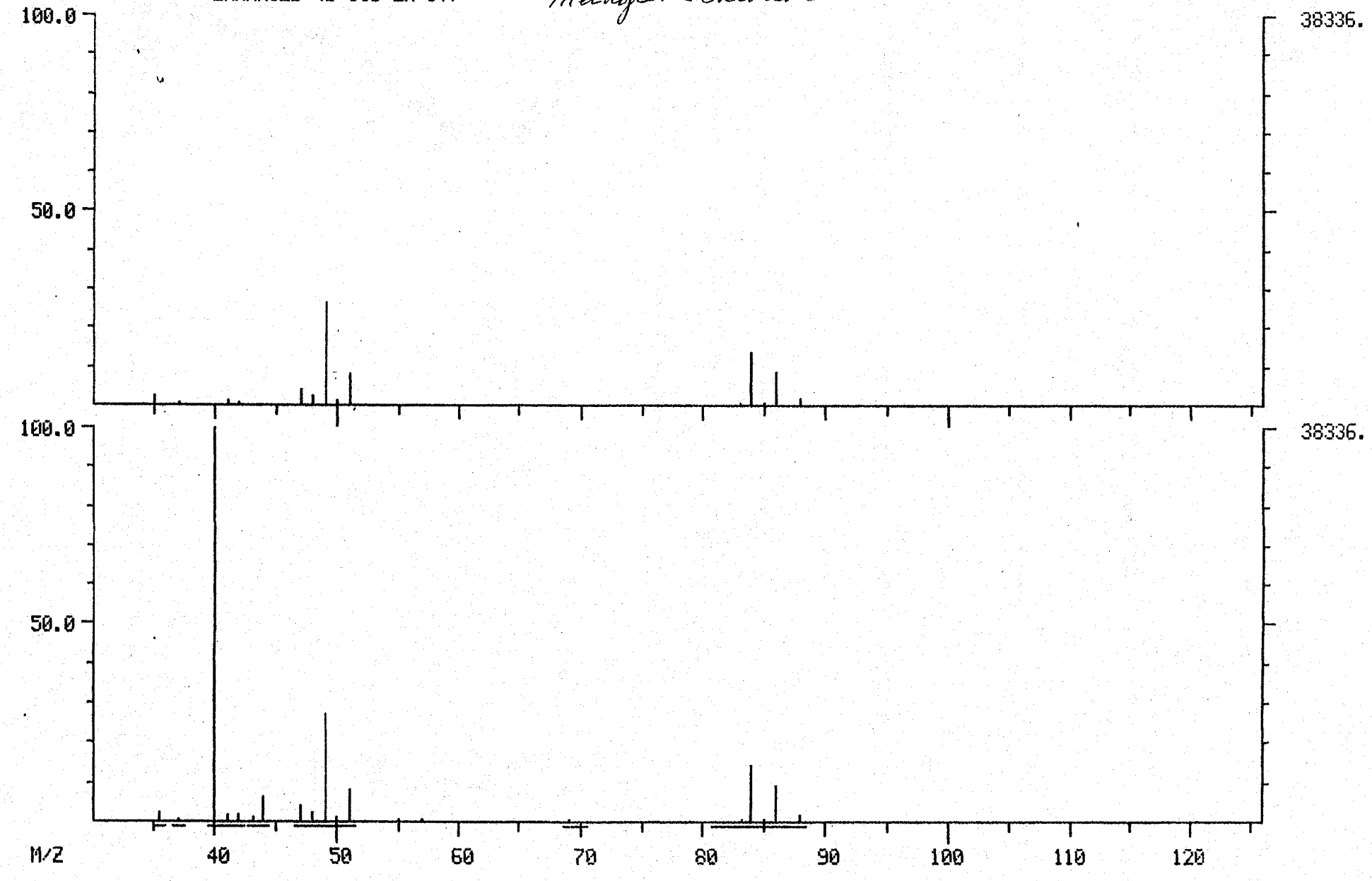
DUAL MASS SPECTRUM
09/10/88 19:17:00 + 9:29
SAMPLE: CLP,V11822,,11822032,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Methylene chloride

DATA: C1V0001459 #569
CALI: C1V0001459 #5

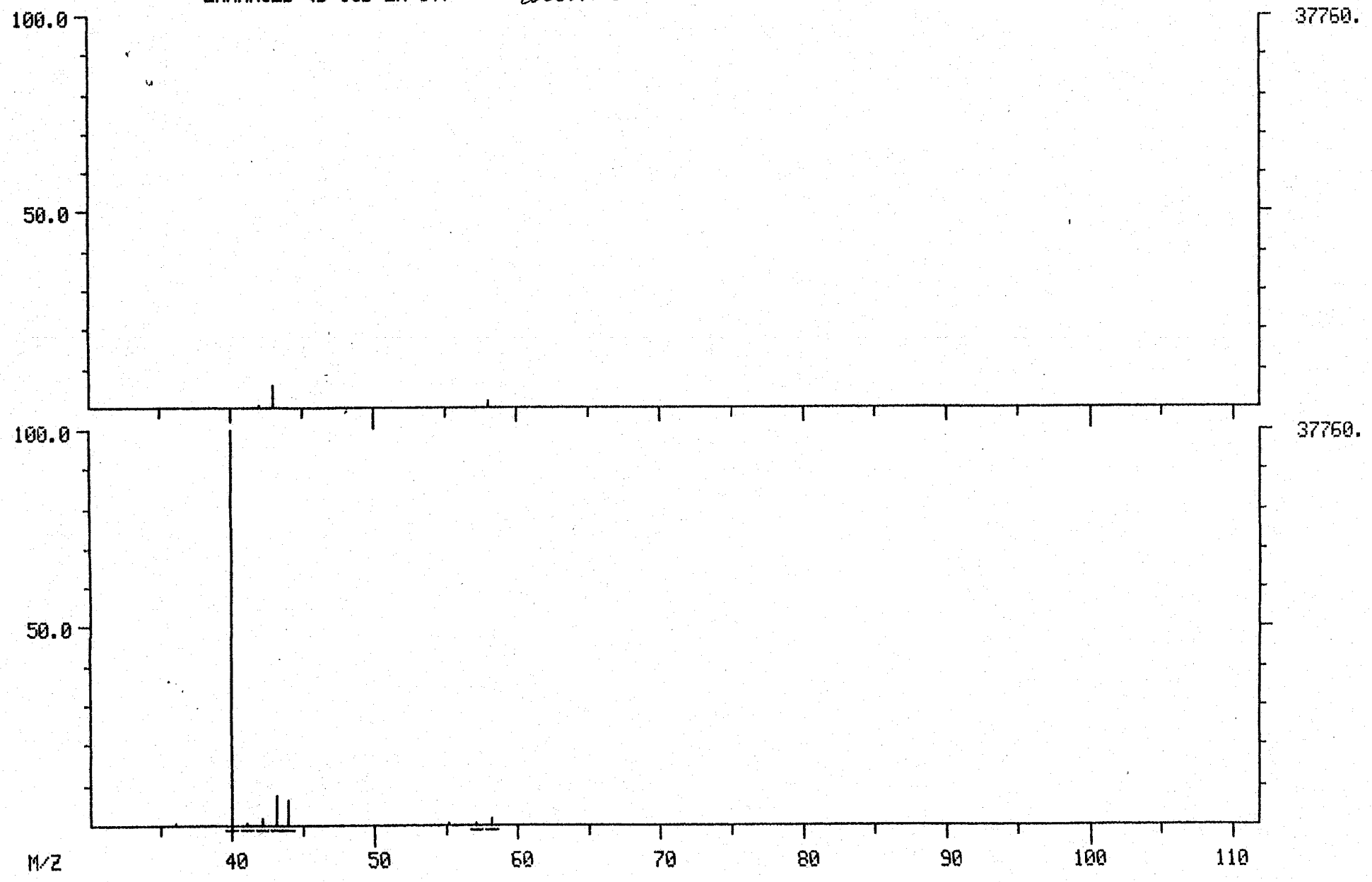
BASE M/Z: 49/ 40
RIC: 28127./ 72063.

160000



DUAL MASS SPECTRUM
09/10/88 19:17:00 + 8:11
SAMPLE: CLP,V11822,,11822032,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) acetone

DATA: C1V0001459 #491 BASE M/Z: 43/ 40
CALI: C1V0001459 #5 RIC: 3243./ 45887.



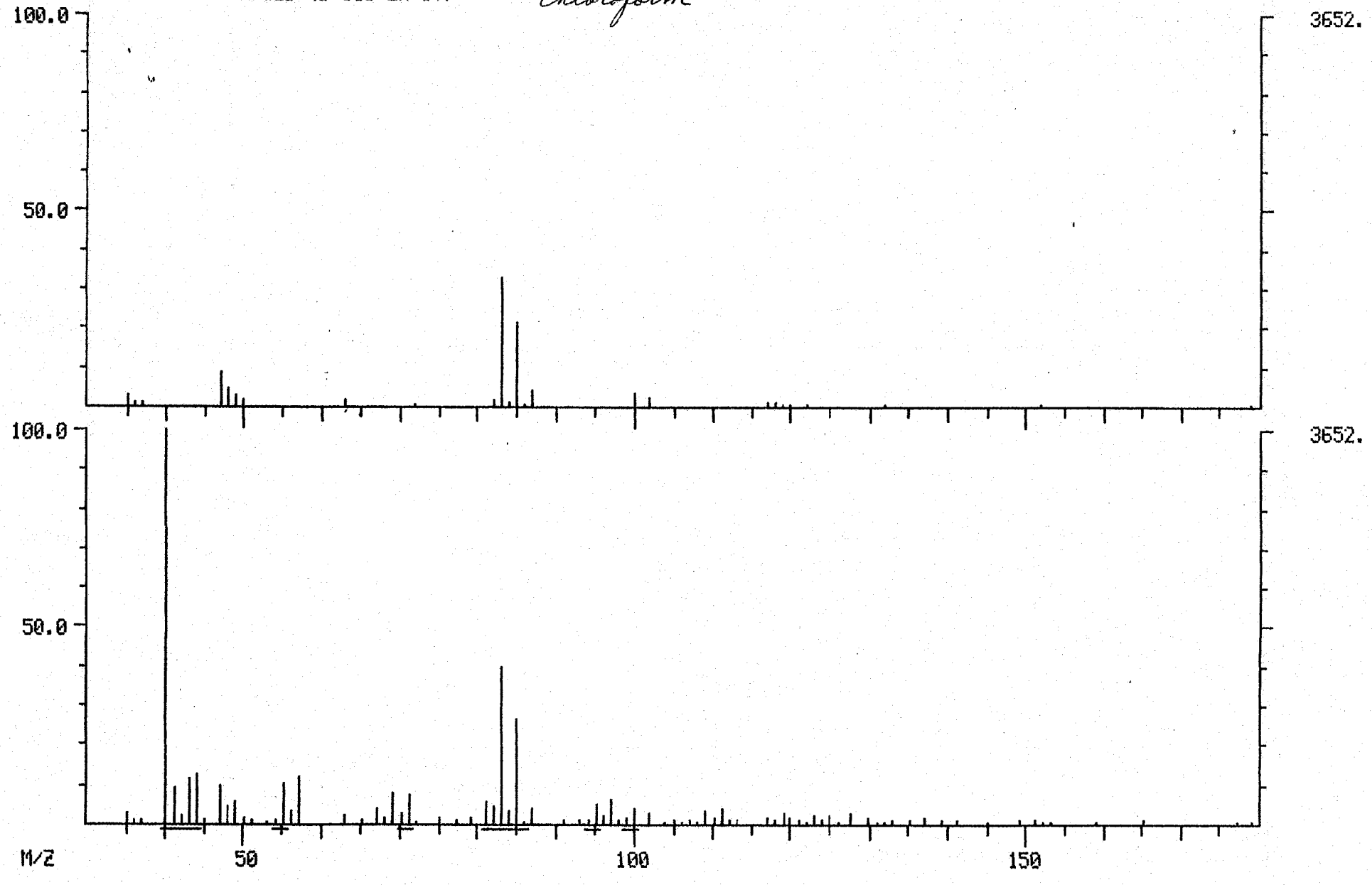
000092

DUAL MASS SPECTRUM
09/10/88 19:17:00 + 13:52
SAMPLE: CLP,V11822,,11822032,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Chloroform

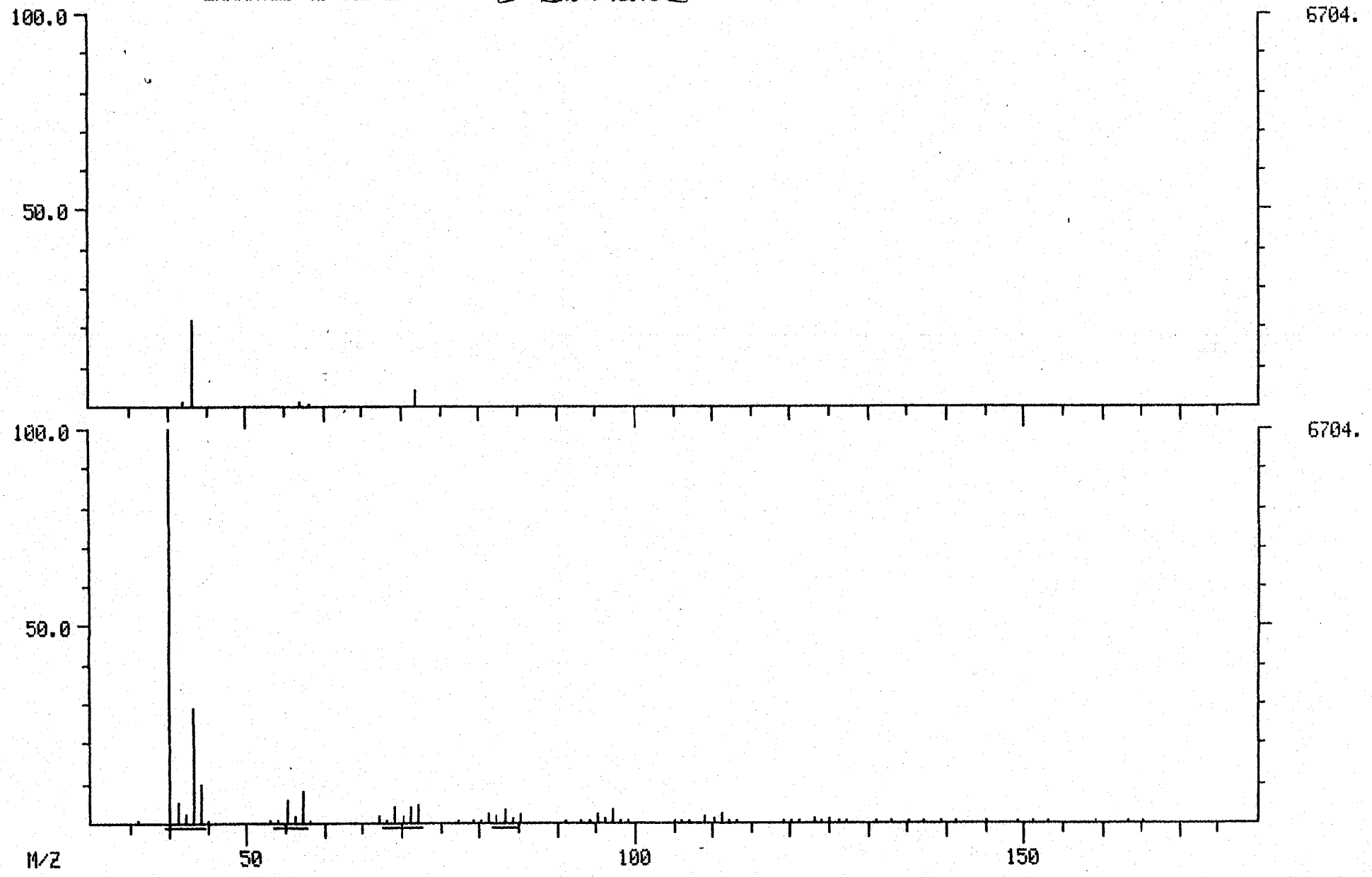
DATA: C1V0001459 #832 BASE M/Z: 83/ 40
CALI: C1V0001459 #5 RIC: 3639./ 14159.

000093



DUAL MASS SPECTRUM
09/10/88 19:17:00 + 13:11
SAMPLE: CLP,V11822,,11822032,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) 2-Butanone

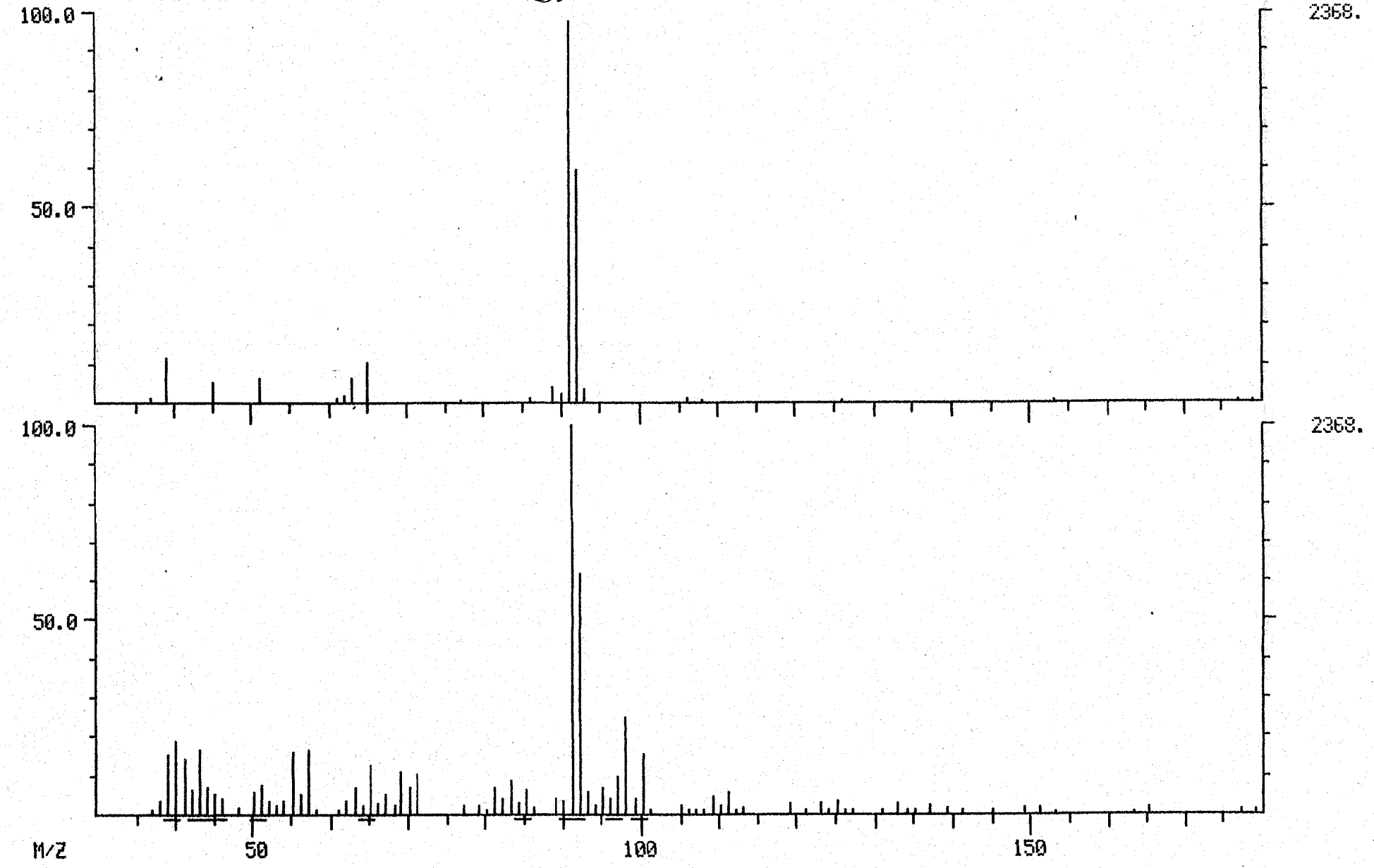
DATA: C1V0001459 #791 BASE M/Z: 43/ 40
CALI: C1V0001459 #5 RIC: 2045./ 14959.



DUAL MASS SPECTRUM
09/10/88 19:17:00 + 19:03
SAMPLE: CLP,V11822,,11822032,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Toluene

DATA: C1V0001459 #1143 BASE M/Z: 91/ 91
CALI: C1V0001459 #5 RIC: 5159./ 13311.

000095



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1301_B10S2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822033

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001460

Level: (low/med) LOW Date Received: 08/31/88

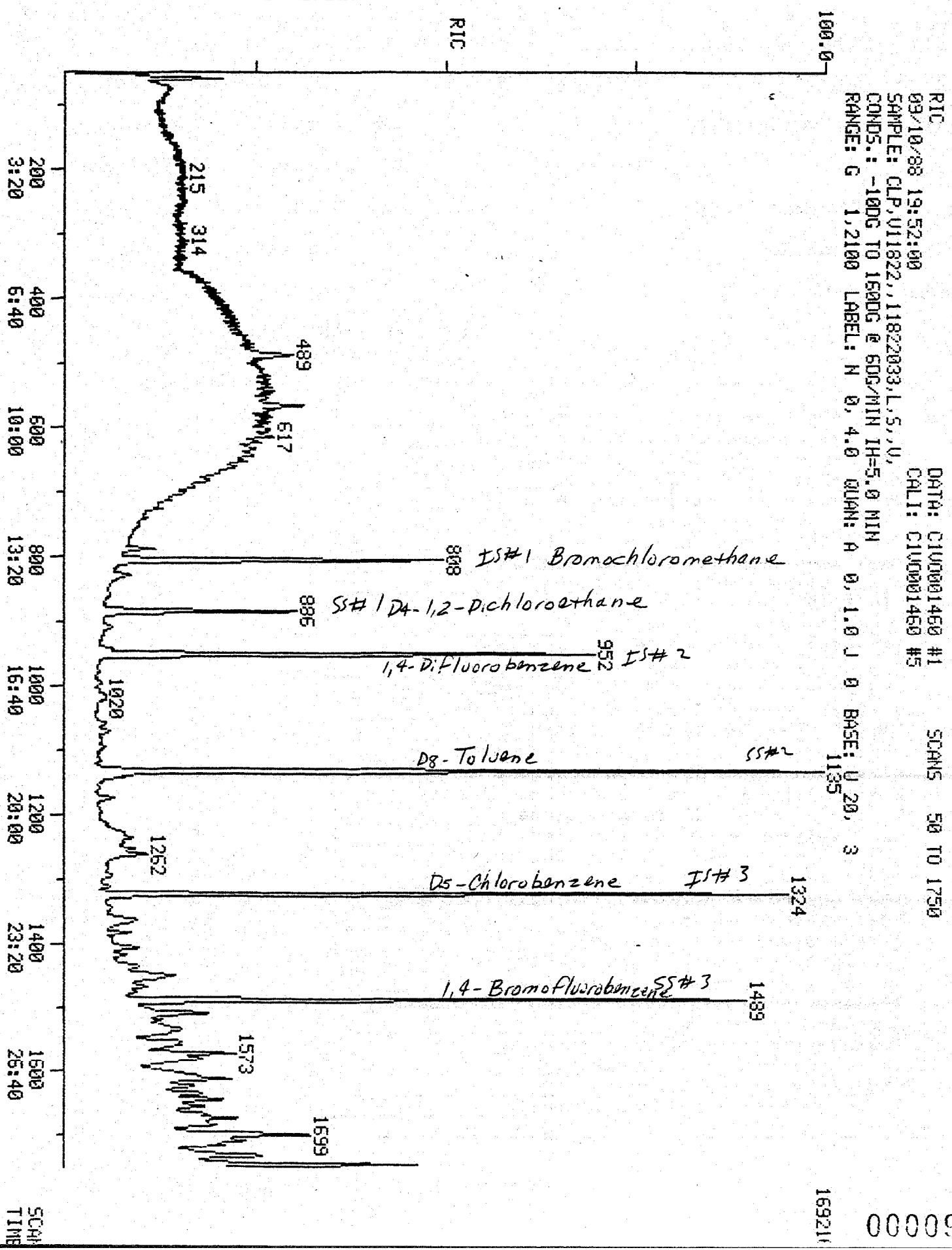
% Moisture: not dec. 13 Date Analyzed: 09/10/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	10	BJ
67-64-1	Acetone	240	E
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	27	
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS

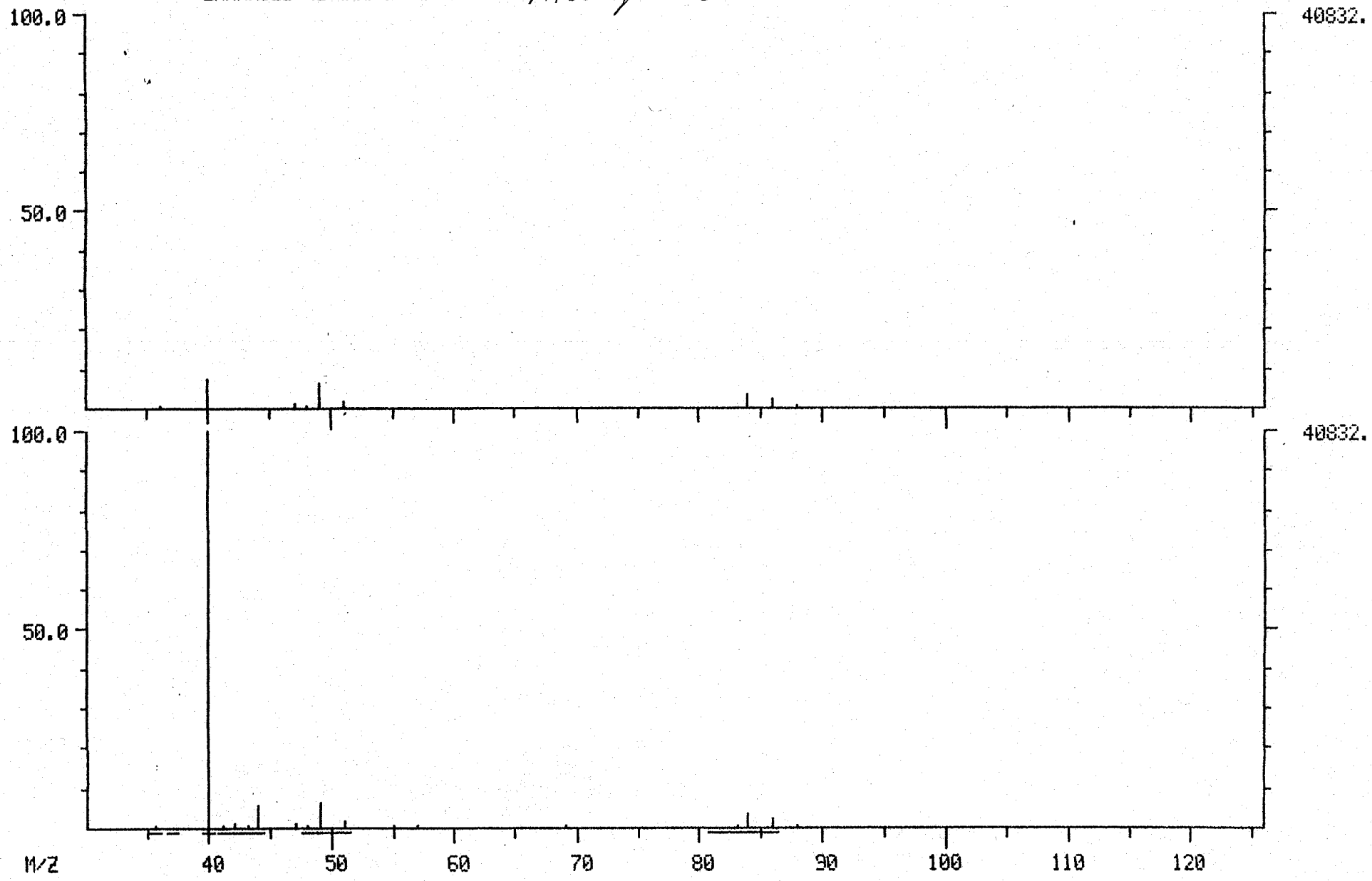
TCA FINISHED, 11 FOUND
FINISHED AT: 9/11/88 2:22:37



000097

DUAL MASS SPECTRUM
09/10/88 19:52:00 + 9:28
SAMPLE: CLP,V11822,,11822033,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

DATA: C1V0001460 #568 BASE M/Z: 40/ 40
CALI: C1V0001460 #5 RIC: 9919./ 53055.

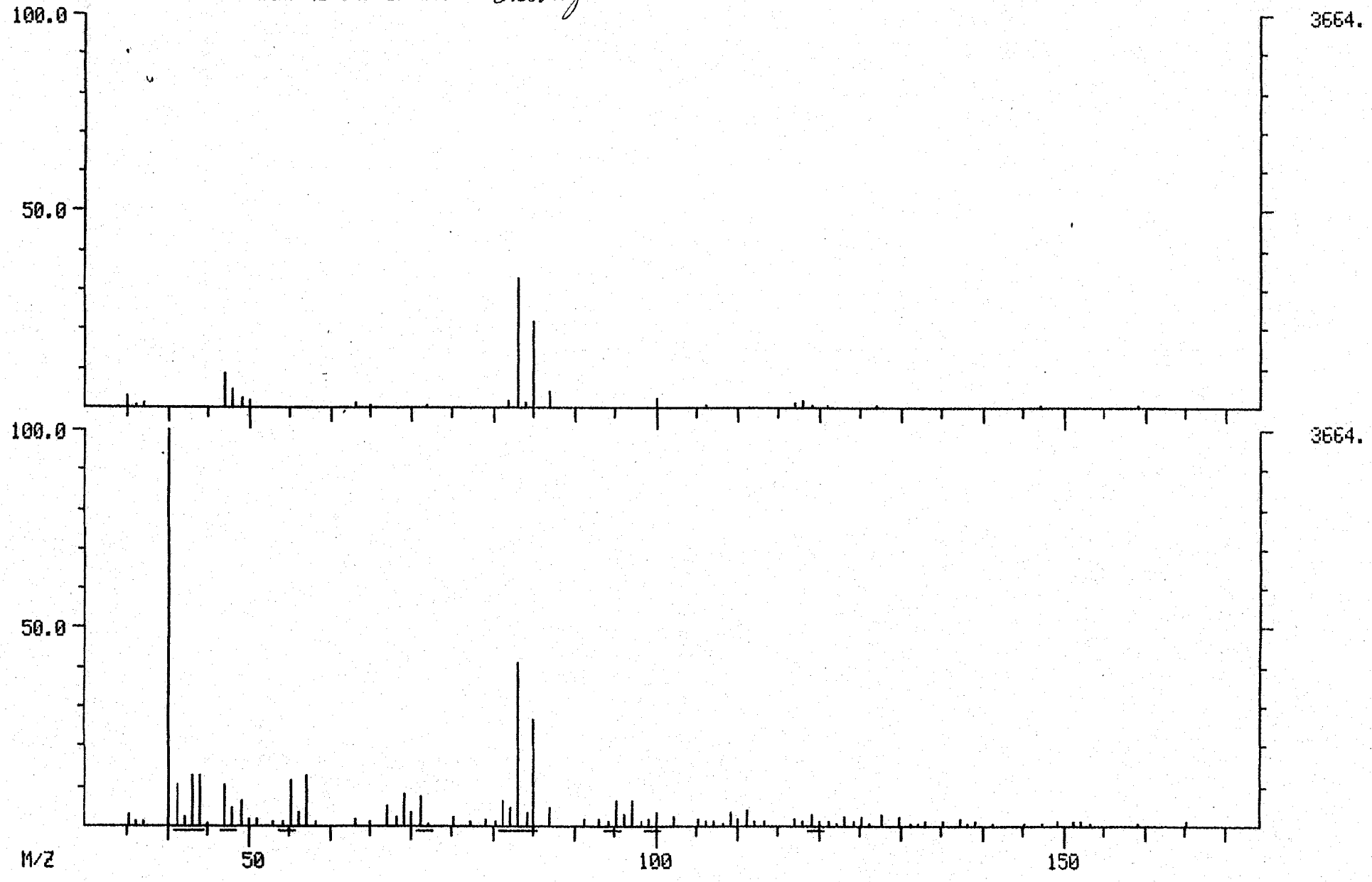


860098

DUAL MASS SPECTRUM
09/10/88 19:52:00 + 13:50
SAMPLE: CLP,V11822,,11822033,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

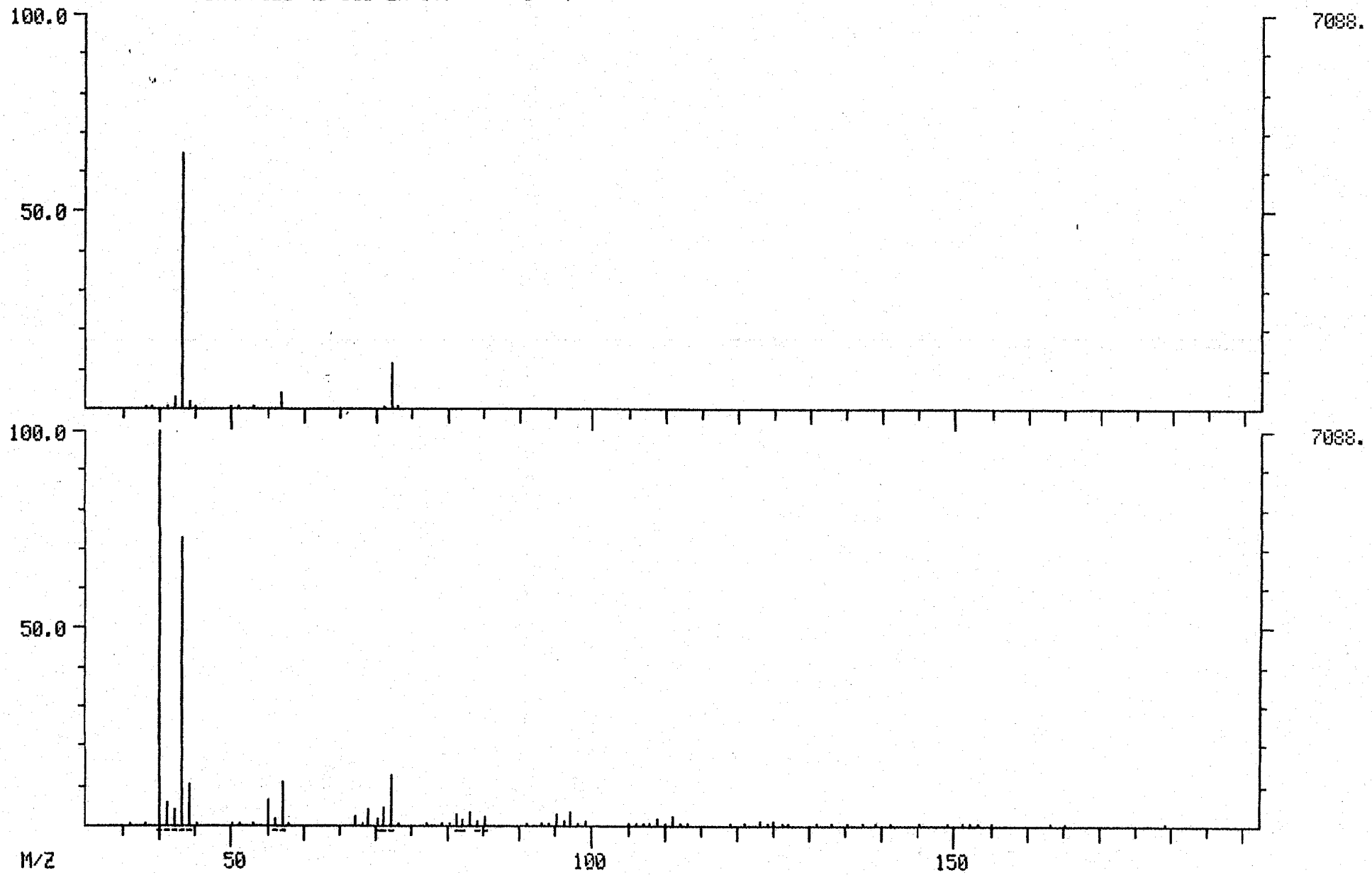
DATA: C1V0001460 #830 BASE M/Z: 83/ 40
CALI: C1V0001460 #5 RIC: 3519./ 14703.

000100



DUAL MASS SPECTRUM
09/10/88 19:52:00 + 13:10
SAMPLE: CLP,V11822,,11822033,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) 2-Butanone

DATA: C1V0001460 #790 BASE M/Z: 43/ 40
CALI: C1V0001460 #5 RIC: 6487./ 20383.



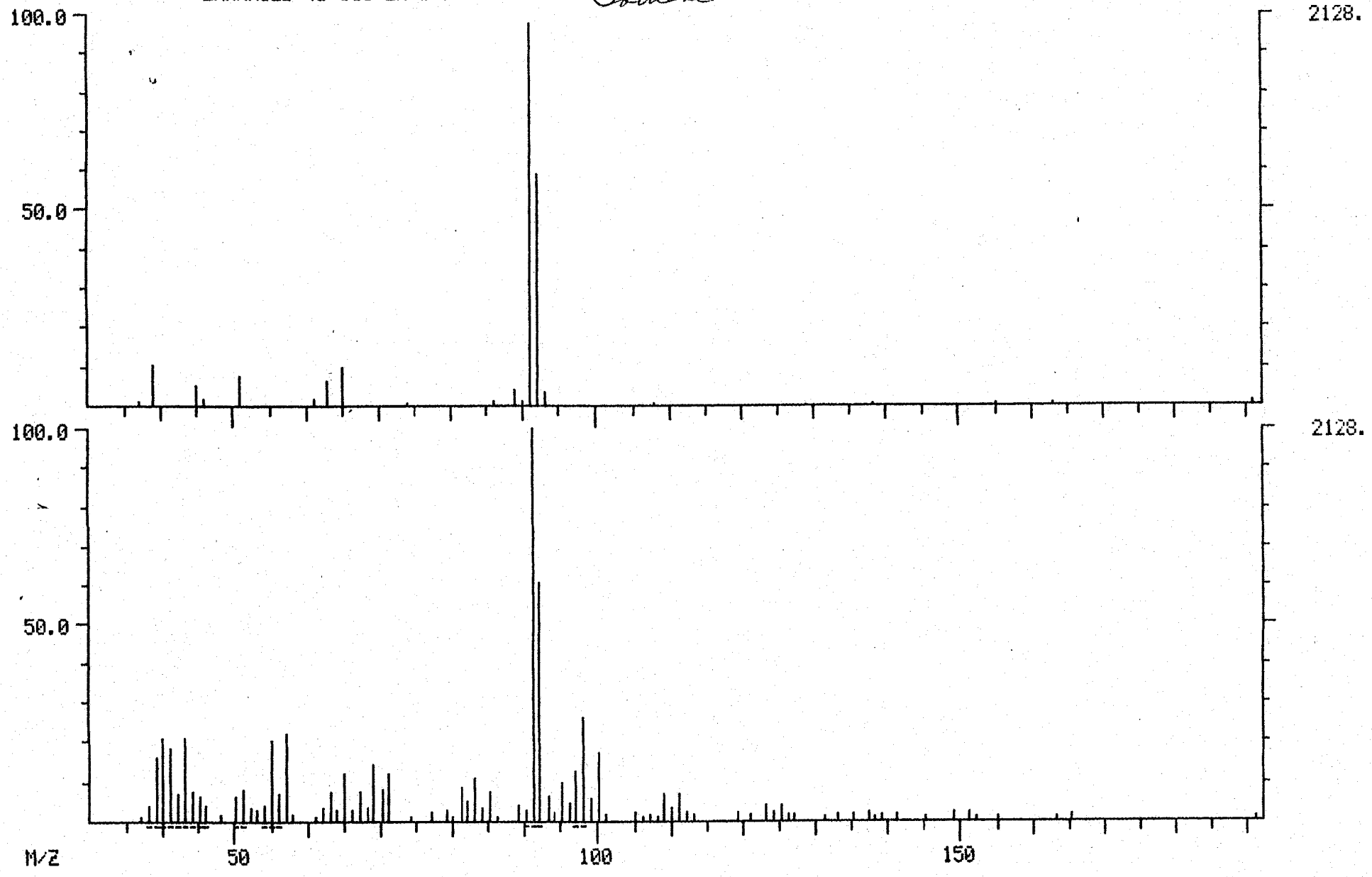
000101

DUAL MASS SPECTRUM
09/10/88 19:52:00 + 19:03
SAMPLE: CLP,V11822,,11822033,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Toluene

DATA: C1V0001460 #1143 BASE M/Z: 91/ 91
CALI: C1V0001460 #5 RIC: 4567./ 13311.

000102



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1301_B10S3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822034

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001461

Level: (low/med) LOW Date Received: 08/31/88

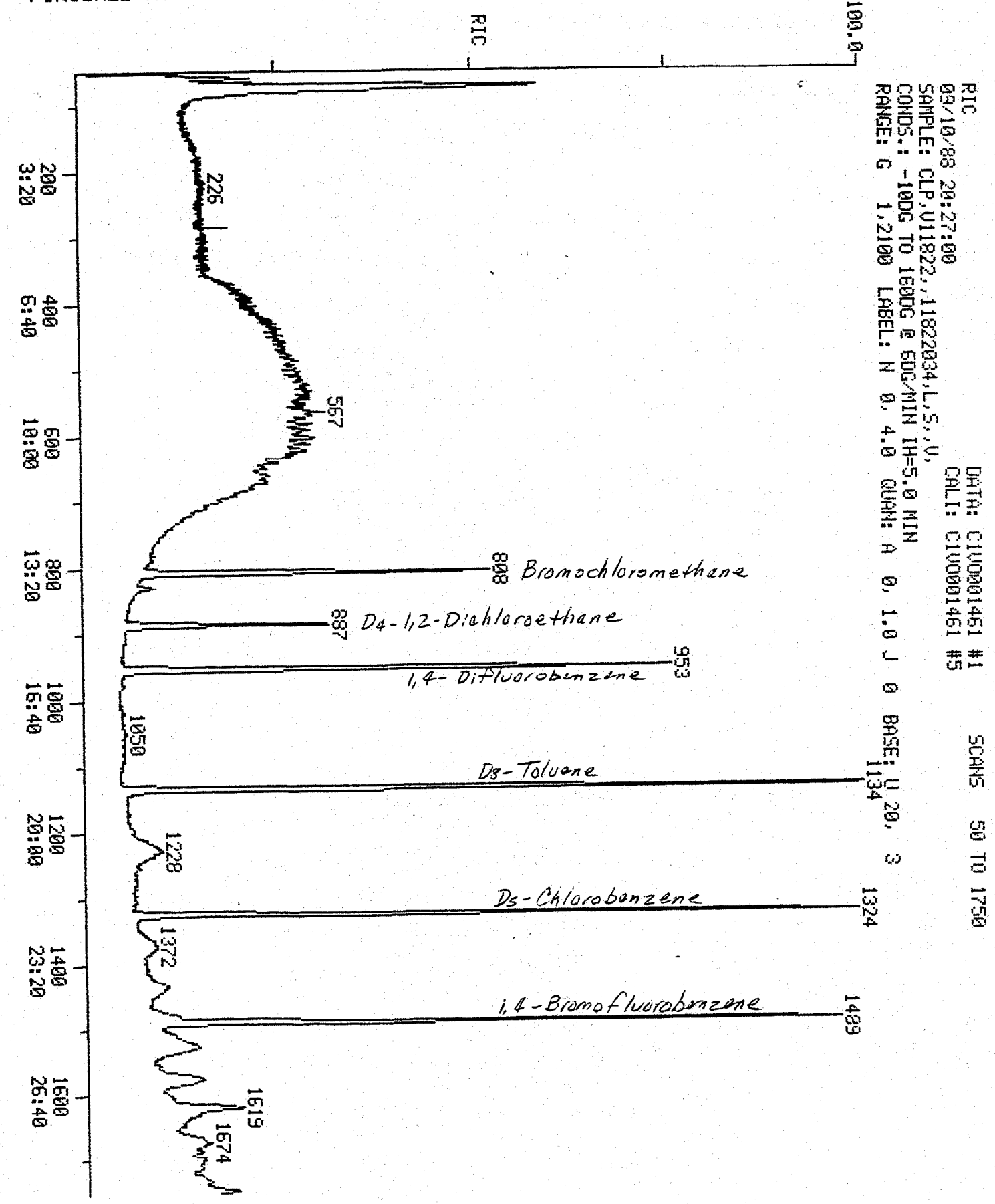
% Moisture: not dec. 15 Date Analyzed: 09/10/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	6	BJ
67-64-1	Acetone	38	
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	3	J
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

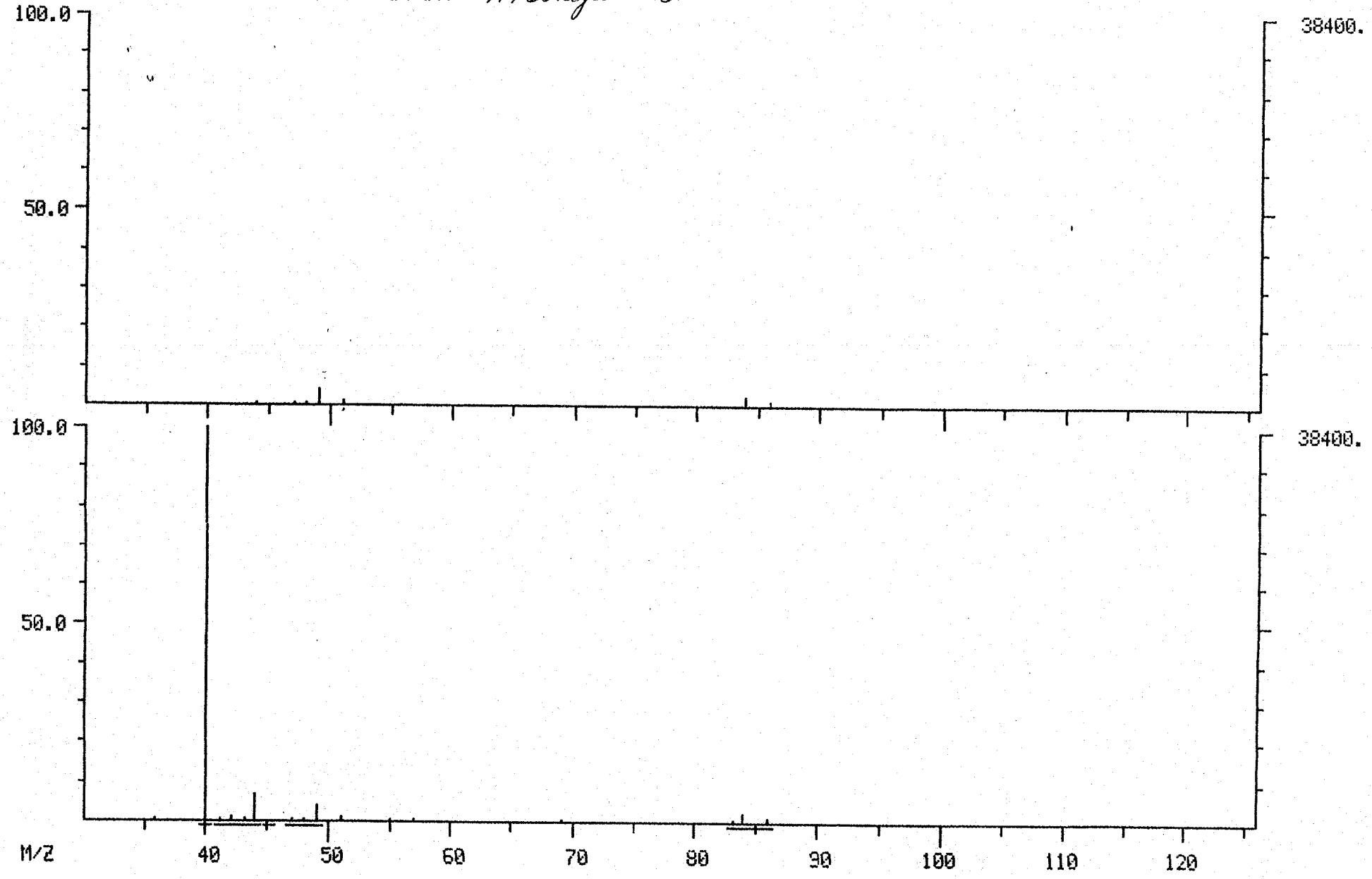
RS

TCA FINISHED, 8 FOUND
FINISHED AT: 9/11/88 2:29:11



DUAL MASS SPECTRUM
09/10/88 20:27:00 + 9:28
SAMPLE: CLP,V11822,,11822034,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

DATA: C1V0001461 #568 BASE M/Z: 49/ 40
CALI: C1V0001461 #5 RIC: 4383./ 47807.



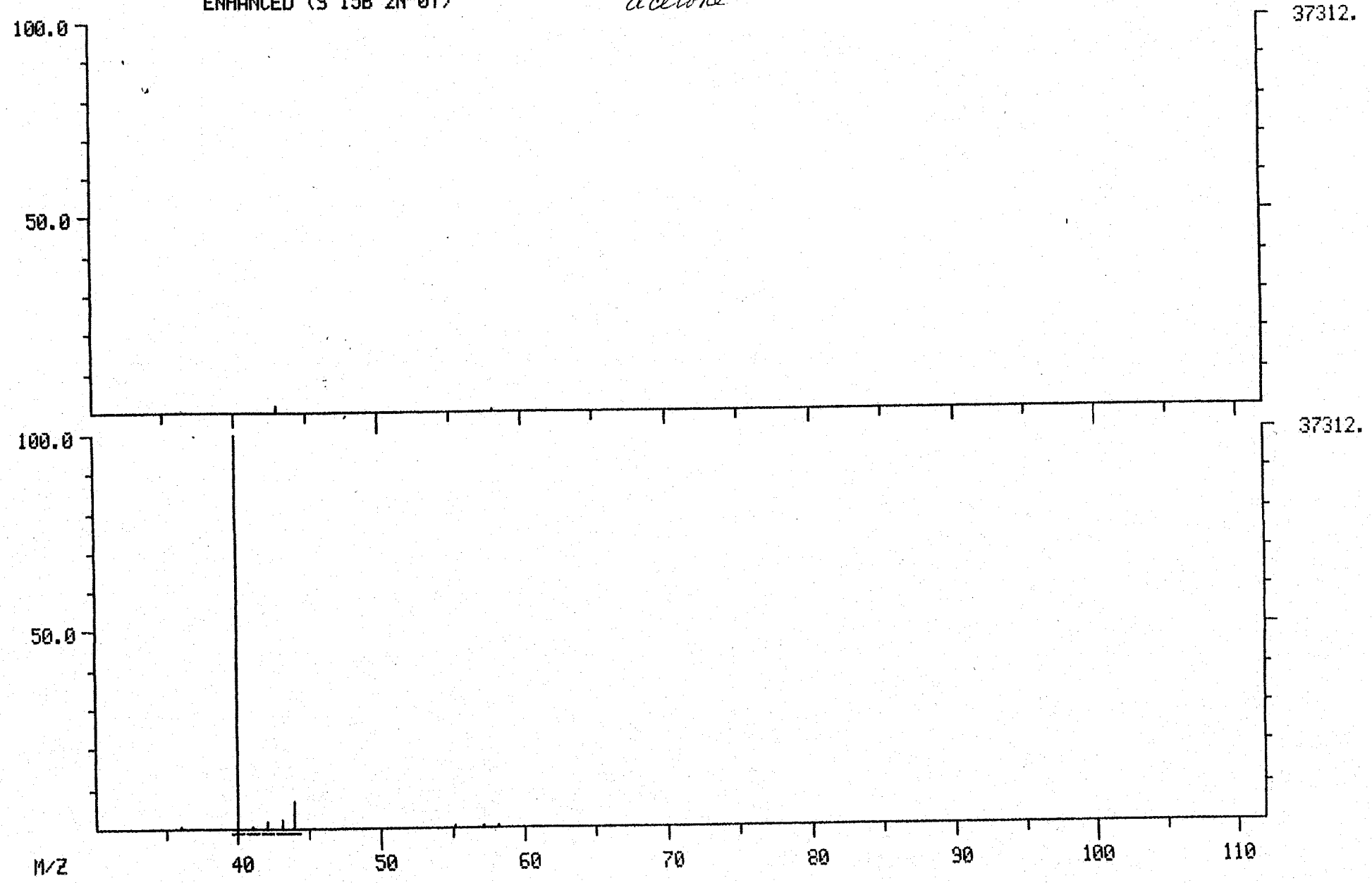
000105

DUAL MASS SPECTRUM
09/10/88 20:27:00 + 8:10
SAMPLE: CLP,V11822,,11822034,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Acetone

DATA: C1V0001461 #490 BASE M/Z: 43/ 40
CALI: C1V0001461 #5 RIC: 833./ 43135.

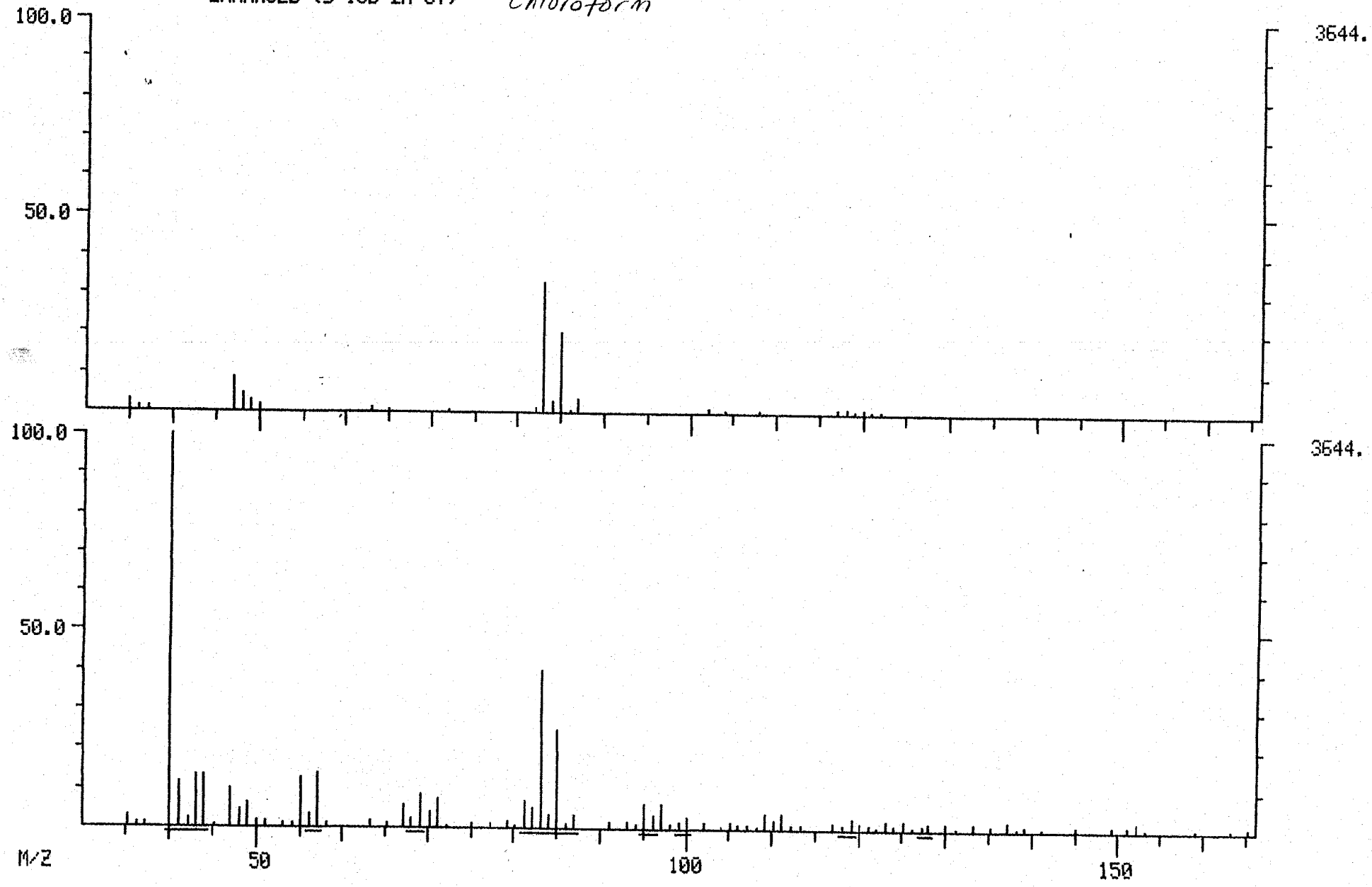
000106



DUAL MASS SPECTRUM
09/10/88 20:27:00 + 13:50
SAMPLE: CLP,V11822,,11822034,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001461 #830 BASE M/Z: 83/ 40
CALI: C1V0001461 #5 RIC: 3455./ 14847.

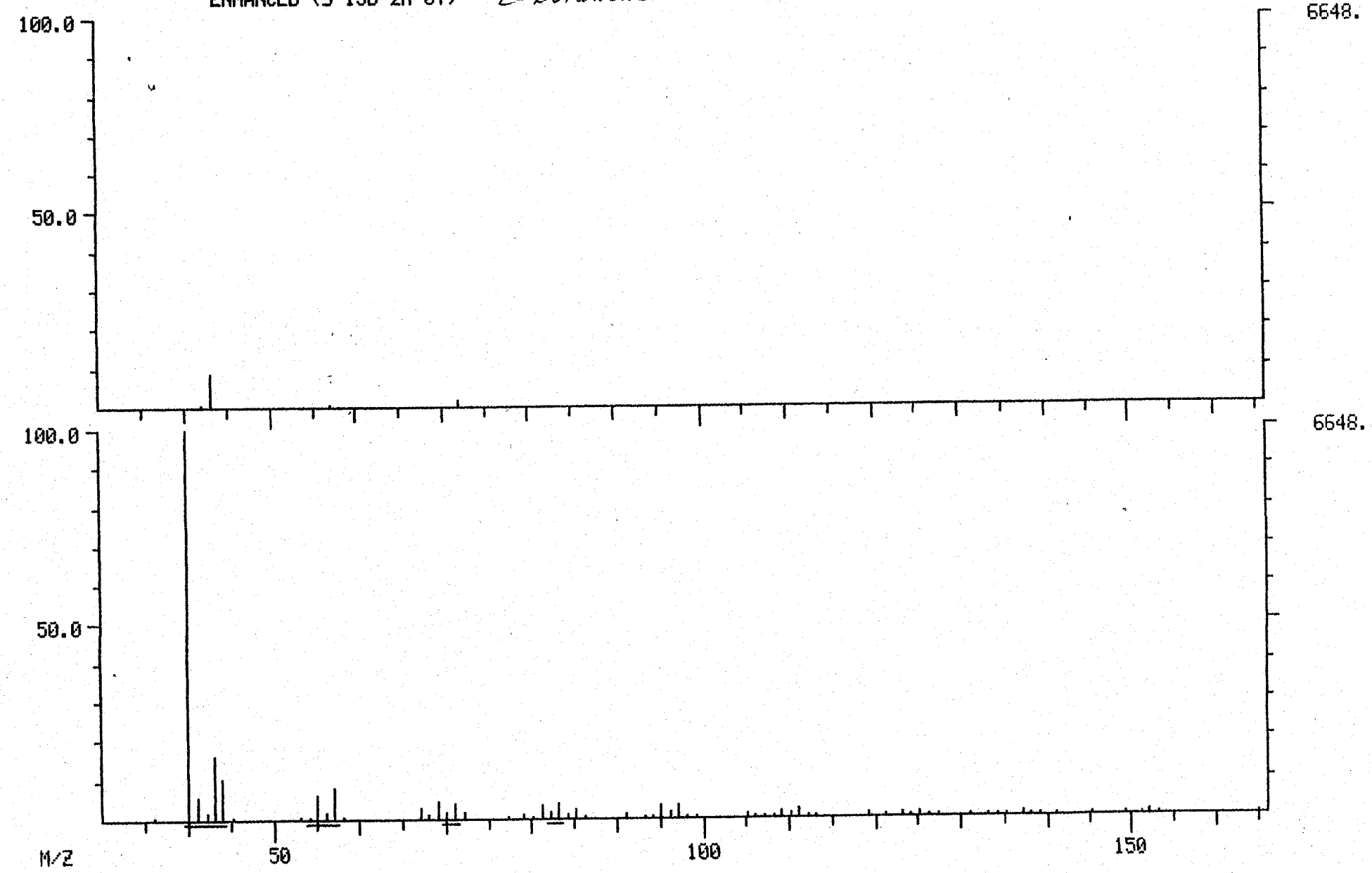
000107



DUAL MASS SPECTRUM
09/10/88 20:27:00 + 13:10
SAMPLE: CLP,V11822,,11822034,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) 2-Butanone

DATA: C1V0001461 #790 BASE M/Z: 43/ 40
CALI: C1V0001461 #5 RIC: 868./ 14543.

000108



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1301_B10S3_D

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11822035

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001462

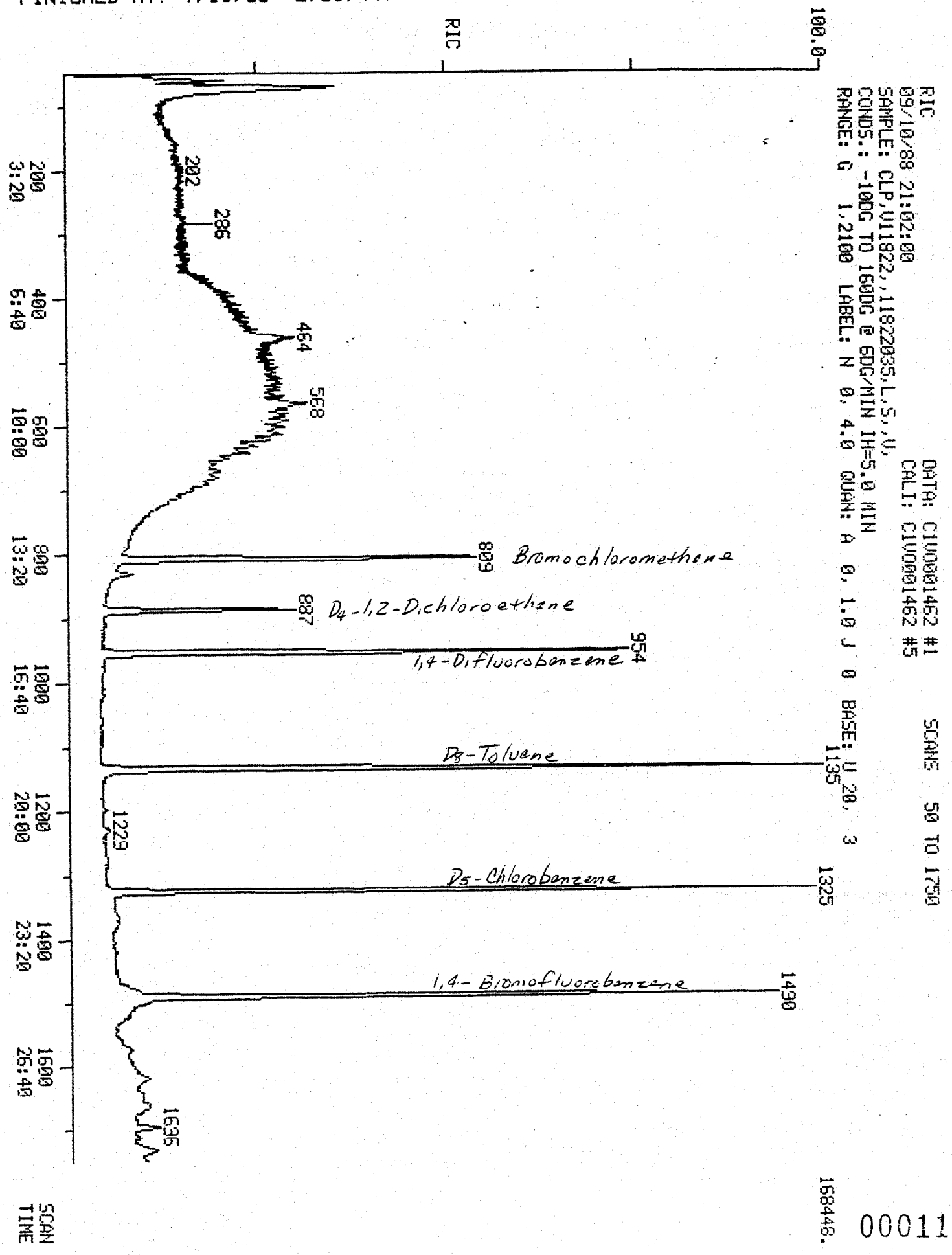
Level: (low/med) LOW Date Received: 08/31/88

% Moisture: not dec. 20 Date Analyzed: 09/10/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	11	BJ
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 9 FOUND
FINISHED AT: 9/11/88 2:35:44



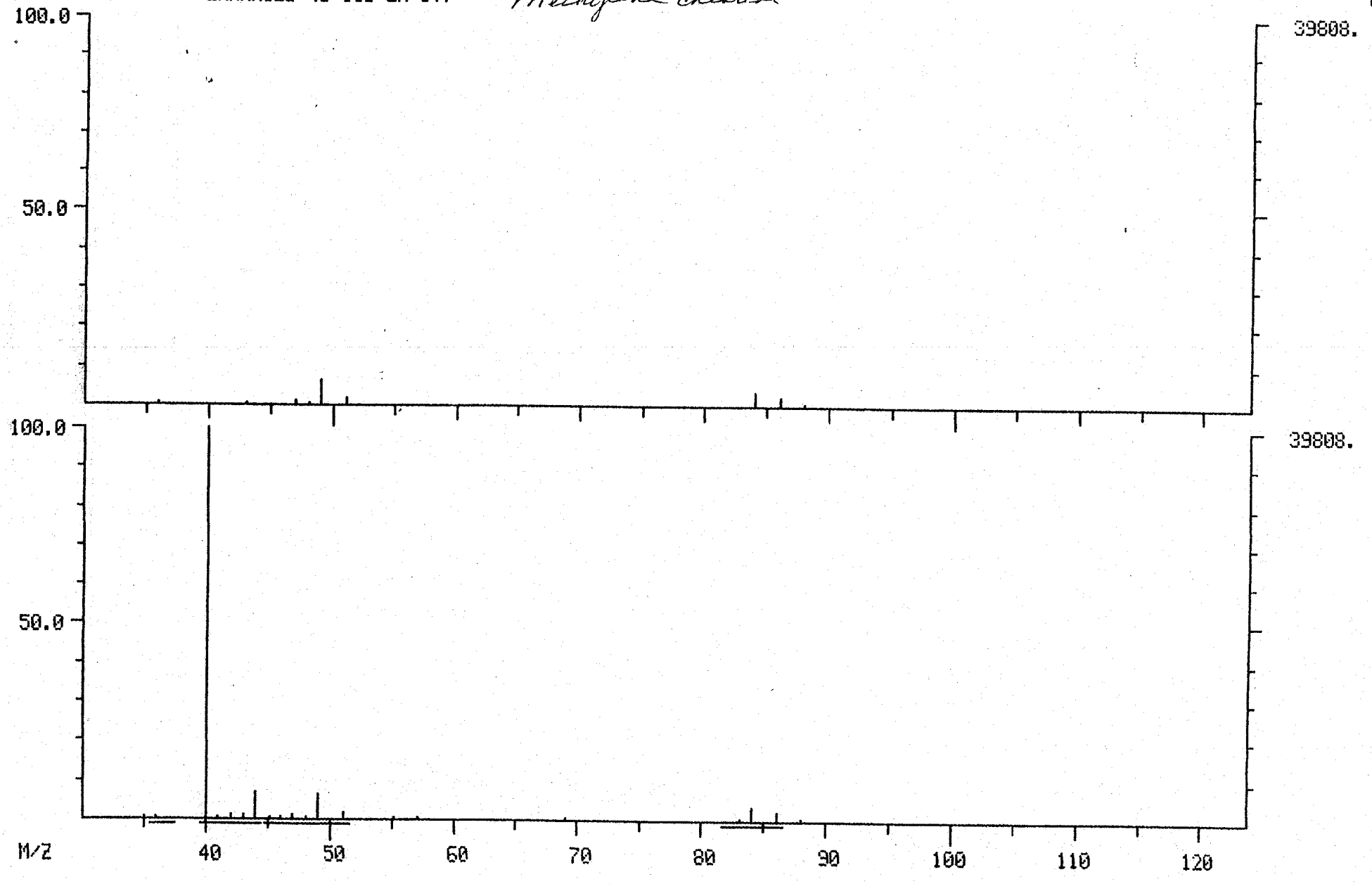
168448.

000110

DUAL MASS SPECTRUM
09/10/88 21:02:00 + 9:29
SAMPLE: CLP,V11822,,11822035,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

DATA: C1V0001462 #569 BASE M/Z: 49/ 40
CALI: C1V0001462 #5 RIC: 6983./ 52607.

000111

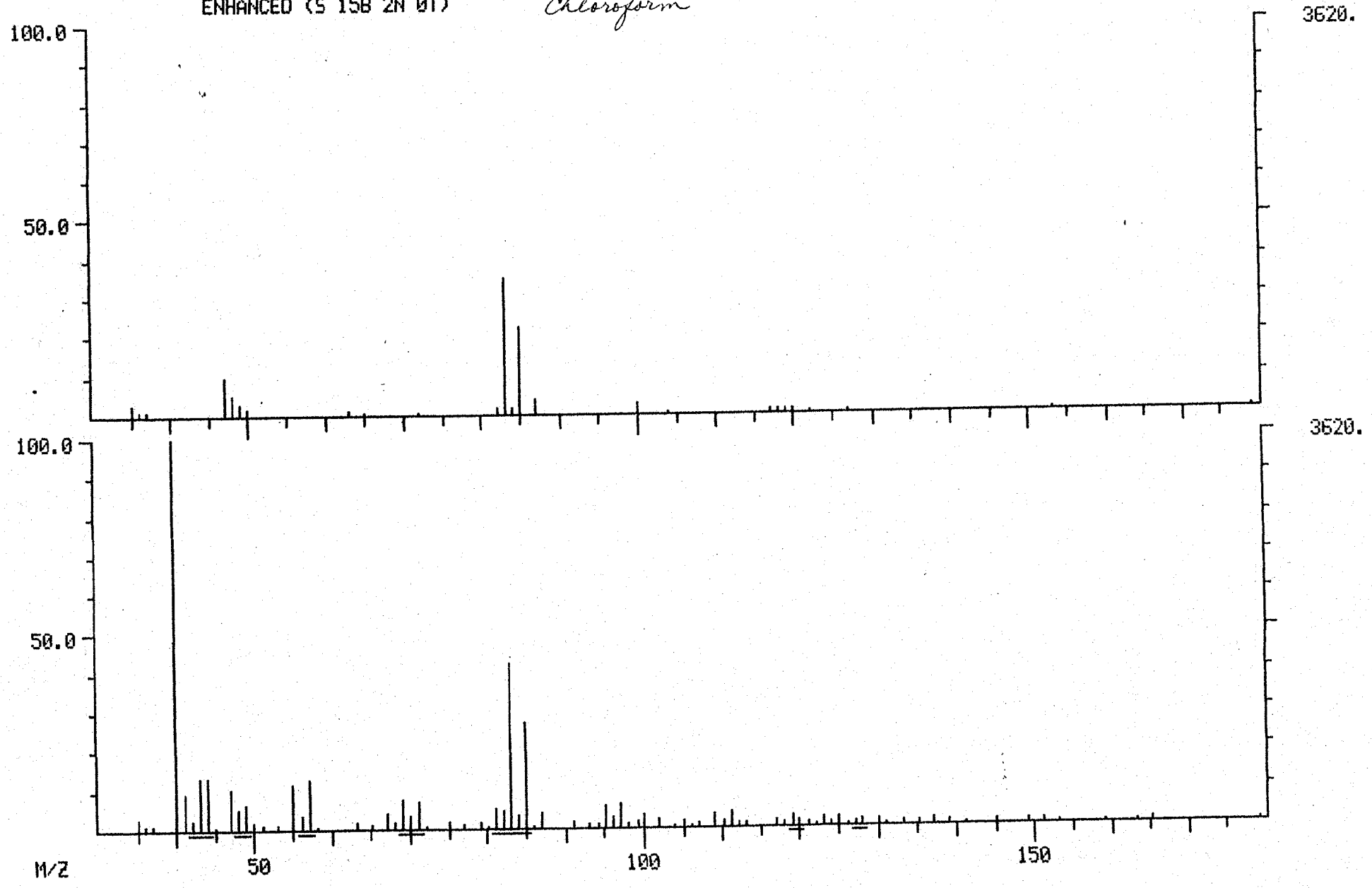


DUAL MASS SPECTRUM
09/10/88 21:02:00 + 13:51
SAMPLE: CLP,V11822,,11822035,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Chloroform

DATA: C1V0001462 #831 BASE M/Z: 83/ 40
CALI: C1V0001462 #5 RIC: 3751./ 14191.

000112



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP_BLANK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: 11822036

Sample wt/vol: _____ (g/mL) ML Lab File ID: C1V0001455

Level: (low/med) LOW Date Received: 08/31/88

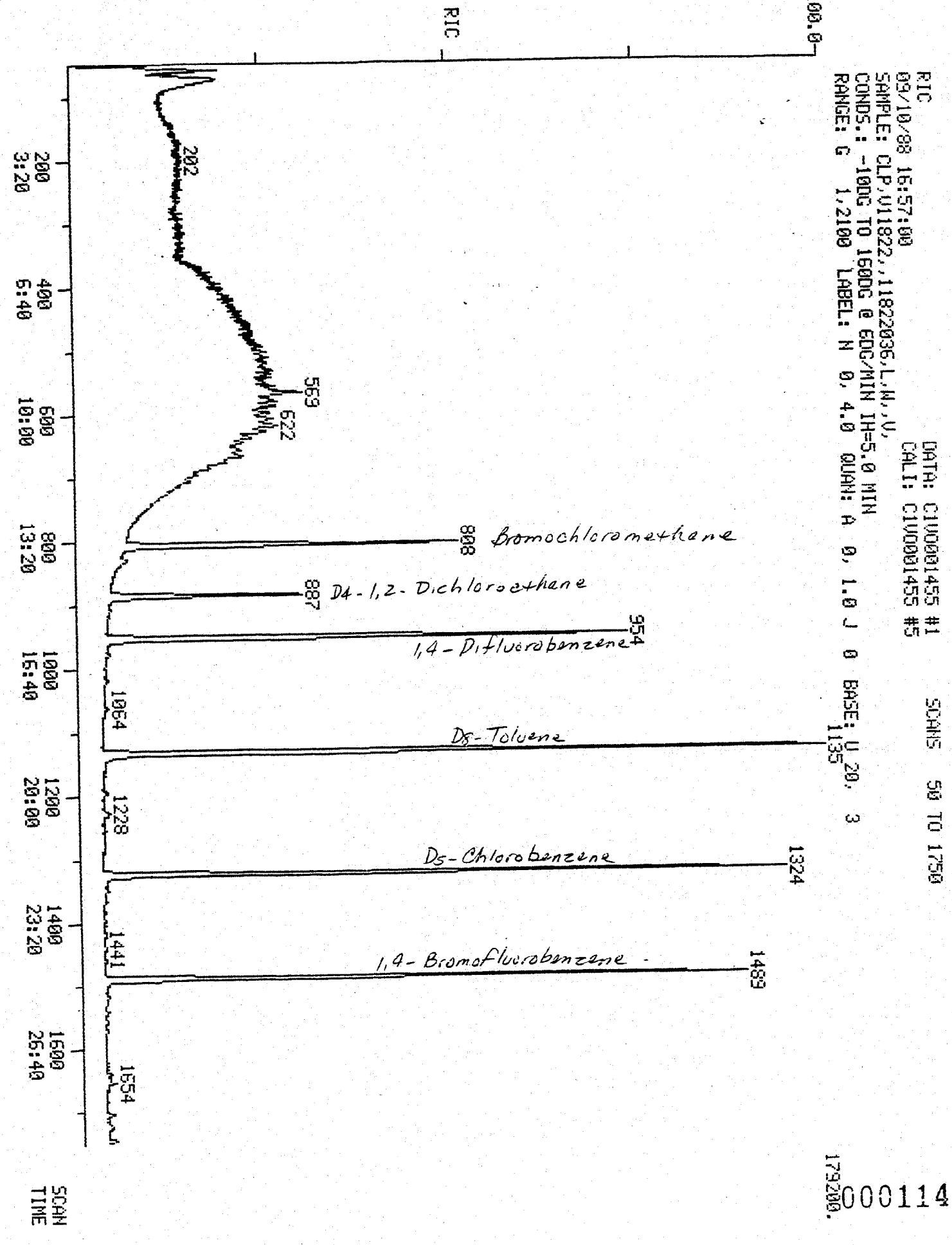
% Moisture: not dec. _____ Date Analyzed: 09/10/88

Column: (pack/cap) CAP Dilution Factor: 1

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

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	8	BJ
67-64-1	Acetone	7	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

TCA FINISHED, 10 FOUND
FINISHED AT: 9/11/88 1:50:19

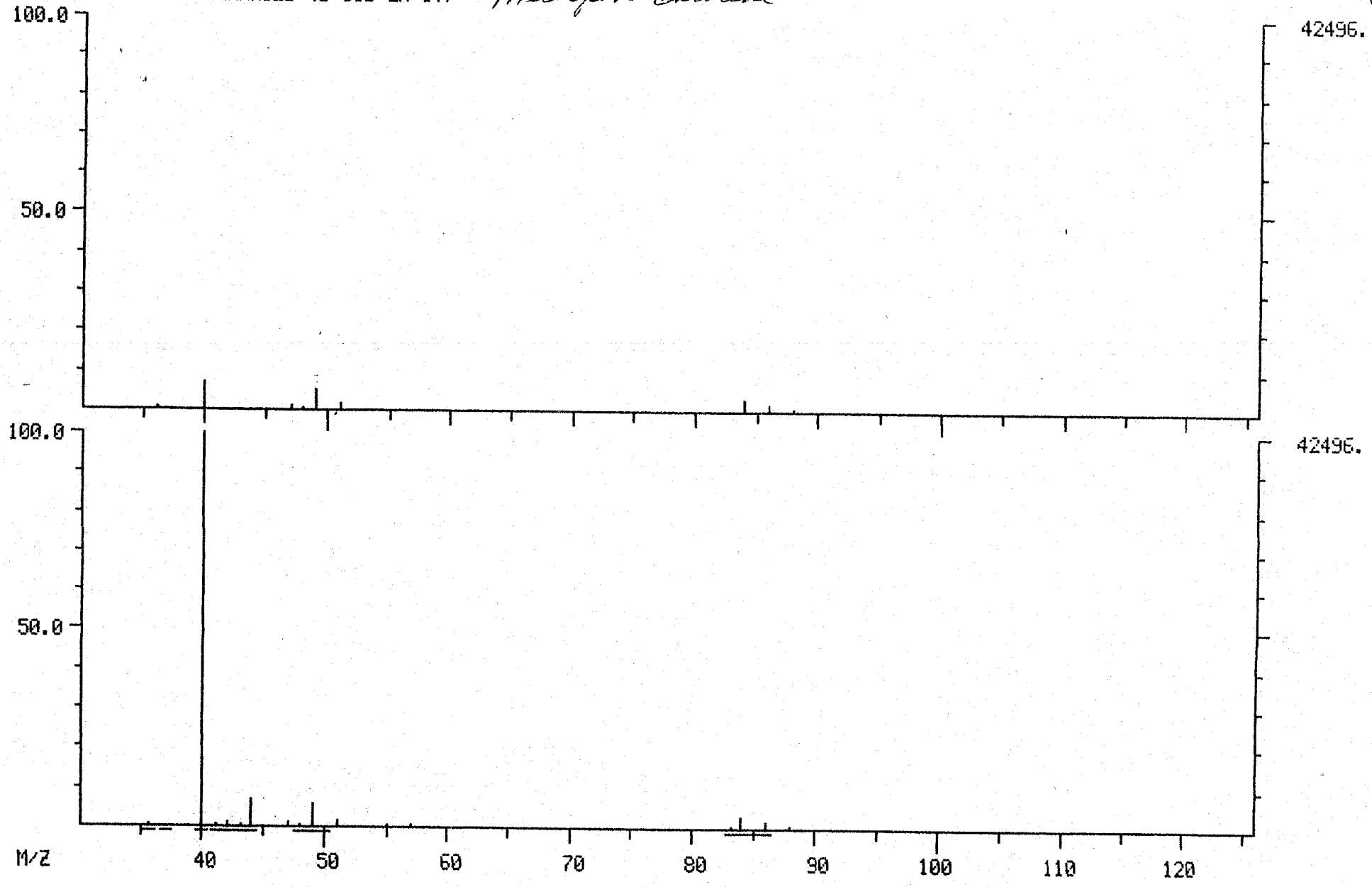


179200.

000114

DUAL MASS SPECTRUM
09/10/88 16:57:00 + 9:29
SAMPLE: CLP,V11822,,11822036,L,W,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

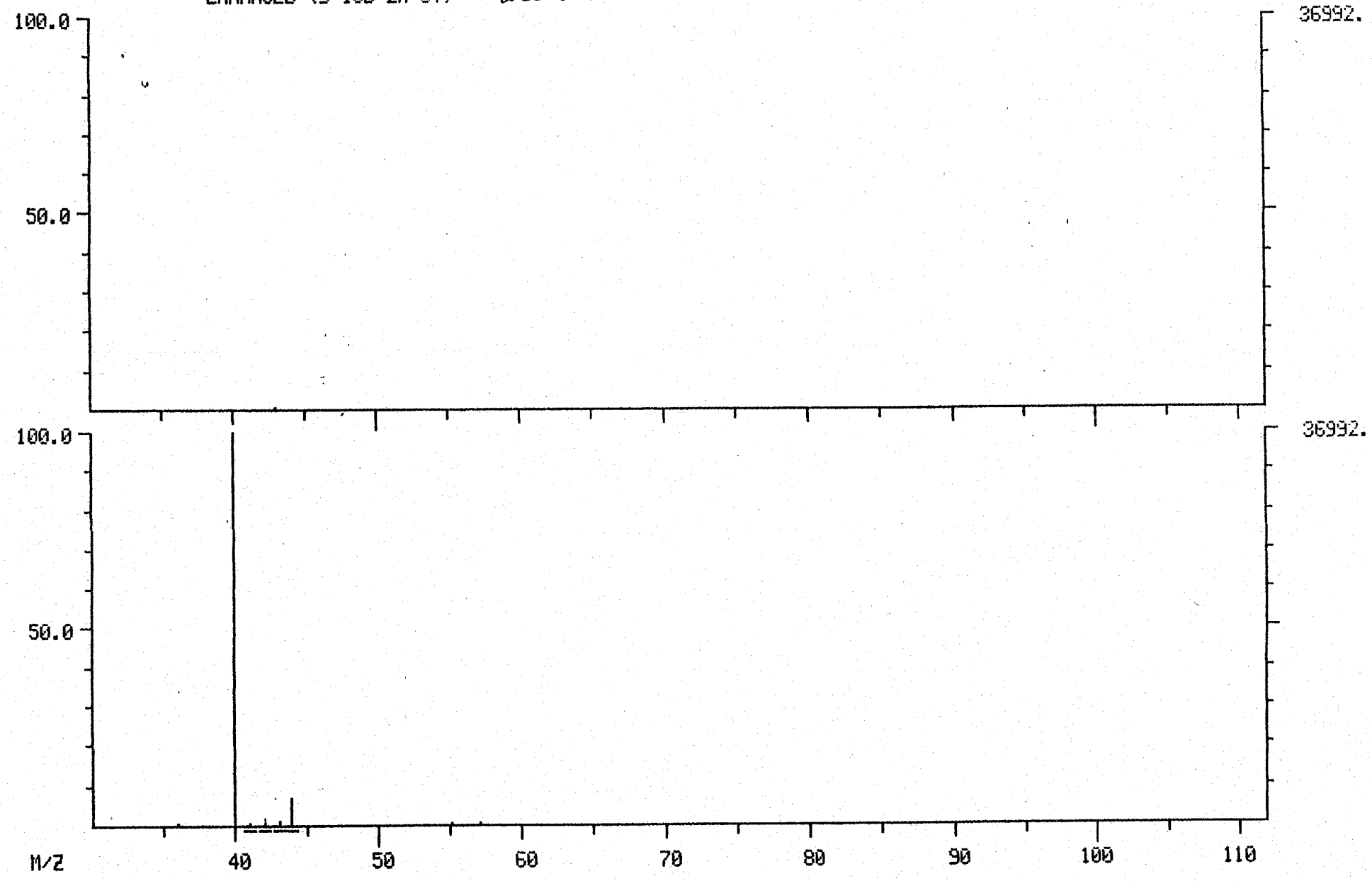
DATA: C1V0001455 #569 BASE M/Z: 40/ 40
CALI: C1V0001455 #5 RIC: 9199./ 54655.



DUAL MASS SPECTRUM
09/10/88 16:57:00 + 8:10
SAMPLE: CLP,V11822,,11822036,L,W,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) acetone

DATA: C1V0001455 #490 BASE M/Z: 43/ 40
CALI: C1V0001455 #5 RIC: 176./ 41919.

000116



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09098B1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09098B1

Sample wt/vol: _____ (g/mL) G Lab File ID: CBV0001434

Level: (low/med) LOW Date Received: 09/09/88

% Moisture: not dec. 0 Date Analyzed: 09/09/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	8	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09108B1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09108B1

Sample wt/vol: _____ (g/mL) G Lab File ID: CBV0001453

Level: (low/med) LOW Date Received: 09/10/88

% Moisture: not dec. ____ Date Analyzed: 09/10/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	2	BJ
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09128B3

Lab Name: CH2M HILL/MGM Contract: _____

ab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09128B3

Sample wt/vol: _____ (g/mL) G Lab File ID: CBV0001485

evel: (low/med) LOW Date Received: 09/12/88

% Moisture: not dec. 0 Date Analyzed: 09/12/88

olumn: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	3	BJ
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	1	BJ
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09138B4

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09138B4

Sample wt/vol: _____ (g/mL) G Lab File ID: CBV0001509

Level: (low/med) LOW Date Received: 09/13/88

% Moisture: not dec. 0 Date Analyzed: 09/13/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	15	B
67-64-1	Acetone	43	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	1	BJ
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	TRIP_BLANK	109	111	102		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	1000_B8S1	101	97	107		0
02	1000_B8S2	106	99	105		0
03	1048_B14S1	94	93	107		0
04	1048_B14S2	98	89	110		0
05	1048_B14S3	94	96	108		0
06	1115_B9S1	97	100	109		0
07	1115_B9S2	100	100	104		0
08	1115_B9S3	108	111	104		0
09	1143_B15S1	96	96	109		0
10	1143_B15S2	100	101	108		0
11	1143_B15S3	100	101	106		0
12	1143_B15S3_D	97	102	105		0
13	1301_B10S1	110	106	102		0
14	1301_B10S2	109	107	101		0
15	1301_B10S3	108	110	101		0
16	1301_B10S3_D	107	109	101		0
17	1429_SS4	99	100	103		0
18	2B1000B8S3DL	99	97	110		0
19	2B_1000_B8S3	99	99	107		0
20	8-30-88_MS	102	98	103		0
21	8-30-88_MSD	106	105	102		0
22	M_SPIKE_37	108	106	101		0
23	M_SPIKE_D_38	109	108	100		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GC-MS

Level:(low/med) _____

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	Y09098B1	98	105	104		0
02	Y09108B1	109	112	100		0
03	Y09128B3	101	104	108		0
04	Y09138B4	101	102	106		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix Spike - EPA Sample No.: 1048_B14S1 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	55.6	0	62.4	112	59-172
Trichloroethene	55.6	0	56.2	101	62-137
Benzene	55.6	0	53.1	96	66-142
Toluene	55.6	1.14	58.9	104	59-139
Chlorobenzene	55.6	0	55.3	99	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	55.6	58.7	106	6	22	59-172
Trichloroethene	55.6	52.3	94	7	24	62-137
Benzene	55.6	51.6	93	3	21	66-142
Toluene	55.6	57.1	101	3	21	59-139
Chlorobenzene	55.6	55.0	99	0	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: CLP,V11822,,11822003,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Matrix Spike - EPA Sample No.: 1301_B10S3_D Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	62.5	0	65.0	104	59-172
Trichloroethene	62.5	0	56.0	90	62-137
Benzene	62.5	0	57.9	93	66-142
Toluene	62.5	0	57.4	92	59-139
Chlorobenzene	62.5	0	57.6	92	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	62.5	65.6	105	-1	22	59-172
Trichloroethene	62.5	65.6	105	-15	24	62-137
Benzene	62.5	69.3	111	-18	21	66-142
Toluene	62.5	81.4	130	-34 *	21	59-139
Chlorobenzene	62.5	73.8	118	-25 *	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 2 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: CLP,V11822,,11822035,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBVO001434 Lab Sample ID: Y09098B1

Date Analyzed: 09/09/88 Time Analyzed: 1117

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	1000_B8S1	11822011	C1VO001445	1817
02	1000_B8S2	11822012	C1VO001446	1852
03	1048_B14S1	11822003	C1VO001437	1334
04	1048_B14S2	11822004	C1VO001438	1409
05	1048_B14S3	11822005	C1VO001439	1444
06	1115_B9S1	11822014	C1VO001447	1927
07	1115_B9S2	11822015	C1VO001448	2002
08	1143_B15S1	11822006	C1VO001440	1520
09	1143_B15S2	11822007	C1VO001441	1556
10	1143_B15S3	11822008	C1VO001442	1631
11	1143_B15S3_D	11822009	C1VO001443	1706
12	1429_SS4	11822010	C1VO001444	1741
13	2B1000B8S3DL	11822013DL	C1VO001449	2037

COMMENTS: CLP,V11822,,Y09098B1,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

RS

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001453 Lab Sample ID: Y09108B1

Date Analyzed: 09/10/88 Time Analyzed: 1537

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	1115_B9S3	11822031	C1V0001458	1842
02	1301_B10S1	11822032	C1V0001459	1917
03	1301_B10S2	11822033	C1V0001460	1952
04	1301_B10S3	11822034	C1V0001461	2027
05	1301_B10S3_D	11822035	C1V0001462	2102
06	TRIP_BLANK	11822036	C1V0001455	1657
07	M_SPIKE_37	11822M37	CMV0001456	1732
08	M_SPIKE_D_38	11822D38	CMV0001457	1807

COMMENTS: CLP,V11822,,Y09108B1,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001485 Lab Sample ID: Y09128B3

Date Analyzed: 09/12/88 Time Analyzed: 2040

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2B_1000_B8S3	11822013	C2V0001486	2118

COMMENTS: CLP,V11825,,Y09128B3,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001509 Lab Sample ID: Y09138B4

Date Analyzed: 09/13/88 Time Analyzed: 2100

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	8-30-88_MS	11822M35	CMV0001511	2247
02	8-30-88_MSD	11822D35	CMV0001512	2327

COMMENTS: CLP,V11822,,Y09138B4,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CSVO001432 BFB Injection Date: 09/09/88

Instrument ID: 4500 BFB Injection Time: 0940

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.9
75	30.0 - 60.0% of mass 95	37.7
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.7 (0.9)1
174	Greater than 50.0% of mass 95	72.6
175	5.0 - 9.0% of mass 174	5.3 (7.3)1
176	Greater than 95.0%, but less than 101.0% of mass 174	69.9 (96.3)1
177	5.0 - 9.0% of mass 176	4.5 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSVO001433	09/09/88	1021
02	Y09098B1	Y09098B1	CBVO001434	09/09/88	1117
03	1048_B14S1	11822003	C1VO001437	09/09/88	1334
04	1048_B14S2	11822004	C1VO001438	09/09/88	1409
05	1048_B14S3	11822005	C1VO001439	09/09/88	1444
06	1143_B15S1	11822006	C1VO001440	09/09/88	1520
07	1143_B15S2	11822007	C1VO001441	09/09/88	1556
08	1143_B15S3	11822008	C1VO001442	09/09/88	1631
09	1143_B15S3_D	11822009	C1VO001443	09/09/88	1706
10	1429_SS4	11822010	C1VO001444	09/09/88	1741
11	1000_B8S1	11822011	C1VO001445	09/09/88	1817
12	1000_B8S2	11822012	C1VO001446	09/09/88	1852
13	1115_B9S1	11822014	C1VO001447	09/09/88	1927
14	1115_B9S2	11822015	C1VO001448	09/09/88	2002
15	2B1000B8S3DL	11822013DL	C1VO001449	09/09/88	2037

RS

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CSV0001451 BFB Injection Date: 09/10/88

Instrument ID: 4500 BFB Injection Time: 1421

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.2
75	30.0 - 60.0% of mass 95	38.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.6 (0.9)1
174	Greater than 50.0% of mass 95	71.6
175	5.0 - 9.0% of mass 174	5.2 (7.2)1
176	Greater than 95.0%, but less than 101.0% of mass 174	69.3 (96.8)1
177	5.0 - 9.0% of mass 176	4.5 (6.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSV0001452	09/10/88	1458
02	Y09108B1	Y09108B1	CBV0001453	09/10/88	1537
03	TRIP_BLANK	11822036	C1V0001455	09/10/88	1657
04	M_SPIKE_37	11822M37	CMV0001456	09/10/88	1732
05	M_SPIKE_D_38	11822D38	CMV0001457	09/10/88	1807
06	1115_B9S3	11822031	C1V0001458	09/10/88	1842
07	1301_B10S1	11822032	C1V0001459	09/10/88	1917
08	1301_B10S2	11822033	C1V0001460	09/10/88	1952
09	1301_B10S3	11822034	C1V0001461	09/10/88	2027
10	1301_B10S3_D	11822035	C1V0001462	09/10/88	2102

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CMV0001481 BFB Injection Date: 09/12/88

Instrument ID: 4500 BFB Injection Time: 1641

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.0
75	30.0 - 60.0% of mass 95	38.0
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.8 (1.1)1
174	Greater than 50.0% of mass 95	73.6
175	5.0 - 9.0% of mass 174	5.4 (7.3)1
176	Greater than 95.0%, but less than 101.0% of mass 174	71.5 (97.1)1
177	5.0 - 9.0% of mass 176	4.7 (6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSV0001482	09/12/88	1733
02	Y09128B3	Y09128B3	CBV0001485	09/12/88	2040
03	2B_1000_B8S3	11822013	C2V0001486	09/12/88	2118

RS

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001506 BFB Injection Date: 09/10/88

Instrument ID: 4500 BFB Injection Time: 1803

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.3
75	30.0 - 60.0% of mass 95	38.0
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.7 (0.9)1
174	Greater than 50.0% of mass 95	79.7
175	5.0 - 9.0% of mass 174	6.0 (7.5)1
176	Greater than 95.0%, but less than 101.0% of mass 174	77.4 (97.1)1
177	5.0 - 9.0% of mass 176	5.2 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSV0001507	09/13/88	1841
02	Y09138B4	Y09138B4	CBV0001509	09/13/88	2100
03	8-30-88_MS	11822M35	CMV0001511	09/13/88	2247
04	8-30-88_MSD	11822D35	CMV0001512	09/13/88	2327

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration Date(s): 09/01/88 09/01/88

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min $\overline{RRF}$ for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = CSV0001323 RRF50 = CSV0001318
RRF100= CSV0001319 RRF150= CSV0001320 RRF200= CSV0001321

COMPOUND		RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane	#	0.354	0.503	0.480	0.448	0.420	0.441	13.1#
Bromomethane		0.175	0.247	0.251	0.233	0.221	0.225	13.6
Vinyl Chloride	*	0.330	0.440	0.431	0.404	0.381	0.397	11.1*
Chloroethane		0.102	0.223	0.244	0.238	0.227	0.207	28.6
Methylene Chloride		1.392	1.199	0.974	0.898	0.796	1.052	22.9
Acetone		0.550	0.456	0.421	0.332	0.289	0.410	25.2
Carbon Disulfide		1.292	1.247	0.987	0.851	0.825	1.040	21.0
1,1-Dichloroethene	*	0.335	0.319	0.271	0.238	0.234	0.279	16.5*
1,1-Dichloroethane	#	2.776	2.652	2.419	2.356	2.230	2.487	9.0#
1,2-Dichloroethene (total)		0.842	0.798	0.718	0.670	0.639	0.733	11.6
Chloroform	*	3.256	2.744	2.372	2.375	2.257	2.601	15.8*
1,2-Dichloroethane		1.754	1.564	1.390	1.392	1.300	1.480	12.2
2-Butanone		0.552	0.575	0.568	0.559	0.517	0.554	4.1
1,1,1-Trichloroethane		0.382	0.368	0.325	0.318	0.299	0.338	10.4
Carbon Tetrachloride		0.327	0.309	0.283	0.273	0.263	0.291	9.1
Vinyl Acetate		0.209	0.224	0.221	0.187	0.191	0.206	8.2
Bromodichloromethane		0.599	0.580	0.553	0.547	0.526	0.561	5.1
1,2-Dichloropropane	*	0.594	0.569	0.559	0.541	0.524	0.557	4.8*
cis-1,3-Dichloropropene		0.710	0.698	0.626	0.615	0.585	0.647	8.4
Trichloroethene		0.506	0.393	0.353	0.355	0.399	0.401	15.5
Dibromochloromethane		0.383	0.351	0.339	0.330	0.317	0.344	7.3
1,1,2-Trichloroethane		0.413	0.399	0.380	0.380	0.367	0.388	4.7
Benzene		1.360	1.265	1.137	1.082	0.989	1.167	12.6
trans-1,3-Dichloropropene		0.150	0.154	0.137	0.134	0.129	0.141	7.6
Bromoform	#	0.379	0.371	0.365	0.343	0.318	0.355	7.0#
2-Hexanone		0.729	0.782	0.759	0.808	0.767	0.769	3.8
4-Methyl-2-Pentanone		0.996	1.142	1.074	1.144	1.060	1.083	5.7
Tetrachloroethene		0.304	0.276	0.247	0.251	0.243	0.264	9.7
1,1,2,2-Tetrachloroethane	#	0.601	0.677	0.605	0.673	0.641	0.639	5.6#
Toluene	*	0.848	0.840	0.711	0.753	0.717	0.774	8.5*
Chlorobenzene	#	1.024	0.907	0.850	0.843	0.791	0.883	10.1#
Ethylbenzene	*	0.551	0.481	0.456	0.453	0.437	0.476	9.5*
Styrene		1.245	1.162	1.049	1.009	0.916	1.076	12.0
Xylenes (total)		0.691	0.646	0.596	0.585	0.546	0.613	9.2
Toluene-d8 - SS		0.539	0.605	0.543	0.586	0.588	0.572	5.2
1,4-Bromofluorobenzene - SS		0.291	0.327	0.305	0.319	0.323	0.313	4.7
1,2-Dichloroethane-d4 - SS		0.592	0.581	0.564	0.542	0.513	0.558	5.7

RS

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/09/88 Time: 1021

Lab File ID: CSV0001433 Init. Calib. Date(s): 09/01/88 09/01/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.441	0.321	27.2	#
Bromomethane		0.225	0.227	-0.9	
Vinyl Chloride	*	0.397	0.312	21.4	*
Chloroethane		0.207	0.258	-24.6	
Methylene Chloride		1.052	1.209	-14.9	
Acetone		0.410	0.307	25.1	
Carbon Disulfide		1.040	1.077	-3.6	
1,1-Dichloroethene	*	0.279	0.277	0.7	*
1,1-Dichloroethane	#	2.487	2.593	-4.3	#
1,2-Dichloroethene (total)		0.733	0.935	-27.6	
Chloroform	*	2.601	2.960	-13.8	*
1,2-Dichloroethane		1.480	1.633	-10.3	
2-Butanone		0.554	0.339	38.8	
1,1,1-Trichloroethane		0.338	0.348	-3.0	
Carbon Tetrachloride		0.291	0.311	-6.9	
Vinyl Acetate		0.206	0.123	40.3	
Bromodichloromethane		0.561	0.535	4.6	
1,2-Dichloropropane	*	0.557	0.509	8.6	*
cis-1,3-Dichloropropene		0.647	0.626	3.2	
Trichloroethene		0.401	0.410	-2.2	
Dibromochloromethane		0.344	0.324	5.8	
1,1,2-Trichloroethane		0.388	0.349	10.1	
Benzene		1.167	1.262	-8.1	
trans-1,3-Dichloropropene		0.141	0.130	7.8	
Bromoform	#	0.355	0.354	0.3	#
2-Hexanone		0.769	0.547	28.9	
4-Methyl-2-Pentanone		1.083	0.847	21.8	
Tetrachloroethene		0.264	0.350	-32.6	
1,1,2,2-Tetrachloroethane	#	0.639	0.652	-2.0	#
Toluene	*	0.774	0.922	-19.1	*
Chlorobenzene	#	0.883	1.069	-21.1	#
Ethylbenzene	*	0.476	0.571	-20.0	*
Styrene		1.076	1.340	-24.5	
Xylenes (total)		0.613	0.803	-31.0	
Toluene-d8 - SS		0.572	0.589	-3.0	
1,4-Bromofluorobenzene - SS		0.313	0.293	6.4	
1,2-Dichloroethane-d4 - SS		0.558	0.539	3.4	

RS

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/10/88 Time: 1458

Lab File ID: CSV0001452 Init. Calib. Date(s): 09/01/88 09/01/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.441	0.461	-4.5	#
Bromomethane		0.225	0.232	-3.1	
Vinyl Chloride	*	0.397	0.399	-0.5	*
Chloroethane		0.207	0.256	-23.7	
Methylene Chloride		1.052	0.855	18.7	
Acetone		0.410	0.202	50.7	
Carbon Disulfide		1.040	1.074	-3.3	
1,1-Dichloroethene	*	0.279	0.282	-1.1	*
1,1-Dichloroethane	#	2.487	2.403	3.4	#
1,2-Dichloroethene (total)		0.733	0.847	-15.6	
Chloroform	*	2.601	2.812	-8.1	*
1,2-Dichloroethane		1.480	1.564	-5.7	
2-Butanone		0.554	0.220	60.3	
1,1,1-Trichloroethane		0.338	0.322	4.7	
Carbon Tetrachloride		0.291	0.293	-0.7	
Vinyl Acetate		0.206	0.081	60.7	
Bromodichloromethane		0.561	0.425	24.2	
1,2-Dichloropropane	*	0.557	0.451	19.0	*
cis-1,3-Dichloropropene		0.647	0.508	21.5	
Trichloroethene		0.401	0.348	13.2	
Dibromochloromethane		0.344	0.285	17.2	
1,1,2-Trichloroethane		0.388	0.299	22.9	
Benzene		1.167	1.138	2.5	
trans-1,3-Dichloropropene		0.141	0.112	20.6	
Bromoform	#	0.355	0.263	25.9	#
2-Hexanone		0.769	0.355	53.8	
4-Methyl-2-Pentanone		1.083	0.532	50.9	
Tetrachloroethene		0.264	0.303	-14.8	
1,1,2,2-Tetrachloroethane	#	0.639	0.467	26.9	#
Toluene	*	0.774	0.749	3.2	*
Chlorobenzene	#	0.883	0.891	-0.9	#
Ethylbenzene	*	0.476	0.478	-0.4	*
Styrene		1.076	1.009	6.2	
Xylenes (total)		0.613	0.572	6.7	
Toluene-d8 - SS		0.572	0.543	5.1	
1,4-Bromofluorobenzene - SS		0.313	0.274	12.5	
1,2-Dichloroethane-d4 - SS		0.558	0.576	-3.2	

RS.

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/12/88 Time: 1733

Lab File ID: CSV0001482 Init. Calib. Date(s): 09/01/88 09/01/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.441	0.414	6.1	#
Bromomethane		0.225	0.277	-23.1	
Vinyl Chloride	*	0.397	0.388	2.3	*
Chloroethane		0.207	0.312	-50.7	
Methylene Chloride		1.052	1.401	-33.2	
Acetone		0.410	0.390	4.9	
Carbon Disulfide		1.040	1.159	-11.4	
1,1-Dichloroethene	*	0.279	0.312	-11.8	*
1,1-Dichloroethane	#	2.487	2.758	-10.9	#
1,2-Dichloroethene (total)		0.733	0.952	-29.9	
Chloroform	*	2.601	3.179	-22.2	*
1,2-Dichloroethane		1.480	1.748	-18.1	
2-Butanone		0.554	0.253	54.3	
1,1,1-Trichloroethane		0.338	0.343	-1.5	
Carbon Tetrachloride		0.291	0.320	-10.0	
Vinyl Acetate		0.206	0.099	51.9	
Bromodichloromethane		0.561	0.477	15.0	
1,2-Dichloropropane	*	0.557	0.511	8.3	*
cis-1,3-Dichloropropene		0.647	0.605	6.5	
Trichloroethene		0.401	0.406	-1.2	
Dibromochloromethane		0.344	0.304	11.6	
1,1,2-Trichloroethane		0.388	0.322	17.0	
Benzene		1.167	1.249	-7.0	
trans-1,3-Dichloropropene		0.141	0.122	13.5	
Bromoform	#	0.355	0.306	13.8	#
2-Hexanone		0.769	0.387	49.7	
4-Methyl-2-Pentanone		1.083	0.642	40.7	
Tetrachloroethene		0.264	0.355	-34.5	
1,1,2,2-Tetrachloroethane	#	0.639	0.566	11.4	#
Toluene	*	0.774	0.910	-17.6	*
Chlorobenzene	#	0.883	1.016	-15.1	#
Ethylbenzene	*	0.476	0.553	-16.2	*
Styrene		1.076	1.230	-14.3	
Xylenes (total)		0.613	0.720	-17.5	
Toluene-d8 - SS		0.572	0.572	0.0	
1,4-Bromofluorobenzene - SS		0.313	0.296	5.4	
1,2-Dichloroethane-d4 - SS		0.558	0.578	-3.6	

RS.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/13/88 Time: 1841

Lab File ID: CSV0001507 Init. Calib. Date(s): 09/01/88 09/01/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.441	0.372	15.7	#
Bromomethane		0.225	0.220	2.2	
Vinyl Chloride	*	0.397	0.340	14.4	*
Chloroethane		0.207	0.251	-21.3	
Methylene Chloride		1.052	0.828	21.3	
Acetone		0.410	0.214	47.8	
Carbon Disulfide		1.040	0.991	4.7	
1,1-Dichloroethene	*	0.279	0.293	-5.0	*
1,1-Dichloroethane	#	2.487	2.399	3.5	#
1,2-Dichloroethene (total)		0.733	0.837	-14.2	
Chloroform	*	2.601	2.820	-8.4	*
1,2-Dichloroethane		1.480	1.633	-10.3	
2-Butanone		0.554	0.219	60.5	
1,1,1-Trichloroethane		0.338	0.330	2.4	
Carbon Tetrachloride		0.291	0.296	-1.7	
Vinyl Acetate		0.206	1.061	-99.9	
Bromodichloromethane		0.561	0.451	19.6	
1,2-Dichloropropane	*	0.557	0.481	13.6	*
cis-1,3-Dichloropropene		0.647	0.579	10.5	
Trichloroethene		0.401	0.376	6.2	
Dibromochloromethane		0.344	0.294	14.5	
1,1,2-Trichloroethane		0.388	0.310	20.1	
Benzene		1.167	1.167	0.0	
trans-1,3-Dichloropropene		0.141	0.102	27.7	
Bromoform	#	0.355	0.292	17.8	#
2-Hexanone		0.769	0.388	49.5	
4-Methyl-2-Pentanone		1.083	0.596	45.0	
Tetrachloroethene		0.264	0.330	-25.0	
1,1,2,2-Tetrachloroethane	#	0.639	0.516	19.3	#
Toluene	*	0.774	0.813	-5.0	*
Chlorobenzene	#	0.883	0.983	-11.3	#
Ethylbenzene	*	0.476	0.525	-10.3	*
Styrene		1.076	1.182	-9.9	
Xylenes (total)		0.613	0.673	-9.8	
Toluene-d8 - SS		0.572	0.556	2.8	
1,4-Bromofluorobenzene - SS		0.313	0.277	11.5	
1,2-Dichloroethane-d4 - SS		0.558	0.575	-3.0	

RS.

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001433 Date Analyzed: 09/09/88

Instrument ID: 4500 Time Analyzed: 1021

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	41000	13.47	213000	15.89	190000	22.07
	UPPER LIMIT	82000		426000		380000	
	LOWER LIMIT	20500		106500		95000	
	EPA SAMPLE NO.						
01	1000_B8S1	39700	13.44	217000	15.89	182000	22.09
02	1000_B8S2	40900	13.44	219000	15.87	174000	22.07
03	1048_B14S1	44200	13.47	234000	15.87	216000	22.09
04	1048_B14S2	40500	13.45	230000	15.89	193000	22.07
05	1048_B14S3	42600	13.42	231000	15.87	203000	22.07
06	1115_B9S1	37700	13.44	190000	15.89	168000	22.09
07	1115_B9S2	40600	13.44	199000	15.87	172000	22.07
08	1143_B15S1	45800	13.42	257000	15.87	225000	22.07
09	1143_B15S2	43500	13.44	237000	15.89	211000	22.09
10	1143_B15S3	43000	13.44	236000	15.89	209000	22.09
11	1143_B15S3_D	43900	13.39	225000	15.84	206000	22.07
12	1429_SS4	46400	13.42	240000	15.85	217000	22.07
13	2B1000B8S3DL	43300	13.45	239000	15.90	206000	22.10
14	Y09098B1	42000	13.47	209000	15.89	193000	22.07

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

FORM VIII VOA

RS

000139

1/87 Rev.

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001452 Date Analyzed: 09/10/88

Instrument ID: 4500 Time Analyzed: 1458

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	57800	13.47	318000	15.89	295000	22.05
	UPPER LIMIT	115600		636000		590000	
	LOWER LIMIT	28900		159000		147500	
	EPA SAMPLE NO.						
01	1115_B9S3	49200	13.47	270000	15.90	245000	22.07
02	1301_B10S1	52200	13.49	283000	15.90	248000	22.09
03	1301_B10S2	50300	13.45	263000	15.87	243000	22.07
04	1301_B10S3	49900	13.47	264000	15.89	240000	22.07
05	1301_B10S3_D	51400	13.47	278000	15.90	251000	22.09
06	TRIP_BLANK	55500	13.47	294000	15.90	266000	22.07
07	M_SPIKE_37	52900	13.47	289000	15.90	265000	22.07
08	M_SPIKE_D_38	53400	13.45	283000	15.89	250000	22.07
09	Y09108B1	47900	13.47	242000	15.87	223000	22.07

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

RS

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001482 Date Analyzed: 09/12/88

Instrument ID: 4500 Time Analyzed: 1733

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	44500	13.49	257000	15.92	238000	22.09
	UPPER LIMIT	89000		514000		476000	
	LOWER LIMIT	22250		128500		119000	
	EPA SAMPLE NO.						
01	2B_1000_B8S3	46200	13.47	257000	15.90	242000	22.09
02	Y09128B3	40700	13.45	236000	15.89	222000	22.09

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8A
VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11822 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001507 Date Analyzed: 09/13/88

Instrument ID: 4500 Time Analyzed: 1841

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	46500	13.47	255000	15.89	231000	22.07
	UPPER LIMIT	93000		510000		462000	
	LOWER LIMIT	23250		127500		115500	
	EPA SAMPLE NO.						
01	8-30-88_MS	40100	13.47	223000	15.90	203000	22.10
02	8-30-88_MSD	31800	13.45	155000	15.90	130000	22.10
03	Y09138B4	42600	13.47	232000	15.90	211000	22.10

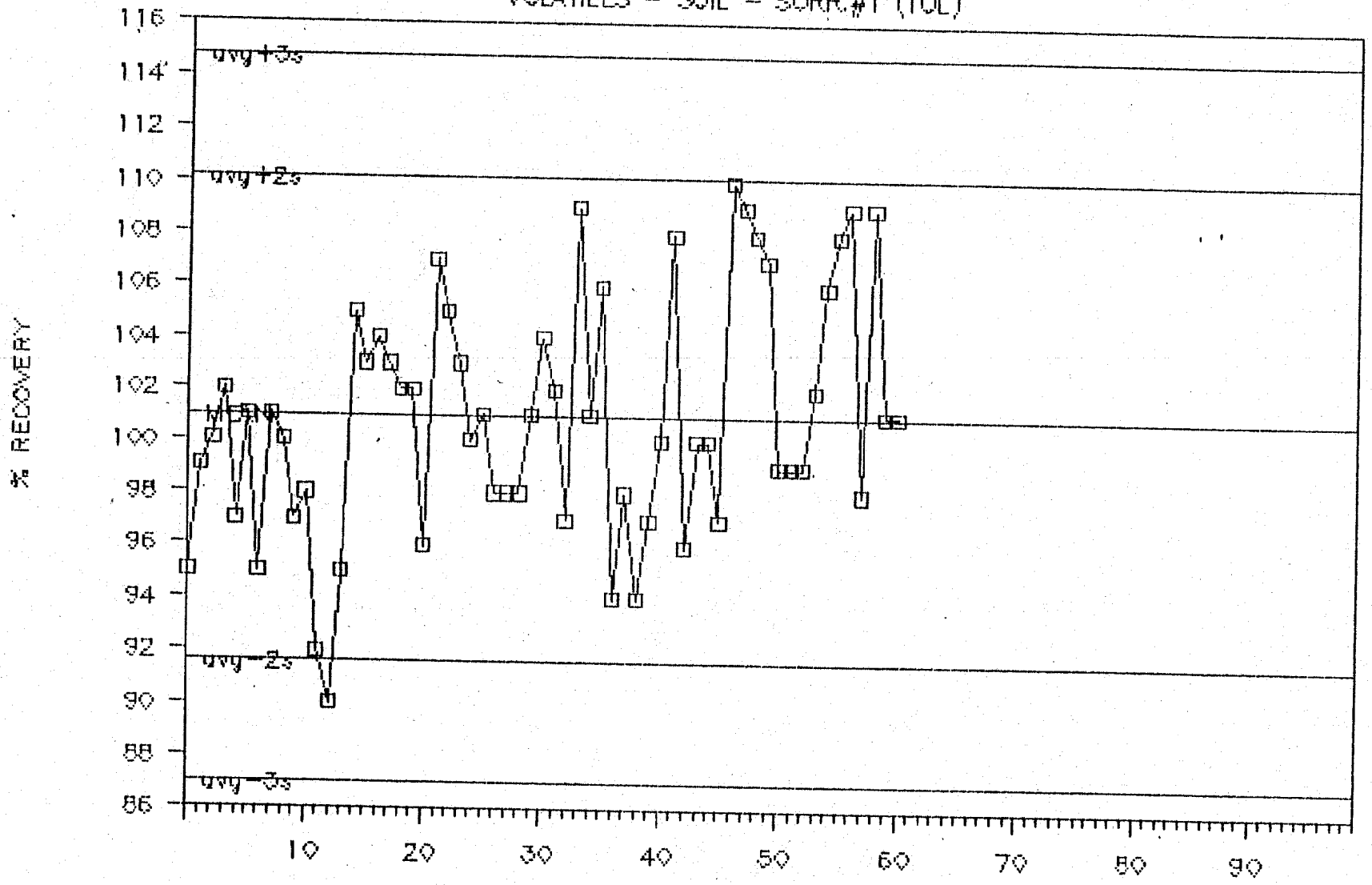
IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

SURROGATE RECOVERY

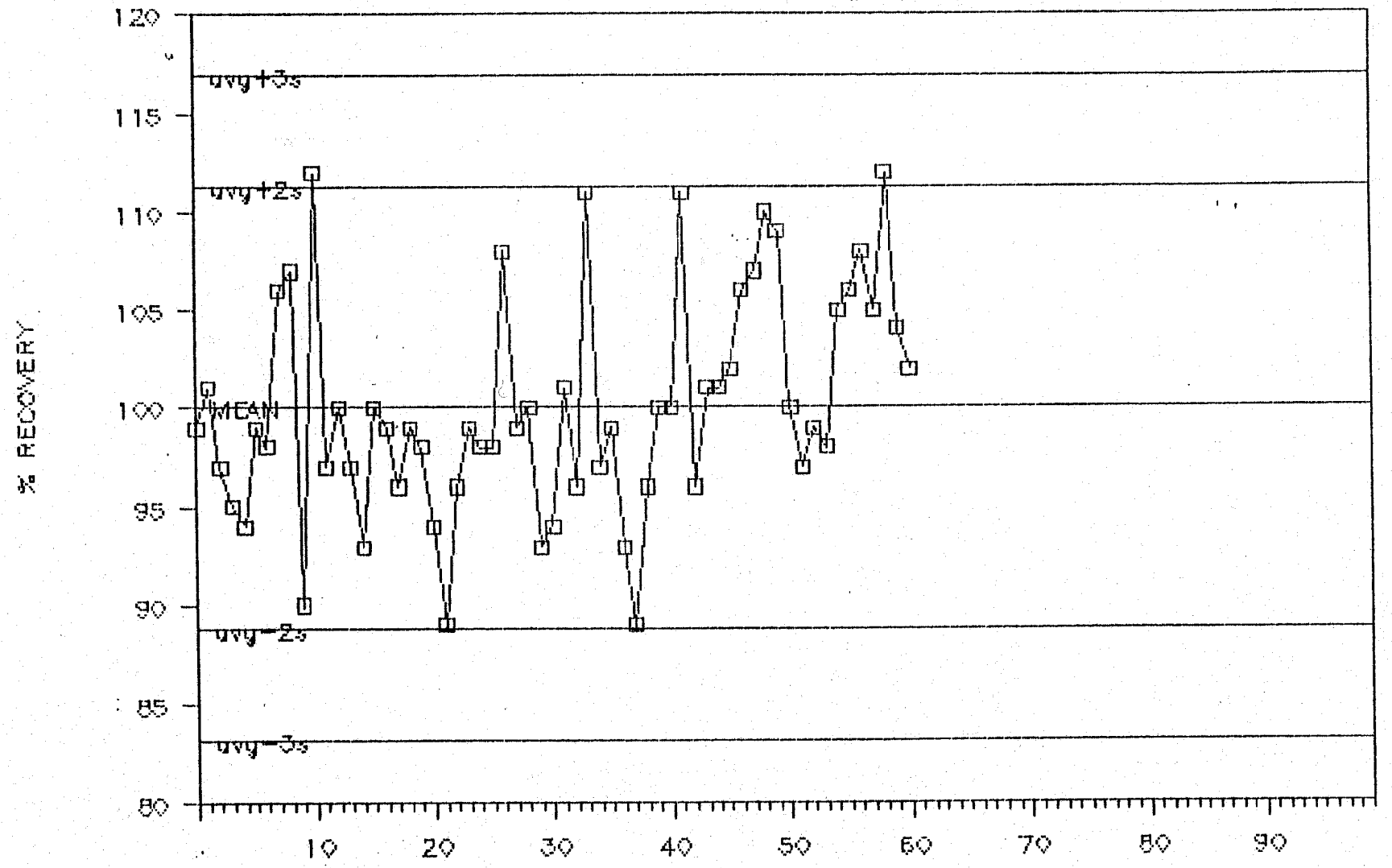
VOLATILES - SOIL - SURR.#1 (TOL)



000143

SURROGATE RECOVERY

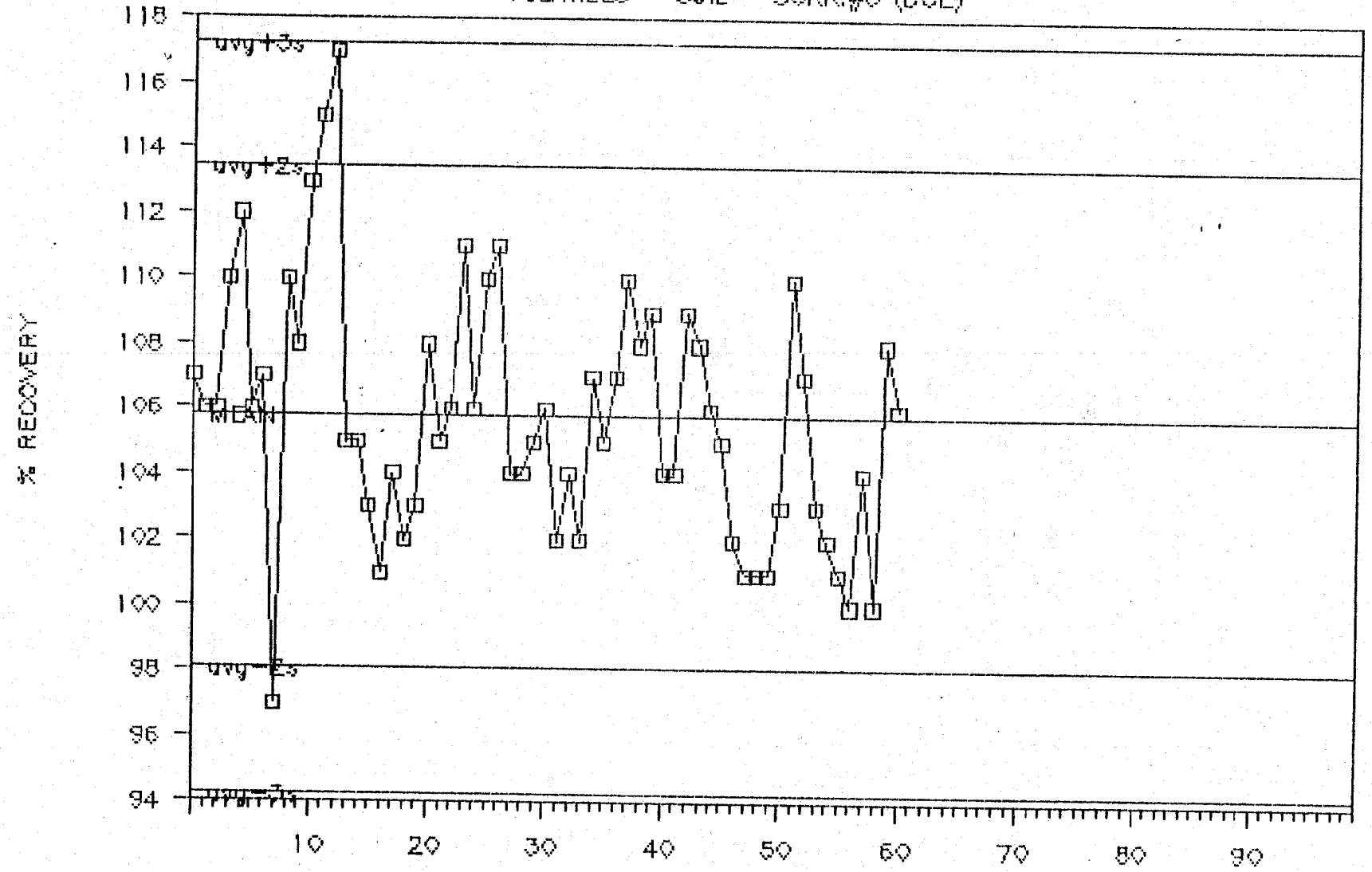
VOLATILES - SOIL - SURR.#2 (BFB)



000144

SURROGATE RECOVERY

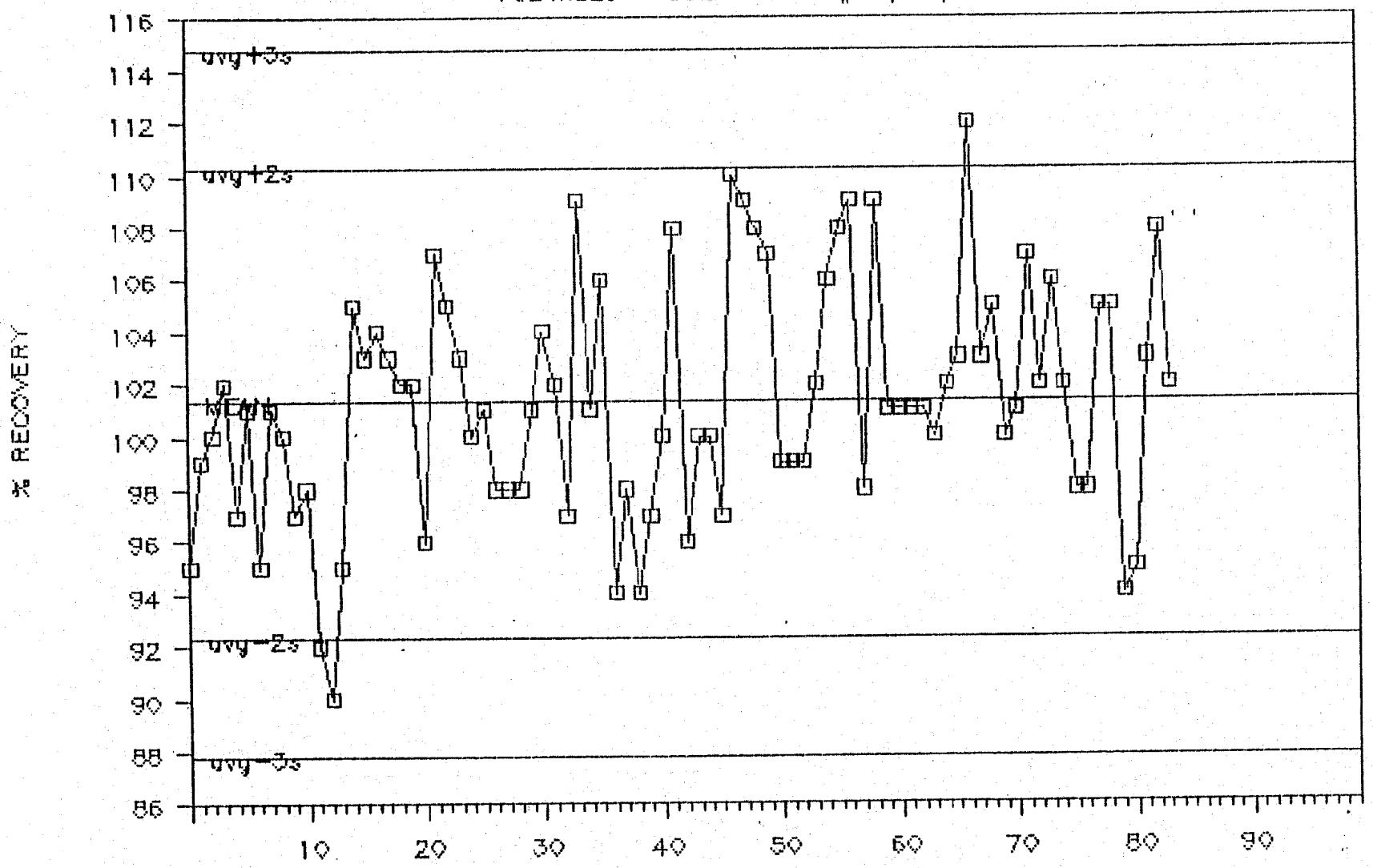
VOLATILES - SOIL - SURR.#3 (DCE)



000145

SURROGATE RECOVERY

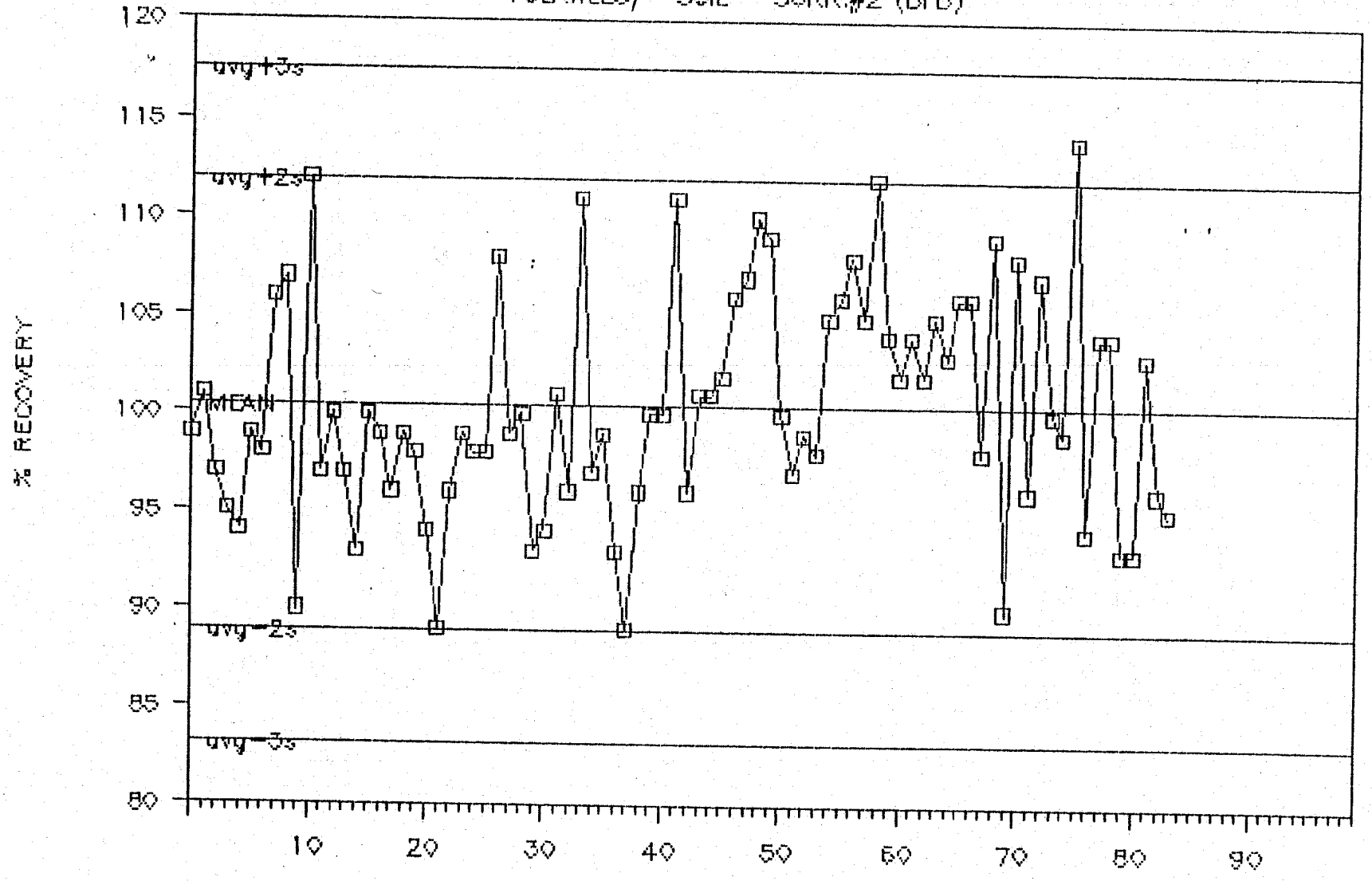
VOLATILES - SOIL - SURR.#1 (TOL)



000146

SURROGATE RECOVERY

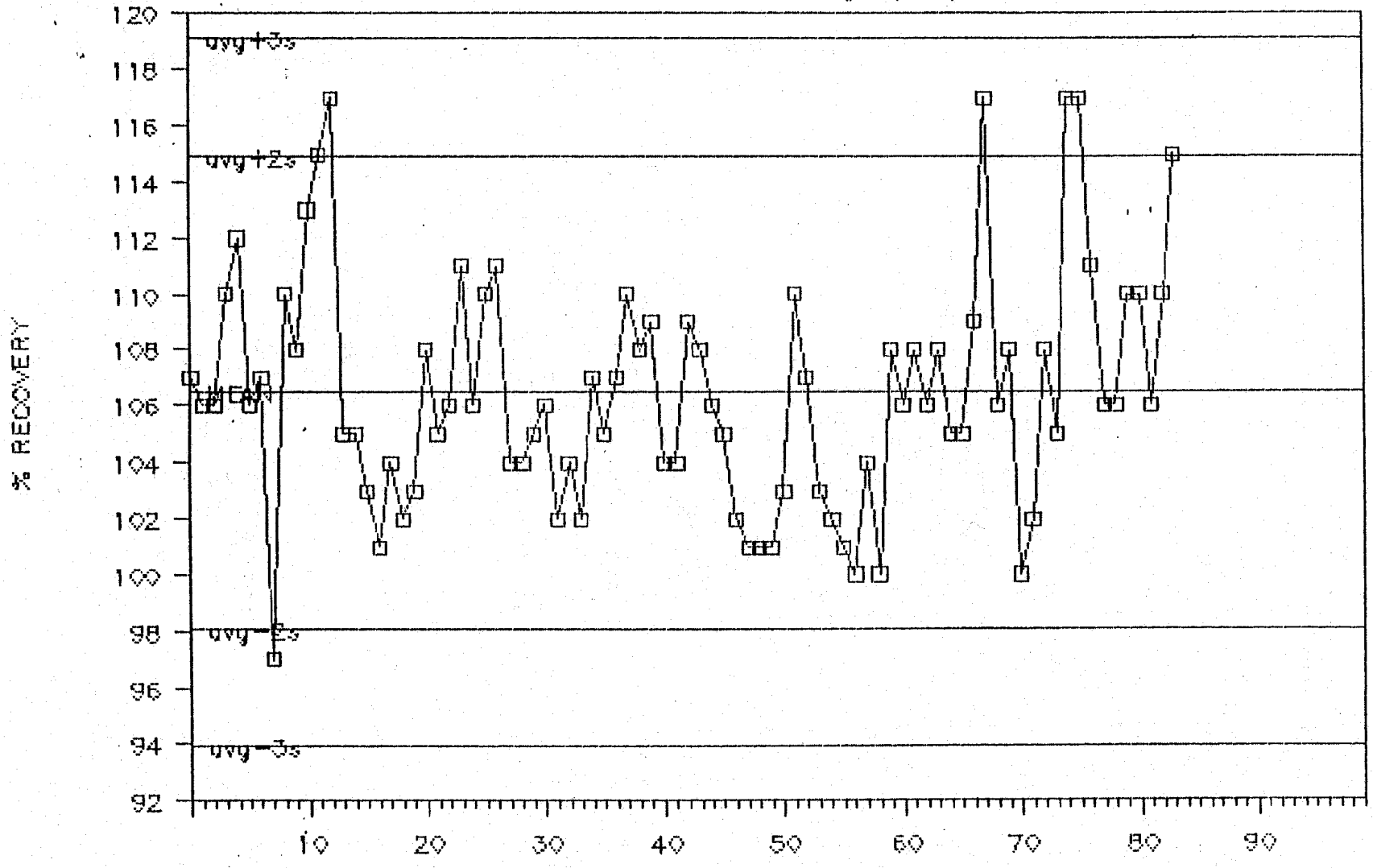
VOLATILES, - SOIL - SURR.#2 (BFB)



000147

SURROGATE RECOVERY

VOLATILES - SOIL - SURR.#3 (DCE)



000148

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 10/17/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11822

RE: Sample(s) received by CH2M HILL on 08/31/88.
LANTDIV

Analysis Description	[Method]	2B 8/29/88 1630 COMP SS4 SOIL	2B 8/30/88 1301 COMP B10S3 DUP SOIL	2B 8/29/88 1045 COMP B14S1 SOIL	2B 8/29/88 1045 COMP B14S2 SOIL	2B 8/29/88 1045 COMP B14S3 SOIL	2B 8/29/88 1143 COMP B15S1 SOIL	2B 8/29/88 1143 COMP B15S2 SOIL
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
EP Tox. Silver (ppb)	[EPA200.7]	<30	<30	<30	<30	<30	<30	30
EP Tox. Arsenic (ppb)	[EPA206.2]	<5	<5	<5	<5	<5	<5	<5
EP Tox. Barium (ppb)	[EPA200.7]	100	240	220	<100	<100	200	<100
EP Tox. Cadmium (ppb)	[EPA200.7]	<20	<20	<20	<20	<20	<20	<20
EP Tox. Chromium (ppb)	[EPA200.7]	<10	<10	<10	<10	<10	<10	<10
EP Tox. Mercury (ppb)	[EPA245.1]	0.5	0.5	0.7	0.5	0.6	0.6	0.4
EP Tox. Lead (ppb)	[EPA239.2]	<5	5	12	<5	26	<5	56
EP Tox. Selenium (ppb)	[EPA270.2]	<5	<5	<5	<5	<5	<5	<5

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 10/17/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11822

RE: Sample(s) received by CH2M HILL on 08/31/88.
LANTDIV

Analysis Description	[Method]	2B 8/29/88 1143 COMP B15S3 SOIL	2B 8/30/88 1000 COMP B8S1 SOIL	2B 8/30/88 1000 COMP B8S2 SOIL	2B 8/30/88 1000 COMP B8S3 SOIL	2B 8/30/88 1115 COMP B9S2 SOIL	2B 8/30/88 1115 COMP B9S1 SOIL	2B 8/30/88 1115 COMP B9S3 SOIL
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
EP Tox. Silver (ppb)	[EPA200.7]	<30	<30	<30	<30	<30	<30	<30
EP Tox. Arsenic (ppb)	[EPA206.2]	<5	<5	<5	<5	<5	<5	<5
EP Tox. Barium (ppb)	[EPA200.7]	<100	340	110	100	<100	250	<100
EP Tox. Cadmium (ppb)	[EPA200.7]	<20	<20	<20	<20	<20	<20	<20
EP Tox. Chromium (ppb)	[EPA200.7]	<10	<10	<10	<10	<10	<10	<10
EP Tox. Mercury (ppb)	[EPA245.1]	0.3	0.3	0.3	0.5	0.5	0.6	0.5
EP Tox. Lead (ppb)	[EPA239.2]	<5	<5	<5	<5	<5	5	<5
EP Tox. Selenium (ppb)	[EPA270.2]	<5	<5	<5	<5	<5	<5	<5

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 10/17/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11822

RE: Sample(s) received by CH2M HILL on 08/31/88.
LANTDIV

Analysis Description	[Method]	2B 8/30/88 1301 COMP B10S1 SOIL	2B 8/30/88 1301 COMP B10S2 SOIL	2B 8/30/88 1301 COMP B10S3 SOIL
		SOIL	SOIL	SOIL
EP Tox. Silver (ppb)	[EPA200.7]	<30	<30	<30
EP Tox. Arsenic (ppb)	[EPA206.2]	<5	<5	<5
EP Tox. Barium (ppb)	[EPA200.7]	270	330	200
EP Tox. Cadmium (ppb)	[EPA200.7]	<20	<20	<20
EP Tox. Chromium (ppb)	[EPA200.7]	<10	<10	<10
EP Tox. Mercury (ppb)	[EPA245.1]	<0.4	0.5	0.4
EP Tox. Lead (ppb)	[EPA239.2]	<5	12	<5
EP Tox. Selenium (ppb)	[EPA270.2]	<5	<5	<5

Analyses performed in accordance with methods approved by the USEPA.

Respectfully Submitted,

Mr. James M. Schoen
Inorganic Laboratory Manager

cc: MR. FRANK LEWIS/WDC, MS. MARY WISDOM/MGM-LQAC

INORG(MGM-8809C)

CH2M HILL
Engineers
Planners
Economists
Scientists

October 10, 1988

W20368.D0

Mr. Doug Dronfield
CH2M HILL/WDC
P.O. Box 4400
Reston, Virginia 22090

RE: Analytical Data for Laboratory No. 11846

Dear Mr. Dronfield:

On September 2, 1988, CH2M HILL Montgomery Laboratory received sixteen samples with a request for analysis of selected organic parameters.

Please note that the CH2M HILL Montgomery Laboratory reporting format has changed. The format alteration is in response to new reporting technology and will keep CH2M HILL in-line with new industry standards. We apologize for any inconvenience this change may cause.

The analytical results and the associated quality control data are enclosed. No unusual difficulties were encountered during the analysis of these samples.

If you should have any questions concerning the data, please call.

Sincerely,

Ward Dickens

Ward Dickens
Manager, Organic Analysis

Enclosures

cc: Mr. Craig Vinson
Mr. Frank Lewis/WDC

CH2M HILL Montgomery Environmental Laboratory 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205.271.1444

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-SS4_0955

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846001

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001492

Level: (low/med) LOW Date Received: 09/02/88

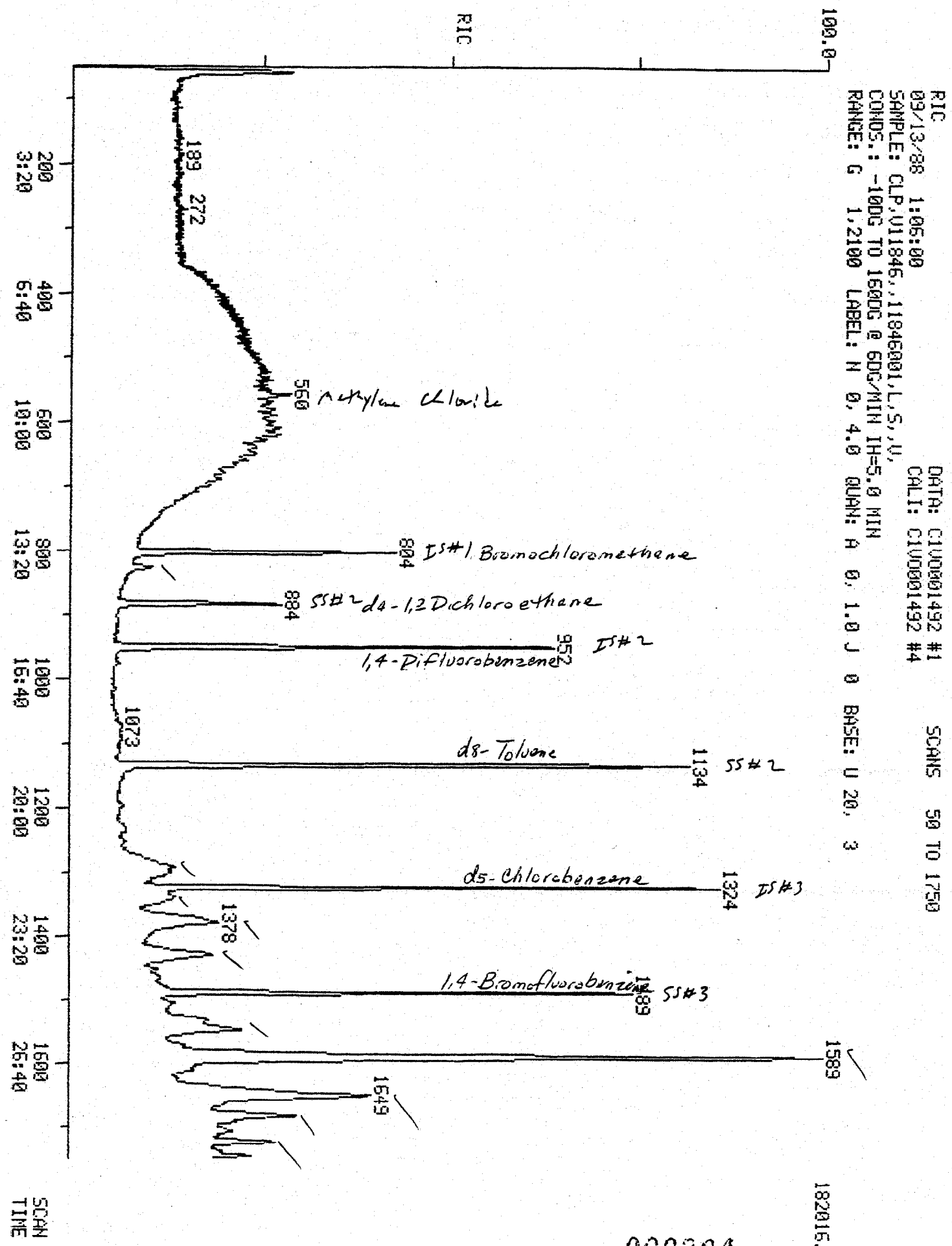
% Moisture: not dec. 16 Date Analyzed: 09/13/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	6	J
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	4	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS.

TCA FINISHED, 11 FOUND
FINISHED AT: 9/13/88 4:45:30



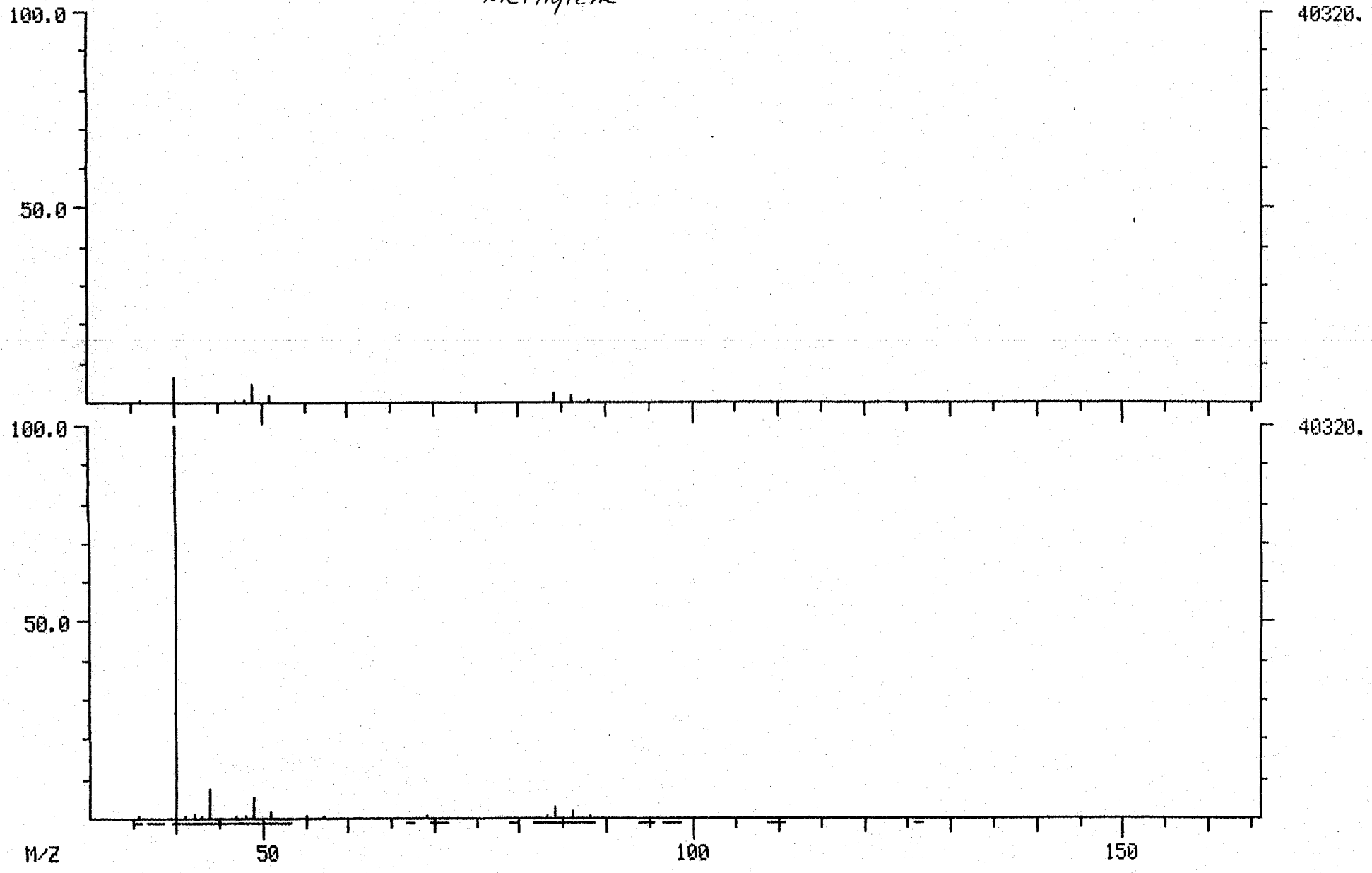
182016.

000004

DUAL MASS SPECTRUM
09/13/88 1:06:00 + 9:20
SAMPLE: CLP,V11846,,11846001,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

DATA: C1V0001492 #560 BASE M/Z: 40/ 40
CALI: C1V0001492 #4 RIC: 8239./ 52351.

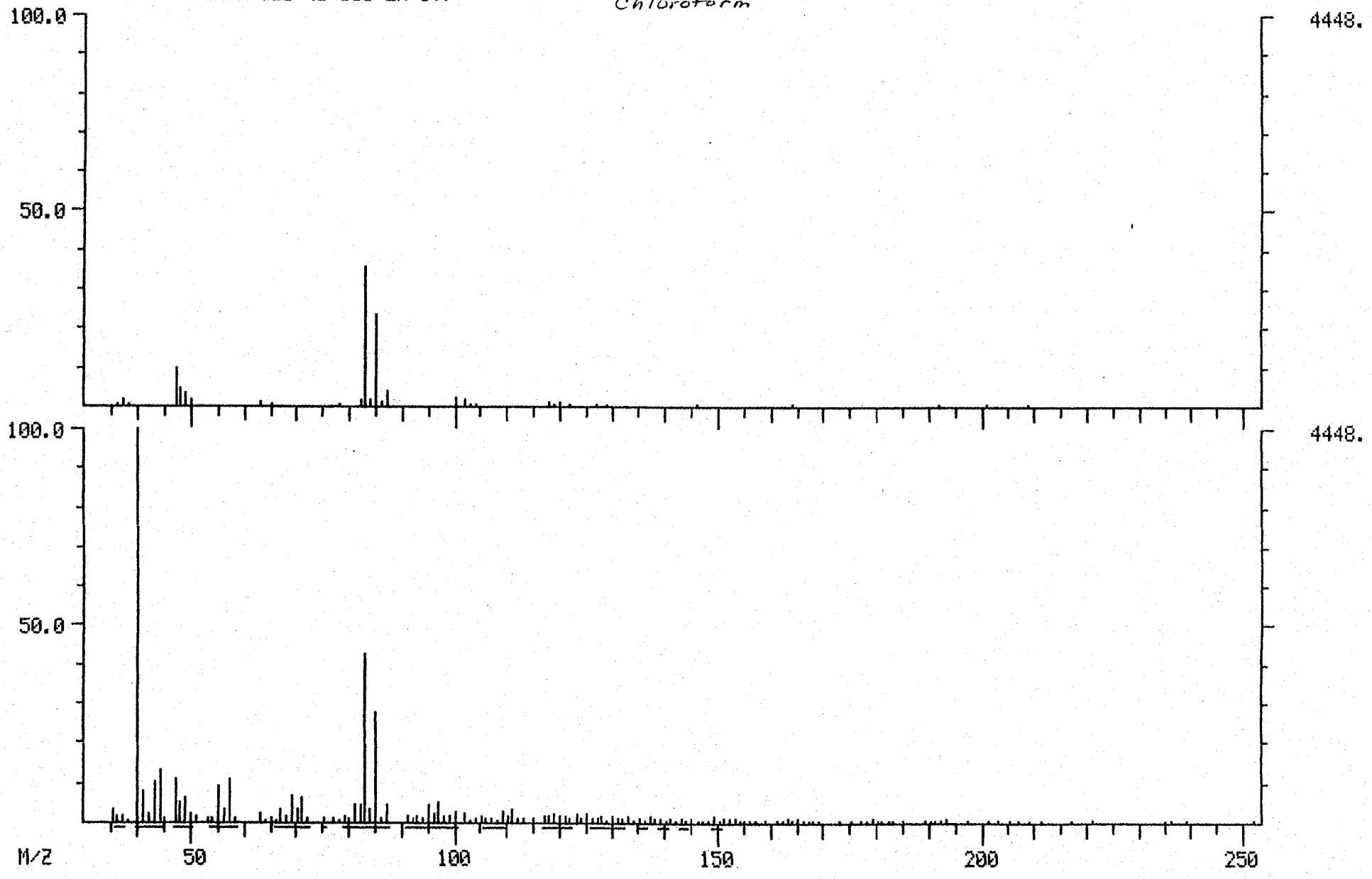
000005



DUAL MASS SPECTRUM
09/13/88 1:06:00 + 13:47
SAMPLE: CLP,V11846,,11846001,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001492 #827 BASE M/Z: 83/ 40
CALI: C1V0001492 #4 RIC: 4847./ 19583.

Chloroform



000006

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-SS1_1055

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846002

Sample wt/vol: _____ (g/mL) G Lab File ID: C2V0001513

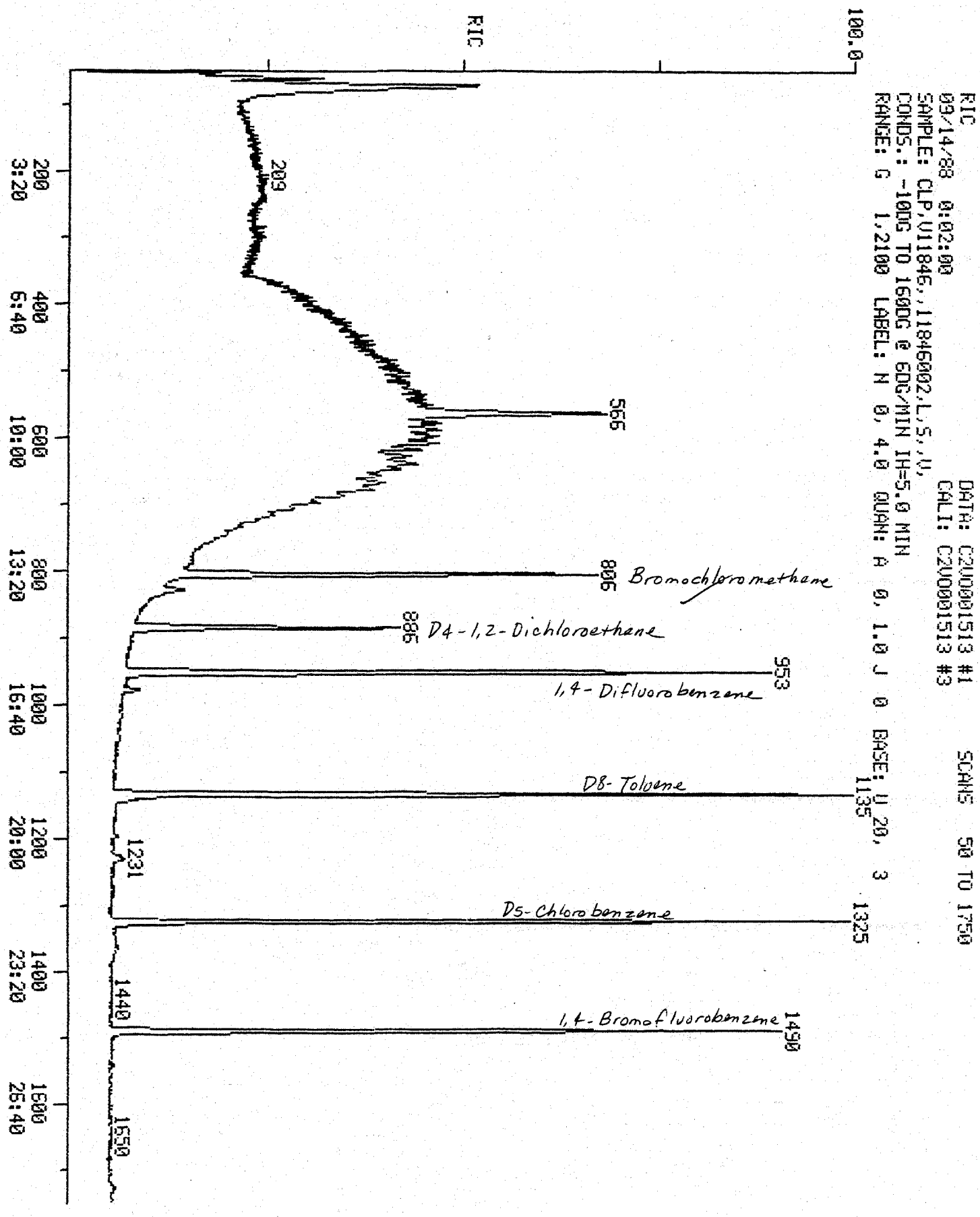
Level: (low/med) LOW Date Received: 09/02/88

% Moisture: not dec. 15 Date Analyzed: 09/14/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	52	
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 10 FOUND
FINISHED AT: 9/14/88 5:05:15

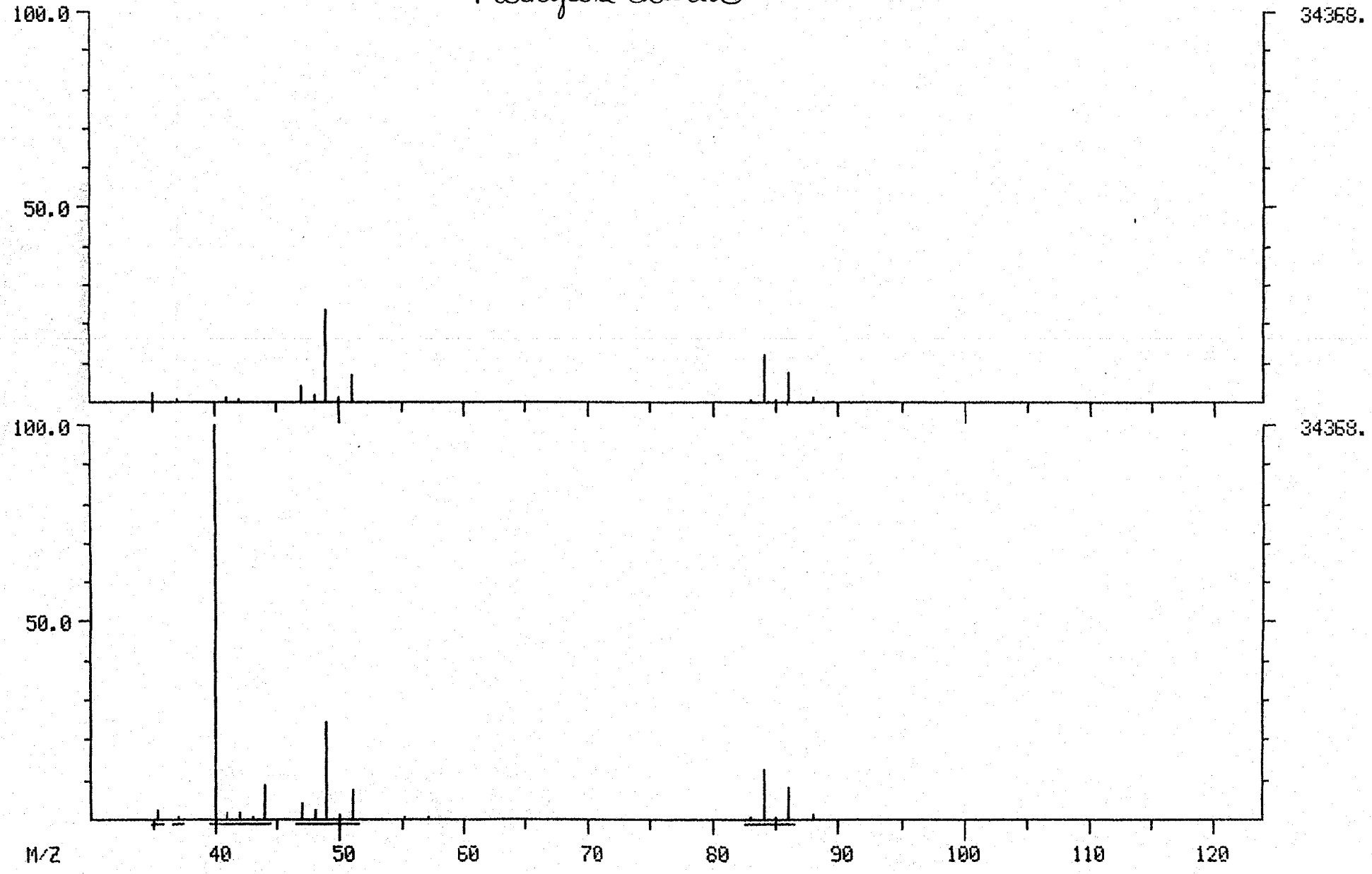


000008

DUAL MASS SPECTRUM
09/14/88 0:02:00 + 9:26
SAMPLE: CLP,V11846,,11846002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

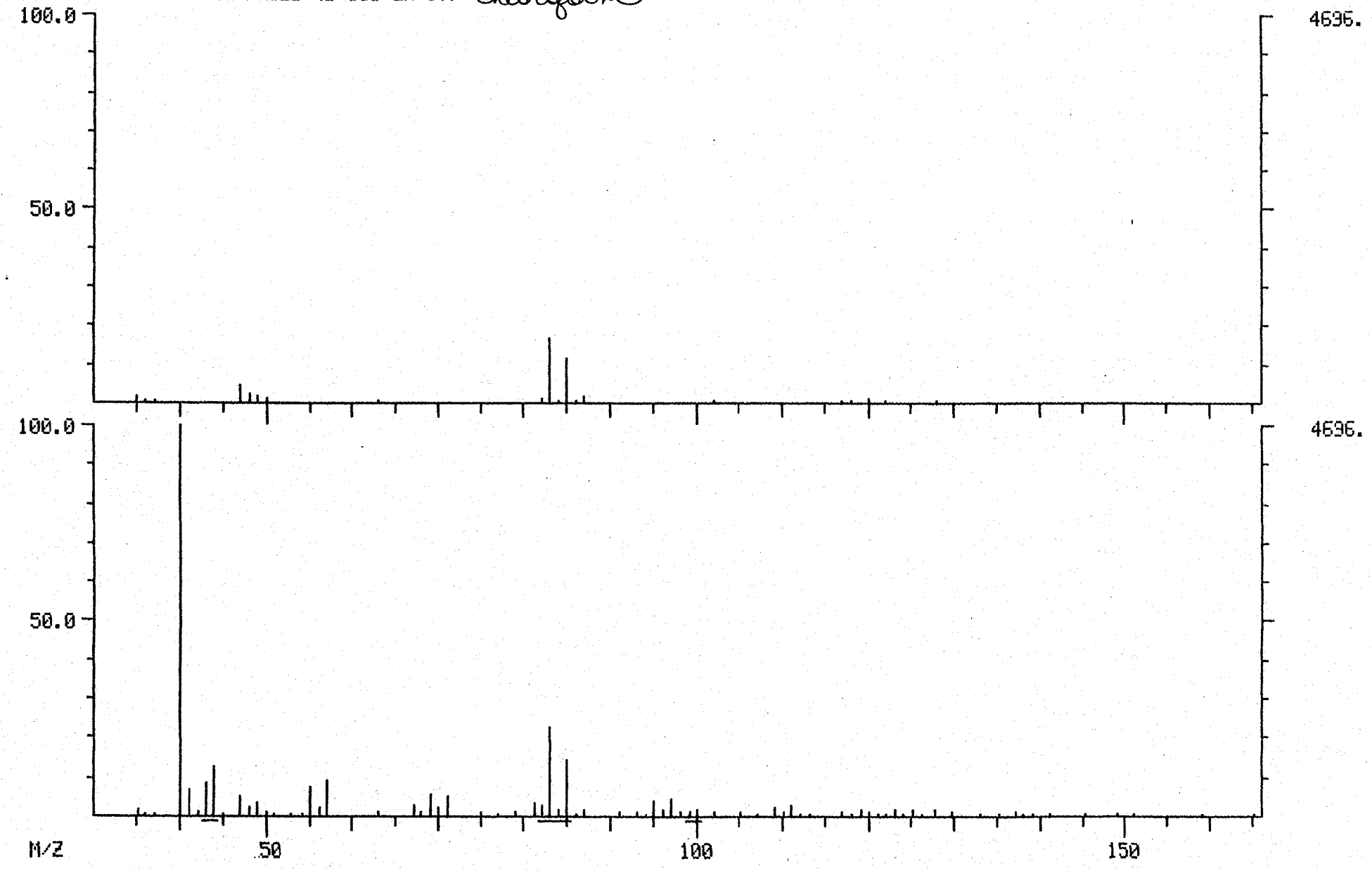
DATA: C2V0001513 #566 BASE M/Z: 49/ 40
CALI: C2V0001513 #3 RIC: 22463./ 62271.

600000



DUAL MASS SPECTRUM
09/14/88 0:02:00 + 13:49
SAMPLE: CLP,V11846,,11846002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

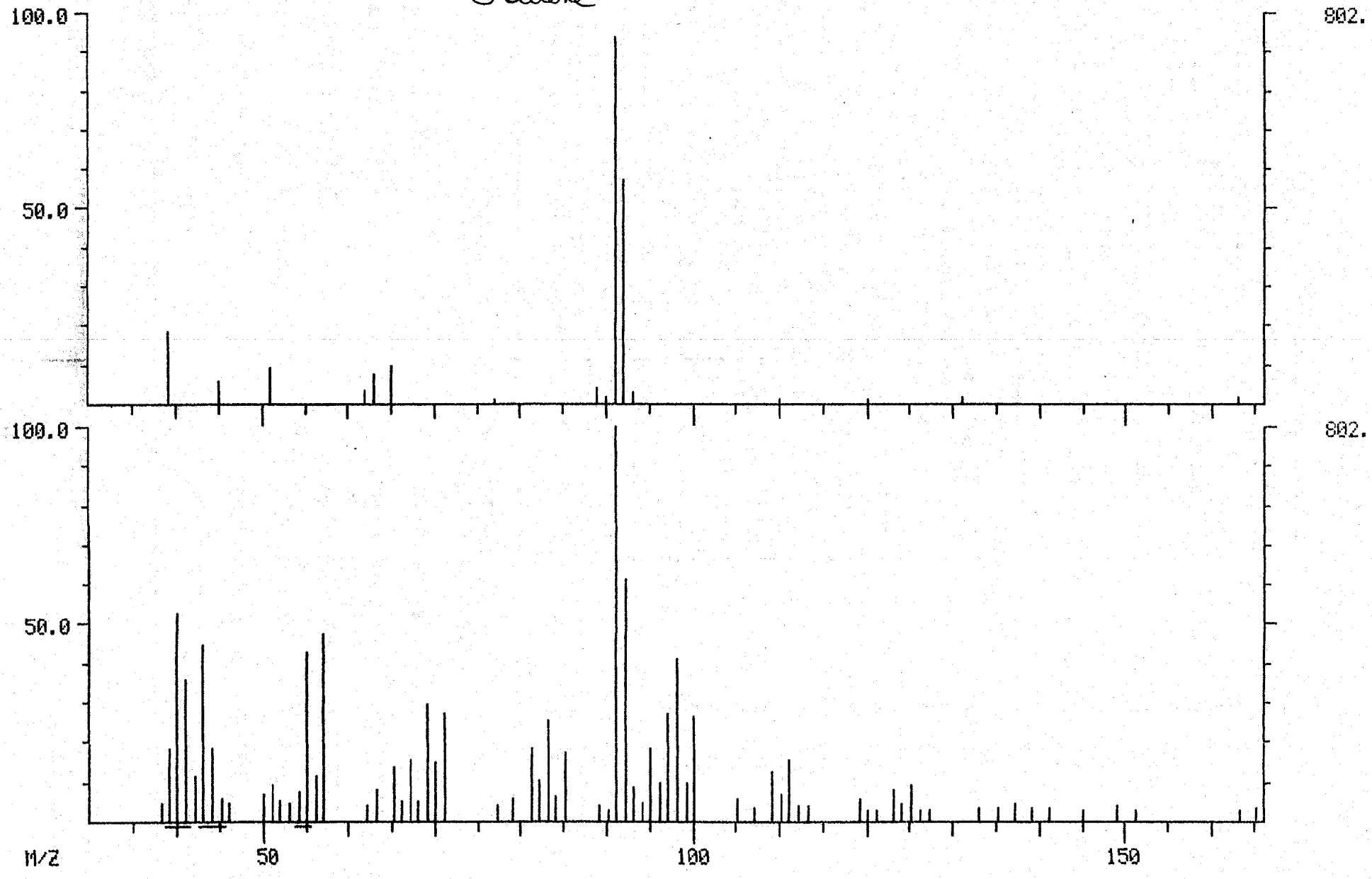
DATA: C2V0001513 #829 BASE M/Z: 83/ 40
CALI: C2V0001513 #3 RIC: 2411./ 13231.



000010

DUAL MASS SPECTRUM
09/14/88 0:02:00 + 19:03
SAMPLE: CLP,V11846,,11846002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Toluene

DATA: C2V0001513 #1143 BASE M/Z: 91/ 91
CALI: C2V0001513 #3 RIC: 1767./ 7951.



000011

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B13S1_1307

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846003

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001494

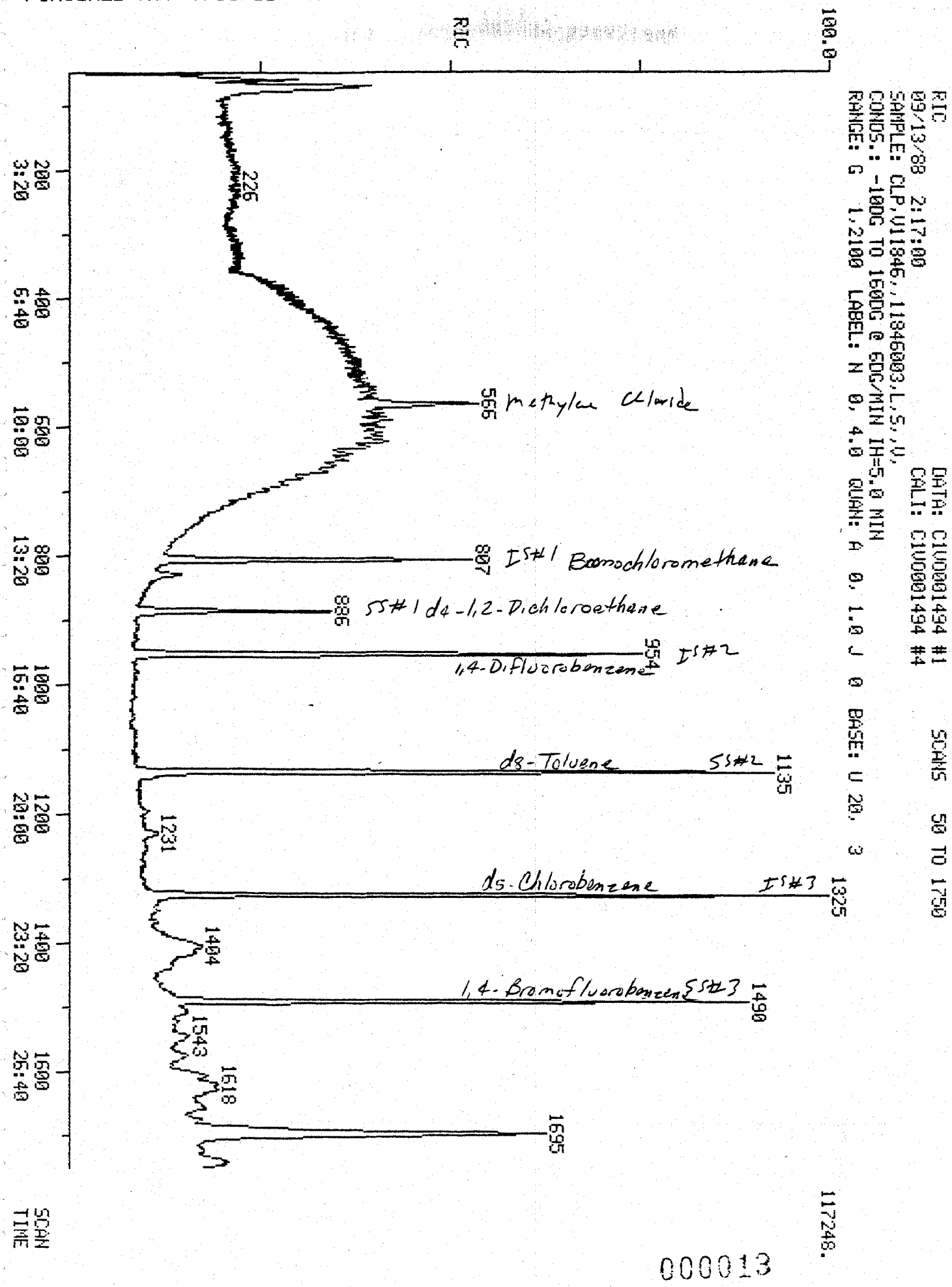
Level: (low/med) LOW Date Received: 09/02/88

% Moisture: not dec. 20 Date Analyzed: 09/13/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	24	
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	4	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 10 FOUND
FINISHED AT: 9/13/88 4:59:04

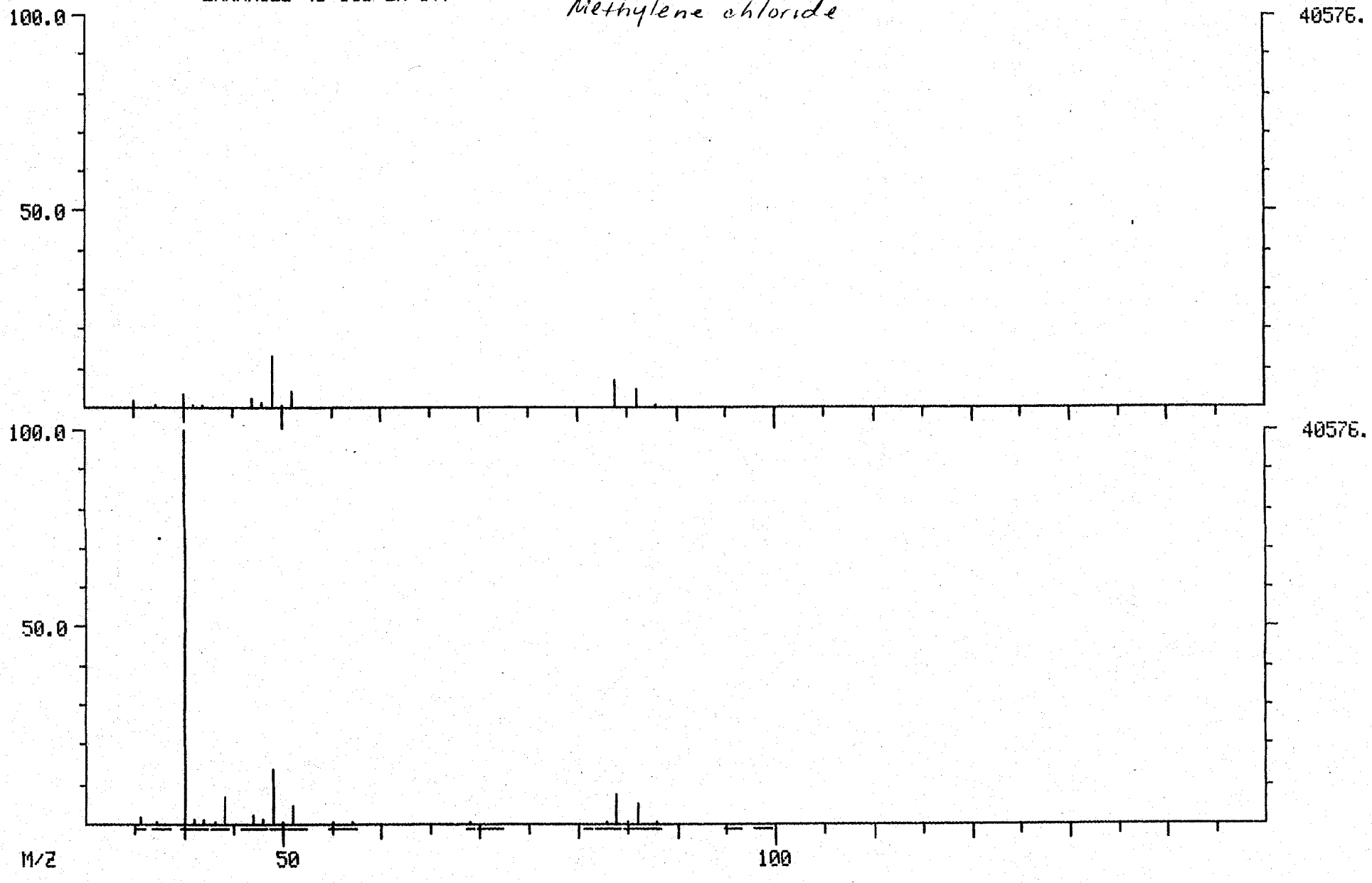


000013

DUAL MASS SPECTRUM
09/13/88 2:17:00 + 9:26
SAMPLE: CLP,V11846,,11846003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001494 #566 BASE M/Z: 49/ 40
CALI: C1V0001494 #4 RIC: 17119./ 62847.

Methylene chloride

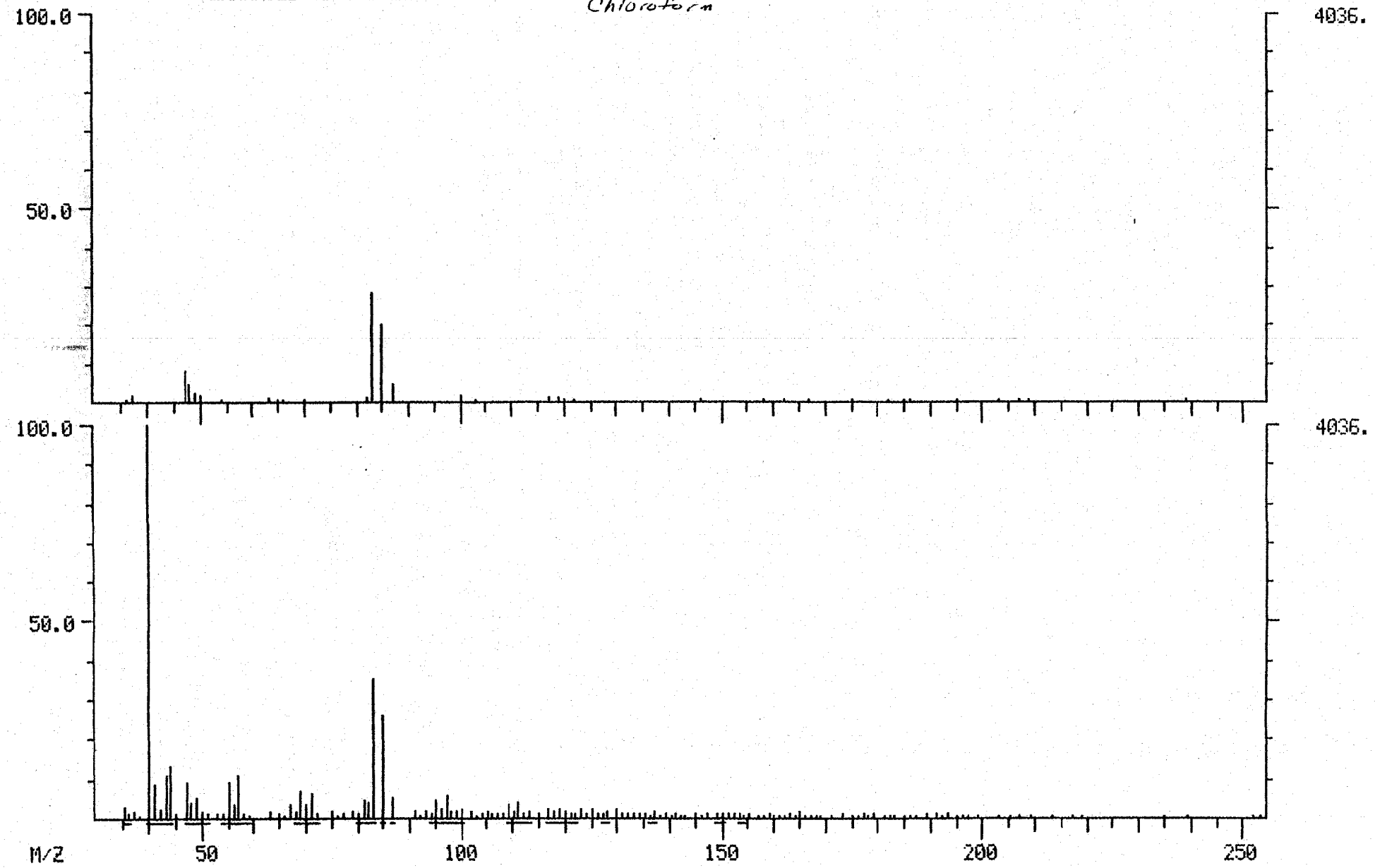


000014

DUAL MASS SPECTRUM
09/13/88 2:17:00 + 13:50
SAMPLE: CLP,V11846,,11846003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001494 #830 BASE M/Z: 83/ 40
CALI: C1V0001494 #4 RIC: 3683./ 17375.

Chloroform



000010

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B13S2_1307

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846004

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001495

Level: (low/med) LOW Date Received: 09/02/88

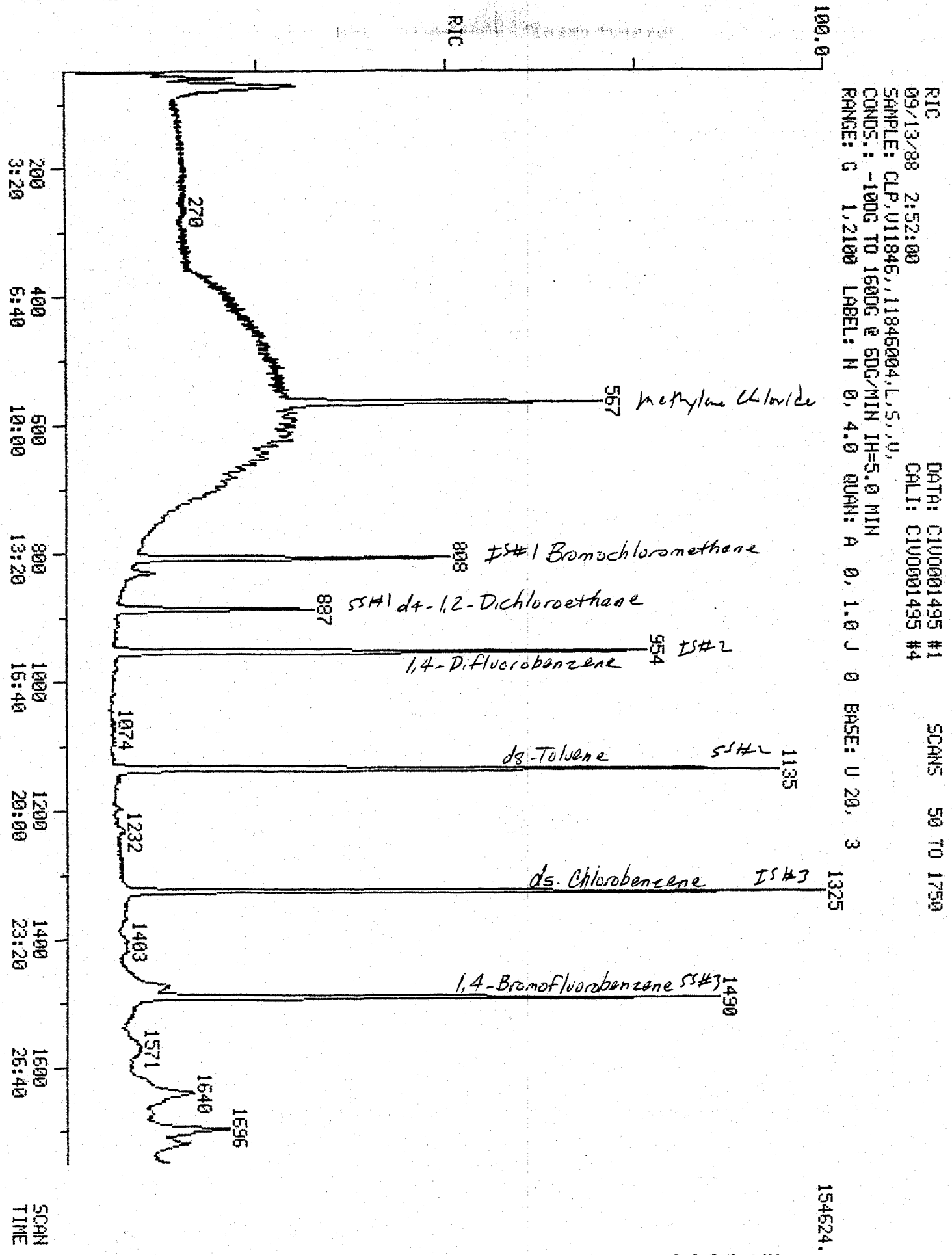
% Moisture: not dec. 19 Date Analyzed: 09/13/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	69	
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	4	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS.

TCA FINISHED, 10 FOUND
FINISHED AT: 9/13/88 5:05:50

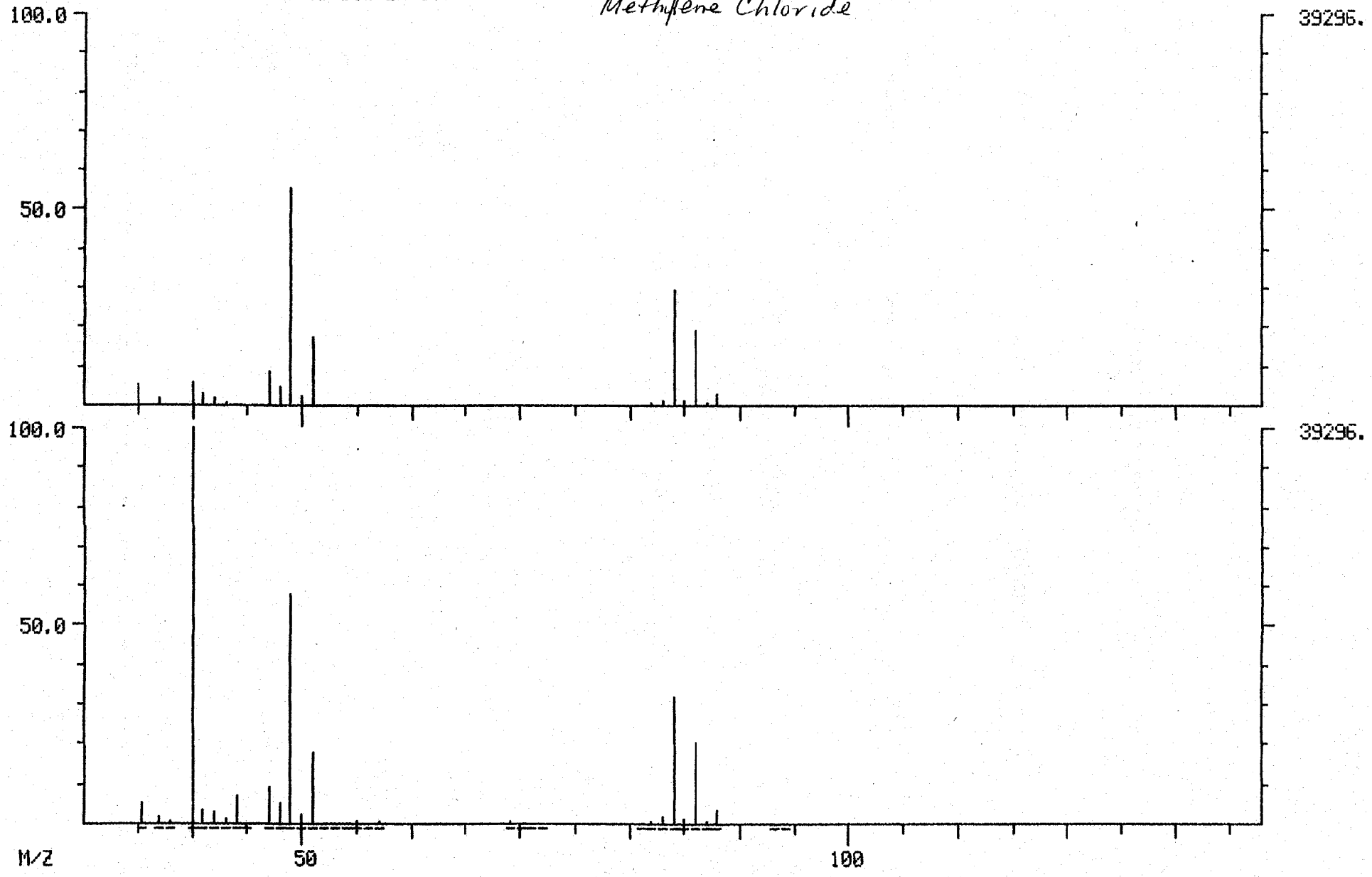


00001

DUAL MASS SPECTRUM
09/13/88 2:52:00 + 9:27
SAMPLE: CLP,V11846,,11846004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001495 #567 BASE M/Z: 49/ 40
CALI: C1V0001495 #4 RIC: 63487./ 108543.

Methylene Chloride

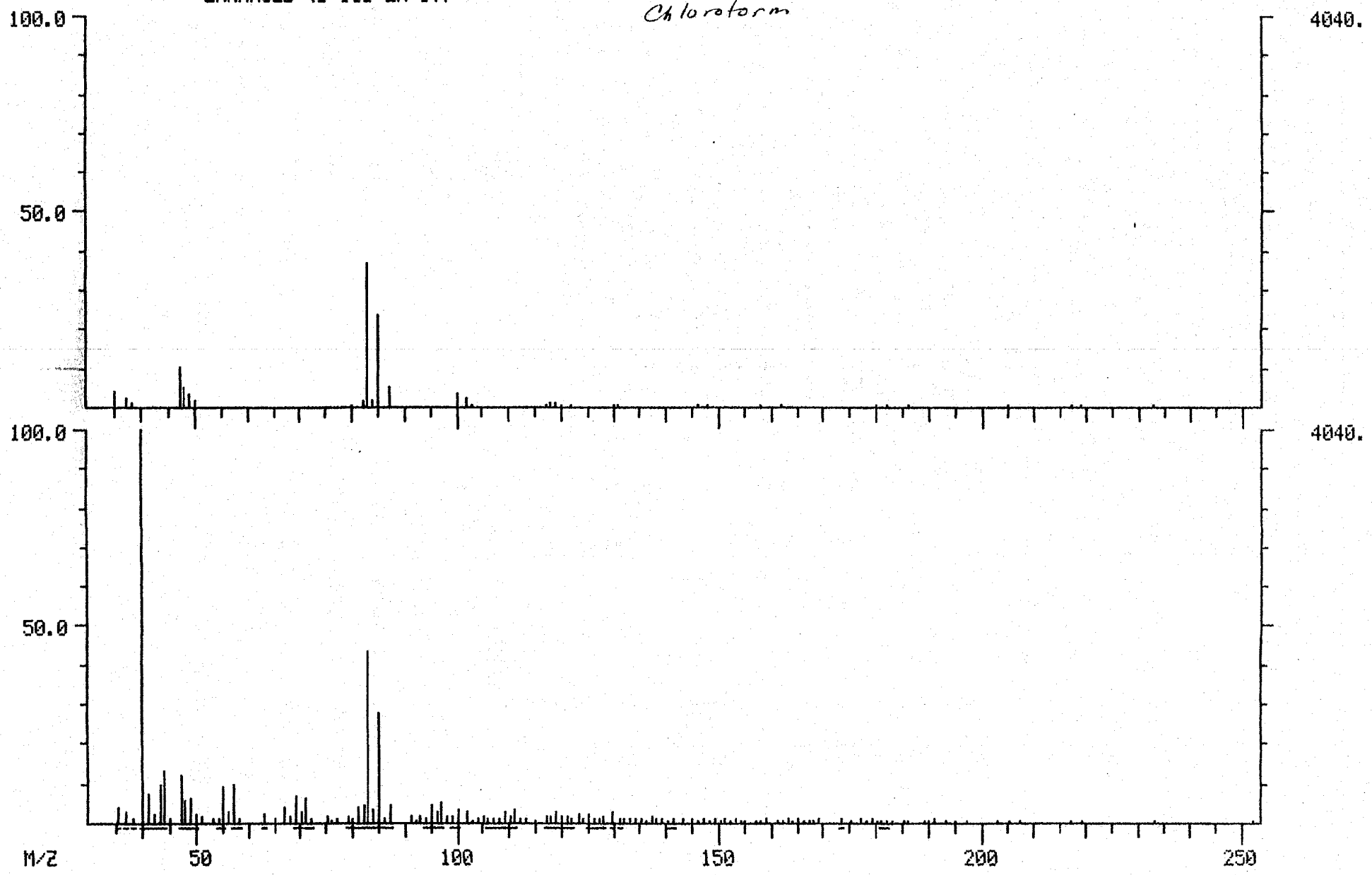


000018

DUAL MASS SPECTRUM
09/13/88 2:52:00 + 13:51
SAMPLE: CLP,V11846,,11846004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001495 #831 BASE M/Z: 83/ 40
CALI: C1V0001495 #4 RIC: 4679./ 17855.

Chloroform



000019

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B13S3_1307

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846005

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001496

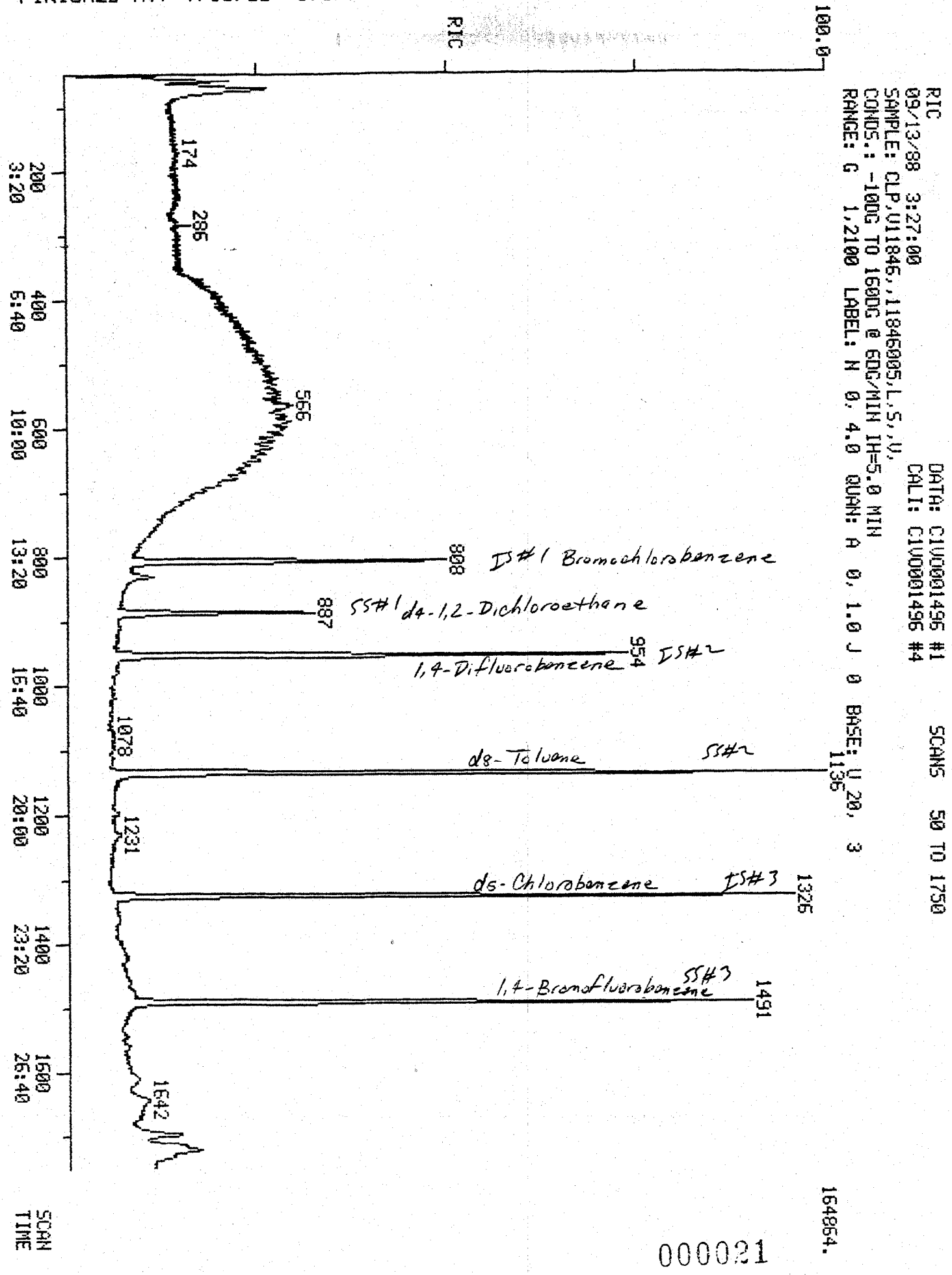
Level: (low/med) LOW Date Received: 09/02/88

% Moisture: not dec. 21 Date Analyzed: 09/13/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	5	J
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	4	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	2	J
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 10 FOUND
FINISHED AT: 9/13/88 5:12:36



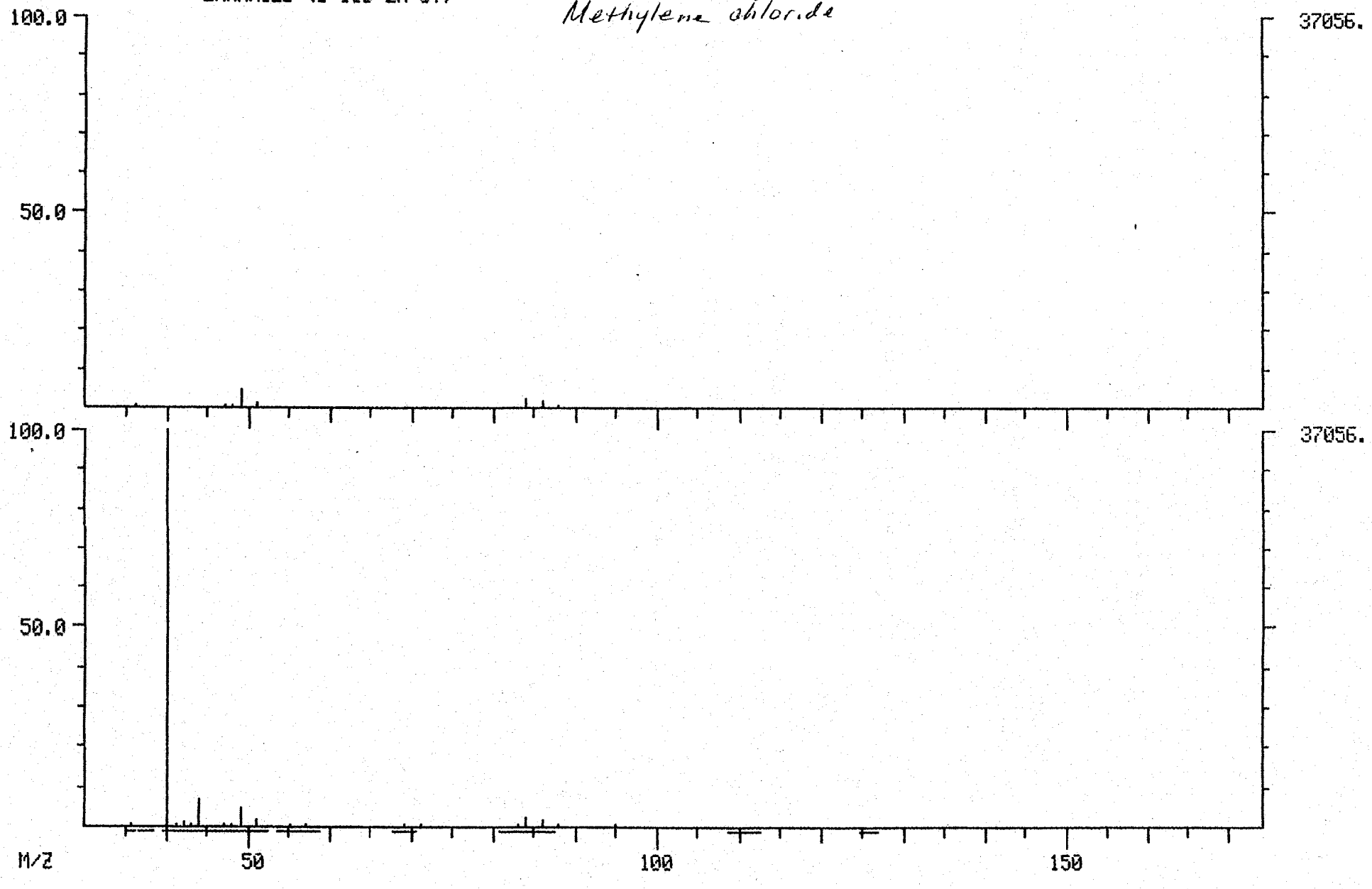
164854.

000021

DUAL MASS SPECTRUM
09/13/88 3:27:00 + 9:27
SAMPLE: CLP,V11846,,11846005,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001496 #567 BASE M/Z: 49/ 40
CALI: C1V0001496 #4 RIC: 4839./ 48063.

Methylene chloride

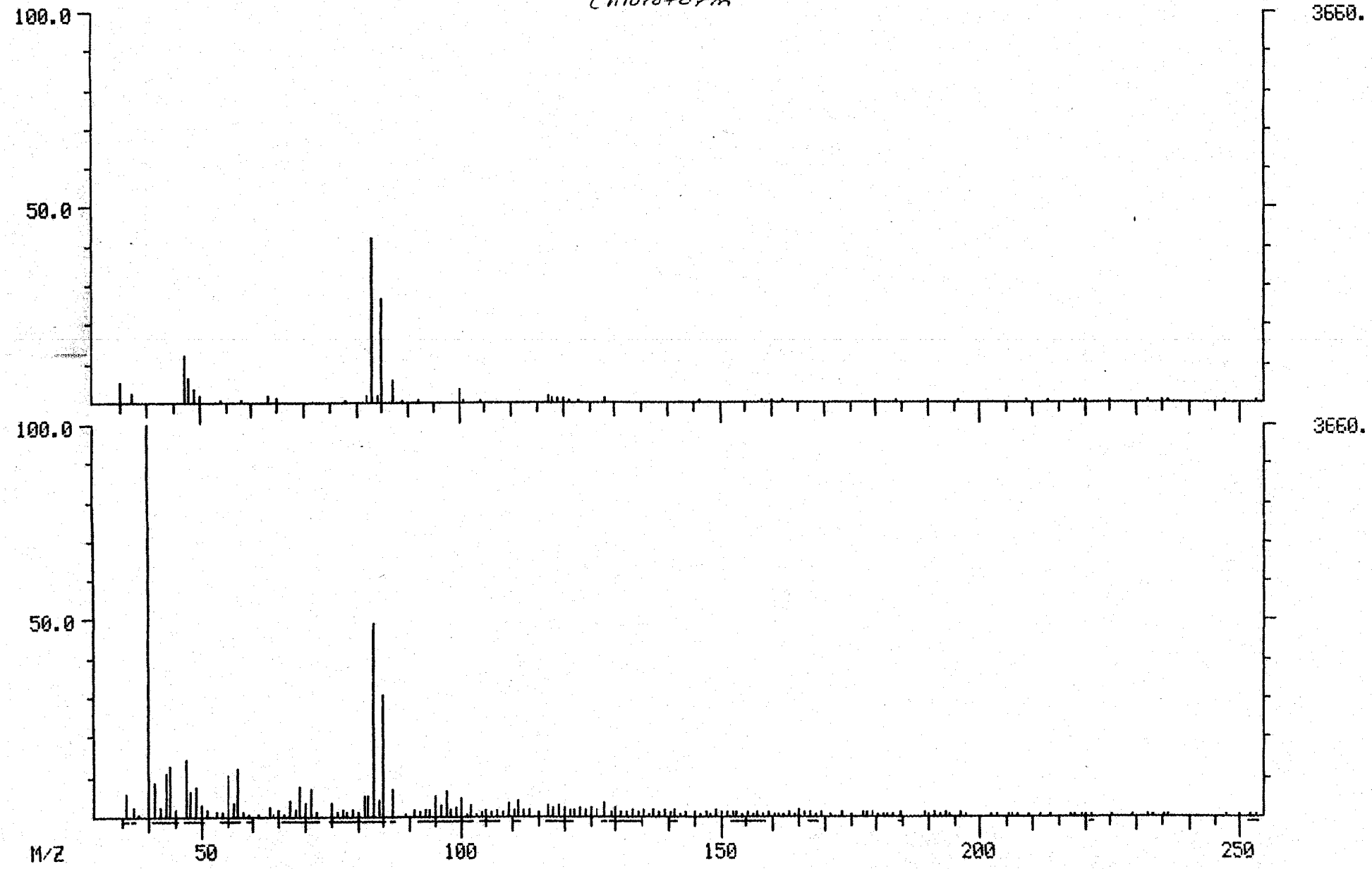


220000

DUAL MASS SPECTRUM
09/13/88 3:27:00 + 13:51
SAMPLE: CLP,V11846,,11846005,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001496 #831 BASE M/Z: 83/ 40
CALI: C1V0001496 #4 RIC: 5023./ 18879.

Chloroform

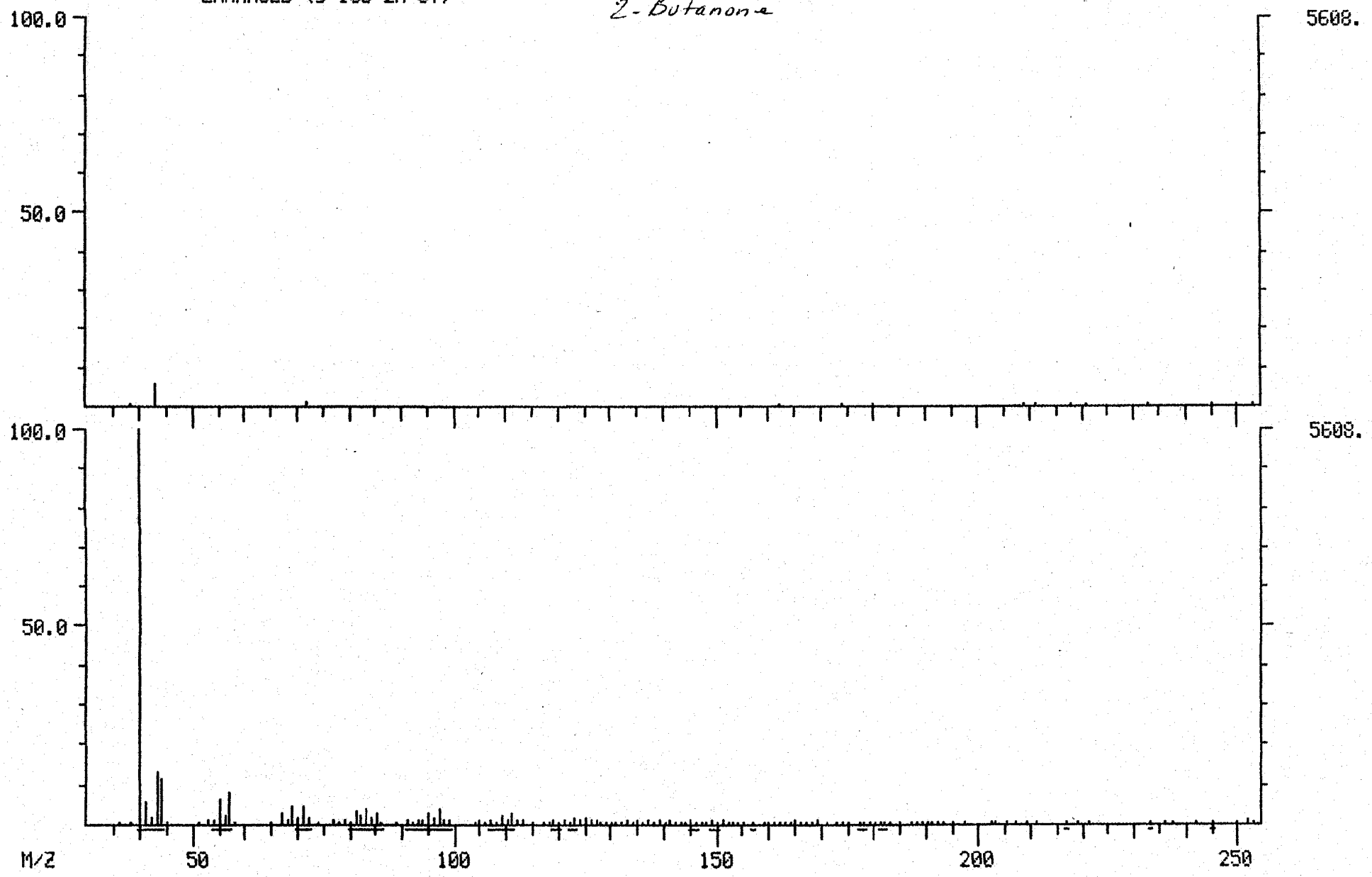


000023

DUAL MASS SPECTRUM
09/13/88 3:27:00 + 13:09
SAMPLE: CLP,V11846,,11846005,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001496 #789 BASE M/Z: 43/ 40
CALI: C1V0001496 #4 RIC: 867./ 15551.

2-Butanone



000024

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B12S1_1420

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846006

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001497

Level: (low/med) LOW Date Received: 09/02/88

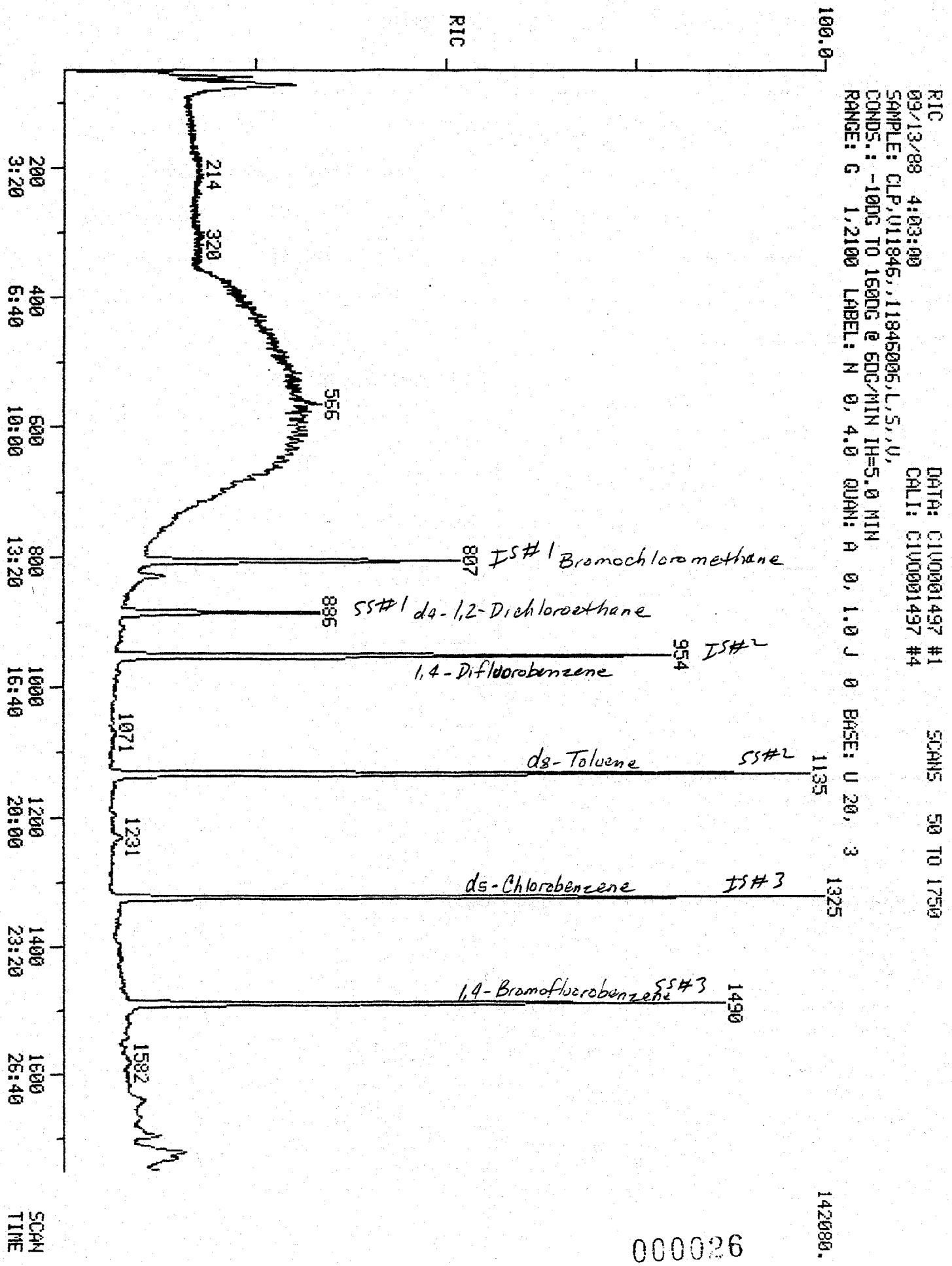
% Moisture: not dec. 12 Date Analyzed: 09/13/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	3	J
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	4	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS.

TCA FINISHED, 11 FOUND
FINISHED AT: 9/13/88 5:19:21

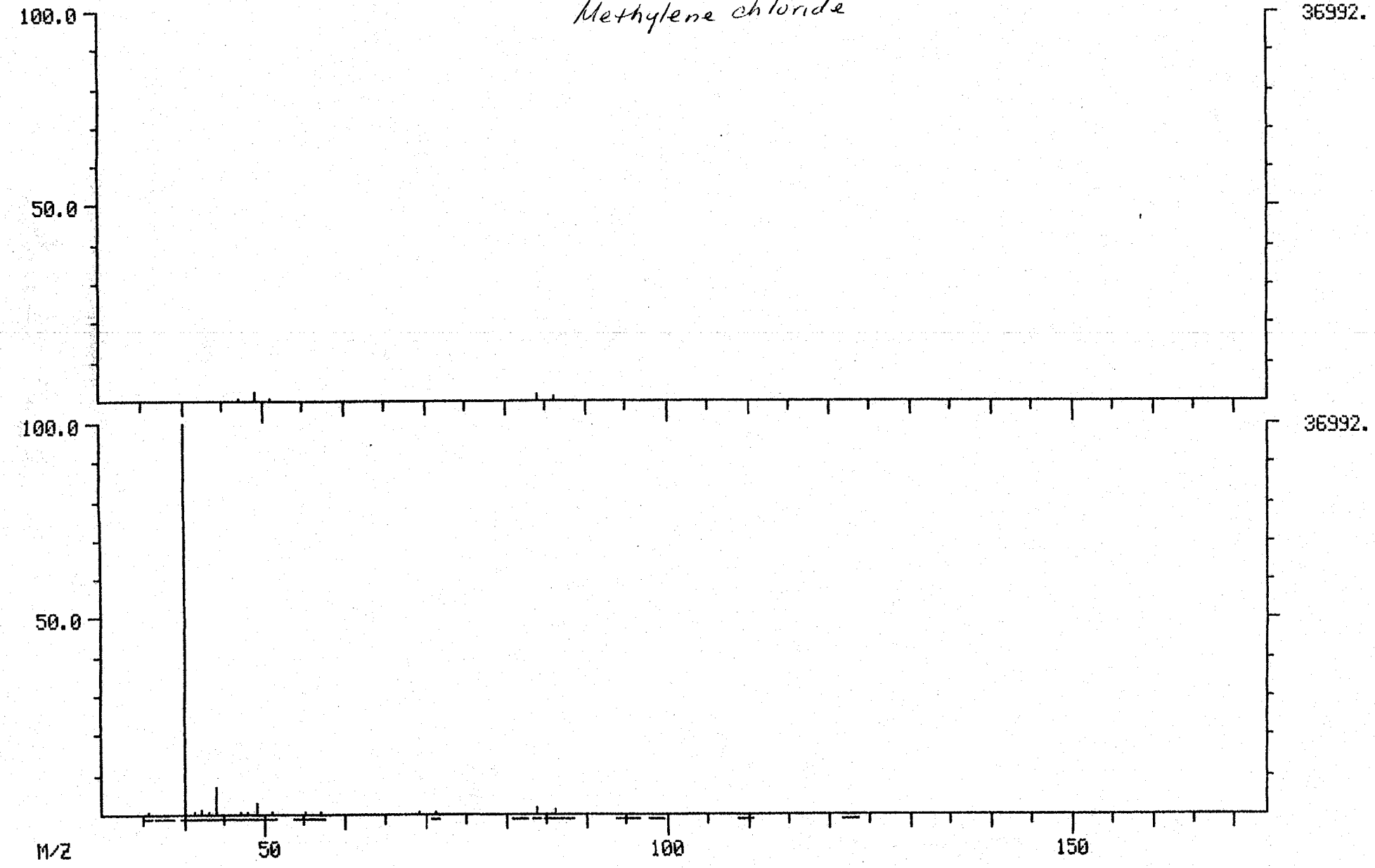


000026

DUAL MASS SPECTRUM
09/13/88 4:03:00 + 9:25
SAMPLE: CLP,V11846,,11846006,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001497 #565 BASE M/Z: 49/ 40
CALI: C1V0001497 #4 RIC: 2947./ 45951.

Methylene chloride

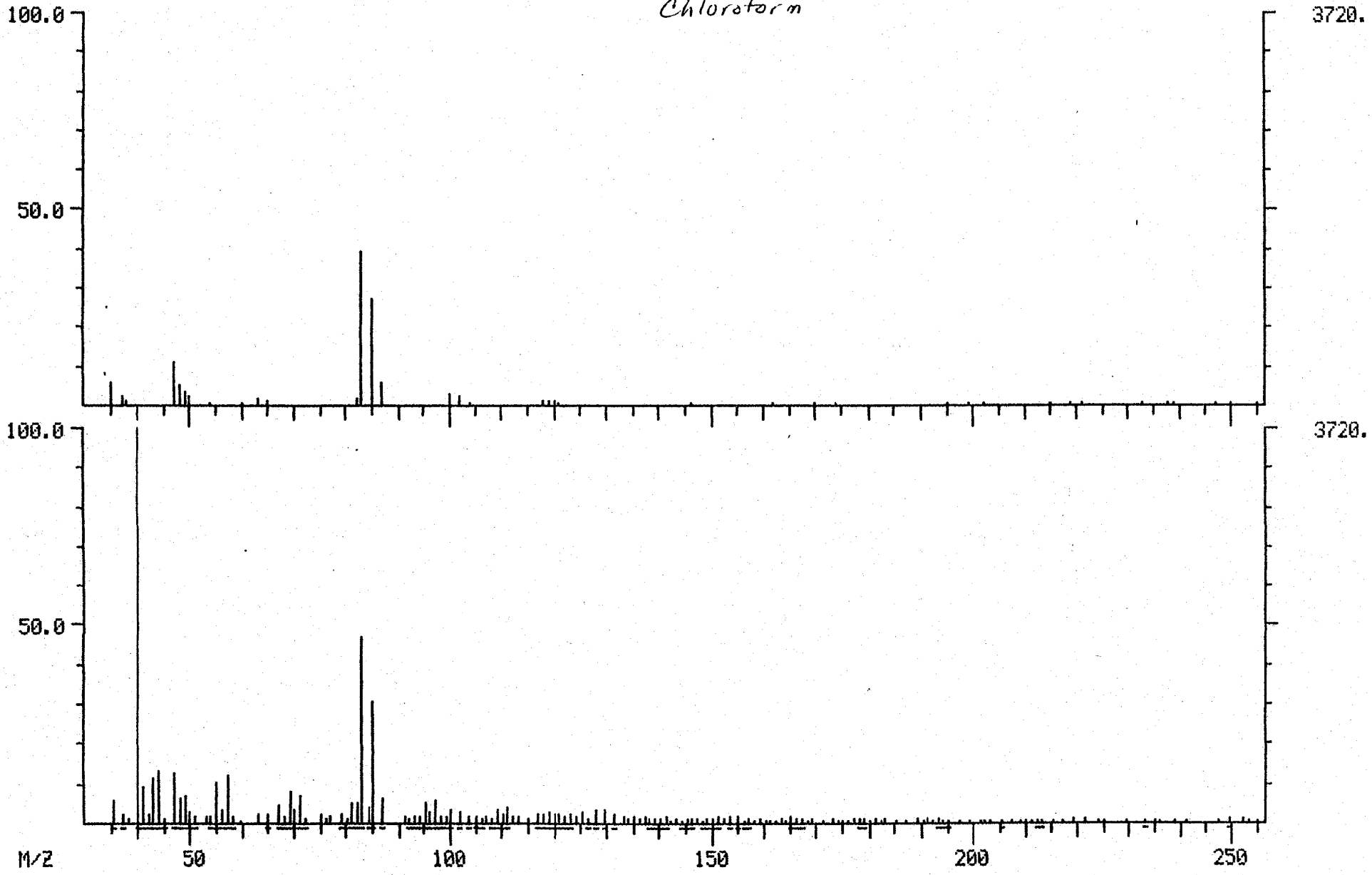


720000

DUAL MASS SPECTRUM
09/13/88 4:03:00 + 13:50
SAMPLE: CLP,V11846,,11846006,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001497 #830 BASE M/Z: 83/ 40
CALI: C1V0001497 #4 RIC: 4767./ 19199.

Chloroform



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B12S2_1420

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846007

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001514

Level: (low/med) LOW Date Received: 09/02/88

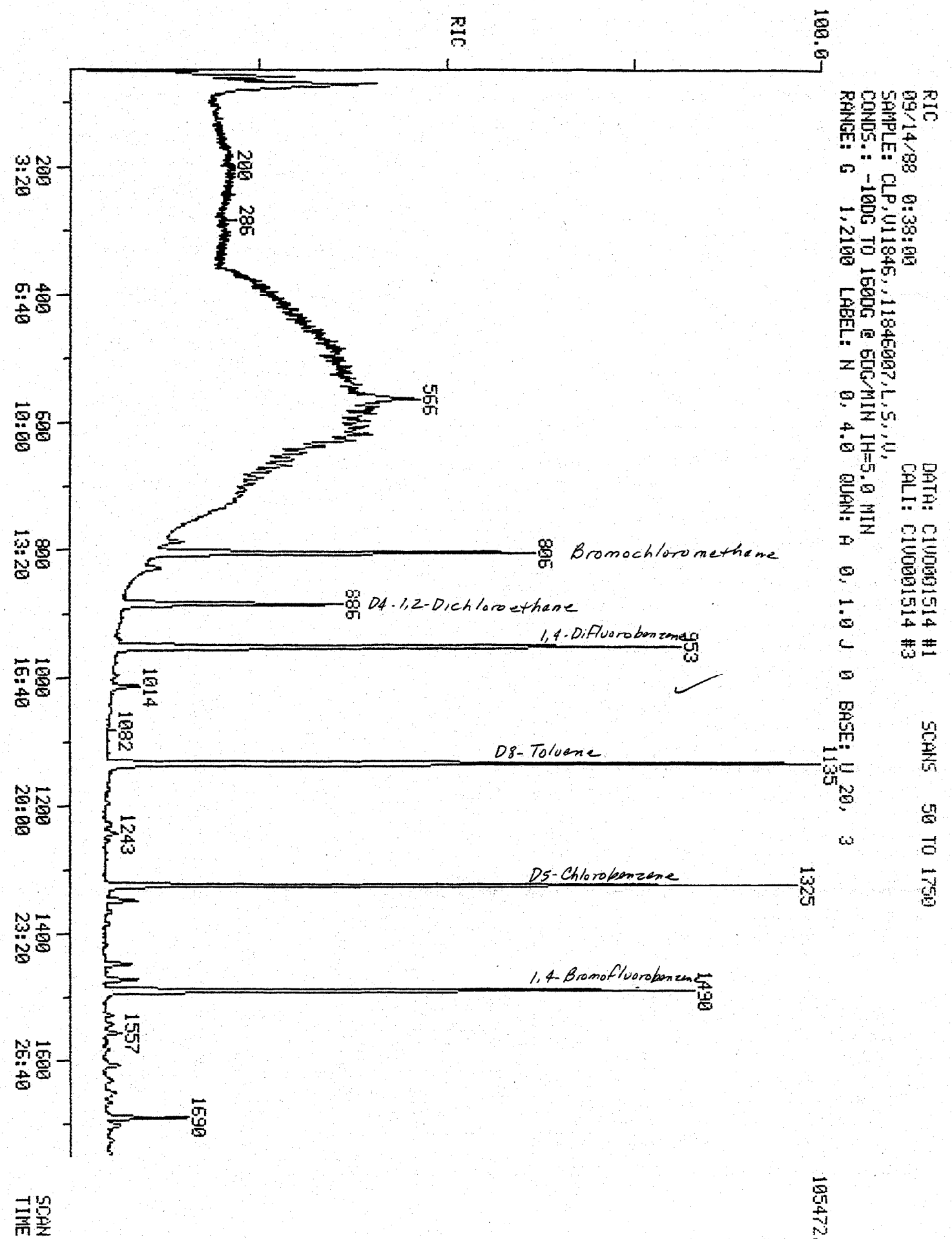
% Moisture: not dec. 22 Date Analyzed: 09/14/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	17	B
67-64-1	Acetone	47	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	17	
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	4	J
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	2	J
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS.

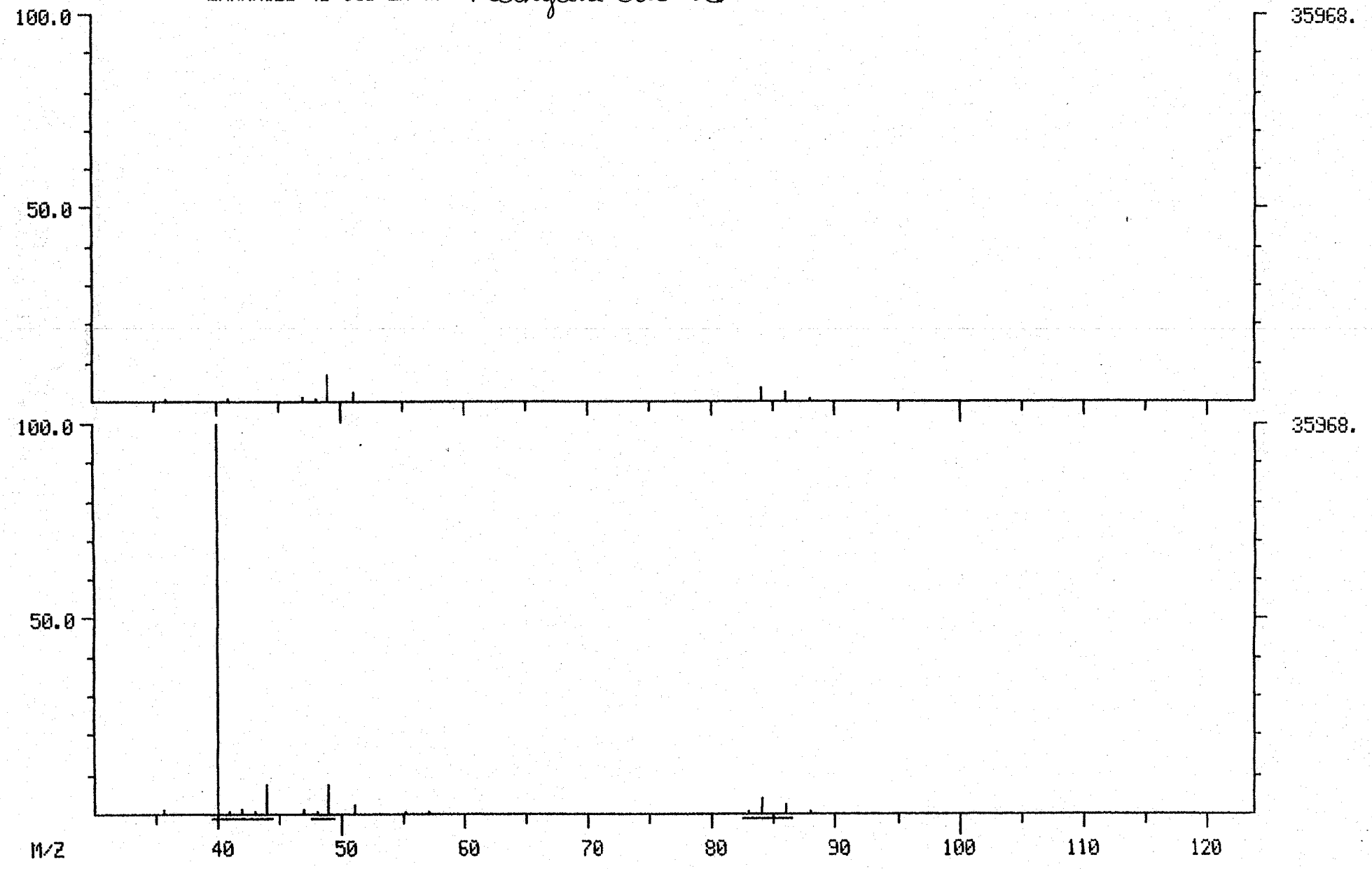
TCA FINISHED, 10 FOUND
FINISHED AT: 9/14/88 5:11:30



000029

DUAL MASS SPECTRUM
09/14/88 0:38:00 + 9:25
SAMPLE: CLP,V11846,,11846007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

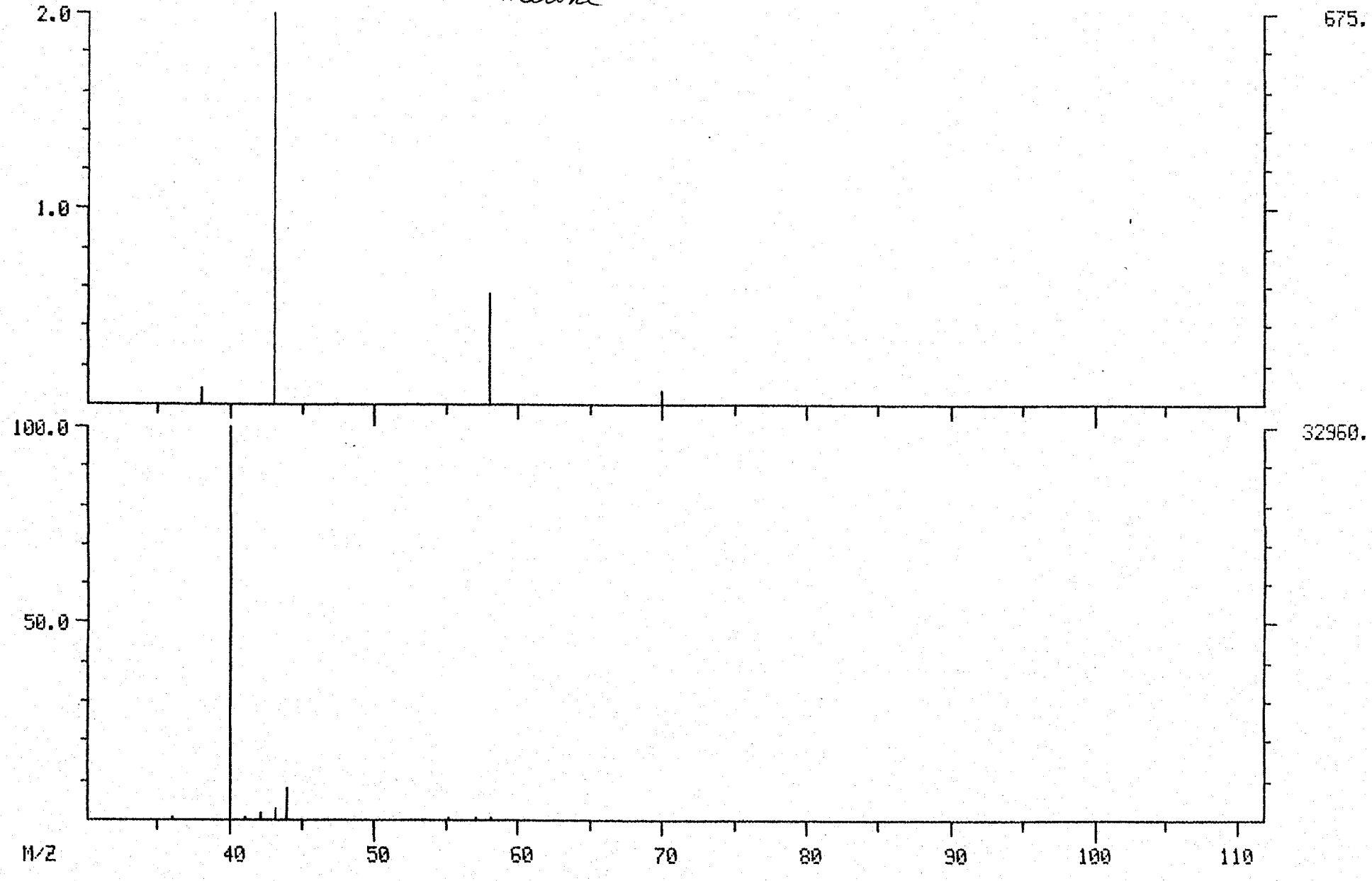
DATA: C1V0001514 #565 BASE M/Z: 49/ 40
CALI: C1V0001514 #3 RIC: 6975./ 47999.



000030

DUAL MASS SPECTRUM
09/14/88 0:38:00 + 8:05
SAMPLE: CLP,V11846,,11846007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

DATA: C1V0001514 #485 BASE M/Z: 43/ 40
CALI: C1V0001514 #3 RIC: 918./ 38399.

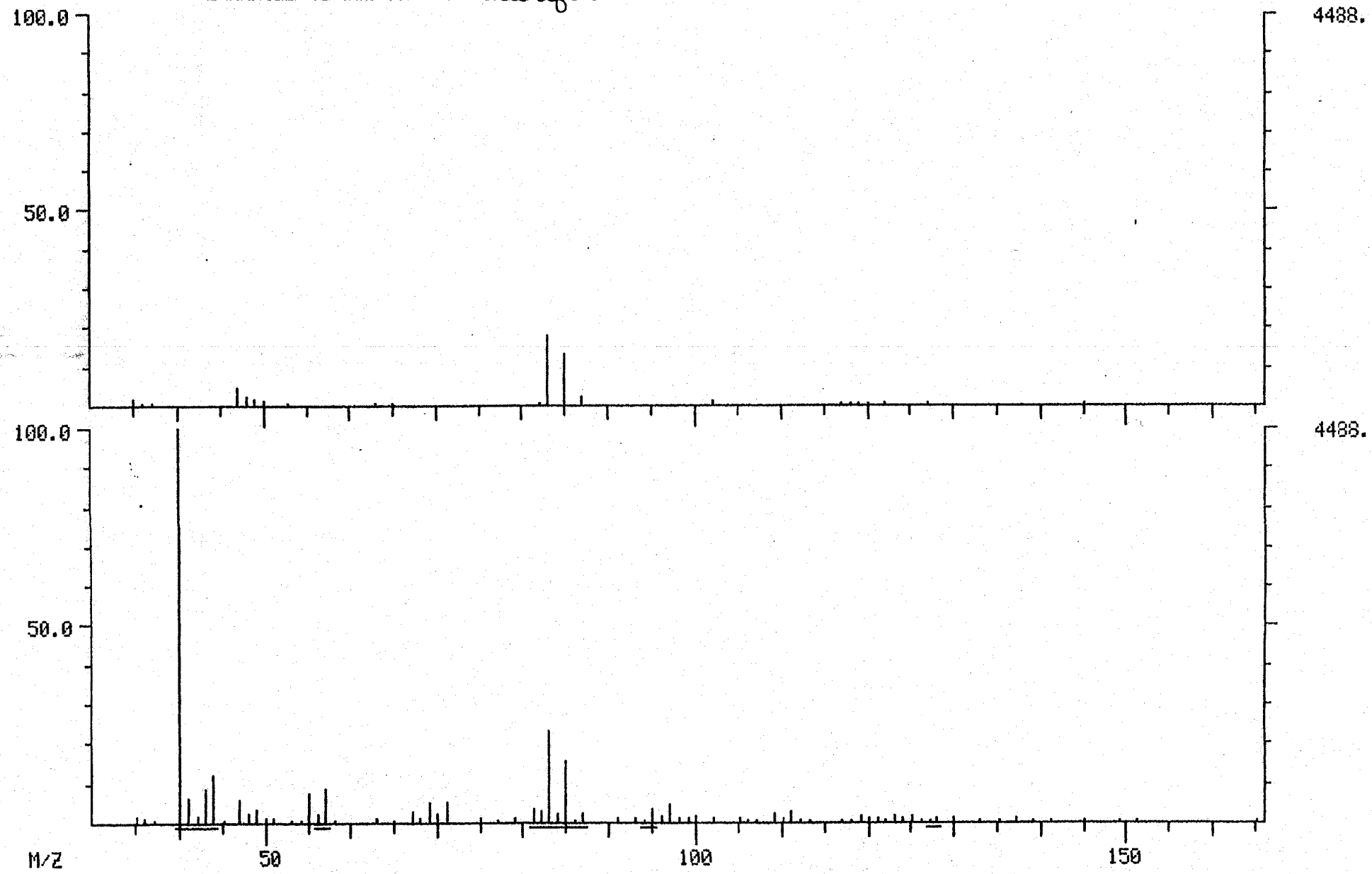


000001

DUAL MASS SPECTRUM
09/14/88 0:38:00 + 13:49
SAMPLE: CLP,V11846,,11846007,L,5,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (5 15B 2N 0T) Chloroform

DATA: C1V0001514 #829 BASE M/Z: 83/ 40
CALI: C1V0001514 #3 RIC: 2471./ 12911.

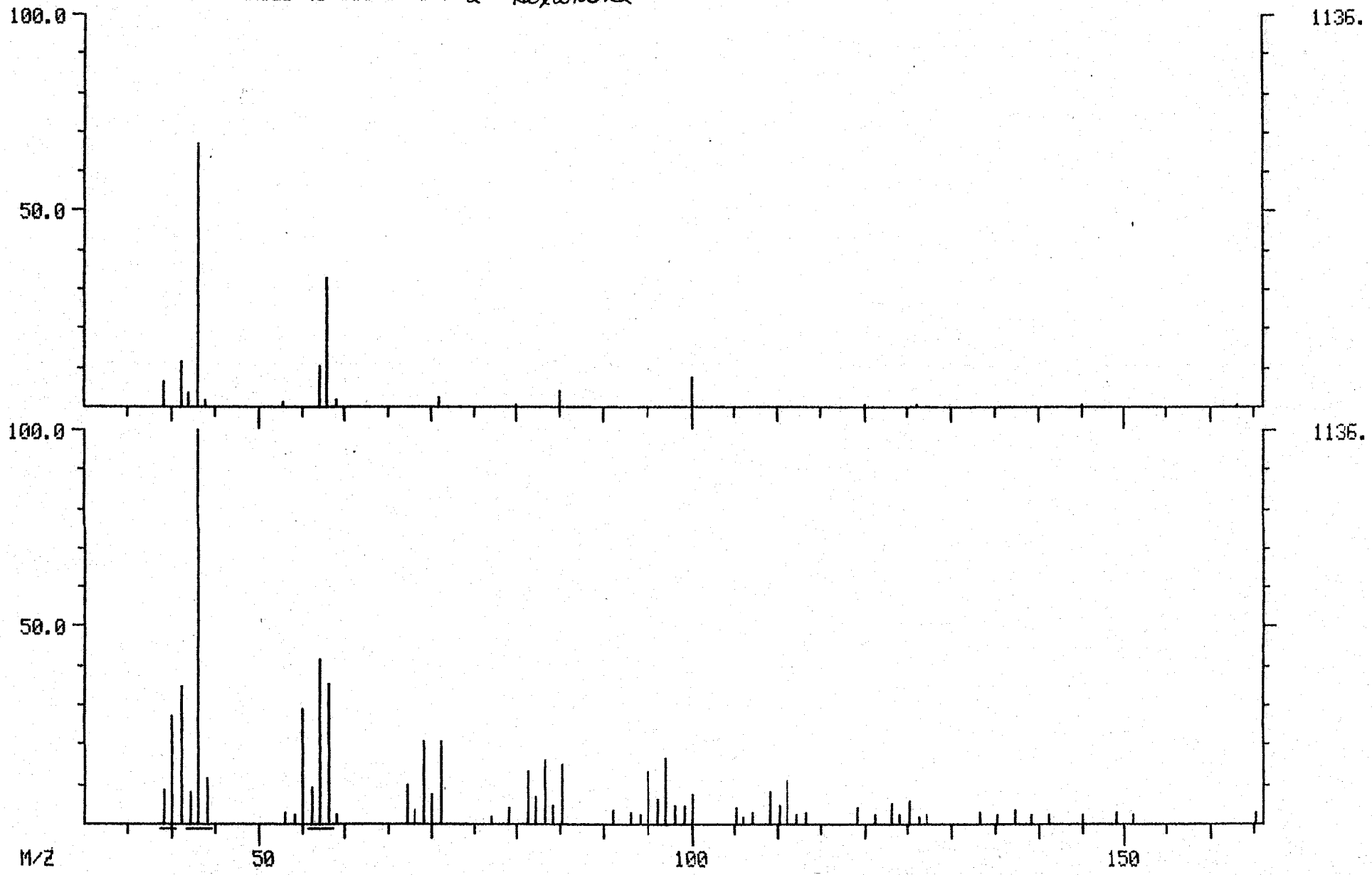
000032



DUAL MASS SPECTRUM
09/14/88 0:38:00 + 20:43
SAMPLE: CLP,V11846,,11846007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) 2 - Hexanone

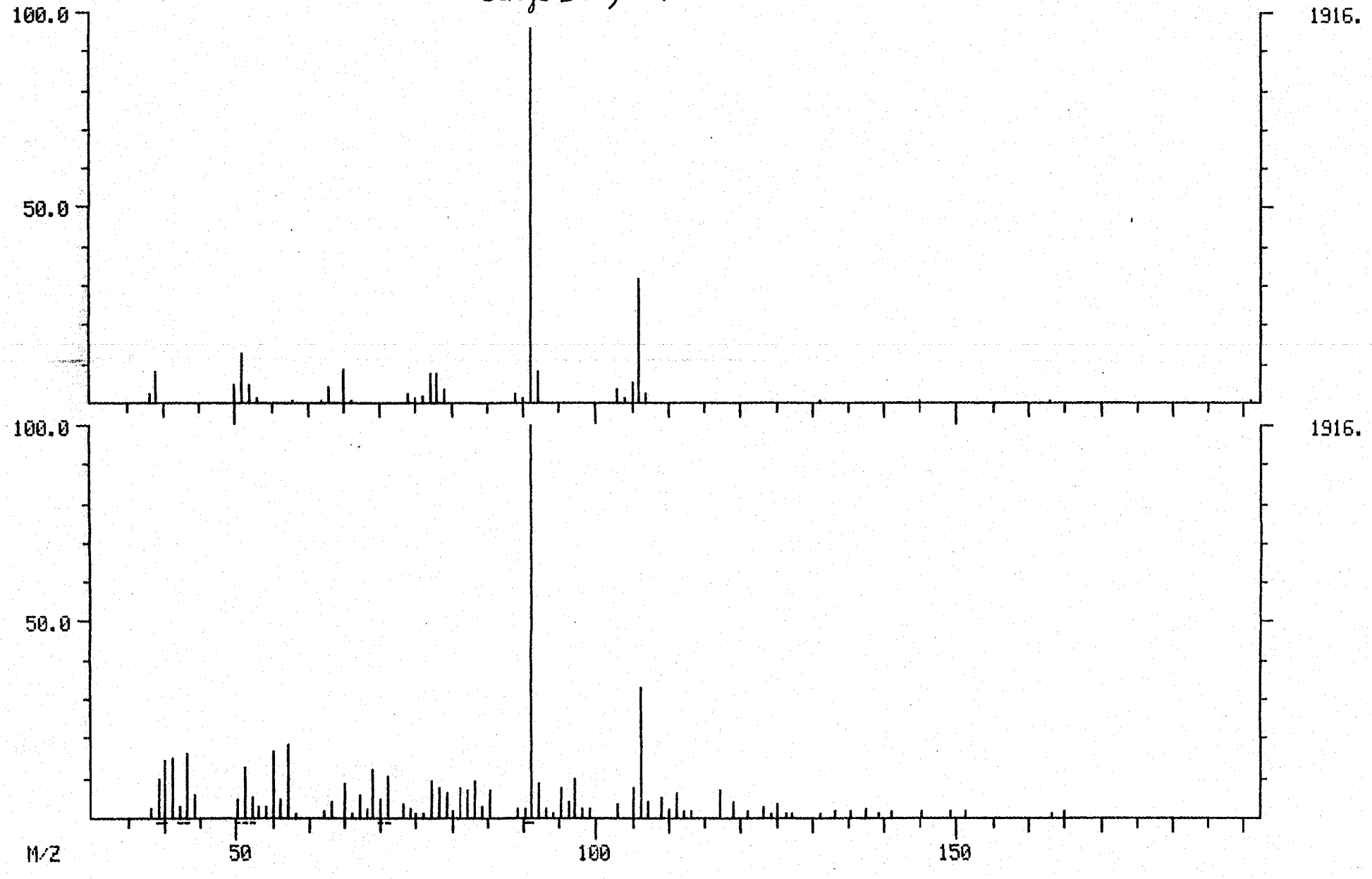
DATA: C1V0001514 #1243 BASE M/Z: 43/ 43
CALI: C1V0001514 #3 RIC: 1747./ 6695.

000033



DUAL MASS SPECTRUM
09/14/88 0:38:00 + 22:28
SAMPLE: CLP,V11846,,11846007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Ethyl Benzene

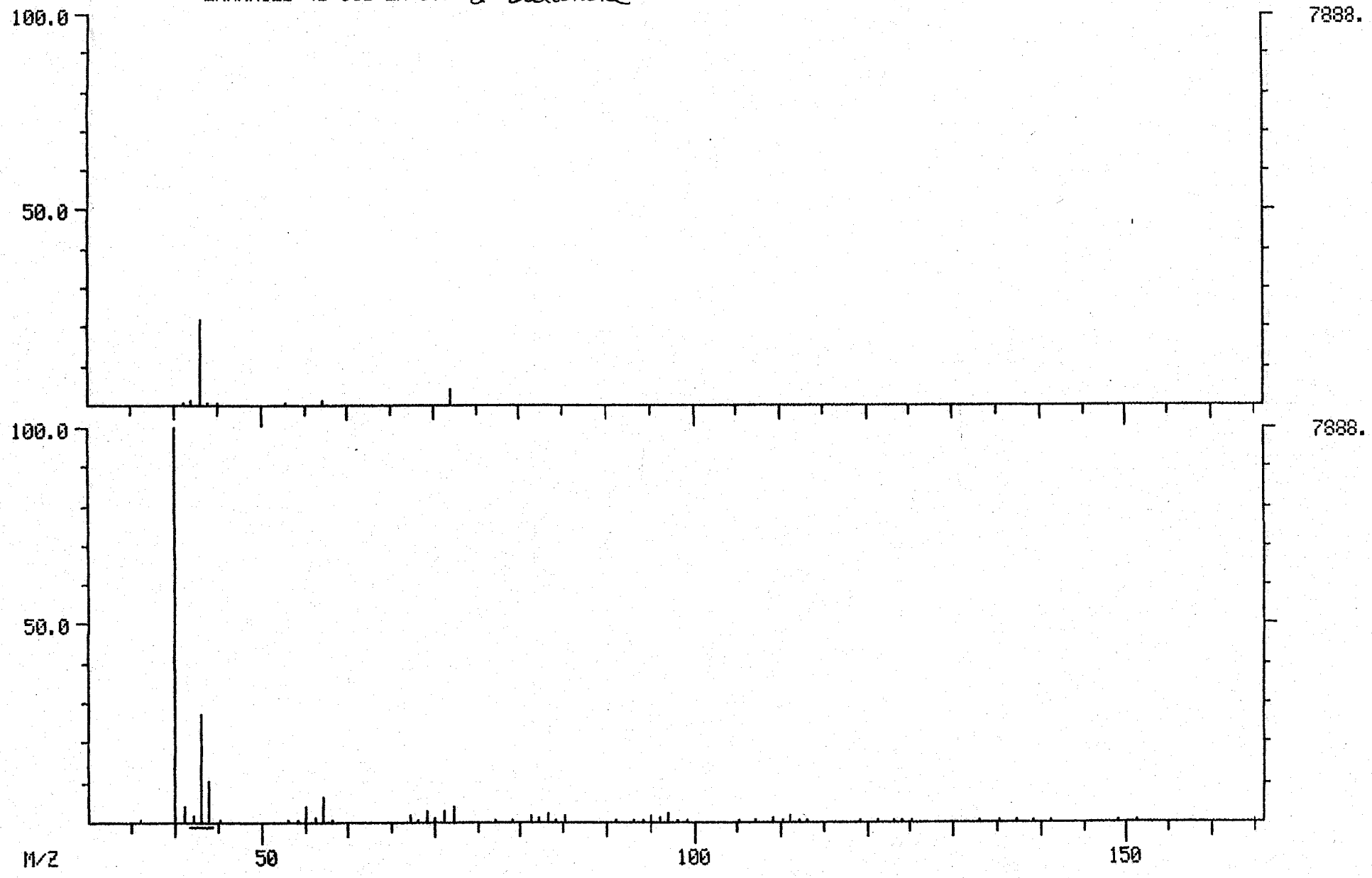
DATA: C1V0001514 #1348 BASE M/Z: 91/ 91
CALI: C1V0001514 #3 RIC: 4319./ 9631.



000034

DUAL MASS SPECTRUM
09/14/88 0:38:00 + 13:08
SAMPLE: CLP,V11846,,11846007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) 2-Butanone

DATA: C1V0001514 #788 BASE M/Z: 43/ 40
CALI: C1V0001514 #3 RIC: 2419./ 15903.



000035

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B12S3_1420

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846008

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001515

Level: (low/med) LOW Date Received: 09/02/88

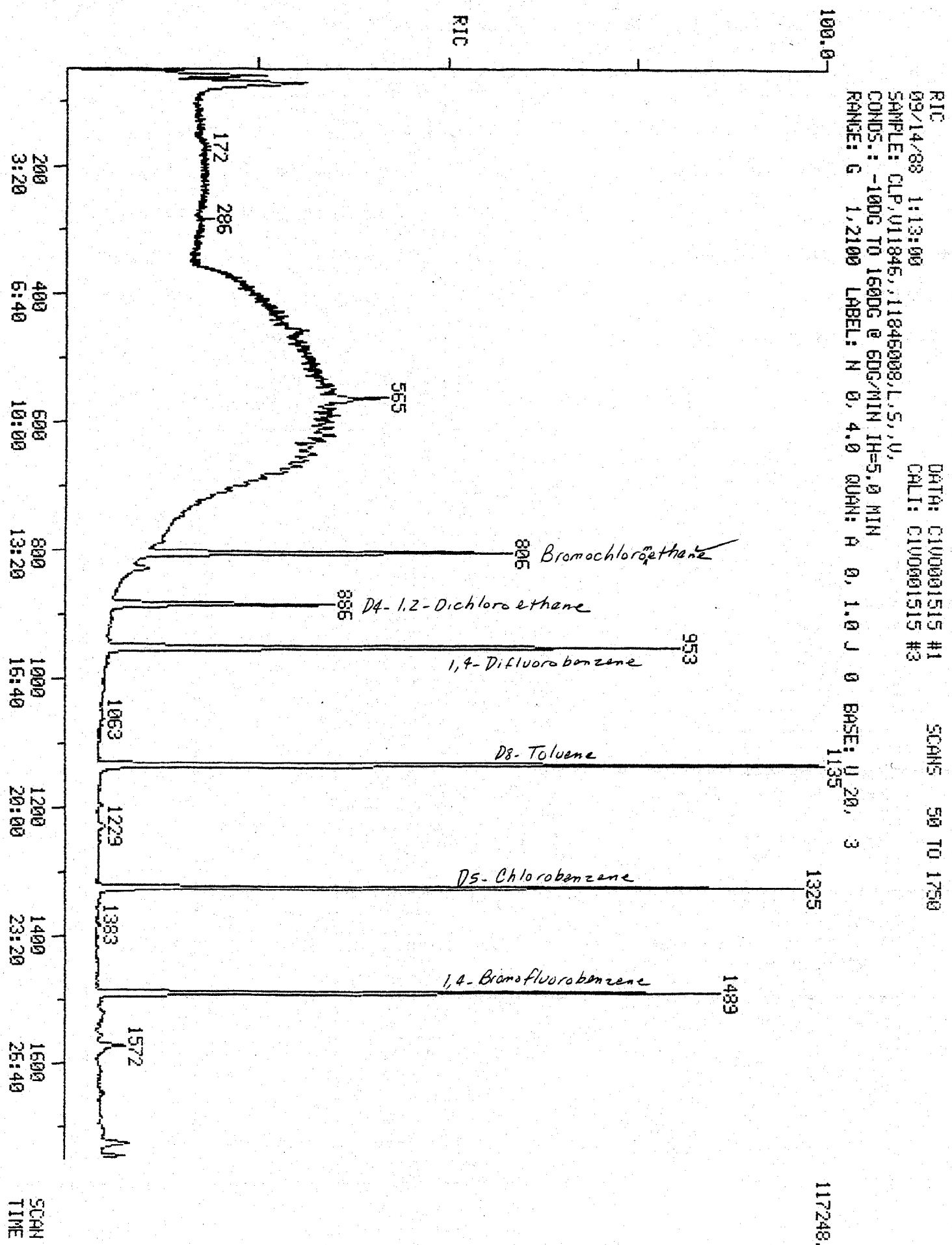
% Moisture: not dec. 21 Date Analyzed: 09/14/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	16	B
67-64-1	Acetone	29	B
75-15-0	Carbon Disulfide	18	
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS.

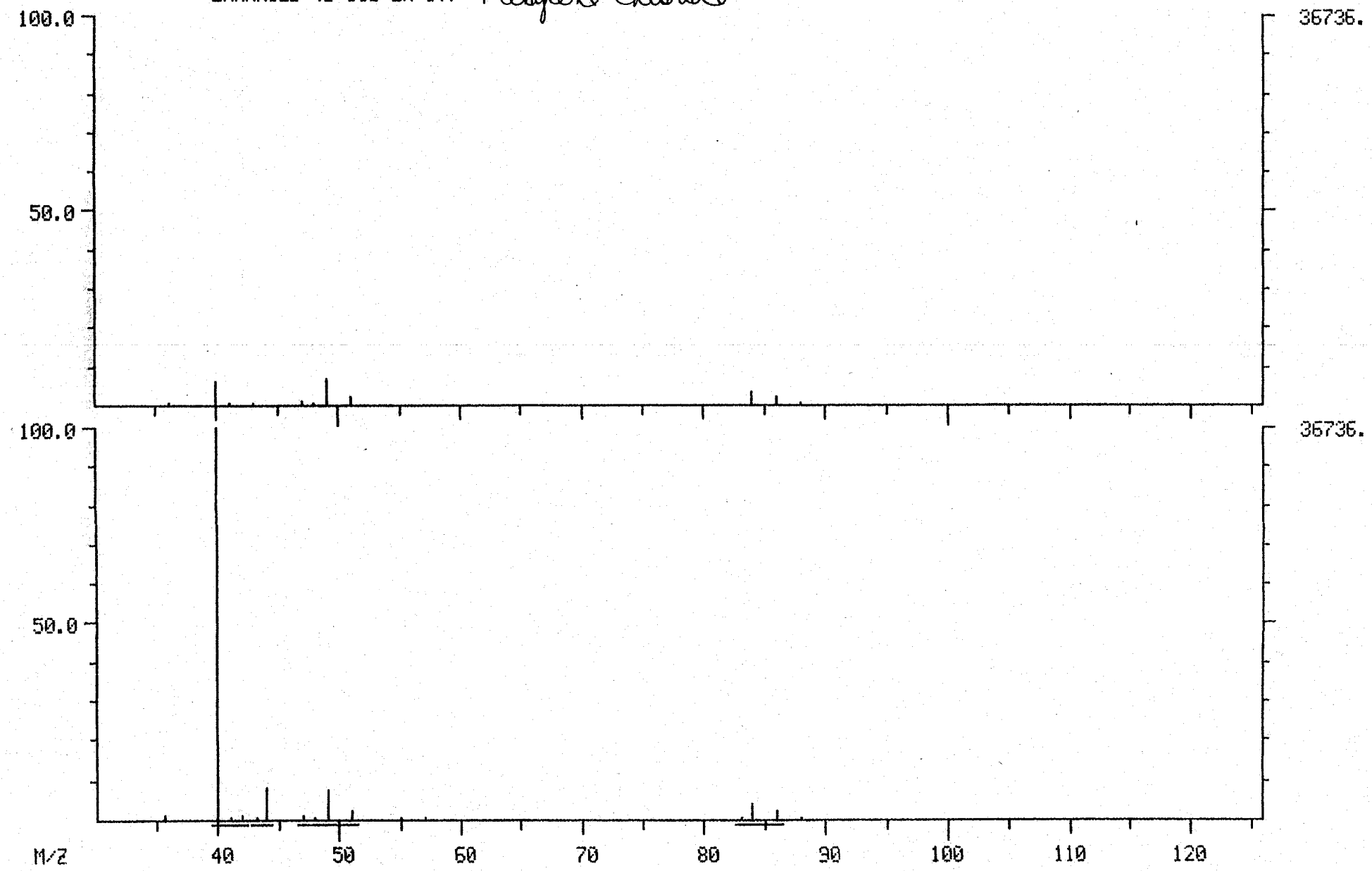
TCA FINISHED, 8 FOUND
FINISHED AT: 9/14/88 5:17:45



DUAL MASS SPECTRUM
09/14/88 1:13:00 + 9:25
SAMPLE: CLP,V11846,,11846008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

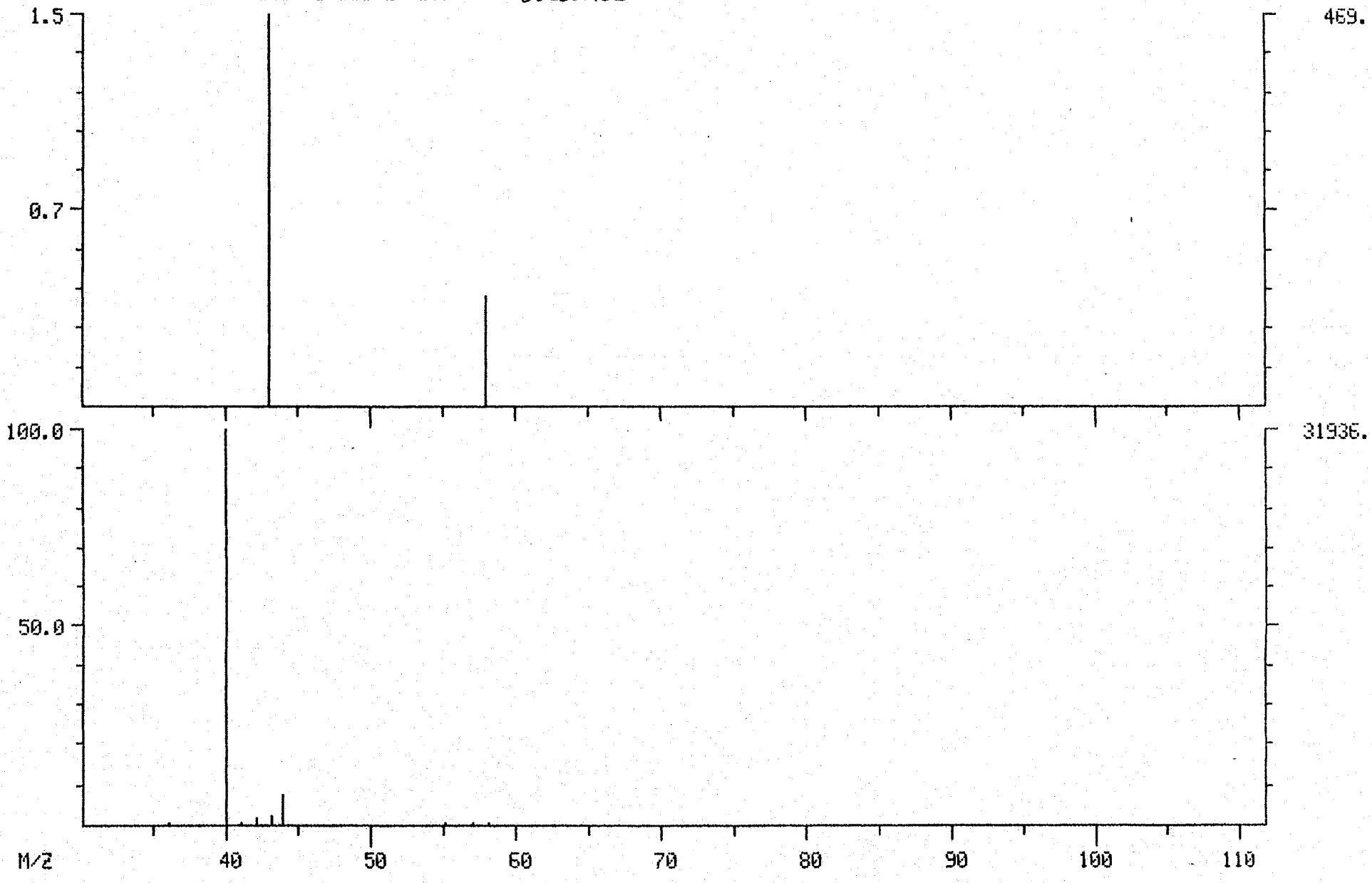
DATA: C1V0001515 #565 BASE M/Z: 49/ 40
CALI: C1V0001515 #3 RIC: 9391./ 49151.

000038



DUAL MASS SPECTRUM
09/14/88 1:13:00 + 8:06
SAMPLE: CLP,V11846,,11846008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

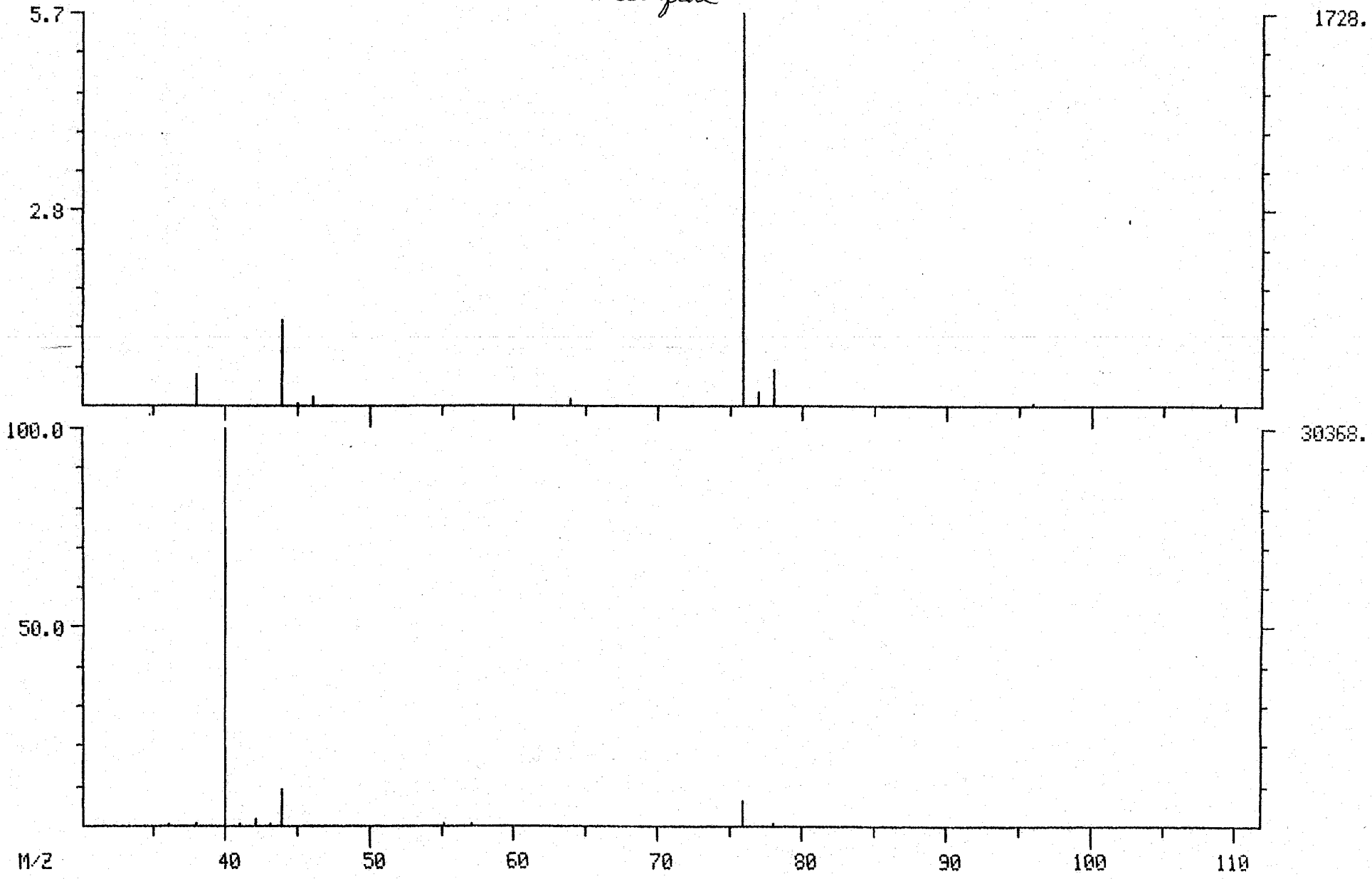
DATA: C1V0001515 #486 BASE M/Z: 43/ 40
CALI: C1V0001515 #3 RIC: 601./ 36739.



000039

DUAL MASS SPECTRUM
09/14/88 1:13:00 + 7:40
SAMPLE: CLP,V11846,,11846008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Carbon Disulfide

DATA: C1V0001515 #460 BASE M/Z: 76/ 40
CALI: C1V0001515 #3 RIC: 2567./ 37247.

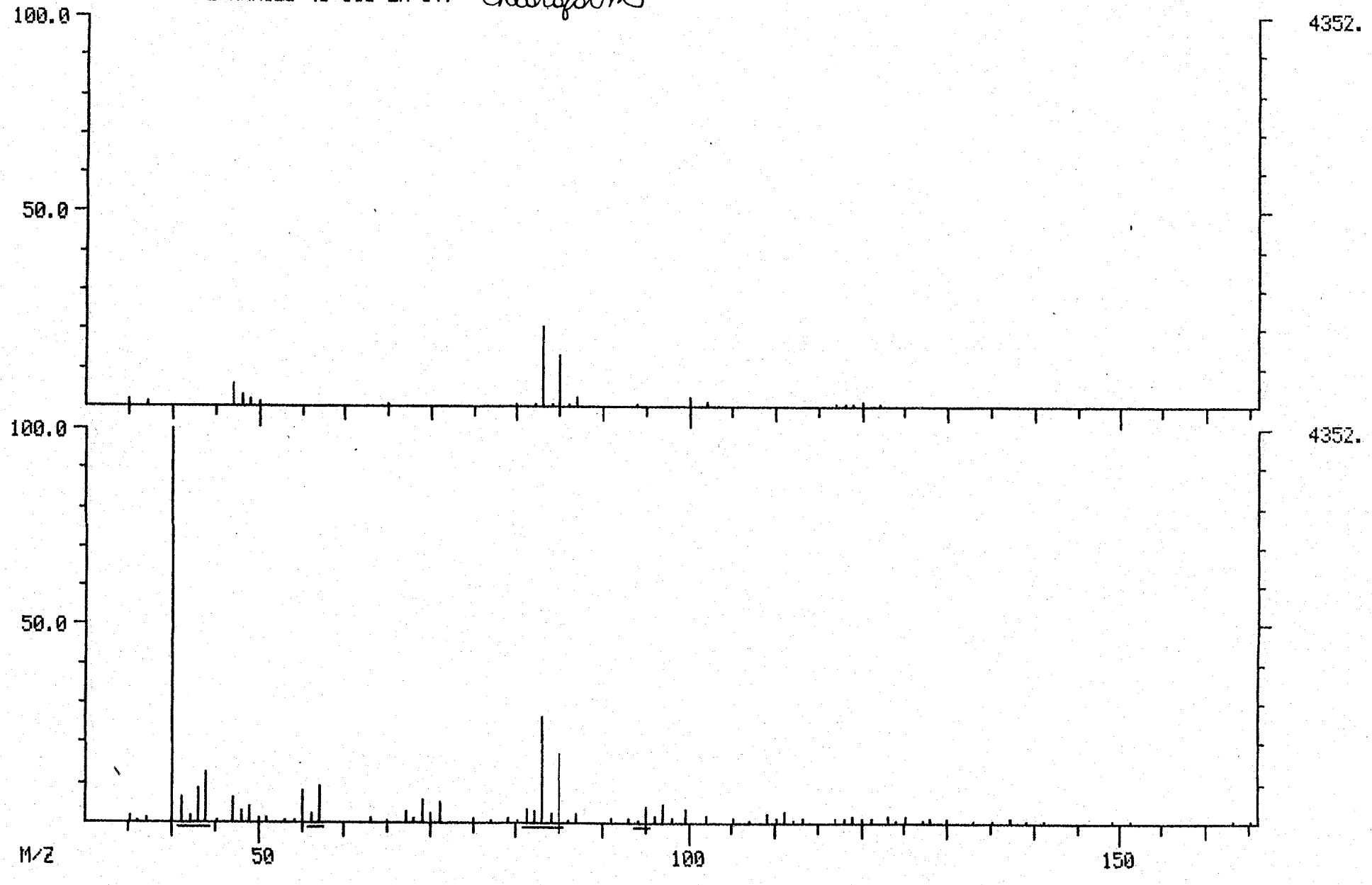


000040

DUAL MASS SPECTRUM
09/14/88 1:13:00 + 13:49
SAMPLE: CLP,V11846,,11846008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001515 #829 BASE M/Z: 83/ 40
CALI: C1V0001515 #3 RIC: 2687./ 12991.

000041



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B11S1_1510

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846009

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001516

Level: (low/med) LOW Date Received: 09/02/88

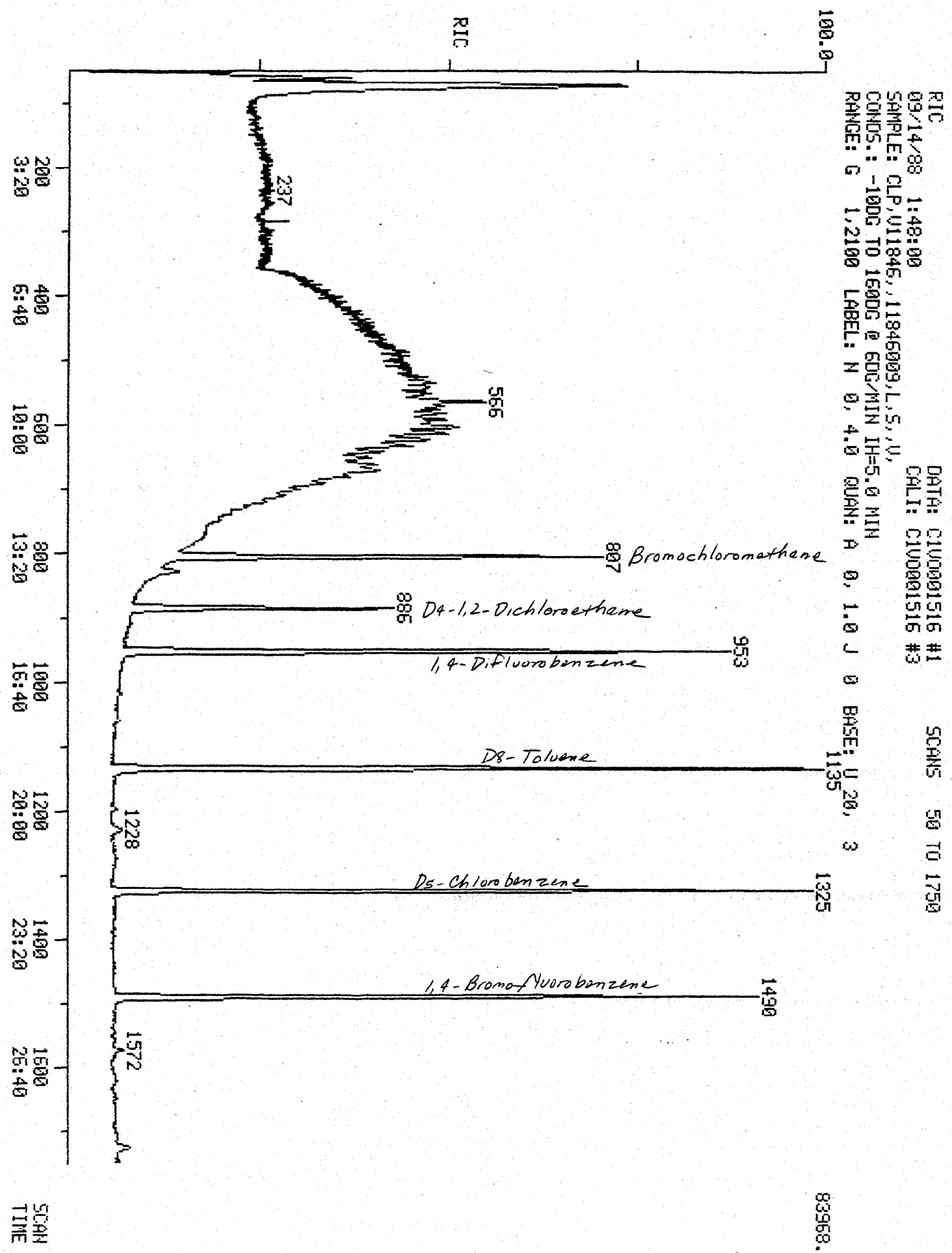
% Moisture: not dec. 13 Date Analyzed: 09/14/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	14	B
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS

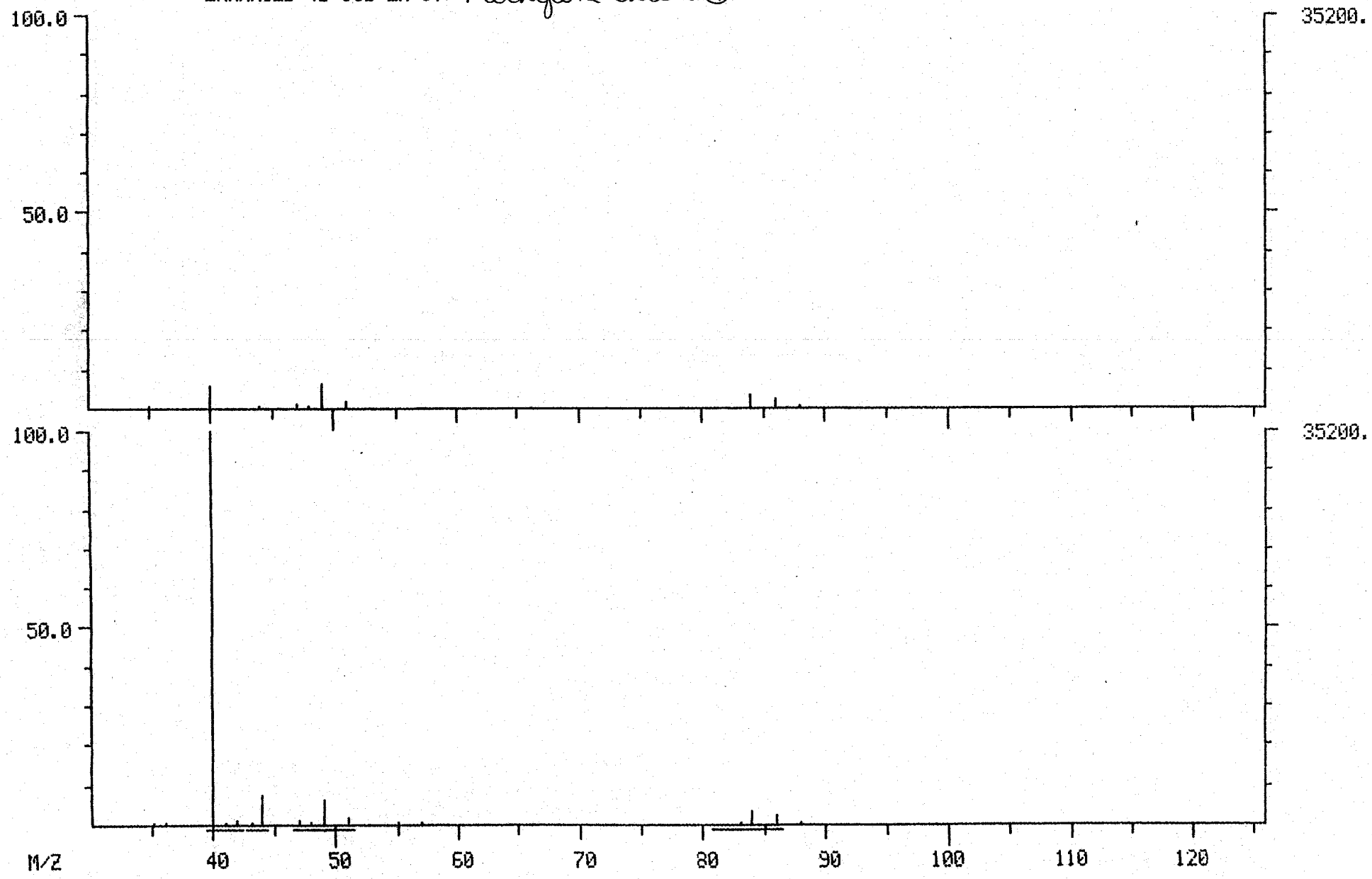
TCA FINISHED, 8 FOUND
FINISHED AT: 9/14/88 5:24:02



DUAL MASS SPECTRUM
09/14/88 1:48:00 + 9:26
SAMPLE: CLP,V11846,,11846009,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

DATA: C1V0001516 #566 BASE M/Z: 49/ 40
CALI: C1V0001516 #3 RIC: 8303./ 46207.

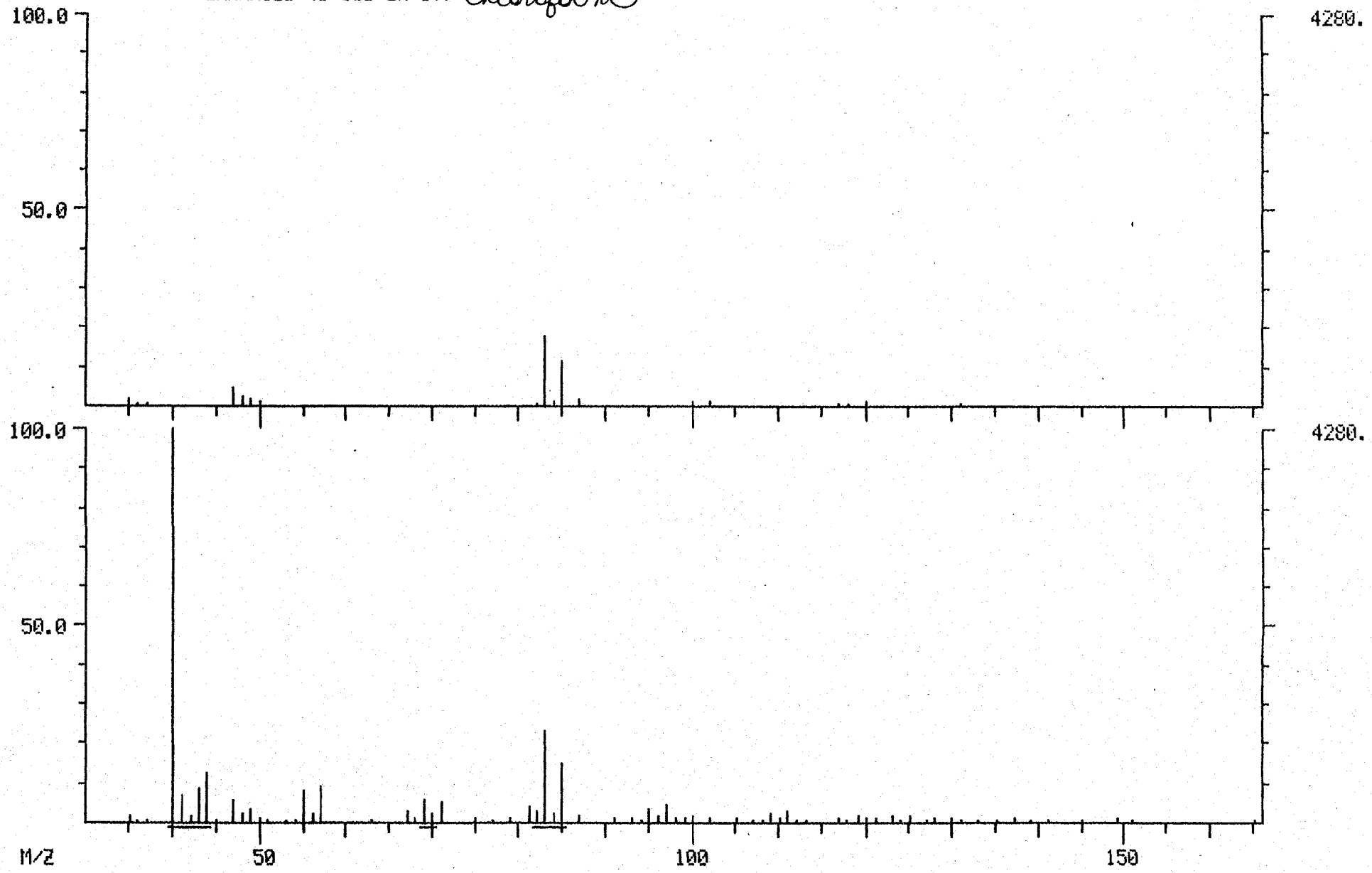
000044



DUAL MASS SPECTRUM
09/14/88 1:48:00 + 13:49
SAMPLE: CLP,V11846,,11846009,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001516 #829 BASE M/Z: 83/ 40
CALI: C1V0001516 #3 RIC: 2239./ 12223.

000045



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B11S2_1510

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846010

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001517

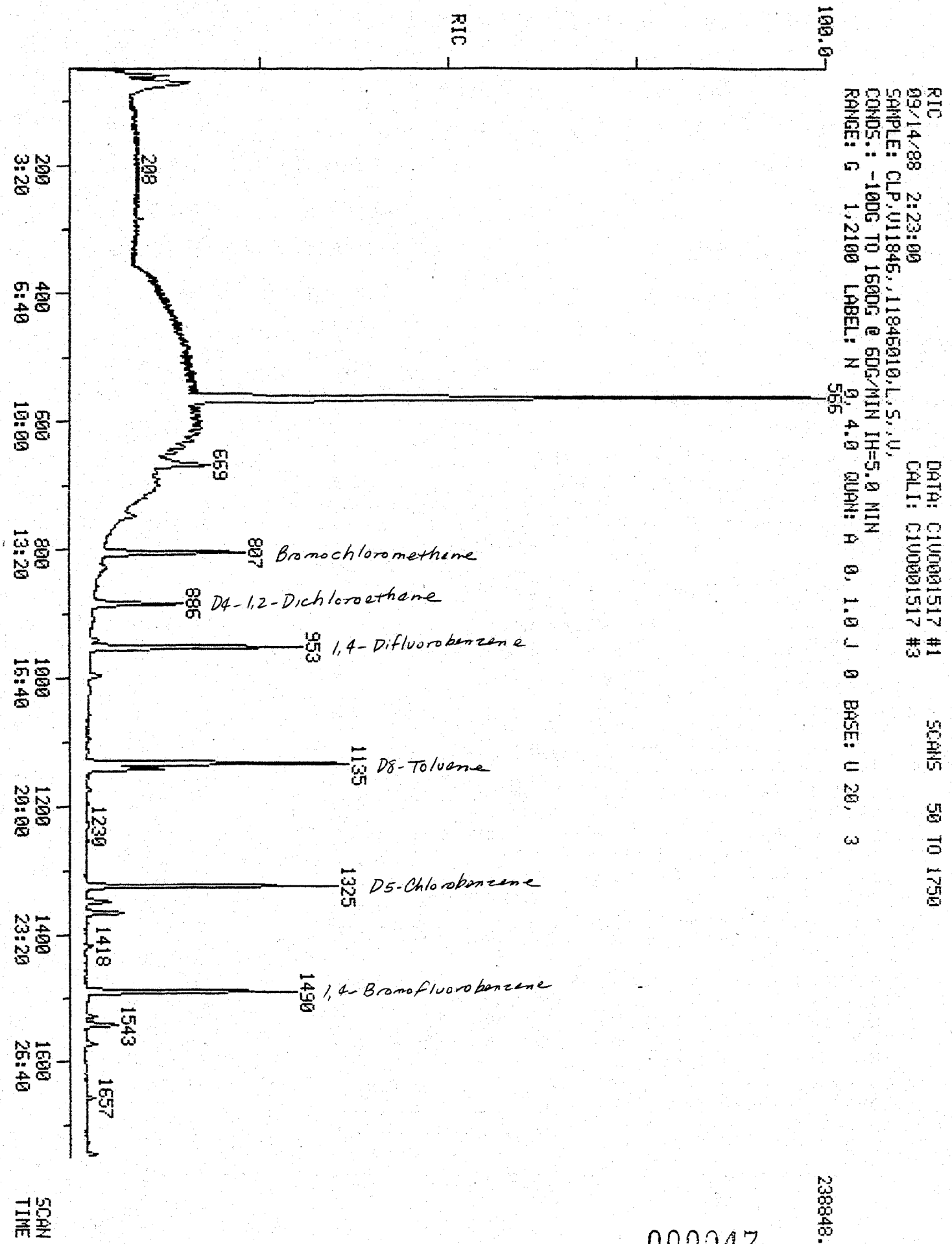
Level: (low/med) LOW Date Received: 09/02/88

% Moisture: not dec. 18 Date Analyzed: 09/14/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	560	BE
67-64-1	Acetone	42	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	17	B
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	5	J
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

TCA FINISHED, 11 FOUND
FINISHED AT: 9/14/88 5:30:19



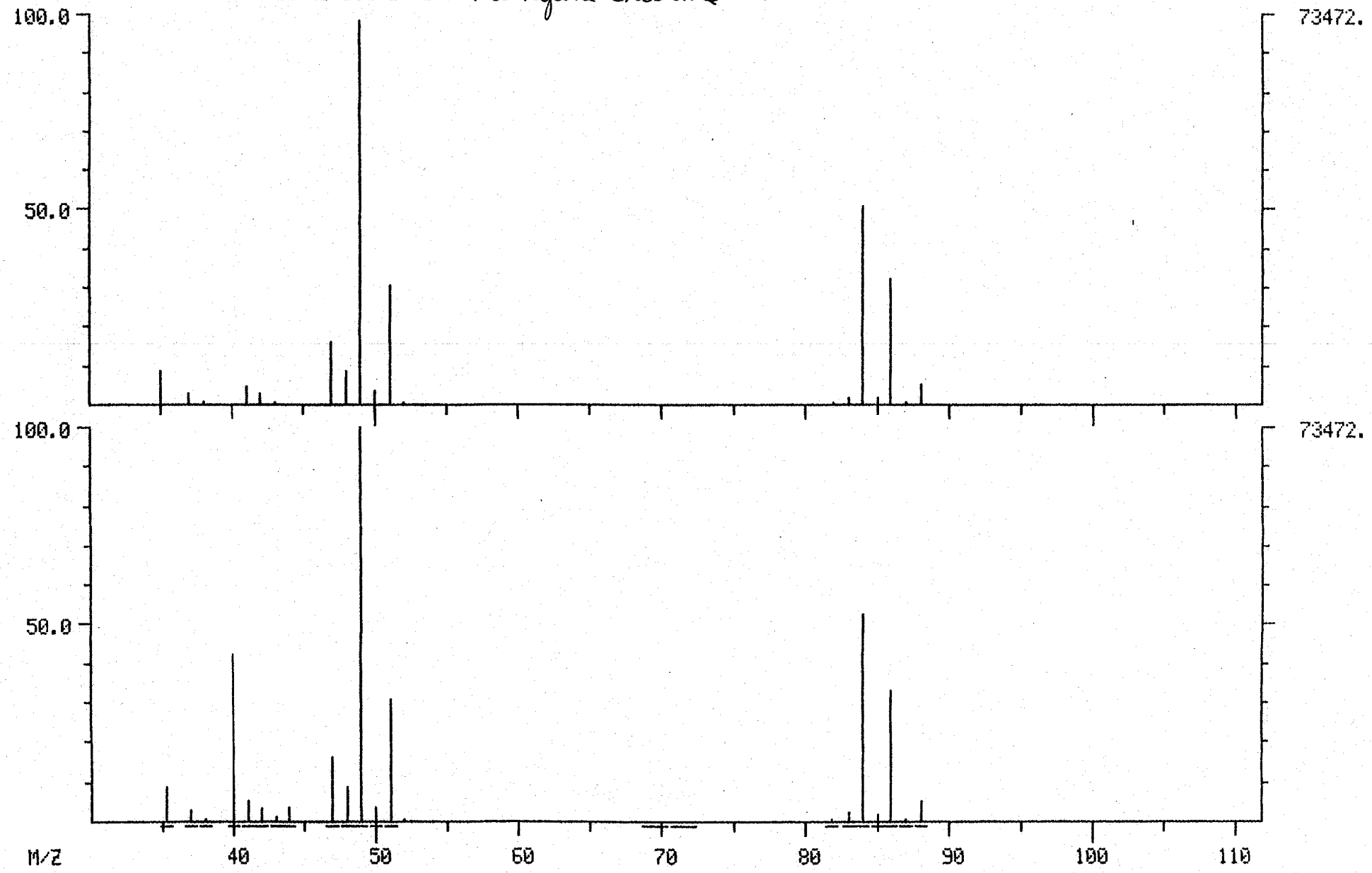
238848.

000047

DUAL MASS SPECTRUM
09/14/88 2:23:00 + 9:26
SAMPLE: CLP,V11846,,11846010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

DATA: C1V0001517 #566 BASE M/Z: 49/ 49
CALI: C1V0001517 #3 RIC: 200191./ 239103.

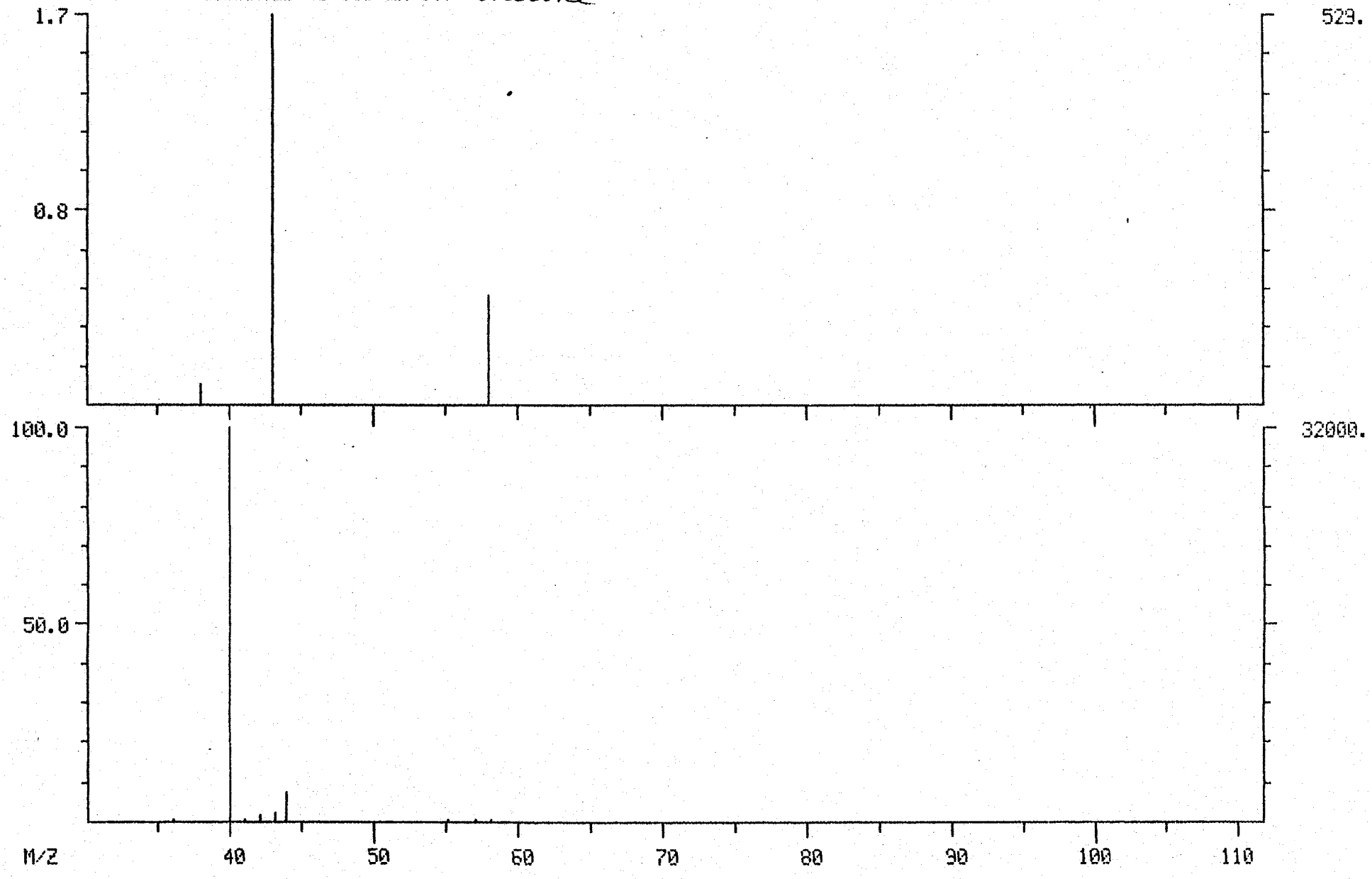
000048



DUAL MASS SPECTRUM
09/14/88 2:23:00 + 8:07
SAMPLE: CLP,V11846,,11846010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

DATA: C1V0001517 #487 BASE M/Z: 43/ 40
CALI: C1V0001517 #3 RIC: 708./ 37119.

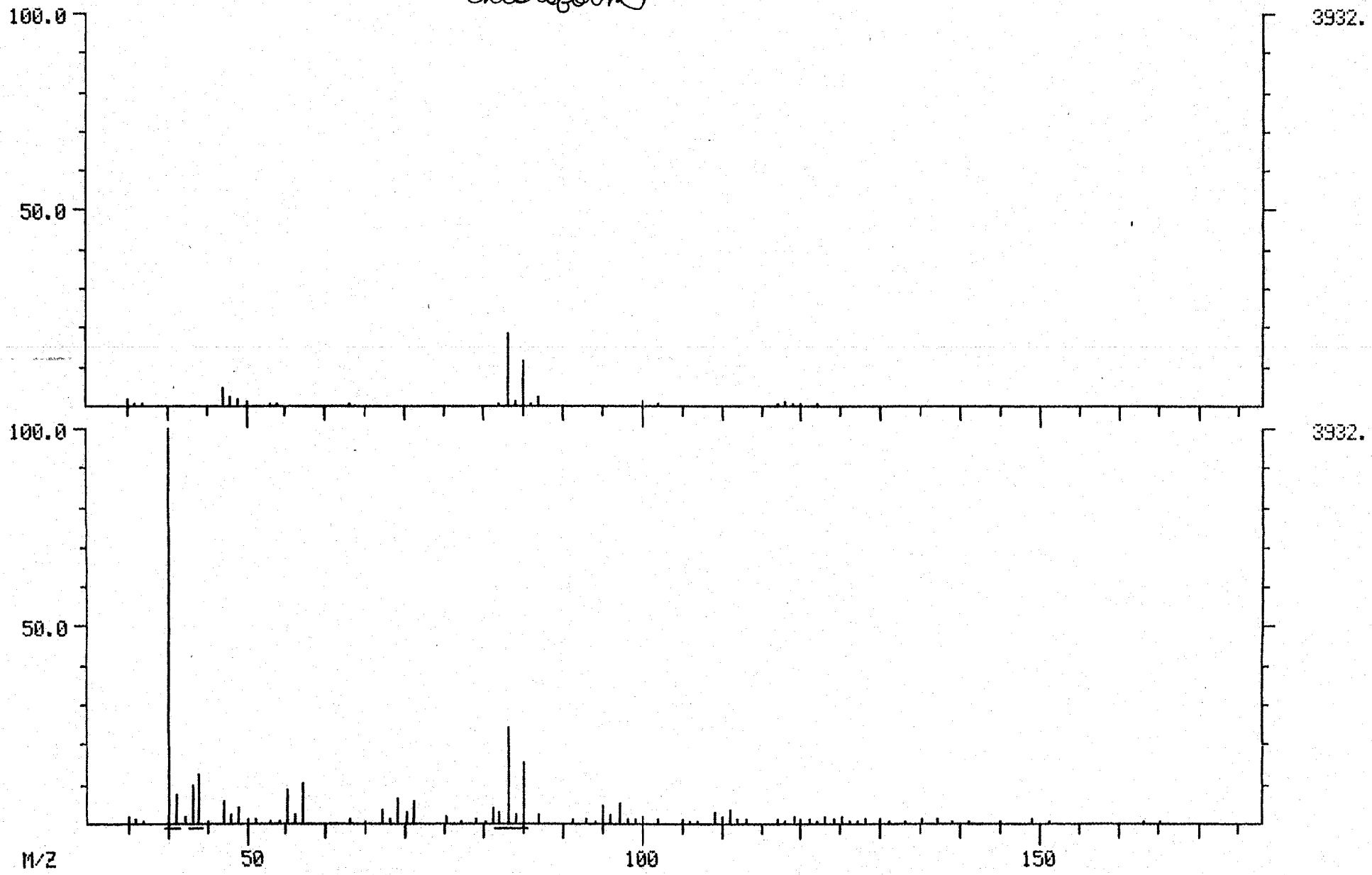
000049



DUAL MASS SPECTRUM
09/14/88 2:23:00 + 13:49
SAMPLE: CLP,V11846,,11846010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001517 #829 BASE M/Z: 83/ 40
CALI: C1V0001517 #3 RIC: 2131./ 12031.

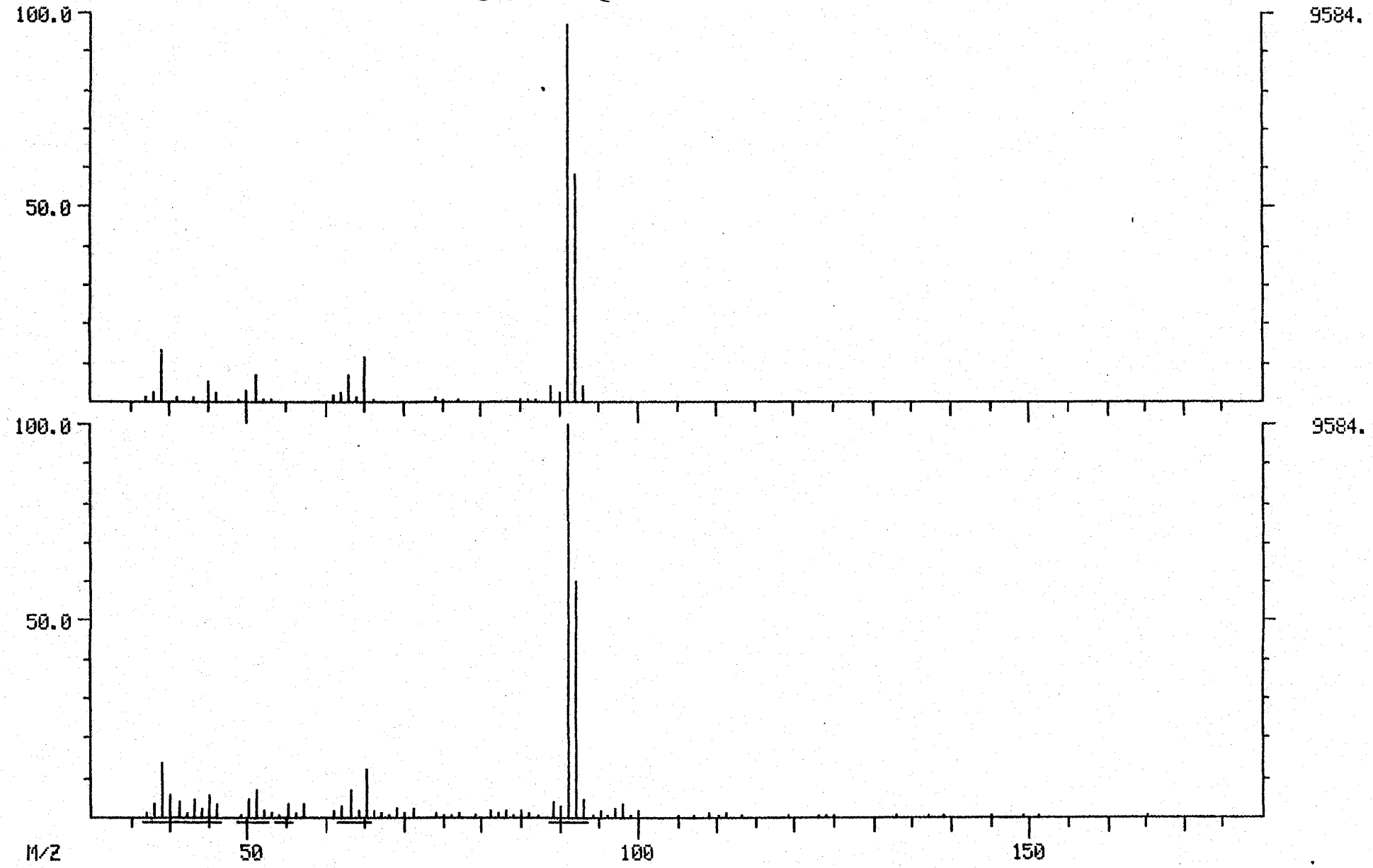
000030



DUAL MASS SPECTRUM
09/14/88 2:23:00 + 19:03
SAMPLE: CLP,V11846,,11846010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Toluene

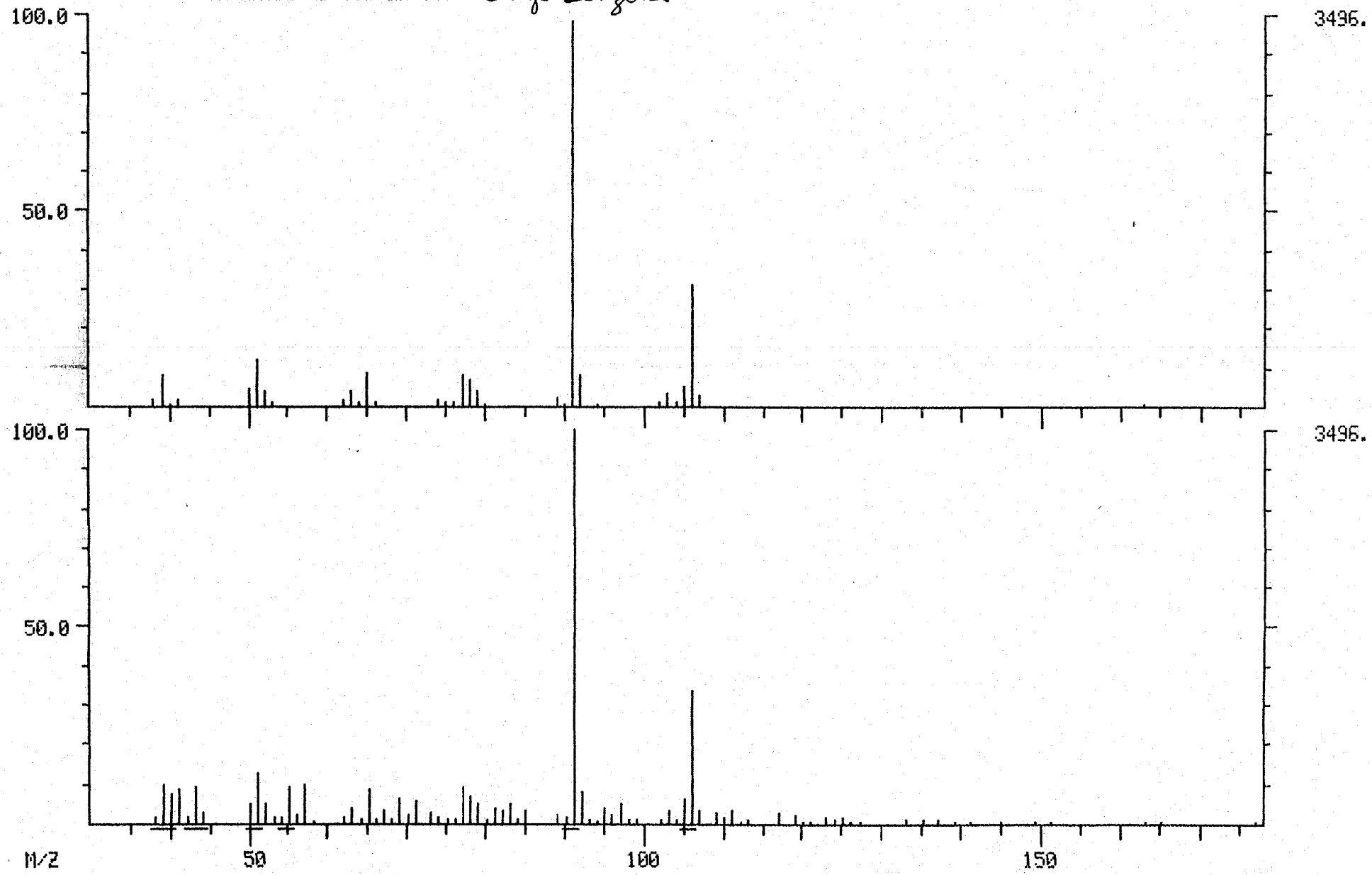
DATA: C1V0001517 #1143 BASE M/Z: 91/ 91
CALI: C1V0001517 #3 RIC: 22367./ 29855.

TC0000



DUAL MASS SPECTRUM
09/14/88 2:23:00 + 22:29
SAMPLE: CLP,V11846,,11846010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Ethyl Benzene

DATA: C1V0001517 #1349 BASE M/Z: 91/ 91
CALI: C1V0001517 #3 RIC: 8127./ 13423.

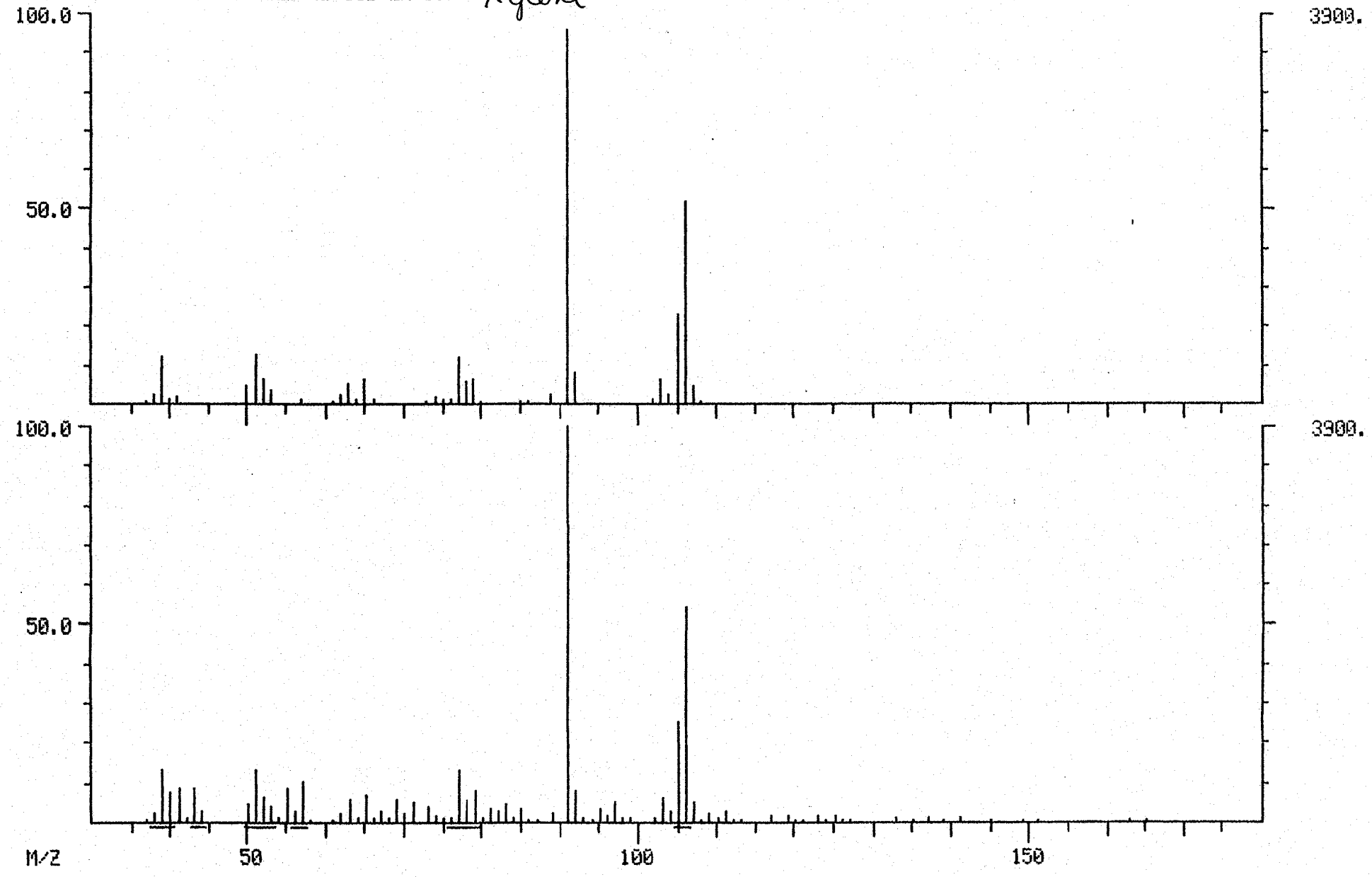


000052

DUAL MASS SPECTRUM
09/14/88 2:23:00 + 22:45
SAMPLE: CLP,V11846,,11846010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Xylene

DATA: C1V0001517 #1365 BASE M/Z: 91/ 91
CALI: C1V0001517 #3 RIC: 11407./ 17023.

000053



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B11S2_1510DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846010DL

Sample wt/vol: _____ (g/mL) G Lab File ID: C2V0001539

Level: (low/med) LOW Date Received: 09/02/88

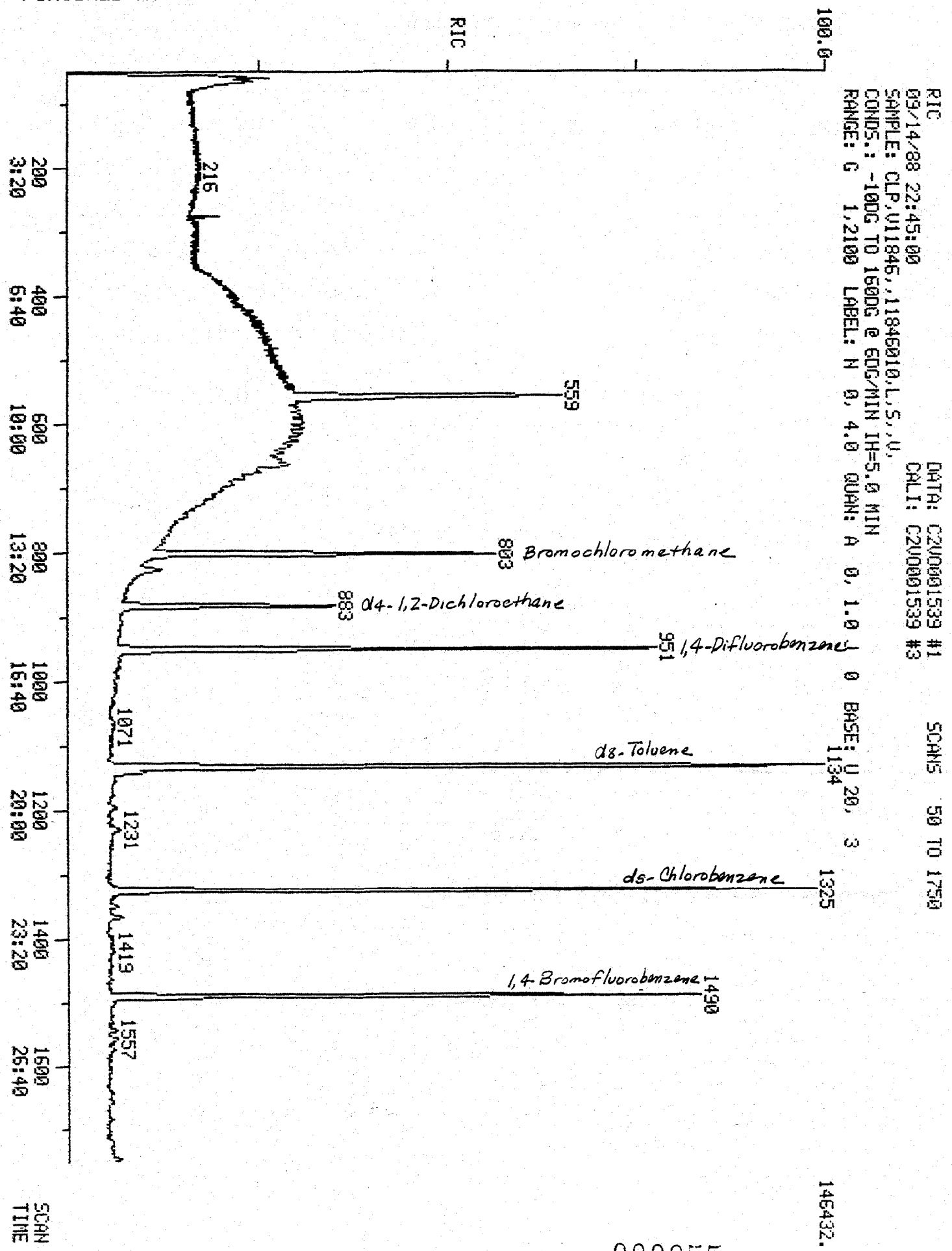
% Moisture: not dec. 18 Date Analyzed: 09/14/88

Column: (pack/cap) CAP Dilution Factor: 5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	61	U
74-83-9	Bromomethane	61	U
75-01-4	Vinyl Chloride	61	U
75-00-3	Chloroethane	61	U
75-09-2	Methylene Chloride	460	BD
67-64-1	Acetone	61	U
75-15-0	Carbon Disulfide	30	U
75-35-4	1,1-Dichloroethene	30	U
75-34-3	1,1-Dichloroethane	30	U
540-59-0	1,2-Dichloroethene (total)	30	U
67-66-3	Chloroform	3	BDJ
107-06-2	1,2-Dichloroethane	30	U
78-93-3	2-Butanone	61	U
71-55-6	1,1,1-Trichloroethane	30	U
56-23-5	Carbon Tetrachloride	30	U
108-05-4	Vinyl Acetate	61	U
75-27-4	Bromodichloromethane	30	U
78-87-5	1,2-Dichloropropane	30	U
10061-01-5	cis-1,3-Dichloropropene	30	U
79-01-6	Trichloroethene	30	U
124-48-1	Dibromochloromethane	30	U
79-00-5	1,1,2-Trichloroethane	30	U
71-43-2	Benzene	30	U
10061-02-6	trans-1,3-Dichloropropene	30	U
75-25-2	Bromoform	30	U
591-78-6	2-Hexanone	61	U
108-10-1	4-Methyl-2-Pentanone	61	U
127-18-4	Tetrachloroethene	30	U
79-34-5	1,1,2,2-Tetrachloroethane	61	U
108-88-3	Toluene	10	DJ
108-90-7	Chlorobenzene	30	U
100-41-4	Ethylbenzene	30	U
100-42-5	Styrene	30	U
1330-20-7	Xylenes (total)	30	U

RS

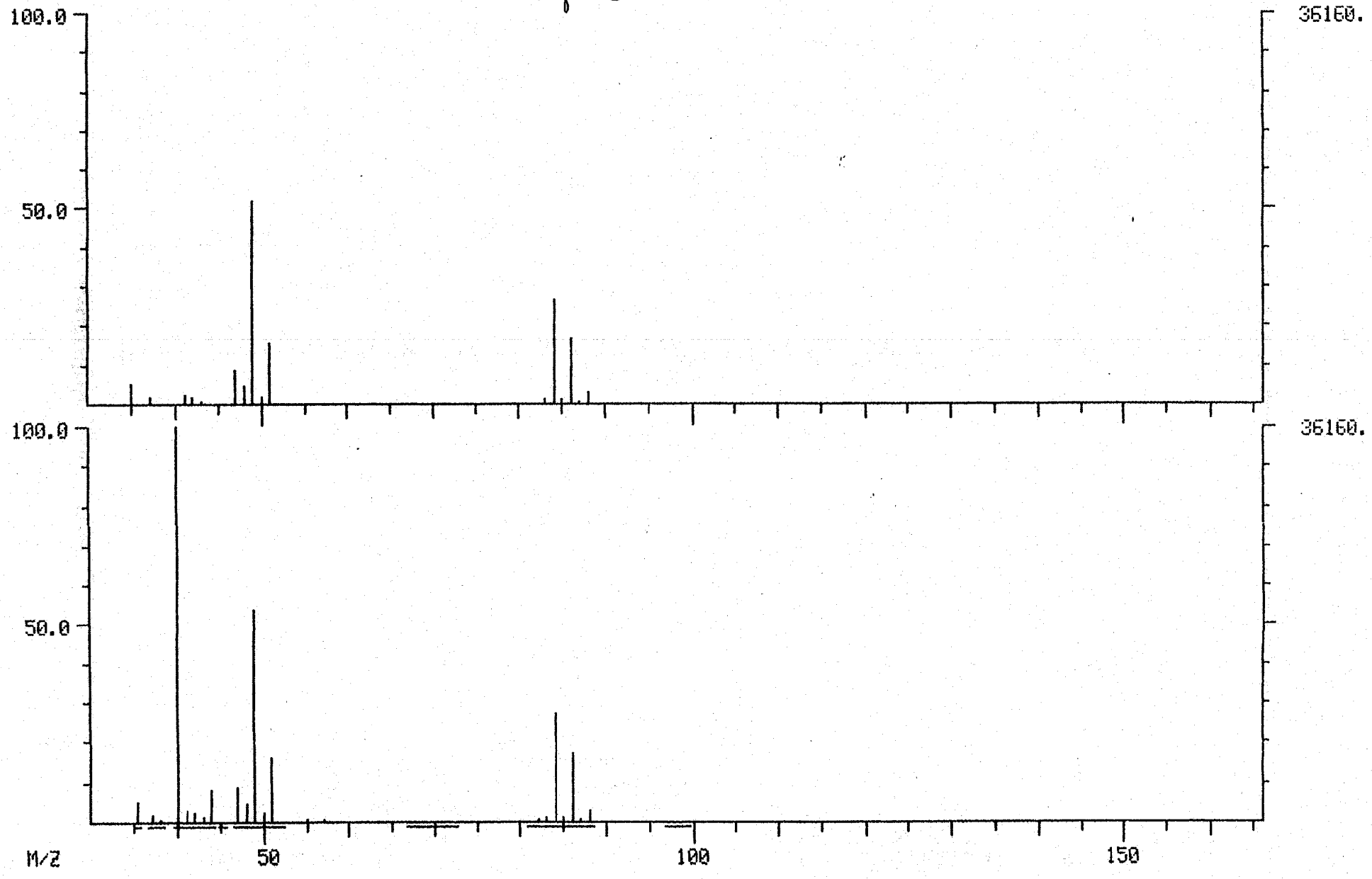
TCA FINISHED, 10 FOUND
FINISHED AT: 9/15/88 4:21:48



000055

DUAL MASS SPECTRUM
09/14/88 22:45:00 + 9:19
SAMPLE: CLP,V11846,,11846010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

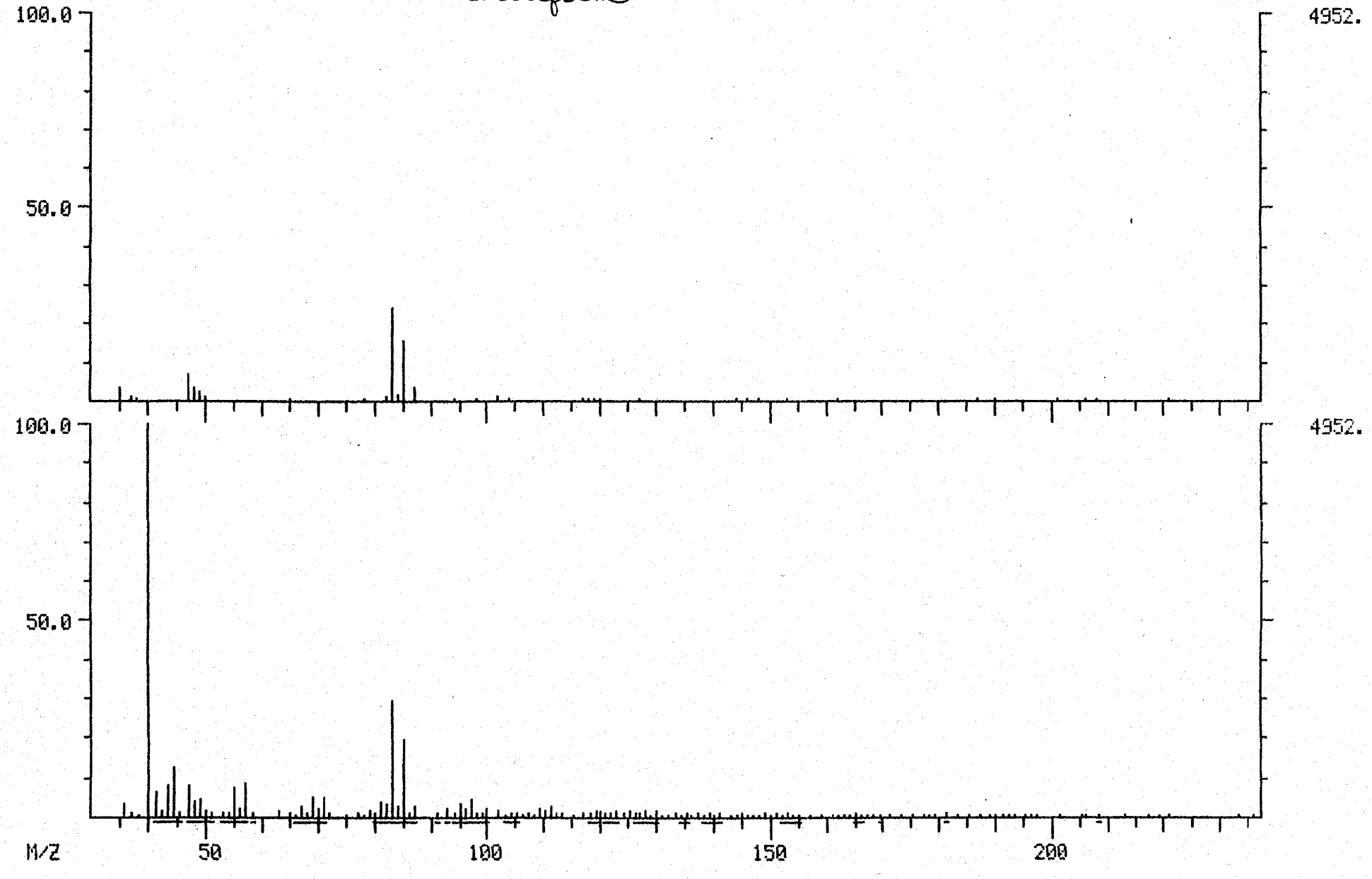
DATA: C2V0001539 #559 BASE M/Z: 49/ 40
CALI: C2V0001539 #3 RIC: 51711./ 94591.



000056

DUAL MASS SPECTRUM
09/14/88 22:45:00 + 13:46
SAMPLE: CLP,V11846,,11846010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (5 15B 2N 0T) Chloroform

DATA: C2V0001539 #826 BASE M/Z: 83/ 40
CALI: C2V0001539 #3 RIC: 3875./ 18271.



250057

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B11D2-D_1510

Lab Name: CH2M HILL/MGM Contract: _____

ab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846011

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001518

evel: (low/med) LOW Date Received: 09/02/88

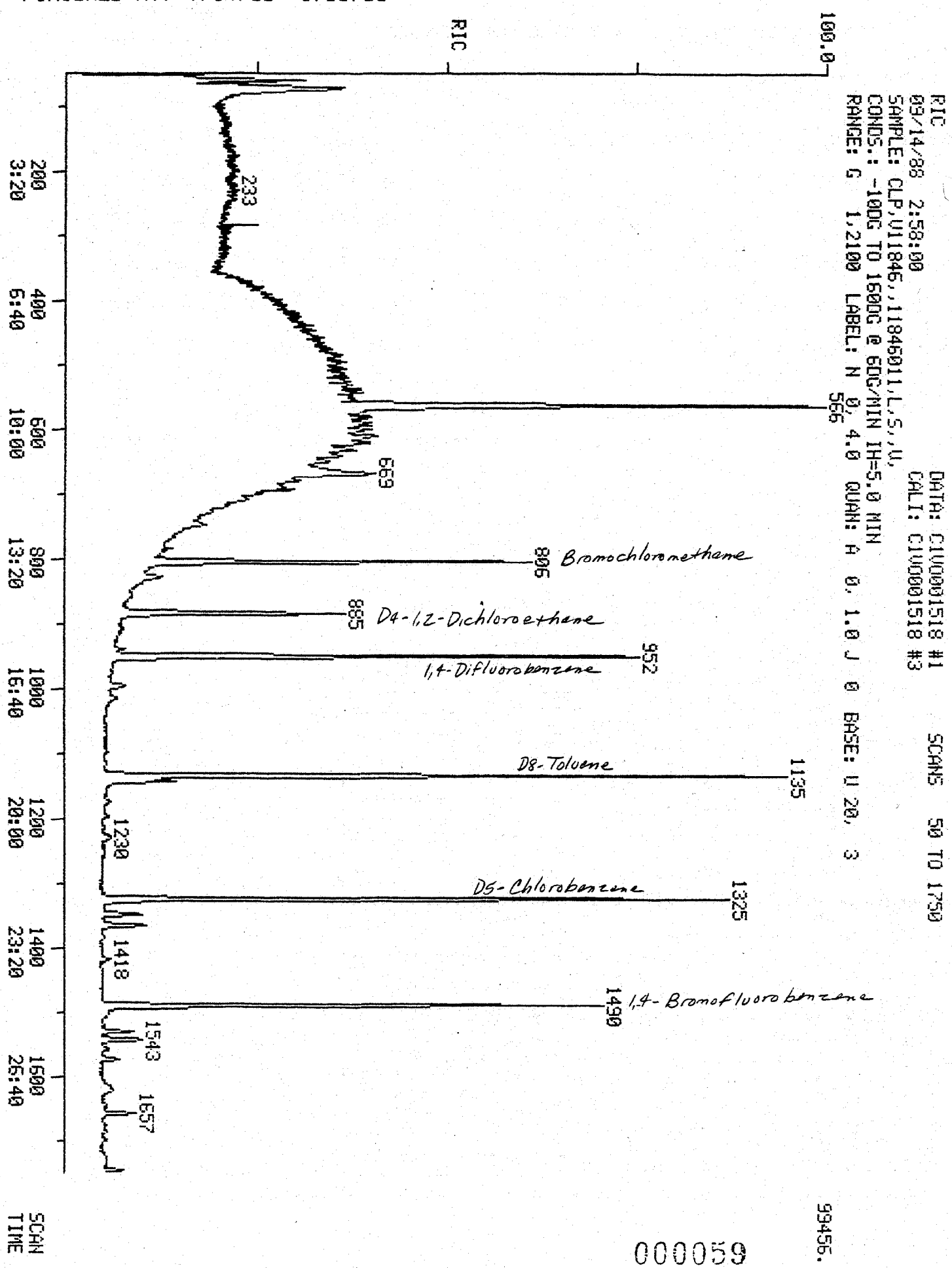
% Moisture: not dec. 15 Date Analyzed: 09/14/88

olumn: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	140	B
67-64-1	Acetone	37	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	B
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	3	J
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	4	J

RS

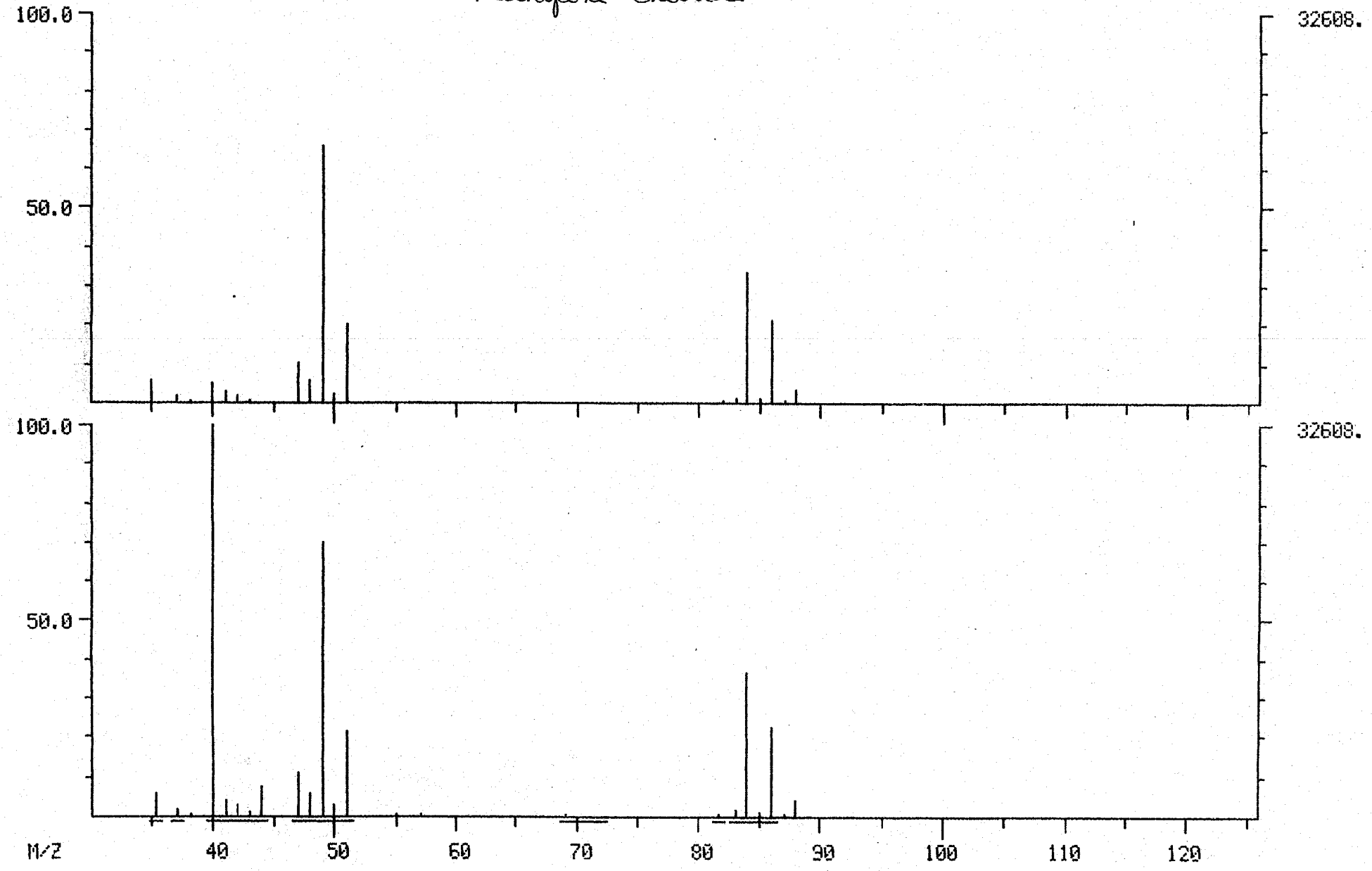
TCA FINISHED, 11 FOUND
FINISHED AT: 9/14/88 5:36:36



000059

DUAL MASS SPECTRUM
09/14/88 2:58:00 + 9:26
SAMPLE: CLP,V11846,,11846011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

DATA: C1V0001518 #566 BASE M/Z: 49/ 40
CALI: C1V0001518 #3 RIC: 60415./ 99455.

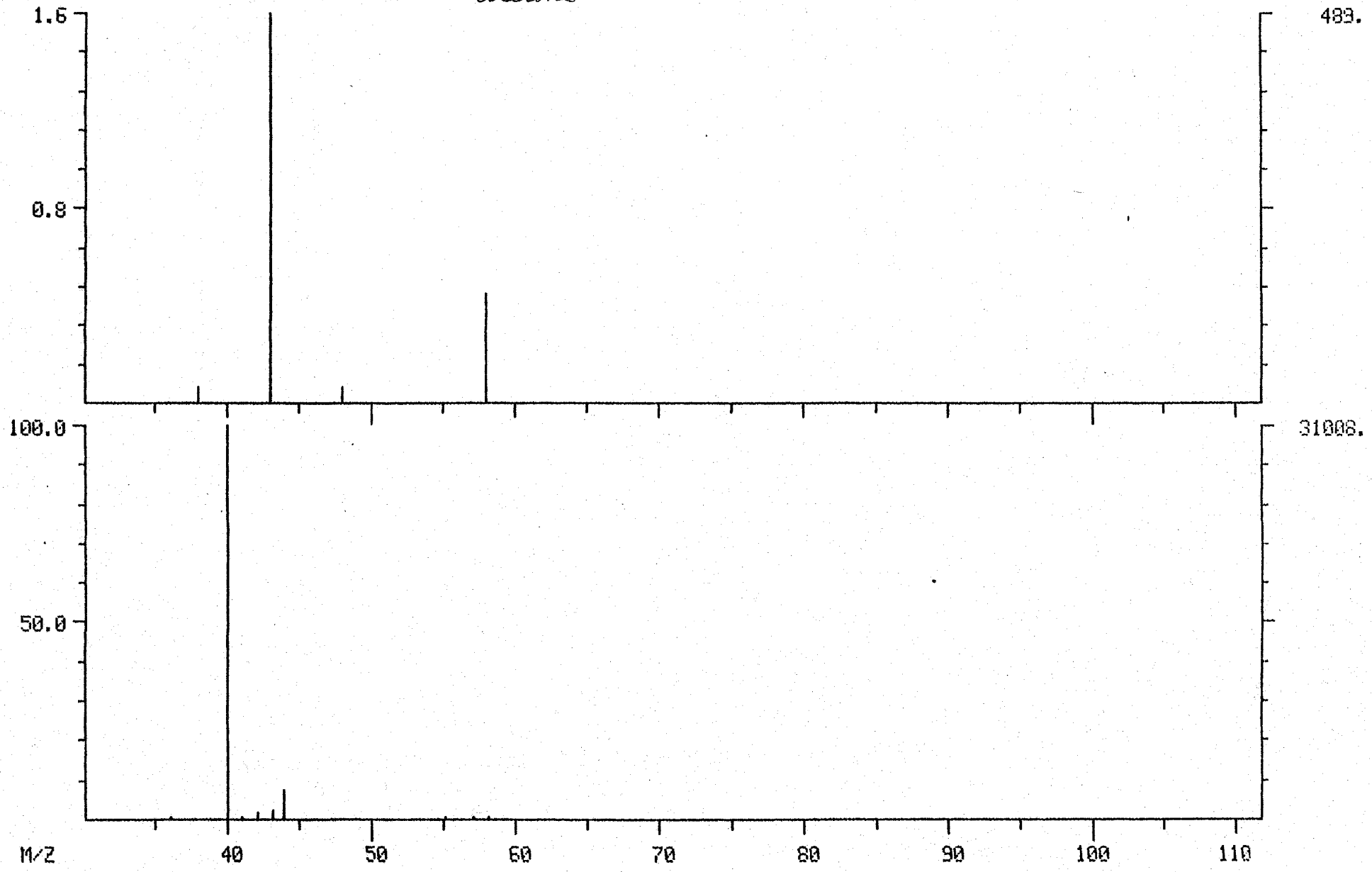


000060

DUAL MASS SPECTRUM
09/14/88 2:58:00 + 8:05
SAMPLE: CLP,V11846,,11846011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

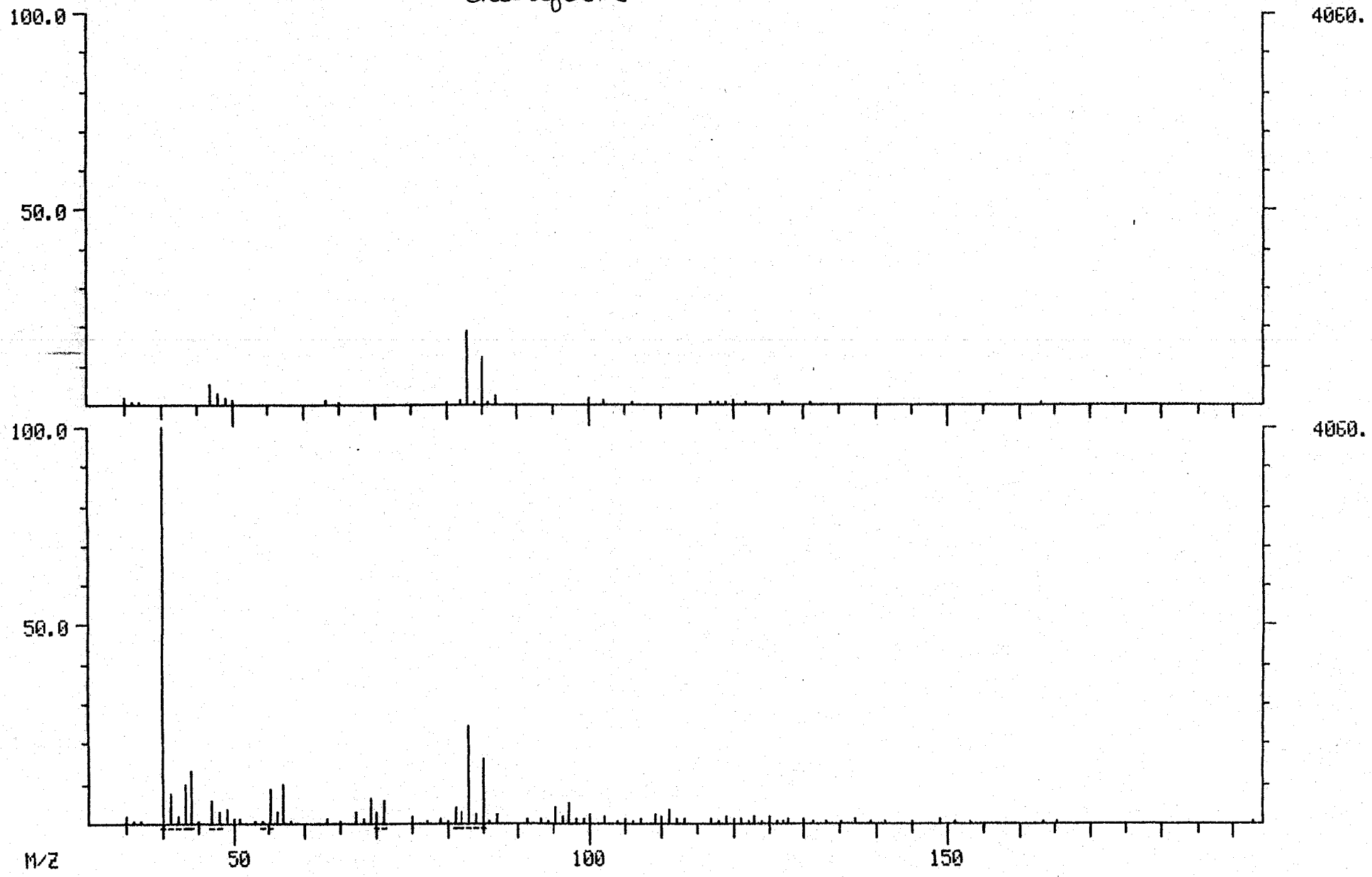
DATA: C1V0001518 #485 BASE M/Z: 43/ 40
CALI: C1V0001518 #3 RIC: 668./ 36031.

190000



DUAL MASS SPECTRUM
09/14/88 2:58:00 + 13:49
SAMPLE: CLP,V11846,,11846011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001518 #829 BASE M/Z: 83/ 40
CALI: C1V0001518 #3 RIC: 2455./ 12559.

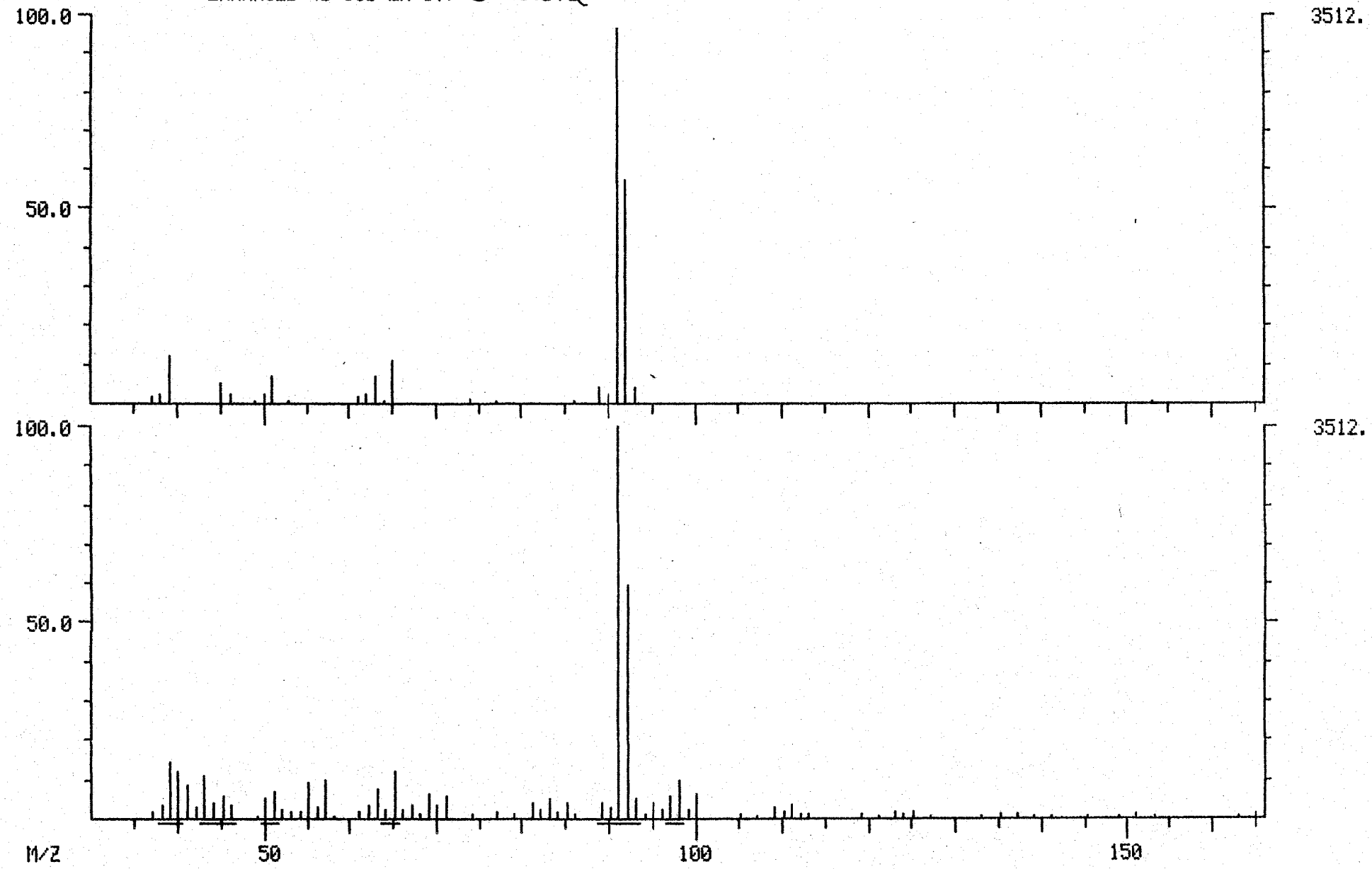


000062

DUAL MASS SPECTRUM
09/14/88 2:58:00 + 19:03
SAMPLE: CLP,V11846,,11846011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Toluene

DATA: C1V0001518 #1143 BASE M/Z: 91/ 91
CALI: C1V0001518 #3 RIC: 7847./ 14559.

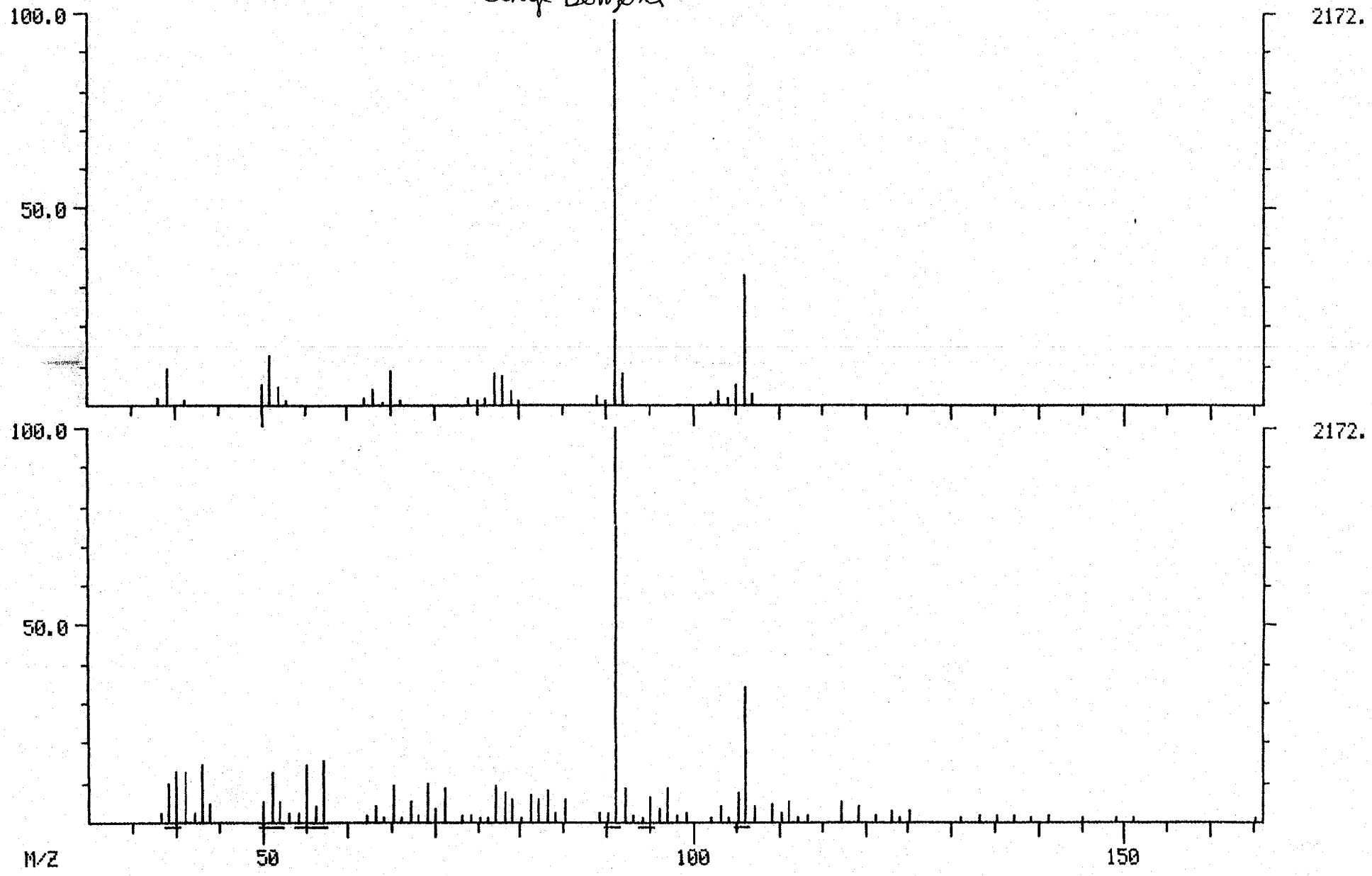
000063



DUAL MASS SPECTRUM
09/14/88 2:58:00 + 22:28
SAMPLE: CLP,V11846,,11846011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Ethyl Benzene

DATA: C1V0001518 #1348 BASE M/Z: 91/ 91
CALI: C1V0001518 #3 RIC: 5079./ 10047.

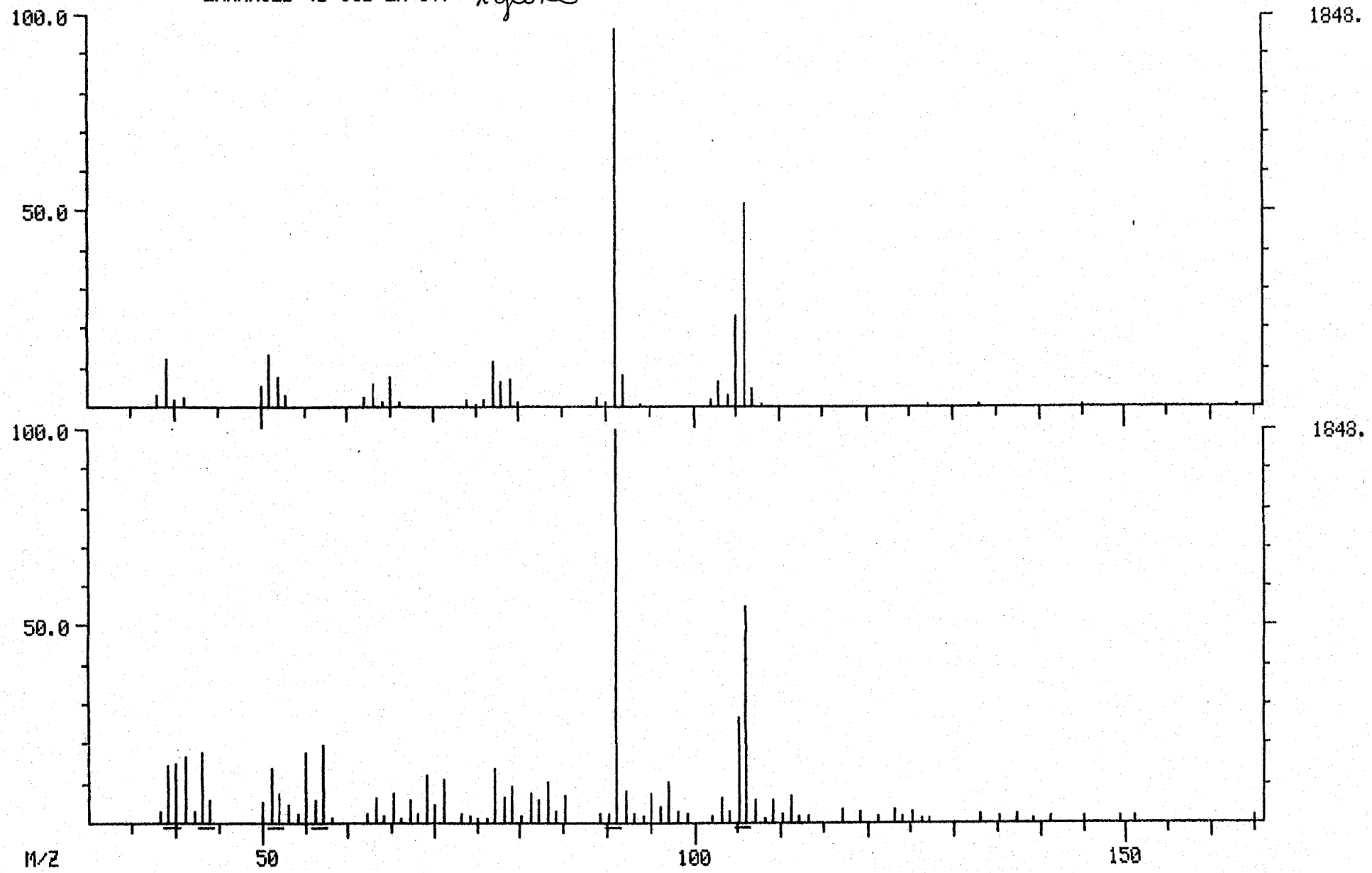
000064



DUAL MASS SPECTRUM
09/14/88 2:58:00 + 22:45
SAMPLE: CLP,V11846,,11846011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Xylene

DATA: C1V0001518 #1365 BASE M/Z: 91/ 91
CALI: C1V0001518 #3 RIC: 5535./ 10719.

000065



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B11S3_1510

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846012

Sample wt/vol: _____ (g/mL) G Lab File ID: C2V0001537

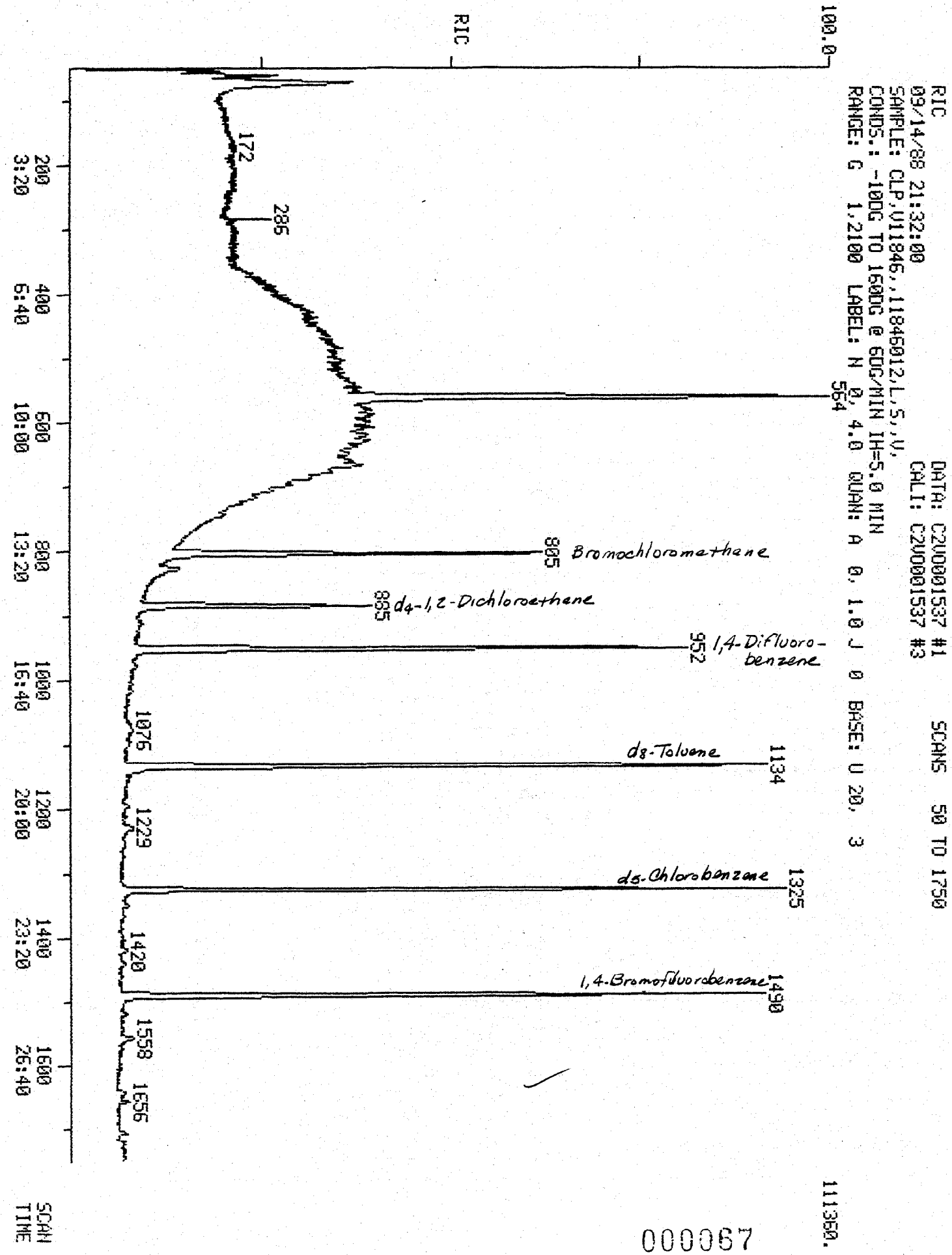
Level: (low/med) LOW Date Received: 09/02/88

% Moisture: not dec. 16 Date Analyzed: 09/14/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	150	B
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

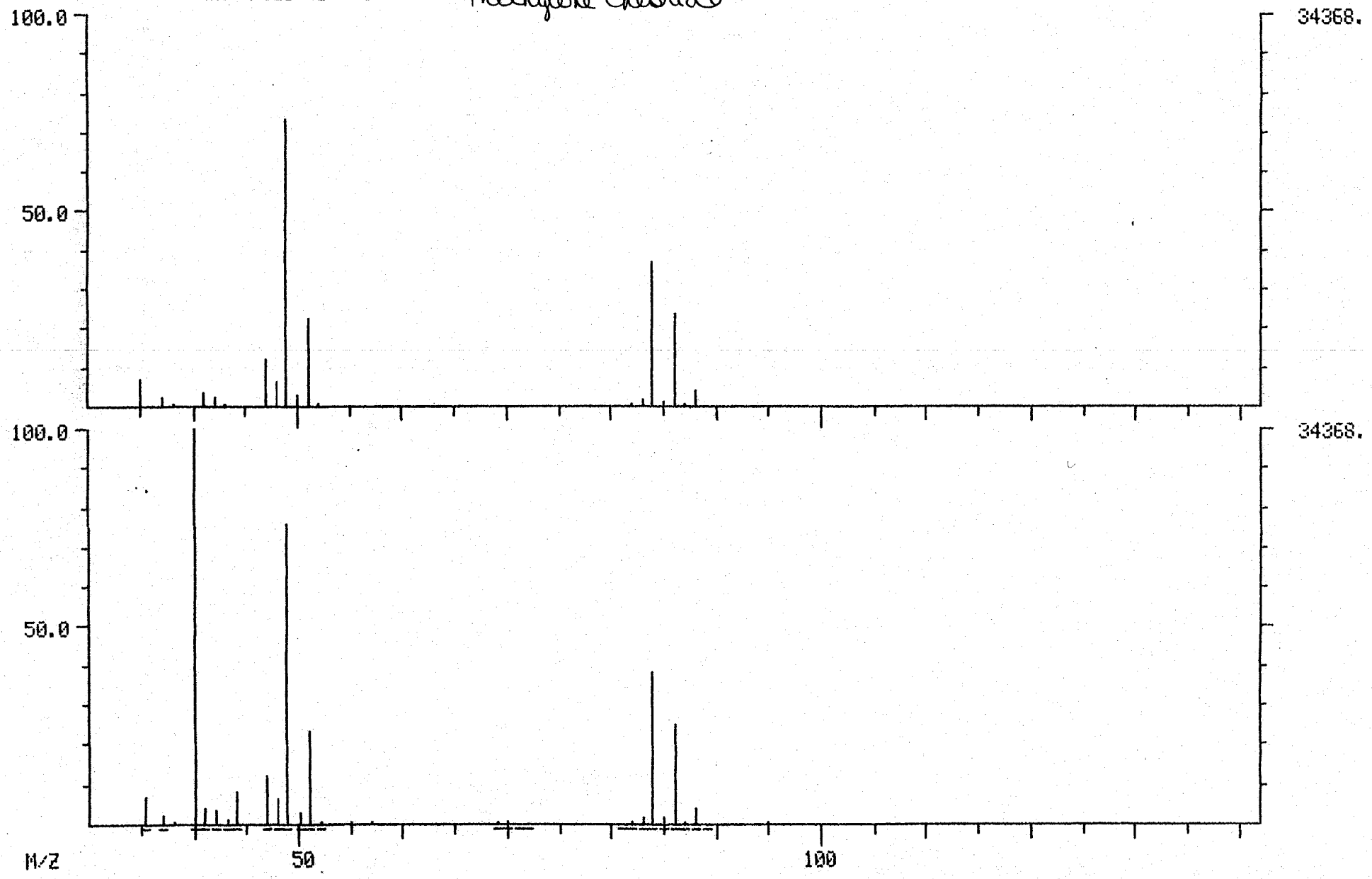
TCA FINISHED, 11 FOUND
FINISHED AT: 9/15/88 4:08:25



000067

DUAL MASS SPECTRUM
09/14/88 21:32:00 + 9:24
SAMPLE: CLP,V11846,,11846012,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

DATA: C2V0001537 #564 BASE M/Z: 49/ 40
CALI: C2V0001537 #3 RIC: 69247./ 110719.

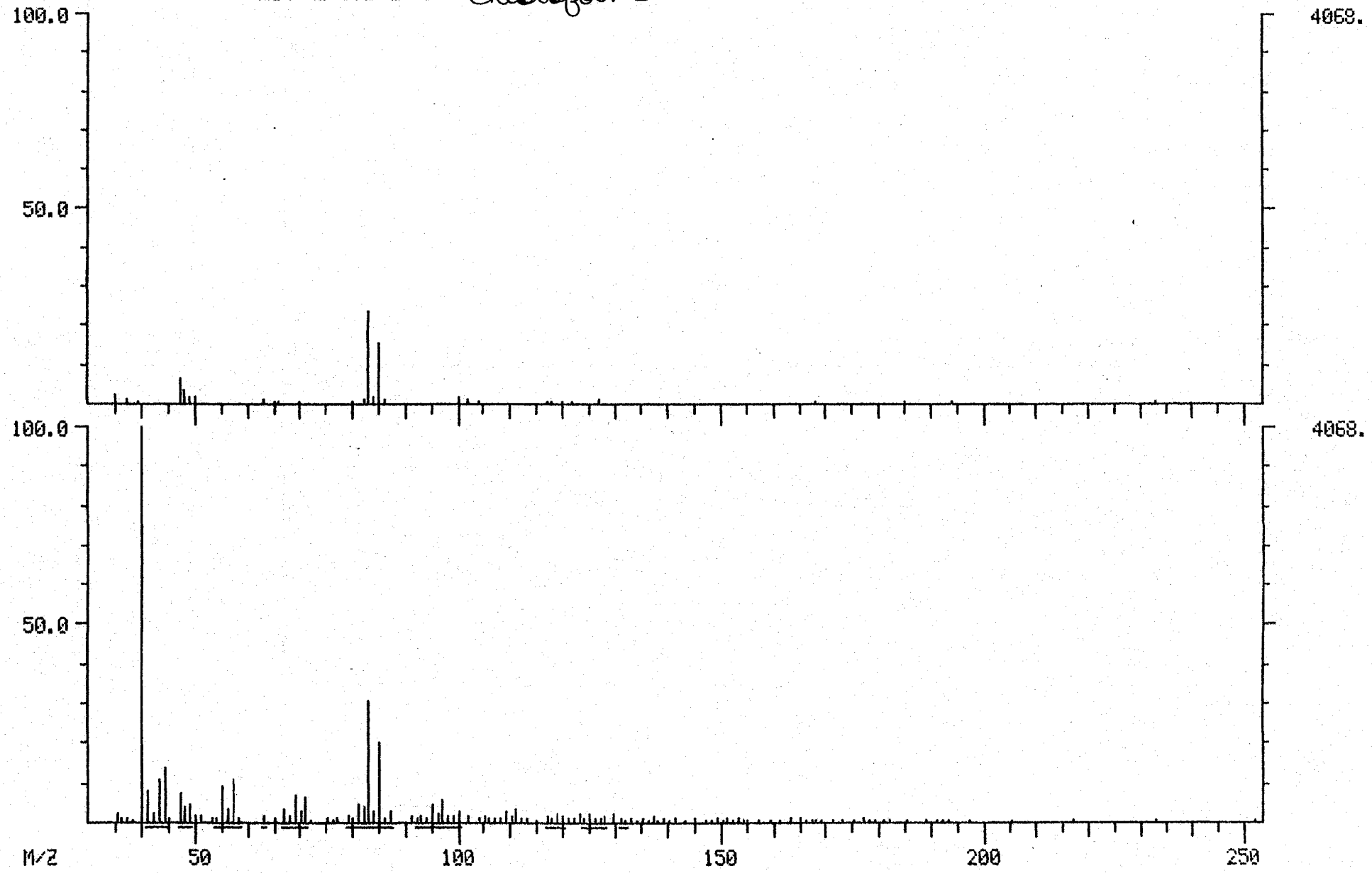


000068

DUAL MASS SPECTRUM
09/14/88 21:32:00 + 13:48
SAMPLE: CLP,V11846,,11846012,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C2V0001537 #828 BASE M/Z: 83/ 40
CALI: C2V0001537 #3 RIC: 3047./ 16063.

000069



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C_SS2_0810

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846013

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001520

Level: (low/med) LOW Date Received: 09/02/88

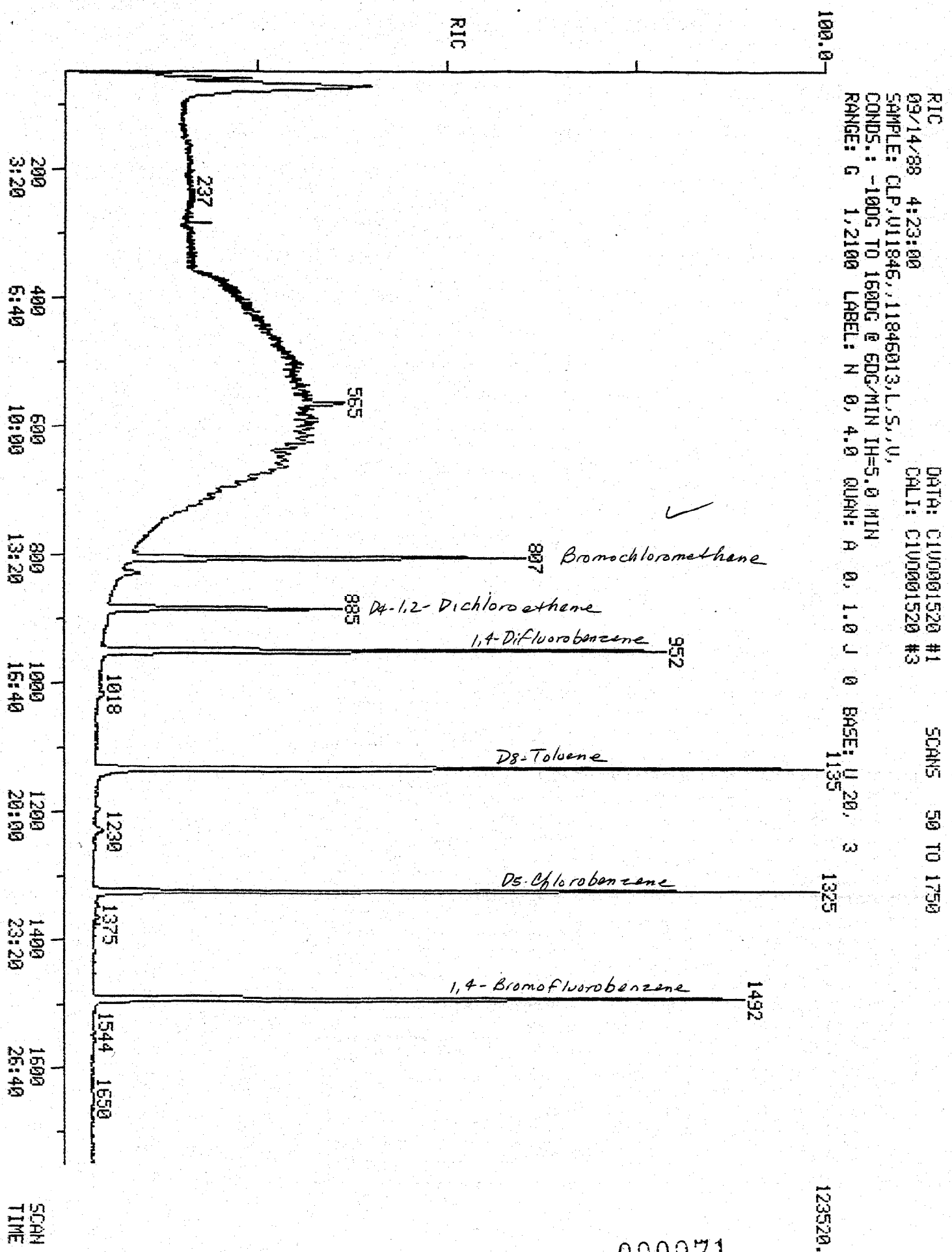
% Moisture: not dec. 5 Date Analyzed: 09/14/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	9	BJ
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

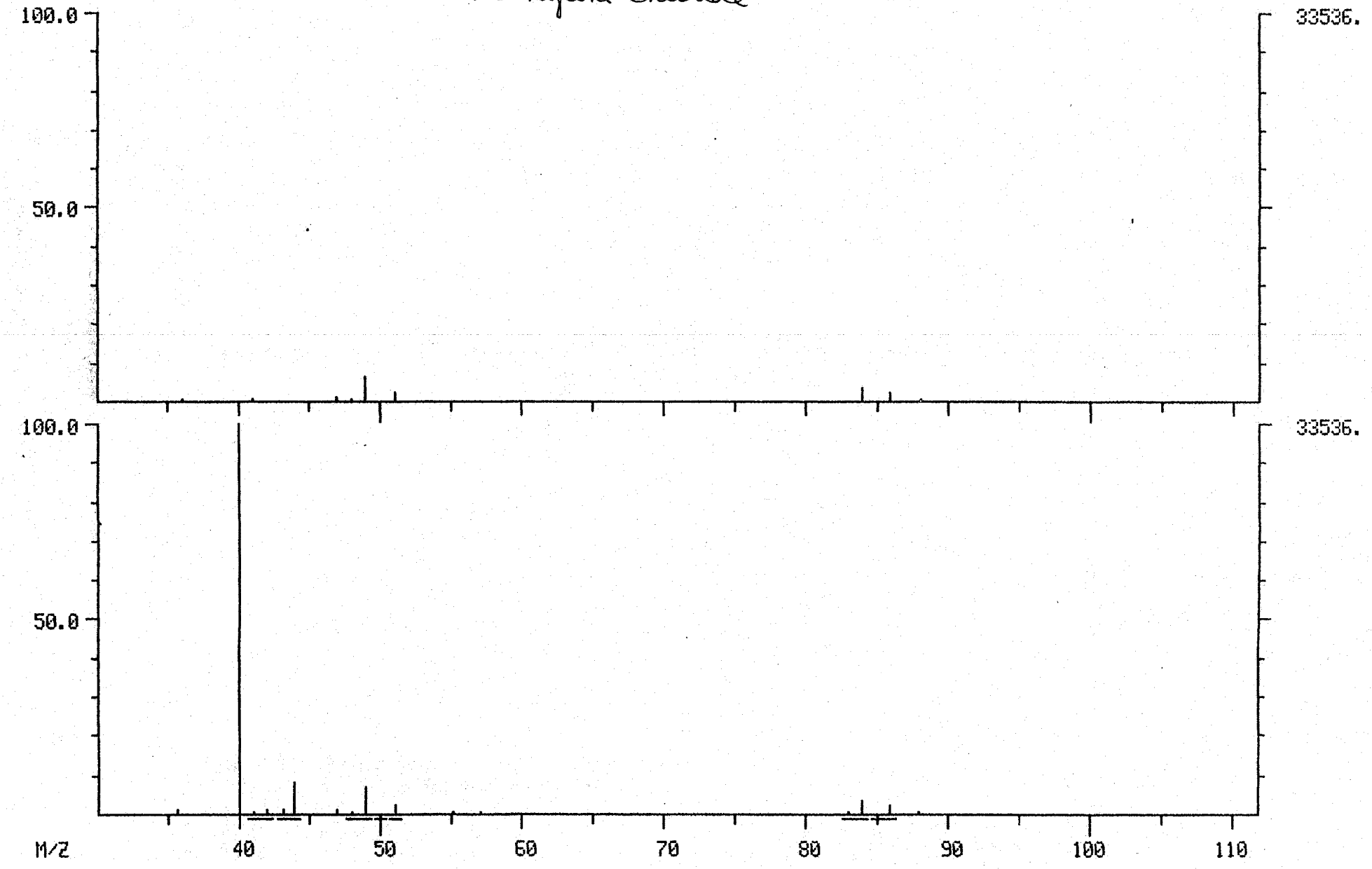
TCA FINISHED, 10 FOUND
FINISHED AT: 9/14/88 5:49:07



000071

DUAL MASS SPECTRUM
09/14/88 4:23:00 + 9:26
SAMPLE: CLP,V11846,,11846013,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

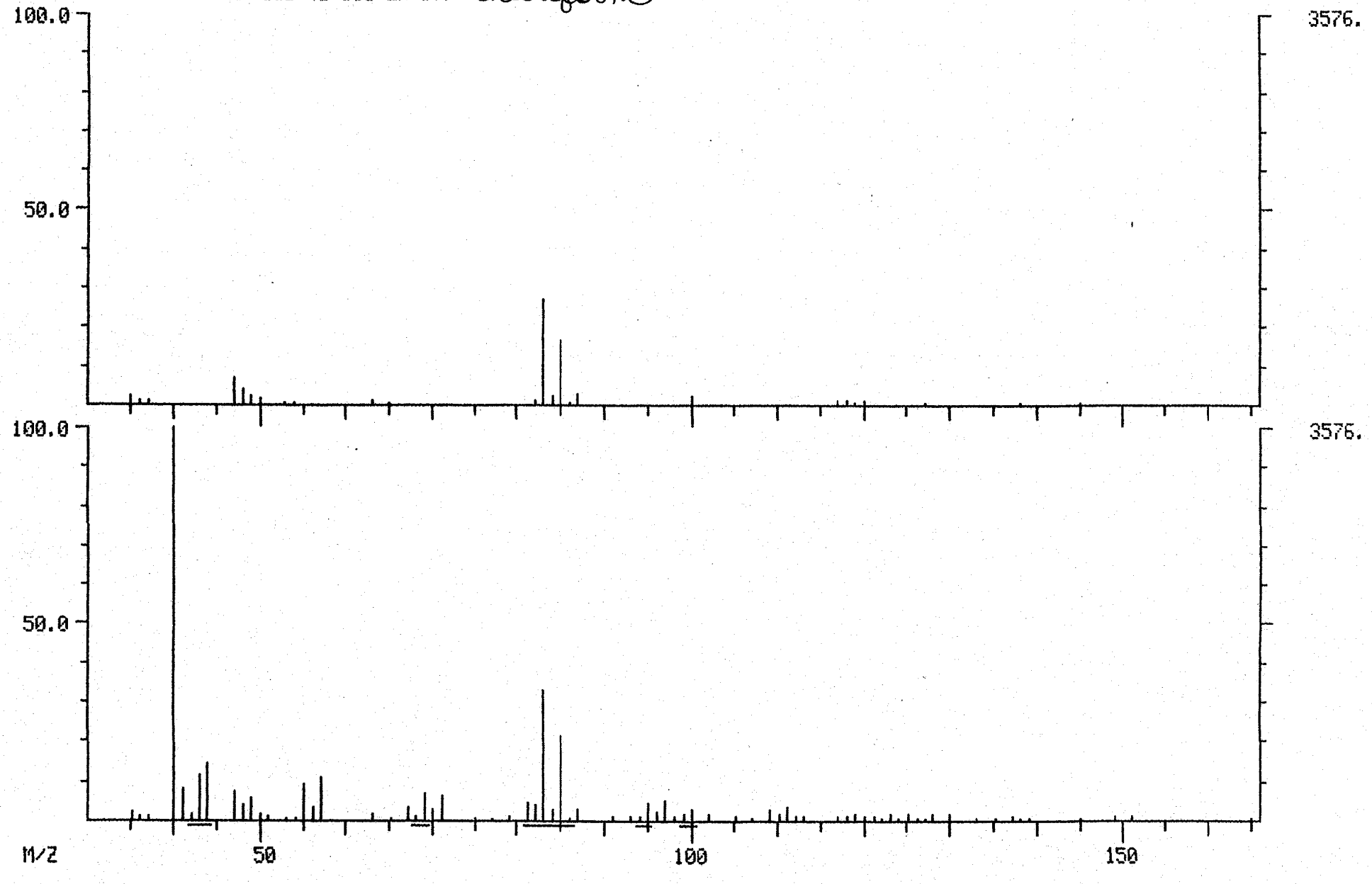
DATA: C1V0001520 #566 BASE M/Z: 49/ 40
CALI: C1V0001520 #3 RIC: 6047./ 44415.



000072

DUAL MASS SPECTRUM
09/14/88 4:23:00 + 13:49
SAMPLE: CLP,V11846,,11846013,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001520 #829 BASE M/Z: 83/ 40
CALI: C1V0001520 #3 RIC: 2891./ 12271.



000073

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2BMW5S1_1430

Lab Name: CH2M HILL/MGM Contract: _____

ab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846014

ample wt/vol: _____ (g/mL) G Lab File ID: C2VO001569

evel: (low/med) LOW Date Received: 09/02/88

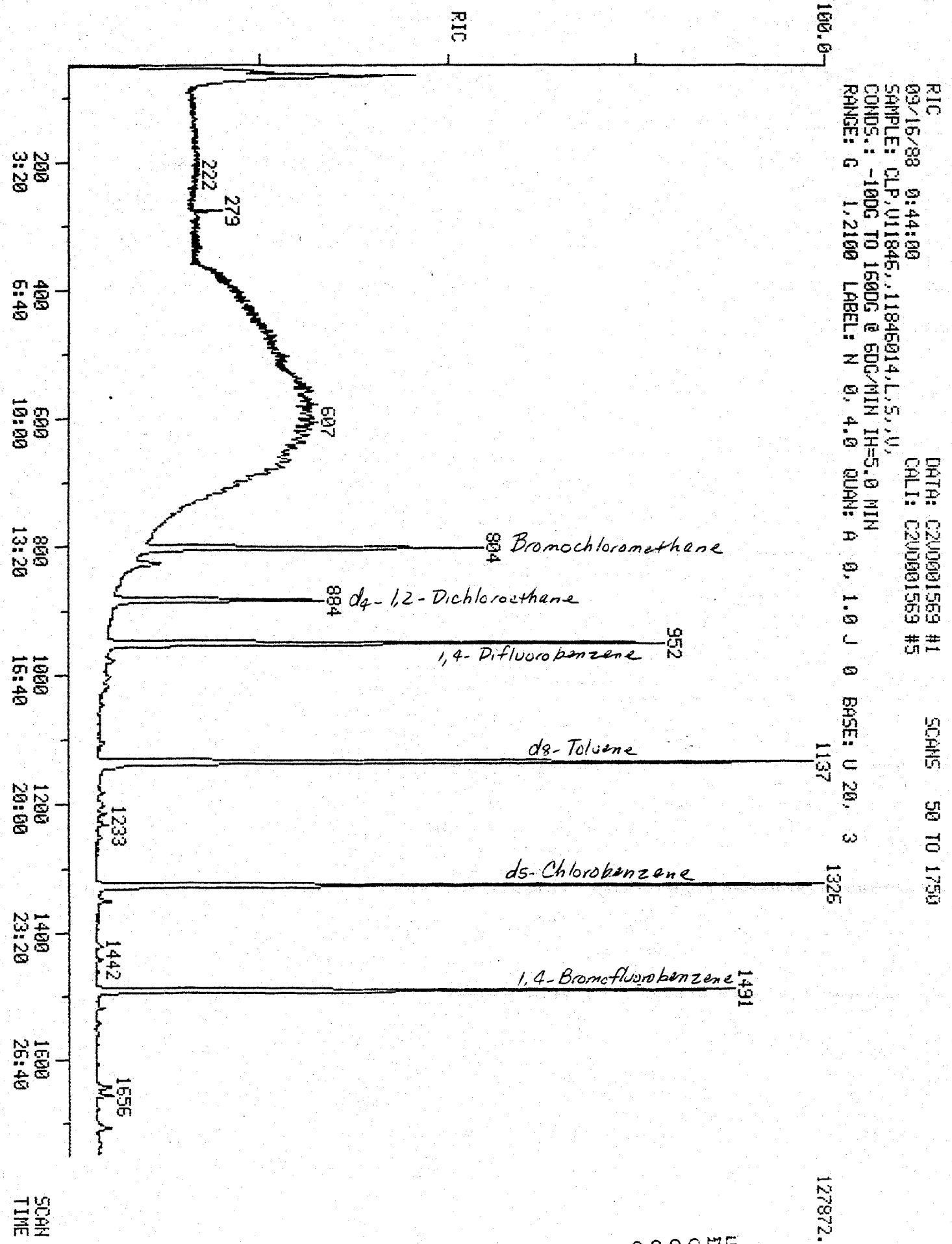
% Moisture: not dec. 6 Date Analyzed: 09/15/88

olumn: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	3	BJ
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	4	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

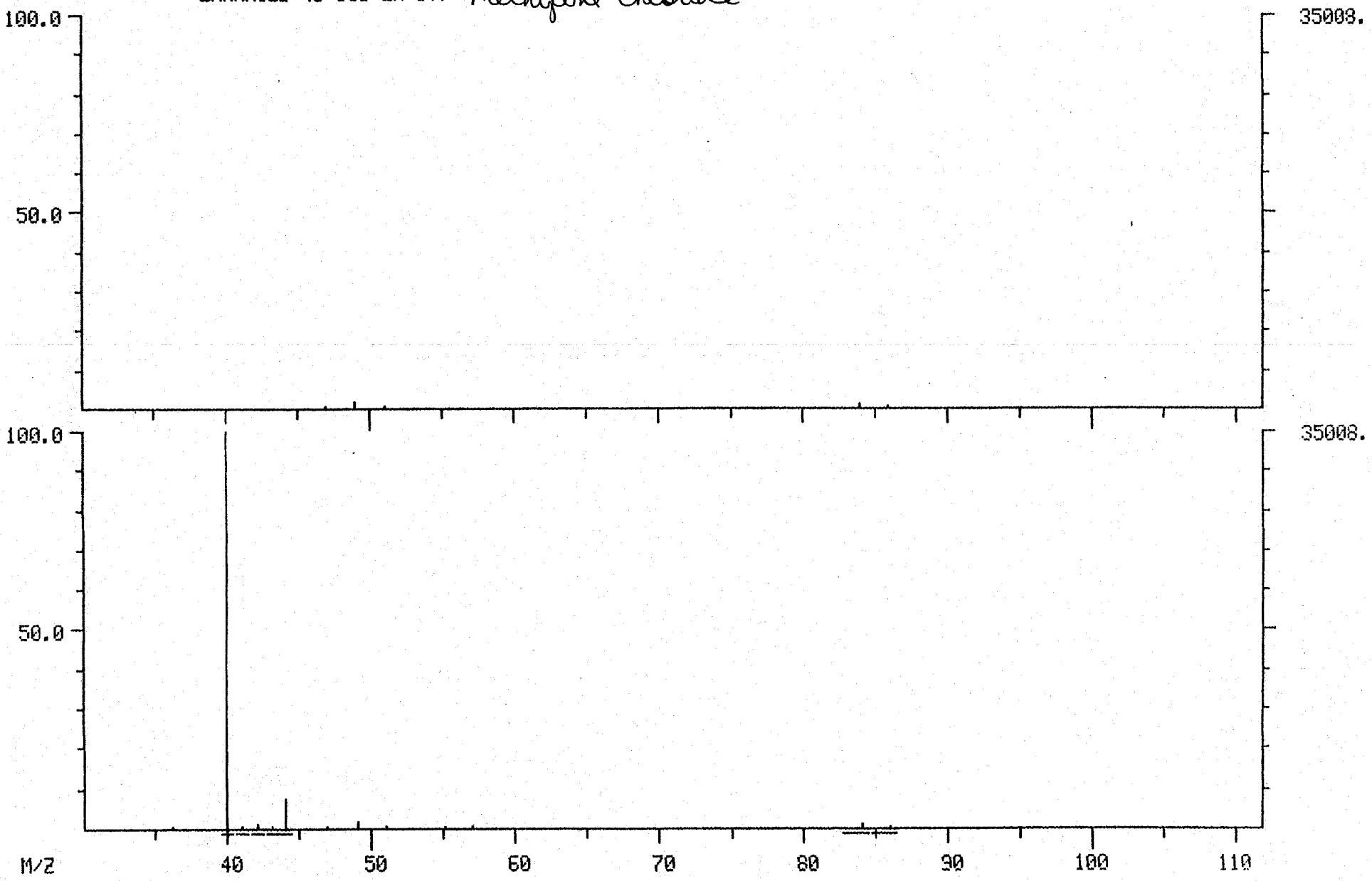
TCA FINISHED, 21 FOUND
FINISHED AT: 9/16/88 6:37:21



000075

DUAL MASS SPECTRUM
09/16/88 0:44:00 + 9:20
SAMPLE: CLP,V11846,,11846014,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

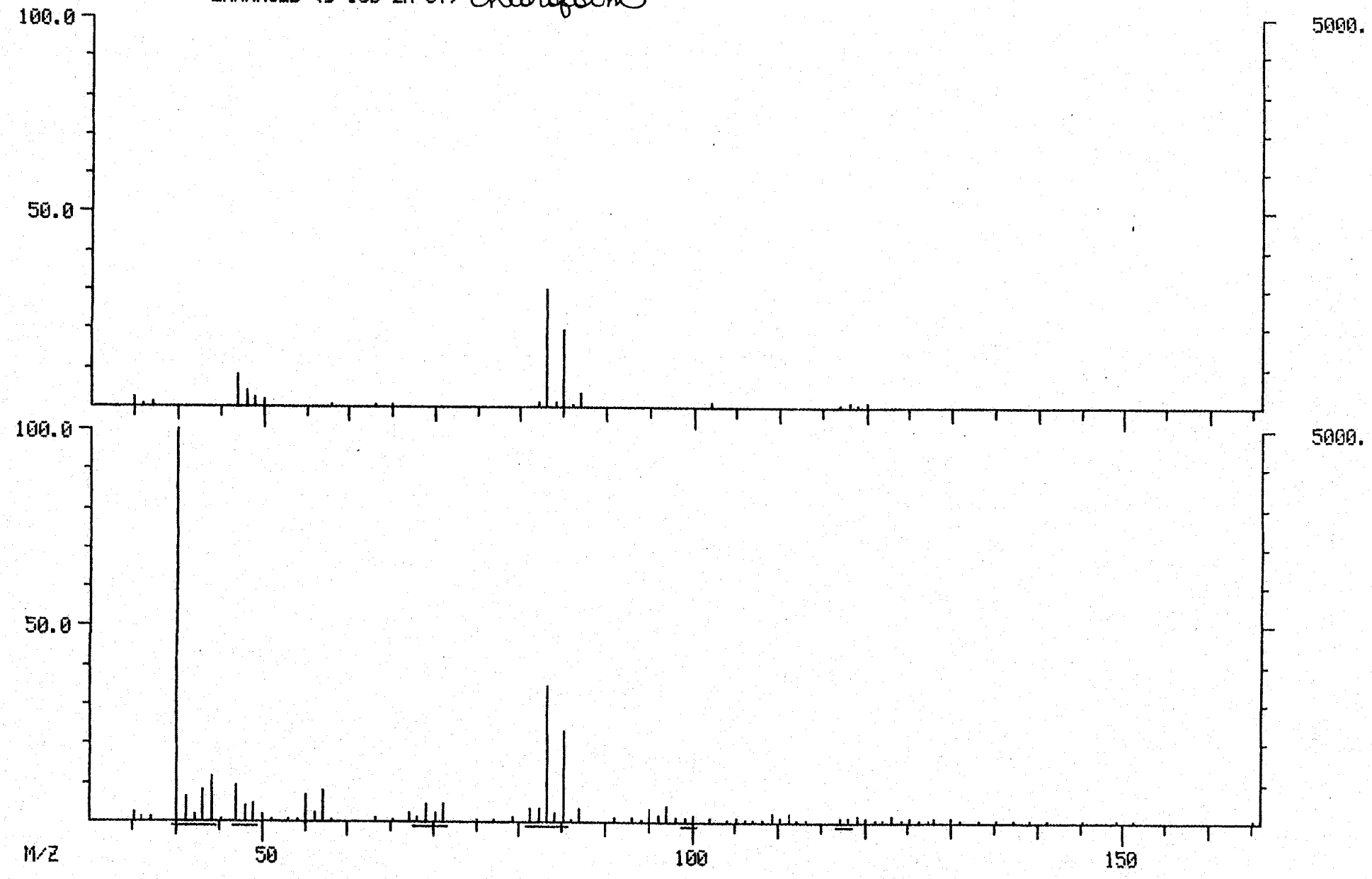
DATA: C2V0001569 #560 BASE M/Z: 49/ 40
CALI: C2V0001569 #5 RIC: 1627./ 41215.



000076

DUAL MASS SPECTRUM
09/16/88 0:44:00 + 13:47
SAMPLE: CLP,V11846,,11846014,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C2V0001569 #827 BASE M/Z: 83/ 40
CALI: C2V0001569 #5 RIC: 4223./ 15263.



000027

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2BMW5S2_1430

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846015

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001543

Level: (low/med) LOW Date Received: 09/02/88

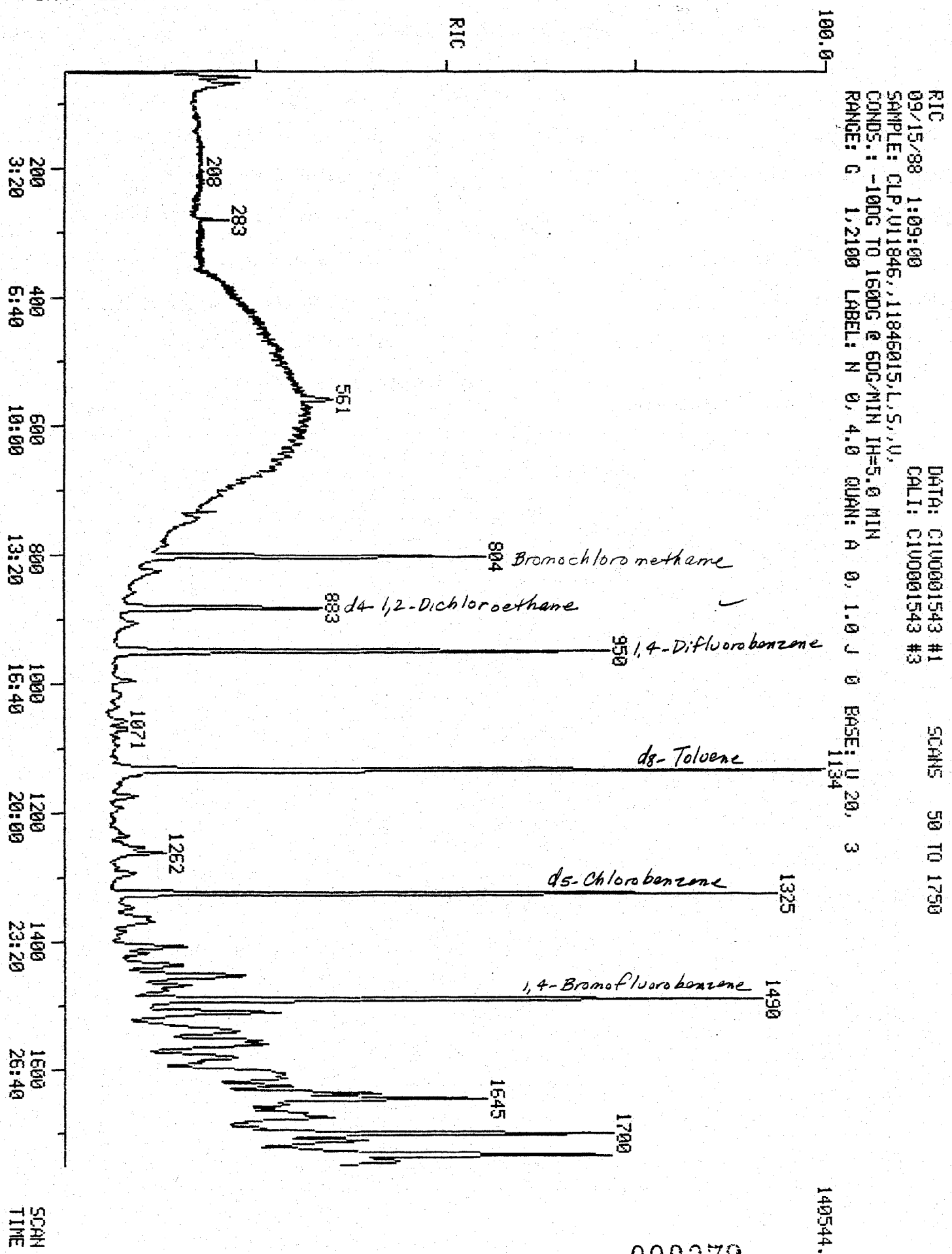
% Moisture: not dec. 19 Date Analyzed: 09/15/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	BJ
67-64-1	Acetone	47	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS

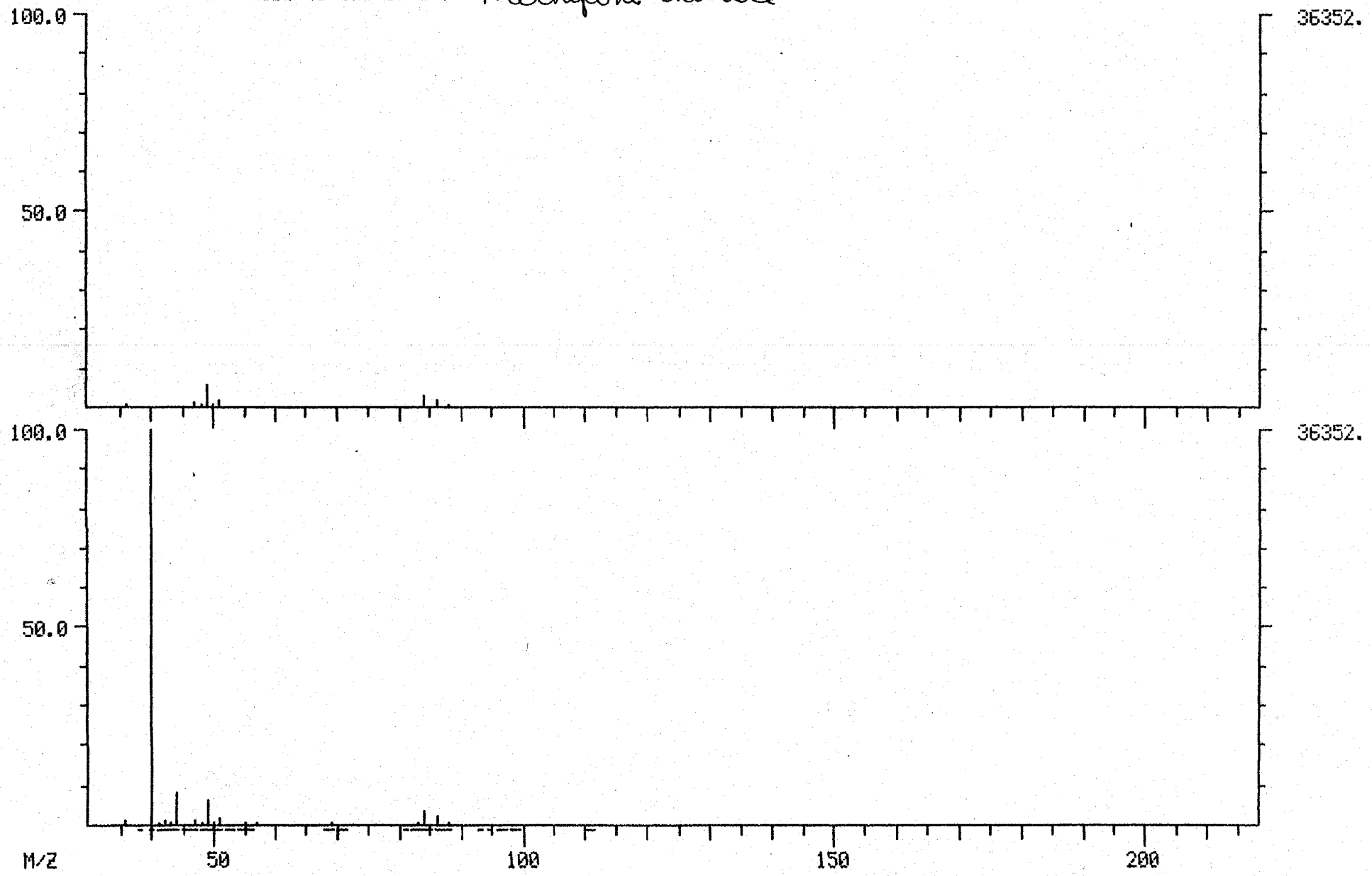
TCA FINISHED, 10 FOUND
FINISHED AT: 9/15/88 4:48:40



000079

DUAL MASS SPECTRUM
09/15/88 1:09:00 + 9:20
SAMPLE: CLP,V11846,,11846015,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

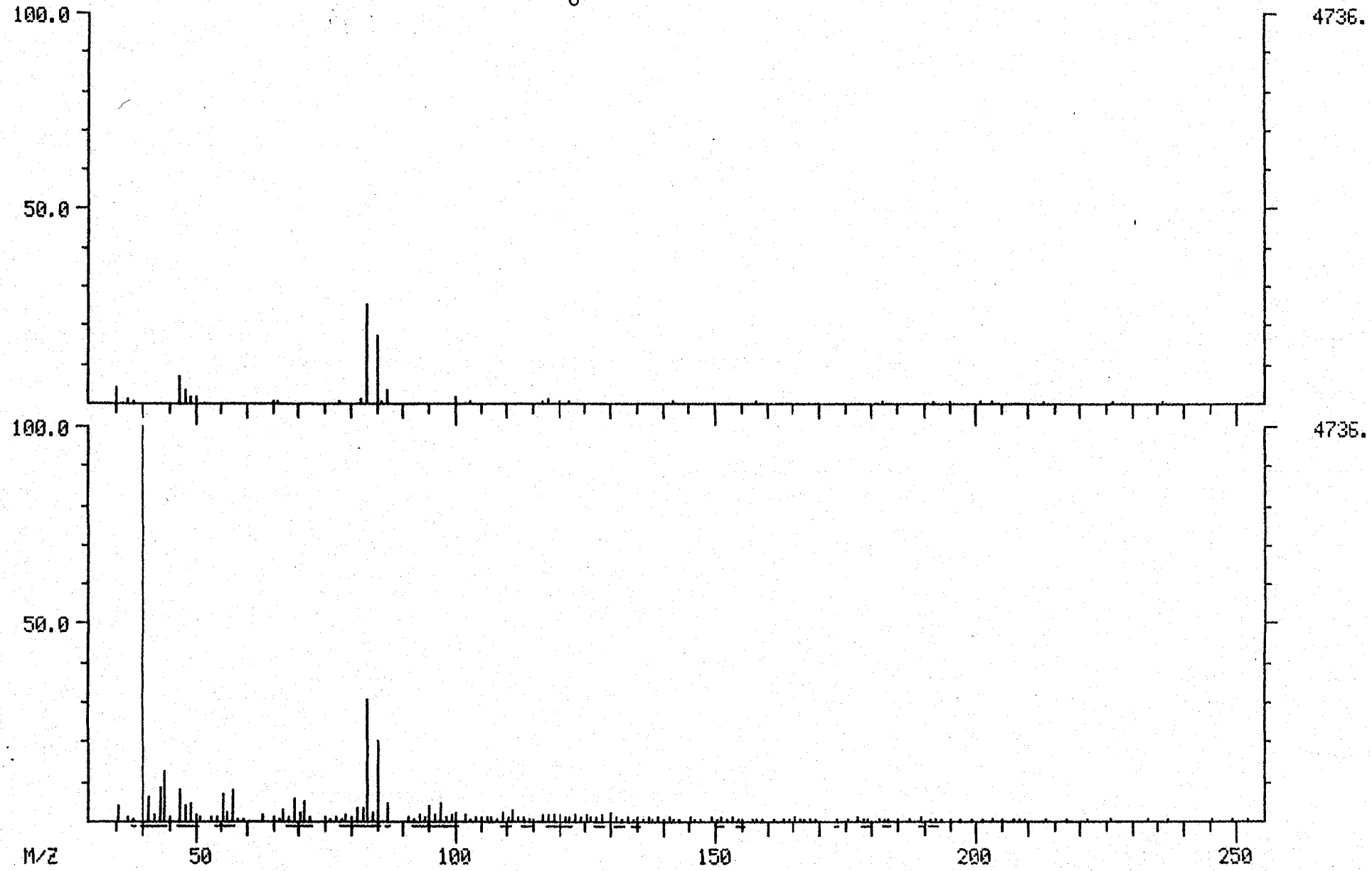
DATA: C1V0001543 #560 BASE M/Z: 49/ 40
CALI: C1V0001543 #3 RIC: 6239./ 48703.



080000

DUAL MASS SPECTRUM
09/15/88 1:09:00 + 13:46
SAMPLE: CLP,V11846,,11846015,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

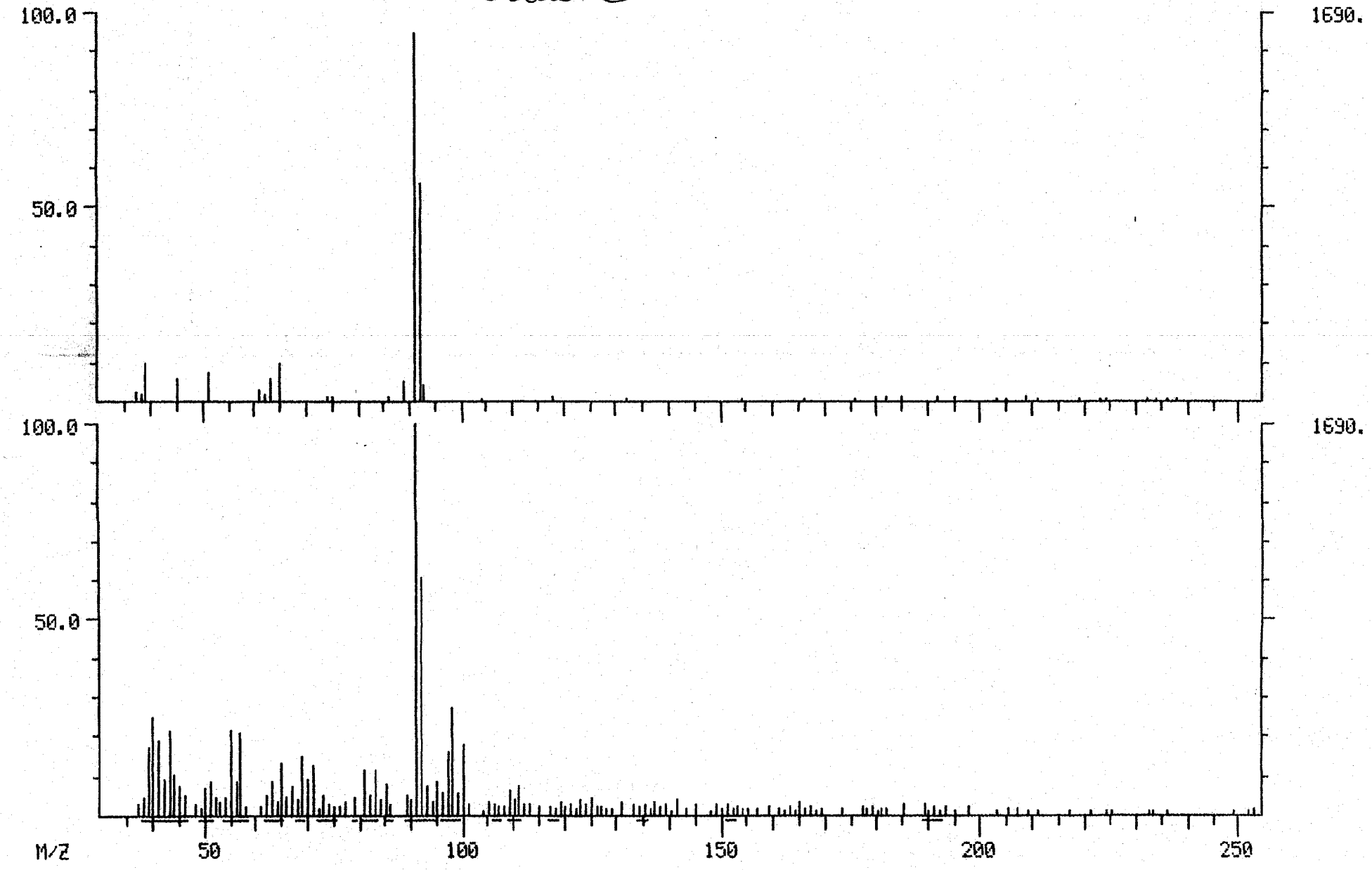
DATA: C1V0001543 #826 BASE M/Z: 83/ 40
CALI: C1V0001543 #3 RIC: 3799./ 17791.



000081

DUAL MASS SPECTRUM
09/15/88 1:09:00 + 19:03
SAMPLE: CLP,V11846,,11846015,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Toluene

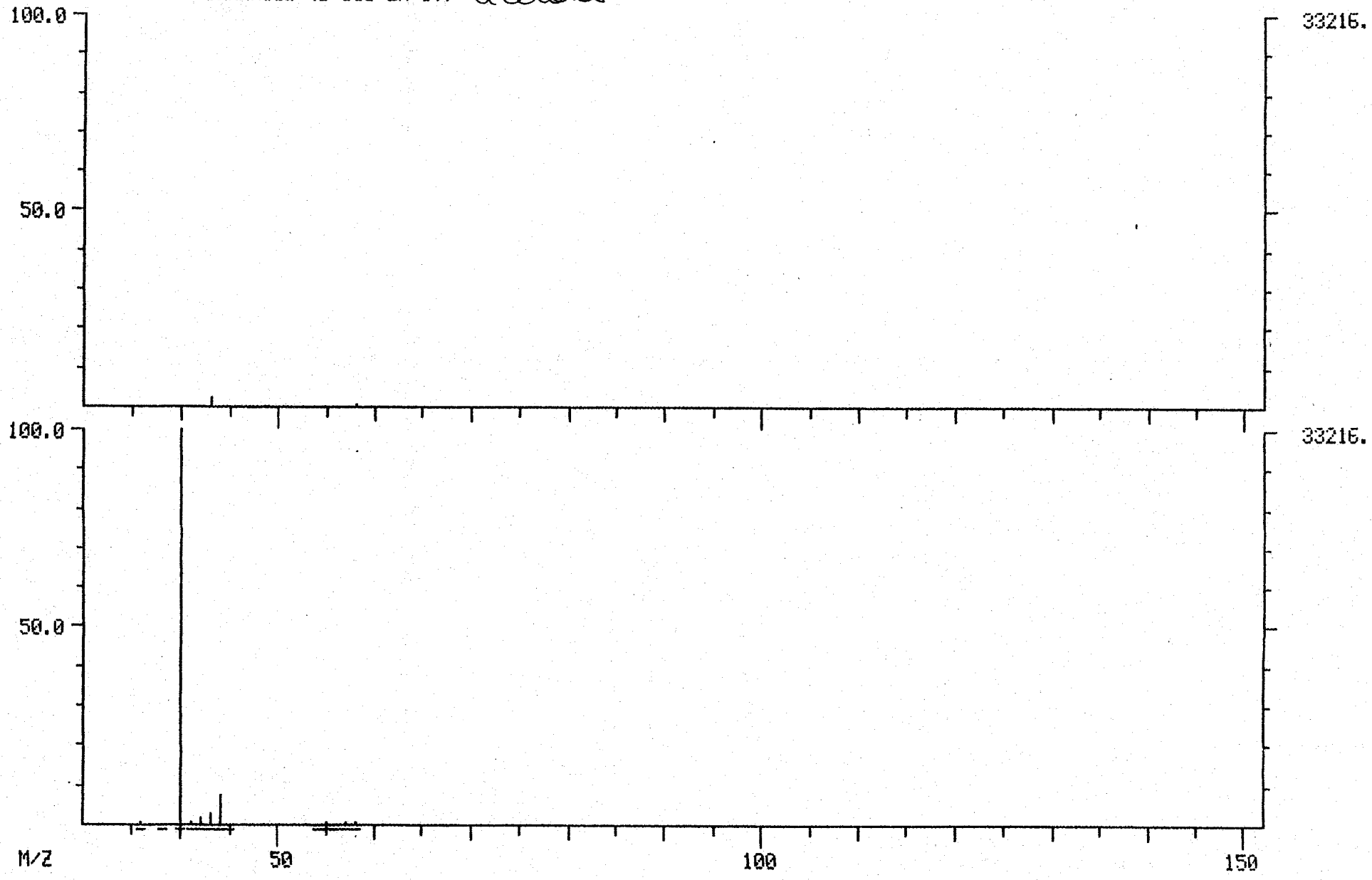
DATA: C1V0001543 #1143 BASE M/Z: 91/ 91
CALI: C1V0001543 #3 RIC: 3851./ 13759.



000082

DUAL MASS SPECTRUM
09/15/88 1:09:00 + 8:01
SAMPLE: CLP,V11846,,11846015,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) acetone

DATA: C1V0001543 #481 BASE M/Z: 43/ 40
CALI: C1V0001543 #3 RIC: 1165./ 39551.



000083

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2BMW5S3_1430

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846016

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001544

Level: (low/med) LOW Date Received: 09/02/88

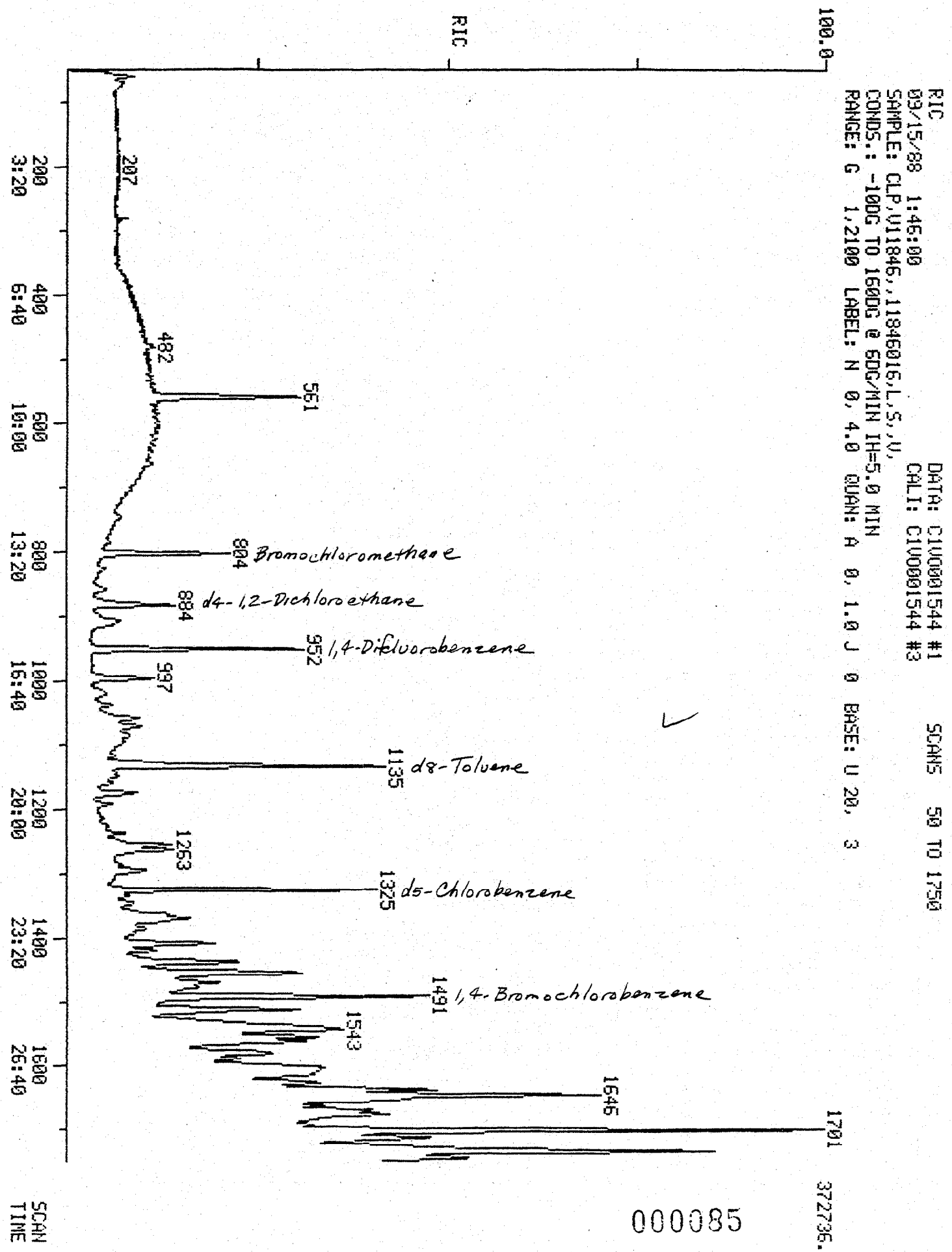
% Moisture: not dec. 12 Date Analyzed: 09/15/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	120	B
67-64-1	Acetone	120	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	1	J
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	1	J

RS

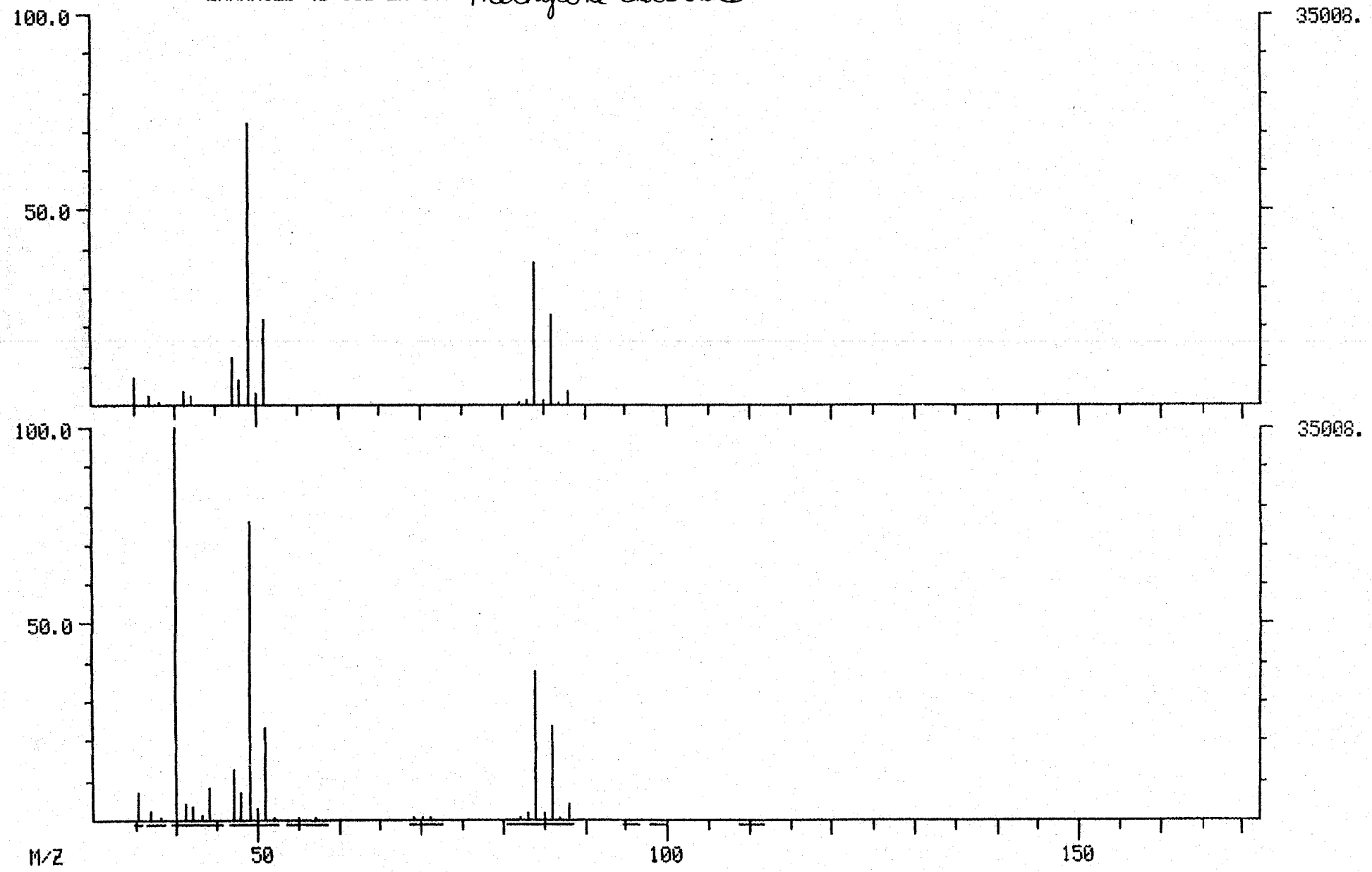
TCA FINISHED, 10 FOUND
FINISHED AT: 9/15/88 4:55:37



000085

DUAL MASS SPECTRUM
09/15/88 1:46:00 + 9:21
SAMPLE: CLP,V11846,,11846016,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

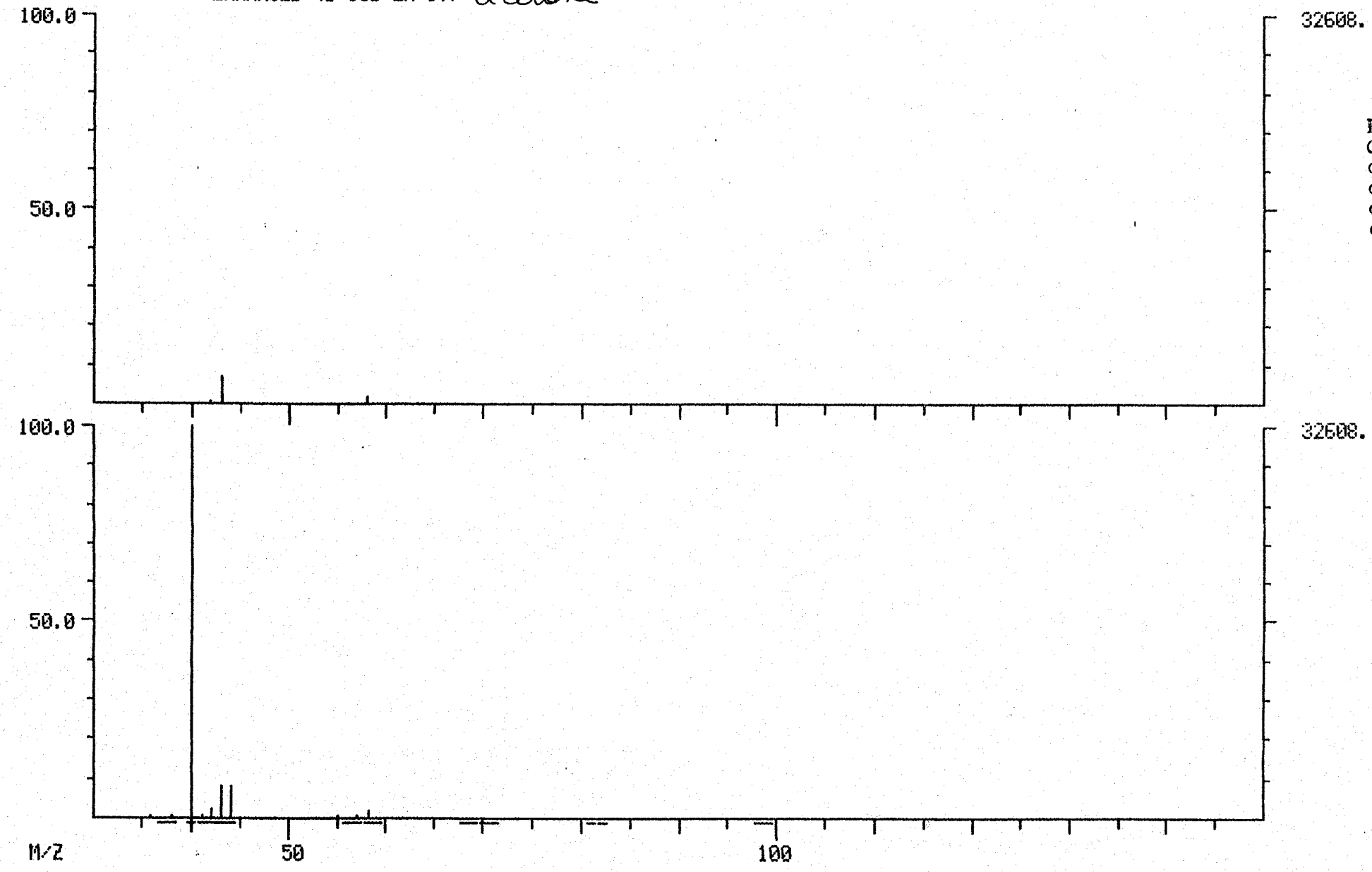
DATA: C1V0001544 #561 BASE M/Z: 49/ 40
CALI: C1V0001544 #3 RIC: 68991./ 112767.



000086

DUAL MASS SPECTRUM
09/15/88 1:46:00 + 8:01
SAMPLE: CLP,V11846,,11846016,L,5,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) acetone

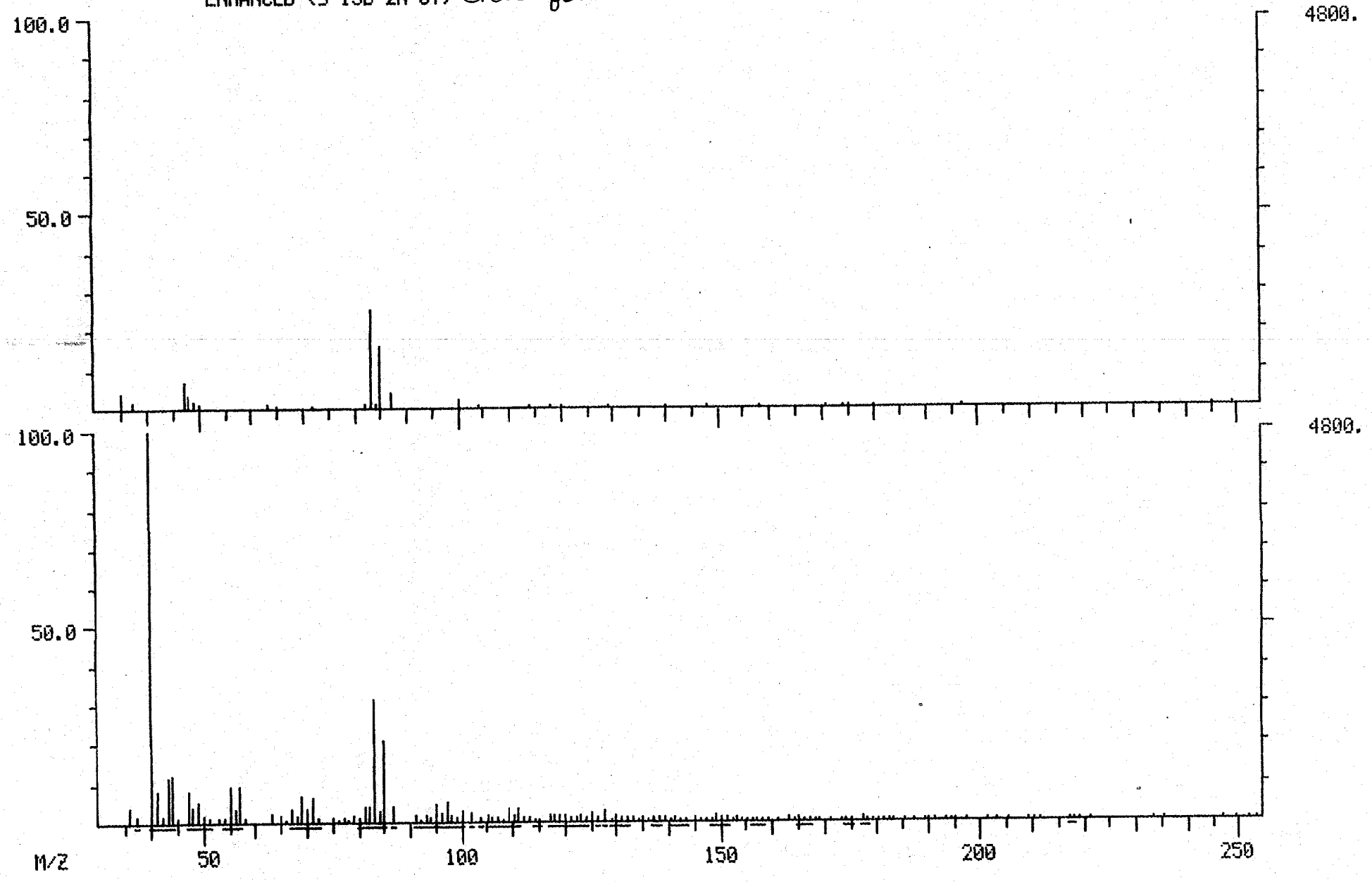
DATA: C1V0001544 #481 BASE M/Z: 43/ 40
CALI: C1V0001544 #3 RIC: 3315./ 41343.



000087

DUAL MASS SPECTRUM
09/15/88 1:46:00 + 13:47
SAMPLE: CLP,V11846,,11846016,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

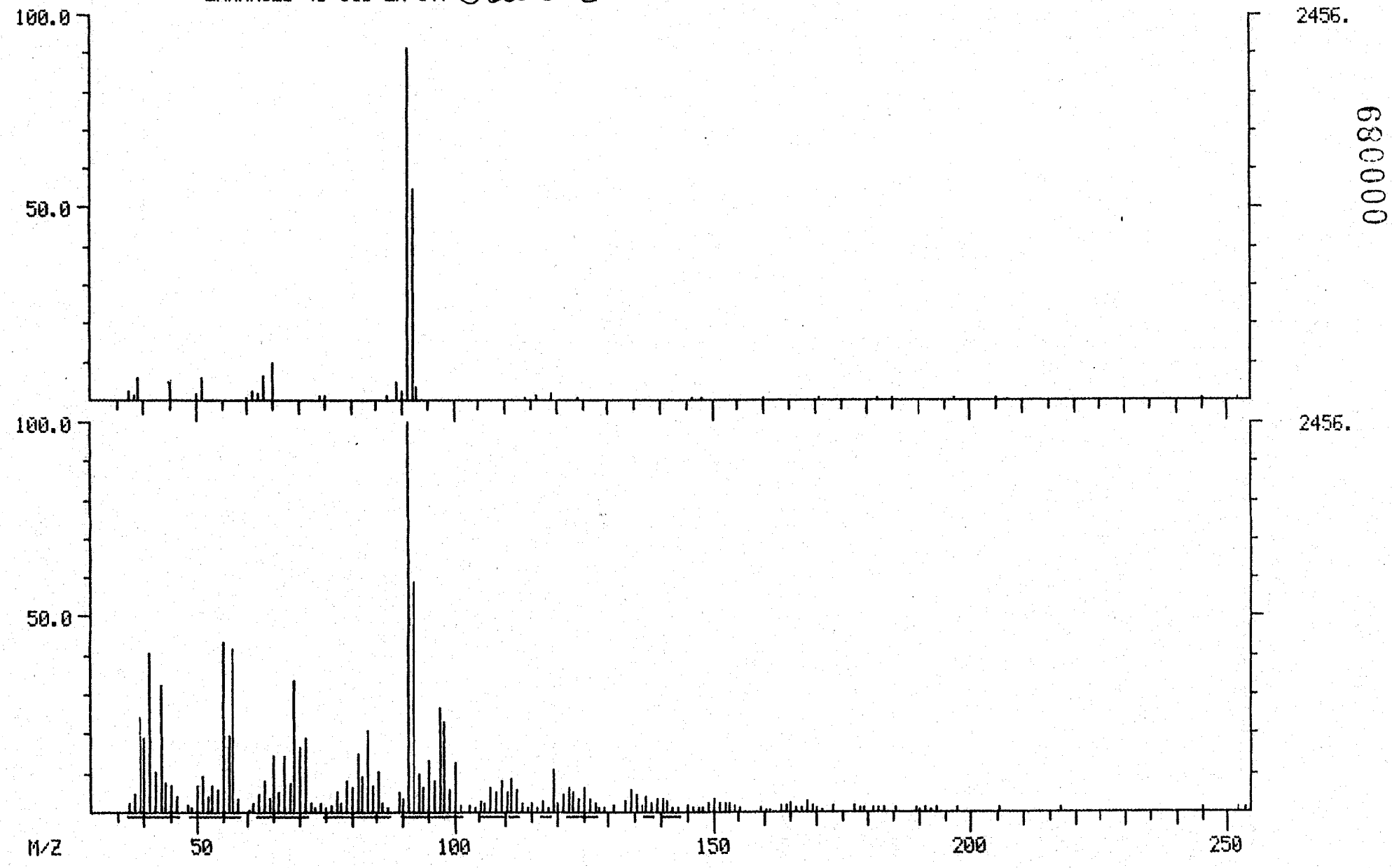
DATA: C1V0001544 #827 BASE M/Z: 83/ 40
CALI: C1V0001544 #3 RIC: 3859./ 19551.



000088

DUAL MASS SPECTRUM
09/15/88 1:46:00 + 19:03
SAMPLE: CLP,V11846,,11846016,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Toluene

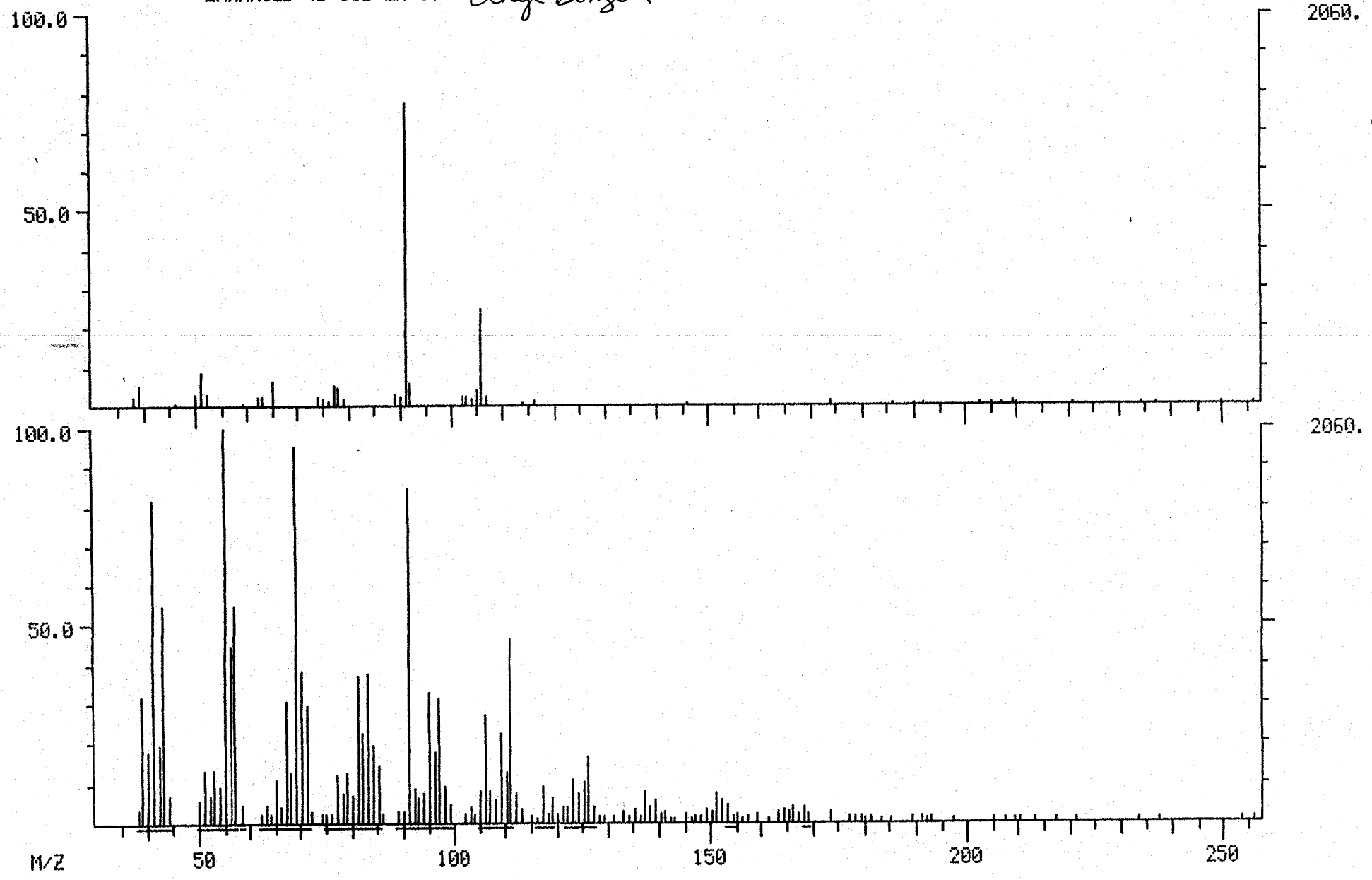
DATA: C1V0001544 #1143 BASE M/Z: 91/ 91
CALI: C1V0001544 #3 RIC: 5215./ 24703.



680000

DUAL MASS SPECTRUM
09/15/88 1:46:00 + 22:29
SAMPLE: CLP,V11846,,11846016,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Ethyl Benzene

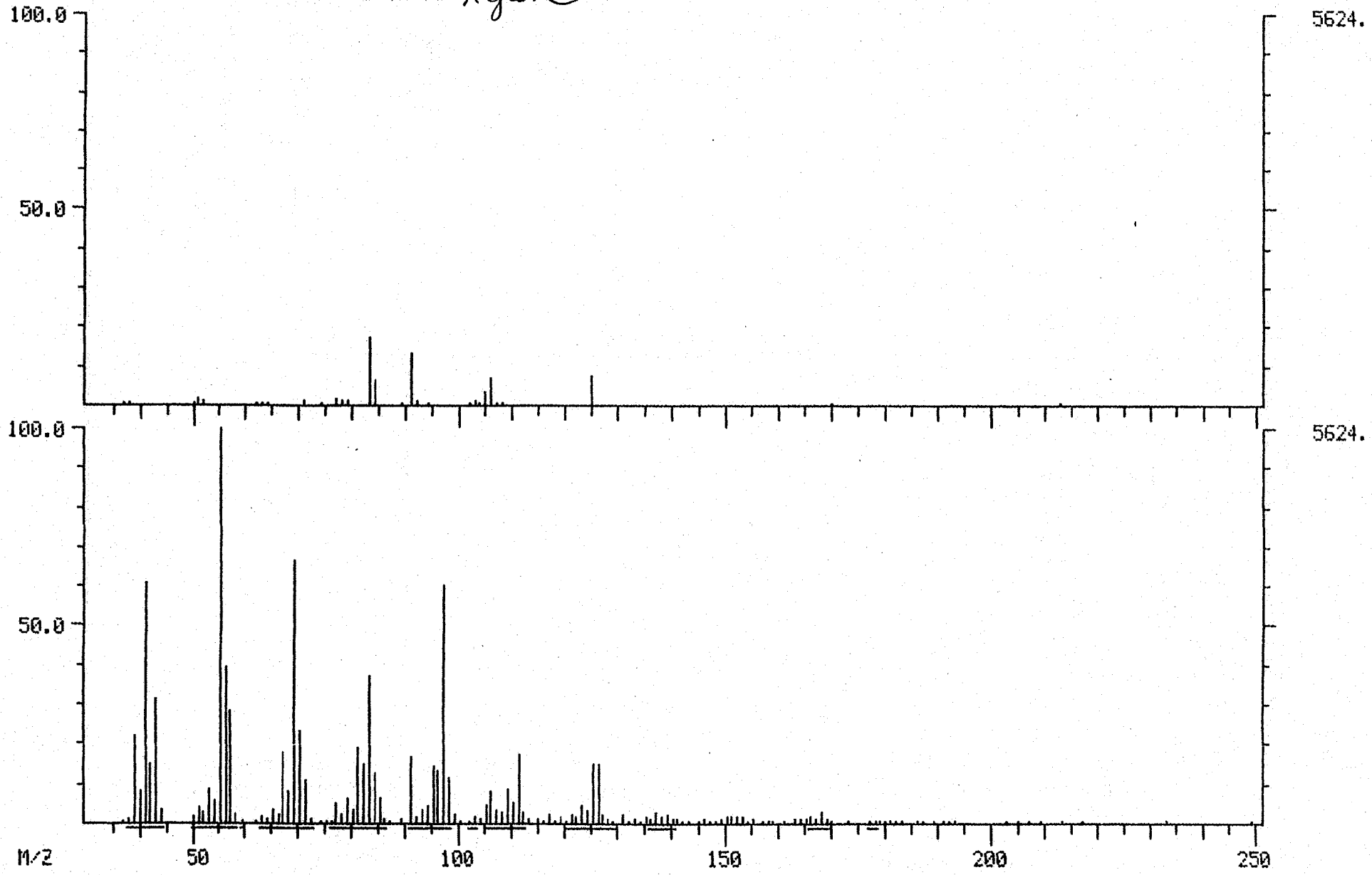
DATA: C1V0001544 #1349 BASE M/Z: 91/ 55
CALI: C1V0001544 #3 RIC: 3883./ 30271.



000090

DUAL MASS SPECTRUM
09/15/88 1:46:00 + 22:45
SAMPLE: CLP,V11846,,11846016,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Xylene

DATA: C1V0001544 #1365 BASE M/Z: 83/ 55
CALI: C1V0001544 #3 RIC: 4223./ 49471.



160000

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09128B3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09128B3

Sample wt/vol: _____ (g/mL) G Lab File ID: CBV0001485

Level: (low/med) LOW Date Received: 09/12/88

% Moisture: not dec. 0 Date Analyzed: 09/12/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	3	BJ
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	1	BJ
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09138B4

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09138B4

Sample wt/vol: _____ (g/mL) G Lab File ID: CBV0001509

Level: (low/med) LOW Date Received: 09/13/88

% Moisture: not dec. 0 Date Analyzed: 09/13/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	15	B
67-64-1	Acetone	43	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	1	BJ
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09148B2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09148B2

Sample wt/vol: _____ (g/mL) G Lab File ID: CBV0001535

Level: (low/med) LOW Date Received: 09/14/88

% Moisture: not dec. _____ Date Analyzed: 09/14/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	BJ
67-64-1	Acetone	22	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	3	BJ
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	2	BJ
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

FORM I VOA 1/87 Rev.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09158B2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09158B2

Sample wt/vol: _____ (g/mL) G Lab File ID: CBV0001567

Level: (low/med) LOW Date Received: 09/15/88

% Moisture: not dec. _____ Date Analyzed: 09/15/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	3	BJ
67-64-1	Acetone	12	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	1	BJ
591-78-6	2-Hexanone	2	BJ
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	1	BJ
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GC-MS

Level:(low/med) _____

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	Y09128B3	101	104	108		0
02	Y09138B4	101	102	106		0
03	Y09148B2	100	105	108		0
04	Y09158B2	102	103	105		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	2BMW5S1_1430	103	106	105		0
02	2BMW5S2_1430	112	106	109		0
03	2BMW5S3_1430	103	98	117		0
04	2C-SS1_1055	105	109	106		0
05	2C-SS4_0955	100	90	108		0
06	2C_SS2_0810	101	108	100		0
07	B11D2-D_1510	107	96	102		0
08	B11S1_1510	102	107	108		0
09	B11S2_1510	106	100	105		0
10	B11S2_1510DL	102	99	117		0
11	B11S3_1510	98	114	117		0
12	B12S1_1420	98	94	111		0
13	B12S2_1420	105	104	106		0
14	B12S3_1420	105	104	106		0
15	B13S1_1307	94	93	110		0
16	B13S2_1307	95	93	110		0
17	B13S3_1307	103	103	106		0
18	9-1-88_MS	108	96	110		0
19	9-1-88_MSD	102	95	115		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Matrix Spike - EPA Sample No.: B11D2-D_1510 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0	48.0	96	59-172
Trichloroethene	50.0	0	41.6	83	62-137
Benzene	50.0	0	40.7	81	66-142
Toluene	50.0	5.81	48.7	86	59-139
Chlorobenzene	50.0	0	40.6	81	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.0	46.4	93	3	22	59-172
Trichloroethene	50.0	39.6	79	5	24	62-137
Benzene	50.0	38.7	77	5	21	66-142
Toluene	50.0	43.0	74	15	21	59-139
Chlorobenzene	50.0	39.2	78	4	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: CLP,V11846,,11846011,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001485 Lab Sample ID: Y09128B3

Date Analyzed: 09/12/88 Time Analyzed: 2040

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2C-SS1_1055	11846002	C2V0001513	0002
02	2C-SS4_0955	11846001	C1V0001492	0106
03	B12S1_1420	11846006	C1V0001497	0403
04	B13S1_1307	11846003	C1V0001494	0217
05	B13S2_1307	11846004	C1V0001495	0252
06	B13S3_1307	11846005	C1V0001496	0327

COMMENTS: CLP,V11825,,Y09128B3,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

RS

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001509 Lab Sample ID: Y09138B4

Date Analyzed: 09/13/88 Time Analyzed: 2100

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2C_SS2_0810	11846013	C1V0001520	0423
02	B11D2-D_1510	11846011	C1V0001518	0258
03	B11S1_1510	11846009	C1V0001516	0148
04	B11S2_1510	11846010	C1V0001517	0223
05	B12S2_1420	11846007	C1V0001514	0038
06	B12S3_1420	11846008	C1V0001515	0113

COMMENTS: CLP,V11822,,Y09138B4,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

RS

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001535 Lab Sample ID: Y09148B2

Date Analyzed: 09/14/88 Time Analyzed: 1928

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2BMW5S2_1430	11846015	C1V0001543	0109
02	2BMW5S3_1430	11846016	C1V0001544	0146
03	B11S2_1510DL	11846010DL	C2V0001539	2245
04	B11S3_1510	11846012	C2V0001537	2132
05	9-1-88_MS	11846M11	CMV0001540	2321
06	9-1-88_MSD	11846D11	CMV0001541	2357

COMMENTS: CLP,V11846,,Y09148B2,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001567 Lab Sample ID: Y09158B2

Date Analyzed: 09/15/88 Time Analyzed: 2300

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2BMW5S1_1430	11846014	C2V0001569	0044

COMMENTS: CLP,V11846,,Y09158B2,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CSVO001316 BFB Injection Date: 09/01/88

Instrument ID: 4500 BFB Injection Time: 1448

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.8
75	30.0 - 60.0% of mass 95	40.2
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	61.0
175	5.0 - 9.0% of mass 174	4.3 (7.1)1
176	Greater than 95.0%, but less than 101.0% of mass 174	58.4 (95.8)1
177	5.0 - 9.0% of mass 176	3.7 (6.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	50_VOA_STND		CSVO001318	09/01/88	1717
02	100_VOA_STND		CSVO001319	09/01/88	1754
03	150_VOA_STND		CSVO001320	09/01/88	1854
04	200_VOA_STND		CSVO001321	09/01/88	2016
05	20_VOA_STND		CSVO001323	09/01/88	2138

RS

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001506 BFB Injection Date: 09/10/88

Instrument ID: 4500 BFB Injection Time: 1803

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.3
75	30.0 - 60.0% of mass 95	38.0
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.7 (0.9)1
174	Greater than 50.0% of mass 95	79.7
175	5.0 - 9.0% of mass 174	6.0 (7.5)1
176	Greater than 95.0%, but less than 101.0% of mass 174	77.4 (97.1)1
177	5.0 - 9.0% of mass 176	5.2 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSV0001507	09/13/88	1841
02	Y09138B4	Y09138B4	CBV0001509	09/13/88	2100
03	2C-SS1_1055	11846002	C2V0001513	09/14/88	0002
04	B12S2_1420	11846007	C1V0001514	09/14/88	0038
05	B12S3_1420	11846008	C1V0001515	09/14/88	0113
06	B11S1_1510	11846009	C1V0001516	09/14/88	0148
07	B11S2_1510	11846010	C1V0001517	09/14/88	0223
08	B11D2-D_1510	11846011	C1V0001518	09/14/88	0258
09	2C_SS2_0810	11846013	C1V0001520	09/14/88	0423

RS.

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CMV0001481 BFB Injection Date: 09/12/88

Instrument ID: 4500 BFB Injection Time: 1641

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.0
75	30.0 - 60.0% of mass 95	38.0
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.8 (1.1)1
174	Greater than 50.0% of mass 95	73.6
175	5.0 - 9.0% of mass 174	5.4 (7.3)1
176	Greater than 95.0%, but less than 101.0% of mass 174	71.5 (97.1)1
177	5.0 - 9.0% of mass 176	4.7 (6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSV0001482	09/12/88	1733
02	Y09128B3	Y09128B3	CBV0001485	09/12/88	2040
03	2C-SS4_0955	11846001	C1V0001492	09/13/88	0106
04	B13S1_1307	11846003	C1V0001494	09/13/88	0217
05	B13S2_1307	11846004	C1V0001495	09/13/88	0252
06	B13S3_1307	11846005	C1V0001496	09/13/88	0327
07	B12S1_1420	11846006	C1V0001497	09/13/88	0403

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID: C1VO001533 BFB Injection Date: 09/14/88

Instrument ID: 4500 BFB Injection Time: 1613

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.8
75	30.0 - 60.0% of mass 95	38.0
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.6 (0.8)1
174	Greater than 50.0% of mass 95	73.8
175	5.0 - 9.0% of mass 174	5.4 (7.3)1
176	Greater than 95.0%, but less than 101.0% of mass 174	71.2 (96.5)1
177	5.0 - 9.0% of mass 176	4.8 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSVO001534	09/14/88	1827
02	Y09148B2	Y09148B2	CBVO001535	09/14/88	1928
03	B11S3_1510	11846012	C2VO001537	09/14/88	2132
04	B11S2_1510DL	11846010DL	C2VO001539	09/14/88	2245
05	9-1-88_MS	11846M11	CMVO001540	09/14/88	2321
06	9-1-88_MSD	11846D11	CMVO001541	09/14/88	2357
07	2BMW5S2_1430	11846015	C1VO001543	09/15/88	0109
08	2BMW5S3_1430	11846016	C1VO001544	09/15/88	0146

RS

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CSV0001565 BFB Injection Date: 09/15/88

Instrument ID: 4500 BFB Injection Time: 2137

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.2
75	30.0 - 60.0% of mass 95	39.1
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.8 (1.0)1
174	Greater than 50.0% of mass 95	75.6
175	5.0 - 9.0% of mass 174	5.6 (7.4)1
176	Greater than 95.0%, but less than 101.0% of mass 174	73.4 (97.1)1
177	5.0 - 9.0% of mass 176	4.9 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	2BMW5S1_1430	11846014	C2V0001569	09/15/88	0044
02	QC_STANDARD		CSV0001566	09/15/88	2221
03	Y09158B2	Y09158B2	CBV0001567	09/15/88	2300

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration Date(s): 09/01/88 09/01/88

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min $\overline{RRF}$ for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = CSV0001323 RRF50 = CSV0001318
RRF100= CSV0001319 RRF150= CSV0001320 RRF200= CSV0001321

COMPOUND		RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane	#	0.354	0.503	0.480	0.448	0.420	0.441	13.1#
Bromomethane		0.175	0.247	0.251	0.233	0.221	0.225	13.6
Vinyl Chloride	*	0.330	0.440	0.431	0.404	0.381	0.397	11.1*
Chloroethane		0.102	0.223	0.244	0.238	0.227	0.207	28.6
Methylene Chloride		1.392	1.199	0.974	0.898	0.796	1.052	22.9
Acetone		0.550	0.456	0.421	0.332	0.289	0.410	25.2
Carbon Disulfide		1.292	1.247	0.987	0.851	0.825	1.040	21.0
1,1-Dichloroethene	*	0.335	0.319	0.271	0.238	0.234	0.279	16.5*
1,1-Dichloroethane	#	2.776	2.652	2.419	2.356	2.230	2.487	9.0#
1,2-Dichloroethene (total)		0.842	0.798	0.718	0.670	0.639	0.733	11.6
Chloroform	*	3.256	2.744	2.372	2.375	2.257	2.601	15.8*
1,2-Dichloroethane		1.754	1.564	1.390	1.392	1.300	1.480	12.2
2-Butanone		0.552	0.575	0.568	0.559	0.517	0.554	4.1
1,1,1-Trichloroethane		0.382	0.368	0.325	0.318	0.299	0.338	10.4
Carbon Tetrachloride		0.327	0.309	0.283	0.273	0.263	0.291	9.1
Vinyl Acetate		0.209	0.224	0.221	0.187	0.191	0.206	8.2
Bromodichloromethane		0.599	0.580	0.553	0.547	0.526	0.561	5.1
1,2-Dichloropropane	*	0.594	0.569	0.559	0.541	0.524	0.557	4.8*
cis-1,3-Dichloropropene		0.710	0.698	0.626	0.615	0.585	0.647	8.4
Trichloroethene		0.506	0.393	0.353	0.355	0.399	0.401	15.5
Dibromochloromethane		0.383	0.351	0.339	0.330	0.317	0.344	7.3
1,1,2-Trichloroethane		0.413	0.399	0.380	0.380	0.367	0.388	4.7
Benzene		1.360	1.265	1.137	1.082	0.989	1.167	12.6
trans-1,3-Dichloropropene		0.150	0.154	0.137	0.134	0.129	0.141	7.6
Bromoform	#	0.379	0.371	0.365	0.343	0.318	0.355	7.0#
2-Hexanone		0.729	0.782	0.759	0.808	0.767	0.769	3.8
4-Methyl-2-Pentanone		0.996	1.142	1.074	1.144	1.060	1.083	5.7
Tetrachloroethene		0.304	0.276	0.247	0.251	0.243	0.264	9.7
1,1,2,2-Tetrachloroethane	#	0.601	0.677	0.605	0.673	0.641	0.639	5.6#
Toluene	*	0.848	0.840	0.711	0.753	0.717	0.774	8.5*
Chlorobenzene	#	1.024	0.907	0.850	0.843	0.791	0.883	10.1#
Ethylbenzene	*	0.551	0.481	0.456	0.453	0.437	0.476	9.5*
Styrene		1.245	1.162	1.049	1.009	0.916	1.076	12.0
Xylenes (total)		0.691	0.646	0.596	0.585	0.546	0.613	9.2
Toluene-d8 - SS		0.539	0.605	0.543	0.586	0.588	0.572	5.2
1,4-Bromofluorobenzene - SS		0.291	0.327	0.305	0.319	0.323	0.313	4.7
1,2-Dichloroethane-d4 - SS		0.592	0.581	0.564	0.542	0.513	0.558	5.7

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/12/88 Time: 1733

Lab File ID: CSV0001482 Init. Calib. Date(s): 09/01/88 09/01/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.441	0.414	6.1	#
Bromomethane		0.225	0.277	-23.1	
Vinyl Chloride	*	0.397	0.388	2.3	*
Chloroethane		0.207	0.312	-50.7	
Methylene Chloride		1.052	1.401	-33.2	
Acetone		0.410	0.390	4.9	
Carbon Disulfide		1.040	1.159	-11.4	
1,1-Dichloroethene	*	0.279	0.312	-11.8	*
1,1-Dichloroethane	#	2.487	2.758	-10.9	#
1,2-Dichloroethene (total)		0.733	0.952	-29.9	
Chloroform	*	2.601	3.179	-22.2	*
1,2-Dichloroethane		1.480	1.748	-18.1	
2-Butanone		0.554	0.253	54.3	
1,1,1-Trichloroethane		0.338	0.343	-1.5	
Carbon Tetrachloride		0.291	0.320	-10.0	
Vinyl Acetate		0.206	0.099	51.9	
Bromodichloromethane		0.561	0.477	15.0	
1,2-Dichloropropane	*	0.557	0.511	8.3	*
cis-1,3-Dichloropropene		0.647	0.605	6.5	
Trichloroethene		0.401	0.406	-1.2	
Dibromochloromethane		0.344	0.304	11.6	
1,1,2-Trichloroethane		0.388	0.322	17.0	
Benzene		1.167	1.249	-7.0	
trans-1,3-Dichloropropene		0.141	0.122	13.5	
Bromoform	#	0.355	0.306	13.8	#
2-Hexanone		0.769	0.387	49.7	
4-Methyl-2-Pentanone		1.083	0.642	40.7	
Tetrachloroethene		0.264	0.355	-34.5	
1,1,2,2-Tetrachloroethane	#	0.639	0.566	11.4	#
Toluene	*	0.774	0.910	-17.6	*
Chlorobenzene	#	0.883	1.016	-15.1	#
Ethylbenzene	*	0.476	0.553	-16.2	*
Styrene		1.076	1.230	-14.3	
Xylenes (total)		0.613	0.720	-17.5	
Toluene-d8 - SS		0.572	0.572	0.0	
1,4-Bromofluorobenzene - SS		0.313	0.296	5.4	
1,2-Dichloroethane-d4 - SS		0.558	0.578	-3.6	

RS

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/13/88 Time: 1841

Lab File ID: CSV0001507 Init. Calib. Date(s): 09/01/88 09/01/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.441	0.372	15.7	#
Bromomethane		0.225	0.220	2.2	
Vinyl Chloride	*	0.397	0.340	14.4	*
Chloroethane		0.207	0.251	-21.3	
Methylene Chloride		1.052	0.828	21.3	
Acetone		0.410	0.214	47.8	
Carbon Disulfide		1.040	0.991	4.7	
1,1-Dichloroethene	*	0.279	0.293	-5.0	*
1,1-Dichloroethane	#	2.487	2.399	3.5	#
1,2-Dichloroethene (total)		0.733	0.837	-14.2	
Chloroform	*	2.601	2.820	-8.4	*
1,2-Dichloroethane		1.480	1.633	-10.3	
2-Butanone		0.554	0.219	60.5	
1,1,1-Trichloroethane		0.338	0.330	2.4	
Carbon Tetrachloride		0.291	0.296	-1.7	
Vinyl Acetate		0.206	1.061	-99.9	
Bromodichloromethane		0.561	0.451	19.6	
1,2-Dichloropropane	*	0.557	0.481	13.6	*
cis-1,3-Dichloropropene		0.647	0.579	10.5	
Trichloroethene		0.401	0.376	6.2	
Dibromochloromethane		0.344	0.294	14.5	
1,1,2-Trichloroethane		0.388	0.310	20.1	
Benzene		1.167	1.167	0.0	
trans-1,3-Dichloropropene		0.141	0.102	27.7	
Bromoform	#	0.355	0.292	17.8	#
2-Hexanone		0.769	0.388	49.5	
4-Methyl-2-Pentanone		1.083	0.596	45.0	
Tetrachloroethene		0.264	0.330	-25.0	
1,1,2,2-Tetrachloroethane	#	0.639	0.516	19.3	#
Toluene	*	0.774	0.813	-5.0	*
Chlorobenzene	#	0.883	0.983	-11.3	#
Ethylbenzene	*	0.476	0.525	-10.3	*
Styrene		1.076	1.182	-9.9	
Xylenes (total)		0.613	0.673	-9.8	
Toluene-d8 - SS		0.572	0.556	2.8	
1,4-Bromofluorobenzene - SS		0.313	0.277	11.5	
1,2-Dichloroethane-d4 - SS		0.558	0.575	-3.0	

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/14/88 Time: 1827

Lab File ID: CSV0001534 Init. Calib. Date(s): 09/01/88 09/01/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.441	0.604	-37.0	#
Bromomethane		0.225	0.312	-38.7	
Vinyl Chloride	*	0.397	0.493	-24.2	*
Chloroethane		0.207	0.316	-52.7	
Methylene Chloride		1.052	0.838	20.3	
Acetone		0.410	0.211	48.5	
Carbon Disulfide		1.040	0.994	4.4	
1,1-Dichloroethene	*	0.279	0.292	-4.7	*
1,1-Dichloroethane	#	2.487	2.518	-1.2	#
1,2-Dichloroethene (total)		0.733	0.837	-14.2	
Chloroform	*	2.601	2.950	-13.4	*
1,2-Dichloroethane		1.480	1.574	-6.4	
2-Butanone		0.554	0.297	46.4	
1,1,1-Trichloroethane		0.338	0.359	-6.2	
Carbon Tetrachloride		0.291	0.320	-10.0	
Vinyl Acetate		0.206	0.083	59.7	
Bromodichloromethane		0.561	0.544	3.0	
1,2-Dichloropropane	*	0.557	0.500	10.2	*
cis-1,3-Dichloropropene		0.647	0.658	-1.7	
Trichloroethene		0.401	0.388	3.2	
Dibromochloromethane		0.344	0.362	-5.2	
1,1,2-Trichloroethane		0.388	0.386	0.5	
Benzene		1.167	1.310	-12.3	
trans-1,3-Dichloropropene		0.141	0.131	7.1	
Bromoform	#	0.355	0.343	3.4	#
2-Hexanone		0.769	0.452	41.2	
4-Methyl-2-Pentanone		1.083	0.674	37.8	
Tetrachloroethene		0.264	0.359	-36.0	
1,1,2,2-Tetrachloroethane	#	0.639	0.597	6.6	#
Toluene	*	0.774	0.877	-13.3	*
Chlorobenzene	#	0.883	1.065	-20.6	#
Ethylbenzene	*	0.476	0.558	-17.2	*
Styrene		1.076	1.203	-11.8	
Xylenes (total)		0.613	0.679	-10.8	
Toluene-d8 - SS		0.572	0.561	1.9	
1,4-Bromofluorobenzene - SS		0.313	0.275	12.1	
1,2-Dichloroethane-d4 - SS		0.558	0.529	5.2	

RS

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/15/88 Time: 2221

Lab File ID: CSV0001566 Init. Calib. Date(s): 09/01/88 09/01/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.441	0.490	-11.1	#
Bromomethane		0.225	0.255	-13.3	
Vinyl Chloride	*	0.397	0.425	-7.1	*
Chloroethane		0.207	0.276	-33.3	
Methylene Chloride		1.052	0.756	28.1	
Acetone		0.410	0.246	40.0	
Carbon Disulfide		1.040	1.066	-2.5	
1,1-Dichloroethene	*	0.279	0.337	-20.8	*
1,1-Dichloroethane	#	2.487	2.700	-8.6	#
1,2-Dichloroethene (total)		0.733	0.881	-20.2	
Chloroform	*	2.601	3.178	-22.2	*
1,2-Dichloroethane		1.480	1.869	-26.3	
2-Butanone		0.554	0.327	41.0	
1,1,1-Trichloroethane		0.338	0.346	-2.4	
Carbon Tetrachloride		0.291	0.324	-11.3	
Vinyl Acetate		0.206	1.141	-99.9	
Bromodichloromethane		0.561	0.542	3.4	
1,2-Dichloropropane	*	0.557	0.540	3.1	*
cis-1,3-Dichloropropene		0.647	0.614	5.1	
Trichloroethene		0.401	0.421	-5.0	
Dibromochloromethane		0.344	0.331	3.8	
1,1,2-Trichloroethane		0.388	0.355	8.5	
Benzene		1.167	1.294	-10.9	
trans-1,3-Dichloropropene		0.141	0.122	13.5	
Bromoform	#	0.355	0.339	4.5	#
2-Hexanone		0.769	0.574	25.4	
4-Methyl-2-Pentanone		1.083	0.835	22.9	
Tetrachloroethene		0.264	0.356	-34.9	
1,1,2,2-Tetrachloroethane	#	0.639	0.654	-2.3	#
Toluene	*	0.774	0.897	-15.9	*
Chlorobenzene	#	0.883	1.086	-23.0	#
Ethylbenzene	*	0.476	0.576	-21.0	*
Styrene		1.076	1.295	-20.4	
Xylenes (total)		0.613	0.733	-19.6	
Toluene-d8 - SS		0.572	0.558	2.4	
1,4-Bromofluorobenzene - SS		0.313	0.279	10.9	
1,2-Dichloroethane-d4 - SS		0.558	0.597	-7.0	

RS

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001482 Date Analyzed: 09/12/88

Instrument ID: 4500 Time Analyzed: 1733

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	44500	13.49	257000	15.92	238000	22.09
	UPPER LIMIT	89000		514000		476000	
	LOWER LIMIT	22250		128500		119000	
	EPA SAMPLE NO.						
01	2C-SS4_0955	42600	13.40	254000	15.85	223000	22.07
02	B12S1_1420	40700	13.45	240000	15.90	213000	22.09
03	B13S1_1307	32700	13.45	185000	15.89	170000	22.09
04	B13S2_1307	43200	13.47	250000	15.90	231000	22.09
05	B13S3_1307	46300	13.47	255000	15.90	239000	22.09
06	Y09128B3	40700	13.45	236000	15.89	222000	22.09

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

RS.

8A
VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSVO001507 Date Analyzed: 09/13/88

Instrument ID: 4500 Time Analyzed: 1841

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	46500	13.47	255000	15.89	231000	22.07
	UPPER LIMIT	93000		510000		462000	
	LOWER LIMIT	23250		127500		115500	
	EPA SAMPLE NO.						
01	2C-SS1_1055	34500	13.44	173000	15.89	134000	22.09
02	2C_SS2_0810	45100	13.44	210000	15.87	188000	22.09
03	B11D2-D_1510	33800	13.44	159000	15.87	134000	22.07
04	B11S1_1510	32300	13.45	154000	15.89	128000	22.07
05	B11S2_1510	31400	13.44	154000	15.89	126000	22.09
06	B12S2_1420	36700	13.44	180000	15.89	155000	22.09
07	B12S3_1420	39600	13.44	202000	15.89	179000	22.07
08	Y09138B4	42600	13.47	232000	15.90	211000	22.10

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSVO001534 Date Analyzed: 09/14/88

Instrument ID: 4500 Time Analyzed: 1827

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	47100	13.42	234000	15.82	231000	22.10
	UPPER LIMIT	94200		468000		462000	
	LOWER LIMIT	23550		117000		115500	
	EPA SAMPLE NO.						
01	2BMW5S2_1430	42900	13.39	220000	15.84	192000	22.09
02	2BMW5S3_1430	44000	13.40	238000	15.87	201000	22.09
03	B11S2_1510DL	46500	13.39	249000	15.85	219000	22.07
04	B11S3_1510	37500	13.42	192000	15.87	154000	22.09
05	B11S3_1510DL	42300	13.39	228000	15.85	198000	22.07
06	9-1-88_MS	42200	13.39	222000	15.85	189000	22.05
07	9-1-88_MSD	40600	13.40	221000	15.87	191000	22.07
08	Y09148B2	34800	13.44	172000	15.87	162000	22.09

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001566 Date Analyzed: 09/15/88

Instrument ID: 4500 Time Analyzed: 2221

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	45300	13.44	252000	15.89	226000	22.10
	UPPER LIMIT	90600		504000		452000	
	LOWER LIMIT	22650		126000		113000	
	EPA SAMPLE NO.						
01	2BMW5S1_1430	39300	13.40	218000	15.87	194000	22.10
02	Y09158B2	42300	13.42	231000	15.87	206000	22.09

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

RS

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B12S3_2B1420

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846008

Sample wt/vol: _____ (g/mL) G Lab File ID: B1BA001139

Level: (low/med) LOW Date Received: 09/02/88

% Moisture: not dec. 18 dec. _____ Date Extracted: 09/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/08/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)Ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
100-51-6	Benzyl Alcohol	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	bis(2-Chloroisopropyl)Ether	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-Di-n-Propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
65-85-0	Benzoic Acid	2000	U
111-91-1	bis(2-Chloroethoxy)Methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethyl Phthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B12S3_2B1420

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11846008

Sample wt/vol: _____ (g/mL) G Lab File ID: B1BA001139

Level: (low/med) LOW Date Received: 09/02/88

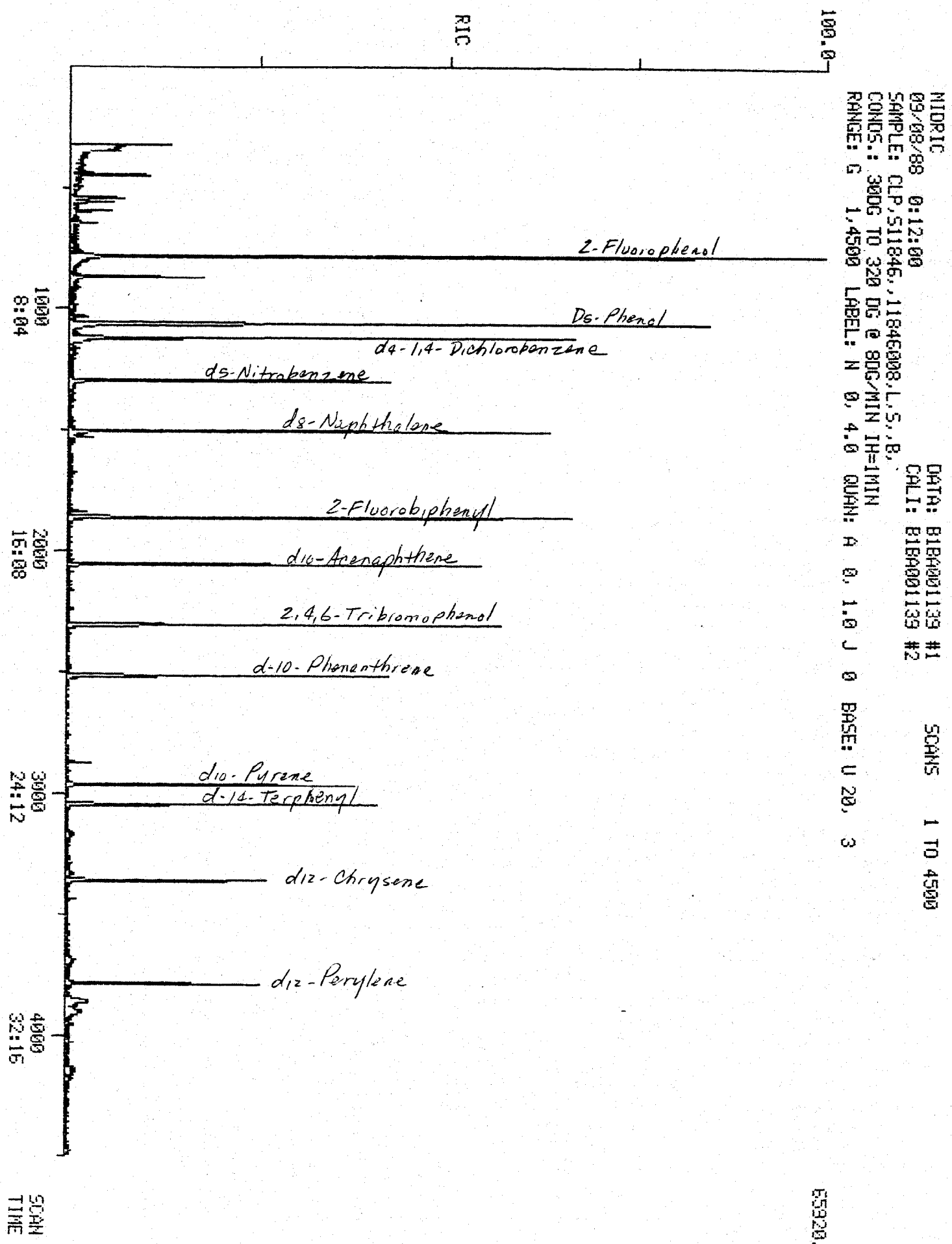
% Moisture: not dec. 18 dec. _____ Date Extracted: 09/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/08/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	2000	U
83-32-9	Acenaphthene	400	U
51-28-5	2,4-Dinitrophenol	2000	U
100-02-7	4-Nitrophenol	2000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-01-6	4-Nitroaniline	2000	U
534-52-1	4,6-Dinitro-2-methylphenol	2000	U
86-30-6	N-Nitrosodiphenylamine (1)	400	U
122-66-7	1,2-Diphenylhydrazine	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	2000	U
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
84-74-2	Di-n-Butylphthalate	400	U
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	810	U
56-55-3	Benzo(a)anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)Phthalate	400	U
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene	400	U
207-08-9	Benzo(k)fluoranthene	400	U
50-32-8	Benzo(a)pyrene	400	U
193-39-5	Indeno(1,2,3-cd)Pyrene	400	U
53-70-3	Dibenz(a,h)Anthracene	400	U
191-24-2	Benzo(g,h,i)perylene	400	U

(1) - Cannot be separated from Diphenylamine


MIDRIC
09/08/88 0:12:00
SAMPLE: CLP,511846,,11846008.L,S,,B,
CONDS.: 30DG TO 320 DG @ 8DG/MIN IH=1MIN
RANGE: G 1,4500 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3
DATA: B1BA001139 #1
CALI: B1BA001139 #2
SCANS 1 TO 4500
RIC
100.0
65320.
2-Fluorophenol
D5-Phenol
d4-1,4-Dichlorobenzene
d5-Nitrobenzene
d8-Naphthalene
2-Fluorobiphenyl
d10-Acenaphthene
2,4,6-Tribromophenol
d-10-Phenanthrene
d10-Pyrene
d-14-Terphenyl
d12-Chrysene
d12-Perylene
1000
8:04
2000
16:08
3000
24:12
4000
32:16
SCAN
TIME

000119

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

QC_BLANK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: S09068B1

Sample wt/vol: _____ (g/mL) G Lab File ID: BBBA001132

Level: (low/med) LOW Date Received: 09/06/88

% Moisture: not dec. 0 dec. _____ Date Extracted: 09/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/07/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	bis(2-Chloroisopropyl)Ether	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	1600	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethyl Phthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

QC_BLANK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11846 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: S09068B1

Sample wt/vol: _____ (g/mL) G Lab File ID: BBBA001132

Level: (low/med) LOW Date Received: 09/06/88

% Moisture: not dec. 0 dec. _____ Date Extracted: 09/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/07/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
122-66-7	1,2-Diphenylhydrazine	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	660	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U
117-84-0	Di-n-octylphthalate	330	U
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

(1) - Cannot be separated from Diphenylamine

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11846 SAS No.: _____ SDG No.: GC-MS

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	OTHER	TOT OUT
01	B12S3_2B1420	101	104	108	92	94	103		0
02	METHOD_SPIKE	103	106	119	106	94	120		0
03	M_SPIKE_008	80	90	106	78	68	112		0
04	M_SPIKE_D008	92	97	115	92	78	117		0
05	QC_BLANK	105	112	116	88	97	109		0

		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(23-120)
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)
S3 (TPH)	= Terphenyl	(18-137)
S4 (PHL)	= Phenol-d5	(24-113)
S5 (2FP)	= 2-Fluorophenol	(25-121)
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)

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

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11846 SAS No.: _____ SDG No.: GC-MS

Matrix Spike - EPA Sample No.: B12S3_2B1420 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
Phenol	244	0	183	75	26- 90
2-Chlorophenol	244	0	173	71	25-102
1,4-Dichlorobenzene	122	0	81.2	67	28 104
N-Nitroso-di-n-prop.(1)	122	0	96.7	79	41 126
1,2,4-Trichlorobenzene	122	0	93.0	76	38 107
4-Chloro-3-methylphenol	244	0	228	93	26 103
Acenaphthene	122	0	110	90	31-137
4-Nitrophenol	244	0	277	114	11-114
2,4-Dinitrotoluene	122	0	126	103 *	28- 89
Pentachlorophenol	244	0	239	98	17-109
Pyrene	122	0	149	122	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	244	206	84	-11	35	26- 90
2-Chlorophenol	244	199	82	-14	50	25-102
1,4-Dichlorobenzene	122	94.0	77	-14	27	28 104
N-Nitroso-di-n-prop.(1)	122	109	89	-12	38	41 126
1,2,4-Trichlorobenzene	122	109	89	-16	23	38 107
4-Chloro-3-methylphenol	244	261	107 *	-14	33	26 103
Acenaphthene	122	118	97	-7	19	31-137
4-Nitrophenol	244	268	110	4	50	11-114
2,4-Dinitrotoluene	122	128	105 *	-2	47	28- 89
Pentachlorophenol	244	246	101	-3	47	17-109
Pyrene	122	155	127	-4	36	35-142

(1) N-Nitroso-di-n-propylamine

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

RPD: 0 out of 11 outside limits
Spike Recovery: 3 out of 22 outside limits

COMMENTS: CLP,S11846,,11846008,L,S,,B,
30DG TO 320 DG @ 8DG/MIN IH=1MIN

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID: BBBA001132 Lab Sample ID: S09068B1

Date Extracted: 09/06/88 Extraction:(SepF/Cont/Sonc) SONC

Date Analyzed: 09/07/88 Time Analyzed: 1842

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 5100

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	B12S3_2B1420	11846008	B1BA001139	09/08/88
02	METHOD_SPIKE	BMBA001133	BMBA001133	09/07/88
03	M_SPIKE_008	118460M8	BMBA001135	09/07/88
04	M_SPIKE_D008	118460D8	BMBA001136	09/07/88

COMMENTS: CLP,S11805,,S09068B1,L,S,,S,
30DG TO 320 DG @ 8DG/MIN IH=1MIN

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID: B1DF001104 DFTPP Injection Date: 09/06/88

Instrument ID: 5100 DFTPP Injection Time: 1127

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	39.2
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	57.1
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	51.6
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	17.8
365	Greater than 1.00% of mass 198	3.00
441	Present, but less than mass 443	10.7
442	Greater than 40.0% of mass 198	64.2
443	17.0 - 23.0% of mass 442	12.9 (20.1)2

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

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	20_BNA_STND		BSBA001105	09/06/88	1144
02	50_BNA_STND		BSBA001106	09/06/88	1232
03	80_BNA_STND		BSBA001107	09/06/88	1319
04	120_BNA_STND		BSBA001108	09/06/88	1407
05	160_BNA_STND		BSBA001109	09/06/88	1454

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID: B1DF001123 DFTPP Injection Date: 09/07/88

Instrument ID: 5100 DFTPP Injection Time: 1143

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	37.6
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	56.2
70	Less than 2.0% of mass 69	0.9 (1.6)1
127	40.0 - 60.0% of mass 198	55.1
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.3
275	10.0 - 30.0% of mass 198	23.0
365	Greater than 1.00% of mass 198	3.21
441	Present, but less than mass 443	10.0
442	Greater than 40.0% of mass 198	62.7
443	17.0 - 23.0% of mass 442	11.3 (18.0)2

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

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		BSBA001124	09/07/88	1204
02	QC_BLANK	S09068B1	BBBA001132	09/07/88	1842
03	METHOD_SPIKE	BMBA001133	BMBA001133	09/07/88	1929
04	M_SPIKE_008	118460M8	BMBA001135	09/07/88	2103
05	M_SPIKE_D008	118460D8	BMBA001136	09/07/88	2150
06	B12S3_2B1420	11846008	B1BA001139	09/08/88	0012

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11846 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 5100 Calibration Date(s): 09/06/88 09/06/88

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = BSBA001105 RRF50 = BSBA001106
RRF80 = BSBA001107 RRF120= BSBA001108 RRF160= BSBA001109

COMPOUND		RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Phenol	*	1.853	1.843	1.911	2.053	2.007	1.933	4.8*
bis(2-Chloroethyl)Ether		1.454	1.499	1.583	1.747	1.738	1.604	8.4
2-Chlorophenol		1.451	1.288	1.330	1.471	1.526	1.413	7.1
1,3-Dichlorobenzene		1.322	1.254	1.263	1.388	1.493	1.344	7.4
1,4-Dichlorobenzene	*	1.382	1.361	1.301	1.458	1.510	1.402	5.9*
Benzyl Alcohol		0.814	0.820	0.780	0.880	0.640	0.787	11.4
1,2-Dichlorobenzene		1.377	1.302	1.272	1.384	1.437	1.354	4.9
2-Methylphenol		1.114	1.153	1.123	1.248	1.297	1.187	6.8
bis(2-Chloroisopropyl)Ether		0.490	0.615	0.649	2.773	2.892	1.484	83.1
4-Methylphenol		1.158	1.193	1.177	1.302	1.325	1.231	6.2
N-Nitroso-Di-n-Propylamine	#	1.269	1.230	1.171	0.495	1.182	1.069	30.3#
Hexachloroethane		0.710	0.720	0.665	0.722	0.744	0.712	4.1
Nitrobenzene		0.479	0.523	0.480	0.496	0.481	0.492	3.8
Isophorone		0.894	0.891	0.605	0.144	0.638	0.634	48.3
2-Nitrophenol	*	0.193	0.201	0.184	0.195	0.191	0.193	3.2*
2,4-Dimethylphenol		0.404	0.408	0.383	0.409	0.382	0.397	3.4
Benzoic Acid			0.235	0.223	0.264	0.251	0.243	7.4
bis(2-Chloroethoxy)Methane		0.511	0.527	0.520	0.541	0.520	0.524	2.1
2,4-Dichlorophenol	*	0.287	0.279	0.261	0.281	0.271	0.276	3.6*
1,2,4-Trichlorobenzene		0.300	0.289	0.281	0.296	0.295	0.292	2.5
Naphthalene		0.952	0.956	0.980	1.019	1.010	0.983	3.1
4-Chloroaniline		0.252	0.216	0.351	0.402	0.387	0.322	25.8
Hexachlorobutadiene	*	0.168	0.163	0.160	0.173	0.164	0.166	3.0*
4-Chloro-3-methylphenol	*	0.347	0.362	0.329	0.346	0.324	0.342	4.5*
2-Methylnaphthalene		0.520	0.527	0.500	0.511	0.513	0.514	2.0
Hexachlorocyclopentadiene	#	0.275	0.296	0.303	0.344	0.303	0.304	8.2#
2,4,6-Trichlorophenol	*	0.382	0.385	0.378	0.451	0.394	0.398	7.6*
2,4,5-Trichlorophenol			0.361	0.350	0.326	0.324	0.340	5.4
2-Chloronaphthalene		1.217	1.198	1.208	1.255	1.168	1.209	2.6
2-Nitroaniline			0.450	0.478	0.465	0.444	0.459	3.3
Dimethyl Phthalate		1.375	1.361	1.302	1.109	1.260	1.281	8.3
Acenaphthylene		1.816	1.800	1.742	1.812	1.659	1.766	3.8
2,6-Dinitrotoluene		0.319	0.299	0.298	0.231	0.268	0.283	12.1
3-Nitroaniline			0.104	0.240	0.288	0.087	0.180	55.3
Acenaphthene	*	1.248	1.213	1.195	1.258	1.222	1.227	2.1*
2,4-Dinitrophenol	#		0.104	0.110	0.123	0.132	0.117	10.8#
4-Nitrophenol	#		0.138	0.139	0.141	0.165	0.146	8.8#

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11846 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 5100 Calibration Date(s): 09/06/88 09/06/88

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = BSBA001105 RRF50 = BSBA001106
RRF80 = BSBA001107 RRF120= BSBA001108 RRF160= BSBA001109

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Dibenzofuran	1.596	1.535	1.538	1.554	1.454	1.535	3.4
2,4-Dinitrotoluene	0.384	0.345	0.326	0.327	0.349	0.346	6.8
Diethylphthalate	1.600	1.474	1.415	1.391	1.465	1.469	5.5
4-Chlorophenyl-phenylether	0.569	0.532	0.546	0.567	0.557	0.554	2.8
Fluorene	1.189	1.178	1.113	1.074	1.090	1.129	4.6
4-Nitroaniline		0.037	0.041	0.050	0.087	0.054	42.3
4,6-Dinitro-2-methylphenol		0.116	0.104	0.116	0.125	0.115	7.5
N-Nitrosodiphenylamine (1) *	0.494	0.523	0.519	0.426	0.566	0.506	10.2*
1,2-Diphenylhydrazine	1.315	1.564	1.669	1.712	0.742	1.400	28.5
4-Bromophenyl-phenylether	0.239	0.249	0.247	0.233	0.235	0.241	3.0
Hexachlorobenzene	0.285	0.276	0.271	0.264	0.271	0.273	2.8
Pentachlorophenol *		0.134	0.117	0.133	0.140	0.131	7.5*
Phenanthrene	0.977	0.957	0.970	1.043	1.073	1.004	5.1
Anthracene	0.923	0.969	0.973	0.975	0.985	0.965	2.5
Di-n-Butylphthalate	1.422	1.398	1.430	1.515	1.563	1.466	4.8
Fluoranthene *	0.759	0.745	0.829	0.906	0.946	0.837	10.6*
Pyrene	1.597	1.493	1.414	1.315	1.367	1.437	7.7
Butylbenzylphthalate	0.949	0.920	0.930	0.869	0.825	0.899	5.6
3,3'-Dichlorobenzidine	0.159	0.124	0.141	0.176	0.113	0.143	17.9
Benzo(a)anthracene	1.055	1.075	1.069	1.073	0.986	1.052	3.6
Chrysene	0.976	0.941	0.933	0.745	0.842	0.887	10.6
bis(2-Ethylhexyl)Phthalate	1.394	1.342	1.382	1.312	1.254	1.337	4.2
Di-n-octylphthalate *	2.752	2.523	2.567	2.271	2.240	2.471	8.7*
Benzo(b)fluoranthene	1.069	1.068	1.188	1.115	0.992	1.086	6.6
Benzo(k)fluoranthene	0.995	0.942	0.971	0.900	0.997	0.961	4.2
Benzo(a)pyrene *	0.860	0.913	0.953	0.888	0.970	0.917	4.9*
Indeno(1,2,3-cd)Pyrene	0.636	0.727	0.864	0.865	0.963	0.811	15.9
Dibenz(a,h)Anthracene	0.547	0.652	0.792	0.743	0.806	0.708	15.3
Benzo(g,h,i)perylene	0.760	0.784	0.893	0.837	0.934	0.842	8.6
Nitrobenzene-d5 - SS	0.224	0.232	0.223	0.224	0.224	0.225	1.7
2-Fluorobiphenyl - SS	0.604	0.589	0.580	0.583	0.554	0.582	3.1
Terphenyl-d14 - SS	0.533	0.536	0.491	0.462	0.468	0.498	7.0
Phenol-d5 - SS	1.525	1.489	1.397	1.882	1.531	1.565	11.8
2-Fluorophenol - SS	1.262	1.235	1.127	1.203	1.264	1.218	4.7
2,4,6-Tribromophenol - SS	0.174	0.159	0.162	0.153	0.183	0.166	7.3

(1) Cannot be separated from Diphenylamine

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11846 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 5100 Calibration date: 09/07/88 Time: 1204

Lab File ID: BSBA001124 Init. Calib. Date(s): 09/06/88 09/06/88

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Phenol	*	1.933	1.956	-1.2	*
bis(2-Chloroethyl)Ether		1.604	1.635	-1.9	
2-Chlorophenol		1.413	1.444	-2.2	
1,3-Dichlorobenzene		1.344	1.451	-8.0	
1,4-Dichlorobenzene	*	1.402	1.564	-11.6	*
Benzyl Alcohol		0.787	0.854	-8.5	
1,2-Dichlorobenzene		1.354	1.432	-5.8	
2-Methylphenol		1.187	1.188	-0.1	
bis(2-Chloroisopropyl)Ether		1.484	0.471	68.3	
4-Methylphenol		1.231	1.226	0.4	
N-Nitroso-Di-n-Propylamine	#	1.069	1.192	-11.5	#
Hexachloroethane		0.712	0.728	-2.2	
Nitrobenzene		0.492	0.456	7.3	
Isophorone		0.634	0.785	-23.8	
2-Nitrophenol	*	0.193	0.191	1.0	*
2,4-Dimethylphenol		0.397	0.375	5.5	
Benzoic Acid		0.243	0.236	2.9	
bis(2-Chloroethoxy)Methane		0.524	0.488	6.9	
2,4-Dichlorophenol	*	0.276	0.273	1.1	*
1,2,4-Trichlorobenzene		0.292	0.289	1.0	
Naphthalene		0.983	0.964	1.9	
4-Chloroaniline		0.322	0.285	11.5	
Hexachlorobutadiene	*	0.166	0.172	-3.6	*
4-Chloro-3-methylphenol	*	0.342	0.330	3.5	*
2-Methylnaphthalene		0.514	0.533	-3.7	
Hexachlorocyclopentadiene	#	0.304	0.286	5.9	#
2,4,6-Trichlorophenol	*	0.398	0.400	-0.5	*
2,4,5-Trichlorophenol		0.340	0.377	-10.9	
2-Chloronaphthalene		1.209	1.210	-0.1	
2-Nitroaniline		0.459	0.350	23.8	
Dimethyl Phthalate		1.281	1.365	-6.6	
Acenaphthylene		1.766	1.690	4.3	
2,6-Dinitrotoluene		0.283	0.284	-0.4	
3-Nitroaniline		0.180	0.187	-3.9	
Acenaphthene	*	1.227	1.211	1.3	*
2,4-Dinitrophenol	#	0.117	0.121	-3.4	#
4-Nitrophenol	#	0.146	0.130	11.0	#

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): BSBA001124 Date Analyzed: 09/07/88

Instrument ID: 5100 Time Analyzed: 1204

		IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
	12 HOUR STD	16600	9.12	60300	12.20	26200	16.64
	UPPER LIMIT	33200		120600		52400	
	LOWER LIMIT	8300		30150		13100	
	EPA SAMPLE NO.						
01	B12S3_2B1420	19800	9.09	68500	12.17	31400	16.62
02	METHOD_SPIKE	18800	9.10	65500	12.19	29200	16.64
03	M_SPIKE_008	18700	9.10	62900	12.19	27400	16.64
04	M_SPIKE_D008	19500	9.10	64400	12.19	29200	16.62
05	QC_BLANK	18800	9.10	62100	12.19	27100	16.64

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

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: S11846 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): BSBA001124 Date Analyzed: 09/07/88

Instrument ID: 5100 Time Analyzed: 1204

		IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
	12 HOUR STD	33700	20.34	21500	27.16	20000	30.57
	UPPER LIMIT	67400		43000		40000	
	LOWER LIMIT	16850		10750		10000	
	EPA SAMPLE NO.						
01	B12S3_2B1420	41100	20.32	22900	27.12	22000	30.56
02	METHOD_SPIKE	40300	20.34	21500	27.14	18300	30.57
03	M_SPIKE_008	36600	20.34	19600	27.14	18300	30.57
04	M_SPIKE_D008	36700	20.34	18200	27.14	18900	30.56
05	QC_BLANK	33200	20.34	19700	27.14	18300	30.56

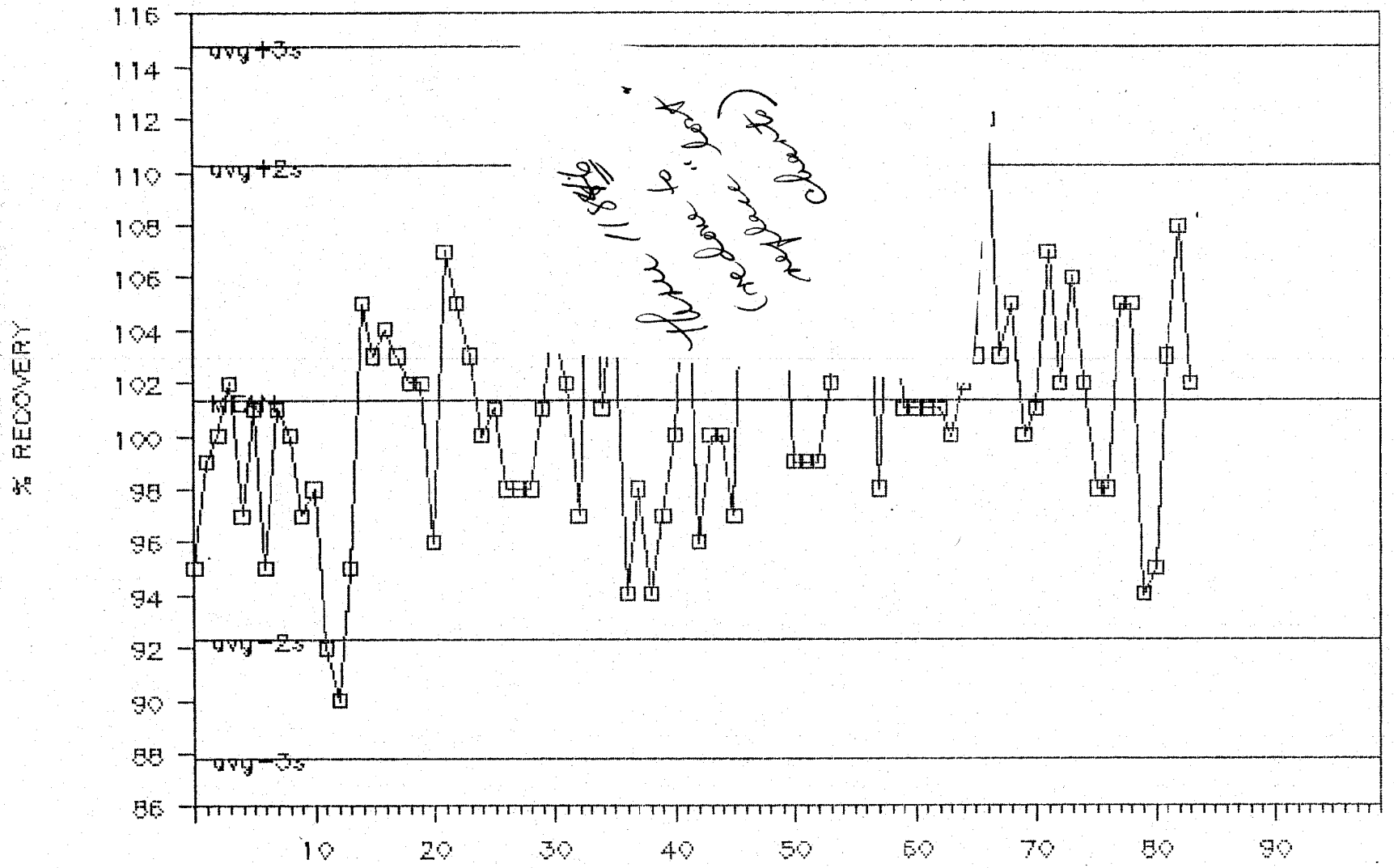
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

SURROGATE RECOVERY

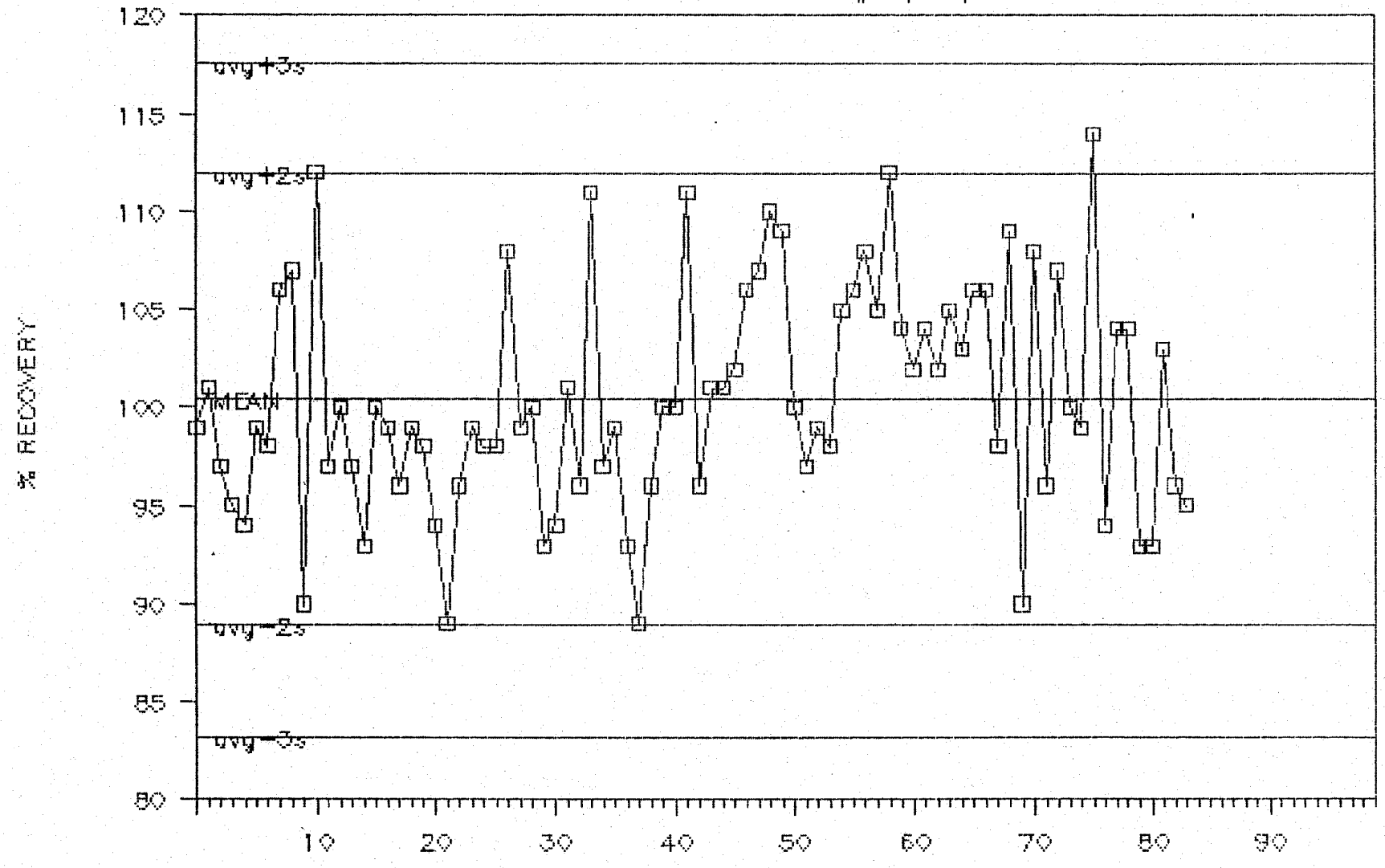
VOLATILES - SOIL - SURR.#1 (TOL)



000132 R.S. 10-11

SURROGATE RECOVERY

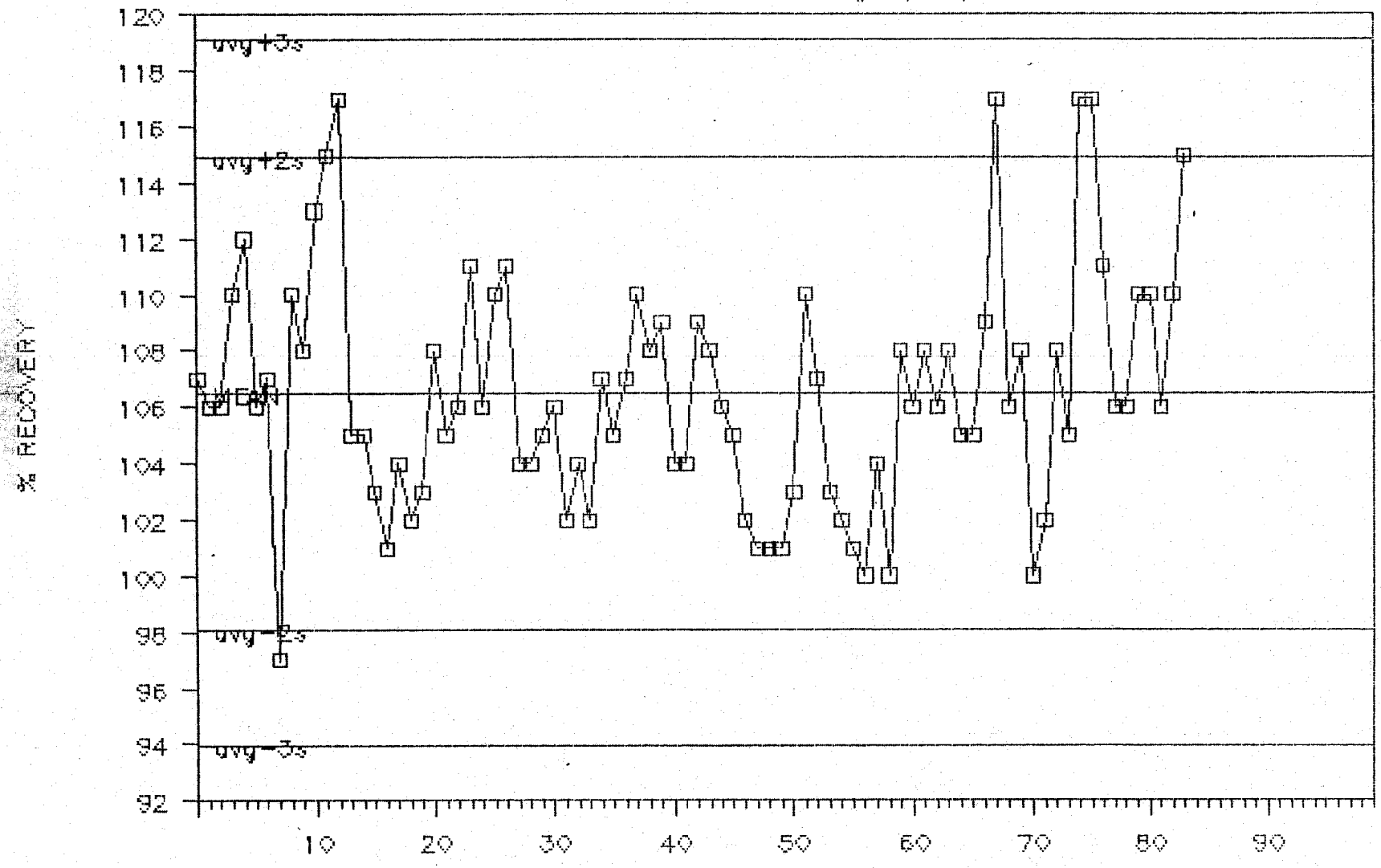
VOLATILES - SOIL - SURR.#2 (BFB)



000133

SURROGATE RECOVERY

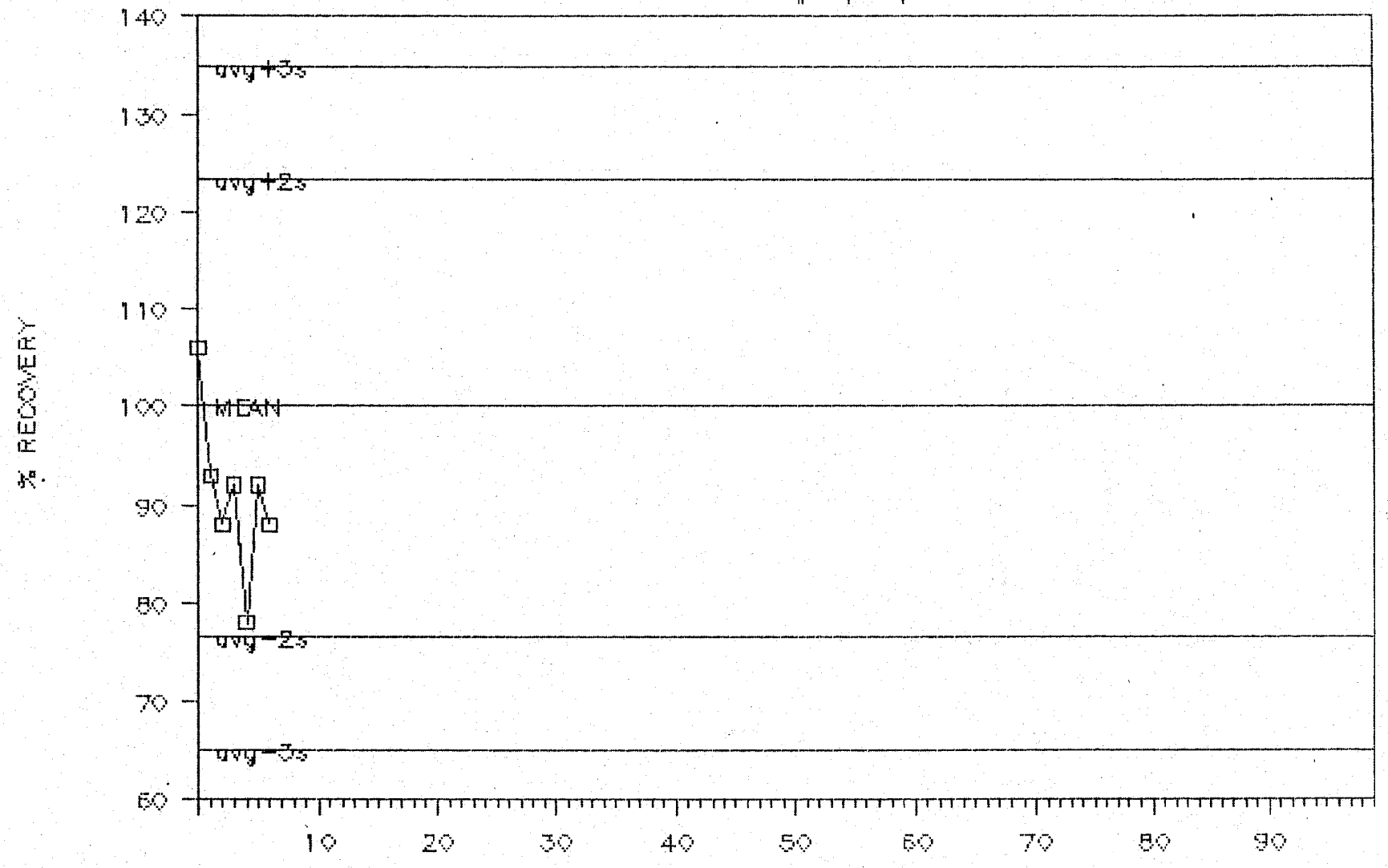
VOLATILES - SOIL - SURR.#3 (DCE)



000134 R.S. 10-11

SURROGATE RECOVERY (11846)

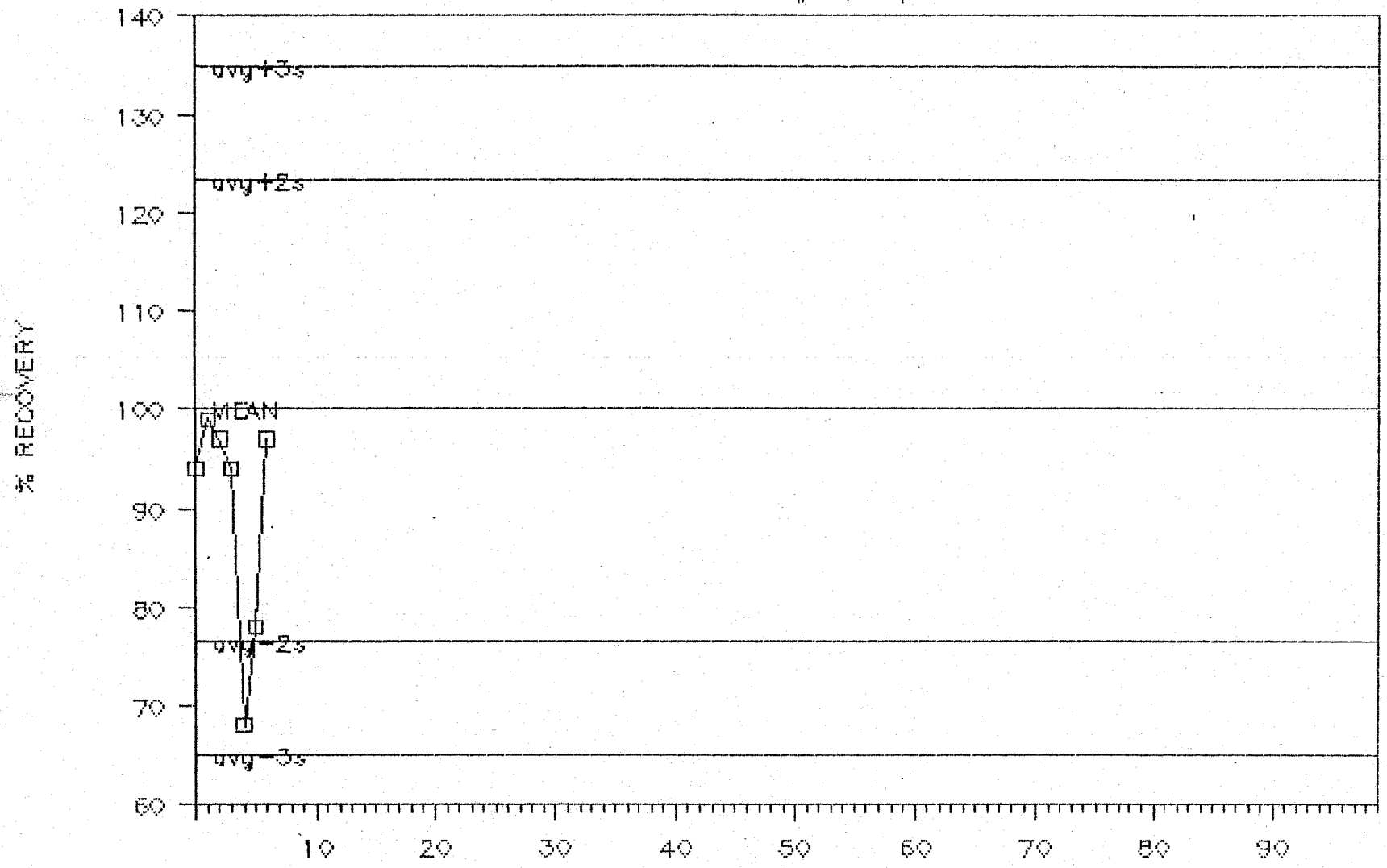
ACID EXTRACTABLES SURR #1 (PHL) - SOILS



000135

SURROGATE RECOVERY (11846)

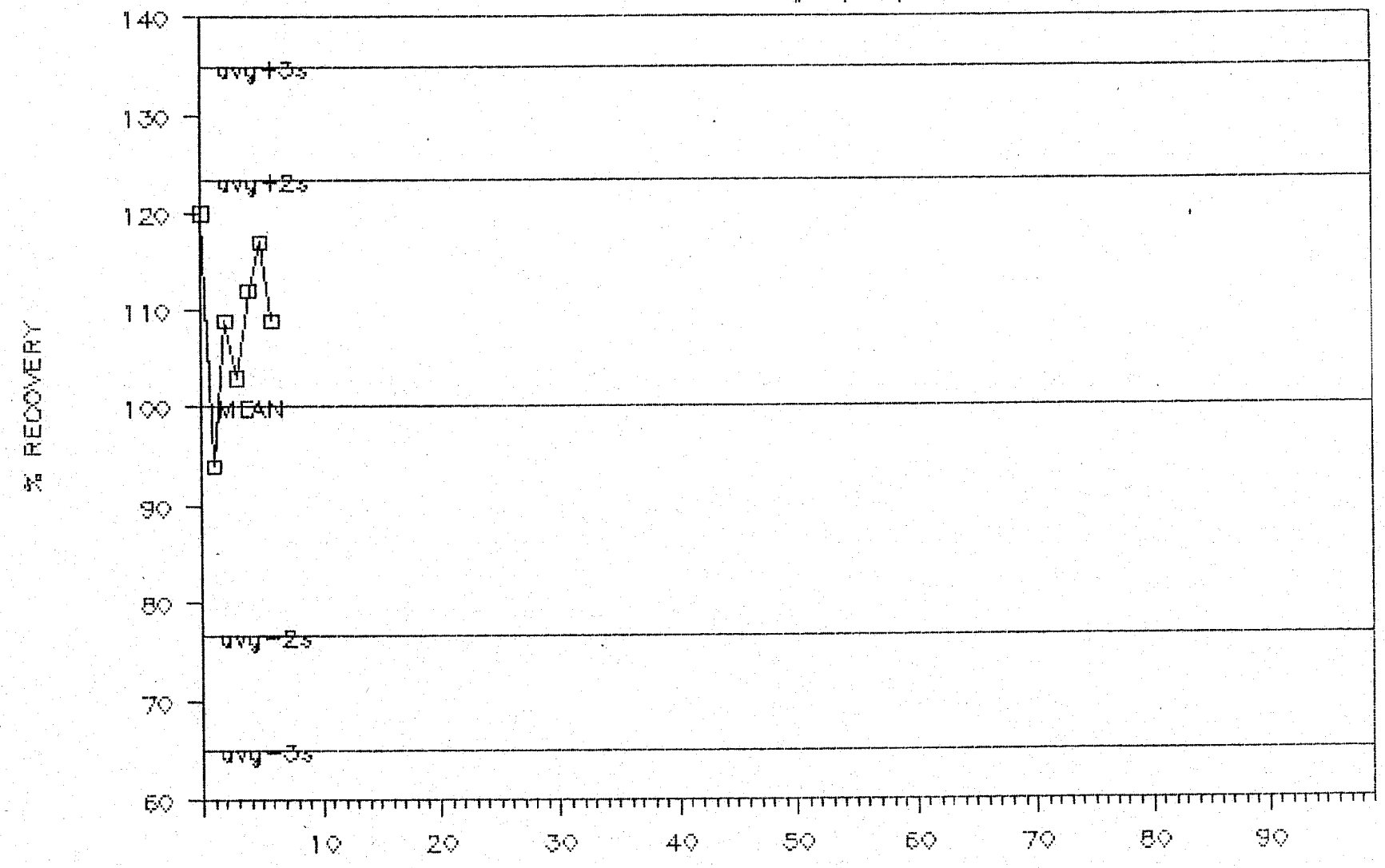
ACID EXTRACTABLES SURR.#2 (2FP) - SOILS



000136

SURROGATE RECOVERY (11846)

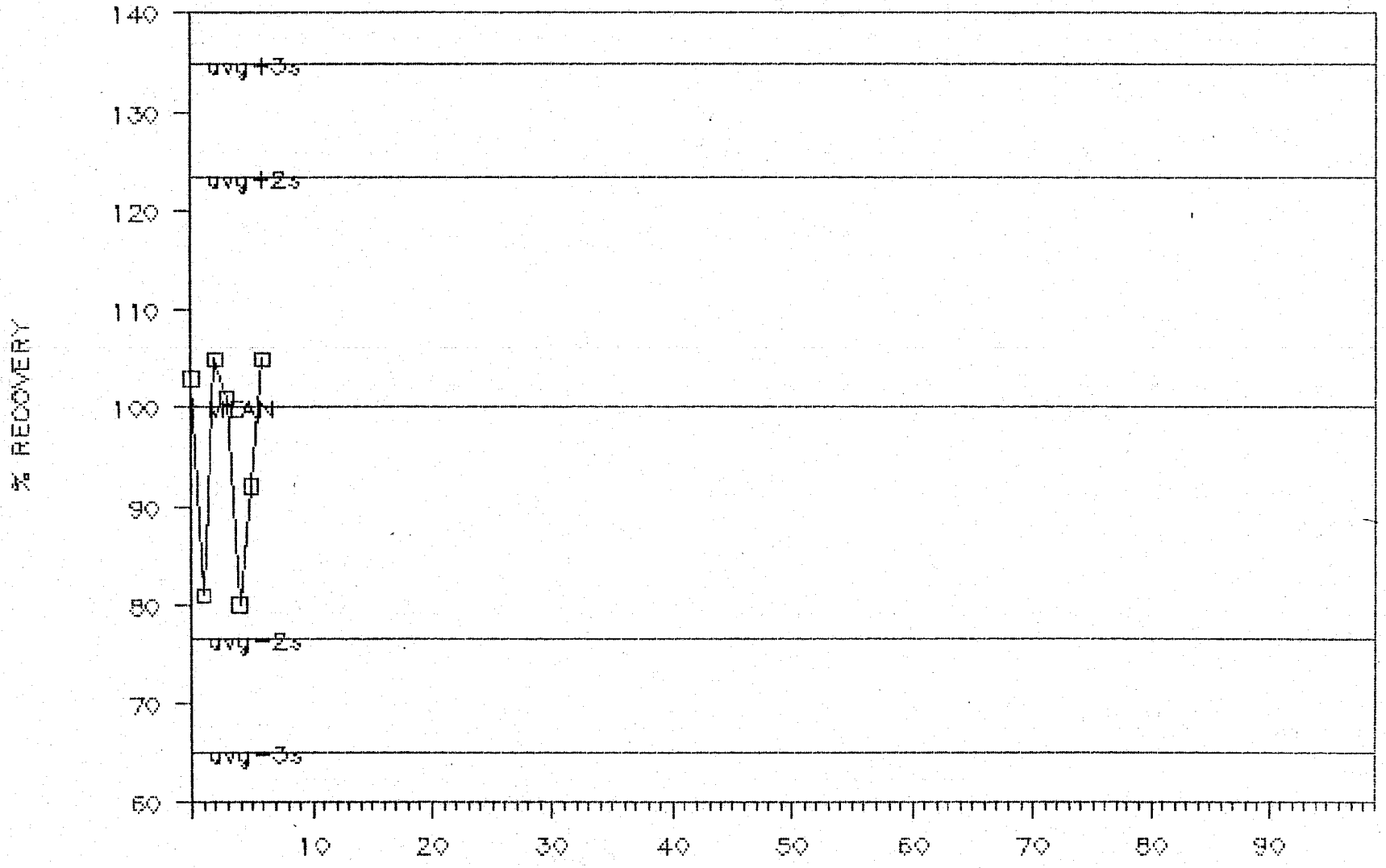
ACID EXTRACTABLES SURR.#3 (TBP) - SOILS



000137

SURROGATE RECOVERY (11846)

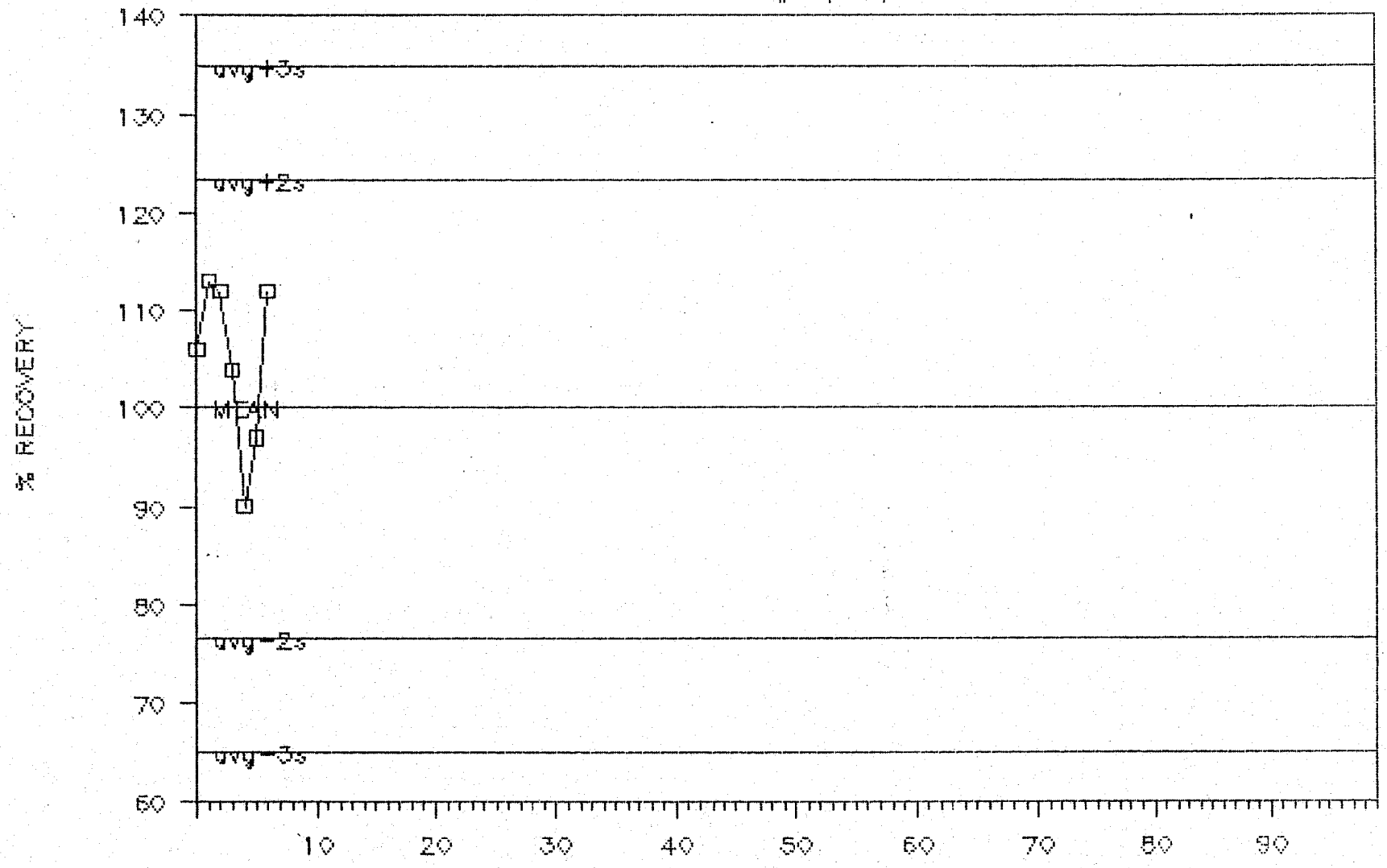
BASE NEUTRALS SURR. #1 (NBZ) - SOILS



000138

SURROGATE RECOVERY (11846)

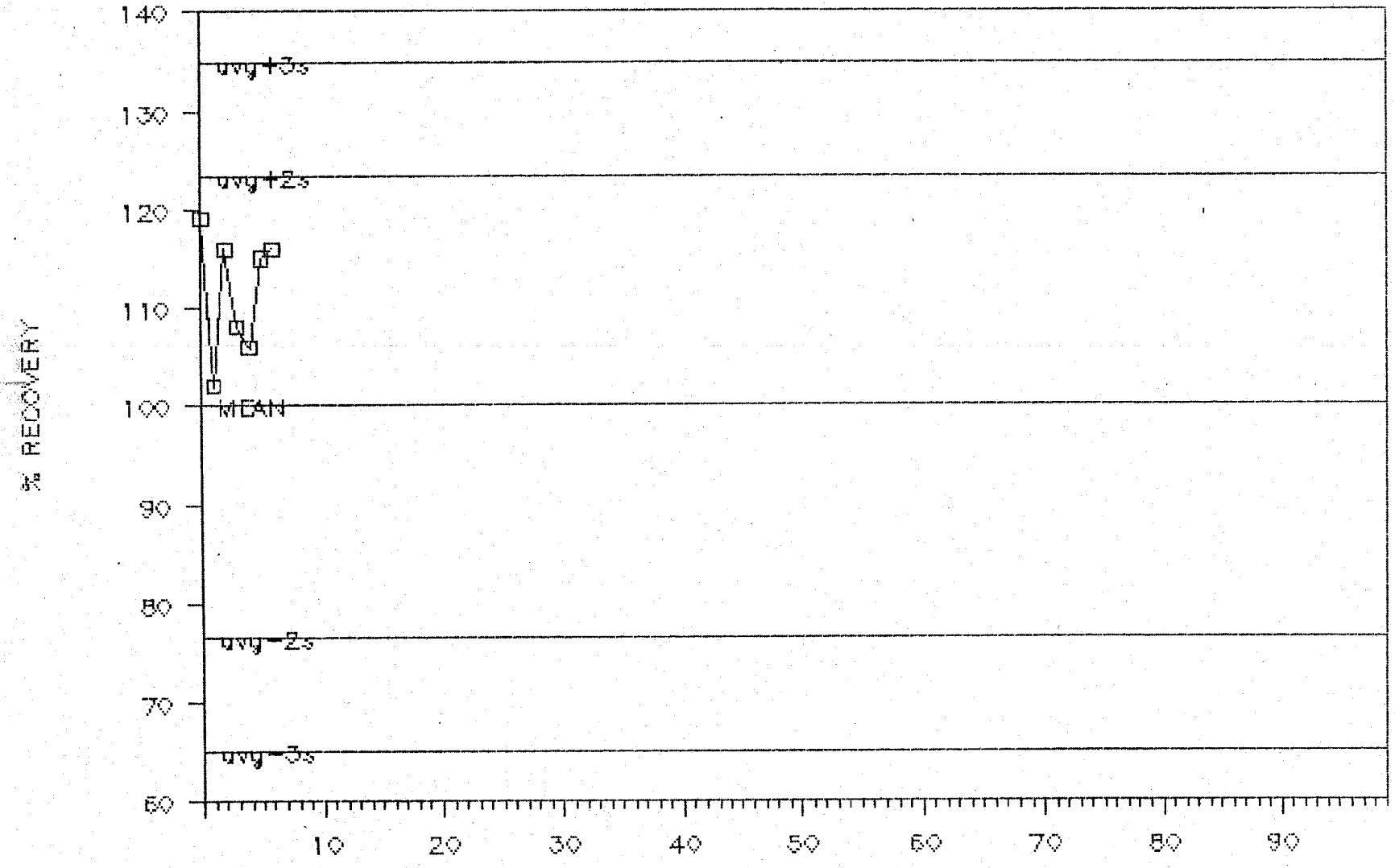
BASE NEUTRALS SURR. #2 (FBP) - SOILS



000139

SURROGATE RECOVERY (11846)

BASE NEUTRALS SURR. #3 (TPH) - SOILS



000140

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 10/19/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11846

RE: Sample(s) received by CH2M HILL on 09/02/88.
LANTDIV

Analysis Description	[Method]	2C-SS4 * 2C 8/31/88 0955 COMP SOIL	2C-SS1 * 2C 8/31/88 1055 COMP SOIL	B13S1 * 2B 8/31/88 1307 COMP SOIL	B13S2 * 2B 8/31/88 1307 COMP SOIL	B13S3 * 2B 8/31/88 1307 COMP SOIL	B12S1 * 2B 8/31/88 1420 COMP SOIL	B12S2 * 2B 8/31/88 1420 COMP SOIL
		SOIL	SOIL	SOIL	SOIL	soil	SOIL	SOIL
EP Tox. Silver (ppb)	[EPA200.7]	<30	<30	<30	<30	<30	30	<30
EP Tox. Arsenic (ppb)	[EPA206.2]	<5	<5	<5	<5	<5	8	7
EP Tox. Barium (ppb)	[EPA200.7]	170	170	<100	110	110	220	140
EP Tox. Cadmium (ppb)	[EPA200.7]	<20	<20	<20	<20	<20	<20	<20
EP Tox. Chromium (ppb)	[EPA200.7]	<10	10	<10	<10	<10	20	10
EP Tox. Mercury (ppb)	[EPA245.1]	<0.4	<0.4	<0.4	0.4	0.4	<.4	<.4
EP Tox. Lead (ppb)	[EPA200.7]	<10	11	<10	<10	<10	17	20
EP Tox. Selenium (ppb)	[EPA270.2]	<5	<5	<5	<5	<5	<5	<5

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 10/19/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11846

RE: Sample(s) received by CH2M HILL on 09/02/88.
LANTDIV

Analysis Description	[Method]	B12S3 * 2B 8/31/88 1420 COMP SOIL	B11S1 * 2B 8/31/88 1510 COMP SOIL	B11S2 * 2B 8/31/88 1510 COMP SOIL	B11S3 * 2B 8/31/88 1510 COMP SOIL	2C-SS2 * 2C 9/1/88 0810 COMP SOIL	2BMW5S1 * 2B 9/1/88 1430 COMP SOIL	2BMW5S2 * 2B 9/1/88 1430 COMP SOIL
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
EP Tox. Silver (ppb)	[EPA200.7]	30	<30	<30	<30	<30	30	80
EP Tox. Arsenic (ppb)	[EPA206.2]	<5	<5	<5	<5	<5	<5	<5
EP Tox. Barium (ppb)	[EPA200.7]	180	140	<100	<100	<100	160	180
EP Tox. Cadmium (ppb)	[EPA200.7]	<20	<20	<20	<20	<20	<20	<20
EP Tox. Chromium (ppb)	[EPA200.7]	<10	<10	<10	<10	<10	<10	<10
EP Tox. Mercury (ppb)	[EPA245.1]	<.4	0.3	<.4	<.4	0.3	0.3	<.4
EP Tox. Lead (ppb)	[EPA200.7]	17	15	<10	<10	<10	<10	<10
EP Tox. Selenium (ppb)	[EPA270.2]	<5	<5	<5	<5	<5	<5	<5
Flashpoint (F)	[SW1010]	>100	-------	-------	-------	-------	-------	-------

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 10/19/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11846

RE: Sample(s) received by CH2M HILL on 09/02/88.
LANTDIV

Analysis Description	[Method]	2BMW5S3 * 2B 9/1/88 1430 COMP SOIL
		SOIL
EP Tox. Silver (ppb)	[EPA200.7]	<30
EP Tox. Arsenic (ppb)	[EPA206.2]	<5
EP Tox. Barium (ppb)	[EPA200.7]	<100
EP Tox. Cadmium (ppb)	[EPA200.7]	<20
EP Tox. Chromium (ppb)	[EPA200.7]	<10
EP Tox. Mercury (ppb)	[EPA245.1]	<0.4
EP Tox. Lead (ppb)	[EPA200.7]	6
EP Tox. Selenium (ppb)	[EPA270.2]	<5

Analyses performed in accordance with methods approved by the USEPA.

Respectfully Submitted,

Mr. James M. Schoen
Inorganic Laboratory Manager

cc: MR. FRANK LEWIS/WDC

INORG(MGM-8809C)

Engineers
Planners
Economists
Scientists

October 10, 1988

W20368.D0

Mr. Doug Dronfield
CH2M HILL/WDC
P.O. Box 4400
Reston, Virginia 22090

RE: Analytical Data for Laboratory No. 11854

Dear Mr. Dronfield:

On September 6, 1988, CH2M HILL Montgomery Laboratory received seven samples with a request for analysis of selected organic parameters.

Please note that the CH2M HILL Montgomery Laboratory reporting format has changed. The format alteration is in response to new reporting technology and will keep CH2M HILL in-line with new industry standards. We apologize for any inconvenience this change may cause.

The analytical results and the associated quality control data are enclosed. Sample 2BMW4S1_1230 (11854002) was initially acquired at a 2x dilution. Since no significant target hits were observed, the sample was reacquired with no dilution. Please note Forms II, IV, V and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M Hill Montgomery Laboratory identification numbers. No other unusual difficulties were encountered during the analysis of these samples

If you should have any questions concerning the data, please call.

Sincerely,

Ward Dickens

Ward Dickens
Manager, Organic Analysis

Enclosures

cc: Mr. Craig Vinson
Mr. Frank Lewis/WDC
Ms. Mary Wisdom/MGM-LQAC

CH2M HILL Montgomery Environmental Laboratory 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205.271.1444

ORGANIC ANALYSIS

ANALYTICAL INSTRUMENTATION

- Finnigan Models 4021, 5100, 4510 Gas Chromatographs/Mass Spectrometer/Data Systems equipped with Tekmar's LSC-2, LSC-3, and the 4200 automatic Heated Sample Module.

- Varian Models 3700 and 6000 Gas Chromatographs equipped with flame ionization, electron capture, thermionic specific, flame photometric detectors and autosamplers. State of the art Varian Vista 402 Data System and Hewlett Packard integrators.

- Dohrman DX-20 Total Organic Halide System.

- Water High Pressure Liquid Chromatograph with UV and Fluorescence detectors.

ANALYTICAL METHODOLOGY

- Priority Pollutants: The water samples are analyzed in accordance with procedures described in methods 608, 624, and 625, EPA-600/4-82-057 (1982). The soil samples are analyzed in accordance with procedures described in Methods 8080, 8240, and 8270, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

- Phenoxyacid Herbicides: Samples are analyzed in accordance with procedures outlined in Method 7, Federal Register, Vol. 38, No. 75, Part II, November 28, 1973.

- Total Organic Halides: Samples are analyzed in accordance with procedures outlined in Method 9020, USEPA, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

- Trihalomethanes: Samples are analyzed in accordance with procedures described in Method 501.2, Federal Register, Vol. 44, No. 231, Part II, November 29, 1979.

- Ethylene dibromide: Water samples are analyzed in accordance with procedures outlined in Method 504, Federal Register (50 FR 46902), November 13, 1985.

Engineers
Planners
CH2M HILL Economists
Scientists

ATTACHMENT A

Definitions for the EPA-defined reporting qualifiers:

U - Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the practical quantitation limit (PQL) for that compound. The PQL can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

J - Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound below the stated PQL. The "J" qualifier is not used with pesticide results.

C - This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

B - This flag is used when the analyte is found in the associated blank as well as in the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.

E - This flag applies to GC/MS analyses only. The "E" qualifier indicates a compound maybe above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.

D - This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form 1.

A - Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.

X - Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS5_1015

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11854001

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001545

Level: (low/med) LOW Date Received: 09/06/88

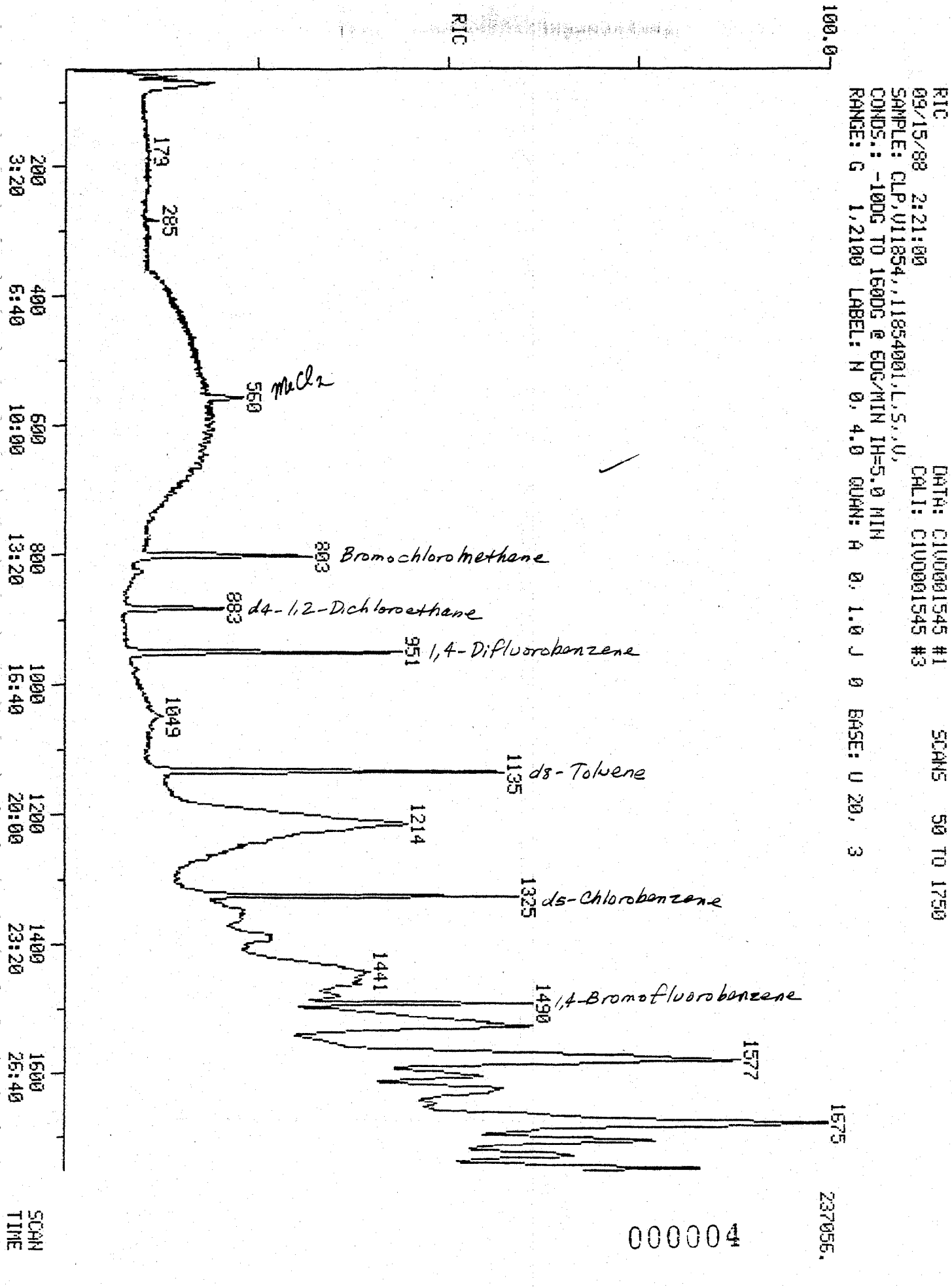
% Moisture: not dec. 0 Date Analyzed: 09/15/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	21	B
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

TCA FINISHED, 9 FOUND
FINISHED AT: 9/15/88 5:02:40

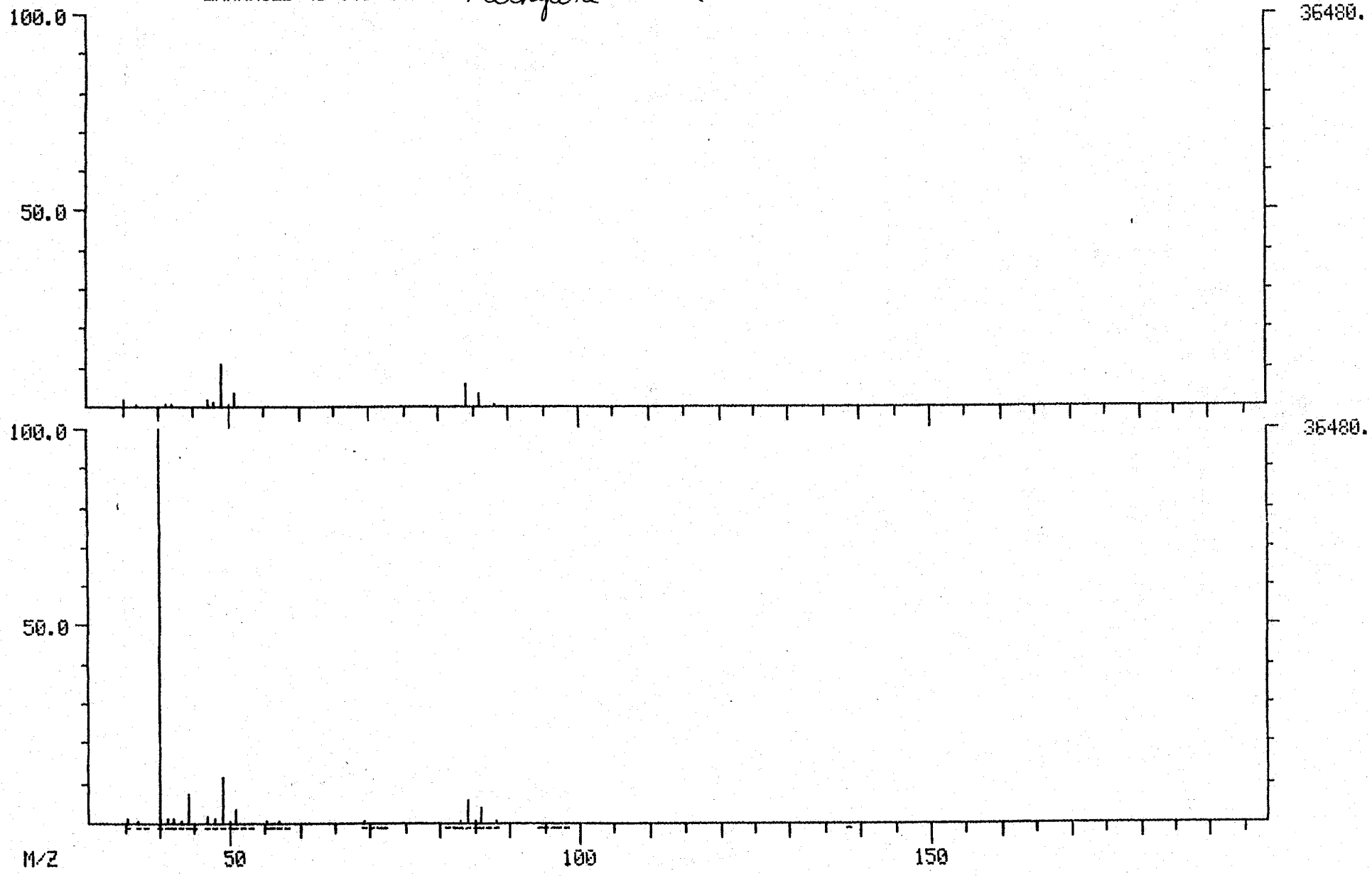


000004

DUAL MASS SPECTRUM
09/15/88 2:21:00 + 9:20
SAMPLE: CLP,V11854,,11854001,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

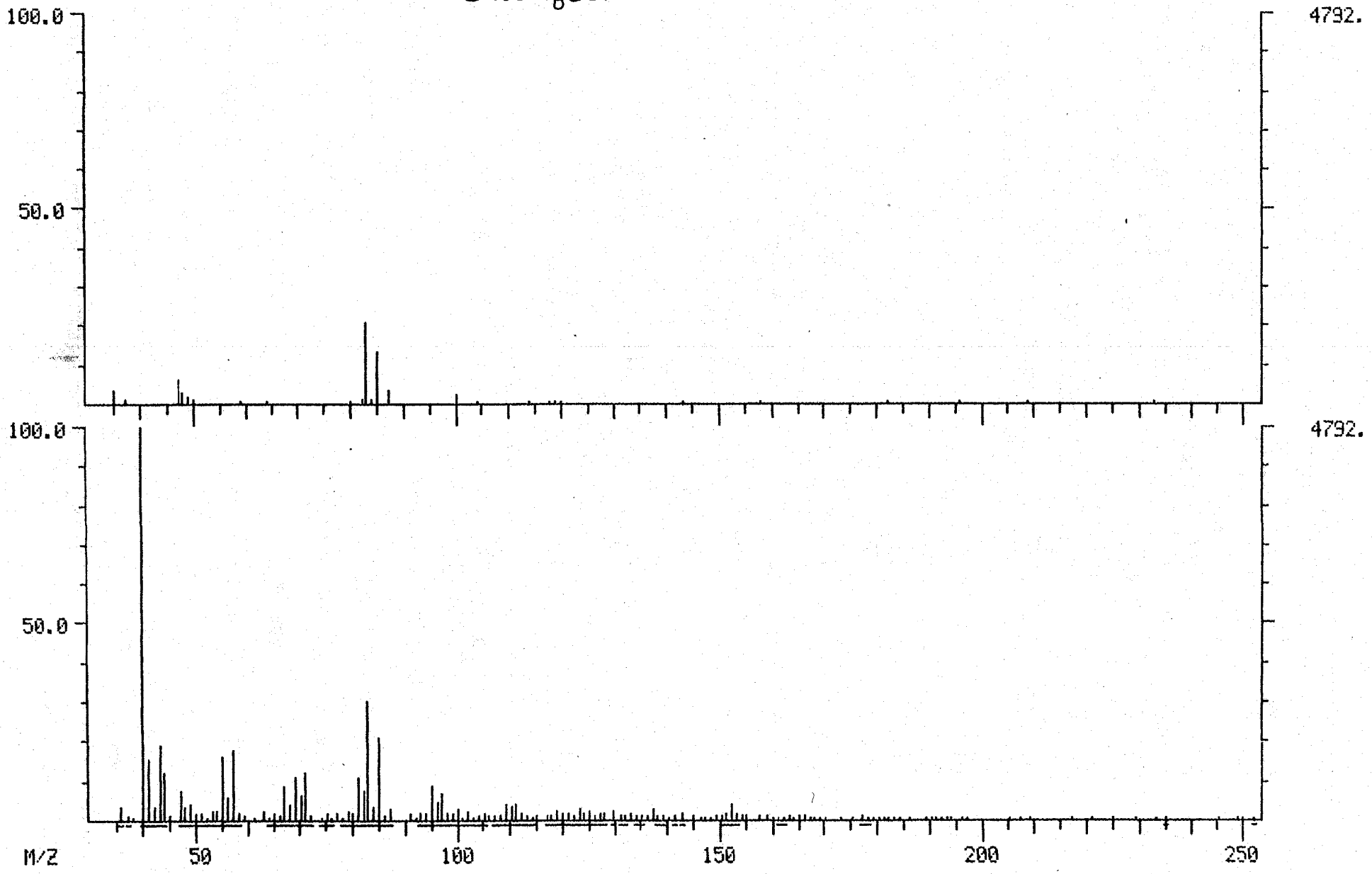
DATA: C1V0001545 #560 BASE M/Z: 49/ 40
CALI: C1V0001545 #3 RIC: 11391./ 54527.

000005



DUAL MASS SPECTRUM
09/15/88 2:21:00 + 13:47
SAMPLE: CLP,V11854,,11854001,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001545 #827 BASE M/Z: 83/ 40
CALI: C1V0001545 #3 RIC: 3399./ 24095.



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2BMW4S1_1230

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11854002

Sample wt/vol: _____ (g/mL) G Lab File ID: C2VO001570

Level: (low/med) LOW Date Received: 09/06/88

% Moisture: not dec. 0 Date Analyzed: 09/16/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	36	B
67-64-1	Acetone	34	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	2	J
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2BMW4S1_DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11854002DL

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001546

Level: (low/med) LOW Date Received: 09/06/88

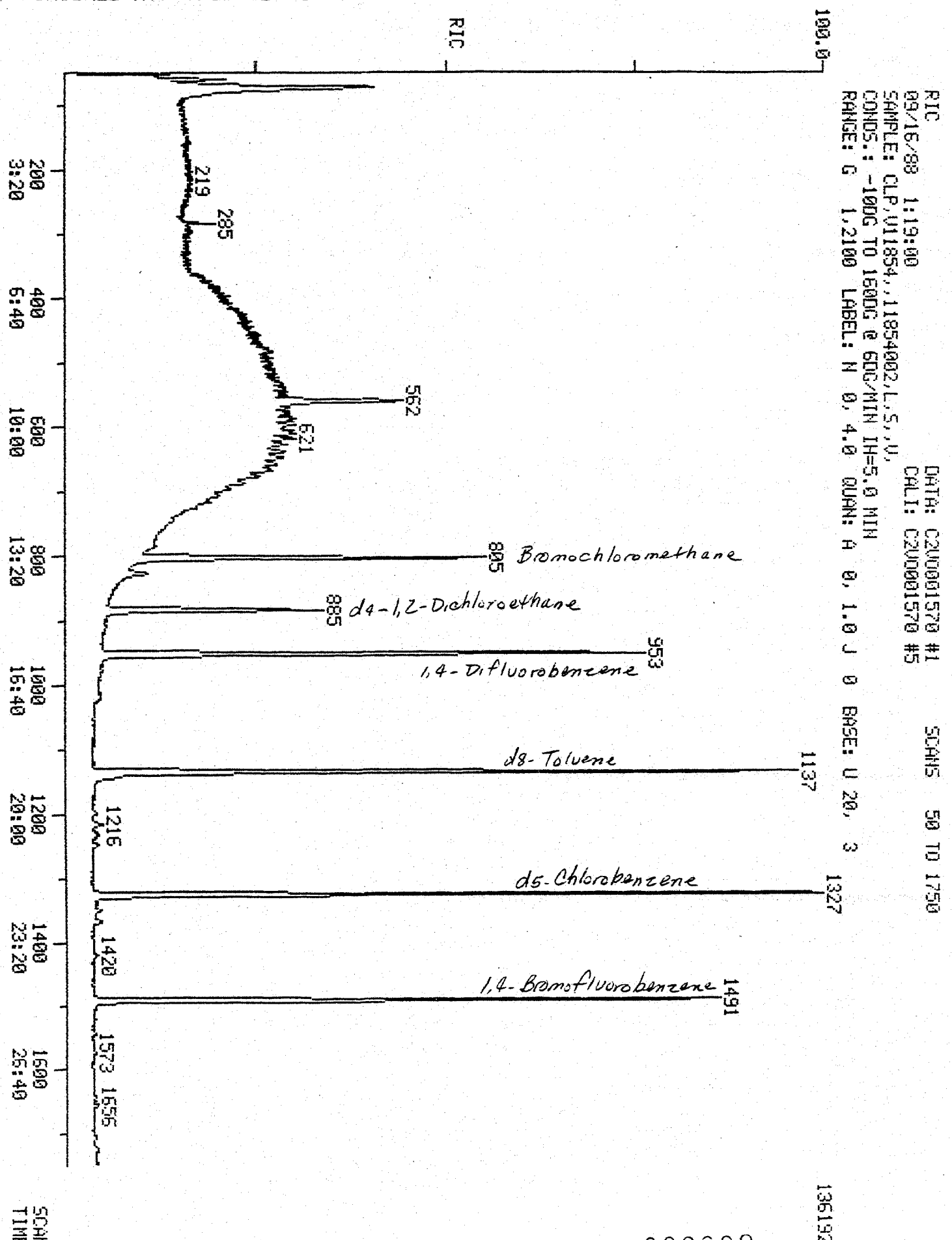
% Moisture: not dec. 0 Date Analyzed: 09/15/88

Column: (pack/cap) CAP Dilution Factor: 2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	20	U
74-83-9	Bromomethane	20	U
75-01-4	Vinyl Chloride	20	U
75-00-3	Chloroethane	20	U
75-09-2	Methylene Chloride	8	BDJ
67-64-1	Acetone	32	BD
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	5	BDJ
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	20	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
108-05-4	Vinyl Acetate	20	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
591-78-6	2-Hexanone	20	U
108-10-1	4-Methyl-2-Pentanone	20	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	20	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylenes (total)	10	U

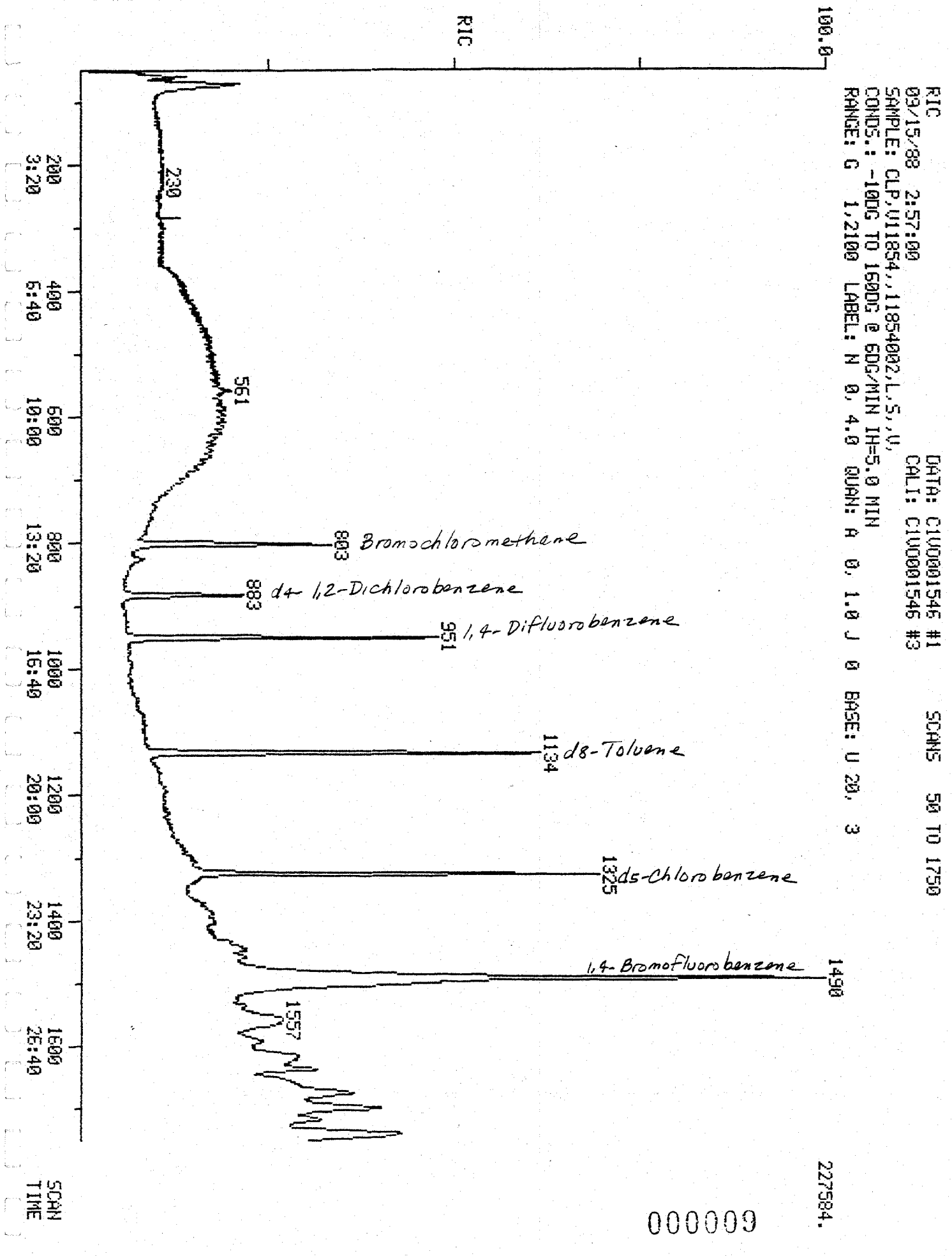
RS

TCA FINISHED, 11 FOUND
FINISHED AT: 9/16/88 6:43:47



000008

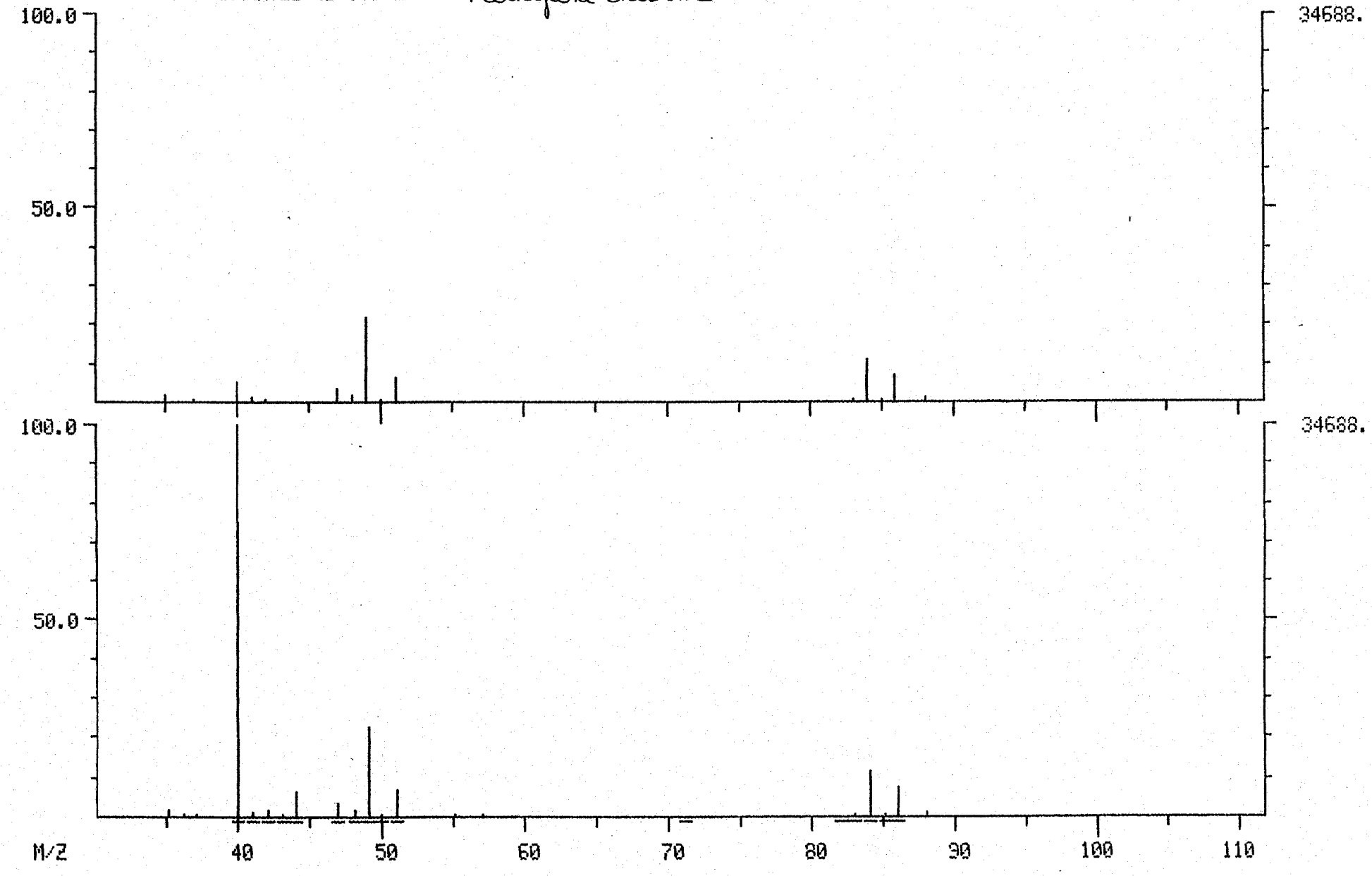
TCA FINISHED, 9 FOUND
FINISHED AT: 9/15/88 5:09:40



000009

DUAL MASS SPECTRUM
09/16/88 1:19:00 + 9:22
SAMPLE: CLP,V11854,,11854002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

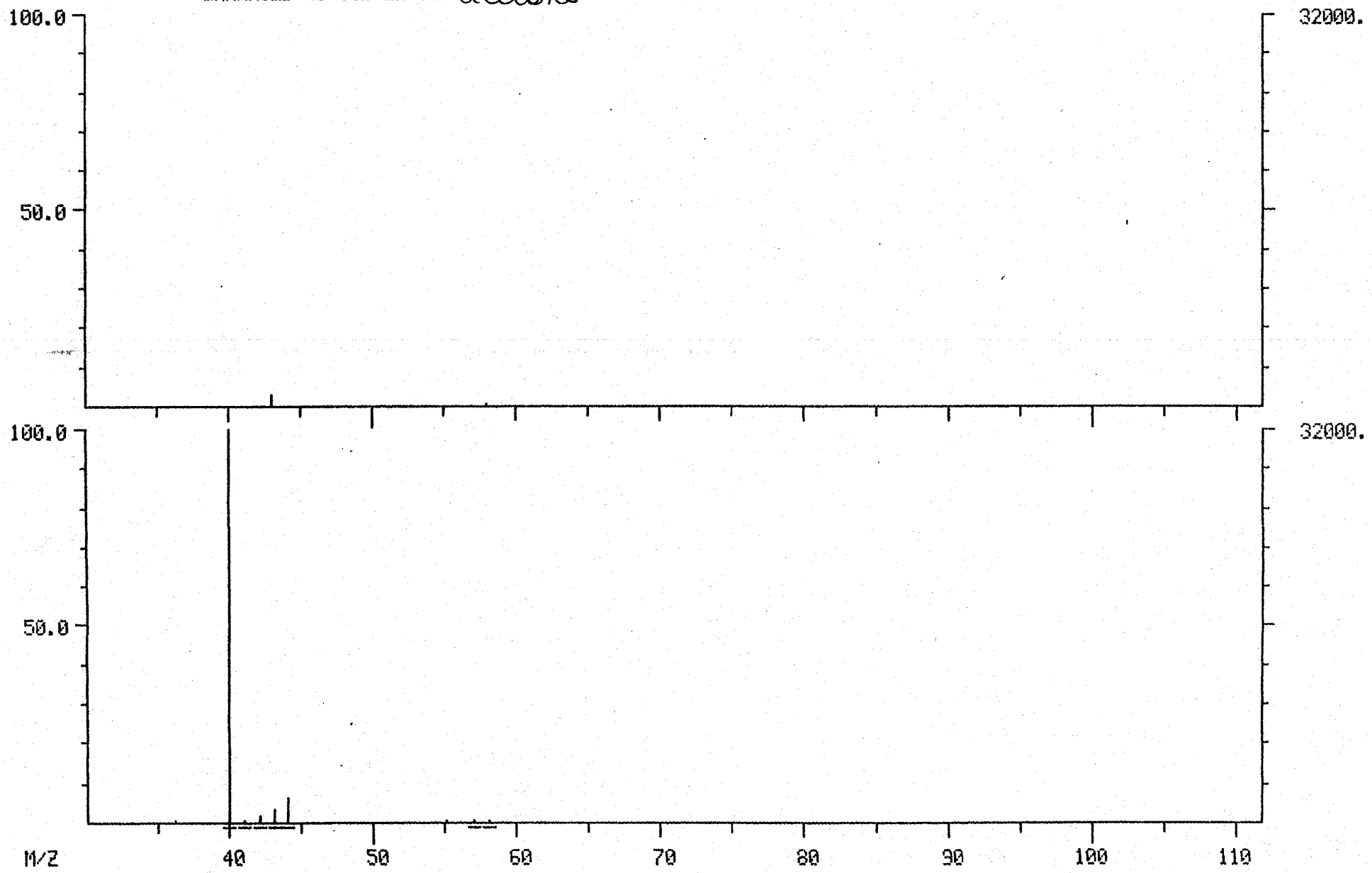
DATA: C2V0001570 #562 BASE M/Z: 49/ 40
CALI: C2V0001570 #5 RIC: 22463./ 60287.



000010

DUAL MASS SPECTRUM
09/16/88 1:19:00 + 8:02
SAMPLE: CLP,V11854,,11854002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) acetone

DATA: C2V0001570 #482 BASE M/Z: 43/ 40
CALI: C2V0001570 #5 RIC: 1229./ 37183.

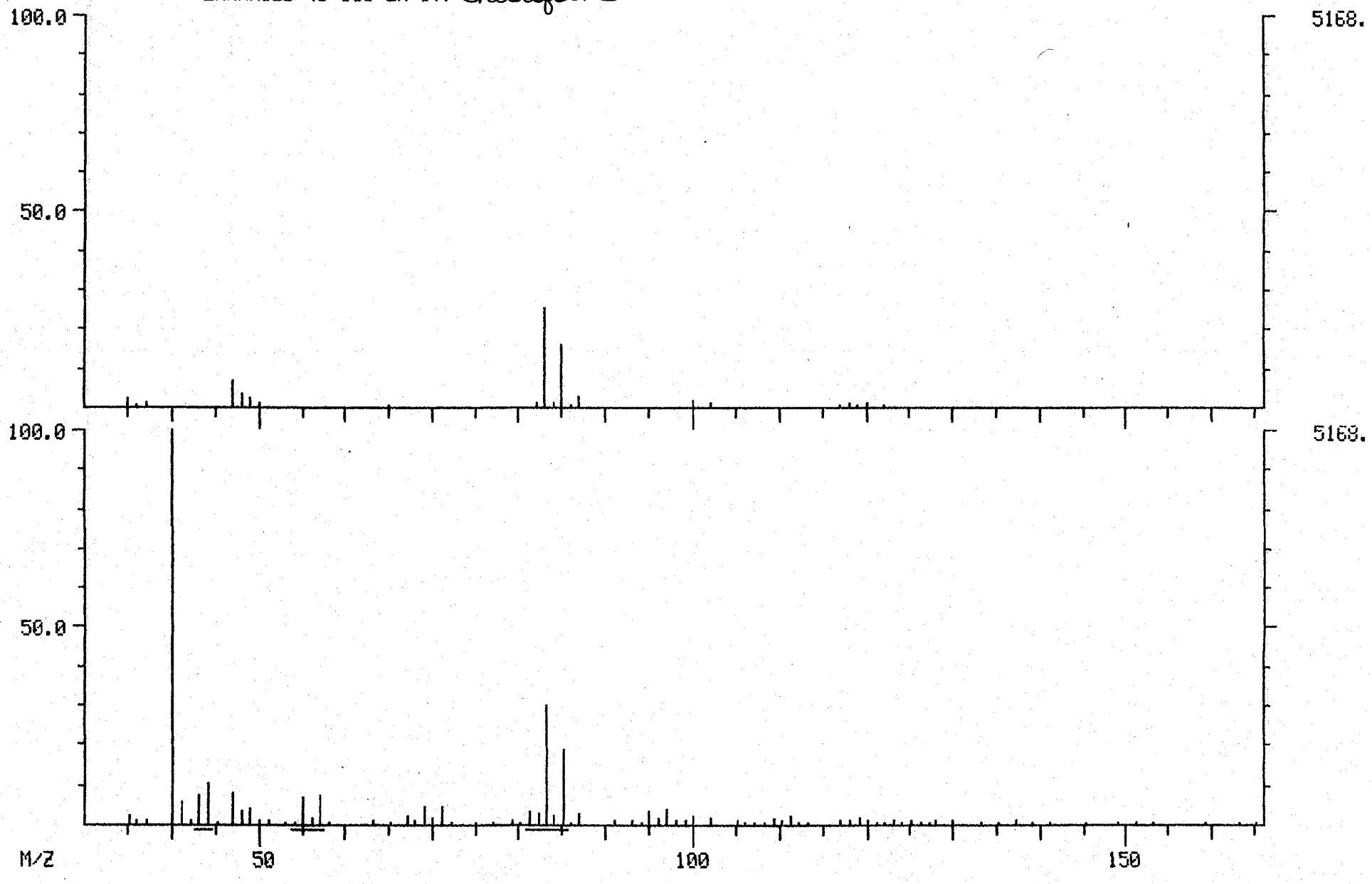


000011

DUAL MASS SPECTRUM
09/16/88 1:19:00 + 13:48
SAMPLE: CLP,V11854,,11854002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C2V0001570 #828 BASE M/Z: 83/ 40
CALI: C2V0001570 #5 RIC: 3839./ 15033.

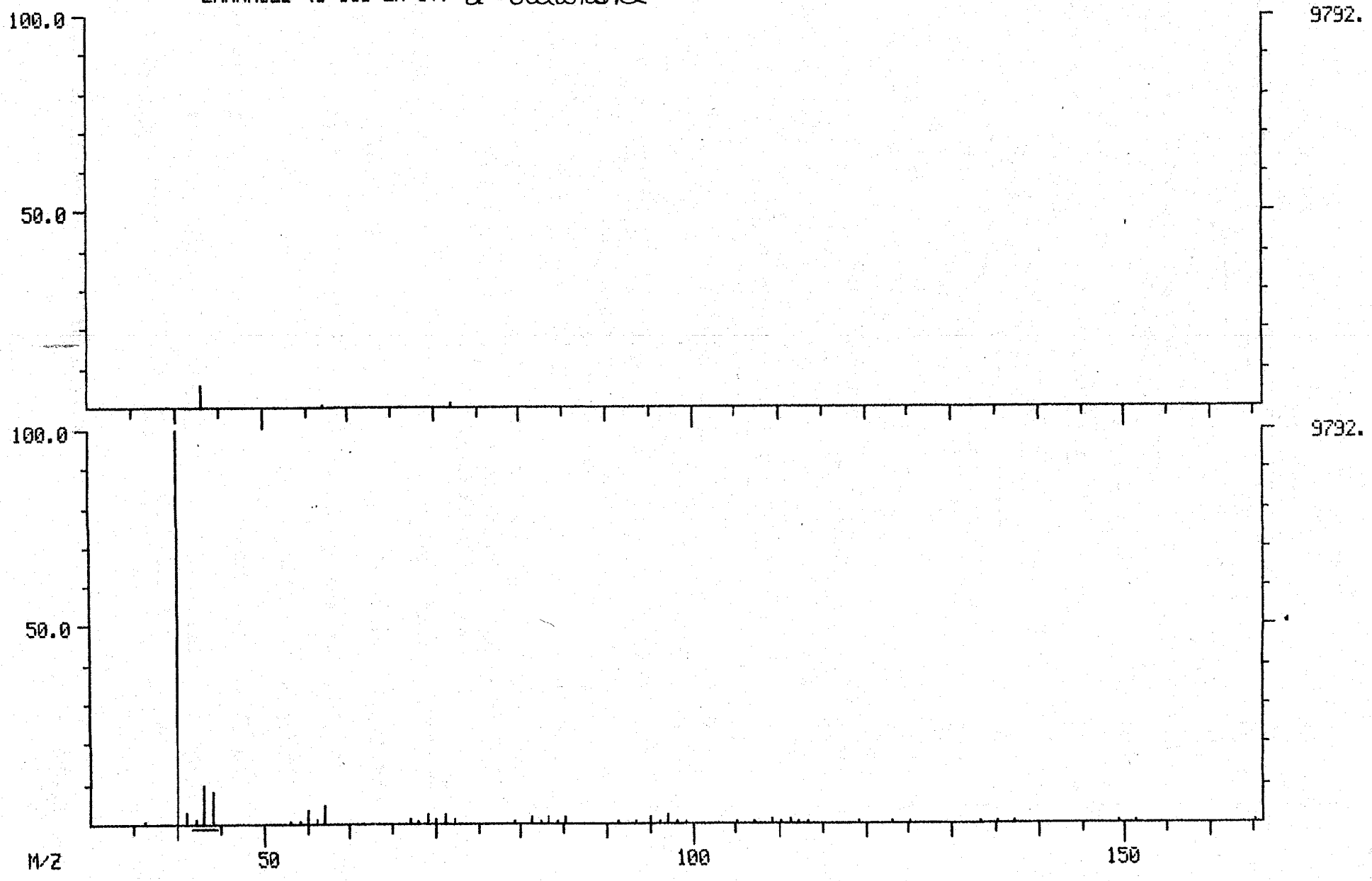
000012



DUAL MASS SPECTRUM
09/16/88 1:19:00 + 13:07
SAMPLE: CLP,V11854,,11854002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) 2-butanone

DATA: C2V0001570 #787 BASE M/Z: 43/ 40
CALI: C2V0001570 #5 RIC: 784./ 16095.

000013



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2BMW4S2_1230

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11854003

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001547

Level: (low/med) LOW Date Received: 09/06/88

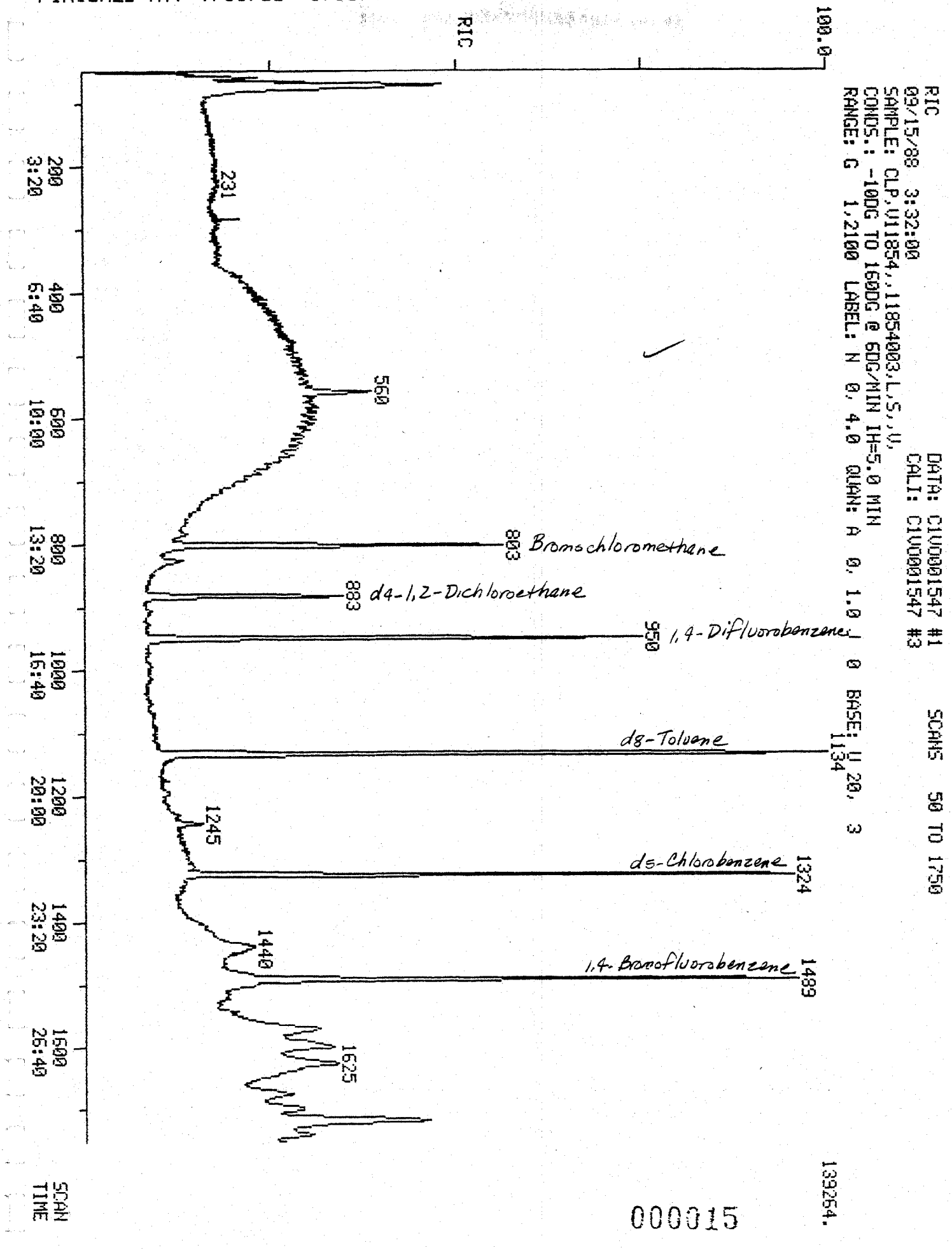
% Moisture: not dec. 10 Date Analyzed: 09/15/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	19	B
67-64-1	Acetone	49	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS

TCA FINISHED, 9 FOUND
FINISHED AT: 9/15/88 5:16:29

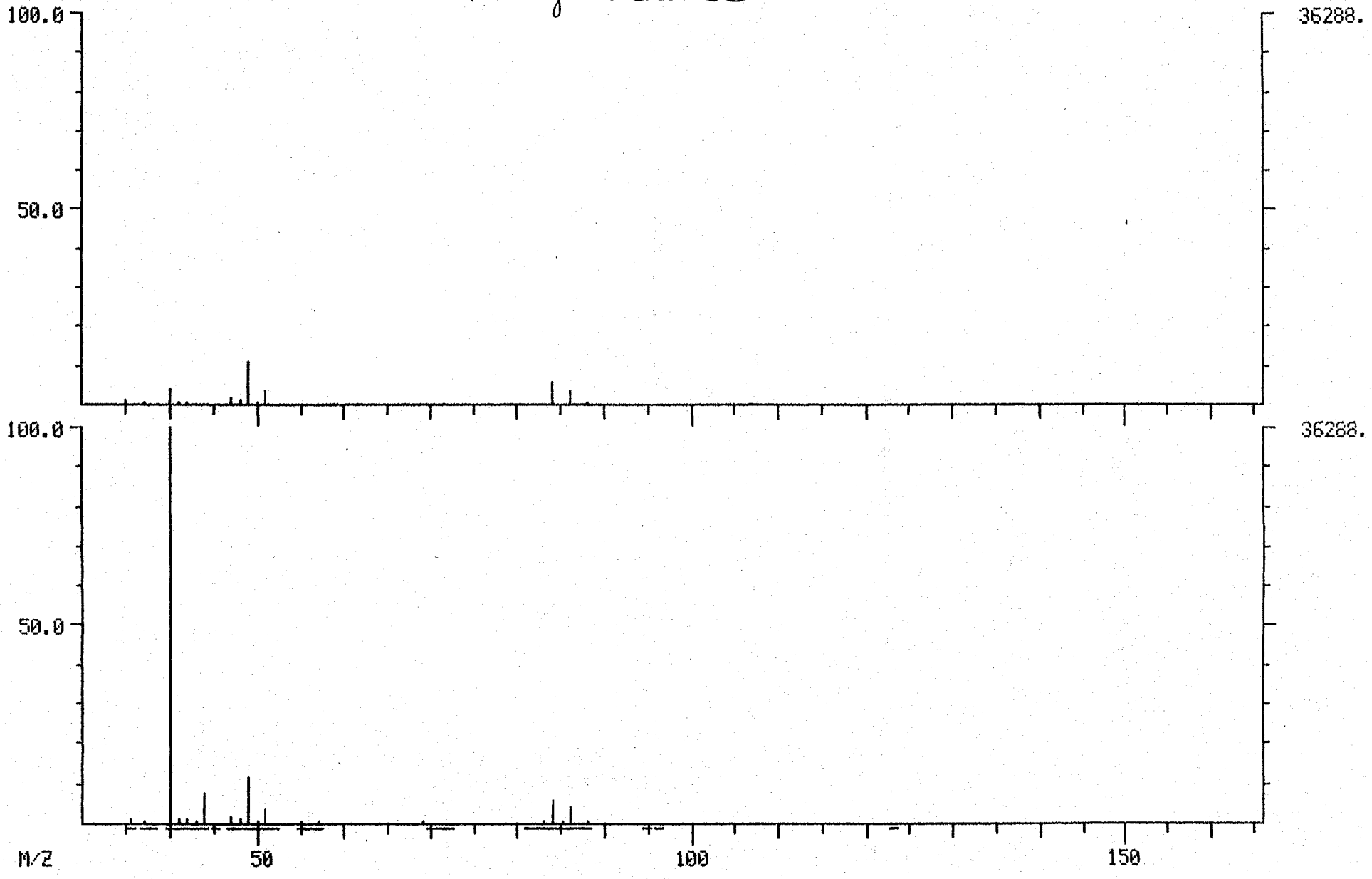


139264.

000015

DUAL MASS SPECTRUM
09/15/88 3:32:00 + 9:20
SAMPLE: CLP,V11854,,11854003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

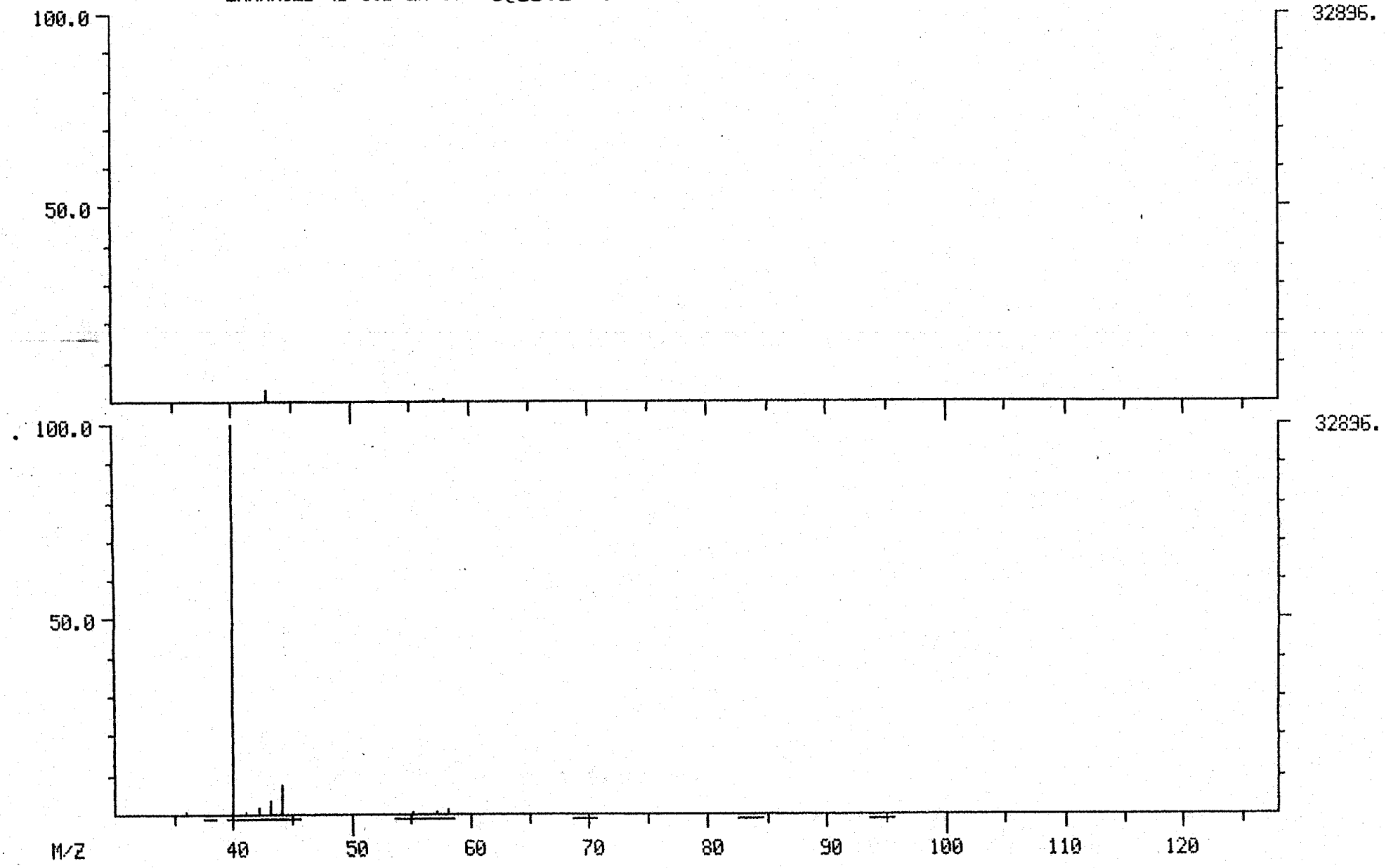
DATA: C1V0001547 #560 BASE M/Z: 49/ 40
CALI: C1V0001547 #3 RIC: 12591./ 53567.



000016

DUAL MASS SPECTRUM
09/15/88 3:32:00 + 8:01
SAMPLE: CLP,V11854,,11854003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) acetone

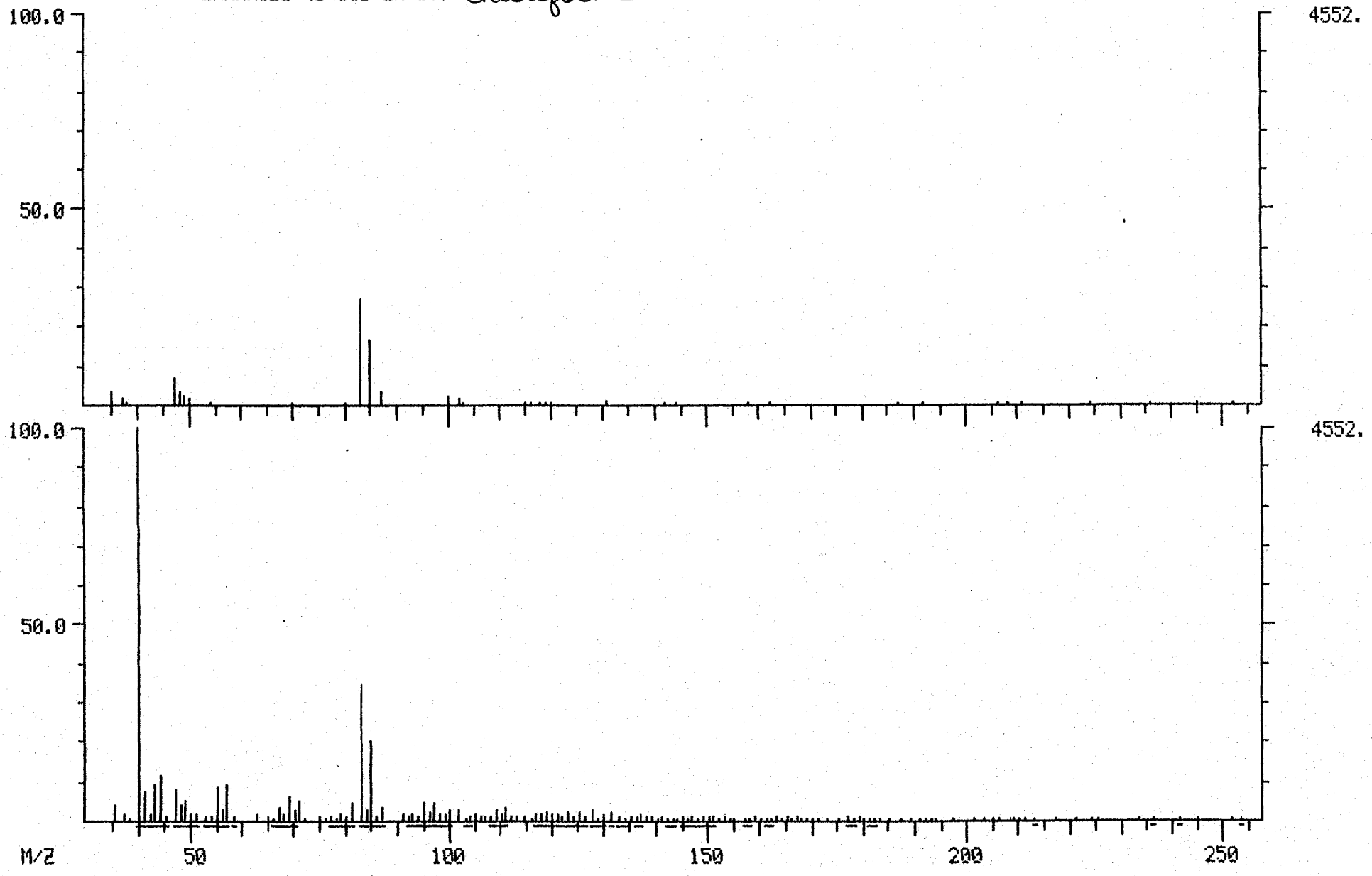
DATA: C1V0001547 #481 BASE M/Z: 43/ 40
CALI: C1V0001547 #3 RIC: 1391./ 39359.



000017

DUAL MASS SPECTRUM
09/15/88 3:32:00 + 13:46
SAMPLE: CLP,V11854,,11854003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001547 #826 BASE M/Z: 83/ 40
CALI: C1V0001547 #3 RIC: 3955./ 18783.



010000

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2BMW4S3_1230

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11854004

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001571

Level: (low/med) LOW Date Received: 09/06/88

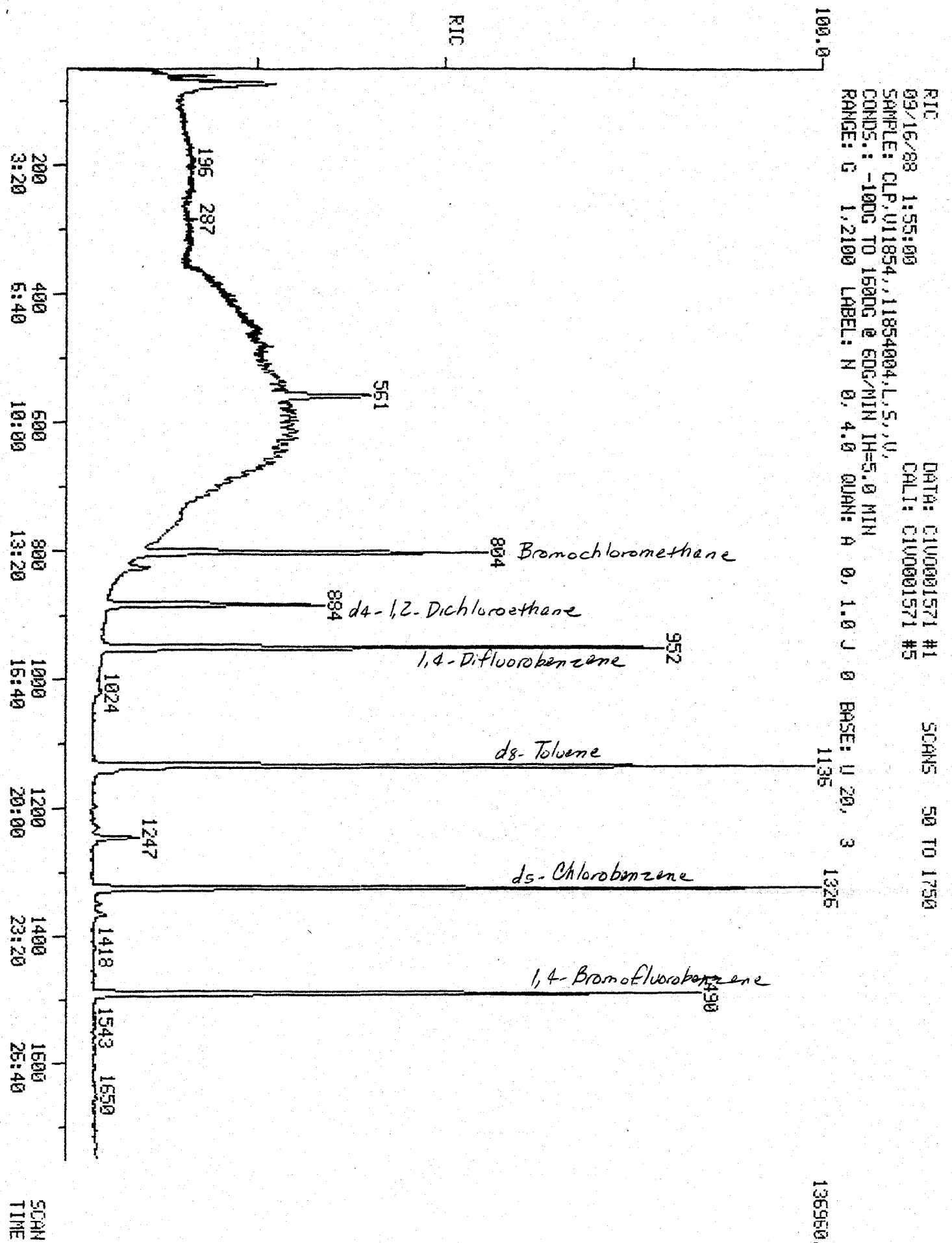
% Moisture: not dec. 8 Date Analyzed: 09/16/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	32	B
67-64-1	Acetone	29	B
75-15-0	Carbon Disulfide	7	
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

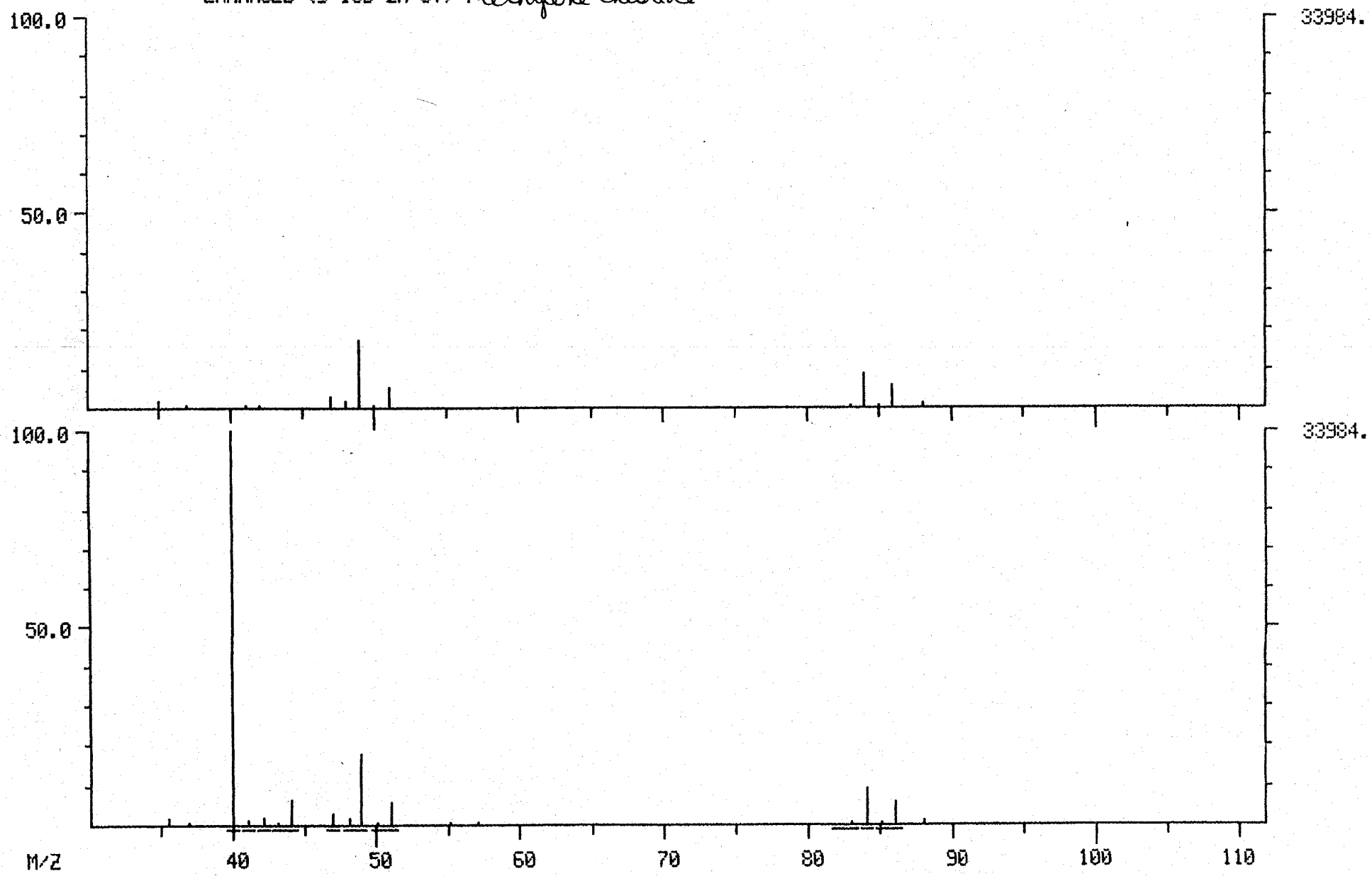
RS

TCA FINISHED, 11 FOUND
FINISHED AT: 9/16/88 6:50:08



DUAL MASS SPECTRUM
09/16/88 1:55:00 + 9:21
SAMPLE: CLP,V11854,,11854004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

DATA: C1V0001571 #561 BASE M/Z: 49/ 40
CALI: C1V0001571 #5 RIC: 16367./ 54783.

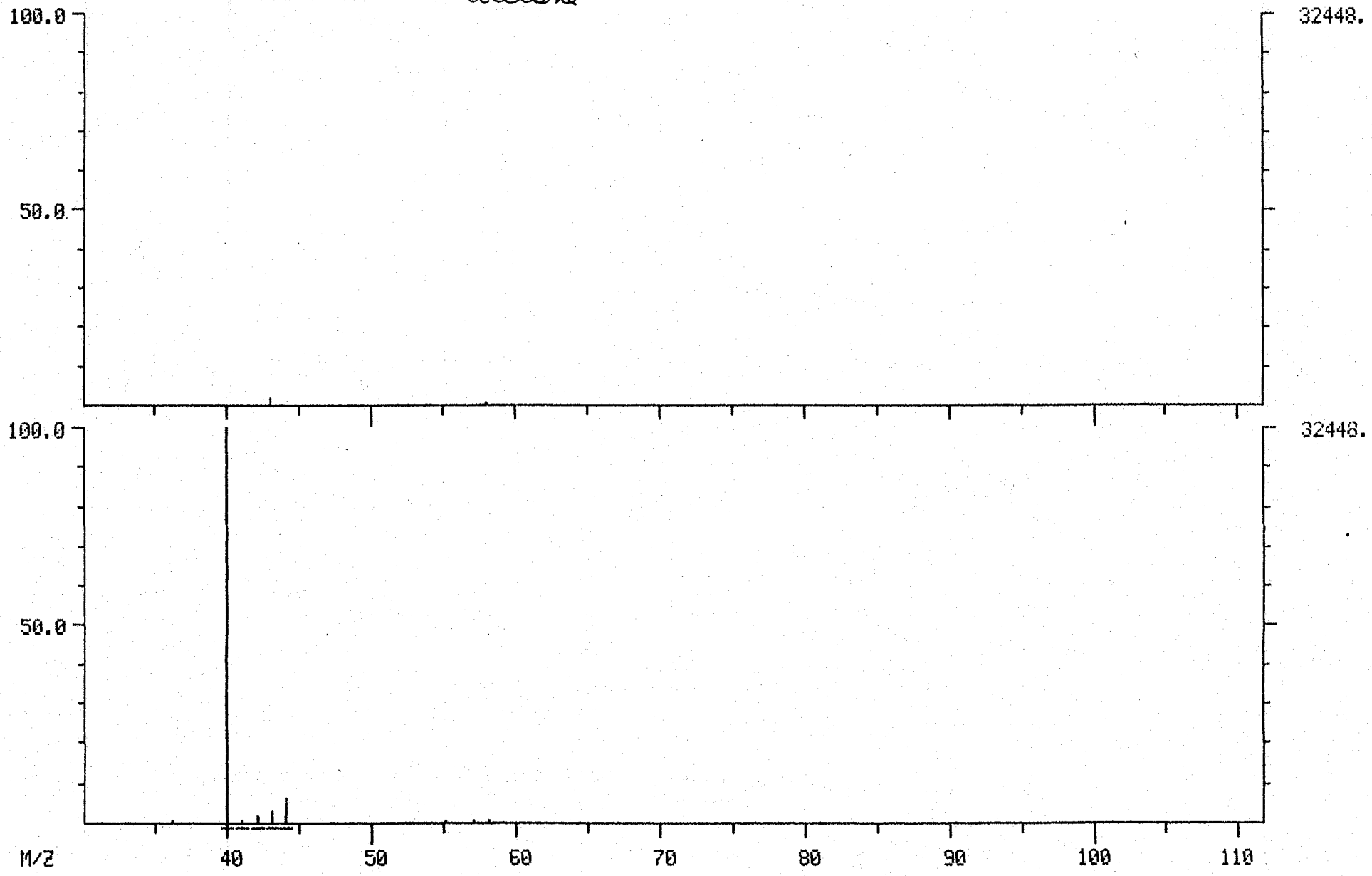


000021

DUAL MASS SPECTRUM
09/16/88 1:55:00 + 8:03
SAMPLE: CLP,V11854,,11854004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

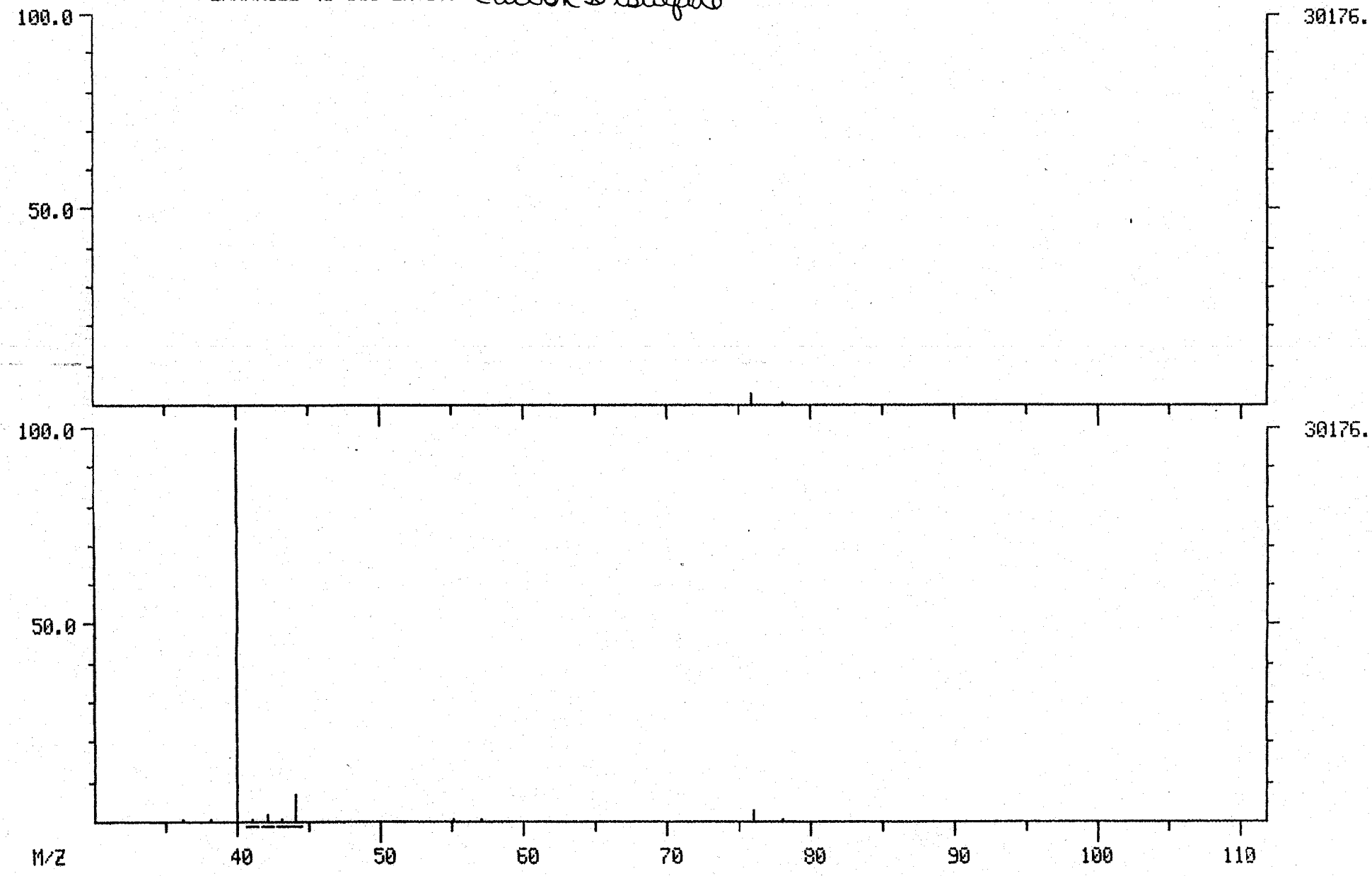
DATA: C1V0001571 #483 BASE M/Z: 43/ 40
CALI: C1V0001571 #5 RIC: 893./ 37119.

000022



DUAL MASS SPECTRUM
09/16/88 1:55:00 + 7:36
SAMPLE: CLP,V11854,,11854004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Carbon Disulfide

DATA: C1V0001571 #456 BASE M/Z: 76/ 40
CALI: C1V0001571 #5 RIC: 1139./ 34943.

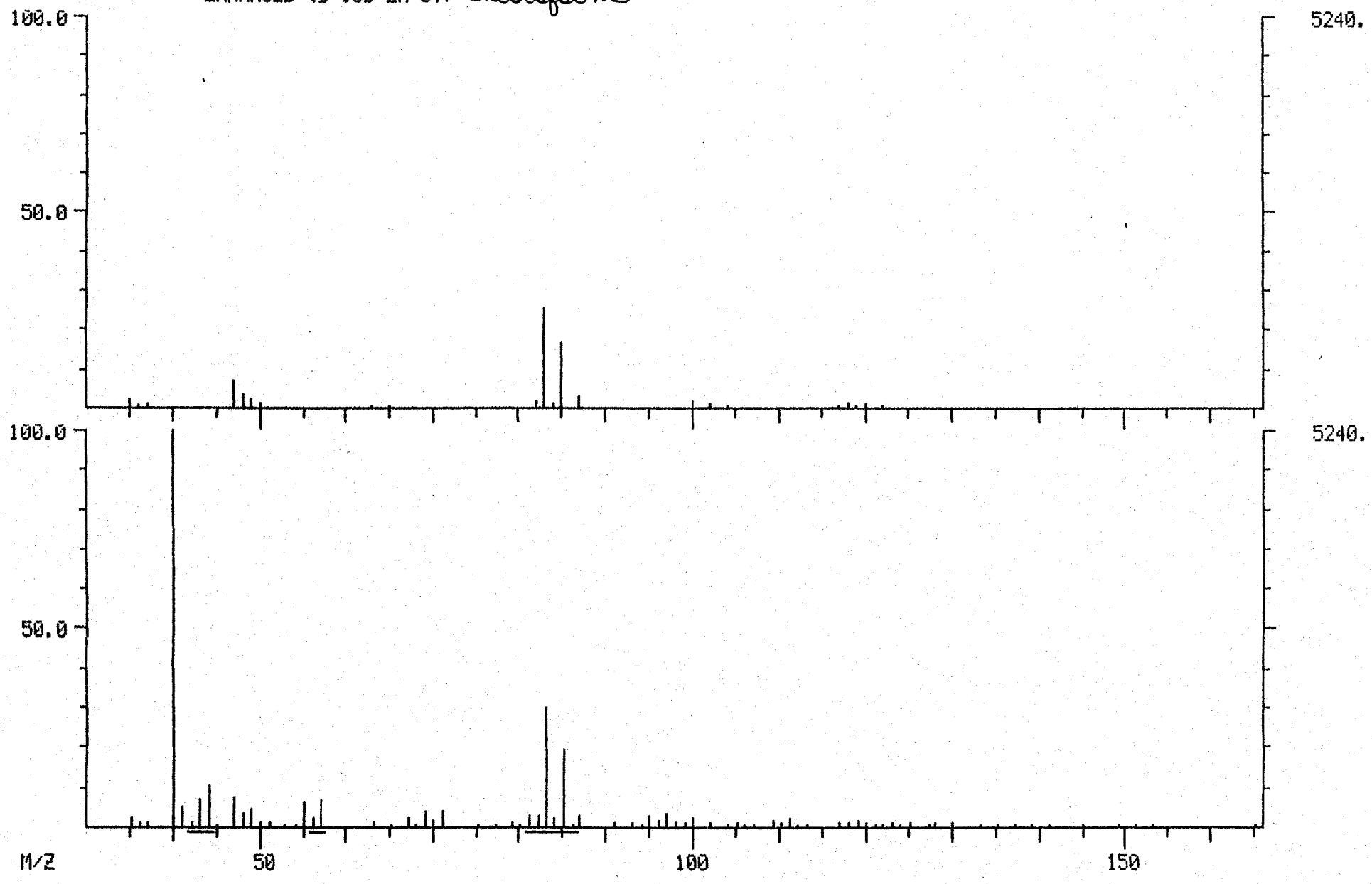


000023

DUAL MASS SPECTRUM
09/16/88 1:55:00 + 13:47
SAMPLE: CLP,V11854,,11854004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

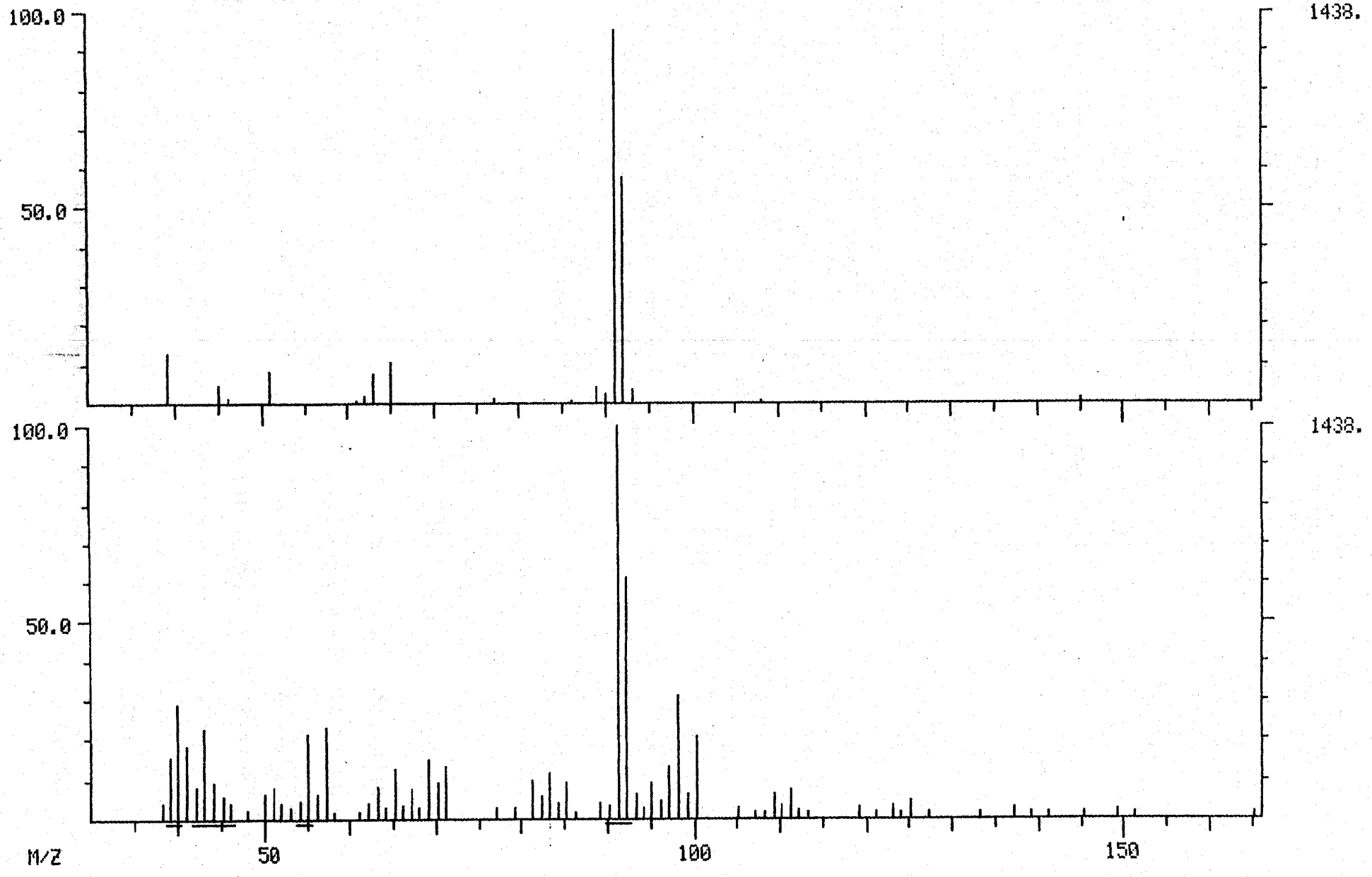
DATA: C1V0001571 #827 BASE M/Z: 83/ 40
CALI: C1V0001571 #5 RIC: 3931./ 14991.

000024



DUAL MASS SPECTRUM
09/16/88 1:55:00 + 19:04
SAMPLE: CLP,V11854,,11854004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Toluene

DATA: C1V0001571 #1144 BASE M/Z: 91/ 91
CALI: C1V0001571 #5 RIC: 3071./ 9359.



000025

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP_BLK_AQ

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: 11854005

Sample wt/vol: _____ (g/mL) ML Lab File ID: C1VO001561

Level: (low/med) LOW Date Received: 09/06/88

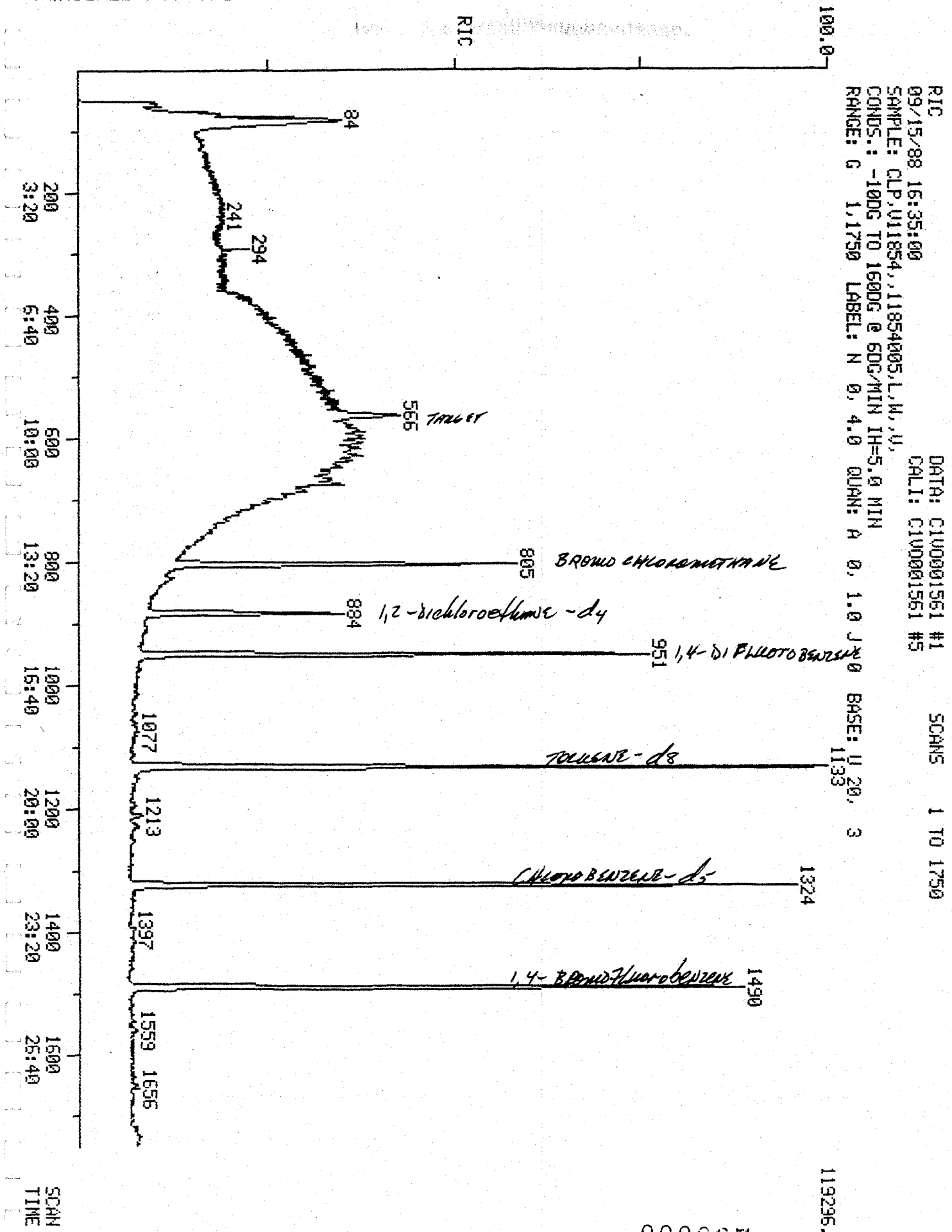
% Moisture: not dec. _____ Date Analyzed: 09/15/88

Column: (pack/cap) CAP Dilution Factor: 1

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

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	18	B
67-64-1	Acetone	7	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	1	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

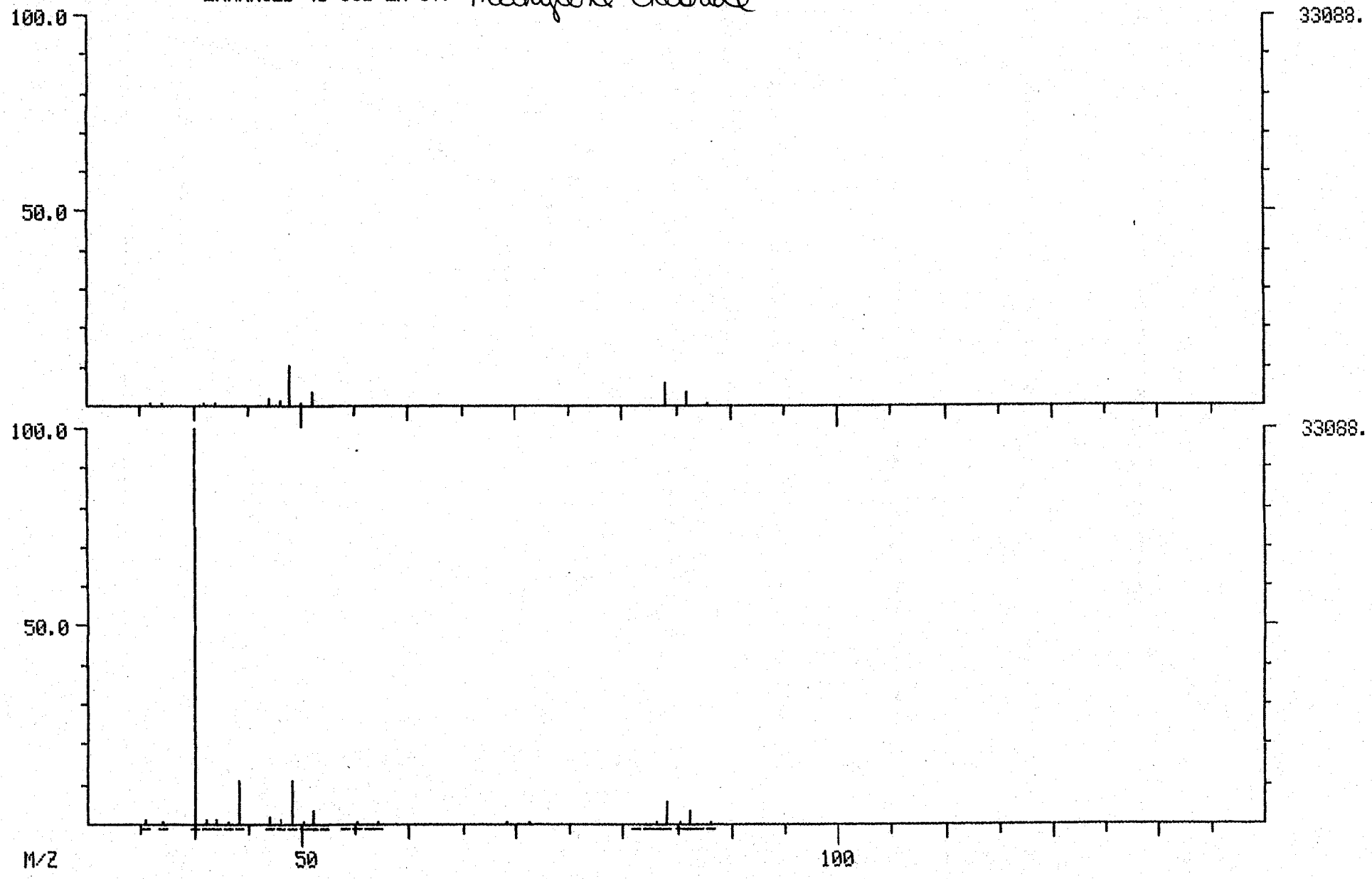
TCA FINISHED, 10 FOUND
FINISHED AT: 9/15/88 17:11:30



000027

DUAL MASS SPECTRUM
09/15/88 16:35:00 + 9:24
SAMPLE: CLP,V11854,,11854005,L,W,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

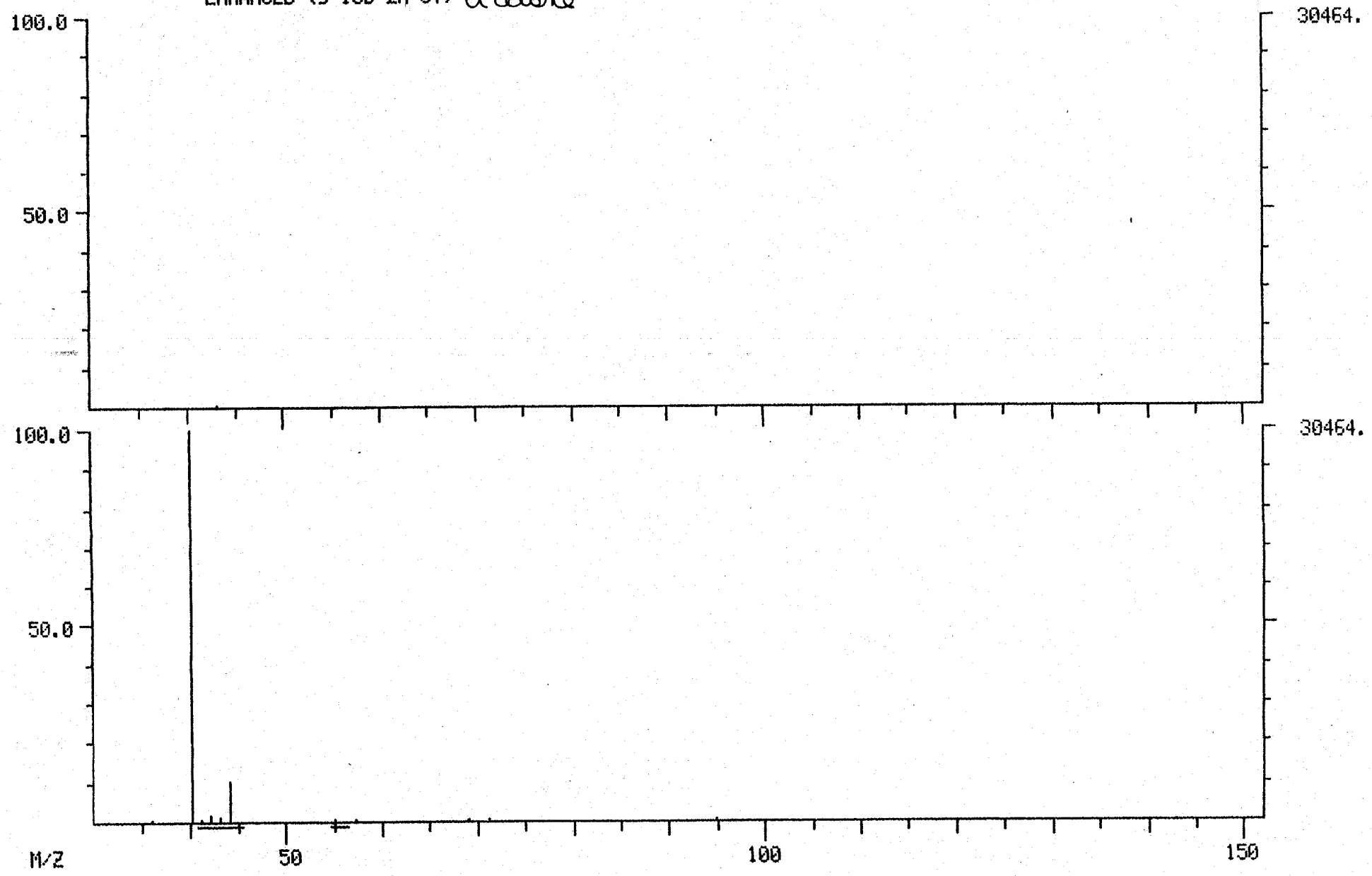
DATA: C1V0001561 #564 BASE M/Z: 49/ 40
CALI: C1V0001561 #5 RIC: 9935./ 49855.



000028

DUAL MASS SPECTRUM
09/15/88 16:35:00 + 8:06
SAMPLE: CLP,V11854,,11854005,L,W,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) acetone

DATA: C1V0001561 #486 BASE M/Z: 43/ 40
CALI: C1V0001561 #5 RIC: 243./ 36543.

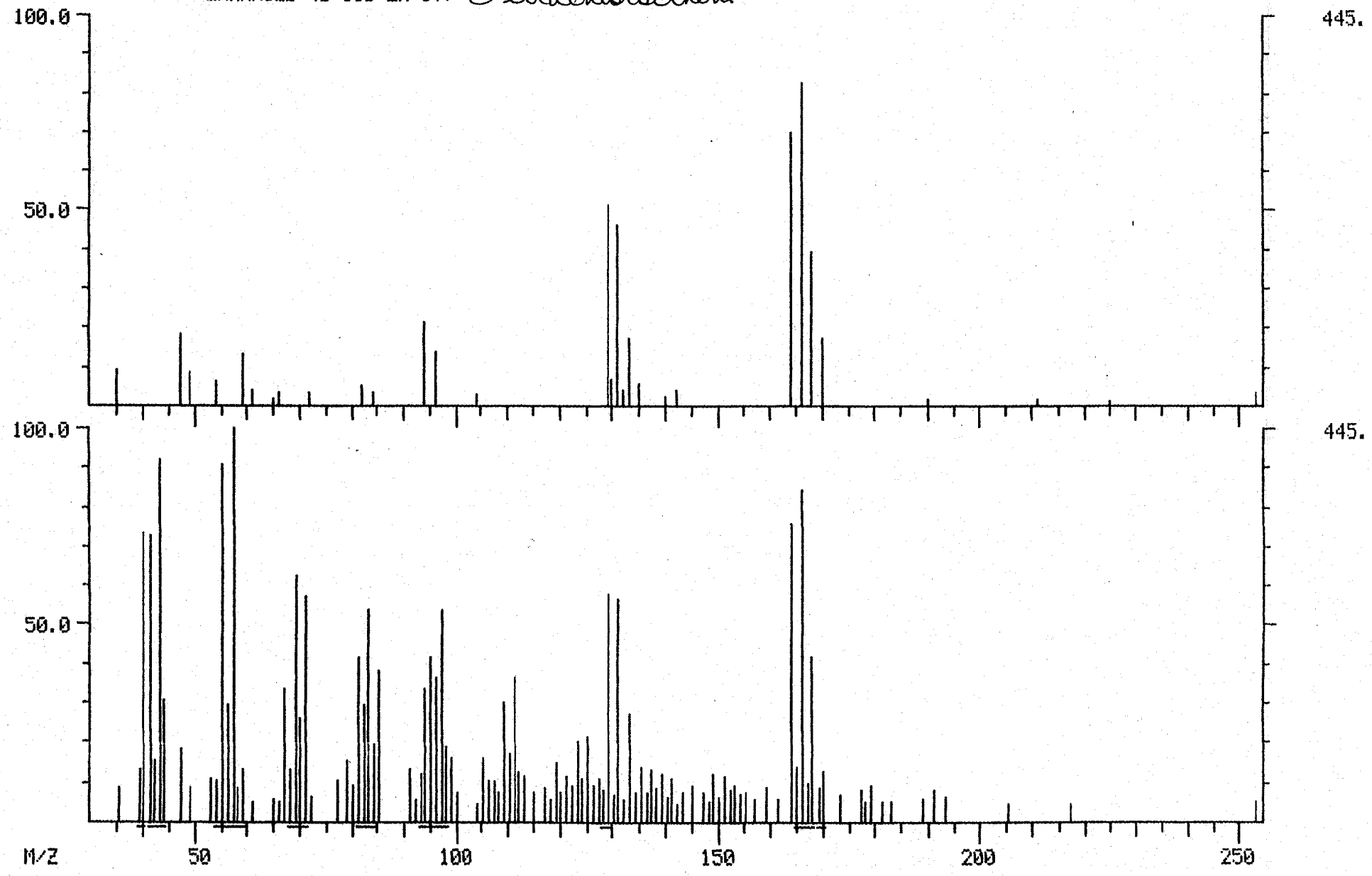


000029

DUAL MASS SPECTRUM
09/15/88 16:35:00 + 20:12
SAMPLE: CLP,V11854,,11854005,L,W,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Tetrachloroethene

DATA: C1V0001561 #1212 BASE M/Z: 166/ 57
CALI: C1V0001561 #5 RIC: 2099./ 9999.

000030



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09148B2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09148B2

Sample wt/vol: _____ (g/mL) G Lab File ID: CBV0001535

Level: (low/med) LOW Date Received: 09/14/88

% Moisture: not dec. 0 Date Analyzed: 09/14/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	BJ
67-64-1	Acetone	22	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	3	BJ
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	2	BJ
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09158B2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09158B2

Sample wt/vol: _____ (g/mL) G Lab File ID: CBV0001567

Level: (low/med) LOW Date Received: 09/15/88

% Moisture: not dec. 0 Date Analyzed: 09/15/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	3	BJ
67-64-1	Acetone	12	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	1	BJ
591-78-6	2-Hexanone	2	BJ
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	1	BJ
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X09158B1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: X09158B1

Sample wt/vol: _____ (g/mL) ML Lab File ID: CBV0001553

Level: (low/med) LOW Date Received: 09/15/88

% Moisture: not dec. _____ Date Analyzed: 09/15/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	4	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	1	BJ
591-78-6	2-Hexanone	2	BJ
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	2	BJ
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	TRIP_BLK_AQ	108	112	104		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GC-MS

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	X09158B1	98	104	104		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	2BMW4S1_1230	99	102	107		0
02	2BMW4S1_DL	99	100	117		0
03	2BMW4S2_1230	114	105	113		0
04	2BMW4S3_1230	99	100	108		0
05	SS5_1015	115	93	111		0
06	9-2-88_MS	101	97	106		0
07	9-2-88_MSD	108	106	103		0

	QC LIMITS
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = Bromofluorobenzene	(74-121)
S3 (DCE) = 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

RS.

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GC-MS

Level:(low/med) _____

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	Y09148B2	100	105	108		0
02	Y09158B2	102	103	105		0

	QC LIMITS
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = Bromofluorobenzene	(74-121)
S3 (DCE) = 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Matrix Spike - EPA Sample No.: 2BMW4S2_1230 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	55.6	0	43.3	78	59-172
Trichloroethene	55.6	0	43.4	78	62-137
Benzene	55.6	0	43.7	79	66-142
Toluene	55.6	0	42.1	76	59-139
Chlorobenzene	55.6	0	41.1	74	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	55.6	47.0	85	-9	22	59-172
Trichloroethene	55.6	50.1	90	-14	24	62-137
Benzene	55.6	53.3	96	-19	21	66-142
Toluene	55.6	54.0	97	-24 *	21	59-139
Chlorobenzene	55.6	49.7	89	-18	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: CLP,V11854,,11854003,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

RS.

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001535 Lab Sample ID: Y09148B2

Date Analyzed: 09/14/88 Time Analyzed: 1928

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2BMW4S1_DL	11854002DL	C1V0001546	0257
02	2BMW4S2_1230	11854003	C1V0001547	0332
03	SS5_1015	11854001	C1V0001545	0221

COMMENTS: CLP,V11846,,Y09148B2,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBVO001553 Lab Sample ID: X09158B1

Date Analyzed: 09/15/88 Time Analyzed: 1115

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	TRIP_BLK_AQ	11854005	C1VO001561	1635

COMMENTS: CLP,V11842,,X09158B1,L,W,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001567 Lab Sample ID: Y09158B2

Date Analyzed: 09/15/88 Time Analyzed: 2300

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2BMW4S1_1230	11854002	C2V0001570	0119
02	2BMW4S3_1230	11854004	C1V0001571	0155
03	9-2-88_MS	11854M06	CMV0001572	0230
04	9-2-88_MSD	11854D07	CMV0001573	0305

COMMENTS: CLP,V11846,,Y09158B2,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

RS

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CSV0001316 BFB Injection Date: 09/01/88

Instrument ID: 4500 BFB Injection Time: 1448

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.8
75	30.0 - 60.0% of mass 95	40.2
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	61.0
175	5.0 - 9.0% of mass 174	4.3 (7.1)1
176	Greater than 95.0%, but less than 101.0% of mass 174	58.4 (95.8)1
177	5.0 - 9.0% of mass 176	3.7 (6.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	50_VOA_STND		CSV0001318	09/01/88	1717
02	100_VOA_STND		CSV0001319	09/01/88	1754
03	150_VOA_STND		CSV0001320	09/01/88	1854
04	200_VOA_STND		CSV0001321	09/01/88	2016
05	20_VOA_STND		CSV0001323	09/01/88	2138

RS

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Lab File ID: C1VO001533 BFB Injection Date: 09/14/88

Instrument ID: 4500 BFB Injection Time: 1613

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.8
75	30.0 - 60.0% of mass 95	38.0
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.6 (0.8)1
174	Greater than 50.0% of mass 95	73.8
175	5.0 - 9.0% of mass 174	5.4 (7.3)1
176	Greater than 95.0%, but less than 101.0% of mass 174	71.2 (96.5)1
177	5.0 - 9.0% of mass 176	4.8 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSVO001534	09/14/88	1827
02	Y09148B2	Y09148B2	CBVO001535	09/14/88	1928
03	SS5_1015	11854001	C1VO001545	09/15/88	0221
04	2BMW4S1_DL	11854002DL	C1VO001546	09/15/88	0257
05	2BMW4S2_1230	11854003	C1VO001547	09/15/88	0332

RS

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Lab File ID: C2BF001549 BFB Injection Date: 09/15/88

Instrument ID: 4500 BFB Injection Time: 0815

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.2
75	30.0 - 60.0% of mass 95	36.7
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	1.1 (1.6)1
174	Greater than 50.0% of mass 95	67.2
175	5.0 - 9.0% of mass 174	5.2 (7.7)1
176	Greater than 95.0%, but less than 101.0% of mass 174	65.1 (96.9)1
177	5.0 - 9.0% of mass 176	4.6 (7.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSVO001552	09/15/88	1032
02	X09158B1	X09158B1	CBVO001553	09/15/88	1115
03	TRIP_BLK_AQ	11854005	C1VO001561	09/15/88	1635

RS.

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CSV0001565 BFB Injection Date: 09/15/88

Instrument ID: 4500 BFB Injection Time: 2137

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.2
75	30.0 - 60.0% of mass 95	39.1
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.8 (1.0)1
174	Greater than 50.0% of mass 95	75.6
175	5.0 - 9.0% of mass 174	5.6 (7.4)1
176	Greater than 95.0%, but less than 101.0% of mass 174	73.4 (97.1)1
177	5.0 - 9.0% of mass 176	4.9 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSV0001566	09/15/88	2221
02	Y09158B2	Y09158B2	CBV0001567	09/15/88	2300
03	2BMW4S1_1230	11854002	C2V0001570	09/16/88	0119
04	2BMW4S3_1230	11854004	C1V0001571	09/16/88	0155
05	9-2-88_MS	11854M06	CMV0001572	09/16/88	0230
06	9-2-88_MSD	11854D07	CMV0001573	09/16/88	0305

RS

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration Date(s): 09/01/88 09/01/88

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min $\overline{RRF}$ for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = CSV0001323 RRF50 = CSV0001318
RRF100= CSV0001319 RRF150= CSV0001320 RRF200= CSV0001321

COMPOUND		RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane	#	0.354	0.503	0.480	0.448	0.420	0.441	13.1#
Bromomethane		0.175	0.247	0.251	0.233	0.221	0.225	13.6
Vinyl Chloride	*	0.330	0.440	0.431	0.404	0.381	0.397	11.1*
Chloroethane		0.102	0.223	0.244	0.238	0.227	0.207	28.6
Methylene Chloride		1.392	1.199	0.974	0.898	0.796	1.052	22.9
Acetone		0.550	0.456	0.421	0.332	0.289	0.410	25.2
Carbon Disulfide		1.292	1.247	0.987	0.851	0.825	1.040	21.0
1,1-Dichloroethene	*	0.335	0.319	0.271	0.238	0.234	0.279	16.5*
1,1-Dichloroethane	#	2.776	2.652	2.419	2.356	2.230	2.487	9.0#
1,2-Dichloroethene (total)		0.842	0.798	0.718	0.670	0.639	0.733	11.6
Chloroform	*	3.256	2.744	2.372	2.375	2.257	2.601	15.8*
1,2-Dichloroethane		1.754	1.564	1.390	1.392	1.300	1.480	12.2
2-Butanone		0.552	0.575	0.568	0.559	0.517	0.554	4.1
1,1,1-Trichloroethane		0.382	0.368	0.325	0.318	0.299	0.338	10.4
Carbon Tetrachloride		0.327	0.309	0.283	0.273	0.263	0.291	9.1
Vinyl Acetate		0.209	0.224	0.221	0.187	0.191	0.206	8.2
Bromodichloromethane		0.599	0.580	0.553	0.547	0.526	0.561	5.1
1,2-Dichloropropane	*	0.594	0.569	0.559	0.541	0.524	0.557	4.8*
cis-1,3-Dichloropropene		0.710	0.698	0.626	0.615	0.585	0.647	8.4
Trichloroethene		0.506	0.393	0.353	0.355	0.399	0.401	15.5
Dibromochloromethane		0.383	0.351	0.339	0.330	0.317	0.344	7.3
1,1,2-Trichloroethane		0.413	0.399	0.380	0.380	0.367	0.388	4.7
Benzene		1.360	1.265	1.137	1.082	0.989	1.167	12.6
trans-1,3-Dichloropropene		0.150	0.154	0.137	0.134	0.129	0.141	7.6
Bromoform	#	0.379	0.371	0.365	0.343	0.318	0.355	7.0#
2-Hexanone		0.729	0.782	0.759	0.808	0.767	0.769	3.8
4-Methyl-2-Pentanone		0.996	1.142	1.074	1.144	1.060	1.083	5.7
Tetrachloroethene		0.304	0.276	0.247	0.251	0.243	0.264	9.7
1,1,2,2-Tetrachloroethane	#	0.601	0.677	0.605	0.673	0.641	0.639	5.6#
Toluene	*	0.848	0.840	0.711	0.753	0.717	0.774	8.5*
Chlorobenzene	#	1.024	0.907	0.850	0.843	0.791	0.883	10.1#
Ethylbenzene	*	0.551	0.481	0.456	0.453	0.437	0.476	9.5*
Styrene		1.245	1.162	1.049	1.009	0.916	1.076	12.0
Xylenes (total)		0.691	0.646	0.596	0.585	0.546	0.613	9.2
Toluene-d8 - SS		0.539	0.605	0.543	0.586	0.588	0.572	5.2
1,4-Bromofluorobenzene - SS		0.291	0.327	0.305	0.319	0.323	0.313	4.7
1,2-Dichloroethane-d4 - SS		0.592	0.581	0.564	0.542	0.513	0.558	5.7

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/14/88 Time: 1827

Lab File ID: CSV0001534 Init. Calib. Date(s): 09/01/88 09/01/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.441	0.604	-37.0	#
Bromomethane		0.225	0.312	-38.7	
Vinyl Chloride	*	0.397	0.493	-24.2	*
Chloroethane		0.207	0.316	-52.7	
Methylene Chloride		1.052	0.838	20.3	
Acetone		0.410	0.211	48.5	
Carbon Disulfide		1.040	0.994	4.4	
1,1-Dichloroethene	*	0.279	0.292	-4.7	*
1,1-Dichloroethane	#	2.487	2.518	-1.2	#
1,2-Dichloroethene (total)		0.733	0.837	-14.2	
Chloroform	*	2.601	2.950	-13.4	*
1,2-Dichloroethane		1.480	1.574	-6.4	
2-Butanone		0.554	0.297	46.4	
1,1,1-Trichloroethane		0.338	0.359	-6.2	
Carbon Tetrachloride		0.291	0.320	-10.0	
Vinyl Acetate		0.206	0.083	59.7	
Bromodichloromethane		0.561	0.544	3.0	
1,2-Dichloropropane	*	0.557	0.500	10.2	*
cis-1,3-Dichloropropene		0.647	0.658	-1.7	
Trichloroethene		0.401	0.388	3.2	
Dibromochloromethane		0.344	0.362	-5.2	
1,1,2-Trichloroethane		0.388	0.386	0.5	
Benzene		1.167	1.310	-12.3	
trans-1,3-Dichloropropene		0.141	0.131	7.1	
Bromoform	#	0.355	0.343	3.4	#
2-Hexanone		0.769	0.452	41.2	
4-Methyl-2-Pentanone		1.083	0.674	37.8	
Tetrachloroethene		0.264	0.359	-36.0	
1,1,2,2-Tetrachloroethane	#	0.639	0.597	6.6	#
Toluene	*	0.774	0.877	-13.3	*
Chlorobenzene	#	0.883	1.065	-20.6	#
Ethylbenzene	*	0.476	0.558	-17.2	*
Styrene		1.076	1.203	-11.8	
Xylenes (total)		0.613	0.679	-10.8	
Toluene-d8 - SS		0.572	0.561	1.9	
1,4-Bromofluorobenzene - SS		0.313	0.275	12.1	
1,2-Dichloroethane-d4 - SS		0.558	0.529	5.2	

RS.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/15/88 Time: 1032

Lab File ID: CSV0001552 Init. Calib. Date(s): 09/01/88 09/01/88

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.441	0.490	-11.1	#
Bromomethane		0.225	0.296	-31.6	
Vinyl Chloride	*	0.397	0.419	-5.5	*
Chloroethane		0.207	0.311	-50.2	
Methylene Chloride		1.052	0.889	15.5	
Acetone		0.410	0.245	40.2	
Carbon Disulfide		1.040	0.989	4.9	
1,1-Dichloroethene	*	0.279	0.289	-3.6	*
1,1-Dichloroethane	#	2.487	2.494	-0.3	#
1,2-Dichloroethene (total)		0.733	0.825	-12.6	
Chloroform	*	2.601	3.154	-21.3	*
1,2-Dichloroethane		1.480	1.636	-10.5	
2-Butanone		0.554	0.202	63.5	
1,1,1-Trichloroethane		0.338	0.336	0.6	
Carbon Tetrachloride		0.291	0.303	-4.1	
Vinyl Acetate		0.206	1.080	-99.9	
Bromodichloromethane		0.561	0.477	15.0	
1,2-Dichloropropane	*	0.557	0.484	13.1	*
cis-1,3-Dichloropropene		0.647	0.580	10.4	
Trichloroethene		0.401	0.375	6.5	
Dibromochloromethane		0.344	0.294	14.5	
1,1,2-Trichloroethane		0.388	0.304	21.7	
Benzene		1.167	1.192	-2.1	
trans-1,3-Dichloropropene		0.141	0.104	26.2	
Bromoform	#	0.355	0.270	23.9	#
2-Hexanone		0.769	0.337	56.2	
4-Methyl-2-Pentanone		1.083	0.517	52.3	
Tetrachloroethene		0.264	0.347	-31.4	
1,1,2,2-Tetrachloroethane	#	0.639	0.473	26.0	#
Toluene	*	0.774	0.835	-7.9	*
Chlorobenzene	#	0.883	1.018	-15.3	#
Ethylbenzene	*	0.476	0.552	-16.0	*
Styrene		1.076	1.206	-12.1	
Xylenes (total)		0.613	0.687	-12.1	
Toluene-d8 - SS		0.572	0.558	2.4	
1,4-Bromofluorobenzene - SS		0.313	0.271	13.4	
1,2-Dichloroethane-d4 - SS		0.558	0.568	-1.8	

RS

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/15/88 Time: 2221

Lab File ID: CSV0001566 Init. Calib. Date(s): 09/01/88 09/01/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.441	0.490	-11.1	#
Bromomethane		0.225	0.255	-13.3	
Vinyl Chloride	*	0.397	0.425	-7.1	*
Chloroethane		0.207	0.276	-33.3	
Methylene Chloride		1.052	0.756	28.1	
Acetone		0.410	0.246	40.0	
Carbon Disulfide		1.040	1.066	-2.5	
1,1-Dichloroethene	*	0.279	0.337	-20.8	*
1,1-Dichloroethane	#	2.487	2.700	-8.6	#
1,2-Dichloroethene (total)		0.733	0.881	-20.2	
Chloroform	*	2.601	3.178	-22.2	*
1,2-Dichloroethane		1.480	1.869	-26.3	
2-Butanone		0.554	0.327	41.0	
1,1,1-Trichloroethane		0.338	0.346	-2.4	
Carbon Tetrachloride		0.291	0.324	-11.3	
Vinyl Acetate		0.206	1.141	-99.9	
Bromodichloromethane		0.561	0.542	3.4	
1,2-Dichloropropane	*	0.557	0.540	3.1	*
cis-1,3-Dichloropropene		0.647	0.614	5.1	
Trichloroethene		0.401	0.421	-5.0	
Dibromochloromethane		0.344	0.331	3.8	
1,1,2-Trichloroethane		0.388	0.355	8.5	
Benzene		1.167	1.294	-10.9	
trans-1,3-Dichloropropene		0.141	0.122	13.5	
Bromoform	#	0.355	0.339	4.5	#
2-Hexanone		0.769	0.574	25.4	
4-Methyl-2-Pentanone		1.083	0.835	22.9	
Tetrachloroethene		0.264	0.356	-34.9	
1,1,2,2-Tetrachloroethane	#	0.639	0.654	-2.3	#
Toluene	*	0.774	0.897	-15.9	*
Chlorobenzene	#	0.883	1.086	-23.0	#
Ethylbenzene	*	0.476	0.576	-21.0	*
Styrene		1.076	1.295	-20.4	
Xylenes (total)		0.613	0.733	-19.6	
Toluene-d8 - SS		0.572	0.558	2.4	
1,4-Bromofluorobenzene - SS		0.313	0.279	10.9	
1,2-Dichloroethane-d4 - SS		0.558	0.597	-7.0	

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001534 Date Analyzed: 09/14/88

Instrument ID: 4500 Time Analyzed: 1827

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	47100	13.42	234000	15.82	231000	22.10
	UPPER LIMIT	94200		468000		462000	
	LOWER LIMIT	23550		117000		115500	
	EPA SAMPLE NO.						
01	2BMW4S1_DL	41000	13.39	218000	15.85	192000	22.09
02	2BMW4S2_1230	41700	13.39	220000	15.84	181000	22.07
03	SS5_1015	37200	13.39	197000	15.85	151000	22.09
04	Y09148B2	34800	13.44	172000	15.87	162000	22.09

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

RS

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001552 Date Analyzed: 09/15/88

Instrument ID: 4500 Time Analyzed: 1032

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	34200	13.44	193000	15.87	177000	22.09
	UPPER LIMIT	68400		386000		354000	
	LOWER LIMIT	17100		96500		88500	
	EPA SAMPLE NO.						
01	TRIP_BLK_AQ	35700	13.42	188000	15.85	169000	22.07
02	X09158B1	34700	13.42	182000	15.85	177000	22.07

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

RS

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11854 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001566 Date Analyzed: 09/15/88

Instrument ID: 4500 Time Analyzed: 2221

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	45300	13.44	252000	15.89	226000	22.10
	UPPER LIMIT	90600		504000		452000	
	LOWER LIMIT	22650		126000		113000	
	EPA SAMPLE NO.						
01	2BMW4S1_1230	43200	13.42	233000	15.87	207000	22.12
02	2BMW4S3_1230	43300	13.40	233000	15.87	211000	22.10
03	9-2-88_MS	43600	13.40	241000	15.87	213000	22.10
04	9-2-88_MSD	40100	13.42	195000	15.89	168000	22.10
05	Y09158B2	42300	13.42	231000	15.87	206000	22.09

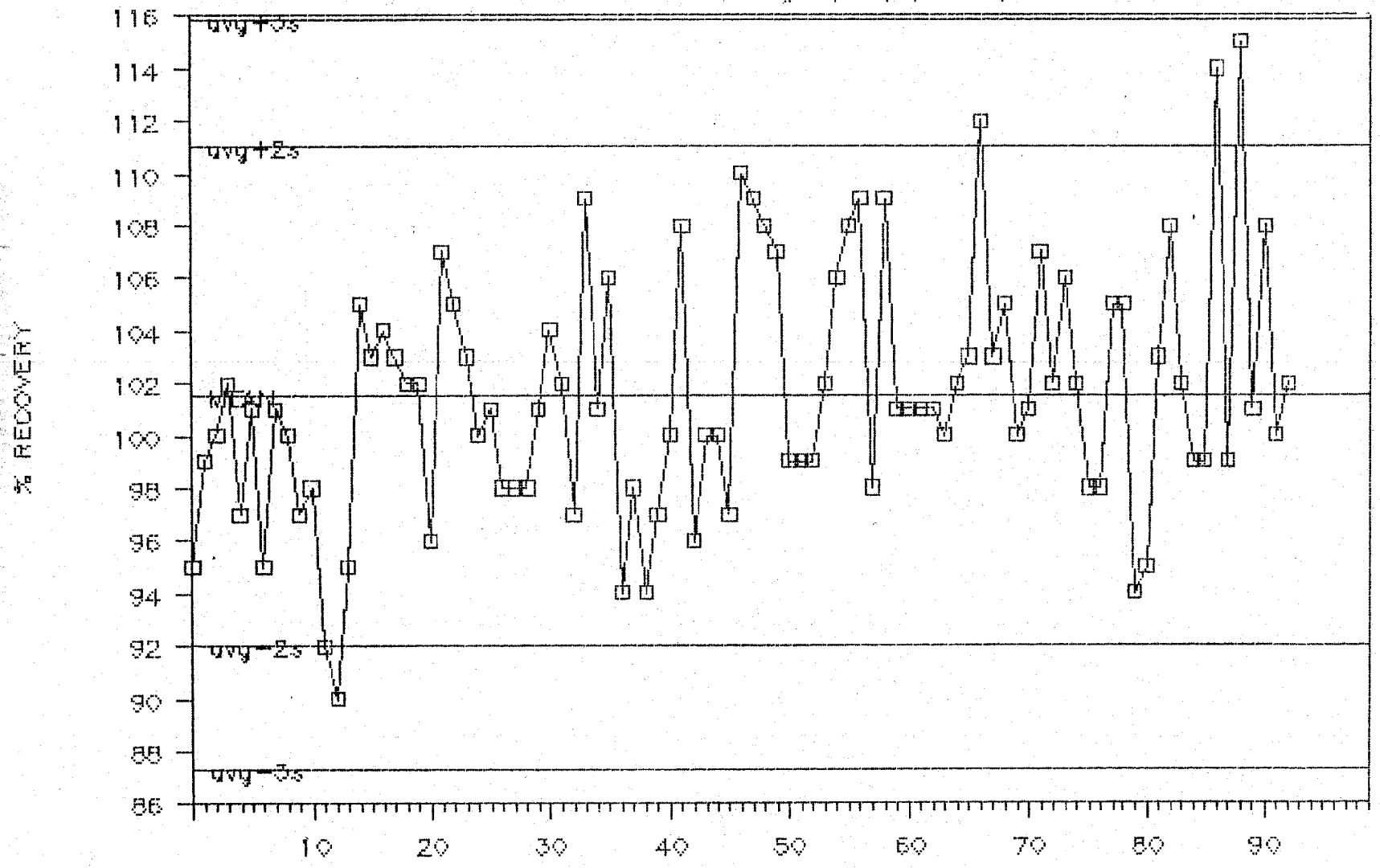
IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

SURROGATE RECOVERY

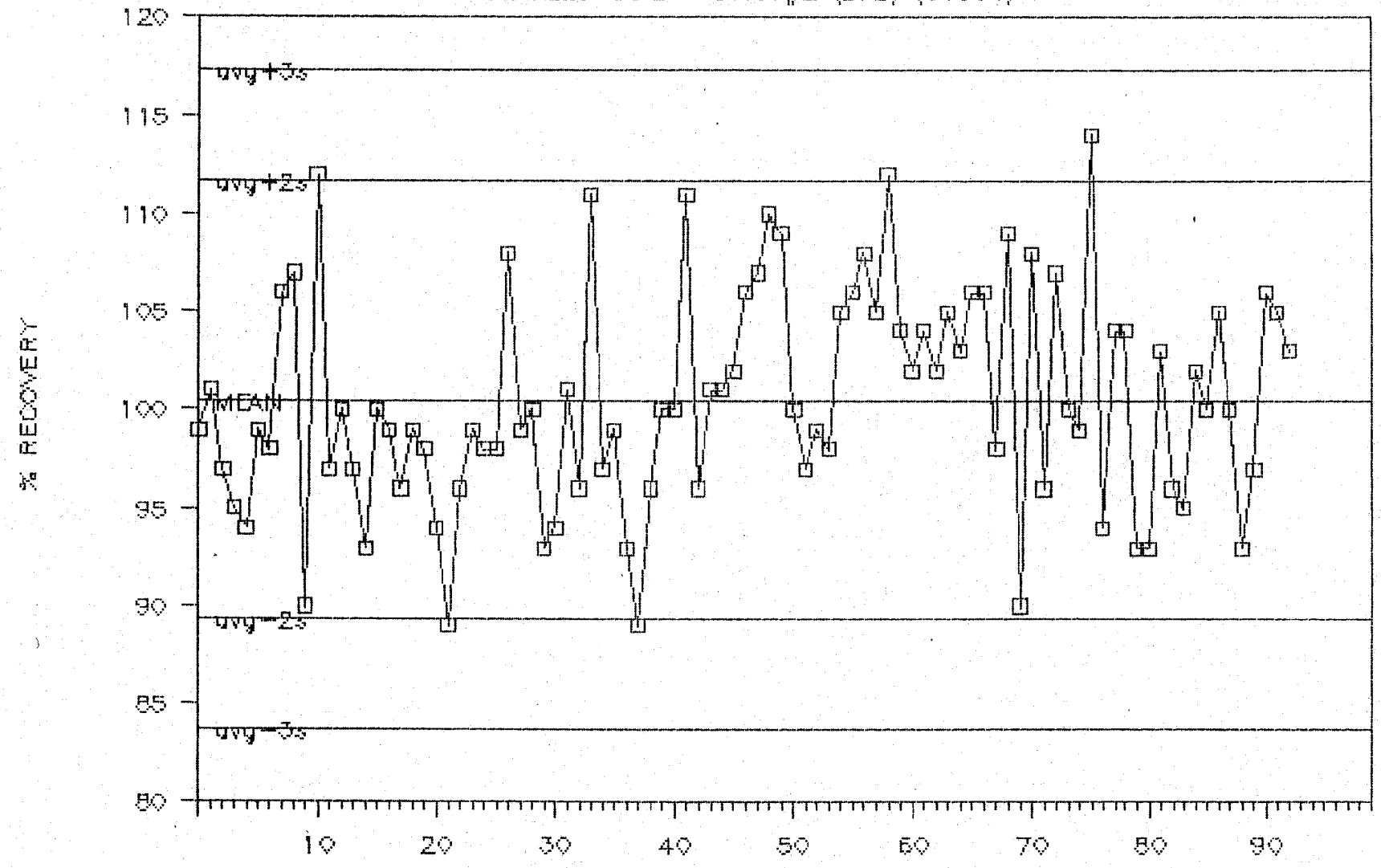
VOLATILES-SOIL - SURR.#1 (TOL) (11854)



000053

SURROGATE RECOVERY

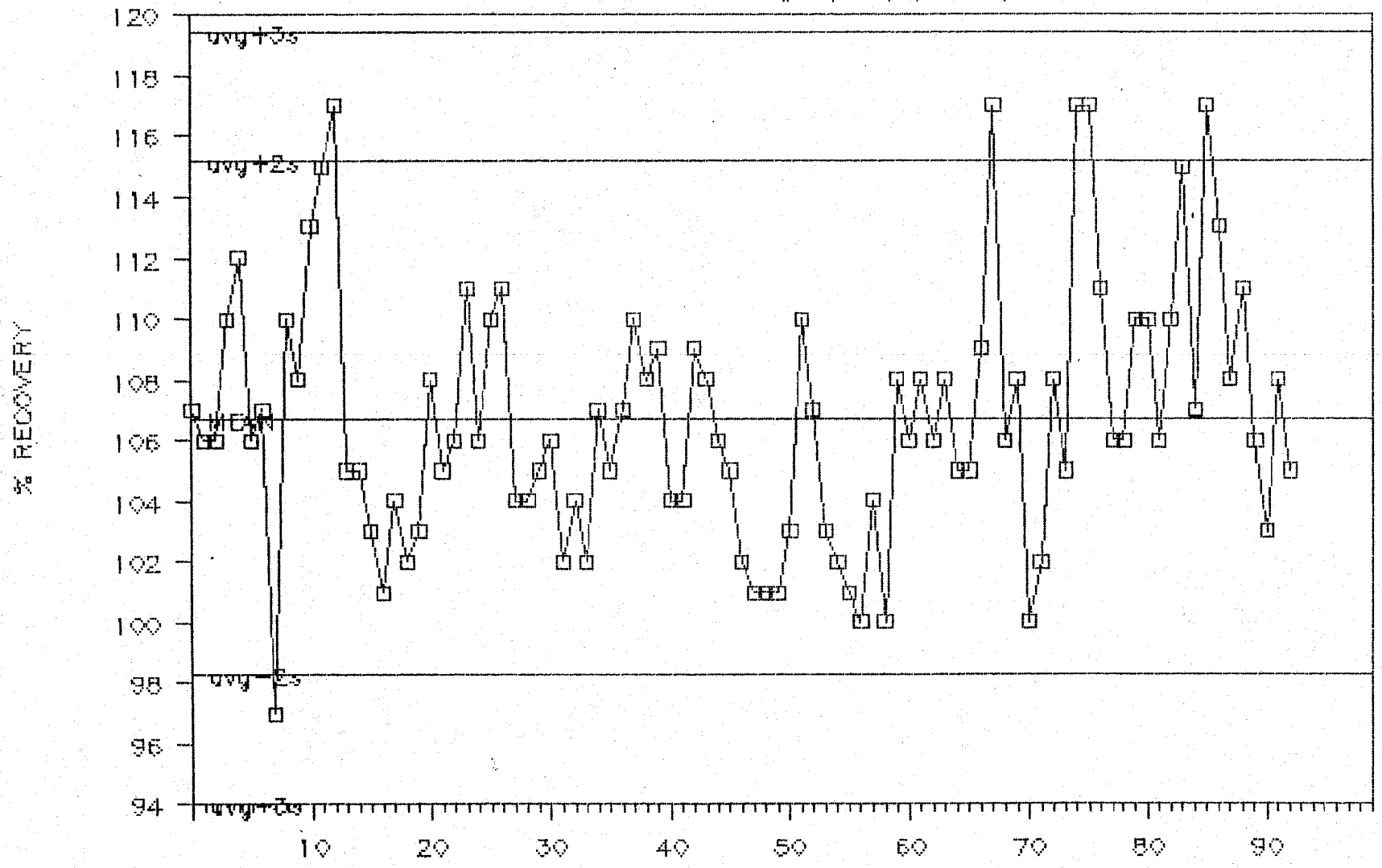
VOLATILES-SOIL - SURR.#2 (BFB) (11854)



0000054

SURROGATE RECOVERY

VOLATILES-SOIL - SURR.#3 (DCE) (11854)



000055

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Date: 10/28/88

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11854

RE: Sample(s) received by CH2M HILL on 09/06/88.
LANTDIV

Analysis Description	[Method]	SS5 * 2B 9/2/88 1015 COMP SOIL	2B-MW4S1 * 2B 9/2/88 1230 COMP SOIL	2B-MW4S2 * 2B 9/2/88 1230 COMP SOIL	2B-MW4S3 * 2B 9/2/88 1230 COMP SOIL
		SOIL	SOIL	SOIL	SOIL
EP Tox. Silver (ug/L)	[EPA200.7]	<30	<30	<30	70
EP Tox. Arsenic (ug/L)	[EPA206.2]	<5	<5	9	<5
EP Tox. Barium (ug/L)	[EPA200.7]	340	140	200	<100
EP Tox. Cadmium (ug/L)	[EPA200.7]	<20	30	<20	<20
EP Tox. Chromium (ug/L)	[EPA200.7]	<10	<10	<10	<10
EP Tox. Mercury (ug/L)	[EPA245.1]	<0.4	0.4	<0.4	<0.4
EP Tox. Lead (ug/L)	[EPA200.7]	<10	9	<10	<10
EP Tox. Selenium (ug/L)	[EPA270.2]	<5	<5	<5	<5

Analyses performed in accordance with methods approved by the USEPA.

Respectfully Submitted,

Mr. James M. Schoen
Inorganic Laboratory Manager

cc: MR. FRANK LEWIS/WDC, MS. MARY WISDOM/MGM-LQAC

INORG(MGM-8809C)

CH2M HILL
Engineers
Planners
Economists
Scientists

October 10, 1988

W20368.D0

Mr. Doug Dronfield
CH2M HILL/WDC
P.O. Box 4400
Reston, Virginia 22090

RE: Analytical Data for Laboratory No. 11875

Dear Mr. Dronfield:

On September 8, 1988, CH2M HILL Montgomery Laboratory received eleven samples with a request for analysis of selected organic parameters.

Please note that the CH2M HILL Montgomery Laboratory reporting format has changed. The format alteration is in response to new reporting technology and will keep CH2M HILL in-line with new industry standards. We apologize for any inconvenience this change may cause.

The analytical results and the associated quality control data are enclosed. Please note Forms II, IV, V and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M Hill Montgomery Laboratory identification numbers. No unusual difficulties were encountered during the analysis of these samples.

If you should have any questions concerning the data, please call.

Sincerely,

Ward Dickens

Ward Dickens
Manager, Organic Analysis

Enclosures

cc: Mr. Craig Vinson
Mr. Frank Lewis/WDC

CH2M HILL Montgomery Environmental Laboratory 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205.271.1444

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2BMW6S1_1305

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11875001

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001574

Level: (low/med) LOW Date Received: 09/08/88

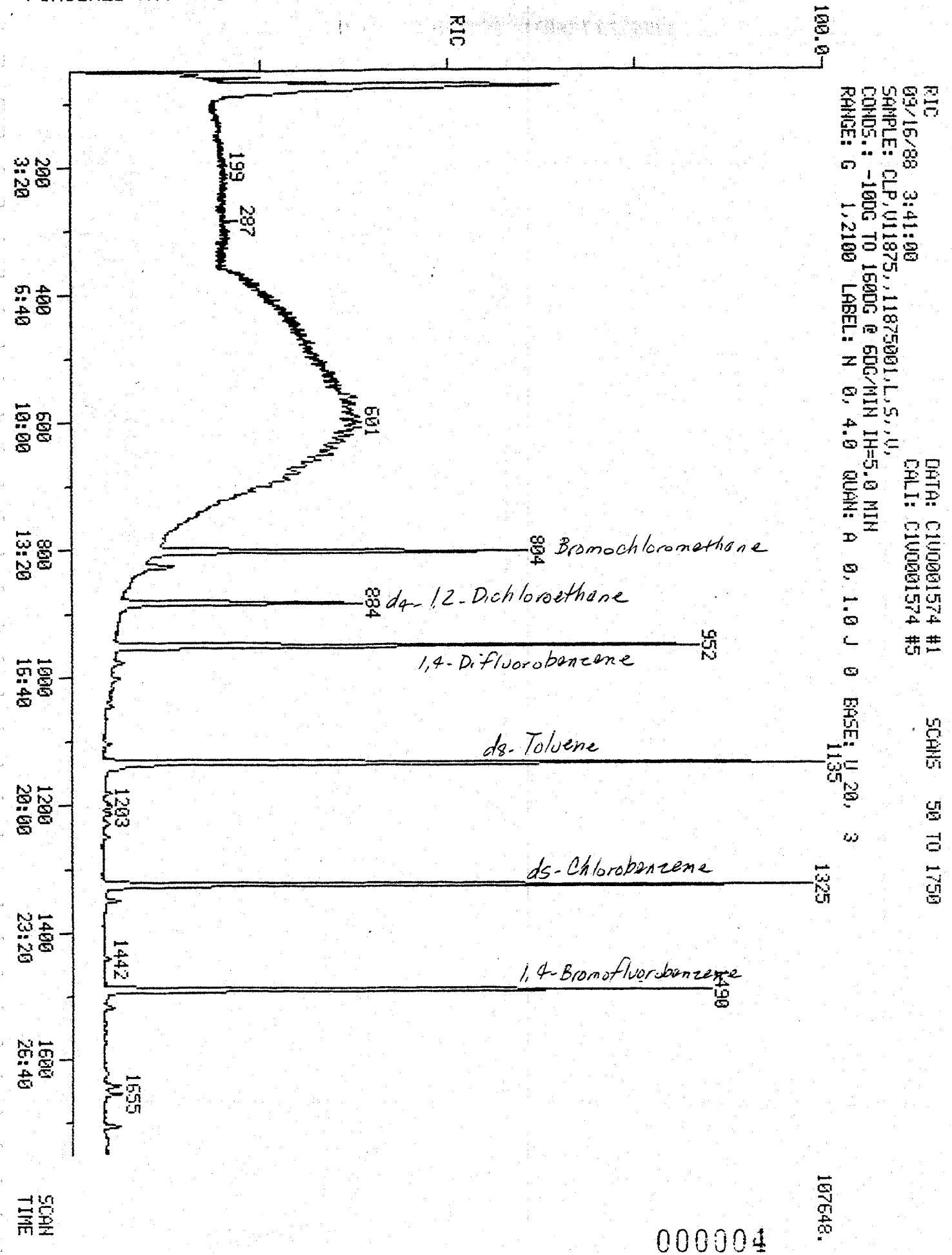
% Moisture: not dec. 0 Date Analyzed: 09/16/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	4	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	4	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS.

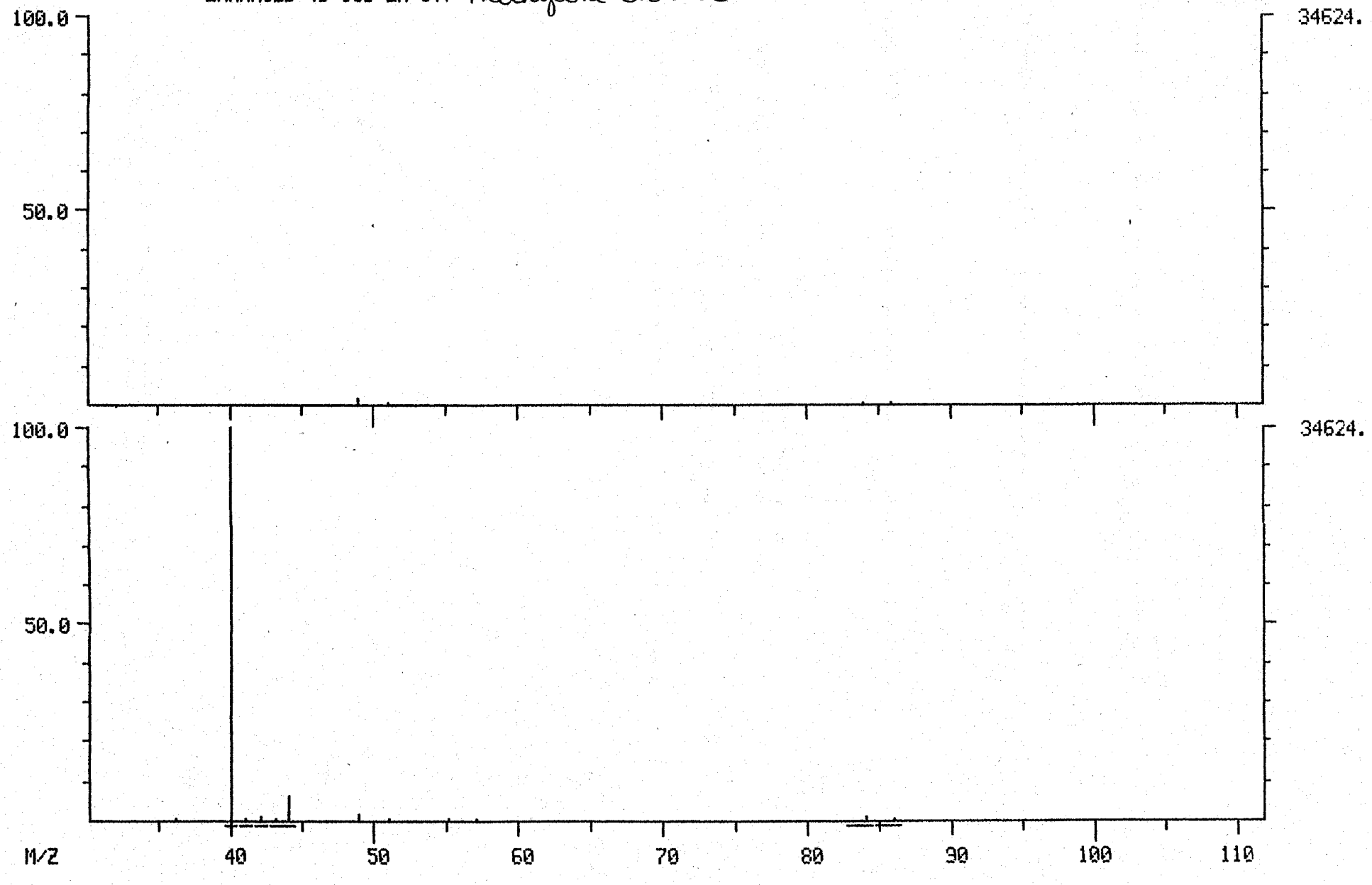
TCA FINISHED. 21 FOUND
FINISHED AT: 9/16/88 7:09:52



000004

DUAL MASS SPECTRUM
09/16/88 3:41:00 + 9:21
SAMPLE: CLP,V11875,,11875001,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene chloride

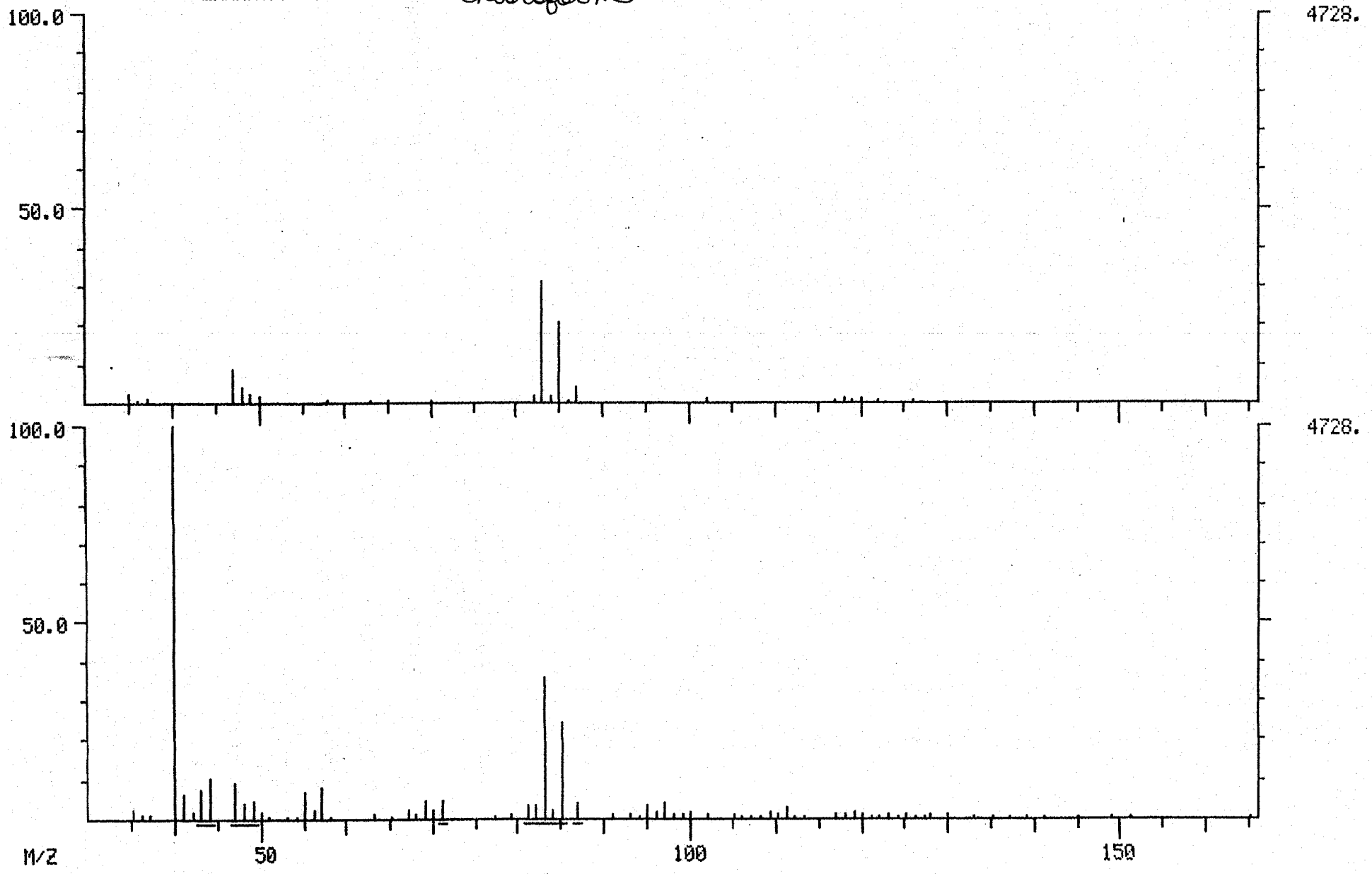
DATA: C1V0001574 #561 BASE M/Z: 49/ 40
CALI: C1V0001574 #5 RIC: 1603./ 40255.



000005

DUAL MASS SPECTRUM
09/16/88 3:41:00 + 13:47
SAMPLE: CLP,V11875,,11875001,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001574 #827 BASE M/Z: 83/ 40
CALI: C1V0001574 #5 RIC: 4199./ 14543.



000006

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2BMW6S2_1305

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11875002

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001575

Level: (low/med) LOW Date Received: 09/08/88

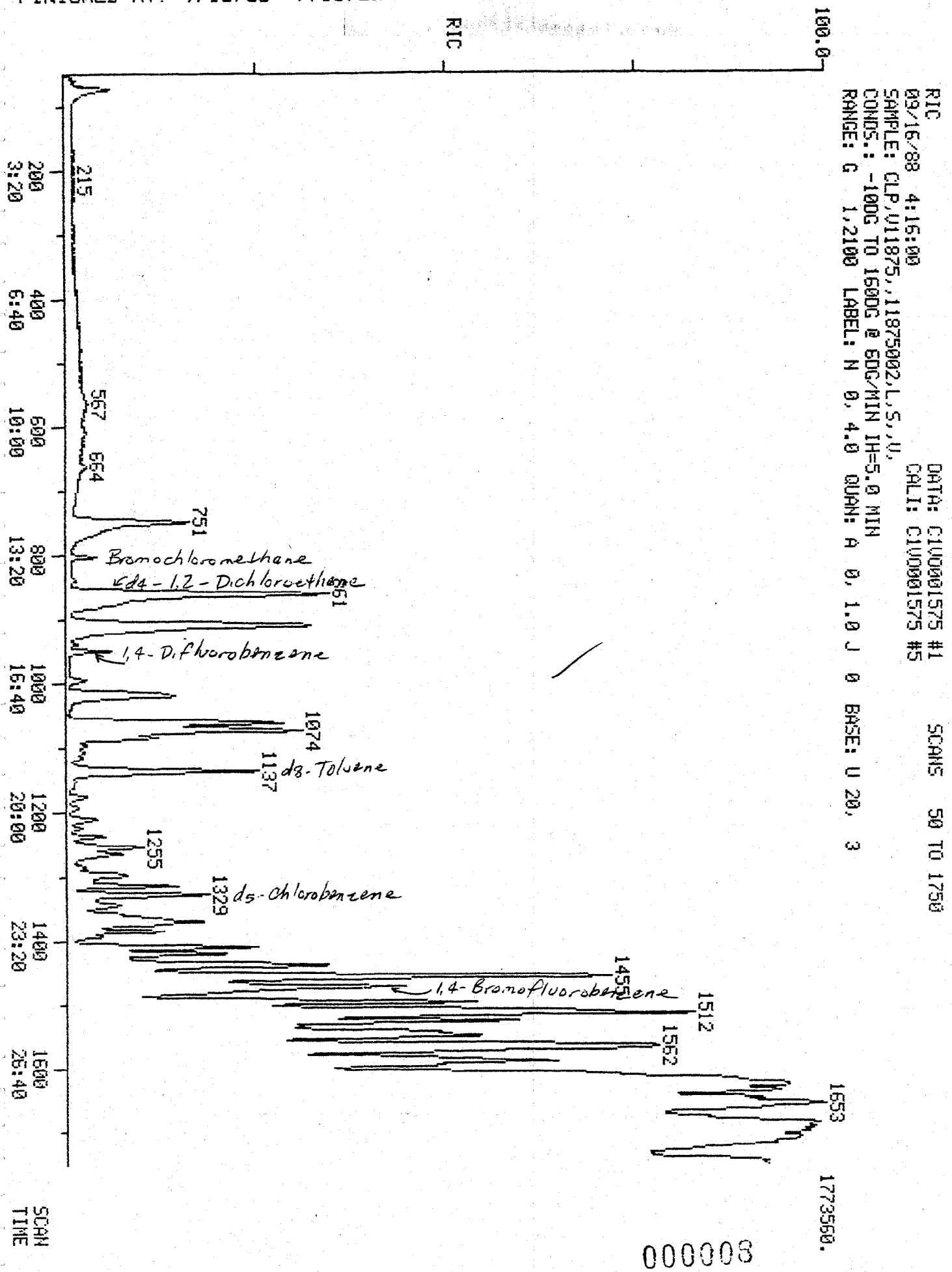
% Moisture: not dec. 15 Date Analyzed: 09/16/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	4	BJ
67-64-1	Acetone	41	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	5	J
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	9	

RS

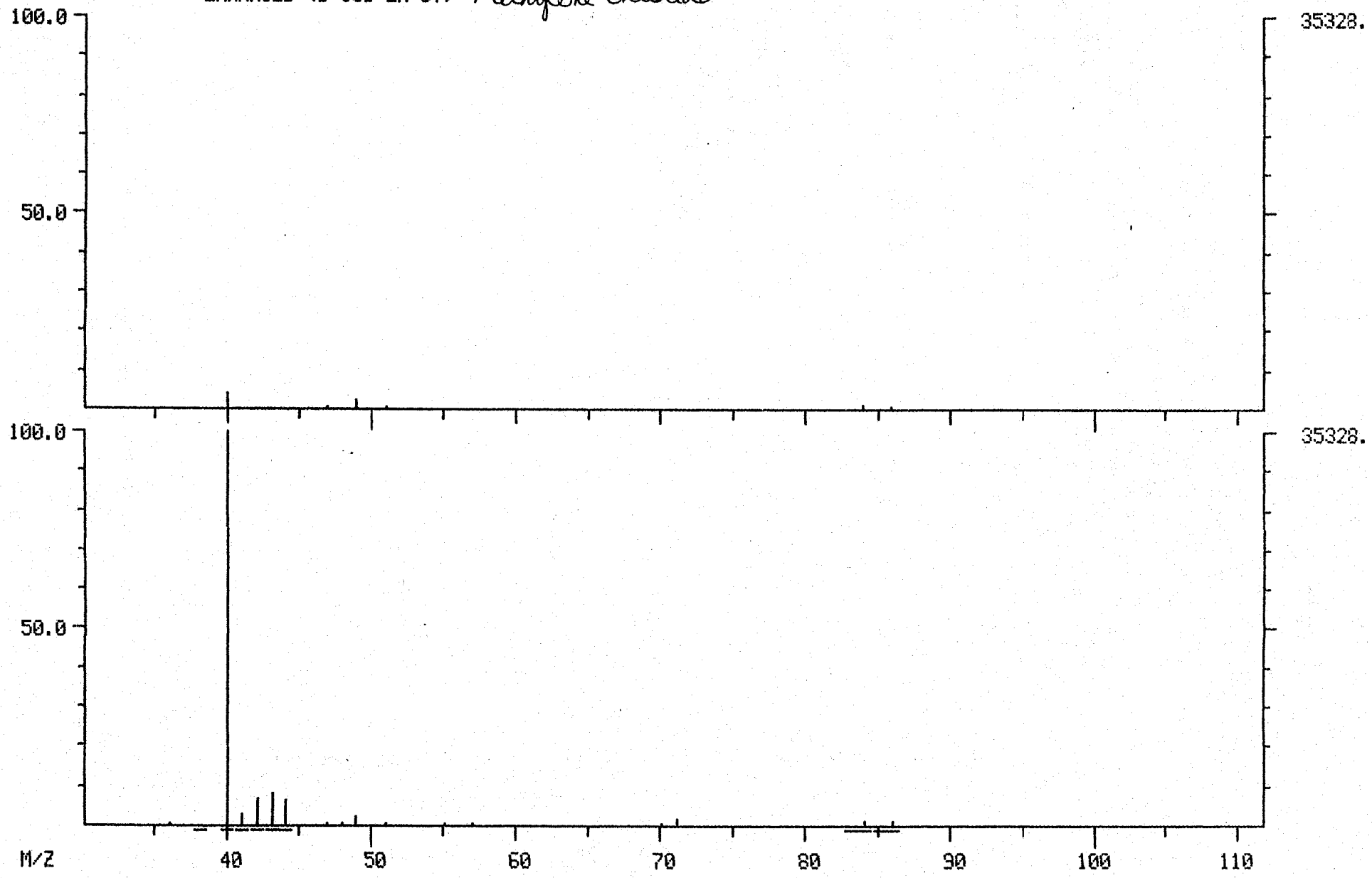
TCA FINISHED, 8 FOUND
FINISHED AT: 9/16/88 7:16:22



000009

DUAL MASS SPECTRUM
09/16/88 4:16:00 + 9:22
SAMPLE: CLP,V11875,,11875002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

DATA: C1V0001575 #562 BASE M/Z: 40/ 40
CALI: C1V0001575 #5 RIC: 3663./ 49023.

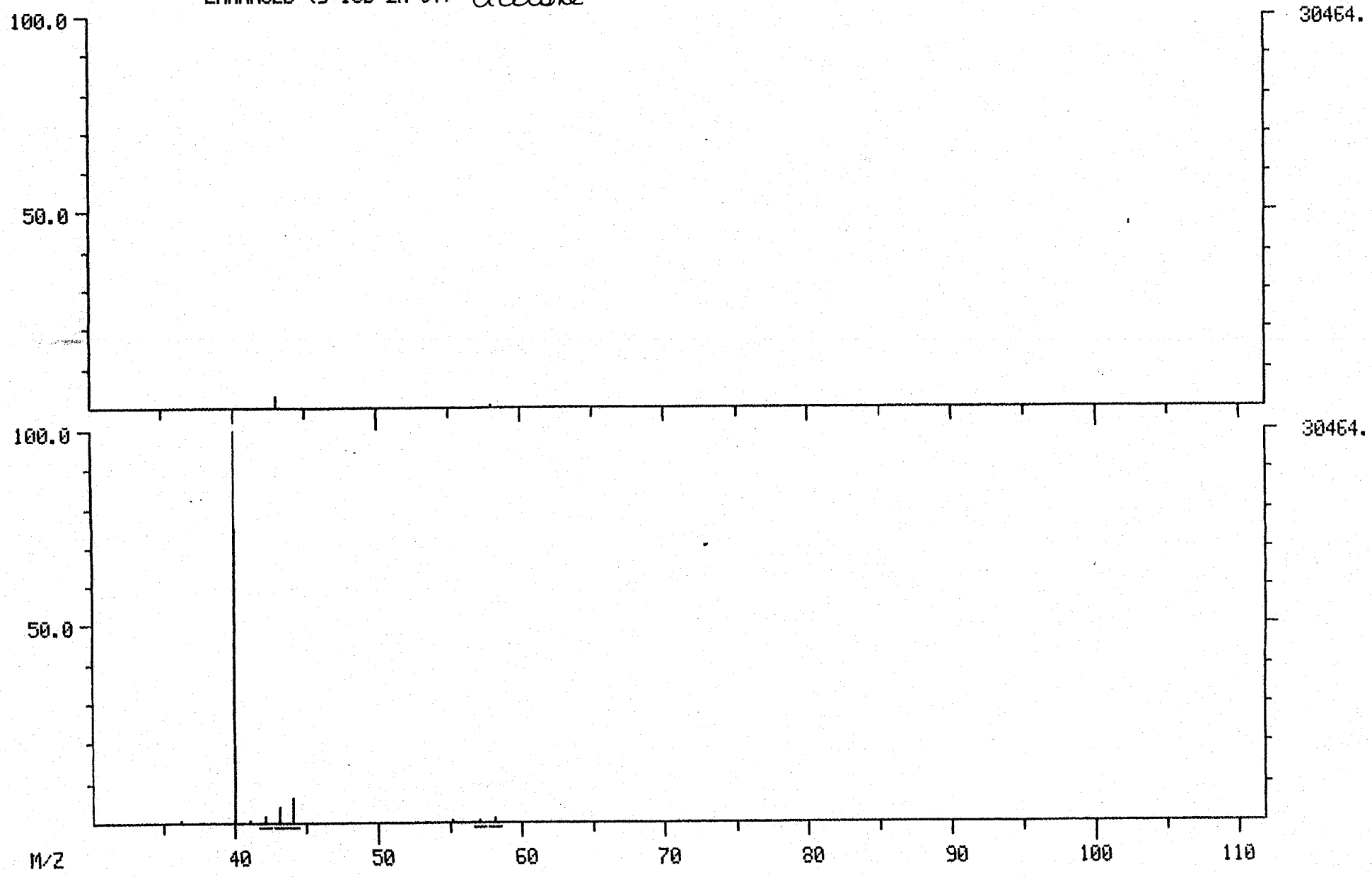


000009

DUAL MASS SPECTRUM
09/16/88 4:16:00 + 8:02
SAMPLE: CLP,V11875,,11875002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

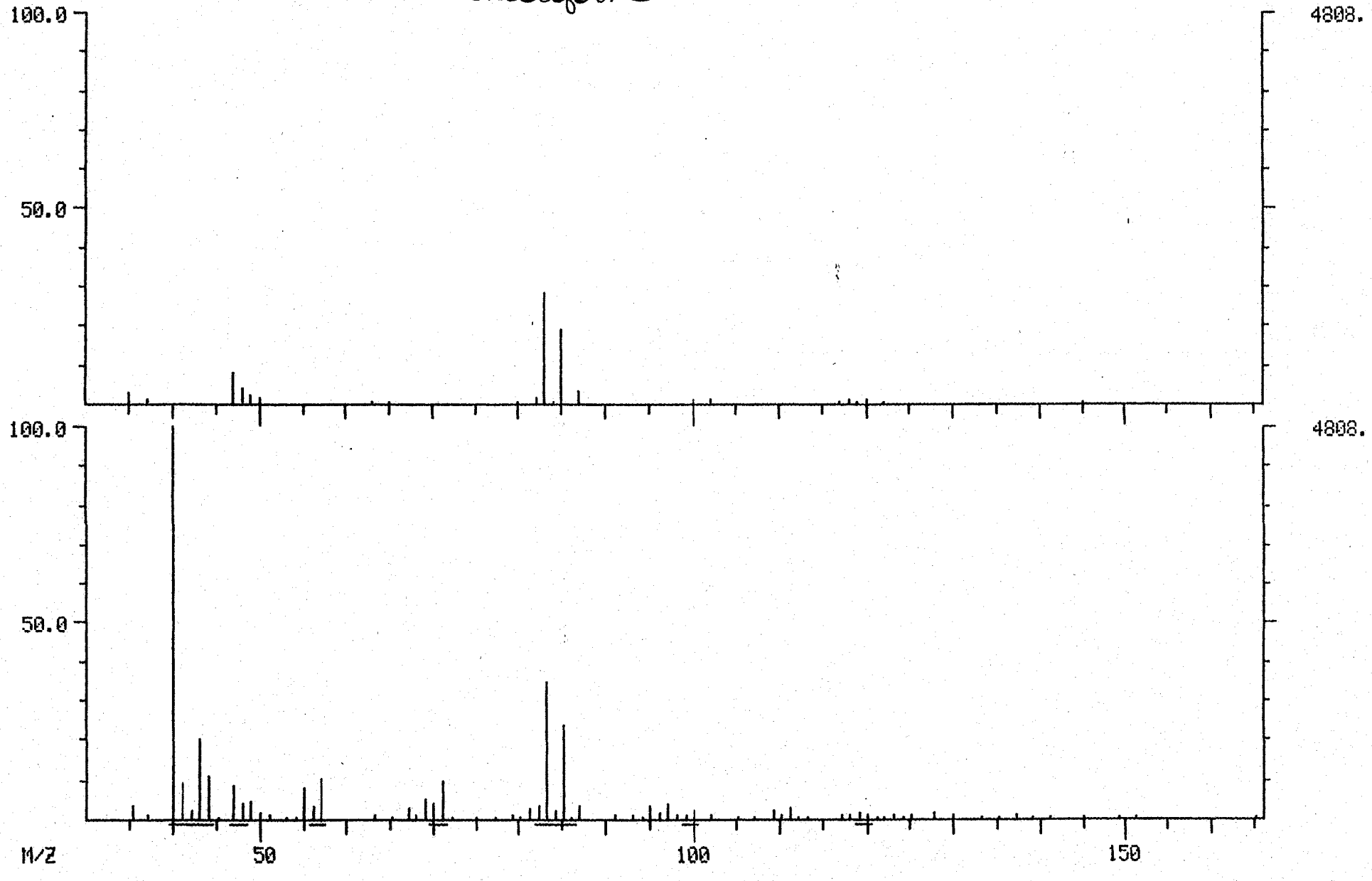
DATA: C1V0001575 #482 BASE M/Z: 43/ 40
CALI: C1V0001575 #5 RIC: 1291./ 35519.

000010



DUAL MASS SPECTRUM
09/16/88 4:16:00 + 13:47
SAMPLE: CLP,V11875,,11875002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

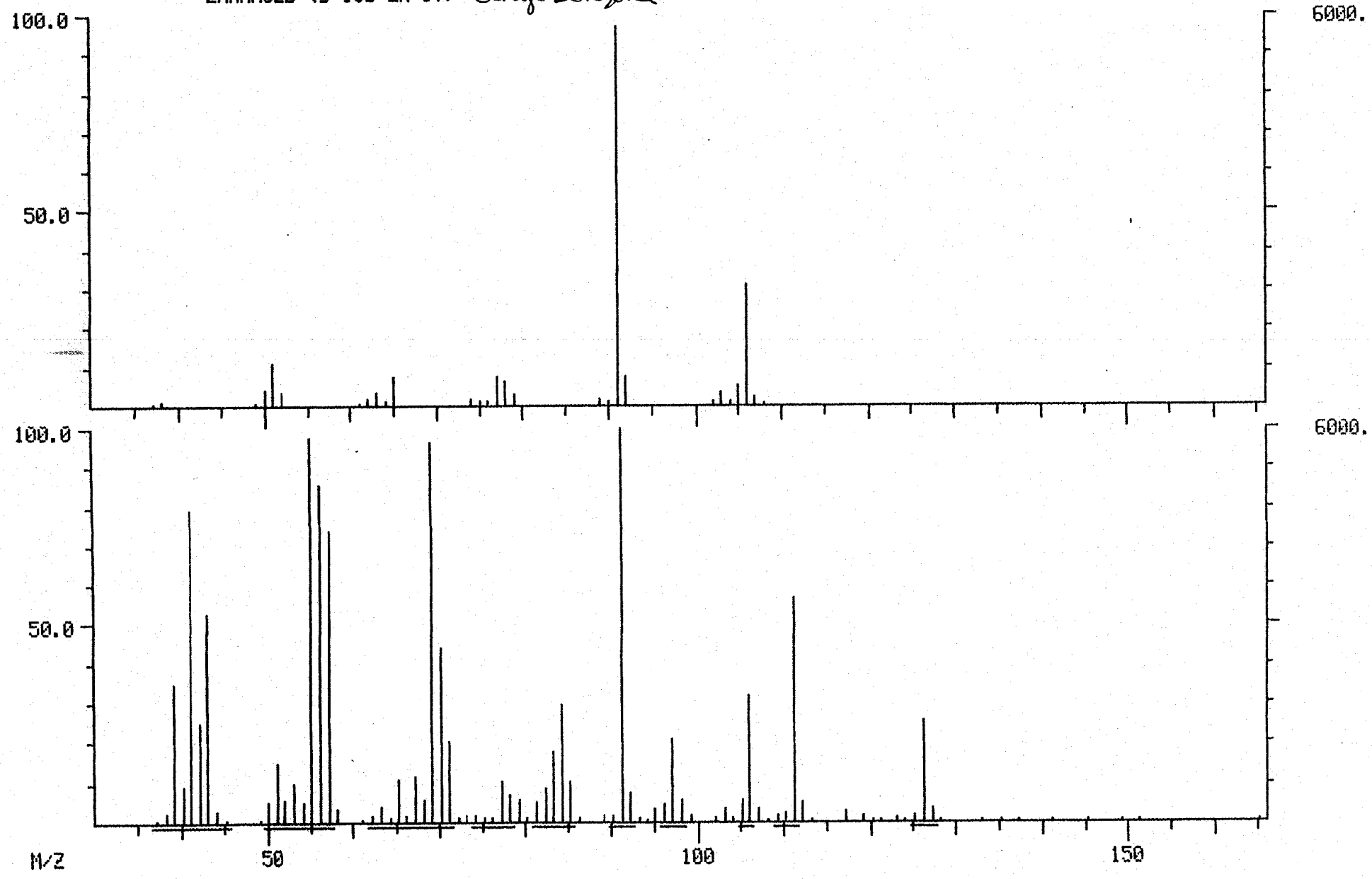
DATA: C1V0001575 #827 BASE M/Z: 83/ 40
CALI: C1V0001575 #5 RIC: 3955./ 16127.



000011

DUAL MASS SPECTRUM
09/16/88 4:16:00 + 22:30
SAMPLE: CLP,V11875,,11875002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Ethyl Benzene

DATA: C1V0001575 #1350 BASE M/Z: 91/ 91
CALI: C1V0001575 #5 RIC: 12431./ 66815.

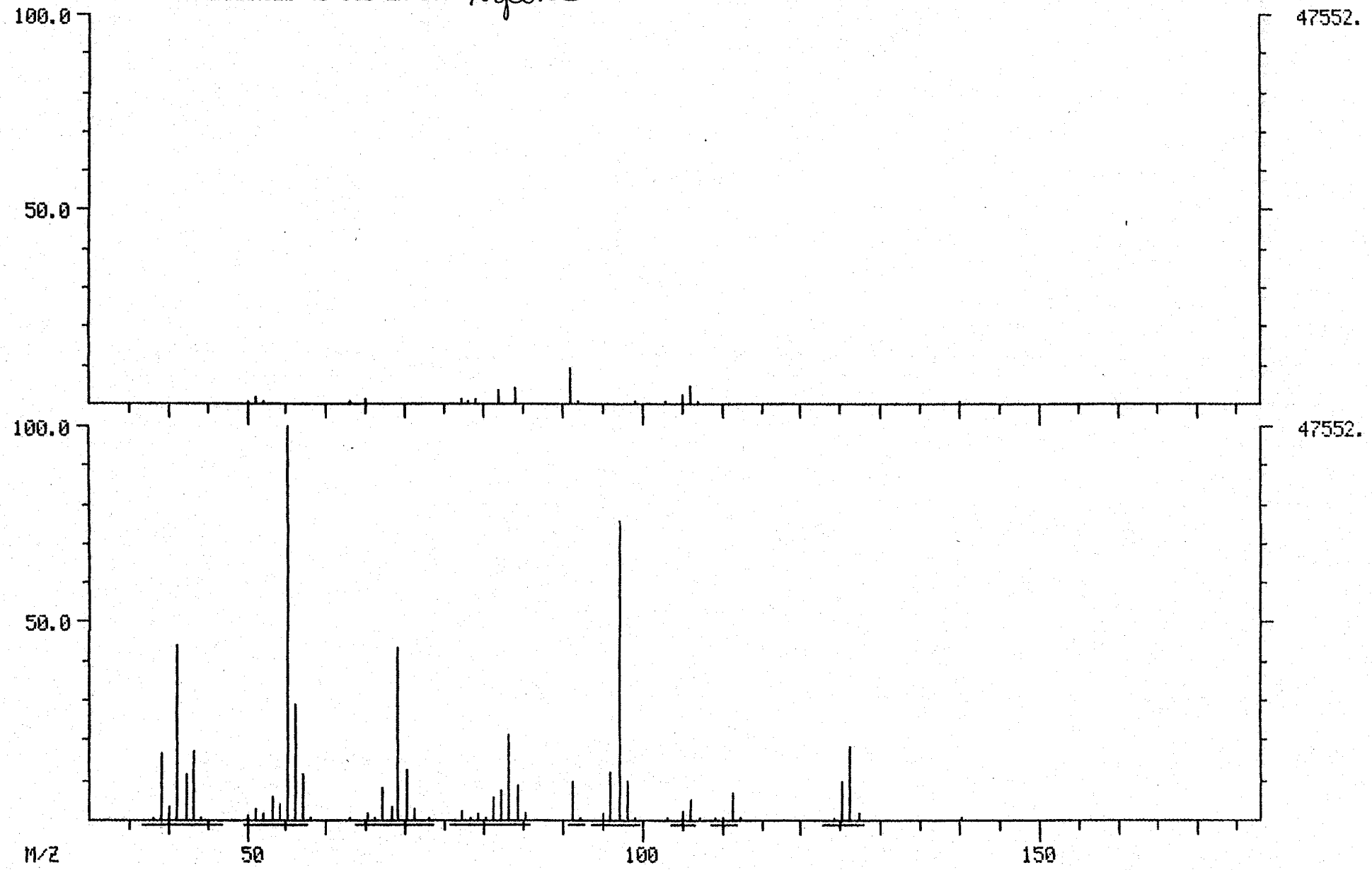


000012

DUAL MASS SPECTRUM
09/16/88 4:16:00 + 22:47
SAMPLE: CLP,V11875,,11875002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Xylene

DATA: C1V0001575 #1367 BASE M/Z: 91/ 55
CALI: C1V0001575 #5 RIC: 17055./ 254975.

000013



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B-MW6S3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11875003

Sample wt/vol: _____ (g/mL) G Lab File ID: C2V0001623

Level: (low/med) LOW Date Received: 09/08/88

% Moisture: not dec. 7 Date Analyzed: 09/20/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	800	BE
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	4	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	17	
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B-MW6S3_DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11875003DL

Sample wt/vol: _____ (g/mL) G Lab File ID: C3V0001625

Level: (low/med) LOW Date Received: 09/08/88

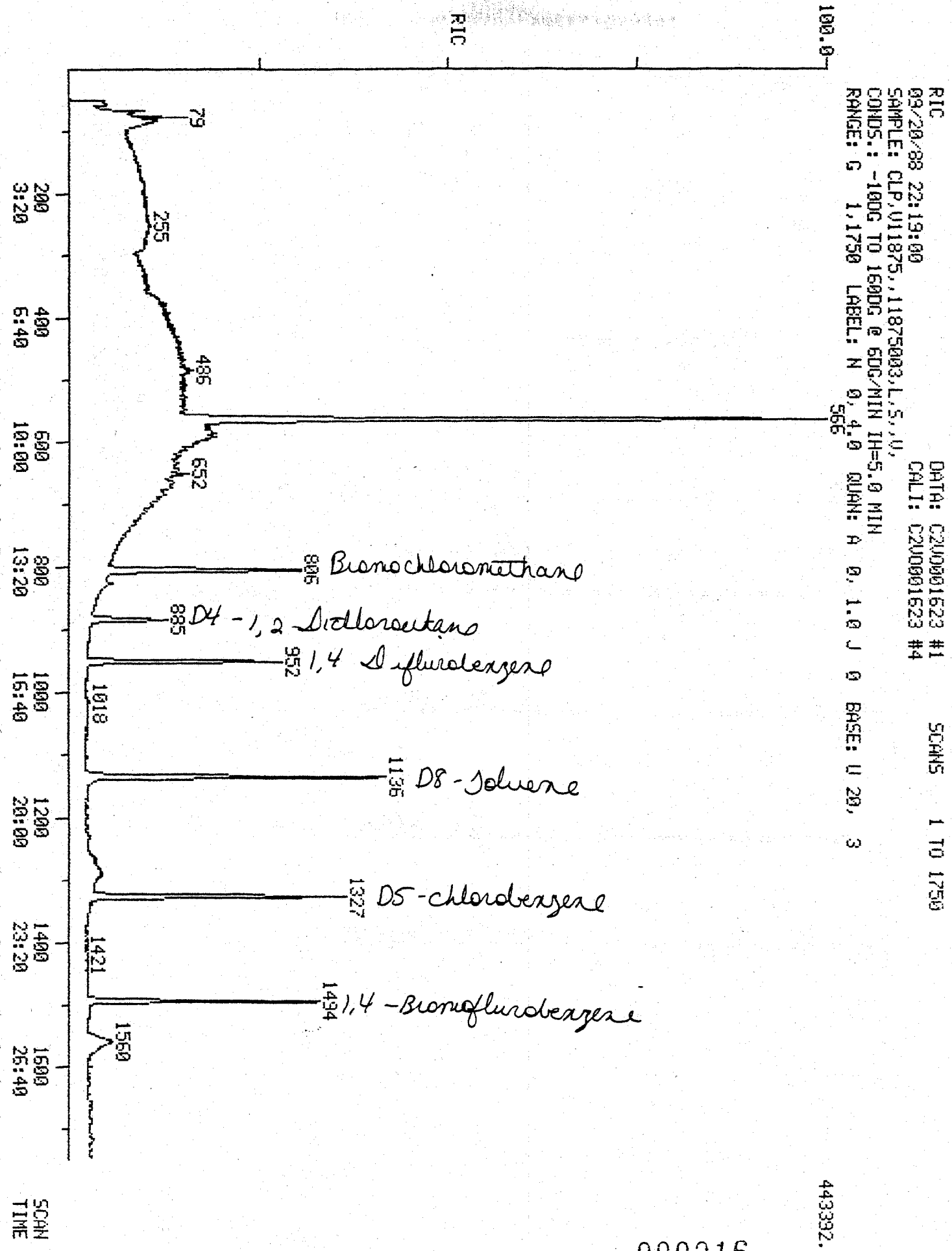
% Moisture: not dec. 7 Date Analyzed: 09/20/88

Column: (pack/cap) CAP Dilution Factor: 5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	54	U
74-83-9	Bromomethane	54	U
75-01-4	Vinyl Chloride	54	U
75-00-3	Chloroethane	54	U
75-09-2	Methylene Chloride	490	BD
67-64-1	Acetone	54	U
75-15-0	Carbon Disulfide	27	U
75-35-4	1,1-Dichloroethene	27	U
75-34-3	1,1-Dichloroethane	27	U
540-59-0	1,2-Dichloroethene (total)	27	U
67-66-3	Chloroform	27	U
107-06-2	1,2-Dichloroethane	27	U
78-93-3	2-Butanone	54	U
71-55-6	1,1,1-Trichloroethane	27	U
56-23-5	Carbon Tetrachloride	27	U
108-05-4	Vinyl Acetate	54	U
75-27-4	Bromodichloromethane	27	U
78-87-5	1,2-Dichloropropane	27	U
10061-01-5	cis-1,3-Dichloropropene	27	U
79-01-6	Trichloroethene	27	U
124-48-1	Dibromochloromethane	27	U
79-00-5	1,1,2-Trichloroethane	27	U
71-43-2	Benzene	27	U
10061-02-6	trans-1,3-Dichloropropene	27	U
75-25-2	Bromoform	27	U
591-78-6	2-Hexanone	54	U
108-10-1	4-Methyl-2-Pentanone	54	U
127-18-4	Tetrachloroethene	27	U
79-34-5	1,1,2,2-Tetrachloroethane	54	U
108-88-3	Toluene	27	U
108-90-7	Chlorobenzene	27	U
100-41-4	Ethylbenzene	27	U
100-42-5	Styrene	27	U
1330-20-7	Xylenes (total)	27	U

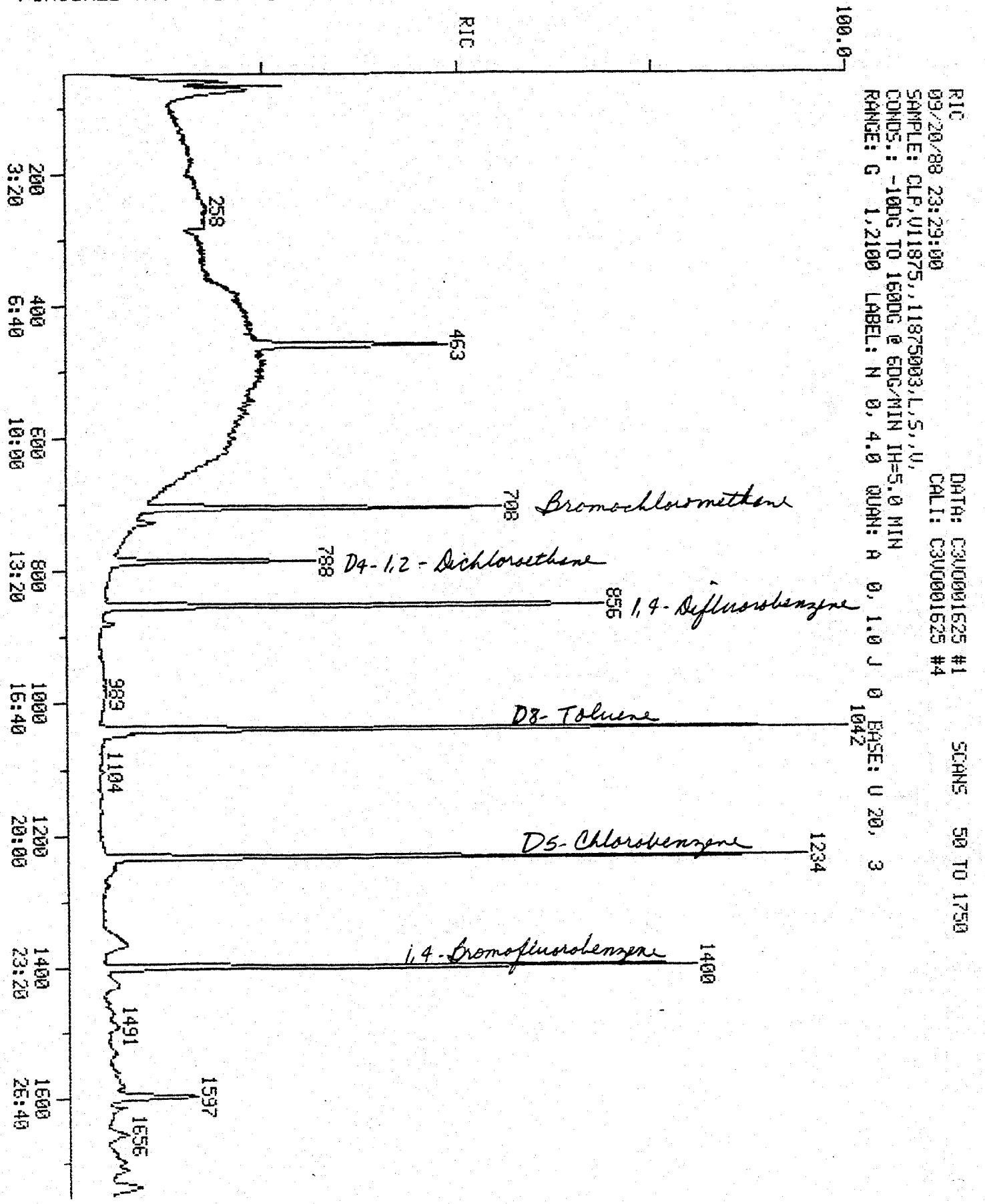
RS.

TCA FINISHED, 11 FOUND
FINISHED AT: 9/20/88 22:54:42



000016

TCA FINISHED, 0 FOUND
FINISHED AT: 9/21/88 1:20:28

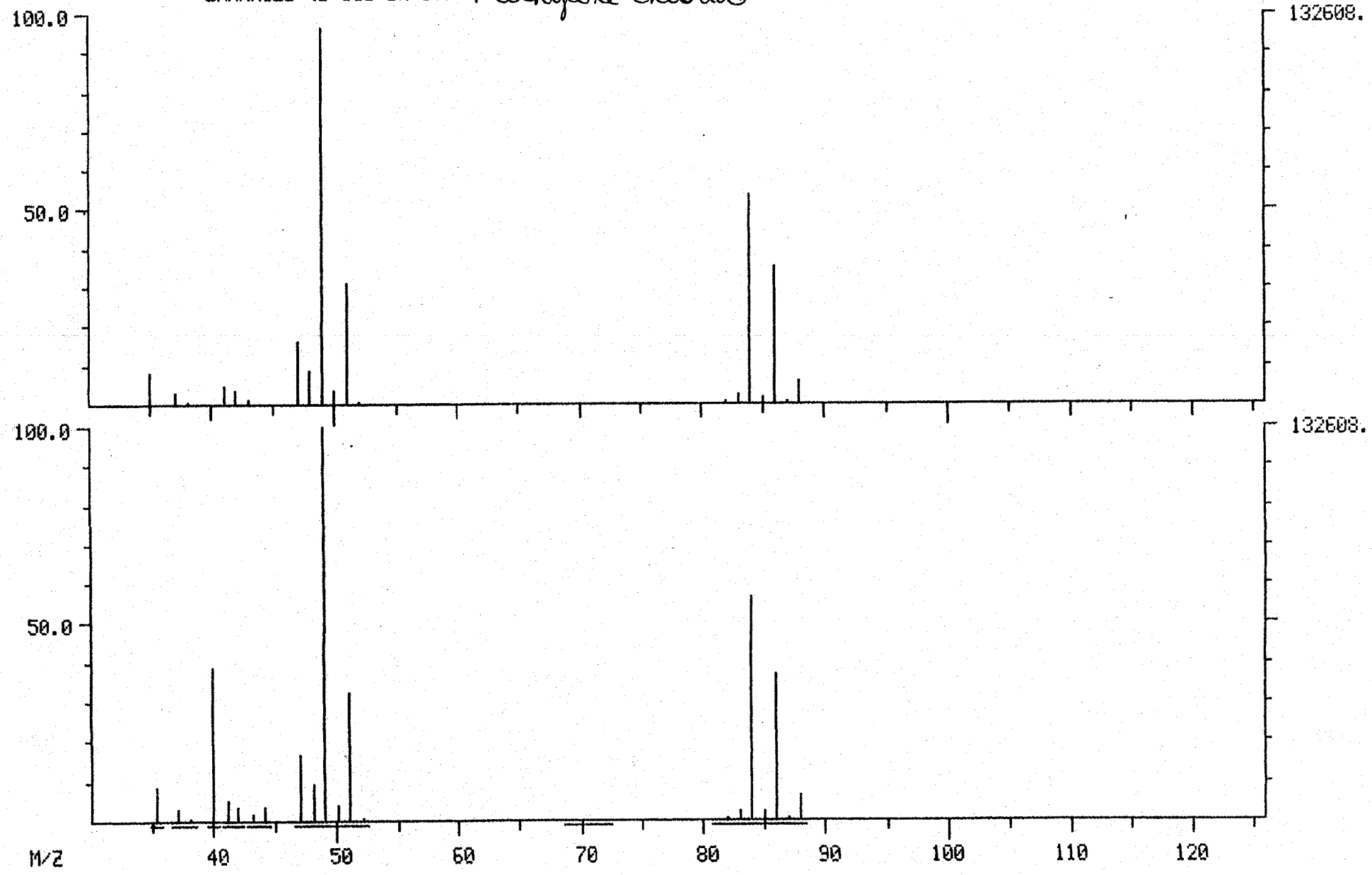


241664.

000017

DUAL MASS SPECTRUM
09/20/88 22:19:00 + 9:26
SAMPLE: CLP,V11875,,11875003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

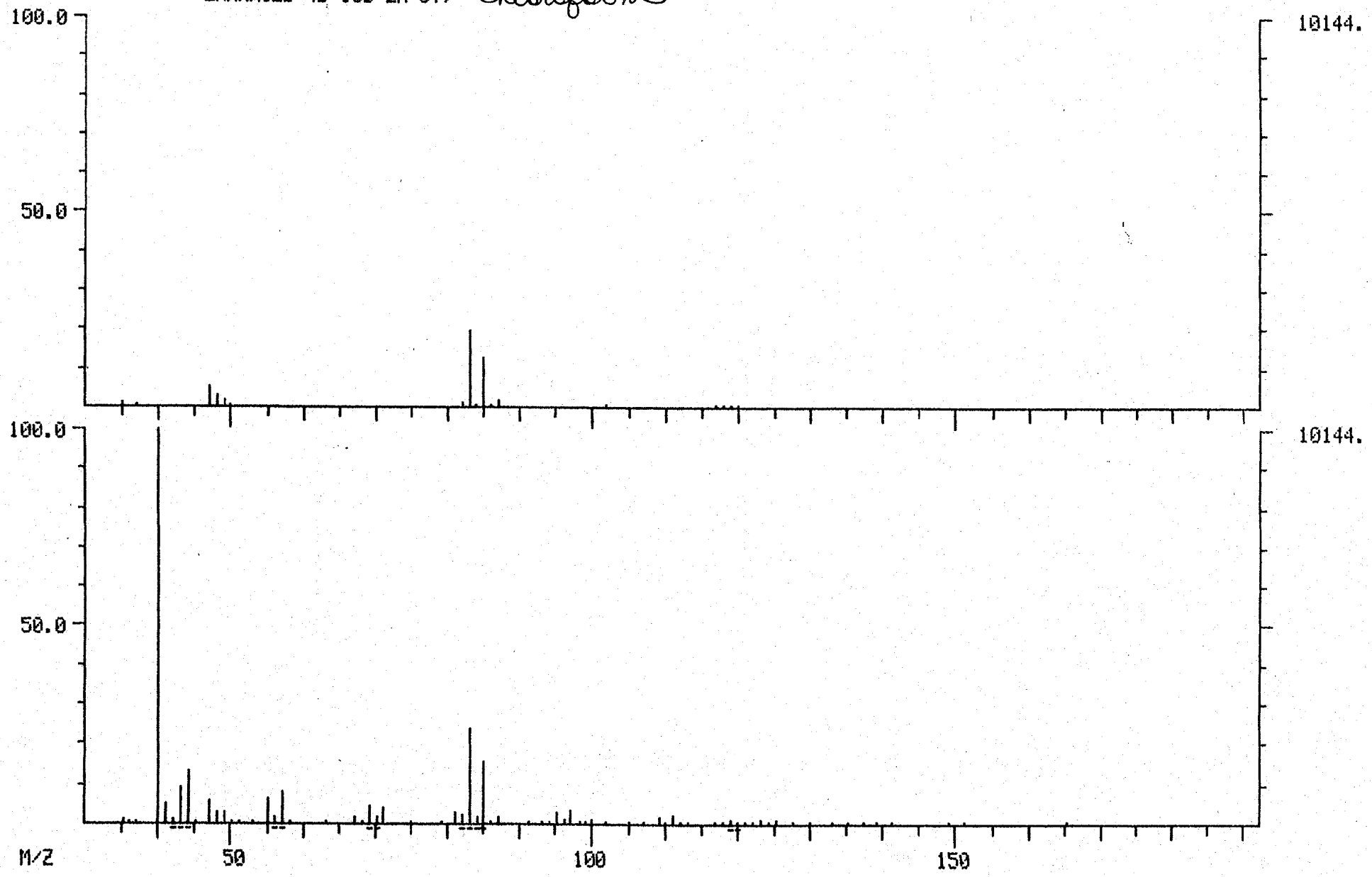
DATA: C2V0001623 #566 BASE M/Z: 49/ 49
CALI: C2V0001623 #4 RIC: 368127./ 442367.



000018

DUAL MASS SPECTRUM
09/20/88 22:19:00 + 13:48
SAMPLE: CLP,V11875,,11875003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C2V0001623 #828 BASE M/Z: 83/ 40
CALI: C2V0001623 #4 RIC: 5391./ 26079.

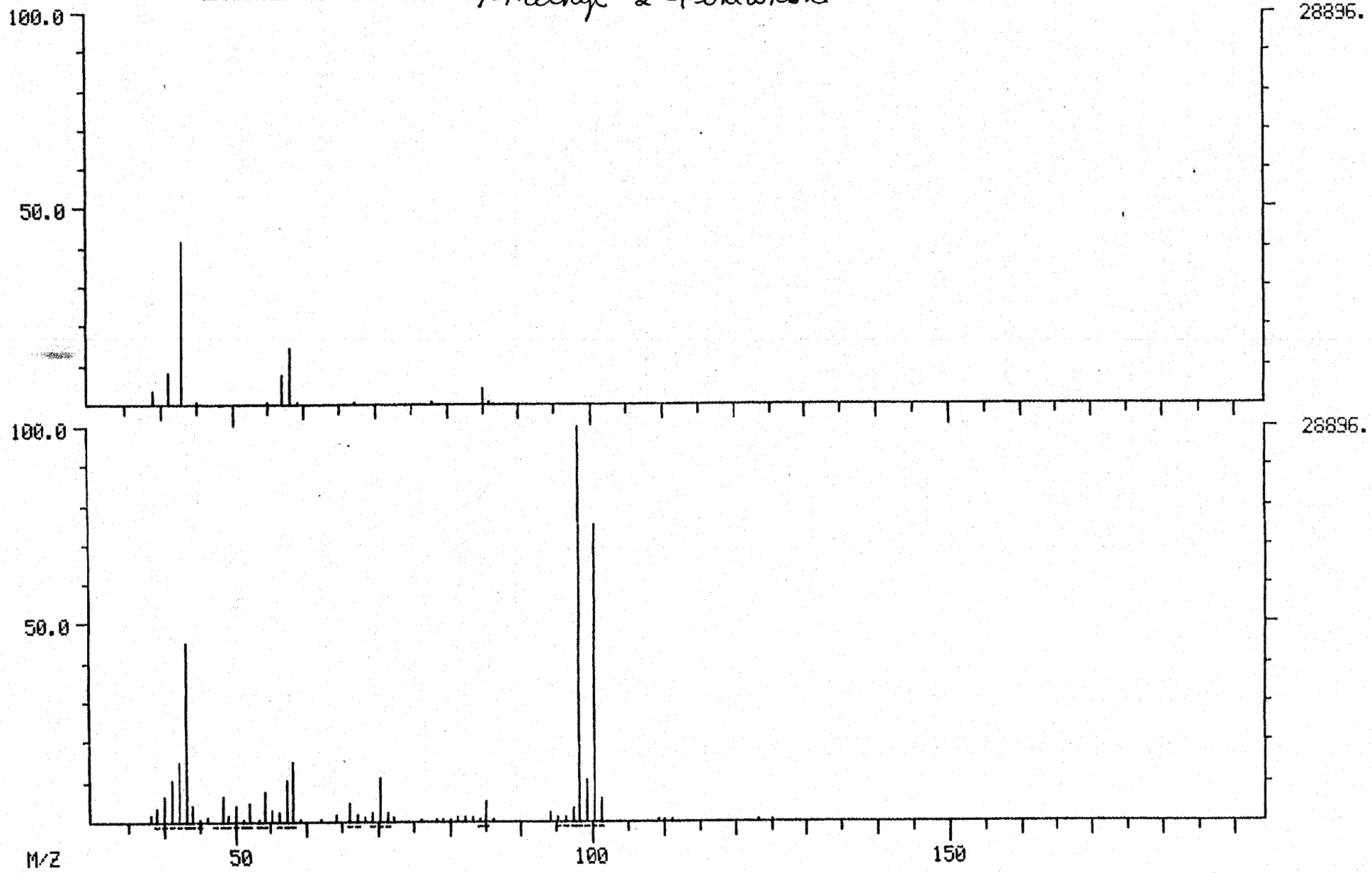


000019

DUAL MASS SPECTRUM
09/20/88 22:19:00 + 18:54
SAMPLE: CLP,V11875,,11875003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) 4-Methyl-2-Pentanone

DATA: C2V0001623 #1134 BASE M/Z: 43/ 98
CALI: C2V0001623 #4 RIC: 24319./ 112127.

020000



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2BMW6S1_DUP

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11875004

Sample wt/vol: _____ (g/mL) G Lab File ID: C1V0001577

Level: (low/med) LOW Date Received: 09/08/88

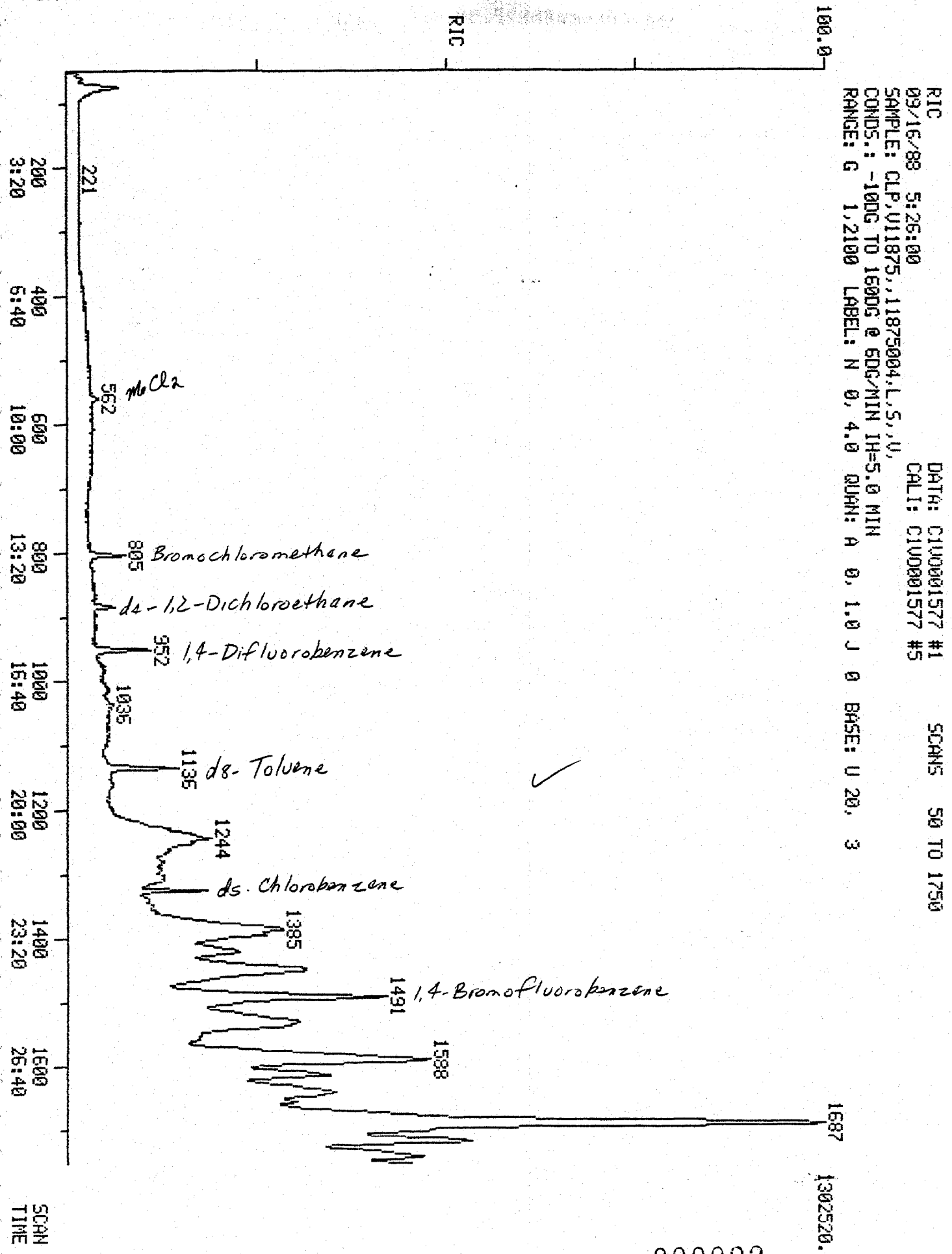
% Moisture: not dec. 0 Date Analyzed: 09/16/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	20	B
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS -

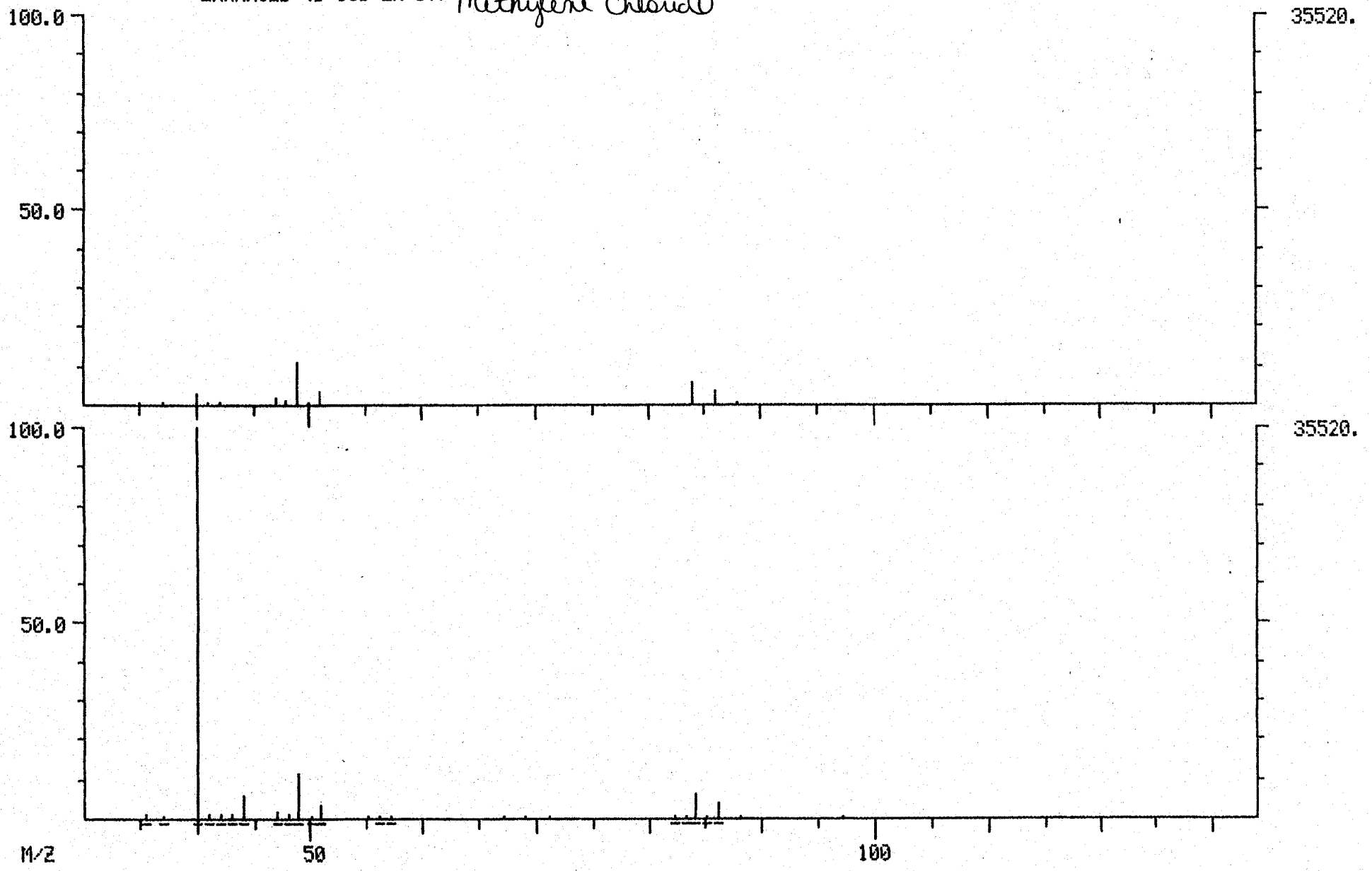
TCA FINISHED, 7 FOUND
FINISHED AT: 9/16/88 7:29:55



DUAL MASS SPECTRUM
09/16/88 5:26:00 + 9:22
SAMPLE: CLP,V11875,,11875004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

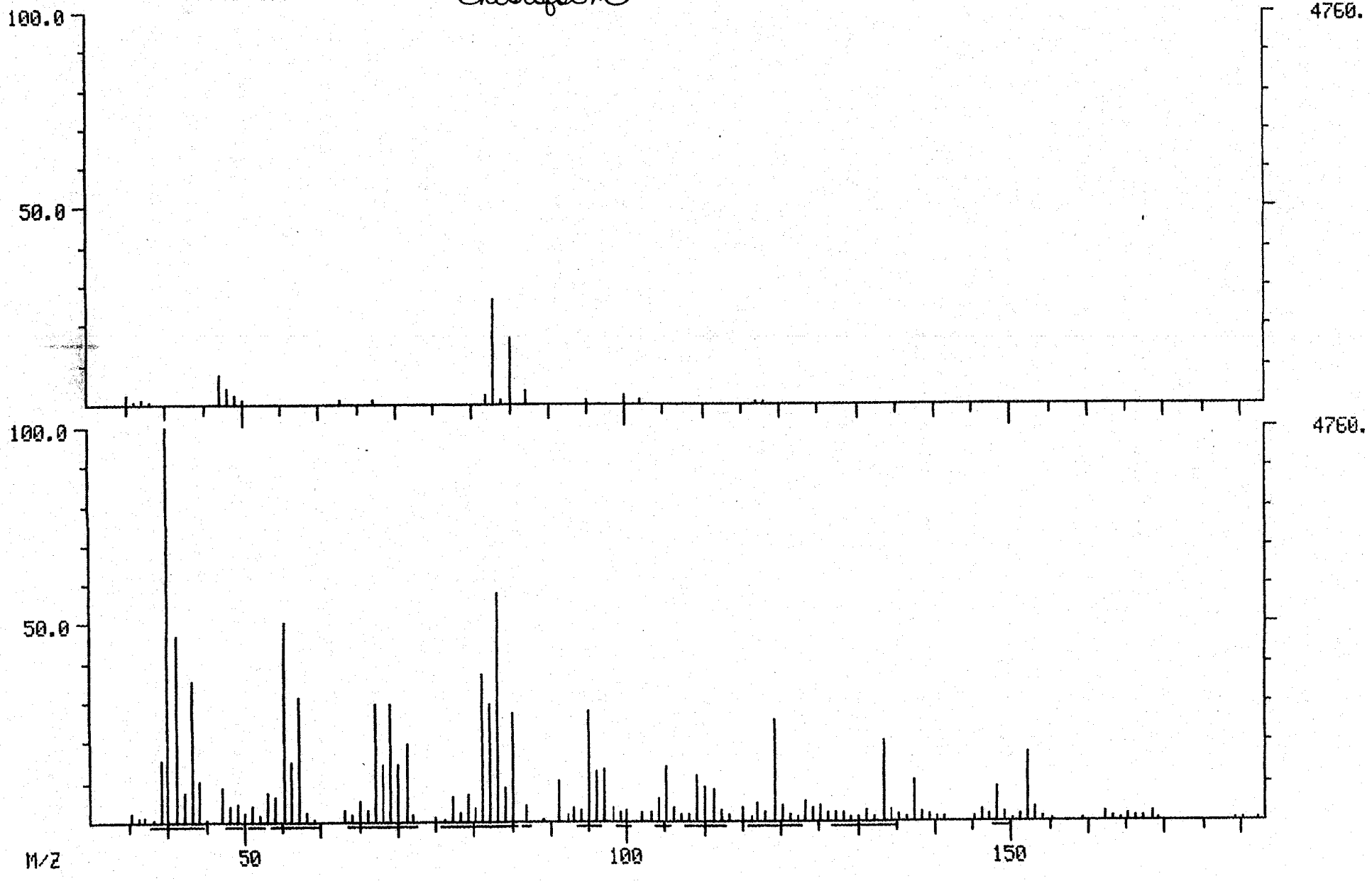
DATA: C1V0001577 #562 BASE M/Z: 49/ 40
CALI: C1V0001577 #5 RIC: 12015./ 53119.

000023



DUAL MASS SPECTRUM
09/16/88 5:26:00 + 13:48
SAMPLE: CLP,V11875,,11875004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001577 #828 BASE M/Z: 83/ 40
CALI: C1V0001577 #5 RIC: 3755./ 46783.



000024

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: 11875005

Sample wt/vol: _____ (g/mL) ML Lab File ID: C1VO001619

Level: (low/med) LOW Date Received: 09/08/88

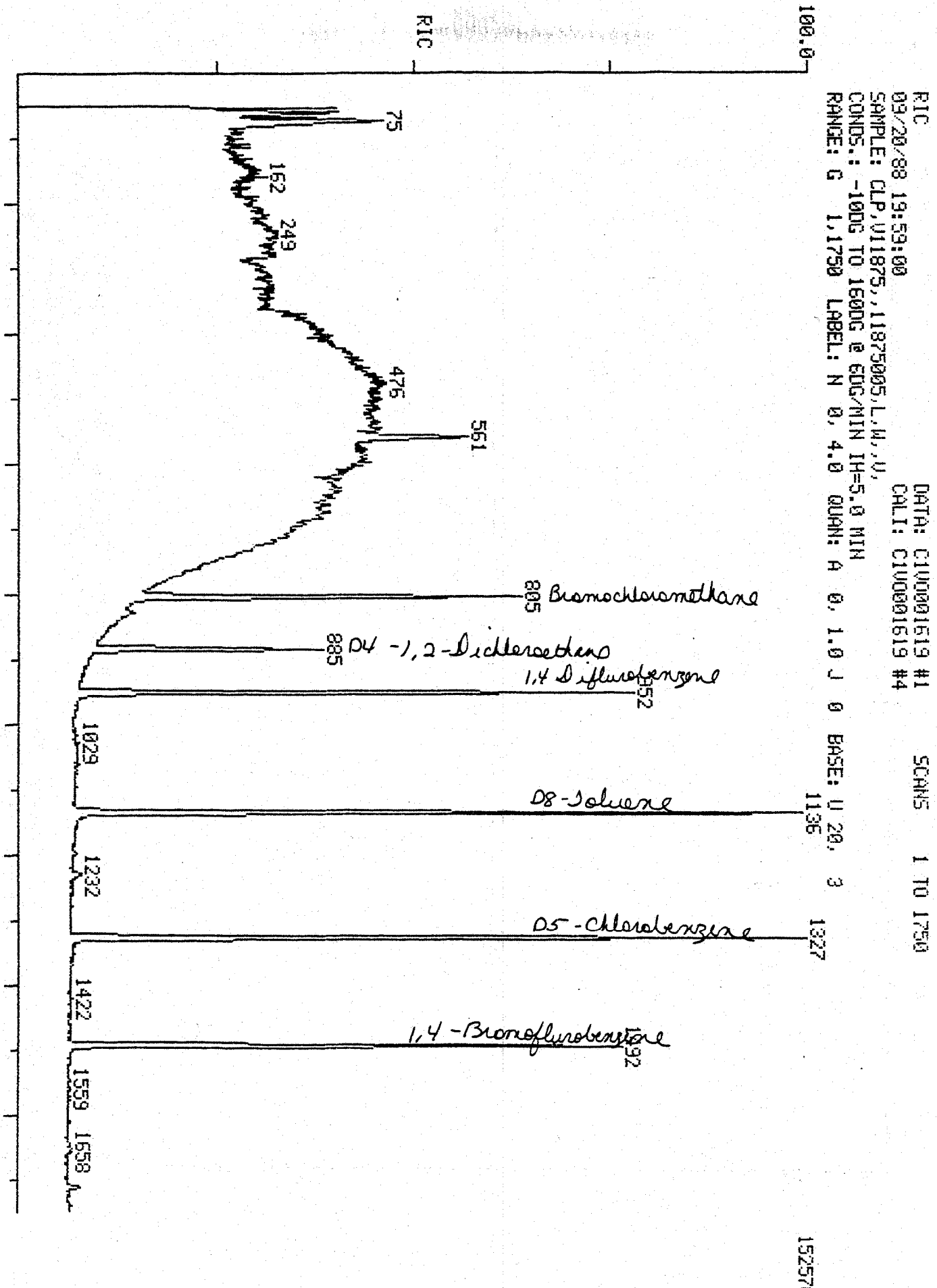
% Moisture: not dec. _____ Date Analyzed: 09/20/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	41	B
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

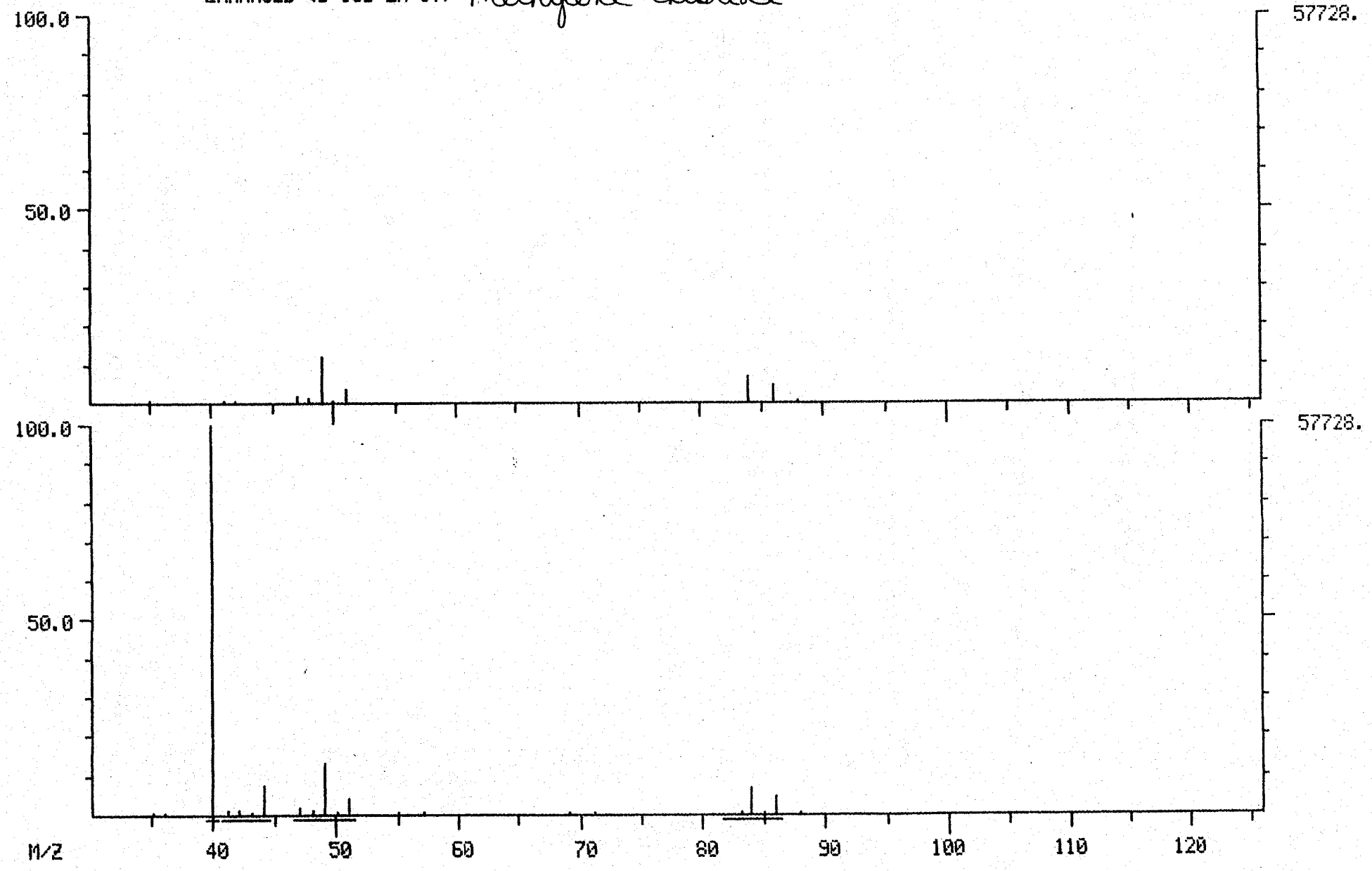
RS.

TCA FINISHED, 8 FOUND
FINISHED AT: 9/20/88 20:38:50



DUAL MASS SPECTRUM
09/20/88 19:59:00 + 9:21
SAMPLE: CLP,V11875,,11875005,L,W,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

DATA: C1V0001619 #561 BASE M/Z: 49/ 40
CALI: C1V0001619 #4 RIC: 19615./ 86911.



000027

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-SS6_1417

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11875006

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001578

Level: (low/med) LOW Date Received: 09/08/88

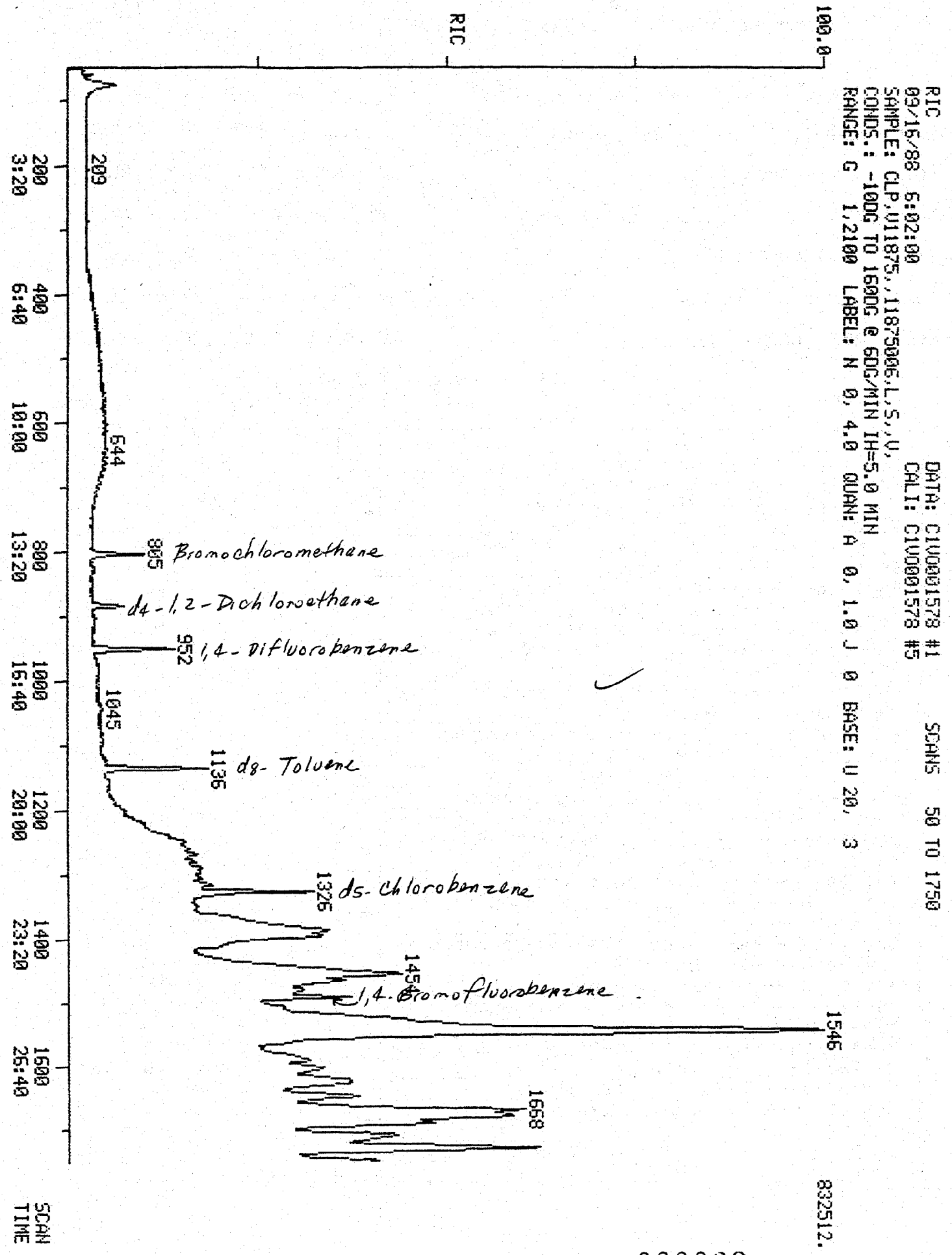
% Moisture: not dec. 0 Date Analyzed: 09/16/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	3	BJ
67-64-1	Acetone	18	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS.

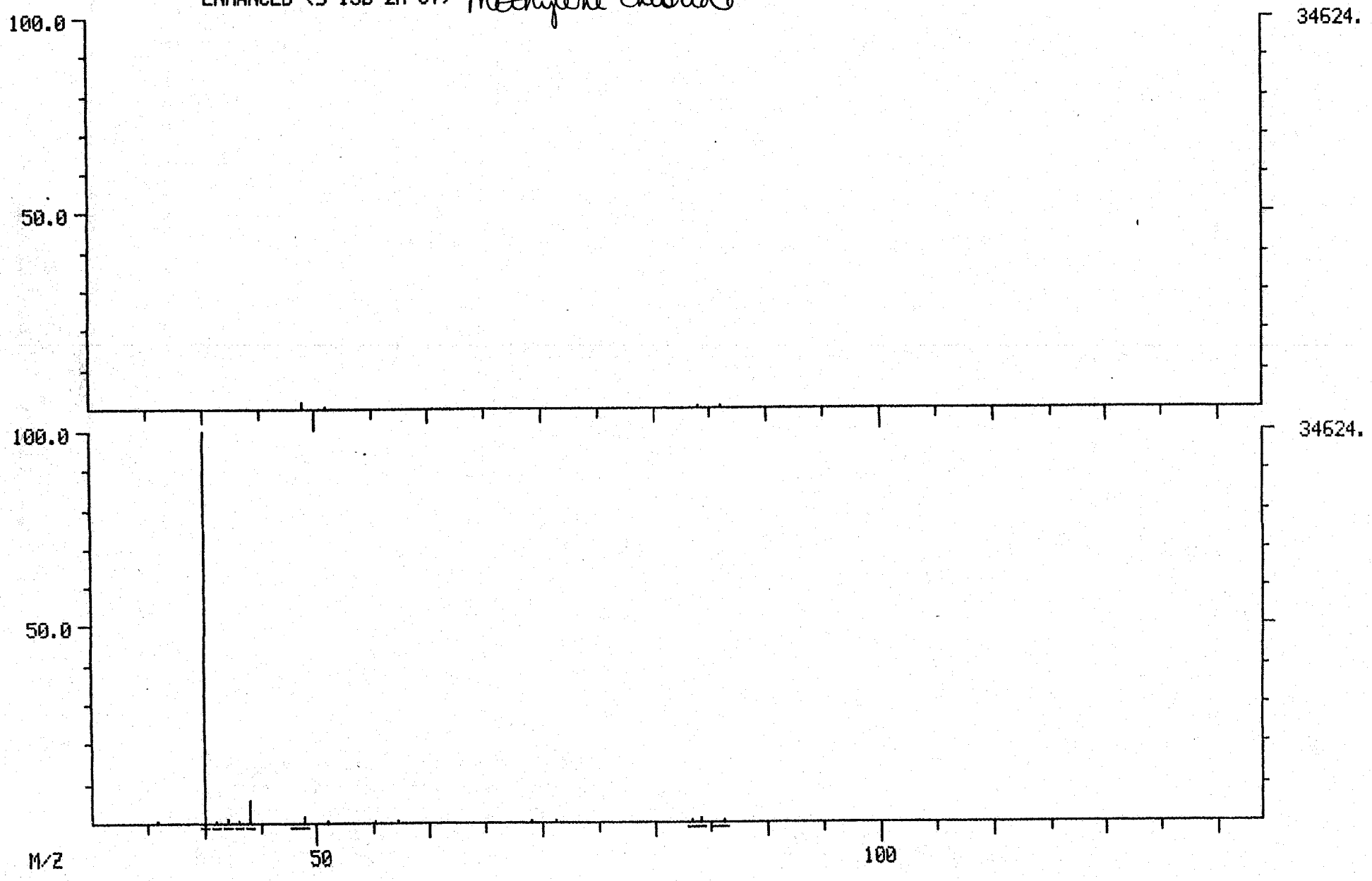
TCA FINISHED, 7 FOUND
FINISHED AT: 9/16/88 7:36:53



DUAL MASS SPECTRUM
09/16/88 6:02:00 + 9:23
SAMPLE: CLP,V11875,,11875006,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

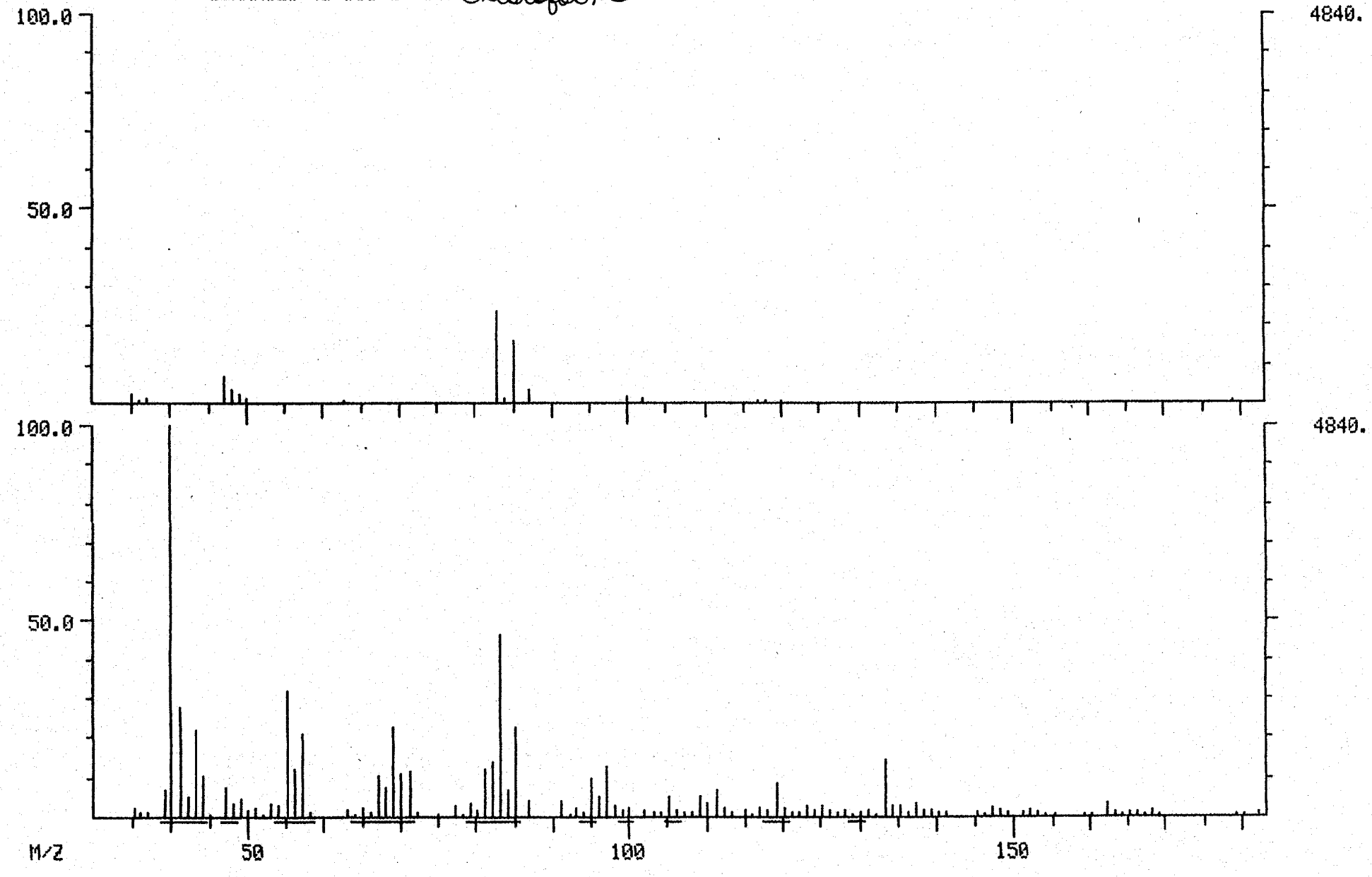
DATA: C1V0001578 #563 BASE M/Z: 49/ 40
CALI: C1V0001578 #5 RIC: 1395./ 40959.

000030



DUAL MASS SPECTRUM
09/16/88 6:02:00 + 13:48
SAMPLE: CLP,V11875,,11875006,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001578 #828 BASE M/Z: 83/ 40
CALI: C1V0001578 #5 RIC: 3331./ 30271.

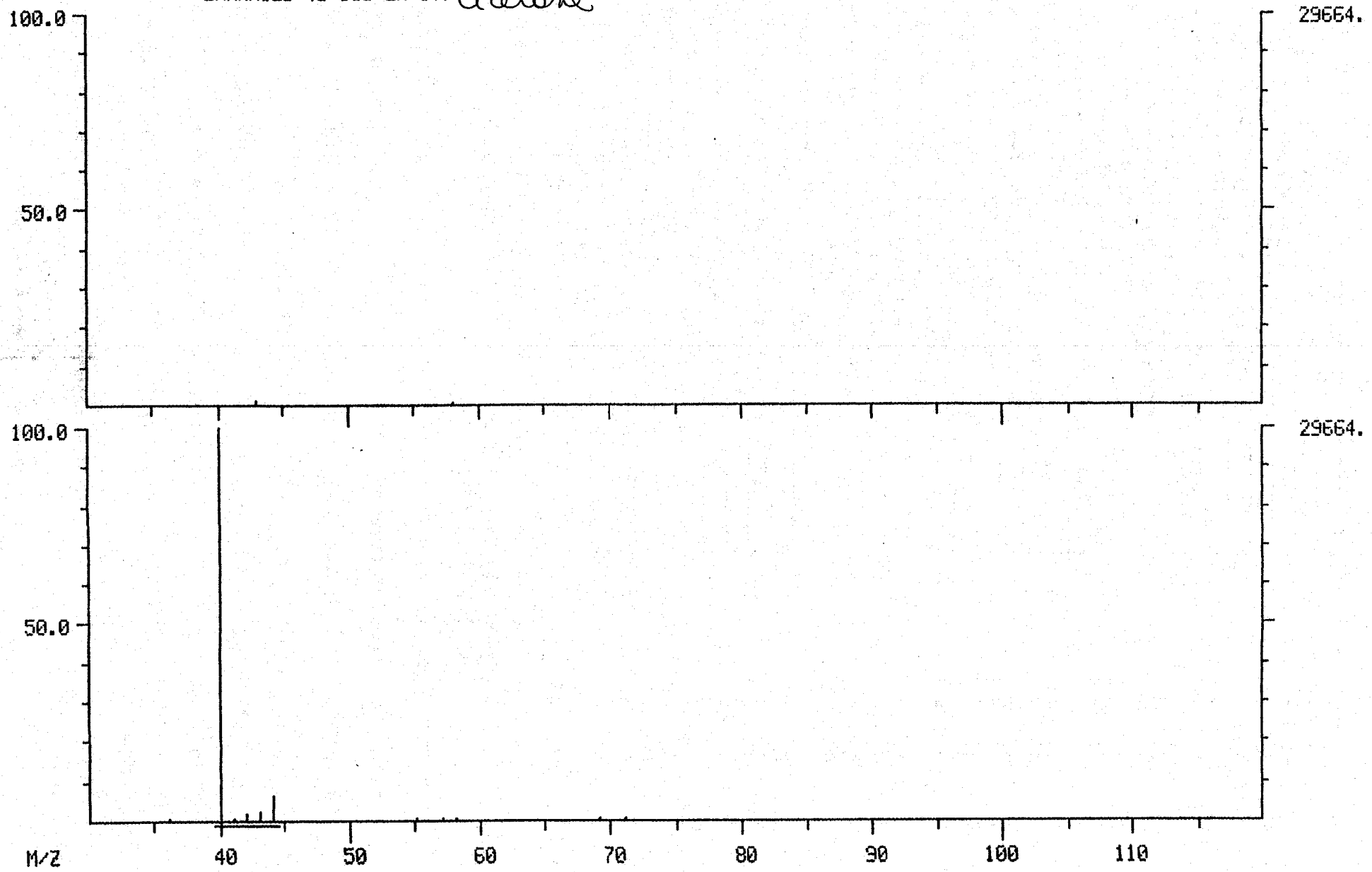


000031

DUAL MASS SPECTRUM
09/16/88 6:02:00 + 8:06
SAMPLE: CLP,V11875,,11875006,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Acetone

DATA: C1V0001578 #486 BASE M/Z: 43/ 40
CALI: C1V0001578 #5 RIC: 495./ 34367.

000032



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-SS5_1523

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11875007

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001620

Level: (low/med) LOW Date Received: 09/08/88

% Moisture: not dec. 0 Date Analyzed: 09/20/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	290	BE
67-64-1	Acetone	58	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	4	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	6	
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	2	J
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	16	

RS.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-SS5_DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11875007DL

Sample wt/vol: _____ (g/mL) G Lab File ID: C2V0001624

Level: (low/med) LOW Date Received: 09/08/88

% Moisture: not dec. 0 Date Analyzed: 09/20/88

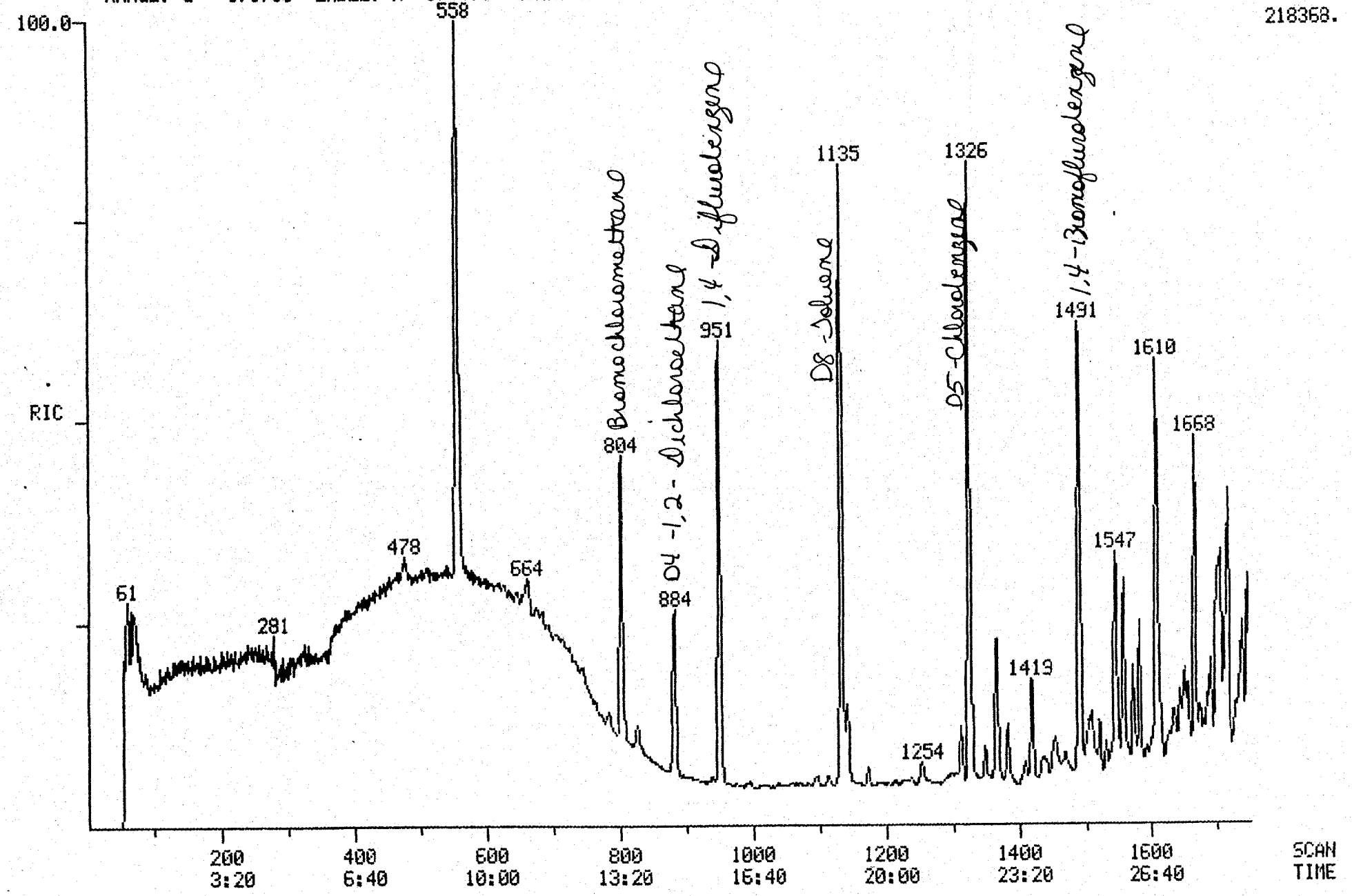
Column: (pack/cap) CAP Dilution Factor: 5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	50	U
74-83-9	Bromomethane	50	U
75-01-4	Vinyl Chloride	50	U
75-00-3	Chloroethane	50	U
75-09-2	Methylene Chloride	160	BD
67-64-1	Acetone	50	U
75-15-0	Carbon Disulfide	25	U
75-35-4	1,1-Dichloroethene	25	U
75-34-3	1,1-Dichloroethane	25	U
540-59-0	1,2-Dichloroethene (total)	25	U
67-66-3	Chloroform	25	U
107-06-2	1,2-Dichloroethane	25	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	25	U
56-23-5	Carbon Tetrachloride	25	U
108-05-4	Vinyl Acetate	50	U
75-27-4	Bromodichloromethane	25	U
78-87-5	1,2-Dichloropropane	25	U
10061-01-5	cis-1,3-Dichloropropene	25	U
79-01-6	Trichloroethene	25	U
124-48-1	Dibromochloromethane	25	U
79-00-5	1,1,2-Trichloroethane	25	U
71-43-2	Benzene	25	U
10061-02-6	trans-1,3-Dichloropropene	25	U
75-25-2	Bromoform	25	U
591-78-6	2-Hexanone	50	U
108-10-1	4-Methyl-2-Pentanone	50	U
127-18-4	Tetrachloroethene	25	U
79-34-5	1,1,2,2-Tetrachloroethane	50	U
108-88-3	Toluene	25	U
108-90-7	Chlorobenzene	25	U
100-41-4	Ethylbenzene	25	U
100-42-5	Styrene	25	U
1330-20-7	Xylenes (total)	25	U

RS.

RIC
09/20/88 20:35:00
SAMPLE: CLP,V11875,,11875007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

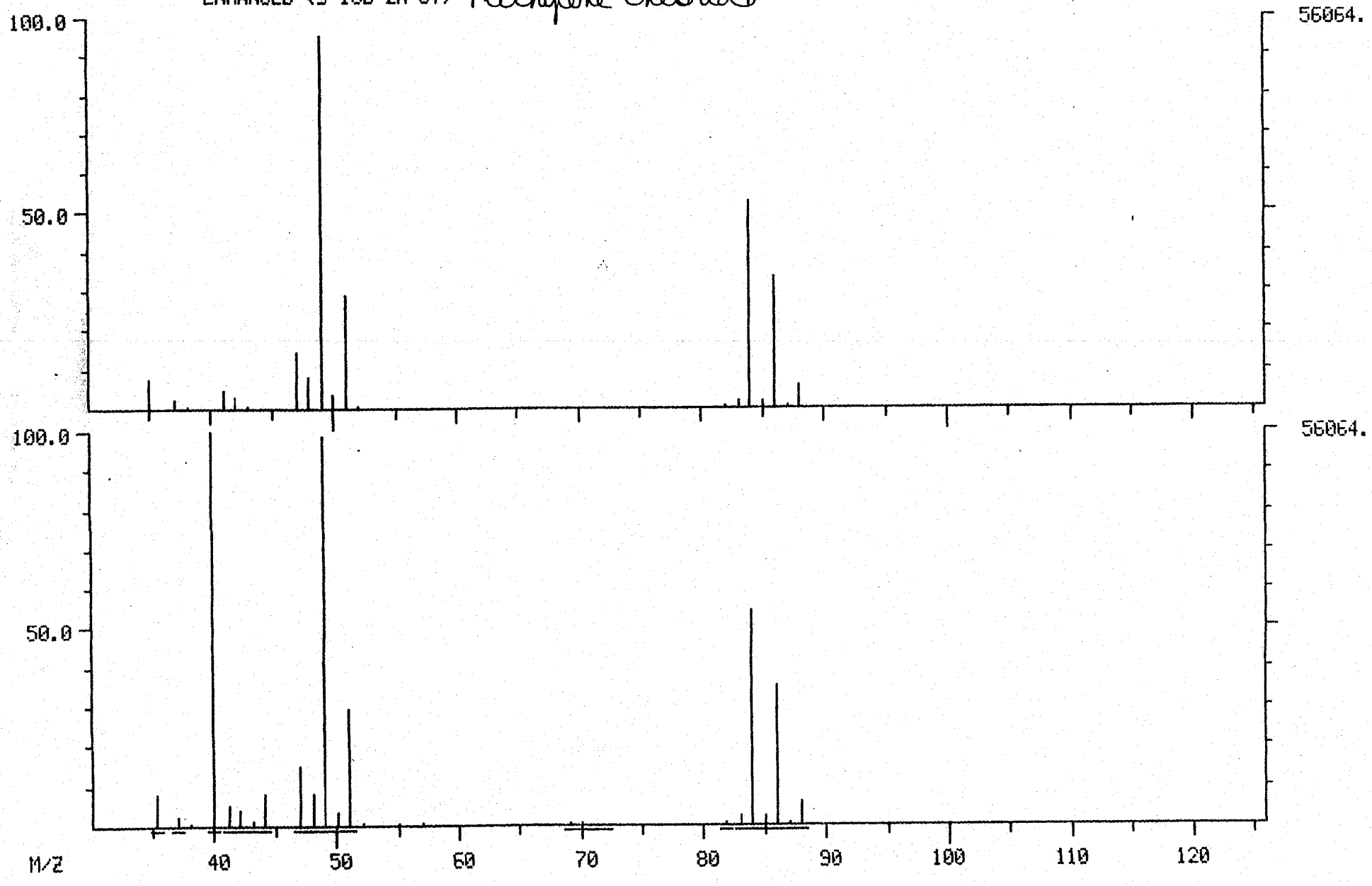
DATA: C1V0001620 #1 SCANS 1 TO 1750
CALI: C1V0001620 #4



000035

DUAL MASS SPECTRUM
09/20/88 20:35:00 + 9:18
SAMPLE: CLP,V11875,,11875007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

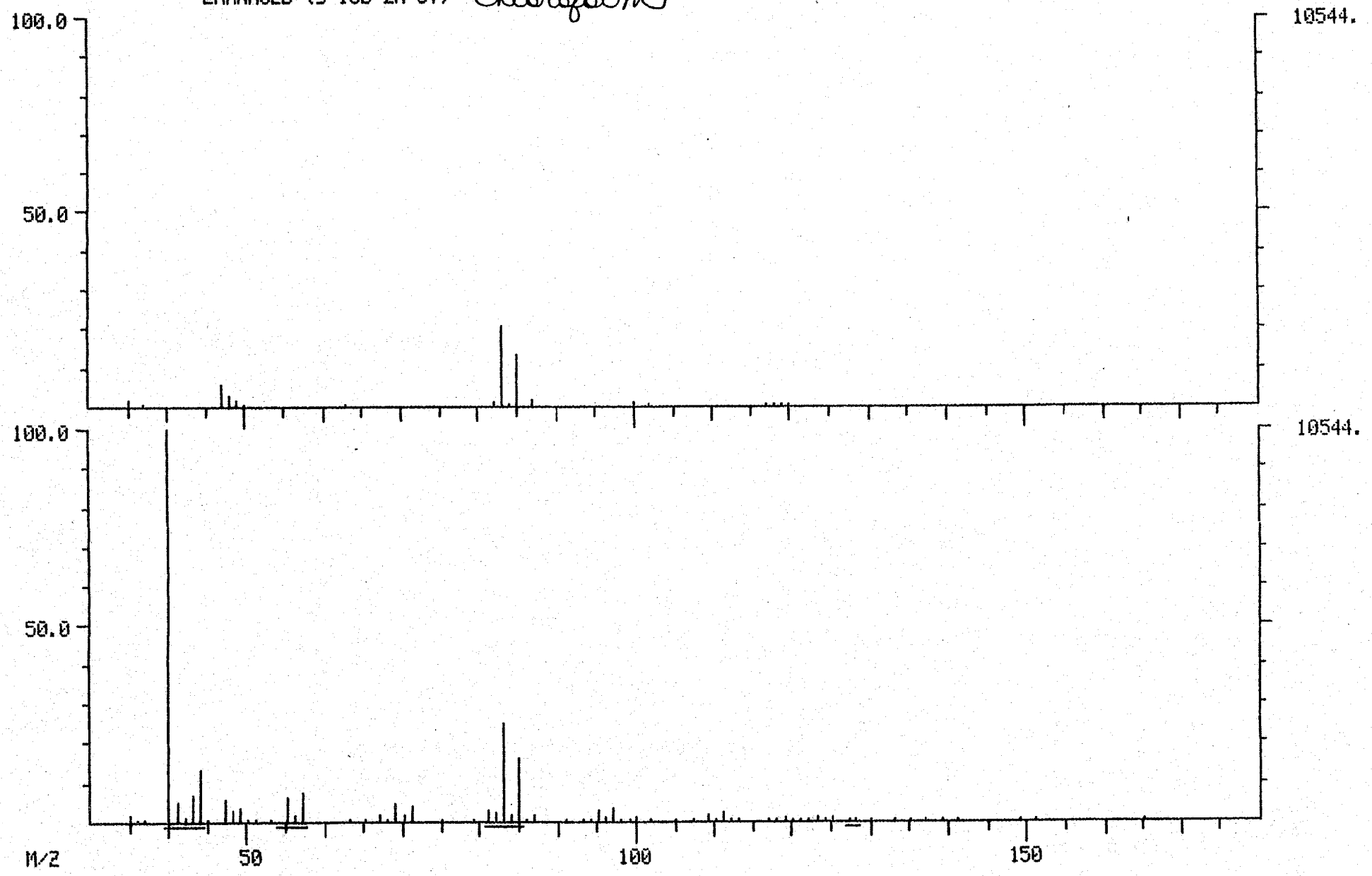
DATA: C1V0001620 #558 BASE M/Z: 49/ 40
CALI: C1V0001620 #4 RIC: 149759./ 218367.



000036

DUAL MASS SPECTRUM
09/20/88 20:35:00 + 13:47
SAMPLE: CLP,V11875,,11875007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001620 #827 BASE M/Z: 83/ 40
CALI: C1V0001620 #4 RIC: 6087./ 27263.

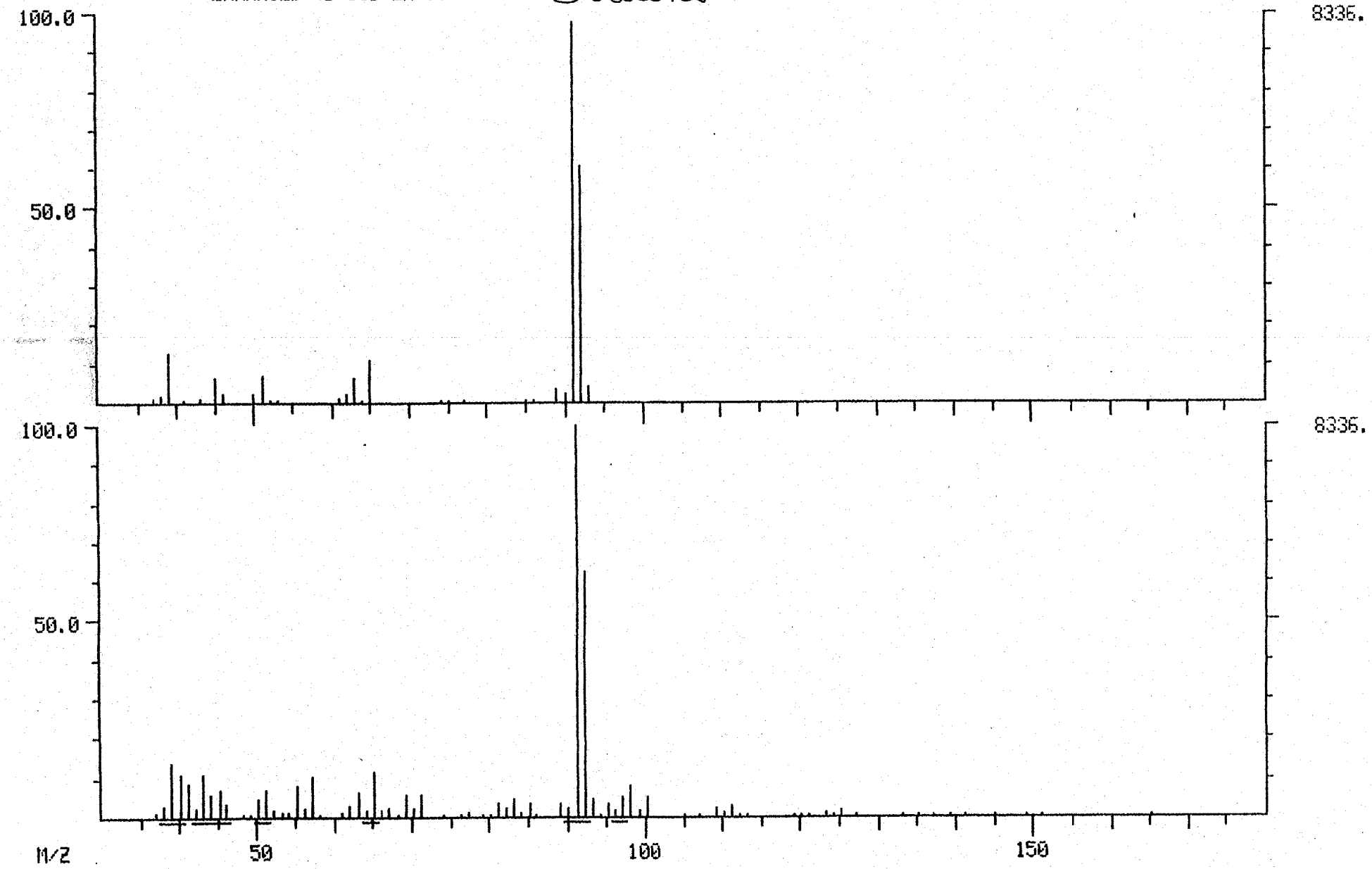


130000

DUAL MASS SPECTRUM
09/20/88 20:35:00 + 19:03
SAMPLE: CLP,V11875,,11875007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001620 #1143 BASE M/Z: 91/ 91
CALI: C1V0001620 #4 RIC: 19295./ 32511.

Toluene

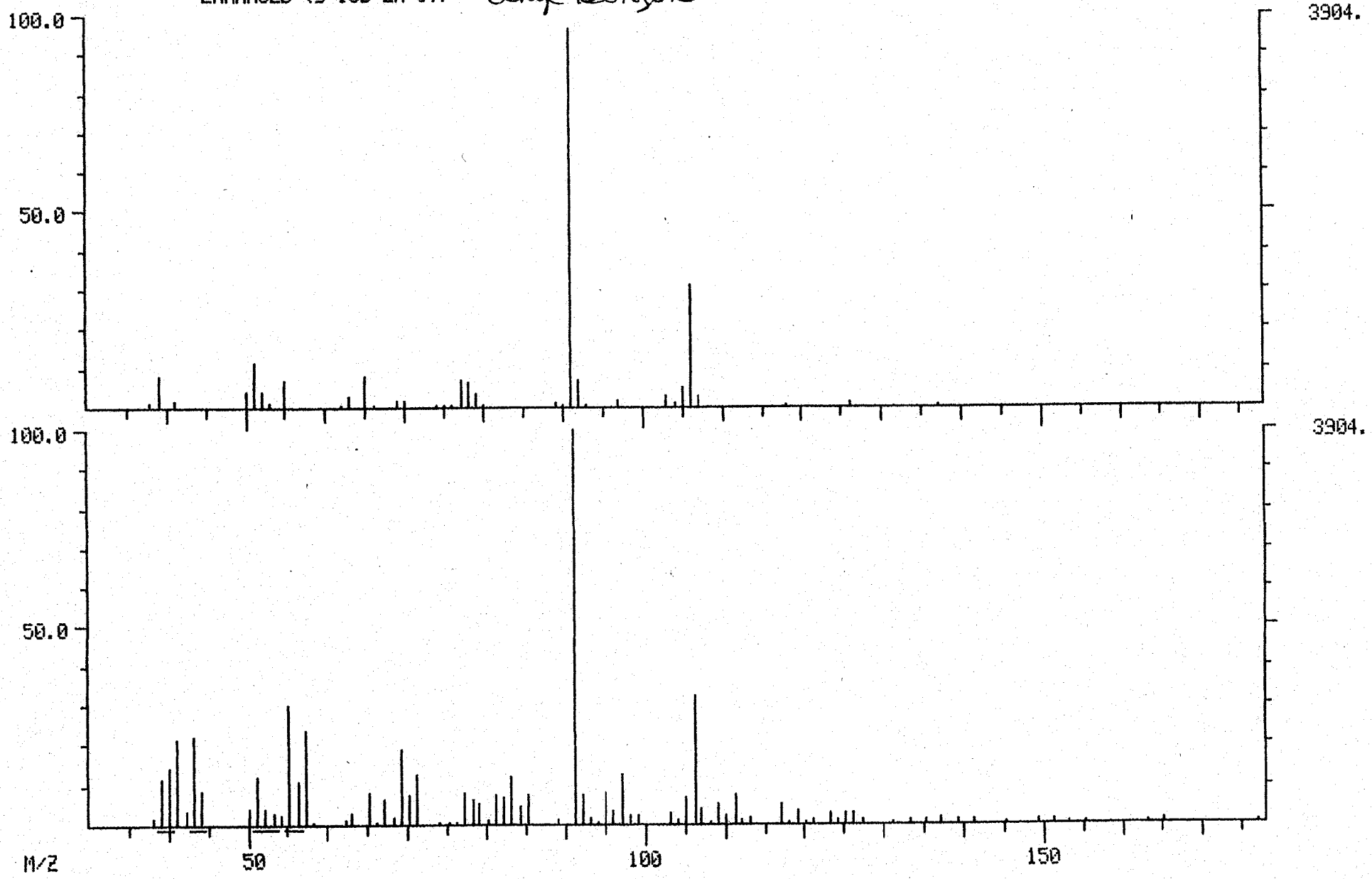


000038

DUAL MASS SPECTRUM
09/20/88 20:35:00 + 22:30
SAMPLE: CLP,V11875,,11875007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Ethyl Benzene

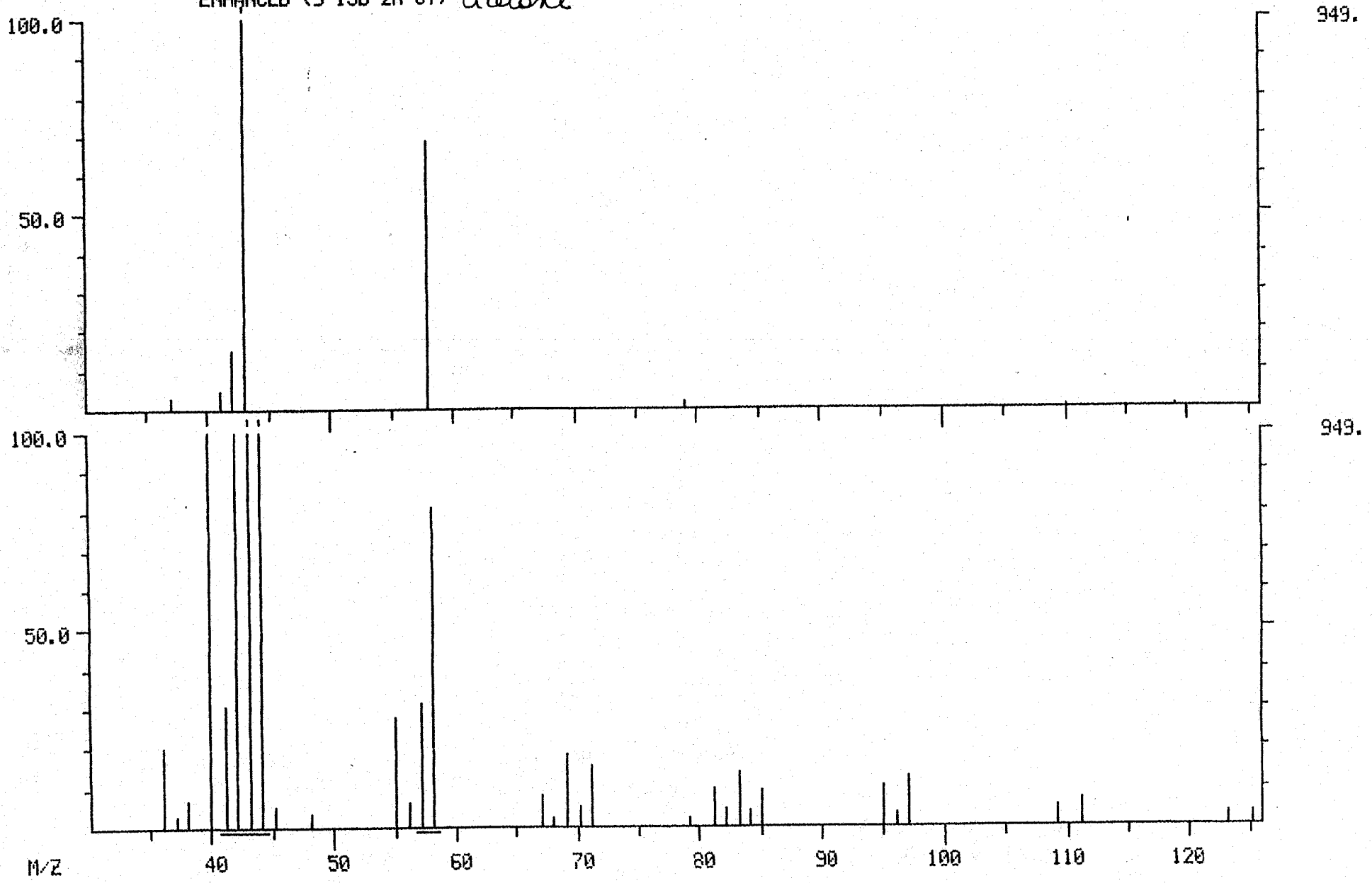
DATA: C1V0001620 #1350 BASE M/Z: 91/ 91
CALI: C1V0001620 #4 RIC: 8879./ 21023.

000030



DUAL MASS SPECTRUM
09/20/88 20:35:00 + 7:58
SAMPLE: CLP,V11875,,11875007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) acetone

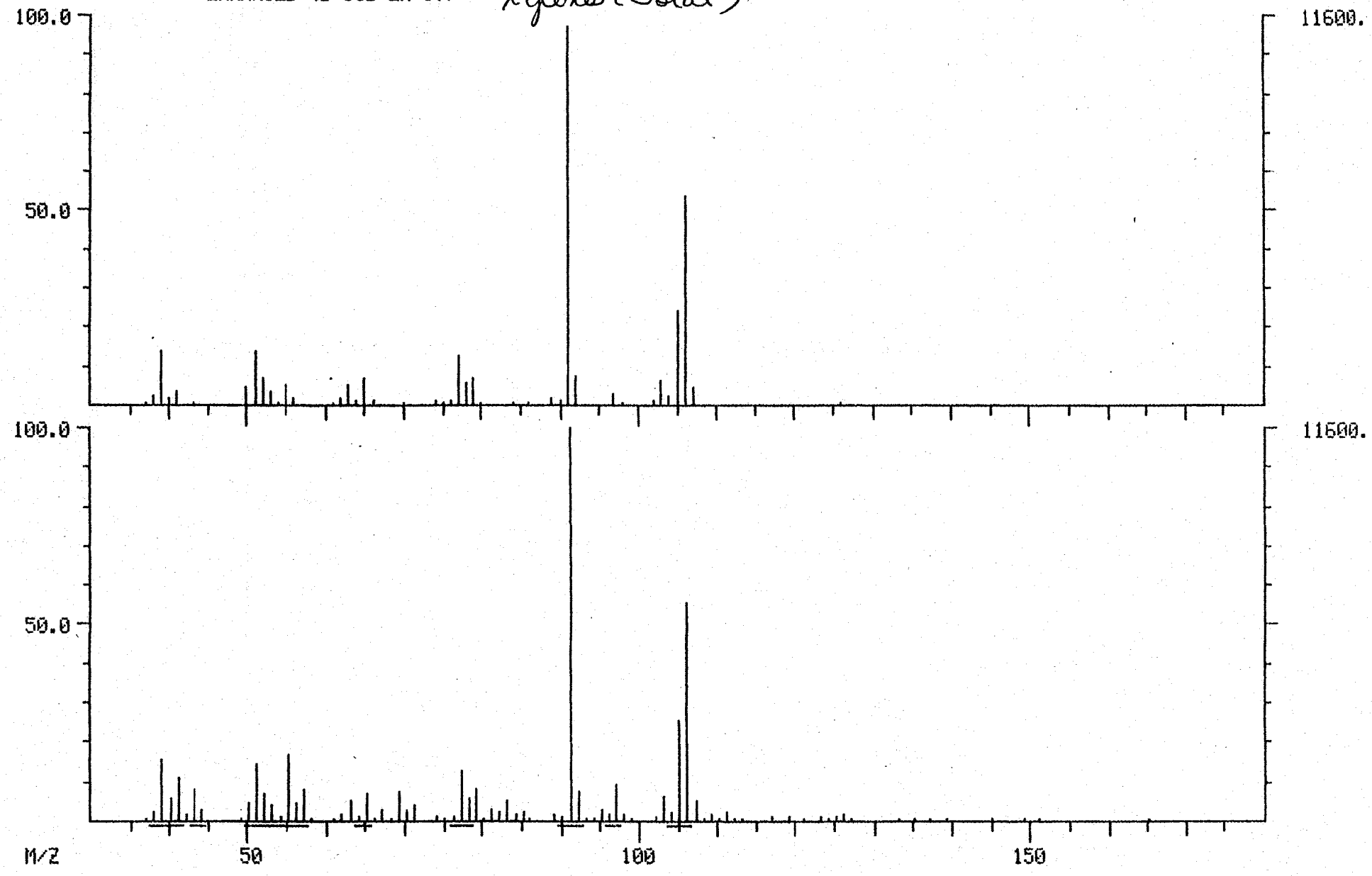
DATA: C1V0001620 #478 BASE M/Z: 43/ 40
CALI: C1V0001620 #4 RIC: 3139./ 71935.



000040

DUAL MASS SPECTRUM
09/20/88 20:35:00 + 22:47
SAMPLE: CLP,V11875,,11875007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Xylenes (Total)

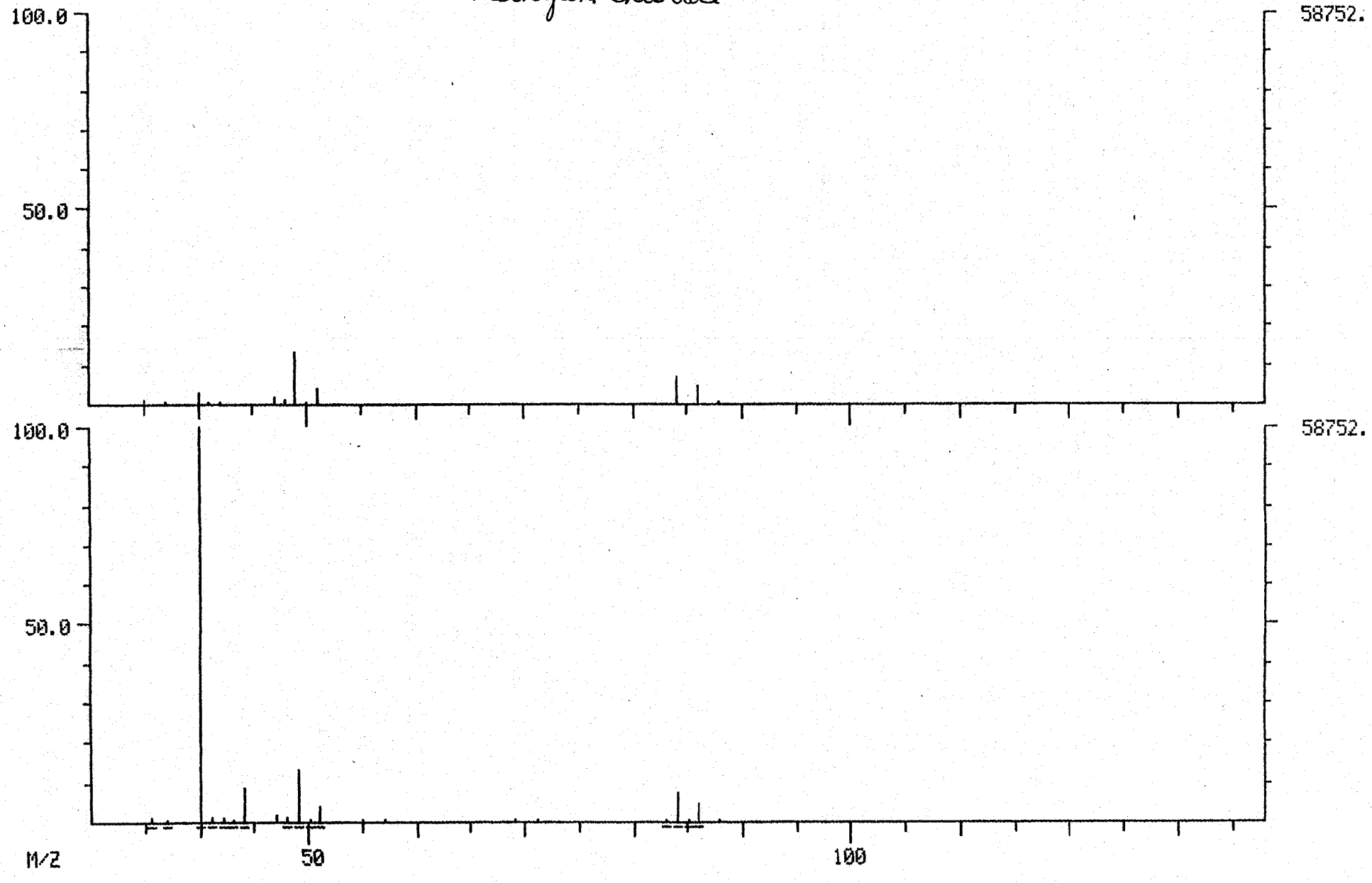
DATA: C1V0001620 #1367 BASE M/Z: 91/ 91
CALI: C1V0001620 #4 RIC: 35775./ 49983.



000041

DUAL MASS SPECTRUM
09/20/88 22:54:00 + 9:25
SAMPLE: CLP,V11875,,11875007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

DATA: C2V0001624 #565 BASE M/Z: 49/ 40
CALI: C2V0001624 #4 RIC: 22879./ 89087.



000042

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-SS3_1124

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11875008

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001621

Level: (low/med) LOW Date Received: 09/08/88

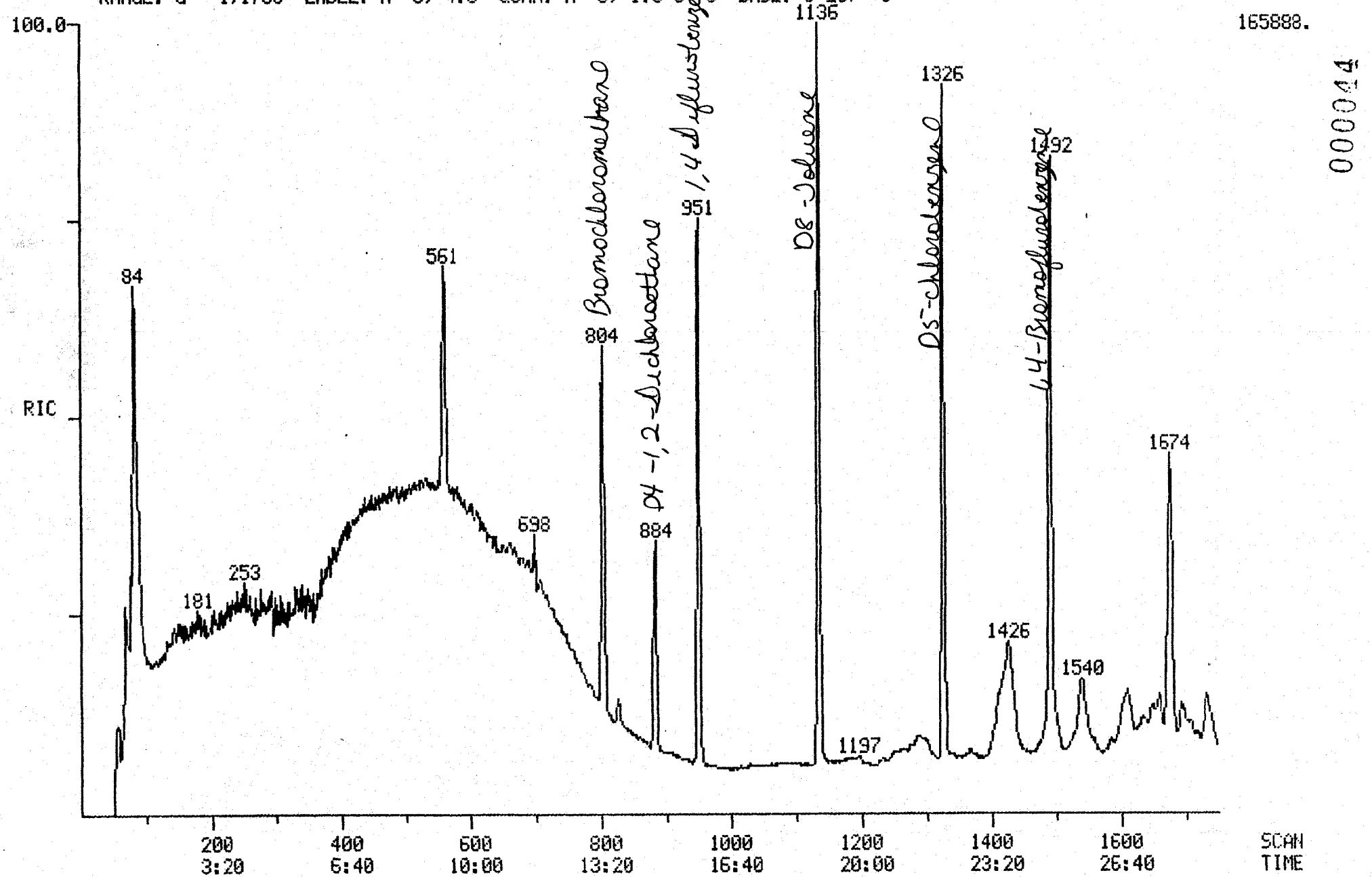
% Moisture: not dec. 5 Date Analyzed: 09/20/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	89	B
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

RIC DATA: C1V0001621 #827 SCANS 1 TO 1750
09/20/88 21:08:00 CALI: C1V0001621 #4
SAMPLE: CLP,V11875,,11875008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

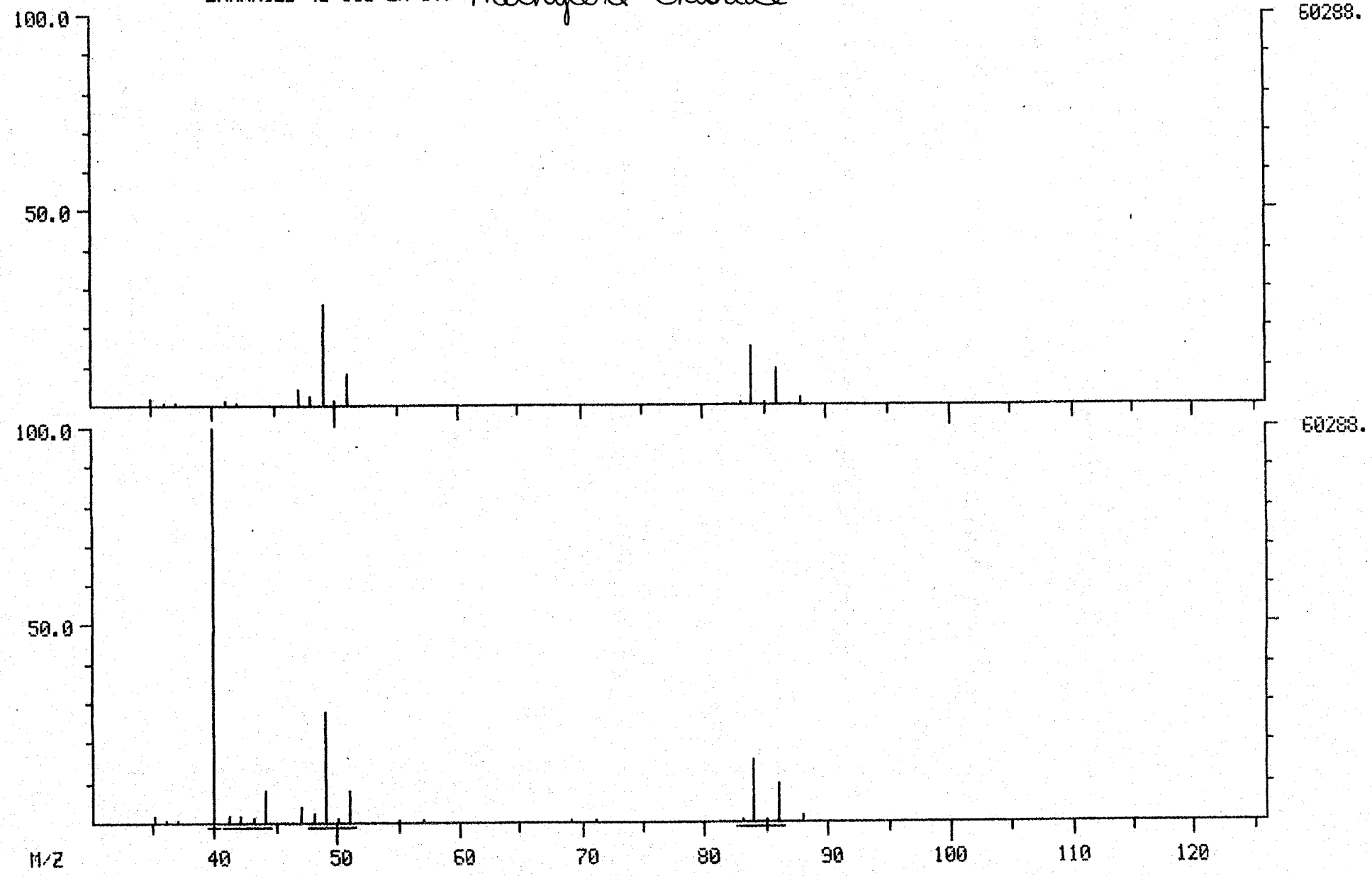


000044

DUAL MASS SPECTRUM
09/20/88 21:08:00 + 9:21
SAMPLE: CLP,V11875,,11875008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

DATA: C1V0001621 #561 BASE M/Z: 49/ 40
CALI: C1V0001621 #4 RIC: 44479./ 114431.

000045



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-SS7_1150

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11875009

Sample wt/vol: _____ (g/mL) G Lab File ID: C1VO001622

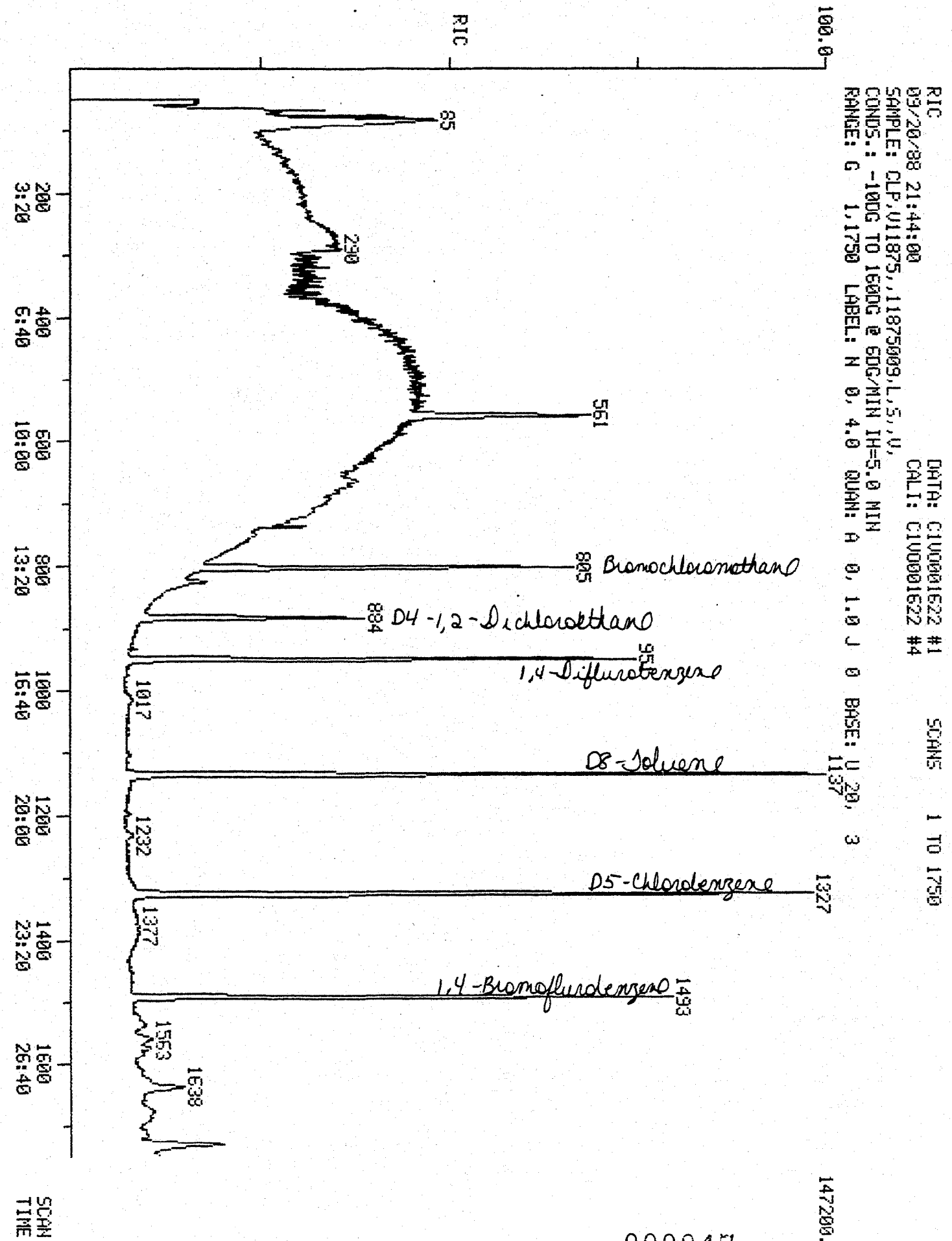
Level: (low/med) LOW Date Received: 09/08/88

% Moisture: not dec. 1 Date Analyzed: 09/20/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	68	B
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	4	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

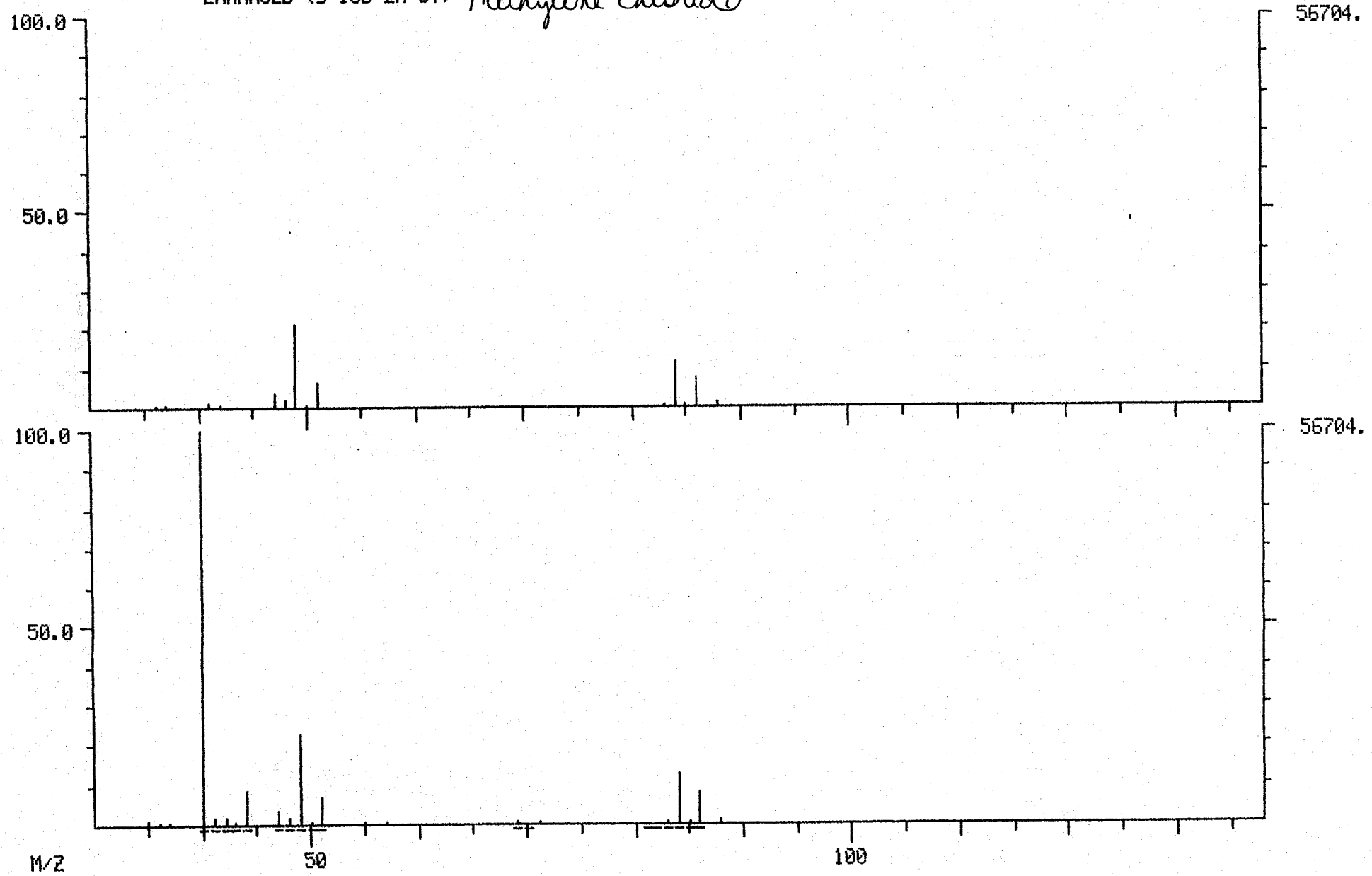
TCA FINISHED, 8 FOUND
FINISHED AT: 9/20/88 22:27:22



DUAL MASS SPECTRUM
09/20/88 21:44:00 + 9:21
SAMPLE: CLP,V11875,,11875009,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

DATA: C1V0001622 #561 BASE M/Z: 49/ 40
CALI: C1V0001622 #4 RIC: 32959./ 100991.

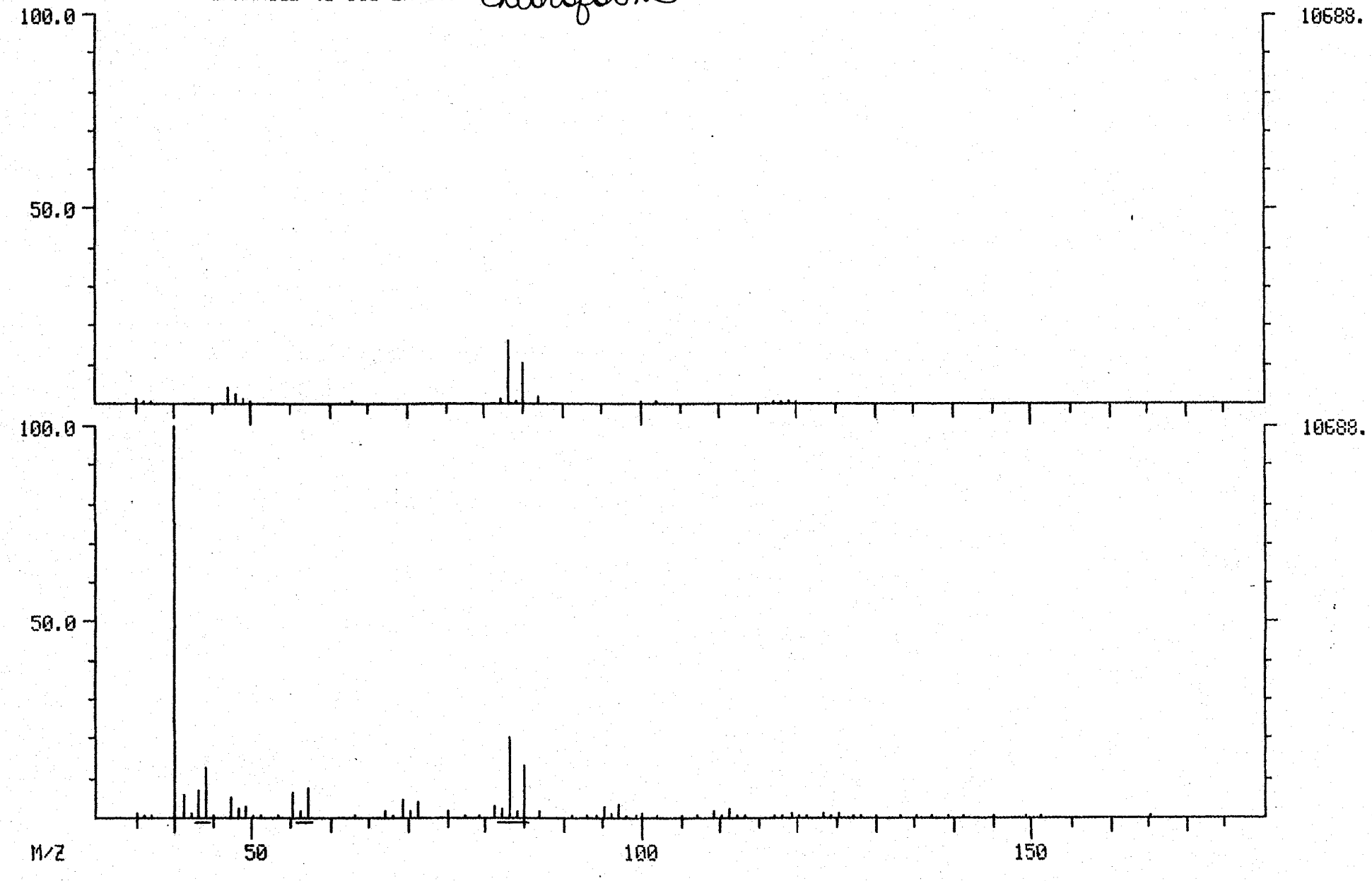
000043



DUAL MASS SPECTRUM
09/20/88 21:44:00 + 13:48
SAMPLE: CLP,V11875,,11875009,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T) Chloroform

DATA: C1V0001622 #828 BASE M/Z: 83/ 40
CALI: C1V0001622 #4 RIC: 4887./ 26367.

000049



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09158B2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09158B2

Sample wt/vol: _____ (g/mL) G Lab File ID: CBV0001567

Level: (low/med) LOW Date Received: 09/15/88

% Moisture: not dec. 0 Date Analyzed: 09/15/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	3	BJ
67-64-1	Acetone	12	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	1	BJ
591-78-6	2-Hexanone	2	BJ
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	1	BJ
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09208B1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09208B1

Sample wt/vol: _____ (g/mL) G Lab File ID: CBVO001615

Level: (low/med) LOW Date Received: 09/20/88

% Moisture: not dec. 0 Date Analyzed: 09/20/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	49	B
67-64-1	Acetone	29	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	4	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X09208B3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: X09208B3

Sample wt/vol: _____ (g/mL) ML Lab File ID: CBV0001617

Level: (low/med) LOW Date Received: 09/20/88

% Moisture: not dec. _____ Date Analyzed: 09/20/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	4	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	4	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GC-MS

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	X09208B3	95	90	97		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

RS.

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	TB	94	88	95		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	2B-MW6S3	101	101	92		0
02	2B-MW6S3_DL	103	97	94		0
03	2BMW6S1_1305	103	98	110		0
04	2BMW6S1_DUP	106	111	105		0
05	2BMW6S2_1305	105	112	100		0
06	2C-SS3_1124	105	92	92		0
07	2C-SS5_1523	99	87	93		0
08	2C-SS5_DL	96	87	94		0
09	2C-SS6_1417	101	121	107		0
10	2C-SS7_1150	94	88	94		0
11	MSD_9-7-88	103	96	89		0
12	MS_9-7-88	96	88	93		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

RS

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GC-MS

Level:(low/med) _____

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	Y09158B2	102	103	105		0
02	Y09208B1	94	91	96		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

RS

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Matrix Spike - EPA Sample No.: 2BMW6S1_DUP Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0	72.2	144	59-172
Trichloroethene	50.0	0	44.3	89	62-137
Benzene	50.0	0	48.3	97	66-142
Toluene	50.0	0	45.5	91	59-139
Chlorobenzene	50.0	0	47.9	96	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.0	75.8	152	-5	22	59-172
Trichloroethene	50.0	41.4	83	7	24	62-137
Benzene	50.0	44.3	89	9	21	66-142
Toluene	50.0	44.2	88	3	21	59-139
Chlorobenzene	50.0	44.8	90	6	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: CLP,V11875,,11875004,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

RS

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

ab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBVO001567 Lab Sample ID: Y09158B2

ate Analyzed: 09/15/88 Time Analyzed: 2300

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2BMW6S1_1305	11875001	C1VO001574	0341
02	2BMW6S1_DUP	11875004	C1VO001577	0526
03	2BMW6S2_1305	11875002	C1VO001575	0416
04	2C-SS6_1417	11875006	C1VO001578	0602

COMMENTS: CLP,V11846,,Y09158B2,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001615 Lab Sample ID: Y09208B1

Date Analyzed: 09/20/88 Time Analyzed: 1649

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2B-MW6S3	11875003	C2V0001623	2219
02	2B-MW6S3_DL	11875003DL	C3V0001625	2329
03	2C-SS3_1124	11875008	C1V0001621	2108
04	2C-SS5_1523	11875007	C1V0001620	2035
05	2C-SS5_DL	11875007DL	C2V0001624	2254
06	2C-SS7_1150	11875009	C1V0001622	2144
07	MSD_9-7-88	11875D04	CMV0001627	0039
08	MS_9-7-88	11875M04	CMV0001626	0004

COMMENTS: CLP,V11875,,Y09208B1,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

RS

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001617 Lab Sample ID: X09208B3

Date Analyzed: 09/20/88 Time Analyzed: 1843

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	TB	11875005	C1V0001619	1959

COMMENTS: CLP,V11875,,X09208B3,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CSV0001565 BFB Injection Date: 09/15/88

Instrument ID: 4500 BFB Injection Time: 2137

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.2
75	30.0 - 60.0% of mass 95	39.1
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.8 (1.0)1
174	Greater than 50.0% of mass 95	75.6
175	5.0 - 9.0% of mass 174	5.6 (7.4)1
176	Greater than 95.0%, but less than 101.0% of mass 174	73.4 (97.1)1
177	5.0 - 9.0% of mass 176	4.9 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSV0001566	09/15/88	2221
02	Y09158B2	Y09158B2	CBV0001567	09/15/88	2300
03	2BMW6S1_1305	11875001	C1V0001574	09/16/88	0341
04	2BMW6S2_1305	11875002	C1V0001575	09/16/88	0416
05	2BMW6S1_DUP	11875004	C1V0001577	09/16/88	0526
06	2C-SS6_1417	11875006	C1V0001578	09/16/88	0602

RS

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CSVO001596 BFB Injection Date: 09/19/88

Instrument ID: 4500 BFB Injection Time: 1620

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.6
75	30.0 - 60.0% of mass 95	38.6
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.6 (0.8)1
174	Greater than 50.0% of mass 95	78.2
175	5.0 - 9.0% of mass 174	5.8 (7.4)1
176	Greater than 95.0%, but less than 101.0% of mass 174	75.1 (96.0)1
177	5.0 - 9.0% of mass 176	5.1 (6.8)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VOA_50_STND		CSVO001597	09/19/88	1735
02	VOA_100_STND		CSVO001598	09/19/88	1817
03	VOA_150_STND		CSVO001599	09/19/88	1853
04	VOA_200_STND		CSVO001600	09/19/88	1945
05	VOA_20_STND		CSVO001602	09/19/88	2153

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CSV0001613 BFB Injection Date: 09/20/88

Instrument ID: 4500 BFB Injection Time: 1201

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.9
75	30.0 - 60.0% of mass 95	38.9
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.7 (1.0)1
174	Greater than 50.0% of mass 95	66.0
175	5.0 - 9.0% of mass 174	4.8 (7.2)1
176	Greater than 95.0%, but less than 101.0% of mass 174	64.0 (96.9)1
177	5.0 - 9.0% of mass 176	4.1 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSV0001614	09/20/88	1418
02	Y09208B1	Y09208B1	CBV0001615	09/20/88	1649
03	X09208B3	X09208B3	CBV0001617	09/20/88	1843
04	TB	11875005	C1V0001619	09/20/88	1959
05	2C-SS5_1523	11875007	C1V0001620	09/20/88	2035
06	2C-SS3_1124	11875008	C1V0001621	09/20/88	2108
07	2C-SS7_1150	11875009	C1V0001622	09/20/88	2144
08	2B-MW6S3	11875003	C2V0001623	09/20/88	2219
09	2C-SS5_DL	11875007DL	C2V0001624	09/20/88	2254
10	2B-MW6S3_DL	11875003DL	C3V0001625	09/20/88	2329
11	MS_9-7-88	11875M04	CMV0001626	09/21/88	0004
12	MSD_9-7-88	11875D04	CMV0001627	09/21/88	0039

RS.

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration Date(s): 09/19/88 09/19/88

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min $\overline{RRF}$ for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = CSV0001602 RRF50 = CSV0001597
RRF100= CSV0001598 RRF150= CSV0001599 RRF200= CSV0001600

COMPOUND		RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane	#	0.641	0.662	0.553	0.382	0.555	0.559	19.7#
Bromomethane		0.298	0.281	0.253	0.195	0.234	0.252	16.0
Vinyl Chloride	*	0.514	0.521	0.460	0.324	0.442	0.452	17.5*
Chloroethane		0.298	0.310	0.290	0.223	0.271	0.278	12.3
Methylene Chloride		0.877	0.920	0.655	0.514	0.544	0.702	26.7
Acetone		0.300	0.296	0.235	0.207	0.178	0.243	22.2
Carbon Disulfide		1.101	1.023	0.885	0.521	0.694	0.845	28.2
1,1-Dichloroethene	*	0.339	0.316	0.238	0.165	0.208	0.253	28.9*
1,1-Dichloroethane	#	2.708	2.494	2.400	1.894	2.233	2.346	13.0#
1,2-Dichloroethene (total)		0.916	0.851	0.811	0.628	0.751	0.791	13.8
Chloroform	*	3.626	3.045	2.748	2.260	2.482	2.832	18.8*
1,2-Dichloroethane		1.853	1.745	1.582	1.318	1.384	1.576	14.5
2-Butanone		0.360	0.313	0.291	0.277	0.315	0.311	10.1
1,1,1-Trichloroethane		0.377	0.341	0.320	0.265	0.293	0.319	13.5
Carbon Tetrachloride		0.327	0.308	0.290	0.241	0.265	0.286	11.9
Vinyl Acetate		1.357	1.164	1.062	1.000	1.057	1.128	12.5
Bromodichloromethane		0.504	0.456	0.460	0.367	0.439	0.445	11.2
1,2-Dichloropropane	*	0.478	0.472	0.440	0.353	0.441	0.437	11.4*
cis-1,3-Dichloropropene		0.565	0.498	0.515	0.417	0.462	0.491	11.4
Trichloroethene		0.464	0.383	0.346	0.272	0.310	0.355	20.7
Dibromochloromethane		0.352	0.302	0.280	0.256	0.294	0.297	11.9
1,1,2-Trichloroethane		0.360	0.310	0.299	0.269	0.303	0.308	10.7
Benzene		1.325	1.201	1.078	0.925	0.994	1.105	14.5
trans-1,3-Dichloropropene		0.128	0.110	0.107	0.094	0.102	0.108	11.7
Bromoform	#	0.372	0.313	0.314	0.247	0.290	0.307	14.8#
2-Hexanone		0.513	0.480	0.450	0.430	0.475	0.470	6.7
4-Methyl-2-Pentanone		0.733	0.682	0.703	0.599	0.656	0.675	7.5
Tetrachloroethene		0.333	0.316	0.307	0.248	0.264	0.294	12.3
1,1,2,2-Tetrachloroethane	#	0.572	0.520	0.579	0.452	0.508	0.526	9.9#
Toluene	*	0.749	0.714	0.765	0.598	0.648	0.695	10.1*
Chlorobenzene	#	0.965	0.919	0.875	0.717	0.797	0.855	11.6#
Ethylbenzene	*	0.506	0.486	0.478	0.374	0.441	0.457	11.4*
Styrene		1.109	1.047	1.087	0.797	0.870	0.982	14.2
Xylenes (total)		0.629	0.607	0.629	0.461	0.524	0.570	13.1
Toluene-d8 - SS		0.507	0.502	0.562	0.536	0.517	0.525	4.7
1,4-Bromofluorobenzene - SS		0.277	0.268	0.312	0.275	0.265	0.279	6.8
1,2-Dichloroethane-d4 - SS		0.615	0.607	0.578	0.563	0.529	0.578	6.0

R5

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/15/88 Time: 2221

Lab File ID: CSV0001566 Init. Calib. Date(s): 09/19/88 09/19/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.559	0.490	12.3	#
Bromomethane		0.252	0.255	-1.2	
Vinyl Chloride	*	0.452	0.425	6.0	*
Chloroethane		0.278	0.276	0.7	
Methylene Chloride		0.702	0.756	-7.7	
Acetone		0.243	0.246	-1.2	
Carbon Disulfide		0.845	1.066	-26.2	
1,1-Dichloroethene	*	0.253	0.337	-33.2	*
1,1-Dichloroethane	#	2.346	2.700	-15.1	#
1,2-Dichloroethene (total)		0.791	0.881	-11.4	
Chloroform	*	2.832	3.178	-12.2	*
1,2-Dichloroethane		1.576	1.869	-18.6	
2-Butanone		0.311	0.327	-5.1	
1,1,1-Trichloroethane		0.319	0.346	-8.5	
Carbon Tetrachloride		0.286	0.324	-13.3	
Vinyl Acetate		1.128	1.141	-1.2	
Bromodichloromethane		0.445	0.542	-21.8	
1,2-Dichloropropane	*	0.437	0.540	-23.6	*
cis-1,3-Dichloropropene		0.491	0.614	-25.1	
Trichloroethene		0.355	0.421	-18.6	
Dibromochloromethane		0.297	0.331	-11.5	
1,1,2-Trichloroethane		0.308	0.355	-15.3	
Benzene		1.105	1.294	-17.1	
trans-1,3-Dichloropropene		0.108	0.122	-13.0	
Bromoform	#	0.307	0.339	-10.4	#
2-Hexanone		0.470	0.574	-22.1	
4-Methyl-2-Pentanone		0.675	0.835	-23.7	
Tetrachloroethene		0.294	0.356	-21.1	
1,1,2,2-Tetrachloroethane	#	0.526	0.654	-24.3	#
Toluene	*	0.695	0.897	-29.1	*
Chlorobenzene	#	0.855	1.086	-27.0	#
Ethylbenzene	*	0.457	0.576	-26.0	*
Styrene		0.982	1.295	-31.9	
Xylenes (total)		0.570	0.733	-28.6	
Toluene-d8 - SS		0.525	0.558	-6.3	
1,4-Bromofluorobenzene - SS		0.279	0.279	0.0	
1,2-Dichloroethane-d4 - SS		0.578	0.597	-3.3	

RS

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/20/88 Time: 1418

Lab File ID: CSV0001614 Init. Calib. Date(s): 09/19/88 09/19/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	0.559	0.497	11.1	#
Bromomethane		0.252	0.378	-50.0	
Vinyl Chloride	*	0.452	0.501	-10.8	*
Chloroethane		0.278	0.343	-23.4	
Methylene Chloride		0.702	0.565	19.5	
Acetone		0.243	0.311	-28.0	
Carbon Disulfide		0.845	1.327	-57.0	
1,1-Dichloroethene	*	0.253	0.244	3.6	*
1,1-Dichloroethane	#	2.346	2.442	-4.1	#
1,2-Dichloroethene (total)		0.791	0.857	-8.3	
Chloroform	*	2.832	2.722	3.9	*
1,2-Dichloroethane		1.576	1.553	1.5	
2-Butanone		0.311	0.292	6.1	
1,1,1-Trichloroethane		0.319	0.292	8.5	
Carbon Tetrachloride		0.286	0.257	10.1	
Vinyl Acetate		1.128	1.087	3.6	
Bromodichloromethane		0.445	0.426	4.3	
1,2-Dichloropropane	*	0.437	0.445	-1.8	*
cis-1,3-Dichloropropene		0.491	0.540	-10.0	
Trichloroethene		0.355	0.366	-3.1	
Dibromochloromethane		0.297	0.266	10.4	
1,1,2-Trichloroethane		0.308	0.327	-6.2	
Benzene		1.105	1.062	3.9	
trans-1,3-Dichloropropene		0.108	0.110	-1.9	
Bromoform	#	0.307	0.269	12.4	#
2-Hexanone		0.470	0.605	-28.7	
4-Methyl-2-Pentanone		0.675	0.865	-28.2	
Tetrachloroethene		0.294	0.295	-0.3	
1,1,2,2-Tetrachloroethane	#	0.526	0.633	-20.3	#
Toluene	*	0.695	0.842	-21.2	*
Chlorobenzene	#	0.855	0.923	-8.0	#
Ethylbenzene	*	0.457	0.511	-11.8	*
Styrene		0.982	1.122	-14.3	
Xylenes (total)		0.570	0.647	-13.5	
Toluene-d8 - SS		0.525	0.595	-13.3	
1,4-Bromofluorobenzene - SS		0.279	0.299	-7.2	
1,2-Dichloroethane-d4 - SS		0.578	0.613	-6.1	

8A
VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSVO001566 Date Analyzed: 09/15/88

Instrument ID: 4500 Time Analyzed: 2221

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	45300	13.44	252000	15.89	226000	22.10
	UPPER LIMIT	90600		504000		452000	
	LOWER LIMIT	22650		126000		113000	
	EPA SAMPLE NO.						
01	2BMW6S1_1305	36400	13.40	196000	15.87	165000	22.09
02	2BMW6S1_DUP	40800	13.40	216000	15.87	179000	22.10
03	2BMW6S2_1305	41600	13.40	226000	15.85	200000	22.10
04	2C-SS6_1417	39200	13.42	208000	15.87	174000	22.10
05	Y09158B2	42300	13.42	231000	15.87	206000	22.09

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

RS.

8A
VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11875 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001614 Date Analyzed: 09/20/88

Instrument ID: 4500 Time Analyzed: 1418

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	54800	13.45	299000	15.87	271000	22.09
	UPPER LIMIT	109600		598000		542000	
	LOWER LIMIT	27400		149500		135500	
	EPA SAMPLE NO.						
01	2B-MW6S3	53800	13.42	271000	15.87	253000	22.12
02	2B-MW6S3_DL	72700	13.42	375000	15.85	360000	22.12
03	2C-SS3_1124	54500	13.40	269000	15.85	238000	22.10
04	2C-SS5_1523	54600	13.39	284000	15.85	264000	22.10
05	2C-SS5_DL	70400	13.42	366000	15.85	354000	22.10
06	2C-SS7_1150	52400	13.40	231000	15.85	228000	22.12
07	TB	52600	13.42	246000	15.87	237000	22.12
08	MSD_9-7-88	68100	13.44	362000	15.89	333000	22.14
09	MS_9-7-88	62900	13.40	341000	15.85	323000	22.10
10	Y09208B1	57500	13.44	303000	15.87	291000	22.10
11	X09208B3	61400	13.44	331000	15.87	320000	22.12

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

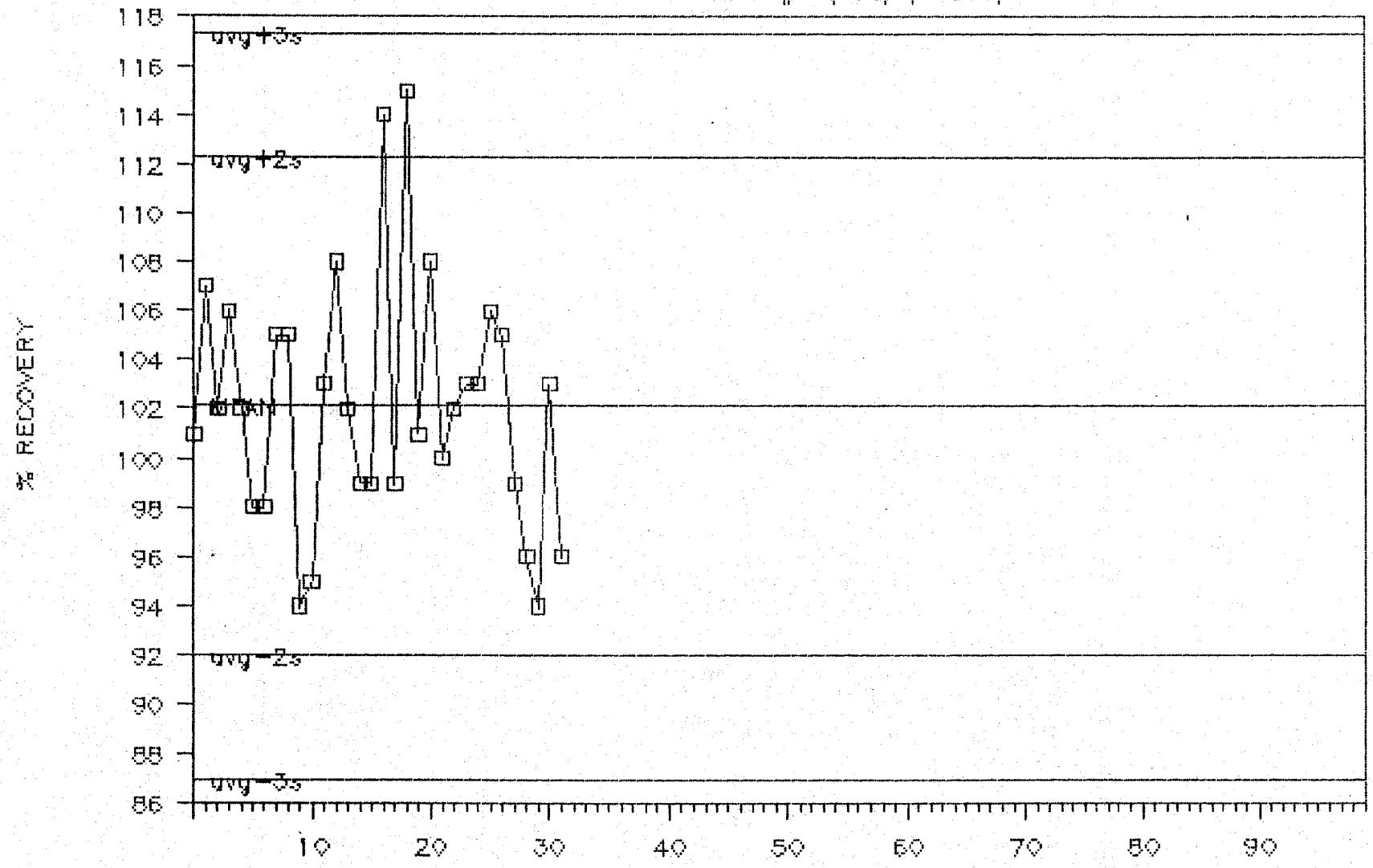
UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

RS

SURROGATE RECOVERY

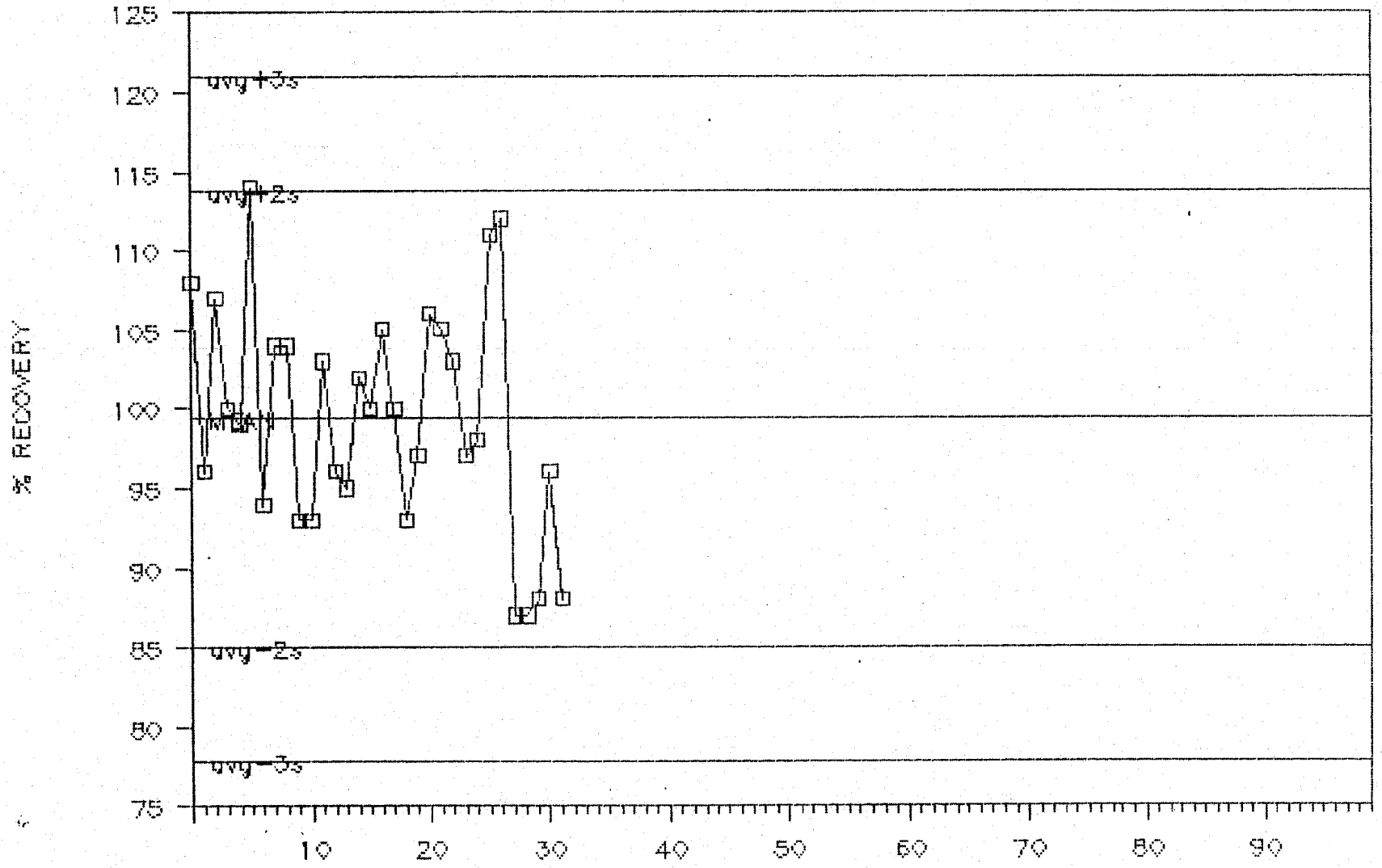
VOLATILES-SOIL - SURR.#1 (TOL) (11875)



000068

SURROGATE RECOVERY

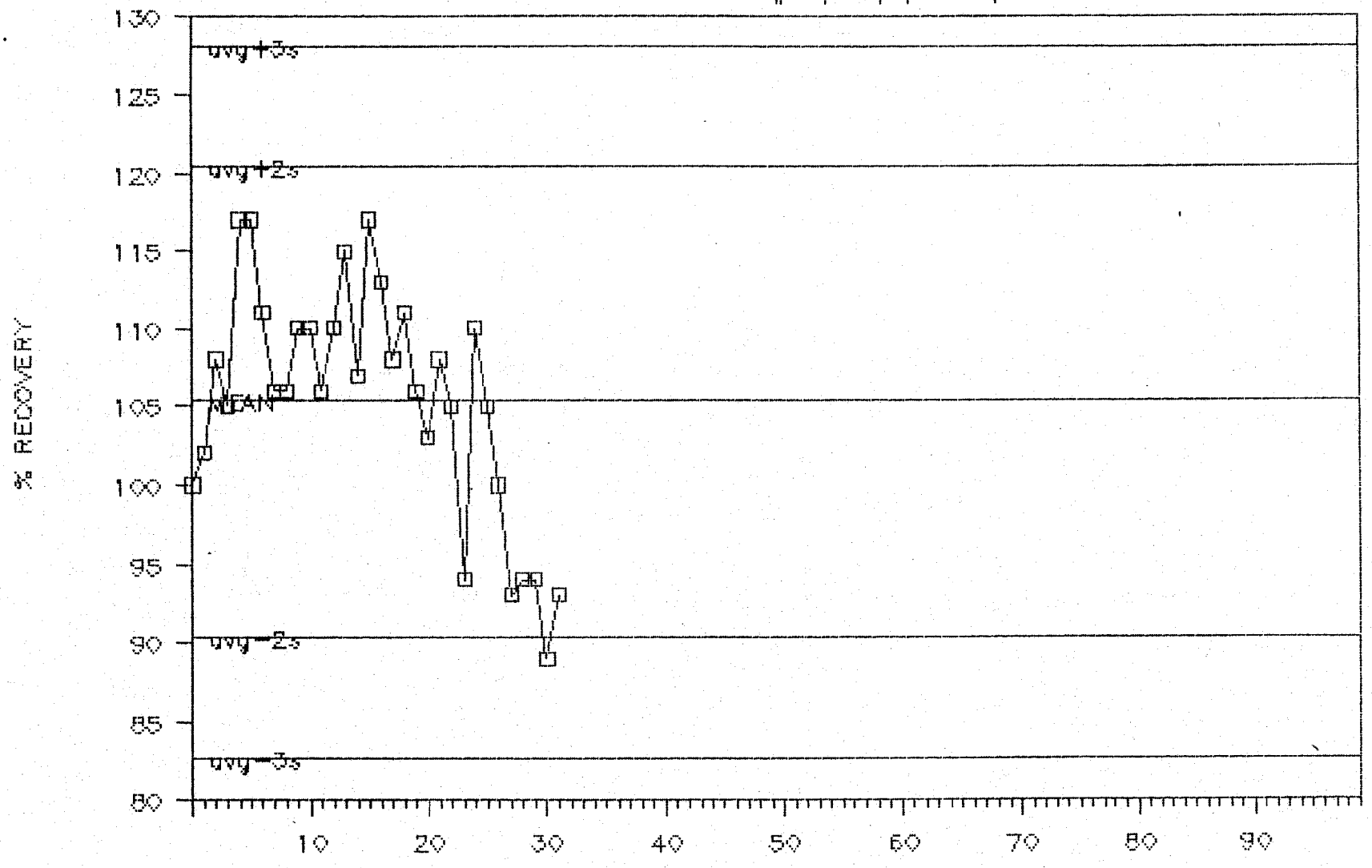
VOLATILES-SOIL - SURR.#2 (BFB) (11875)



000069

SURROGATE RECOVERY

VOLATILES-SOIL - SURR.#3 (DCE) (11875)



000070

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 10/20/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11875

RE: Sample(s) received by CH2M HILL on 09/08/88.
LANTDIV

Analysis Description	[Method]	2B-MW6S1 * 2B 9/6/88 1305 COMP	2B-MW6S2 * 2B 9/6/88 1305 COMP	2B-MW6S3 * 2B 9/6/88 1305 COMP	2BMW6S1-D* 2B 9/6/88 1305 COMP DUPLICATE	2C-SS6 * 2C 9/7/88 1417 COMP	2C-SS5 * 2C 9/7/88 1523 COMP	2C-SS3 * 2C 9/7/88 1124 COMP
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
EP Tox. Silver (ppb)	[EPA200.7]	<30	<30	<30	50	<30	<30	50
EP Tox. Arsenic (ppb)	[EPA206.2]	<5	<5	<5	<5	<5	<5	<5
EP Tox. Barium (ppb)	[EPA200.7]	160	220	<100	170	200	200	<10
EP Tox. Cadmium (ppb)	[EPA200.7]	<20	<20	<20	<20	<20	<20	<20
EP Tox. Chromium (ppb)	[EPA200.7]	<10	<10	<10	<10	<10	<10	<10
EP Tox. Mercury (ppb)	[EPA245.1]	0.3	<0.4	<0.4	0.5	<0.4	<0.4	<0.4
EP Tox. Lead (ppb)	[EPA200.7]	12	6	8	6	11	8	8
EP Tox. Selenium (ppb)	[EPA270.2]	<5	<5	<5	<5	<5	<5	<5

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 10/20/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11875

RE: Sample(s) received by CH2M HILL on 09/08/88.
LANTDIV

Analysis Description	[Method]	2C-SS7 * 9/7/88 2C 9/7/88 1150 COMP
		SOIL
EP Tox. Silver (ppb)	[EPA200.7]	<30
EP Tox. Arsenic (ppb)	[EPA206.2]	<5
EP Tox. Barium (ppb)	[EPA200.7]	270
EP Tox. Cadmium (ppb)	[EPA200.7]	40
EP Tox. Chromium (ppb)	[EPA200.7]	<10
EP Tox. Mercury (ppb)	[EPA245.1]	<0.4
EP Tox. Lead (ppb)	[EPA200.7]	15
EP Tox. Selenium (ppb)	[EPA270.2]	<5

Analyses performed in accordance with methods approved by the USEPA.

Respectfully Submitted,

James M Schoen

Mr. James M. Schoen
Inorganic Laboratory Manager

cc: MR. FRANK LEWIS/WDC

INORG(MGM-8809C)

CH2M HILL
Engineers
Planners
Economists
Scientists

October 10, 1988

W20368.D0

Mr. Doug Dronfield
CH2M HILL/WDC
P.O. Box 4400
Reston, Virginia 22090

RE: Analytical Data for Laboratory No. 11906

Dear Mr. Dronfield:

On September 14, 1988, CH2M HILL Montgomery Laboratory received eight samples with a request for analysis of selected organic parameters.

Please note that the CH2M HILL Montgomery Laboratory reporting format has changed. The format alteration is in response to new reporting technology and will keep CH2M HILL in-line with new industry standards. We apologize for any inconvenience this change may cause.

The analytical results and the associated quality control data are enclosed. Sample 11906007 (2CMW2S2-1430) displayed nonreproducible methylene chloride results due to the nonhomogeneous nature of the sample. Forms II, IV, V and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M Hill Montgomery Laboratory identification numbers. No other unusual difficulties were encountered during the analysis of these samples.

If you should have any questions concerning the data, please call.

Sincerely,

Ward Dickens

Ward Dickens
Manager, Organic Analysis

Enclosures

cc: Mr. Craig Vinson
Mr. Frank Lewis/WDC
Ms. Mary Wisdom/MGM-LQAC

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2CMW3S1_1000

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11906001

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO001654

Level: (low/med) LOW Date Received: 09/14/88

% Moisture: not dec. 10 Date Analyzed: 09/26/88

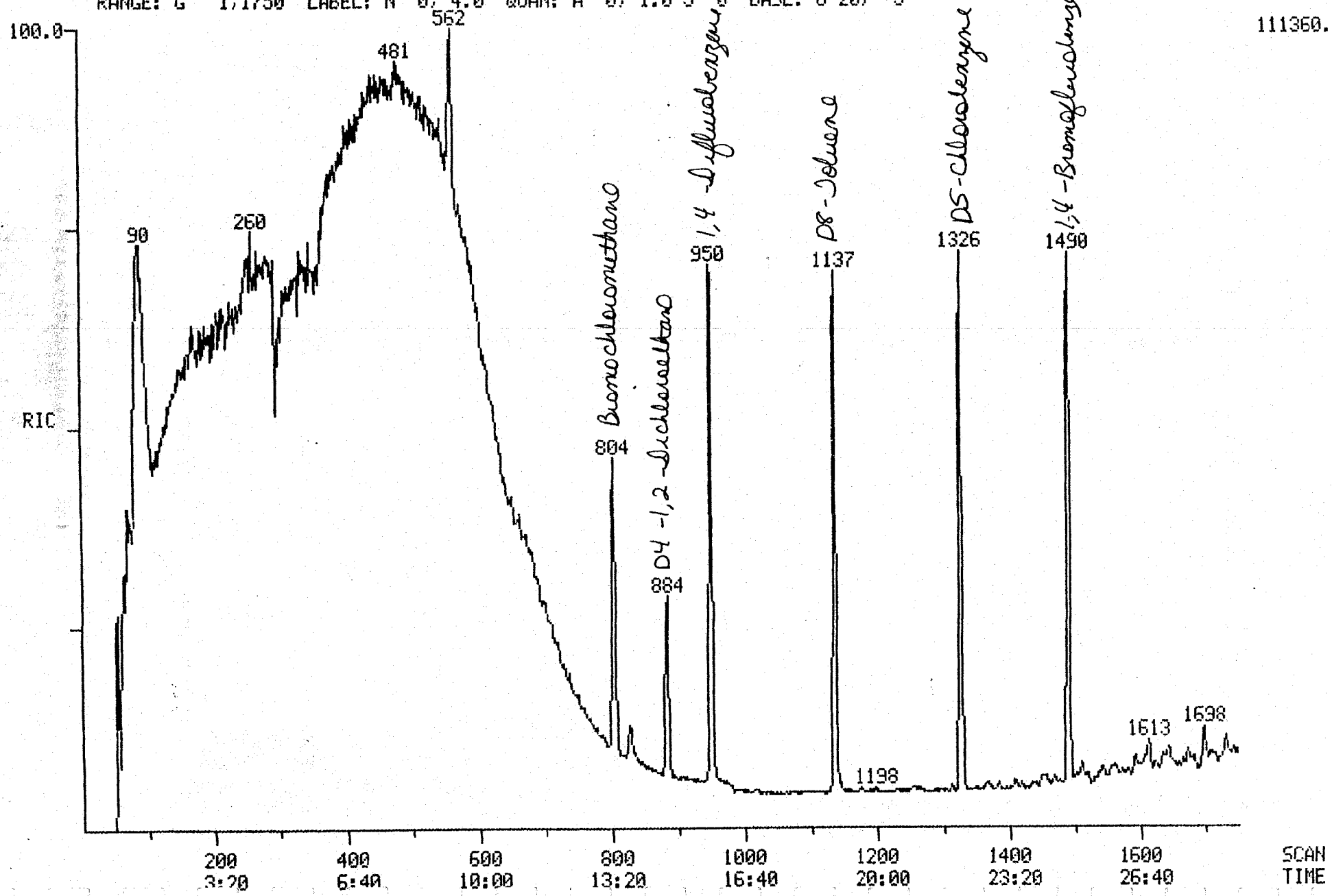
Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	22	B
67-64-1	Acetone	22	BX
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	B
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS

RIC
09/26/88 18:59:00
SAMPLE: CLP,V11906,,11906001,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: C1V0001654 #483 SCANS 1 TO 1750
CALI: C1V0001654 #4

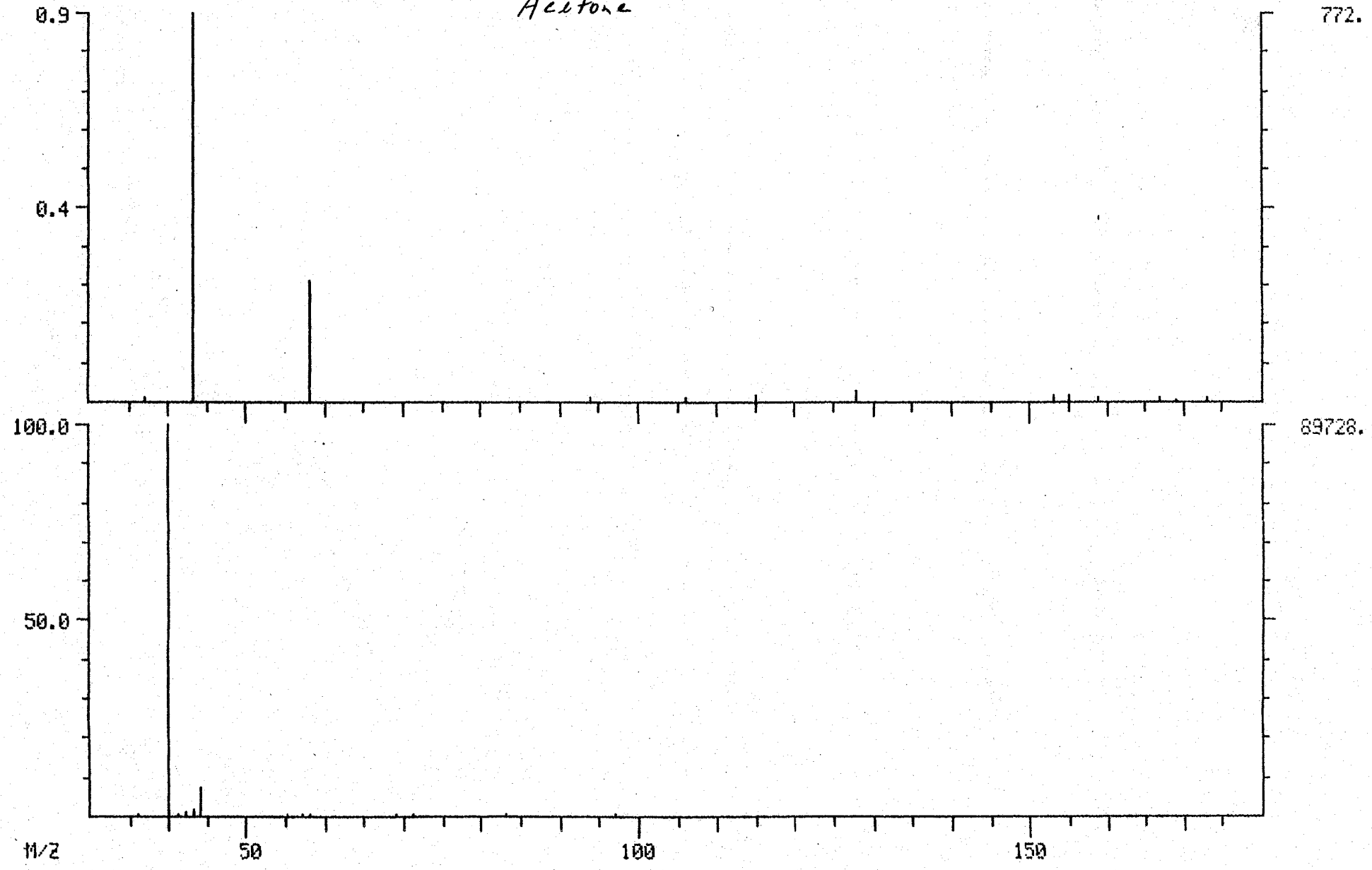


000001

DUAL MASS SPECTRUM
09/26/88 18:59:00 + 8:04
SAMPLE: CLP,V11906,,11906001,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001654 #484 BASE M/Z: 43/ 40
CALI: C1V0001654 #4 RIC: 1143./ 105343.

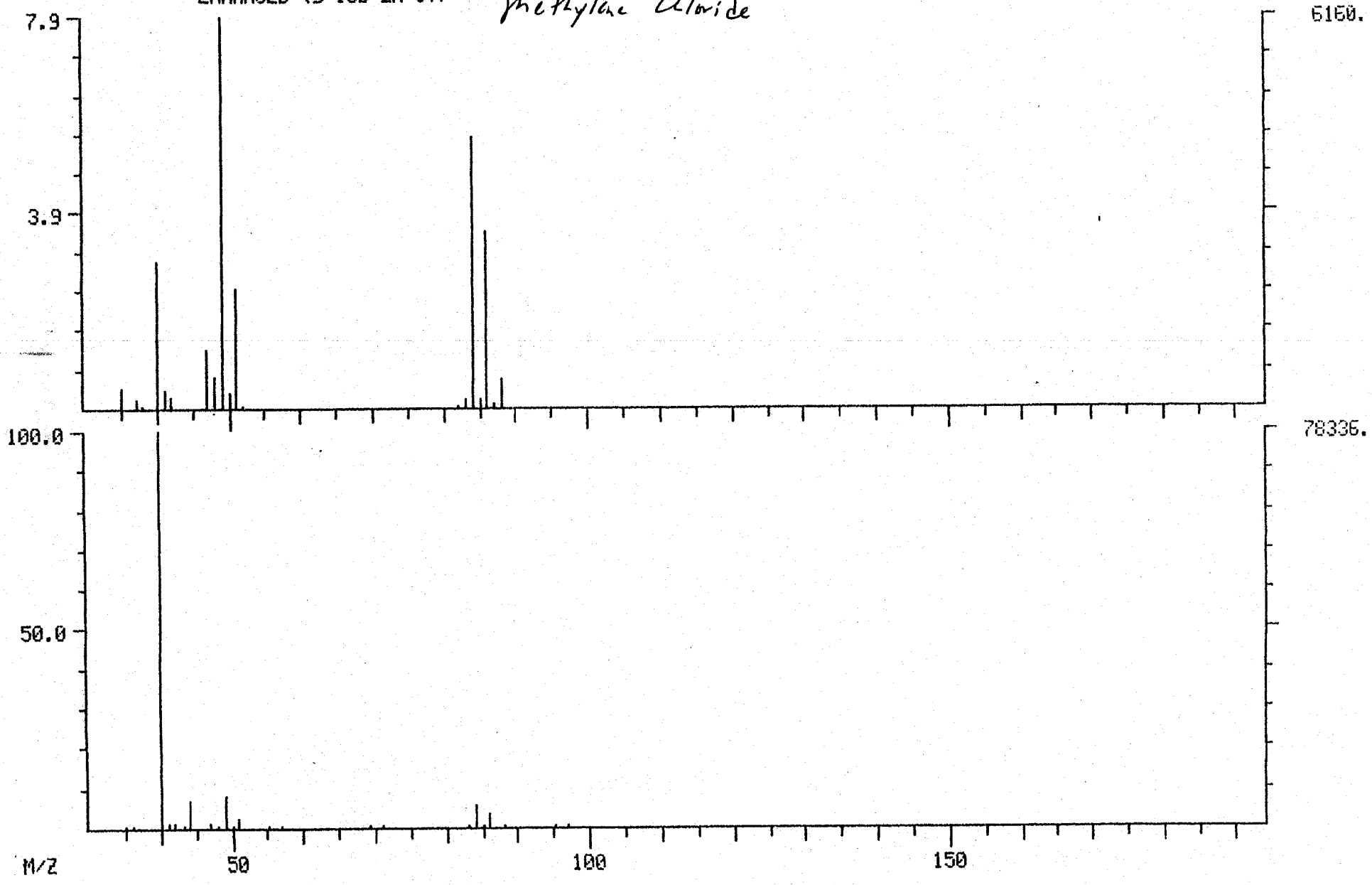
Acetone



DUAL MASS SPECTRUM
09/26/88 18:59:00 + 9:22
SAMPLE: CLP,V11906,,11906001,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

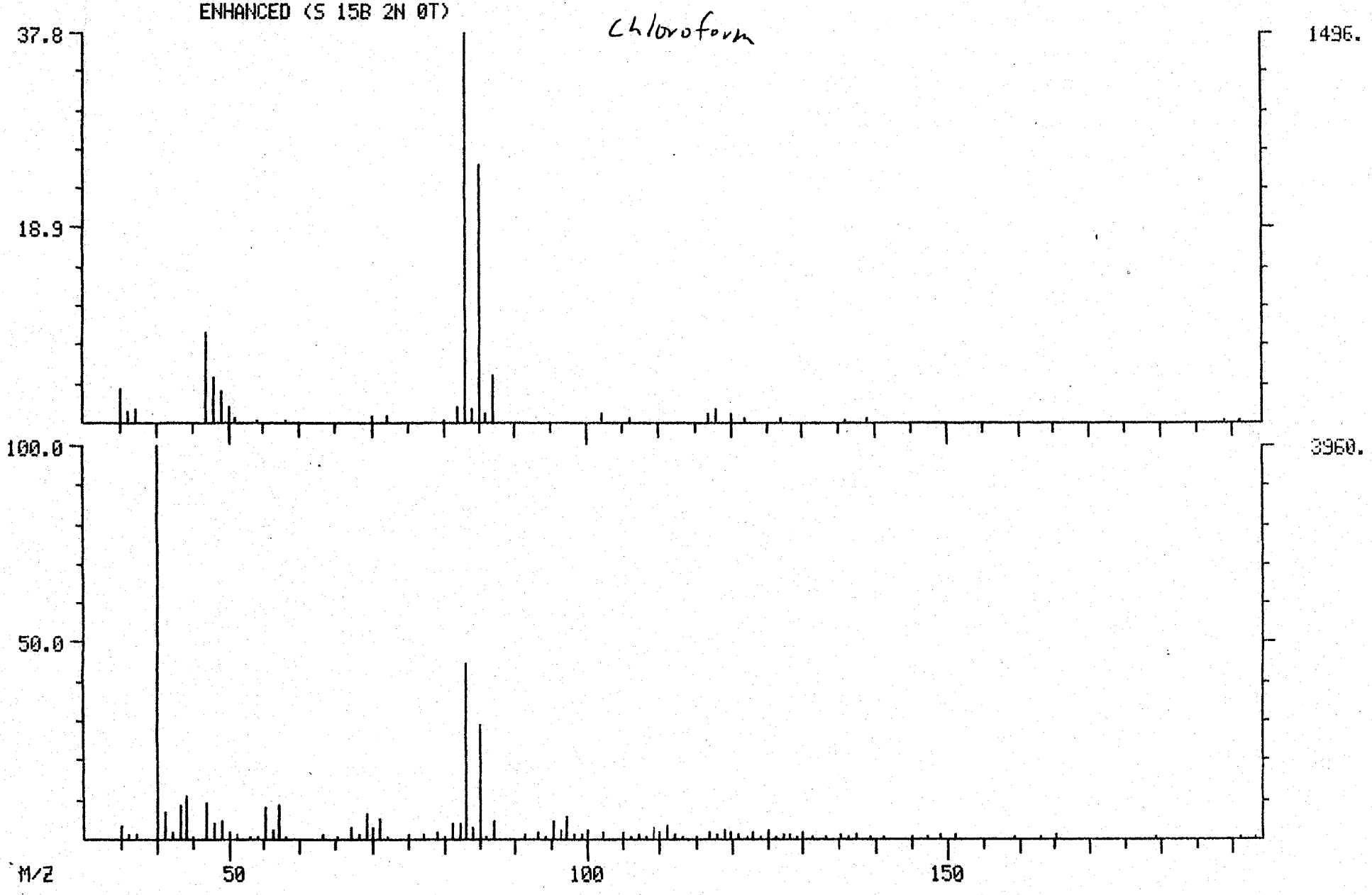
DATA: C1V0001654 #562 BASE M/Z: 49/ 40
CALI: C1V0001654 #4 RIC: 21087./ 109695.

methylene Chloride



DUAL MASS SPECTRUM
09/26/88 18:59:00 + 13:47
SAMPLE: CLP,V11906,,11906001,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001654 #827 BASE M/Z: 83/ 40
CALI: C1V0001654 #4 RIC: 4075./ 14175.



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2CMW3S2_1000

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11906002

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO001655

Level: (low/med) LOW Date Received: 09/14/88

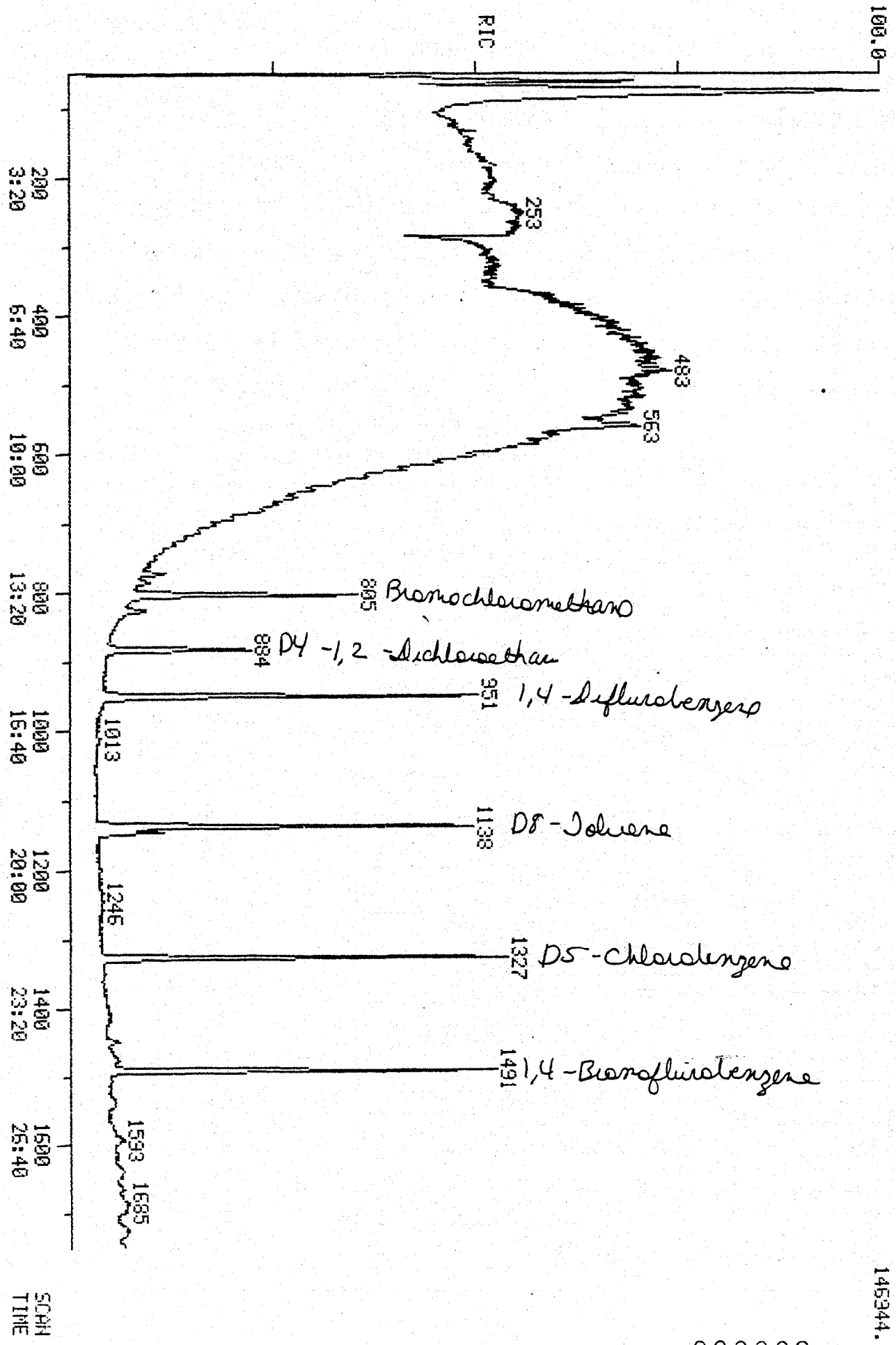
% Moisture: not dec. 21 Date Analyzed: 09/26/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	30	
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	19	B
67-64-1	Acetone	42	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	5	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	12	
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS

TCA FINISHED, 10 FOUND
FINISHED AT: 9/26/88 20:47:21



RIC
09/26/88 13:36:00
SAMPLE: CLP,V11906,,11906002,L,S,V,
CONDS.: -100C TO 160C @ 60C/MIN IH=5.0 MIN
RANGE: G 1,2100 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: C1V0001655 #1
CALI: C1V0001655 #4

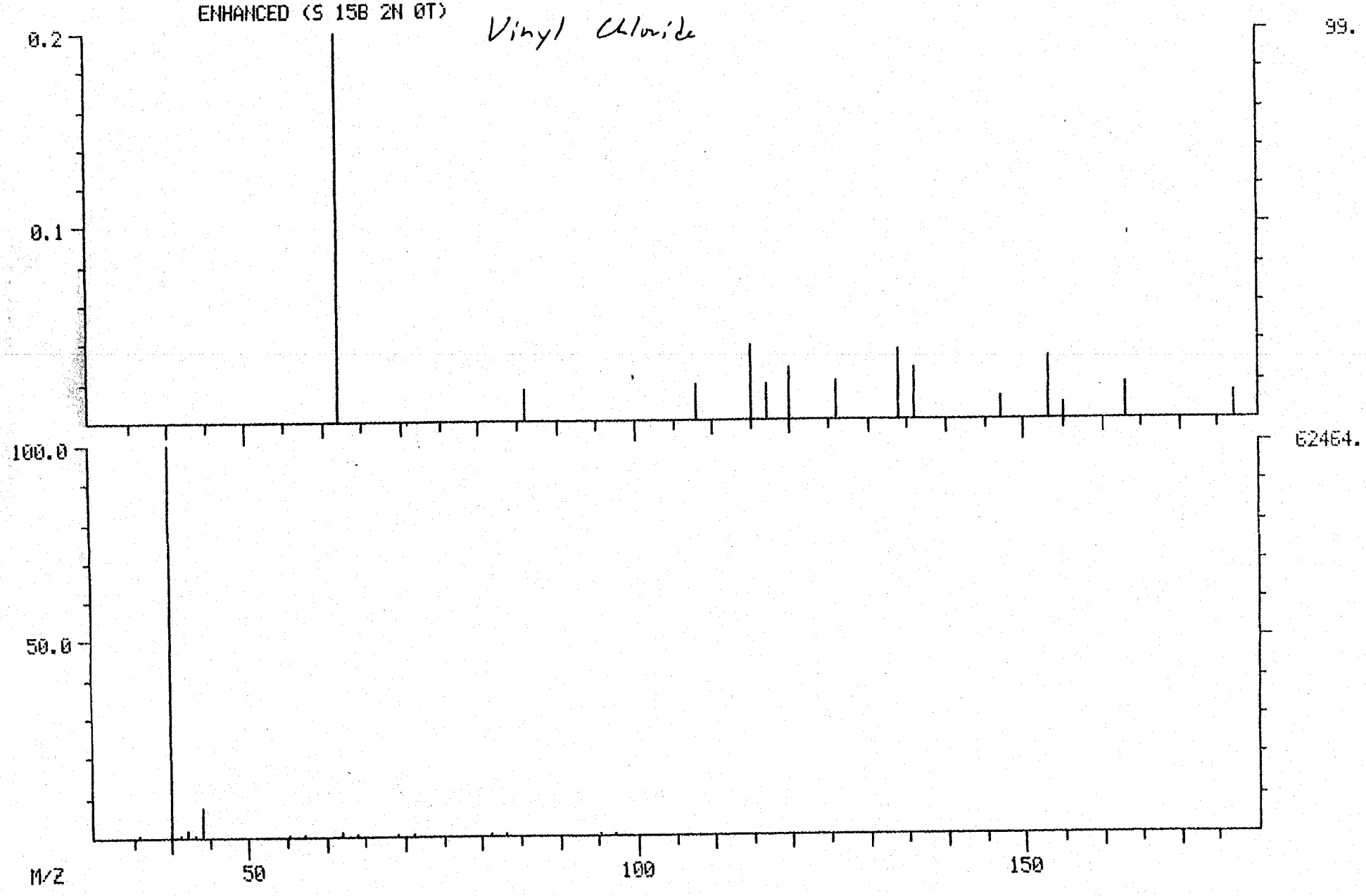
SCANS 50 TO 1750

146344.

DUAL MASS SPECTRUM
09/26/88 19:36:00 + 3:06
SAMPLE: CLP,V11906,,11906002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Vinyl Chloride

DATA: C1V0001655 #186 BASE M/Z: 62/ 40
CALI: C1V0001655 #4 RIC: 239./ 75135.

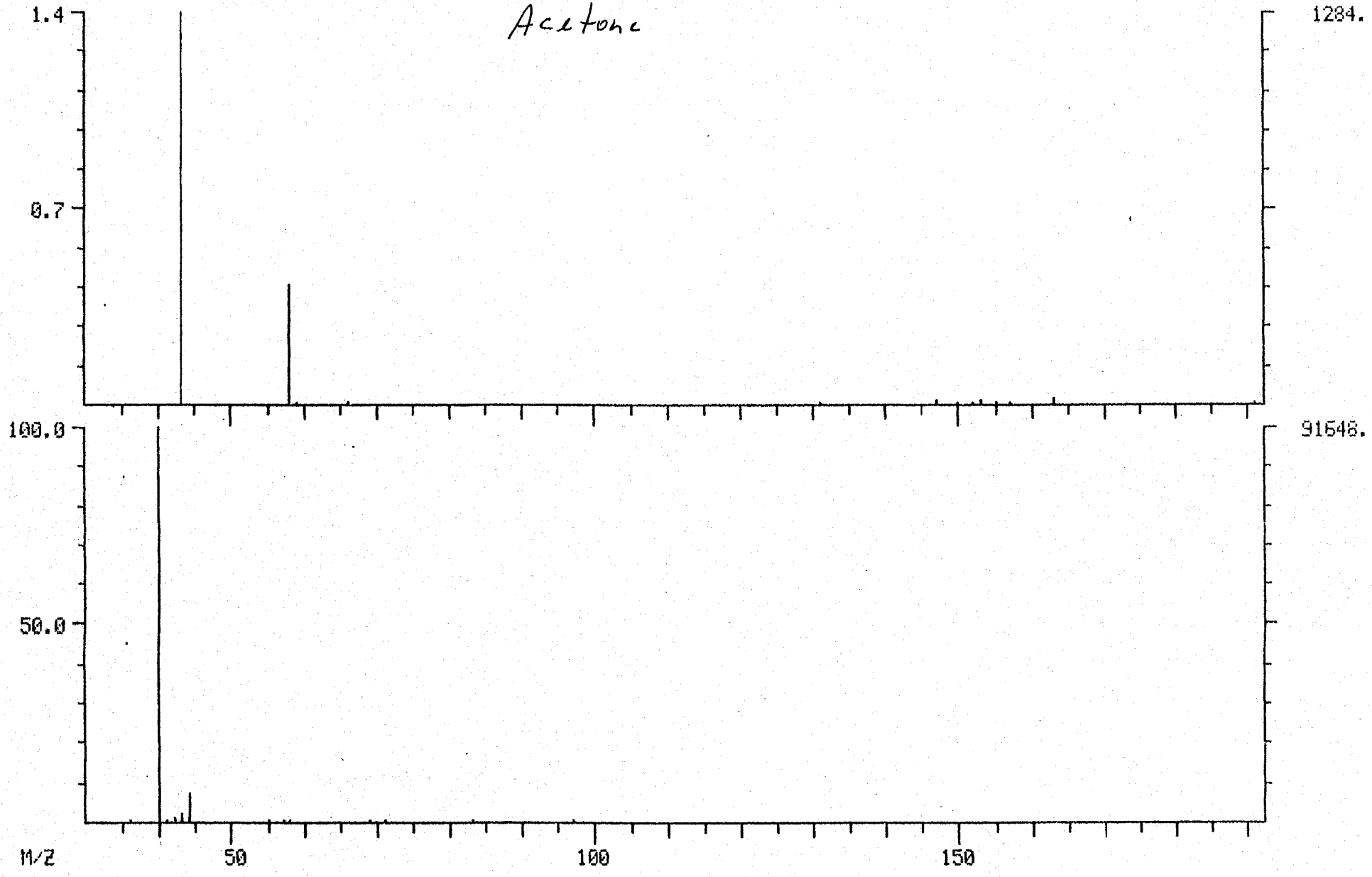


010000

DUAL MASS SPECTRUM
09/26/88 19:36:00 + 8:03
SAMPLE: CLP,V11906,,11906002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001655 #483 BASE M/Z: 43/ 40
CALI: C1V0001655 #4 RIC: 1795./ 107647.

Acetone

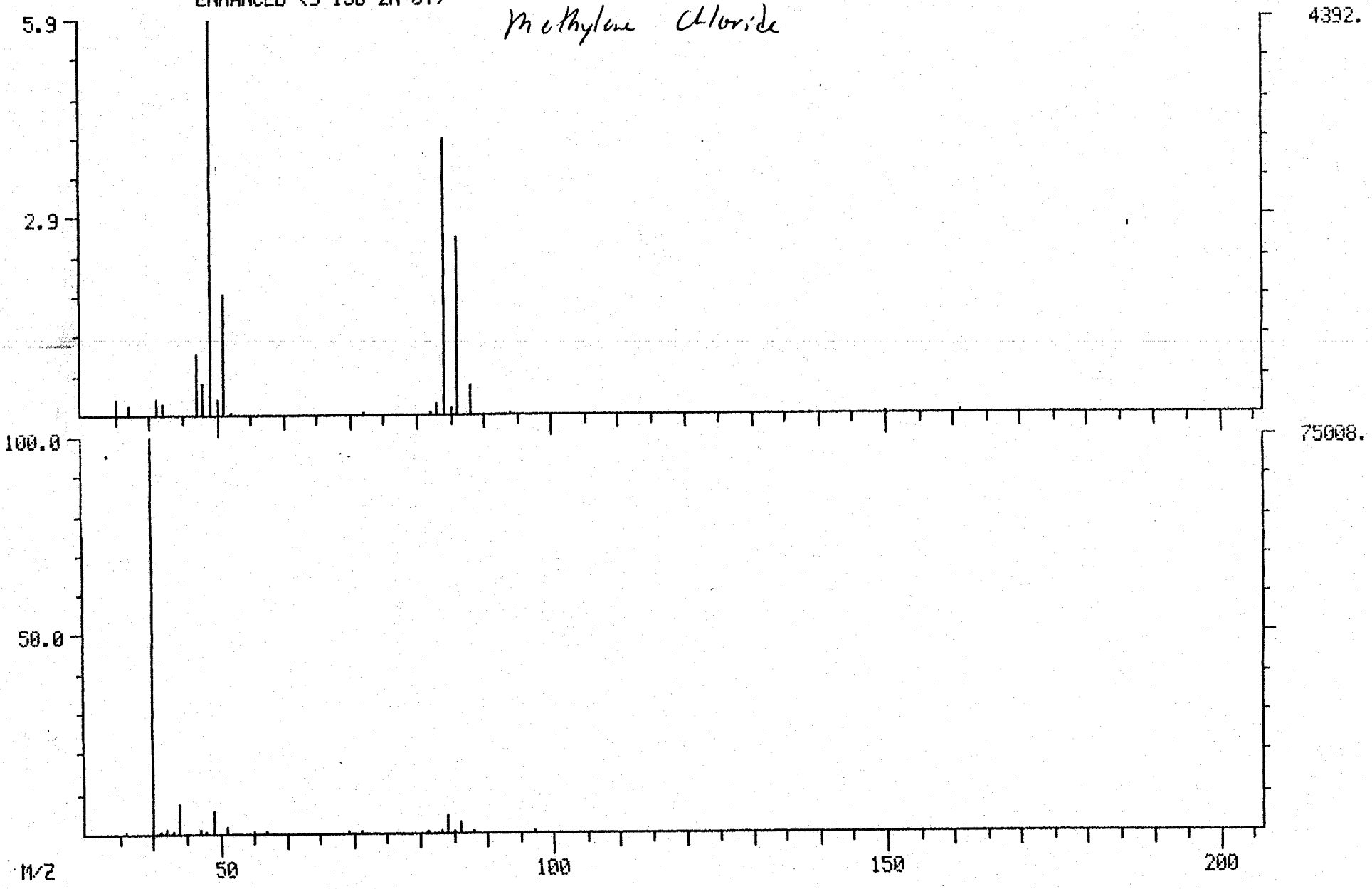


000011

DUAL MASS SPECTRUM
09/26/88 19:36:00 + 9:22
SAMPLE: CLP,V11906,,11906002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 150 2N 0T)

DATA: C1V0001655 #562 BASE M/Z: 49/ 40
CALI: C1V0001655 #4 RIC: 13279./ 100479.

Methylene Chloride

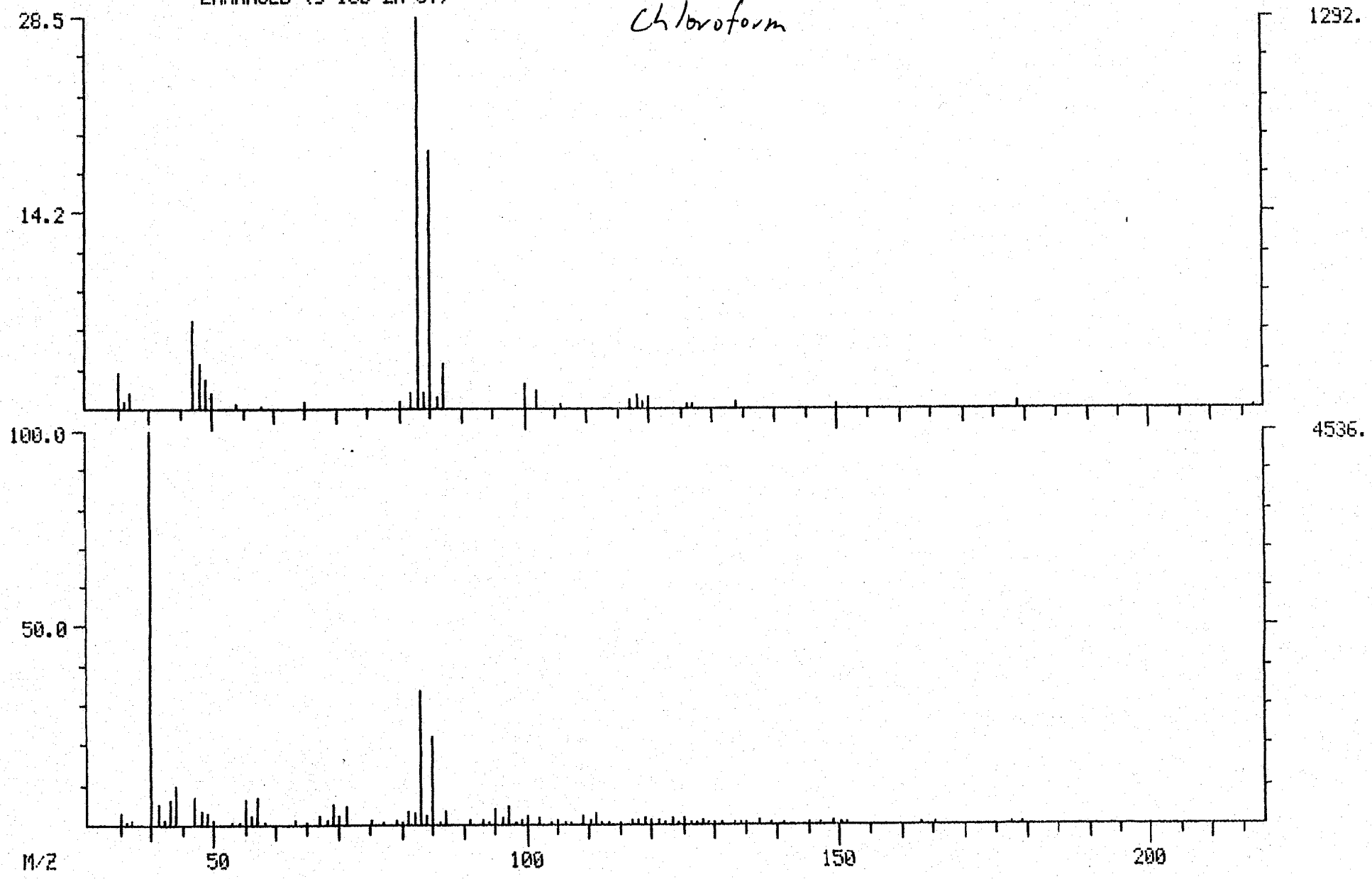


000012

DUAL MASS SPECTRUM
09/26/88 19:36:00 + 13:48
SAMPLE: CLP,V11906,,11906002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001655 #828 BASE M/Z: 83/ 40
CALI: C1V0001655 #4 RIC: 3691./ 13855.

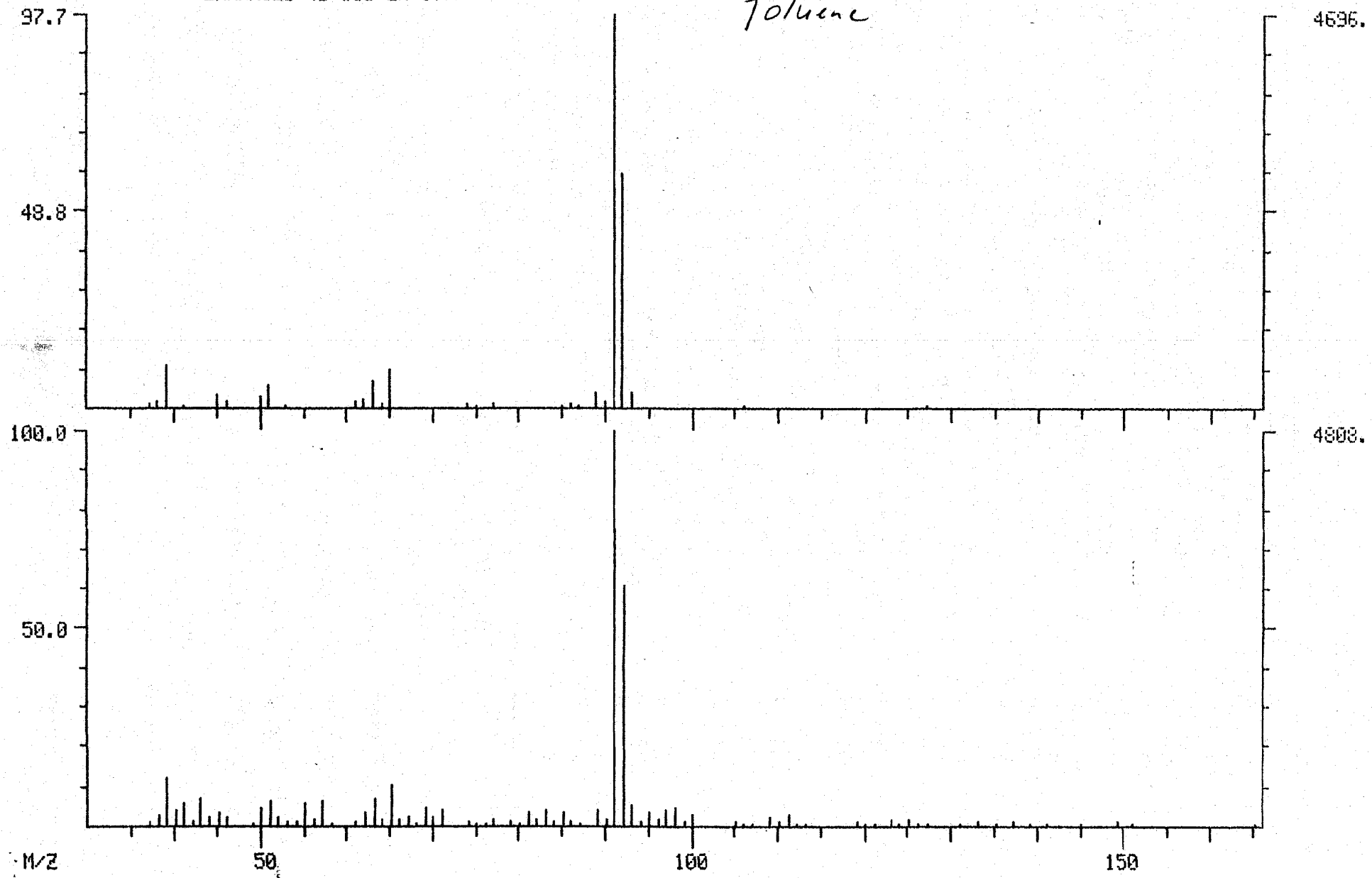
000013



DUAL MASS SPECTRUM
09/26/88 19:36:00 + 19:06
SAMPLE: CLP,V11906,,11906002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001655 #1146 BASE M/Z: 91/ 91
CALI: C1V0001655 #4 RIC: 10671./ 16991.

Toluene



000014

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2CMW3S3_1000

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11906003

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1V0001656

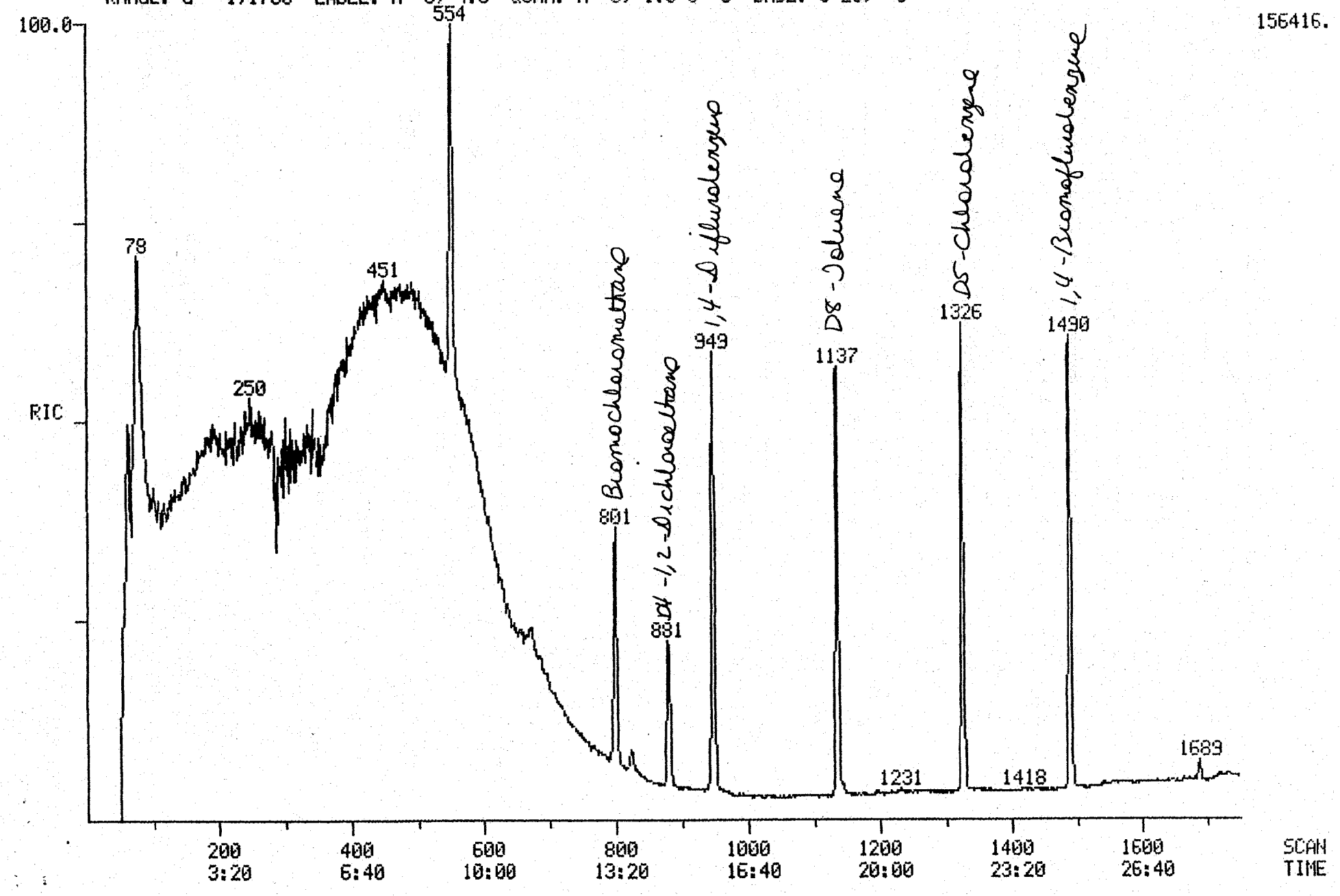
Level: (low/med) LOW Date Received: 09/14/88

% Moisture: not dec. 19 Date Analyzed: 09/26/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	83	B
67-64-1	Acetone	16	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	9	
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	5	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

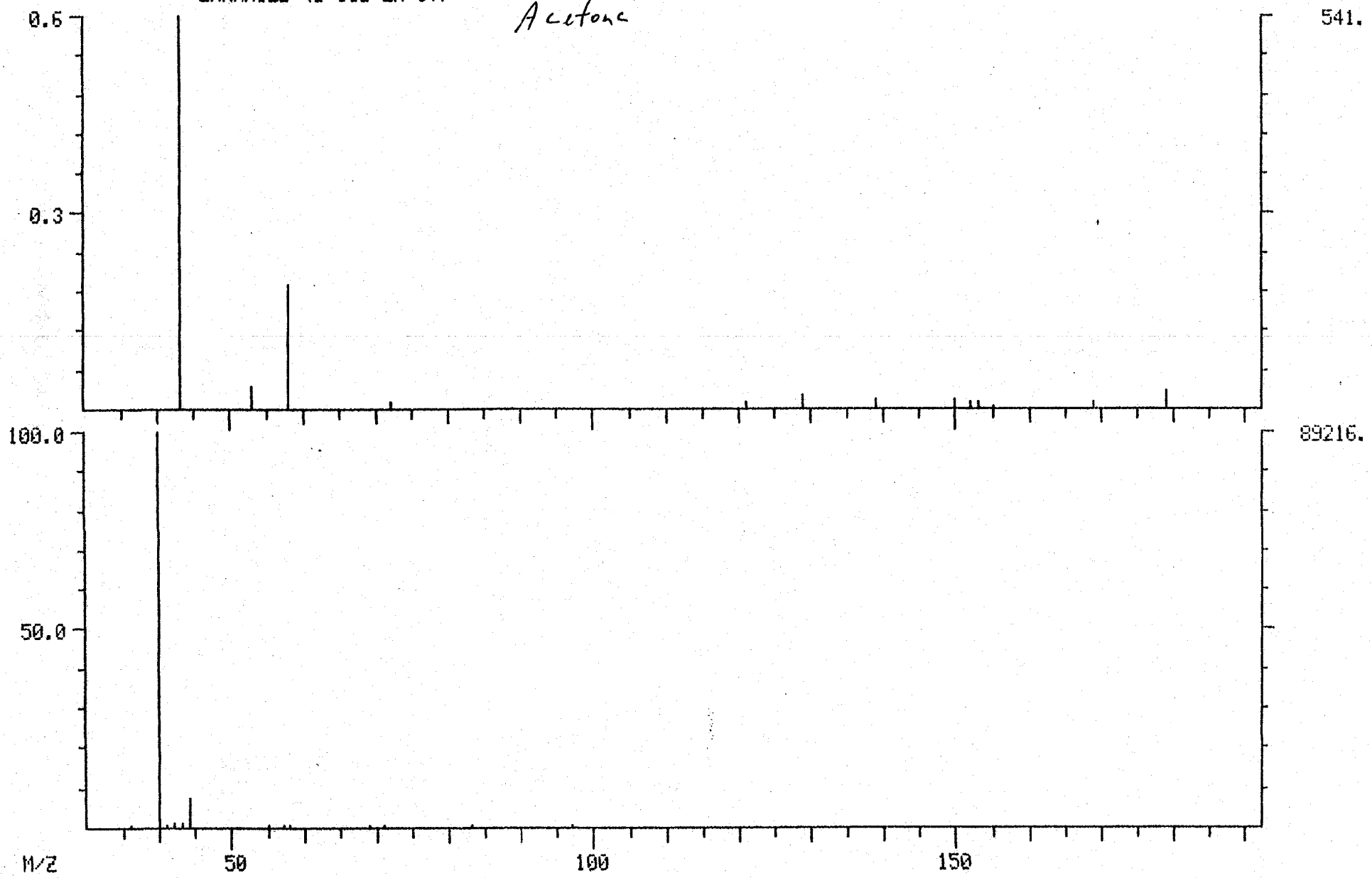
RIC DATA: C1V0001656 #1 SCANS 1 TO 1750
09/26/88 20:11:00 CALI: C1V0001656 #4
SAMPLE: CLP,V11906,,11906003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



DUAL MASS SPECTRUM
09/26/88 20:11:00 + 7:54
SAMPLE: CLP,V11906,,11906003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001656 #474 BASE M/Z: 43/ 40
CALI: C1V0001656 #4 RIC: 861./ 103295.

Acetone

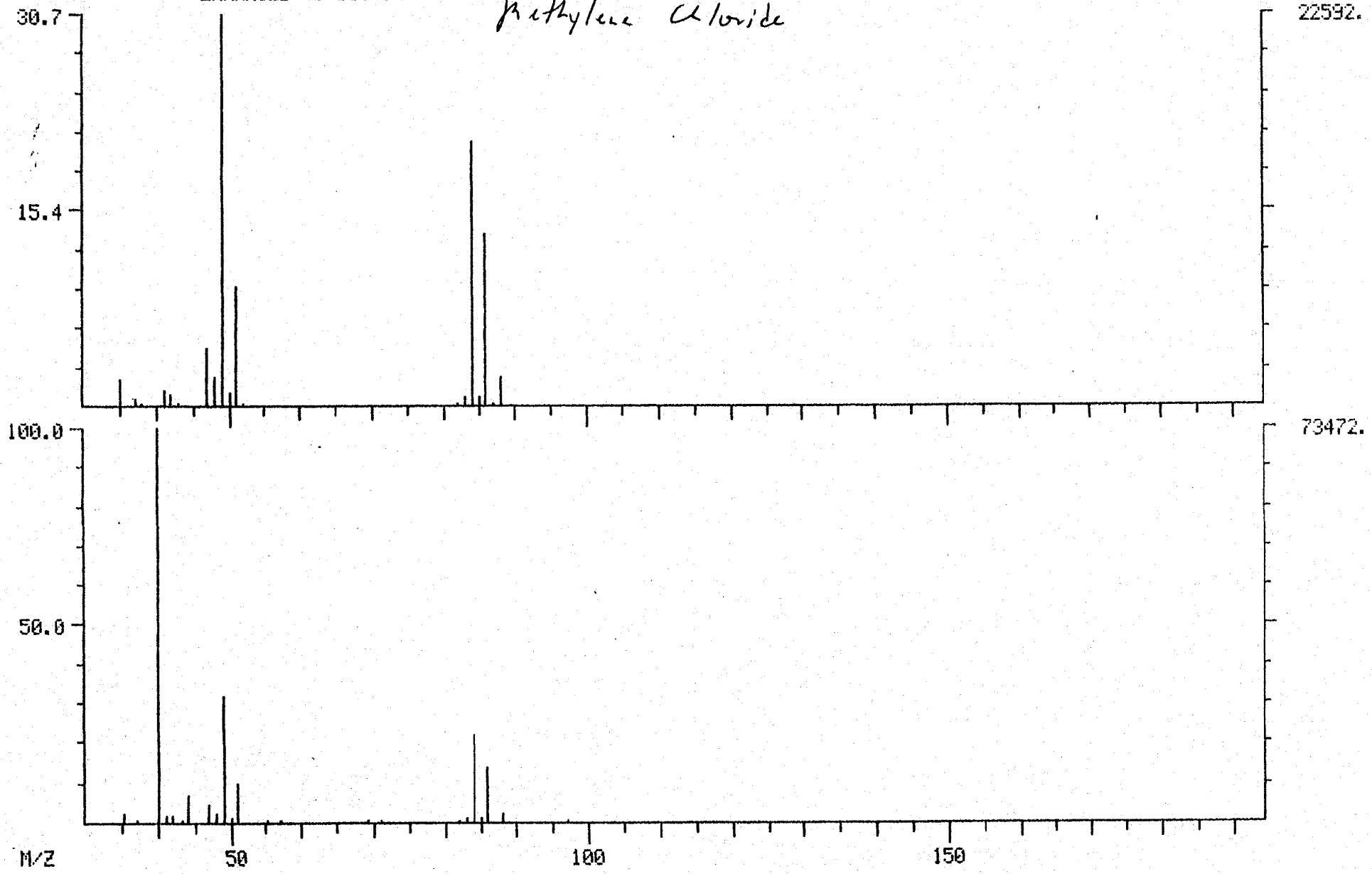


000017

DUAL MASS SPECTRUM
09/26/88 20:11:00 + 9:14
SAMPLE: CLP,V11906,,11906003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001656 #554 BASE M/Z: 49/ 40
CALI: C1V0001656 #4 RIC: 67711./ 154367.

Methylene Chloride

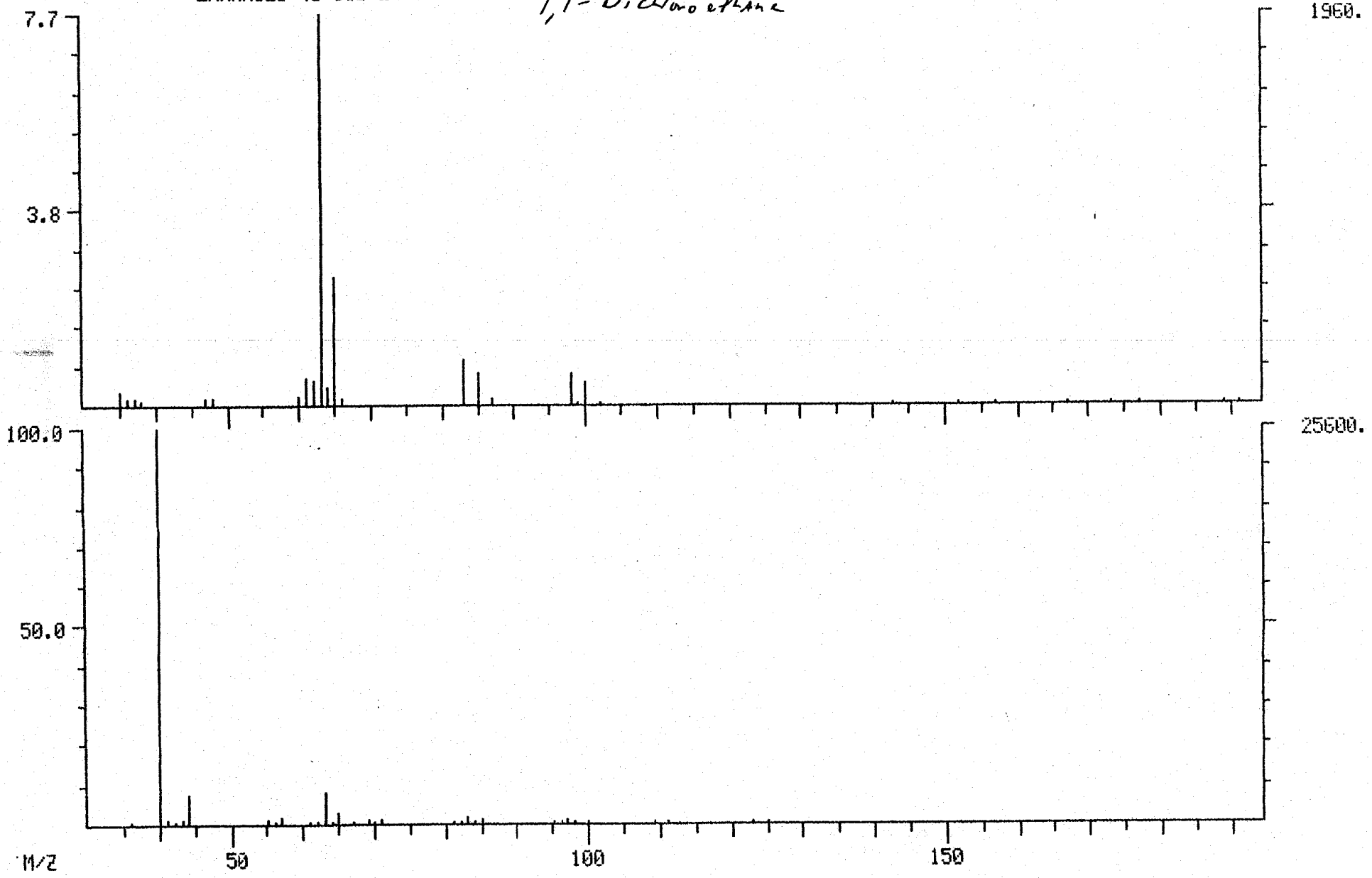


000016

DUAL MASS SPECTRUM
09/26/88 20:11:00 + 11:15
SAMPLE: CLP,V11906,,11906003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001656 #675 BASE M/Z: 63/ 40
CALI: C1V0001656 #4 RIC: 4071./ 37567.

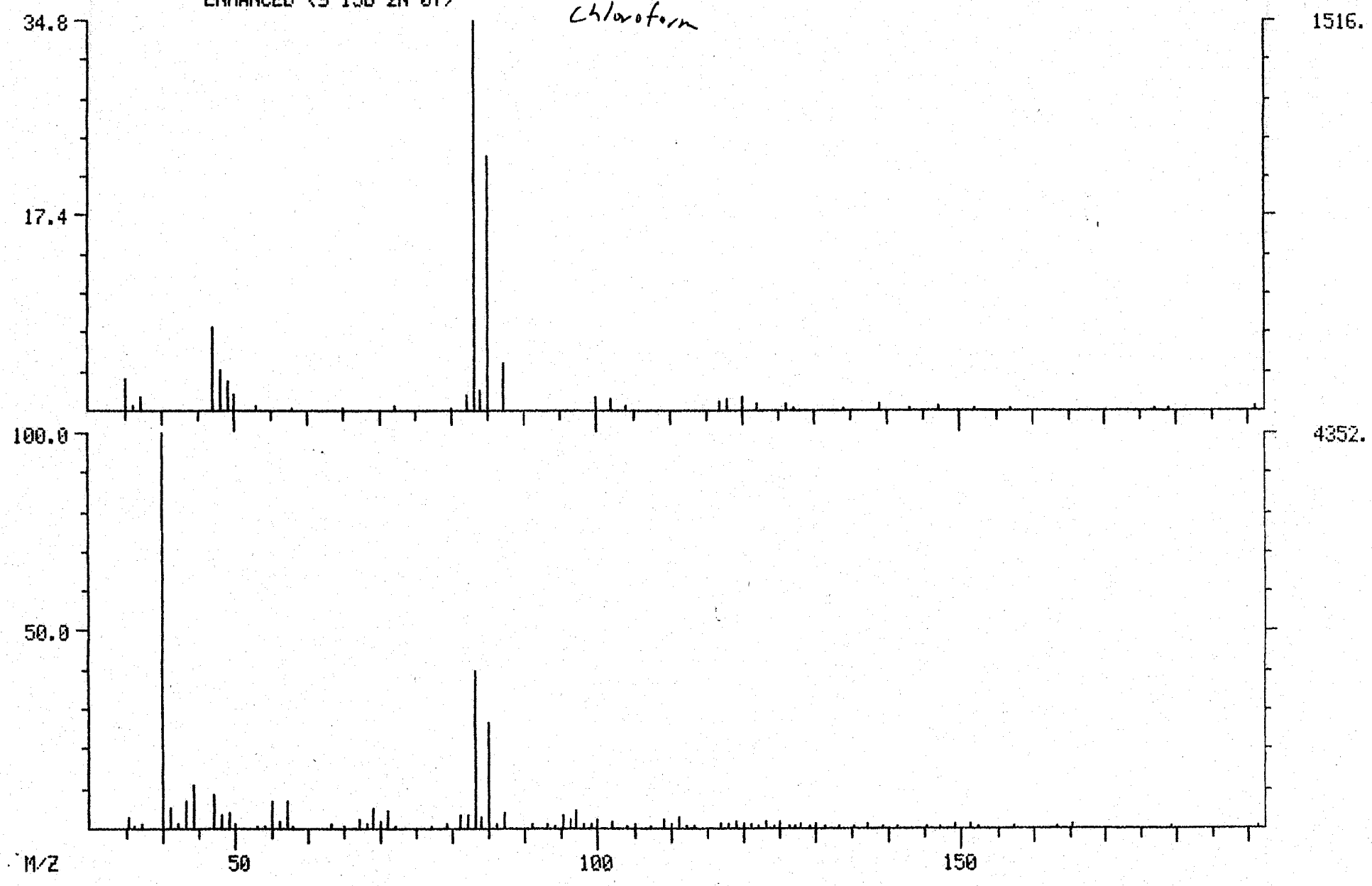
1,1-Dichloroethane



610001

DUAL MASS SPECTRUM
09/26/88 20:11:00 + 13:44
SAMPLE: CLP,V11906,,11906003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001656 #824 BASE M/Z: 83/ 40
CALI: C1V0001656 #4 RIC: 4159./ 13903.

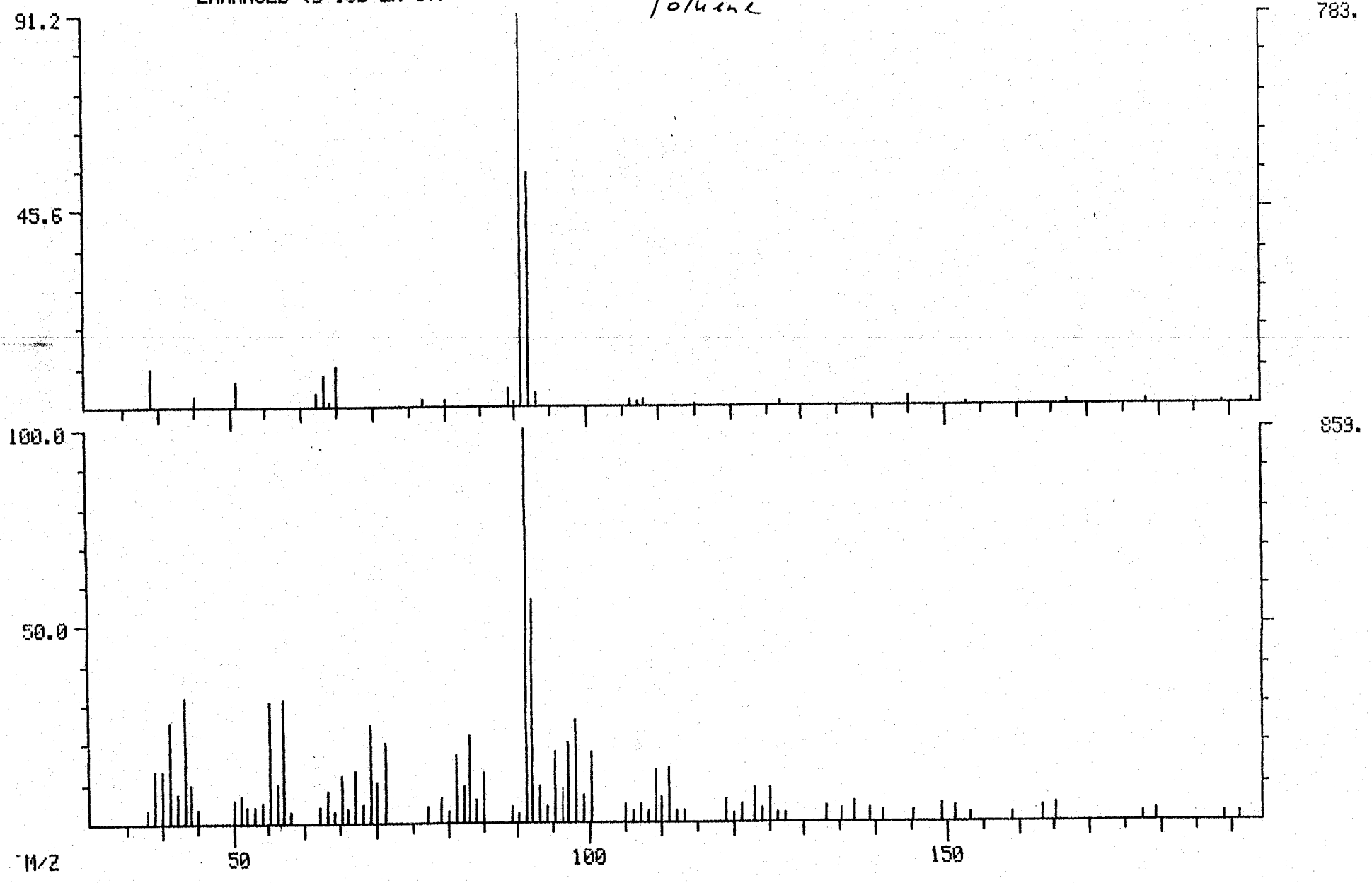


000020

DUAL MASS SPECTRUM
09/26/88 20:11:00 + 19:05
SAMPLE: CLP,V11906,,11906003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001656 #1145 BASE M/Z: 91/ 91
CALI: C1V0001656 #4 RIC: 1777./ 7023.

Toluene



000021

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: 11906004

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C1VO001672

Level: (low/med) LOW Date Received: 09/14/88

% Moisture: not dec. _____ Date Analyzed: 09/27/88

Column: (pack/cap) CAP Dilution Factor: 1.0

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

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	7	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

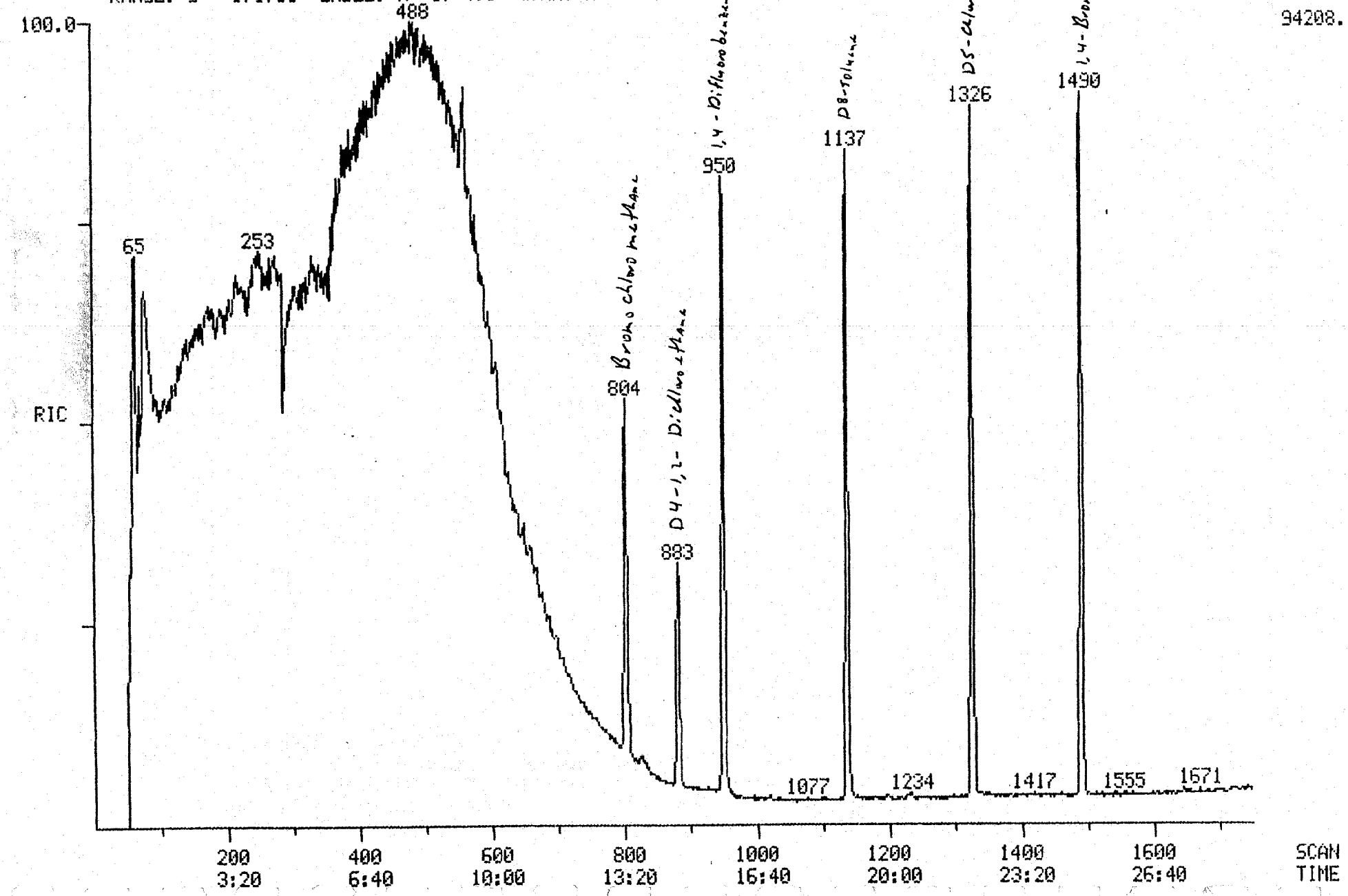
RS

RIC
09/27/88 5:41:00
SAMPLE: CLP,V11906,,11906004,L,W,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: C1V0001672 #1 SCANS 1 TO 1750
CALI: C1V0001672 #4

94208.

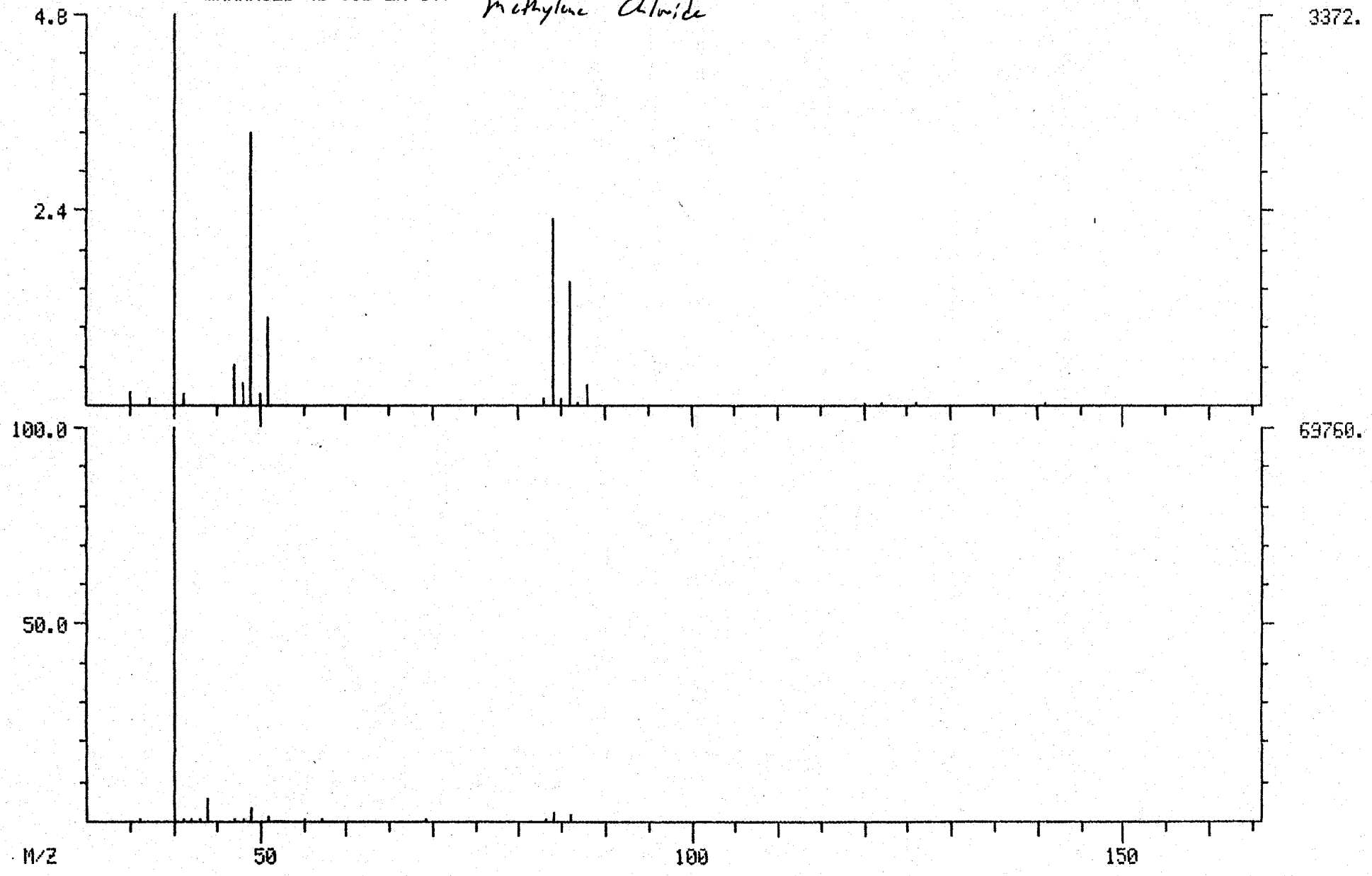
000023



DUAL MASS SPECTRUM
09/27/88 5:41:00 + 9:22
SAMPLE: CLP,V11906,,11906004,L,W,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001672 #562 BASE M/Z: 40/ 40
CALI: C1V0001672 #4 RIC: 10479./ 85631.

Methylene Chloride



000034

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-MW2S1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11906005

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C2V0001671

Level: (low/med) LOW Date Received: 09/14/88

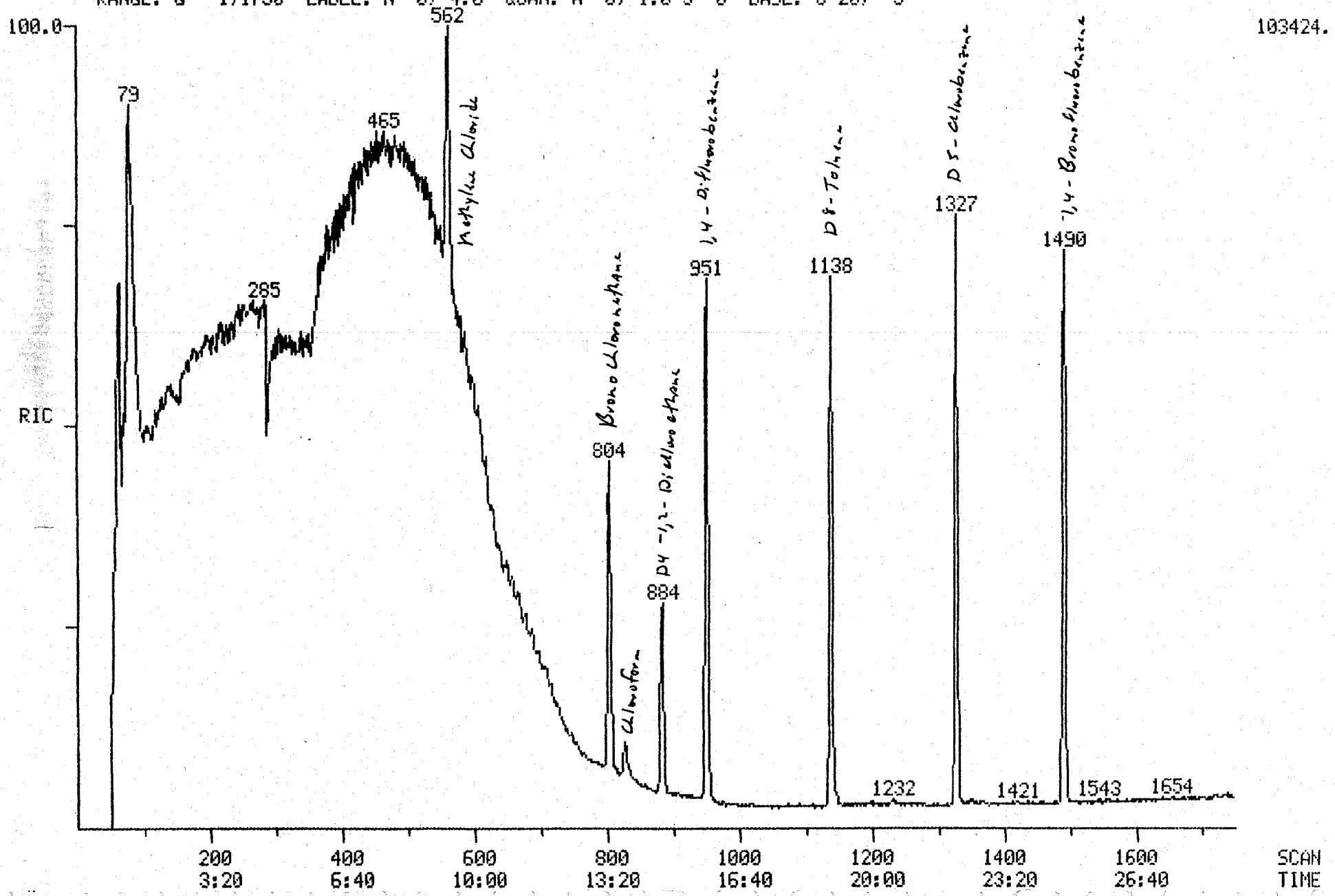
% Moisture: not dec. 7 Date Analyzed: 09/26/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	36	B
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

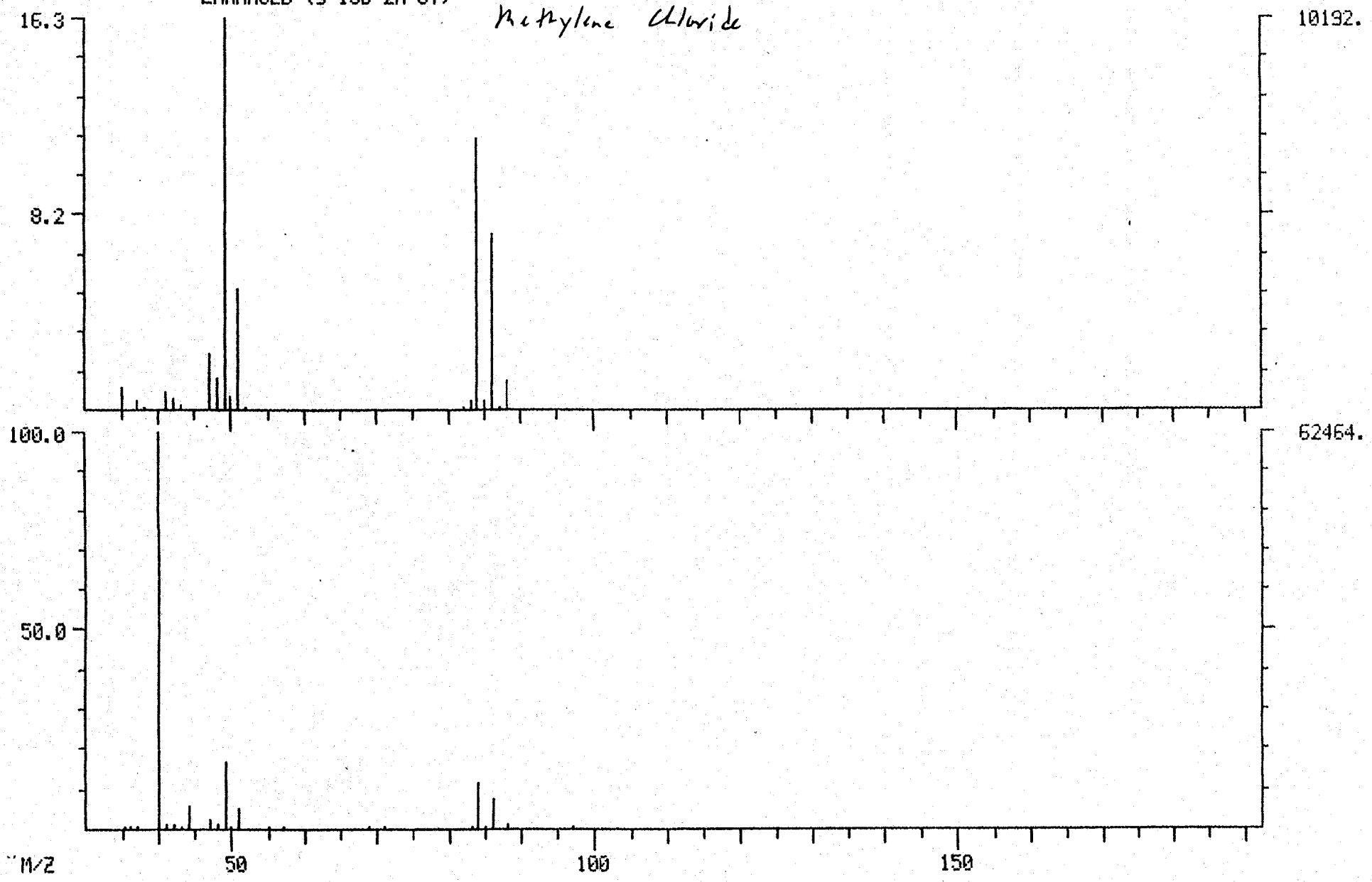
RIC DATA: C2V0001671 #1 SCANS 1 TO 1750
09/27/88 5:07:00 CALI: C2V0001671 #4
SAMPLE: CLP,V11906,,11906005,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



DUAL MASS SPECTRUM
09/27/88 5:07:00 + 9:22
SAMPLE: CLP,V11906,,11906005,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001671 #562 BASE M/Z: 49/ 40
CALI: C2V0001671 #4 RIC: 31039./ 102399.

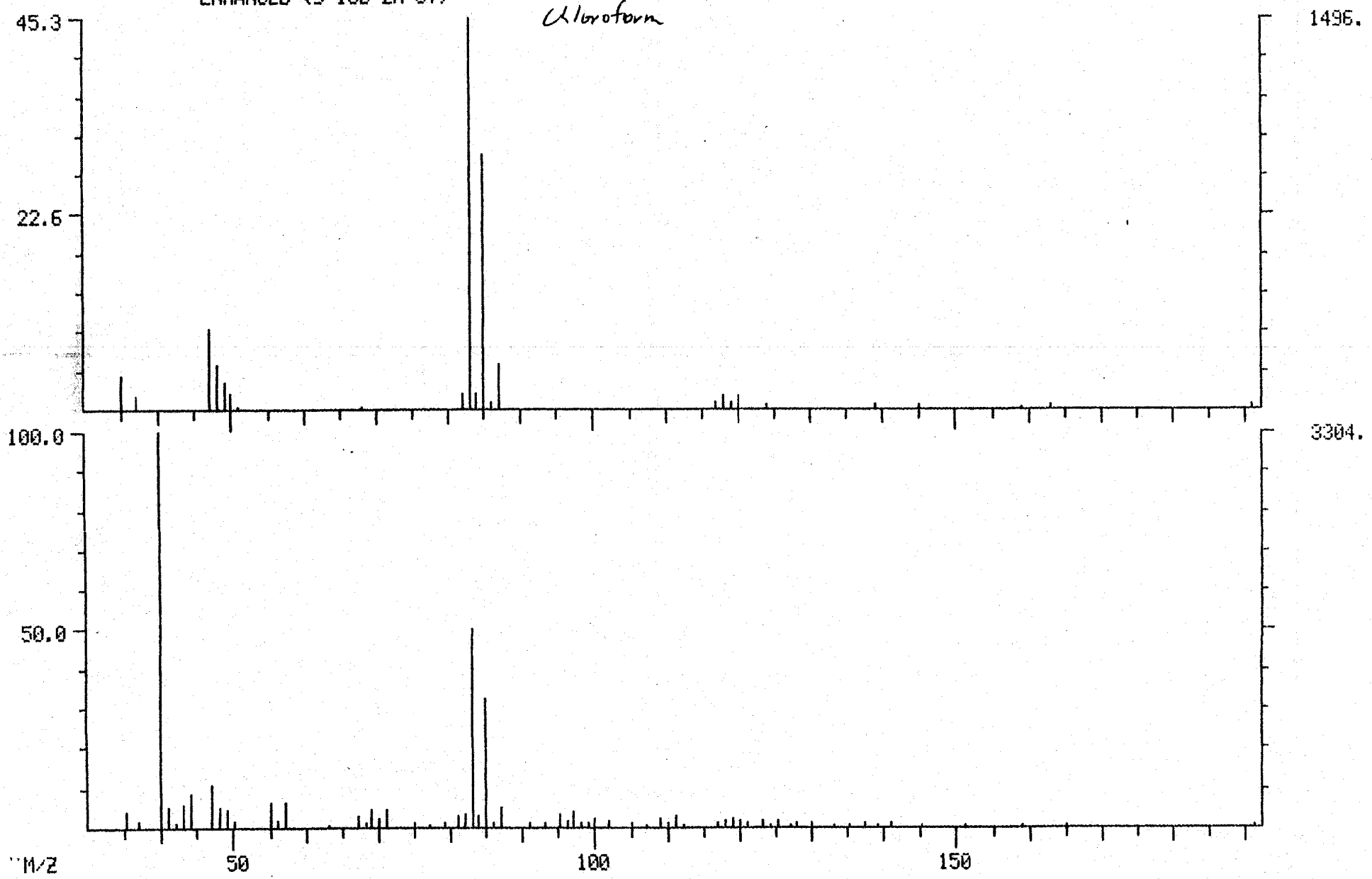
Methylene Chloride



000027

DUAL MASS SPECTRUM
09/27/88 5:07:00 + 13:47
SAMPLE: CLP,V11906,,11906005,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

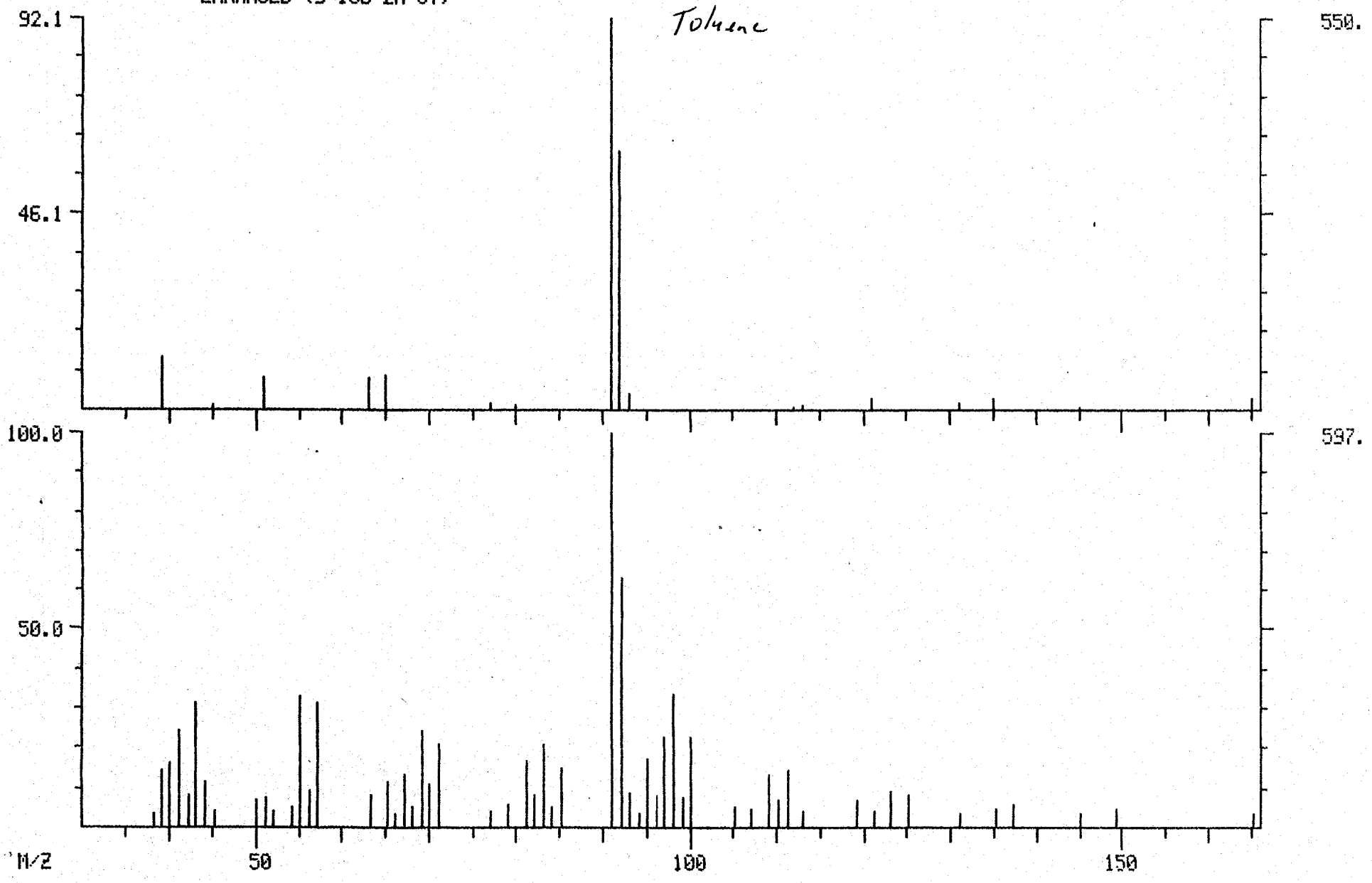
DATA: C2V0001671 #827 BASE M/Z: 83/ 40
CALI: C2V0001671 #4 RIC: 3883./ 10943.



000028

DUAL MASS SPECTRUM
09/27/88 5:07:00 + 19:06
SAMPLE: CLP,V11906,,11906005,L,5,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001671 #1146 BASE M/Z: 91/ 91
CALI: C2V0001671 #4 RIC: 1245./ 4631.



000029

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-MW2S1D

ab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

atrix: (soil/water) SOIL Lab Sample ID: 11906006

ample wt/vol: 5.0 (g/mL) G Lab File ID: C1V0001658

Level: (low/med) LOW Date Received: 09/14/88

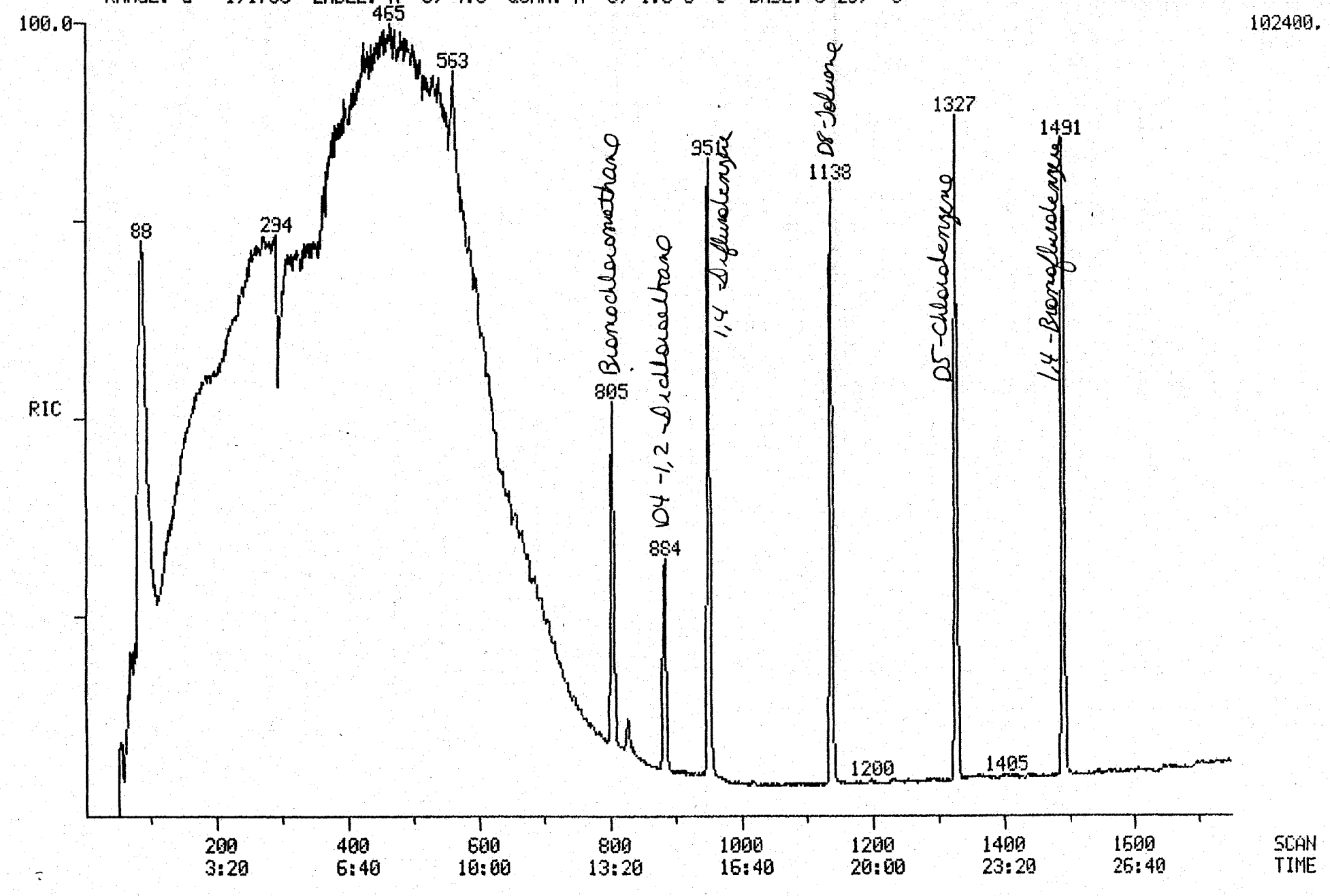
Moisture: not dec. 8 Date Analyzed: 09/26/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	9	BJ
67-64-1	Acetone	5	BJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RIC
09/26/88 21:19:00
SAMPLE: CLP,V11906,,11906006,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: C1V0001658 #1 SCANS 1 TO 1750
CALI: C1V0001658 #4

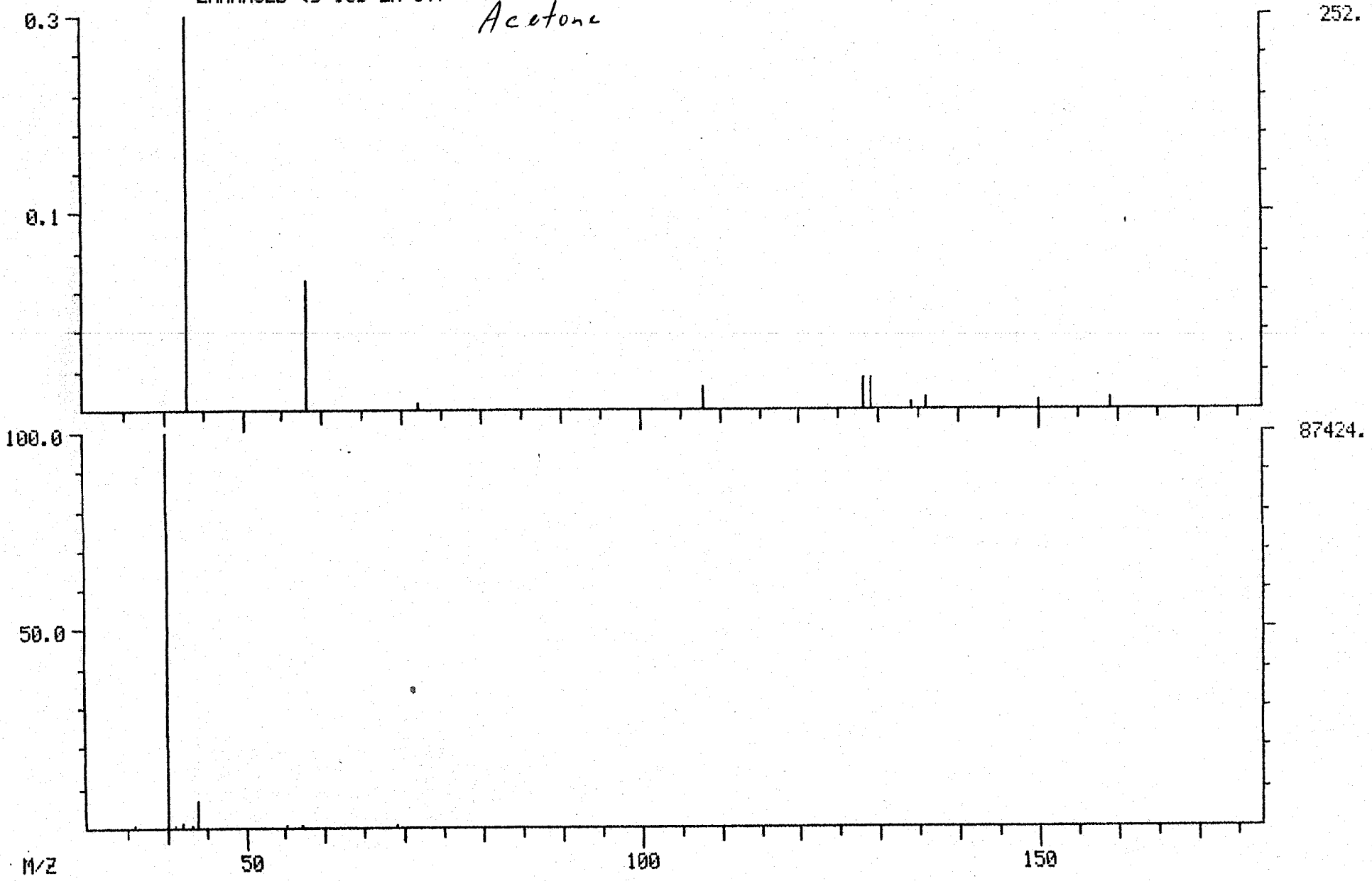


000031

DUAL MASS SPECTRUM
09/26/88 21:19:00 + 8:04
SAMPLE: CLP,V11906,,11906006,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001658 #484 BASE M/Z: 43/ 40
CALI: C1V0001658 #4 RIC: 420./ 100223.

Acetone

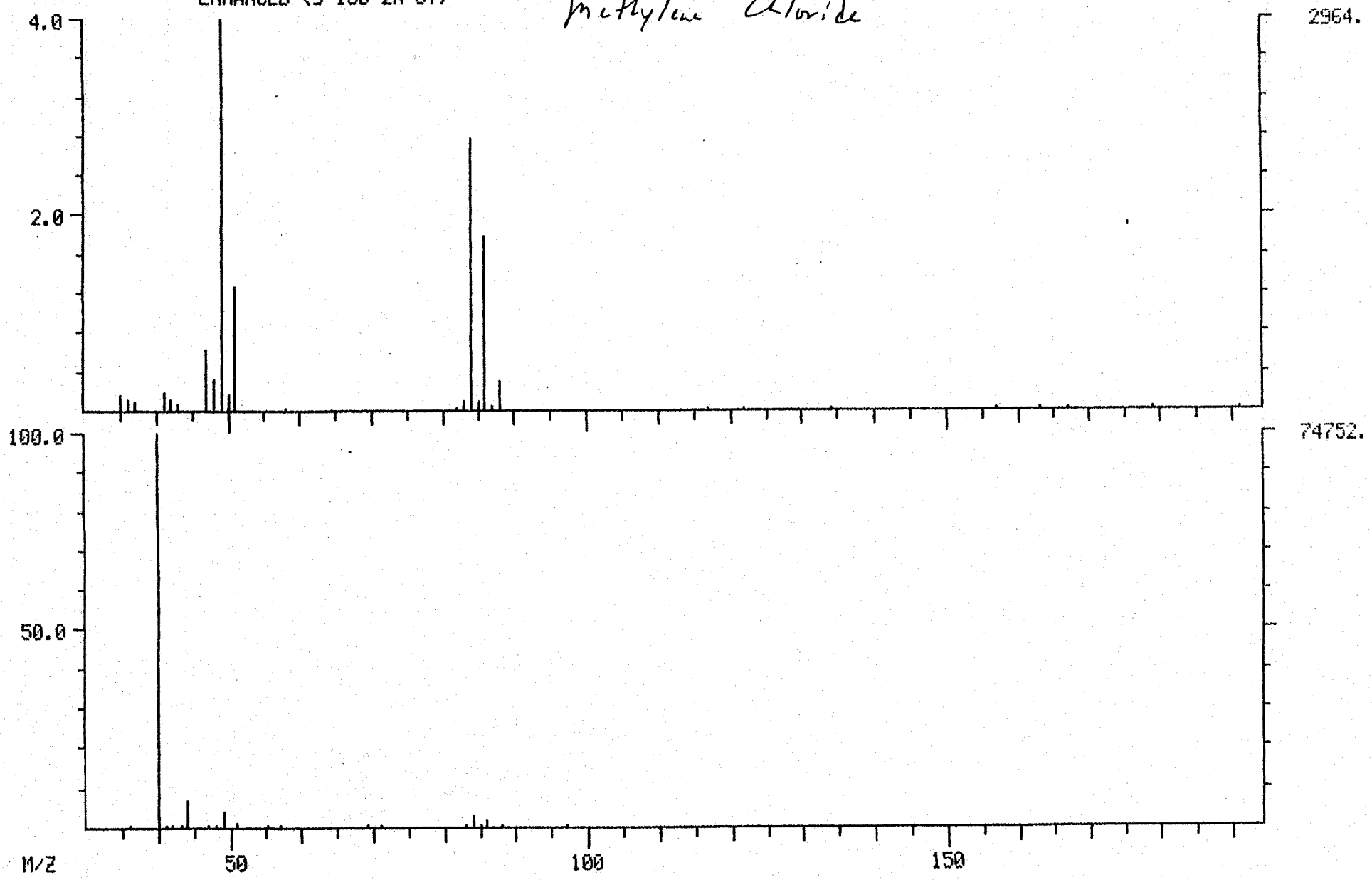


000032

DUAL MASS SPECTRUM
09/26/88 21:19:00 + 9:23
SAMPLE: CLP,V11906,,11906006,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001658 #563 BASE M/Z: 49/ 40
CALI: C1V0001658 #4 RIC: 9199./ 95231.

Methylene Chloride

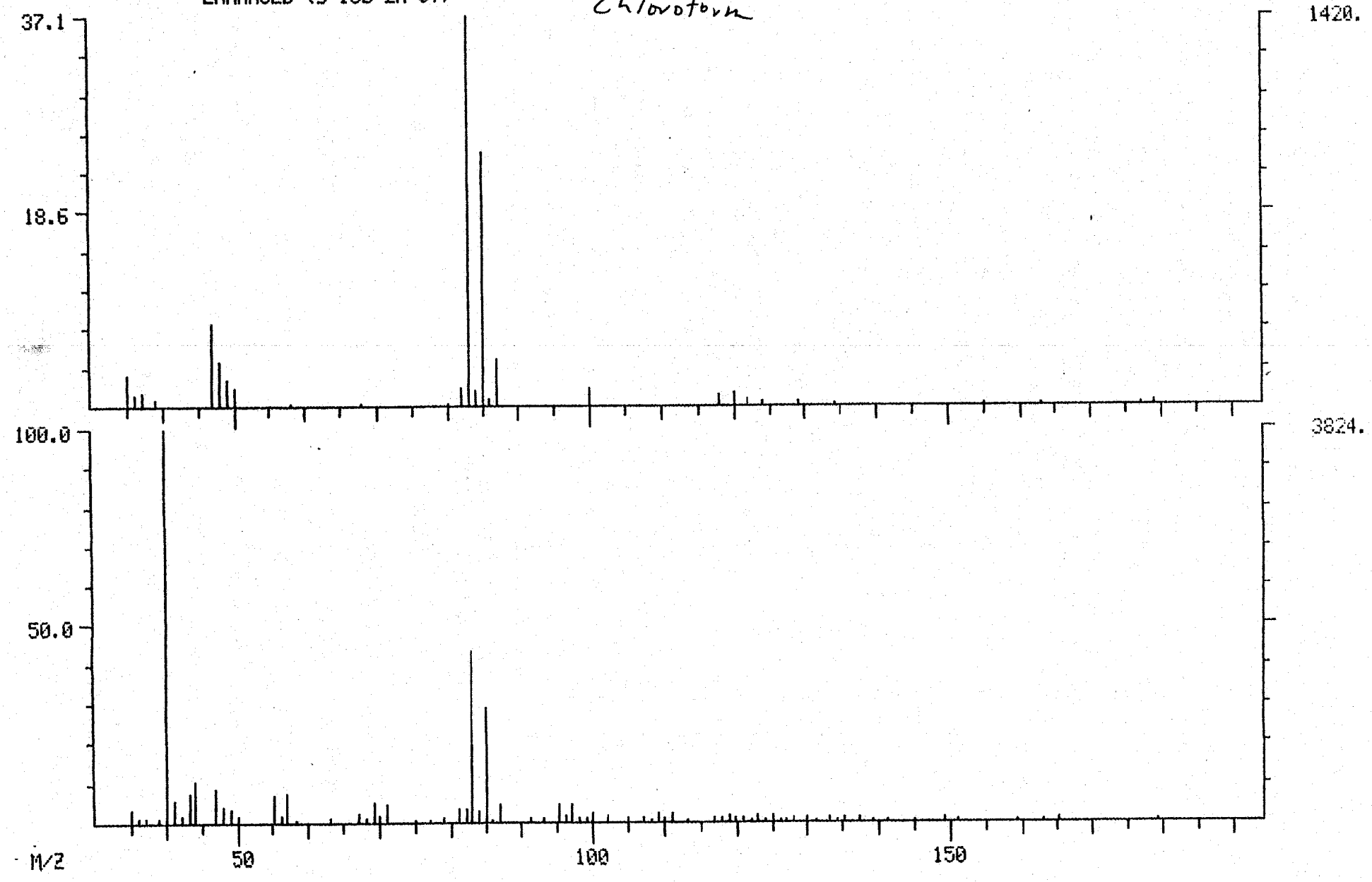


000033

DUAL MASS SPECTRUM
09/26/88 21:19:00 + 13:47
SAMPLE: CLP,V11906,,11906006,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001658 #827 BASE M/Z: 83/ 40
CALI: C1V0001658 #4 RIC: 3823./ 12655.

Chloroform



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2CMW2S2_1430

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11906007

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO001659

Level: (low/med) LOW Date Received: 09/14/88

% Moisture: not dec. 13 Date Analyzed: 09/26/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	310	BE
67-64-1	Acetone	14	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	5	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2CMW2S2_DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11906007DL

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C2V0001670

Level: (low/med) LOW Date Received: 09/14/88

% Moisture: not dec. 13 Date Analyzed: 09/26/88

Column: (pack/cap) CAP Dilution Factor: 2.0

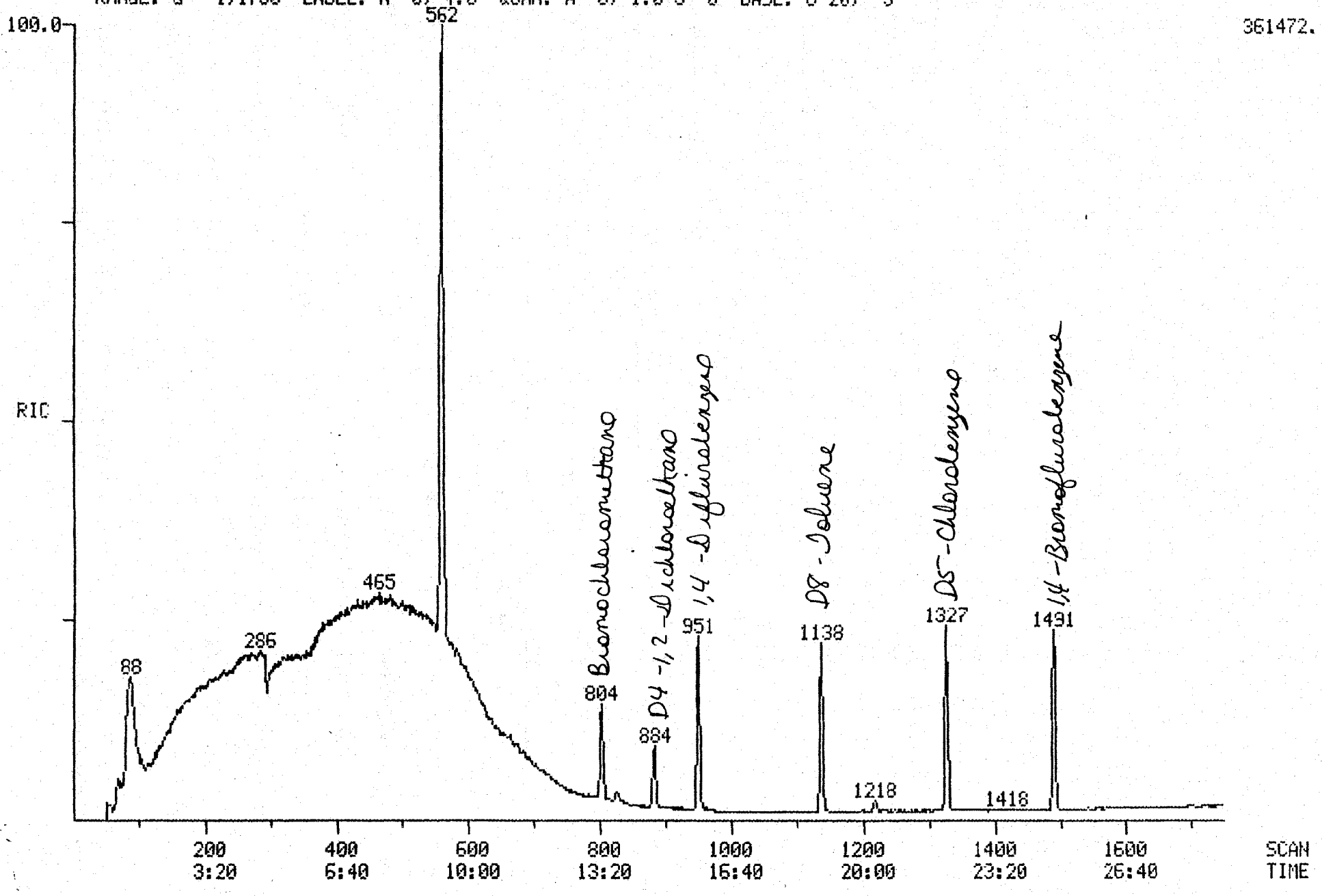
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	23	U
74-83-9	Bromomethane	23	U
75-01-4	Vinyl Chloride	23	U
75-00-3	Chloroethane	23	U
75-09-2	Methylene Chloride	140	BD
67-64-1	Acetone	23	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	BDJ
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	23	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
108-05-4	Vinyl Acetate	23	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
591-78-6	2-Hexanone	23	U
108-10-1	4-Methyl-2-Pentanone	23	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	23	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylenes (total)	11	U

RS

RIC
09/26/88 21:53:00
SAMPLE: CLP,V11906,,11906007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: C1V0001659 #1 SCANS 1 TO 1750
CALI: C1V0001659 #4

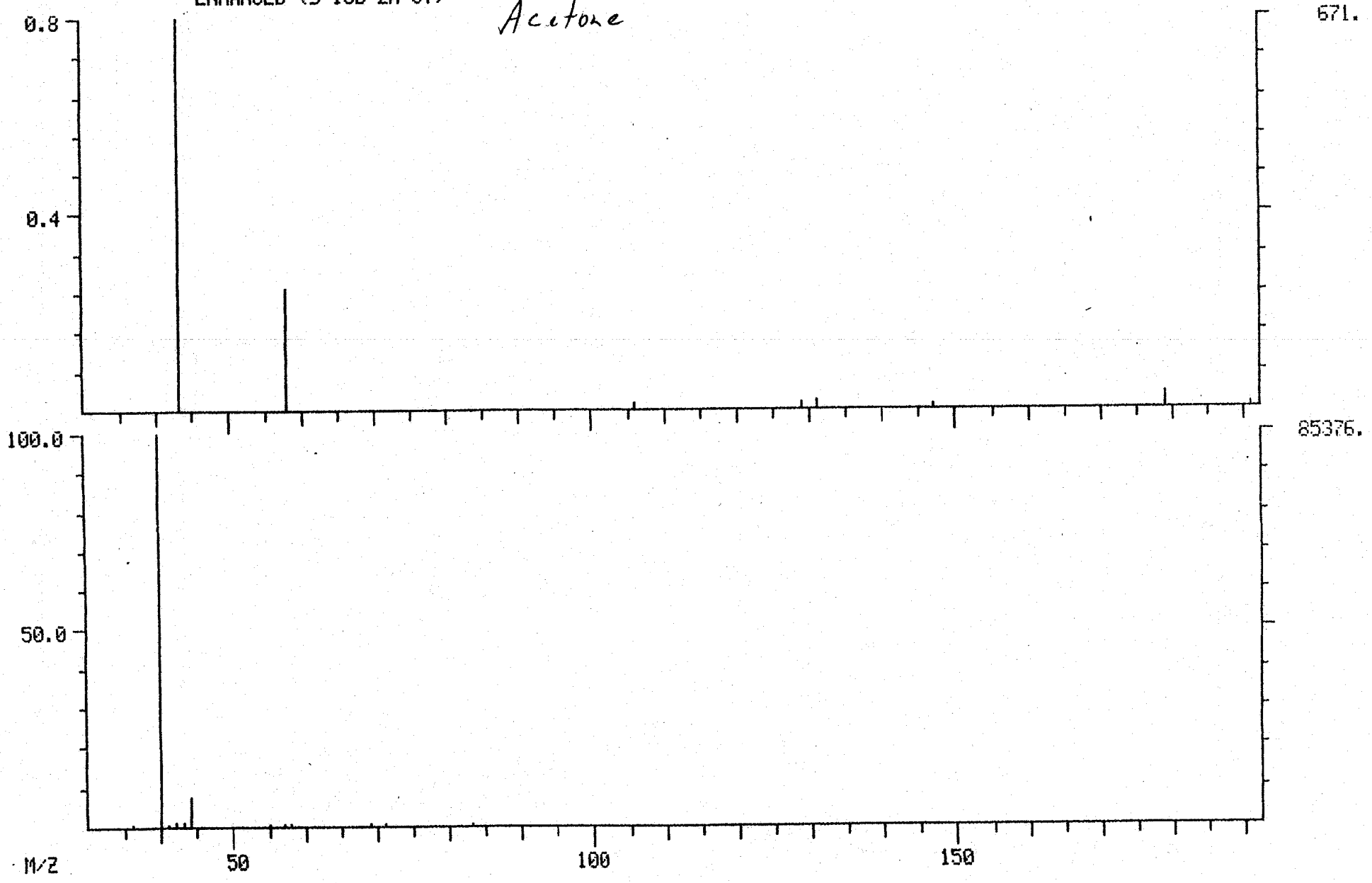
000037



DUAL MASS SPECTRUM
09/26/88 21:53:00 + 8:03
SAMPLE: CLP,V11906,,11906007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001659 #483 BASE M/Z: 43/ 40
CALI: C1V0001659 #4 RIC: 963./ 98431.

Acetone

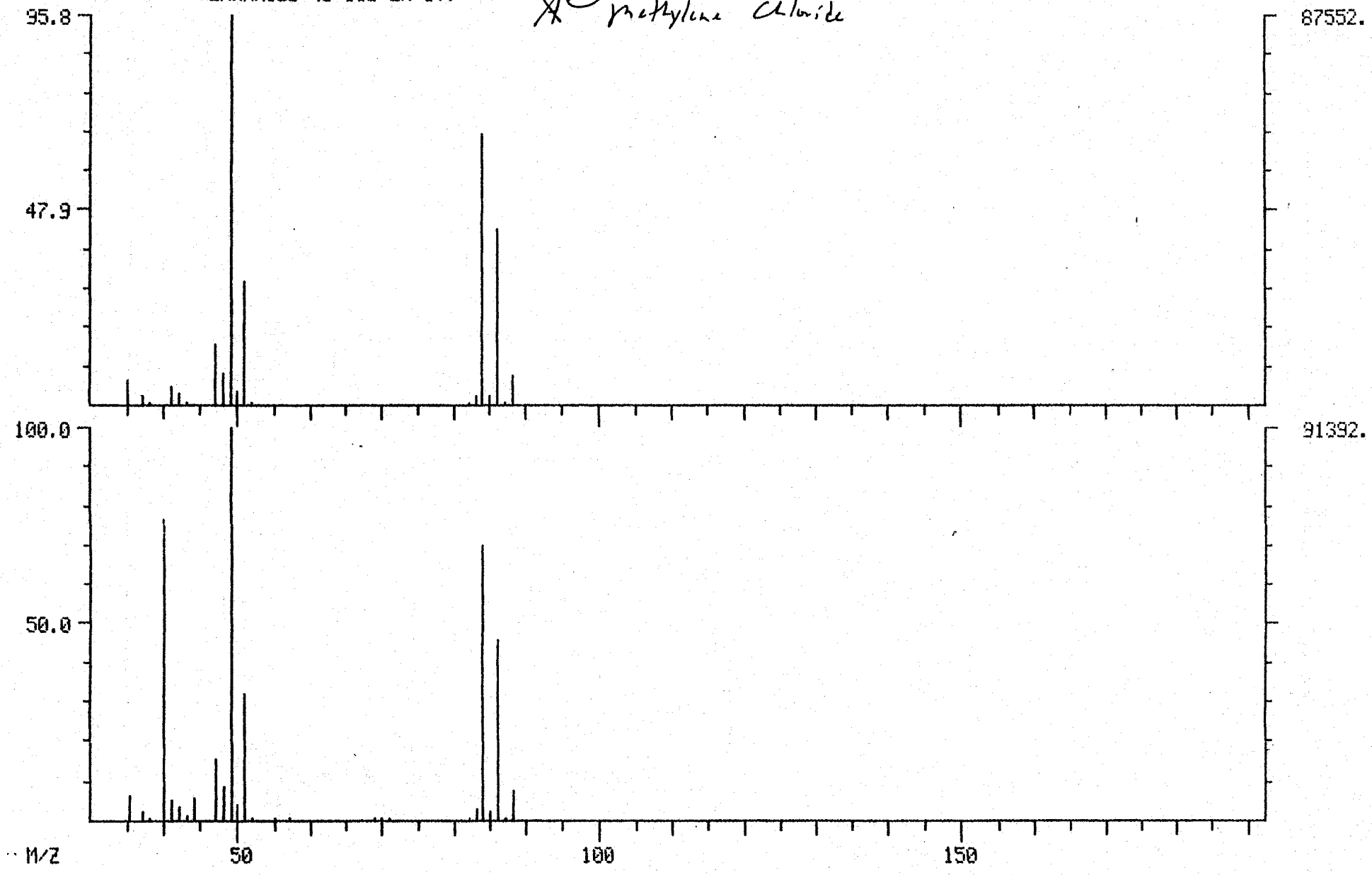


000038

DUAL MASS SPECTRUM
09/26/88 21:53:00 + 9:22
SAMPLE: CLP,V11906,,11906007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001659 #562 BASE M/Z: 49/ 49
CALI: C1V0001659 #4 RIC: 267775./ 358399.

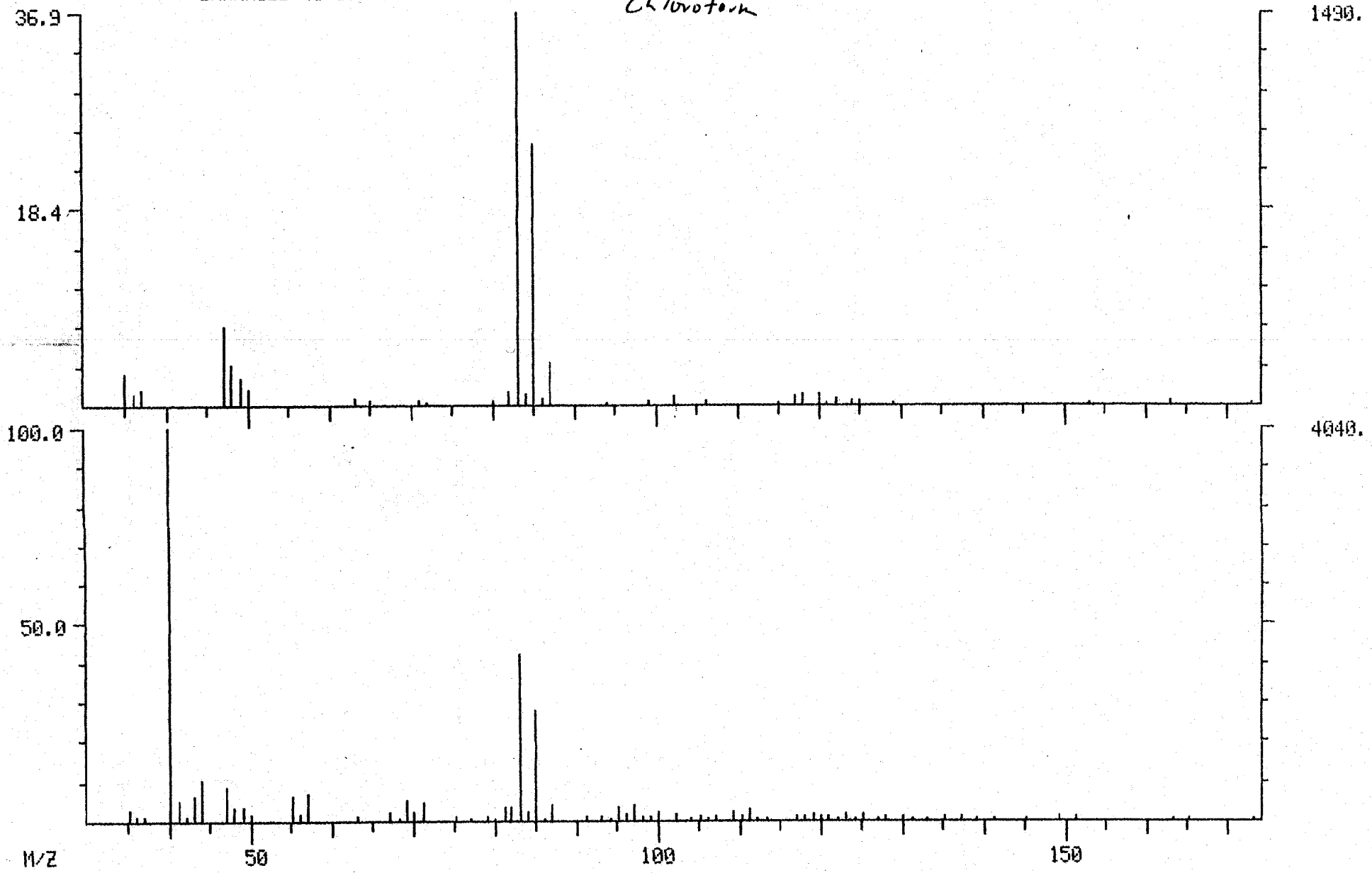
000039



DUAL MASS SPECTRUM
09/26/88 21:53:00 + 13:47
SAMPLE: CLP,V11906,,11906007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001659 #827 BASE M/Z: 83/ 40
CALI: C1V0001659 #4 RIC: 4003./ 12799.

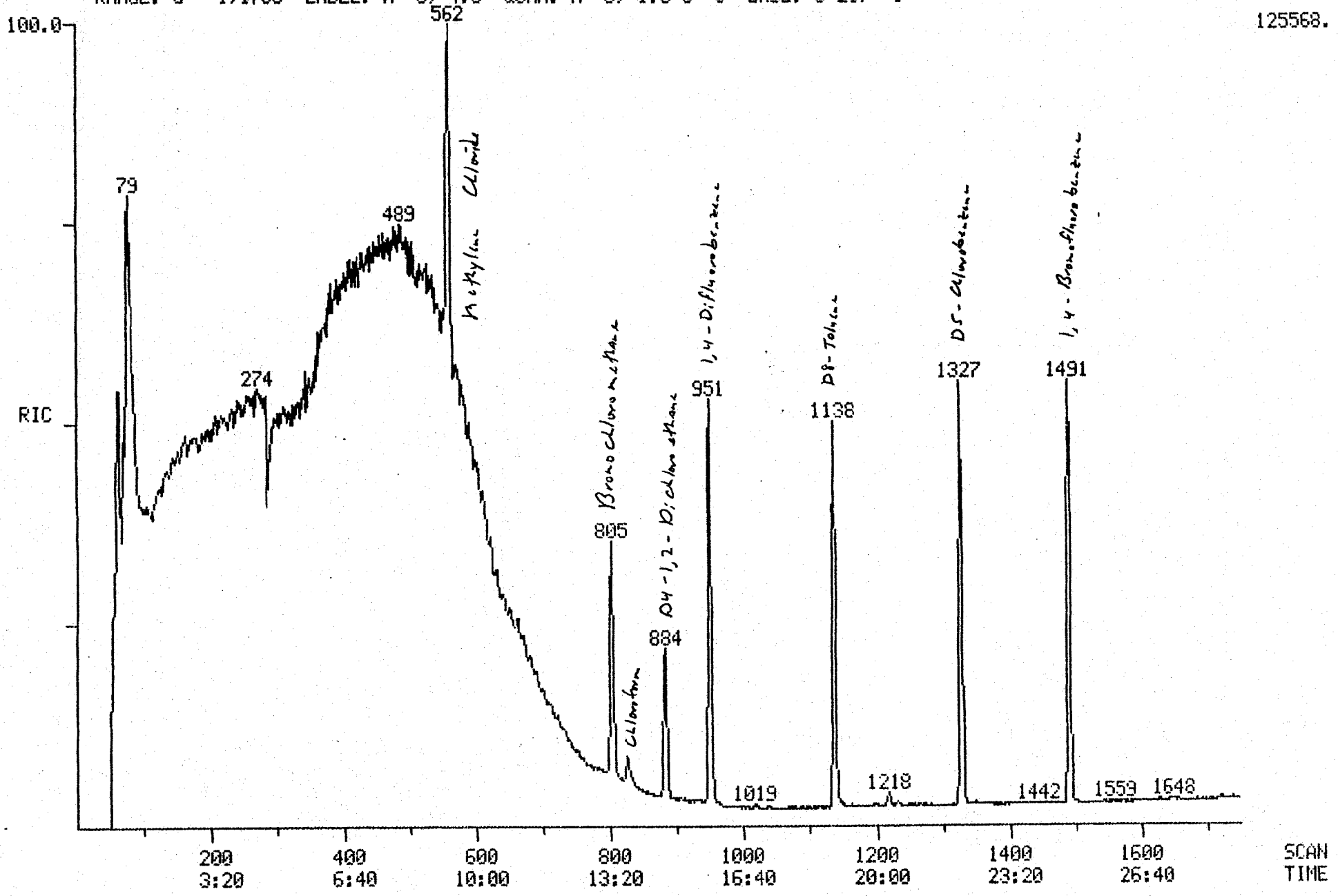
Chloroform



000040

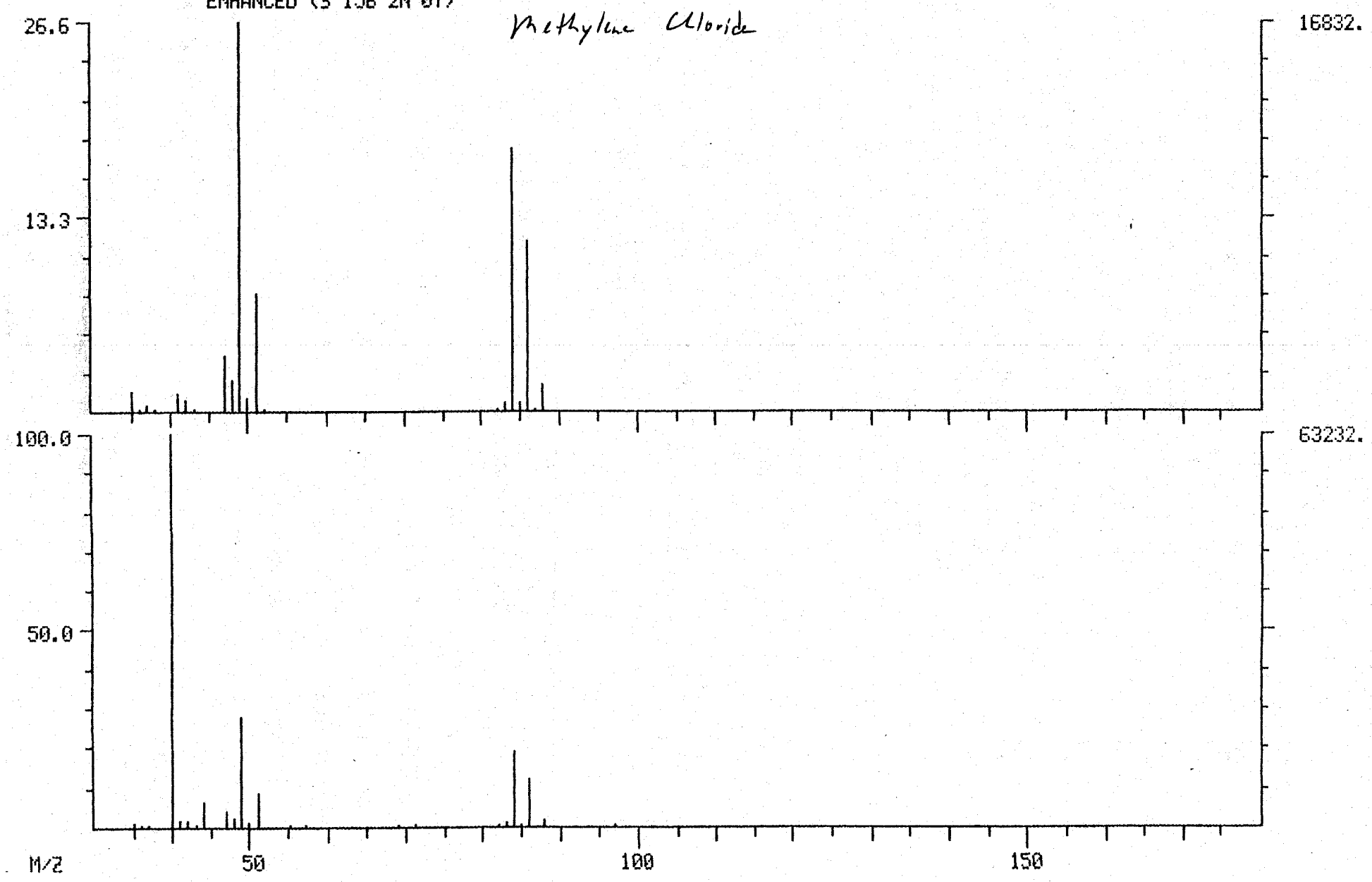
RIC DATA: C2V0001670 #1 SCANS 1 TO 1750
09/27/88 4:33:00 CALI: C2V0001670 #4
SAMPLE: CLP,V11906,,11906007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

000041



DUAL MASS SPECTRUM
09/27/88 4:33:00 + 9:22
SAMPLE: CLP,V11906,,11906007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001670 #562 BASE M/Z: 49/ 40
CALI: C2V0001670 #4 RIC: 50367./ 124799.



000042

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2CMW2S3_1430

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11906008

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1V0001660

Level: (low/med) LOW Date Received: 09/14/88

% Moisture: not dec. 24 Date Analyzed: 09/26/88

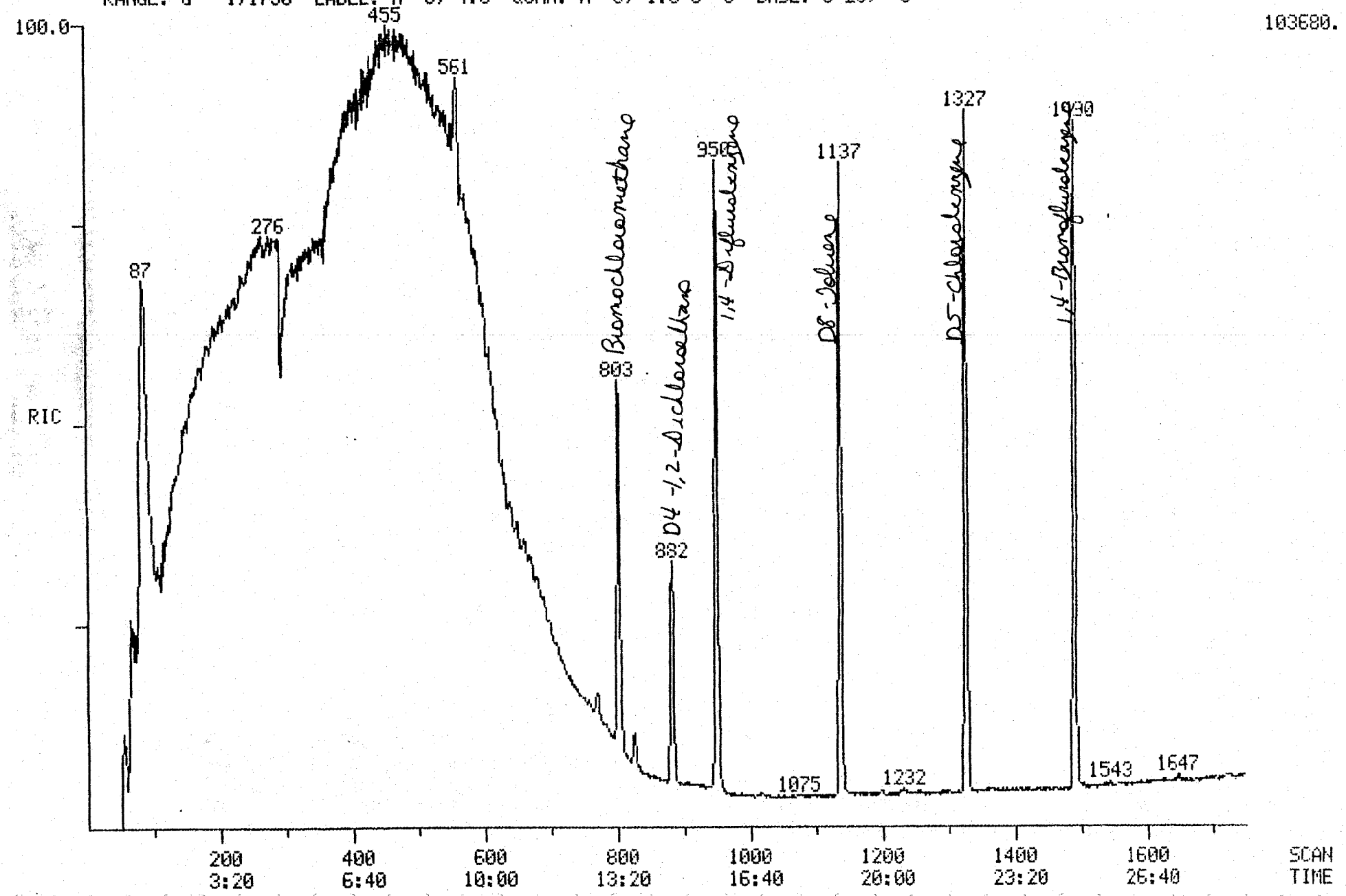
Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	13	BJ
67-64-1	Acetone	17	B
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	5	BJ
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	7	U
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	7	U
108-90-7	Chlorobenzene	7	U
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
1330-20-7	Xylenes (total)	7	U

RS

RIC
09/26/88 22:27:00
SAMPLE: CLP,V11906,,11906008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: C1V0001660 #1 SCANS 1 TO 1750
CALI: C1V0001660 #4

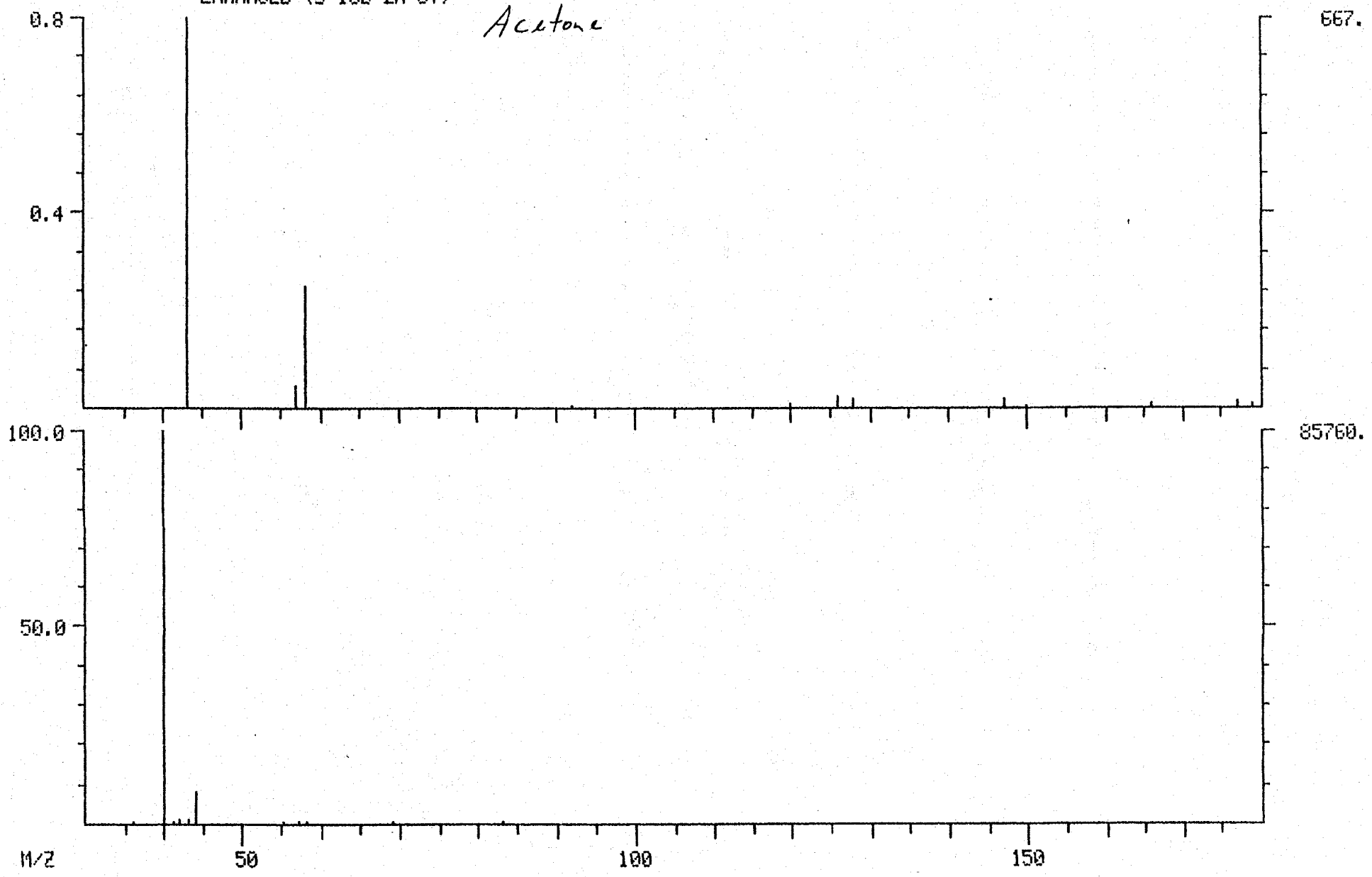


000044

DUAL MASS SPECTRUM
09/26/88 22:27:00 + 8:01
SAMPLE: CLP,V11906,,11906008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001660 #481 BASE M/Z: 43/ 40
CALI: C1V0001660 #4 RIC: 1007./ 99711.

Acetone

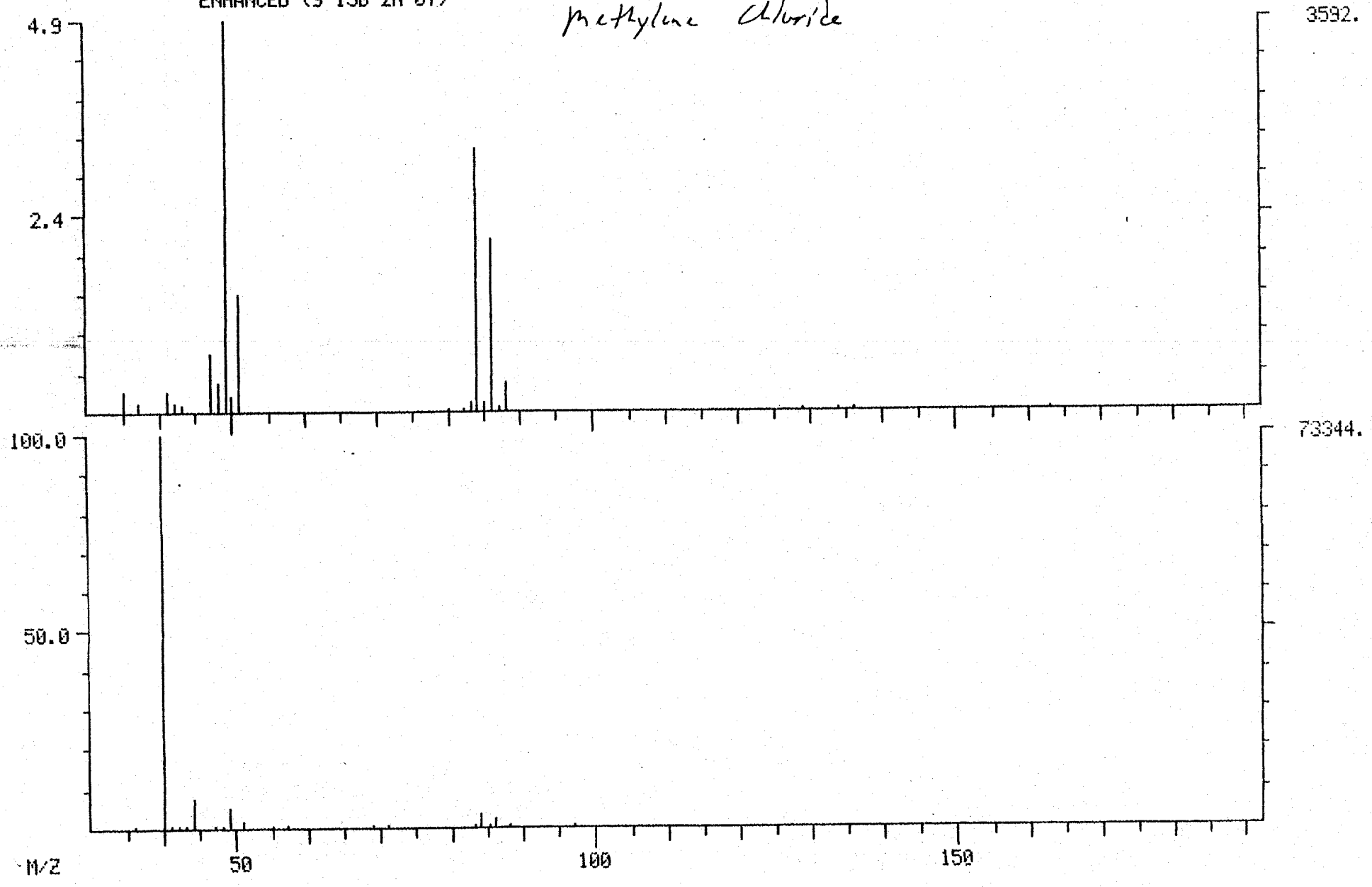


000045

DUAL MASS SPECTRUM
09/26/88 22:27:00 + 9:21
SAMPLE: CLP,V11906,,11906008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001660 #561 BASE M/Z: 49/ 40
CALI: C1V0001660 #4 RIC: 10799./ 95487.

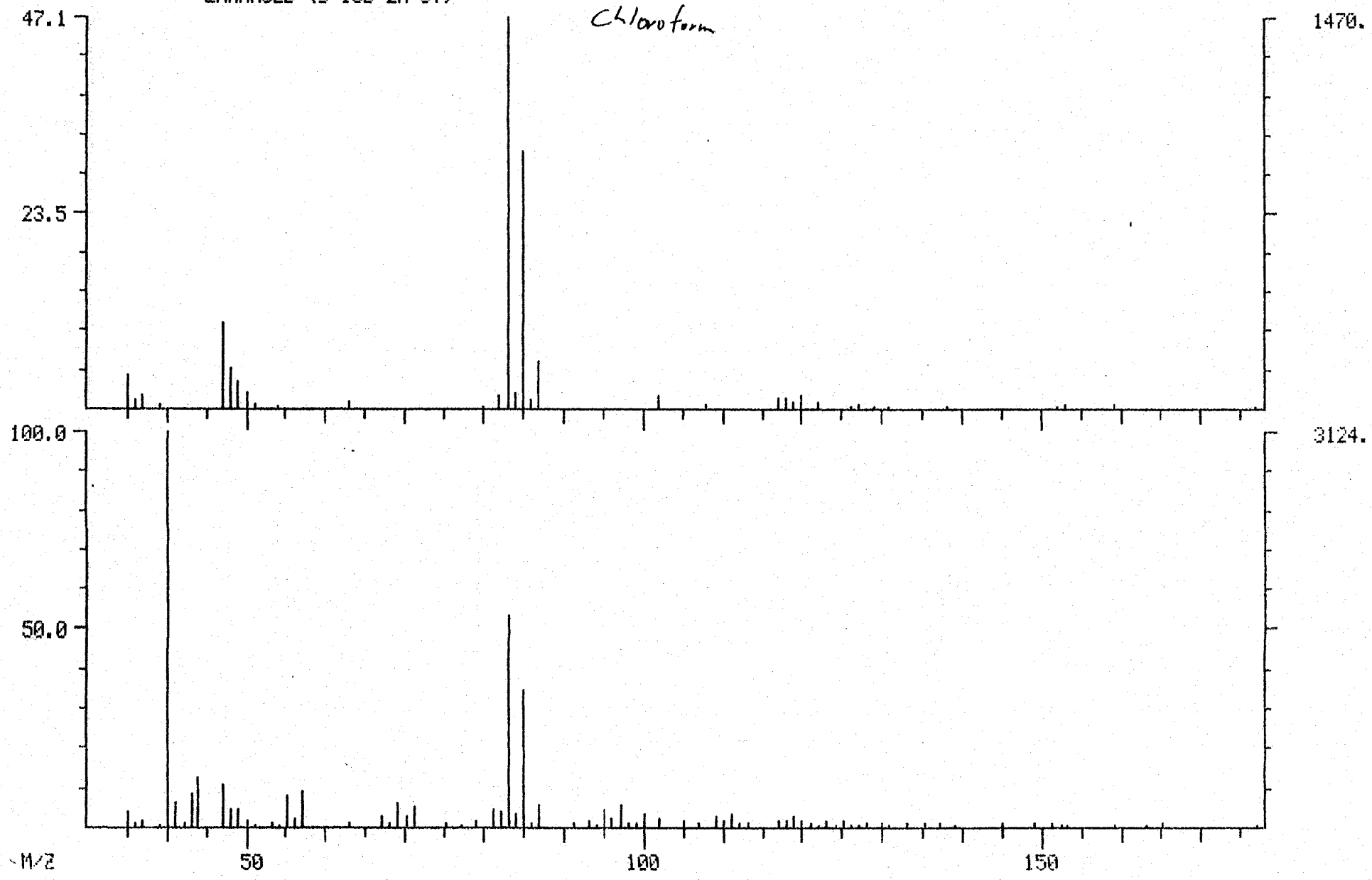
methylene chloride



000046

DUAL MASS SPECTRUM
09/26/88 22:27:00 + 13:46
SAMPLE: CLP,V11906,,11906008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001660 #826 BASE M/Z: 83/ 40
CALI: C1V0001660 #4 RIC: 4055./ 11919.



000047

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09268B3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09268B3

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CBV0001653

Level: (low/med) LOW Date Received: 09/26/88

% Moisture: not dec. 0 Date Analyzed: 09/26/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	11	B
67-64-1	Acetone	49	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	B
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09278B1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09278B1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CBV0001664

Level: (low/med) LOW Date Received: 09/27/88

% Moisture: not dec. 0 Date Analyzed: 09/27/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	7	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	B
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	2	BJ
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	2	BJ
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	3	BJ
108-88-3	Toluene	2	BJ
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	2	BJ
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	2	BJ

RS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X09278B2

Lab Name: CH2M HILL/MGM Contract: _____

ab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: X09278B2

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: CBV0001667

evel: (low/med) LOW Date Received: 09/27/88

% Moisture: not dec. ____ Date Analyzed: 09/27/88

olumn: (pack/cap) CAP Dilution Factor: 1.0

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

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	BJ
67-64-1	Acetone	5	BJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	4	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	2	BJ
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	2	BJ
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS.

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	TB	100	98	100		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GC-MS

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	X09278B2	102	99	99		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	2C-MW2S1	103	96	98		0
02	2C-MW2S1D	101	100	99		0
03	2CMW2S2_1430	98	101	102		0
04	2CMW2S2_DL	100	99	100		0
05	2CMW2S3_1430	98	99	100		0
06	2CMW3S1_1000	100	99	101		0
07	2CMW3S2_1000	100	102	102		0
08	2CMW3S3_1000	100	101	99		0
09	MS	104	100	99		0
10	MSD	102	97	101		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

RS

2B

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

ab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GC-MS

Level:(low/med) _____

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	Y09268B3	99	100	100		0
02	Y09278B1	102	99	99		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

RS.

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Matrix Spike - EPA Sample No.: 2C-MW2S1D Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	54.4	0	51.0	94	59-172
Trichloroethene	54.4	0	54.4	100	62-137
Benzene	54.4	0	57.7	106	66-142
Toluene	54.4	0	52.6	97	59-139
Chlorobenzene	54.4	0	50.8	93	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	54.4	54.4	100	-6	22	59-172
Trichloroethene	54.4	48.9	90	11	24	62-137
Benzene	54.4	52.7	97	9	21	66-142
Toluene	54.4	52.1	96	1	21	59-139
Chlorobenzene	54.4	51.2	94	-1	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: CLP,V11906,,11906006,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

RS

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001667 Lab Sample ID: X09278B2

Date Analyzed: 09/27/88 Time Analyzed: 0250

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	TB	11906004	C1V0001672	0541

COMMENTS: CLP,V11906,,X09278B2,L,W,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

FORM IV VOA

000056

RS.

1/87 Rev.

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001653 Lab Sample ID: Y09268B3

Date Analyzed: 09/26/88 Time Analyzed: 1810

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2C-MW2S1	11906005	C2V0001671	2045
02	2C-MW2S1D	11906006	C1V0001658	2119
03	2CMW2S2_1430	11906007	C1V0001659	2153
04	2CMW2S2_DL	11906007DL	C2V0001670	2153
05	2CMW2S3_1430	11906008	C1V0001660	2227
06	2CMW3S1_1000	11906001	C1V0001654	1859
07	2CMW3S2_1000	11906002	C1V0001655	1936
08	2CMW3S3_1000	11906003	C1V0001656	2011

COMMENTS: CLP,V11906,,Y09268B3,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001664 Lab Sample ID: Y09278B1

Date Analyzed: 09/27/88 Time Analyzed: 0042

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	MS	11906M06	CMV0001665	0141
02	MSD	11906D06	CMV0001666	0216

COMMENTS: CLP,V11906,,Y09278B1,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

RS.

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CSV0001643 BFB Injection Date: 09/26/88

Instrument ID: 4500 BFB Injection Time: 1040

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.3
75	30.0 - 60.0% of mass 95	43.1
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.5 (0.6)1
174	Greater than 50.0% of mass 95	84.9
175	5.0 - 9.0% of mass 174	5.9 (7.0)1
176	Greater than 95.0%, but less than 101.0% of mass 174	82.4 (97.0)1
177	5.0 - 9.0% of mass 176	5.4 (6.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VOA_50_STND		CSV0001644	09/26/88	1149
02	VOA_20_STND		CSV0001645	09/26/88	1226
03	VOA_100_STND		CSV0001646	09/26/88	1302
04	VOA_150_STND		CSV0001647	09/26/88	1337
05	VOA_200_STND		CSV0001648	09/26/88	1432
06	Y09268B3	Y09268B3	CBV0001653	09/26/88	1810
07	2CMW3S1_1000	11906001	C1V0001654	09/26/88	1859
08	2CMW3S2_1000	11906002	C1V0001655	09/26/88	1936
09	2CMW3S3_1000	11906003	C1V0001656	09/26/88	2011
10	2C-MW2S1D	11906006	C1V0001658	09/26/88	2119
11	2CMW2S2_1430	11906007	C1V0001659	09/26/88	2153
12	2CMW2S2_DL	11906007DL	C2V0001670	09/26/88	2153
13	2CMW2S3_1430	11906008	C1V0001660	09/26/88	2227

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Lab File ID: C2BF001661 BFB Injection Date: 09/26/88

Instrument ID: 4500 BFB Injection Time: 2301

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.3
75	30.0 - 60.0% of mass 95	41.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	90.7
175	5.0 - 9.0% of mass 174	6.4 (7.1)1
176	Greater than 95.0%, but less than 101.0% of mass 174	88.3 (97.4)1
177	5.0 - 9.0% of mass 176	5.7 (6.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	2C-MW2S1	11906005	C2VO001671	09/26/88	2045
02	VOA_50_STD		CSVO001663	09/27/88	0004
03	Y09278B1	Y09278B1	CBVO001664	09/27/88	0042
04	MS	11906M06	CMVO001665	09/27/88	0141
05	MSD	11906D06	CMVO001666	09/27/88	0216
06	X09278B2	X09278B2	CBVO001667	09/27/88	0250
07	TB	11906004	C1VO001672	09/27/88	0541

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration Date(s): 09/26/88 09/26/88

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min $\overline{RRF}$ for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = CSV0001645 RRF50 = CSV0001644
RRF100= CSV0001646 RRF150= CSV0001647 RRF200= CSV0001648

COMPOUND		RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane	#	1.043	1.315	1.063	0.997	0.613	1.006	25.1#
Bromomethane		1.014	1.291	1.141	1.075	0.865	1.077	14.6
Vinyl Chloride	*	1.067	1.290	1.166	1.097	0.752	1.074	18.6*
Chloroethane		0.882	1.057	0.915	0.875	0.715	0.889	13.7
Methylene Chloride		2.849	2.581	2.011	1.869	1.690	2.200	22.4
Acetone		0.807	0.736	0.574	0.601	0.633	0.670	14.6
Carbon Disulfide		3.340	4.021	3.598	3.387	2.868	3.443	12.2
1,1-Dichloroethene	*	1.144	1.433	1.304	1.257	1.147	1.257	9.6*
1,1-Dichloroethane	#	2.473	3.015	2.654	2.640	2.513	2.659	8.0#
1,2-Dichloroethene (total)		1.594	1.885	1.693	1.654	1.564	1.678	7.5
Chloroform	*	2.983	3.240	2.670	2.694	2.565	2.830	9.8*
1,2-Dichloroethane		1.430	1.824	1.527	1.615	1.522	1.584	9.4
2-Butanone		0.158	0.181	0.162	0.183	0.152	0.167	8.4
1,1,1-Trichloroethane		0.361	0.416	0.388	0.398	0.366	0.386	5.9
Carbon Tetrachloride		0.352	0.404	0.397	0.414	0.374	0.388	6.4
Vinyl Acetate		0.847	0.919	0.804	0.864	0.833	0.853	5.0
Bromodichloromethane		0.330	0.395	0.343	0.360	0.342	0.354	7.1
1,2-Dichloropropane	*	0.252	0.376	0.251	0.260	0.307	0.289	18.6*
cis-1,3-Dichloropropene		0.337	0.405	0.337	0.352	0.343	0.355	8.1
Trichloroethene		0.359	0.420	0.365	0.350	0.372	0.373	7.3
Dibromochloromethane		0.253	0.291	0.254	0.279	0.260	0.267	6.3
1,1,2-Trichloroethane		0.211	0.250	0.216	0.235	0.216	0.226	7.3
Benzene		0.762	0.924	0.812	0.847	0.759	0.821	8.3
trans-1,3-Dichloropropene		0.082	0.097	0.082	0.087	0.085	0.087	7.1
Bromoform	#	0.262	0.305	0.272	0.306	0.279	0.285	7.0#
2-Hexanone		0.321	0.383	0.328	0.369	0.319	0.344	8.7
4-Methyl-2-Pentanone		0.476	0.553	0.474	0.521	0.454	0.496	8.1
Tetrachloroethene		0.298	0.346	0.322	0.331	0.326	0.325	5.4
1,1,2,2-Tetrachloroethane	#	0.484	0.597	0.522	0.567	0.511	0.536	8.5#
Toluene	*	0.632	0.764	0.674	0.688	0.670	0.686	7.1*
Chlorobenzene	#	0.793	1.020	0.869	0.913	0.877	0.894	9.3#
Ethylbenzene	*	0.425	0.534	0.464	0.488	0.485	0.479	8.3*
Styrene		0.924	1.185	1.017	1.068	1.056	1.050	9.0
Xylenes (total)		0.530	0.678	0.588	0.620	0.624	0.608	8.9
Toluene-d8 - SS		0.529	0.535	0.534	0.518	0.524	0.528	1.3
1,4-Bromofluorobenzene - SS		0.280	0.275	0.274	0.272	0.272	0.275	1.2
1,2-Dichloroethane-d4 - SS		0.632	0.633	0.634	0.635	0.633	0.633	0.2

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/26/88 Time: 1302

Lab File ID: CSV0001646 Init. Calib. Date(s): 09/26/88 09/26/88

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	1.006	1.063	-5.7	#
Bromomethane		1.077	1.141	-5.9	
Vinyl Chloride	*	1.074	1.166	-8.6	*
Chloroethane		0.889	0.915	-2.9	
Methylene Chloride		2.200	2.011	8.6	
Acetone		0.670	0.574	14.3	
Carbon Disulfide		3.443	3.598	-4.5	
1,1-Dichloroethene	*	1.257	1.304	-3.7	*
1,1-Dichloroethane	#	2.659	2.654	0.2	#
1,2-Dichloroethene (total)		1.678	1.693	-0.9	
Chloroform	*	2.830	2.670	5.7	*
1,2-Dichloroethane		1.584	1.527	3.6	
2-Butanone		0.167	0.162	3.0	
1,1,1-Trichloroethane		0.386	0.388	-0.5	
Carbon Tetrachloride		0.388	0.397	-2.3	
Vinyl Acetate		0.853	0.804	5.7	
Bromodichloromethane		0.354	0.343	3.1	
1,2-Dichloropropane	*	0.289	0.251	13.2	*
cis-1,3-Dichloropropene		0.355	0.337	5.1	
Trichloroethene		0.373	0.365	2.1	
Dibromochloromethane		0.267	0.254	4.9	
1,1,2-Trichloroethane		0.226	0.216	4.4	
Benzene		0.821	0.812	1.1	
trans-1,3-Dichloropropene		0.087	0.082	5.7	
Bromoform	#	0.285	0.272	4.6	#
2-Hexanone		0.344	0.328	4.7	
4-Methyl-2-Pentanone		0.496	0.474	4.4	
Tetrachloroethene		0.325	0.322	0.9	
1,1,2,2-Tetrachloroethane	#	0.536	0.522	2.6	#
Toluene	*	0.686	0.674	1.7	*
Chlorobenzene	#	0.894	0.869	2.8	#
Ethylbenzene	*	0.479	0.464	3.1	*
Styrene		1.050	1.017	3.1	
Xylenes (total)		0.608	0.588	3.3	
Toluene-d8 - SS		0.528	0.534	-1.1	
1,4-Bromofluorobenzene - SS		0.275	0.274	0.4	
1,2-Dichloroethane-d4 - SS		0.633	0.634	-0.2	

RS.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/27/88 Time: 0004

Lab File ID: CSV0001663 Init. Calib. Date(s): 09/26/88 09/26/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	1.006	1.013	-0.7	#
Bromomethane		1.077	1.134	-5.3	
Vinyl Chloride	*	1.074	1.111	-3.4	*
Chloroethane		0.889	0.903	-1.6	
Methylene Chloride		2.200	2.070	5.9	
Acetone		0.670	0.548	18.2	
Carbon Disulfide		3.443	3.736	-8.5	
1,1-Dichloroethene	*	1.257	1.418	-12.8	*
1,1-Dichloroethane	#	2.659	2.606	2.0	#
1,2-Dichloroethene (total)		1.678	1.693	-0.9	
Chloroform	*	2.830	2.780	1.8	*
1,2-Dichloroethane		1.584	1.518	4.2	
2-Butanone		0.167	0.147	12.0	
1,1,1-Trichloroethane		0.386	0.391	-1.3	
Carbon Tetrachloride		0.388	0.408	-5.2	
Vinyl Acetate		0.853	0.773	9.4	
Bromodichloromethane		0.354	0.352	0.6	
1,2-Dichloropropane	*	0.289	0.246	14.9	*
cis-1,3-Dichloropropene		0.355	0.359	-1.1	
Trichloroethene		0.373	0.293	21.5	
Dibromochloromethane		0.267	0.273	-2.2	
1,1,2-Trichloroethane		0.226	0.225	0.4	
Benzene		0.821	0.830	-1.1	
trans-1,3-Dichloropropene		0.087	0.086	1.1	
Bromoform	#	0.285	0.296	-3.9	#
2-Hexanone		0.344	0.274	20.4	
4-Methyl-2-Pentanone		0.496	0.403	18.8	
Tetrachloroethene		0.325	0.319	1.8	
1,1,2,2-Tetrachloroethane	#	0.536	0.480	10.5	#
Toluene	*	0.686	0.630	8.2	*
Chlorobenzene	#	0.894	0.845	5.5	#
Ethylbenzene	*	0.479	0.456	4.8	*
Styrene		1.050	0.994	5.3	
Xylenes (total)		0.608	0.568	6.6	
Toluene-d8 - SS		0.528	0.512	3.0	
1,4-Bromofluorobenzene - SS		0.275	0.278	-1.1	
1,2-Dichloroethane-d4 - SS		0.633	0.637	-0.6	

RS

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001646 Date Analyzed: 09/26/88

Instrument ID: 4500 Time Analyzed: 1302

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	35300	13.42	194000	15.84	134000	22.10
	UPPER LIMIT	70600		388000		268000	
	LOWER LIMIT	17650		97000		67000	
	EPA SAMPLE NO.						
01	2C-MW2S1D	36300	13.42	198000	15.85	142000	22.12
02	2CMW2S2_1430	34900	13.40	190000	15.85	142000	22.12
03	2CMW2S2_DL	30200	13.42	155000	15.85	114000	22.12
04	2CMW2S3_1430	37000	13.39	196000	15.84	150000	22.12
05	2CMW3S1_1000	32000	13.40	177000	15.84	129000	22.10
06	2CMW3S2_1000	33200	13.40	166000	15.85	124000	22.12
07	2CMW3S3_1000	38200	13.35	210000	15.82	155000	22.10
08	Y09268B3	36100	13.44	193000	15.87	146000	22.14

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11906 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001663 Date Analyzed: 09/27/88

Instrument ID: 4500 Time Analyzed: 0004

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	34900	13.39	191000	15.84	147000	22.10
	UPPER LIMIT	69800		382000		294000	
	LOWER LIMIT	17450		95500		73500	
	EPA SAMPLE NO.						
01	2C-MW2S1	32600	13.40	168000	15.85	126000	22.12
02	TB	33800	13.40	180000	15.84	140000	22.10
03	MS	31400	13.42	143000	15.87	126000	22.14
04	MSD	37000	13.35	196000	15.84	155000	22.12
05	Y09278B1	32500	13.40	169000	15.85	132000	22.12
06	X09278B2	32700	13.40	167000	15.85	134000	22.12

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

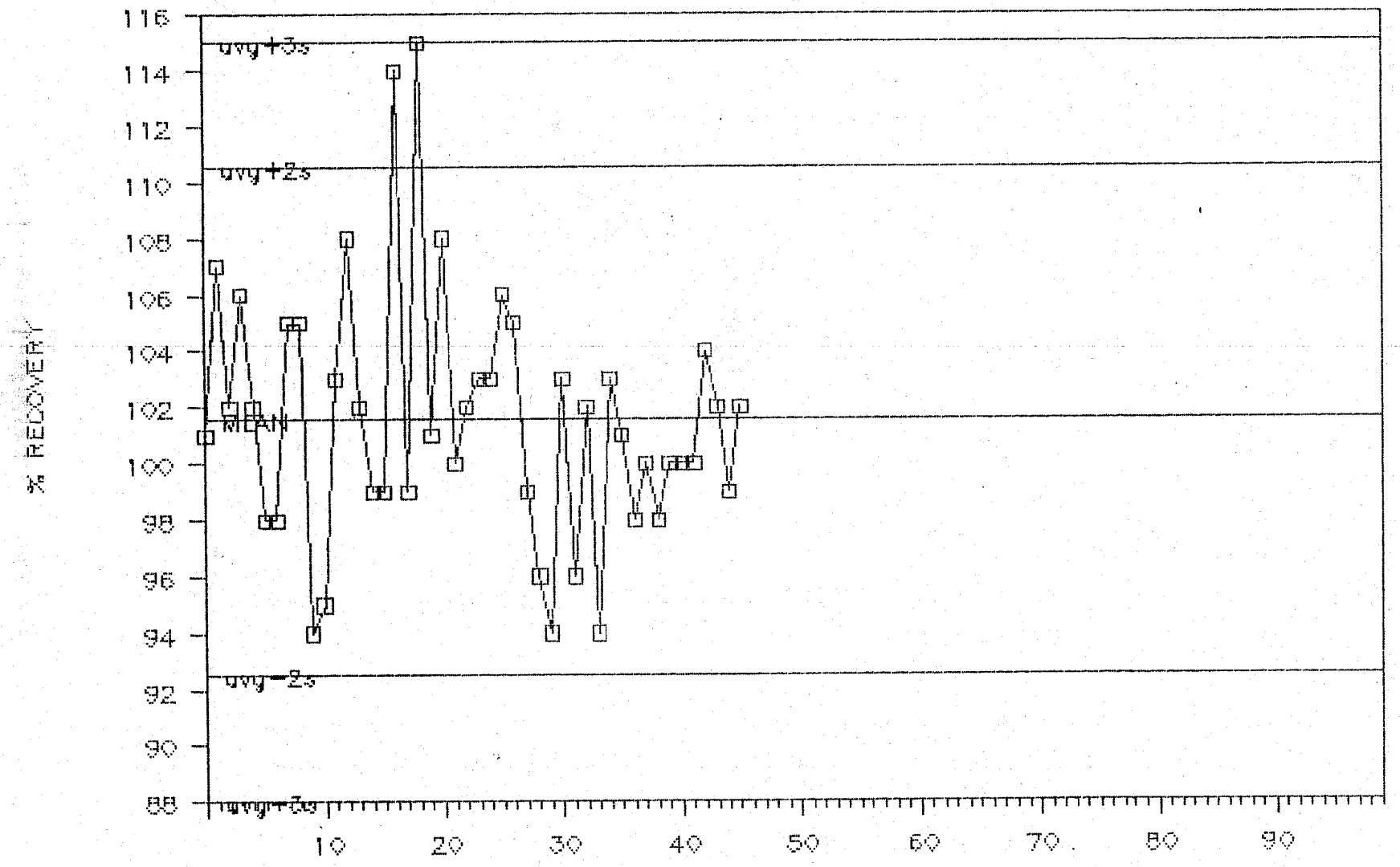
UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

RS

SURROGATE RECOVERY

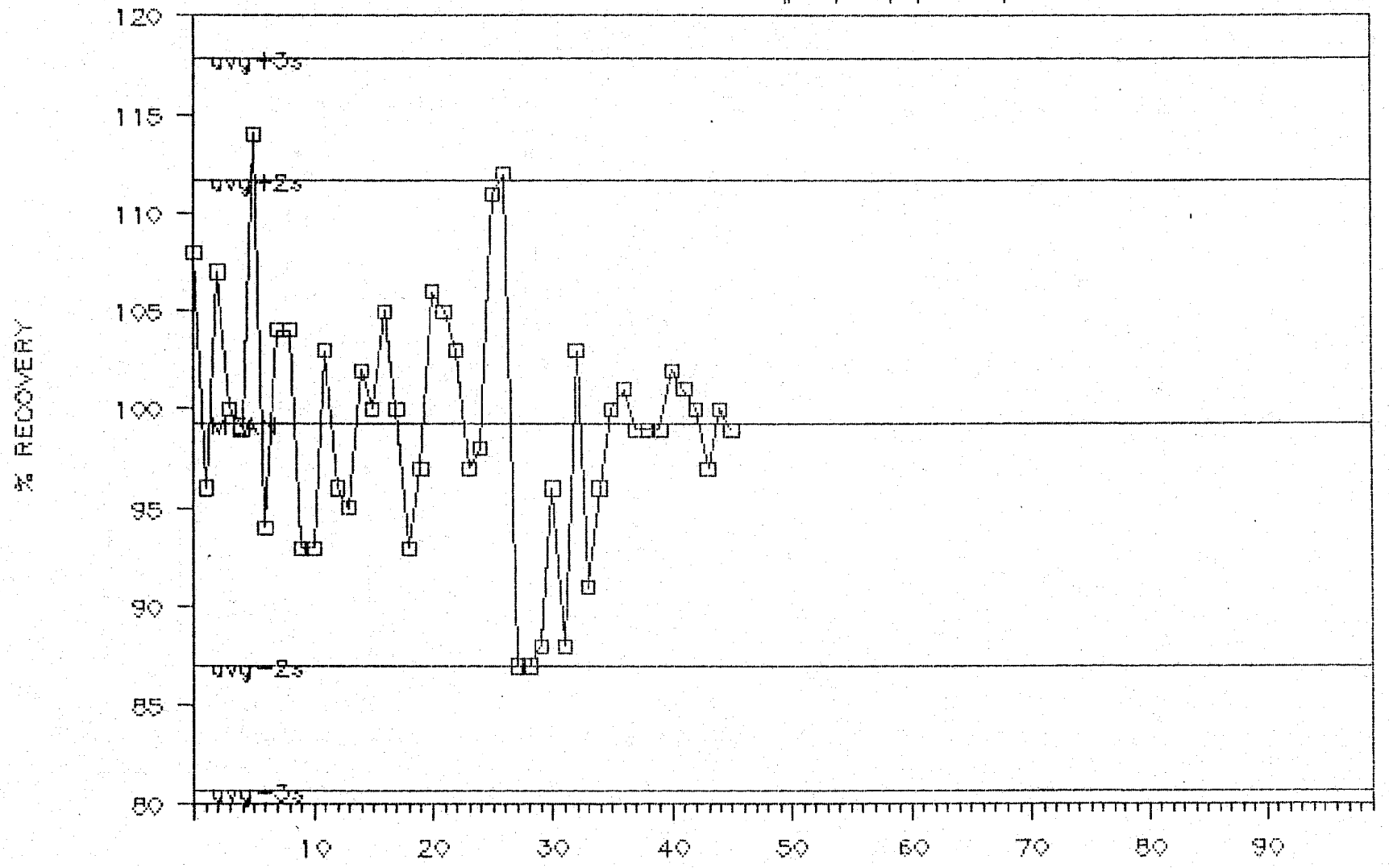
VOLATILES-SOIL - SURR.#1 (TOL) (11906)



000066

SURROGATE RECOVERY

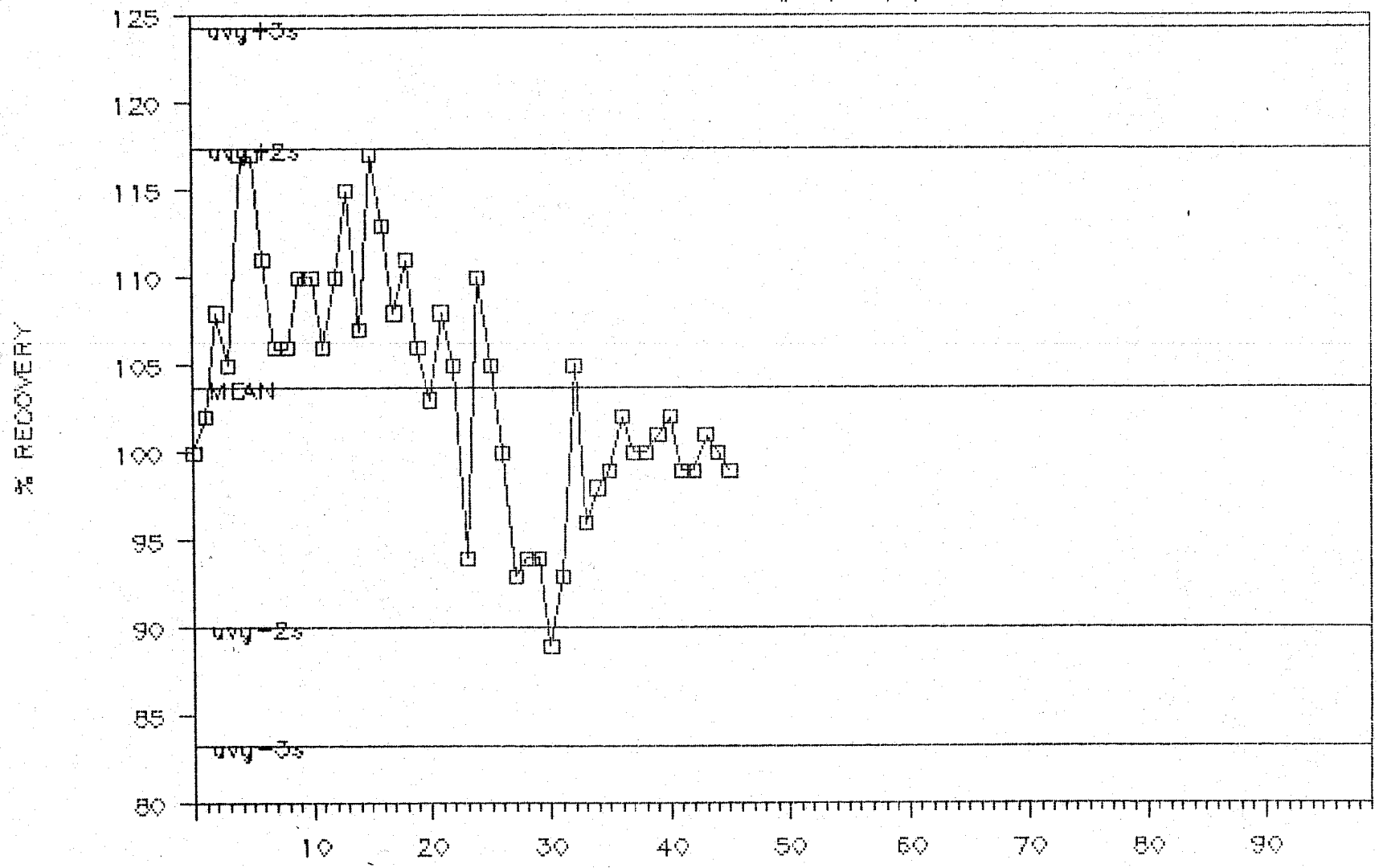
VOLATILES-SOIL - SURR.#2 (BFB) (11906)



000087

SURROGATE RECOVERY

VOLATILES-SOIL - SURR.#3 (DCE) (11906)



000063

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Date: 10/27/88

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11906

RE: Sample(s) received by CH2M HILL on 09/14/88.
LANTDIV

Analysis Description	[Method]	2C-MW3S1 * 2C 9/12/88 1000 COMP SOIL	2C-MW3S2 * 2C 9/12/88 1000 COMP SOIL	2C-MW3S3 * 2C 9/12/88 1000 COMP SOIL	2C-MW2S1 * 2C 9/12/88 1430 COMP SOIL	2C-MW2S2 * 2C 9/12/88 1430 COMP SOIL	2C-MW2S3 * 2C 9/12/88 1430 COMP SOIL
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
EP Tox. Silver (ug/L)	[EPA200.7]	50	<30	<30	<30	<30	<30
EP Tox. Arsenic (ug/L)	[EPA206.2]	<5	<5	<5	<5	<5	<5
EP Tox. Barium (ug/L)	[EPA200.7]	190	<100	120	240	180	<100
EP Tox. Cadmium (ug/L)	[EPA200.7]	<20	<20	<20	<20	<20	<20
EP Tox. Chromium (ug/L)	[EPA200.7]	<10	30	<10	<10	<10	10
EP Tox. Mercury (ug/L)	[EPA245.1]	0.3	0.3	0.3	0.4	0.4	0.4
EP Tox. Lead (ug/L)	[EPA200.7]	12	5	<5	<5	<5	<5
EP Tox. Selenium (ug/L)	[EPA270.2]	<5	<5	<5	<5	<5	<5

Analyses performed in accordance with methods approved by the USEPA.

Respectfully Submitted,

Mr. James M. Schoen
Inorganic Laboratory Manager

cc: MR. FRANK LEWIS/WDC, MS. MARY WISDOM/MGM-LQAC

INORG(MGM-8809C)

CH2M HILL
Engineers
Planners
Economists
Scientists

October 14, 1988

W20368.D0

Mr. Doug Dronfield
CH2M HILL/WDC
P.O. Box 4400
Reston, Virginia 22090

RE: Analytical Data for Laboratory No. 11927

Dear Mr. Dronfield:

On September 16, 1988, CH2M HILL Montgomery Laboratory received fifteen samples with a request for analysis of selected organic parameters.

Please note that the CH2M HILL Montgomery Laboratory reporting format has changed. The format alteration is in response to new reporting technology and wil keep CH2M HILL in-line with new industry standards. We appologize for any inconvenience this change may cause.

The analytical results and the associated quality control data are enclosed. Please note Forms II, IV, V and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to the CH2M HILL Montgomery laboratory identification numbers. No unusual difficulties were encountered during the analysis of these samples.

If you should have any questions concerning the data, please call.

Sincerely,

Ward Dickens

Ward Dickens
Manager, Organic Analysis

Enclosures

cc: Mr. Craig Vinson
Mr. Frank Lewis/WDC
Ms. Mary Wisdom/MGM

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2~~V~~C-B1S1_1515

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11927002

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1V0001680

Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 13 Date Analyzed: 09/27/88

Column: (pack/cap) CAP Dilution Factor: 1.0

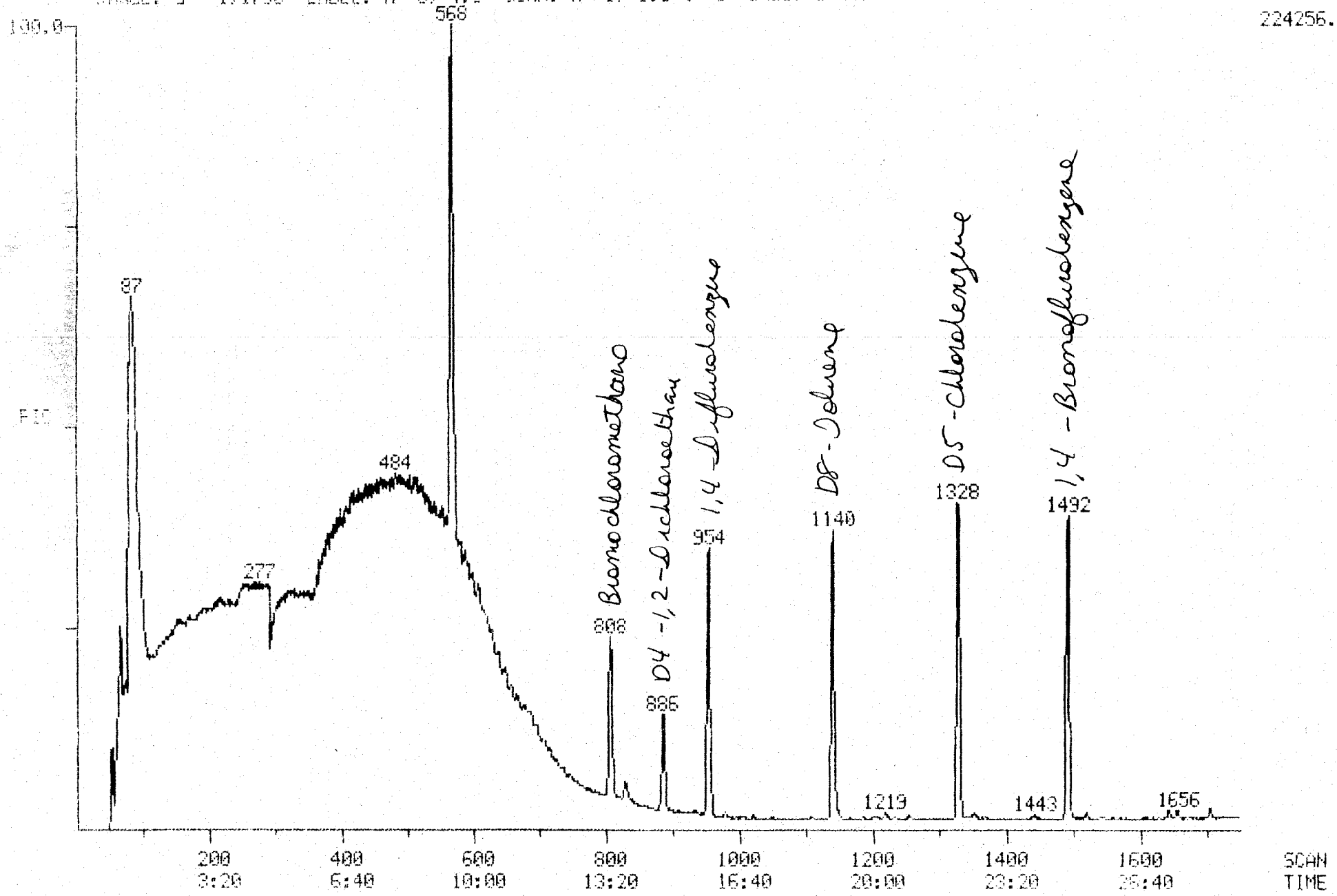
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	170	B
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	B
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	1	J
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS.

FIC
09/27/88 17:48:00
SAMPLE: CLP,V11927,,11927002,L,S,,V,
CONDS.: -100C TO 160DC @ 6DC/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: C1V0001680 #489 SCANS 1 TO 1750
CALI: C1V0001680 #9

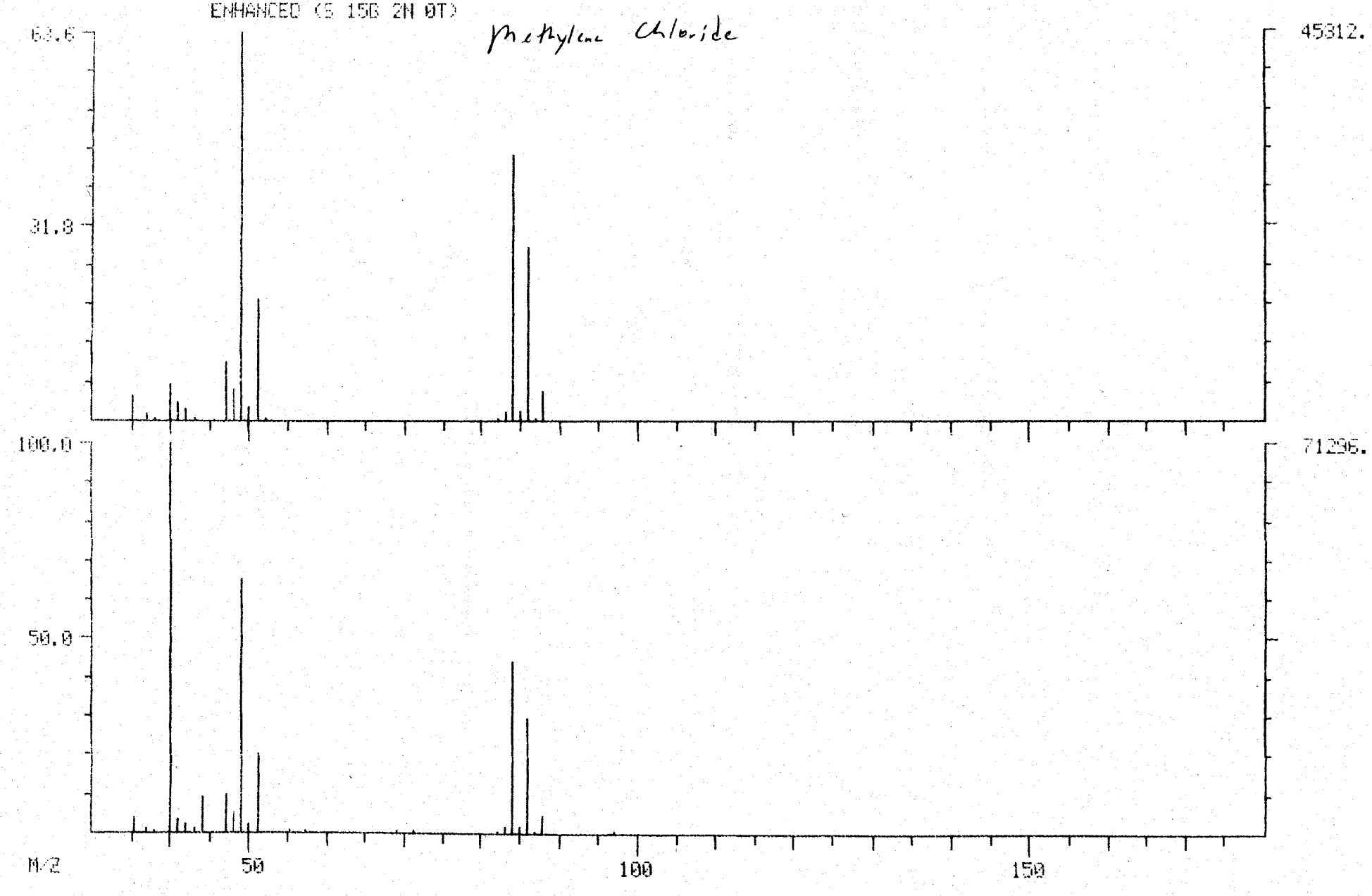
224256.



DUAL MASS SPECTRUM
09/27/88 17:48:00 + 9:28
SAMPLE: CLP,U11927,,11927002,L,S,,U,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15G 2N 0T)

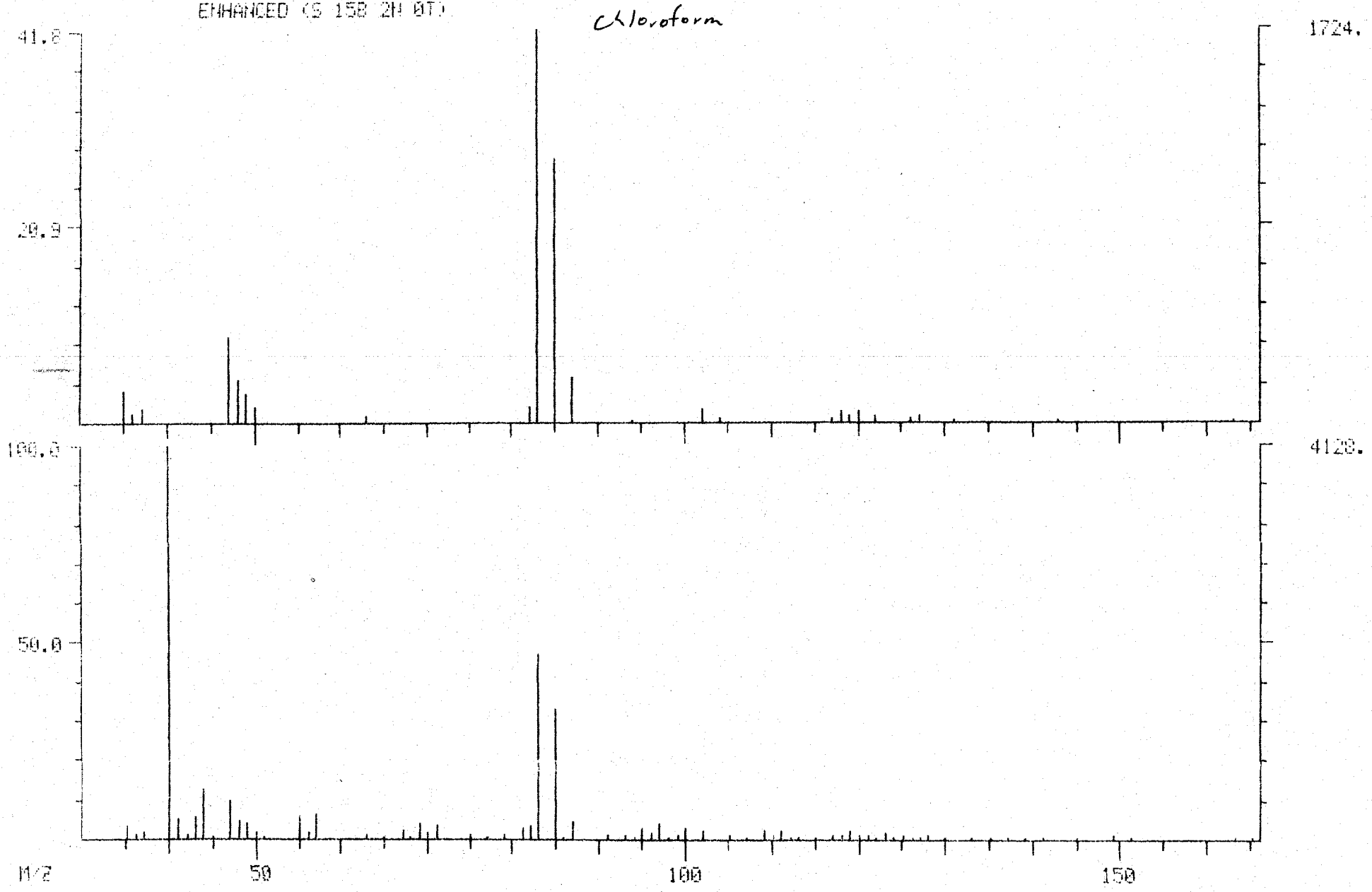
DATA: C1U0001680 #568 BASE M/Z: 49 40
CALI: C1U0001680 #9 RIC: 140799./ 222463.

000004



DUAL MASS SPECTRUM
09/27/88 17:48:00 + 13:51
SAMPLE: CLP,U11927,,11927002,L,S,,V,
CONDS.: -100G TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1U0001680 #531 BASE M/Z: 83 40
CALI: C1U0001680 #9 RIC: 4519./ 13311.

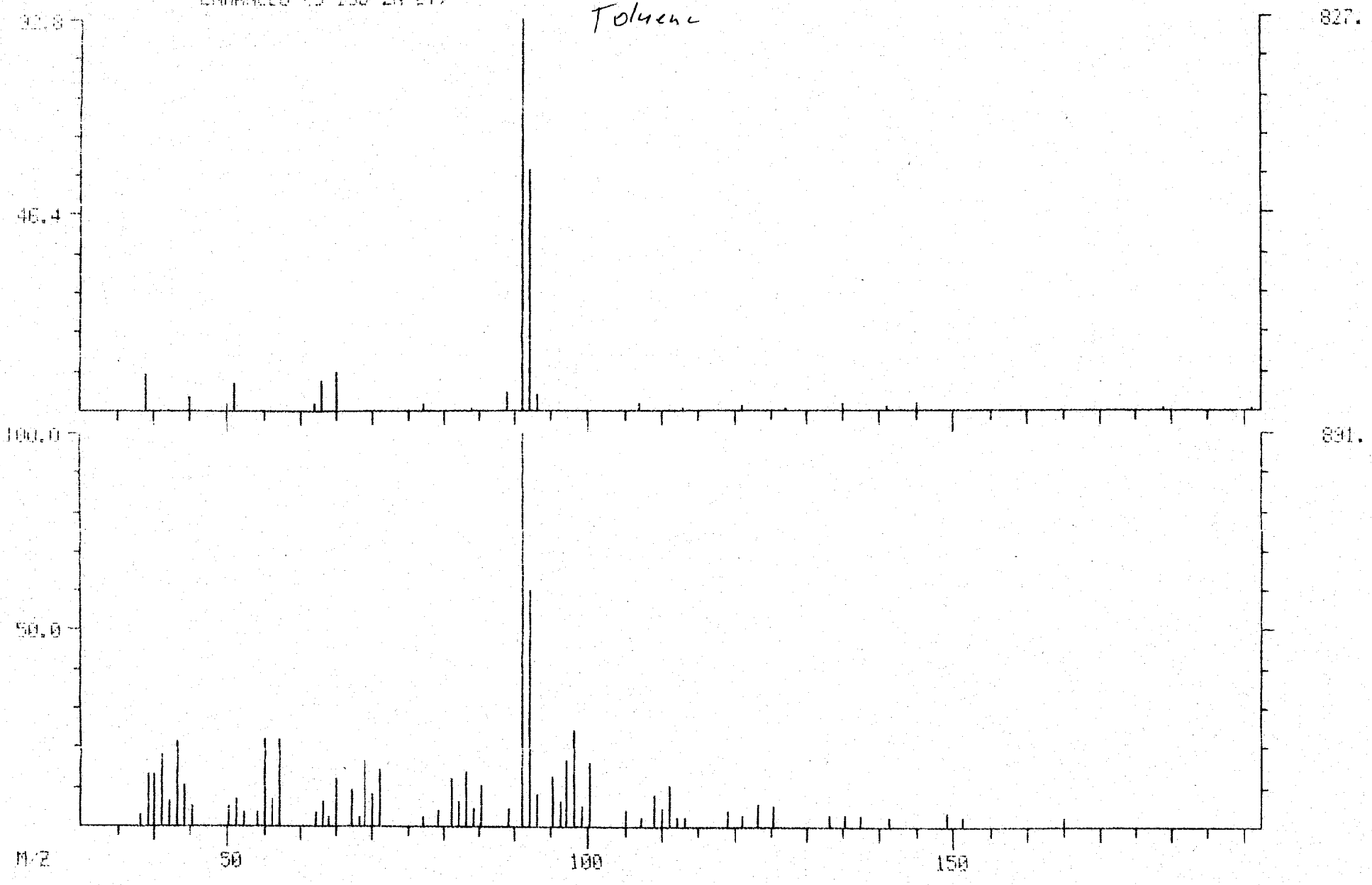


000005

DUAL MASS SPECTRUM
09/27/88 17:48:00 + 19:08
SAMPLE: CLP/U11927,,11927002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001680 #1148 BASE M/Z: 91/ 91
CALI: C1V0001680 #9 RIC: 1855./ 5511.

Toluene

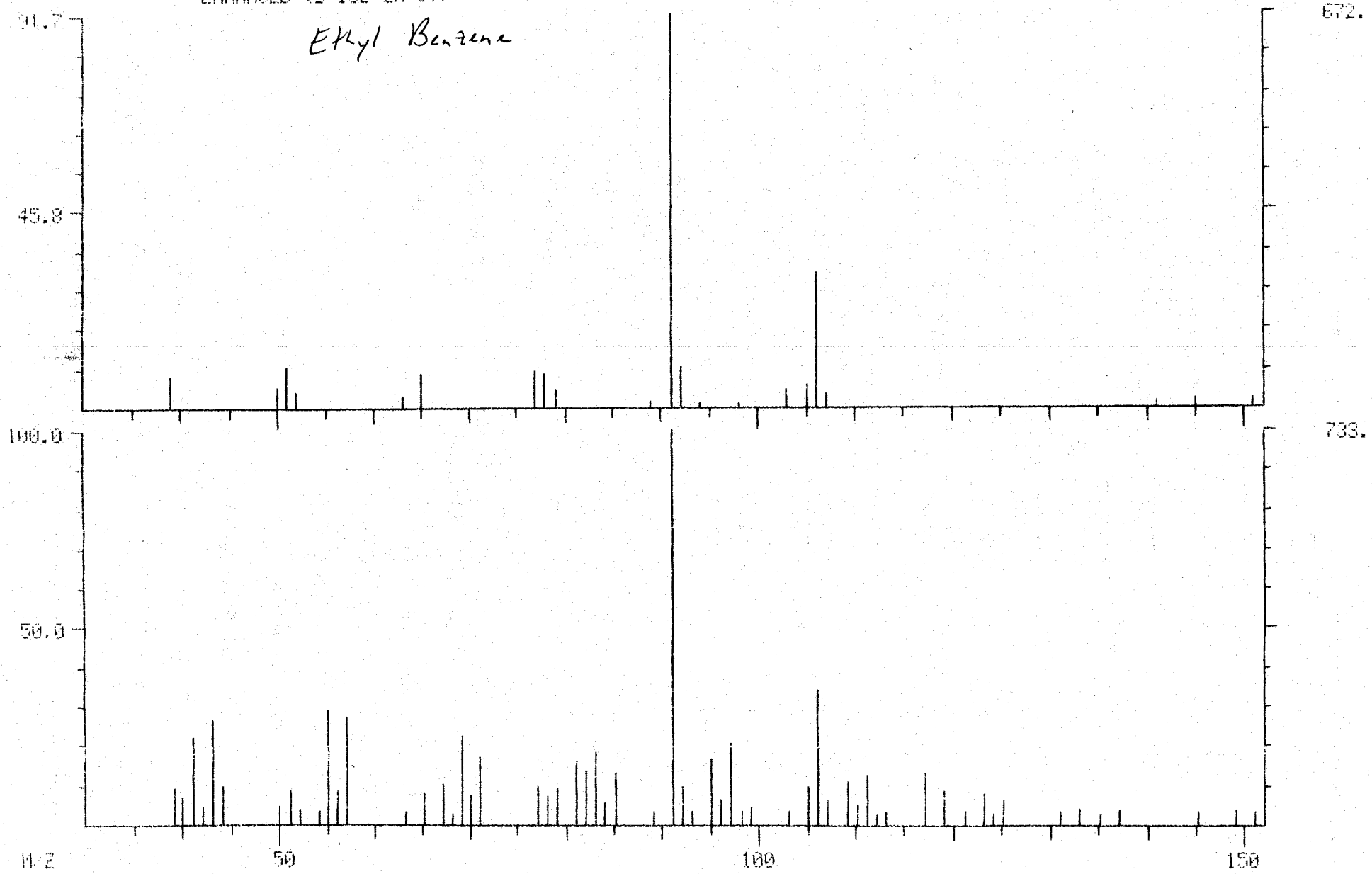


000006

DUAL MASS SPECTRUM
09/27/88 17:48:00 + 22:31
SAMPLE: CLP,V11927,,11927002,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001680 #1251 BASE M/Z: 91 91
CALI: C1V0001680 #9 FIC: 1559. 4621.

Ethyl Benzene



000007

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-B1S2_1515

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11927003

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO001695

Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 16 Date Analyzed: 09/28/88

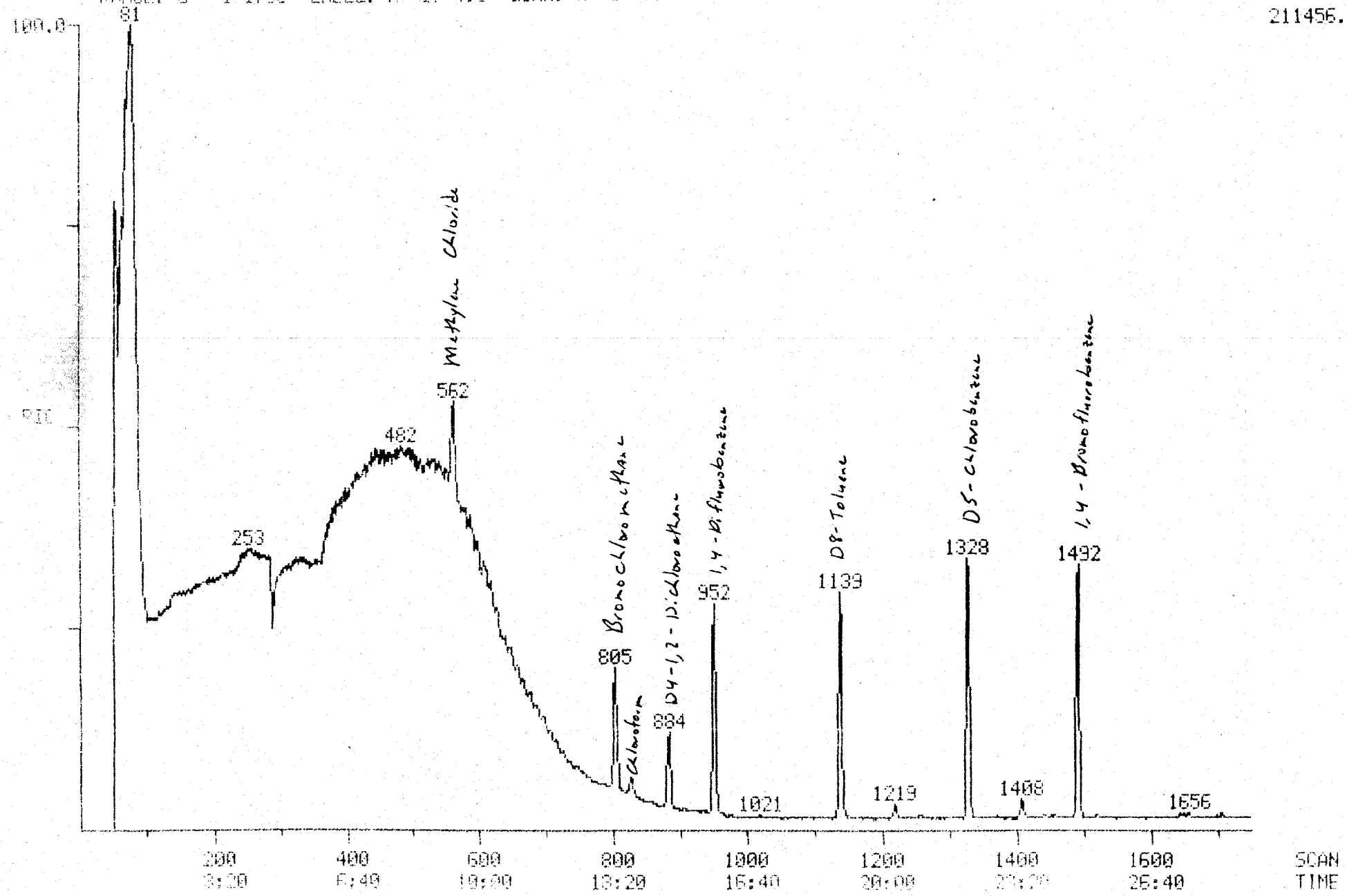
Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	31	B
67-64-1	Acetone	17	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	7	B
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS

RIC
AU 20 88 13:10:00
SAMPLE: CLP,V11927,,11927003,L,S,,U,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: C1V0001695 #1 SCANS 1 TO 1750
CALI: C1V0001695 #3

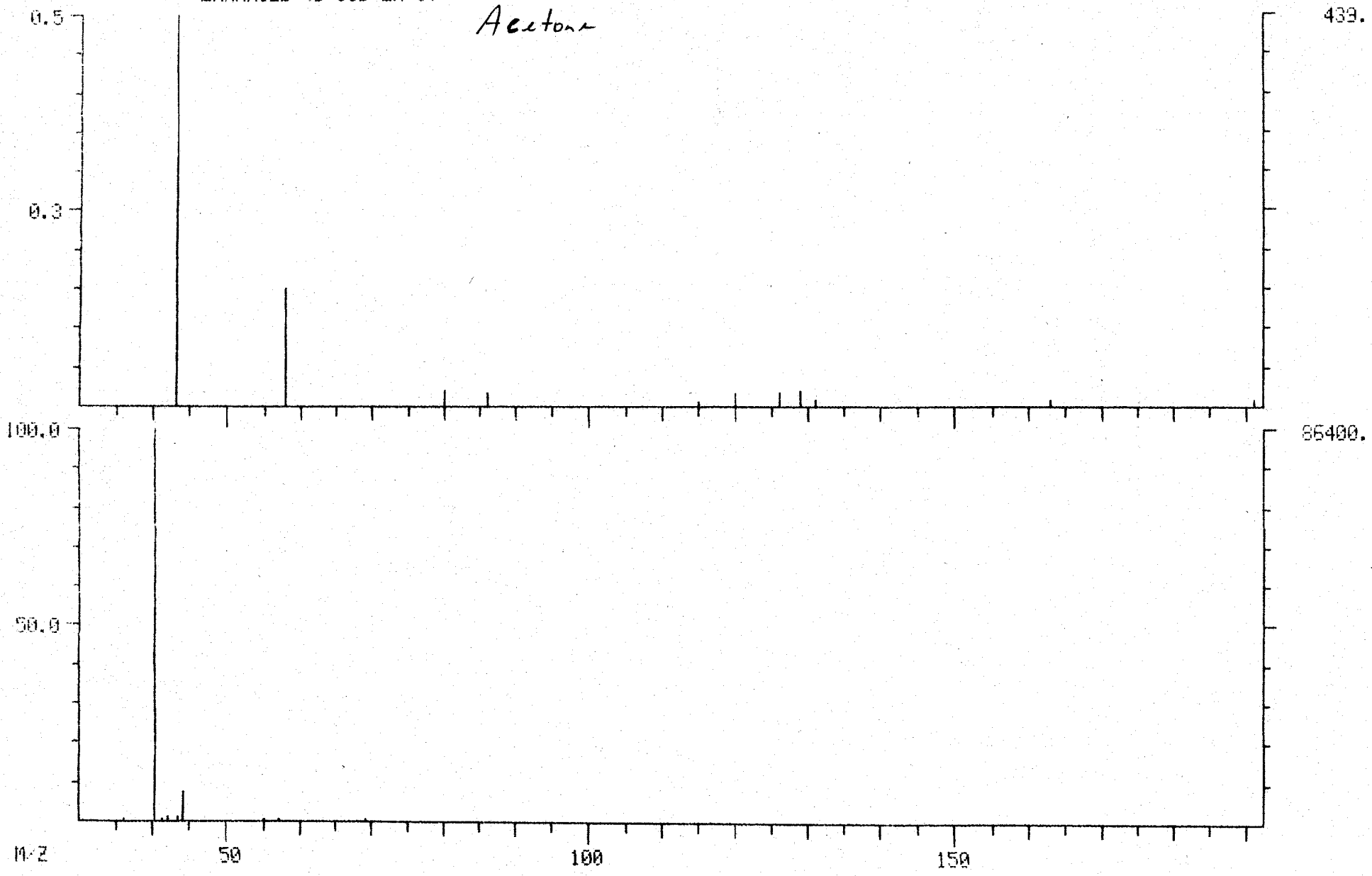


211456.

DUAL MASS SPECTRUM
09/28/88 13:10:00 + 8:02
SAMPLE: CLP,V11927,,11927003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001635 #482 BASE M/Z: 43/ 40
CALI: C1V0001635 #3 RIC: 682./ 99327.

Acetone

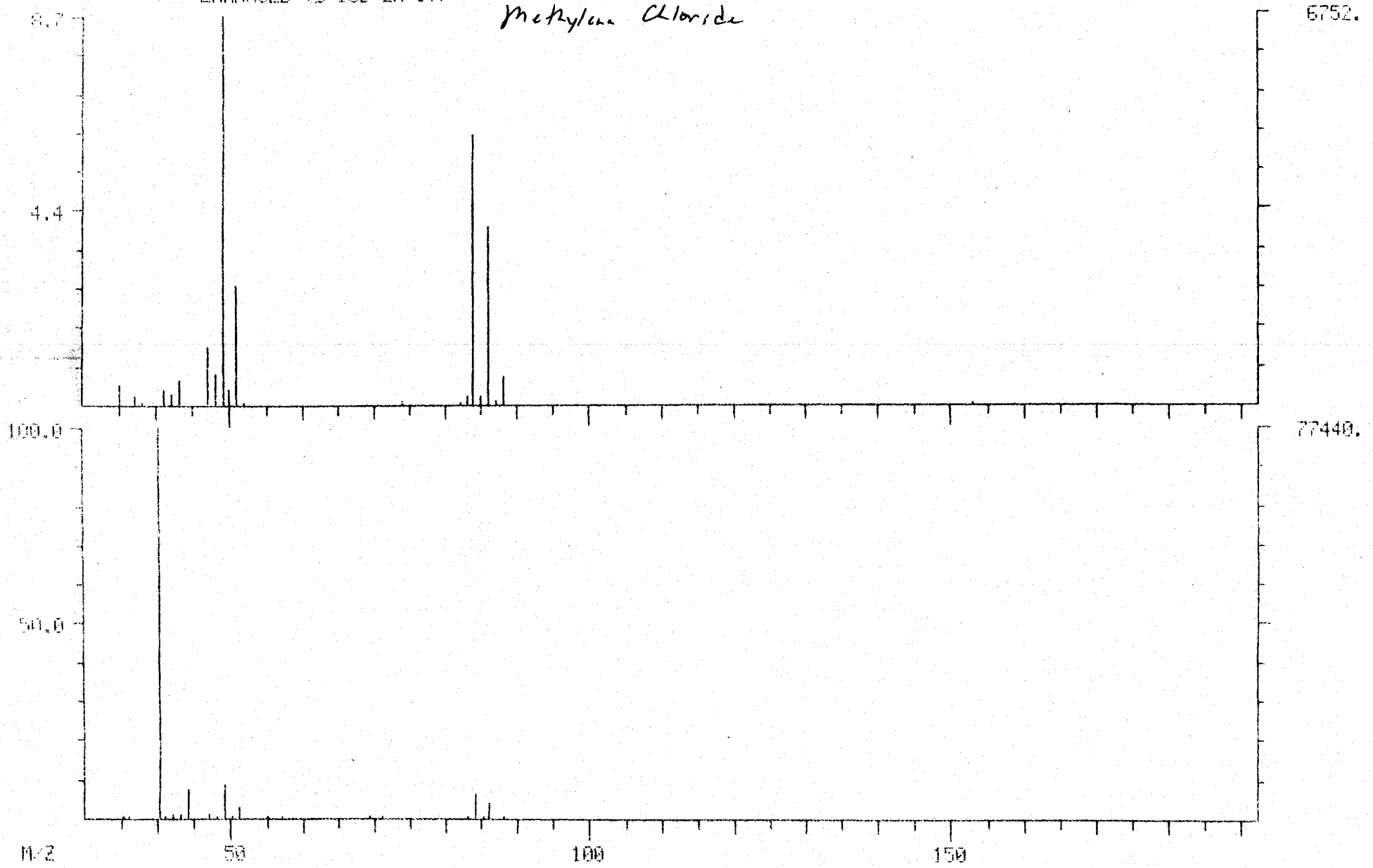


000010

DUAL MASS SPECTRUM
09/28/88 13:10:00 + 9:22
SAMPLE: CLP/V11927,,11927003.L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001E95 #562 BASE M/Z: 49/ 40
CALI: C1V0001E95 #3 TIC: 21055./ 110335.

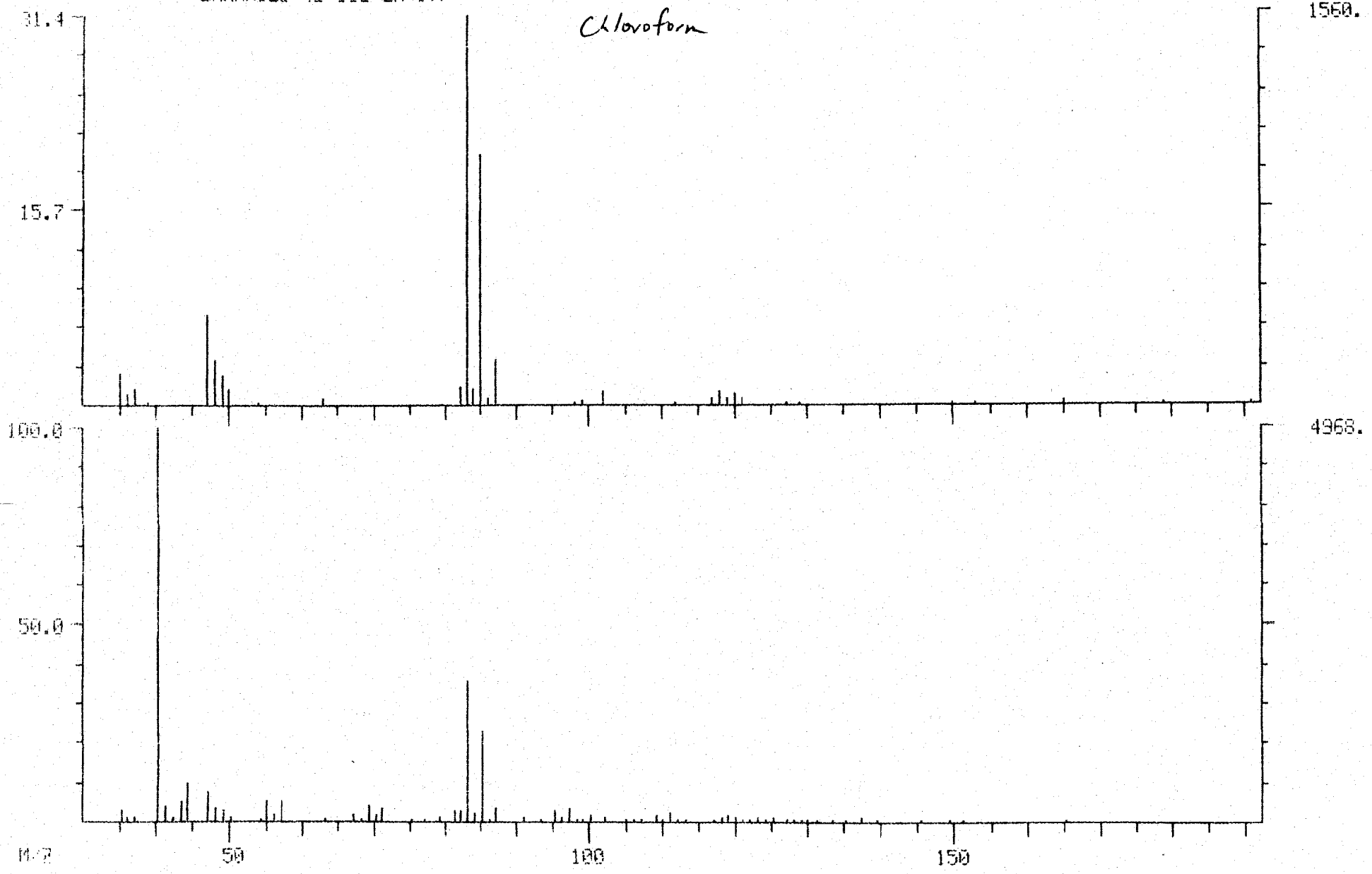
Methylene Chloride



000011

DUAL MASS SPECTRUM
09/28/88 13:10:00 + 13:48
SAMPLE: CLP,V11927,,11927003,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001695 #328 BASE M/Z: 83/ 40
CALI: C1V0001695 #3 RIC: 4247./ 13809.

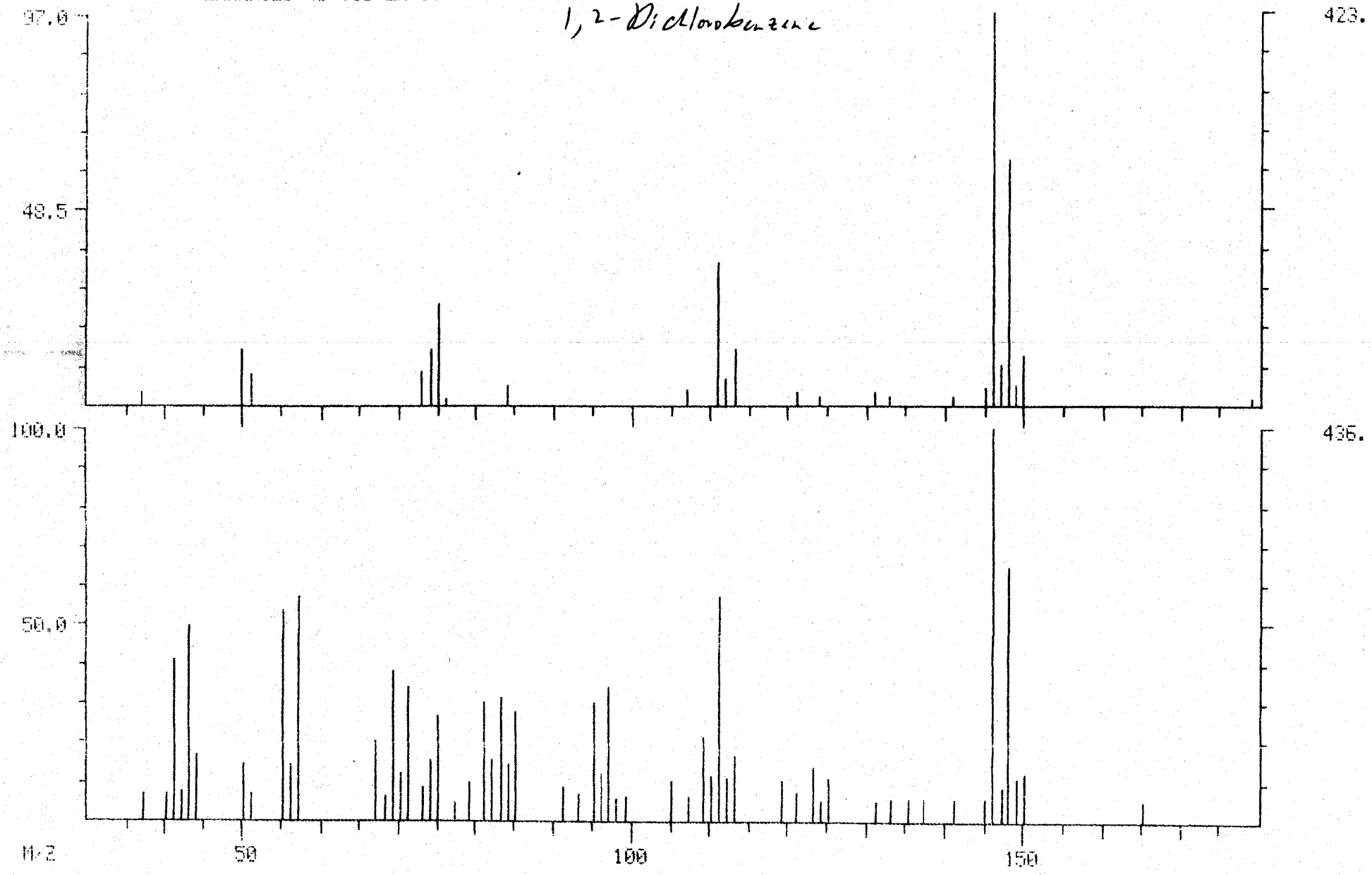


000012

DUAL MASS SPECTRUM
09/28/88 13:10:00 + 28:26
SAMPLE: CLP/V11927,,11927003,L,S,,V,
CONDS.: -100G TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001695 #1706 BASE M/Z: 146/ 146
CALI: C1V0001695 #3 RIC: 1505./ 4791.

1,2-Dichlorobenzene



000013

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-B2S1_1544

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11927004

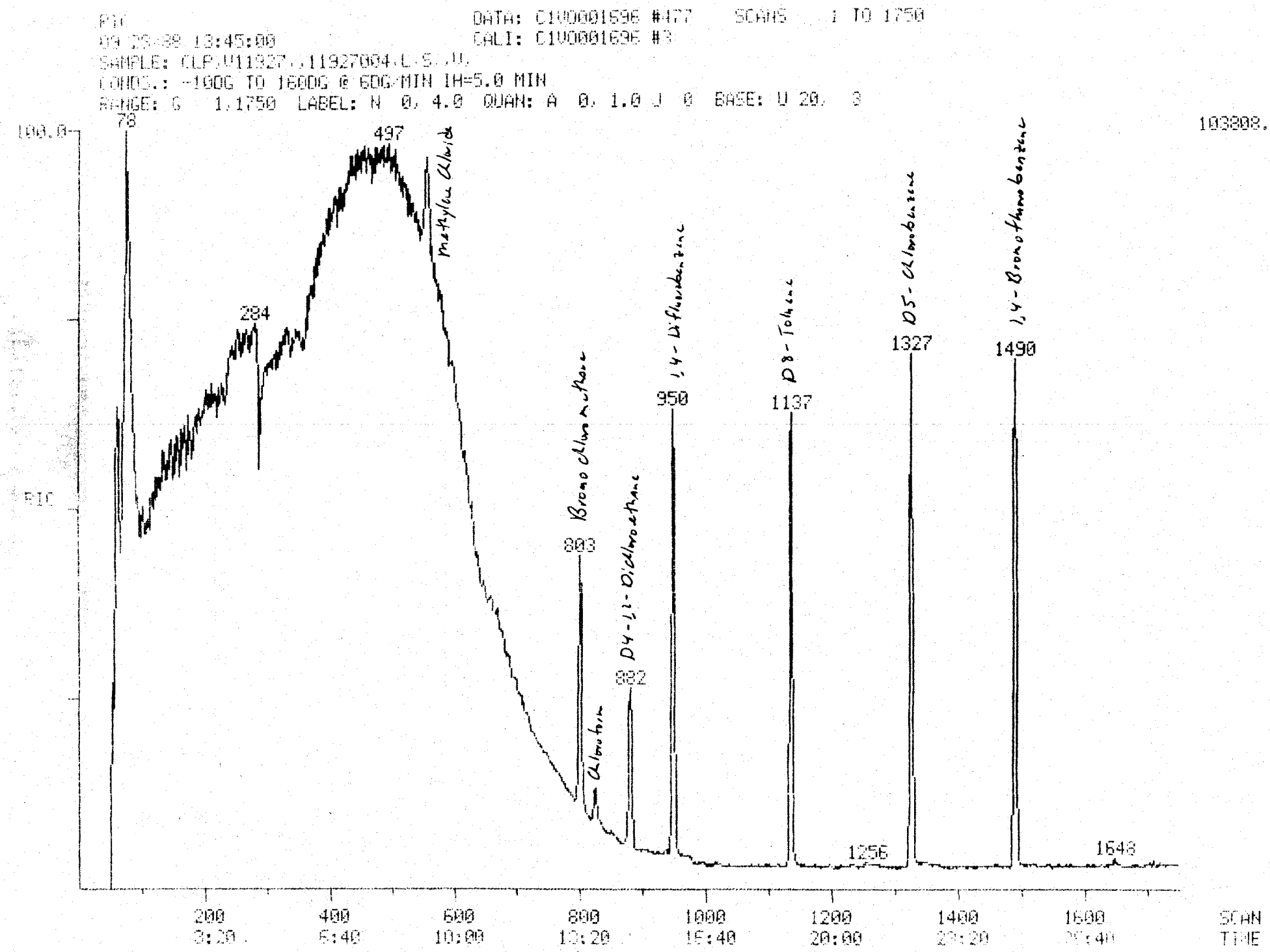
Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO001696

Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 24 Date Analyzed: 09/28/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	16	B
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	7	B
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	7	U
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	7	U
108-90-7	Chlorobenzene	7	U
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
1330-20-7	Xylenes (total)	7	U



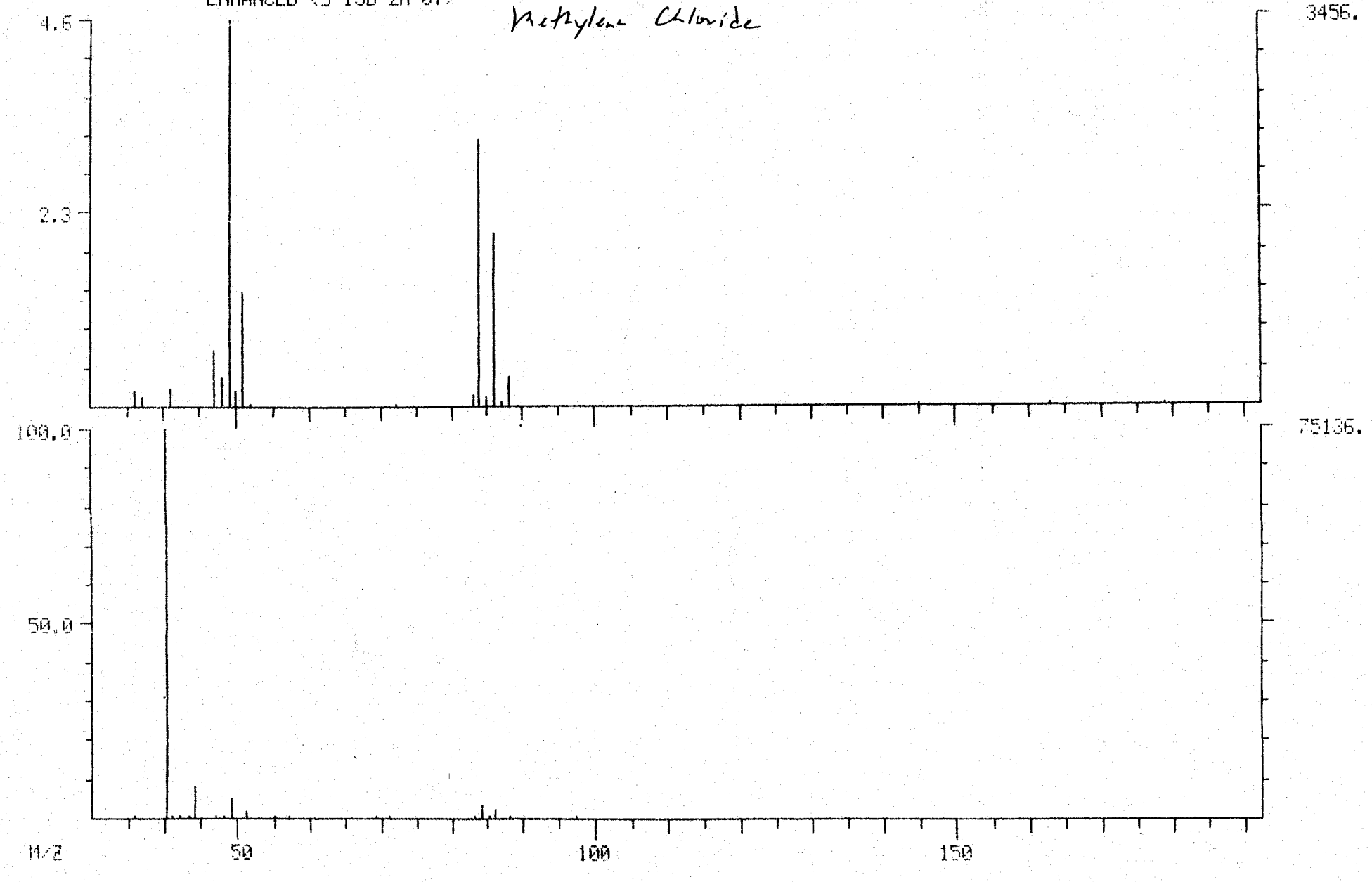
RIC
09 29-88 13:45:00
SAMPLE: CLP,V11927,,11927004,L,S,,U,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3
DATA: C1V0001696 #477 SCANS 1 TO 1750
CALI: C1V0001696 #3
100.0
103808.
78
284
497
Methylene Chloride
Bromochloromethane
803
Chloroform
D4-1,2-Dichloroethane
882
1,4-Difluorobenzene
950
D8-Toluene
1137
1256
D5-Chlorobenzene
1327
1,4-Bromofluorobenzene
1490
1648
RIC
200
3:20
400
6:40
600
10:00
800
13:20
1000
16:40
1200
20:00
1400
23:20
1600
26:40
SCAN
TIME

000015

DUAL MASS SPECTRUM
09/28/88 13:45:00 + 9:17
SAMPLE: CLP,V11927,,11927004,L,S,,V,
CONDS.: -100G TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001696 #557 BASE M/Z: 49/ 40
CALI: C1V0001696 #3 RIC: 10351./ 97919.

Methylene Chloride

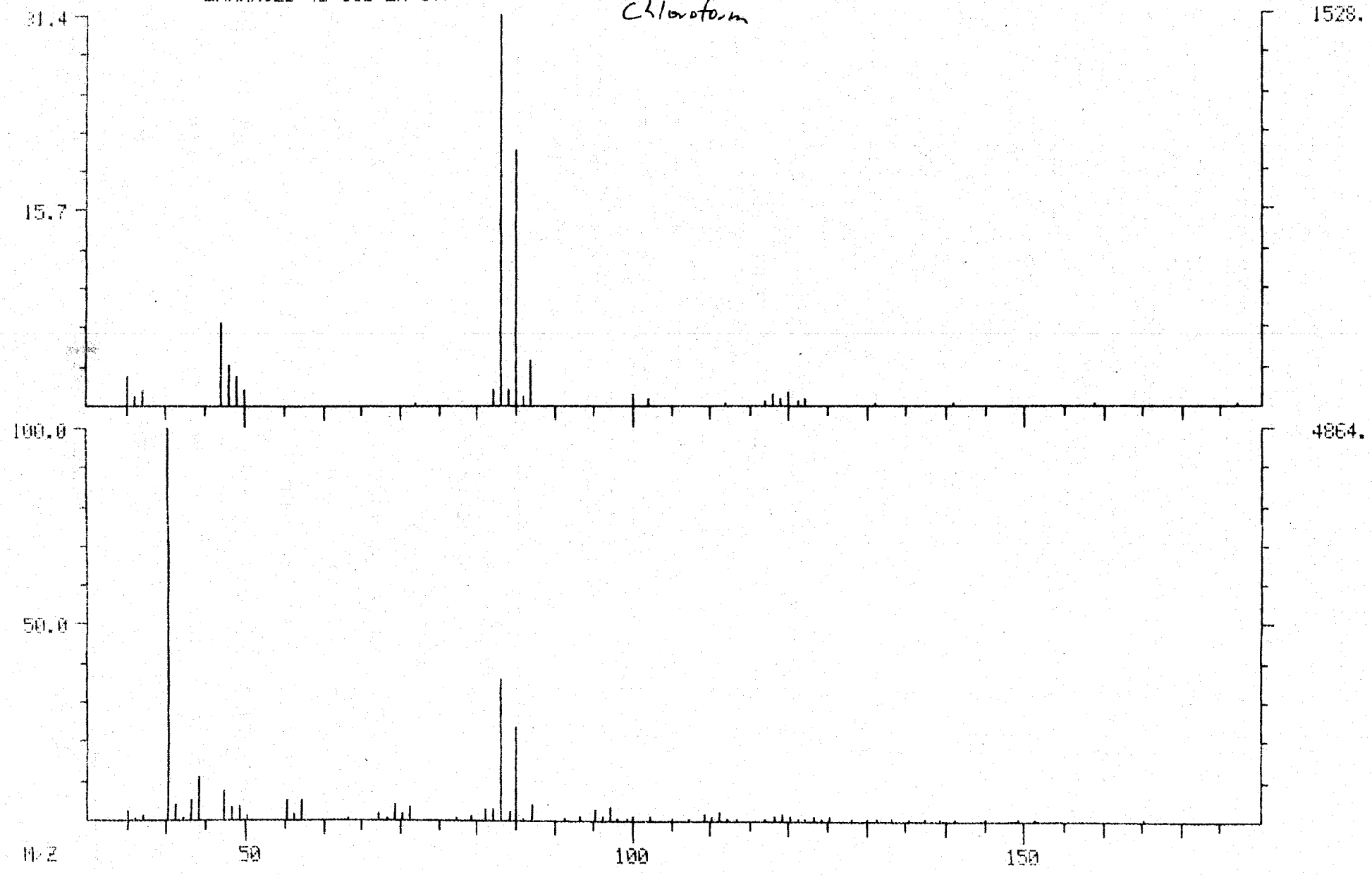


000016

DUAL MASS SPECTRUM
09/28/88 13:45:00 + 13:45
SAMPLE: CLP,V11927,,11927004,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001696 #825 BASE M/Z: 83/ 40
CALI: C1V0001696 #3 RIC: 4083./ 13375.

Chloroform



000017

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-B2S2_1544

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11927005

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO001697

Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 18 Date Analyzed: 09/28/88

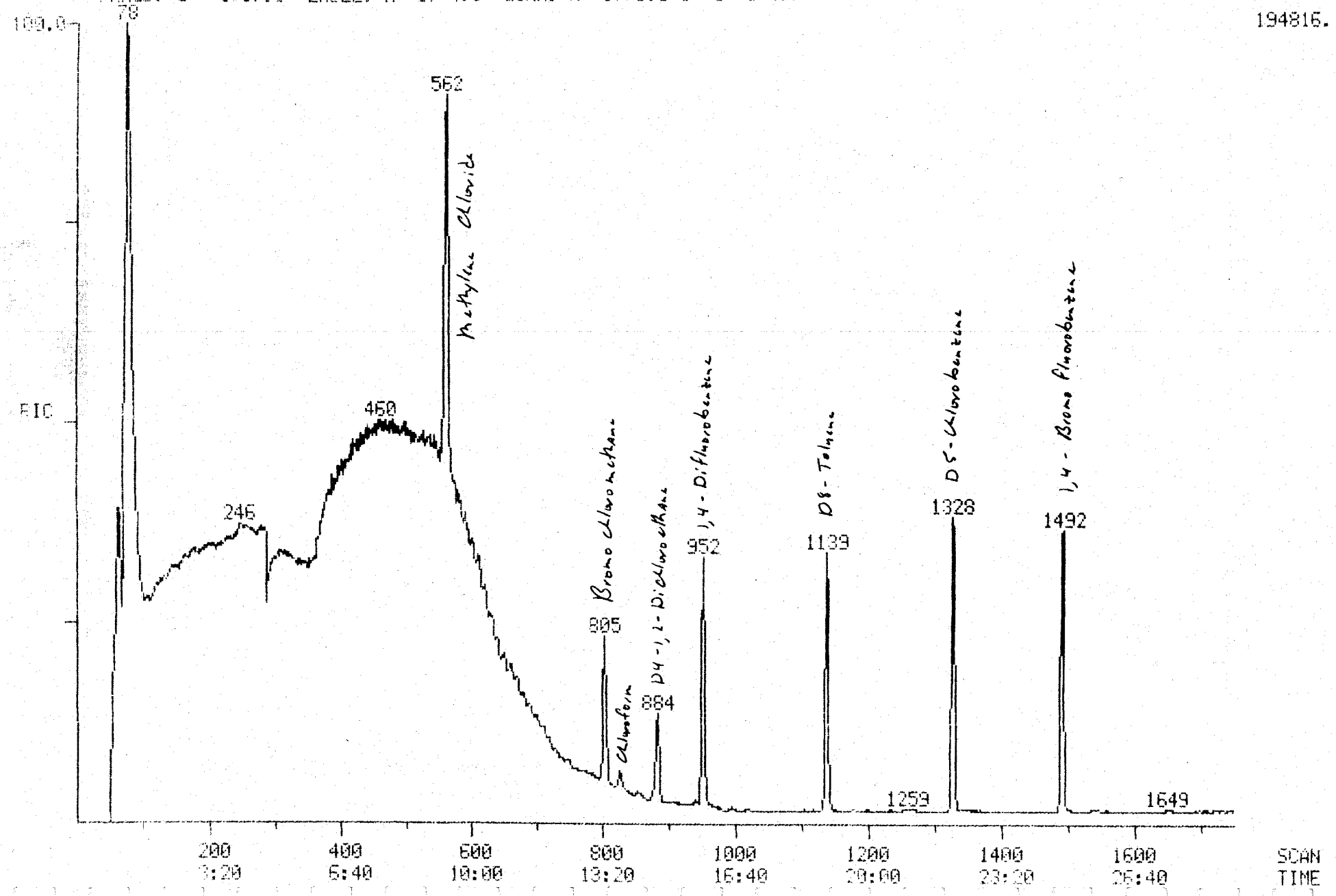
Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	130	B
67-64-1	Acetone	17	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

FIC DATA: C1V0001697 #482 SCANS 1 TO 1750
09 28 88 14:20:00 CALI: C1V0001697 #3
SAMPLE: CLP.V11927.11927005.L.S.V.
CONDS.: -100G TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1.1750 LABEL: N 0. 4.0 QUAN: A 0. 1.0 J 0 BASE: U 20. 3

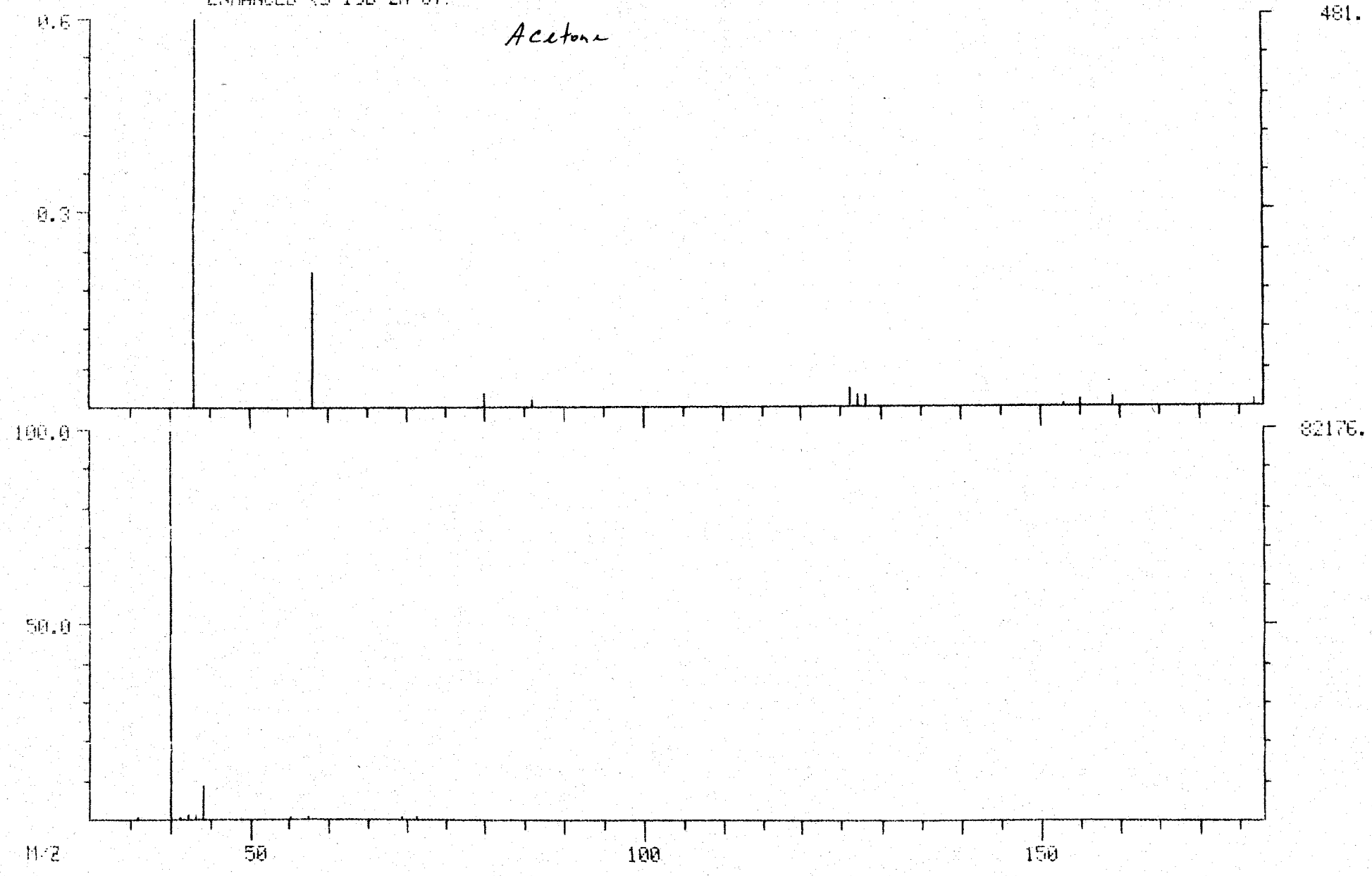
194816.

000019



DUAL MASS SPECTRUM
09/28/88 14:20:00 + 8:03
SAMPLE: CLP,V11927,,11927005,L.S.,U.
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001E97 #493 BASE M/Z: 43 40
CALI: C1V0001E97 #3 RIC: 748./ 95871.

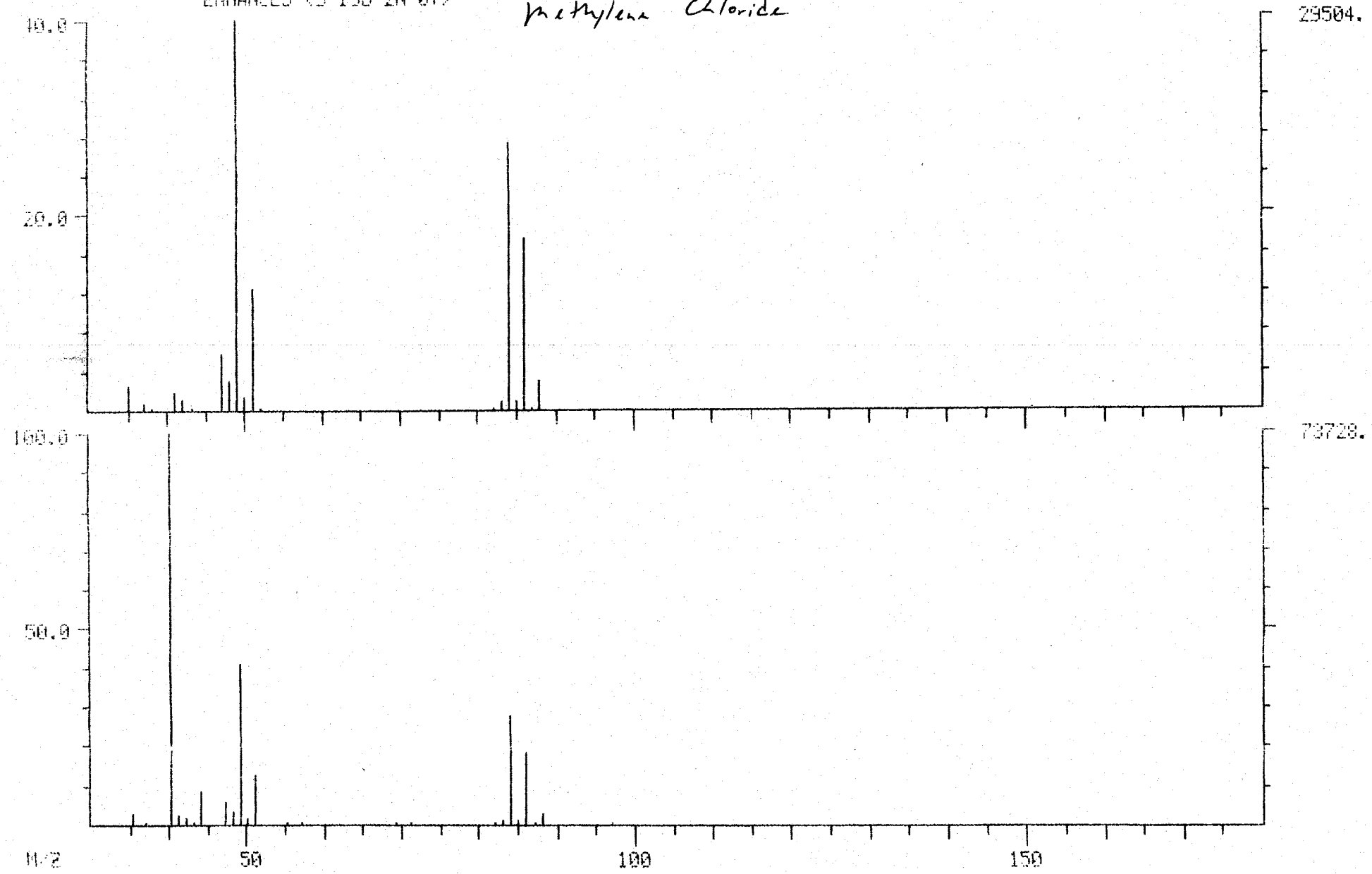


000020

DUAL MASS SPECTRUM
09/28/88 14:20:00 + 9:22
SAMPLE: CLP.U11927..11927005.L.5..U.
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1U0001697 #562 BASE M/Z: 49/ 40
CALI: C1U0001697 #3 RIC: 88959./ 175615.

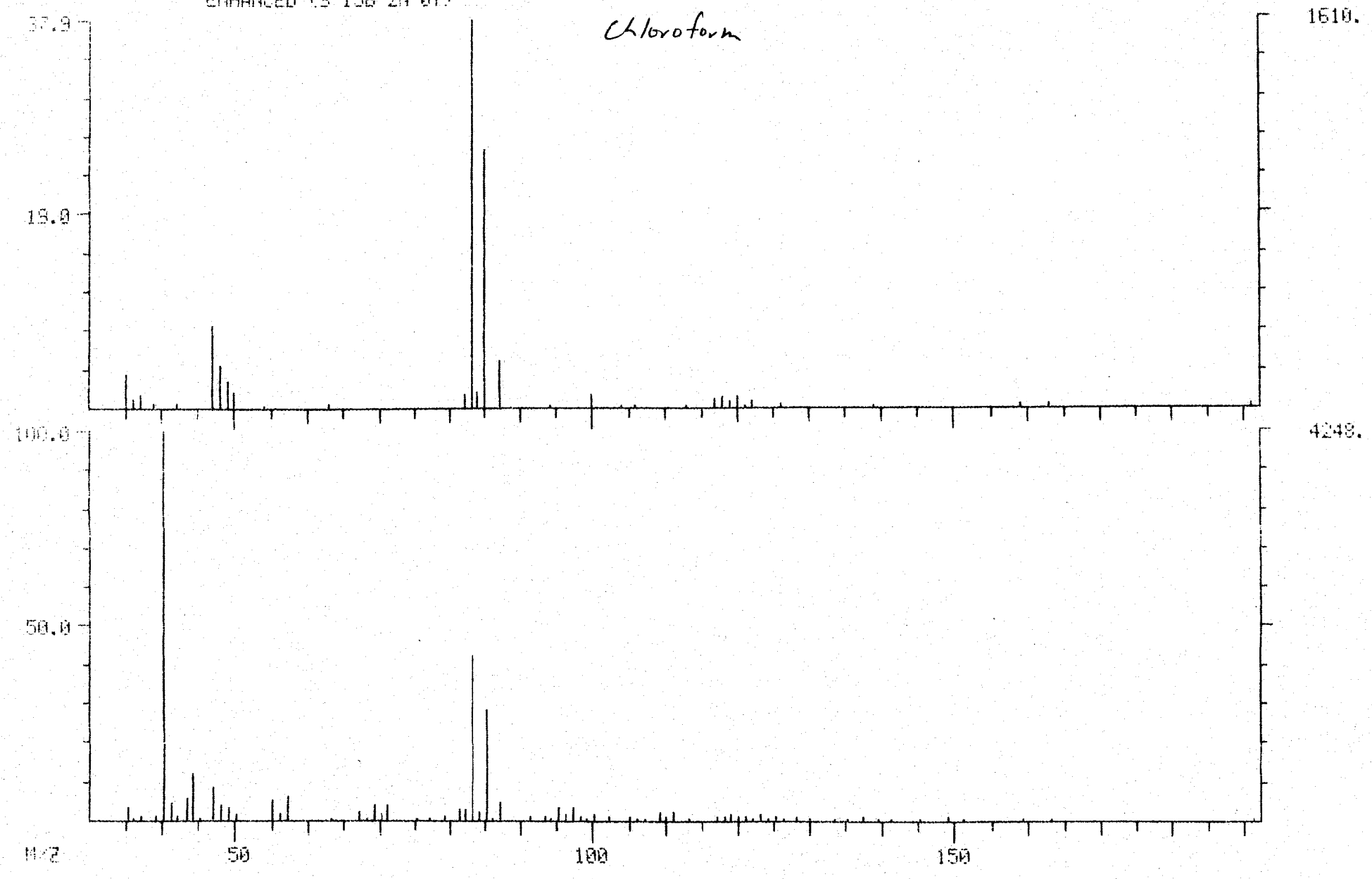
Methylene Chloride



000021

DUAL MASS SPECTRUM
09/28/88 14:20:00 + 13:48
SAMPLE: CLP,V11927,,11927005,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001697 #828 BASE M/Z: 83 40
CALI: C1V0001697 #3 RIC: 4359. 13022.



000022

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-B6S1_1615

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11927006

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO001698

Level: (low/med) LOW Date Received: 09/16/88

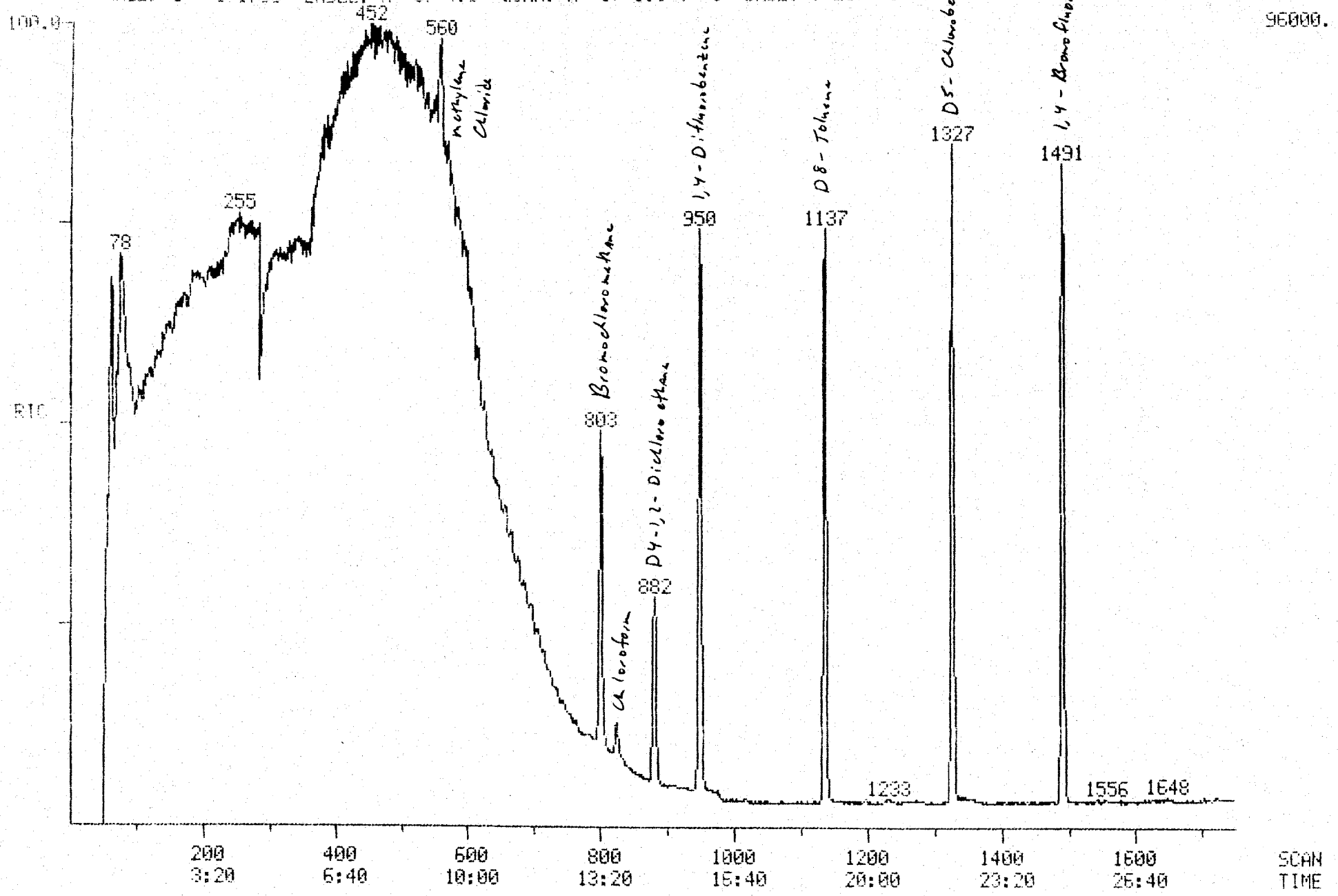
% Moisture: not dec. 17 Date Analyzed: 09/28/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	13	B
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	5	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RS.

RIC DATA: C1V0001698 #1 SCANS 1 TO 1750
09-28-88 14:54:00 CALI: C1V0001698 #3
SAMPLE: CLP.V11927.,11927006.L.S.,V.
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1.1750 LABEL: N 0. 4.0 QUAN: A 0. 1.0 J 0 BASE: U 20. 3

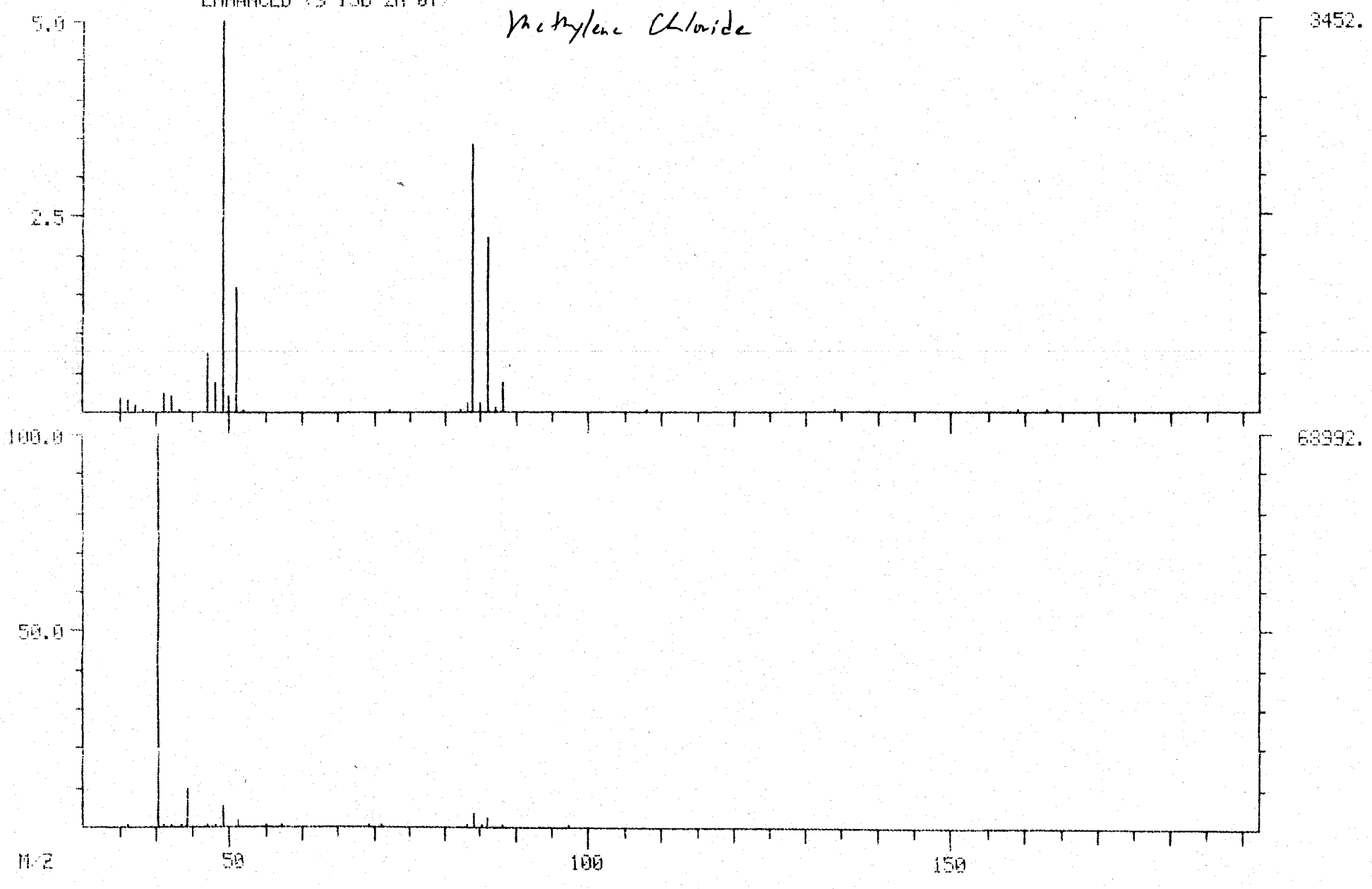


000024

DUAL MASS SPECTRUM
09 28 88 14:54:00 + 9:19
SAMPLE: CLP,V11927,,11927006,L,S,,V,
CONDS.: -100G TO 1600G @ 50G/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

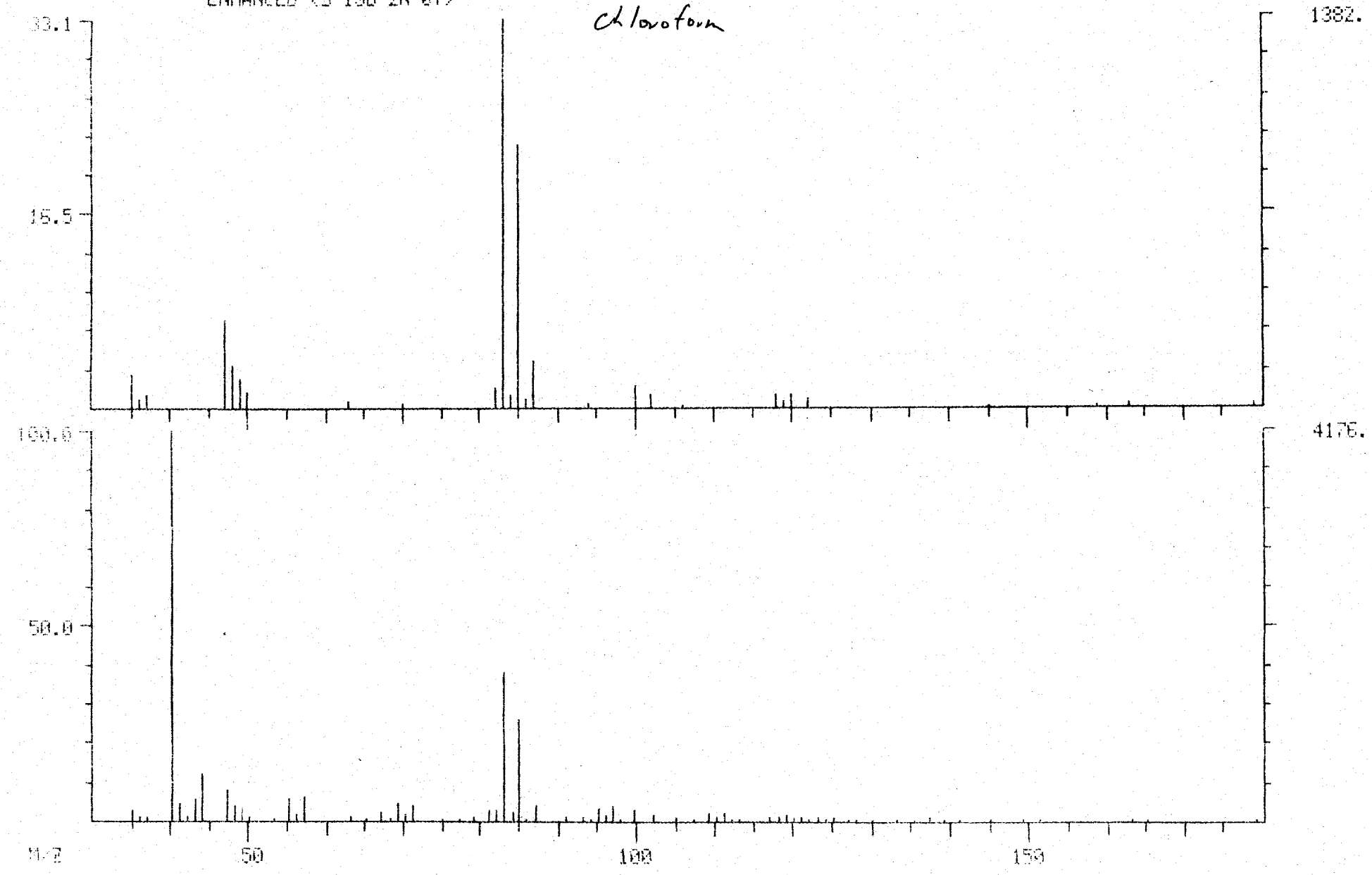
DATA: C1V0001698 #559 BASE M/Z: 49 40
CALI: C1V0001698 #3 RIC: 10591./ 91775.

000025



DUAL MASS SPECTRUM
09/28/88 14:54:00 + 13:46
SAMPLE: CLP,U11927,,11927006,L,S,,V,
CONDS.: -100C TO 160C @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001698 #826 BASE M/Z: 83/ 40
CALI: C1V0001698 #3 RIC: 3847./ 12462.



000026

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-B6S2_1615

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11927007

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO001699

Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 18 Date Analyzed: 09/28/88

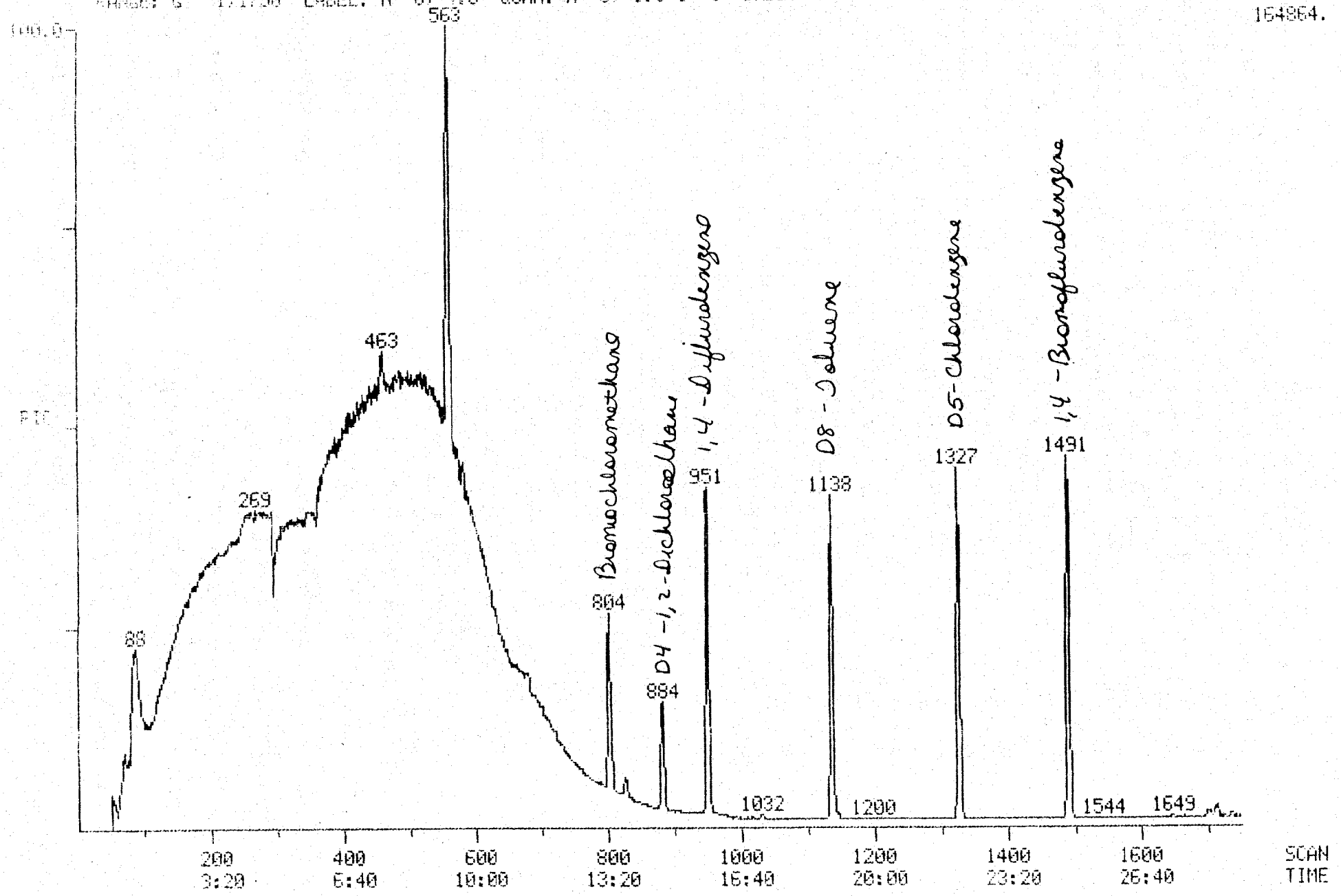
Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	110	B
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	17	
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	5	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

FILE:
DATA: C1V0001699 #1 SCANS 1 TO 1750
CALI: C1V0001699 #3
SAMPLE: CLP,V11927,,11927007,L,S,,V,
COND.: -100G TO 160DG @ 6DG/MIN IN=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

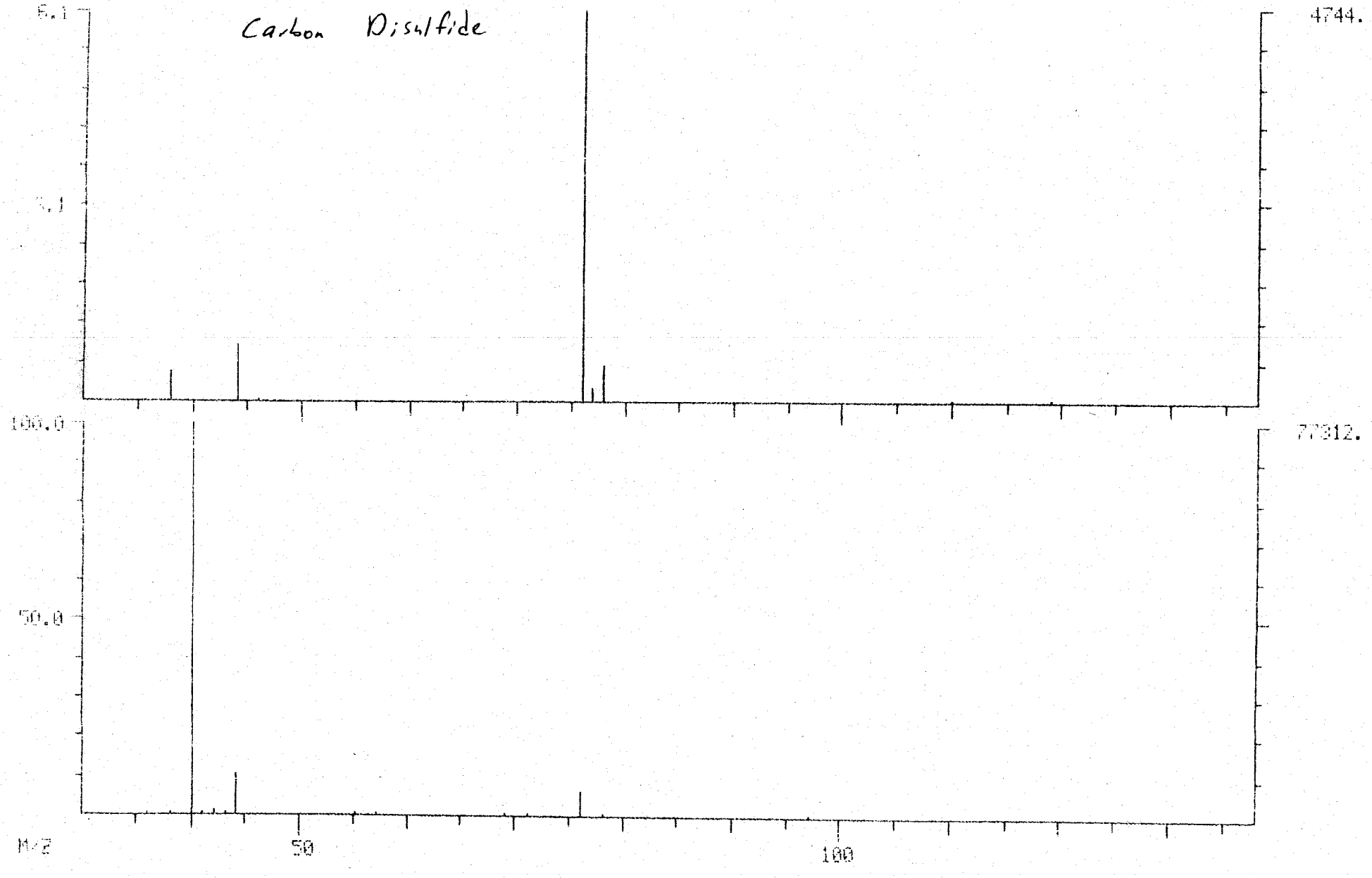
164864.

000028



DUAL MASS SPECTRUM
09 26 88 15:33:00 + 7:42
SAMPLE: CLP,V11927,,11927007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

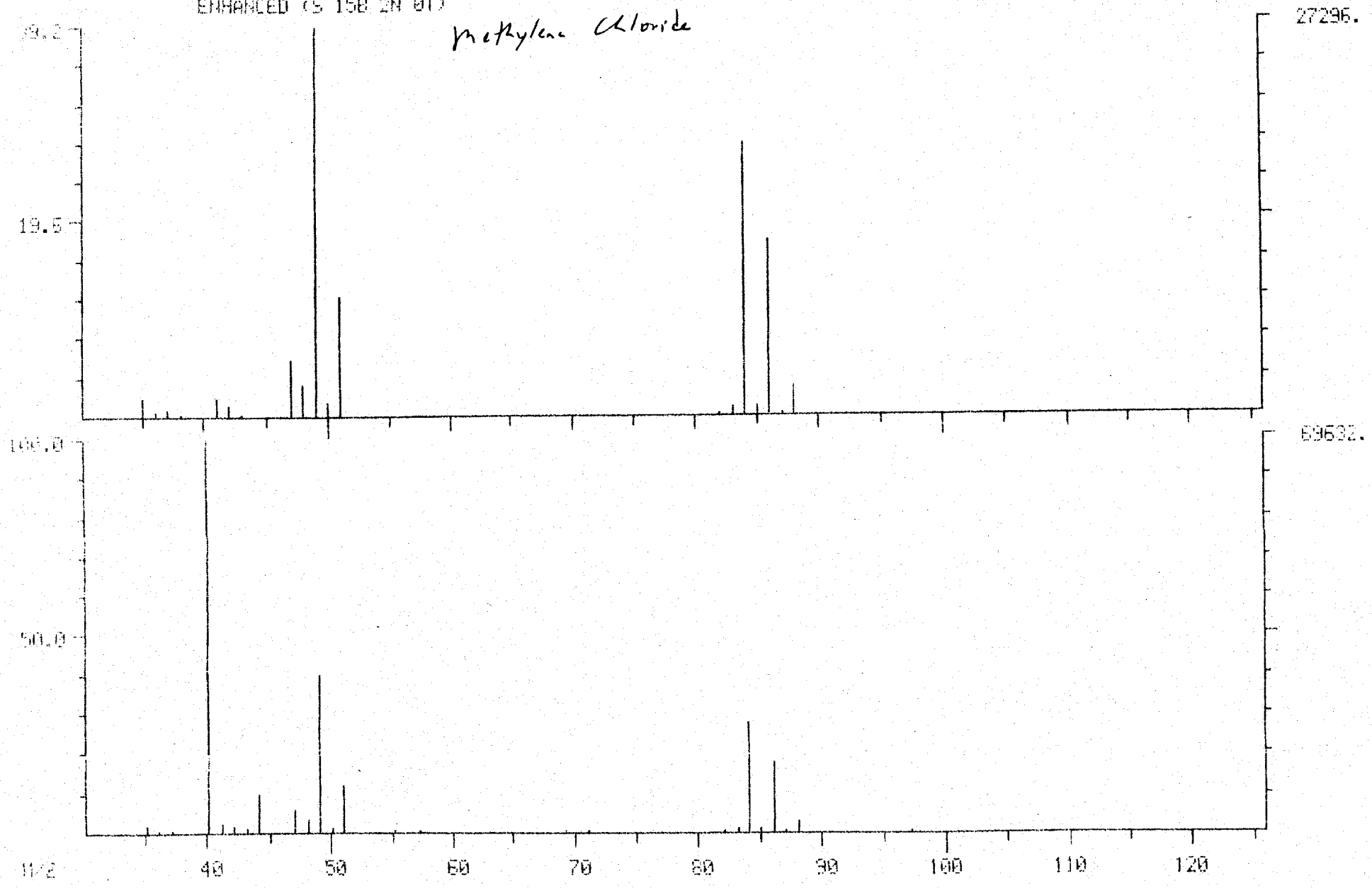
DATA: C1V0001699 #462 BASE M/Z: 70 40
CALI: C1V0001699 #3 RIC: 6463. 96[illegible]



000029

DUAL MASS SPECTRUM
09/20/88 15:33:00 + 9:22
SAMPLE: CLP,U11927,,11927007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

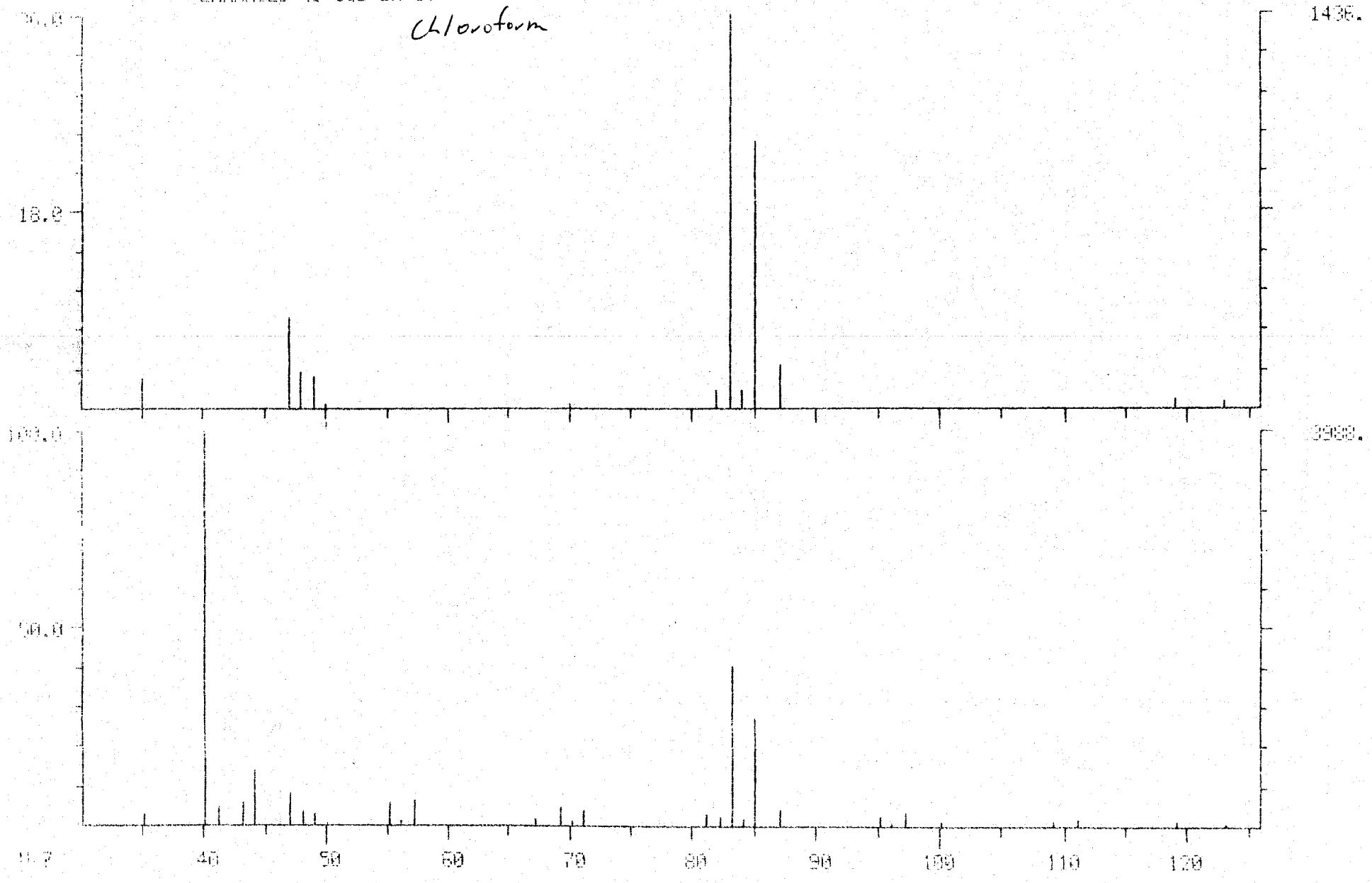
DATA: C1U0001699 #563 BASE M/Z: 49 40
CALI: C1U0001699 #3 PIC: 62431./ 164351.



000030

DUAL MASS SPECTRUM
09/28/88 15:33:00 + 13:47
SAMPLE: CLP,V11927,,11927007,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001699 #827 BASE M/Z: [illegible] 40
CALI: C1V0001699 #3 RIC: 3491.[illegible] 1030[illegible]



000031

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-B5S1_1100

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11927008

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO001700

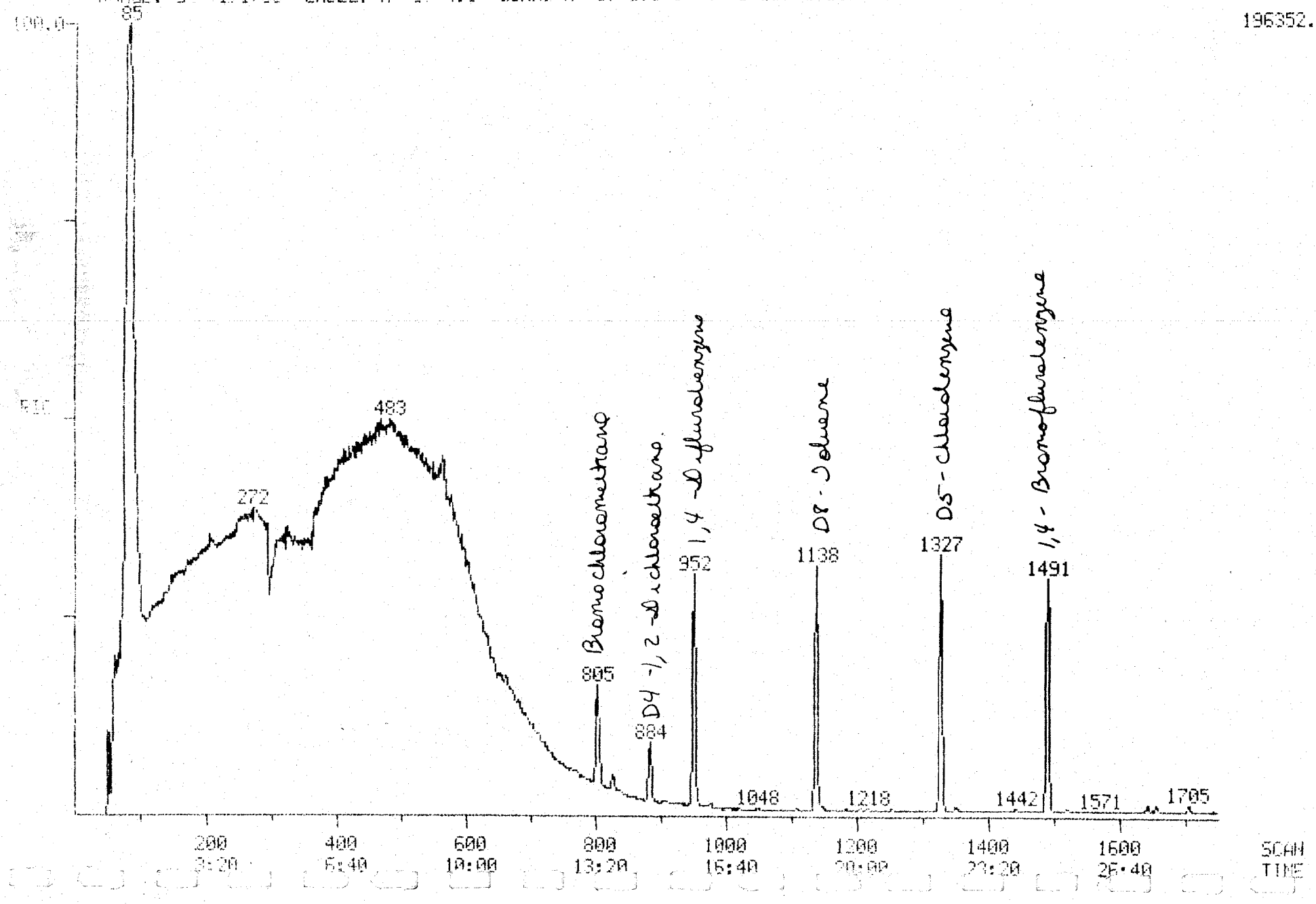
Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 19 Date Analyzed: 09/28/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	14	B
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	8	B
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	1	J
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

RIC DATA: C1V0001700 #1 SCANS 1 TO 1750
09/28/88 16:55:00 CALI: C1V0001700 #3
SAMPLE: CLP,V11927,,11927008,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

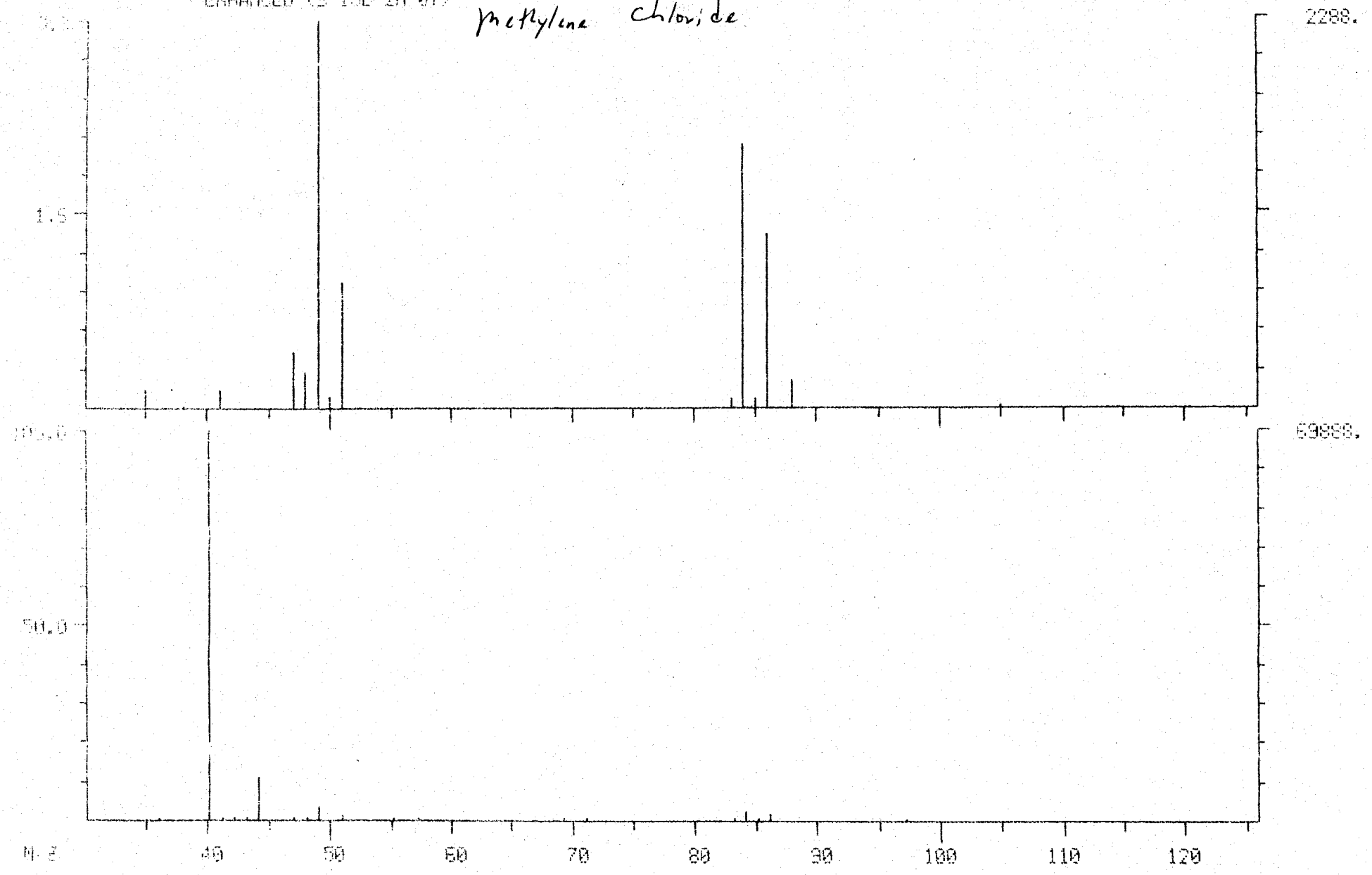


000033

DUAL MASS SPECTRUM
04-28-88 16:55:00 + 9:24
SAMPLE: CLP.V11927..11927008.L.S..U.
CONDS.: -100G TO 1600G @ 60G/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001700 #364 BASE M/Z: 49 40
CALI: C1V0001700 #3 RIC: 6719. 83215.

methylene chloride

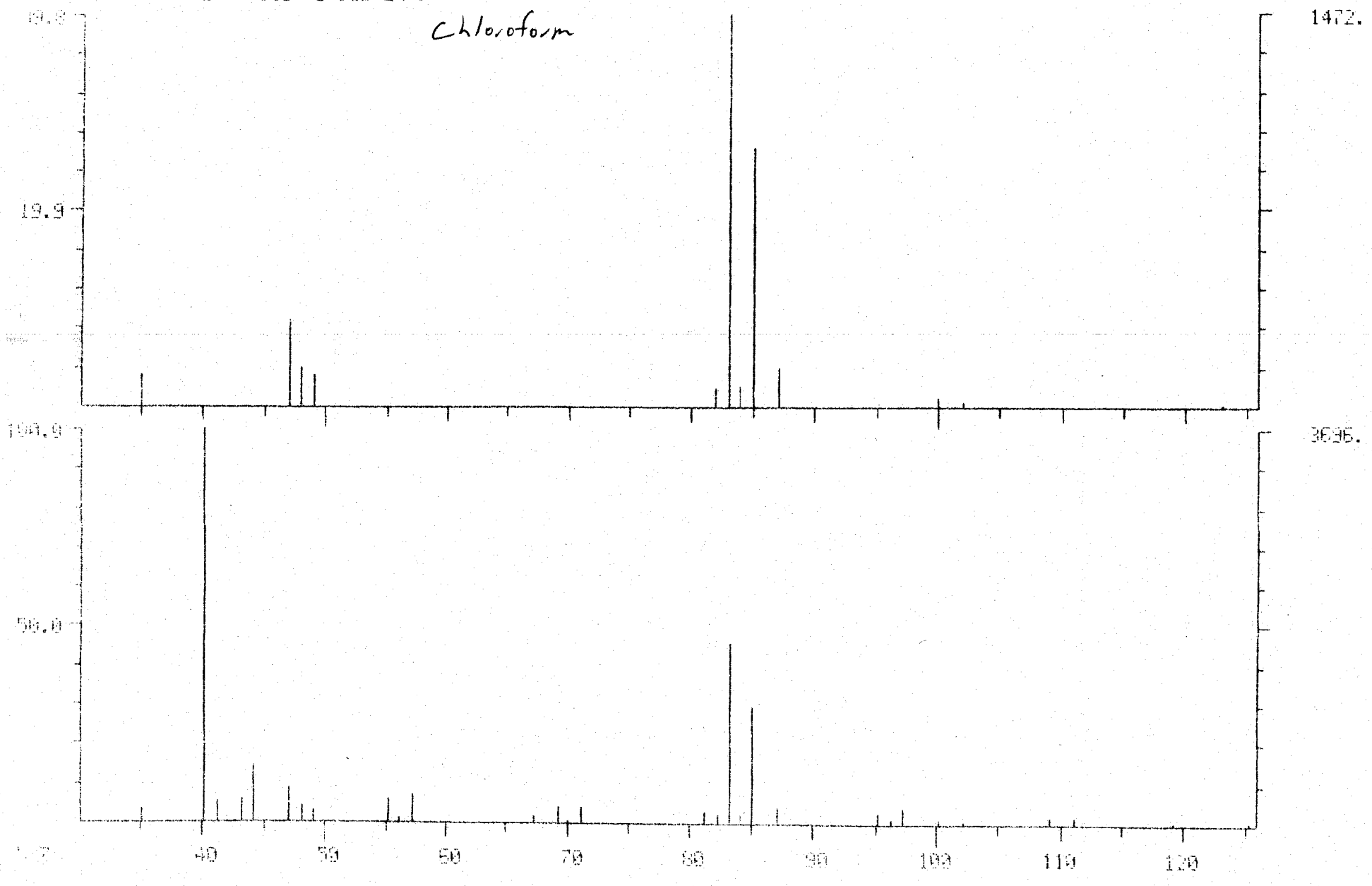


000034

DUAL MASS SPECTRUM
06/28/88 18:55:00 + 13:48
SAMPLE: CLP.U11927..11927003.L.S..U.
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (5 15B 2N 0T)

DATA: C1U0001700 #828 BASE M/Z: 83 40
CALI: C1U0001700 #3 RIC: 3507. 2910.

Chloroform

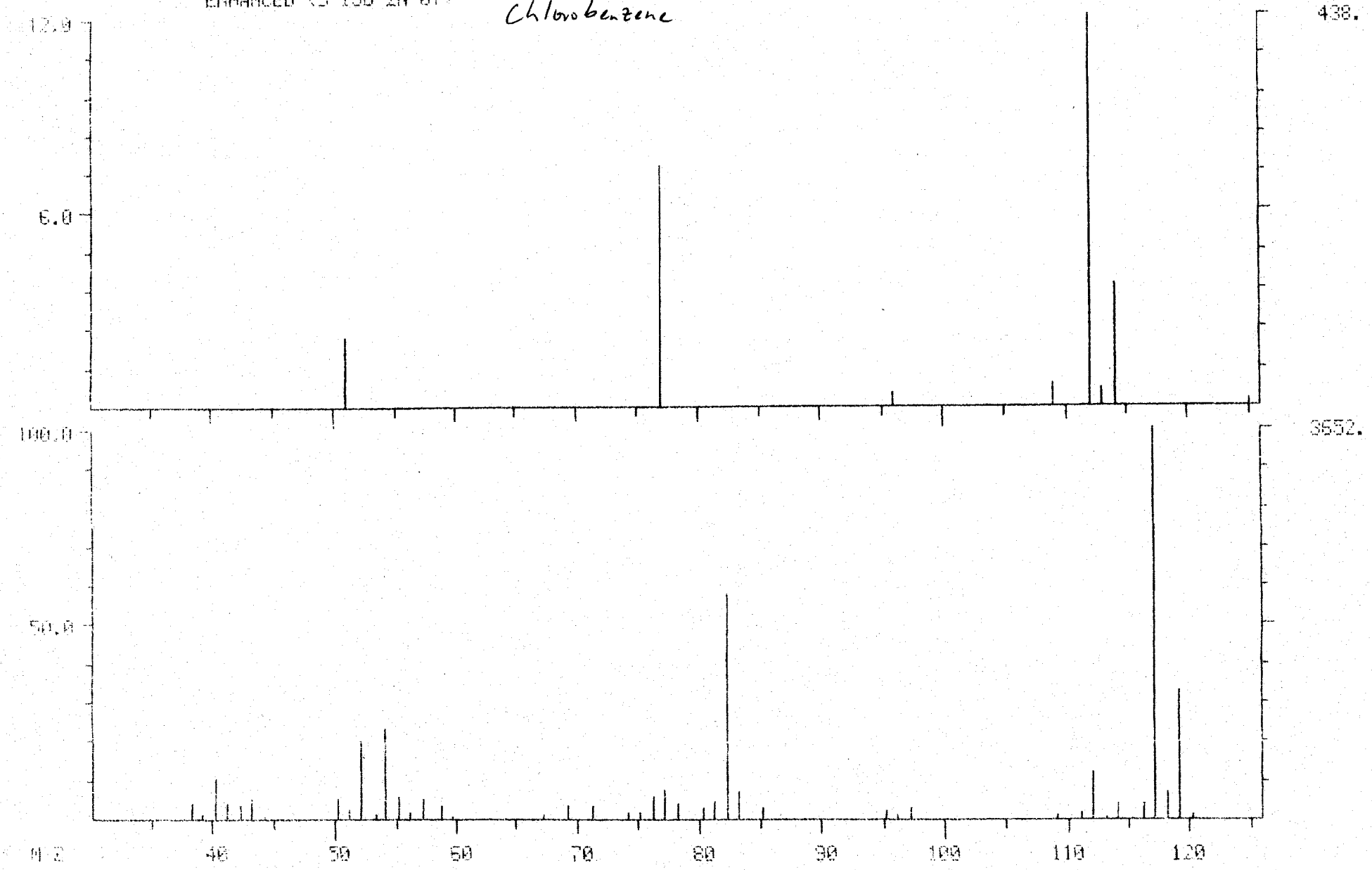


000035

DUAL MASS SPECTRUM
09-28-88 16:55:00 + 22:11
SAMPLE: CLP-U11927,,11927008,L,S,-U,
CONDS.: -100C TO 160C @ 60C/MIN IH=5.0 MIN
ENHANCED (S 15B 2N OT)

DATA: C1U0001700 #1331 BASE M/Z: 112- 117
CALI: C1U0001700 #3 RIC: 989./ 13567.

Chlorobenzene



000036

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-B5S2_1100

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: 11927009

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C1V0001701

Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 19 Date Analyzed: 09/28/88

Column: (pack/cap) CAP Dilution Factor: 1.0

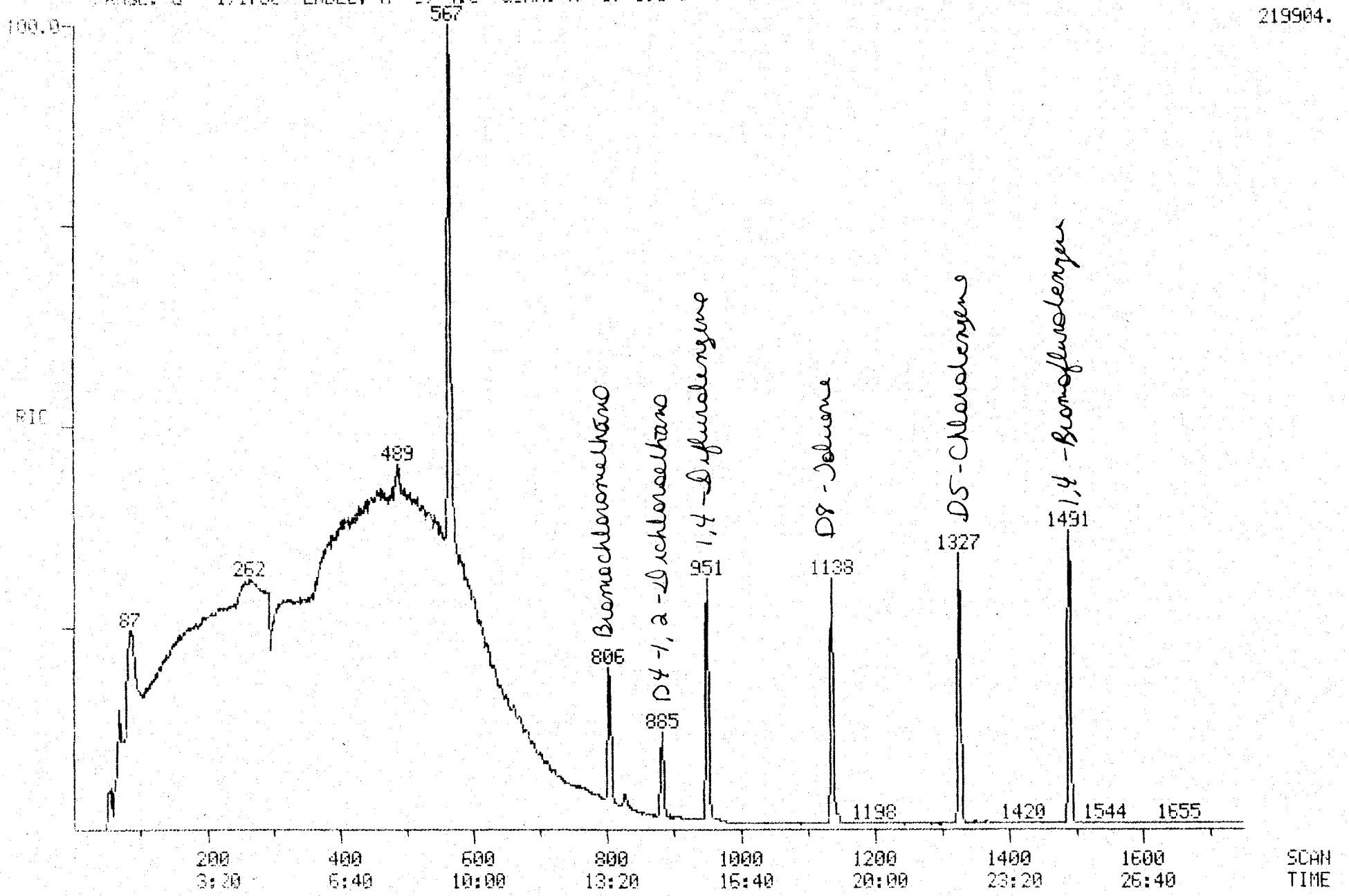
CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	160	B
67-64-1	Acetone	110	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	4	BJ
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

PIC DATA: C1V0001701 #1 SCANS 1 TO 1750
09/28/88 17:31:00 CALI: C1V0001701 #3
SAMPLE: CLP,V11927,,11927009,L,W,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

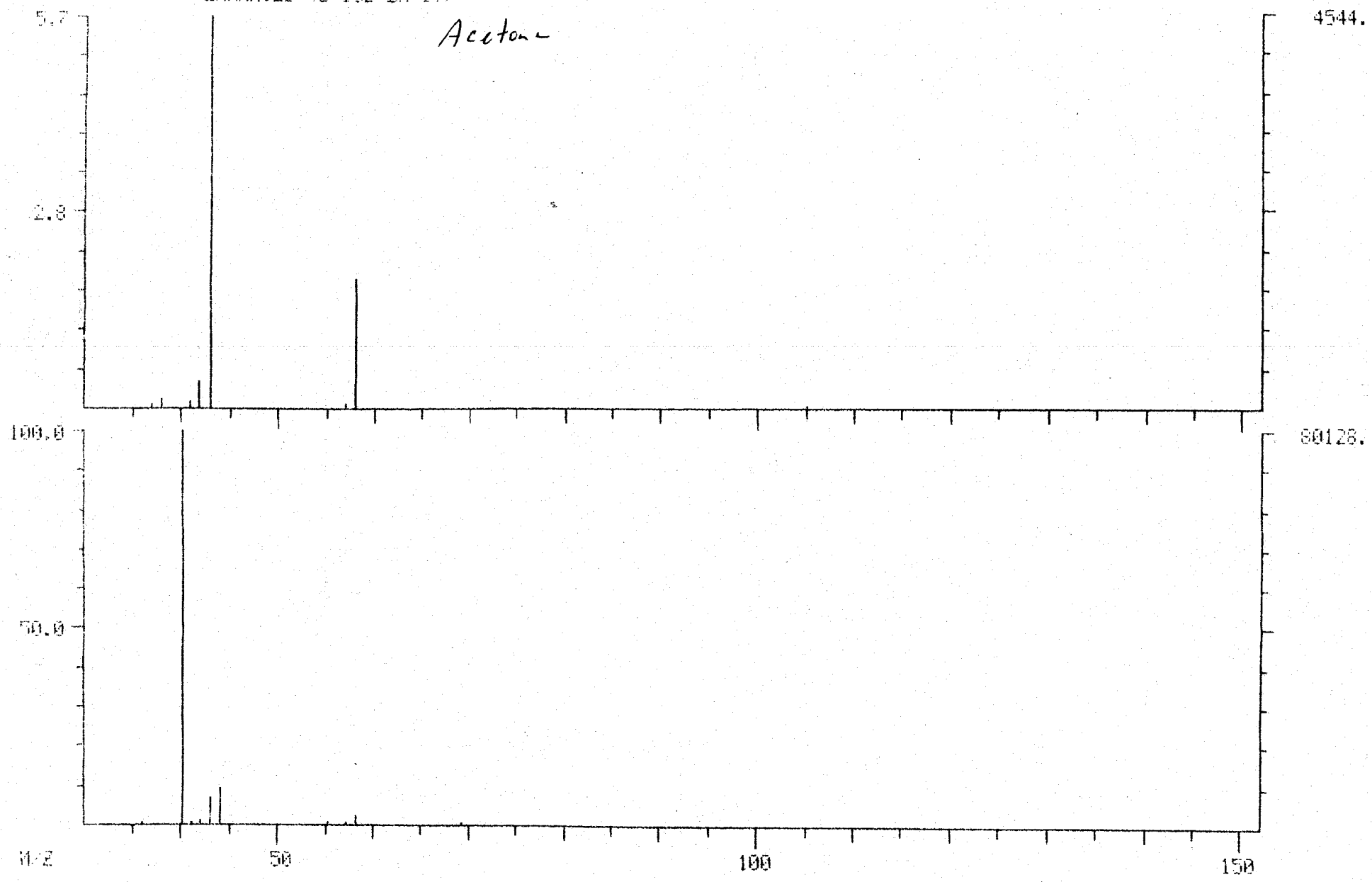
219904.

000038



DUAL MASS SPECTRUM
09/28/88 17:31:00 + 8:09
SAMPLE: CLP,V11927,,11927009,L,W,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001701 #489 BASE M/Z: 43/ 40
CALI: C1V0001701 #3 RIC: 6671./ 99503.

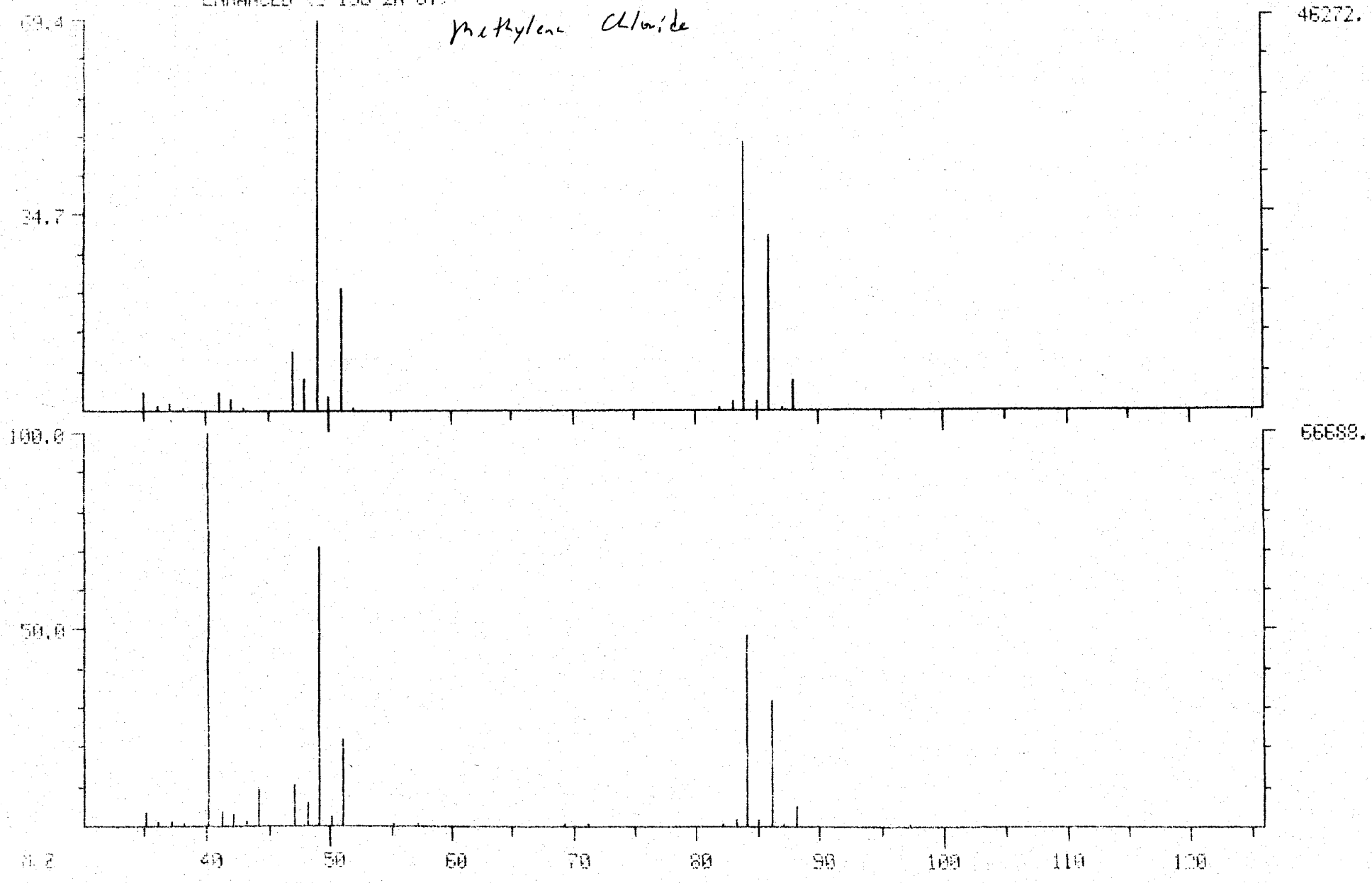


000039

DUAL MASS SPECTRUM
09/28/88 17:31:00 + 9:27
SAMPLE: CLP/V11927,/11927009.L/W,/V,
CONDS.: -100G TO 160DG @ 60G/MIN IH=5.0 MIN
ENHANCED (S 158 2N 0T)

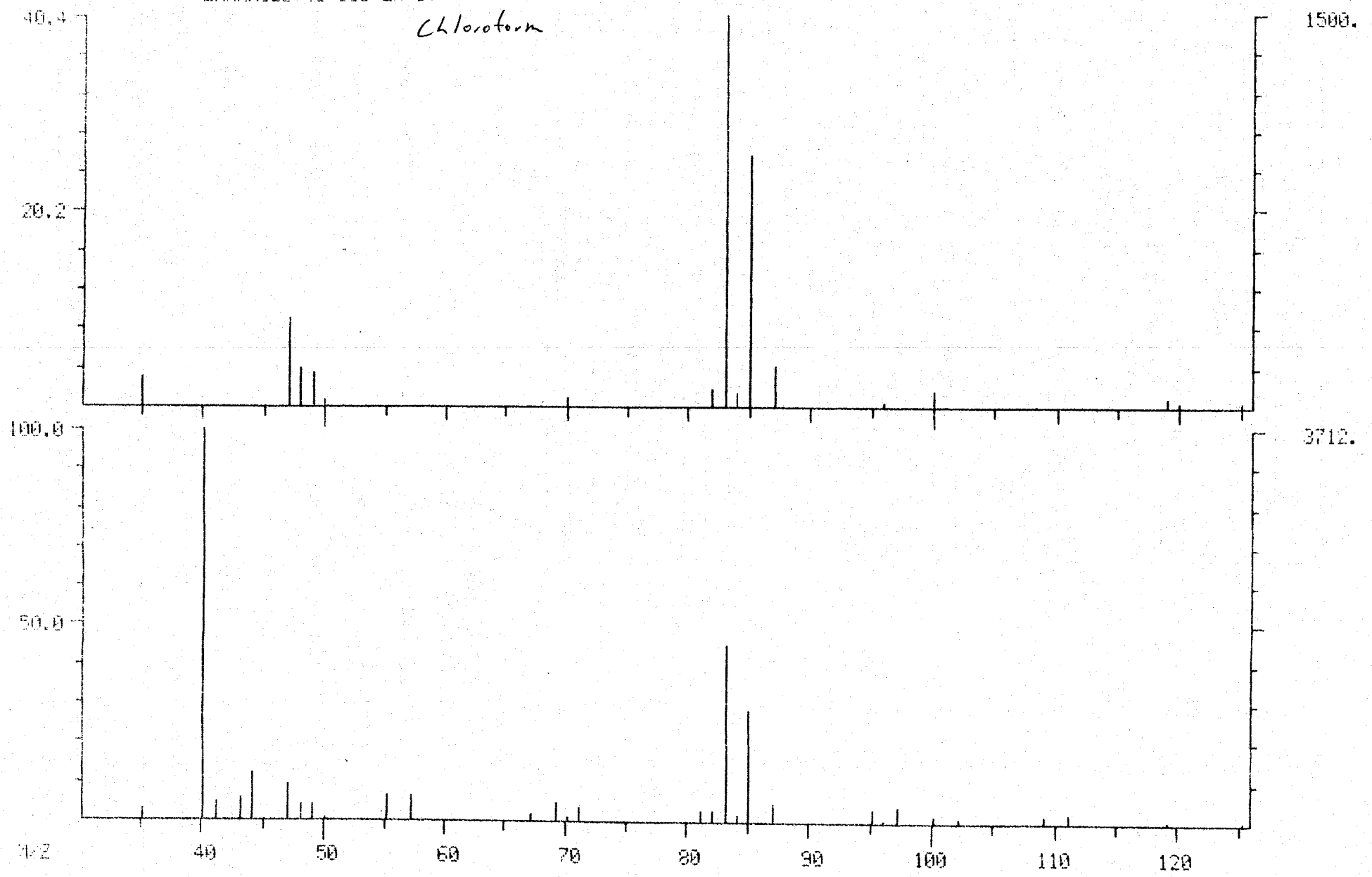
DATA: C1V0001701 #567 BASE M/Z: 49 40
CALI: C1V0001701 #3 RIC: 139263. 220159.

000040



DUAL MASS SPECTRUM
03/28/88 17:31:00 + 13:49
SAMPLE: CLP/V11927,/11927009.L,W,/V/
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 158 2N 0T)

DATA: C1V0001701 #829 BASE M/Z: 83/ 40
CALI: C1V0001701 #3 RIC: 3687./ 9951.



000041

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-B5S2D

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11927010

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1V0001702

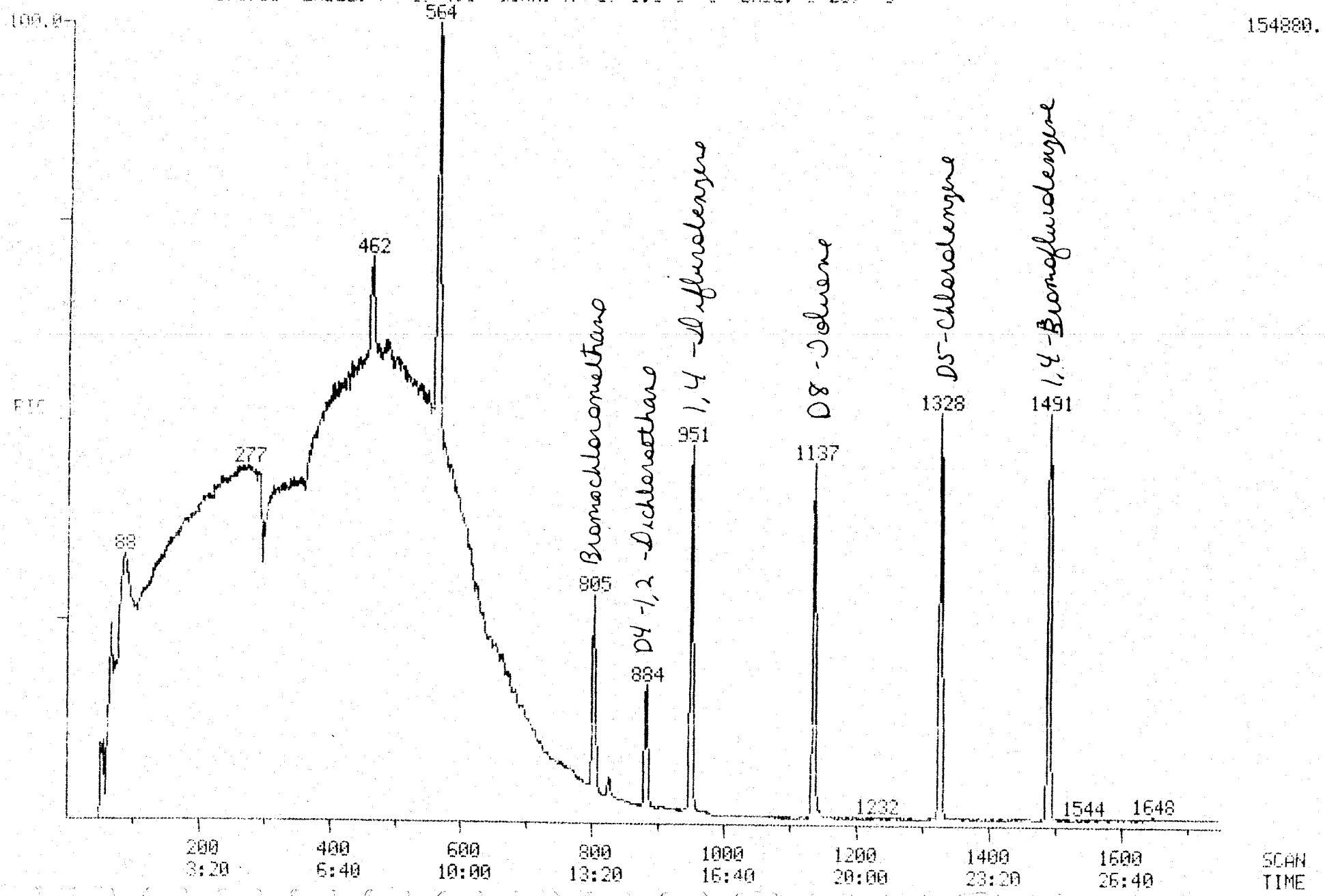
Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 18 Date Analyzed: 09/28/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	100	B
67-64-1	Acetone	62	B
75-15-0	Carbon Disulfide	45	
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	5	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

PIC DATA: C1V0001702 #1 SCANS 1 TO 1750
PO 13 86 19:05:06 CALI: C1V0001702 #3
SAMPLE: CLP,V11327,,11927010,L,S,,U,
CONDS.: -100G TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

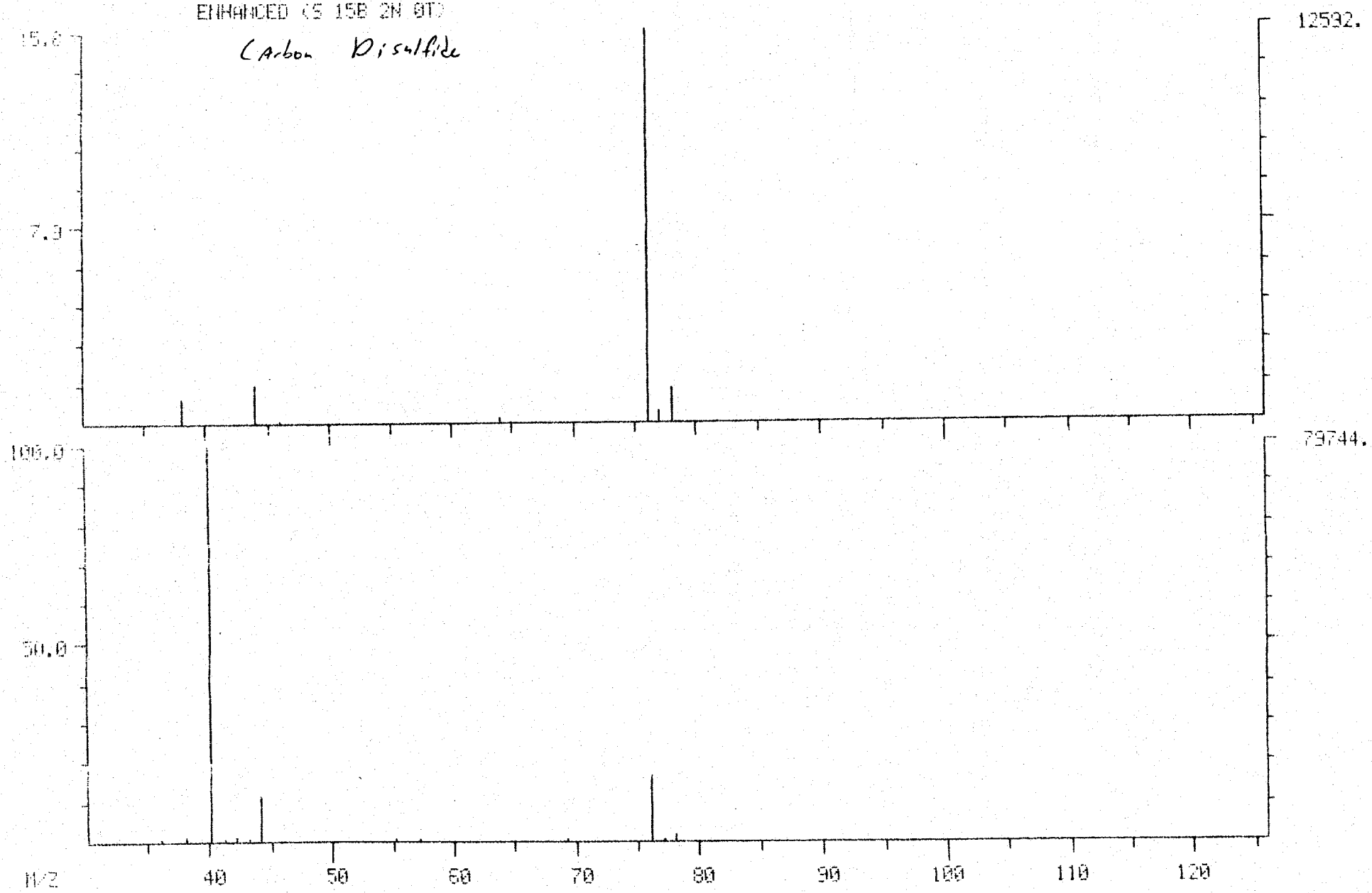


000043

DUAL MASS SPECTRUM
09/28/88 18:05:00 + 7:42
SAMPLE: CLP,U11927,,11927010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1U0001702 #462 BASE M/Z: 76 40
CALI: C1U0001702 #3 RIC: 16351. 109311.

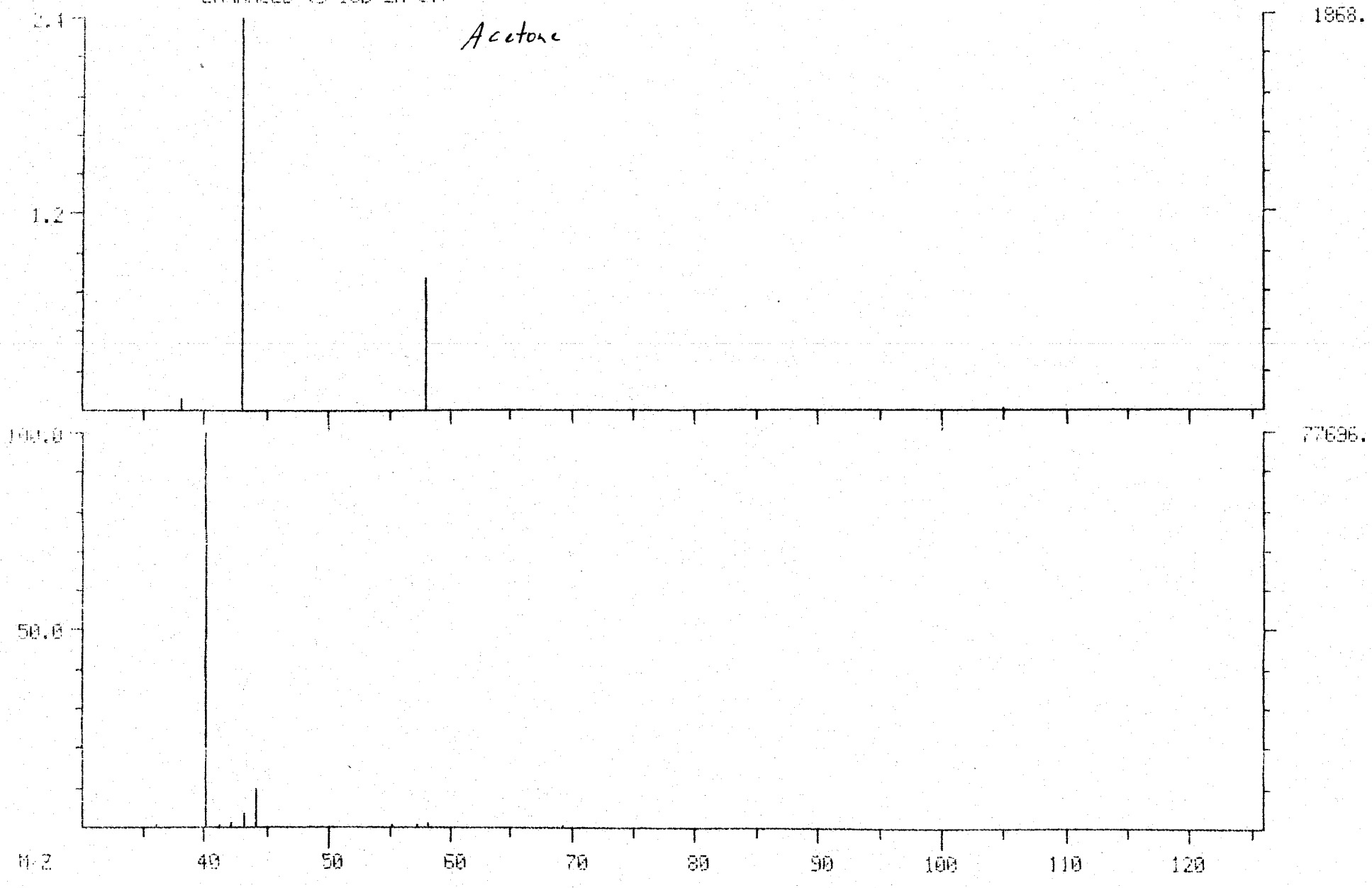
Carbon Disulfide



000044

DUAL MASS SPECTRUM
09/28/88 18:05:00 + 8:0"
SAMPLE: CLP,W11927,,11927010,L,S,,V,
CONDS.: -100G TO 100DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2H 0T)

DATA: C1W0001702 #487 BASE M/Z: 43 40
CALI: C1W0001702 #3 RIC: 2563. 32724.

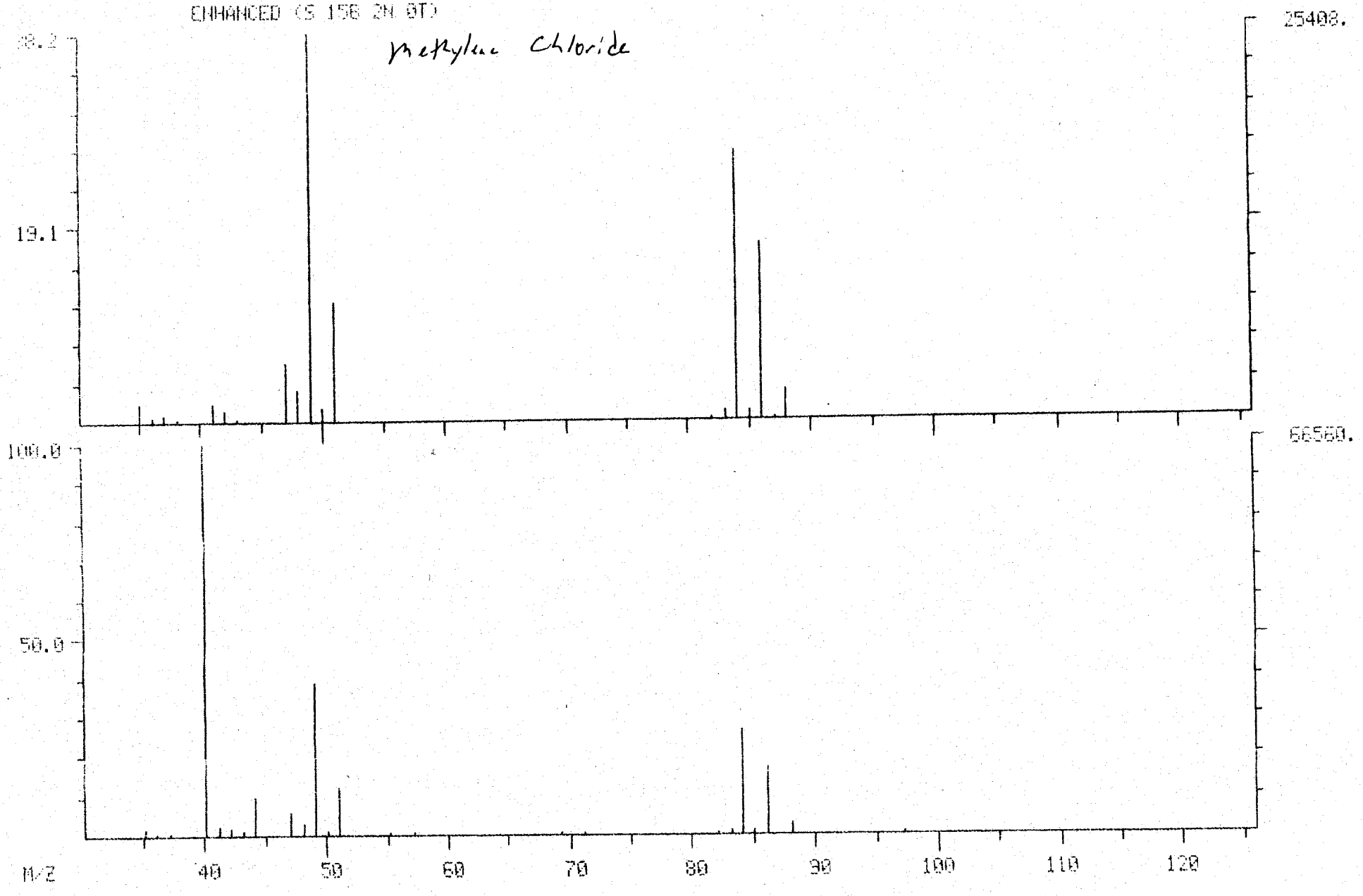


000045

DUAL MASS SPECTRUM
09/28/88 18:05:00 + 9:24
SAMPLE: CLP/V11327,,11927010,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 156 2N 0T)

DATA: C1V0001702 #564 BASE M/Z: 49 40
CALI: C1V0001702 #3 PIC: 76793./ 154379.

Methylene Chloride

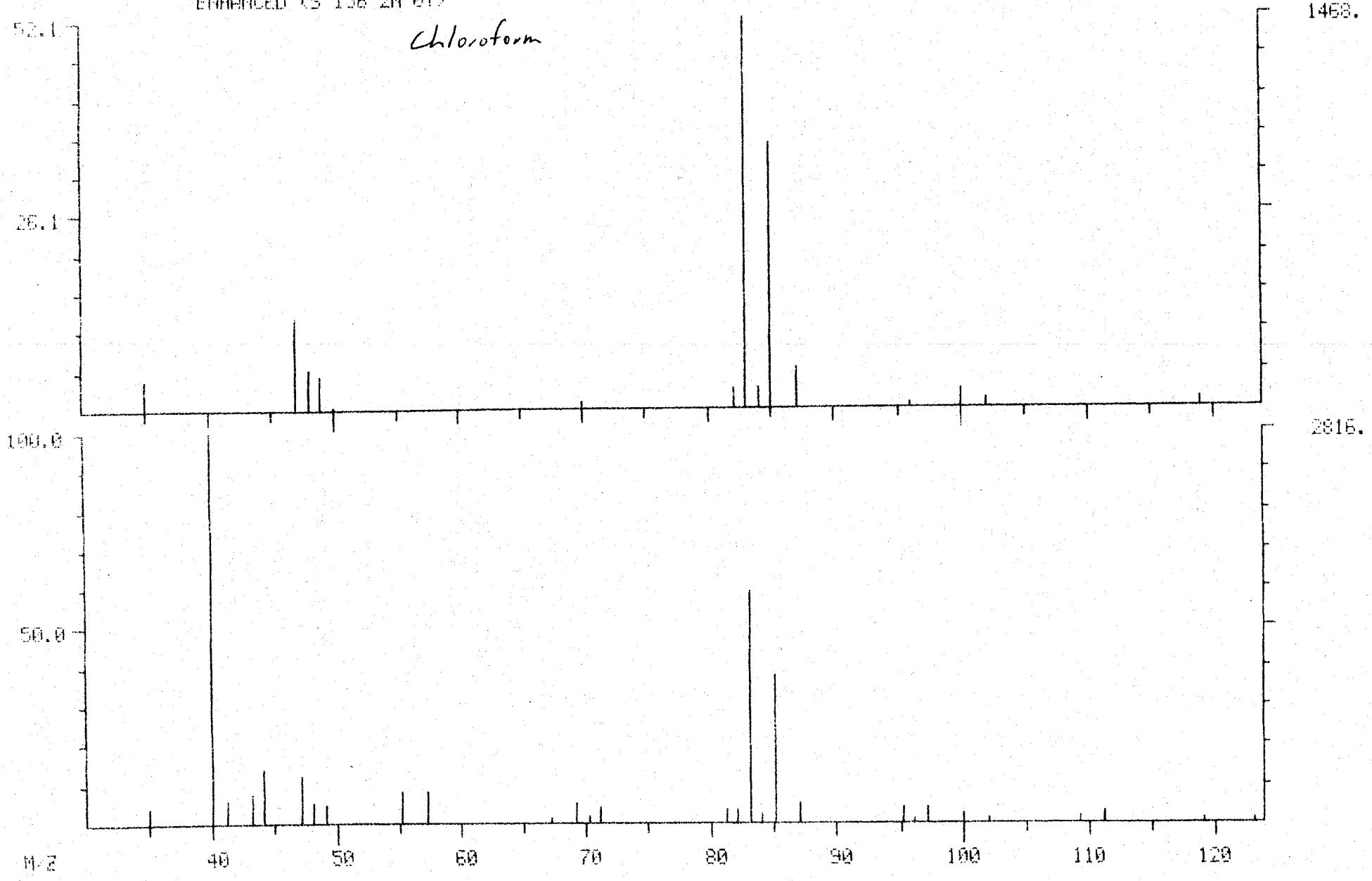


000046

DUAL MASS SPECTRUM
09/28/88 13:05:00 + 13:48
SAMPLE: CLP/V11927,,11927010.L,S,,V,
CONDS.: -100DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C100001702 #828 BASE M/Z: 83 40
CALI: C100001702 #3 PIC: 8679. 8784.

Chloroform



000047

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-B4S1_1130

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11927011

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO001707

Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 25 Date Analyzed: 09/28/88

Column: (pack/cap) CAP Dilution Factor: 1.0

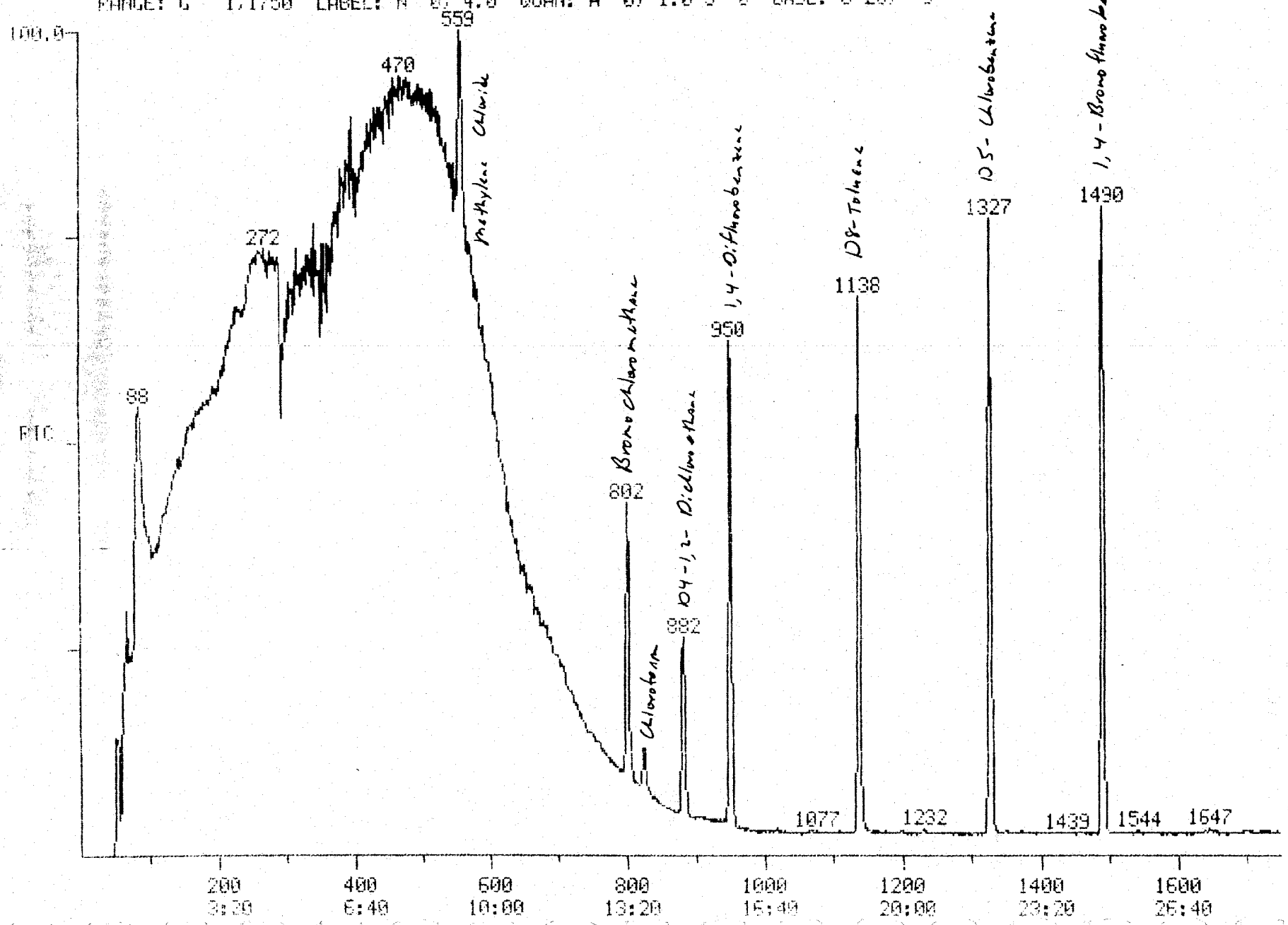
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	29	B
67-64-1	Acetone	16	B
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	8	B
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	7	U
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	7	U
108-90-7	Chlorobenzene	7	U
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
1330-20-7	Xylenes (total)	7	U

000049

PIC
03/28/88 23:20:00
SAMPLE: CLP/V11927,,11927011,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IN=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: C1V0001707 #481 SCANS 1 TO 1750
CALI: C1V0001707 #3

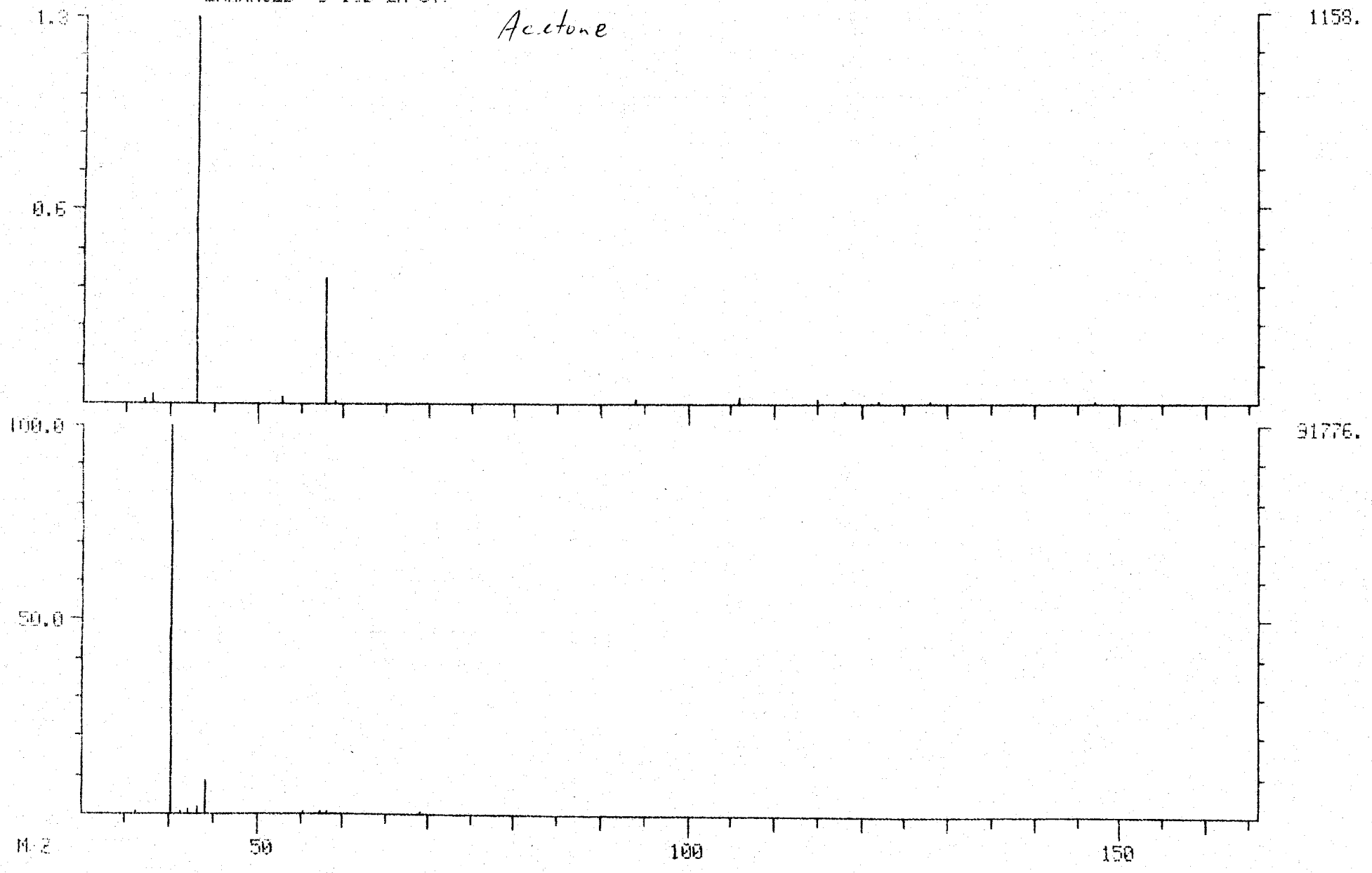
115968.



DUAL MASS SPECTRUM
09/28/88 23:20:00 + 8:01
SAMPLE: CLP,V11927,,11927011,L,S,,V,
CONDS.: -100G TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001707 #481 BASE M/Z: 43 40
CALI: C1V0001707 #3 RIC: 1671./ 107647.

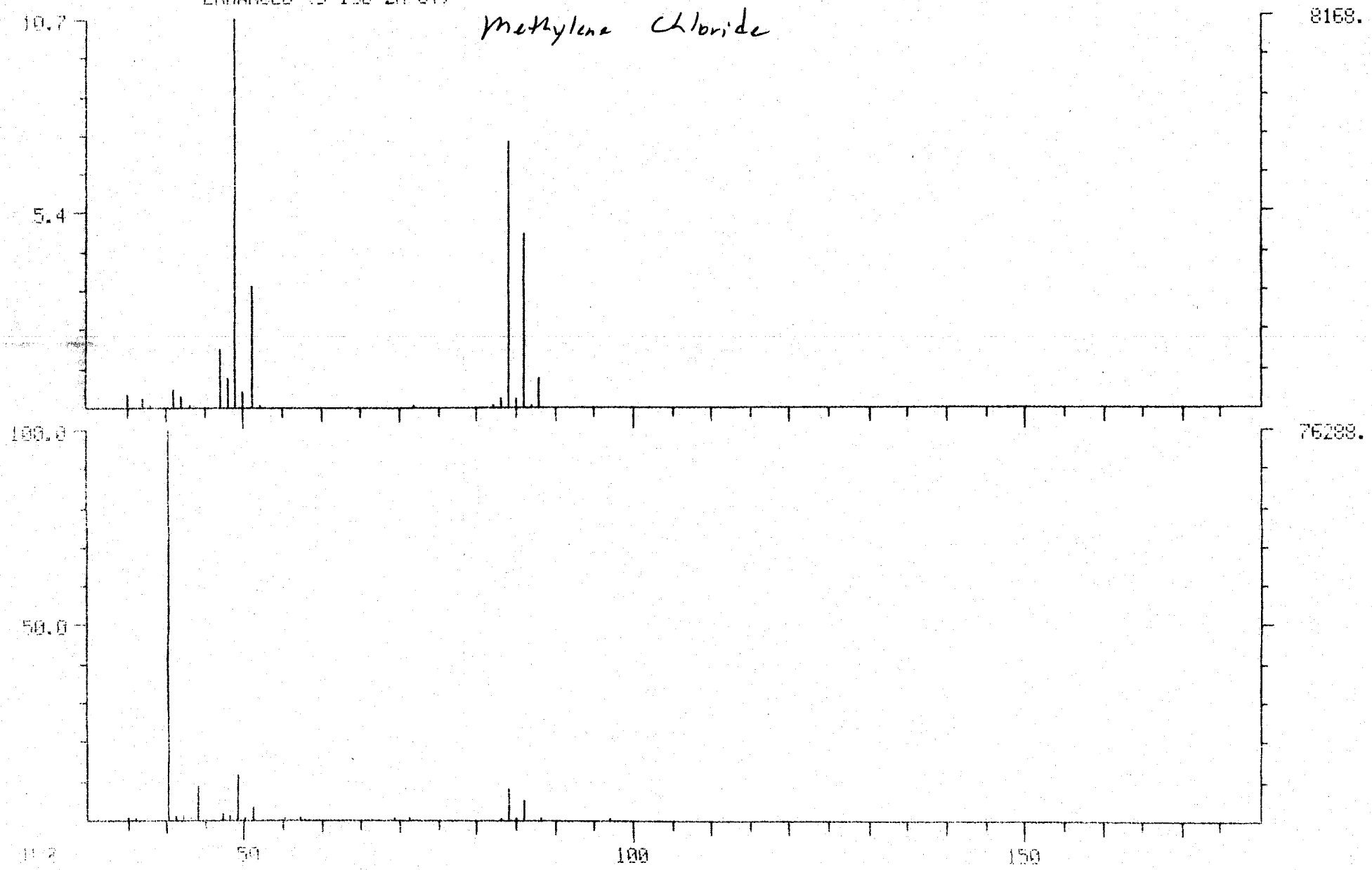
000050



DUAL MASS SPECTRUM
09/28/88 23:20:00 + 9:19
SAMPLE: CLP/V11927,,11927011,L,S,,V.
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001707 #559 BASE M/Z: 49/ 40
CALI: C1V0001707 #3 RIC: 24415./ 114687.

Methylene Chloride

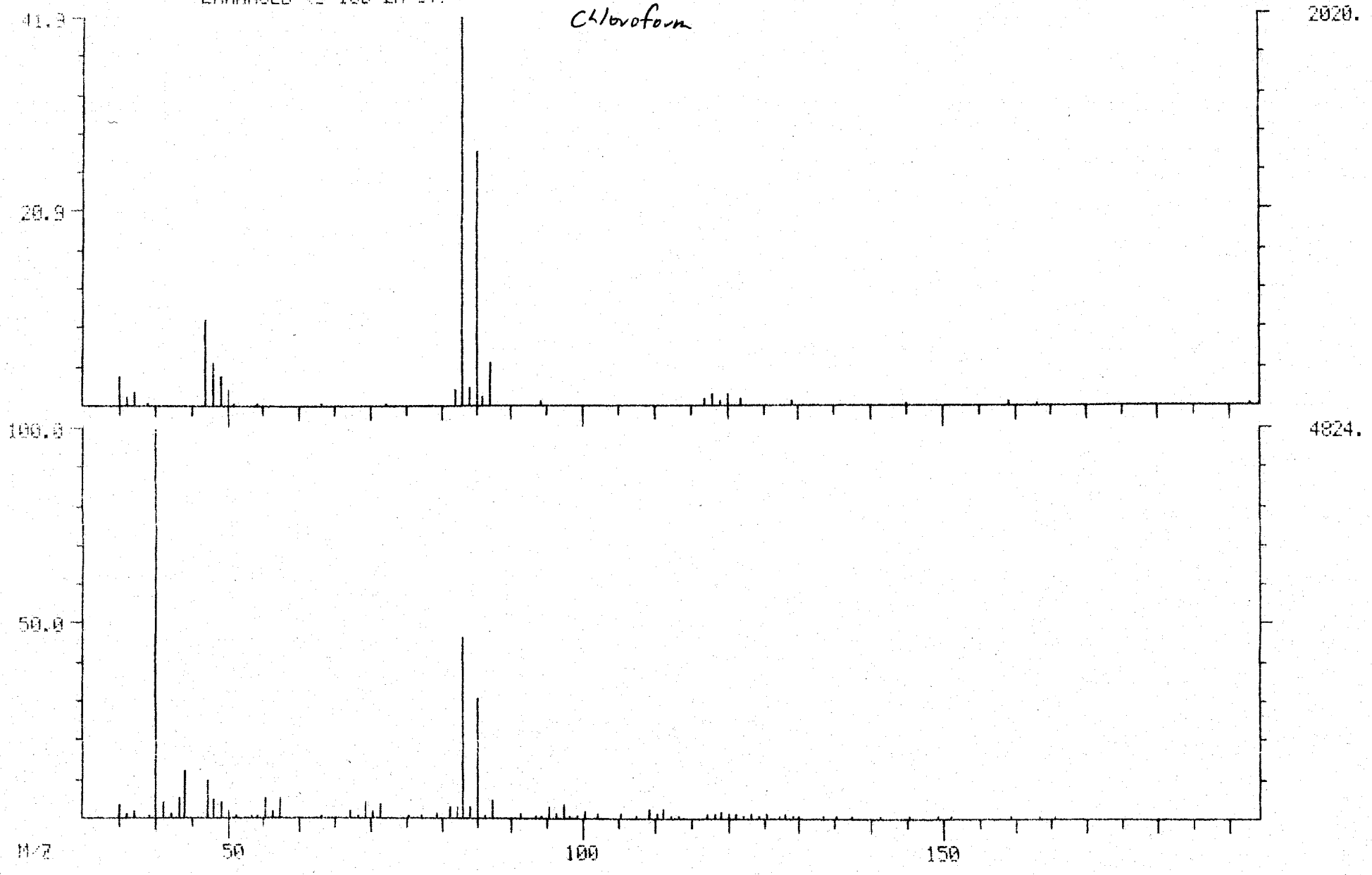


000051

DUAL MASS SPECTRUM
09/28/88 23:20:00 + 13:45
SAMPLE: CLP/V11927/11927011/L/S/V/
CONDS.: -100C TO 150DC @ 6DC/MIN IH=5.0 MIN
ENHANCED (S 158 2N 0T)

DATA: C1V0001707 #825 BASE M/Z: 83/ 40
CALI: C1V0001707 #3 RIC: 5827./ 14927.

000052



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-B4S2_1130

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11927012

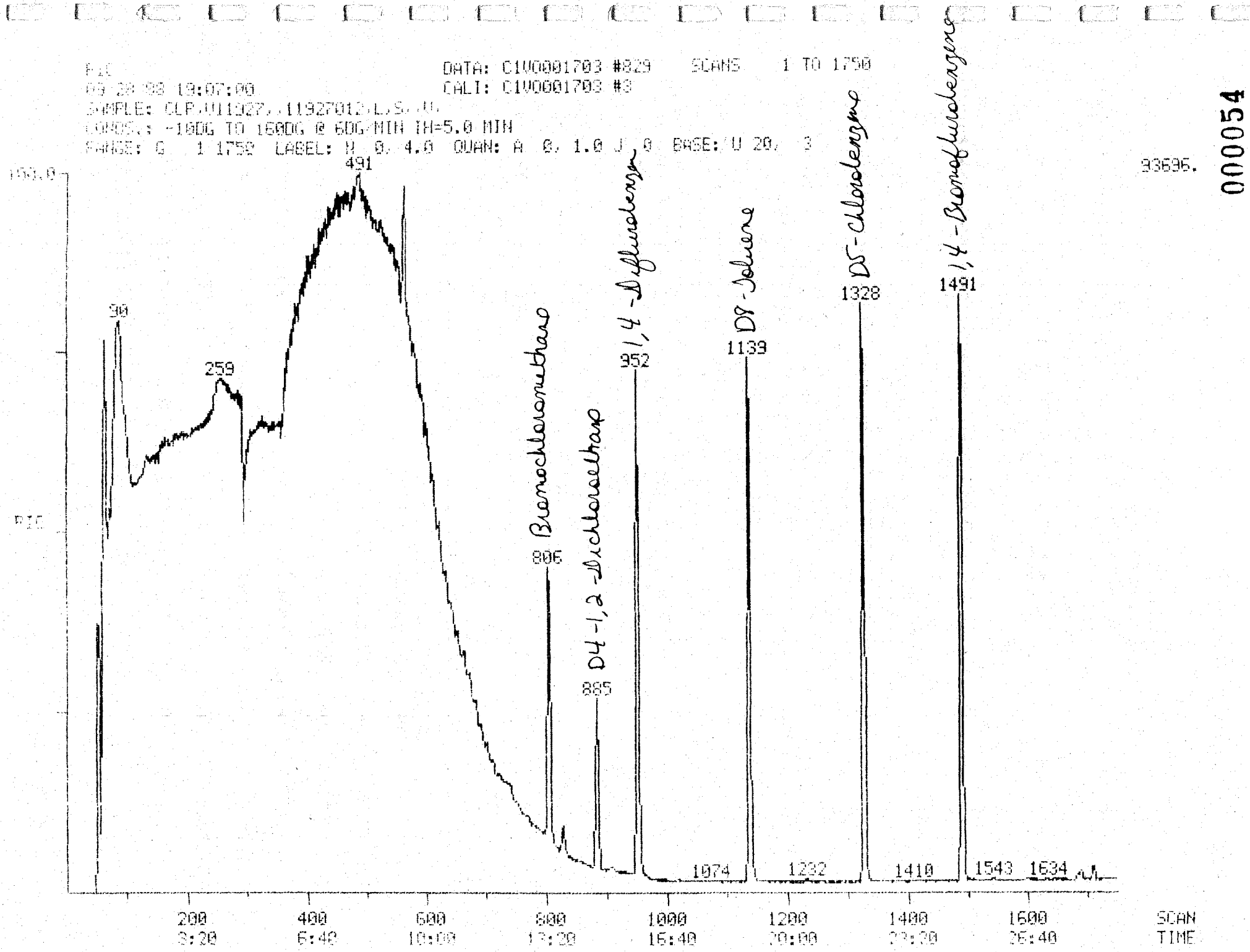
Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO001703

Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 19 Date Analyzed: 09/28/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	20	B
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U



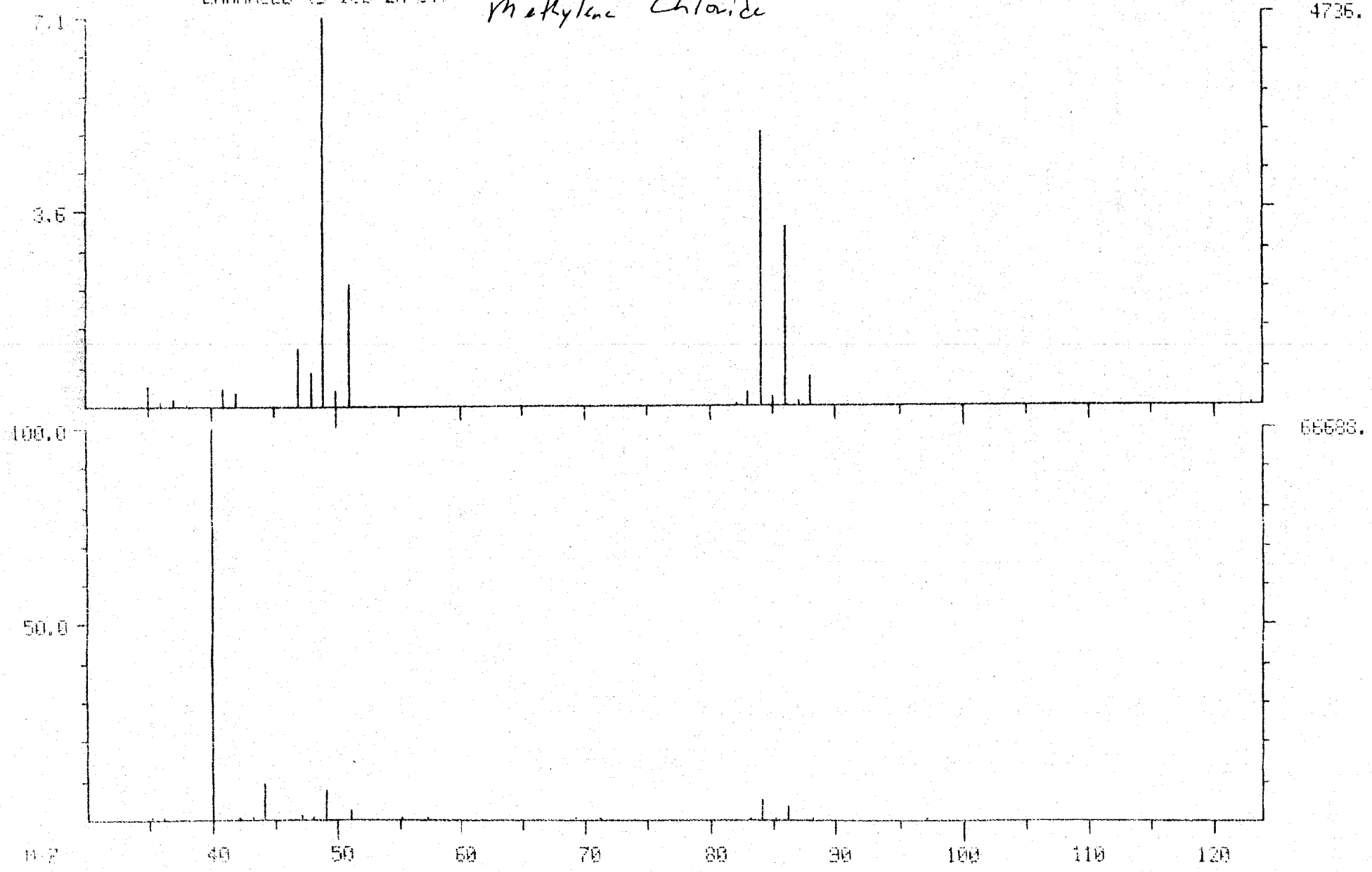
RIC
09 28 88 19:07:00
SAMPLE: CLP,V11927,,11927012,L,S,,U,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1 1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3
DATA: C1V0001703 #829 SCANS 1 TO 1750
CALI: C1V0001703 #3
100.0
RIC
93696.
491
90
259
806
885
952
1074
1139
1232
1328
1410
1491
1543
1634
Bromochloromethane
D4-1,2-Dichloroethane
1,4-Difluorobenzene
D8-Toluene
D5-Chlorobenzene
1,4-Bromofluorobenzene
200 3:20
400 6:40
600 10:00
800 13:20
1000 16:40
1200 20:00
1400 23:20
1600 26:40
SCAN TIME

000054

DUAL MASS SPECTRUM
09 28 88 19:07:00 + 9:76
SAMPLE: CLP.U11927.11927012.L.S.U.
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Methylene Chloride

DATA: C1U0001703 #566 BASE M/Z: 49 40
CALI: C1U0001703 #3 RIC: 14553. 32011.



000055

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-B3S1_1200

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11927013

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C2VO001717

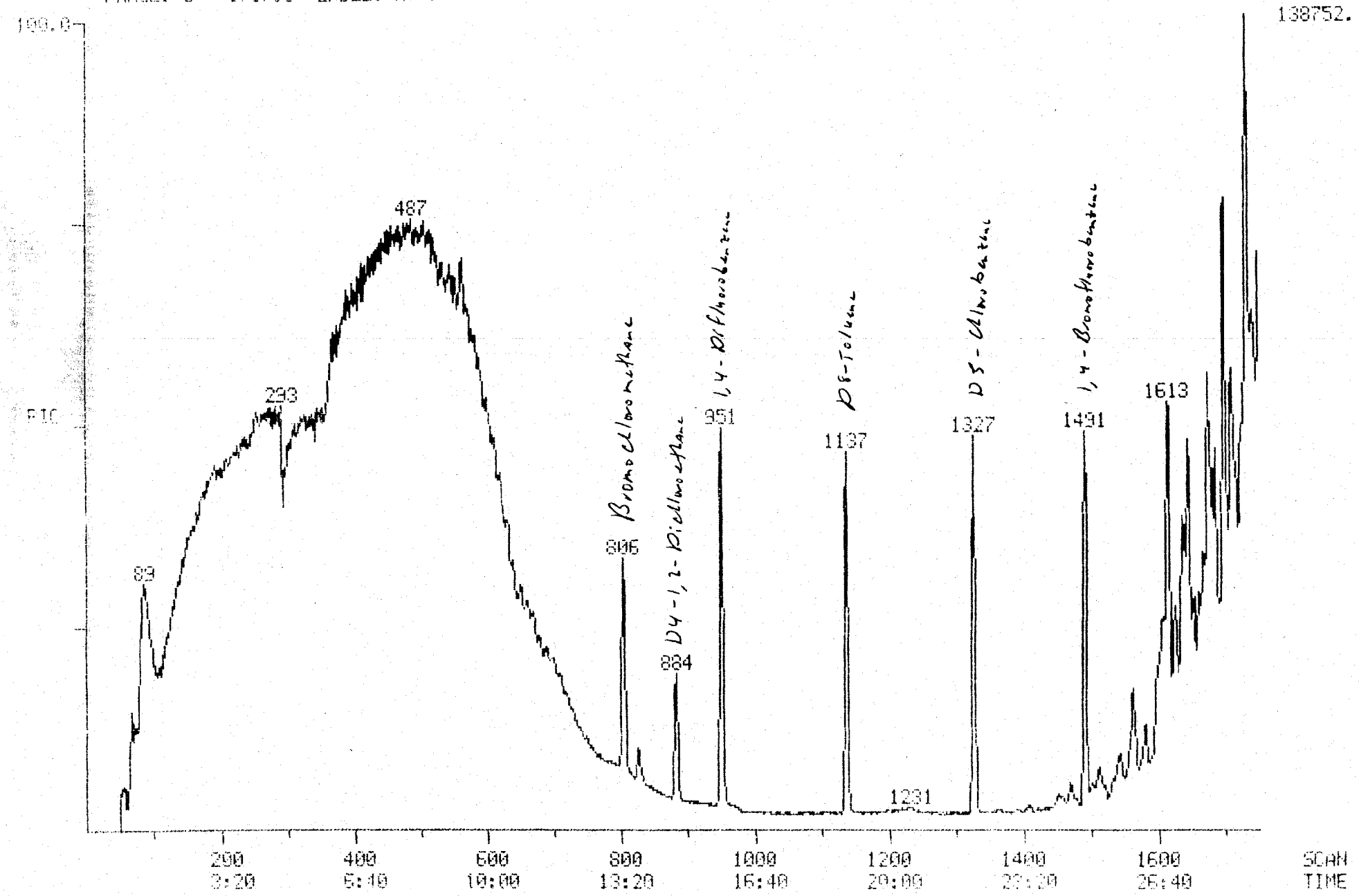
Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 21 Date Analyzed: 09/29/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	8	B
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	8	B
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

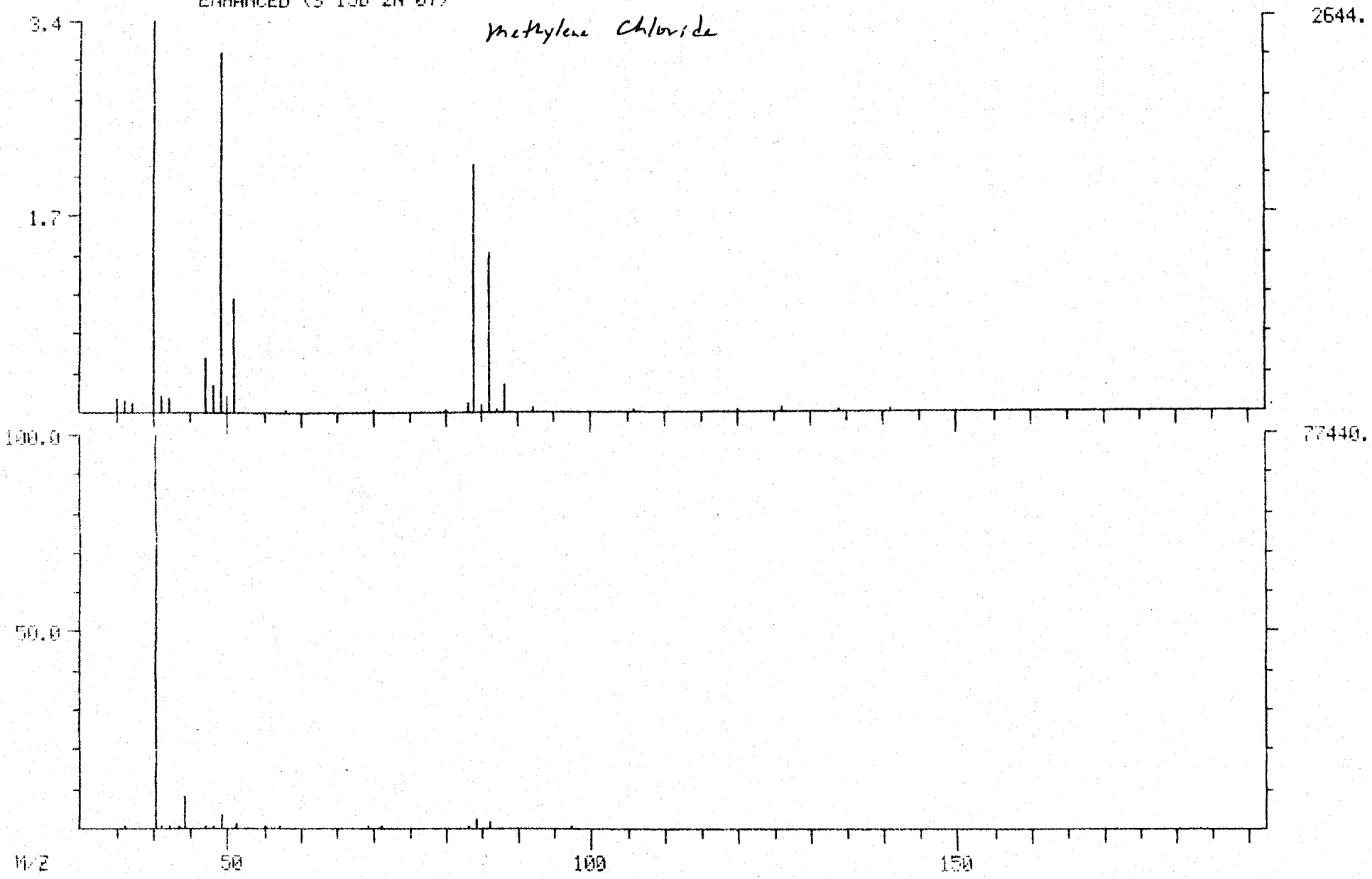
PIC DATA: C2V0001717 #486 SCANS 1 TO 1750
09-29-88 8:16:00 CALI: C2V0001717 #3
SAMPLE: CLP,V11927,,11927013,L,S,,V,
CONDS.: -100DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



000057

DUAL MASS SPECTRUM
09/29/88 8:16:00 + 9:25
SAMPLE: CLP,V11927,,11927013,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001717 #565 BASE M/Z: 40/ 40
CALI: C2V0001717 #3 RIC: 10127./ 96639.

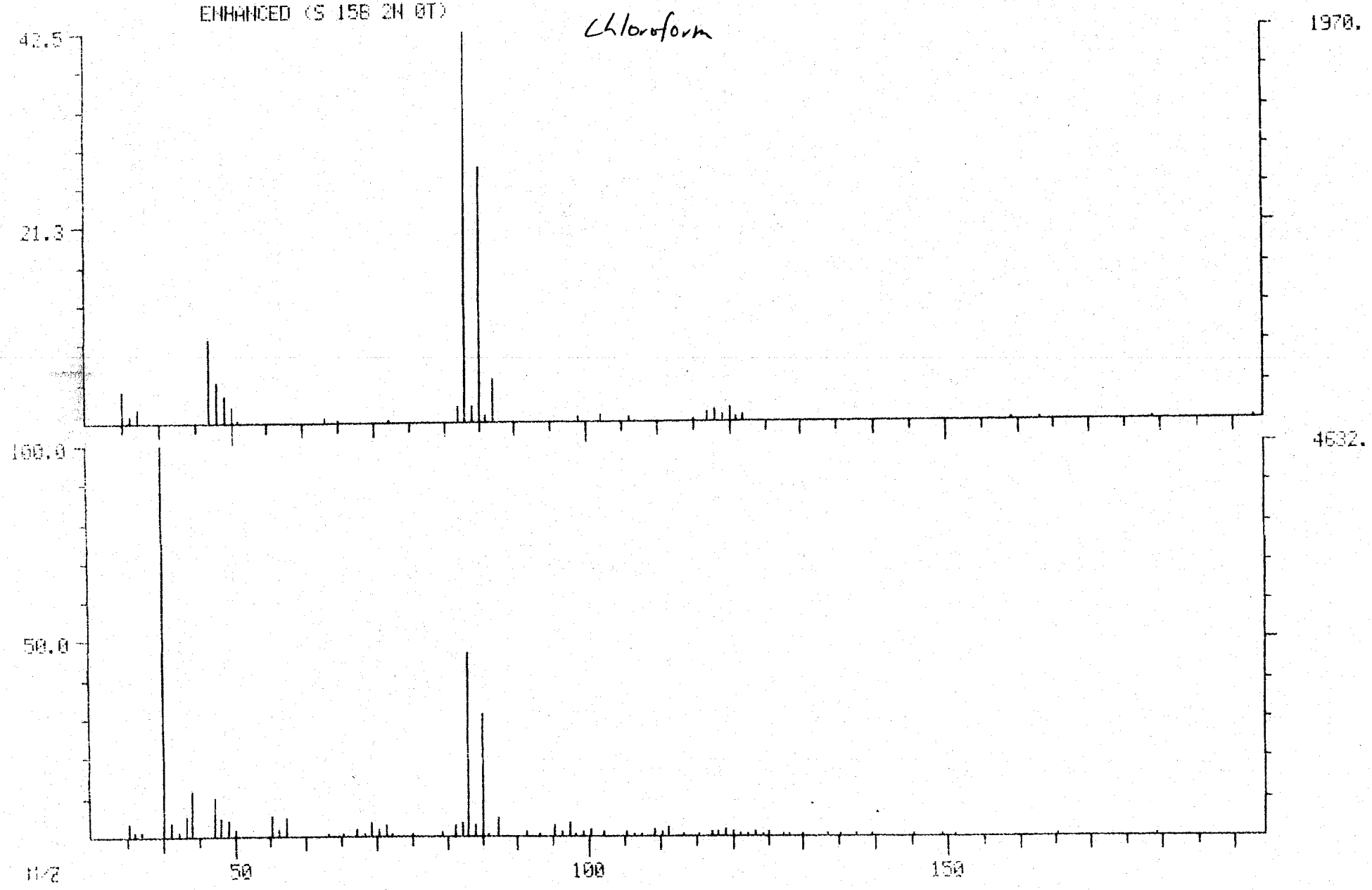


000058

DUAL MASS SPECTRUM
09/29/88 8:16:00 + 13:48
SAMPLE: CLP,V11927,,11927013,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001717 #828 BASE M/Z: 83 40
CALI: C2V0001717 #3 PIC: 5215. 14031.

Chloroform



000059

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-B3S2_1200

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: 11927014

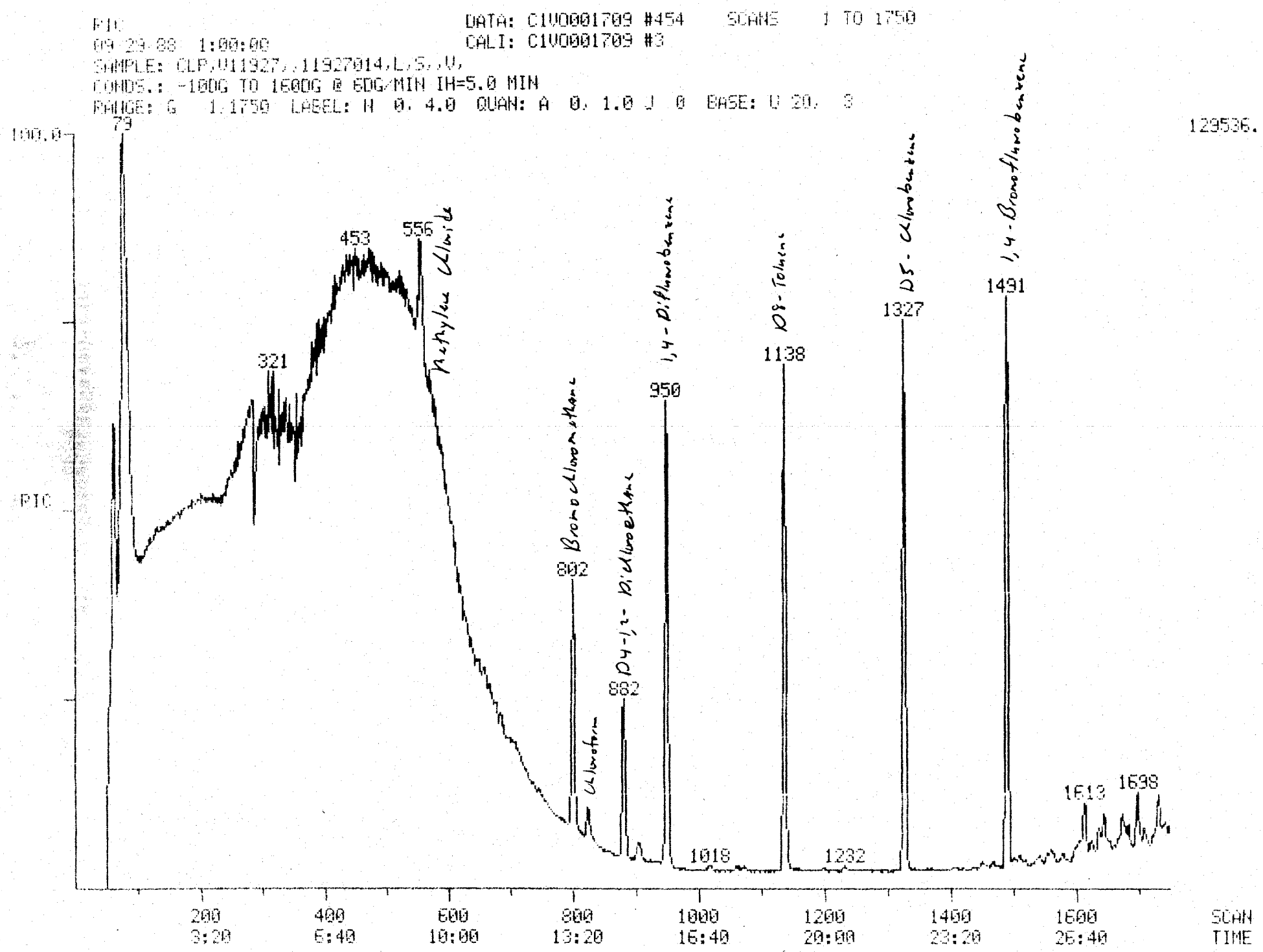
Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO001709

Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 17 Date Analyzed: 09/29/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	17	B
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	3	J
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	BJ
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes (total)	6	U

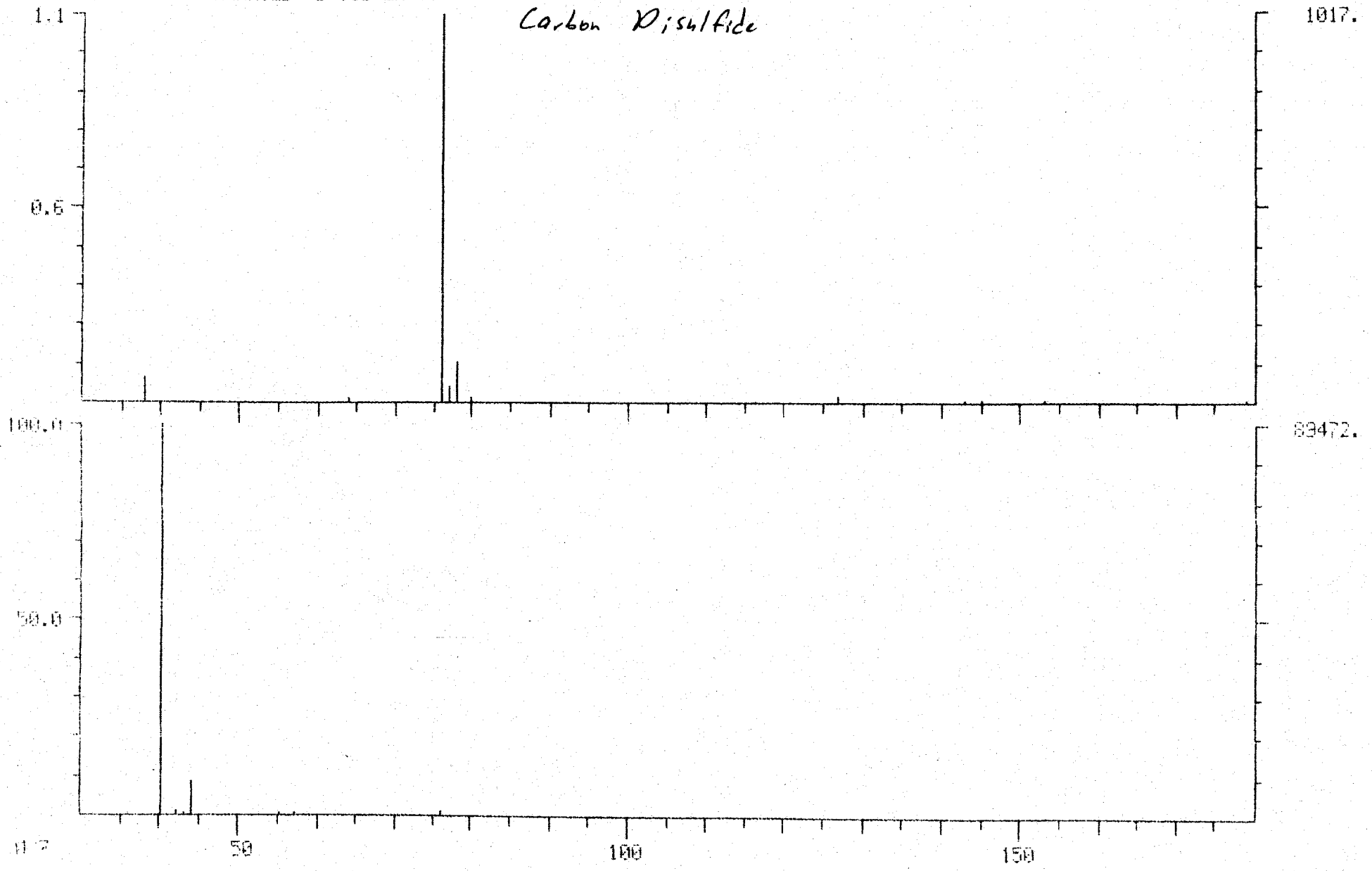

TIC
09-29-88 1:00:00
DATA: C1V0001709 #454 SCANS 1 TO 1750
CALI: C1V0001709 #3
SAMPLE: CLP,V11927,,11927014,L,S,,V,
CONDS.: -100G TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3
100.0
TIC
129536.
79
321
453
556
Methylene Chloride
802
Bromochloromethane
Chloroform
882
D4-1,2-Dichloroethane
950
1,4-Difluorobenzene
1018
1138
D8-Toluene
1232
1327
D5-Chlorobenzene
1491
1,4-Bromofluorobenzene
1613
1638
200 3:20
400 6:40
600 10:00
800 13:20
1000 16:40
1200 20:00
1400 23:20
1600 26:40
SCAN TIME

000061

DUAL MASS SPECTRUM
09/29/88 1:00:00 + 7:34
SAMPLE: CLP,V11927,,11927014,L,S,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001709 #454 BASE M/Z: 76/ 40
CALI: C1V0001709 #3 RIC: 1297./ 104447.

Carbon Disulfide

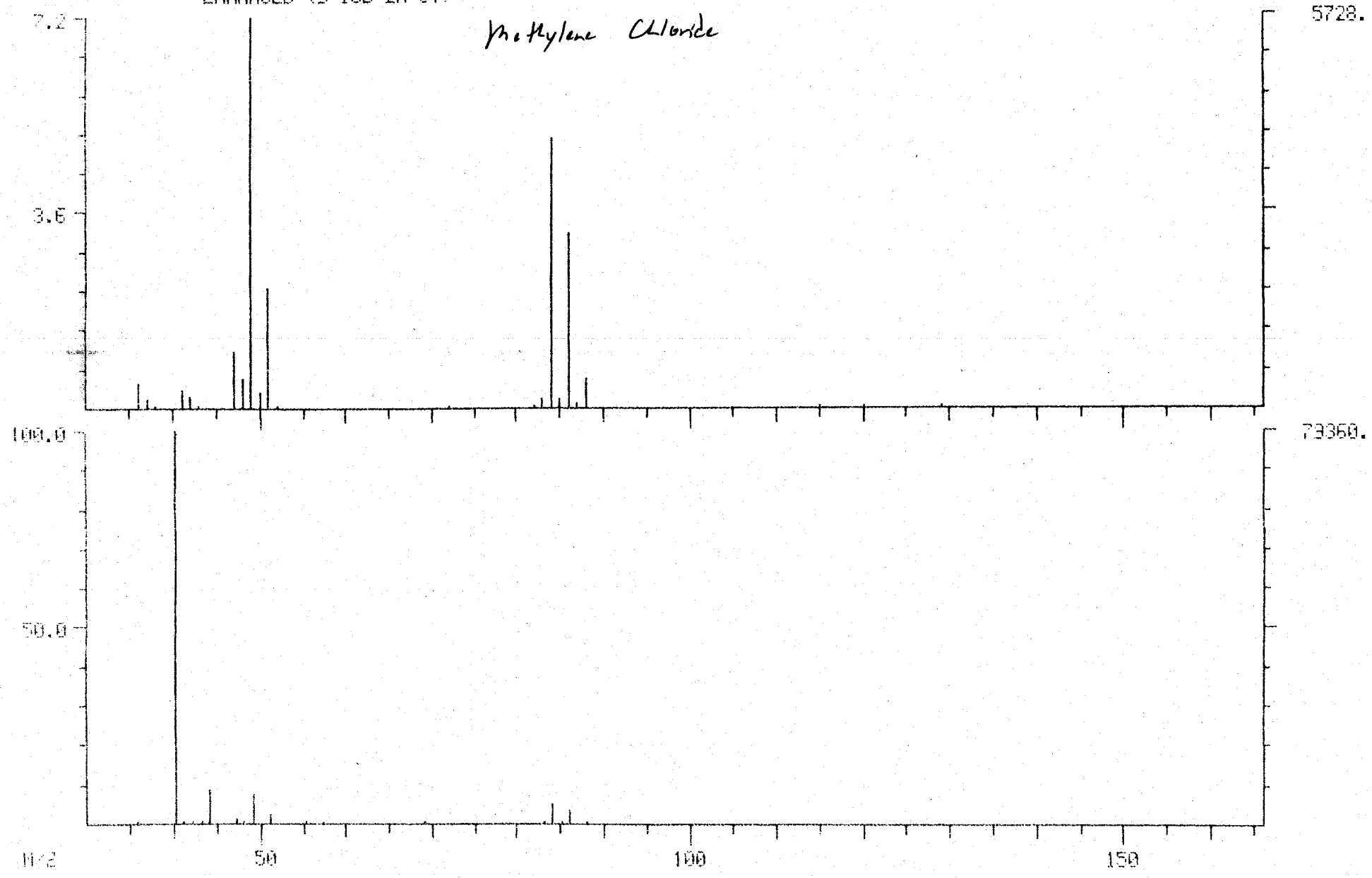


290000

DUAL MASS SPECTRUM
09/29/88 1:00:00 + 9:17
SAMPLE: CLP,V11927,,11927014,L,S,,V,
CONDS.: -100G TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001709 #557 BASE M/Z: 49 40
CALI: C1V0001709 #3 RIC: 17375./ 109439.

Methylene Chloride

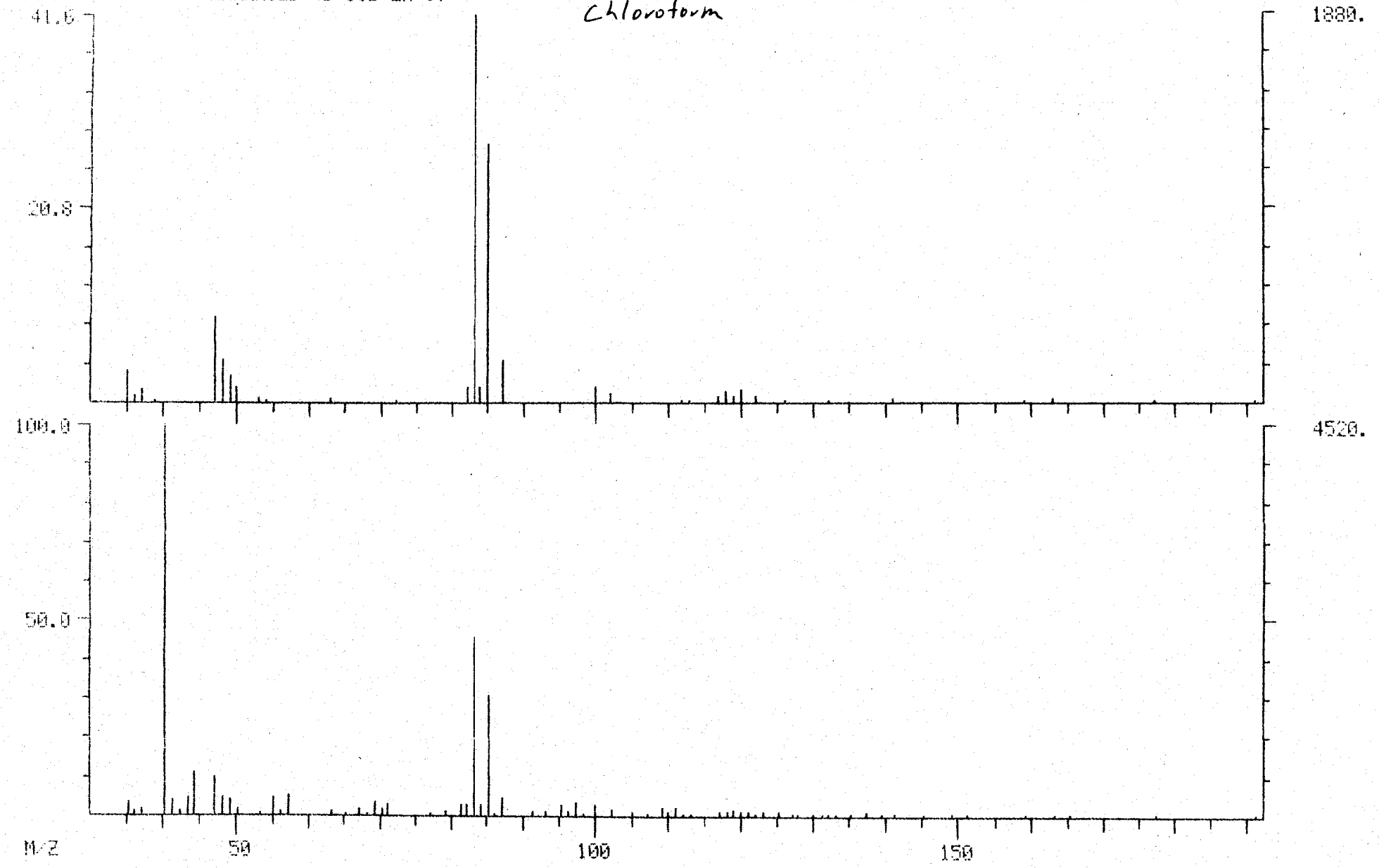


000063

DUAL MASS SPECTRUM
09/29/88 1:00:00 + 13:45
SAMPLE: CLP,U11927,,11927014,L,S,,U,
CONDS.: -100G TO 160DG @ 60G/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001709 #825 BASE M/Z: 83/ 40
CALI: C1V0001709 #3 RIC: 5127./ 13903.

Chloroform



000064

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP_BLNK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: 11927015

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C1VO001713

Level: (low/med) LOW Date Received: 09/16/88

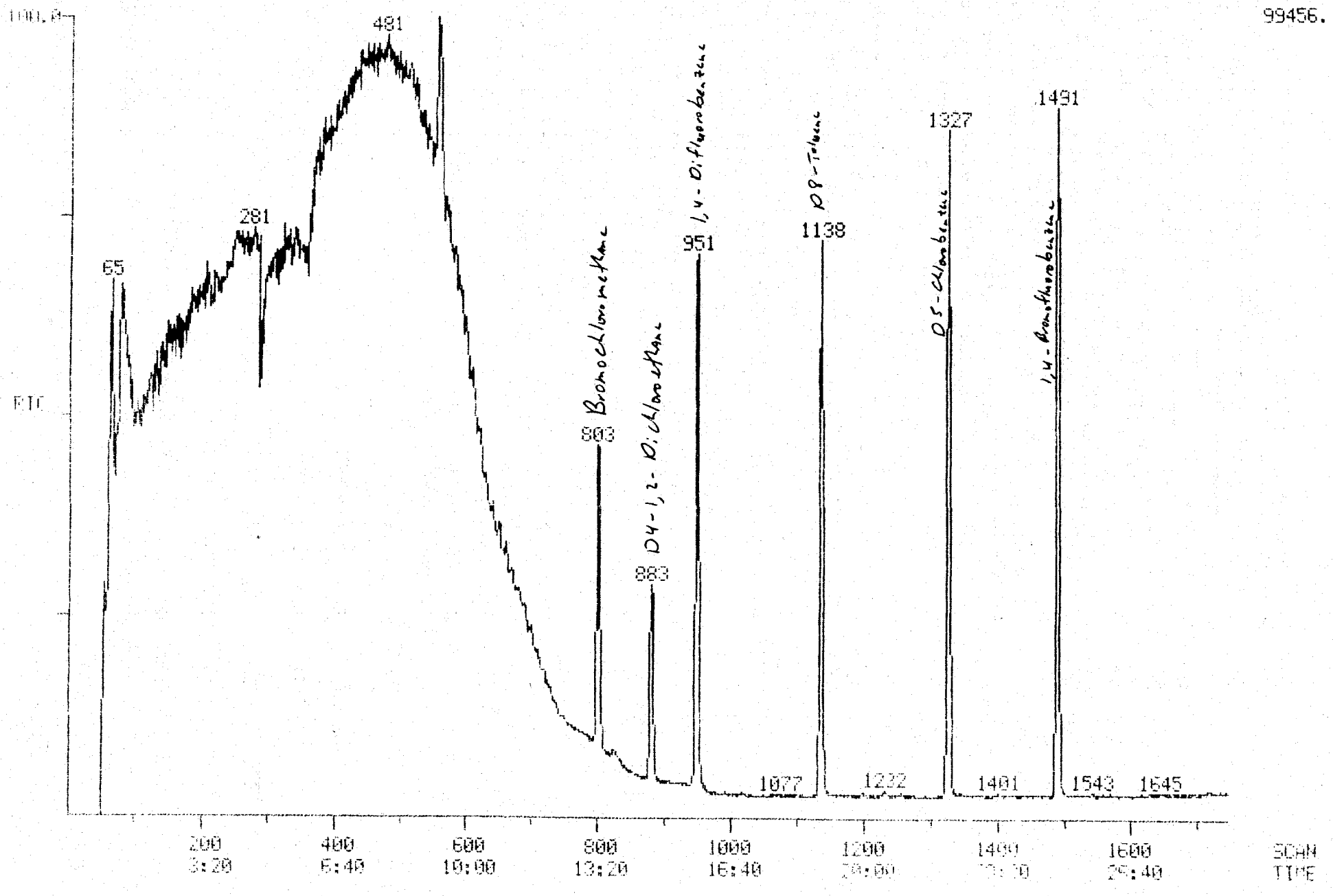
% Moisture: not dec. ____ Date Analyzed: 09/29/88

Column: (pack/cap) CAP Dilution Factor: 1.0

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

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	18	B
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

FIC DATA: C1V0001713 #479 SCANS 1 TO 1750
09/29/88 3:21:00 CALI: C1V0001713 #3
SAMPLE: CLP/V11927,,11927015,L,W,,V,
CONDS.: -100G TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

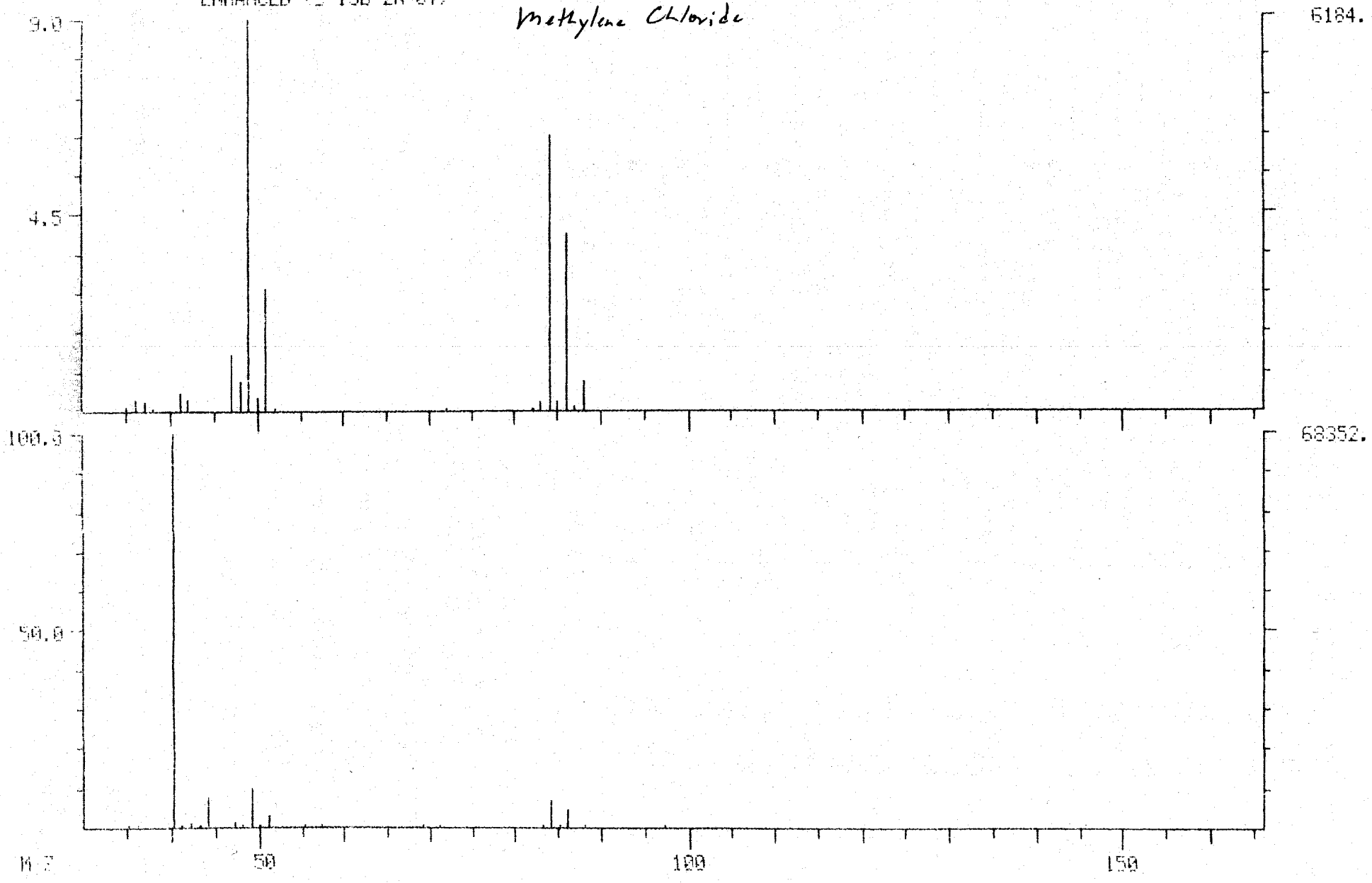


000066

DUAL MASS SPECTRUM
09-29-88 3:21:00 + 9:19
SAMPLE: CLP,V11927,,11927015,L,W,,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001713 #559 BASE M/Z: 49/ 40
CALI: C1V0001713 #3 RIC: 18687./ 98303.

Methylene Chloride



000047

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09278B3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09278B3

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CBV0001678

Level: (low/med) LOW Date Received: 09/27/88

% Moisture: not dec. 0 Date Analyzed: 09/27/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	45	B
67-64-1	Acetone	11	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	B
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09288B1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09288B1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CBV0001693

Level: (low/med) LOW Date Received: 09/28/88

% Moisture: not dec. 0 Date Analyzed: 09/28/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	24	B
67-64-1	Acetone	17	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	B
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	2	BJ
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Y09288B2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) SOIL Lab Sample ID: Y09288B2

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CBV0001706

Level: (low/med) LOW Date Received: 09/28/88

% Moisture: not dec. 0 Date Analyzed: 09/28/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	38	B
67-64-1	Acetone	34	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	7	B
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	2	BJ
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	2	BJ
108-88-3	Toluene	2	BJ
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	1	BJ
100-42-5	Styrene	1	BJ
1330-20-7	Xylenes (total)	1	BJ

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X09298B1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: X09298B1

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: CBV0001712

Level: (low/med) LOW Date Received: 09/29/88

% Moisture: not dec. ____ Date Analyzed: 09/29/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	12	B
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	6	B
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	2C-B5S2_1100	100	103	98		0
02	TRIP_BLNK	97	100	97		0

	QC LIMITS
S1 (TOL) = Toluene-d8	(88-110)
S2 (BFB) = Bromofluorobenzene	(86-115)
S3 (DCE) = 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

RS

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GC-MS

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	X09298B1	100	99	96		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	2C-B1S2_1515	102	101	94		0
02	2C-B2S1_1544	101	101	95		0
03	2C-B2S2_1544	101	97	95		0
04	2C-B3S1_1200	110	92	89		0
05	2C-B3S2_1200	102	100	98		0
06	2C-B4S1_1130	101	100	99		0
07	2C-B4S2_1130	101	99	94		0
08	2C-B5S1_1100	109	93	89		0
09	2C-B5S2D	100	100	96		0
10	2C-B6S1_1615	102	98	95		0
11	2C-B6S2_1615	104	101	95		0
12	2V-B1S1_1515	100	99	95		0
13	MS-10	99	98	97		0
14	MSD-10	108	95	92		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

RS

2B

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GC-MS

Level:(low/med) _____

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	Y09278B3	100	102	93		0
02	Y09288B1	100	103	99		0
03	Y09288B2	102	98	97		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Matrix Spike - EPA Sample No.: 2C-B5S2D Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	61.0	0	61.3	101	59-172
Trichloroethene	61.0	0	55.6	91	62-137
Benzene	61.0	0	59.3	97	66-142
Toluene	61.0	0	53.8	88	59-139
Chlorobenzene	61.0	0	54.5	89	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	61.0	63.2	104	-3	22	59-172
Trichloroethene	61.0	61.1	100	-9	24	62-137
Benzene	61.0	64.5	106	-9	21	66-142
Toluene	61.0	69.1	113	-25 *	21	59-139
Chlorobenzene	61.0	68.0	112	-23 *	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 2 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: CLP,V11927,,11927010,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001678 Lab Sample ID: Y09278B3

Date Analyzed: 09/27/88 Time Analyzed: 1604

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2V-B1S1_1515	11927002	C1V0001680	1748

COMMENTS: CLP,V11927,,Y09278B3,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBVO001693 Lab Sample ID: Y09288B1

Date Analyzed: 09/28/88 Time Analyzed: 1057

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2C-B1S2_1515	11927003	C1VO001695	1310
02	2C-B2S1_1544	11927004	C1VO001696	1345
03	2C-B2S2_1544	11927005	C1VO001697	1420
04	2C-B4S1_1130	11927011	C1VO001707	2320
05	2C-B4S2_1130	11927012	C1VO001703	1907
06	2C-B5S1_1100	11927008	C1VO001700	1655
07	2C-B5S2D	11927010	C1VO001702	1805
08	2C-B5S2_1100	11927009	C1VO001701	1731
09	2C-B6S1_1615	11927006	C1VO001698	1454
10	2C-B6S2_1615	11927007	C1VO001699	1533

COMMENTS: CLP,V11927,,Y09288B1,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBV0001706 Lab Sample ID: Y09288B2

Date Analyzed: 09/28/88 Time Analyzed: 2155

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2C-B3S1_1200	11927013	C2V0001717	0816
02	2C-B3S2_1200	11927014	C1V0001709	0100
03	MS-10	11927M10	CMV0001710	0135
04	MSD-10	11927D10	CMV0001716	0742

COMMENTS: CLP,V11927,,Y09288B2,L,S,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CBVO001712 Lab Sample ID: X09298B1

Date Analyzed: 09/29/88 Time Analyzed: 0246

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	TRIP_BLNK	11927015	C1VO001713	0321

COMMENTS: CLP,V11927,,X09298B1,L,W,,V,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Lab File ID: CSVO001643 BFB Injection Date: 09/26/88

Instrument ID: 4500 BFB Injection Time: 1040

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.3
75	30.0 - 60.0% of mass 95	43.1
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.5 (0.6)1
174	Greater than 50.0% of mass 95	84.9
175	5.0 - 9.0% of mass 174	5.9 (7.0)1
176	Greater than 95.0%, but less than 101.0% of mass 174	82.4 (97.0)1
177	5.0 - 9.0% of mass 176	5.4 (6.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VOA_50_STND		CSVO001644	09/26/88	1149
02	VOA_20_STND		CSVO001645	09/26/88	1226
03	VOA_100_STND		CSVO001646	09/26/88	1302
04	VOA_150_STND		CSVO001647	09/26/88	1337
05	VOA_200_STND		CSVO001648	09/26/88	1432

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Lab File ID: C1BF001675 BFB Injection Date: 09/27/88

Instrument ID: 4500 BFB Injection Time: 1409

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.0
75	30.0 - 60.0% of mass 95	41.9
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.2 (0.2)1
174	Greater than 50.0% of mass 95	86.5
175	5.0 - 9.0% of mass 174	6.1 (7.0)1
176	Greater than 95.0%, but less than 101.0% of mass 174	84.0 (97.1)1
177	5.0 - 9.0% of mass 176	5.9 (7.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSVO001676	09/27/88	1442
02	Y09278B3	Y09278B3	CBVO001678	09/27/88	1604
03	2V-B1S1_1515	11927002	C1VO001680	09/27/88	1748

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Lab File ID: C1BF001691 BFB Injection Date: 09/28/88

Instrument ID: 4500 BFB Injection Time: 0737

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.5
75	30.0 - 60.0% of mass 95	42.2
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	89.2
175	5.0 - 9.0% of mass 174	6.5 (7.3)1
176	Greater than 95.0%, but less than 101.0% of mass 174	87.1 (97.6)1
177	5.0 - 9.0% of mass 176	6.0 (6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSVO001692	09/28/88	0814
02	Y09288B1	Y09288B1	CBVO001693	09/28/88	1057
03	2C-B1S2_1515	11927003	C1VO001695	09/28/88	1310
04	2C-B2S1_1544	11927004	C1VO001696	09/28/88	1345
05	2C-B2S2_1544	11927005	C1VO001697	09/28/88	1420
06	2C-B6S1_1615	11927006	C1VO001698	09/28/88	1454
07	2C-B6S2_1615	11927007	C1VO001699	09/28/88	1533
08	2C-B5S1_1100	11927008	C1VO001700	09/28/88	1655
09	2C-B5S2_1100	11927009	C1VO001701	09/28/88	1731
10	2C-B5S2D	11927010	C1VO001702	09/28/88	1805
11	2C-B4S2_1130	11927012	C1VO001703	09/28/88	1907

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Lab File ID: C2BF001704 BFB Injection Date: 09/28/88

Instrument ID: 4500 BFB Injection Time: 2033

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.1
75	30.0 - 60.0% of mass 95	41.7
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.4 (0.4)1
174	Greater than 50.0% of mass 95	95.1
175	5.0 - 9.0% of mass 174	6.8 (7.1)1
176	Greater than 95.0%, but less than 101.0% of mass 174	92.6 (97.4)1
177	5.0 - 9.0% of mass 176	6.2 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	QC_STANDARD		CSVO001705	09/28/88	2107
02	Y09288B2	Y09288B2	CBVO001706	09/28/88	2155
03	2C-B4S1_1130	11927011	C1VO001707	09/28/88	2320
04	2C-B3S2_1200	11927014	C1VO001709	09/29/88	0100
05	MS-10	11927M10	CMVO001710	09/29/88	0135
06	X09298B1	X09298B1	CBVO001712	09/29/88	0246
07	TRIP_BLNK	11927015	C1VO001713	09/29/88	0321
08	MSD-10	11927D10	CMVO001716	09/29/88	0742
09	2C-B3S1_1200	11927013	C2VO001717	09/29/88	0816

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration Date(s): 09/26/88 09/26/88

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min $\overline{RRF}$ for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = CSV0001645 RRF50 = CSV0001644
RRF100= CSV0001646 RRF150= CSV0001647 RRF200= CSV0001648

COMPOUND		RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane	#	1.043	1.315	1.063	0.997	0.613	1.006	25.1#
Bromomethane		1.014	1.291	1.141	1.075	0.865	1.077	14.6
Vinyl Chloride	*	1.067	1.290	1.166	1.097	0.752	1.074	18.6*
Chloroethane		0.882	1.057	0.915	0.875	0.715	0.889	13.7
Methylene Chloride		2.849	2.581	2.011	1.869	1.690	2.200	22.4
Acetone		0.807	0.736	0.574	0.601	0.633	0.670	14.6
Carbon Disulfide		3.340	4.021	3.598	3.387	2.868	3.443	12.2
1,1-Dichloroethene	*	1.144	1.433	1.304	1.257	1.147	1.257	9.6*
1,1-Dichloroethane	#	2.473	3.015	2.654	2.640	2.513	2.659	8.0#
1,2-Dichloroethene (total)		1.594	1.885	1.693	1.654	1.564	1.678	7.5
Chloroform	*	2.983	3.240	2.670	2.694	2.565	2.830	9.8*
1,2-Dichloroethane		1.430	1.824	1.527	1.615	1.522	1.584	9.4
2-Butanone		0.158	0.181	0.162	0.183	0.152	0.167	8.4
1,1,1-Trichloroethane		0.361	0.416	0.388	0.398	0.366	0.386	5.9
Carbon Tetrachloride		0.352	0.404	0.397	0.414	0.374	0.388	6.4
Vinyl Acetate		0.847	0.919	0.804	0.864	0.833	0.853	5.0
Bromodichloromethane		0.330	0.395	0.343	0.360	0.342	0.354	7.1
1,2-Dichloropropane	*	0.252	0.376	0.251	0.260	0.307	0.289	18.6*
cis-1,3-Dichloropropene		0.337	0.405	0.337	0.352	0.343	0.355	8.1
Trichloroethene		0.359	0.420	0.365	0.350	0.372	0.373	7.3
Dibromochloromethane		0.253	0.291	0.254	0.279	0.260	0.267	6.3
1,1,2-Trichloroethane		0.211	0.250	0.216	0.235	0.216	0.226	7.3
Benzene		0.762	0.924	0.812	0.847	0.759	0.821	8.3
trans-1,3-Dichloropropene		0.082	0.097	0.082	0.087	0.085	0.087	7.1
Bromoform	#	0.262	0.305	0.272	0.306	0.279	0.285	7.0#
2-Hexanone		0.321	0.383	0.328	0.369	0.319	0.344	8.7
4-Methyl-2-Pentanone		0.476	0.553	0.474	0.521	0.454	0.496	8.1
Tetrachloroethene		0.298	0.346	0.322	0.331	0.326	0.325	5.4
1,1,2,2-Tetrachloroethane	#	0.484	0.597	0.522	0.567	0.511	0.536	8.5#
Toluene	*	0.632	0.764	0.674	0.688	0.670	0.686	7.1*
Chlorobenzene	#	0.793	1.020	0.869	0.913	0.877	0.894	9.3#
Ethylbenzene	*	0.425	0.534	0.464	0.488	0.485	0.479	8.3*
Styrene		0.924	1.185	1.017	1.068	1.056	1.050	9.0
Xylenes (total)		0.530	0.678	0.588	0.620	0.624	0.608	8.9
Toluene-d8 - SS		0.529	0.535	0.534	0.518	0.524	0.528	1.3
1,4-Bromofluorobenzene - SS		0.280	0.275	0.274	0.272	0.272	0.275	1.2
1,2-Dichloroethane-d4 - SS		0.632	0.633	0.634	0.635	0.633	0.633	0.2

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/27/88 Time: 1442

Lab File ID: CSV0001676 Init. Calib. Date(s): 09/26/88 09/26/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	1.006	0.858	14.7	#
Bromomethane		1.077	0.908	15.7	
Vinyl Chloride	*	1.074	0.929	13.5	*
Chloroethane		0.889	0.768	13.6	
Methylene Chloride		2.200	1.887	14.2	
Acetone		0.670	0.467	30.3	
Carbon Disulfide		3.443	3.104	9.8	
1,1-Dichloroethene	*	1.257	1.176	6.4	*
1,1-Dichloroethane	#	2.659	2.360	11.2	#
1,2-Dichloroethene (total)		1.678	1.450	13.6	
Chloroform	*	2.830	2.584	8.7	*
1,2-Dichloroethane		1.584	1.473	7.0	
2-Butanone		0.167	0.155	7.2	
1,1,1-Trichloroethane		0.386	0.378	2.1	
Carbon Tetrachloride		0.388	0.387	0.3	
Vinyl Acetate		0.853	0.875	-2.6	
Bromodichloromethane		0.354	0.335	5.4	
1,2-Dichloropropane	*	0.289	0.239	17.3	*
cis-1,3-Dichloropropene		0.355	0.343	3.4	
Trichloroethene		0.373	0.270	27.6	
Dibromochloromethane		0.267	0.260	2.6	
1,1,2-Trichloroethane		0.226	0.214	5.3	
Benzene		0.821	0.785	4.4	
trans-1,3-Dichloropropene		0.087	0.083	4.6	
Bromoform	#	0.285	0.260	8.8	#
2-Hexanone		0.344	0.256	25.6	
4-Methyl-2-Pentanone		0.496	0.377	24.0	
Tetrachloroethene		0.325	0.262	19.4	
1,1,2,2-Tetrachloroethane	#	0.536	0.414	22.8	#
Toluene	*	0.686	0.557	18.8	*
Chlorobenzene	#	0.894	0.735	17.8	#
Ethylbenzene	*	0.479	0.393	18.0	*
Styrene		1.050	0.860	18.1	
Xylenes (total)		0.608	0.488	19.7	
Toluene-d8 - SS		0.528	0.516	2.3	
1,4-Bromofluorobenzene - SS		0.275	0.277	-0.7	
1,2-Dichloroethane-d4 - SS		0.633	0.683	-7.9	

RS

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/28/88 Time: 0814

Lab File ID: CSV0001692 Init. Calib. Date(s): 09/26/88 09/26/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	1.006	0.959	4.7	#
Bromomethane		1.077	1.041	3.3	
Vinyl Chloride	*	1.074	1.000	6.9	*
Chloroethane		0.889	0.891	-0.2	
Methylene Chloride		2.200	2.126	3.4	
Acetone		0.670	0.558	16.7	
Carbon Disulfide		3.443	3.634	-5.5	
1,1-Dichloroethene	*	1.257	1.327	-5.6	*
1,1-Dichloroethane	#	2.659	2.847	-7.1	#
1,2-Dichloroethene (total)		1.678	1.741	-3.8	
Chloroform	*	2.830	3.195	-12.9	*
1,2-Dichloroethane		1.584	1.756	-10.9	
2-Butanone		0.167	0.168	-0.6	
1,1,1-Trichloroethane		0.386	0.425	-10.1	
Carbon Tetrachloride		0.388	0.424	-9.3	
Vinyl Acetate		0.853	0.891	-4.5	
Bromodichloromethane		0.354	0.404	-14.1	
1,2-Dichloropropane	*	0.289	0.286	1.0	*
cis-1,3-Dichloropropene		0.355	0.401	-13.0	
Trichloroethene		0.373	0.332	11.0	
Dibromochloromethane		0.267	0.305	-14.2	
1,1,2-Trichloroethane		0.226	0.251	-11.1	
Benzene		0.821	0.934	-13.8	
trans-1,3-Dichloropropene		0.087	0.096	-10.3	
Bromoform	#	0.285	0.315	-10.5	#
2-Hexanone		0.344	0.300	12.8	
4-Methyl-2-Pentanone		0.496	0.446	10.1	
Tetrachloroethene		0.325	0.320	1.5	
1,1,2,2-Tetrachloroethane	#	0.536	0.511	4.7	#
Toluene	*	0.686	0.701	-2.2	*
Chlorobenzene	#	0.894	0.926	-3.6	#
Ethylbenzene	*	0.479	0.487	-1.7	*
Styrene		1.050	1.080	-2.9	
Xylenes (total)		0.608	0.624	-2.6	
Toluene-d8 - SS		0.528	0.497	5.9	
1,4-Bromofluorobenzene - SS		0.275	0.276	-0.4	
1,2-Dichloroethane-d4 - SS		0.633	0.658	-3.9	

RS

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Instrument ID: 4500 Calibration date: 09/28/88 Time: 2107

Lab File ID: CSV0001705 Init. Calib. Date(s): 09/26/88 09/26/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	1.006	1.348	-34.0	#
Bromomethane		1.077	1.237	-14.9	
Vinyl Chloride	*	1.074	1.304	-21.4	*
Chloroethane		0.889	1.031	-16.0	
Methylene Chloride		2.200	2.504	-13.8	
Acetone		0.670	1.106	-65.1	
Carbon Disulfide		3.443	3.974	-15.4	
1,1-Dichloroethene	*	1.257	1.409	-12.1	*
1,1-Dichloroethane	#	2.659	2.843	-6.9	#
1,2-Dichloroethene (total)		1.678	1.887	-12.5	
Chloroform	*	2.830	3.094	-9.3	*
1,2-Dichloroethane		1.584	1.711	-8.0	
2-Butanone		0.167	0.170	-1.8	
1,1,1-Trichloroethane		0.386	0.407	-5.4	
Carbon Tetrachloride		0.388	0.420	-8.2	
Vinyl Acetate		0.853	0.808	5.3	
Bromodichloromethane		0.354	0.366	-3.4	
1,2-Dichloropropane	*	0.289	0.252	12.8	*
cis-1,3-Dichloropropene		0.355	0.369	-3.9	
Trichloroethene		0.373	0.306	18.0	
Dibromochloromethane		0.267	0.293	-9.7	
1,1,2-Trichloroethane		0.226	0.239	-5.8	
Benzene		0.821	0.858	-4.5	
trans-1,3-Dichloropropene		0.087	0.091	-4.6	
Bromoform	#	0.285	0.327	-14.7	#
2-Hexanone		0.344	0.299	13.1	
4-Methyl-2-Pentanone		0.496	0.430	13.3	
Tetrachloroethene		0.325	0.314	3.4	
1,1,2,2-Tetrachloroethane	#	0.536	0.502	6.3	#
Toluene	*	0.686	0.621	9.5	*
Chlorobenzene	#	0.894	0.823	7.9	#
Ethylbenzene	*	0.479	0.438	8.6	*
Styrene		1.050	0.969	7.7	
Xylenes (total)		0.608	0.558	8.2	
Toluene-d8 - SS		0.528	0.490	7.2	
1,4-Bromofluorobenzene - SS		0.275	0.282	-2.5	
1,2-Dichloroethane-d4 - SS		0.633	0.663	-4.7	

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001676 Date Analyzed: 09/27/88

Instrument ID: 4500 Time Analyzed: 1442

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	40700	13.45	210000	15.87	175000	22.12
	UPPER LIMIT	81400		420000		350000	
	LOWER LIMIT	20350		105000		87500	
	EPA SAMPLE NO.						
01	2V-B1S1_1515	34400	13.47	182000	15.90	148000	22.14
02	Y09278B3	36400	13.45	168000	15.87	155000	22.14

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001692 Date Analyzed: 09/28/88

Instrument ID: 4500 Time Analyzed: 0814

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	30000	13.47	162000	15.87	128000	22.12
	UPPER LIMIT	60000		324000		256000	
	LOWER LIMIT	15000		81000		64000	
	EPA SAMPLE NO.						
01	2C-B1S2_1515	26900	13.42	140000	15.85	113000	22.14
02	2C-B2S1_1544	28900	13.37	148000	15.84	118000	22.12
03	2C-B2S2_1544	28800	13.42	151000	15.87	121000	22.14
04	2C-B4S2_1130	29200	13.44	161000	15.87	131000	22.14
05	2C-B5S1_1100	20700	13.42	143000	15.87	109000	22.12
06	2C-B5S2D	30900	13.42	174000	15.85	138000	22.12
07	2C-B5S2_1100	29600	13.44	165000	15.85	131000	22.12
08	2C-B6S1_1615	30600	13.39	166000	15.84	131000	22.12
09	2C-B6S2_1615	29800	13.40	166000	15.84	126000	22.12
10	Y09288B1	31900	13.42	164000	15.85	133000	22.10

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

RS

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: V11927 SAS No.: _____ SDG No.: GC-MS

Lab File ID (Standard): CSV0001705 Date Analyzed: 09/28/88

Instrument ID: 4500 Time Analyzed: 2107

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	33500	13.44	193000	15.87	157000	22.14
	UPPER LIMIT	67000		386000		314000	
	LOWER LIMIT	16750		96500		78500	
	EPA SAMPLE NO.						
01	2C-B3S1_1200	30500	13.44	158000	15.85	112000	22.12
02	2C-B3S2_1200	35100	13.37	196000	15.84	163000	22.12
03	2C-B4S1_1130	31300	13.37	167000	15.84	146000	22.12
04	TRIP_BLNK	31500	13.39	170000	15.84	142000	22.12
05	MS-10	33400	13.39	171000	15.84	154000	22.12
06	MSD-10	31300	13.44	157000	15.87	123000	22.12
07	Y09288B2	34000	13.44	192000	15.87	158000	22.14
08	X09298B1	32300	13.39	183000	15.82	152000	22.10

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

RS

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-MW4S2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 11927001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B1BA001273

Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 21 dec. _____ Date Extracted: 09/22/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 10/04/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	420	U
111-44-4	bis(2-Chloroethyl)Ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
100-51-6	Benzyl Alcohol	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	bis(2-Chloroisopropyl)Ether	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitroso-Di-n-Propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
65-85-0	Benzoic Acid	2000	U
111-91-1	bis(2-Chloroethoxy)Methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethyl Phthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-MW4S2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 11927001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B1BA001273

Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 21 dec. _____ Date Extracted: 09/22/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 10/04/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	2000	U
83-32-9	Acenaphthene	420	U
51-28-5	2,4-Dinitrophenol	2000	U
100-02-7	4-Nitrophenol	2000	U
132-64-9	Dibenzofuran	420	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U
86-73-7	Fluorene	420	U
100-01-6	4-Nitroaniline	2000	U
534-52-1	4,6-Dinitro-2-methylphenol	2000	U
86-30-6	N-Nitrosodiphenylamine (1)	420	U
122-66-7	1,2-Diphenylhydrazine	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	2000	U
85-01-8	Phenanthrene	420	U
120-12-7	Anthracene	420	U
84-74-2	Di-n-Butylphthalate	1100	B
206-44-0	Fluoranthene	420	U
129-00-0	Pyrene	420	U
85-68-7	Butylbenzylphthalate	420	U
91-94-1	3,3'-Dichlorobenzidine	840	U
56-55-3	Benzo(a)anthracene	420	U
218-01-9	Chrysene	420	U
117-81-7	bis(2-Ethylhexyl)Phthalate	420	U
117-84-0	Di-n-octylphthalate	420	U
205-99-2	Benzo(b)fluoranthene	420	U
207-08-9	Benzo(k)fluoranthene	420	U
50-32-8	Benzo(a)pyrene	420	U
193-39-5	Indeno(1,2,3-cd)Pyrene	420	U
53-70-3	Dibenz(a,h)Anthracene	420	U
191-24-2	Benzo(g,h,i)perylene	420	U

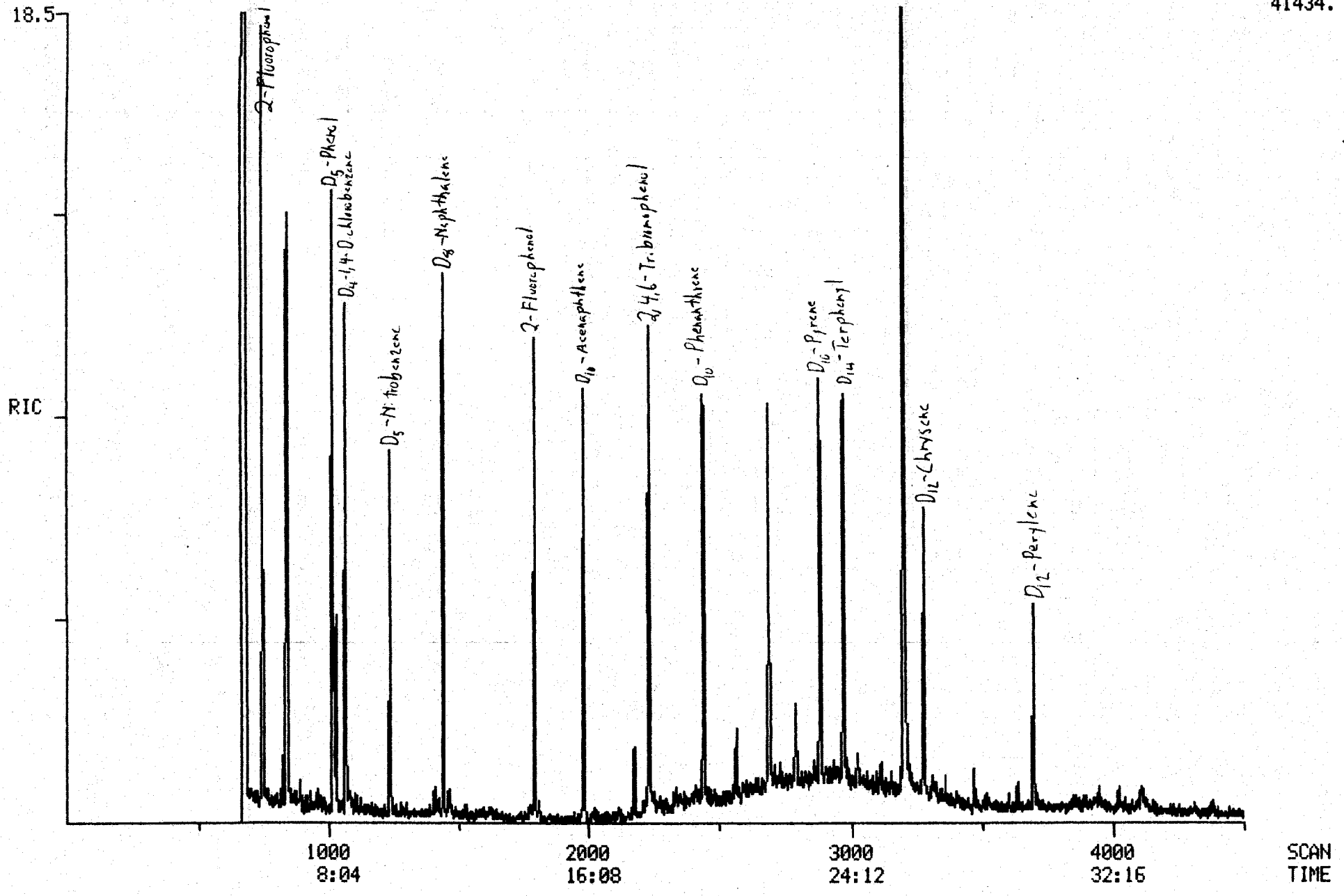
(1) - Cannot be separated from Diphenylamine

RS

MIDRIC
10/04/88 21:07:00
SAMPLE: CLP,S11927,,2C-MW4S2,L,W,11927001,B,
CONDS.: 30 TO 310DG @ 10DG/MIN IH=4MIN
RANGE: G 1,4500 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: B1BA001273 #1 SCANS 1 TO 4500
CALI: B1BA001273 #2

41434.

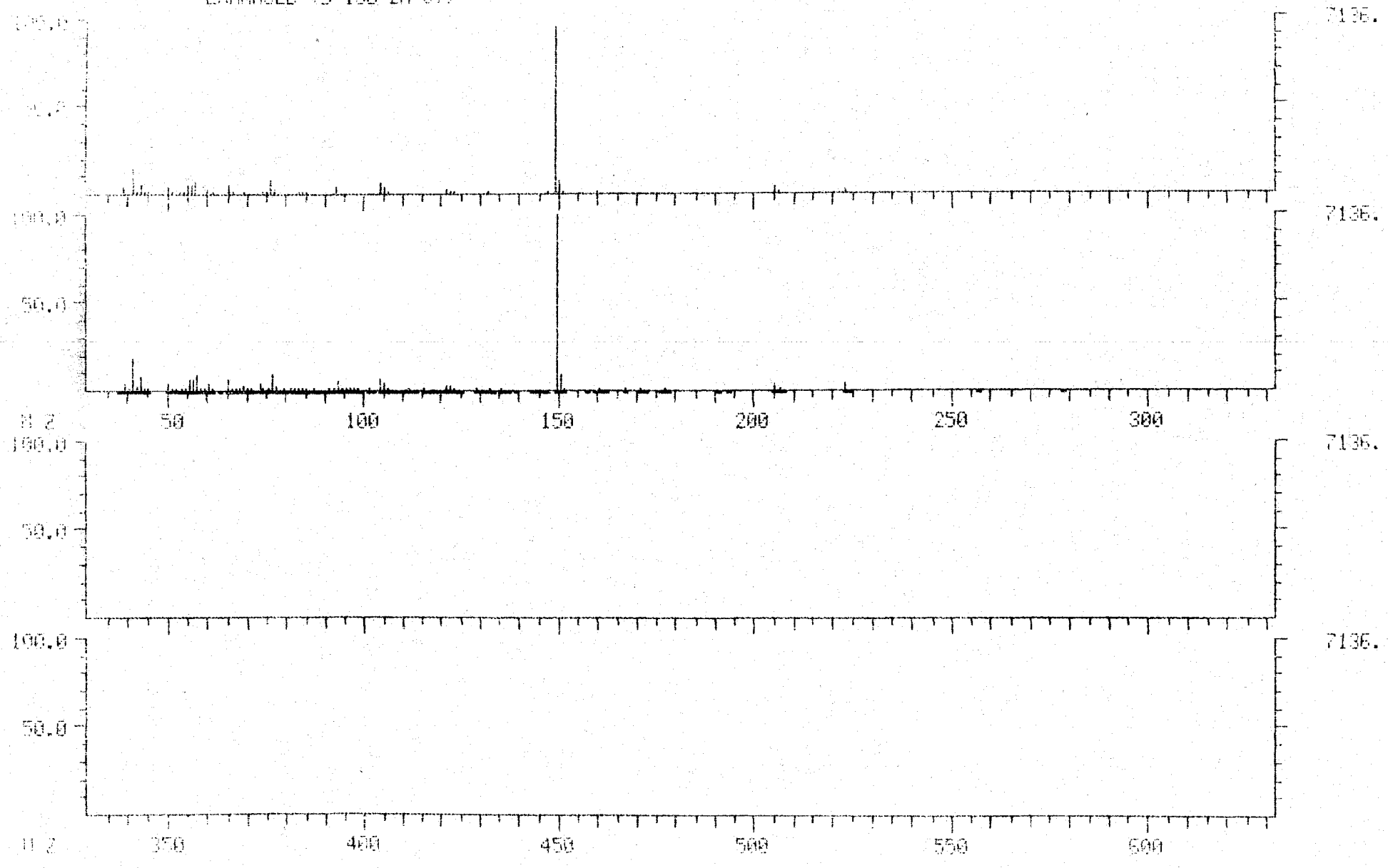


000094

MID QUAL MASS SPECTRUM
10/04/88 21:07:00 + 21:42
SAMPLE: CLP,S11927,,2C-MW4S2,L,W,11927001,B,
CONDS.: 30 TO 310DG @ 10DG/MIN IH=4MIN
GC TEMP: 207 DEG. C
ENHANCED (S 15B 2N 0T)

DATA: B1BA001273 #2691 BASE M #: 149 149
CALI: B1BA001273 #2 RIC: 17119. 21311.

Di-N-butylphthalate



000095

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-B3S1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 11927013

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B1BA001274

Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 21 dec. _____ Date Extracted: 09/22/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 10/04/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	420	U
111-44-4	bis(2-Chloroethyl)Ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
100-51-6	Benzyl Alcohol	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	bis(2-Chloroisopropyl)Ether	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitroso-Di-n-Propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
65-85-0	Benzoic Acid	2000	U
111-91-1	bis(2-Chloroethoxy)Methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethyl Phthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-B3S1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 11927013

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B1BA001274

Level: (low/med) LOW Date Received: 09/16/88

% Moisture: not dec. 21 dec. _____ Date Extracted: 09/22/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 10/04/88

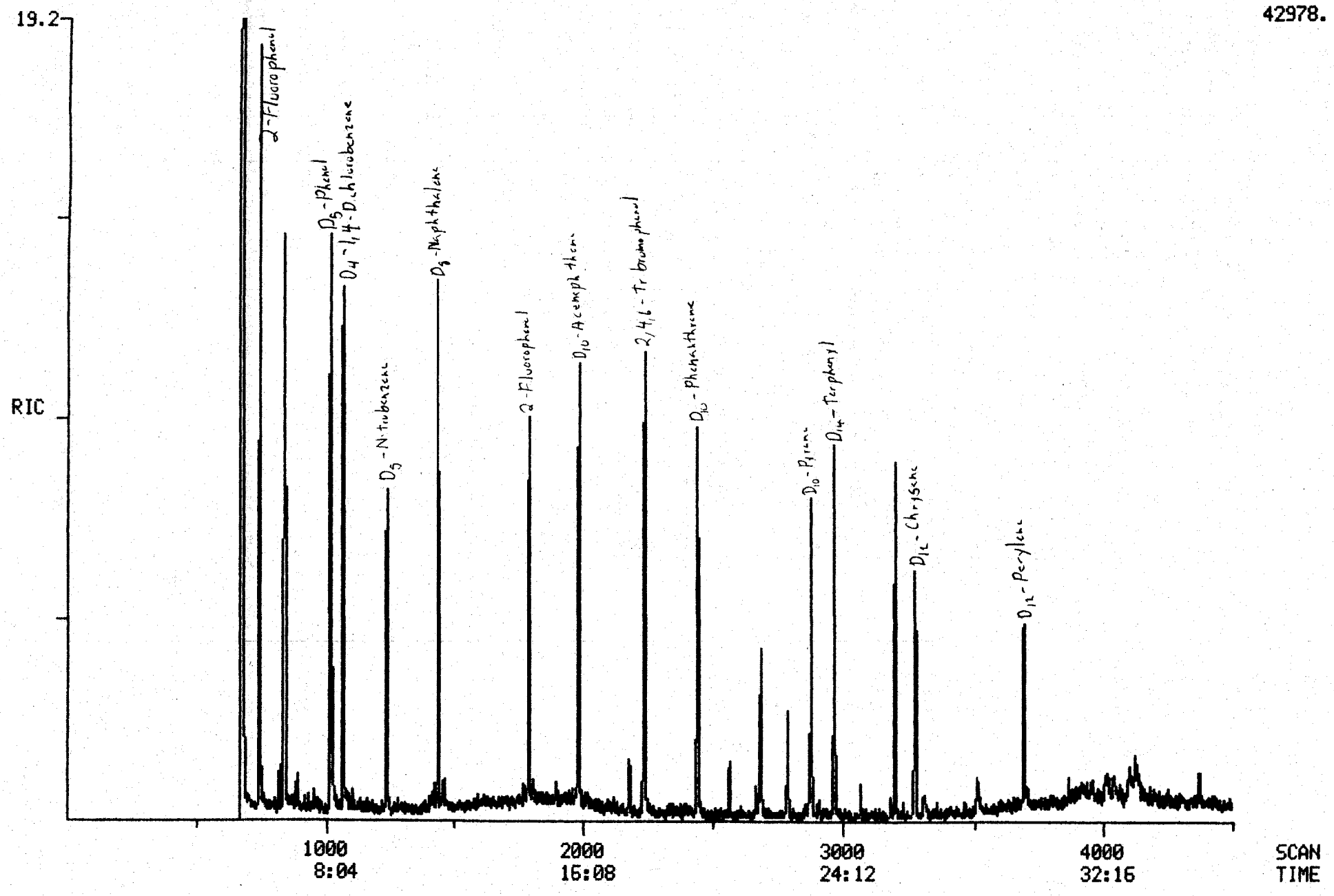
GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	2000	U
83-32-9	Acenaphthene	420	U
51-28-5	2,4-Dinitrophenol	2000	U
100-02-7	4-Nitrophenol	2000	U
132-64-9	Dibenzofuran	420	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U
86-73-7	Fluorene	420	U
100-01-6	4-Nitroaniline	2000	U
534-52-1	4,6-Dinitro-2-methylphenol	2000	U
86-30-6	N-Nitrosodiphenylamine (1)	420	U
122-66-7	1,2-Diphenylhydrazine	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	2000	U
85-01-8	Phenanthrene	420	U
120-12-7	Anthracene	420	U
84-74-2	Di-n-Butylphthalate	580	B
206-44-0	Fluoranthene	420	U
129-00-0	Pyrene	420	U
85-68-7	Butylbenzylphthalate	420	U
91-94-1	3,3'-Dichlorobenzidine	840	U
56-55-3	Benzo(a)anthracene	420	U
218-01-9	Chrysene	420	U
117-81-7	bis(2-Ethylhexyl)Phthalate	420	U
117-84-0	Di-n-octylphthalate	420	U
205-99-2	Benzo(b)fluoranthene	420	U
207-08-9	Benzo(k)fluoranthene	420	U
50-32-8	Benzo(a)pyrene	420	U
193-39-5	Indeno(1,2,3-cd)Pyrene	420	U
53-70-3	Dibenz(a,h)Anthracene	420	U
191-24-2	Benzo(g,h,i)perylene	420	U

(1) - Cannot be separated from Diphenylamine

RS.

MIDRIC DATA: B1BA001274 #1 SCANS 1 TO 4500
10/04/88 21:54:00 CALI: B1BA001274 #2
SAMPLE: CLP,511927,,2C-B3S1,L,W,11927013,B,
CONDS.: 30 TO 310DG @ 10DG/MIN IH=4MIN
RANGE: G 1,4500 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

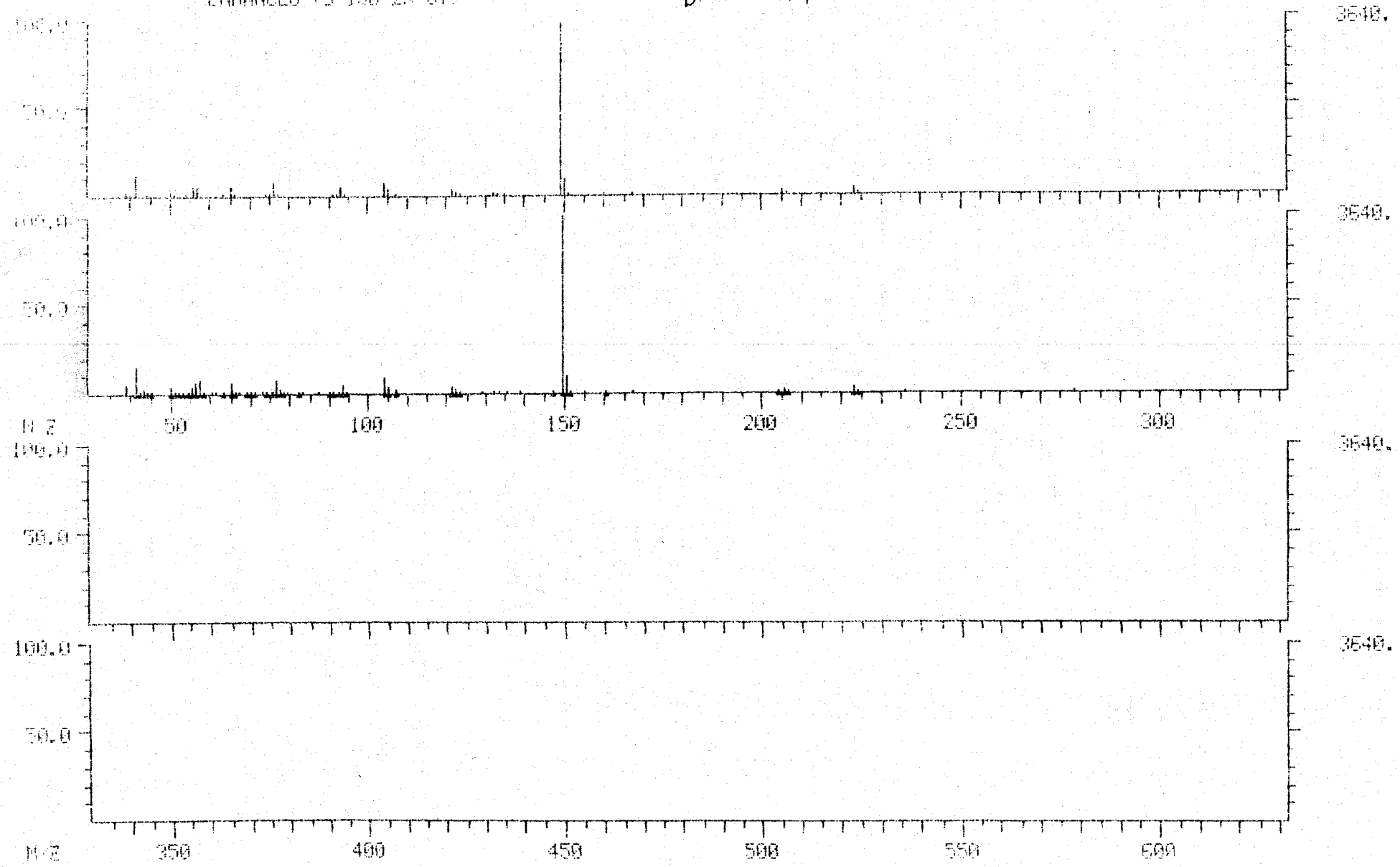


000099

MID DUAL MASS SPECTRUM
10 04 88 21:54:00 + 21:42
SAMPLE: CLP S11927, 2C-B351,L,W,11927013,B,
CONDS.: 30 TO 310DG @ 10DG MIN IH=4MIN
GC TEMP: 207 DEG. C
ENHANCED (S 15B 2N 0T)

DATA: B1BA001274 #2690 BASE M/Z: 149 149
CALI: B1BA001274 #2 PIC: 7823. 9273.

D: -N-butylphthalate



000009

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKS1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S09228B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: BBBA001272

Level: (low/med) LOW Date Received: 09/22/88

% Moisture: not dec. 0 dec. _____ Date Extracted: 09/22/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 10/04/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	bis(2-Chloroisopropyl)Ether	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	1600	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethyl Phthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKS1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S09228B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: BBBA001272

Level: (low/med) LOW Date Received: 09/22/88

% Moisture: not dec. 0 dec. _____ Date Extracted: 09/22/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 10/04/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
122-66-7	1,2-Diphenylhydrazine	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	180	BJ
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	660	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	150	BJ
117-84-0	Di-n-octylphthalate	330	U
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

(1) - Cannot be separated from Diphenylamine

RS

2D

SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	OTHER	TOT OUT
01	2C-B3S1	77	77	90	63	86	87		0
02	2C-MW4S2	90	89	100	75	93	87		0
03	MS-16	95	85	105	100	103	98		0
04	MSD-17	89	78	94	88	90	88		0

		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(23-120)
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)
S3 (TPH)	= Terphenyl	(18-137)
S4 (PHL)	= Phenol-d5	(24-113)
S5 (2FP)	= 2-Fluorophenol	(25-121)
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)

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

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Level:(low/med) _____

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	OTHER	TOT OUT
01	SBLKS1	66	64	89	55	65	63		0

		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(23-120)
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)
S3 (TPH)	= Terphenyl	(18-137)
S4 (PHL)	= Phenol-d5	(24-113)
S5 (2FP)	= 2-Fluorophenol	(25-121)
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)

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

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No.: 2C-MW4S2 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
Phenol	253	0	266	105 *	26- 90
2-Chlorophenol	253	0	235	93	25-102
1,4-Dichlorobenzene	127	0	119	94	28 104
N-Nitroso-di-n-prop.(1)	127	0	132	104	41 126
1,2,4-Trichlorobenzene	127	0	104	82	38 107
4-Chloro-3-methylphenol	253	0	259	102	26 103
Acenaphthene	127	0	116	91	31-137
4-Nitrophenol	253	0	268	106	11-114
2,4-Dinitrotoluene	127	0	117	92 *	28- 89
Pentachlorophenol	253	0	270	107	17-109
Pyrene	127	0	133	105	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	253	244	96 *	9	35	26- 90
2-Chlorophenol	253	218	86	8	50	25-102
1,4-Dichlorobenzene	127	104	82	14	27	28 104
N-Nitroso-di-n-prop.(1)	127	121	95	9	38	41 126
1,2,4-Trichlorobenzene	127	99.1	78	5	23	38 107
4-Chloro-3-methylphenol	253	239	94	8	33	26 103
Acenaphthene	127	106	83	9	19	31-137
4-Nitrophenol	253	241	95	11	50	11-114
2,4-Dinitrotoluene	127	108	85	8	47	28- 89
Pentachlorophenol	253	254	100	7	47	17-109
Pyrene	127	124	98	7	36	35-142

(1) N-Nitroso-di-n-propylamine

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

RPD: 0 out of 11 outside limits
Spike Recovery: 3 out of 22 outside limits

COMMENTS: CLP,S11927,,2C-MW4S2,L,W,11927001,B,
30 TO 310DG @ 10DG/MIN IH=4MIN

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Lab File ID: BBBA001272 Lab Sample ID: S09228B1

Date Extracted: 09/22/88 Extraction:(SepF/Cont/Sonc) SONC

Date Analyzed: 10/04/88 Time Analyzed: 2021

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 5100

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	2C-B3S1	11927013	B1BA001274	10/04/88
02	2C-MW4S2	11927001	B1BA001273	10/04/88
03	MS-16	11927M16	BMBA001275	10/04/88
04	MSD-17	11927D17	BMBA001276	10/04/88

COMMENTS: CLP,S11927,,S09228B1,L,W,S09228B1,B,BLANK,
30 TO 310DG @ 10DG/MIN IH=4MIN

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Lab File ID: B1DF001104 DFTPP Injection Date: 09/06/88

Instrument ID: 5100 DFTPP Injection Time: 1127

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	39.2
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	57.1
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	51.6
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	17.8
365	Greater than 1.00% of mass 198	3.00
441	Present, but less than mass 443	10.7
442	Greater than 40.0% of mass 198	64.2
443	17.0 - 23.0% of mass 442	12.9 (20.1)2

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

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD020	20_BNA_STD	BSBA001105	09/06/88	1144
02	SSTD050	50_BNA_STND	BSBA001106	09/06/88	1232
03	SSTD080	80_BNA_STND	BSBA001107	09/06/88	1319
04	SSTD120	120_BNA_STND	BSBA001108	09/06/88	1407
05	SSTD160	160_BNA_STND	BSBA001109	09/06/88	1454

RS

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Lab File ID: B1DF001263 DFTPP Injection Date: 10/04/88

Instrument ID: 5100 DFTPP Injection Time: 1349

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	55.5
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	64.7
70	Less than 2.0% of mass 69	1.0 (1.6)1
127	40.0 - 60.0% of mass 198	55.3
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.5
275	10.0 - 30.0% of mass 198	26.2
365	Greater than 1.00% of mass 198	2.09
441	Present, but less than mass 443	12.0
442	Greater than 40.0% of mass 198	80.0
443	17.0 - 23.0% of mass 442	15.4 (19.3)2

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

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	50_STD	BSBA001264	10/04/88	1408
02	SBLKS1	S09228B1	BBBA001272	10/04/88	2021
03	2C-MW4S2	11927001	B1BA001273	10/04/88	2107
04	2C-B3S1	11927013	B1BA001274	10/04/88	2154
05	MS-16	11927M16	BMBA001275	10/04/88	2240
06	MSD-17	11927D17	BMBA001276	10/04/88	2327

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Instrument ID: 5100 Calibration Date(s): 09/06/88 09/06/88

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = BSBA001105 RRF50 = BSBA001106
RRF80 = BSBA001107 RRF120= BSBA001108 RRF160= BSBA001109

COMPOUND		RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Phenol	*	1.853	1.843	1.911	2.053	2.007	1.933	4.8*
bis(2-Chloroethyl)Ether		1.454	1.499	1.583	1.747	1.738	1.604	8.4
2-Chlorophenol		1.451	1.288	1.330	1.471	1.526	1.413	7.1
1,3-Dichlorobenzene		1.322	1.254	1.263	1.388	1.493	1.344	7.4
1,4-Dichlorobenzene	*	1.382	1.361	1.301	1.458	1.510	1.402	5.9*
Benzyl Alcohol		0.814	0.820	0.780	0.880	0.640	0.787	11.4
1,2-Dichlorobenzene		1.377	1.302	1.272	1.384	1.437	1.354	4.9
2-Methylphenol		1.114	1.153	1.123	1.248	1.297	1.187	6.8
bis(2-Chloroisopropyl)Ether		0.490	0.615	0.649	2.773	2.892	1.484	83.1
4-Methylphenol		1.158	1.193	1.177	1.302	1.325	1.231	6.2
N-Nitroso-Di-n-Propylamine	#	1.269	1.230	1.171	0.495	1.182	1.069	30.3#
Hexachloroethane		0.710	0.720	0.665	0.722	0.744	0.712	4.1
Nitrobenzene		0.479	0.523	0.480	0.496	0.481	0.492	3.8
Isophorone		0.894	0.891	0.605	0.144	0.638	0.634	48.3
2-Nitrophenol	*	0.193	0.201	0.184	0.195	0.191	0.193	3.2*
2,4-Dimethylphenol		0.404	0.408	0.383	0.409	0.382	0.397	3.4
Benzoic Acid			0.235	0.223	0.264	0.251	0.243	7.4
bis(2-Chloroethoxy)Methane		0.511	0.527	0.520	0.541	0.520	0.524	2.1
2,4-Dichlorophenol	*	0.287	0.279	0.261	0.281	0.271	0.276	3.6*
1,2,4-Trichlorobenzene		0.300	0.289	0.281	0.296	0.295	0.292	2.5
Naphthalene		0.952	0.956	0.980	1.019	1.010	0.983	3.1
4-Chloroaniline		0.252	0.216	0.351	0.402	0.387	0.322	25.8
Hexachlorobutadiene	*	0.168	0.163	0.160	0.173	0.164	0.166	3.0*
4-Chloro-3-methylphenol	*	0.347	0.362	0.329	0.346	0.324	0.342	4.5*
2-Methylnaphthalene		0.520	0.527	0.500	0.511	0.513	0.514	2.0
Hexachlorocyclopentadiene	#	0.275	0.296	0.303	0.344	0.303	0.304	8.2#
2,4,6-Trichlorophenol	*	0.382	0.385	0.378	0.451	0.394	0.398	7.6*
2,4,5-Trichlorophenol			0.361	0.350	0.326	0.324	0.340	5.4
2-Chloronaphthalene		1.217	1.198	1.208	1.255	1.168	1.209	2.6
2-Nitroaniline			0.450	0.478	0.465	0.444	0.459	3.3
Dimethyl Phthalate		1.375	1.361	1.302	1.109	1.260	1.281	8.3
Acenaphthylene		1.816	1.800	1.742	1.812	1.659	1.766	3.8
2,6-Dinitrotoluene		0.319	0.299	0.298	0.231	0.268	0.283	12.1
3-Nitroaniline			0.104	0.240	0.288	0.087	0.180	55.3
Acenaphthene	*	1.248	1.213	1.195	1.258	1.222	1.227	2.1*
2,4-Dinitrophenol	#		0.104	0.110	0.123	0.132	0.117	10.8#
4-Nitrophenol	#		0.138	0.139	0.141	0.165	0.146	8.8#

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Instrument ID: 5100 Calibration Date(s): 09/06/88 09/06/88

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = BSBA001105 RRF50 = BSBA001106
RRF80 = BSBA001107 RRF120= BSBA001108 RRF160= BSBA001109

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Dibenzofuran	1.596	1.535	1.538	1.554	1.454	1.535	3.4
2,4-Dinitrotoluene	0.384	0.345	0.326	0.327	0.349	0.346	6.8
Diethylphthalate	1.600	1.474	1.415	1.391	1.465	1.469	5.5
4-Chlorophenyl-phenylether	0.569	0.532	0.546	0.567	0.557	0.554	2.8
Fluorene	1.189	1.178	1.113	1.074	1.090	1.129	4.6
4-Nitroaniline		0.037	0.041	0.050	0.087	0.054	42.3
4,6-Dinitro-2-methylphenol		0.116	0.104	0.116	0.125	0.115	7.5
N-Nitrosodiphenylamine (1) *	0.494	0.523	0.519	0.426	0.566	0.506	10.2*
1,2-Diphenylhydrazine	1.315	1.564	1.669	1.712	0.742	1.400	28.5
4-Bromophenyl-phenylether	0.239	0.249	0.247	0.233	0.235	0.241	3.0
Hexachlorobenzene	0.285	0.276	0.271	0.264	0.271	0.273	2.8
Pentachlorophenol *		0.134	0.117	0.133	0.140	0.131	7.5*
Phenanthrene	0.977	0.957	0.970	1.043	1.073	1.004	5.1
Anthracene	0.923	0.969	0.973	0.975	0.985	0.965	2.5
Di-n-Butylphthalate	1.422	1.398	1.430	1.515	1.563	1.466	4.8
Fluoranthene *	0.759	0.745	0.829	0.906	0.946	0.837	10.6*
Pyrene	1.597	1.493	1.414	1.315	1.367	1.437	7.7
Butylbenzylphthalate	0.949	0.920	0.930	0.869	0.825	0.899	5.6
3,3'-Dichlorobenzidine	0.159	0.124	0.141	0.176	0.113	0.143	17.9
Benzo(a)anthracene	1.055	1.075	1.069	1.073	0.986	1.052	3.6
Chrysene	0.976	0.941	0.933	0.745	0.842	0.887	10.6
bis(2-Ethylhexyl)Phthalate	1.394	1.342	1.382	1.312	1.254	1.337	4.2
Di-n-octylphthalate *	2.752	2.523	2.567	2.271	2.240	2.471	8.7*
Benzo(b)fluoranthene	1.069	1.068	1.188	1.115	0.992	1.086	6.6
Benzo(k)fluoranthene	0.995	0.942	0.971	0.900	0.997	0.961	4.2
Benzo(a)pyrene *	0.860	0.913	0.953	0.888	0.970	0.917	4.9*
Indeno(1,2,3-cd)Pyrene	0.636	0.727	0.864	0.865	0.963	0.811	15.9
Dibenz(a,h)Anthracene	0.547	0.652	0.792	0.743	0.806	0.708	15.3
Benzo(g,h,i)perylene	0.760	0.784	0.893	0.837	0.934	0.842	8.6
Nitrobenzene-d5 - SS	0.224	0.232	0.223	0.224	0.224	0.225	1.7
2-Fluorobiphenyl - SS	0.604	0.589	0.580	0.583	0.554	0.582	3.1
Terphenyl-d14 - SS	0.533	0.536	0.491	0.462	0.468	0.498	7.0
Phenol-d5 - SS	1.525	1.489	1.397	1.882	1.531	1.565	11.8
2-Fluorophenol - SS	1.262	1.235	1.127	1.203	1.264	1.218	4.7
2,4,6-Tribromophenol - SS	0.174	0.159	0.162	0.153	0.183	0.166	7.3

(1) Cannot be separated from Diphenylamine

RS.

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Instrument ID: 5100 Calibration date: 10/04/88 Time: 1408

Lab File ID: BSBA001264 Init. Calib. Date(s): 09/06/88 09/06/88

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Phenol	*	1.933	1.892	2.1	*
bis(2-Chloroethyl)Ether		1.604	1.863	-16.2	
2-Chlorophenol		1.413	1.574	-11.4	
1,3-Dichlorobenzene		1.344	1.454	-8.2	
1,4-Dichlorobenzene	*	1.402	1.492	-6.4	*
Benzyl Alcohol		0.787	0.642	18.4	
1,2-Dichlorobenzene		1.354	1.369	-1.1	
2-Methylphenol		1.187	1.152	2.9	
bis(2-Chloroisopropyl)Ether		1.484	2.534	-70.8	
4-Methylphenol		1.231	1.157	6.0	
N-Nitroso-Di-n-Propylamine	#	1.069	1.139	-6.5	#
Hexachloroethane		0.712	0.684	3.9	
Nitrobenzene		0.492	0.487	1.0	
Isophorone		0.634	0.877	-38.3	
2-Nitrophenol	*	0.193	0.200	-3.6	*
2,4-Dimethylphenol		0.397	0.401	-1.0	
Benzoic Acid		0.243	0.263	-8.2	
bis(2-Chloroethoxy)Methane		0.524	0.529	-1.0	
2,4-Dichlorophenol	*	0.276	0.281	-1.8	*
1,2,4-Trichlorobenzene		0.292	0.316	-8.2	
Naphthalene		0.983	1.024	-4.2	
4-Chloroaniline		0.322	0.352	-9.3	
Hexachlorobutadiene	*	0.166	0.189	-13.9	*
4-Chloro-3-methylphenol	*	0.342	0.342	0.0	*
2-Methylnaphthalene		0.514	0.552	-7.4	
Hexachlorocyclopentadiene	#	0.304	0.333	-9.5	#
2,4,6-Trichlorophenol	*	0.398	0.393	1.3	*
2,4,5-Trichlorophenol		0.340	0.358	-5.3	
2-Chloronaphthalene		1.209	1.236	-2.2	
2-Nitroaniline		0.459	0.496	-8.1	
Dimethyl Phthalate		1.281	1.351	-5.5	
Acenaphthylene		1.766	1.753	0.7	
2,6-Dinitrotoluene		0.283	0.314	-11.0	
3-Nitroaniline		0.180	0.247	-37.2	
Acenaphthene	*	1.227	1.231	-0.3	*
2,4-Dinitrophenol	#	0.117	0.142	-21.4	#
4-Nitrophenol	#	0.146	0.215	-47.3	#

RS

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

H M HILL/MGM Contract: _____

Case No.: S11927 SAS No.: _____ SDG No.: _____

I.: 5100 Calibration date: 10/04/88 Time: 1408

: BSBA001264 Init. Calib. Date(s): 09/06/88 09/06/88

or SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
ibenzofuran		1.535	1.527	0.5	
,4-Dinitrotoluene		0.346	0.386	-11.6	
Diethylphthalate		1.469	1.547	-5.3	
-Chlorophenyl-phenylether		0.554	0.585	-5.6	
luorene		1.129	1.150	-1.9	
4-Nitroaniline		0.054	0.058	-7.4	
4,6-Dinitro-2-methylphenol		0.115	0.139	-20.9	
-Nitrosodiphenylamine (1)	*	0.506	0.508	-0.4	*
,2-Diphenylhydrazine		1.400	1.572	-12.3	
4-Bromophenyl-phenylether		0.241	0.236	2.1	
exachlorobenzene		0.273	0.275	-0.7	
entachlorophenol	*	0.131	0.143	-9.2	*
Phenanthrene		1.004	0.983	2.1	
nthracene		0.965	0.949	1.7	
i-n-Butylphthalate		1.466	1.541	-5.1	
luoranthene	*	0.837	0.905	-8.1	*
Pyrene		1.437	1.544	-7.4	
utylbenzylphthalate		0.899	0.890	1.0	
,3'-Dichlorobenzidine		0.143	0.098	31.5	
Benzo(a)anthracene		1.052	1.003	4.7	
rysene		0.887	0.831	6.3	
s(2-Ethylhexyl)Phthalate		1.337	1.261	5.7	
Di-n-octylphthalate	*	2.471	2.925	-18.4	*
Benzo(b)fluoranthene		1.086	1.418	-30.6	
nzo(k)fluoranthene		0.961	1.178	-22.6	
Benzo(a)pyrene	*	0.917	1.109	-20.9	*
Indeno(1,2,3-cd)Pyrene		0.811	1.118	-37.9	
benz(a,h)Anthracene		0.708	1.057	-49.3	
nzo(g,h,i)perylene		0.842	1.039	-23.4	
trobenzene-d5 - SS		0.225	0.232	-3.1	
Fluorobiphenyl - SS		0.582	0.616	-5.8	
erphenyl-d14 - SS		0.498	0.529	-6.2	
enol-d5 - SS		1.565	1.886	-20.5	
Fluorophenol - SS		1.218	1.510	-24.0	
2,4,6-Tribromophenol - SS		0.166	0.203	-22.3	

, Cannot be separated from Diphenylamine

RS

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): BSBA001264 Date Analyzed: 10/04/88

Instrument ID: 5100 Time Analyzed: 1408

		IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
	12 HOUR STD	13300	8.60	45200	11.67	19500	16.05
	UPPER LIMIT	26600		90400		39000	
	LOWER LIMIT	6650		22600		9750	
	EPA SAMPLE NO.						
01	2C-B3S1	12500	8.59	41600	11.64	18500	16.04
02	2C-MW4S2	12300	8.62	39500	11.65	18300	16.04
03	MS-16	14400	8.62	47900	11.65	22000	16.05
04	MSD-17	14500	8.62	45700	11.65	21500	16.04
05	SBLKS1	13800	8.60	44300	11.64	20800	16.04

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

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S11927 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): BSBA001264 Date Analyzed: 10/04/88

Instrument ID: 5100 Time Analyzed: 1408

		IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
	12 HOUR STD	28300	19.74	16300	26.47	10800	29.84
	UPPER LIMIT	56600		32600		21600	
	LOWER LIMIT	14150		8150		5400	
	EPA SAMPLE NO.						
01	2C-B3S1	29500	19.70	15700	26.44	11700	29.79
02	2C-MW4S2	28100	19.70	16100	26.47	11300	29.82
03	MS-16	32500	19.72	20300	26.46	14500	29.82
04	MSD-17	31100	19.72	19400	26.46	13700	29.81
05	SBLKS1	32200	19.70	18400	26.44	11800	29.81

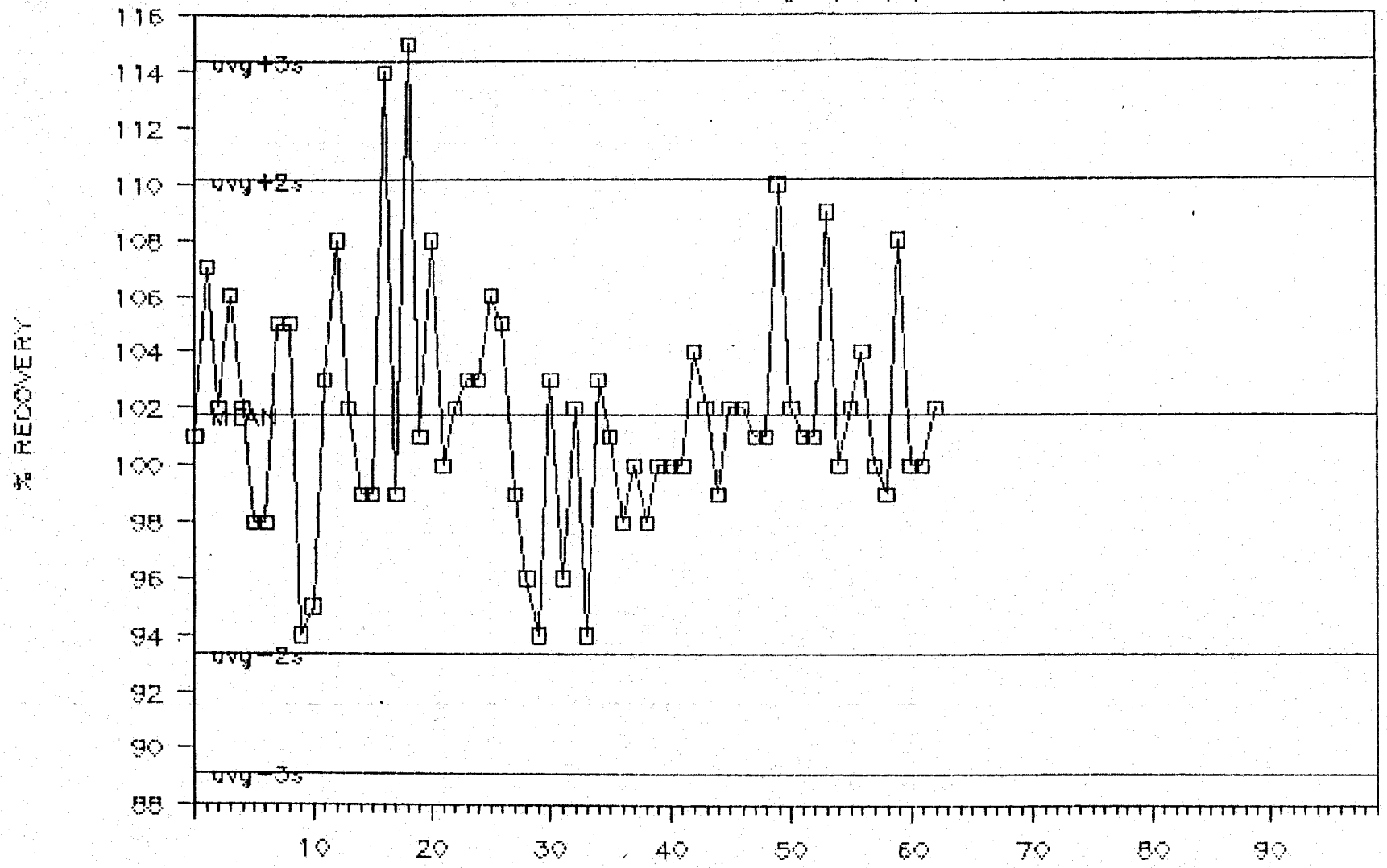
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

SURROGATE RECOVERY

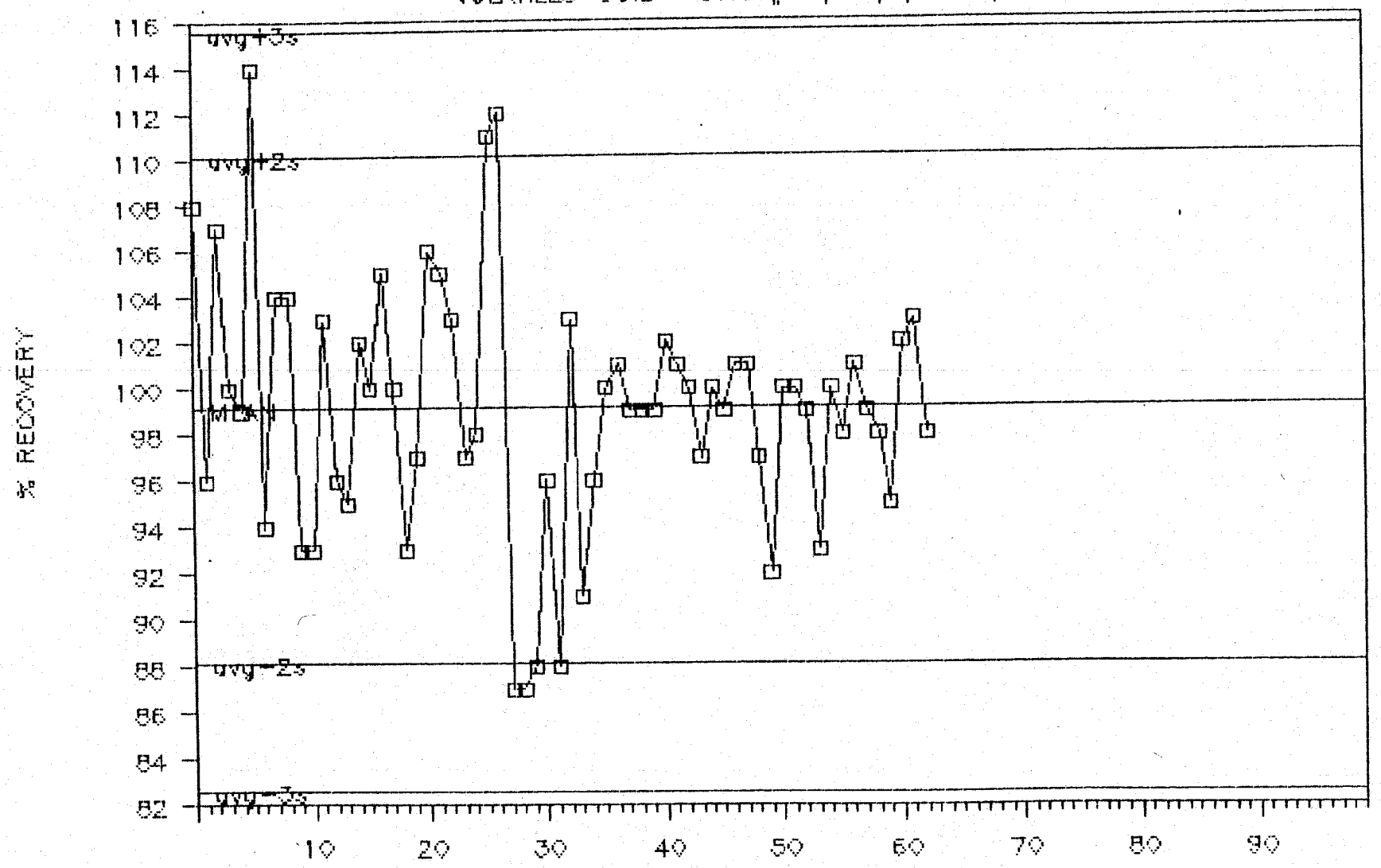
VOLATILES-SOIL - SURR.#1 (TOL) (11927)



000114

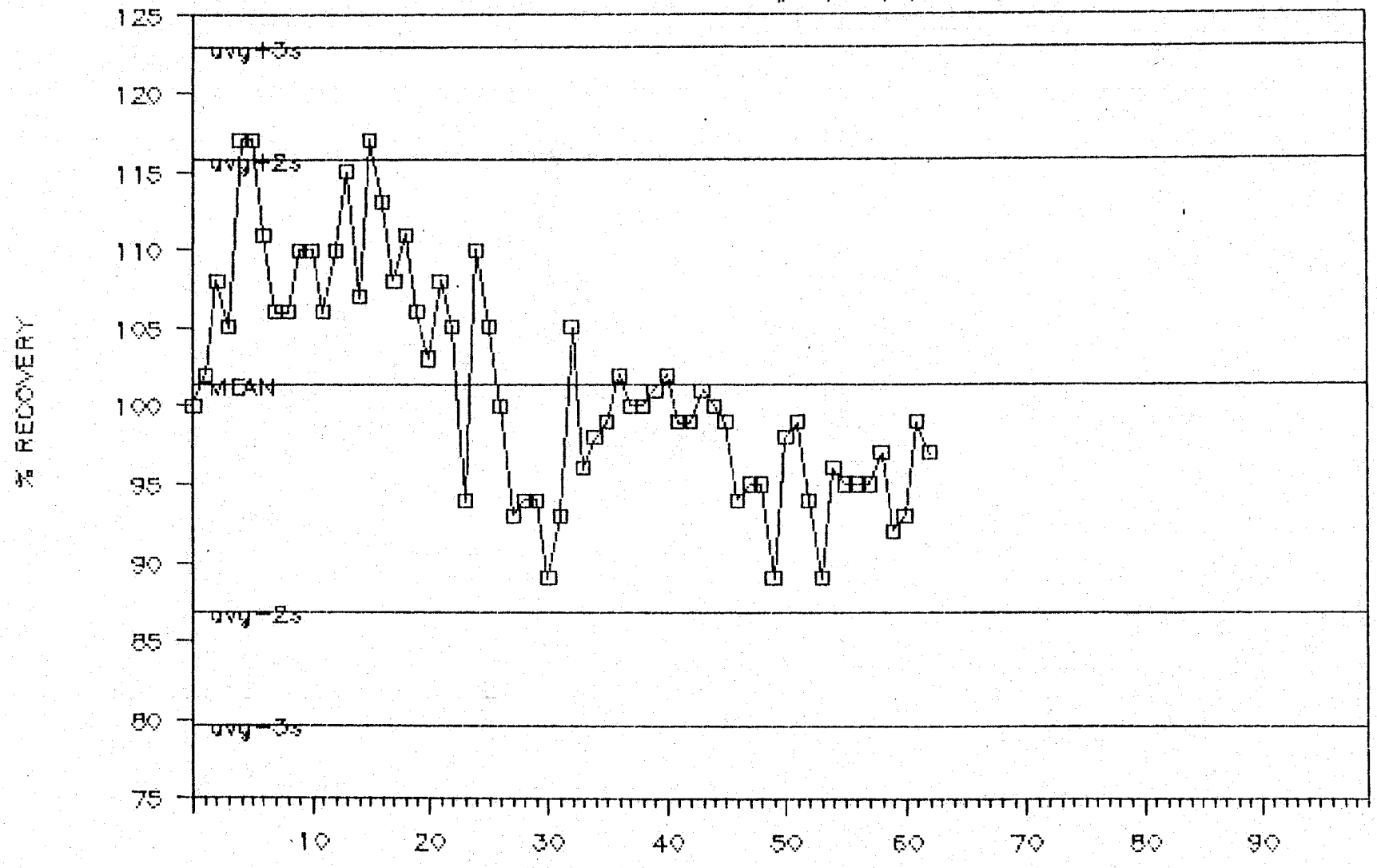
SURROGATE RECOVERY

VOLATILES-SOIL - SURR.#2 (BFB) (11927)



SURROGATE RECOVERY

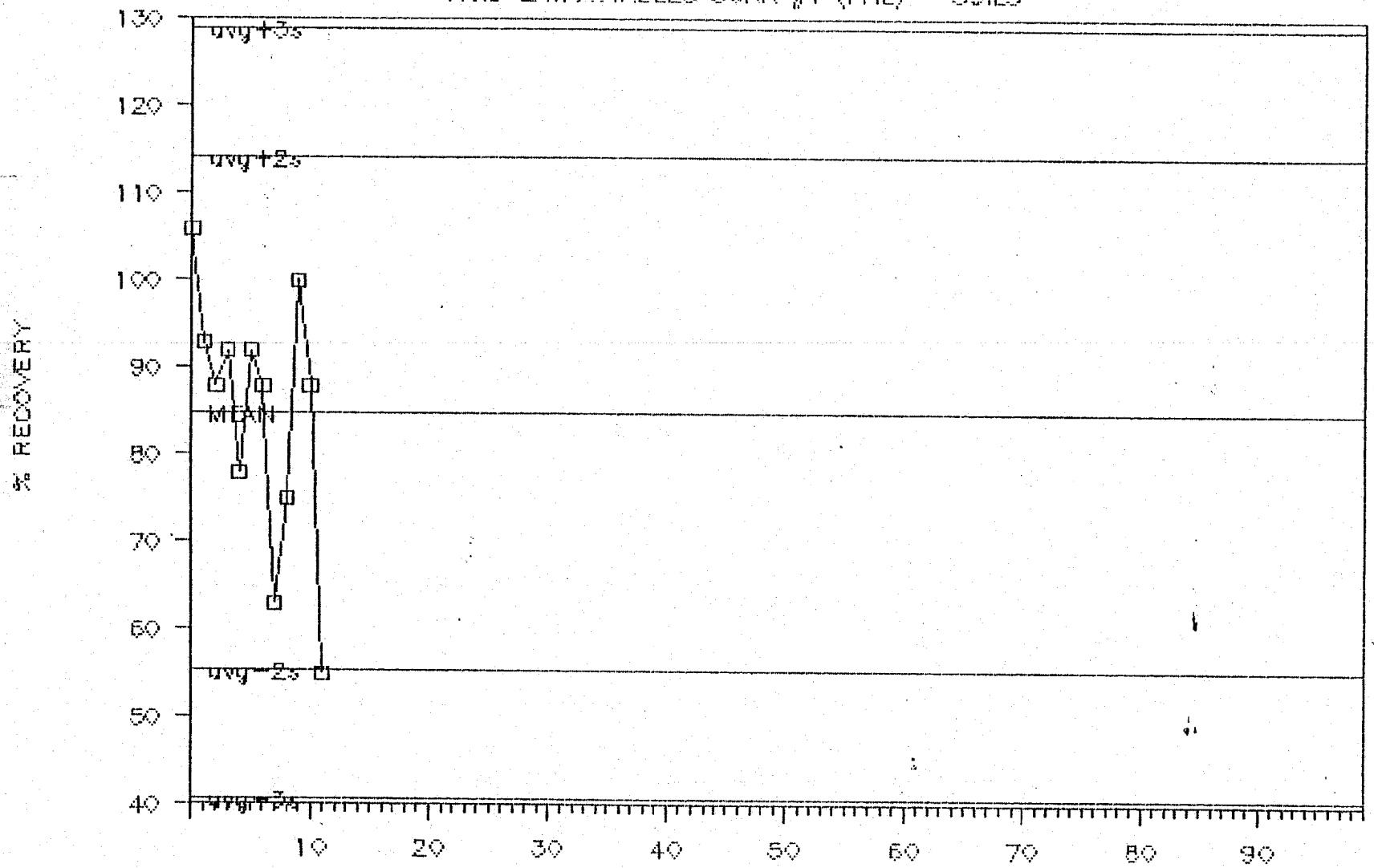
VOLATILES-SOIL - SURR.#3 (DCE) (11927)



000116

SURROGATE RECOVERY (11927)

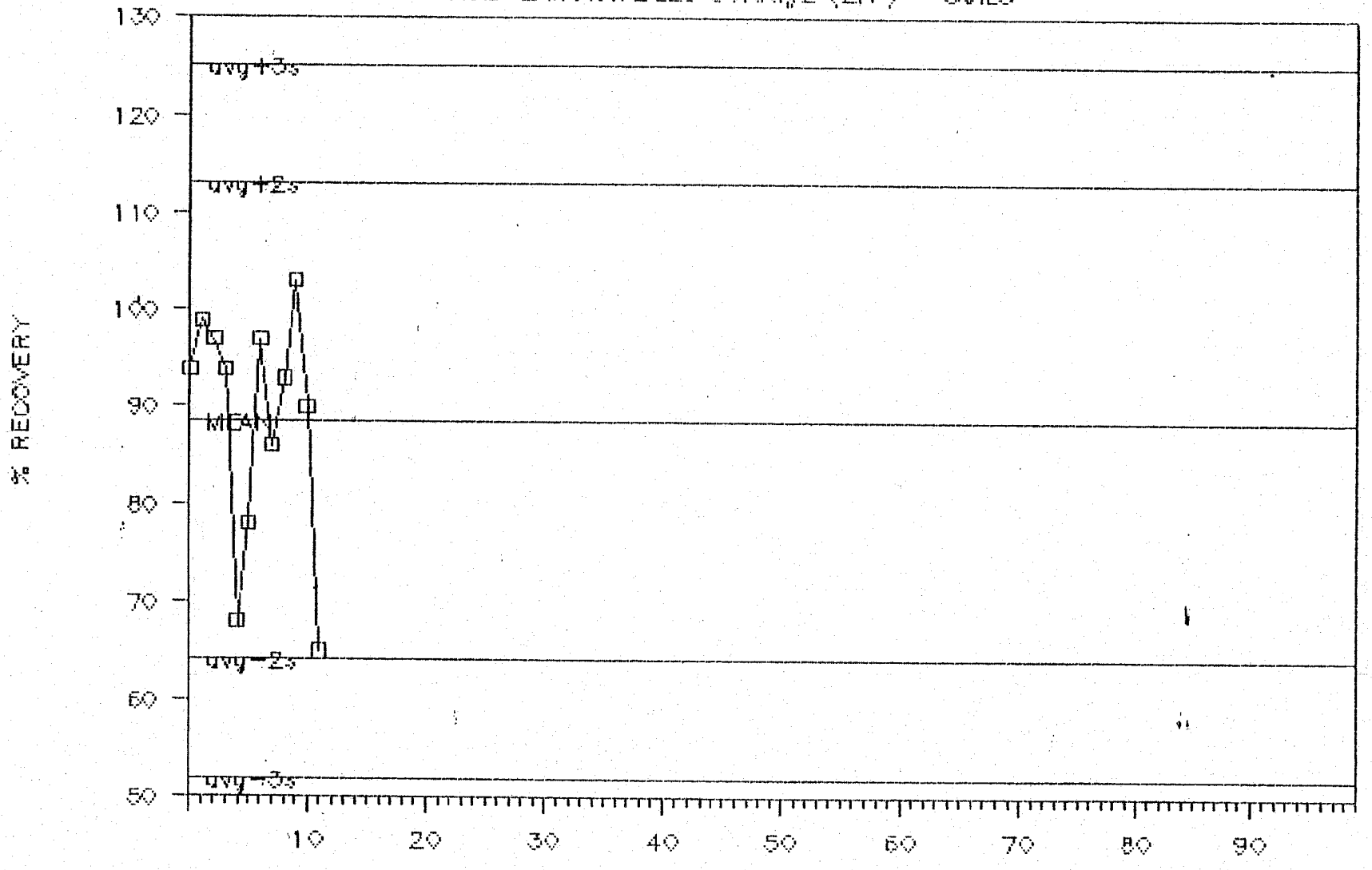
ACID EXTRACTABLES SURR #1 (FHL) - SOILS



000117

SURROGATE RECOVERY (11927)

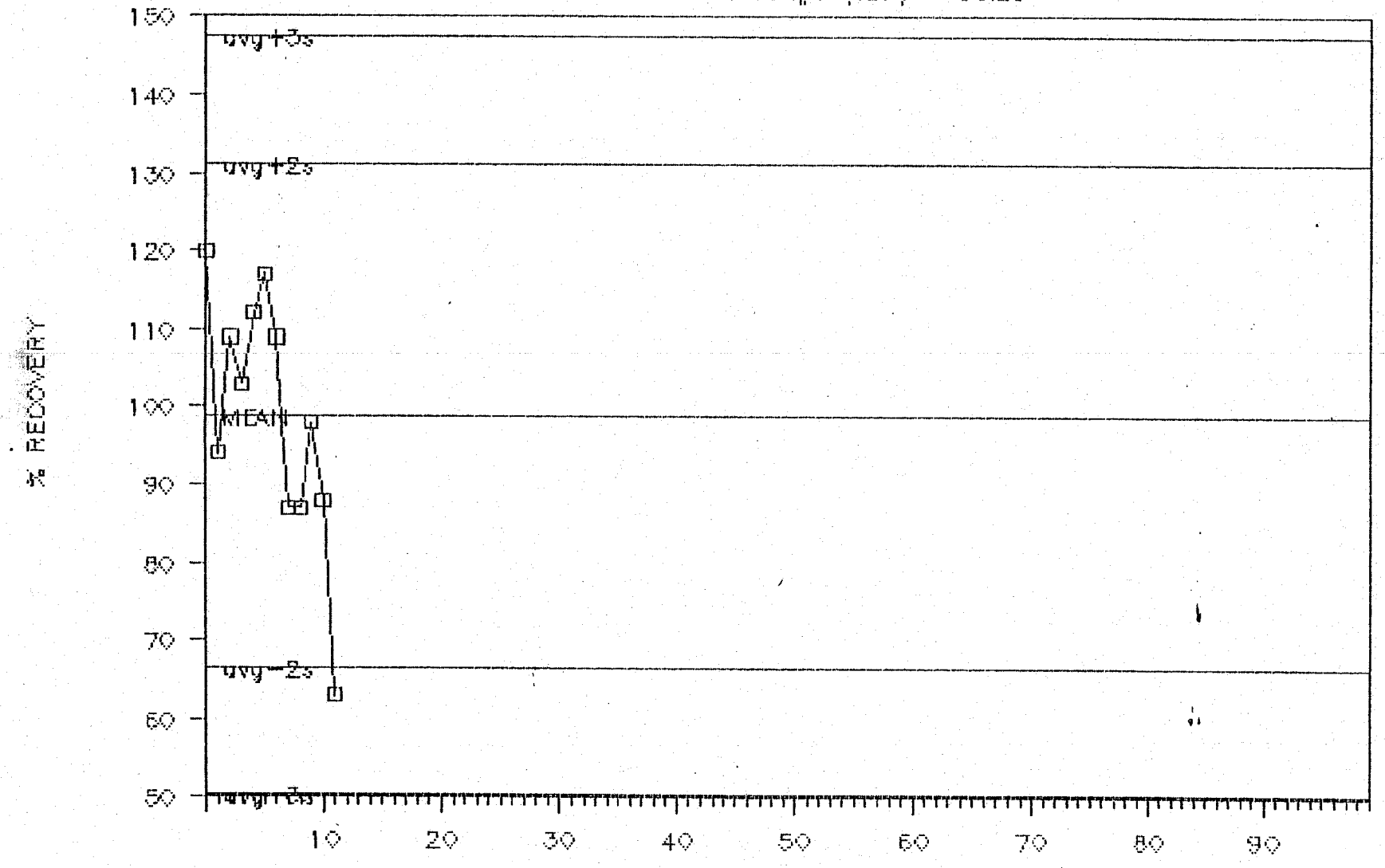
ACID EXTRACTABLES SURR.#2 (2FP) - SOILS



00118

SURROGATE RECOVERY (11927)

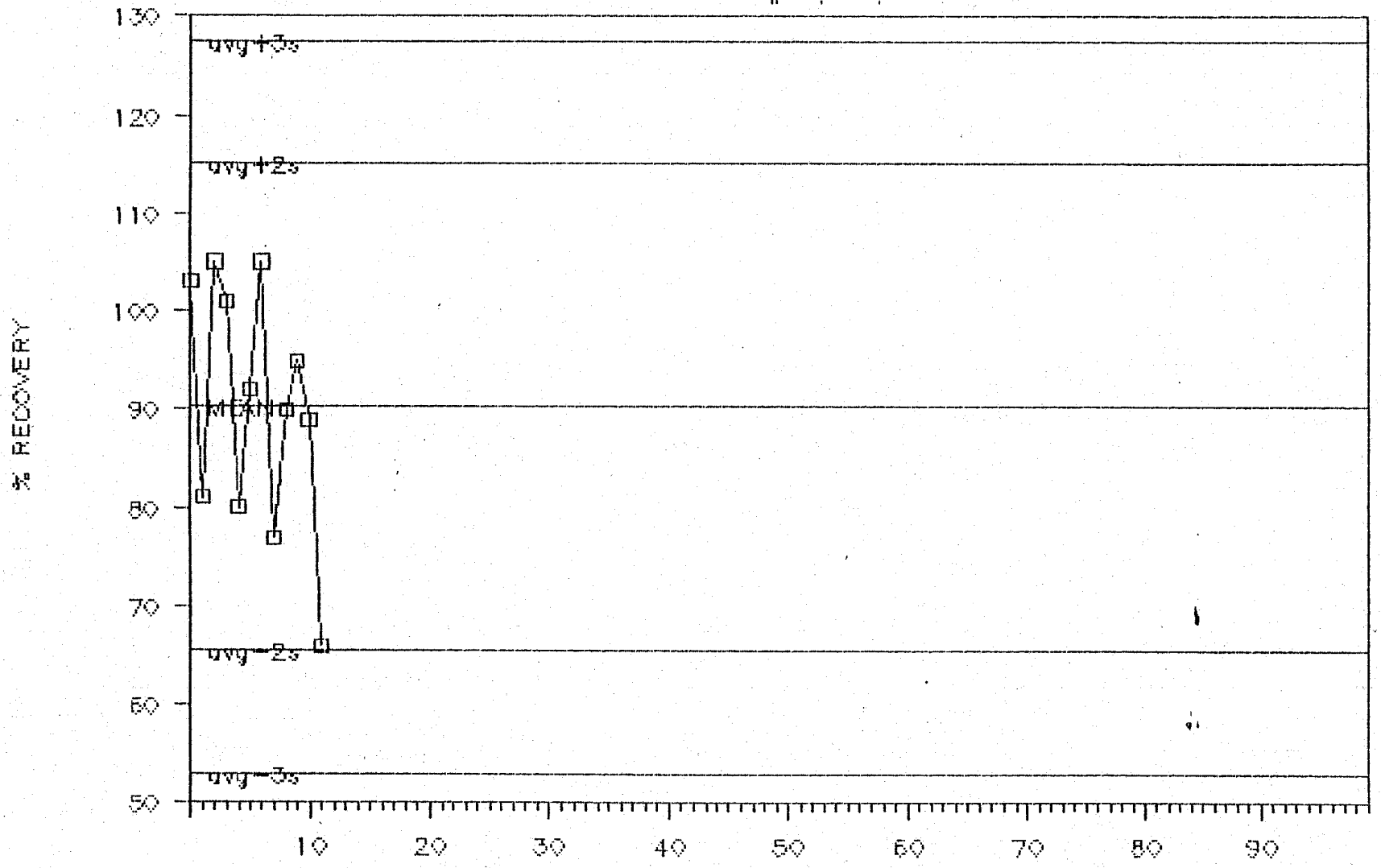
ACID EXTRACTABLES SURR.#3 (TBP) - SOILS



000119

SURROGATE RECOVERY (11927)

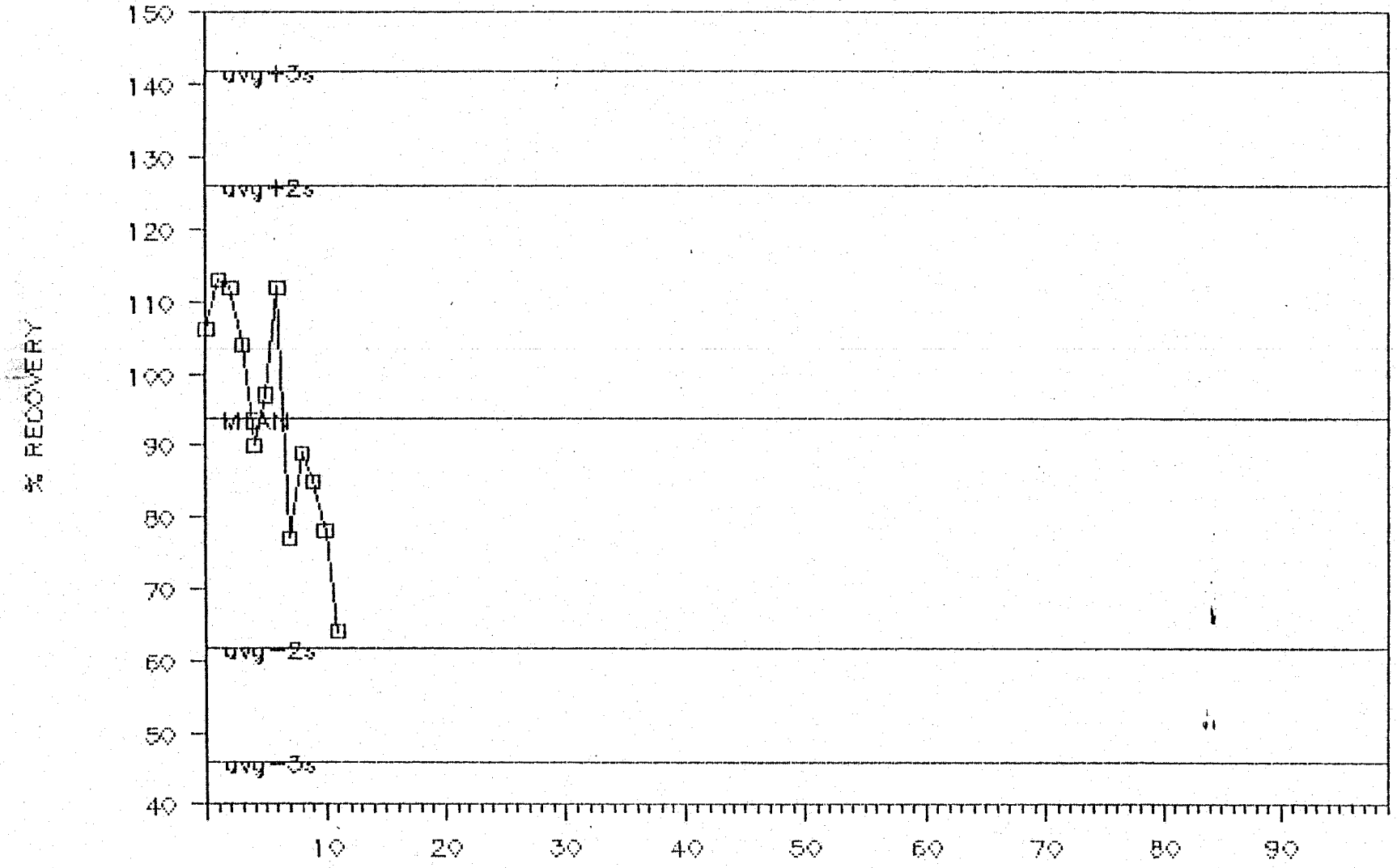
BASE NEUTRALS SURR. #1 (NBZ) - SOILS



000120

SURROGATE RECOVERY (11927)

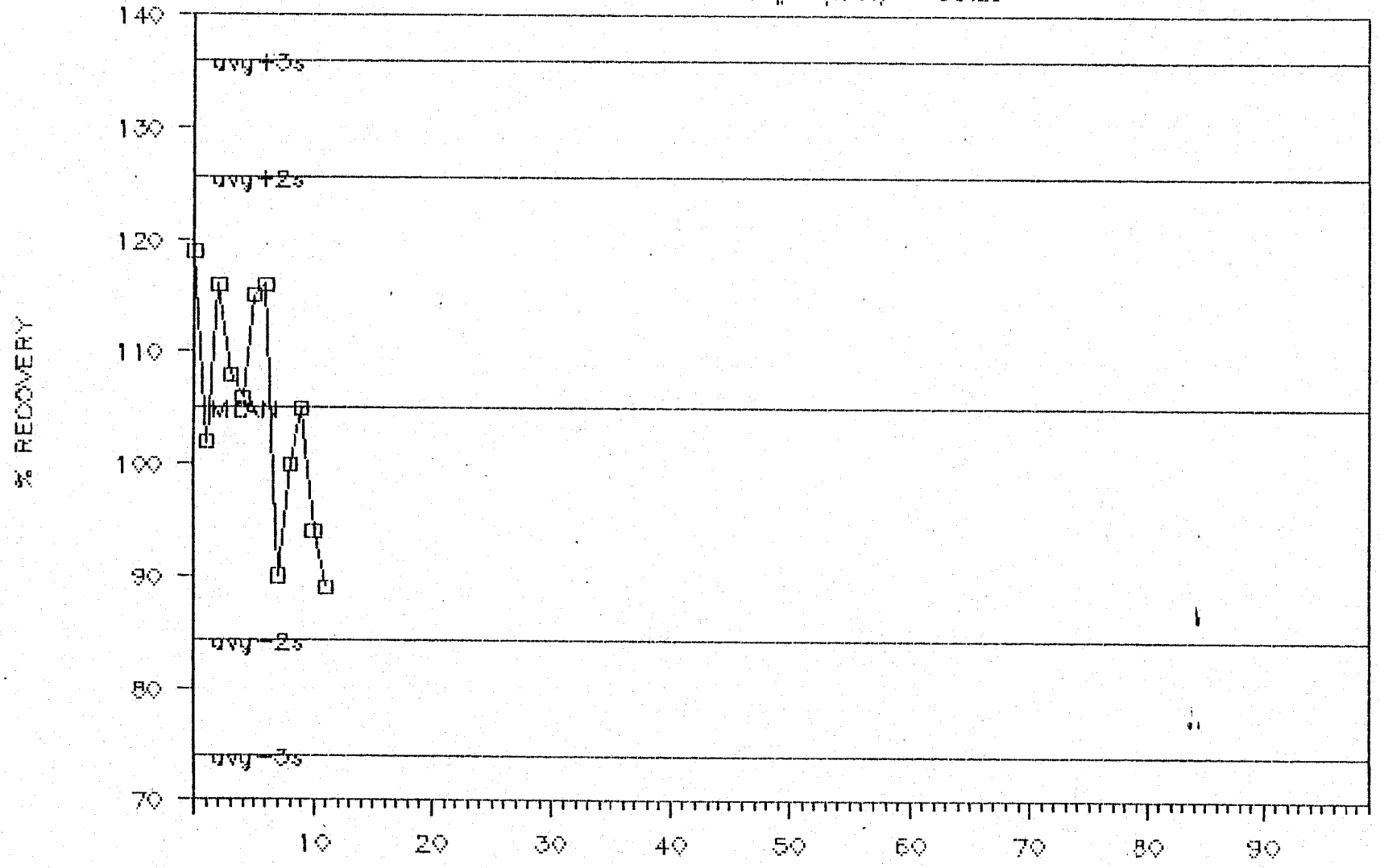
BASE NEUTRALS SURR. #2 (FBP) - SOILS



000121

SURROGATE RECOVERY (11927)

BASE NEUTRALS SURR. #3 (TPH) - SOILS



000122

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 11/02/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11927

RE: Sample(s) received by CH2M HILL on 09/16/88.
LANTDIV

Analysis Description	[Method]	2C-MW4S2 * 9/14/88 1100 COMP SOIL	2C-B1S1 * 9/14/88 1515 COMP	2C-B1S2 * 9/14/88 1515 COMP	2C-B2S1 * 9/14/88 1544 COMP	2C-B2S2 * 9/14/88 1544 COMP	2C-B6S1 * 9/14/88 1615 COMP	2C-B6S2 * 9/14/88 1615 COMP
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Flashpoint (F)	[SW1010]	>100	-------	-------	-------	-------	-------	-------
EP Tox. Silver (ug/L)	[EPA200.7]	-------	<30	<30	<30	<30	<30	<30
EP Tox. Arsenic (ug/L)	[EPA206.2]	-------	<5	<5	5	<5	<5	<5
EP Tox. Barium (ug/L)	[EPA200.7]	-------	180	<100	160	<100	<100	<100
EP Tox. Cadmium (ug/L)	[EPA200.7]	-------	<20	<20	<20	<20	<20	<20
EP Tox. Chromium (ug/L)	[EPA200.7]	-------	<10	10	20	<10	10	<10
EP Tox. Mercury (ug/L)	[EPA245.1]	-------	0.4	0.4	0.4	0.4	0.4	0.3
EP Tox. Lead (ug/L)	[EPA200.7]	-------	<5	<5	9	<5	<5	6
EP Tox. Selenium (ug/L)	[EPA270.2]	-------	<5	<5	<5	<5	<5	<5

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 11/02/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11927

RE: Sample(s) received by CH2M HILL on 09/16/88.
LANTDIV

Analysis Description	[Method]	2C-B5S1 * 9/15/88 1100 COMP	2C-B5S2 * 9/15/88 1100 COMP	2C-B5S2D * DUPLICATE 9/15/88 1100 COMP	2C-B4S1 * 9/15/88 1130 COMP	2C-B4S2 * 9/15/88 1130 COMP	2C-B3S1 * 9/15/88 1200 COMP	2C-B3S2 * 9/15/88 1200 COMP
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Flashpoint (F)	[SW1010]	-------	-------	-------	-------	-------	>100	-------
EP Tox. Silver (ug/L)	[EPA200.7]	<30	<30	<30	<30	<30	<30	<30
EP Tox. Arsenic (ug/L)	[EPA206.2]	<5	<5	<5	<5	<5	<5	<5
EP Tox. Barium (ug/L)	[EPA200.7]	<100	<100	170	<100	<100	<100	<100
EP Tox. Cadmium (ug/L)	[EPA200.7]	<20	<20	<20	<20	<20	<20	<20
EP Tox. Chromium (ug/L)	[EPA200.7]	<10	<10	<10	<10	<10	<10	<10
EP Tox. Mercury (ug/L)	[EPA245.1]	<0.4	0.2	0.3	<0.4	<0.4	<0.4	<0.4
EP Tox. Lead (ug/L)	[EPA200.7]	<5	<5	<5	<5	<5	<5	<5
EP Tox. Selenium (ug/L)	[EPA270.2]	<5	<5	<5	<5	<5	<5	<5

Analyses performed in accordance with methods approved by the USEPA.

Respectfully Submitted,

Mr. James M. Schoen
Inorganic Laboratory Manager

cc: MR. FRANK LEWIS/WDC, MS. MARY WISDOM/MGM

INORG(MGM-8809C)

CH2M HILL
Engineers
Planners
Economists
Scientists

October 17, 1988

W20368.D0

Mr. Doug Dronfield
CH2M HILL/WDC
P.O. Box 4400
Reston, Virginia 22090

RE: Analytical Data for Laboratory No. 11978

Dear Mr. Dronfield:

On September 24, 1988, CH2M HILL Montgomery Laboratory received sixteen samples with a request for analysis of selected organic parameters.

The analytical results and the associated quality control data are enclosed. Sample 11978008 (2c-MW4) shows an "E" qualifier for vinyl chloride. The 210 ppb quantitation is accurate but was reported with an "E" qualifier because the number is rounded-up by CLP protocal to 210 ppb which is just above the calibration limit of 200 ppb. Please note Forms II, IV, V and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to the CH2M HILL Montgomery laboratory identification numbers. No unusual difficulties were encountered during the analysis of these samples.

If you should have any questions concerning the data, please call.

Sincerely,

Ward Dickens

Ward Dickens
Manager, Organic Analysis

Enclosures

cc: Mr. Craig Vinson
Mr. Frank Lewis/WDC
Ms. Mary Wisdom/MGM

CH2M HILL Montgomery Environmental Laboratory 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205.271.1444

Engineers
Planners
Economists
Scientists

CH2M HILL

CH2M Hill Montgomery Laboratory

SAMPLE DESCRIPTION CROSS-REFERENCE LIST PRODUCED ON 10/17/88 AT 16:41 PAGE

SAMPLE #	DESCRIPT	DESCRIPT	DESCRIPT	DESCRIPT	DESCRIPT	DESCRIPT
1197800100	2C-MW2 *	9/23/88	1015 GRAB			
1197800200	2C-PW1 *	9/23/88	1000 GRAB			
1197800300	2B-MW7 *	9/22/88	1340 GRAB			
1197800400	2B-MW5 *	9/23/88	0900 GRAB			
1197800500	2B-MW4 *	9/23/88	0800 GRAB			
1197800600	2B-MW3 *	9/22/88	1630 GRAB			
1197800700	2B-MW2 *	9/22/88	1515 GRAB			
1197800800	2C-MW4 *	9/22/88	1730 GRAB			
1197800900	2B-FB1 *	9/22/88	1350 GRAB	FIELD	BLANK	
1197801000	EQ-1 *	9/22/88	1430 GRAB	EQUIPMENT	BLANK	
1197801100	2B-MW1 *	9/22/88	1345 GRAB			
1197801200	2B-MW6 *	9/22/88	1200 GRAB			
1197801300	2C-MW1 *	9/23/88	1100 GRAB			
1197801400	2C MW-3	9/23/88	1200 GRAB			
1197801500	EQ-2 *	9/23/88	1215 GRAB	EQUIPMENT	BLANK	
1197801600	TB *	9/23/88	TRIP	BLANK		
11978D0300	MSD *	MATRIX	SPIKE	DUPLICATE	9/22/88	
11978M0300	MS *	MATRIX	SPIKE	9/22/88		

18 SELECTIONS QUALIFIED

000002

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-MW2_1015

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978001

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C1VO001825

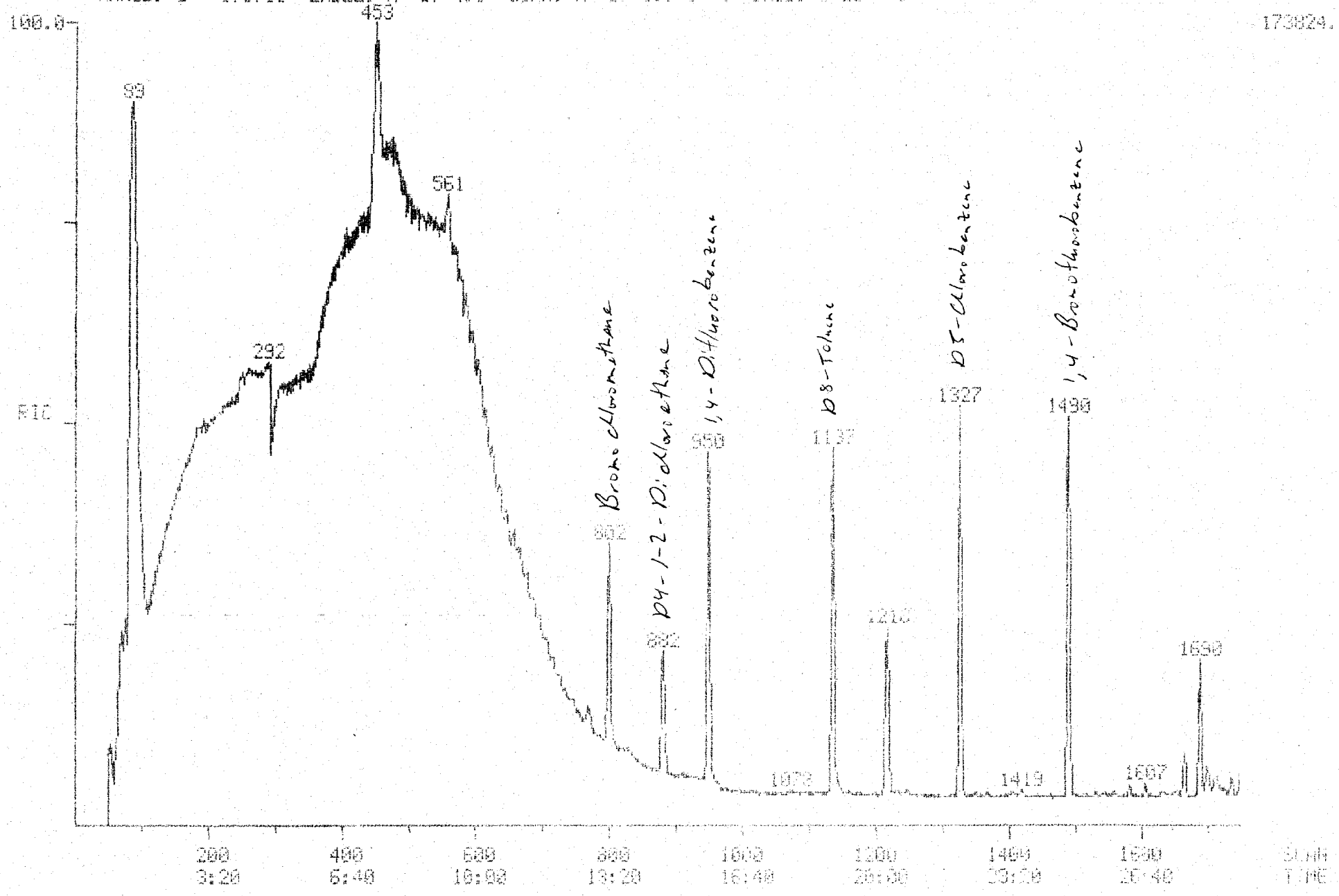
Level: (low/med) LOW Date Received: 09/24/88

% Moisture: not dec. _____ Date Analyzed: 10/06/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	37	
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	7	BJ
67-64-1	Acetone	30	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

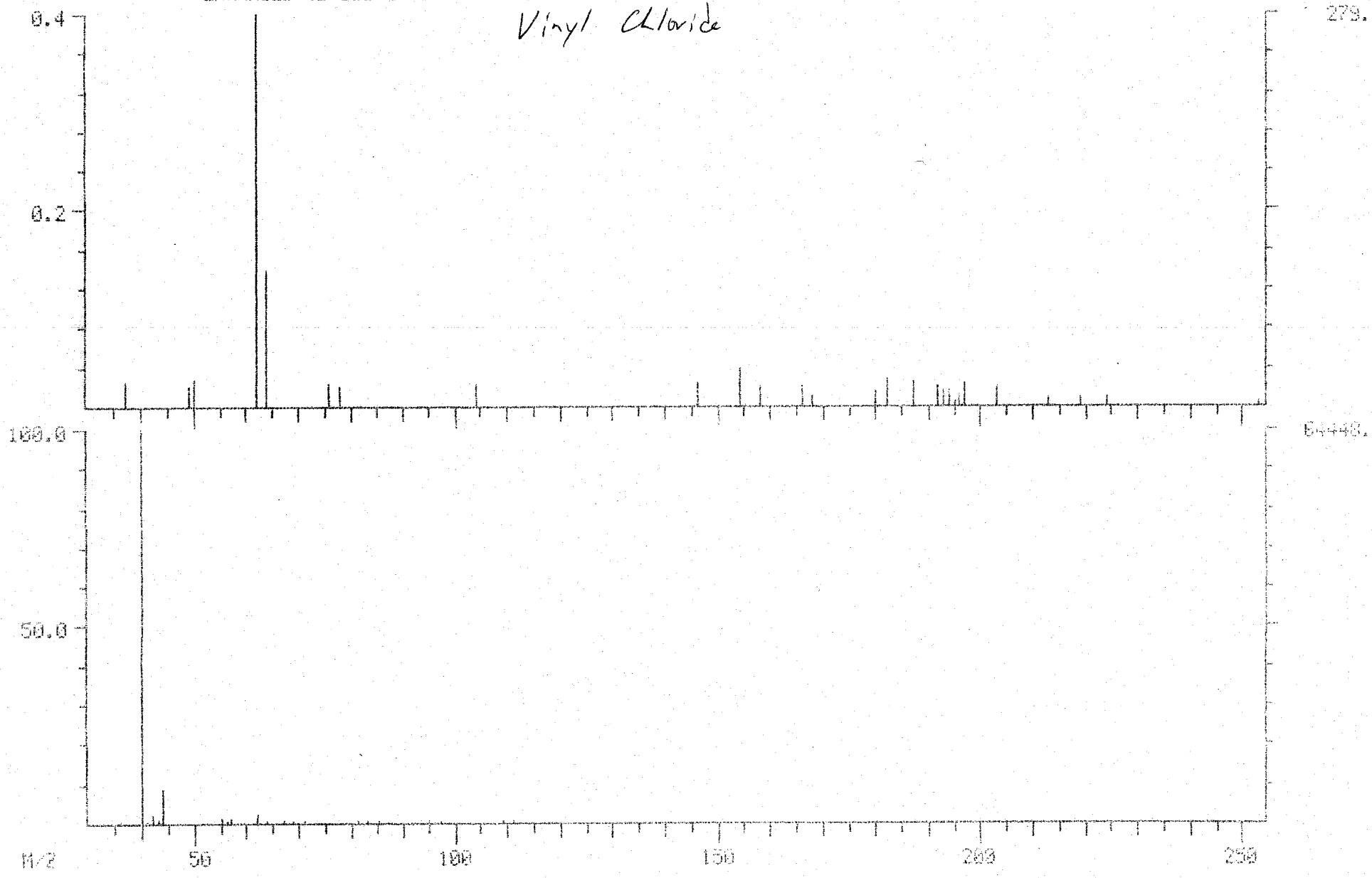
RIC DATA: C1V0001825 #1 SCANS 1 TO 1750
10/06/88 11:01:00 CALI: C1V0001825 #5
SAMPLE: CLP.V11978.,2C-MW2_1015.L.W.11978001.V.,
CONDS.: -10DG TO 160DG @ 6DG/MIN IN=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20 I



000006

DUAL MASS SPECTRUM
10/06/88 11:01:00 + 3:06
SAMPLE: CLP,V11978,,2C-MW2_1015,L,W,11978001,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

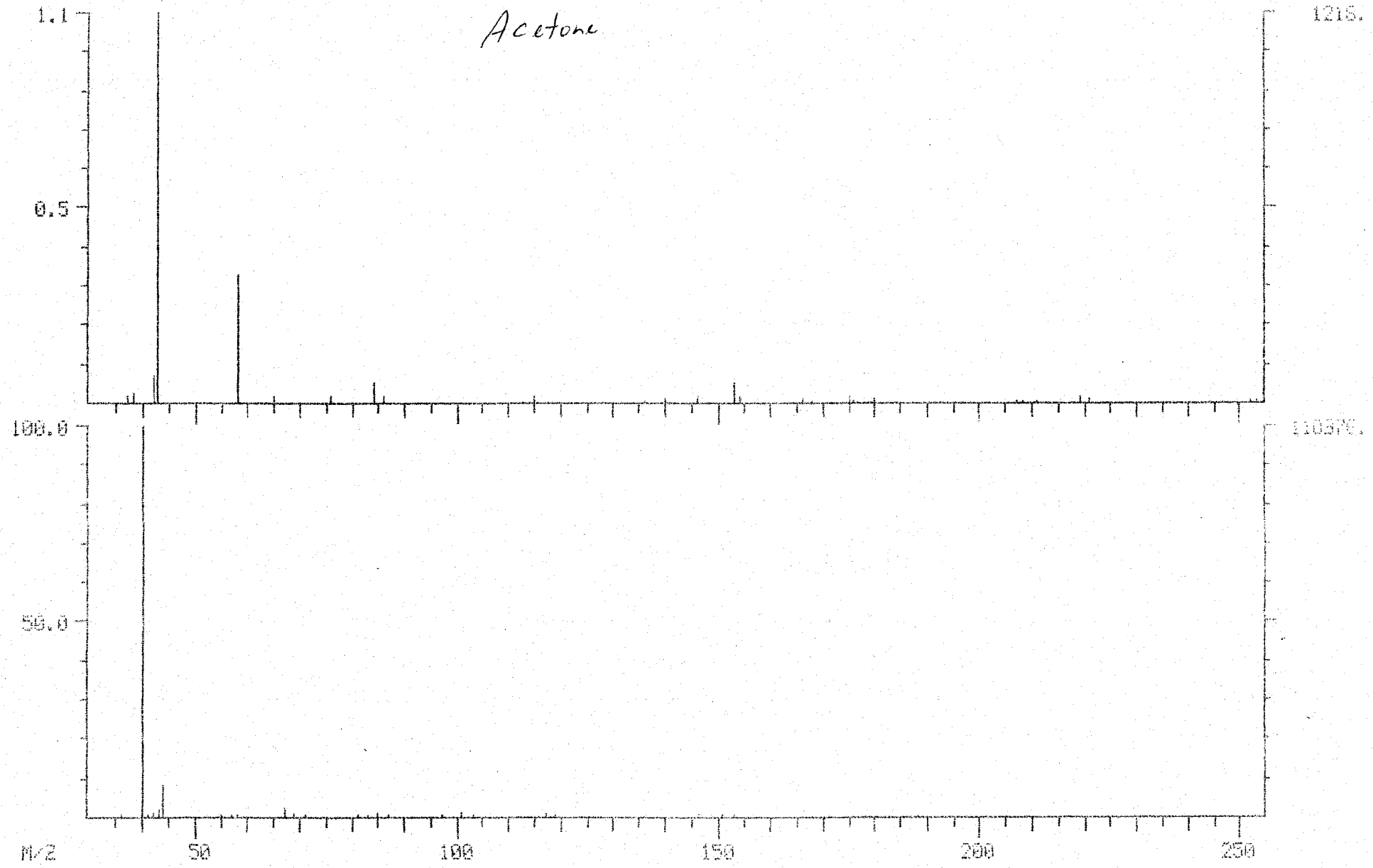
DATA: C1V0001825 #186 BASE M/Z: 62 40
CALI: C1V0001825 #5 RIC: 709./ 84479.



000007

DUAL MASS SPECTRUM
10/06/88 11:01:00 + 8:00
SAMPLE: CLP,V11978,,2C-MW2_1015,L,W,11978001,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IN=5.0 MIN
ENHANCED (S 15B 2N 0T)

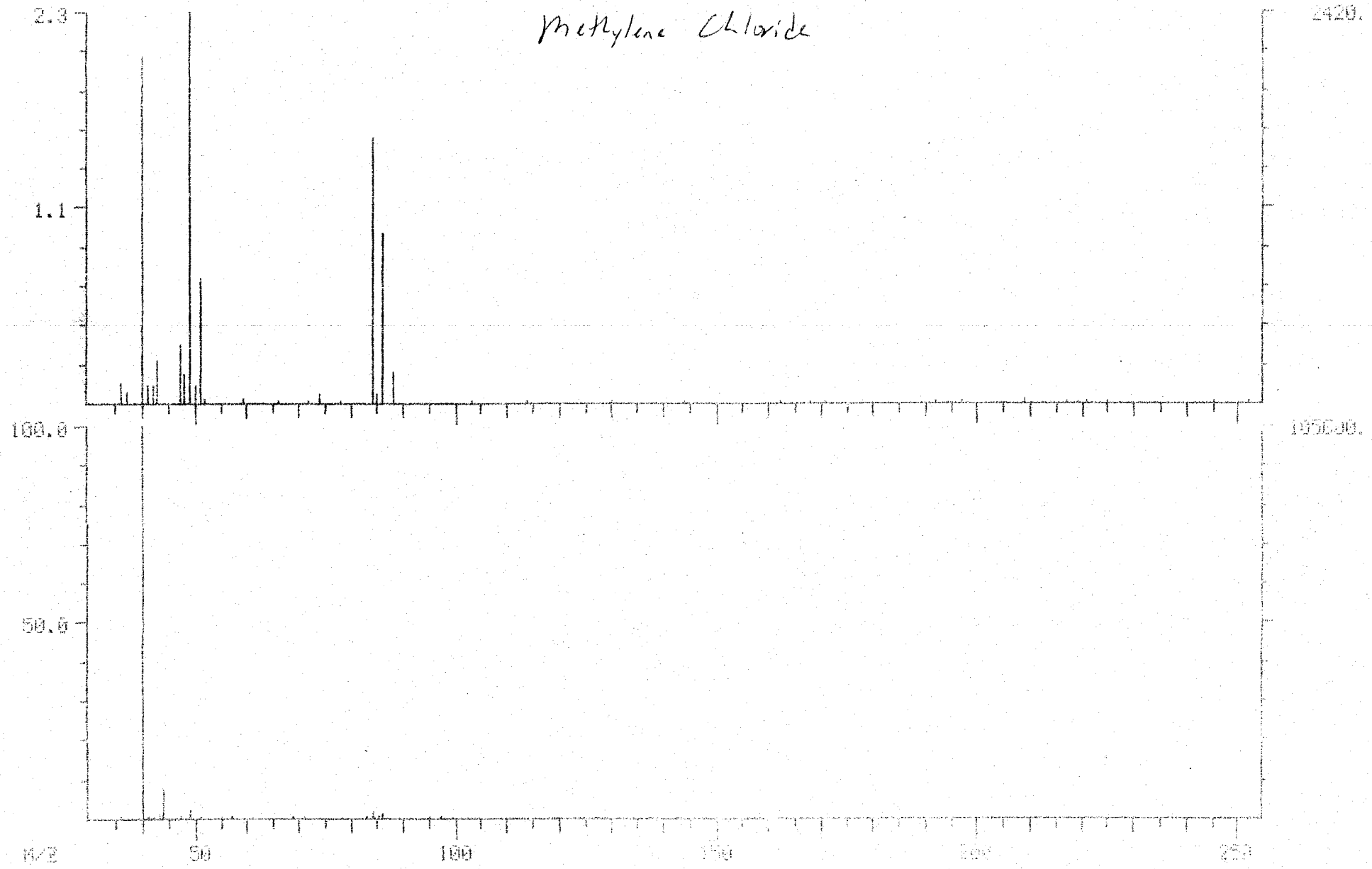
DATA: C1V0001825 #480 BASE M/Z: 43 40
CALI: C1V0001825 #5 RIC: 21756/ 144127



000008

DUAL MASS SPECTRUM
10/06/88 11:01:00 + 9:20
SAMPLE: CLP,V11978,,2C-MW2,1015,L,A,11979001,U,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001825 #560 BASE M/Z: 49 40
CALI: C1V0001825 #5 RIC: 10031. 132095.

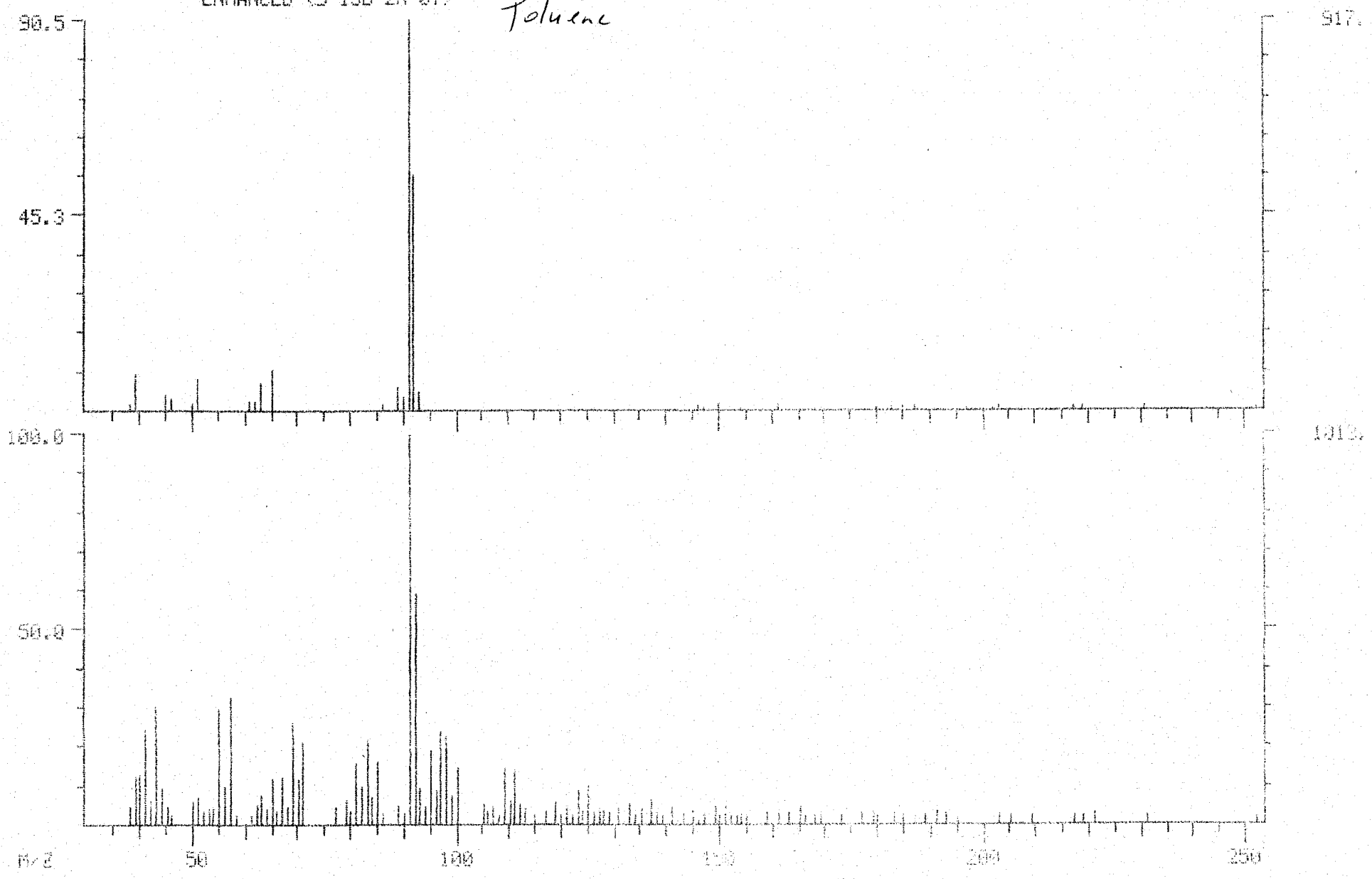


000009

DUAL MASS SPECTRUM
10/06/88 11:01:00 + 19:06
SAMPLE: CLP,V11978,,2C-MW2_1015,L,W,11978001,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001825 #1146 BASE M/Z: 91 91
CALI: C1V0001825 #5 RIC: 2235. 9503.

Toluene



000010

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-PW1_1000

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978002

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C1VO001826

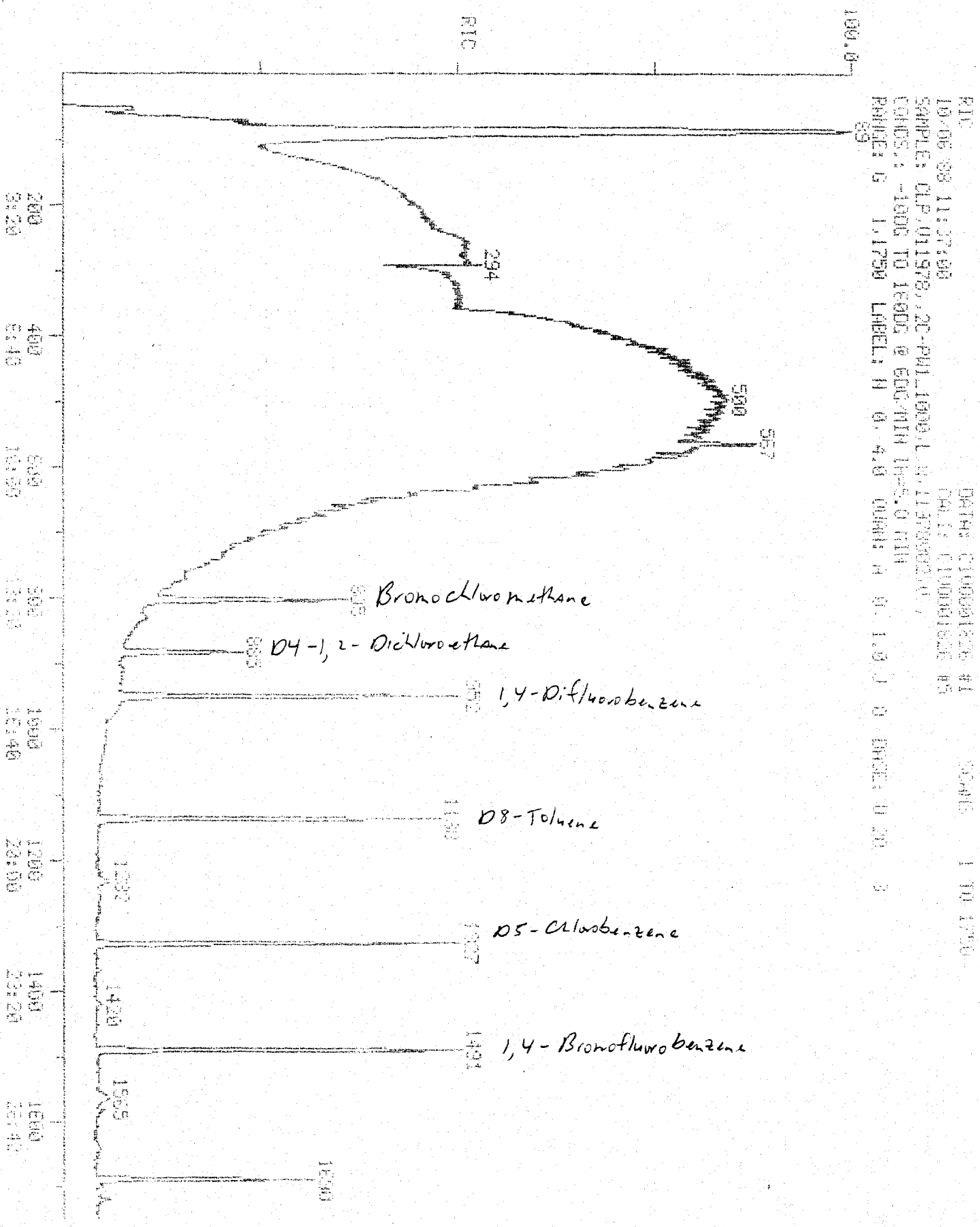
Level: (low/med) LOW Date Received: 09/24/88

% Moisture: not dec. _____ Date Analyzed: 10/06/88

Column: (pack/cap) CAP Dilution Factor: 1.0

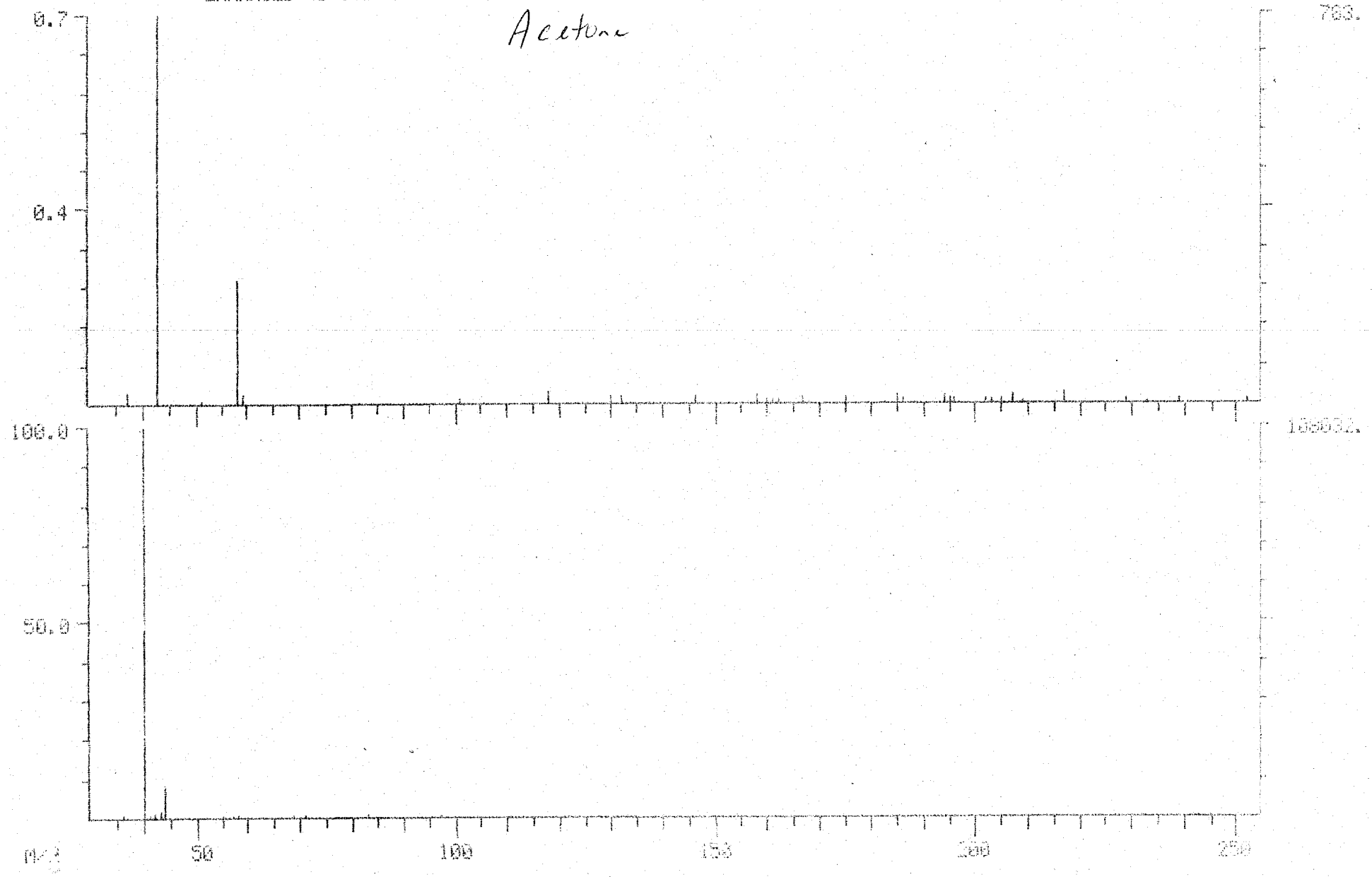
CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	12	B
67-64-1	Acetone	18	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U


Bromochloromethane
D4-1,2-Dichloroethane
1,4-Difluorobenzene
D8-Toluene
D5-Chlorobenzene
1,4-Bromofluorobenzene

DUAL MASS SPECTRUM
10/06/88 11:37:00 + 8:11
SAMPLE: CLP,V11978,,2C-PW1_1000,L,W,11978002,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN 1H=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001826 #491 BASE M/Z: 43/ 40
CALI: C1V0001826 #5 RIC: 1400. 125791.

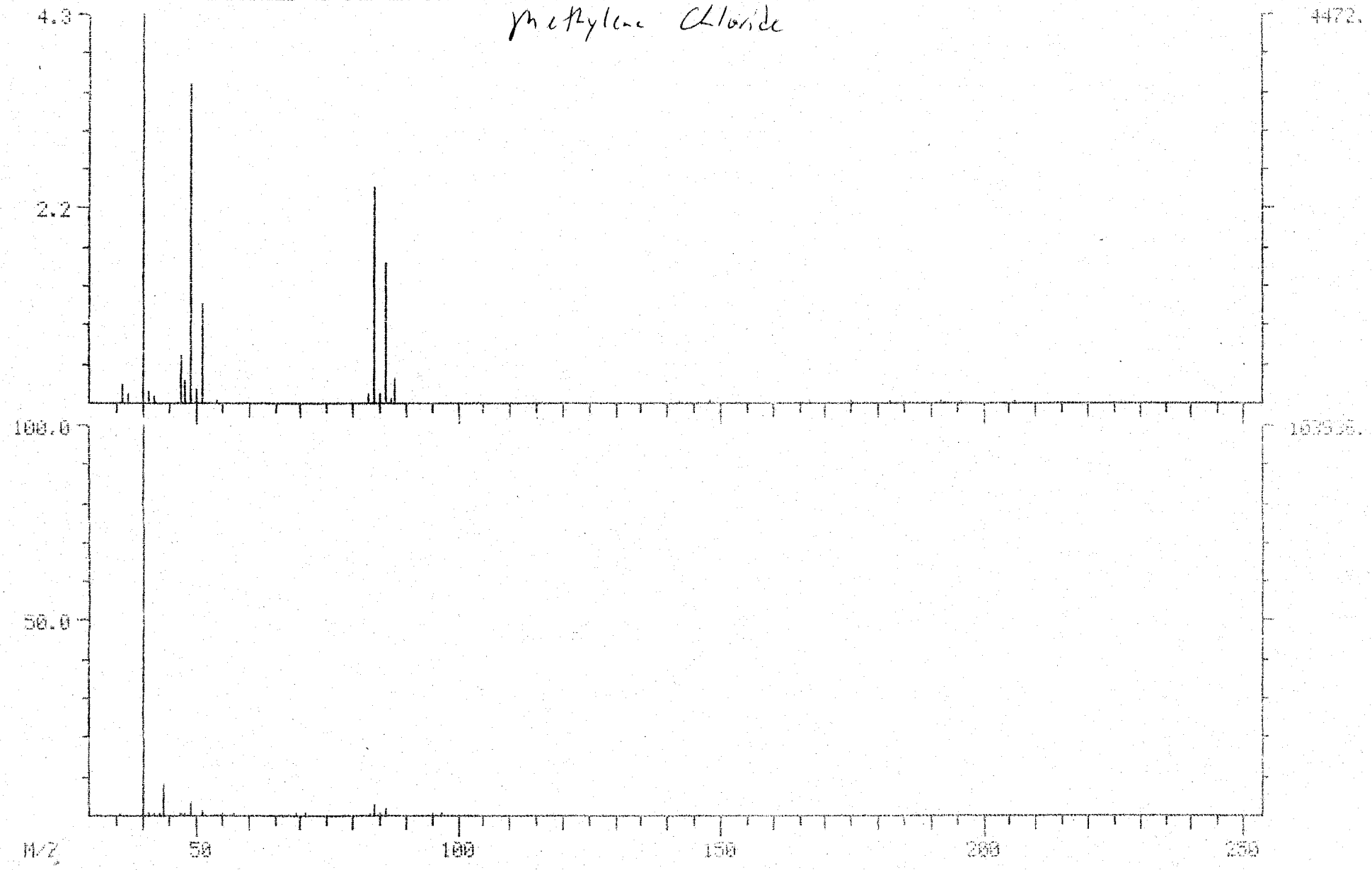


000013

DUAL MASS SPECTRUM
10/06/88 11:37:00 + 9:27
SAMPLE: CLP,V11978,,2C-PW1_1000,L,W,11978002,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001826 #567 BASE N/E: 40 40
CALI: C1V0001826 #5 RIC: 15679.7 133631.

Methylene Chloride



000014

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B-MW5_0900

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978004

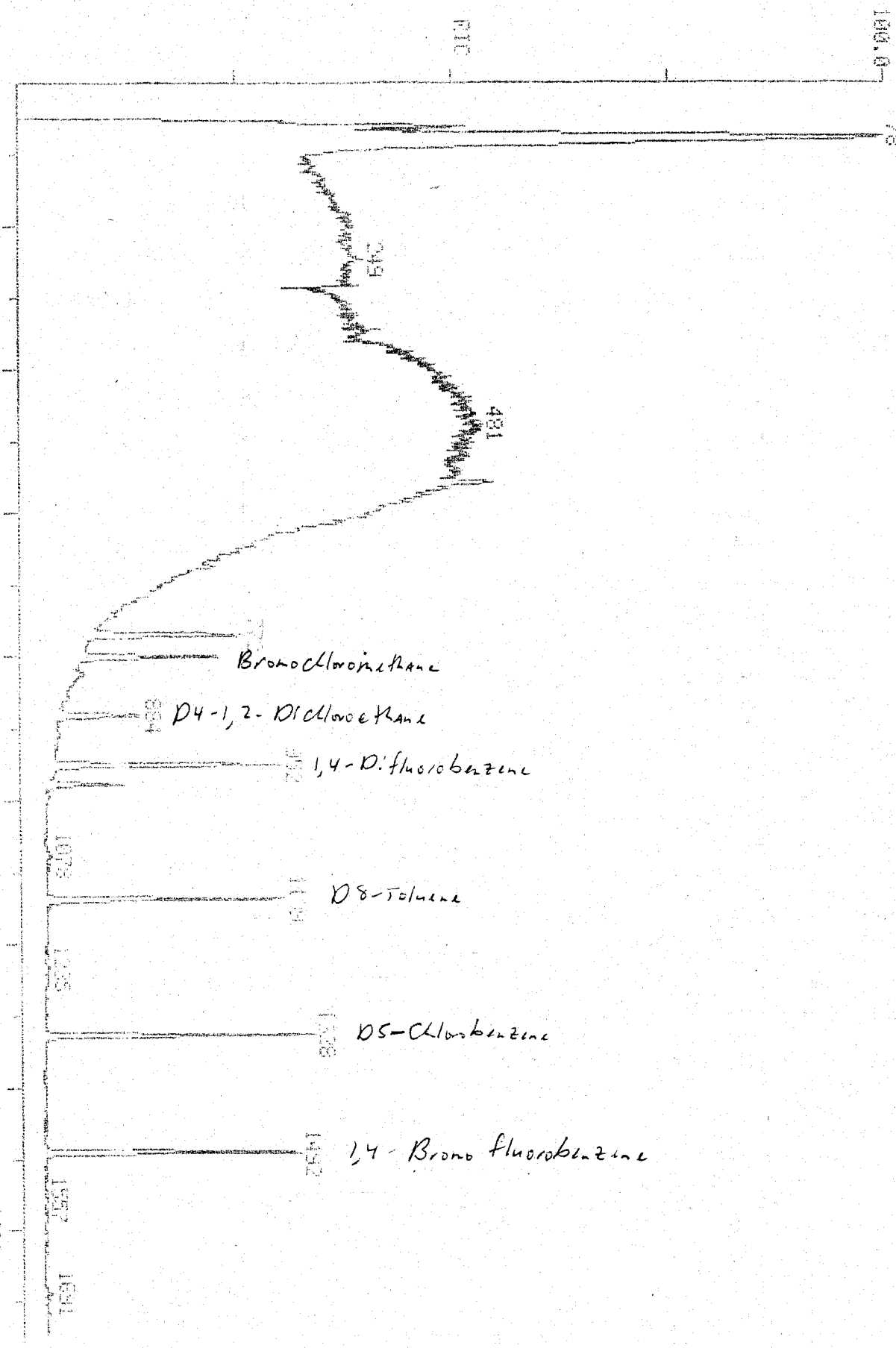
Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C2VO001827

Level: (low/med) LOW Date Received: 09/24/88

% Moisture: not dec. ____ Date Analyzed: 10/06/88

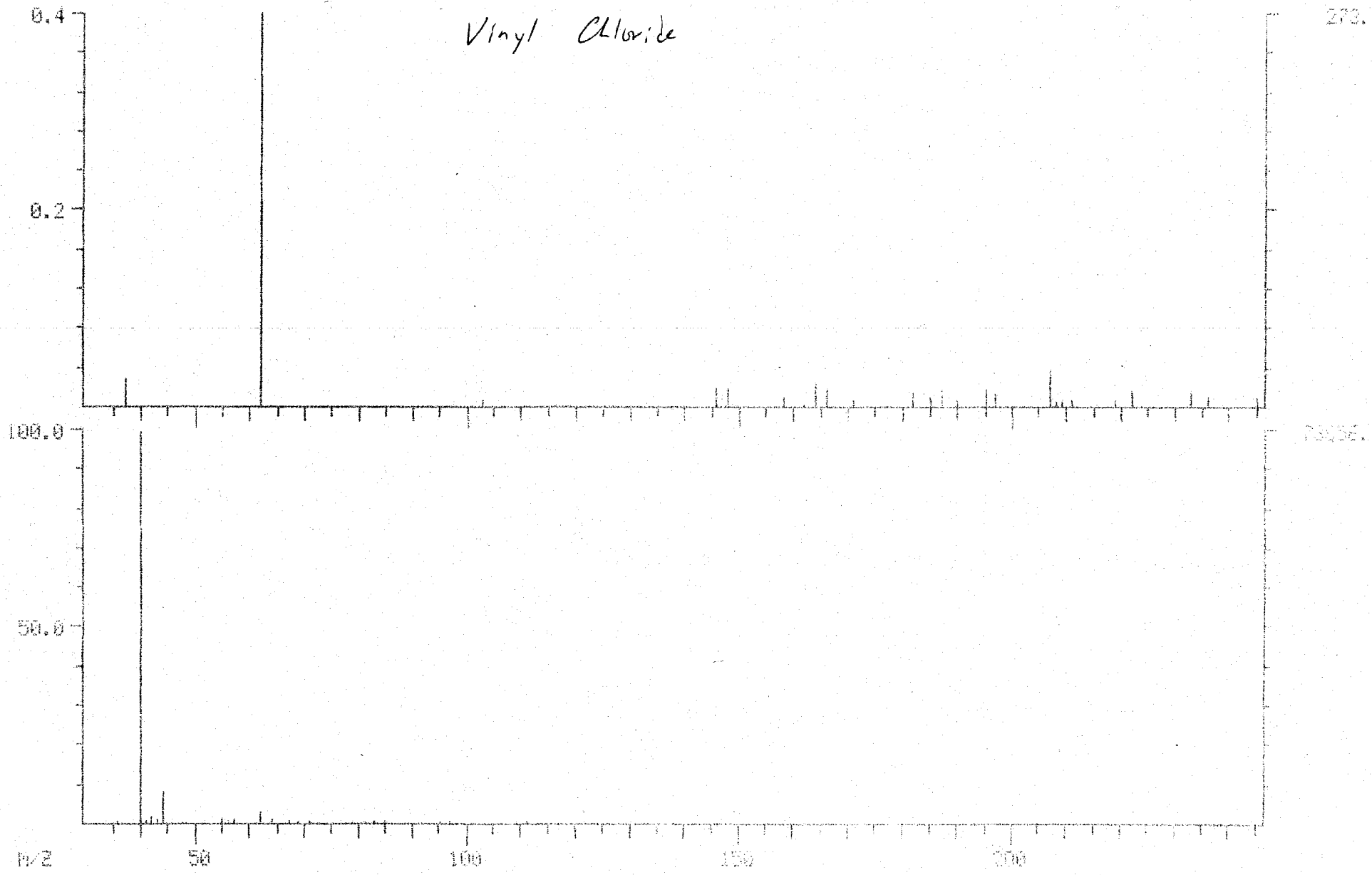
Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	55	
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	12	B
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	2	J
75-34-3	1,1-Dichloroethane	9	
540-59-0	1,2-Dichloroethene (total)	49	
67-66-3	Chloroform	3	J
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	22	
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U


RIC
100.0
78
481
245
Bromochloromethane
D4-1,2-Dichloroethane
1,4-Difluorobenzene
D8-Toluene
D5-Chlorobenzene
1,4-Bromofluorobenzene
TIME

DUAL MASS SPECTRUM
10/06/88 12:30:00 + 3:07
SAMPLE: CLP,V11978,,2B-MW5_0900,L,W,11978004,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001827 #157 BASE M/Z: 62 40
CALI: C2V0001827 #5 RIC: 404.. 95359.

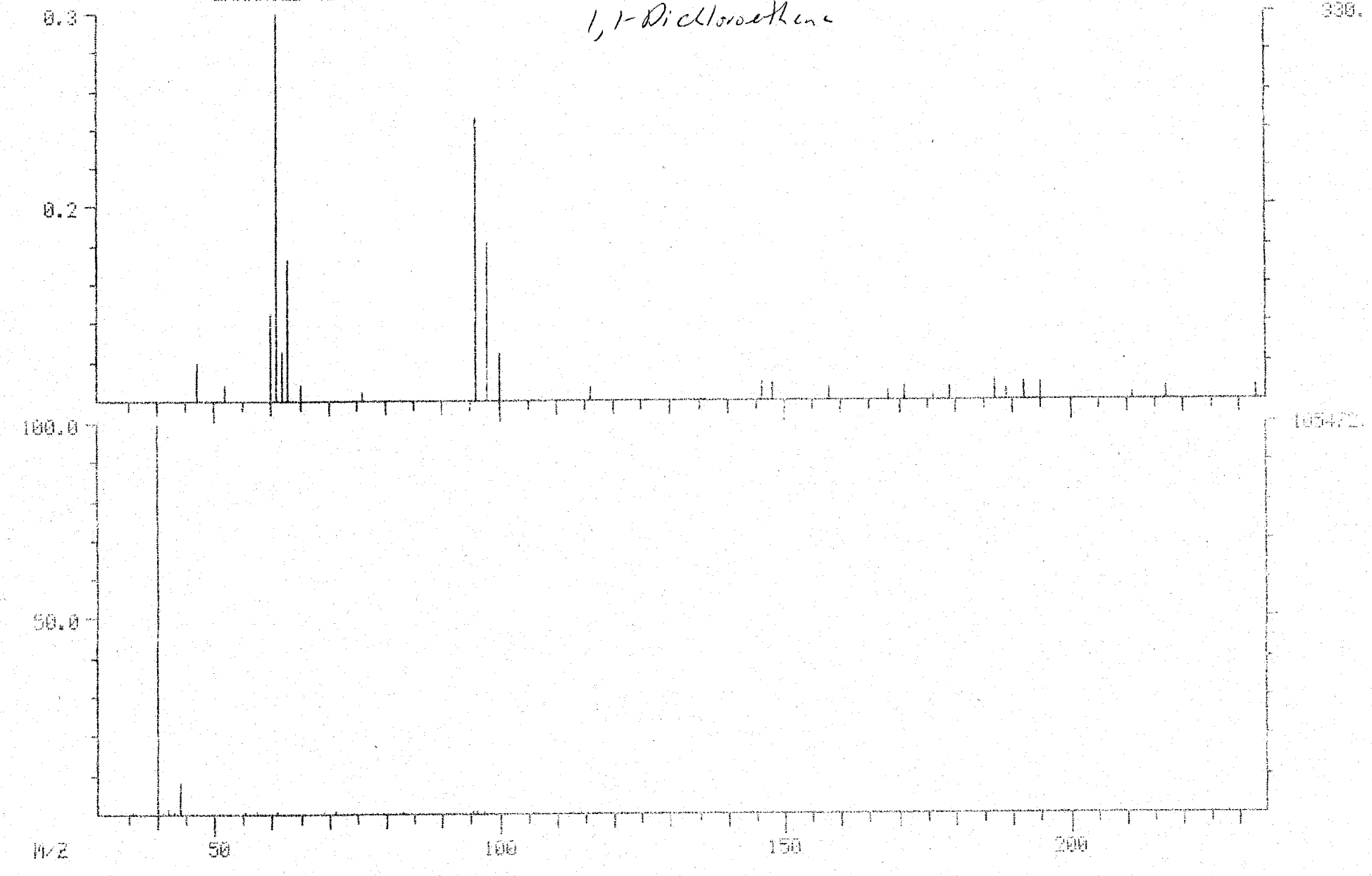


000033

DUAL MASS SPECTRUM
10/06/88 12:30:00 + -7:23
SAMPLE: CLP,V11978,,2B-MW5_0900,L,W,1197S004,V...
CONDS.: -100G TO 160DG @ 60G/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001827 #443 BASE M/Z: 61 40
CALI: C2V0001827 #5 RIC: 1237. 126207.

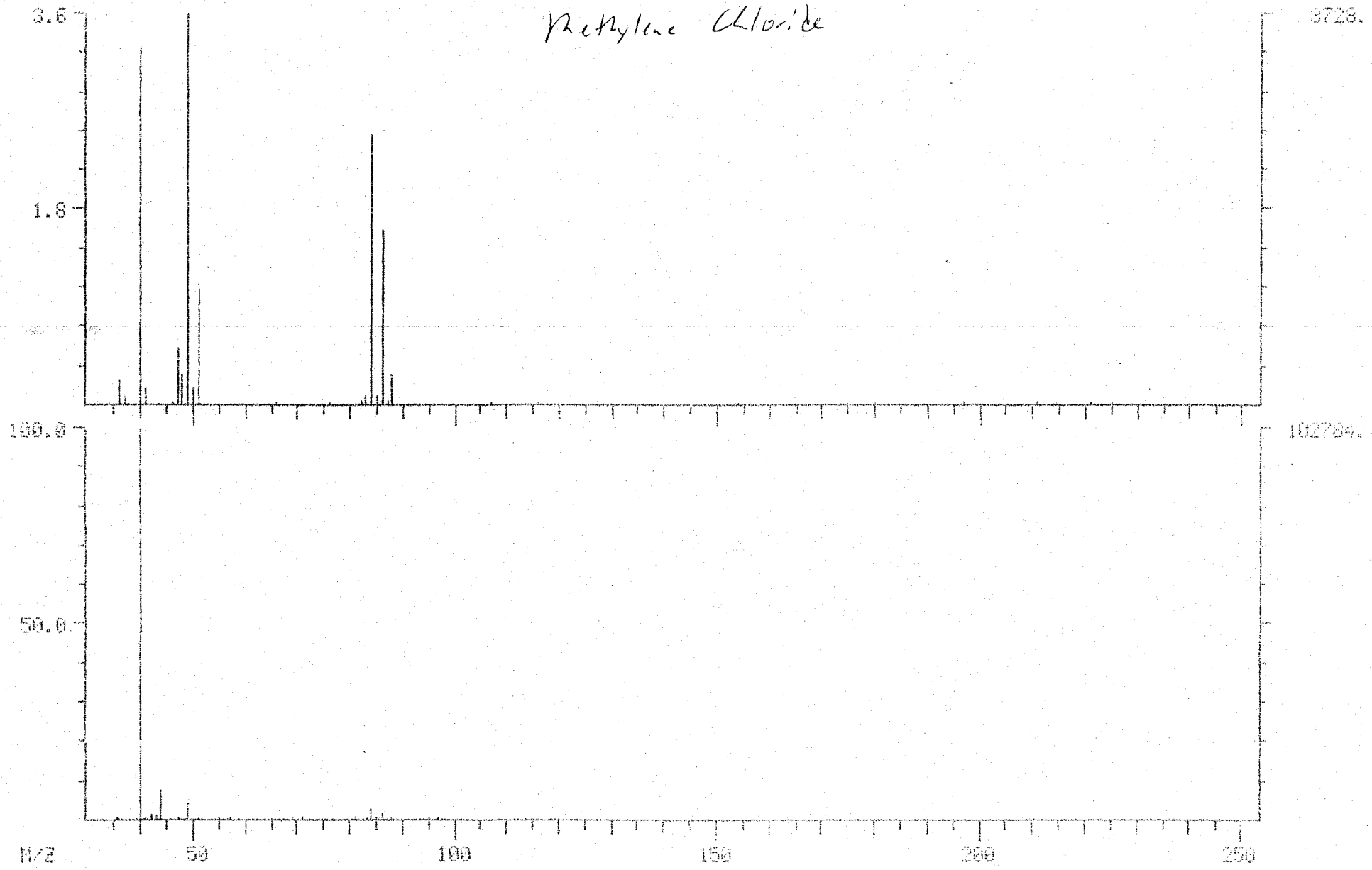
1,1-Dichloroethene



000034

DUAL MASS SPECTRUM
10/06/88 12:30:00 + 9:20
SAMPLE: CLP,V11978,,2B-MW5_0900,L,W,11978004,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IN=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001827 #560 BASE M/Z: 49/ 40
CALI: C2V0001827 #5 RIC: 14799./ 133631.

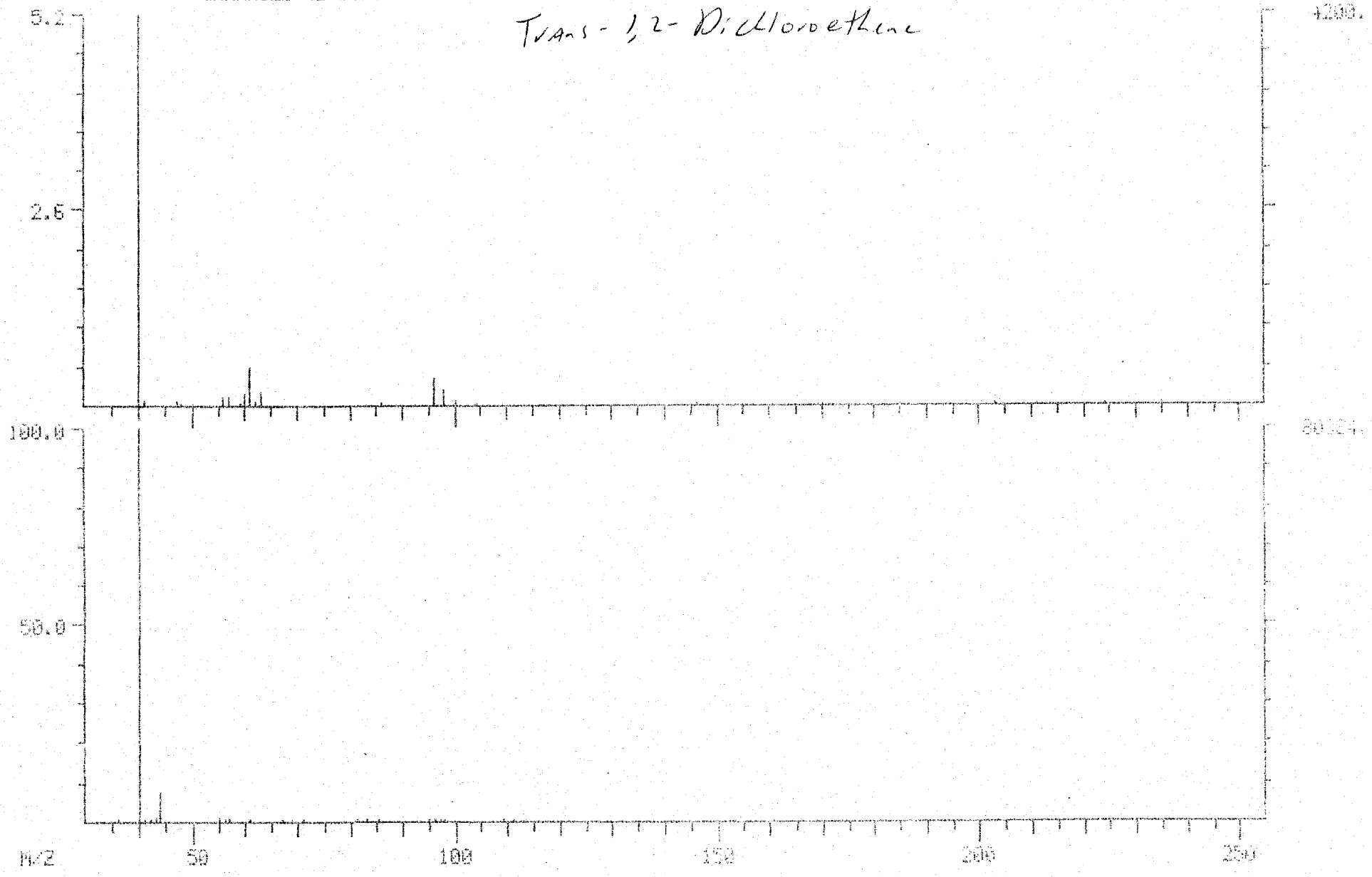


000035

DUAL MASS SPECTRUM
10/06/88 12:30:00 - 10:09
SAMPLE: CLP.V11978,,2B-MWS_0900,[illegible]
CONDS.: -10DG TO 160DG @ 6DG/MIN [illegible]
ENHANCED (S 15B 2N 0T)

DATA: C2V0001827 #608 BASE M/Z: 40 40
CALI: C2V0001827 #5 RIC: [illegible]

Trans-1,2-Dichloroethene

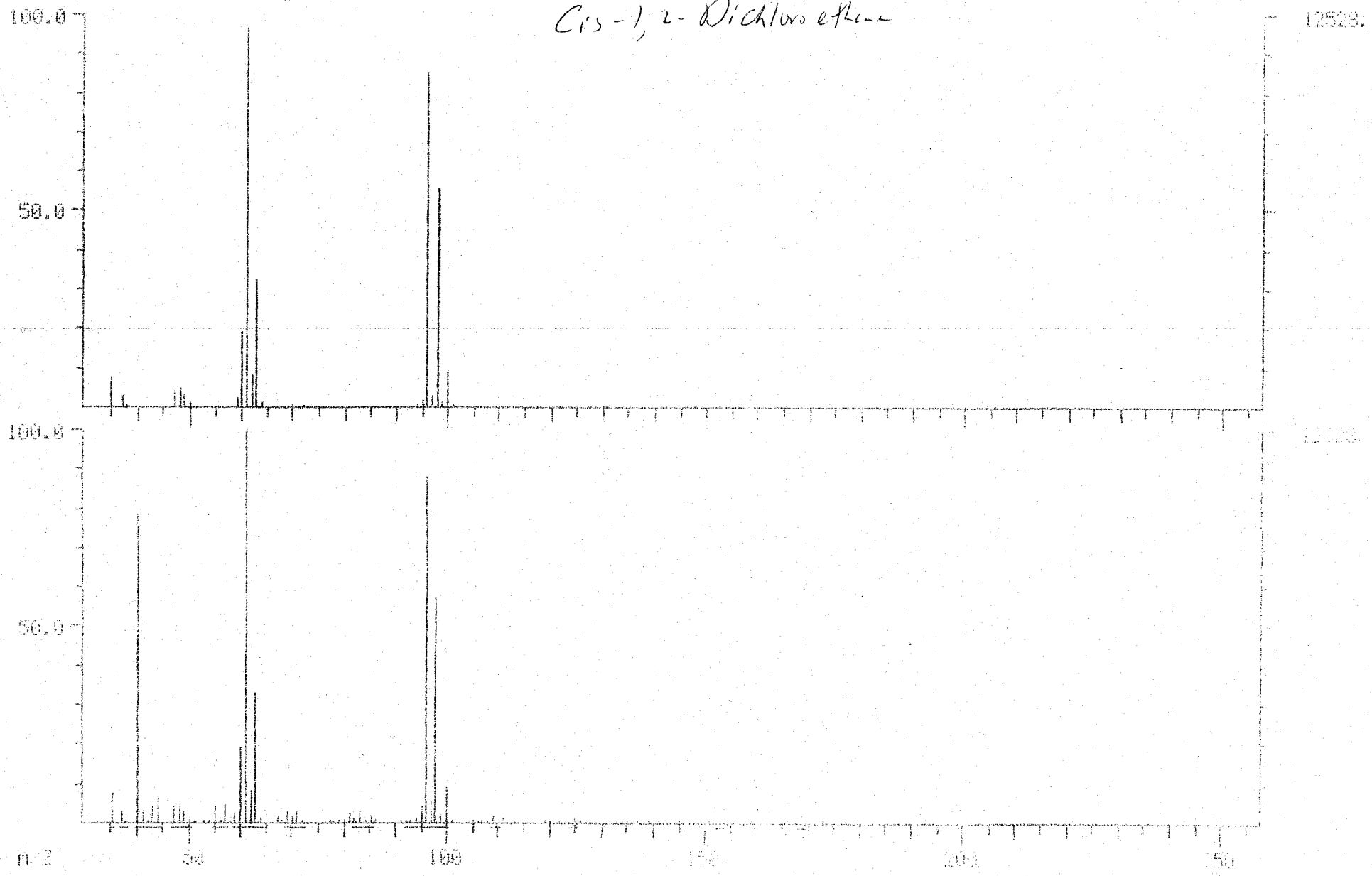


000036

DUAL MASS SPECTRUM
10/06/88 12:30:00 + 12:52
SAMPLE: CLP,V11978,,2B-MW5_0900-L,N,113[illegible]
CONDS.: -10DG TO 160DG @ 6DG/MIN 1H=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2[illegible]001827 #77 BASE M/Z: 61/ 61
CALI: C2[illegible]001827 #5 RIC: [illegible] [illegible]

Cis-1,2-Dichloroethene

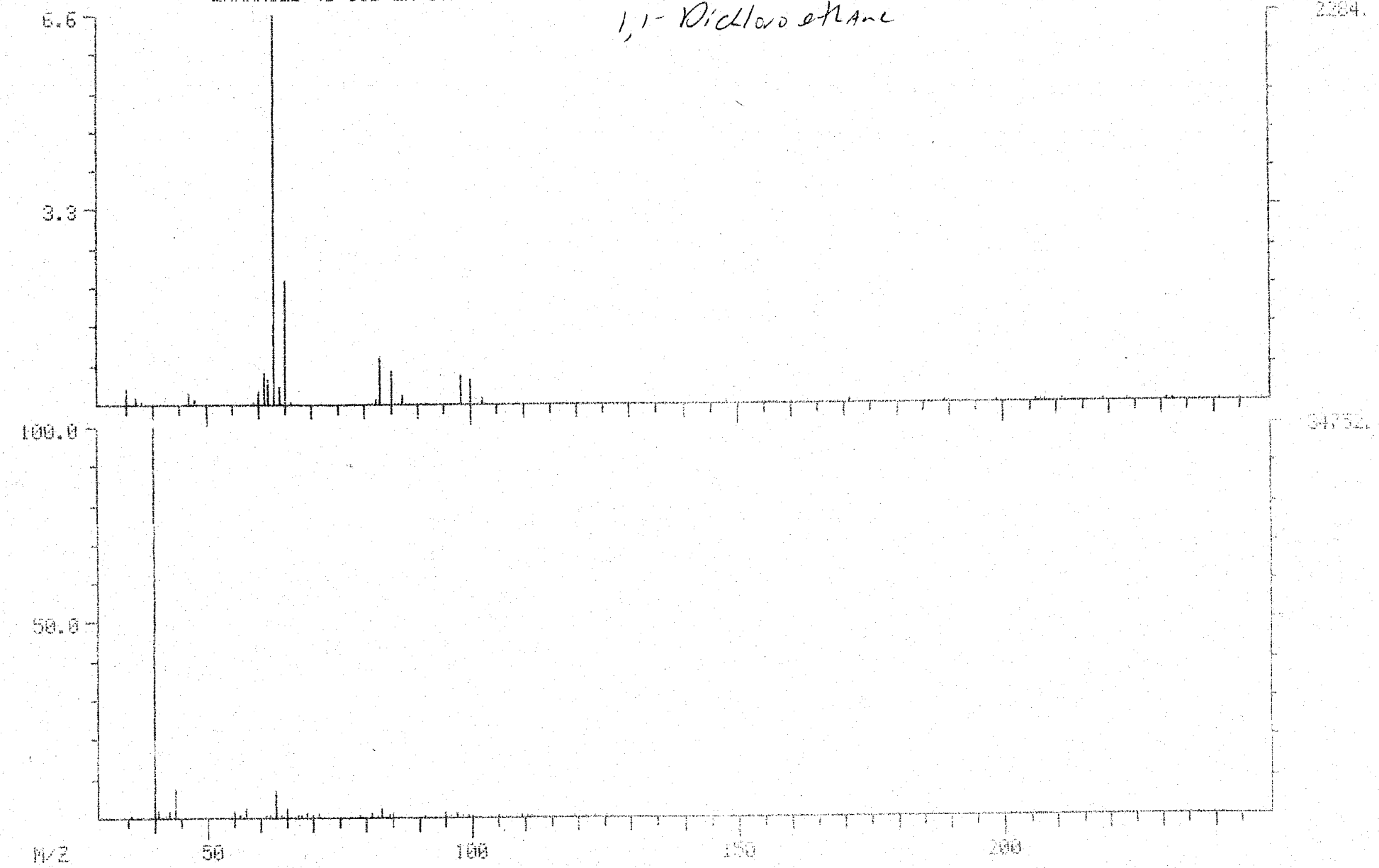


000037

DUAL MASS SPECTRUM
10/06/88 12:30:00 + 11:19
SAMPLE: CLP,V11978,,2B-MW5.0900,L,W,11978004,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001827 #679 BASE M/Z: 63/ 40
CALI: C2V0001827 #5 RIC: 5000./ 55100.

1,1- Dichloroethane

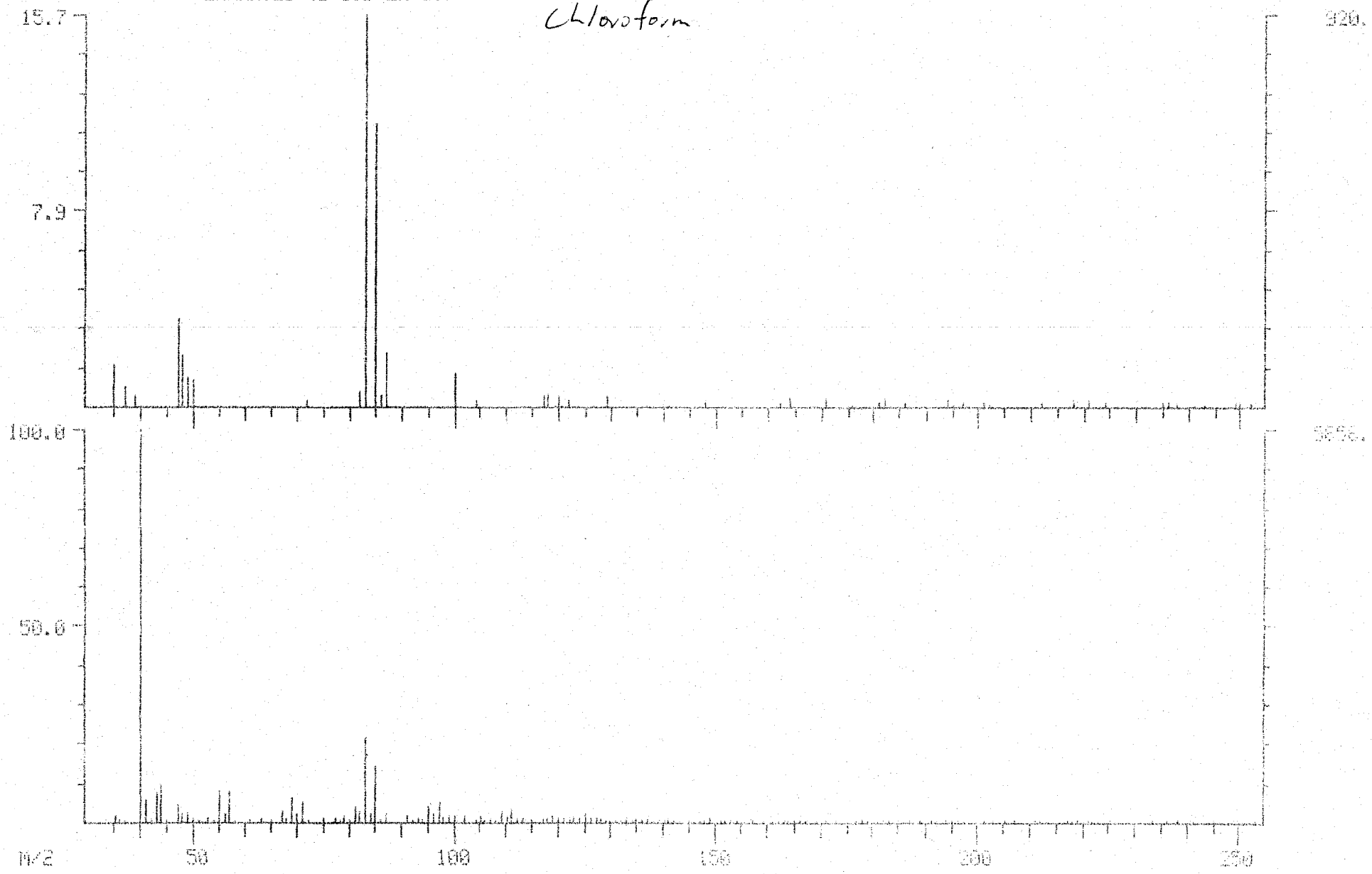


000038

DUAL MASS SPECTRUM
10/06/88 12:30:00 + 13:47
SAMPLE: CLP,V11978,,2B-MW5_0900,L,W,11978004,U,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001827 #[illegible] [illegible]
CALI: C2V0001827 #5 RIC: [illegible] 19675.

Chloroform

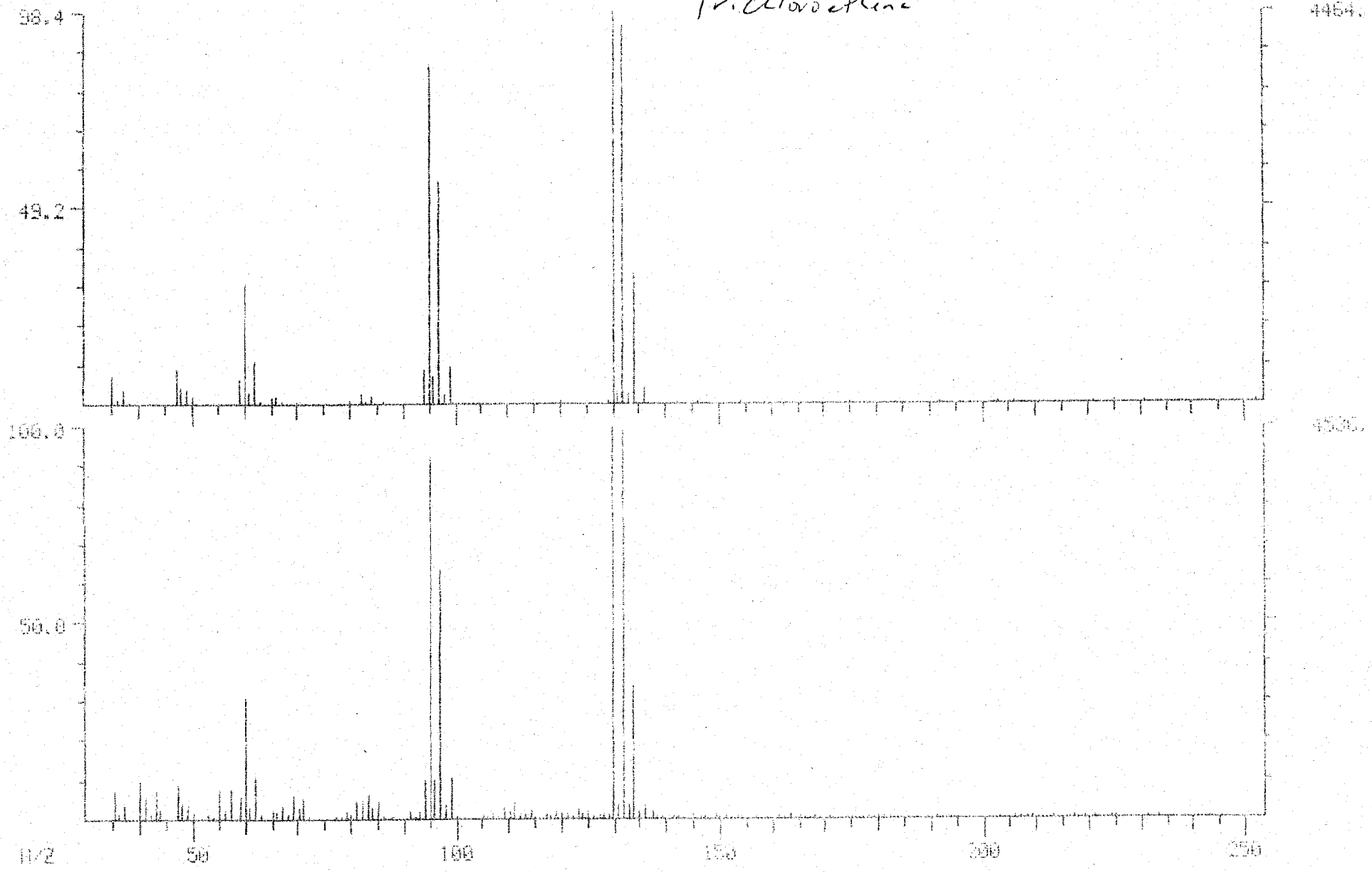


000039

DUAL MASS SPECTRUM
10/06/88 12:30:00 + 16:18
SAMPLE: CLP,V11978,/2B-MW5 0900,L W 11978004 V
CONDS.: -10DG TO 160DG @ 60C/MIN IN=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2VC001827 #978 CASE N 2: 130 130
CAL1: C2V0001827 #5 RIC: 22559. 31551.

Trichloroethene



000040

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B-MW4_0800

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978005

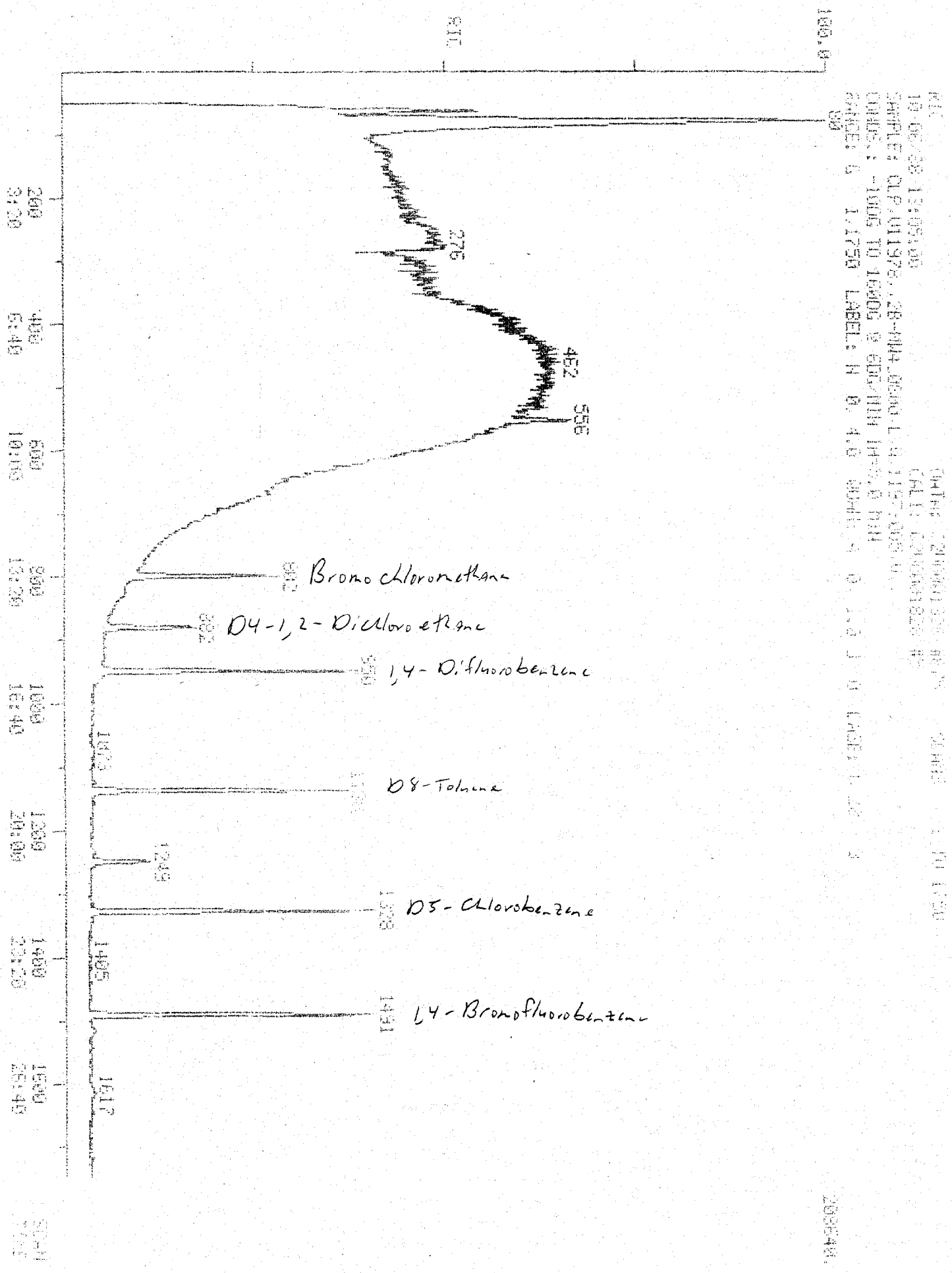
Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C2VO001828

Level: (low/med) LOW Date Received: 09/24/88

% Moisture: not dec. _____ Date Analyzed: 10/06/88

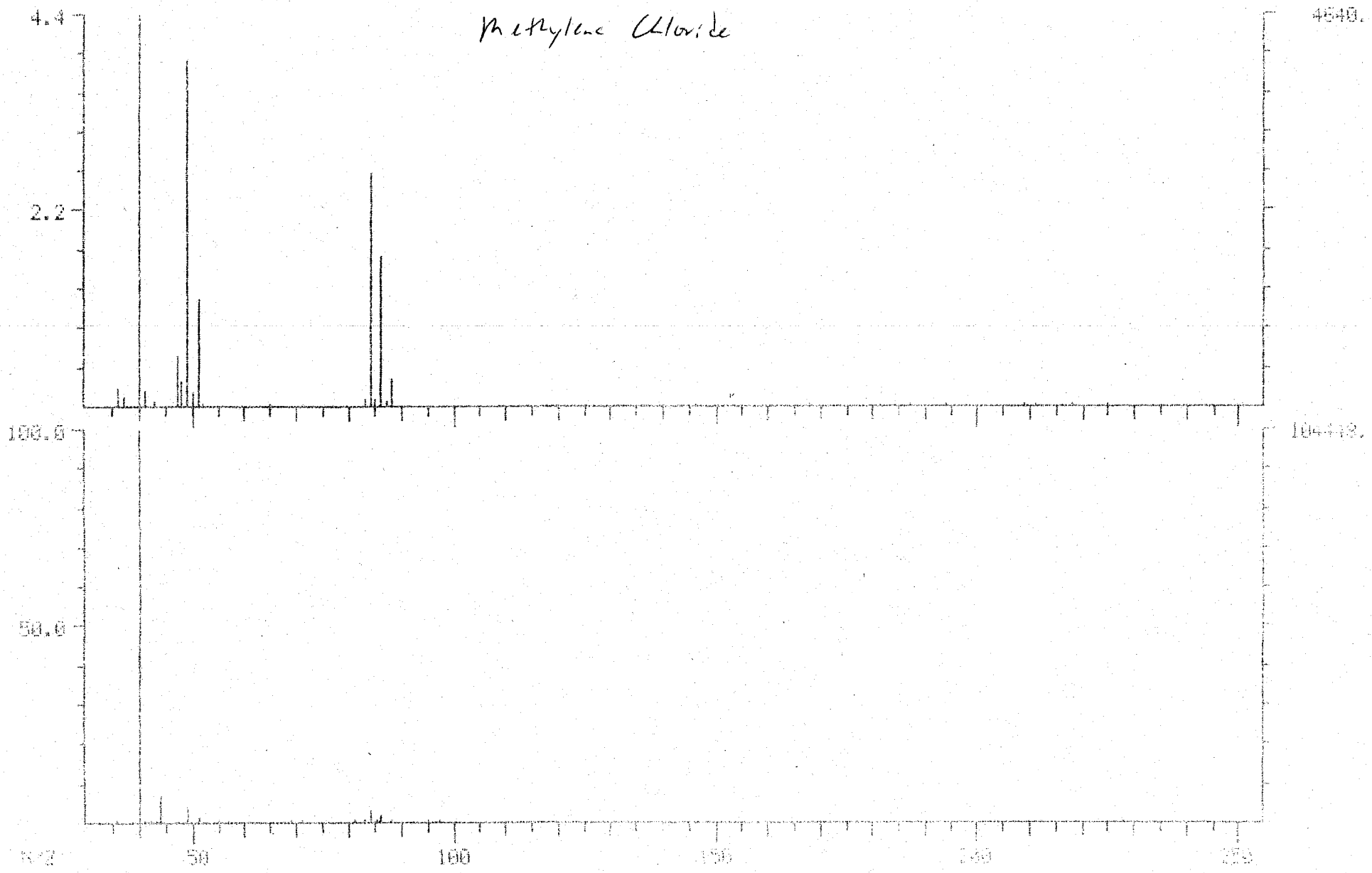
Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	13	B
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	2	J
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U


Bromochloromethane
D4-1,2-Dichloroethane
1,4-Difluorobenzene
D8-Toluene
D5-Chlorobenzene
1,4-Bromofluorobenzene

DUAL MASS SPECTRUM
10/06/88 13:05:00 + 9:16
SAMPLE: CLP,V11978,,2B-MW4,0800,L,W,11978005 U
CONDS.: -10DG TO 160DG @ 6DG/MIN IN=5.0 MIN
ENHANCED (S 15B 2N 0T)

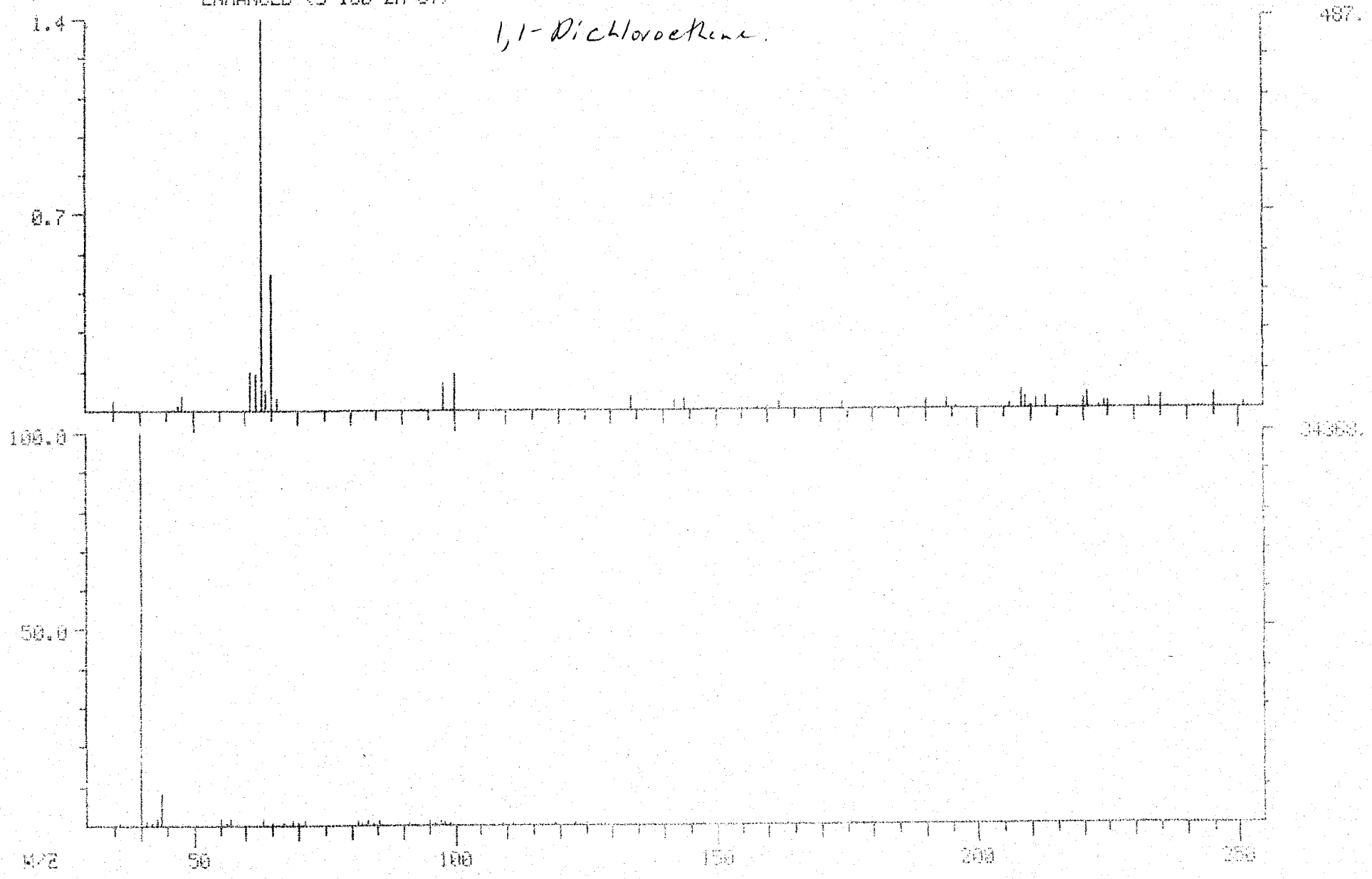
DATA: C2V0001828 #556 BASE M/Z: 40/ 40
CALI: C2V0001828 #5 RIC: 16959./ 134399.



000043

DUAL MASS SPECTRUM
10/06/88 13:05:00 + 11:16
SAMPLE: CLP,V11978,,2B-MW4_0800,L,W,11378005,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001828 #676 BASE M/Z: 63 40
CALI: C2V0001828 #5 RIC: 1177. 50943.



000044

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B-MW2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978007

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A1VO001170

Level: (low/med) LOW Date Received: 09/24/88

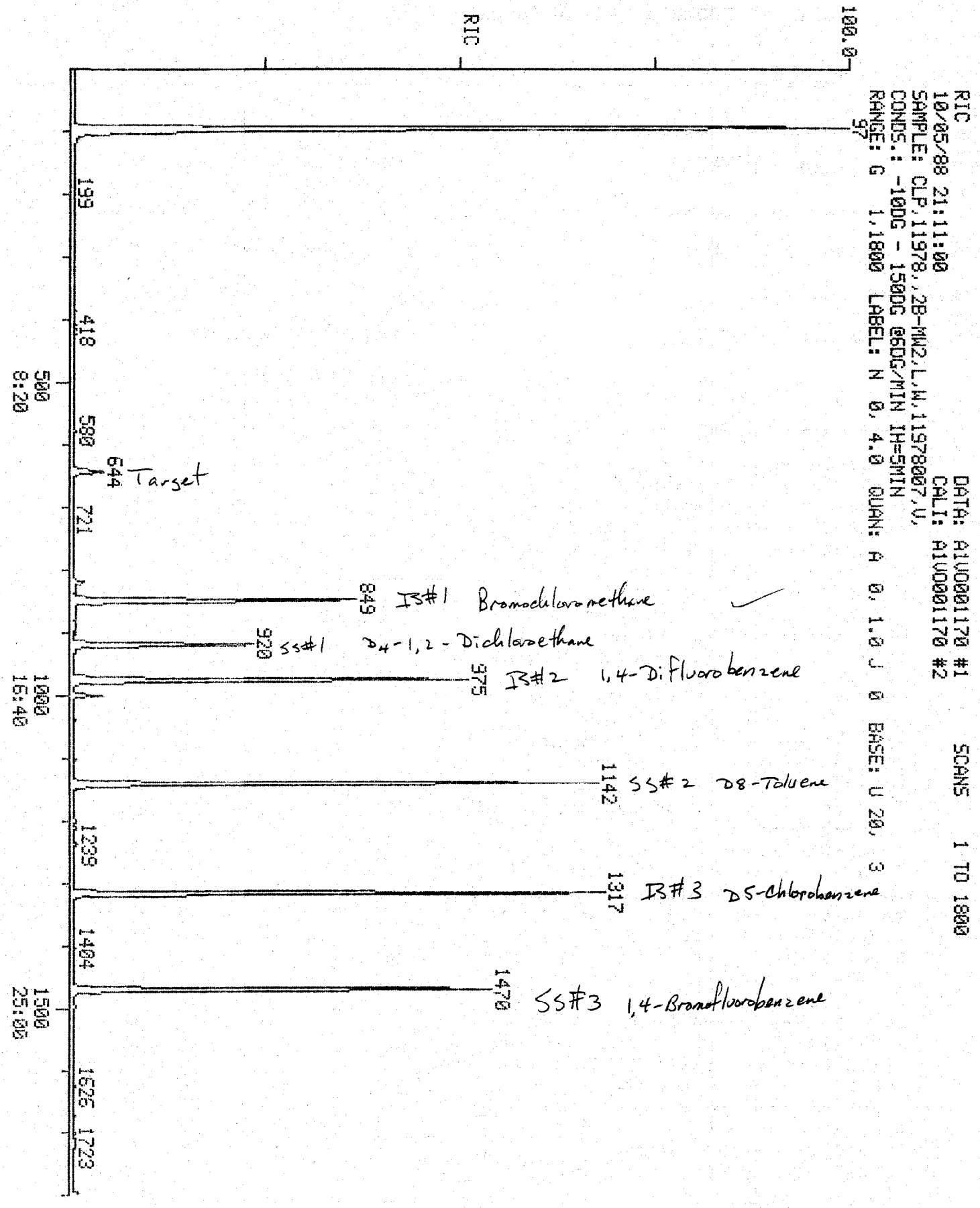
% Moisture: not dec. _____ Date Analyzed: 10/05/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	7	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS.

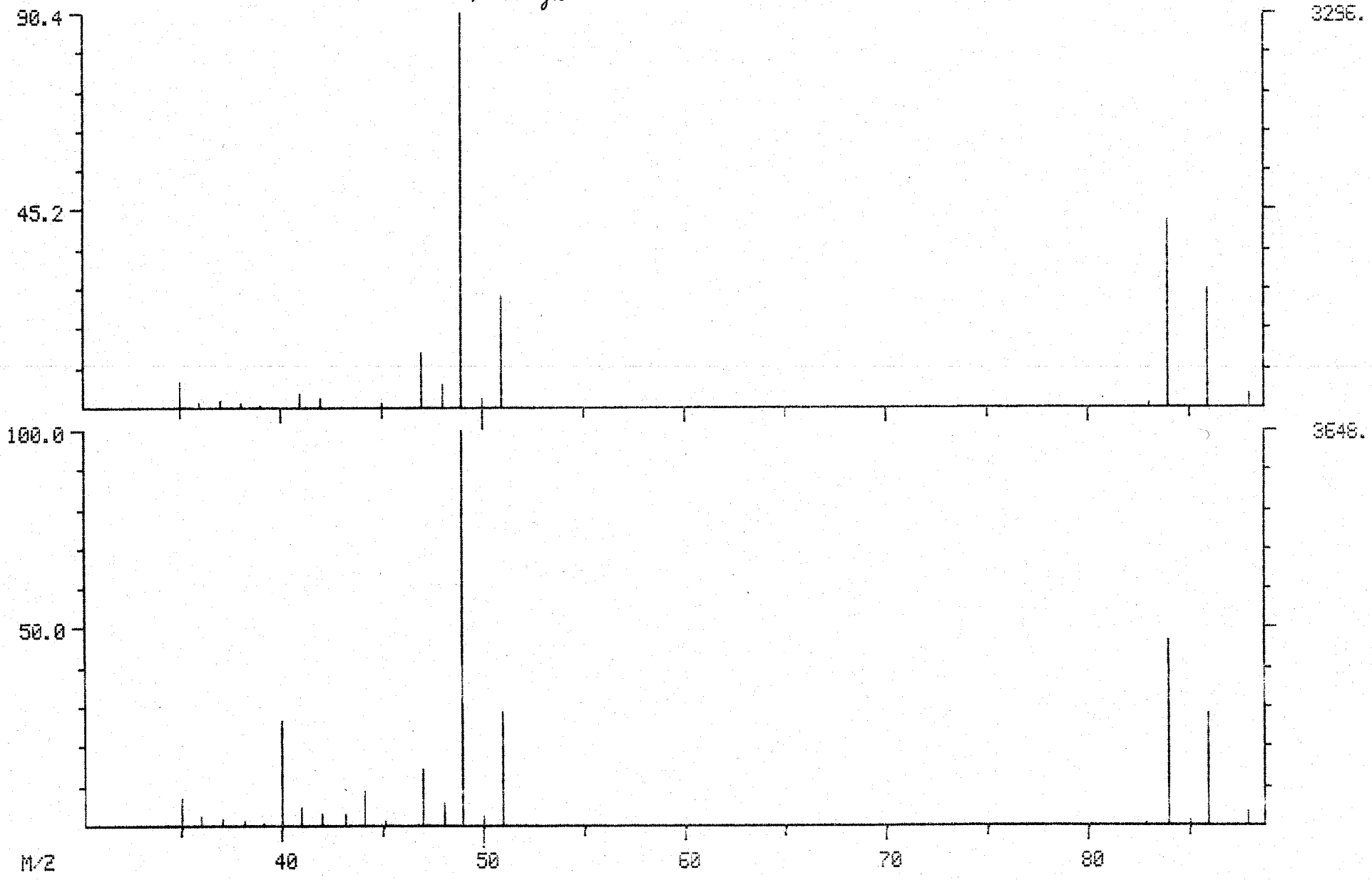
TCA FINISHED, 10 FOUND
FINISHED AT: 10/05/88 22:11:35



000061

DUAL MASS SPECTRUM
10/05/88 21:11:00 + 10:44
SAMPLE: CLP,11978,,2B-MW2,L,W,11978007,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

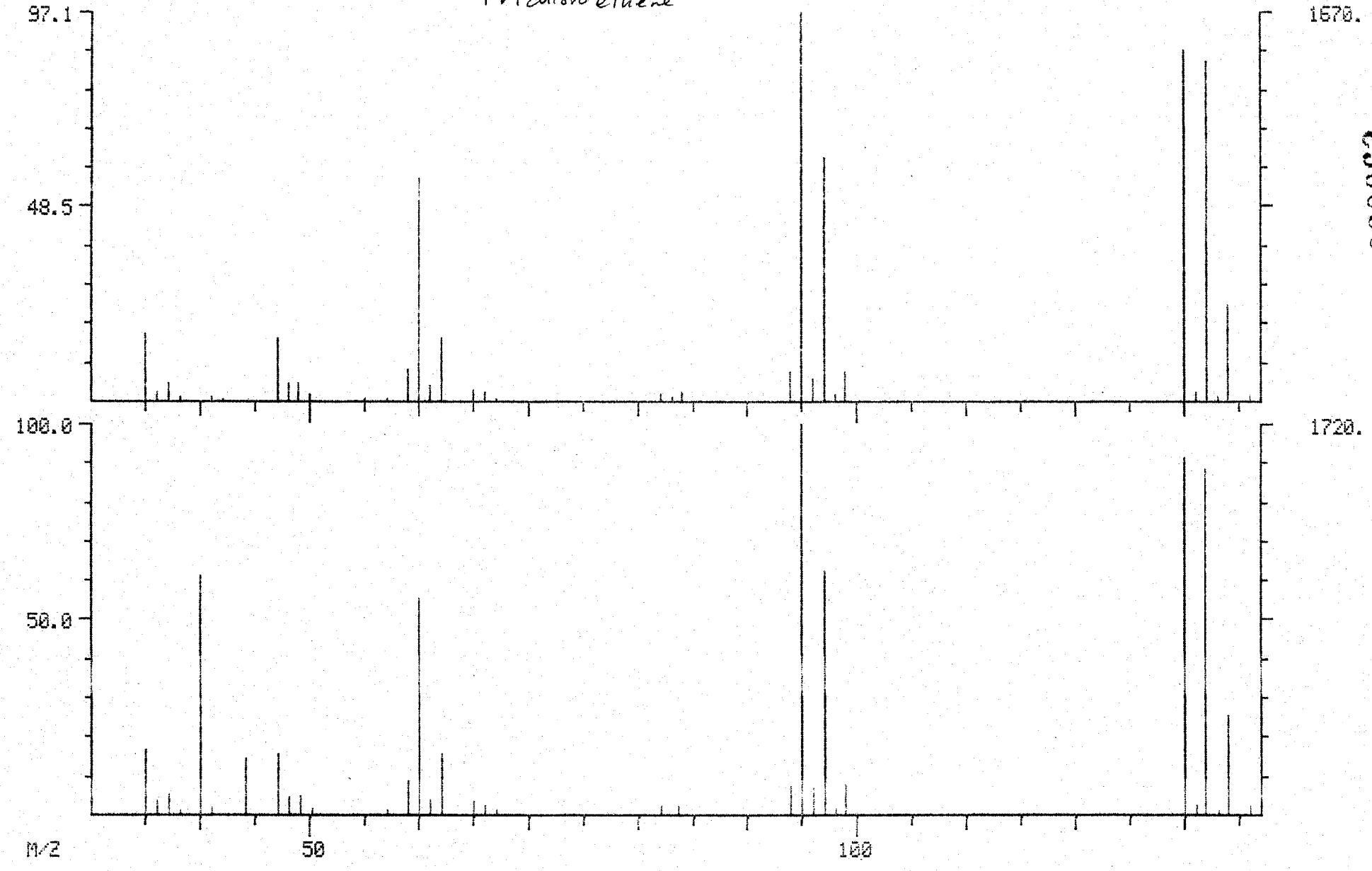
DATA: A1V0001170 #644 BASE M/Z: 49/ 49
CALI: A1V0001170 #2 RIC: 8287./ 10655.



000062

DUAL MASS SPECTRUM
10/05/88 21:11:00 + 16:41
SAMPLE: CLP,11978,,2B-MW2,L,W,11978007,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (5 15B 2N 0T) Trichloroethene

DATA: A1V0001170 #1001 BASE M/Z: 95/ 95
CALI: A1V0001170 #2 RIC: 9087./ 10703.



000063

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B-MW7

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978003

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A2VO001173

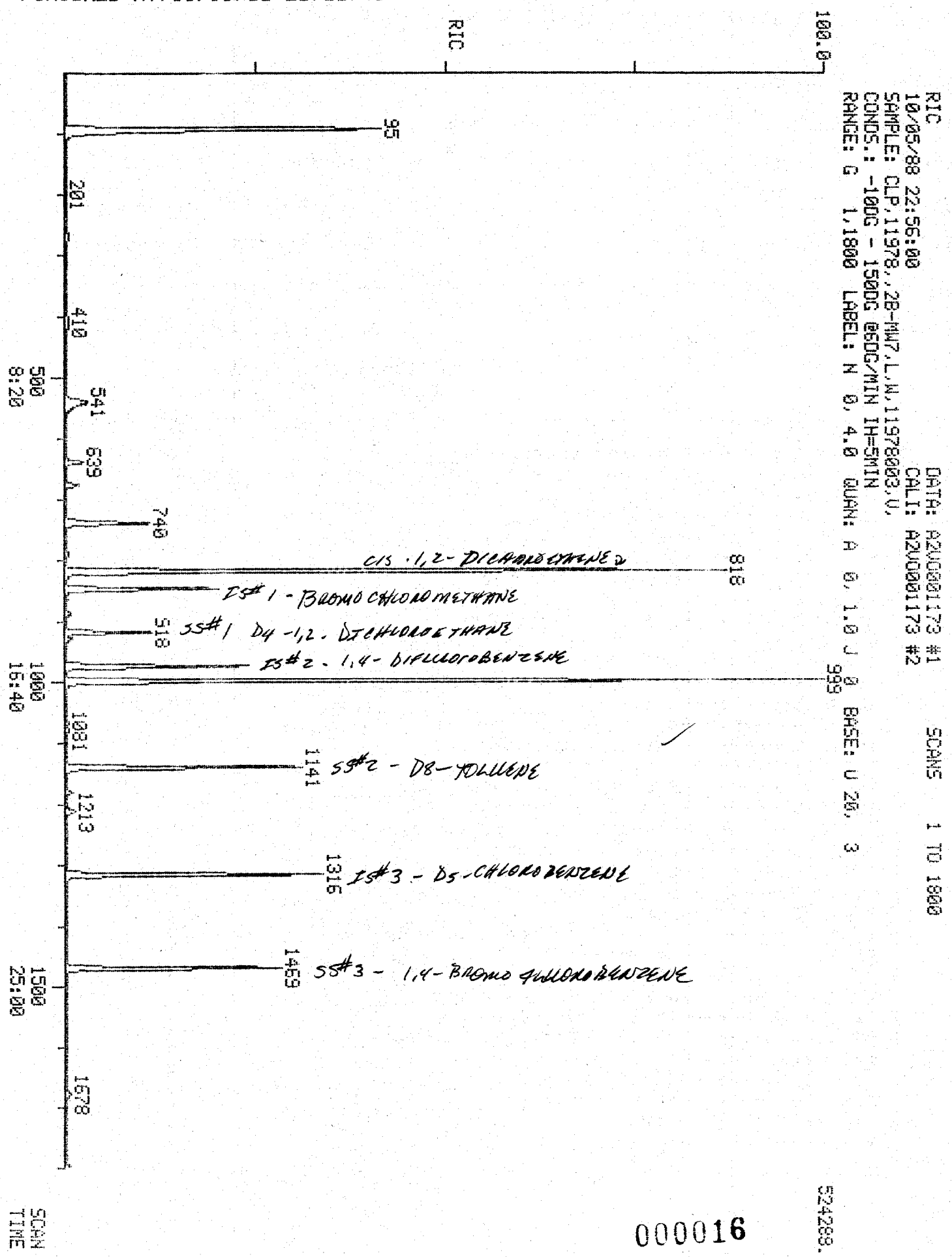
Level: (low/med) LOW Date Received: 09/24/88

% Moisture: not dec. _____ Date Analyzed: 10/05/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	9	J
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	7	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	6	
75-34-3	1,1-Dichloroethane	52	
540-59-0	1,2-Dichloroethene (total)	270	E
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	240	E
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

TCA FINISHED, 13 FOUND
FINISHED AT: 10/05/88 23:38:45



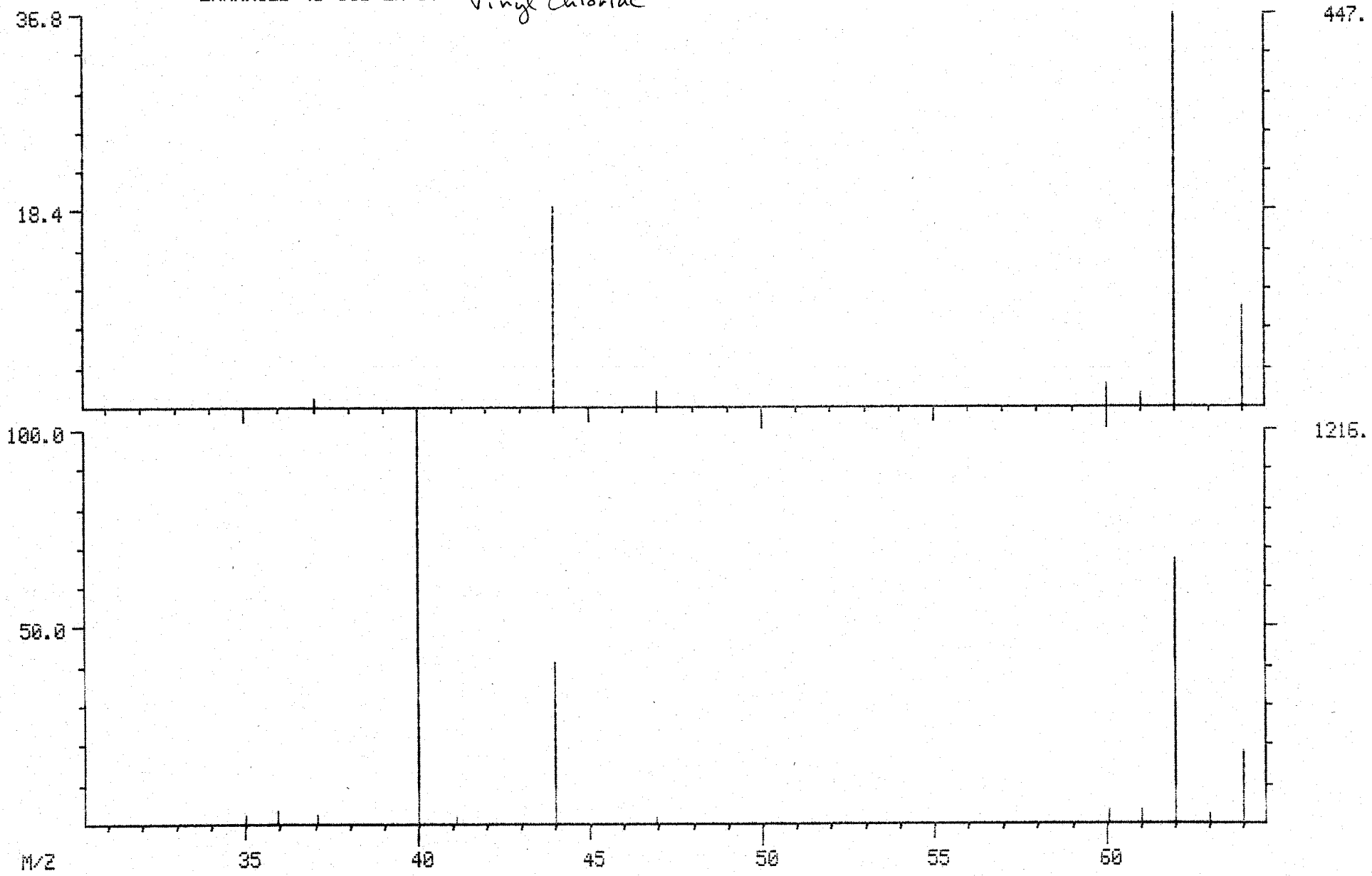
RIC
10/05/88 22:56:00
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -100C - 150C @6DC/MIN IH=5MIN
RANGE: G 1,1800 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: A2V0001173 #1 SCANS 1 TO 1800
CALI: A2V0001173 #2

524289.

DUAL MASS SPECTRUM
10/05/88 22:56:00 + 4:33
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Vinyl Chloride

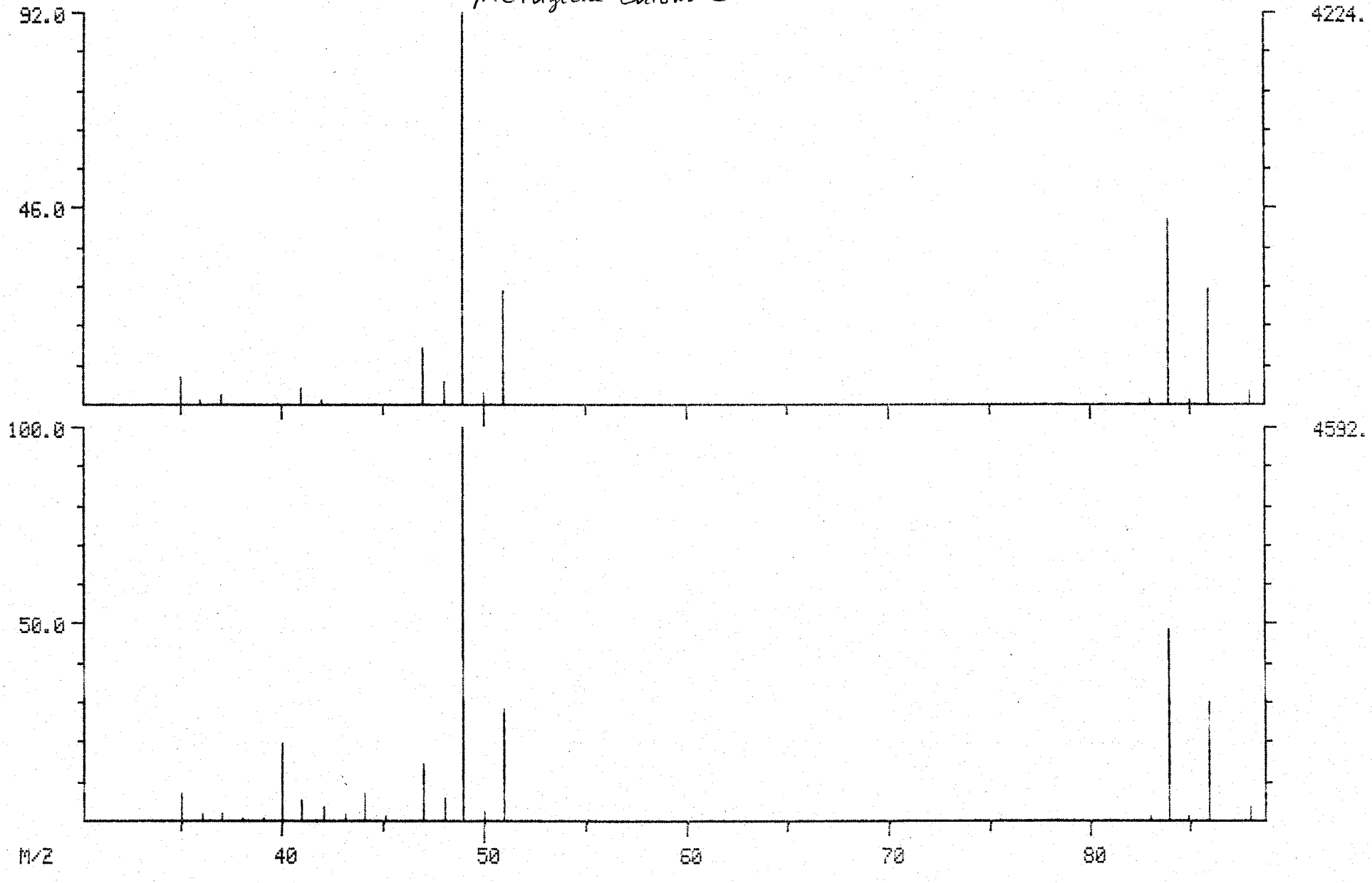
DATA: A2V0001173 #273 BASE M/Z: 62/ 40
CALI: A2V0001173 #2 RIC: 857./ 3023.



000016A

DUAL MASS SPECTRUM
10/05/88 22:56:00 + 10:39
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

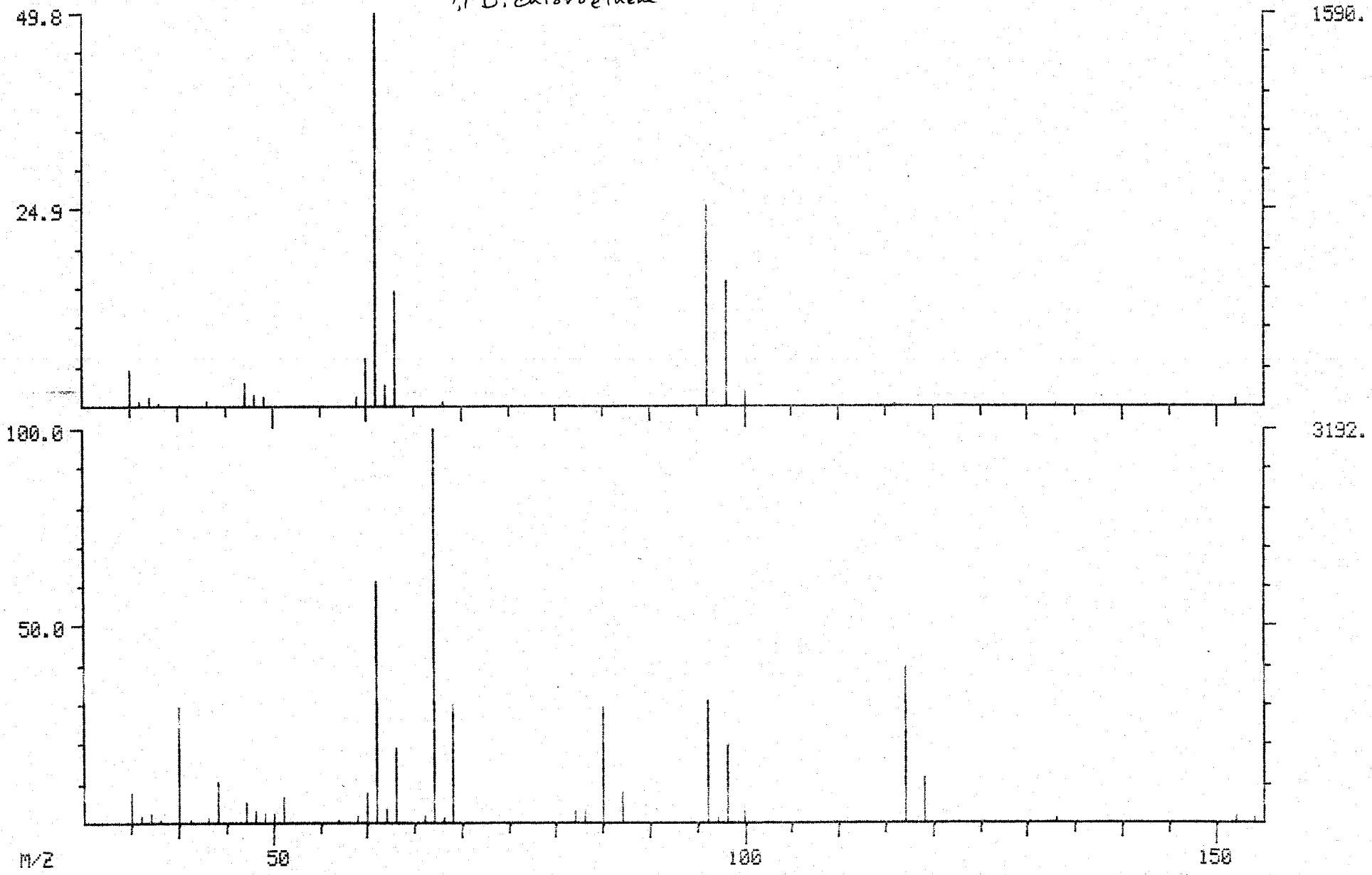
DATA: A2V0001173 #639 BASE M/Z: 49/ 49
CALI: A2V0001173 #2 RIC: 10575./ 13103.



000017

DUAL MASS SPECTRUM
10/05/88 22:56:00 + 8:59
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T), 1,1-Dichloroethene

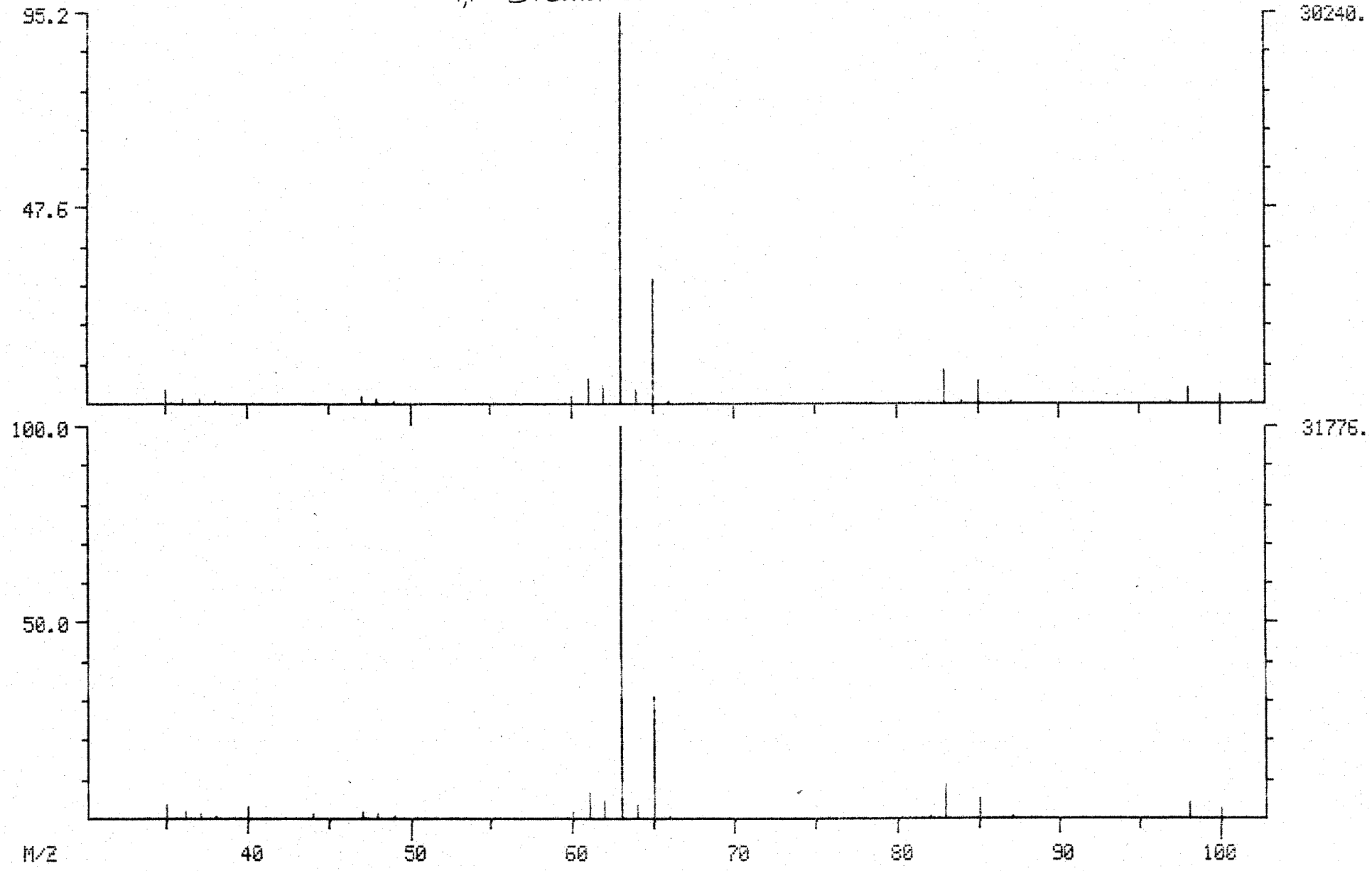
DATA: A2V0001173 #539 BASE M/Z: 61/ 67
CALI: A2V0001173 #2 RIC: 4239./ 14479.



000017A

DUAL MASS SPECTRUM
10/05/88 22:56:00 + 12:20
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,1-Dichloroethane

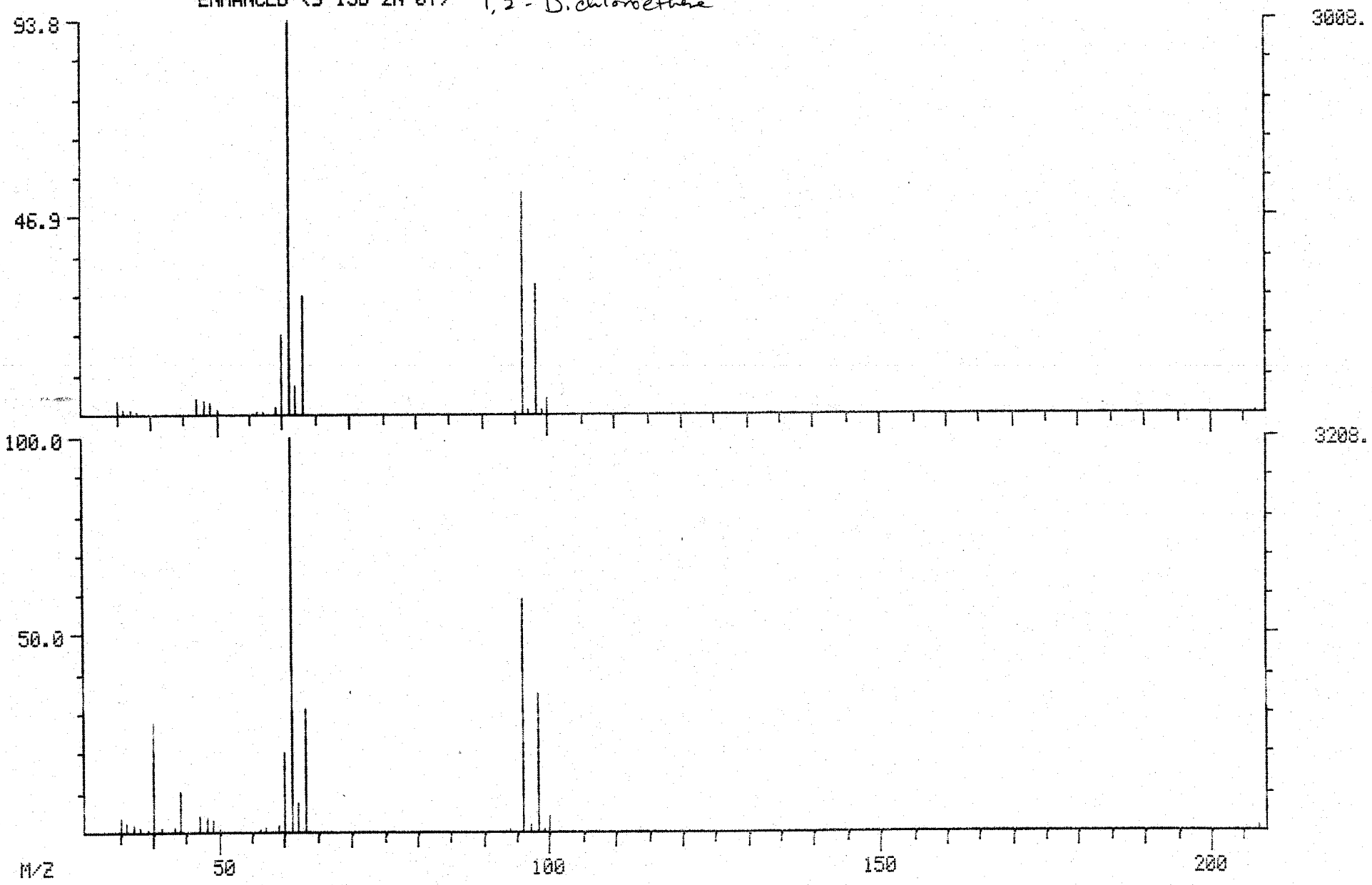
DATA: A2V0001173 #740 BASE M/Z: 63/ 63
CALI: A2V0001173 #2 RIC: 55167./ 58623.



000018

DUAL MASS SPECTRUM
10/05/88 22:56:00 + 11:17
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (5 15B 2N 0T) 1,2-Dichloroethane

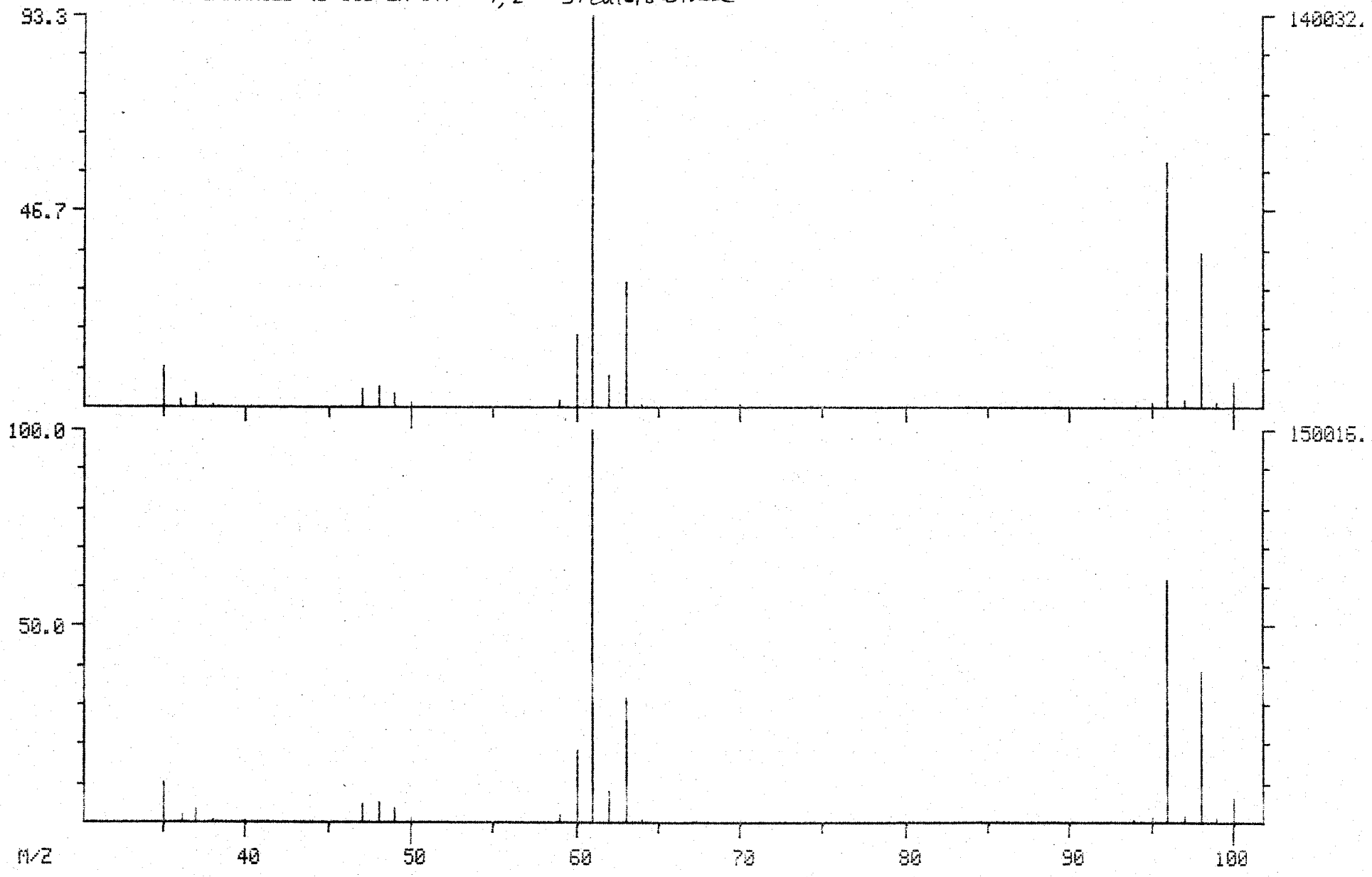
DATA: A2V0001173 #677 BASE M/Z: 61/ 61
CALI: A2V0001173 #2 RIC: 8319./ 10415.



000019

DUAL MASS SPECTRUM
10/05/88 22:56:00 + 13:38
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,2 - Dichloroethane

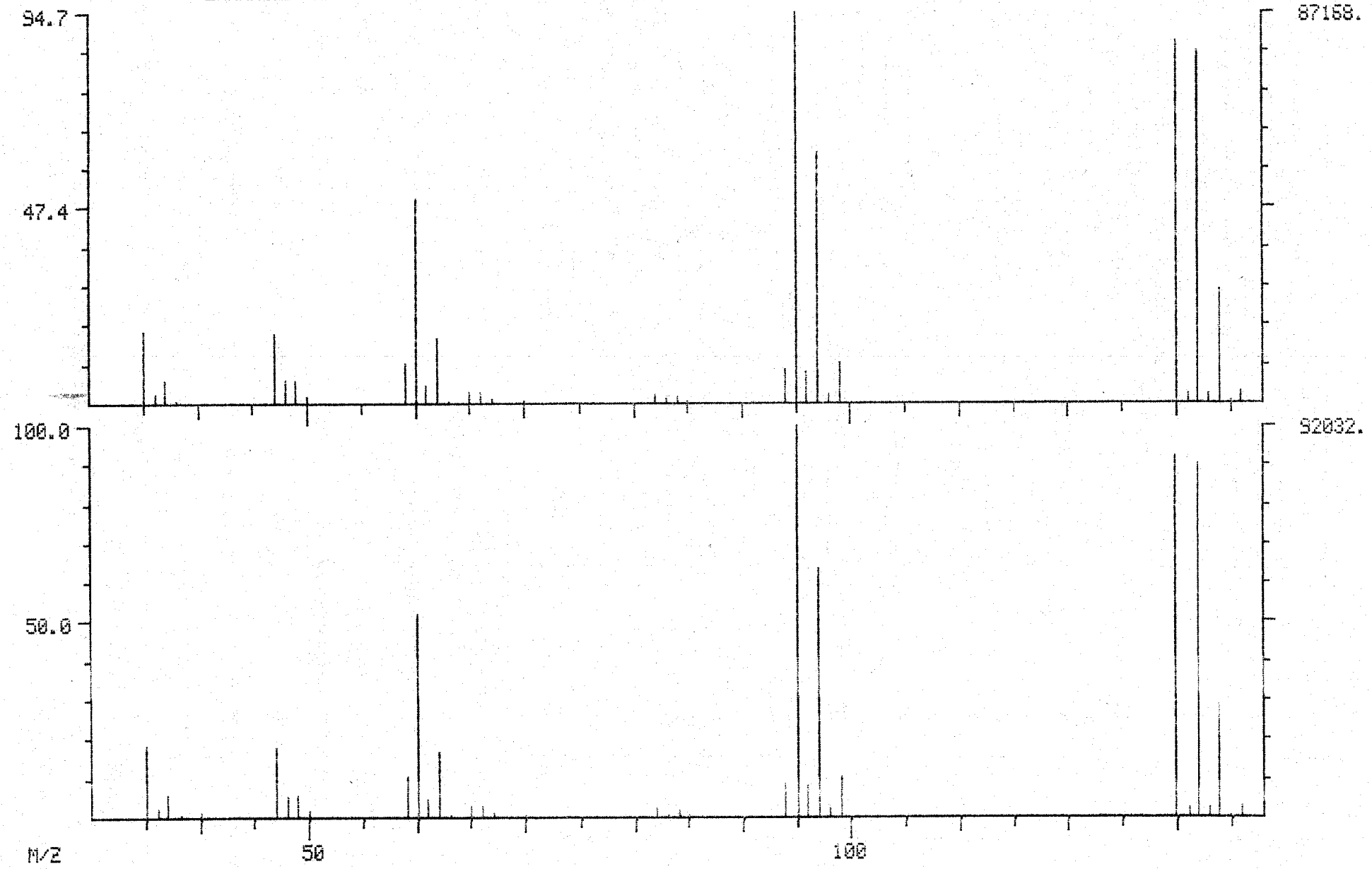
DATA: A2V0001173 #818 BASE M/Z: 61/ 61
CALI: A2V0001173 #2 RIC: 426495./ 457727.



000020

DUAL MASS SPECTRUM
10/05/88 22:56:00 + 16:39
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Trichloroethene

DATA: A2V0001173 #999 BASE M/Z: 95/ 95
CALI: A2V0001173 #2 RIC: 496127./ 523775.



000021

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-MW4

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978008

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A1VO001171

Level: (low/med) LOW Date Received: 09/24/88

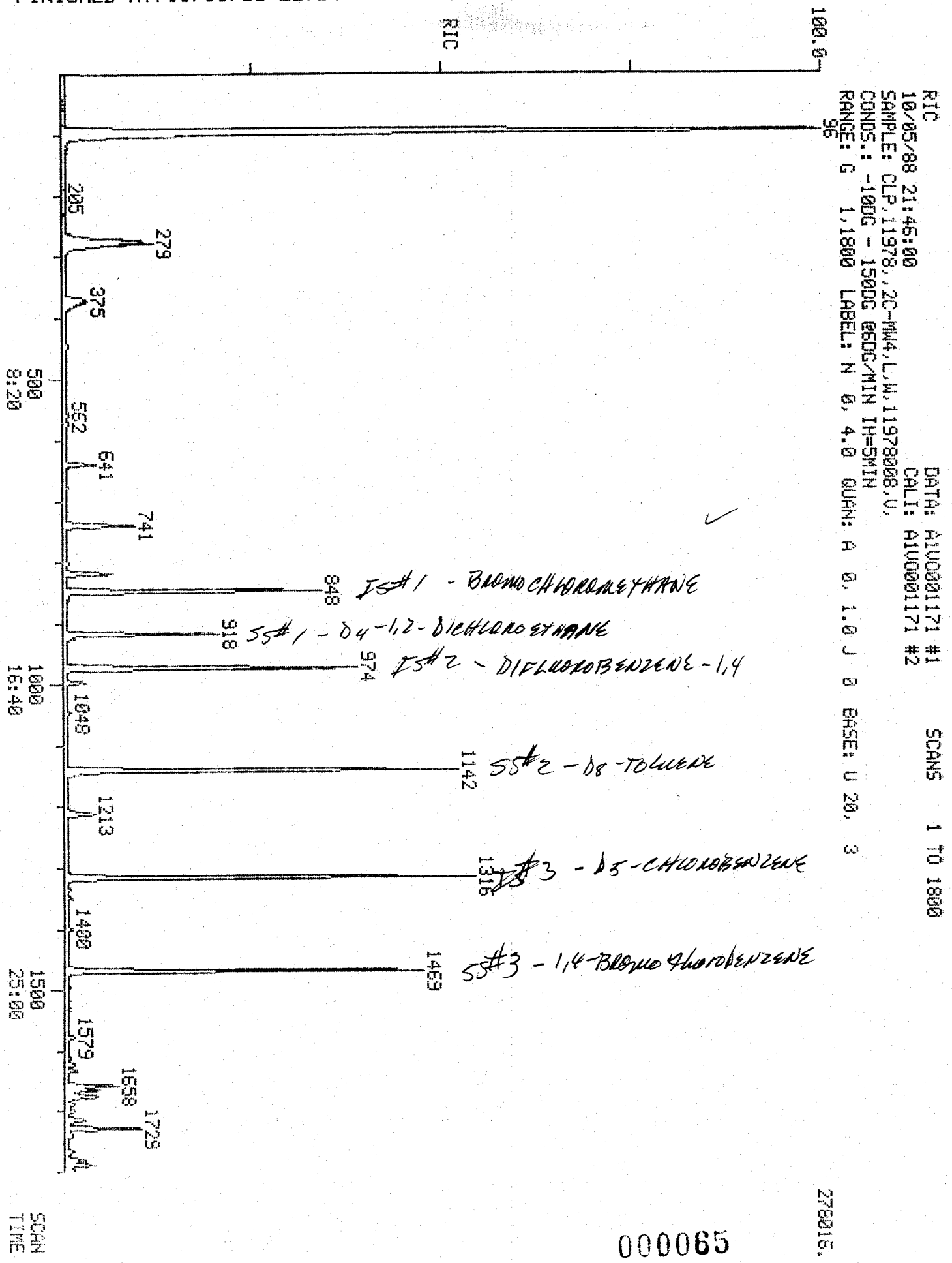
% Moisture: not dec. _____ Date Analyzed: 10/05/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	210	E
75-00-3	Chloroethane	78	
75-09-2	Methylene Chloride	8	BJ
67-64-1	Acetone	6	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	25	
540-59-0	1,2-Dichloroethene (total)	12	
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	2	J
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	4	J
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

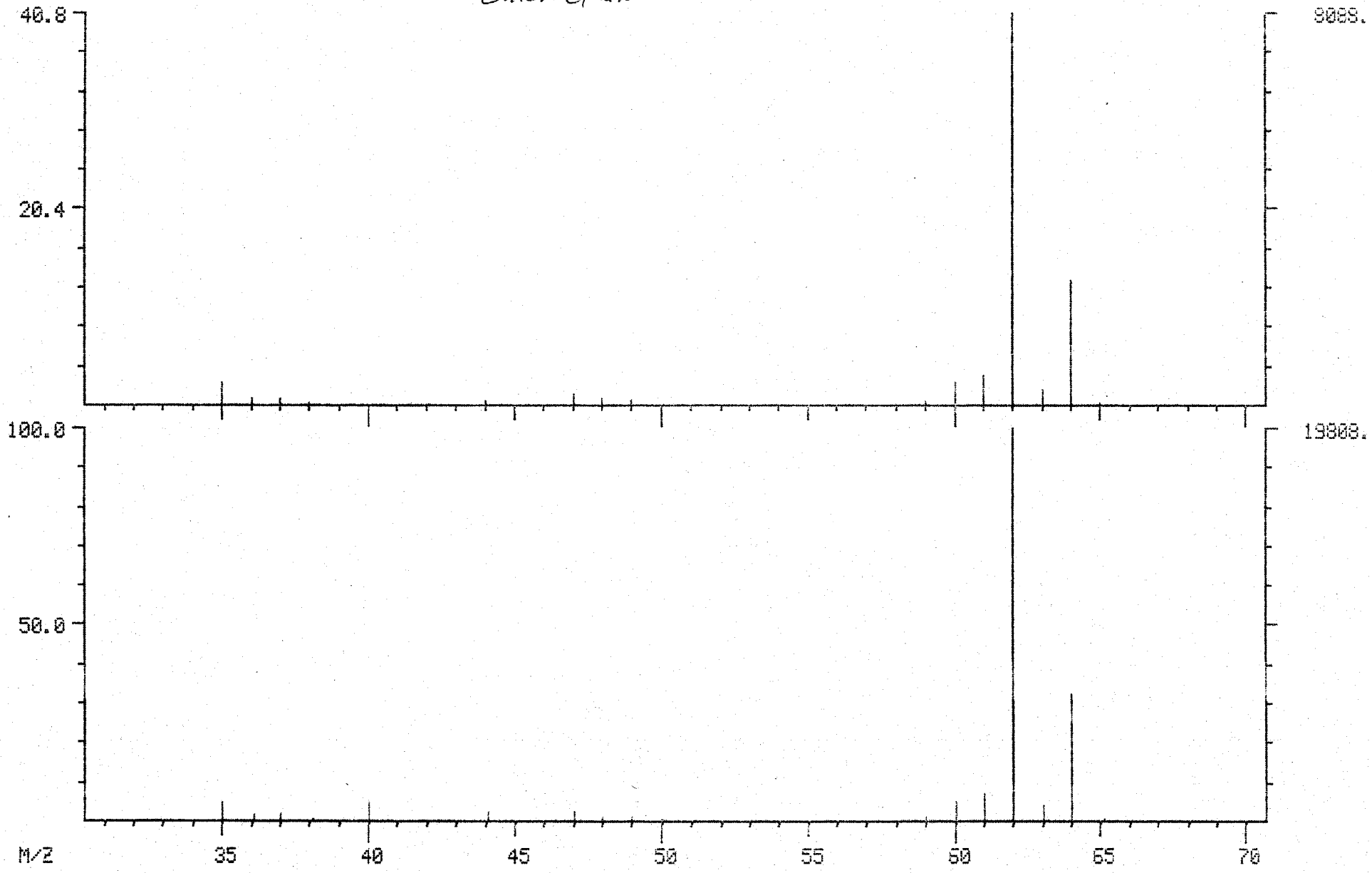
TCA FINISHED, 23 FOUND
FINISHED AT: 10/05/88 22:24:18



000065

DUAL MASS SPECTRUM
10/05/88 21:46:00 + 4:39
SAMPLE: CLP,11978,,2C-MW4,L,W,11978008,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Chloroethane

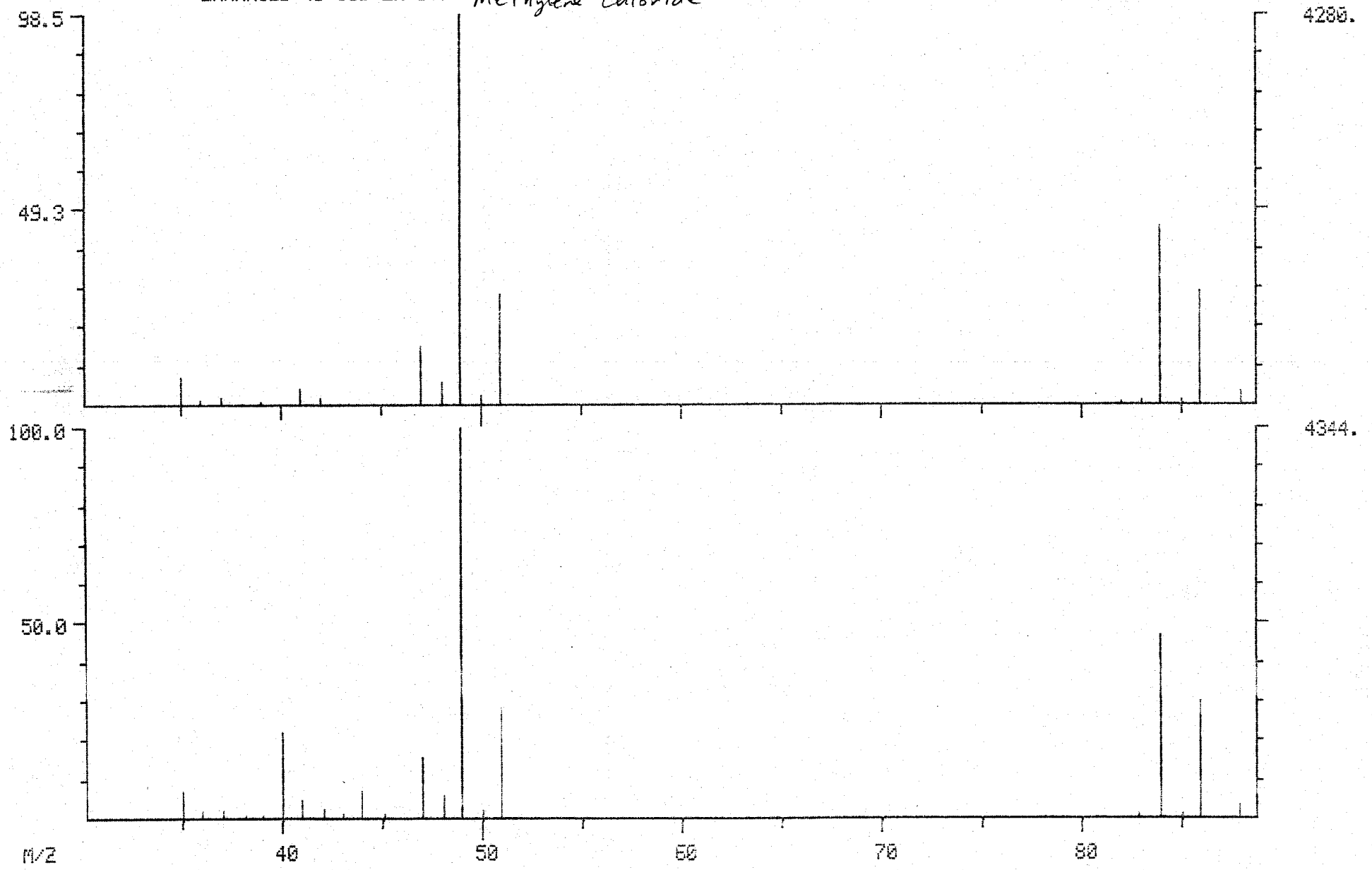
DATA: A1V0001171 #279 BASE M/Z: 62/ 62
CALI: A1V0001171 #2 RIC: 13503./ 33983.



000066

DUAL MASS SPECTRUM
10/05/88 21:46:00 + 10:40
SAMPLE: CLP,11978,,2C-MW4,L,W,11978008,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

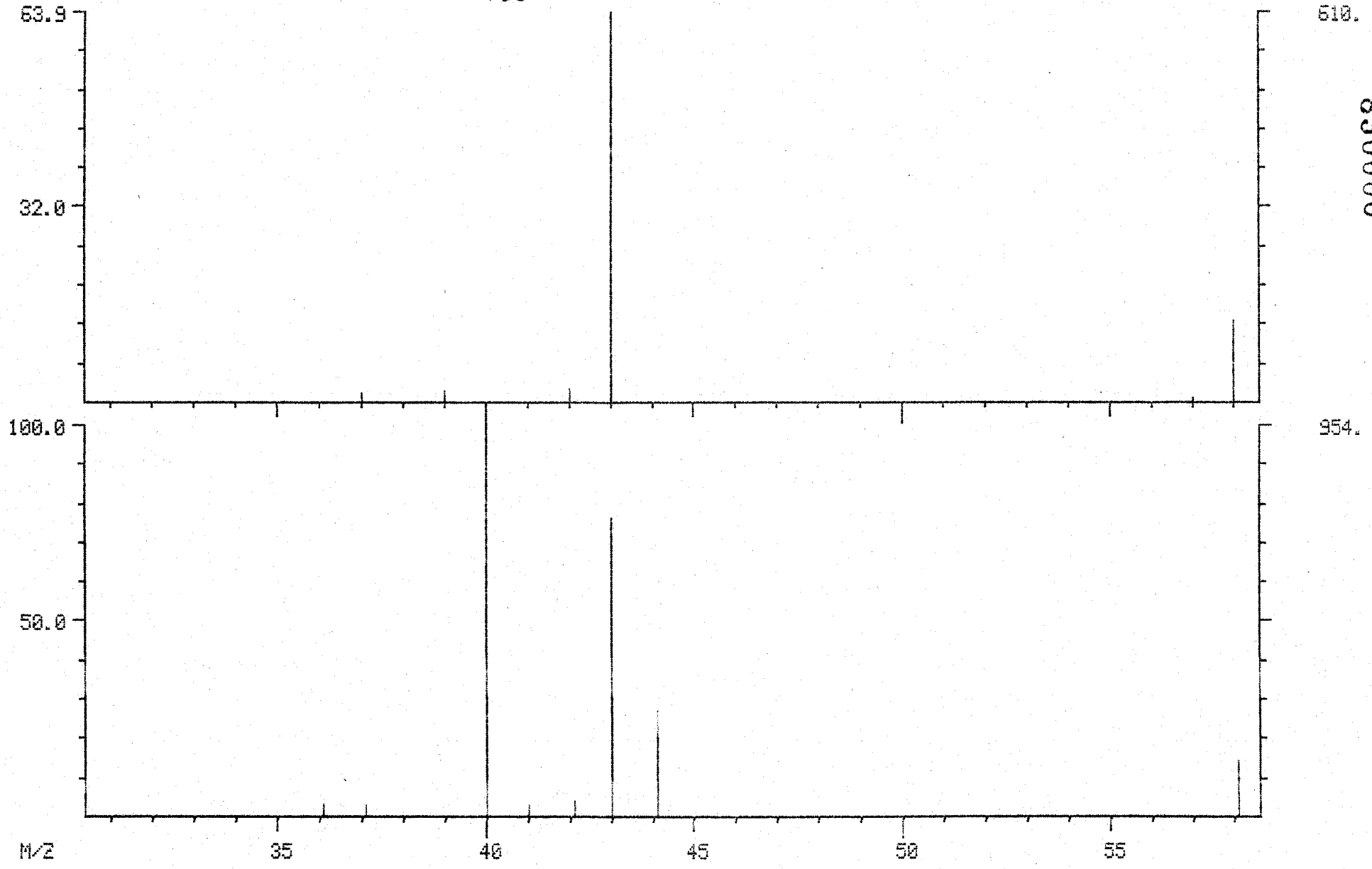
DATA: A1V0001171 #640 BASE M/Z: 49/ 49
CALI: A1V0001171 #2 RIC: 10639./ 12399.



000067

DUAL MASS SPECTRUM
10/05/88 21:46:00 + 9:35
SAMPLE: CLP,11978,,2C-MW4,L,W,11978008,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Acetone

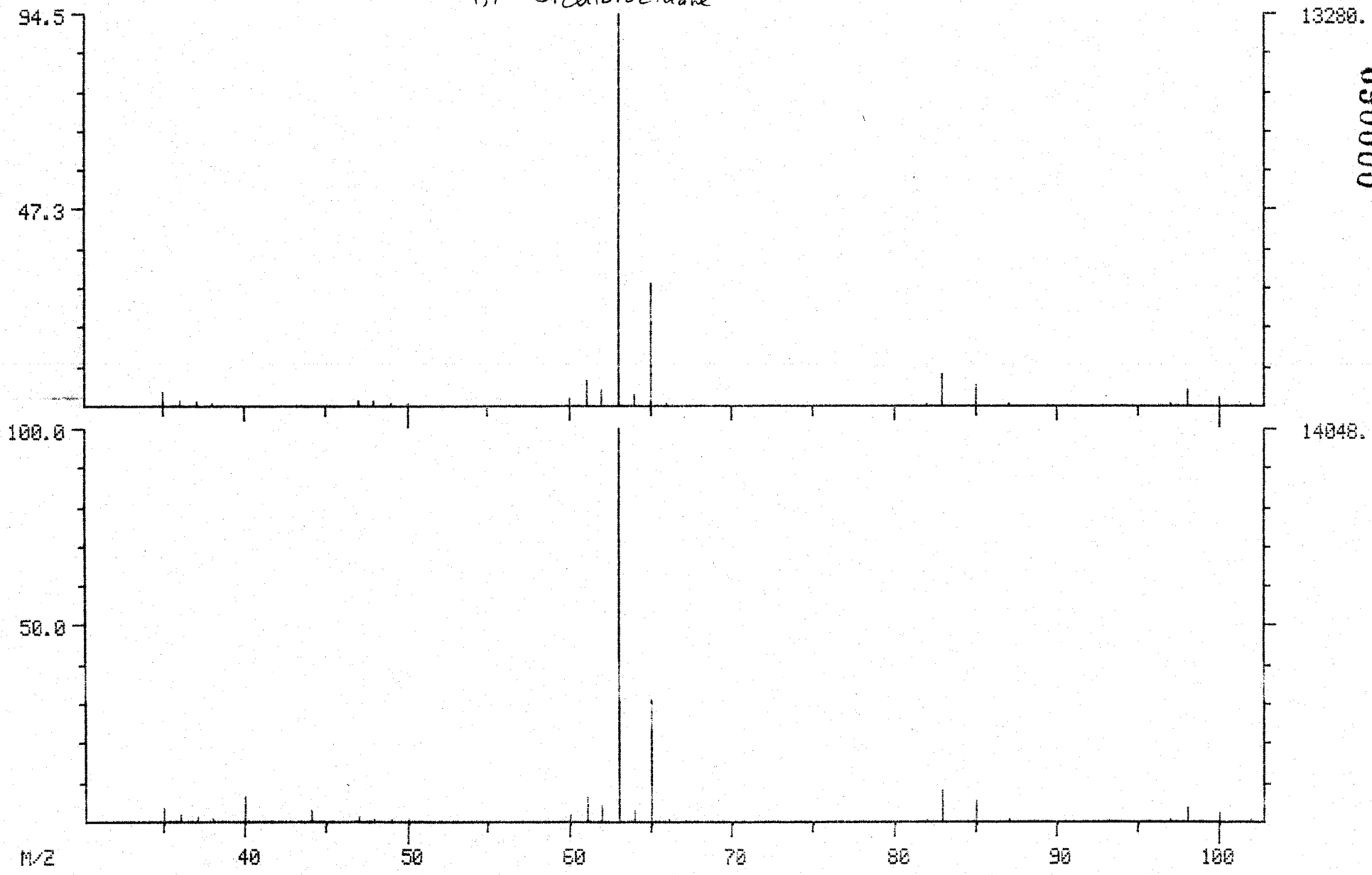
DATA: A1V0001171 #575 BASE M/Z: 43/ 40
CALI: A1V0001171 #2 RIC: 792./ 2199.



000063

DUAL MASS SPECTRUM
10/05/88 21:46:00 + 12:21
SAMPLE: CLP,11978,,2C-MW4,L,W,11978008,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,1- Dichloroethane

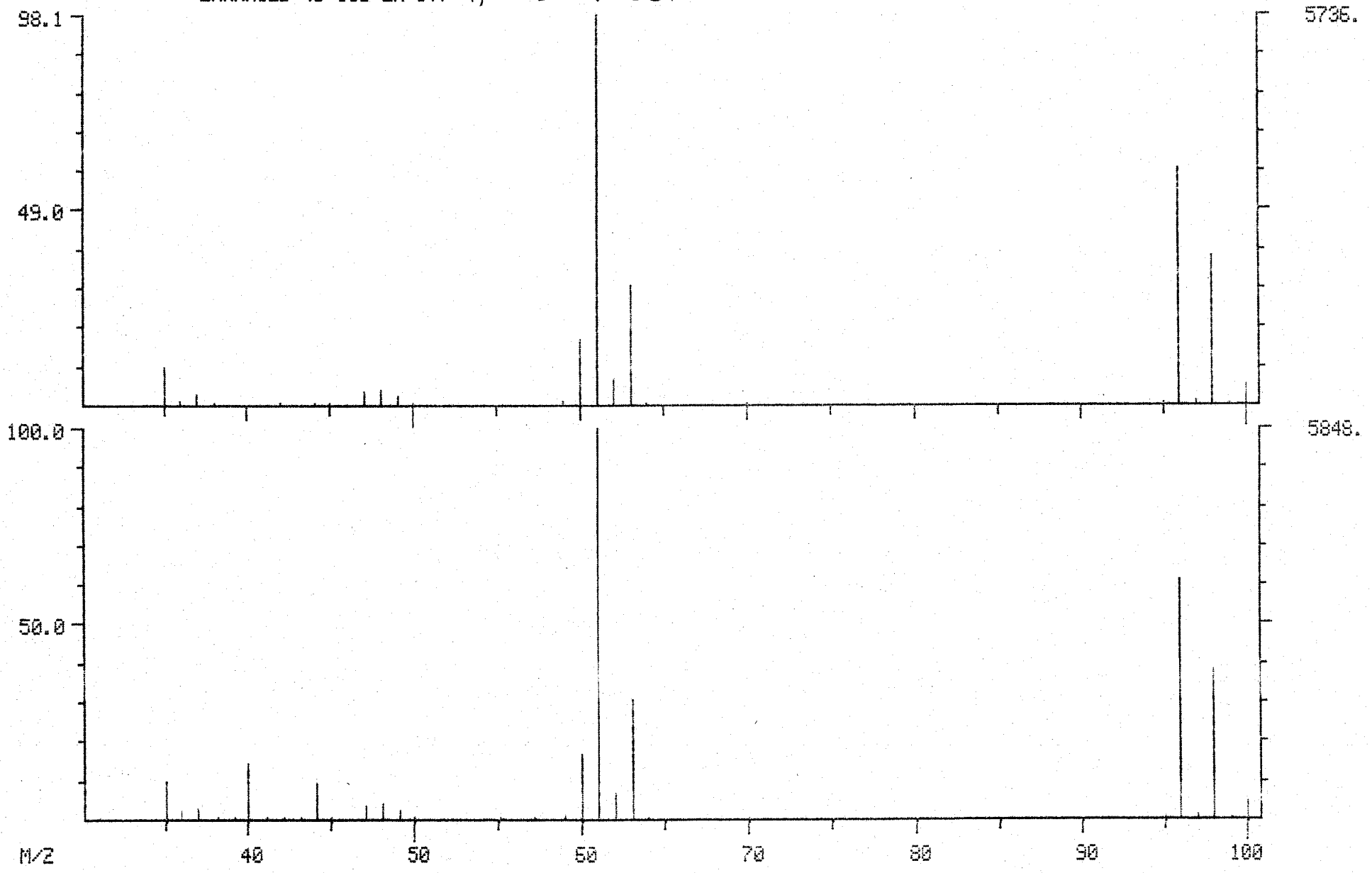
DATA: A1V0001171 #741 BASE M/Z: 63/ 63
CALI: A1V0001171 #2 RIC: 23679./ 26431.



000069

DUAL MASS SPECTRUM
10/05/88 21:46:00 + 13:39
SAMPLE: CLP,11978,,2C-MW4,L,W,11978008,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,2-Dichloroethene

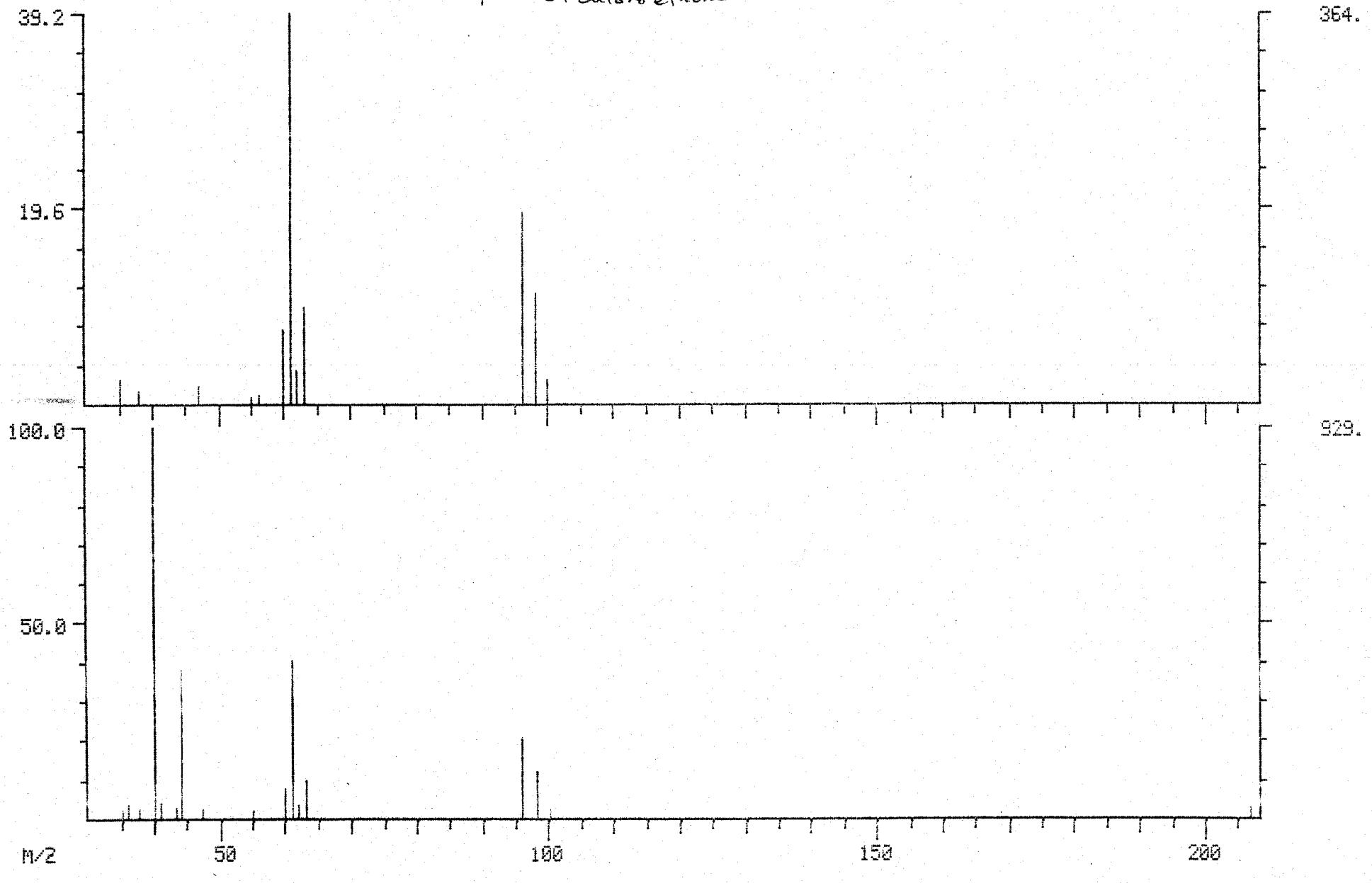
DATA: A1V0001171 #819 BASE M/Z: 61/ 61
CALI: A1V0001171 #2 RIC: 16671./ 18463.



000070

DUAL MASS SPECTRUM
10/05/88 21:46:00 + 11:18
SAMPLE: CLP,11978,,2C-MW4,L,W,11978008,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,2-Dichloroethene

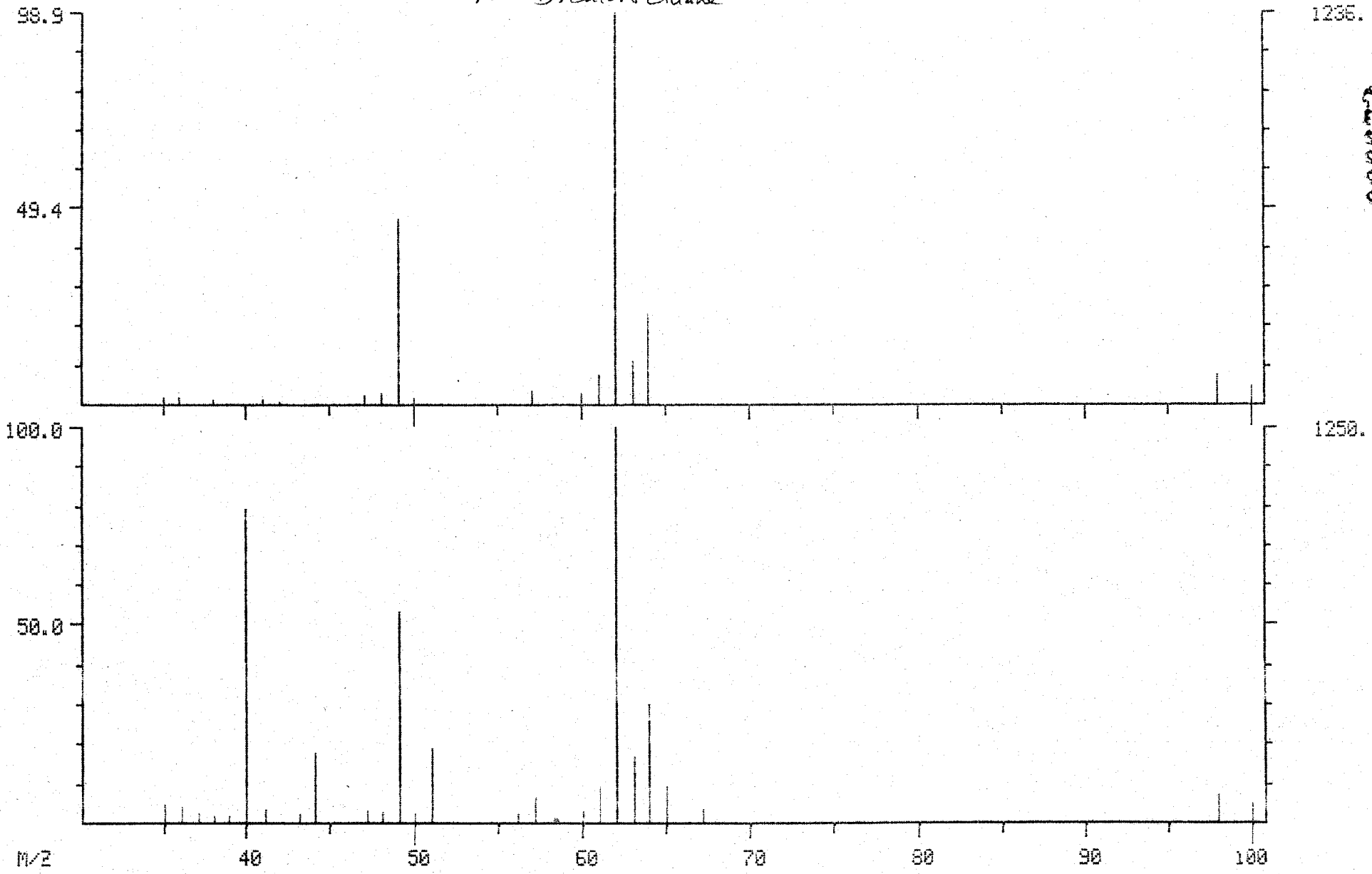
DATA: A1V0001171 #678 BASE M/Z: 61/ 40
CALI: A1V0001171 #2 RIC: 927./ 2399.



000071

DUAL MASS SPECTRUM
10/05/88 21:46:00 + 15:27
SAMPLE: CLP,11978.,2C-MW4,L,W,11978008,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,2-Dichloroethane

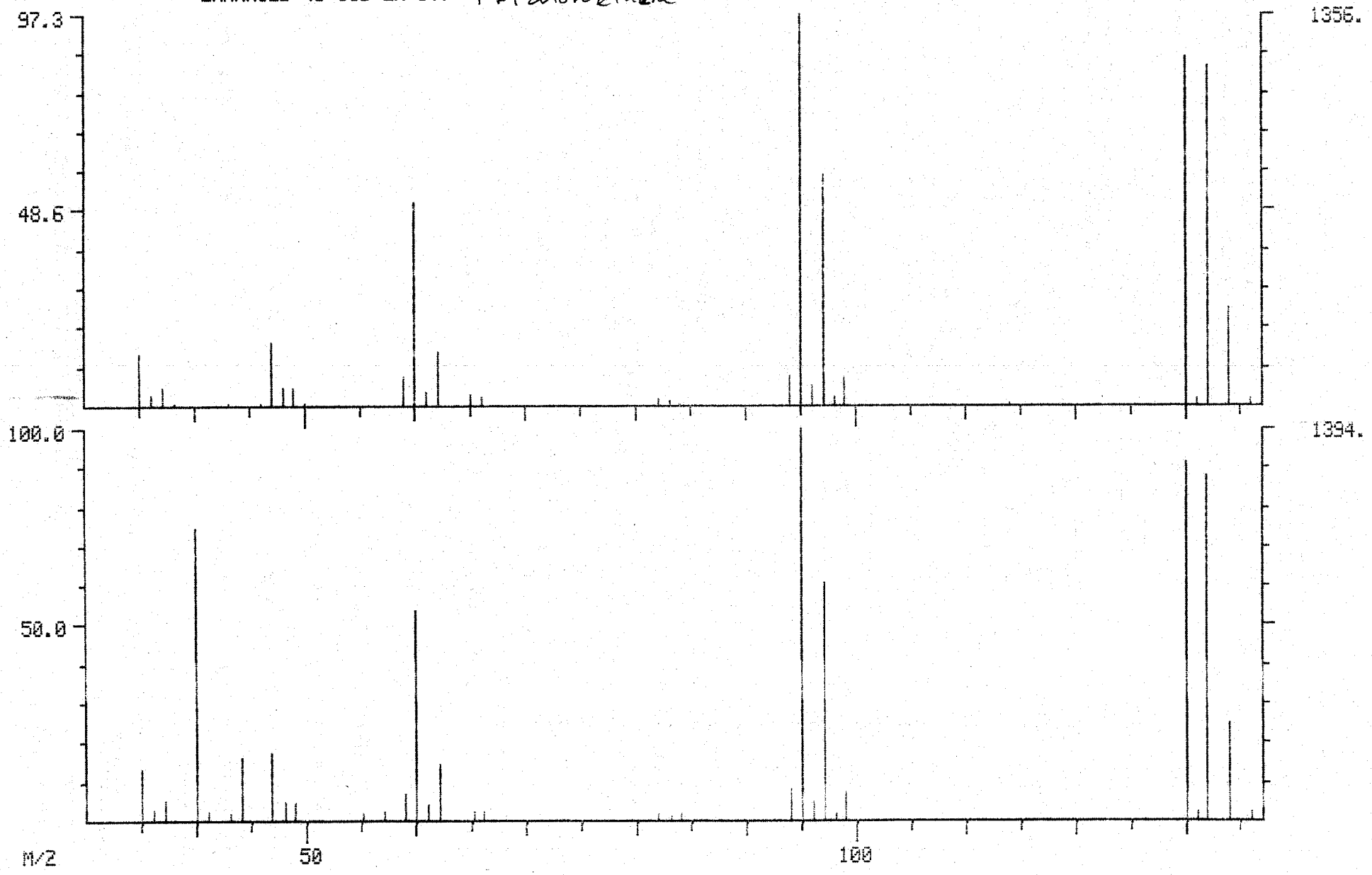
DATA: A1V0001171 #927 BASE M/Z: 62/ 62
CALI: A1V0001171 #2 RIC: 2731./ 4895.



000072

DUAL MASS SPECTRUM
10/05/88 21:46:00 + 16:38
SAMPLE: CLP,11978,,2C-MW4,L,W,11978008,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Trichloroethane

DATA: A1V0001171 #998 BASE M/Z: 95/ 95
CALI: A1V0001171 #2 RIC: 7063./ 8767.



000072A

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B-MW7_DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978003DL

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A3VO001174

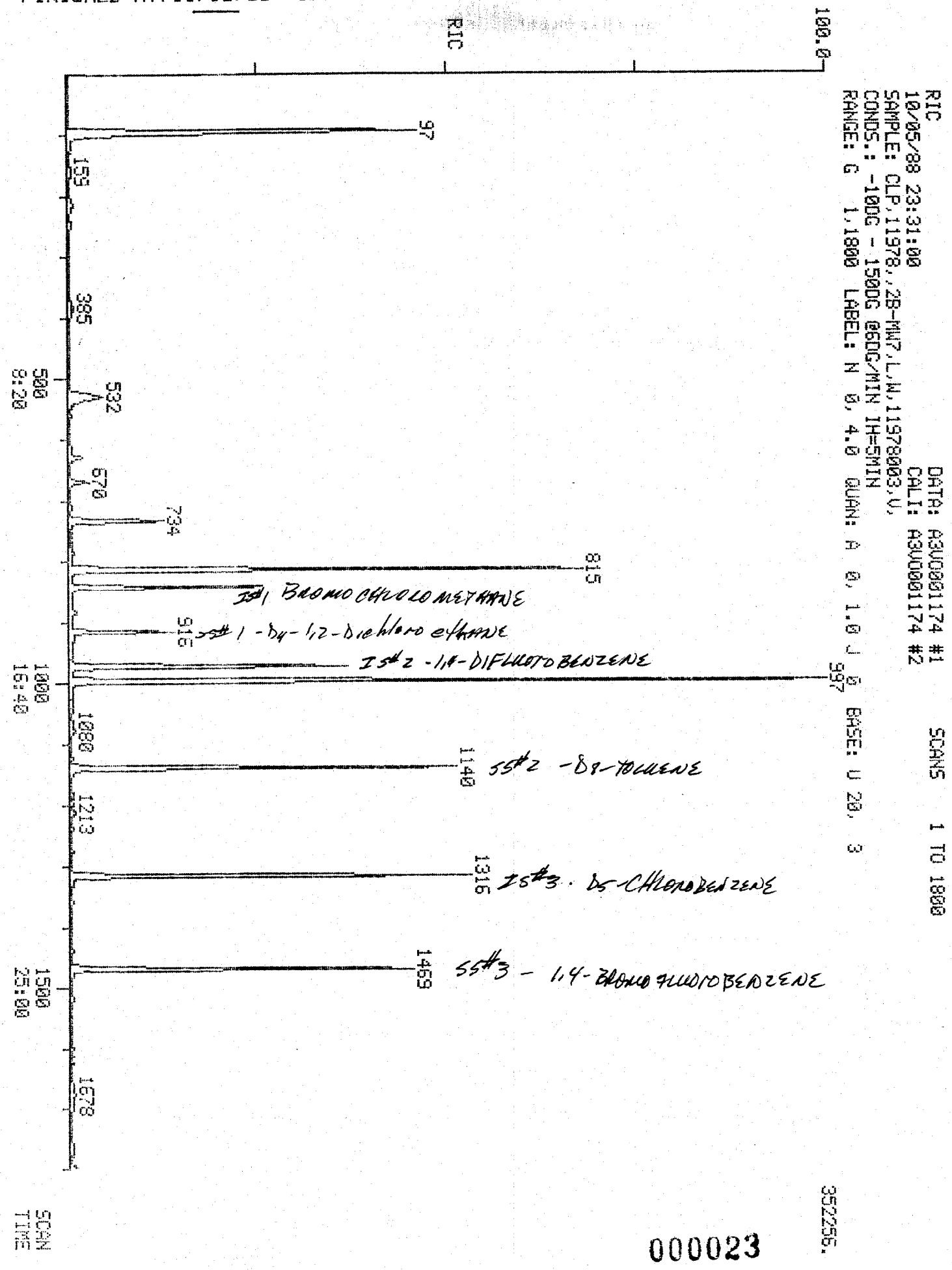
Level: (low/med) LOW Date Received: 09/24/88

% Moisture: not dec. _____ Date Analyzed: 10/05/88

Column: (pack/cap) CAP Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	20	U
74-83-9	Bromomethane	20	U
75-01-4	Vinyl Chloride	27	D
75-00-3	Chloroethane	20	U
75-09-2	Methylene Chloride	7	BDJ
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	12	D
75-34-3	1,1-Dichloroethane	79	D
540-59-0	1,2-Dichloroethene (total)	340	D
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	20	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
108-05-4	Vinyl Acetate	20	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	330	D
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
591-78-6	2-Hexanone	20	U
108-10-1	4-Methyl-2-Pentanone	20	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	20	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylenes (total)	10	U

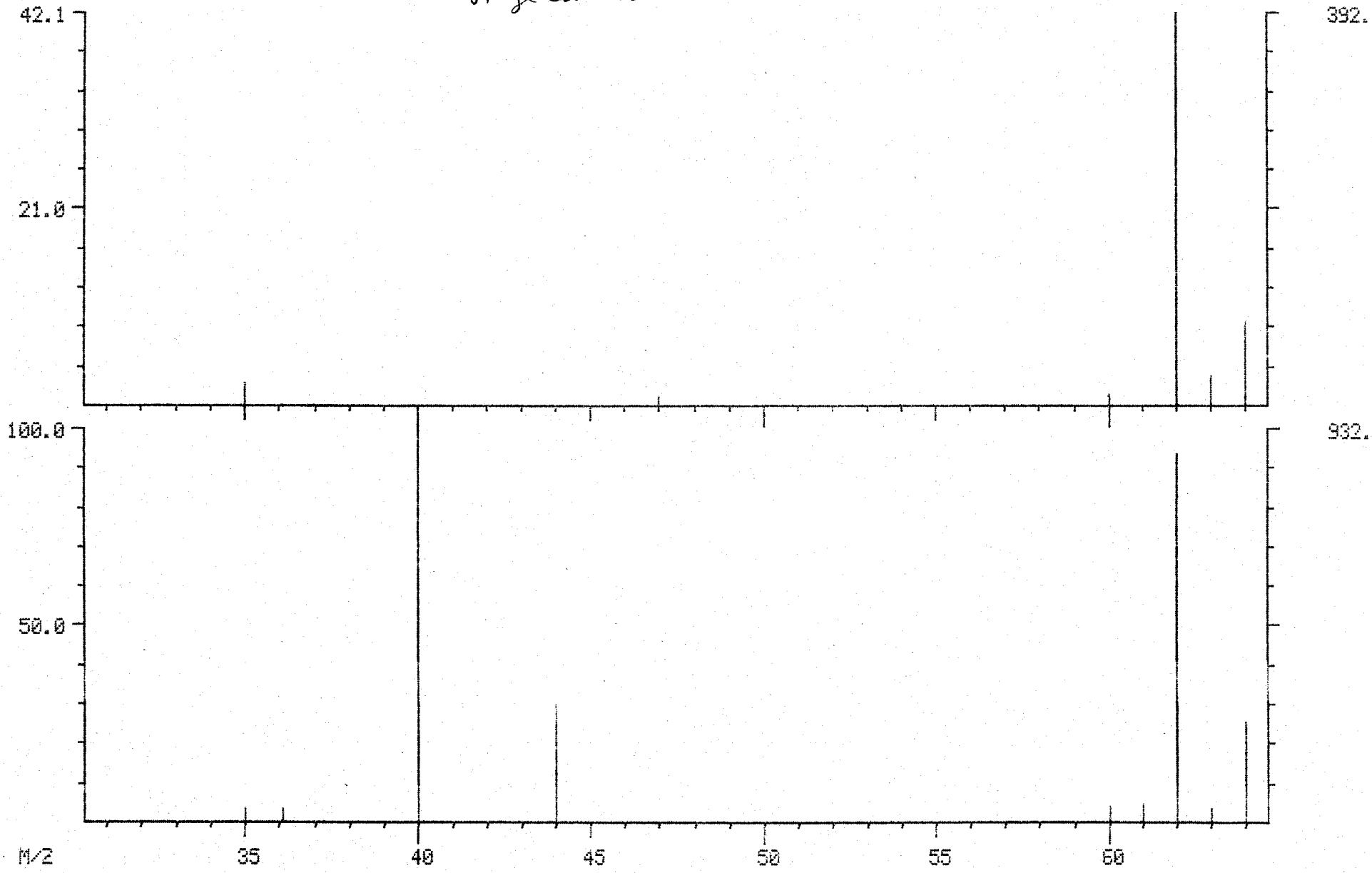
TCA FINISHED, 12 FOUND
FINISHED AT: 10/06/88 0:08:29



000023

DUAL MASS SPECTRUM
10/05/88 23:31:00 + 3:34
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Vinyl chloride

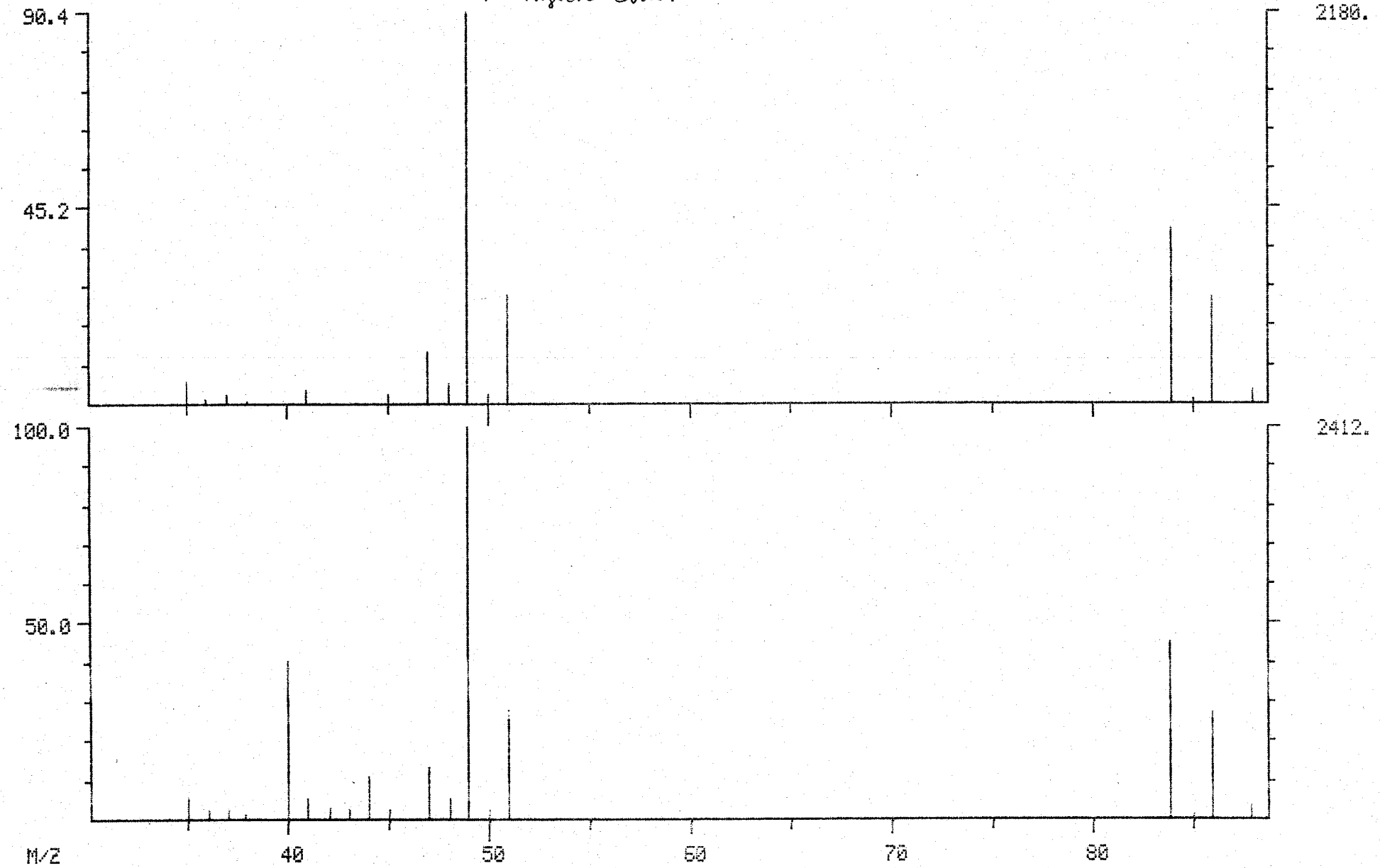
DATA: A3V0001174 #214 BASE M/Z: 62/ 40
CALI: A3V0001174 #2 RIC: 547./ 2511.



000024

DUAL MASS SPECTRUM
10/05/88 23:31:00 + 10:32
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

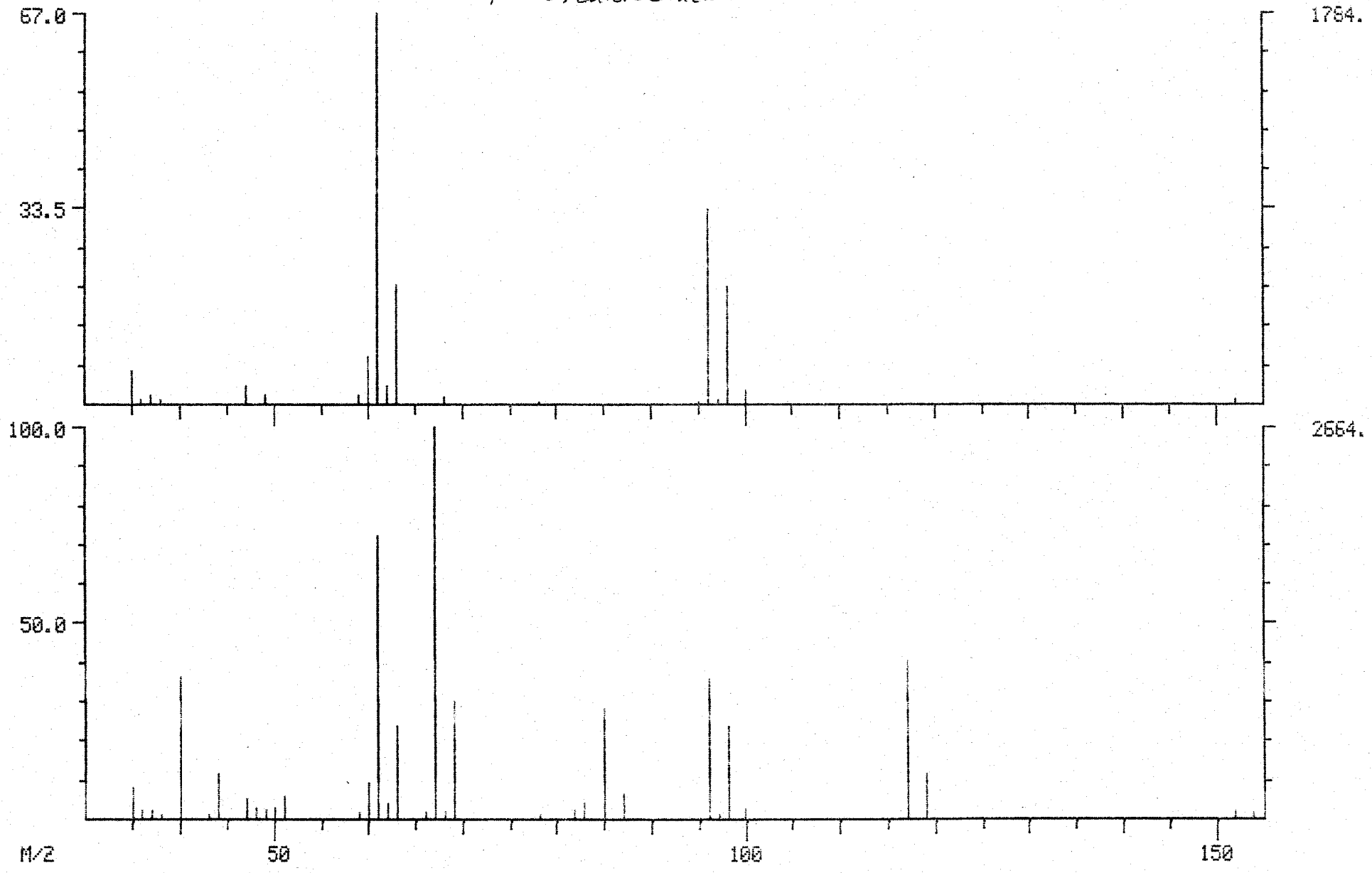
DATA: A3V0001174 #632 BASE M/Z: 49/ 49
CALI: A3V0001174 #2 RIC: 5255./ 7231.



000025

DUAL MASS SPECTRUM
10/05/88 23:31:00 + 8:47
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,1- Dichloroethene

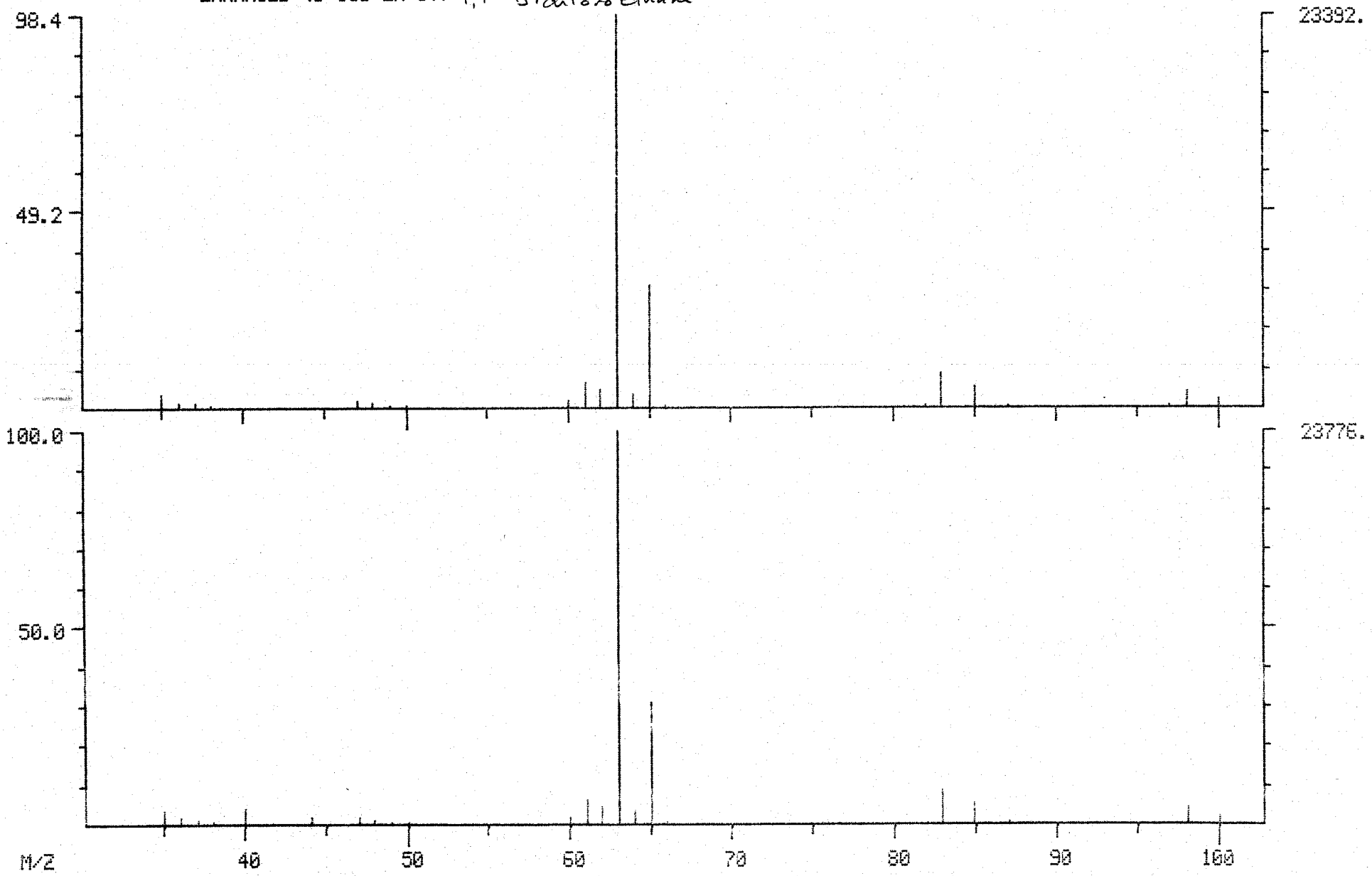
DATA: A3V0001174 #527 BASE M/Z: 61/ 67
CALI: A3V0001174 #2 RIC: 4647./ 12991.



000026

DUAL MASS SPECTRUM
10/05/88 23:31:00 + 12:14
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,1-Dichloroethane

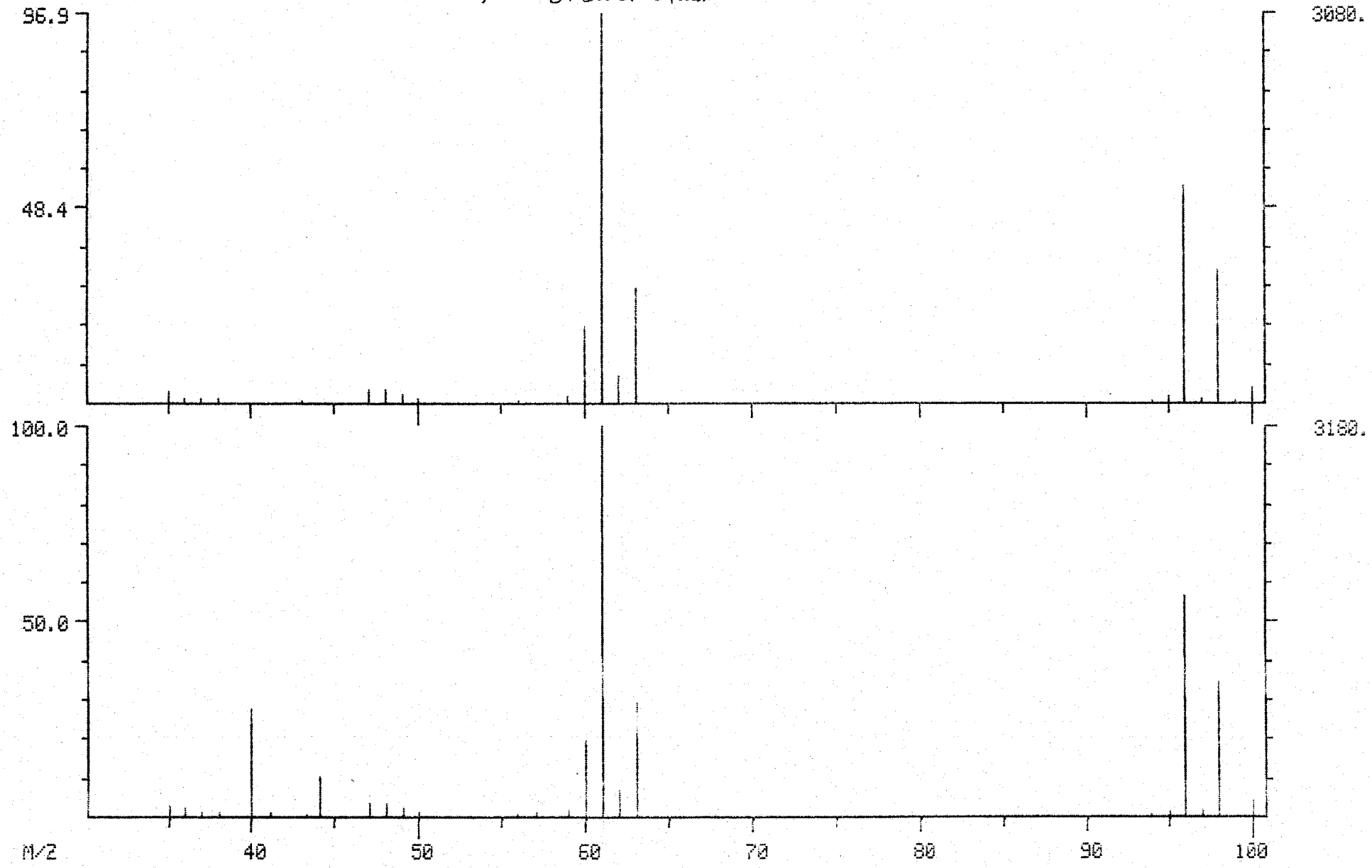
DATA: A3V0001174 #734 BASE M/Z: 63/ 63
CALI: A3V0001174 #2 RIC: 42175./ 44031.



000027

DUAL MASS SPECTRUM
10/05/88 23:31:00 + 11:10
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,2-Dichloroethane

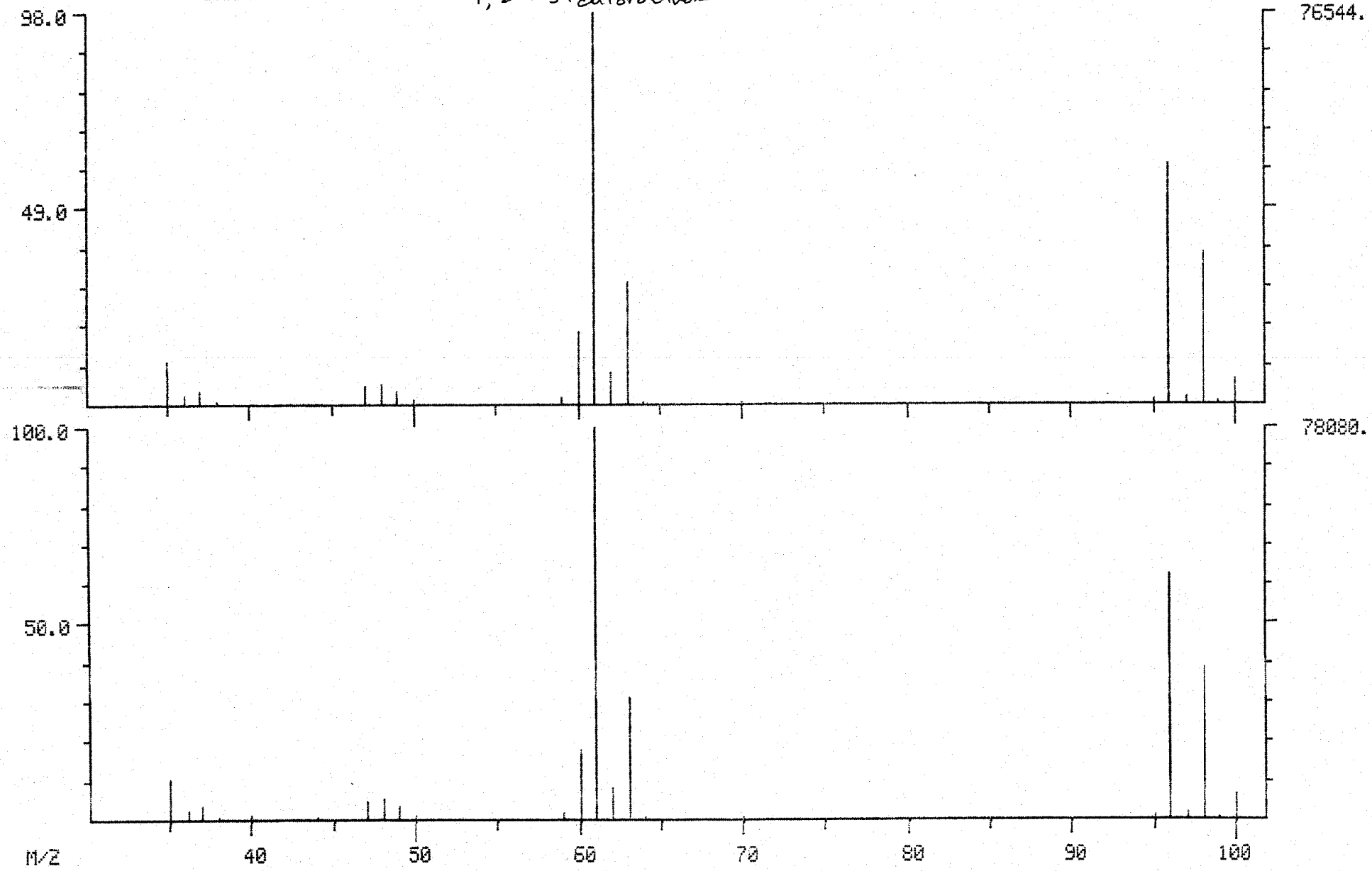
DATA: A3V0001174 #670 BASE M/Z: 61/ 61
CALI: A3V0001174 #2 RIC: 8415./ 10063.



000023

DUAL MASS SPECTRUM
10/05/88 23:31:00 + 13:35
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,2-Dichloroethene

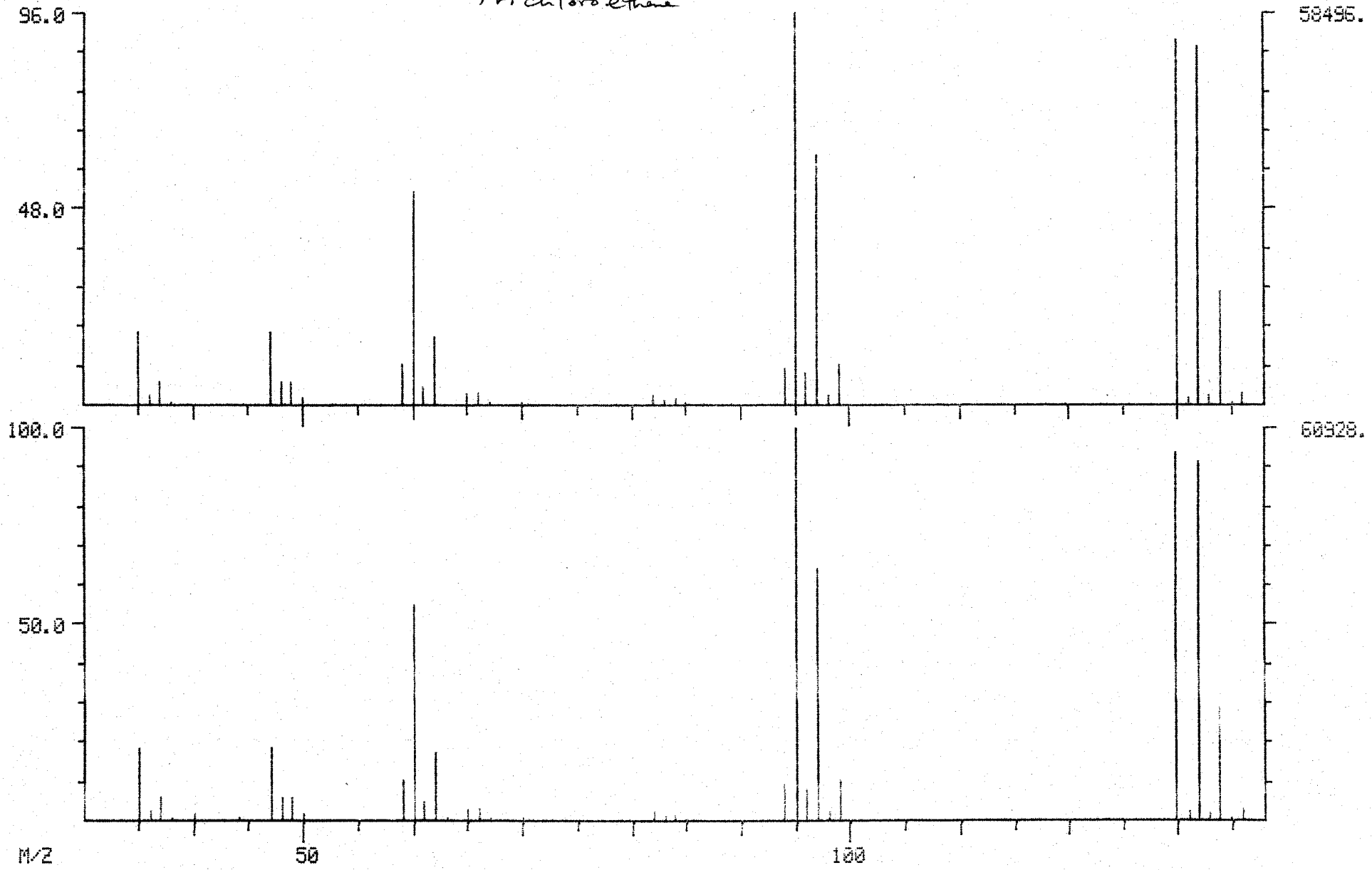
DATA: A3V0001174 #815 BASE M/Z: 61/ 61
CALI: A3V0001174 #2 RIC: 231679./ 239103.



000029

DUAL MASS SPECTRUM
10/05/88 23:31:00 + 16:37
SAMPLE: CLP,11978,,2B-MW7,L,W,11978003,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Trichloroethane

DATA: A3V0001174 #997 BASE M/Z: 95/ 95
CALI: A3V0001174 #2 RIC: 335359./ 352255.



000030

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ-1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978010

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A1VO001164

Level: (low/med) LOW Date Received: 09/24/88

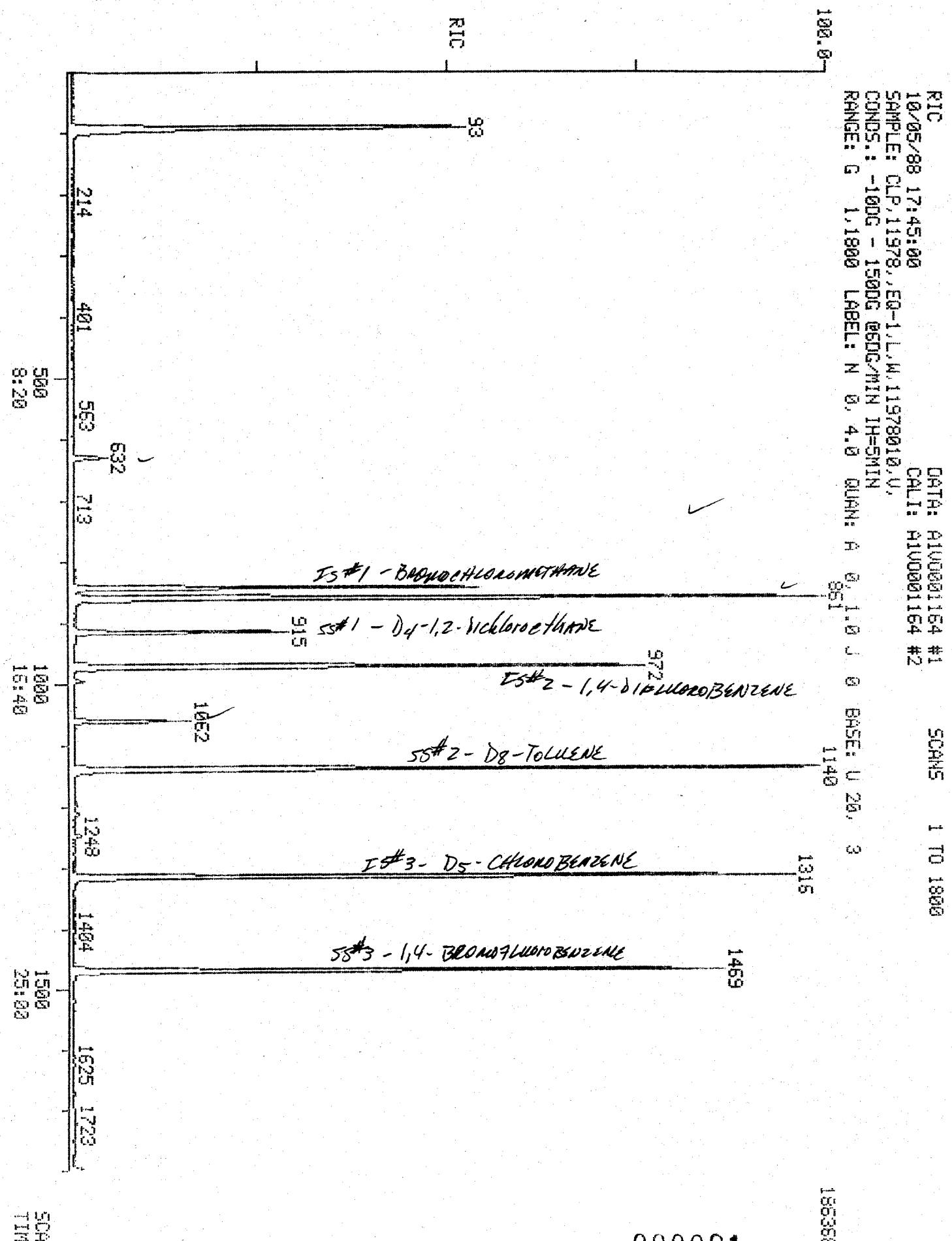
% Moisture: not dec. _____ Date Analyzed: 10/05/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	4	BJ
67-64-1	Acetone	3	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	130	
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	14	
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	1	J
124-48-1	Dibromochloromethane	1	J
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS.

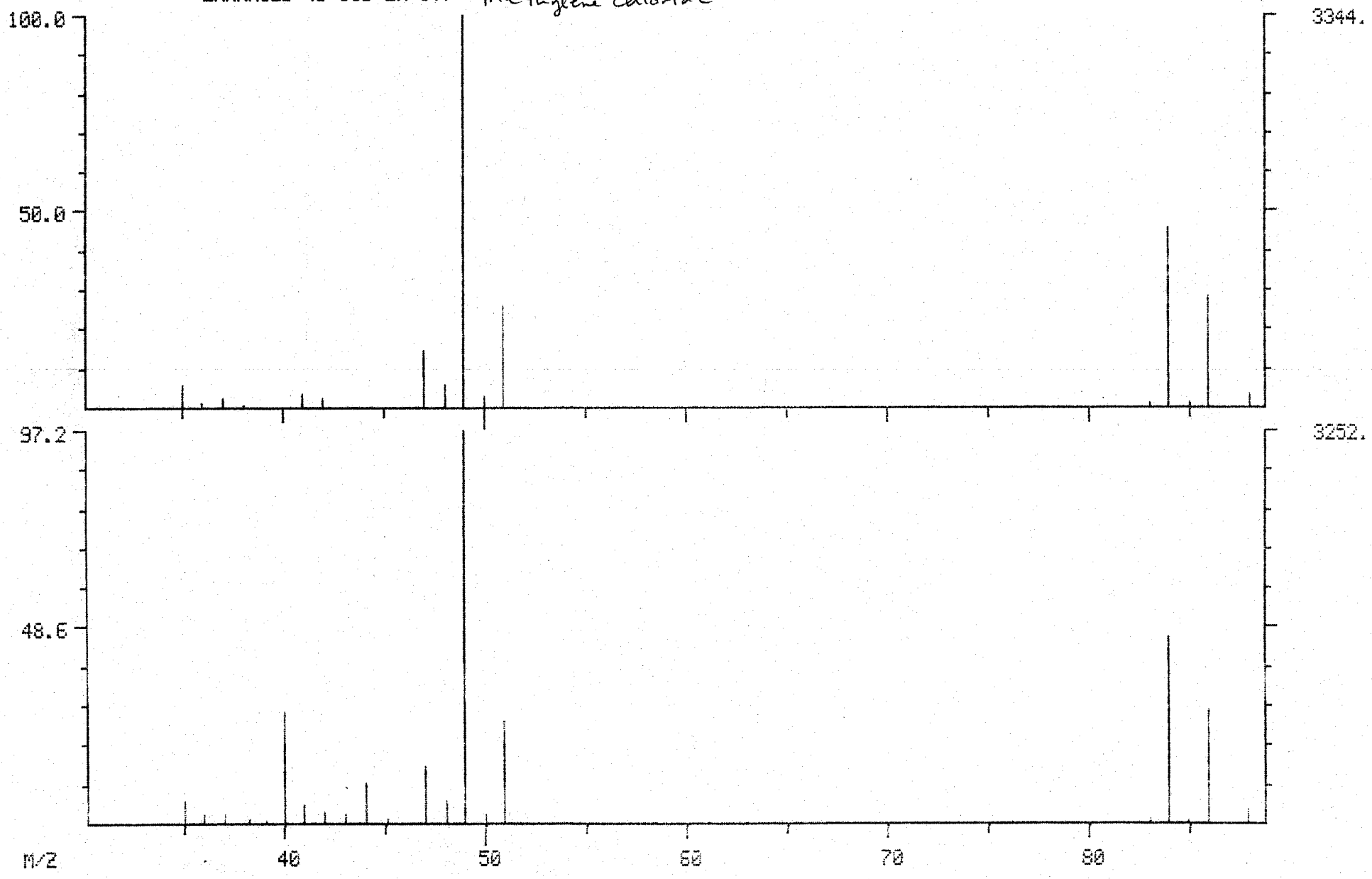
TCA FINISHED, 12 FOUND
FINISHED AT: 10/05/88 18:27:34



000081

DUAL MASS SPECTRUM
10/05/88 17:45:00 + 10:31
SAMPLE: CLP,11978,,EQ-1,L,W,11978010,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

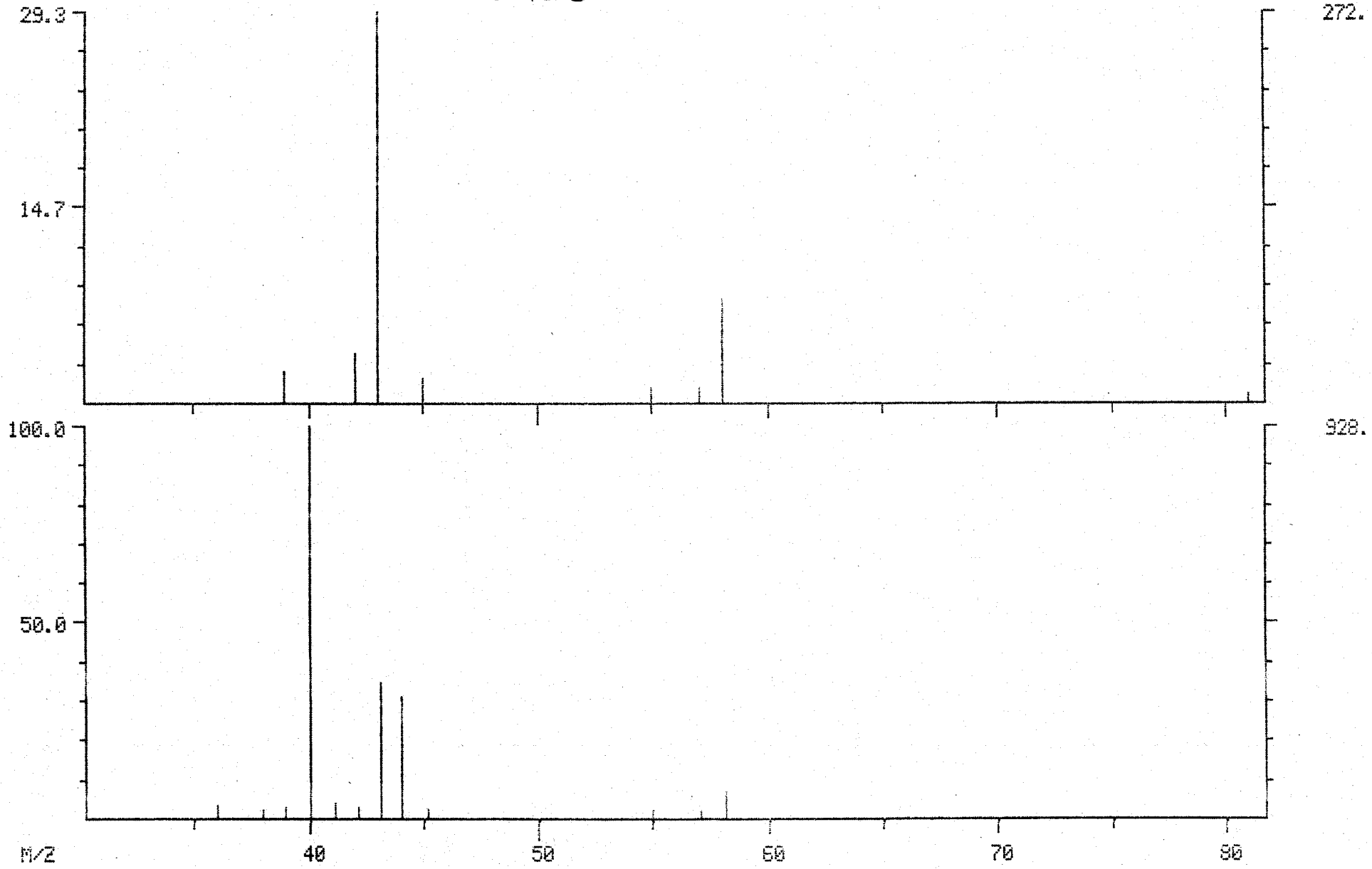
DATA: A1V0001164 #631 BASE M/Z: 49/ 49
CALI: A1V0001164 #2 RIC: 8207./ 9487.



000082

DUAL MASS SPECTRUM
10/05/88 17:45:00 + 9:24
SAMPLE: CLP,11978,,EQ-1,L,W,11978010,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Acetone

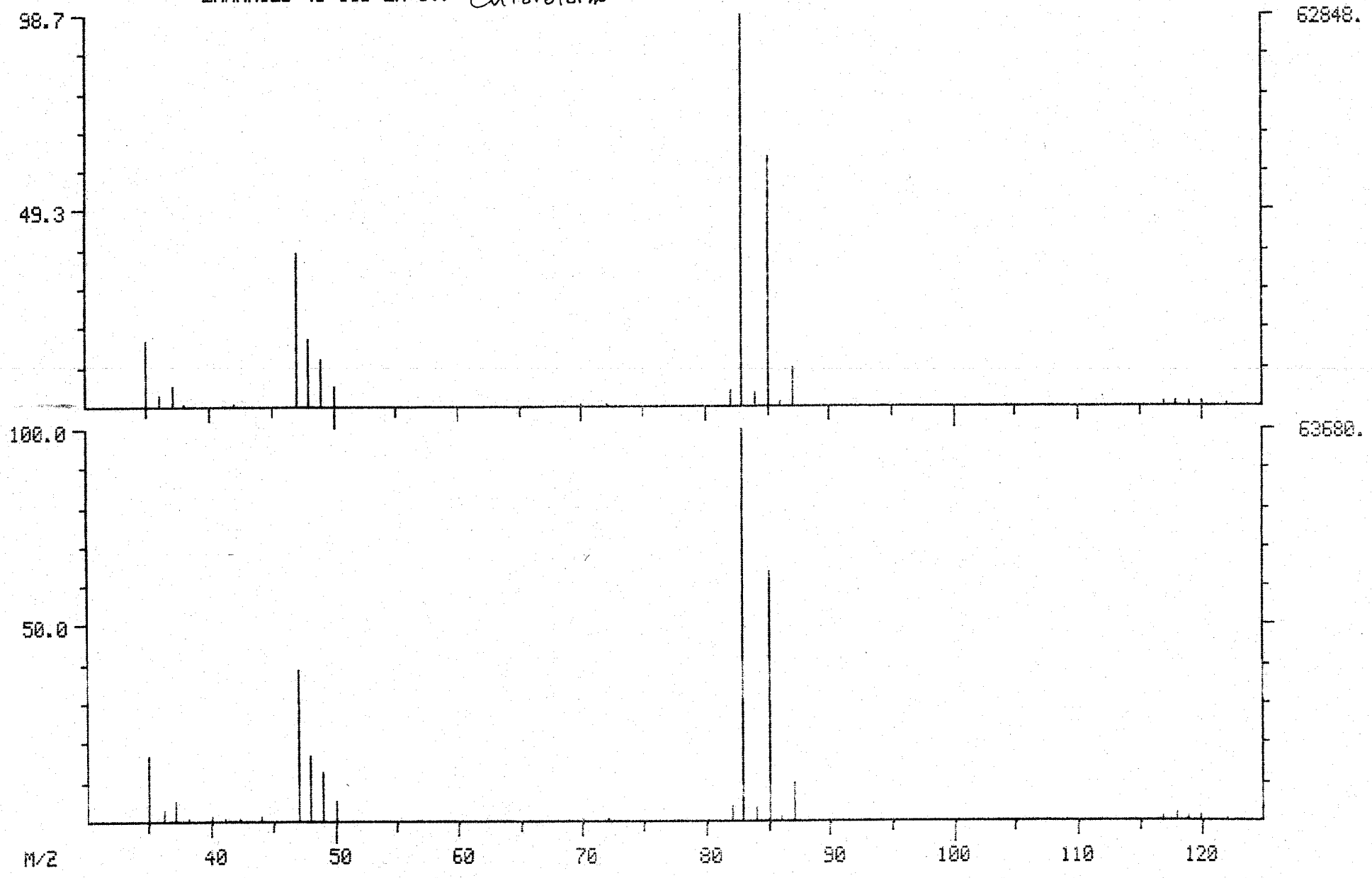
DATA: A1V0001164 #564 BASE M/Z: 43/ 40
CALI: A1V0001164 #2 RIC: 447./ 1823.



000083

DUAL MASS SPECTRUM
10/05/88 17:45:00 + 14:21
SAMPLE: CLP,11978,,EQ-1,L,W,11978010,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Chloroform

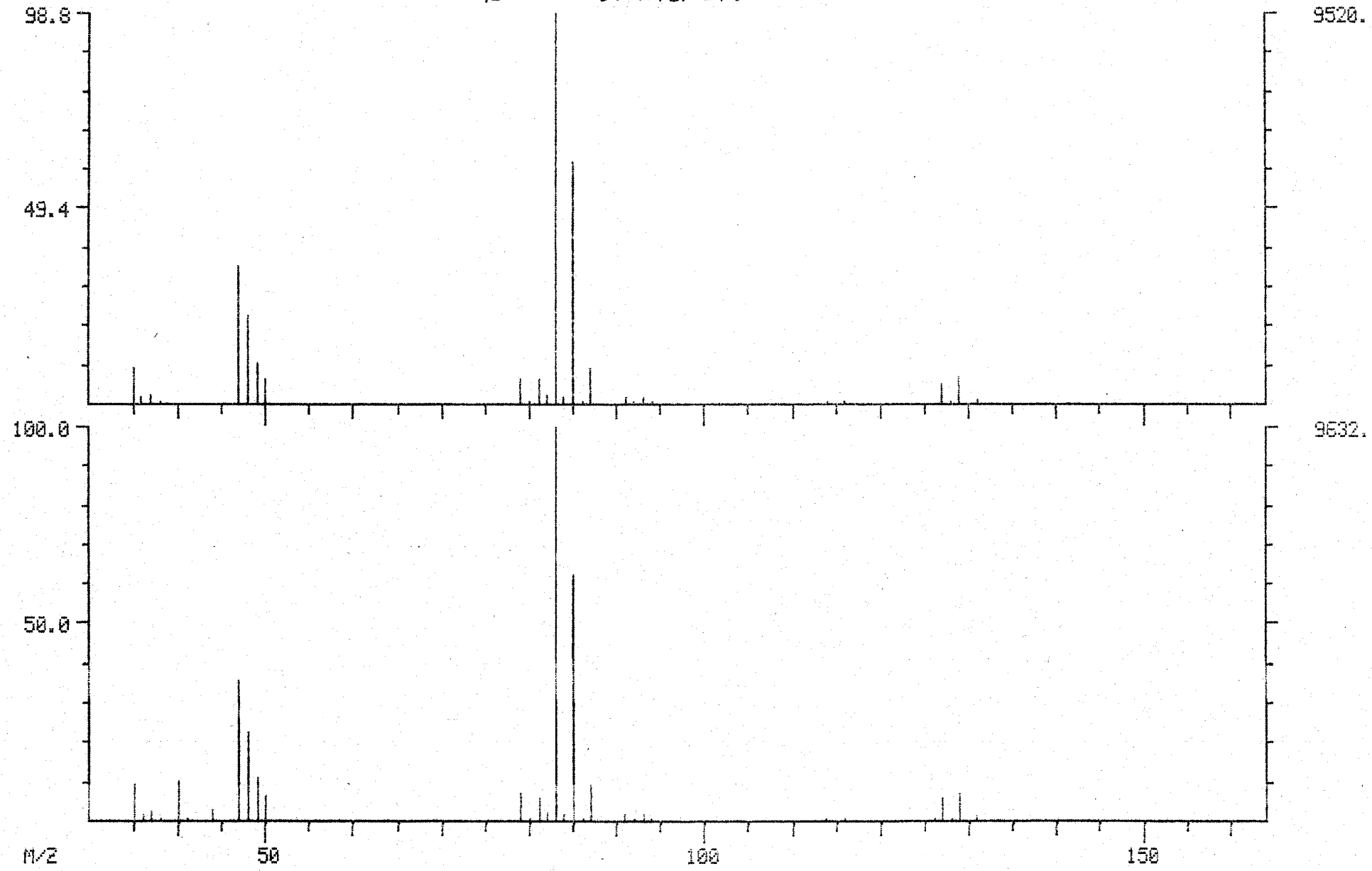
DATA: A1V0001164 #861 BASE M/Z: 83/ 83
CALI: A1V0001164 #2 RIC: 181759./ 186111.



000084

DUAL MASS SPECTRUM
10/05/88 17:45:00 + 17:42
SAMPLE: CLP,11978,,EQ-1,L,W,11978010,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (5 15B 2N 0T) Bromodichloromethane

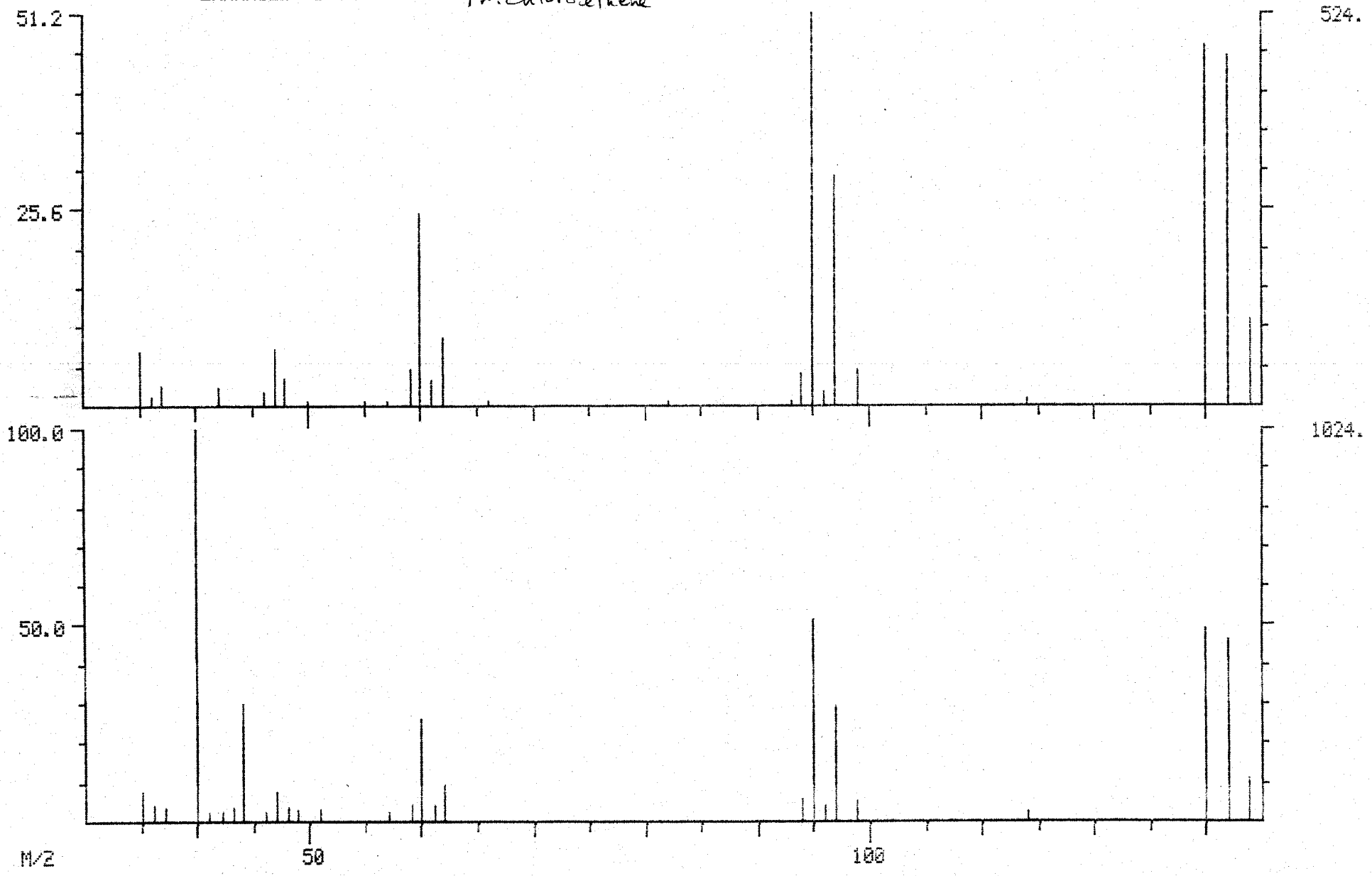
DATA: A1V0001164 #1062 BASE M/Z: 83/ 83
CALI: A1V0001164 #2 RIC: 28383./ 30271.



000085

DUAL MASS SPECTRUM
10/05/88 17:45:00 + 16:36
SAMPLE: CLP,11978,,EQ-1,L,W,11978010,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Trichloroethene

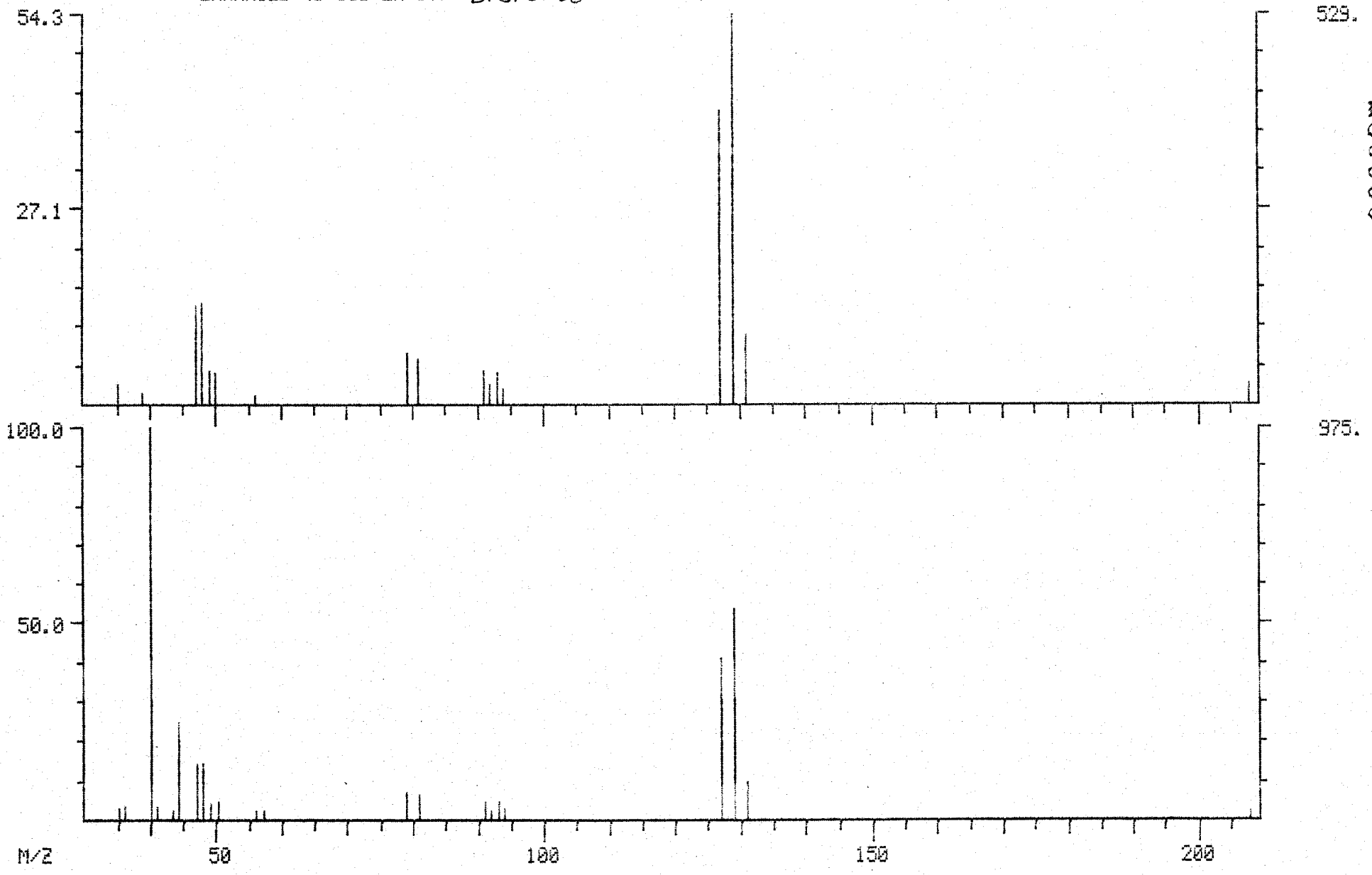
DATA: A1V0001164 #996 BASE M/Z: 95/ 40
CALI: A1V0001164 #2 RIC: 2751./ 4327.



980000

DUAL MASS SPECTRUM
10/05/88 17:45:00 + 20:48
SAMPLE: CLP,11978,,EQ-1,L,W,11978010,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Dibromochloromethane

DATA: A1V0001164 #1248 BASE M/Z: 129/ 40
CALI: A1V0001164 #2 RIC: 1737./ 3071.



280087

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B-FB1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978009

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A1VO001163

Level: (low/med) LOW Date Received: 09/24/88

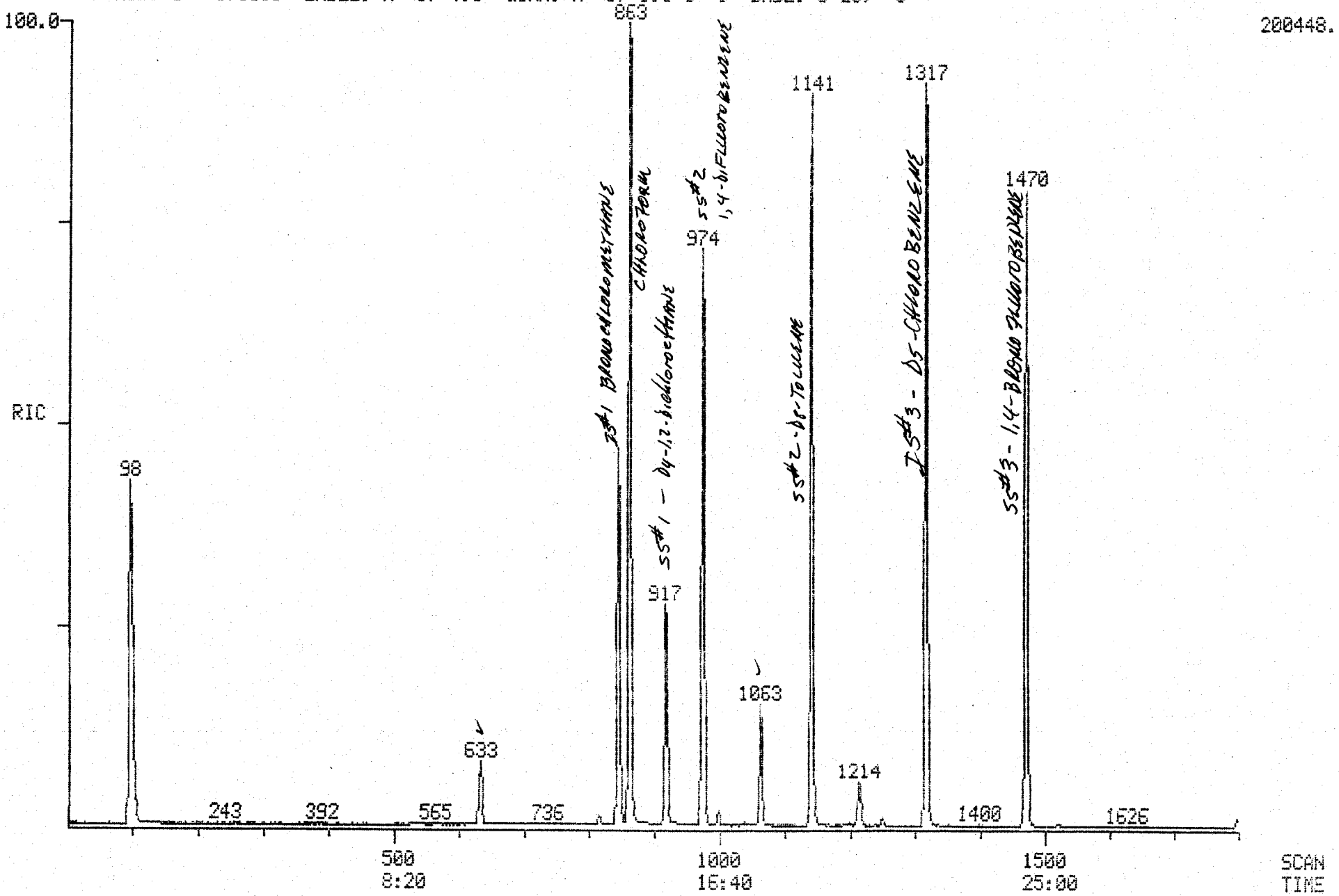
% Moisture: not dec. _____ Date Analyzed: 10/05/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	8	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	140	
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	14	
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	2	J
124-48-1	Dibromochloromethane	1	J
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

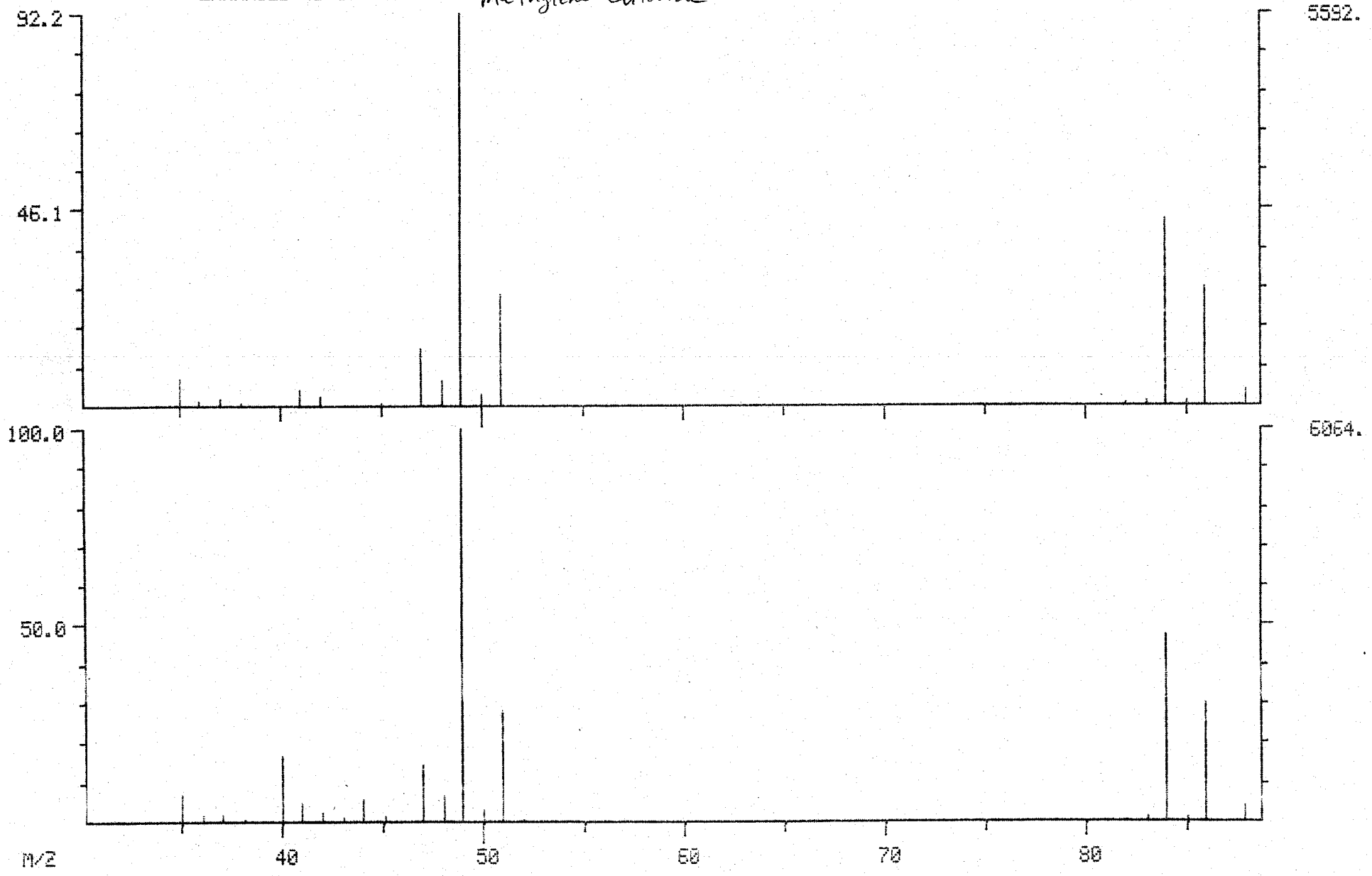
RIC DATA: A1V0001163 #1 SCANS 1 TO 1800
10/05/88 17:11:00 CALI: A1V0001163 #2
SAMPLE: CLP,11978,,2B-FB1,L,W,11978009,V,
CONDS.: -10DG - 150DG @5DG/MIN IH=5MIN
RANGE: G 1,1800 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



000074

DUAL MASS SPECTRUM
10/05/88 17:11:00 + 10:33
SAMPLE: CLP,11978,,2B-FB1,L,W,11978009,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

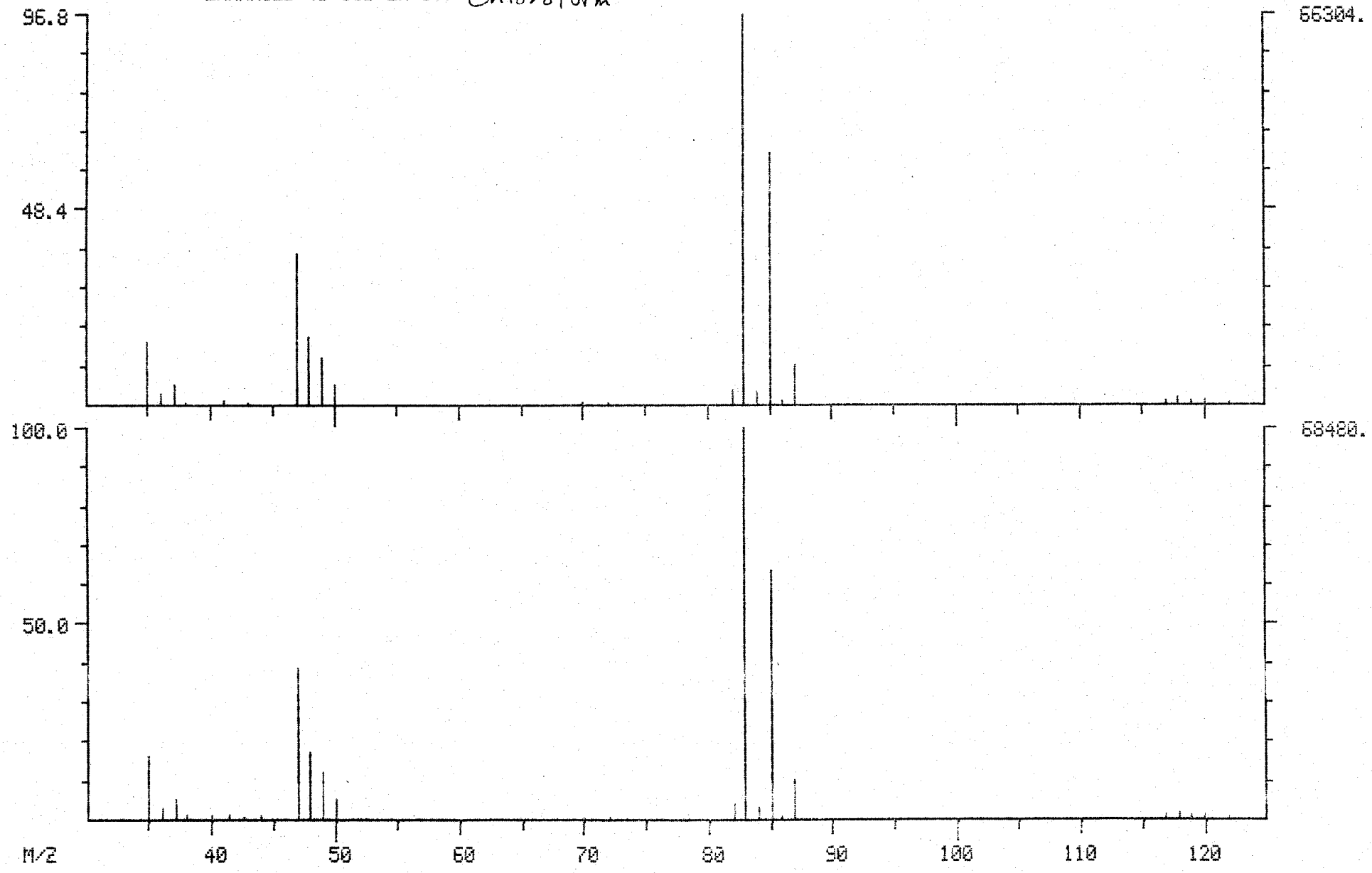
DATA: A1V0001163 #633 BASE M/Z: 49/ 49
CALI: A1V0001163 #2 RIC: 14239./ 16991.



020075

DUAL MASS SPECTRUM
10/05/88 17:11:00 + 14:23
SAMPLE: CLP,11978,,2B-FB1,L,W,11978009,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Chloroform

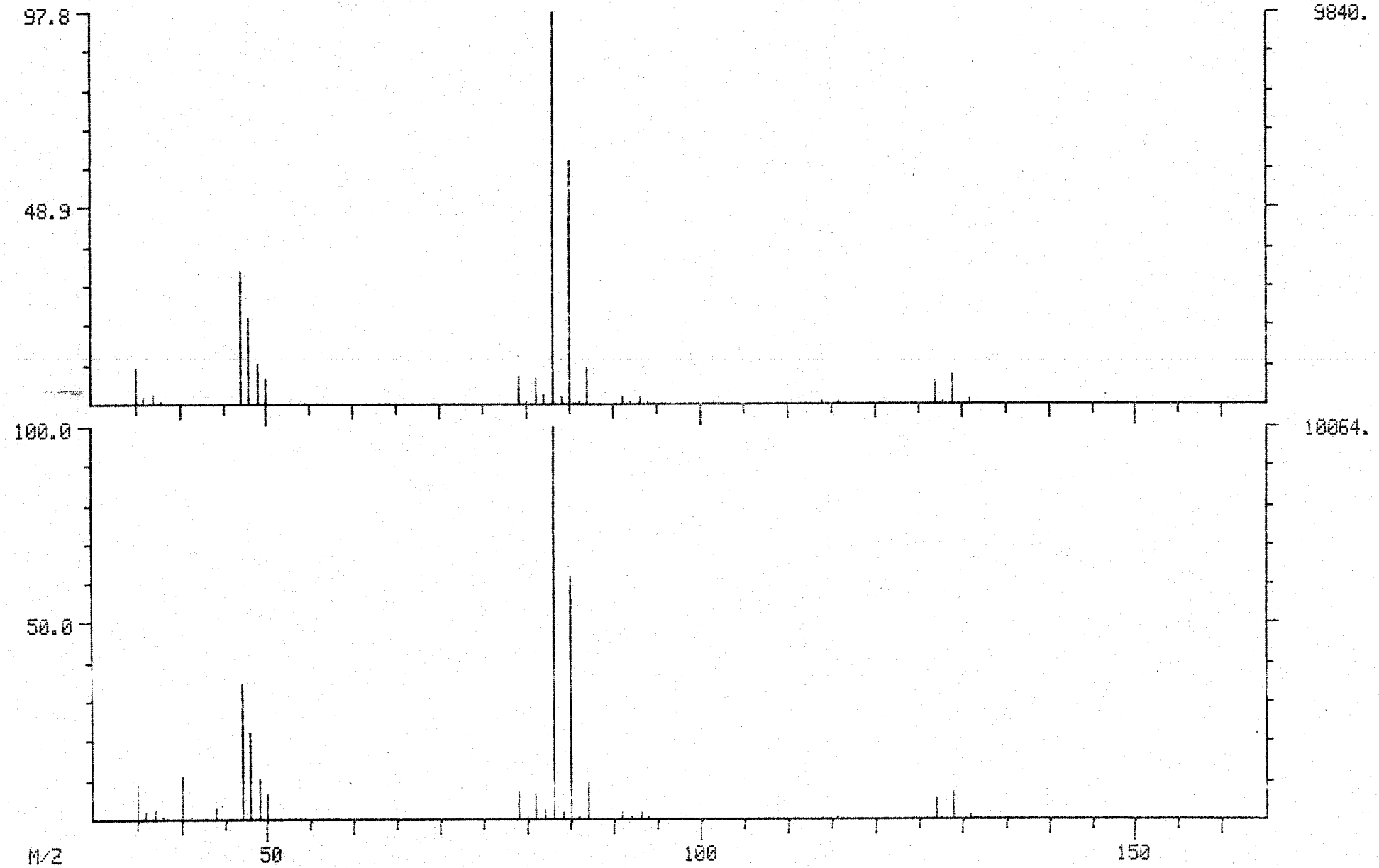
DATA: A1V0001163 #863 BASE M/Z: 83/ 83
CALI: A1V0001163 #2 RIC: 192255./ 199935.



000076

DUAL MASS SPECTRUM
10/05/88 17:11:00 + 17:43
SAMPLE: CLP,11978,,2B-FB1,L,W,11978009,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Bromodichloromethane

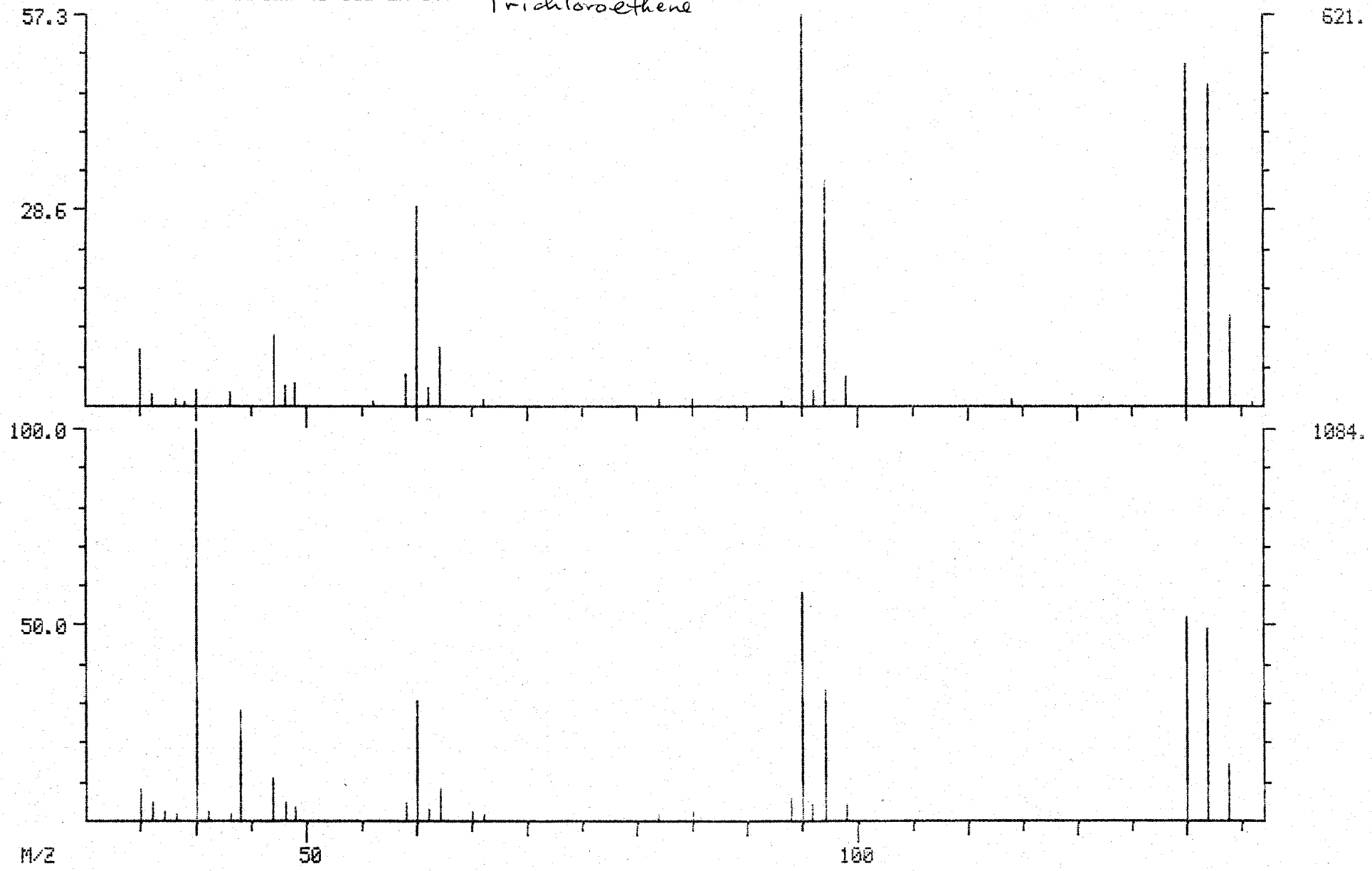
DATA: A1V0001163 #1063 BASE M/Z: 83/ 83
CALI: A1V0001163 #2 RIC: 29279./ 31455.



000077

DUAL MASS SPECTRUM
10/05/88 17:11:00 + 16:38
SAMPLE: CLP,11978,,2B-FB1,L,W,11978009,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Trichloroethene

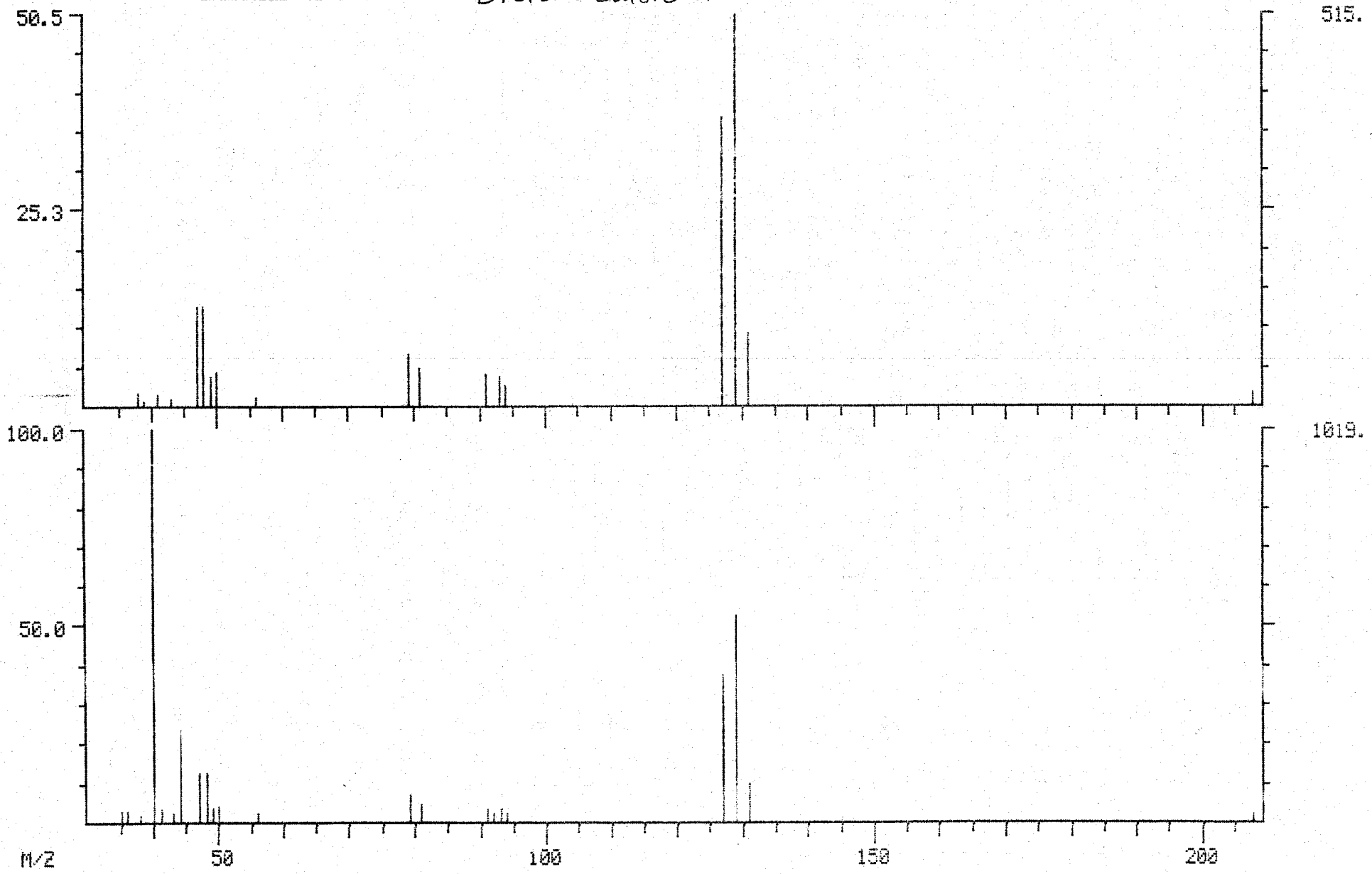
DATA: A1V0001163 #998 BASE M/Z: 95/ 40
CALI: A1V0001163 #2 RIC: 3163./ 4823.



000078

DUAL MASS SPECTRUM
10/05/88 17:11:00 + 20:49
SAMPLE: CLP,11978,,2B-FB1,L,W,11978009,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Dibromochloromethane

DATA: A1V0001163 #1249 BASE M/Z: 129/ 40
CALI: A1V0001163 #2 RIC: 1641./ 3051.



000079

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B-MW6

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978012

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C1VO001818

Level: (low/med) LOW Date Received: 09/24/88

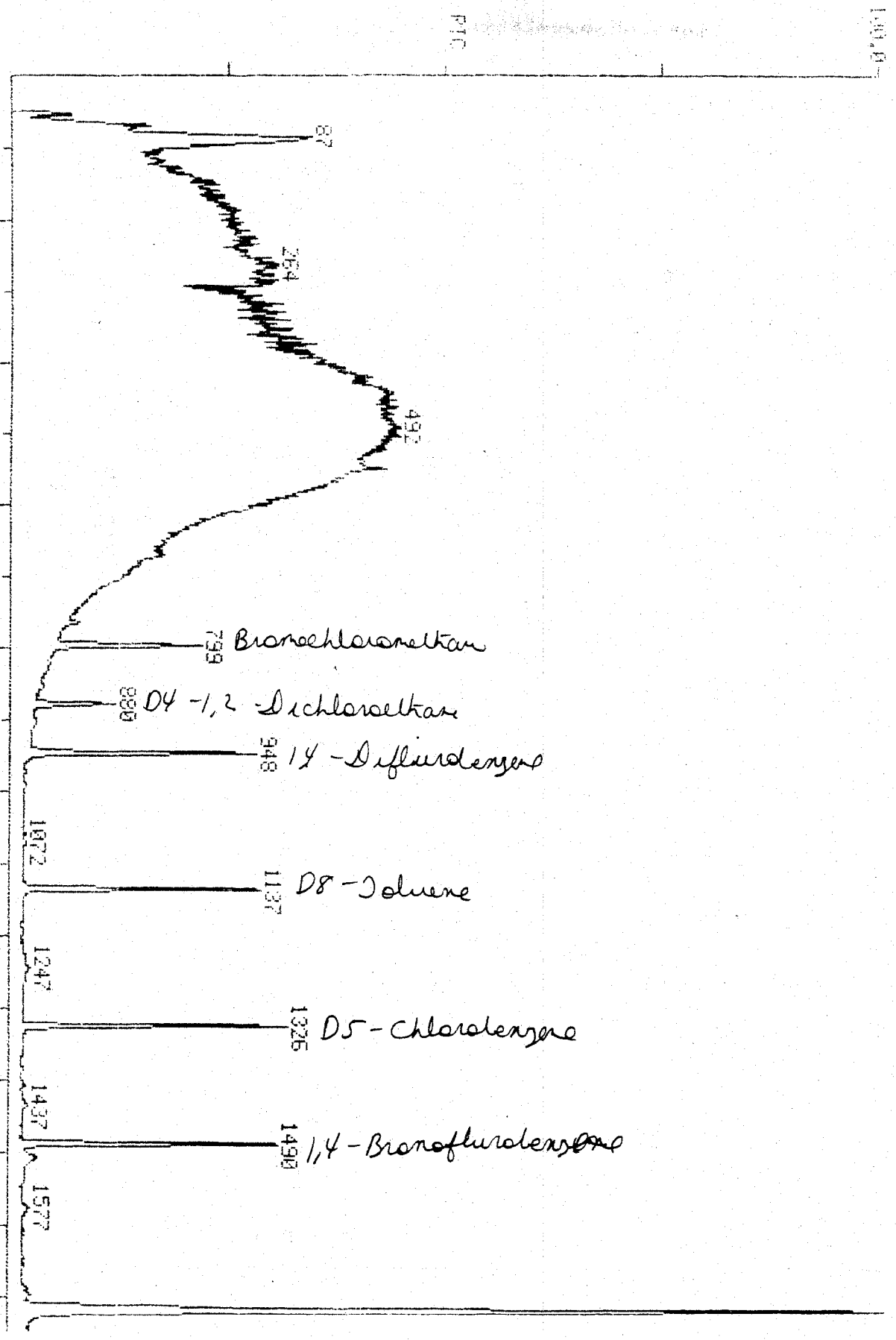
% Moisture: not dec. _____ Date Analyzed: 10/05/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	6	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	8	
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

TCA FINISHED, 8 FOUND
FINISHED AT: 10/05/88 21 50 42

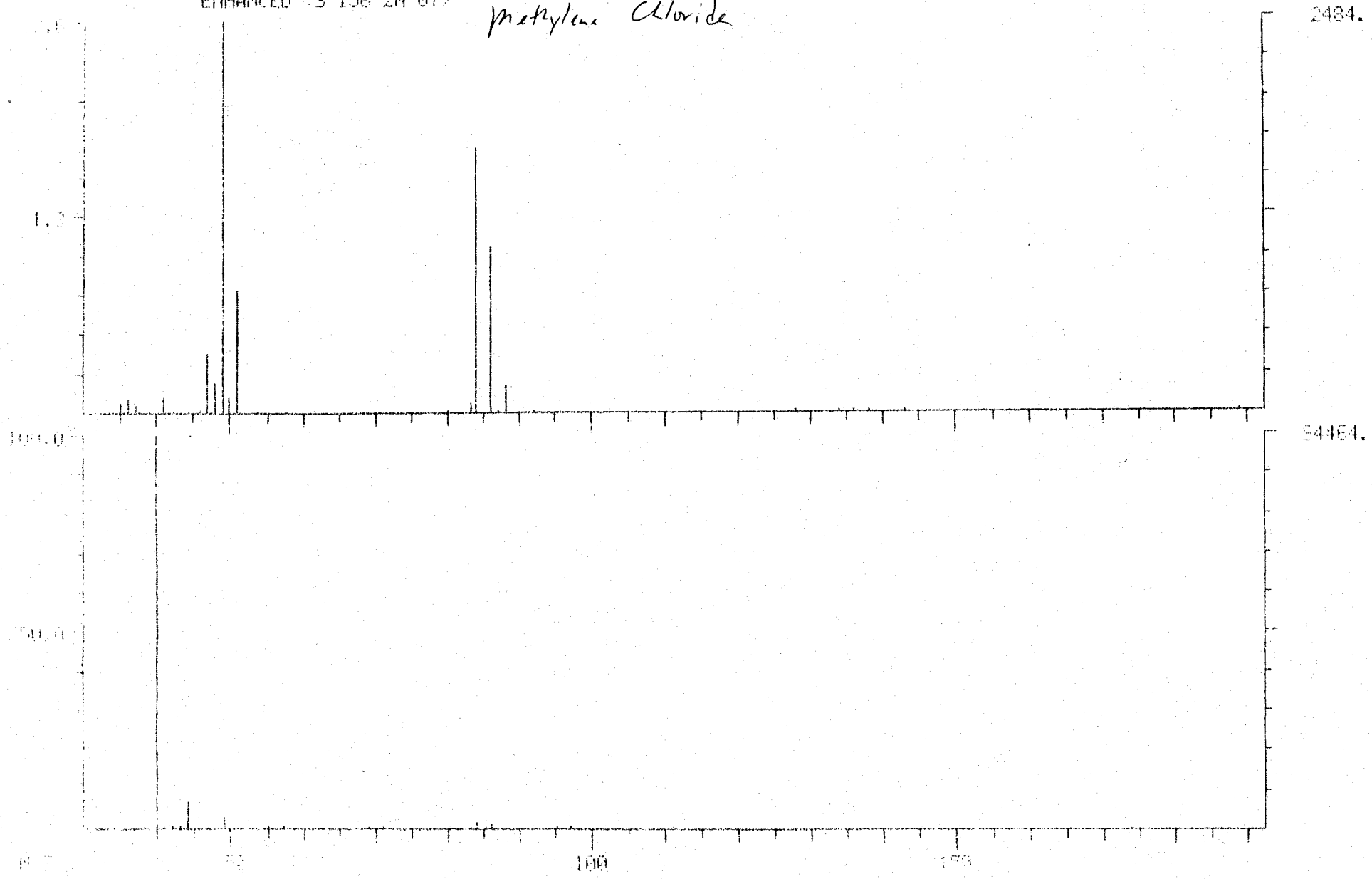


000106

DUAL MASS SPECTRUM
10/05/88 20:32:00 + 9:11
SAMPLE: CLP,V11978,,2B-MN6 L,N,11978012,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001818 #551 BASE M/Z: 49 40
CALI: C1V0001818 #3 PIC: 7279. 117375.

Methylene Chloride

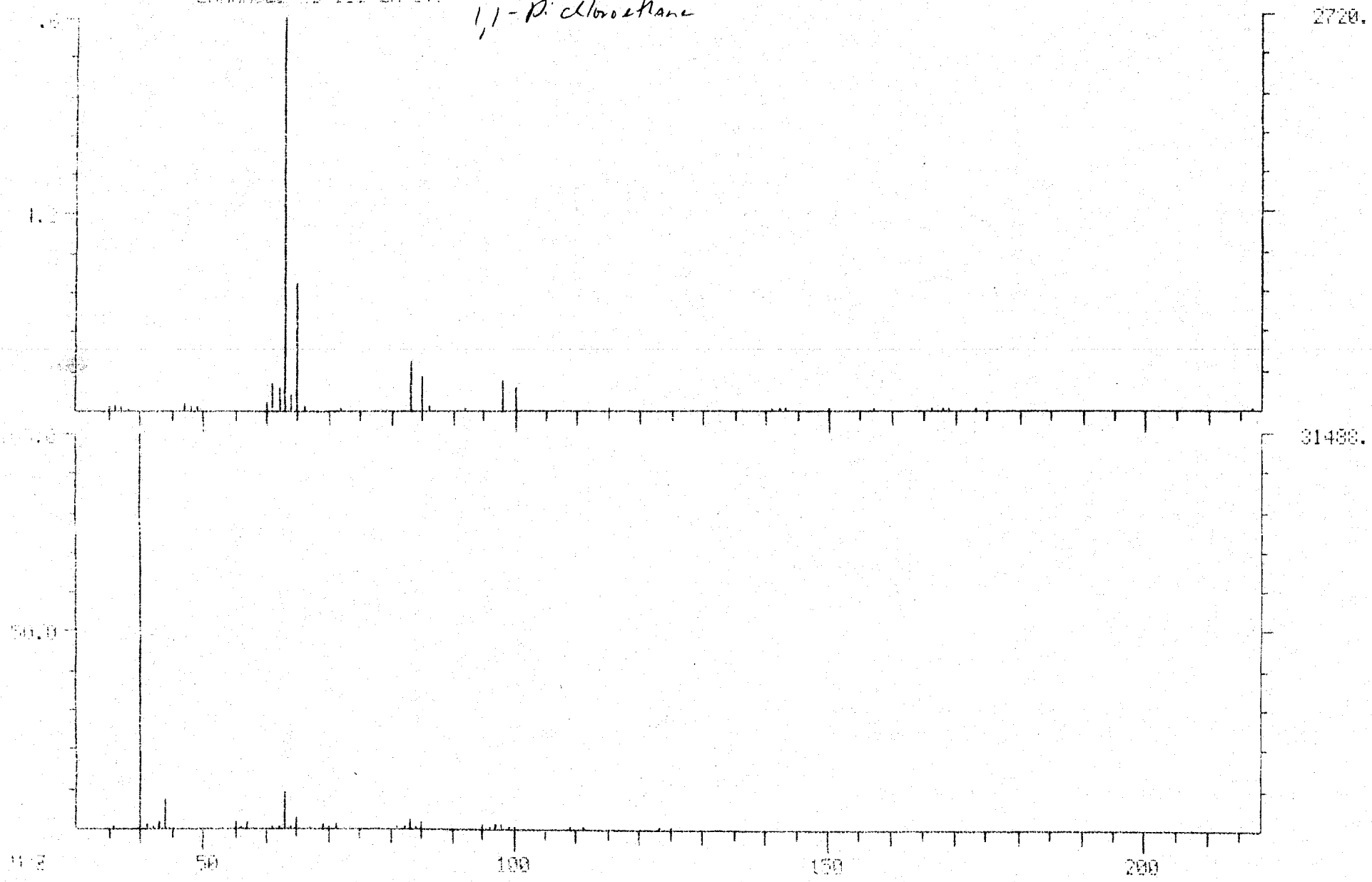


000107

DUAL MASS SPECTRUM
10/05/88 20:32:00 + 11:12
SAMPLE: CLP,V11978,,2B-MW6,L,W,11978012,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001818 #672 BASE M/Z: 63 40
CALI: C1V0001818 #3 RIC: 5551. 47993.

1,1-Dichloroethane



000108

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-MW1_DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978013DL

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C3V0001831

Level: (low/med) LOW Date Received: 09/24/88

% Moisture: not dec. _____ Date Analyzed: 10/06/88

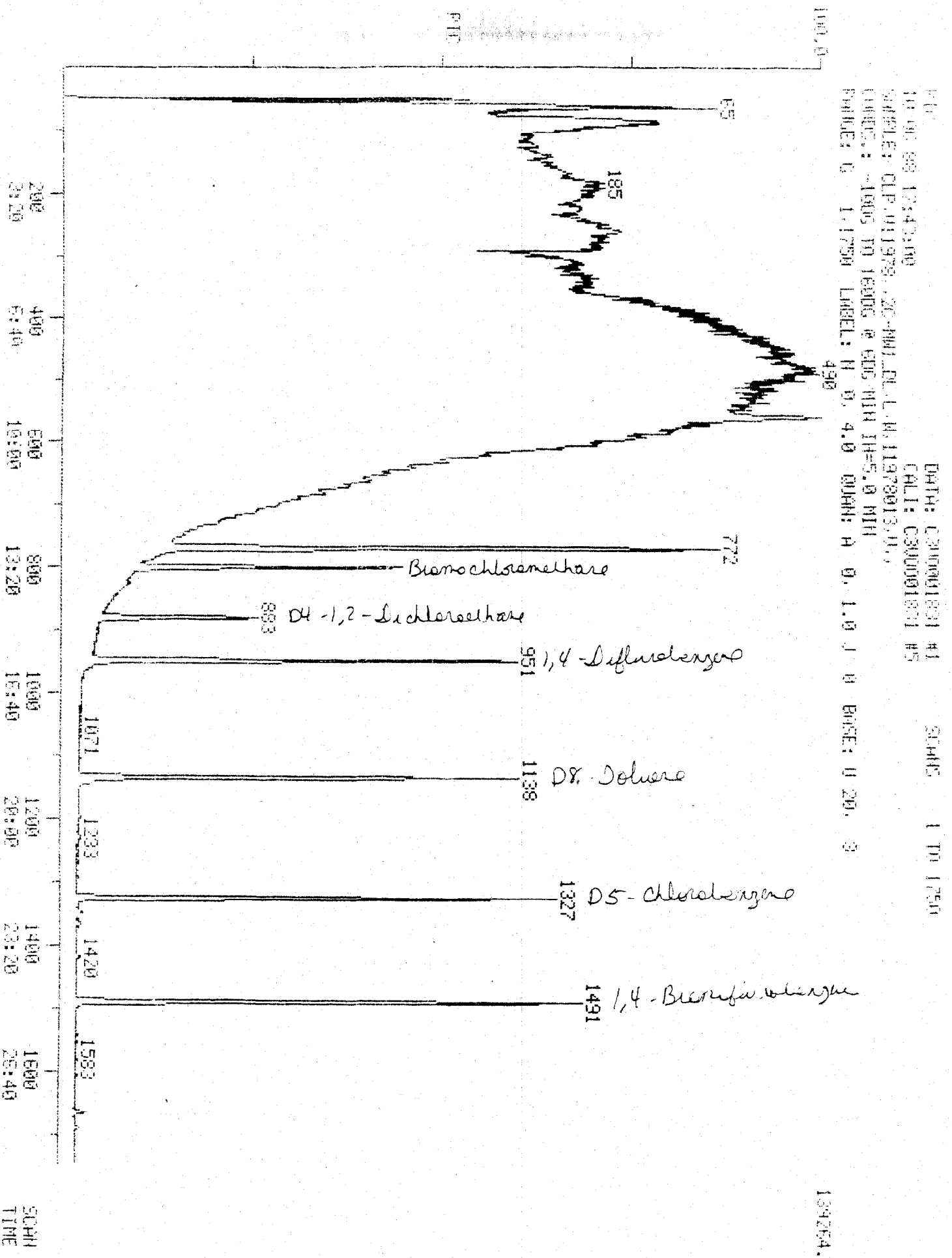
Column: (pack/cap) CAP Dilution Factor: 25

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

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	250	U
74-83-9	Bromomethane	250	U
75-01-4	Vinyl Chloride	2500	D
75-00-3	Chloroethane	250	U
75-09-2	Methylene Chloride	15	BDJ
67-64-1	Acetone	250	U
75-15-0	Carbon Disulfide	130	U
75-35-4	1,1-Dichloroethene	130	U
75-34-3	1,1-Dichloroethane	130	U
540-59-0	1,2-Dichloroethene (total)	2400	D
67-66-3	Chloroform	130	U
107-06-2	1,2-Dichloroethane	130	U
78-93-3	2-Butanone	250	U
71-55-6	1,1,1-Trichloroethane	130	U
56-23-5	Carbon Tetrachloride	130	U
108-05-4	Vinyl Acetate	250	U
75-27-4	Bromodichloromethane	130	U
78-87-5	1,2-Dichloropropane	130	U
10061-01-5	cis-1,3-Dichloropropene	130	U
79-01-6	Trichloroethene	130	U
124-48-1	Dibromochloromethane	130	U
79-00-5	1,1,2-Trichloroethane	130	U
71-43-2	Benzene	130	U
10061-02-6	trans-1,3-Dichloropropene	130	U
75-25-2	Bromoform	130	U
591-78-6	2-Hexanone	250	U
108-10-1	4-Methyl-2-Pentanone	250	U
127-18-4	Tetrachloroethene	130	U
79-34-5	1,1,2,2-Tetrachloroethane	250	U
108-88-3	Toluene	34	DJ
108-90-7	Chlorobenzene	130	U
100-41-4	Ethylbenzene	130	U
100-42-5	Styrene	130	U
1330-20-7	Xylenes (total)	130	U

RS

TIA FINISHED: 9 FOUND
FINISHED AT: 10/06/88 18:18:52

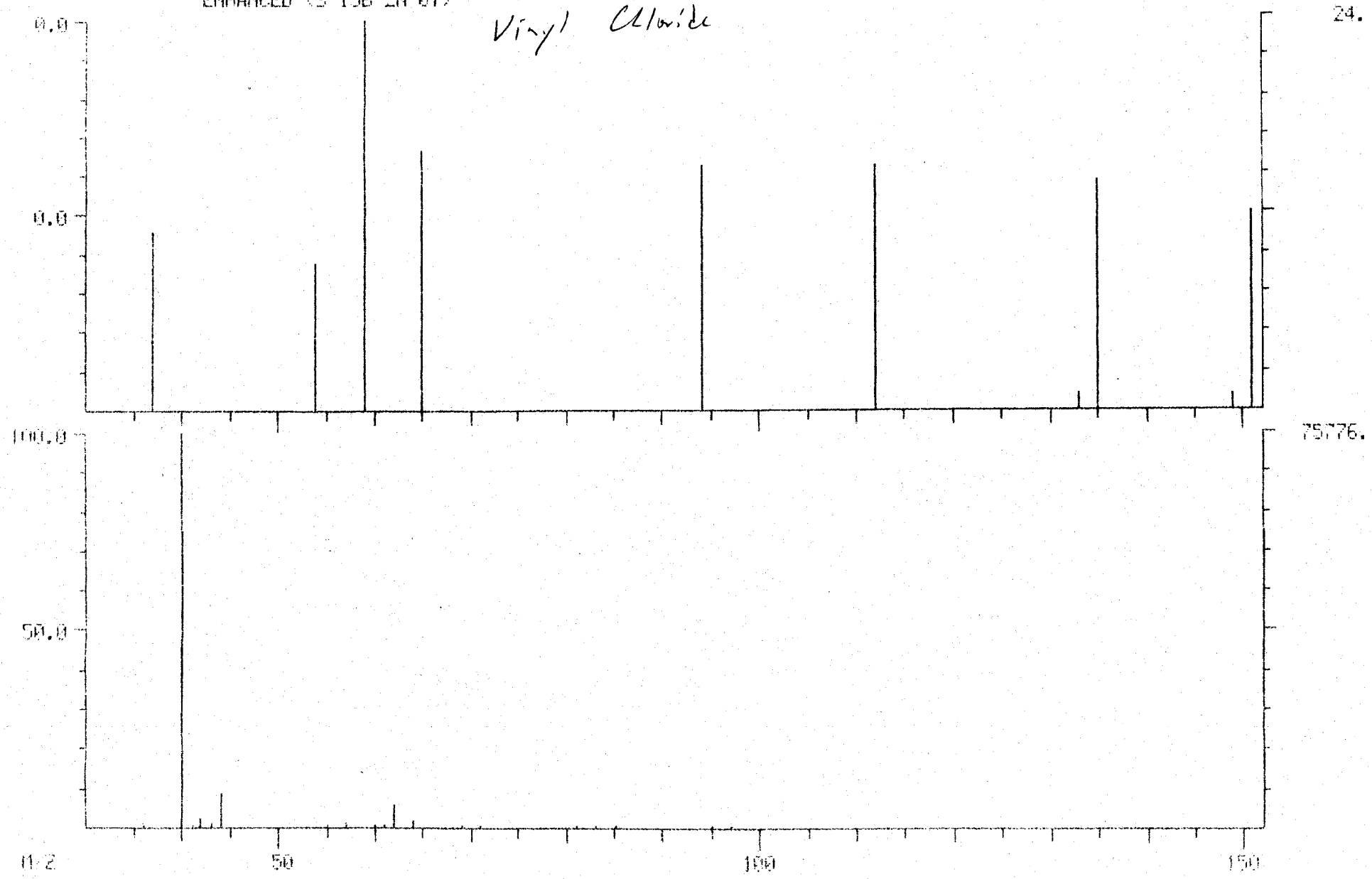


000124

DUAL MASS SPECTRUM
10/06/88 17:43:00 + 3:10
SAMPLE: CLP/V11978,,2C-MWI_DL,L,W,11978013,V,,
CONDS.: -100C TO 160C @ 6DC/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C3U0001831 #190 BASE M/Z: 59 40
CALI: C3U0001831 #5 RIC: 117.[illegible] 38047.

Vinyl Chloride

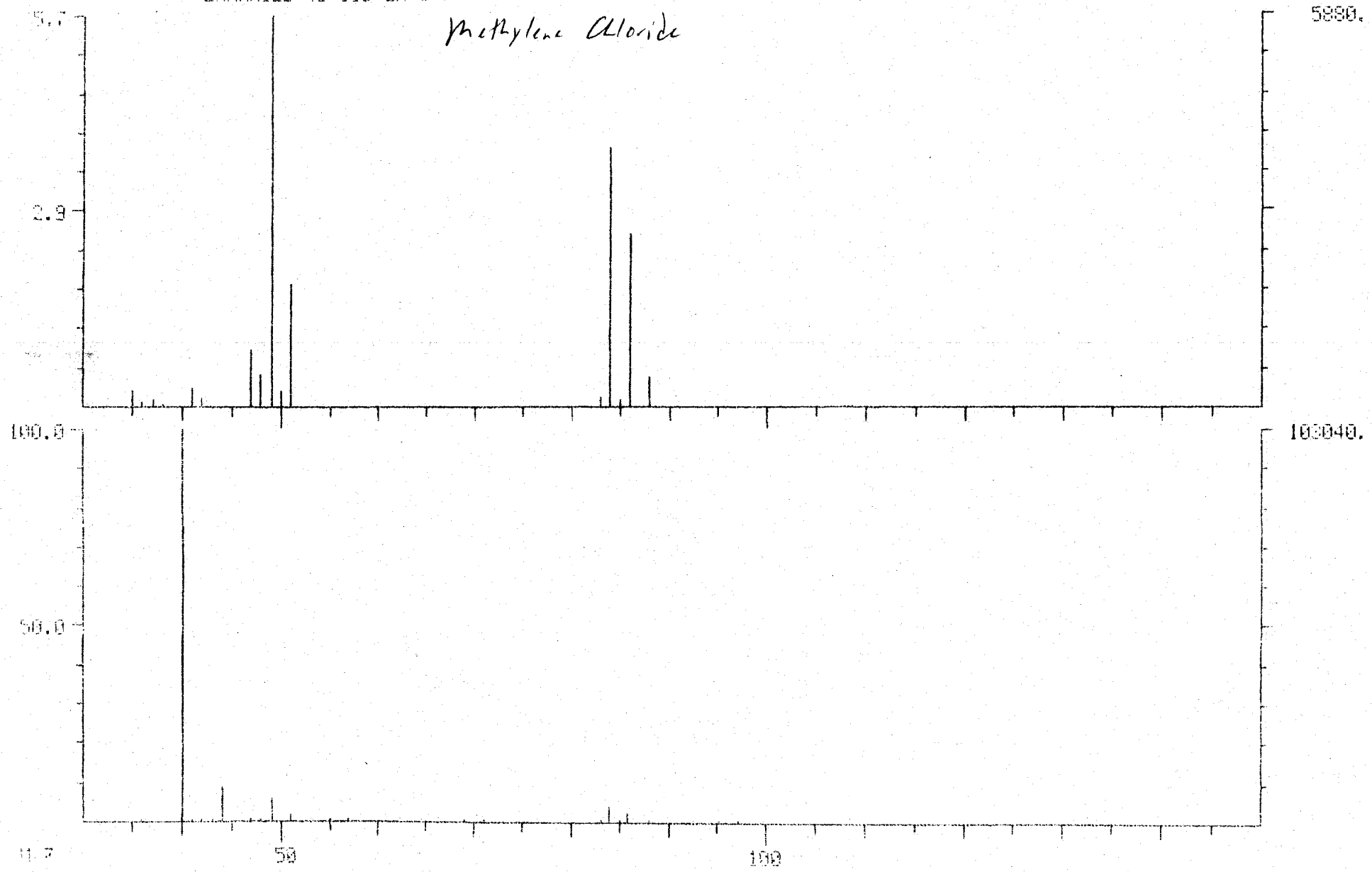


000125

DUAL MASS SPECTRUM
10/06/88 17:43:00 + 9:21
SAMPLE: CLP,V11978,,2C-MW1_OL,L,W,11978013,V,,
CONDS.: -10DG TO 160DG @ 8DG/MIN IH=5.0 MIN
ENHANCED (S 158 2N OT)

DATA: C3V0001831 #561 BASE M/Z: 49 40
CALI: C3V0001831 #5 RIC: 17311. 137953.

Methylene Chloride

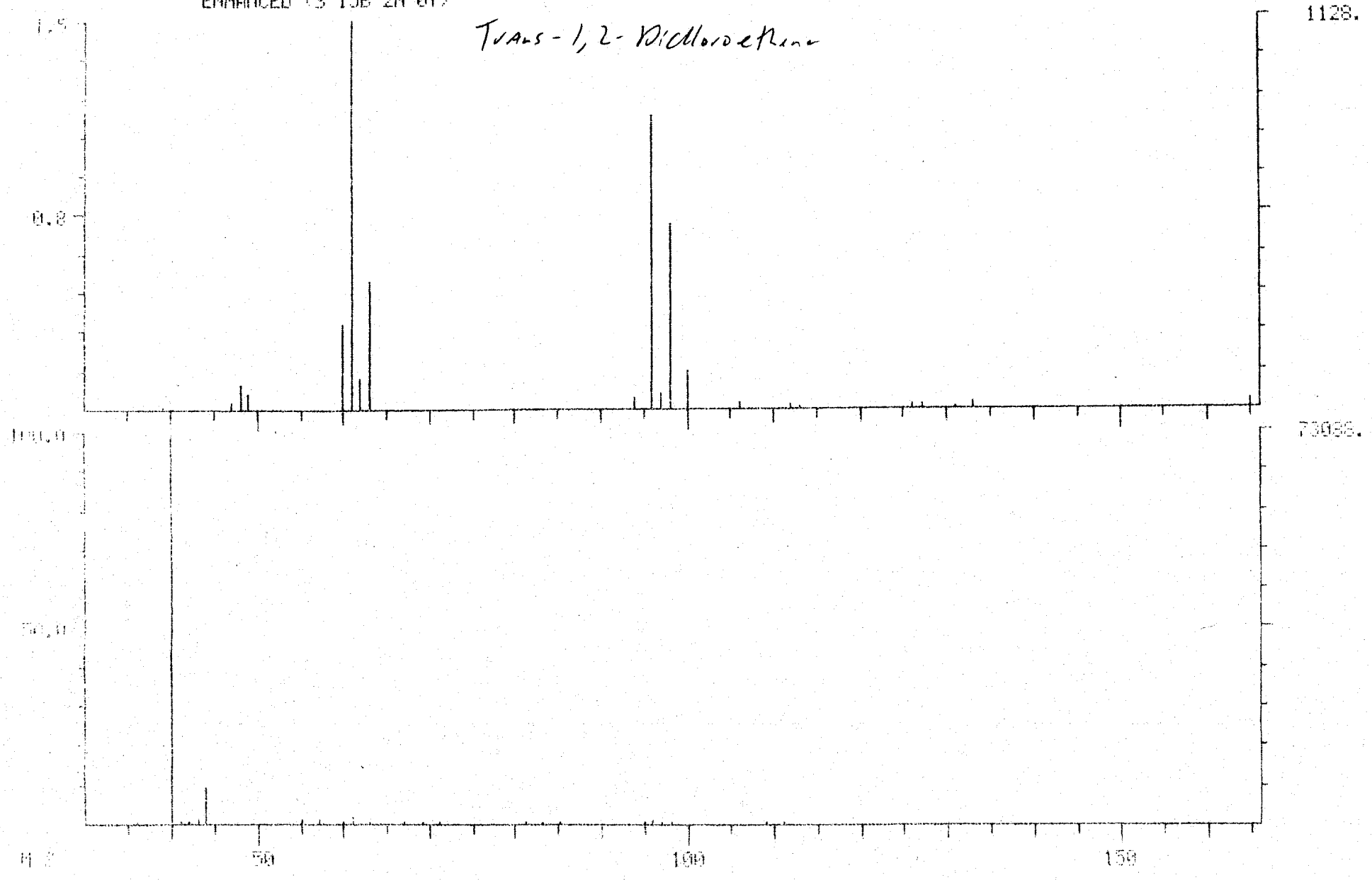


000126

DUAL MASS SPECTRUM
10-06-88 17:43:00 + 10:08
SAMPLE: CLP.V11978,,20-MW1_DL.L.W.11978013.V..
CONDS.: -100C TO 160C @ 6C/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C3V0001831 #608 BASE M/Z: 61 40
CALI: C3V0001831 #5 RIC: 3659. 91903.

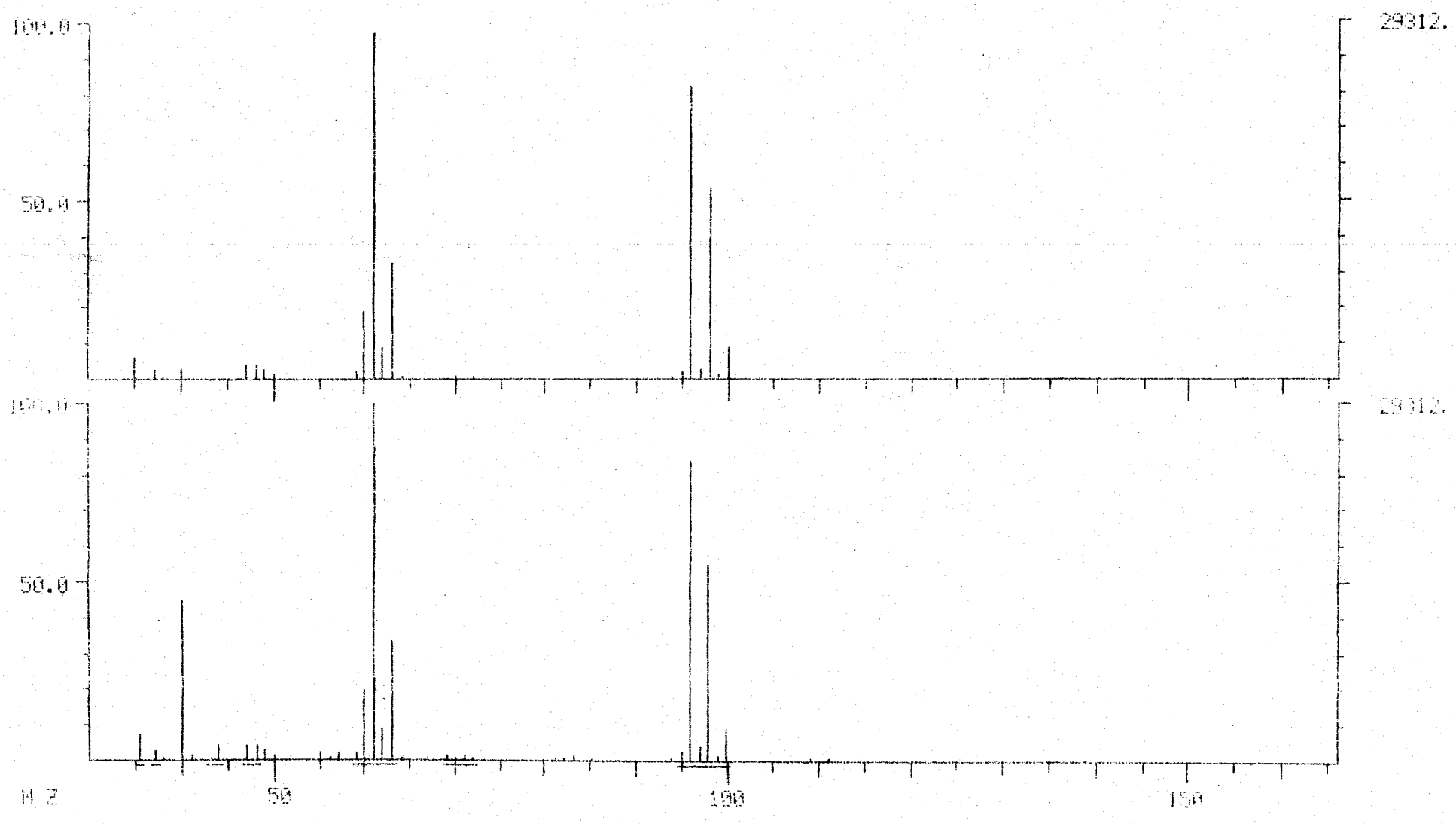
Trans-1,2-Dichloroethene



000137

DUAL MASS SPECTRUM
10-06-88 17:43:00 + 12:52
SAMPLE: CLP/U11978..20-MW1.DL.L.W.11978013.U.
CONDS.: -100C TO 100DC @ 60C-MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

Cis-1,2-Dichloroethene

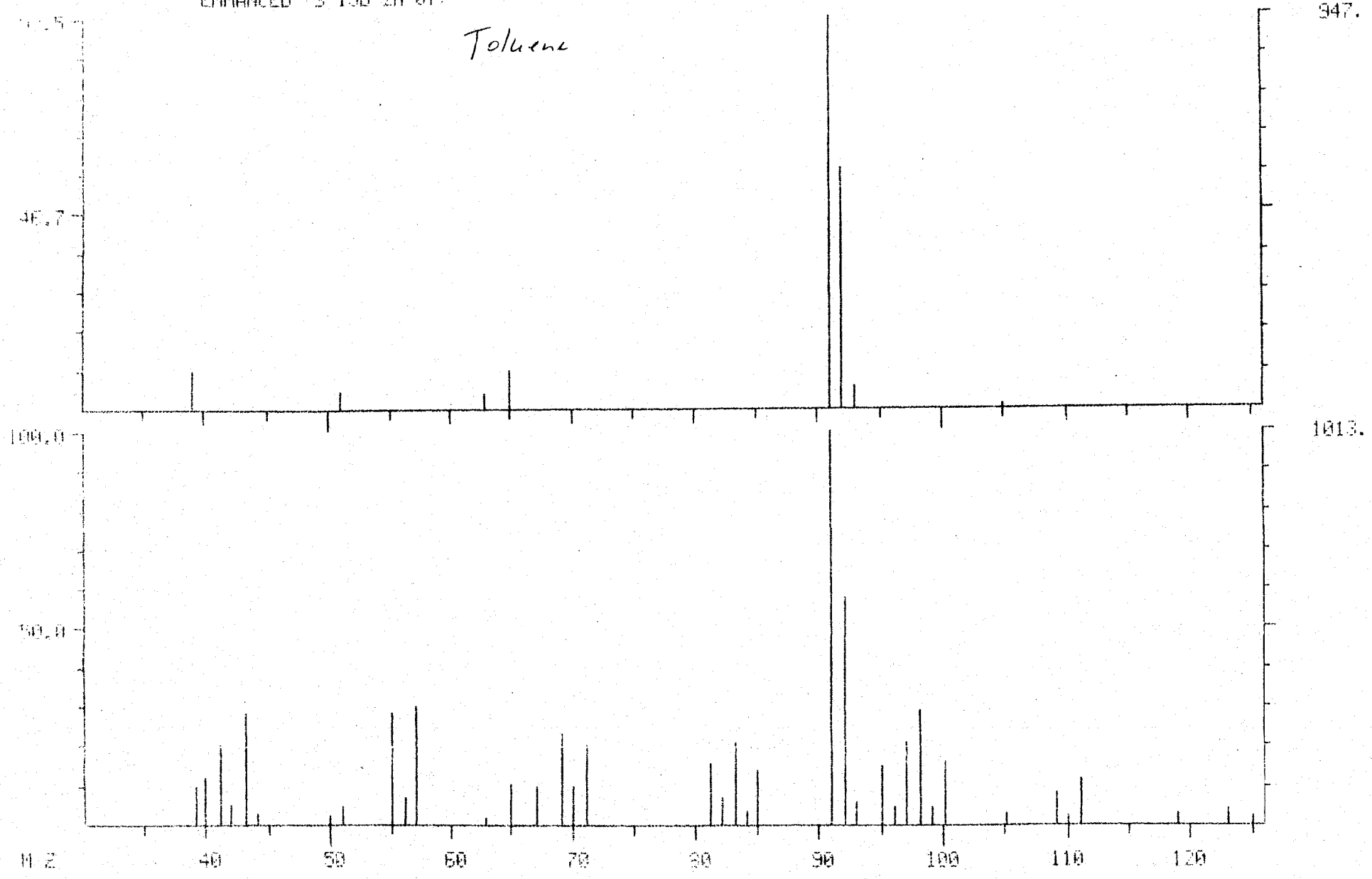


000128

DUAL MASS SPECTRUM
10 06 88 17:43:00 + 13:06
SAMPLE: CLP,U11978,,20-MW1_DL,L,W,11978013,V,,
CONDS.: -100G TO 160DG @ 6DG MIN IH=5.0 MIN
ENHANCED (S 15B 3N 0T)

DATA: C3U0001831 #1146 BASE M/Z: 91/ 91
CALI: C3U0001831 #5 RIC: 1863. 5807.

000129



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C-MW1_1100

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978013

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C1VO001829

Level: (low/med) LOW Date Received: 09/24/88

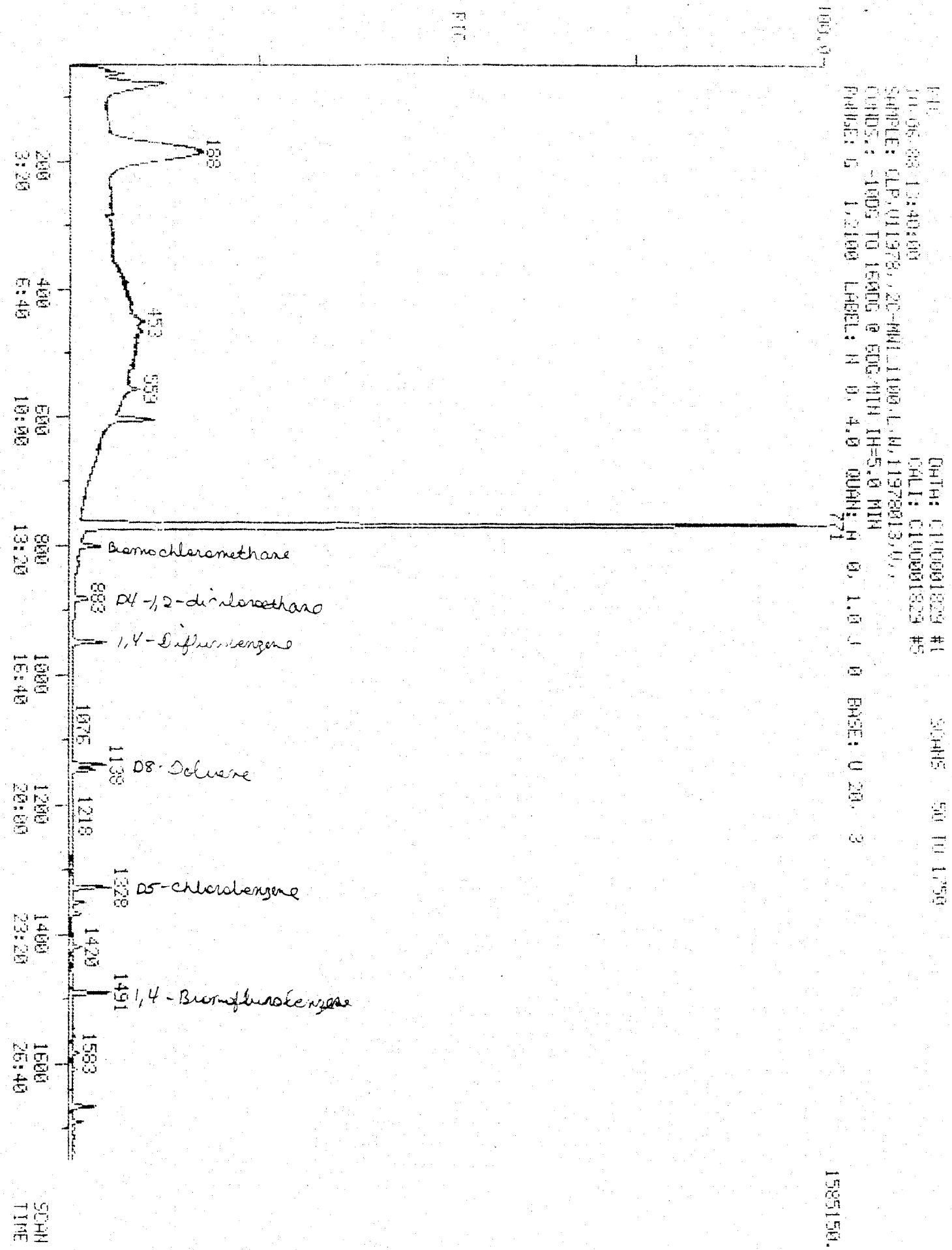
% Moisture: not dec. _____ Date Analyzed: 10/06/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	3200	E
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	23	B
67-64-1	Acetone	13	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	4	J
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	1700	E
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	2	J
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	7	
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	3	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	34	
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	15	
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	23	

RS.

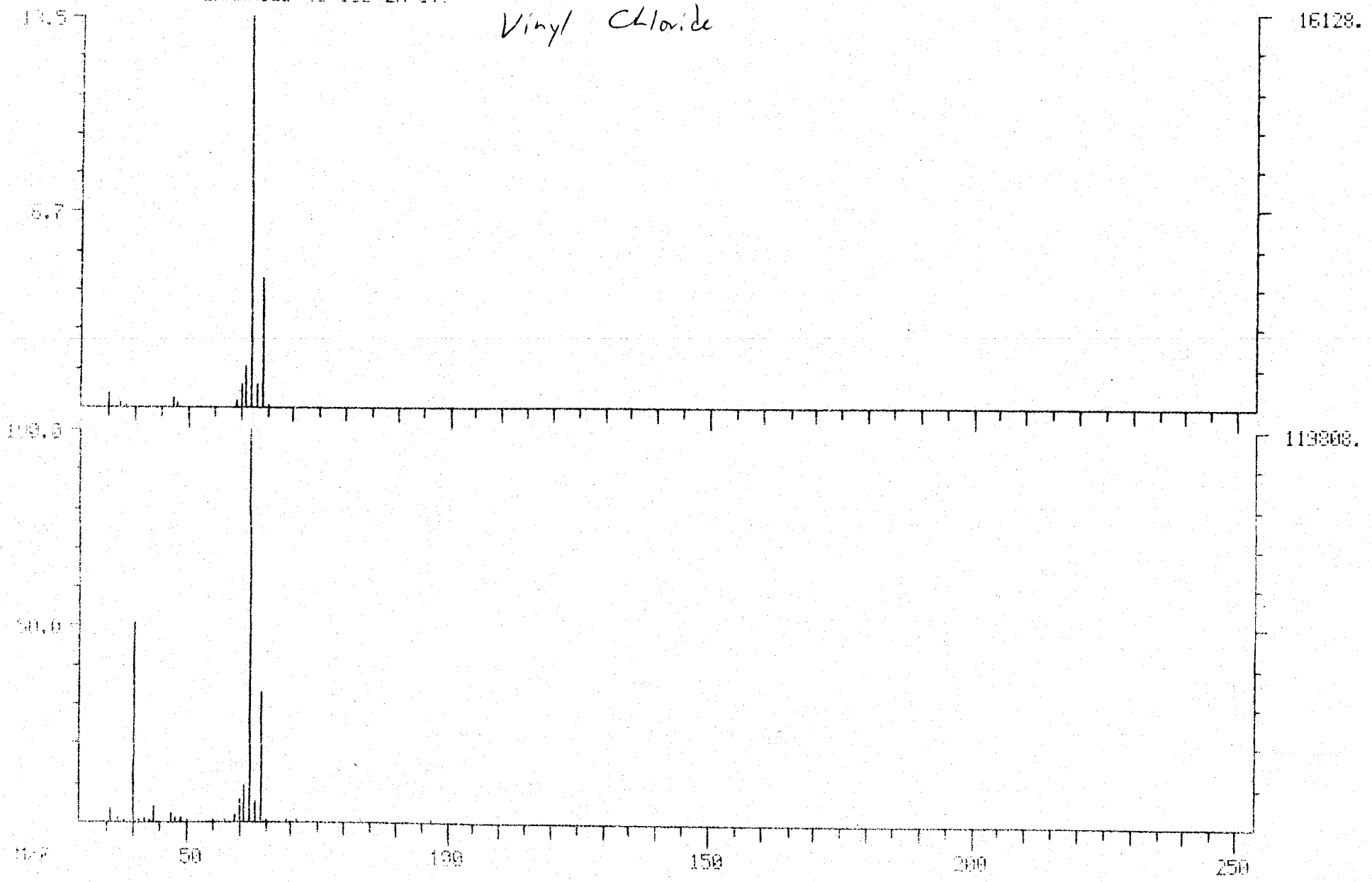
TCA FINISHED, 15 FOUND
FINISHED AT 10/06/88 14 30 54



000110

DUAL MASS SPECTRUM
10/06/88 13:40:00 + 3:06
SAMPLE: CLP,V11978,,2C-MW1_1100,L,W,11978013,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001829 #188 BASE M/Z: 62/ 62
CALI: C1V0001829 #5 RIC: 27103./ 272895.

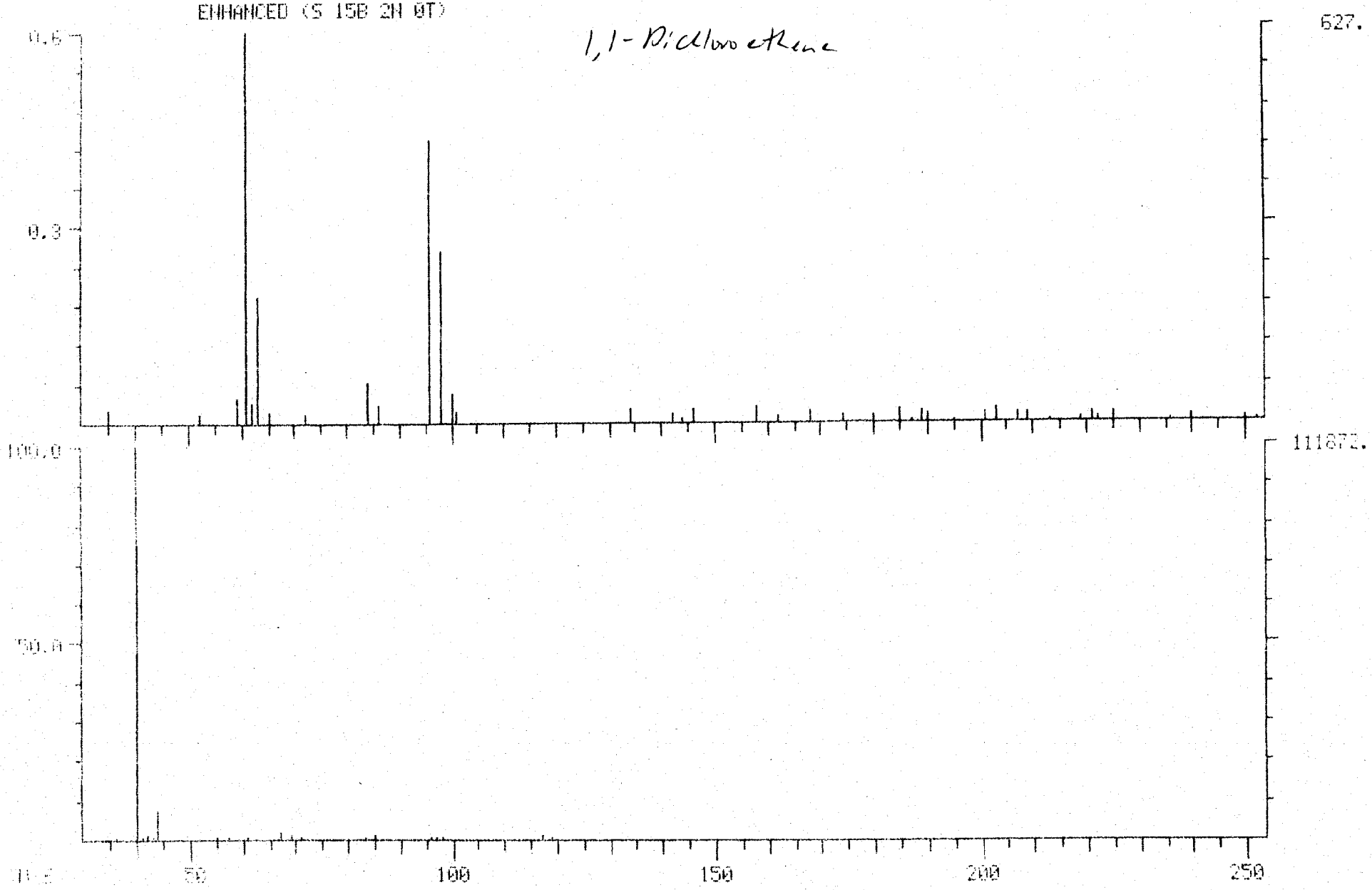


000111

DUAL MASS SPECTRUM
10/06/88 13:40:00 + 7:25
SAMPLE: CLP,V11978,,ZC-MW1_1100,L,W,11978013,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001829 #445 BASE M/Z: 61/ 40
CALI: C1V0001829 #5 PIC: 2219./ 138495.

1,1-Dichloroethene

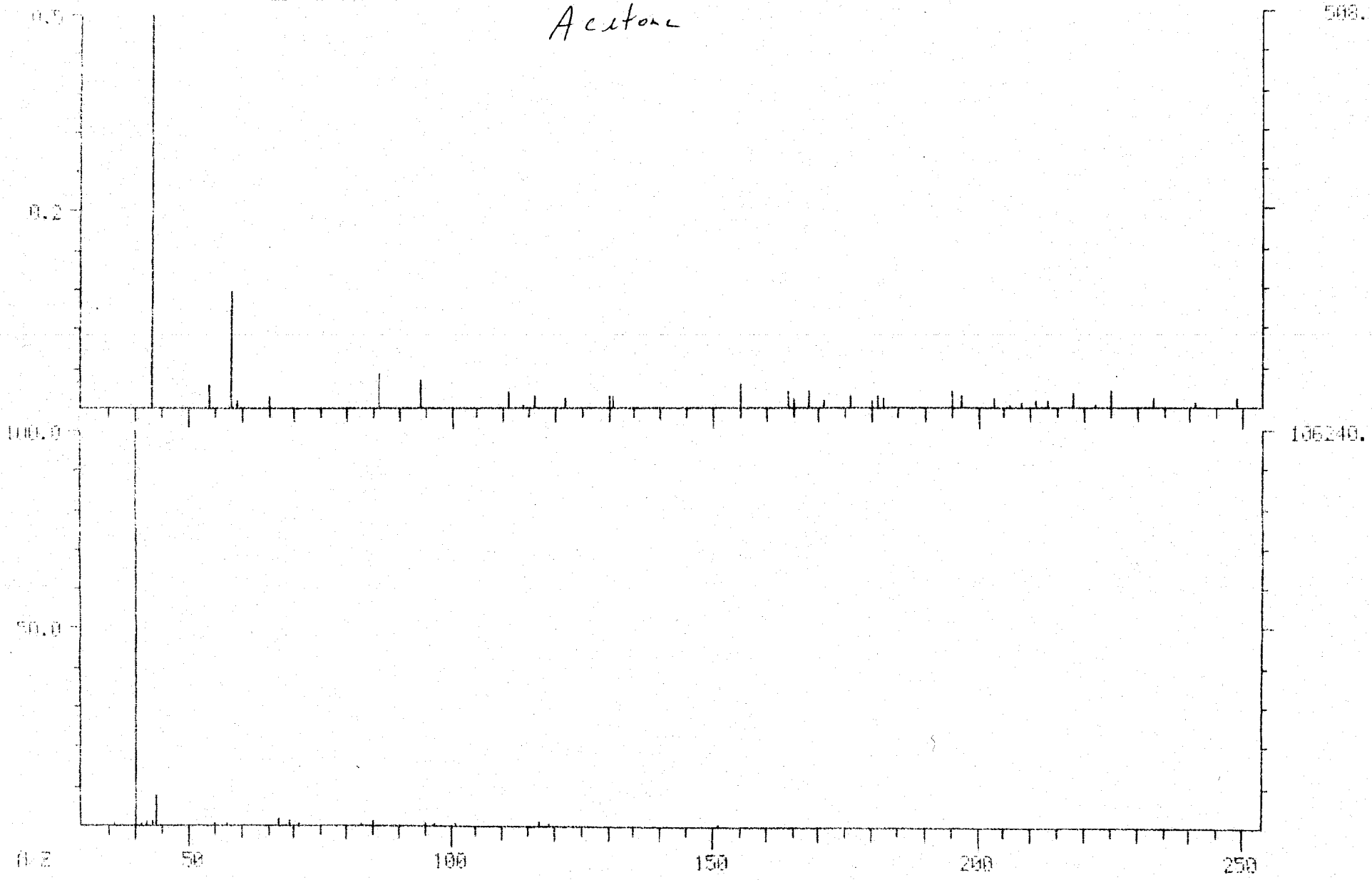


000112

DUAL MASS SPECTRUM
10 06 88 13:40:00 + 7:59
SAMPLE: CLP,V11978,,2C-MW1_1100,L,W,11978013,U,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001829 #479 BASE M/Z: 43 40
CALI: C1V0001829 #5 RIC: 1163. 133631.

Acetone

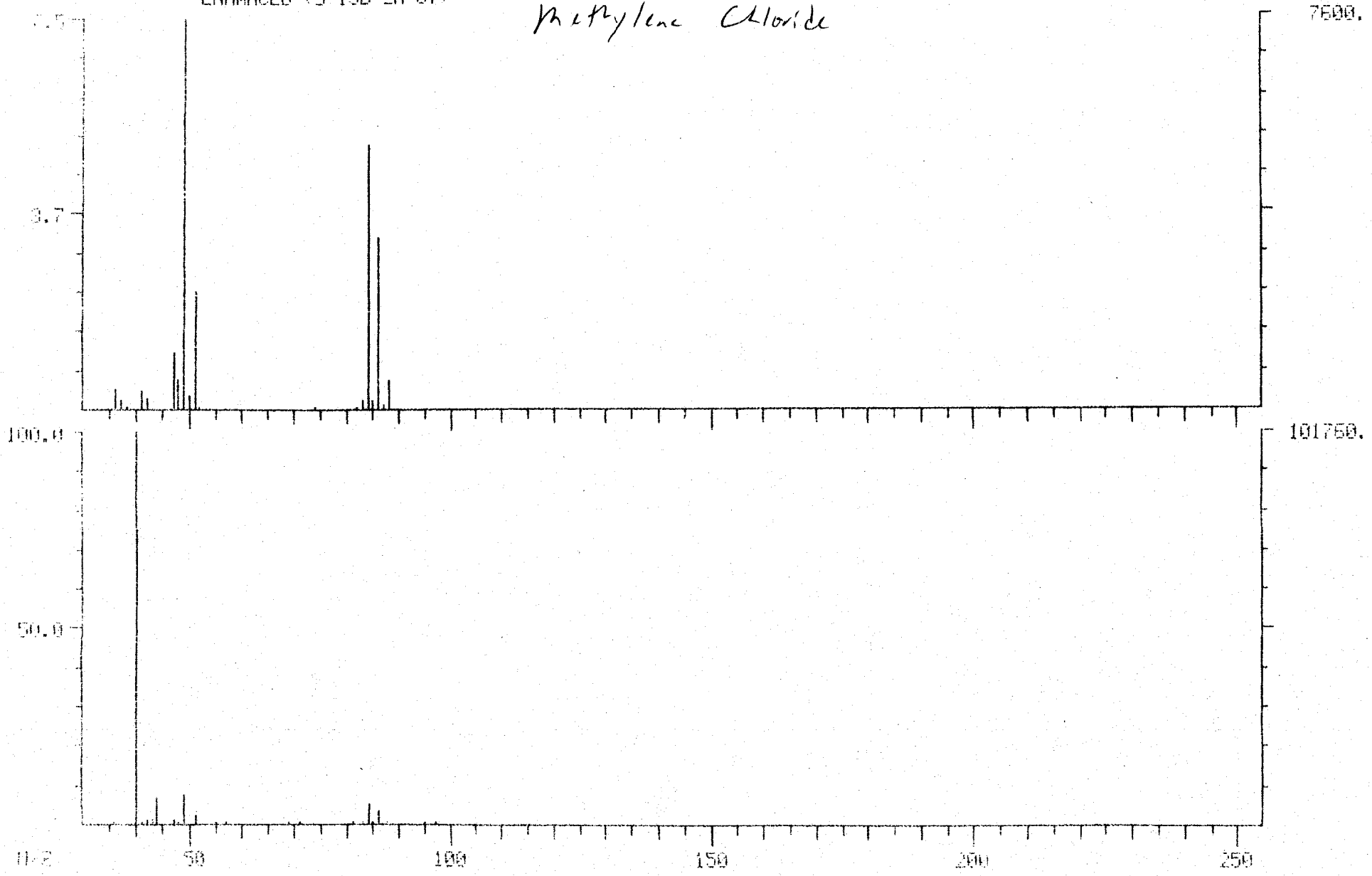


000113

DUAL MASS SPECTRUM
10/06/88 13:40:00 + 9:19
SAMPLE: CLP.U11978..2C-MW1.1100.L.W.11978013.V..
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1U0001829 #559 BASE M/Z: 49 40
CALI: C1U0001829 #5 RIC: 22713. 141567.

Methylene Chloride

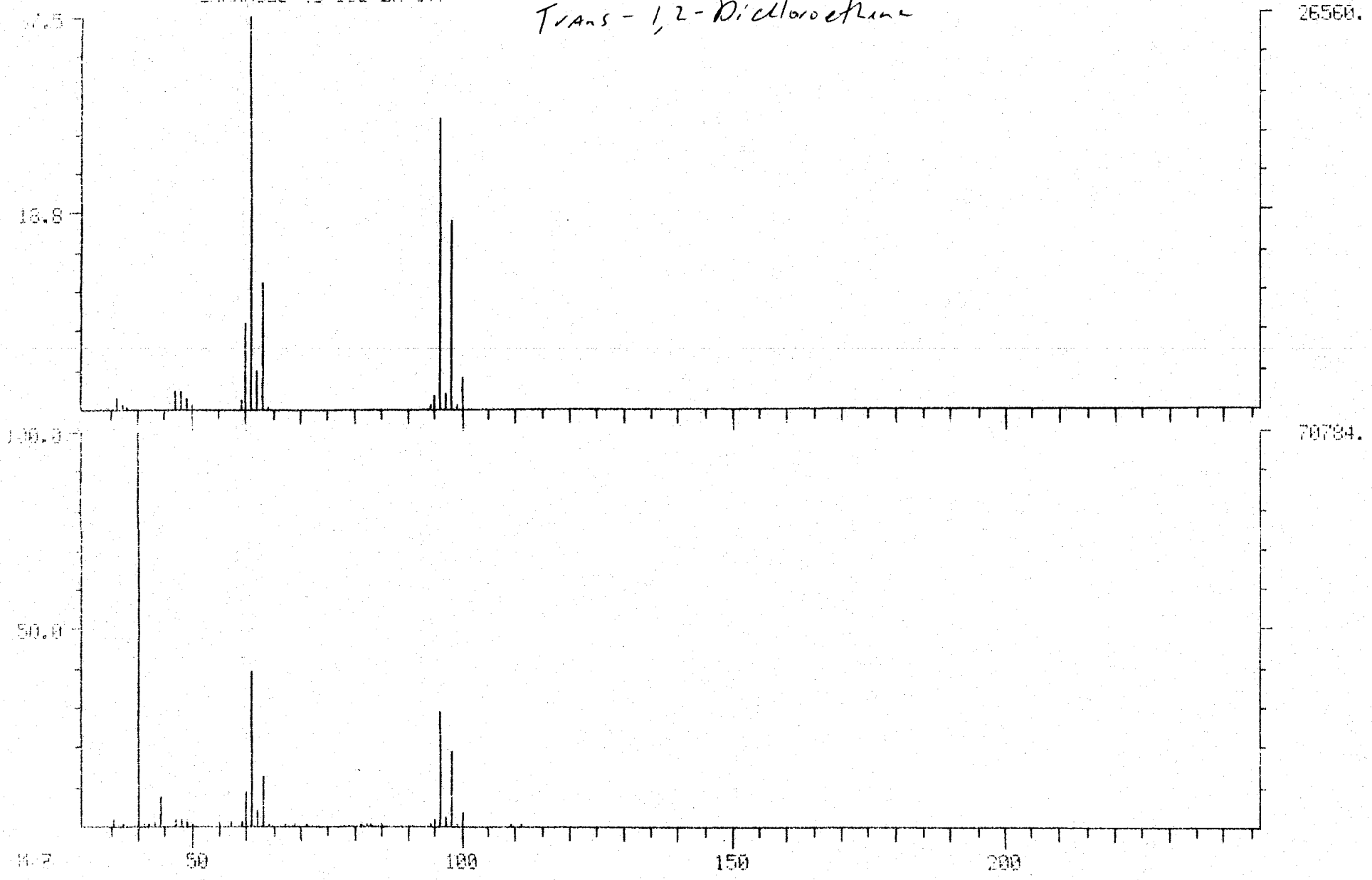


000114

DUAL MASS SPECTRUM
10/06/88 13:40:00 + 10:06
SAMPLE: CLP.V11978..2C-MW1_1100.L.W.11978013.W..
CONDS.: -100G TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001829 #606 BASE M/Z: 61 40
CALI: C1V0001829 #5 BIC: 86399./ 175871.

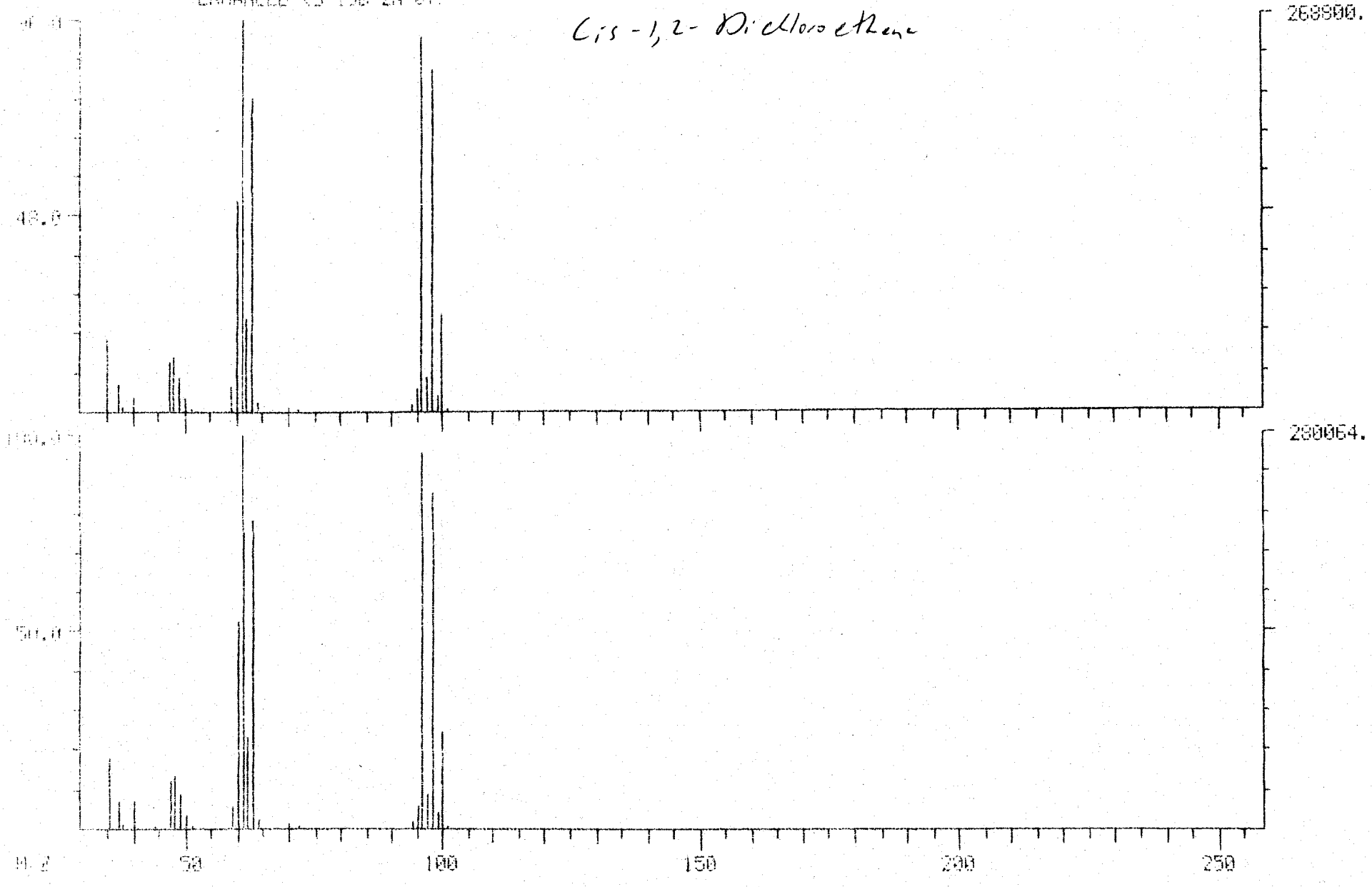
Trans-1,2-Dichloroethene



000115

DUAL MASS SPECTRUM
10 06 88 13:40:00 + 12:51
SAMPLE: CLP.V11978,,2C-MW1_1100,L,W,11978013,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001829 #771 BASE M/Z: 61/ 61
CALI: C1V0001829 #5 RIC: 1521660. 1576950.

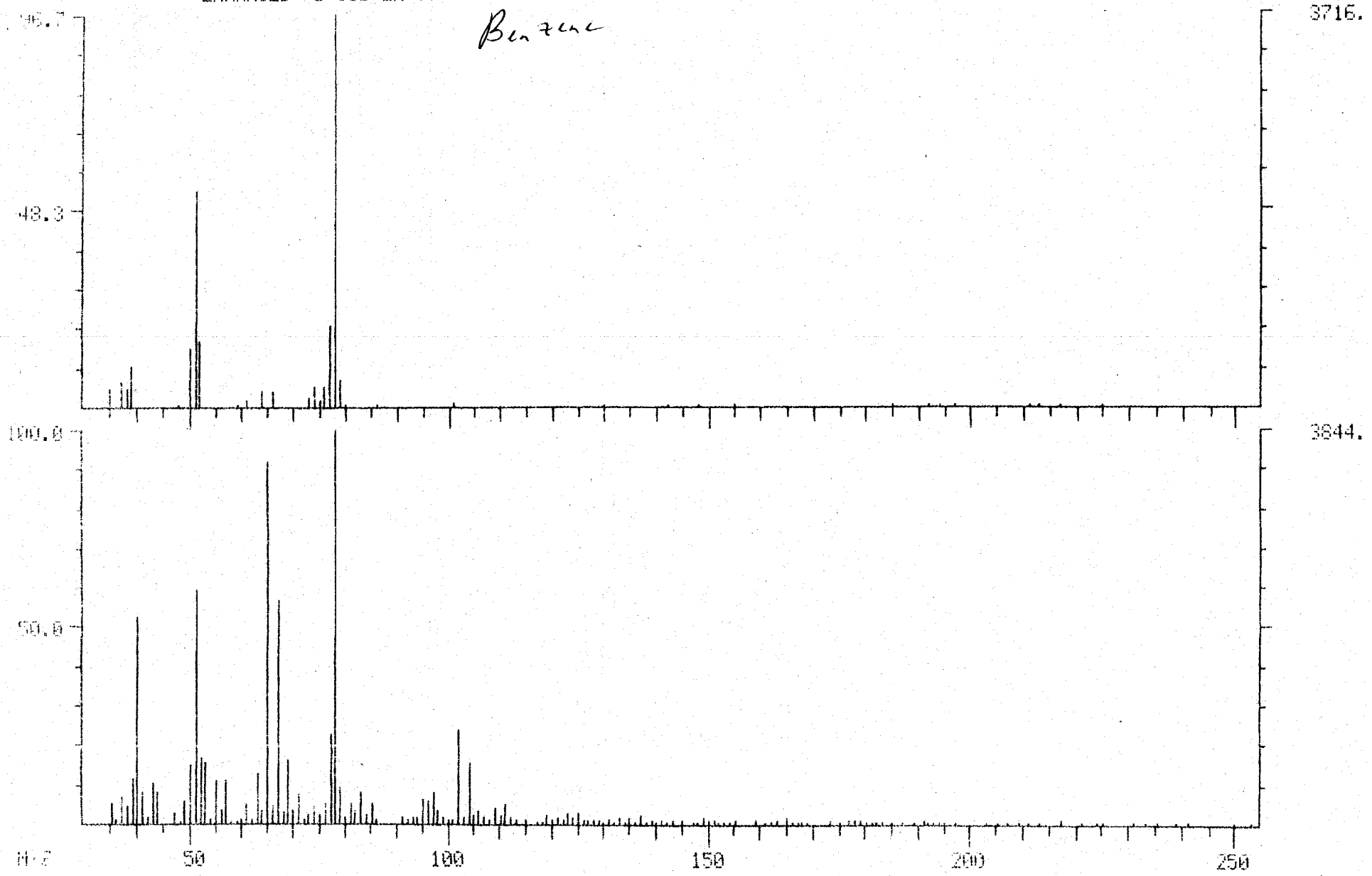


000116

DUAL MASS SPECTRUM
10/06/88 13:40:00 + 14:45
SAMPLE: CLP,V11978,,2C-MW1_1100,L,W,11978013,V,,
CONDS.: -10DG TO 150DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V00001829 #885 BASE M/Z: 78/ 78
CALI: C1V00001829 #5 TIC: 10287./ 31487.

Benzene

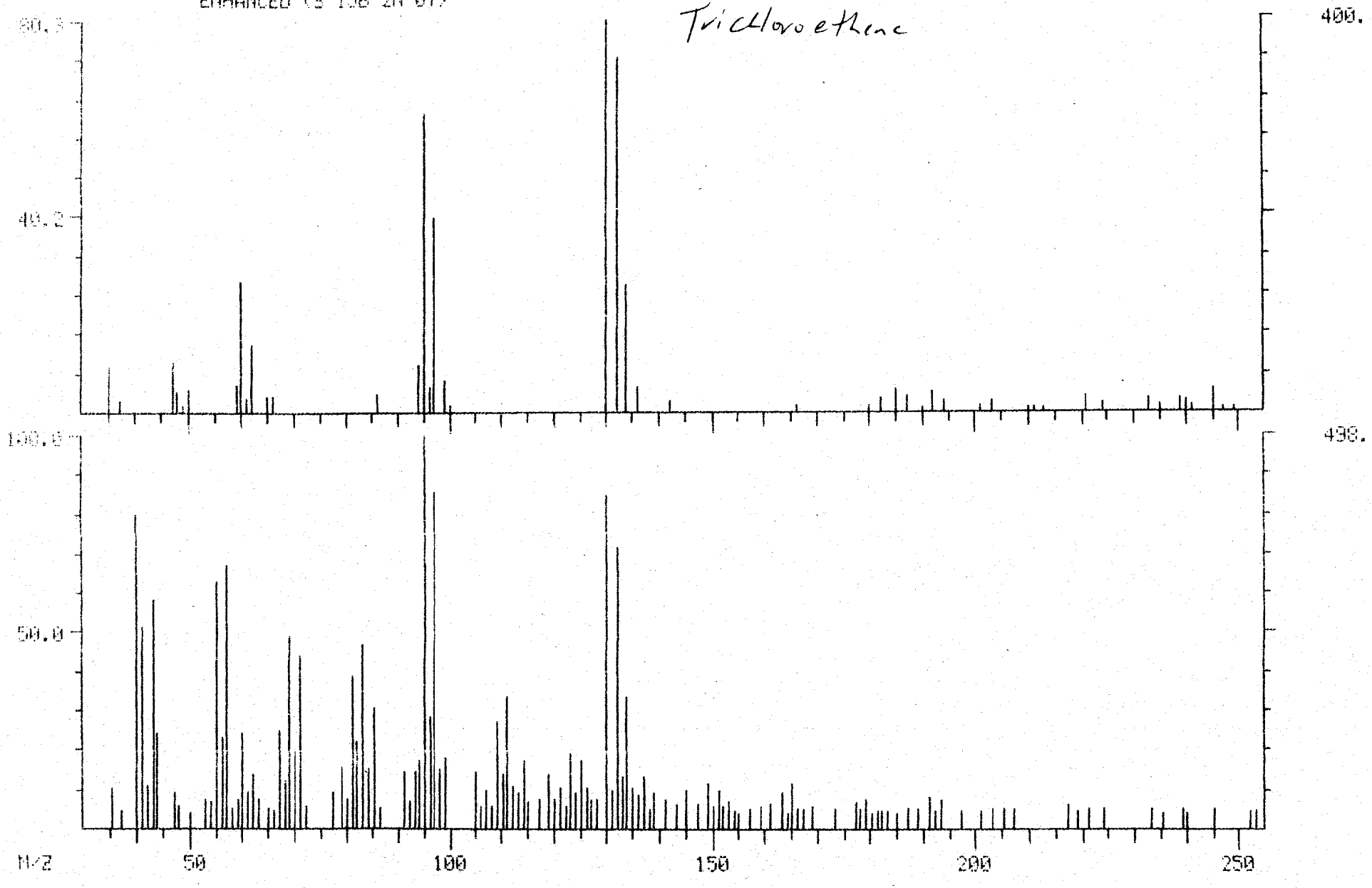


000117

DUAL MASS SPECTRUM
10/06/88 13:40:00 + 16:17
SAMPLE: CLP,U11978,,2C-MW1_1100,L,W,11978013,U,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 158 2N 0T)

DATA: C1U0001829 #377 BASE M/Z: 130 95
CALI: C1U0001829 #5 RIC: 2251./ 3967.

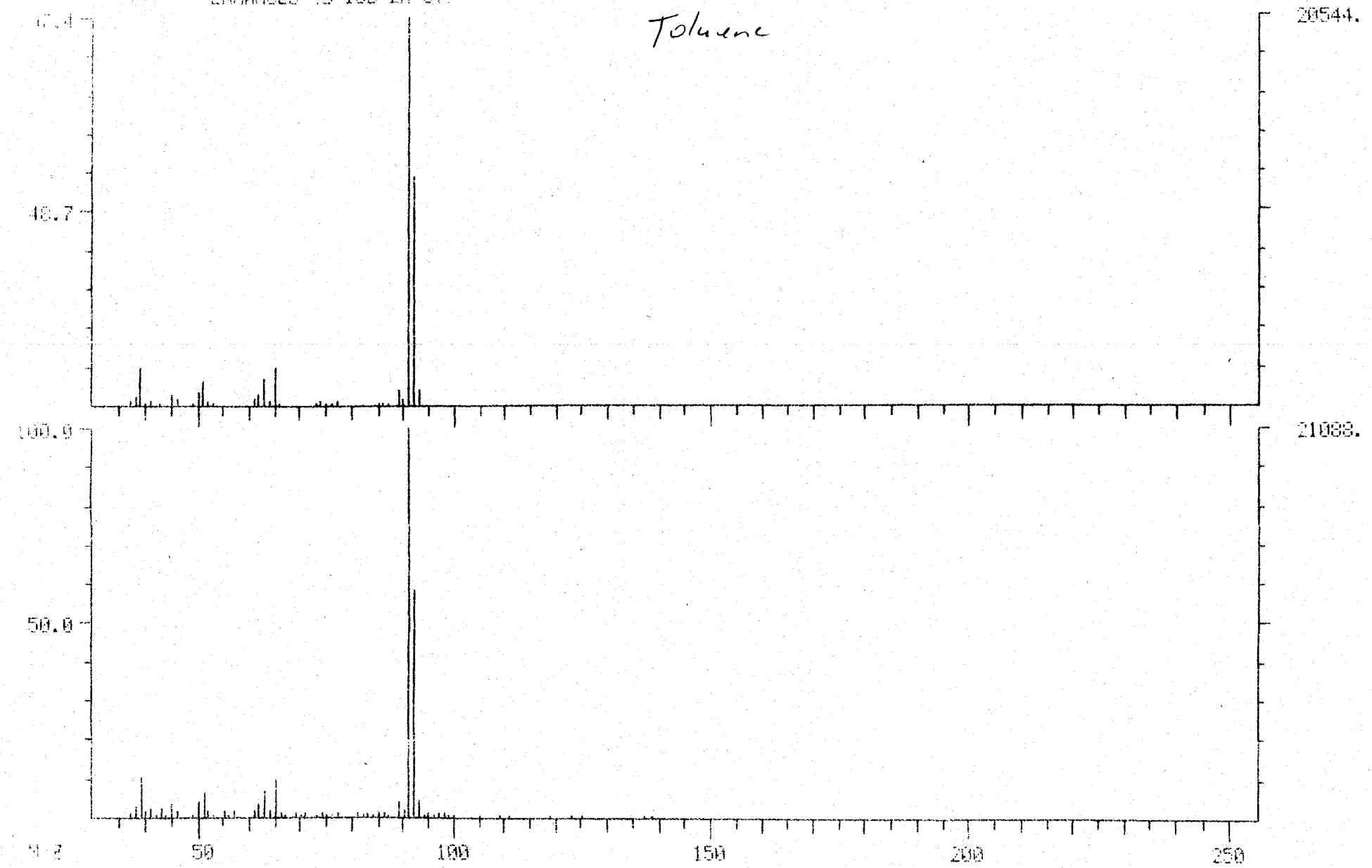
000118



DUAL MASS SPECTRUM
10-06-88 13:40:00 + 19:07
SAMPLE: CLP.V11978.20-MW1_1100.L.W.11978013.V..
CONDS.: -100G TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001823 #1147 BASE M/Z: 91 91
CALI: C1V0001823 #5 RIL: 47231. 56958.

Toluene

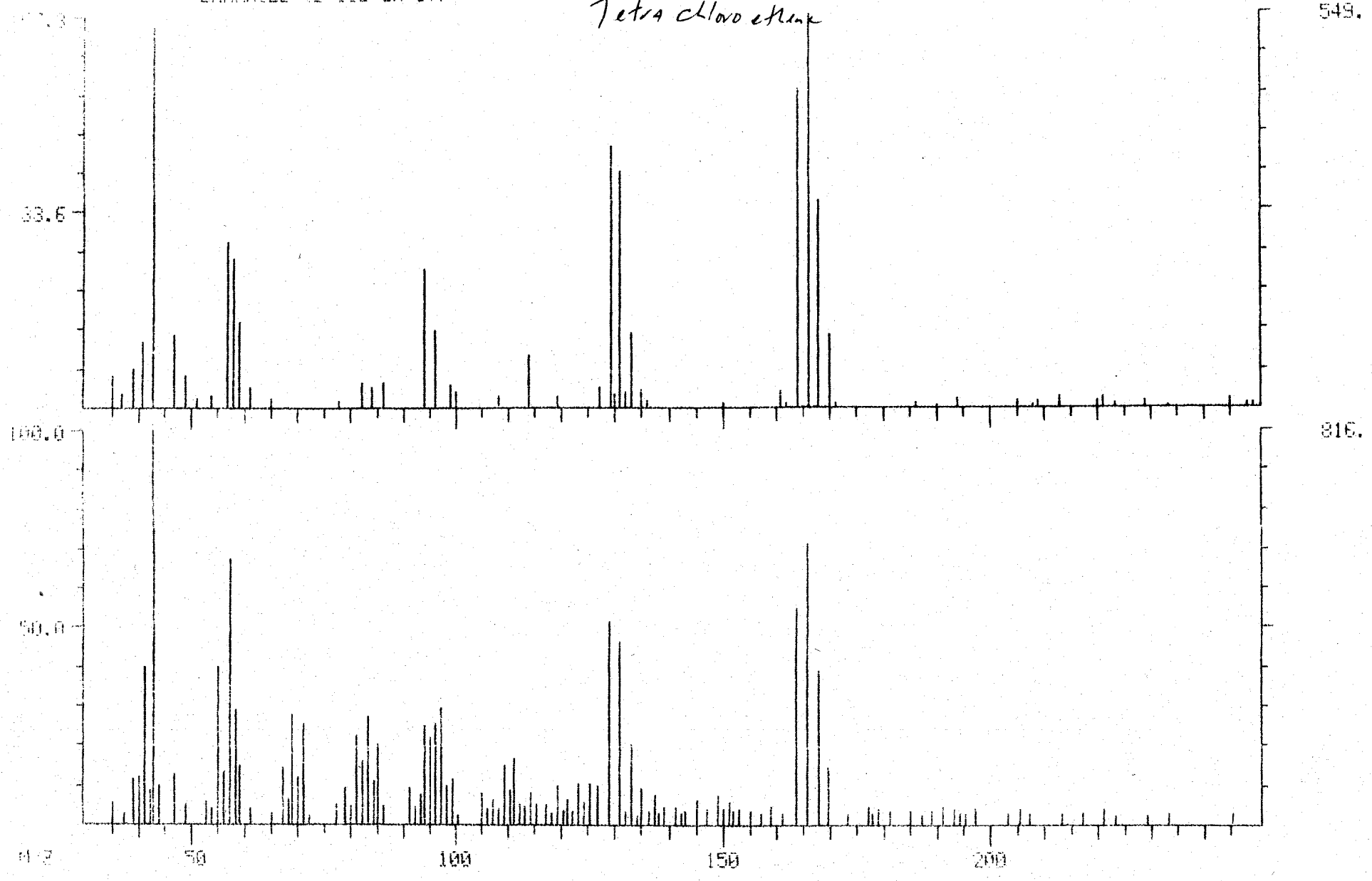


000119

DUAL MASS SPECTRUM
10/06/88 13:40:00 + 20:17
SAMPLE: CLP.U11978..2C-MW1_1100.L.W.11978013.V..
CONDS.: -10DG TO 150DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V00001829 #1217 BASE M/Z: 166 43
CALI: C1V00001829 #5 RIC: 4575. 11215.

Tetra chloro ethene

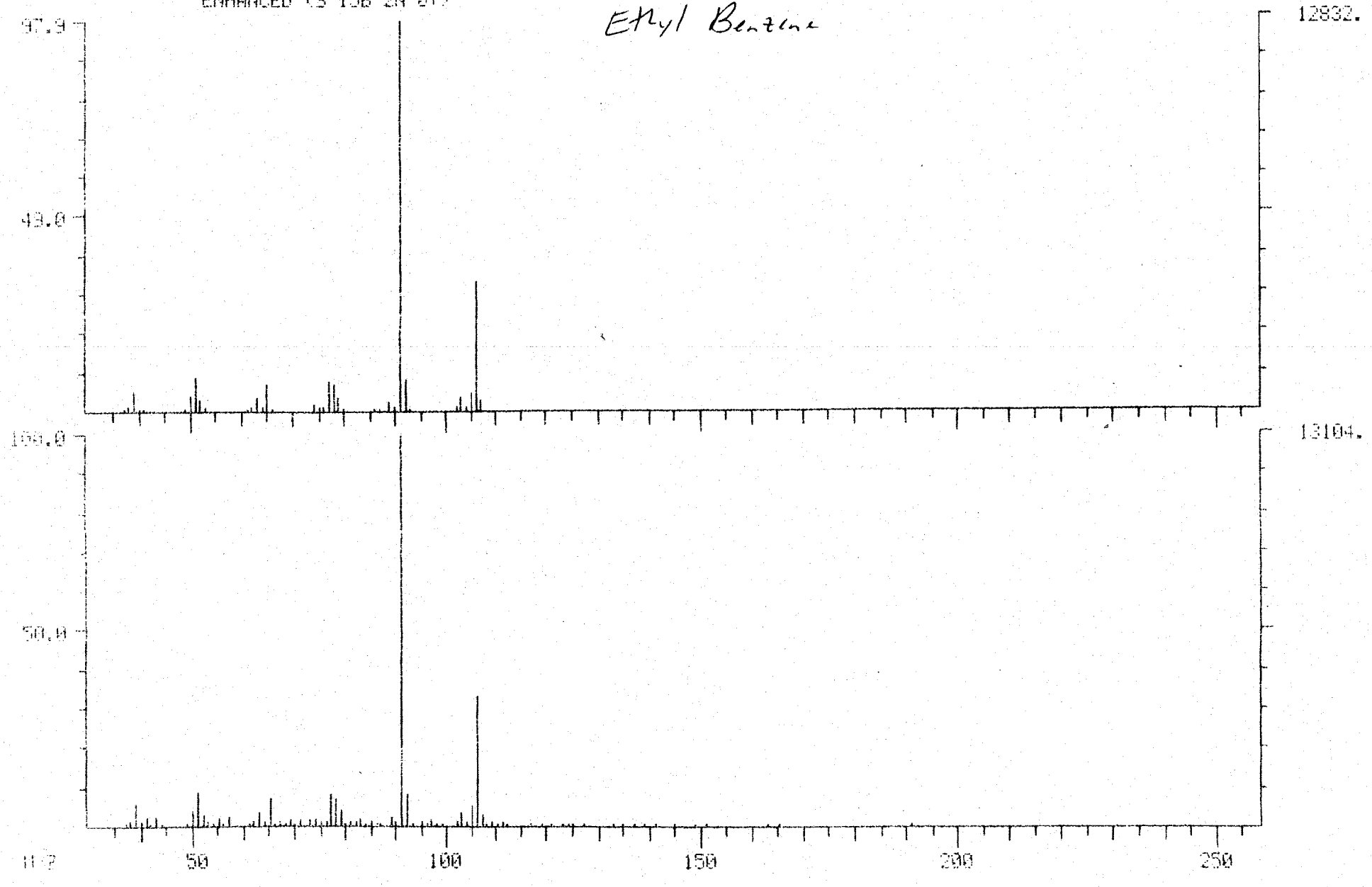


000120

DUAL MASS SPECTRUM
10/06/88 13:40:00 + 22:31
SAMPLE: CLP.U11978..2C-MW1_1100.L.W.11978013.V..
CONDS.: -100G TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1U0001829 #1351 BASE M/Z: 91/ 91
CALI: C1U0001829 #5 RIC: 28511./ 35263.

Ethyl Benzene

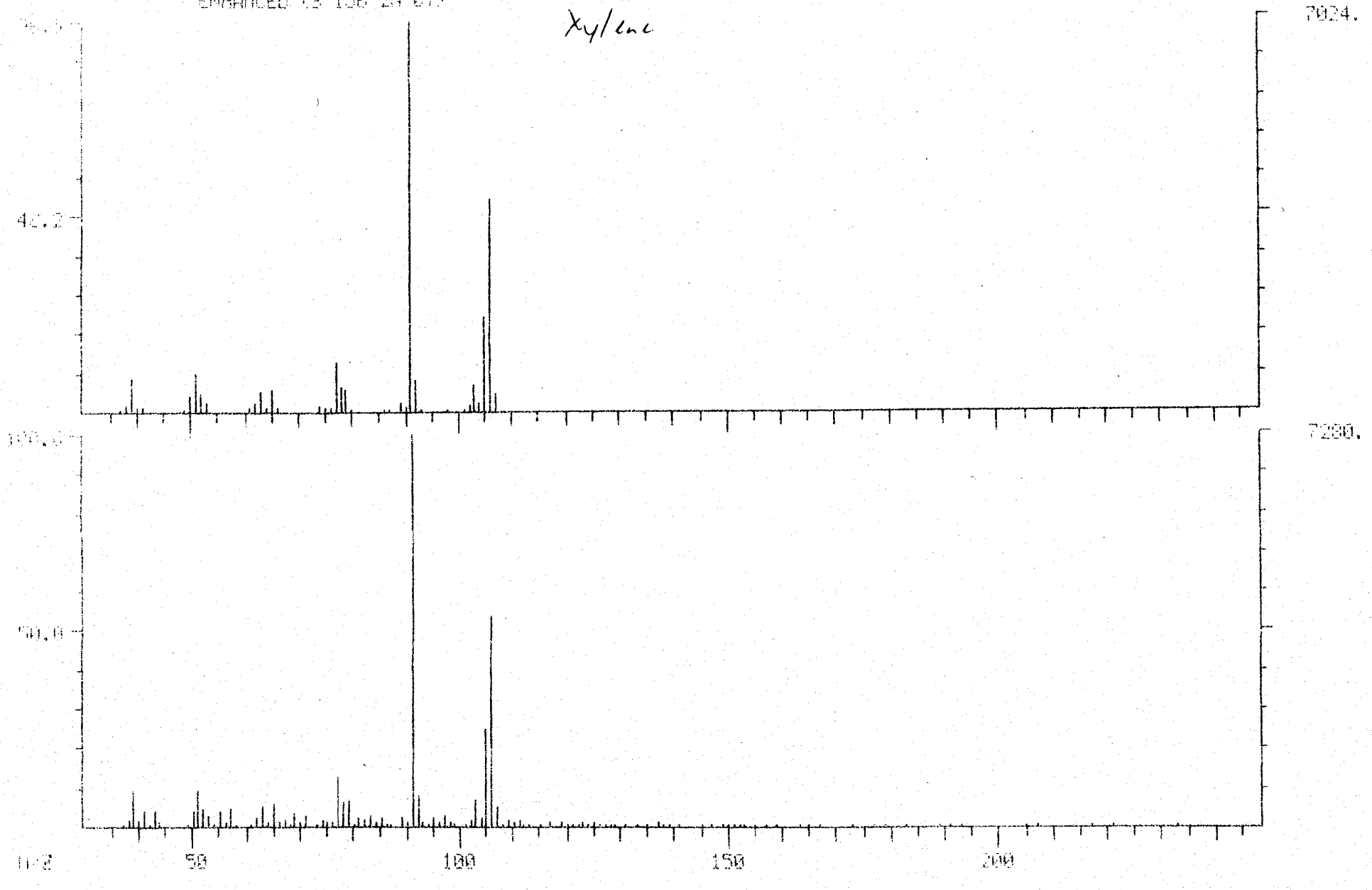


000121

DUAL MASS SPECTRUM
10 06 88 13:40:00 + 22:48
SAMPLE: CLP,V11978,,2C-MW1_1100,L,W,11978013,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001829 #1365 BASE M 2: 91 91
CALI: C1V0001829 #5 PIC: 20479. 27231.

Xylene



000122

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2C_MW-3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978014

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C1VO001817

Level: (low/med) LOW Date Received: 09/24/88

% Moisture: not dec. ____ Date Analyzed: 10/05/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	8	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	4	J
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	2	J
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	

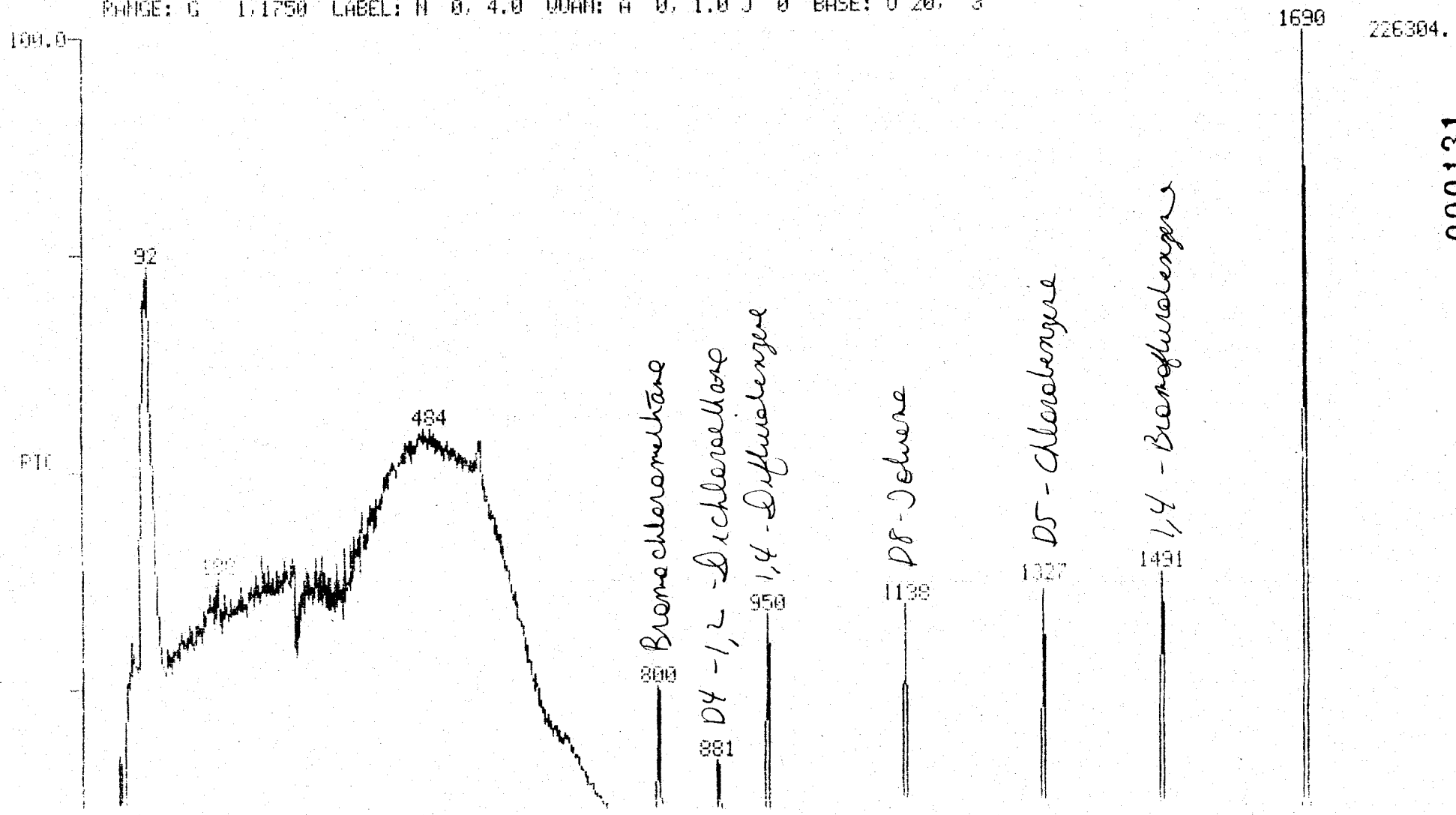
RS

DUAL MASS SPECTRUM
10/05/88 19:58:00 + 9:13
SAMPLE: CLP,V11978,,2C_MW-3,L,W,11978014,V,,
COND: -100C TO 160C @ 60C MIN IH=5.0 MIN

DATA: C1V0001817 #553 BASE M/Z: 49 40
CALI: C1V0001817 #3 PIC: 10383. 118399.

32

RIC DATA: C1V0001817 #1 SCANS 1 TO 1750
10/05/88 19:58:00 CALI: C1V0001817 #3
SAMPLE: CLP,V11978,,2C_MW-3,L,W,11978014,V,,
COND.: -100C TO 160C @ 60C/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

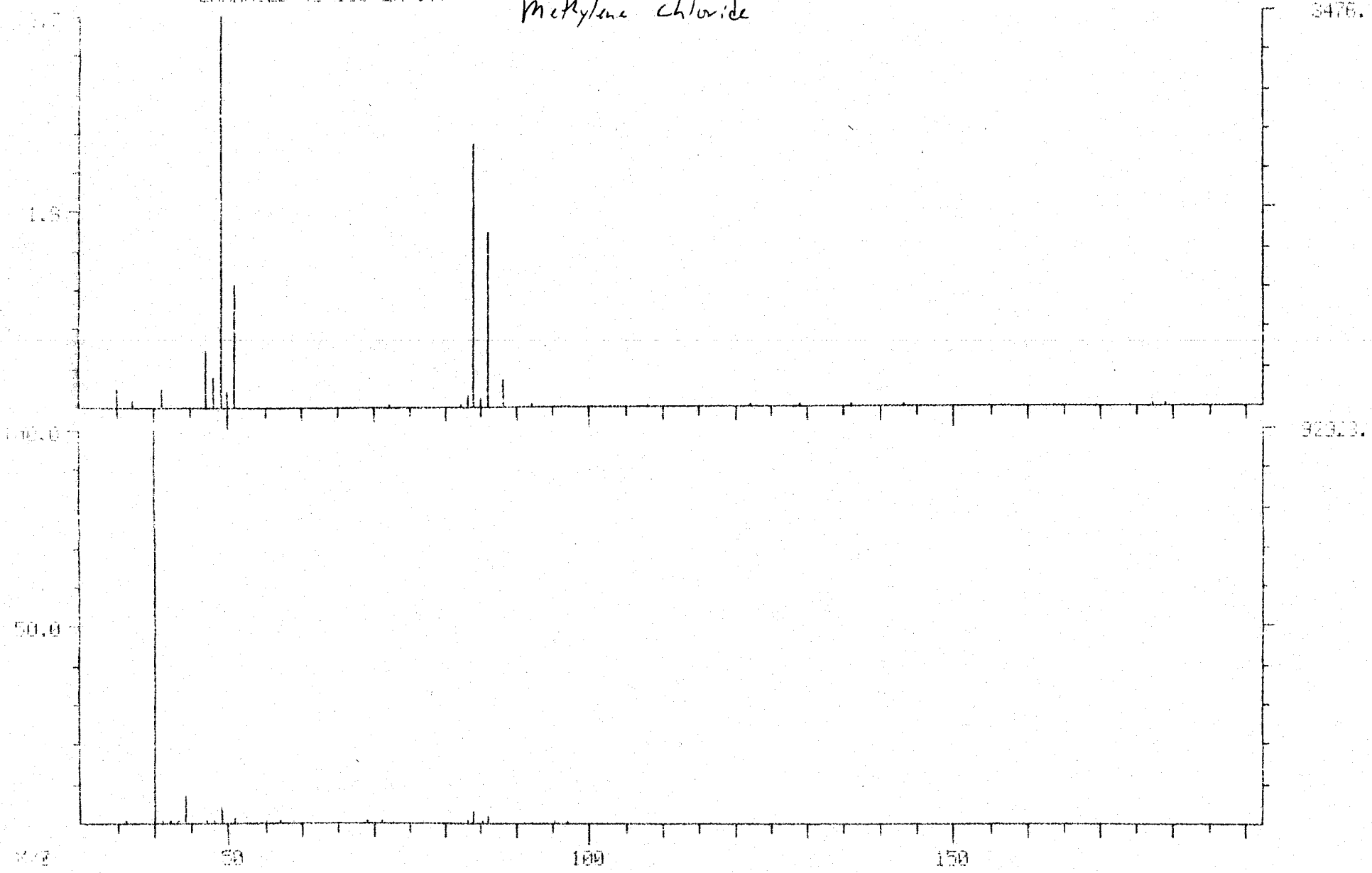


000131

DUAL MASS SPECTRUM
10 05 88 13:58:00 [illegible]
SAMPLE: CLP,V11978,,2C_MW-3,L,W,11978014,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2H 0T)

DATA: C1V0001817 #553 BASE M/Z: 49 40
CALI: C1V0001817 #3 PIC: 10363. 11[illegible].

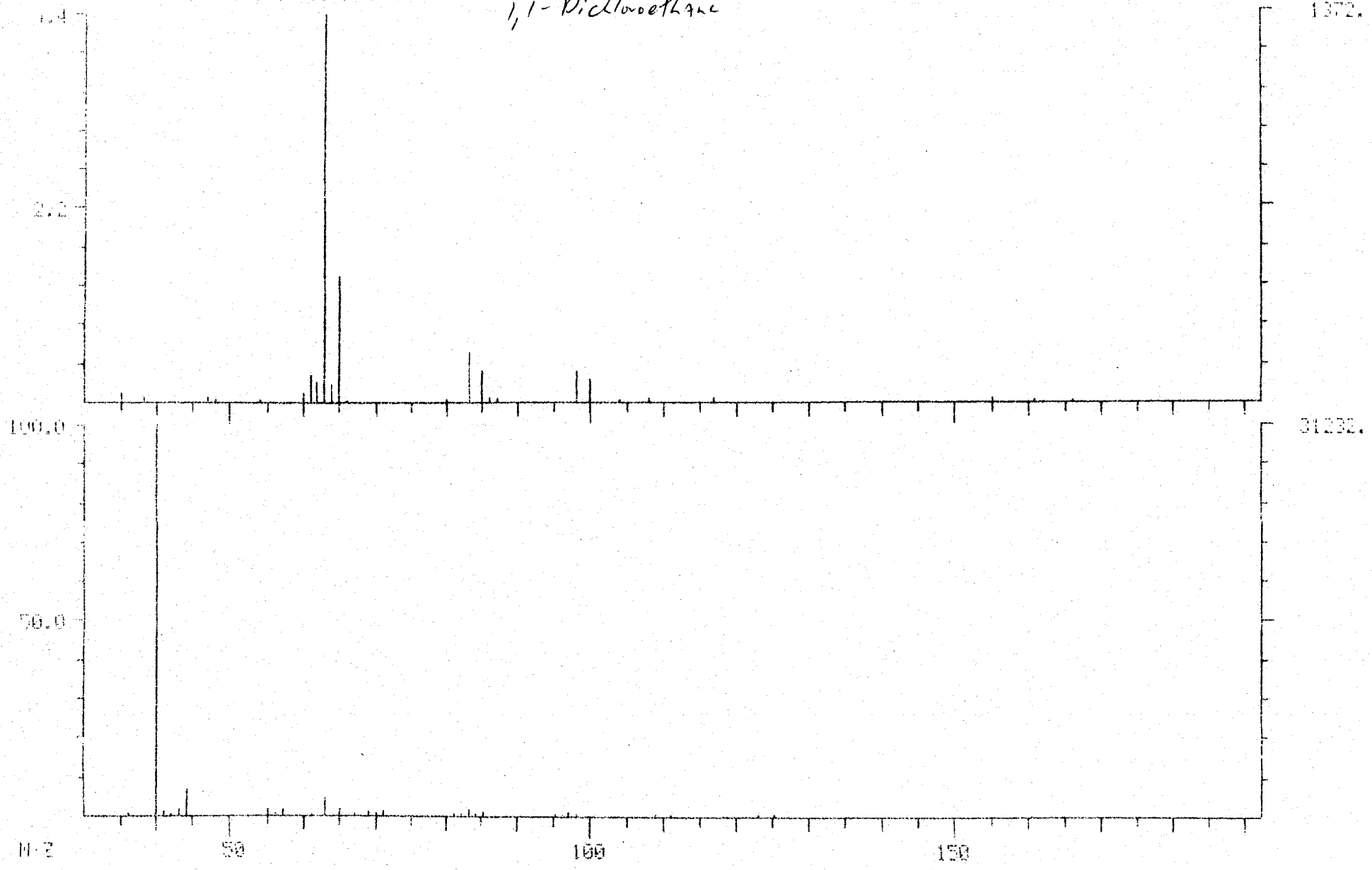
Methylene chloride



DUAL MASS SPECTRUM
10/05/88 19:58:00 + 11:14
SAMPLE: CLP,011978,,2C_MW-3,L,W,11978014,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001817 #674 BASE M/Z: 63 40
CALI: C1V0001817 #3 RIC: 2759. 44257.

1,1-Dichloroethane

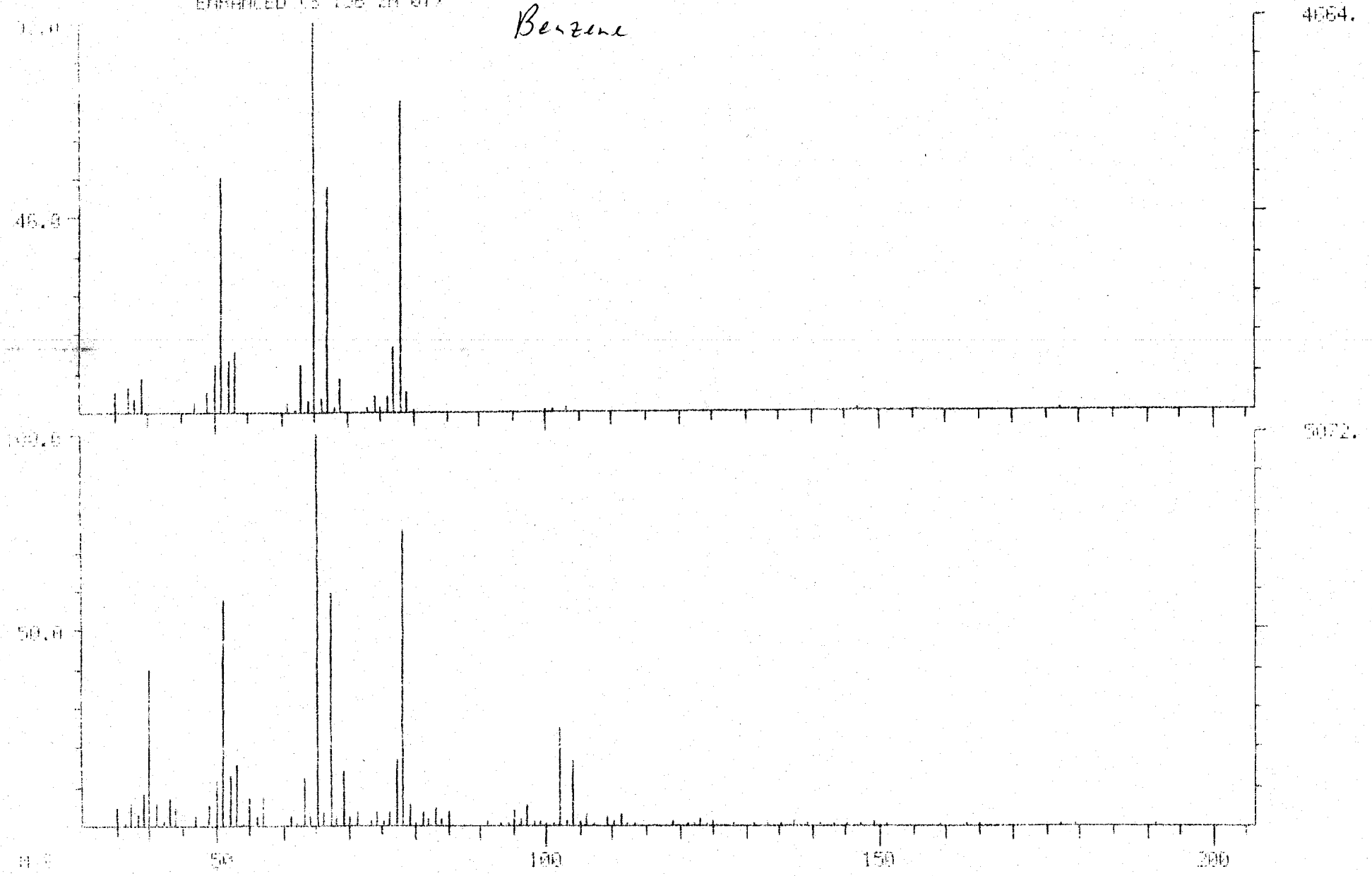


000133

DUAL MASS SPECTRUM
10 05 88 19:58:00 + 14:43
SAMPLE: CLP,V11978,,2C_MW-3,L,W,11978014,V,,
CONDS.: 100G TO 160DG @ 6DG MIN IH=5.0 MIN
ENHANCED (S 156 2N 0T)

DATA: C1V0001817 #[illegible] PAGE M/Z: [illegible] 65
CALI: C1V0001817 #3 RIC: 20447. 31519.

Benzene

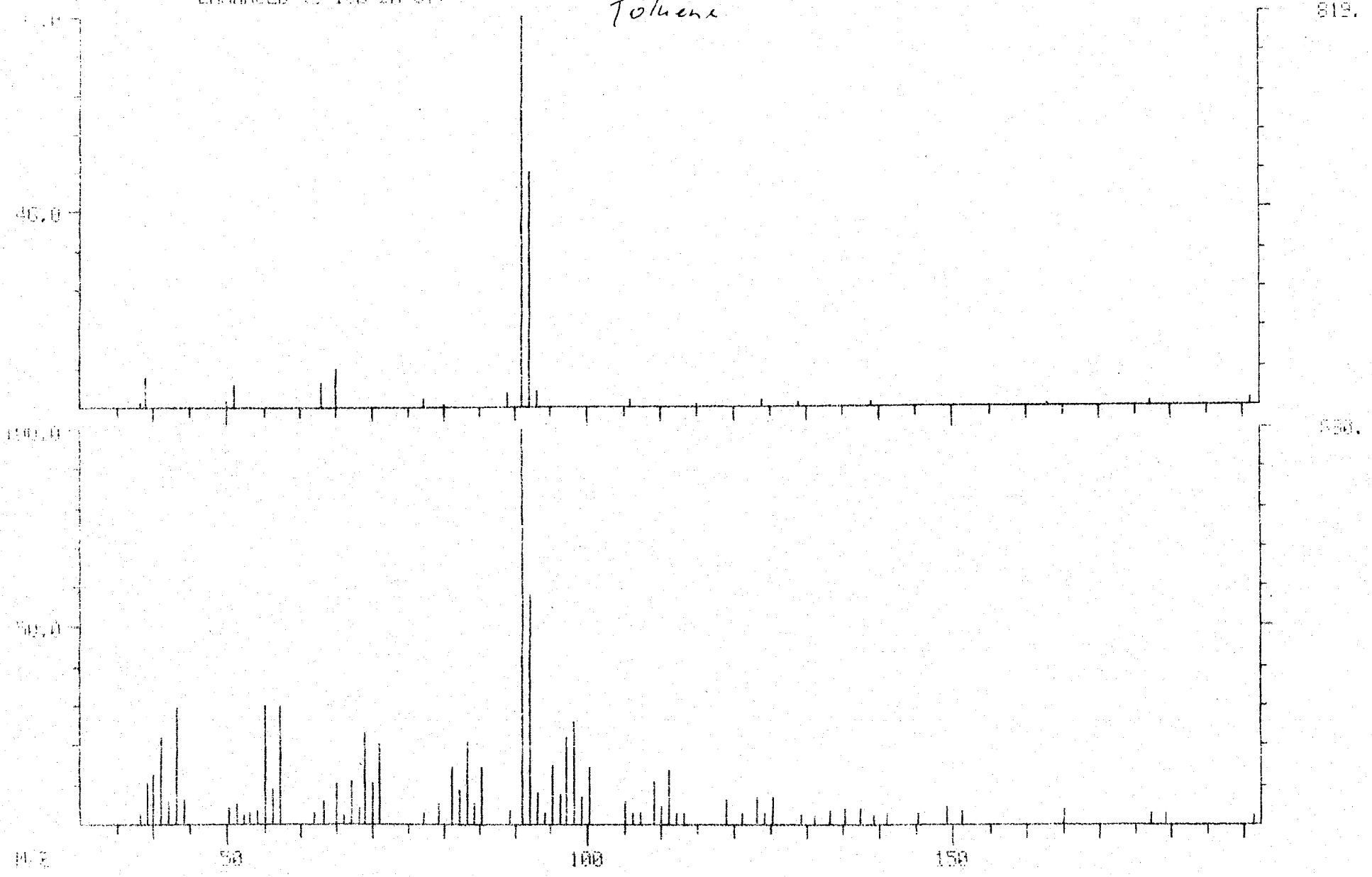


000134

DUAL MASS SPECTRUM
10-05-88 19:58:00 + 19:06
SAMPLE: CLP V11978 (2C_MW-3 L.W.11978014.V.)
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2H 0T)

DATA: C1V0001817 #1146 BASE M/Z: 91 91
CALI: C1V0001817 #3 RIC: 1757. 6447.

Toluene

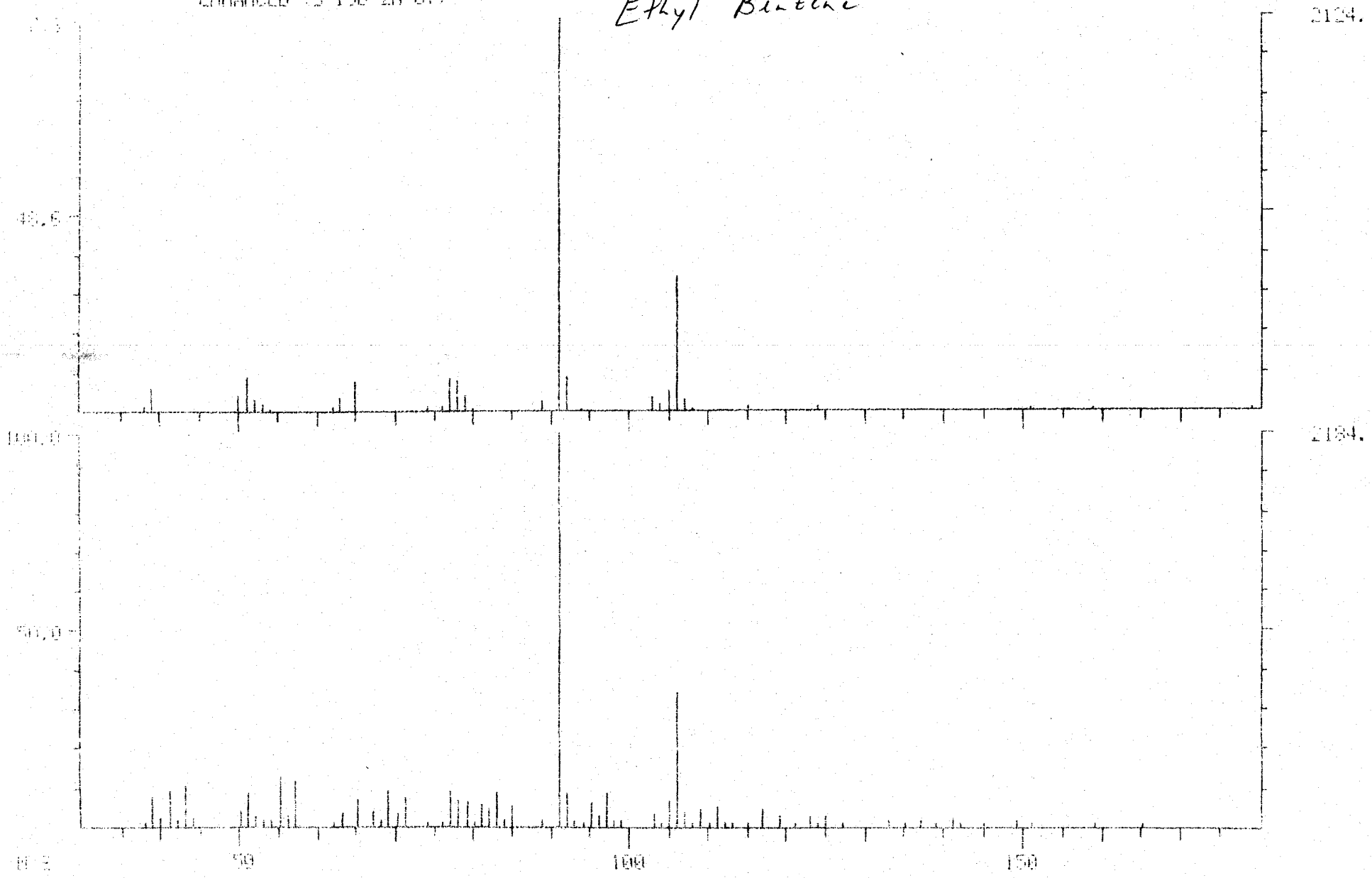


000135

DUAL MASS SPECTRUM
10 05 88 [illegible]
SAMPLE: [illegible]
CONDS.: -10DG TO 160DG @ 6DG MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: [illegible] BASE M/Z: [illegible]
CALI: [illegible] #3 PIC: [illegible]

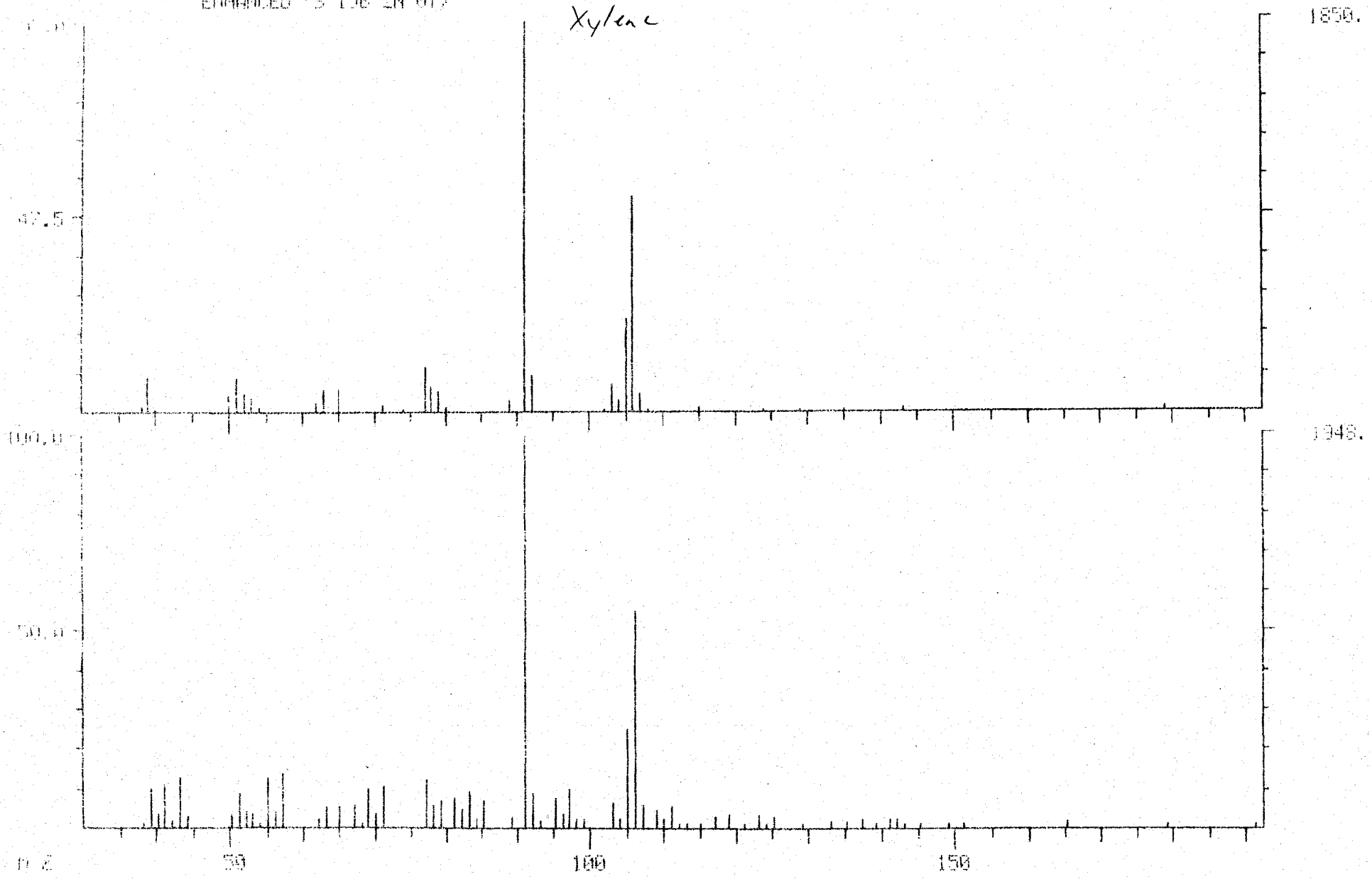
Ethyl Benzene



000136

DUAL MASS SPECTRUM
10 05 88 19:58:00 + 22:47
SAMPLE: CLP V11978 ,2C,MW-3,L,W,11978014,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001817 #1367 BASE M/Z: 91/ 91
CALI: C1V0001817 #3 RIC: 5223./ 9343.



000137

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B-MW1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978011

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A1VO001172

Level: (low/med) LOW Date Received: 09/24/88

% Moisture: not dec. _____ Date Analyzed: 10/05/88

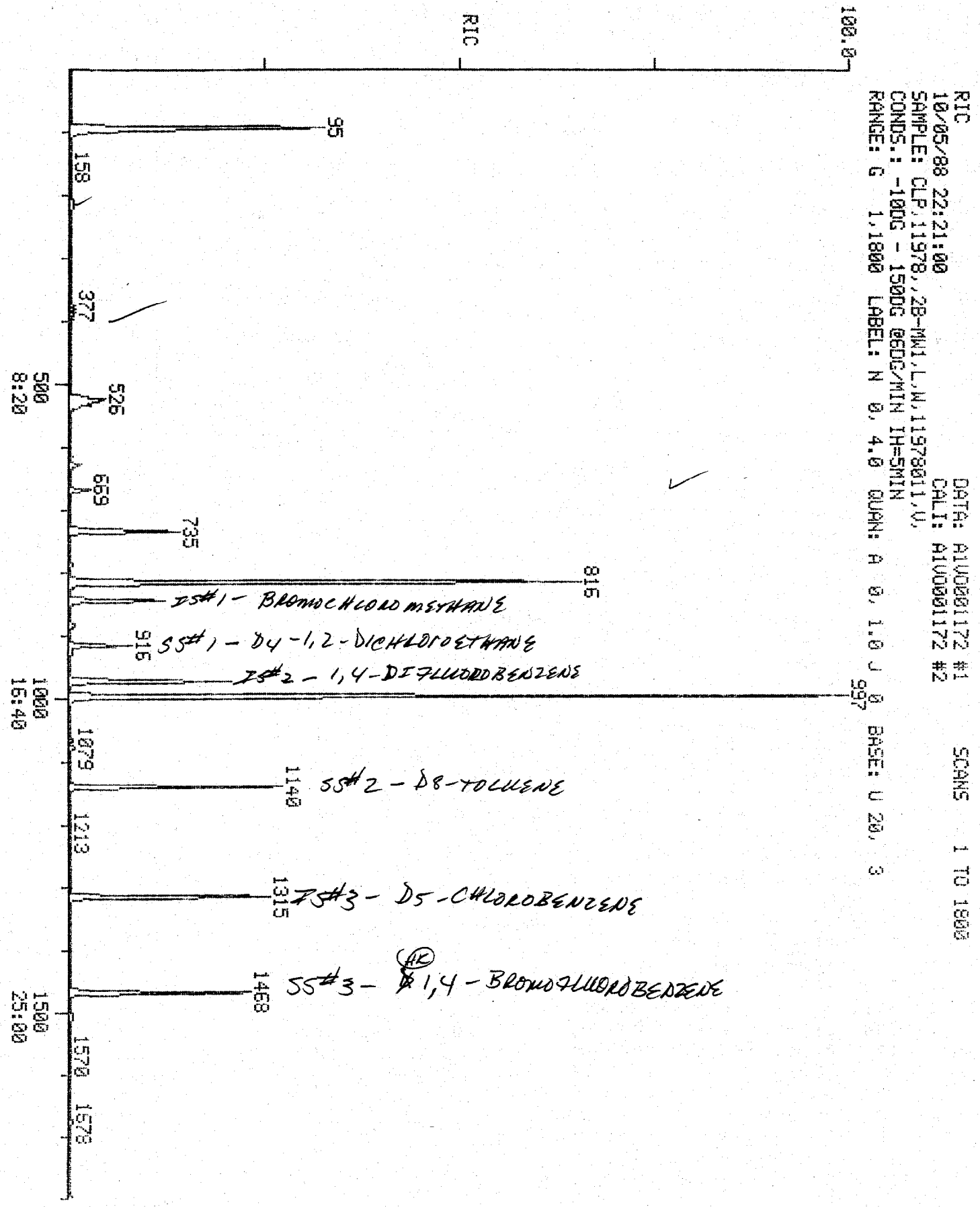
Column: (pack/cap) CAP Dilution Factor: 1.0

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

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	31	
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	6	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	13	
75-34-3	1,1-Dichloroethane	82	
540-59-0	1,2-Dichloroethene (total)	350	E
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	330	E
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS.

TCA FINISHED, 12 FOUND
FINISHED AT: 10/05/88 23:02:03



RIC
10/05/88 22:21:00
SAMPLE: CLP,11978,2B-MW1,L,W,11978011,V,
CONDS.: -100C - 150C @8C/MIN IH=5MIN
RANGE: G 1,1800 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: A1V0001172 #1
CALI: A1V0001172 #2

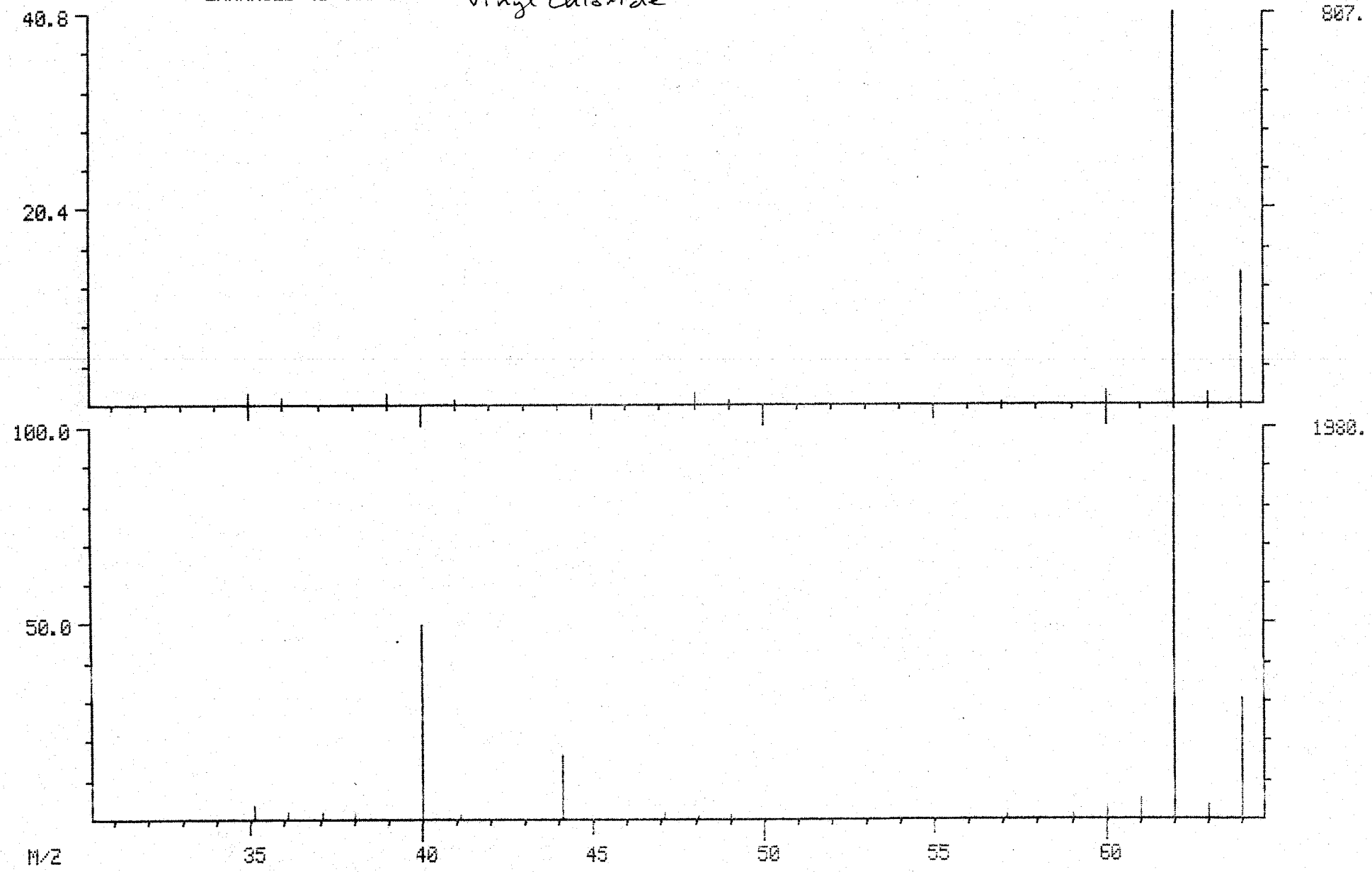
SCANS 1 TO 1800

000089

678512.

DUAL MASS SPECTRUM
10/05/88 22:21:00 + 3:36
SAMPLE: CLP,11978,,2B-MW1,L,W,11978011,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Vinyl Chloride

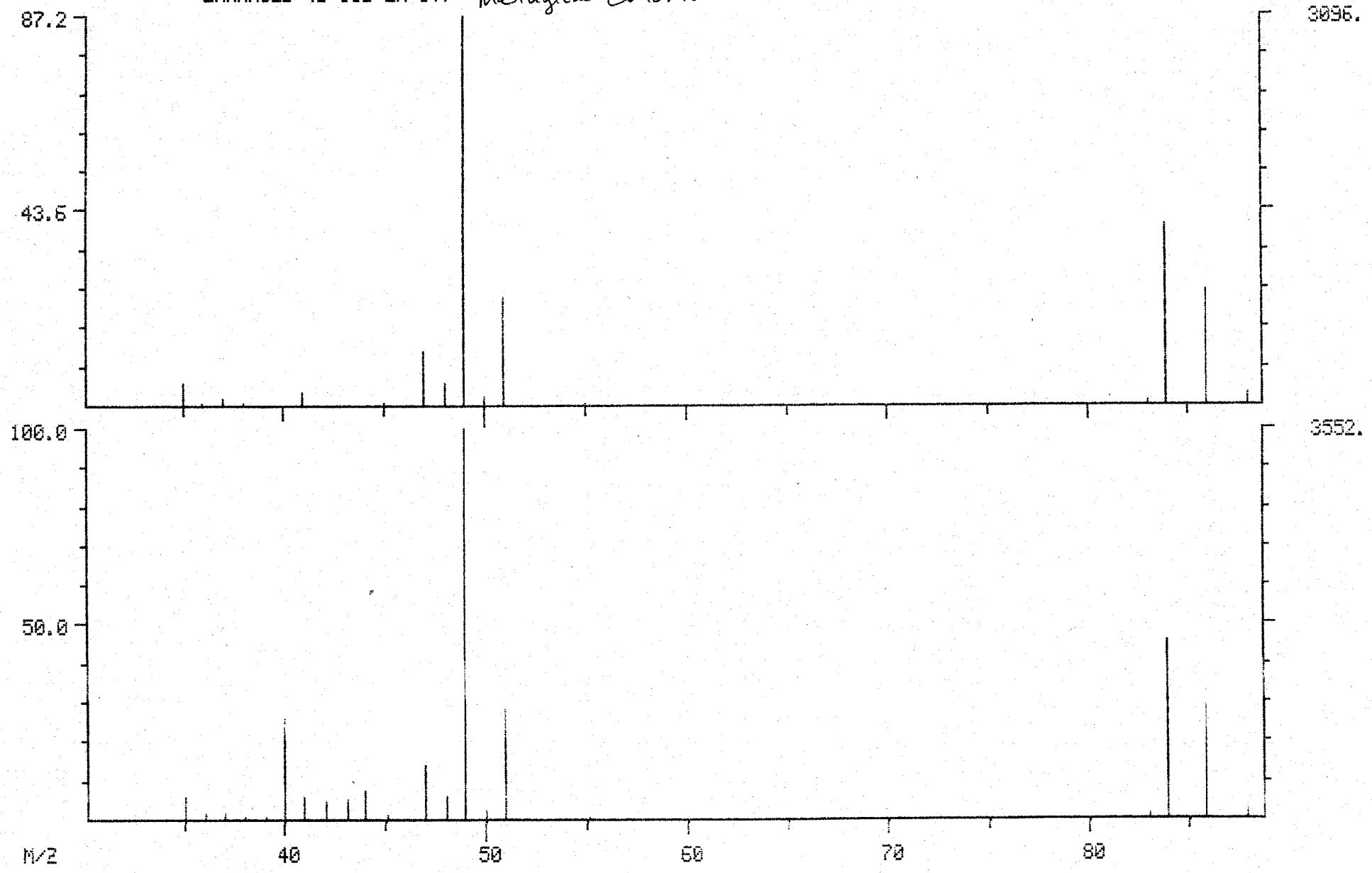
DATA: A1V0001172 #216 BASE M/Z: 62/ 62
CALI: A1V0001172 #2 RIC: 1239./ 4479.



060000

DUAL MASS SPECTRUM
10/05/88 22:21:00 + 10:29
SAMPLE: CLP,11978,,2B-MW1,L,W,11978011,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

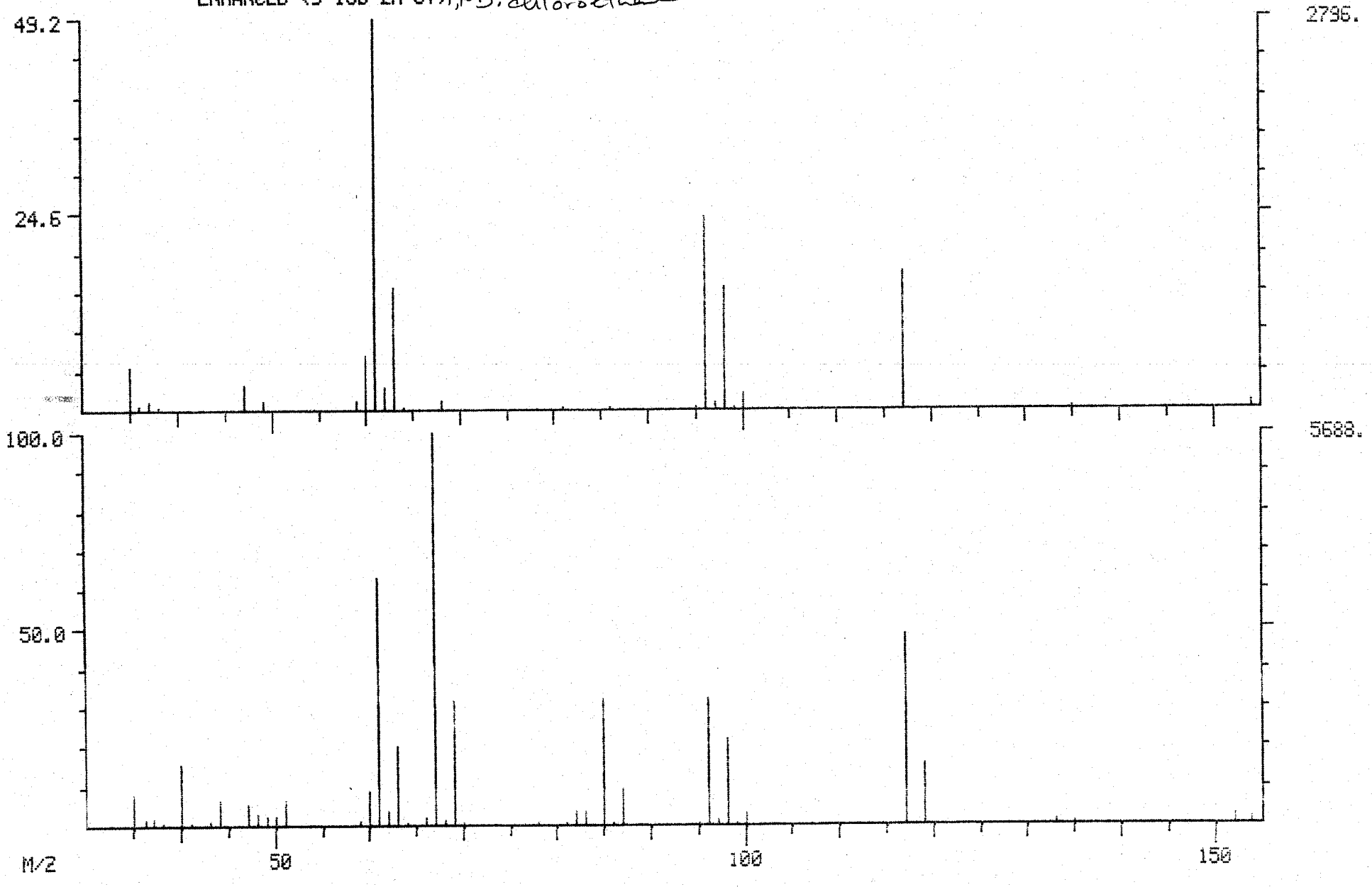
DATA: A1V0001172 #629 BASE M/Z: 49/ 49
CALI: A1V0001172 #2 RIC: 7575./ 10319.



000091

DUAL MASS SPECTRUM
10/05/88 22:21:00 + 8:45
SAMPLE: CLP,11978,,2B-MW1,L,W,11978011,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T)),F-Dichloroethane

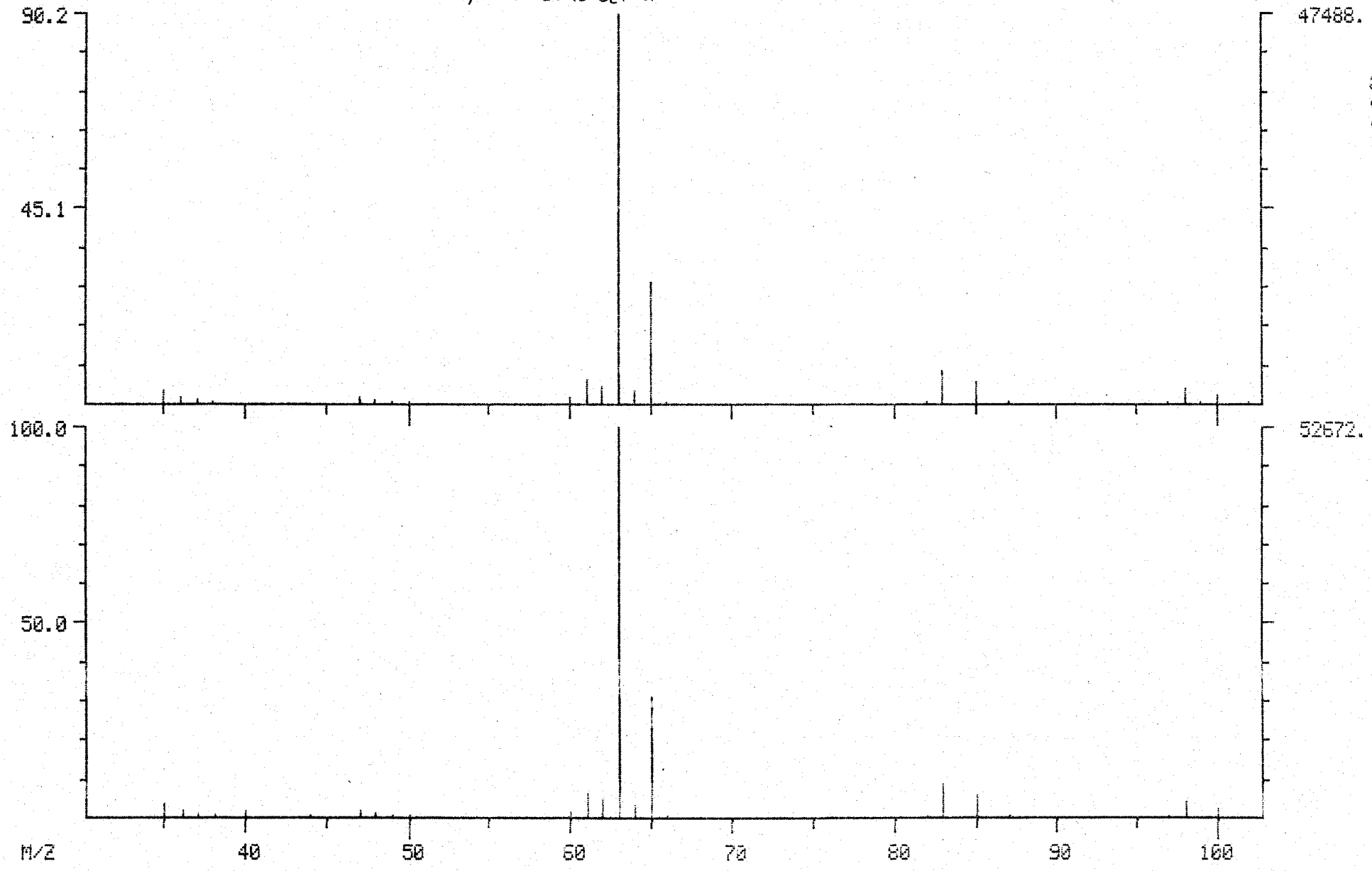
DATA: A1V0001172 #525 BASE M/Z: 61/ 67
CALI: A1V0001172 #2 RIC: 8591./ 26527.



000092

DUAL MASS SPECTRUM
10/05/88 22:21:00 + 12:15
SAMPLE: CLP,11978,,2B-MW1,L,W,11978011,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,1-Dichloroethane

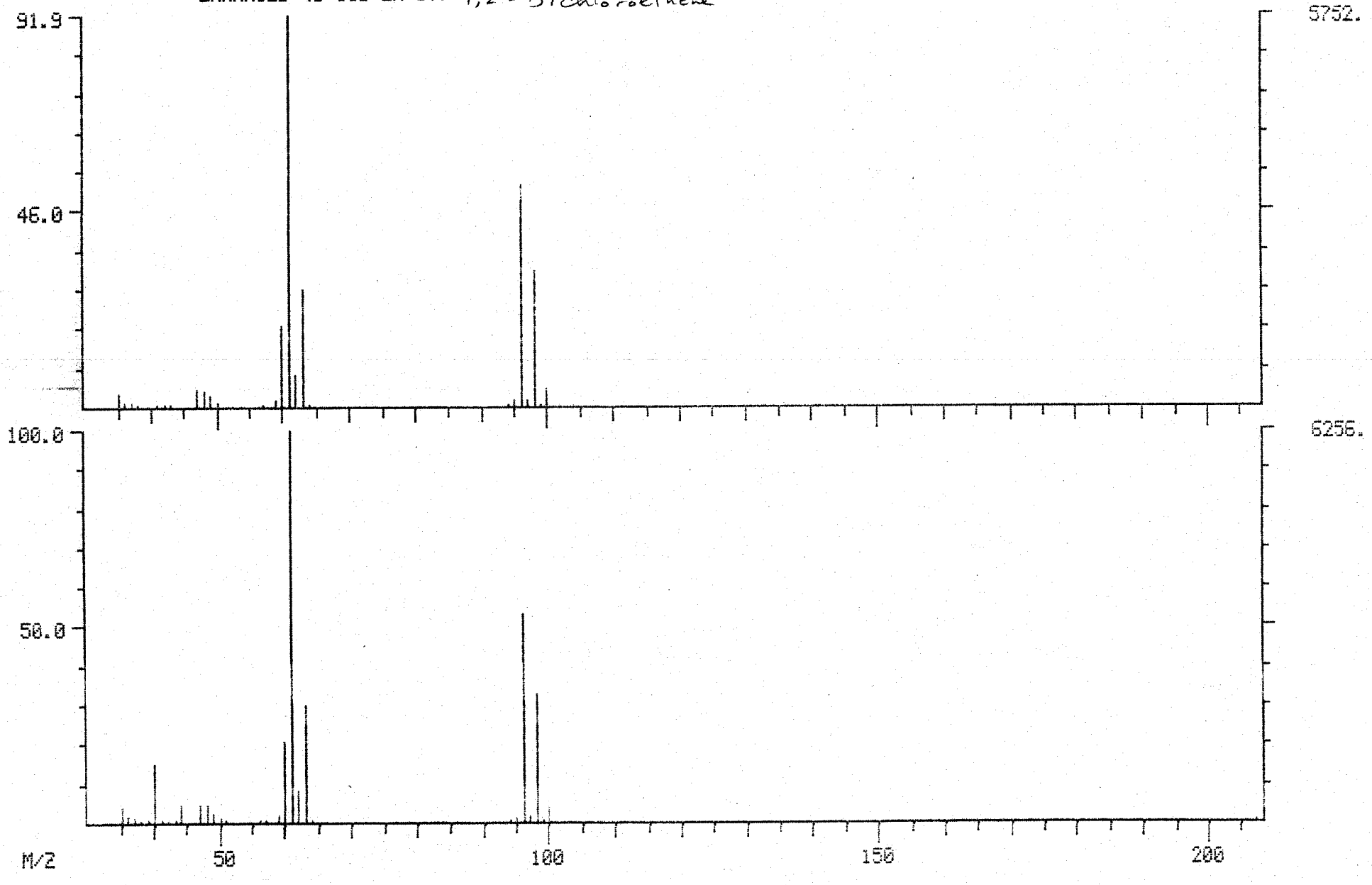
DATA: A1V0001172 #735 BASE M/Z: 63/ 63
CALI: A1V0001172 #2 RIC: 86783./ 97279.



000093

DUAL MASS SPECTRUM
10/05/88 22:21:00 + 11:09
SAMPLE: CLP,11978,,2B-MW1,L,W,11978011,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,2-Dichloroethene

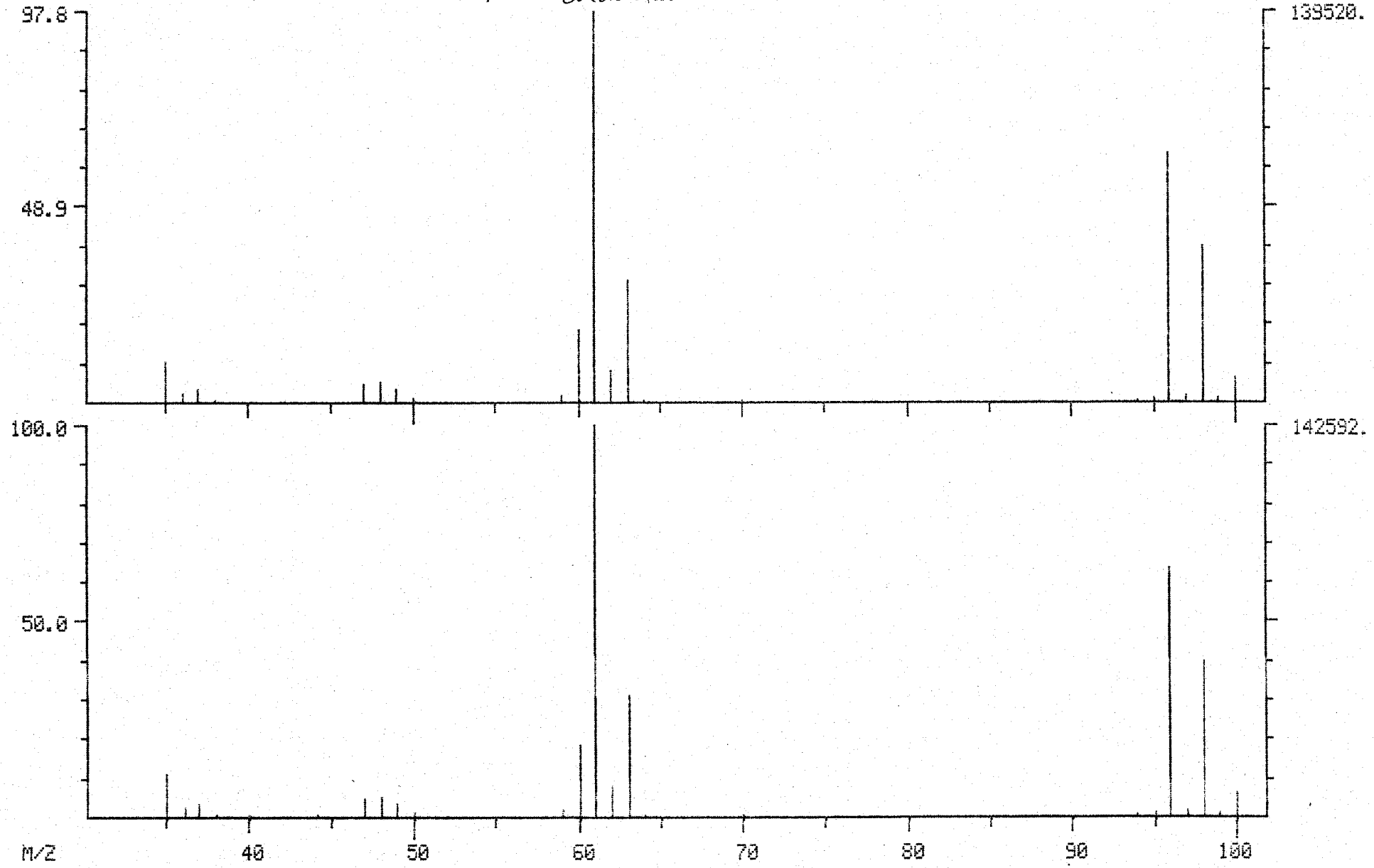
DATA: A1V0001172 #669 BASE M/Z: 61/ 61
CALI: A1V0001172 #2 RIC: 16207./ 18719.



000094

DUAL MASS SPECTRUM
10/05/88 22:21:00 + 13:35
SAMPLE: CLP,11978,,2B-MW1,L,W,11978011,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,2-Dichloroethene

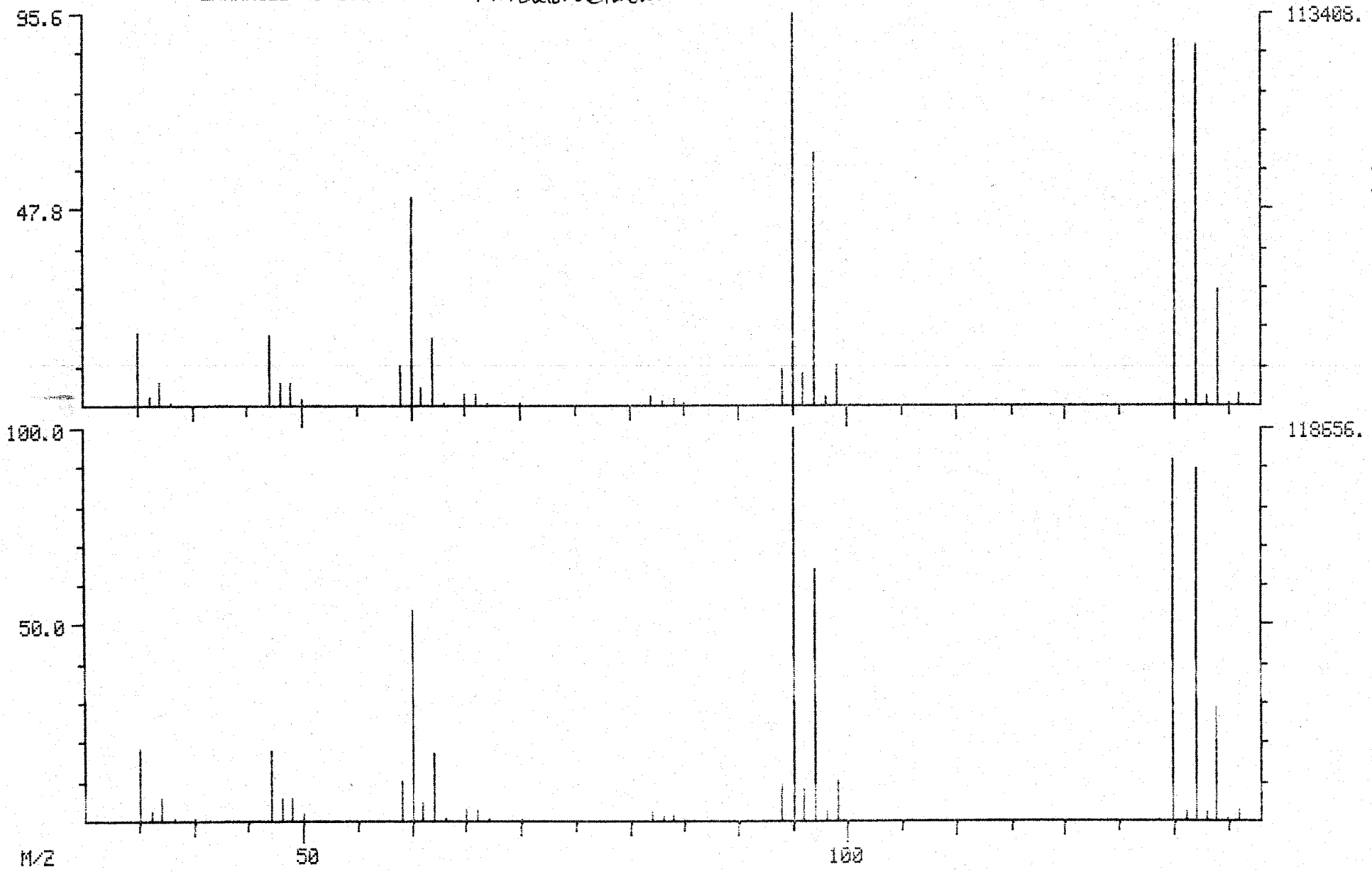
DATA: A1V0001172 #815 BASE M/Z: 61/ 61
CALI: A1V0001172 #2 RIC: 429055./ 440319.



000095

DUAL MASS SPECTRUM
10/05/88 22:21:00 + 16:37
SAMPLE: CLP,11978,,2B-MW1,L,W,11978011,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Trichloroethene

DATA: A1V0001172 #997 BASE M/Z: 95/ 95
CALI: A1V0001172 #2 RIC: 649215./ 679935.



000096

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B-MW11345DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978011DL

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C2VO001824

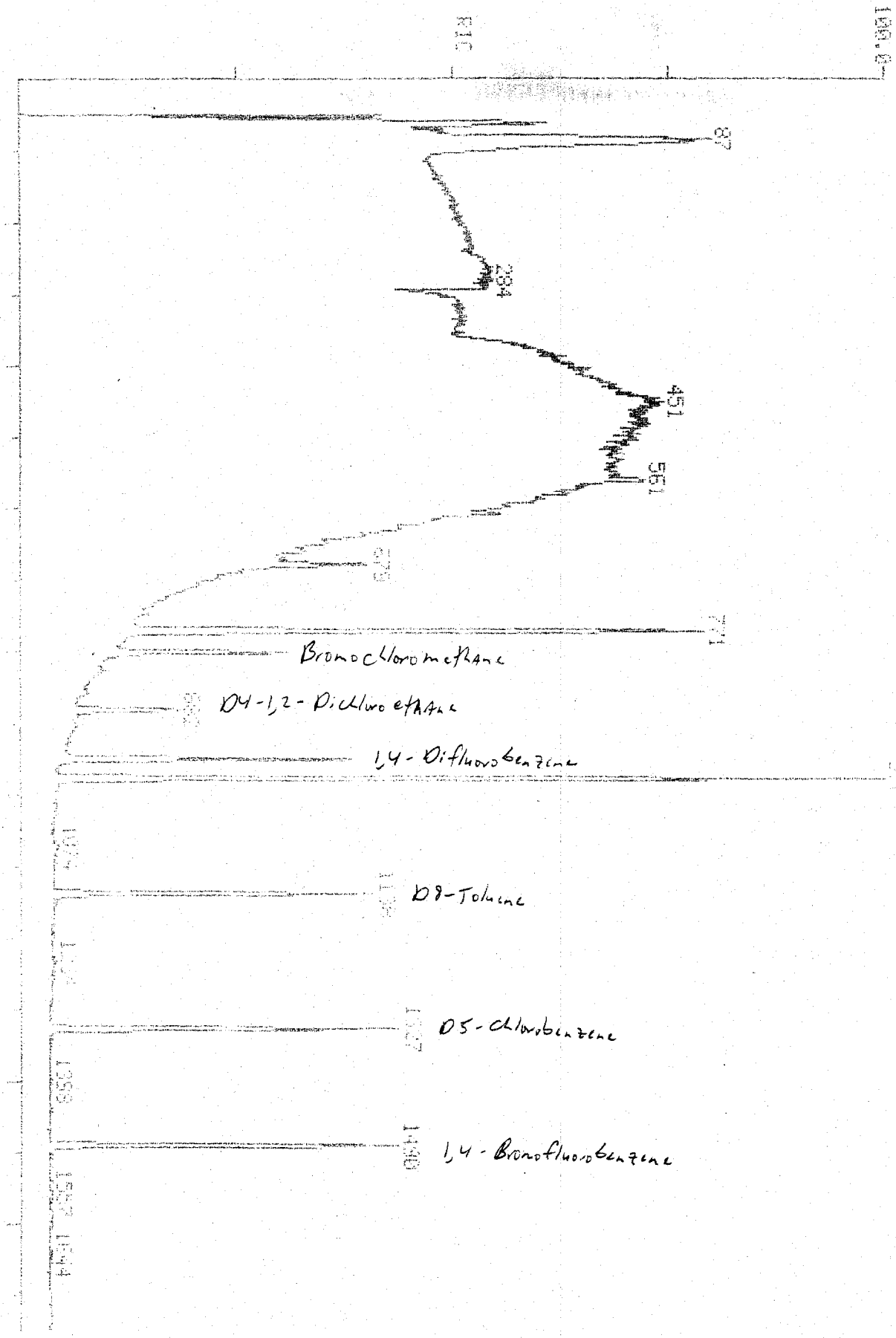
Level: (low/med) LOW Date Received: 09/24/88

% Moisture: not dec. _____ Date Analyzed: 10/06/88

Column: (pack/cap) CAP Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	20	U
74-83-9	Bromomethane	20	U
75-01-4	Vinyl Chloride	25	D
75-00-3	Chloroethane	20	U
75-09-2	Methylene Chloride	19	BDJ
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	83	D
540-59-0	1,2-Dichloroethene (total)	290	D
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	20	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
108-05-4	Vinyl Acetate	20	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	340	D
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
591-78-6	2-Hexanone	20	U
108-10-1	4-Methyl-2-Pentanone	20	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	20	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylenes (total)	10	U

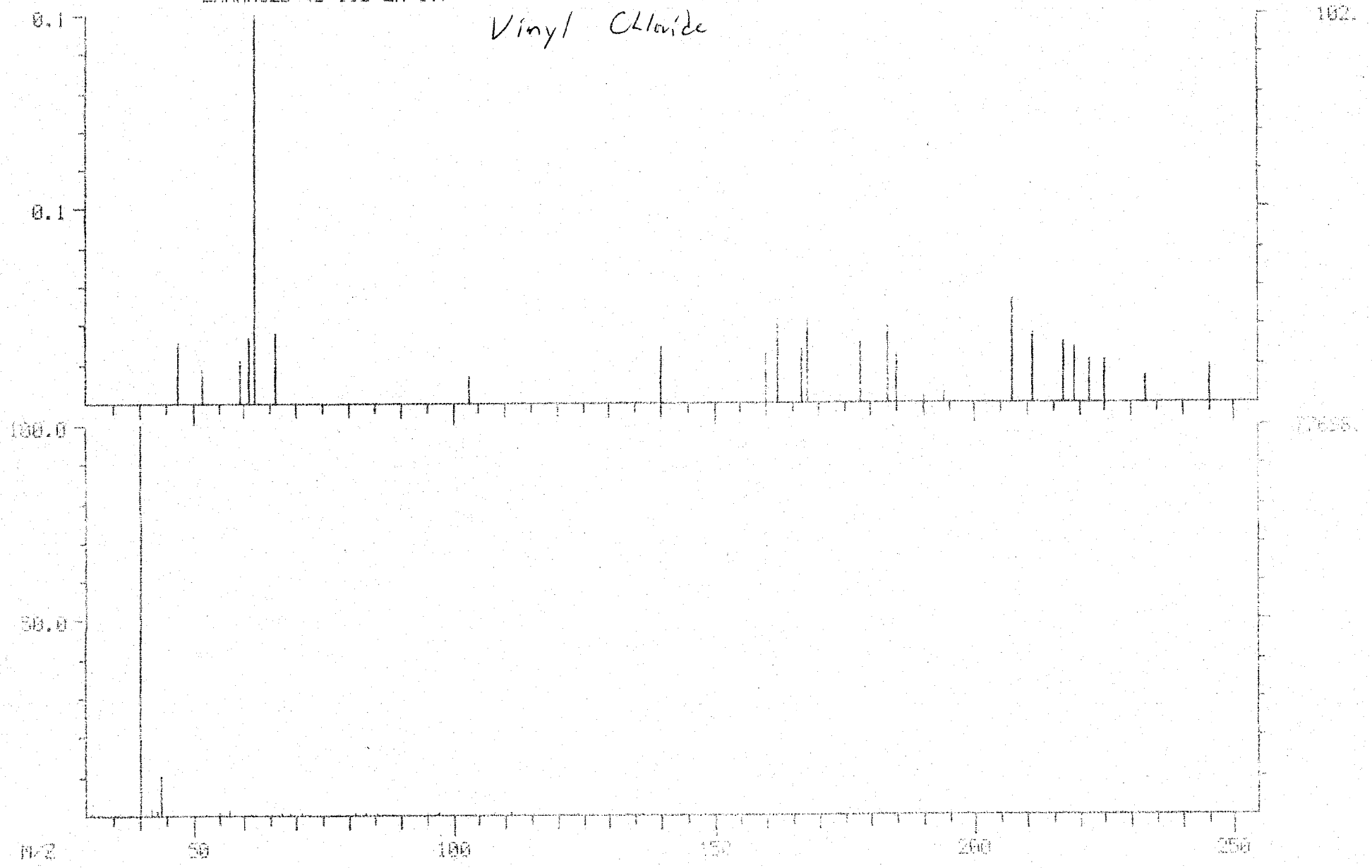
~~000096~~ WAN 10/18/88


87
284
451
561
Bromochloromethane
D4-1,2-Dichloroethane
1,4-Difluorobenzene
D8-Toluene
D5-Chlorobenzene
1,4-Bromofluorobenzene

000098

DUAL MASS SPECTRUM
10/06/88 10:26:00 + 3:09
SAMPLE: CLP,V11978,,2B-MW1_1345,L,W,1197801 V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

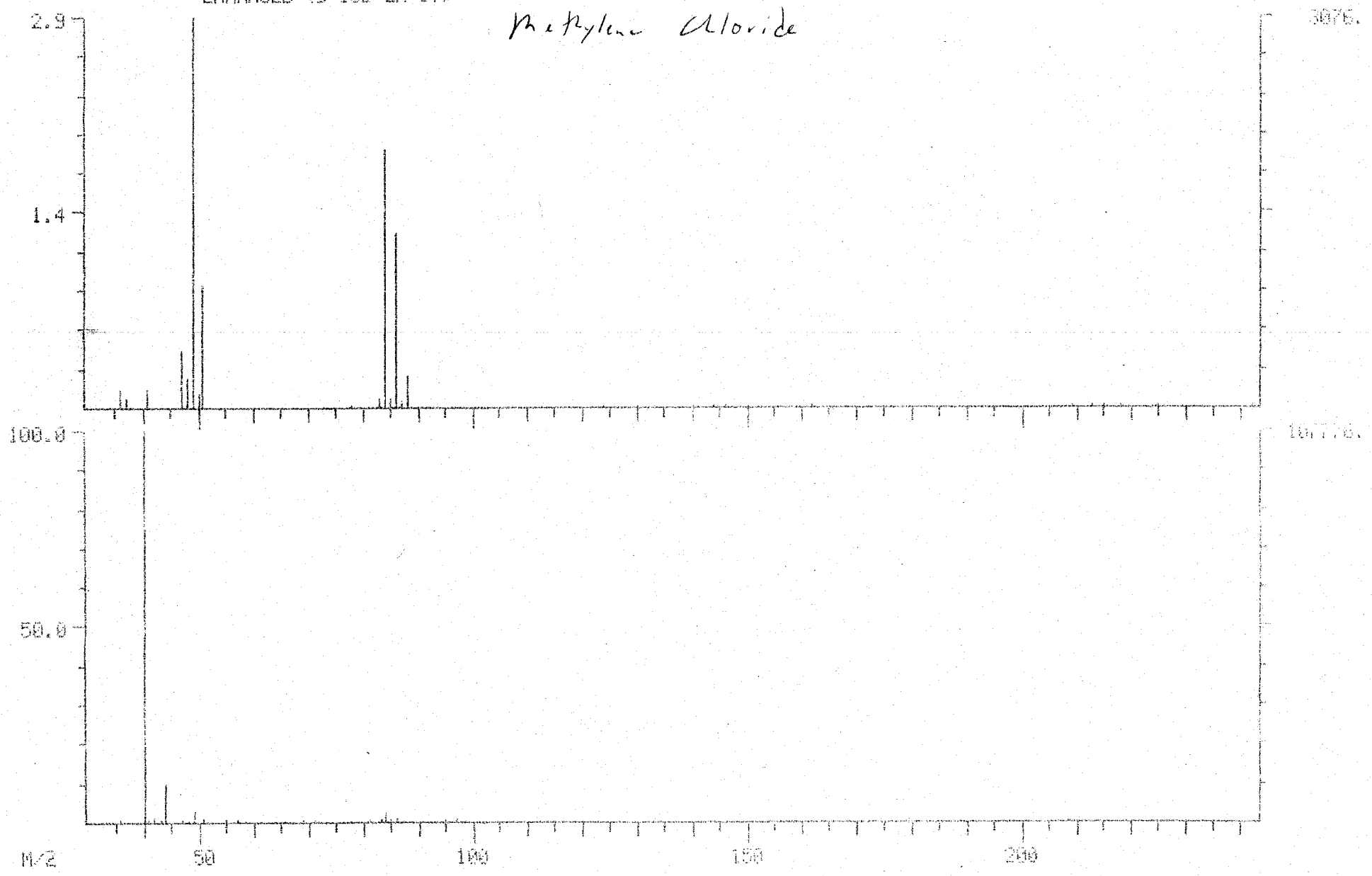
DATA: C2V0001824 #189 BASE M/Z: 62/ 48
CALI: C2V0001824 #5 RIC: 434. 98047.



000009

DUAL MASS SPECTRUM
10/06/88 10:26:00 + 9:21
SAMPLE: CLP,V11978,,2B-MW1_1345,L.W,11978011,[illegible]
CONDS.: -10DG TO 160DG @ 6DG/MIN 1H=5.0 MIN
ENHANCED (S 15B 2N 0T)

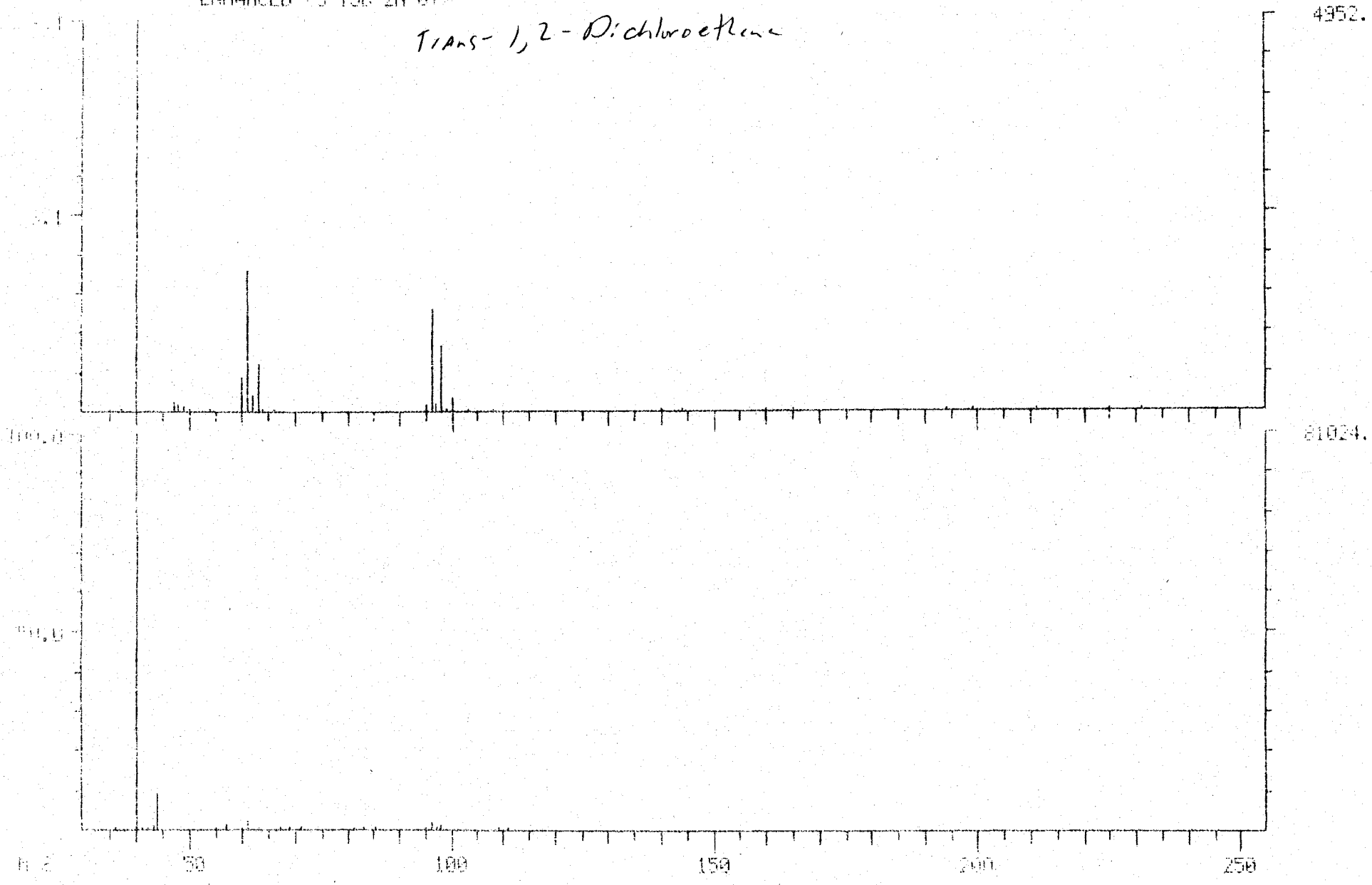
DATA: C2V0001824 #561 [illegible]
CALI: C2V0001824 #5 [illegible]



000100

DUAL MASS SPECTRUM
10/06/88 10:26:00 + 10:49
SAMPLE: CLP,V11978,,2B-MW1,1345,L,W,11978011,U,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

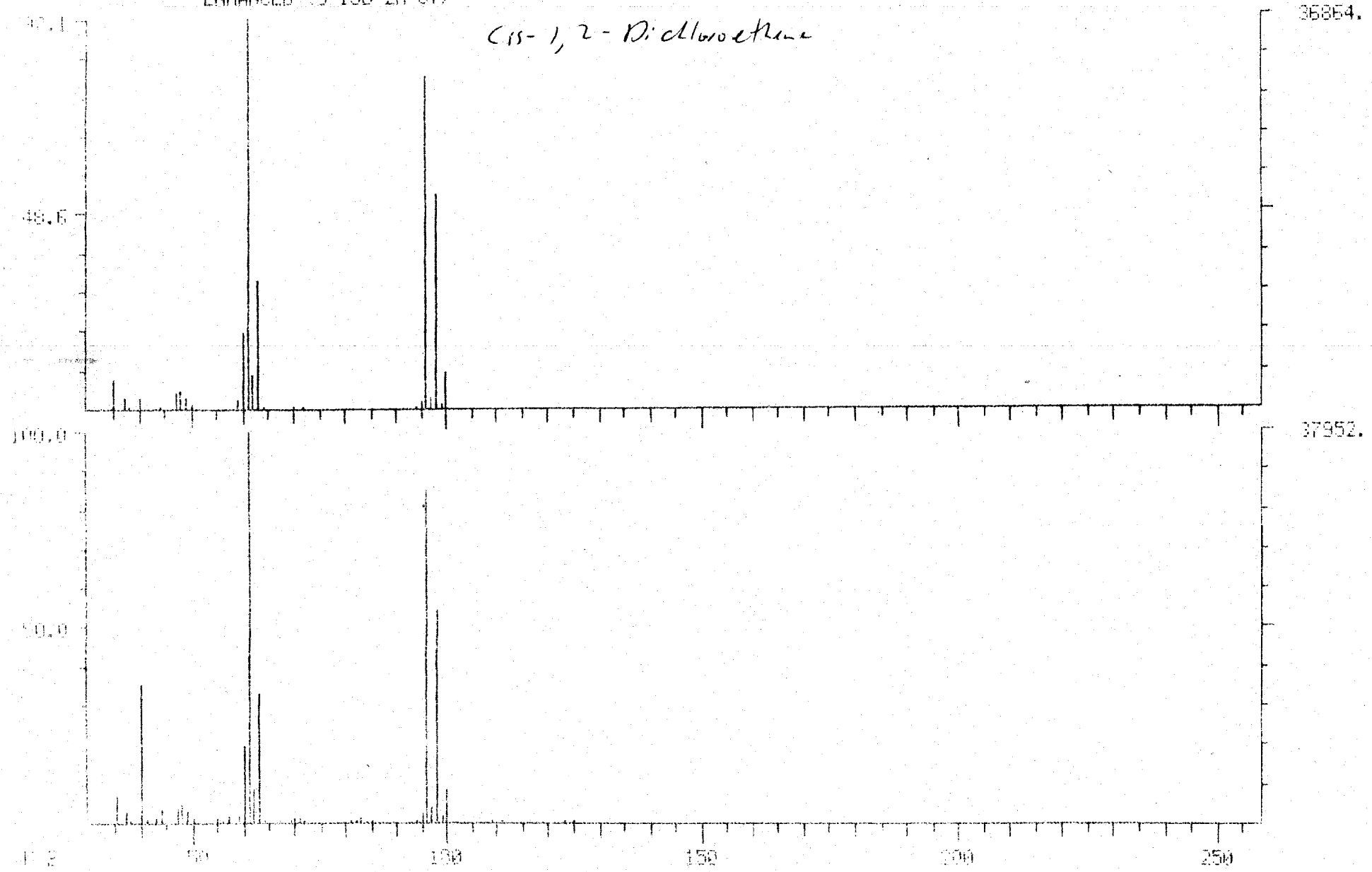
DATA: C2V0001924 #600 BASE M/Z: 40 40
CALI: C2V0001924 #5 RIC: 11151. 107519.



000101

DUAL MASS SPECTRUM
10/06/88 10:26:00 + 12:51
SAMPLE: CLP/U11978, 2B-MW1_1345,L,W,11978011,U,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

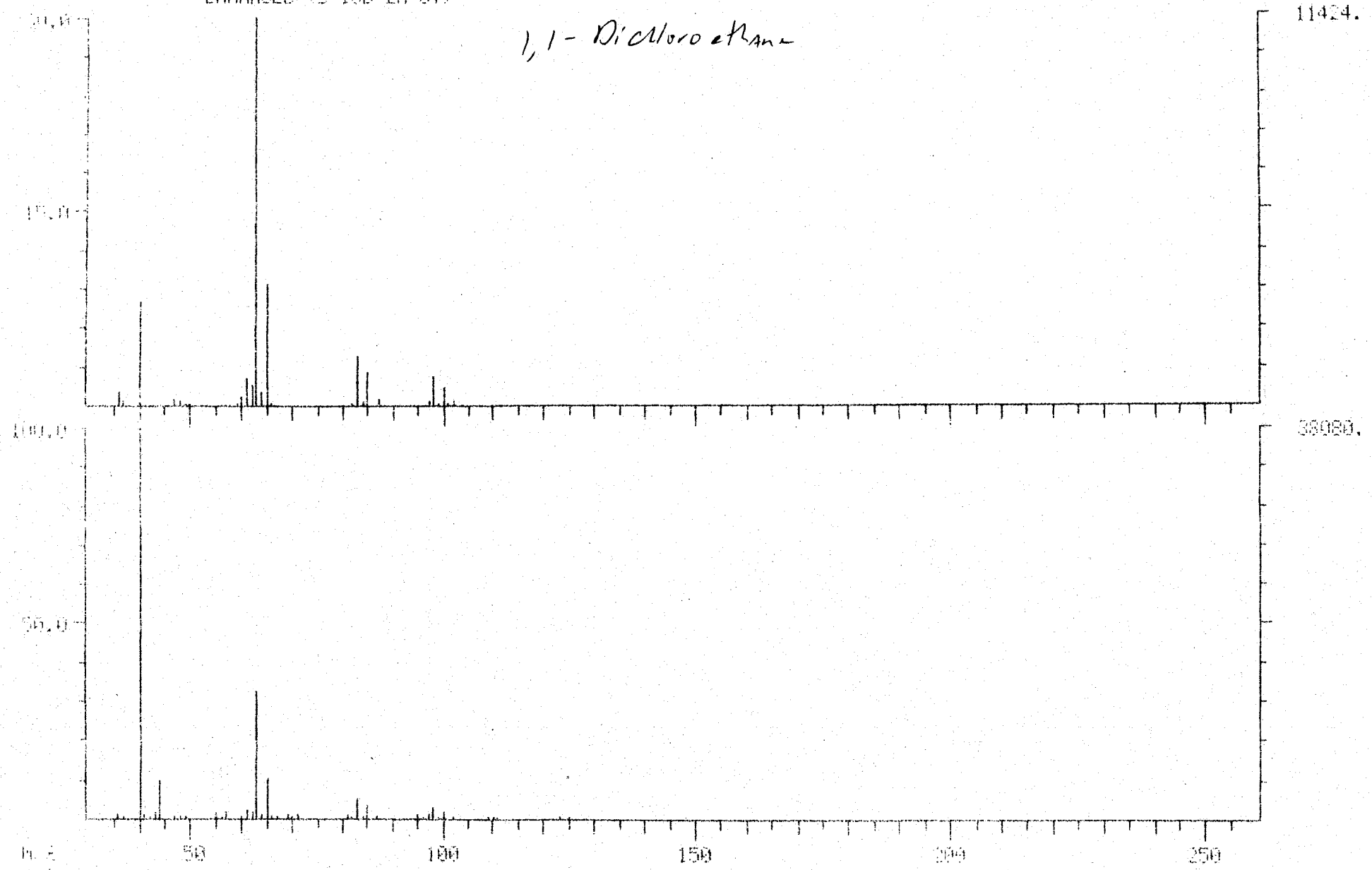
DATA: C2U0001824 #771 BASE M/Z: 61/ 61
CALI: C2U0001824 #5 RIC: 128127. 15.063.



000102

DUAL MASS SPECTRUM
10/06/88 10:26:00 + 11:13
SAMPLE: CLP,V11978,,2B-MW1_1345,L,W,11978011,V,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C2V0001824 #679 PAGE N 2: 63 40
CALI: C2V0001824 #5 RIC: 26143. 77055.

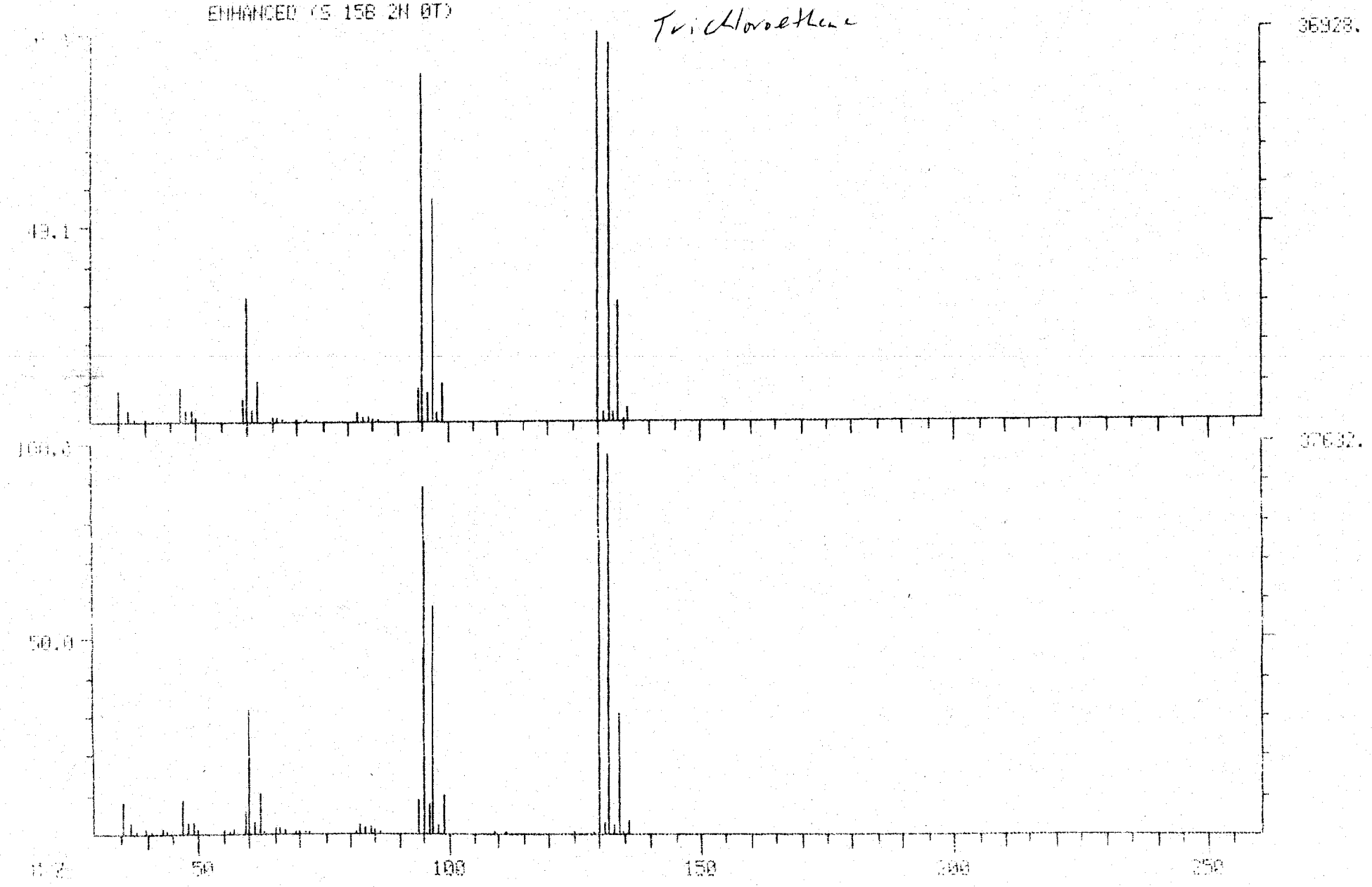


000103

DUAL MASS SPECTRUM
10/06/88 10:26:00 + 16:17
SAMPLE: CLP/V11978..2B-MW1_1345/L.W.11978011/V..
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 158 2N 0T)

DATA: C2U0001924 #977 BASE M/Z: 130 131
CALI: C2U0001874 #5 PIC: 185536. 195071.

Trichloroethene



000104

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B-MW3

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978006

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A1V0001168

Level: (low/med) LOW Date Received: 09/24/88

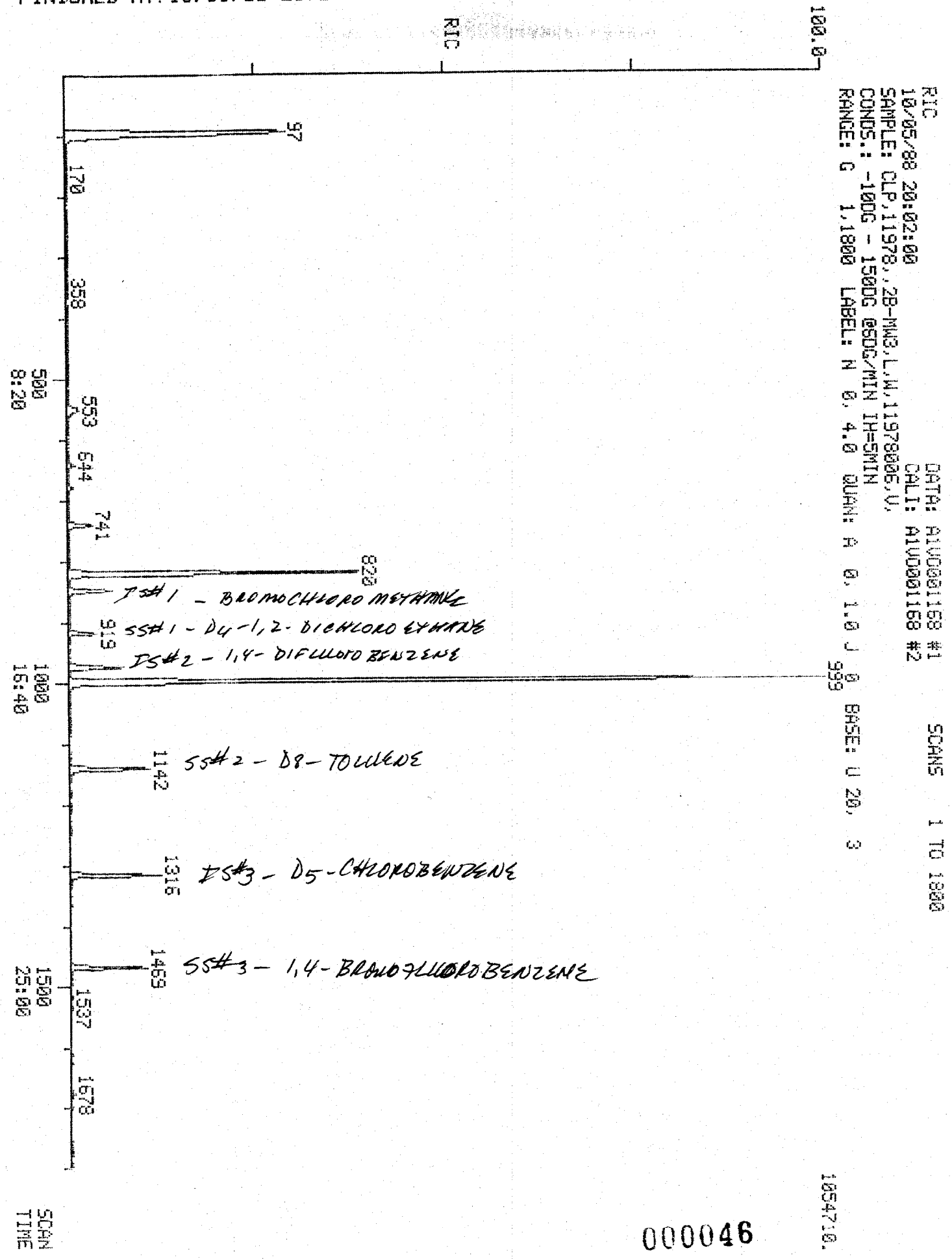
% Moisture: not dec. _____ Date Analyzed: 10/05/88

Column: (pack/cap) CAP Dilution Factor: 1.0

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

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	8	BJ
67-64-1	Acetone	4	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	7	
75-34-3	1,1-Dichloroethane	47	
540-59-0	1,2-Dichloroethene (total)	430	E
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	800	E
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

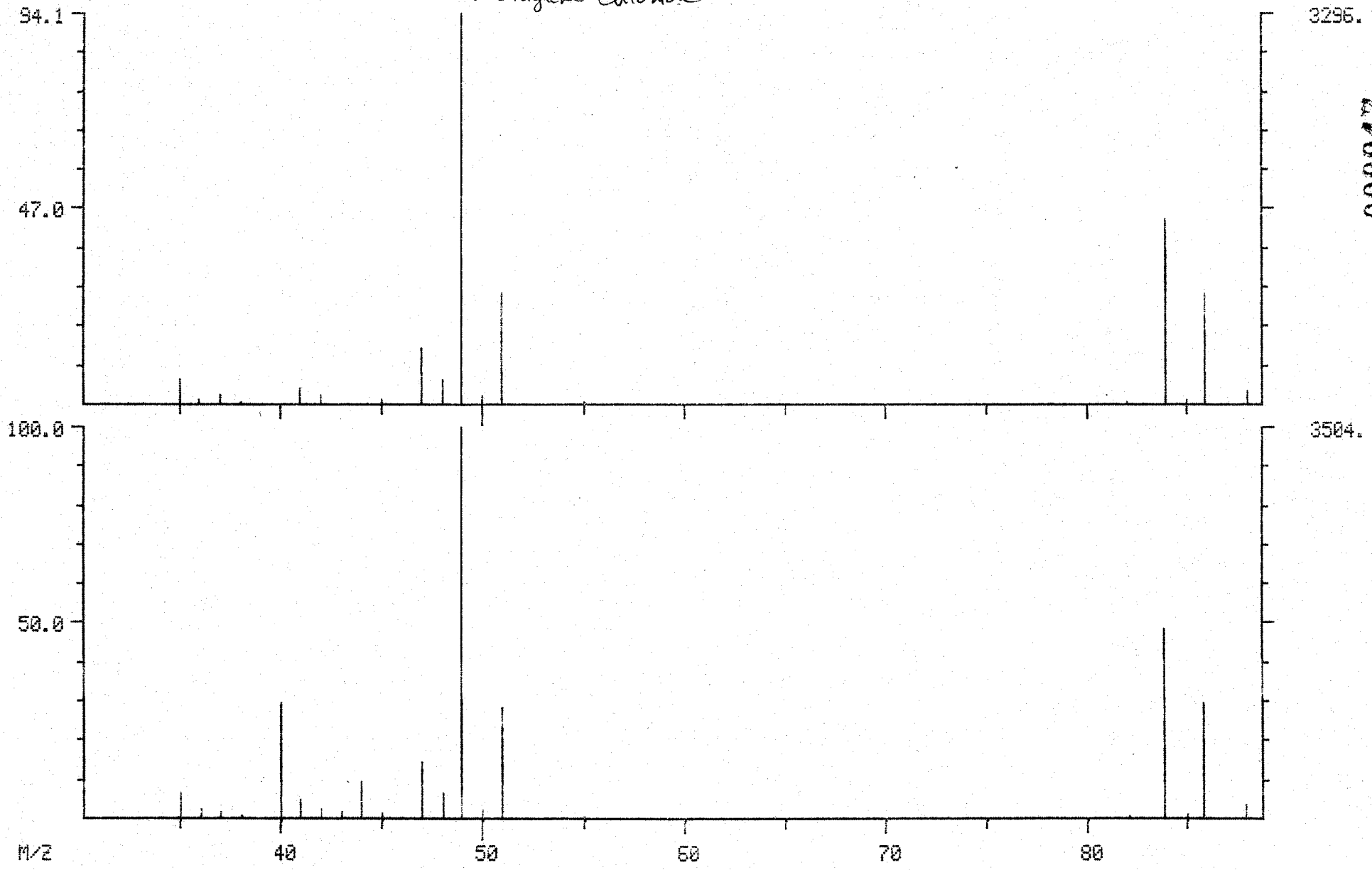
TCA FINISHED, 15 FOUND
FINISHED AT: 10/05/88 21:30:44



000046

DUAL MASS SPECTRUM
10/05/88 20:02:00 + 10:44
SAMPLE: CLP,11978,,2B-MW3,L,W,11978006,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

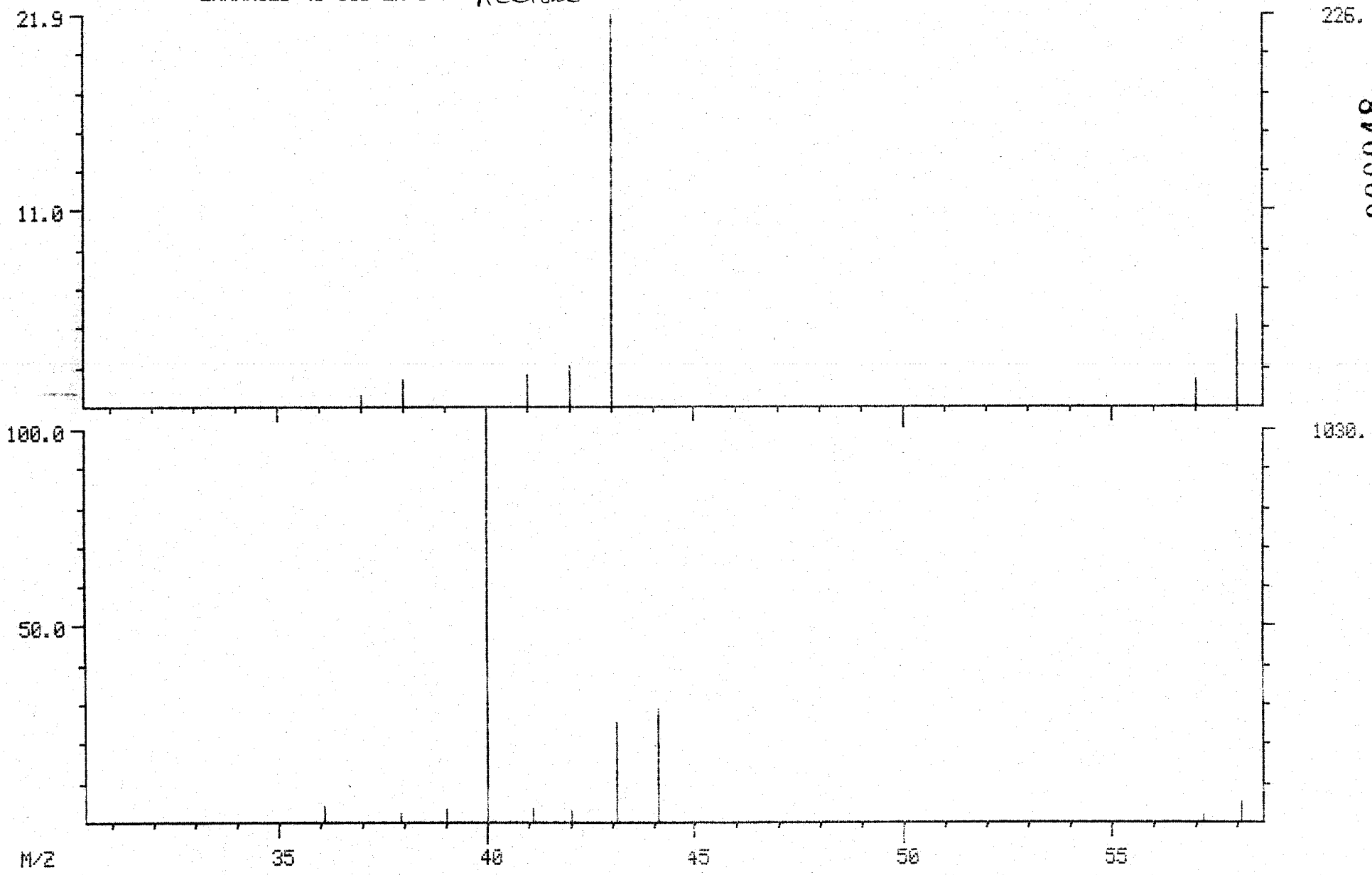
DATA: A1V0001168 #644 BASE M/Z: 49/ 49
CALI: A1V0001168 #2 RIC: 8271./ 10367.



000047

DUAL MASS SPECTRUM
10/05/88 20:02:00 + 9:42
SAMPLE: CLP,11978,,2B-MW3,L,W,11978006,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Acetone

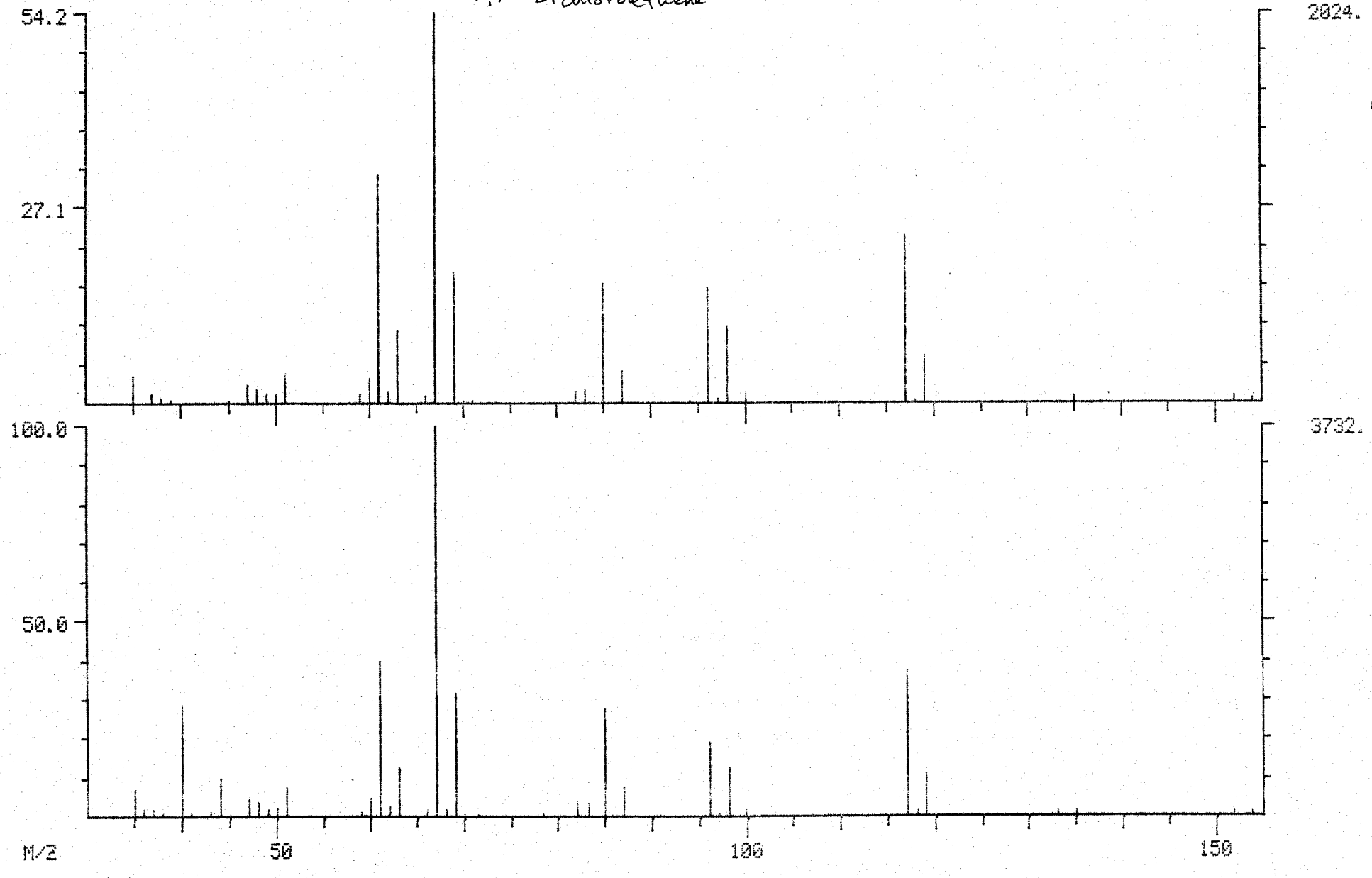
DATA: A1V0001168 #582 BASE M/Z: 43/ 40
CALI: A1V0001168 #2 RIC: 357./ 1823.



000048

DUAL MASS SPECTRUM
10/05/88 20:02:00 + 9:10
SAMPLE: CLP,11978.,2B-MW3,L,W,11978006,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,1-Dichloroethene

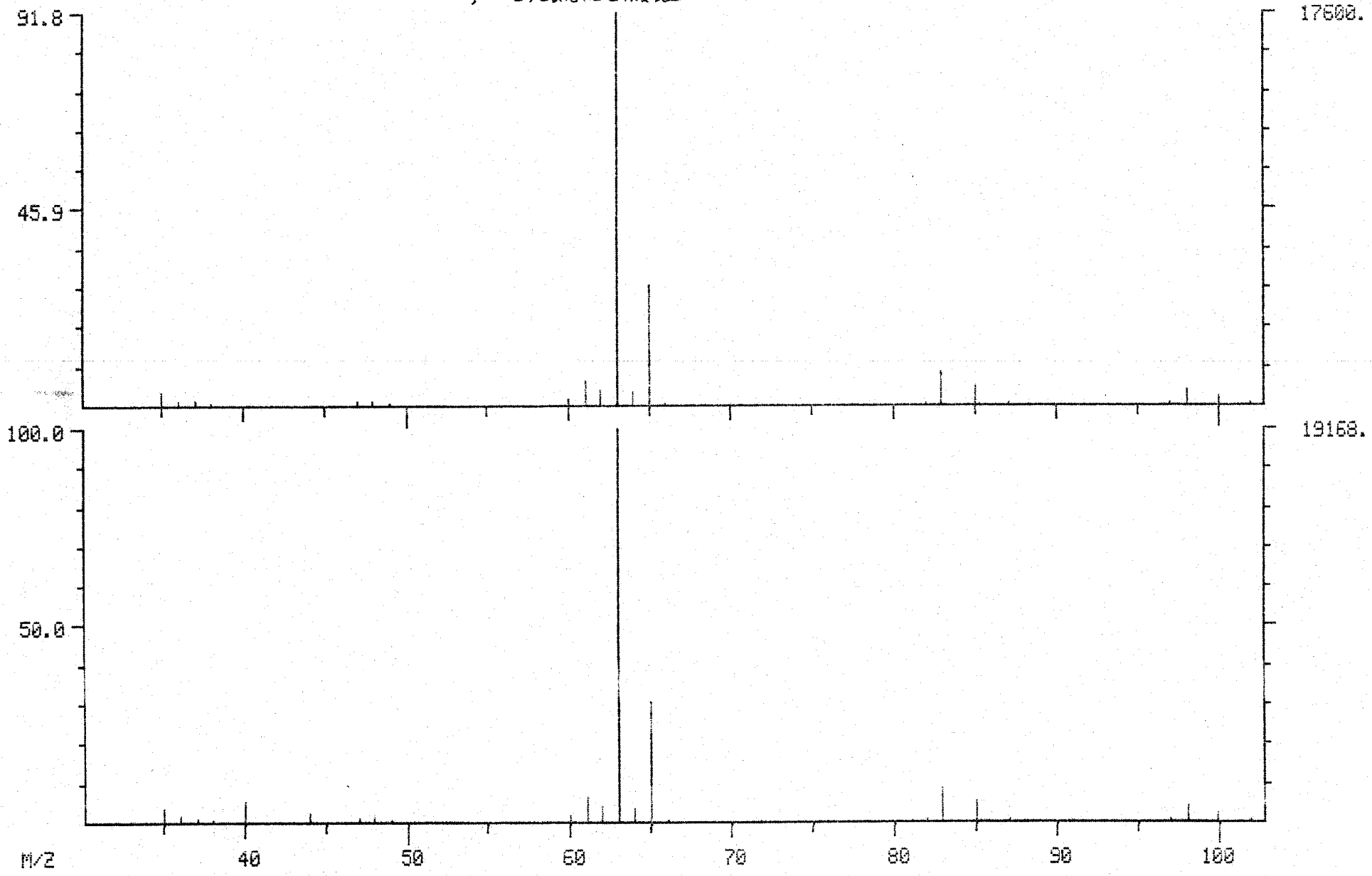
DATA: A1V0001168 #550 BASE M/Z: 67/ 67
CALI: A1V0001168 #2 RIC: 8431./ 14959.



000049

DUAL MASS SPECTRUM
10/05/88 20:02:00 + 12:21
SAMPLE: CLP,11978,,2B-MW3,L,W,11978006,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,1-Dichloroethane

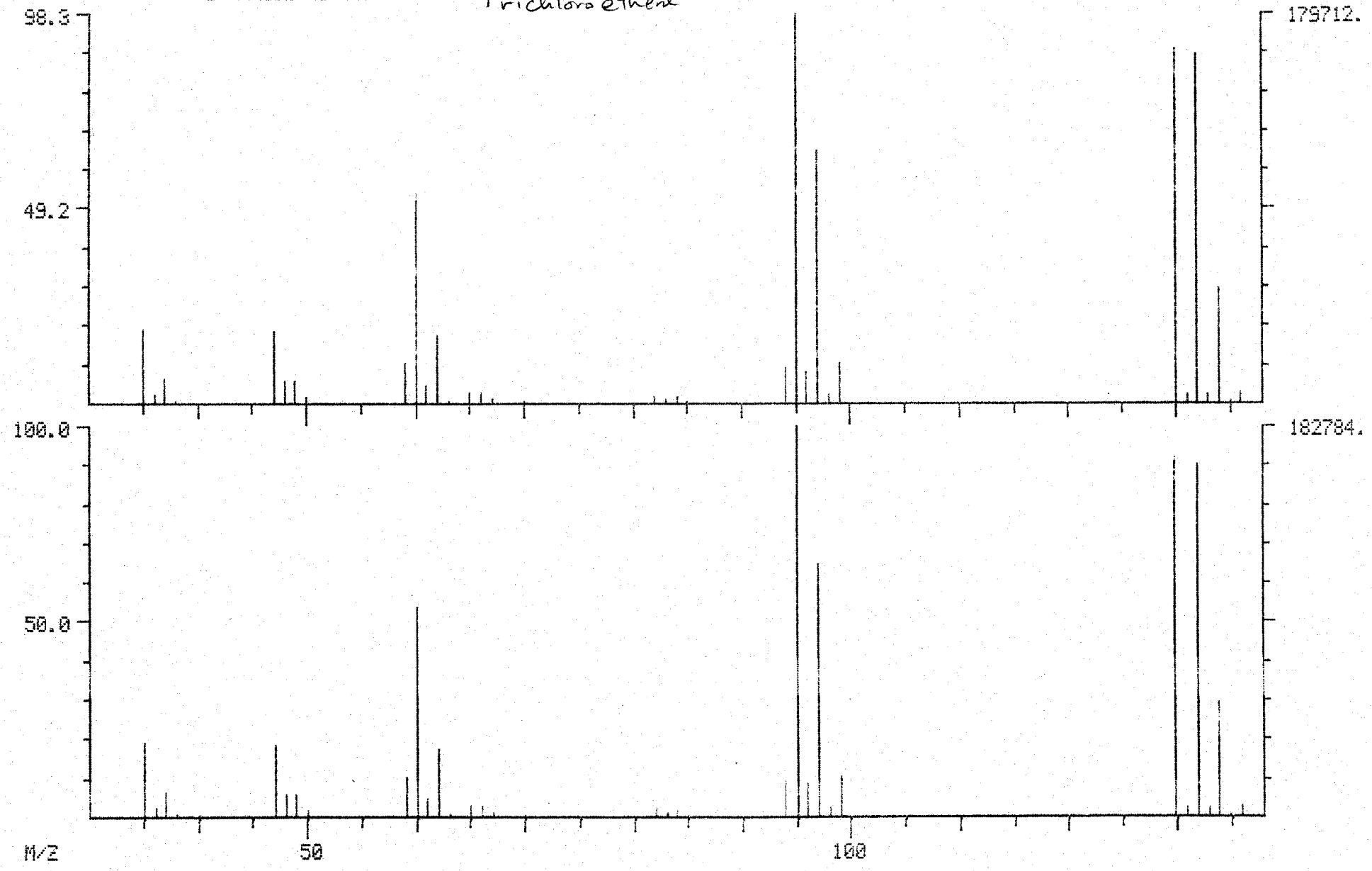
DATA: A1V0001168 #741 BASE M/Z: 63/ 63
CALI: A1V0001168 #2 RIC: 31615./ 35711.



000050

DUAL MASS SPECTRUM
10/05/88 20:02:00 + 16:39
SAMPLE: CLP,11978,,2B-MW3,L,W,11978006,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Trichloroethene

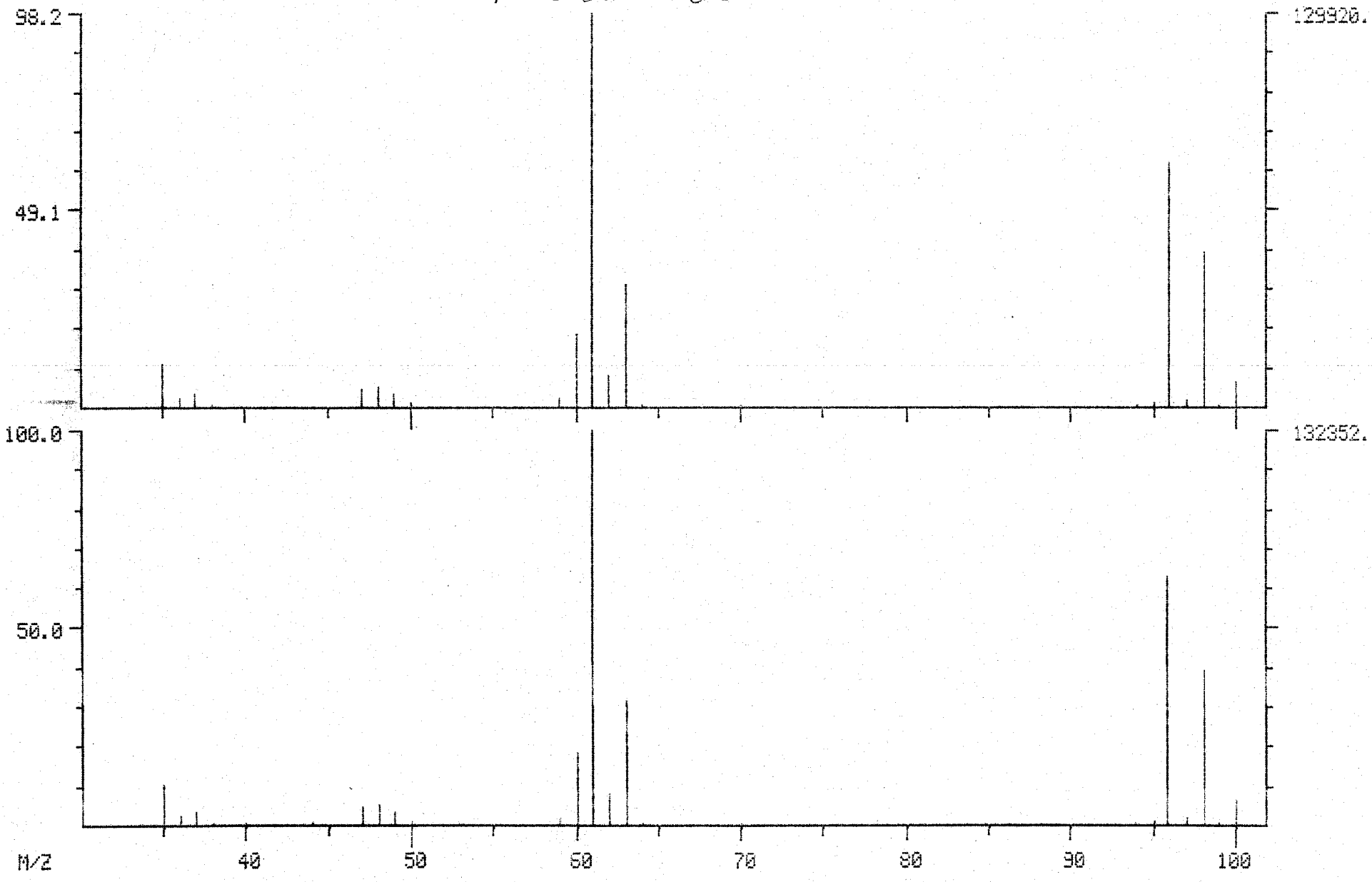
DATA: A1V0001168 #999 BASE M/Z: 95/ 95
CALI: A1V0001168 #2 RIC: 1031160./ 1052670.



000051

DUAL MASS SPECTRUM
10/05/88 20:02:00 + 13:40
SAMPLE: CLP,11978,,2B-MW3,L,W,11978006,V,
CONDS.: -100C - 150DC @6DC/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,2 - Dichloroethene

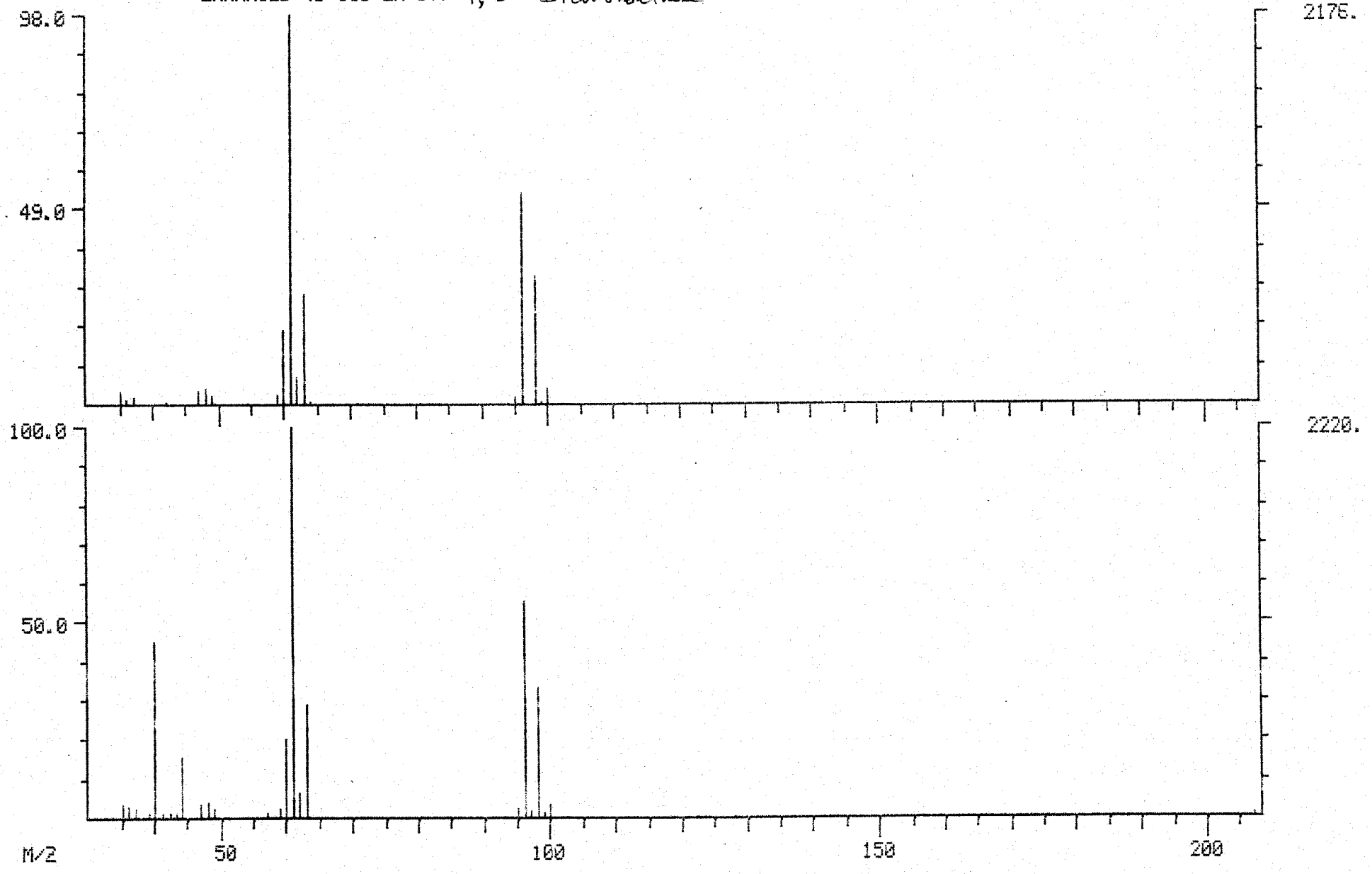
DATA: A1V0001168 #820 BASE M/Z: 51/ 61
CALI: A1V0001168 #2 RIC: 397823./ 406527.



000052

DUAL MASS SPECTRUM
10/05/88 20:02:00 + 11:20
SAMPLE: CLP,11978,,2B-MW3,L,W,11978006,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,2 - Dichloroethene

DATA: A1V0001168 #680 BASE M/Z: 61/ 61
CALI: A1V0001168 #2 RIC: 5839./ 7599.



000053

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

2B-MW-3_DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978006DL

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A2V0001175

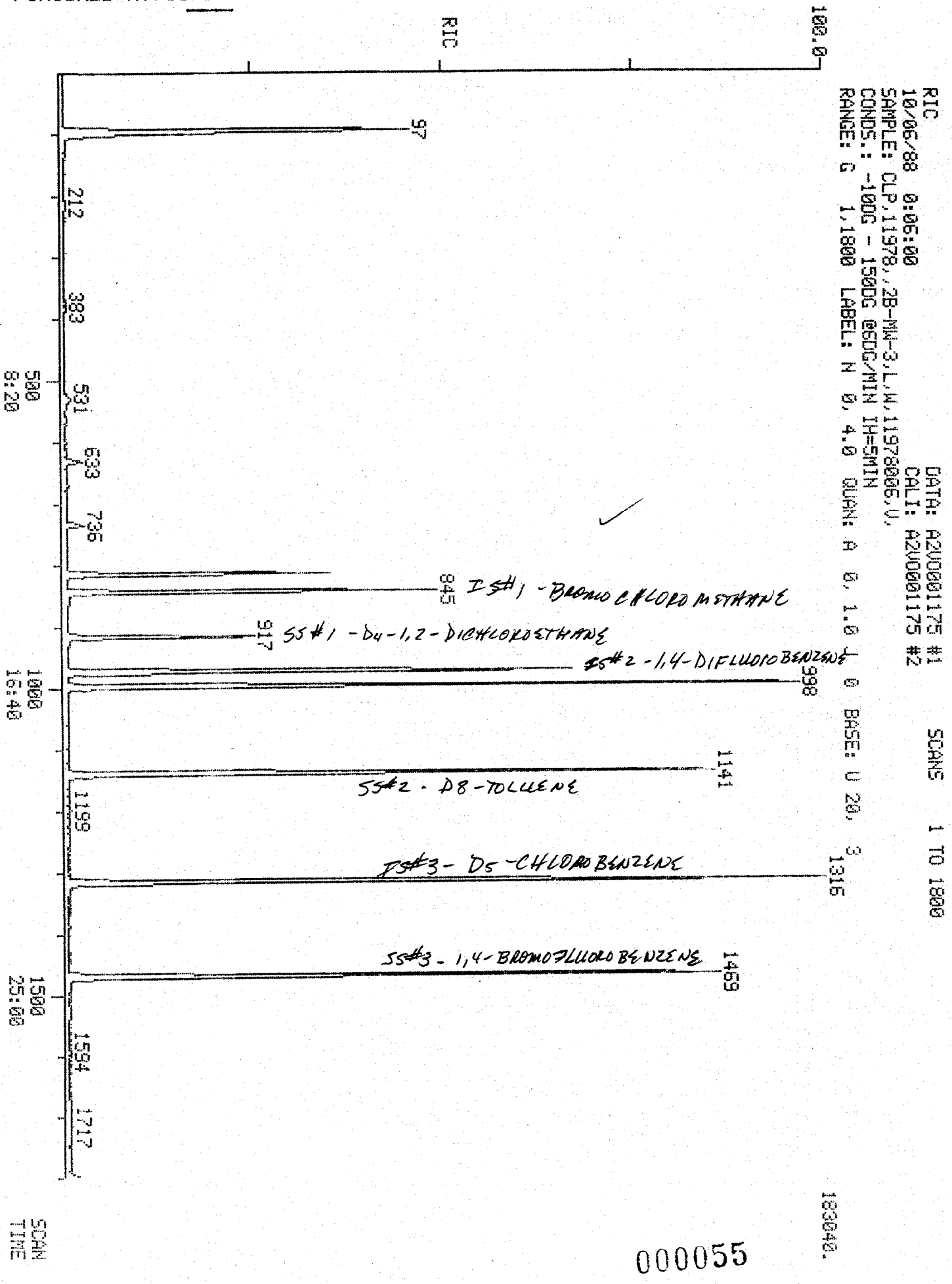
Level: (low/med) LOW Date Received: 09/24/88

% Moisture: not dec. _____ Date Analyzed: 10/06/88

Column: (pack/cap) CAP Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	100	U
74-83-9	Bromomethane	100	U
75-01-4	Vinyl Chloride	100	U
75-00-3	Chloroethane	100	U
75-09-2	Methylene Chloride	21	BDJ
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	50	U
75-35-4	1,1-Dichloroethene	50	U
75-34-3	1,1-Dichloroethane	44	DJ
540-59-0	1,2-Dichloroethene (total)	420	D
67-66-3	Chloroform	50	U
107-06-2	1,2-Dichloroethane	50	U
78-93-3	2-Butanone	100	U
71-55-6	1,1,1-Trichloroethane	50	U
56-23-5	Carbon Tetrachloride	50	U
108-05-4	Vinyl Acetate	100	U
75-27-4	Bromodichloromethane	50	U
78-87-5	1,2-Dichloropropane	50	U
10061-01-5	cis-1,3-Dichloropropene	50	U
79-01-6	Trichloroethene	820	D
124-48-1	Dibromochloromethane	50	U
79-00-5	1,1,2-Trichloroethane	50	U
71-43-2	Benzene	50	U
10061-02-6	trans-1,3-Dichloropropene	50	U
75-25-2	Bromoform	50	U
591-78-6	2-Hexanone	100	U
108-10-1	4-Methyl-2-Pentanone	100	U
127-18-4	Tetrachloroethene	50	U
79-34-5	1,1,2,2-Tetrachloroethane	100	U
108-88-3	Toluene	50	U
108-90-7	Chlorobenzene	50	U
100-41-4	Ethylbenzene	50	U
100-42-5	Styrene	50	U
1330-20-7	Xylenes (total)	50	U

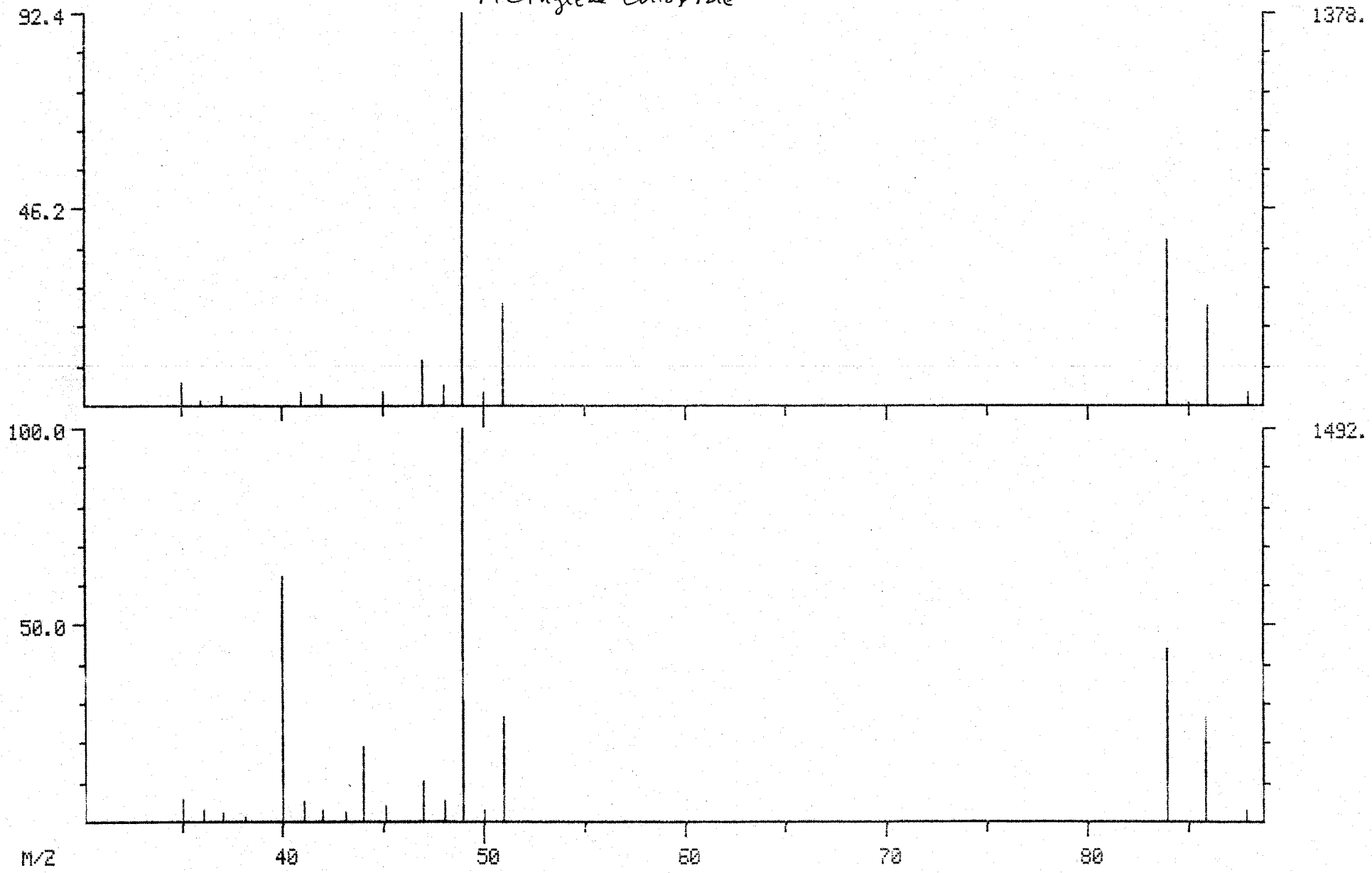
TCA FINISHED, 9 FOUND
FINISHED AT: 10/06/88 0:42:07



000055

DUAL MASS SPECTRUM
10/06/88 0:06:00 + 10:33
SAMPLE: CLP,11978,,2B-MW-3,L,W,11978006,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Methylene Chloride

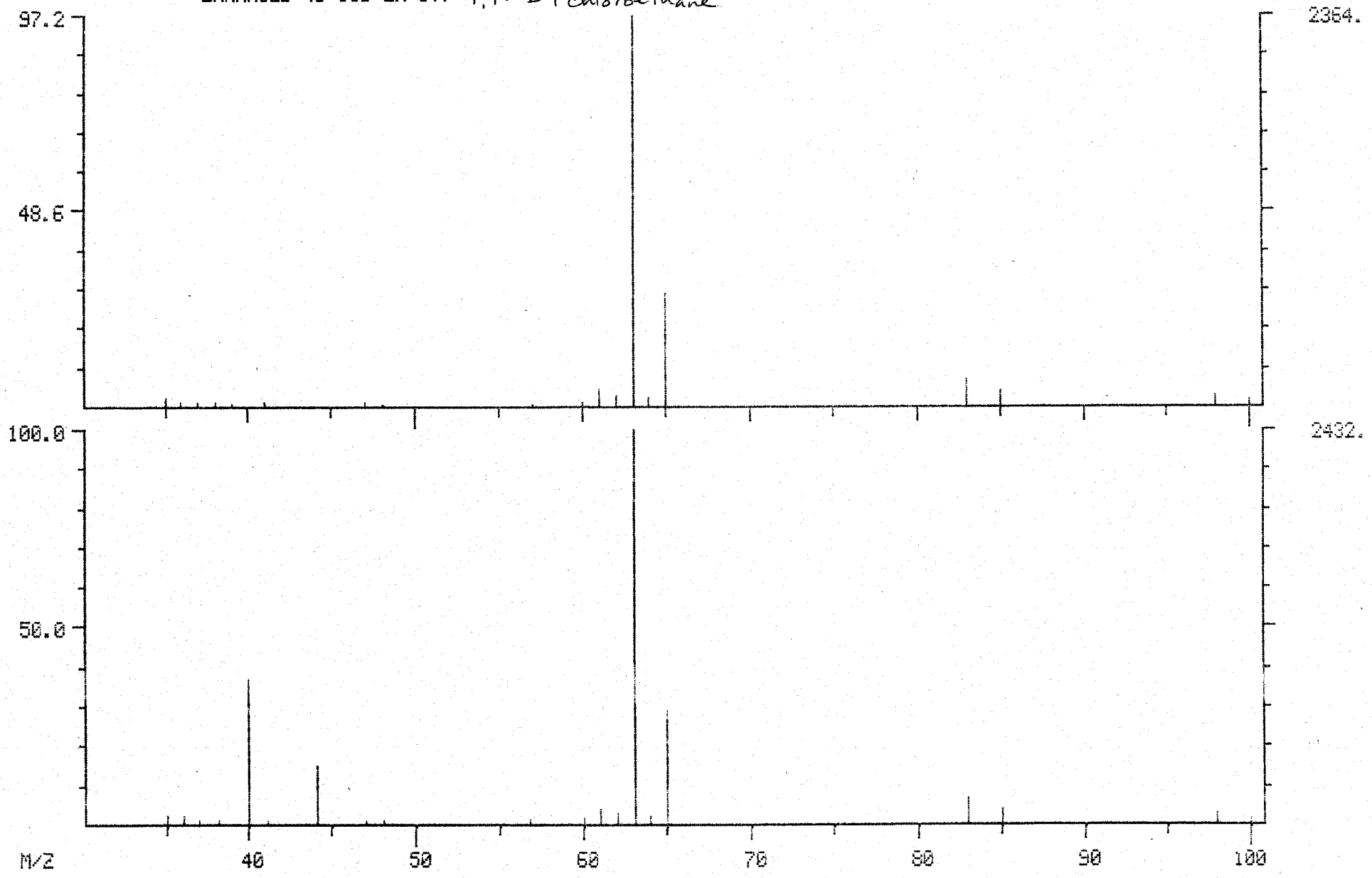
DATA: A2V0001175 #633 BASE M/Z: 49/ 49
CALI: A2V0001175 #2 RIC: 3263./ 4887.



000056

DUAL MASS SPECTRUM
10/06/88 0:06:00 + 12:16
SAMPLE: CLP,11978,,2B-MW-3,L,W,11978006,V,
CONDS.: -100C - 150DC @6DC/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,1-Dichloroethane

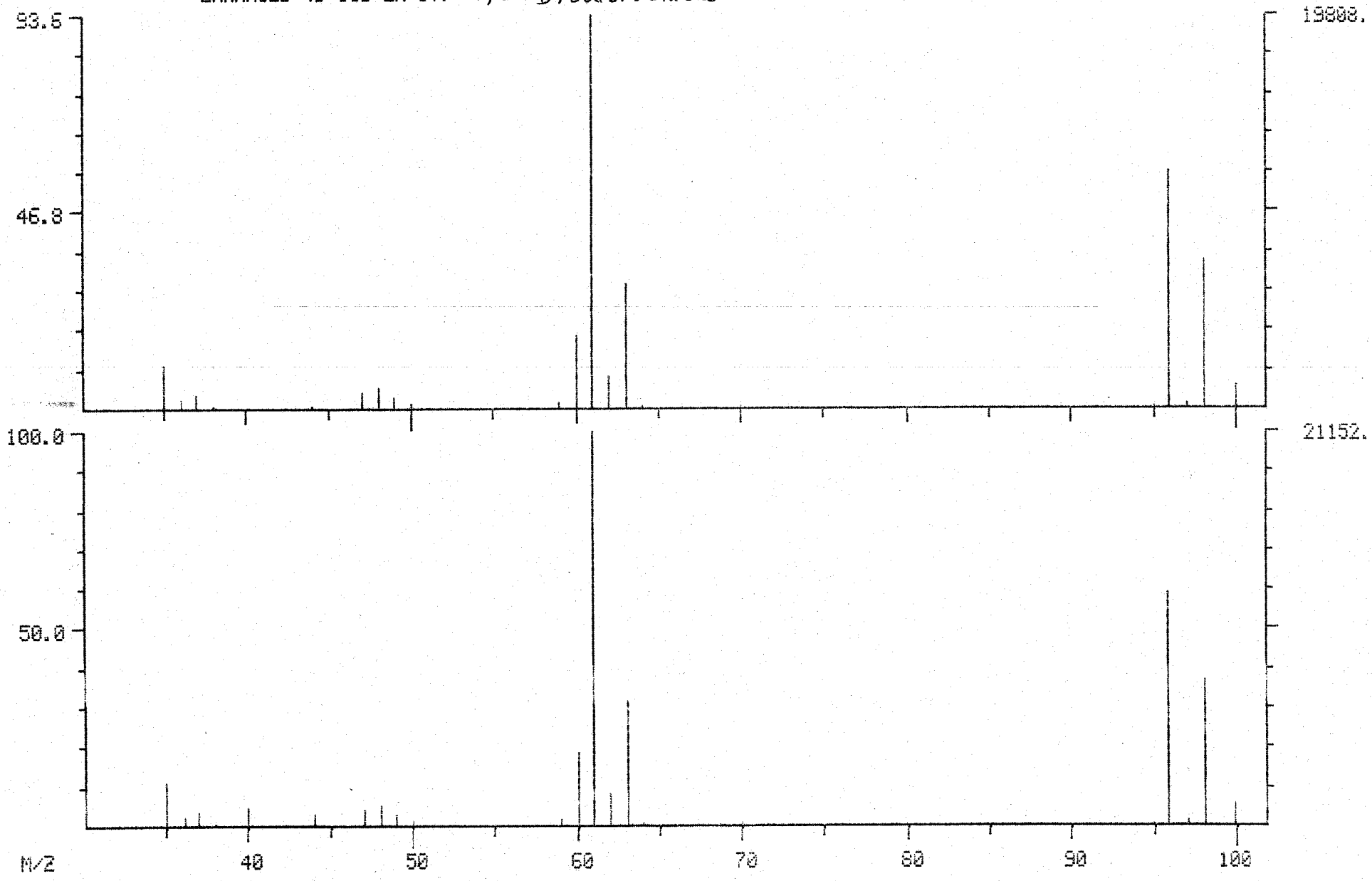
DATA: A2V0001175 #736 BASE M/Z: 63/ 63
CALI: A2V0001175 #2 RIC: 3911./ 5343.



000057

DUAL MASS SPECTRUM
10/06/88 0:06:00 + 13:36
SAMPLE: CLP,11978,,2B-MW-3,L,W,11978006,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) 1,2-Dichloroethene

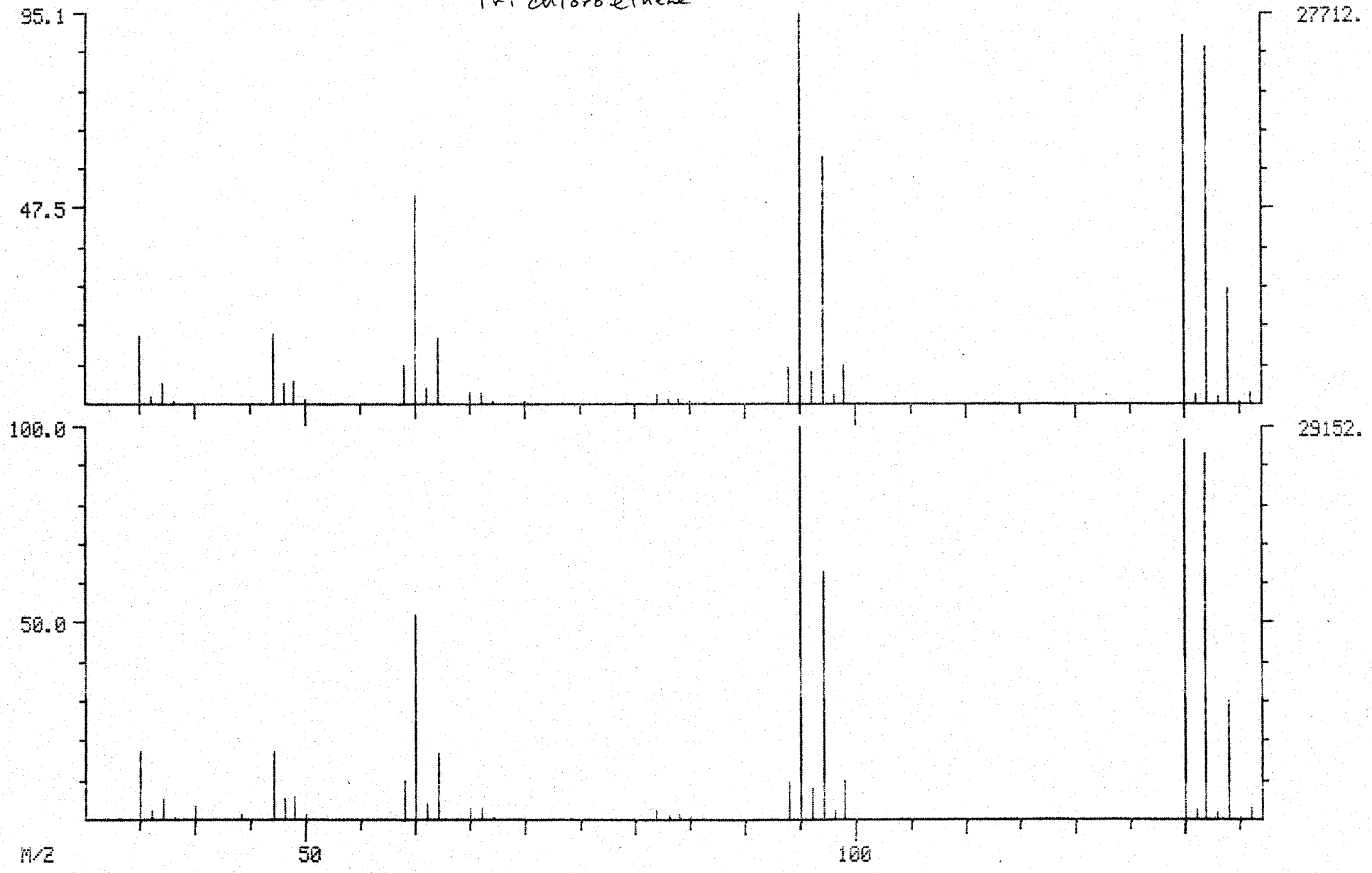
DATA: A2V0001175 #816 BASE M/Z: 61/ 61
CALI: A2V0001175 #2 RIC: 59007./ 64191.



000058

DUAL MASS SPECTRUM
10/06/88 0:06:00 + 16:37
SAMPLE: CLP,11978,,2B-MW-3,L,W,11978006,V,
CONDS.: -10DG - 150DG @6DG/MIN IH=5MIN
ENHANCED (S 15B 2N 0T) Trichloroethene

DATA: A2V0001175 #997 BASE M/Z: 95/ 95
CALI: A2V0001175 #2 RIC: 157183./ 167423.



000059

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ-2_1215

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978015

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C1VO001813

Level: (low/med) LOW Date Received: 09/24/88

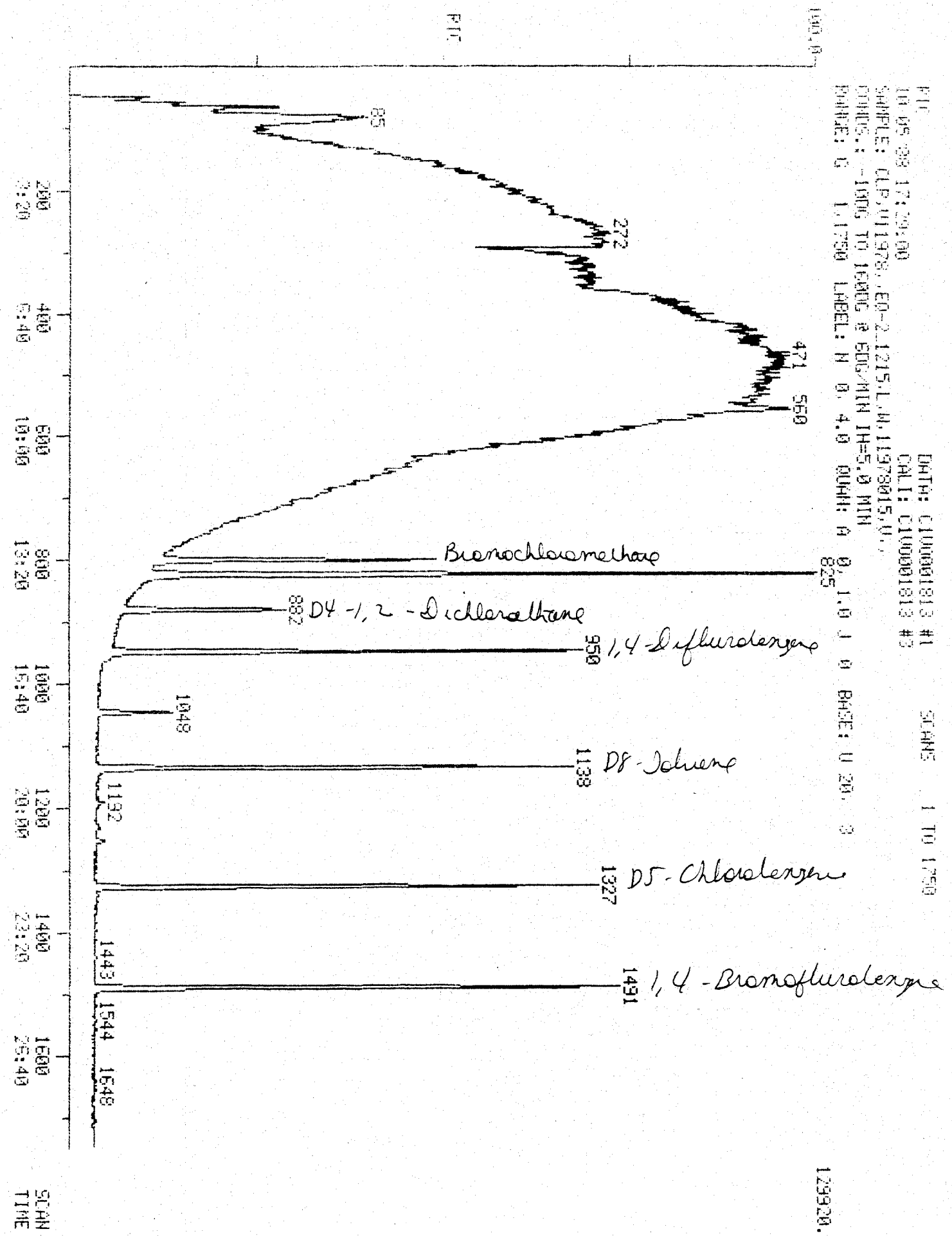
% Moisture: not dec. ____ Date Analyzed: 10/05/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	B
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	110	
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	14	
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

TCA FINISHED: 10 FOUND
FINISHED AT 10/05/86 18:07:44

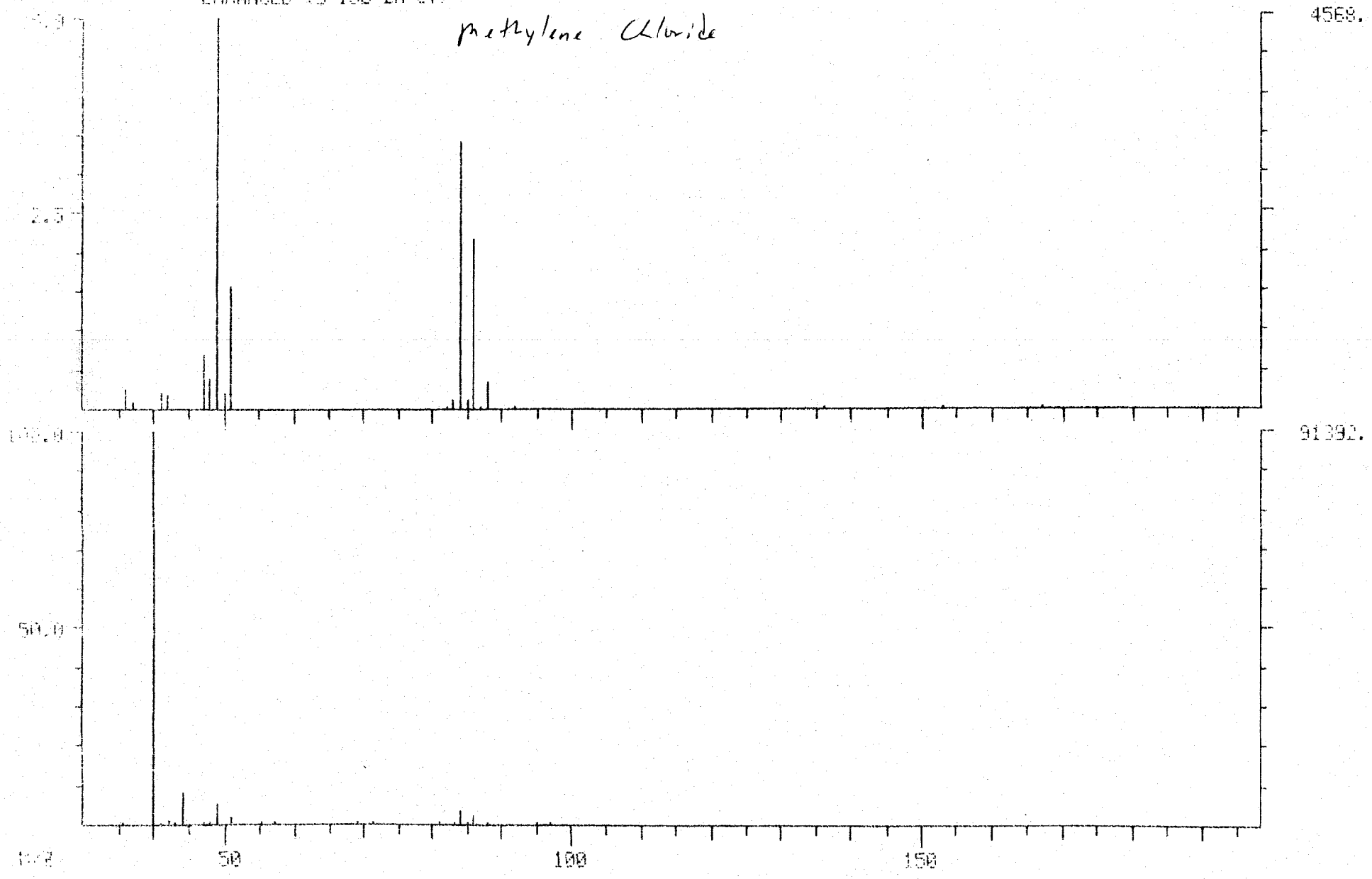


000139

DUAL MASS SPECTRUM
10/05/88 17:29:00 + 3:19
SAMPLE: CLP,W11978,,E0-2_1215,L,W,11978015,V,,
CONDS.: -100G TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 150 2N 0T)

DATA: C1V0001813 #559 BASE M/Z: 49 40
CALI: C1V0001813 #3 RIC: 13685./ 122367.

methylene Chloride



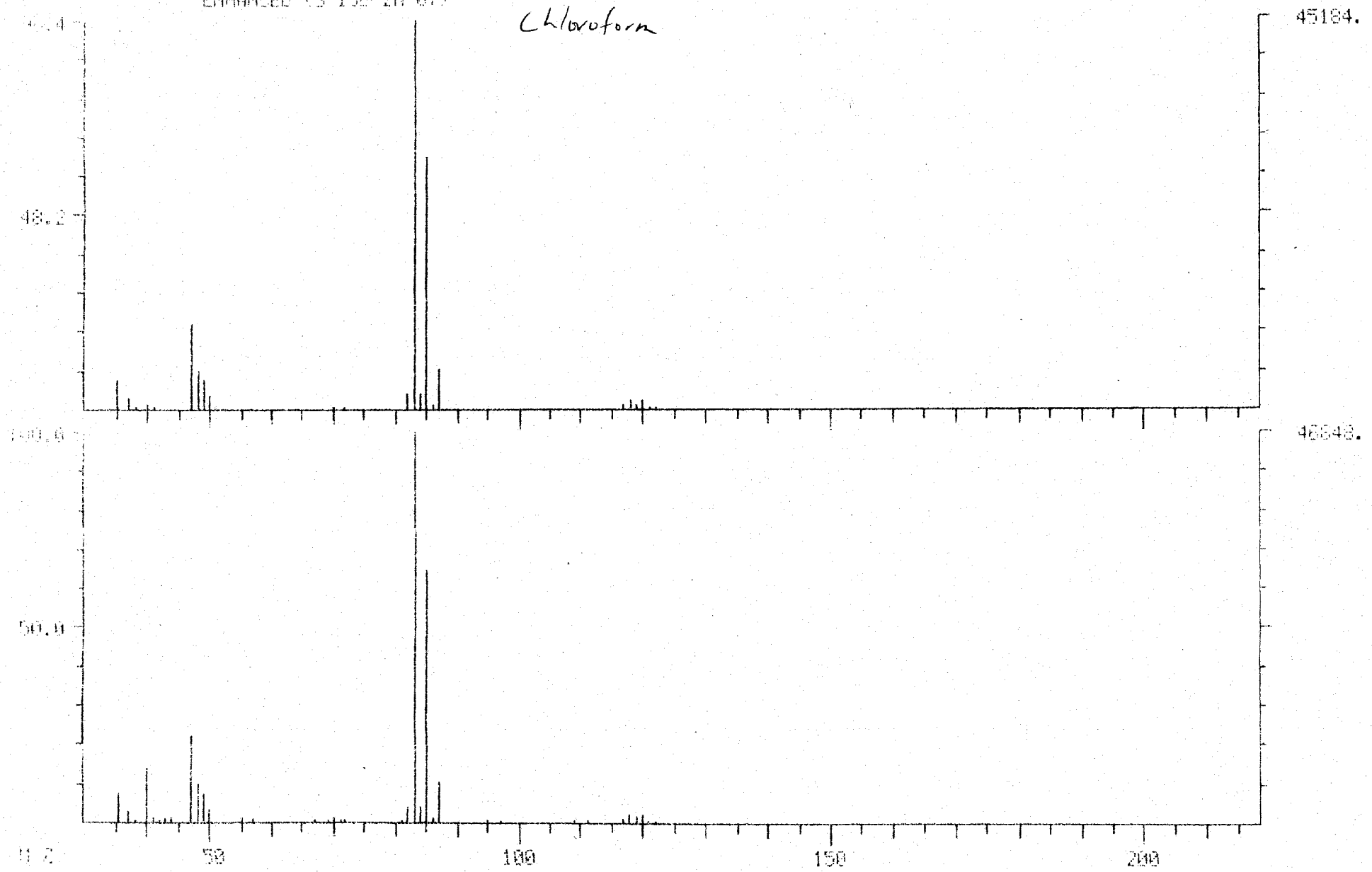
000140

000141

GUAL MASS SPECTRUM
10 05 88 17:29:00 + 13:45
SAMPLE: CLP,V11978,,EO-2_1215,L,W,11978015,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N OT)

DATA: C1V0001813 #S25 BASE M/Z: 83 83
CALI: C1V0001813 #3 RIC: 112639./ 129279.

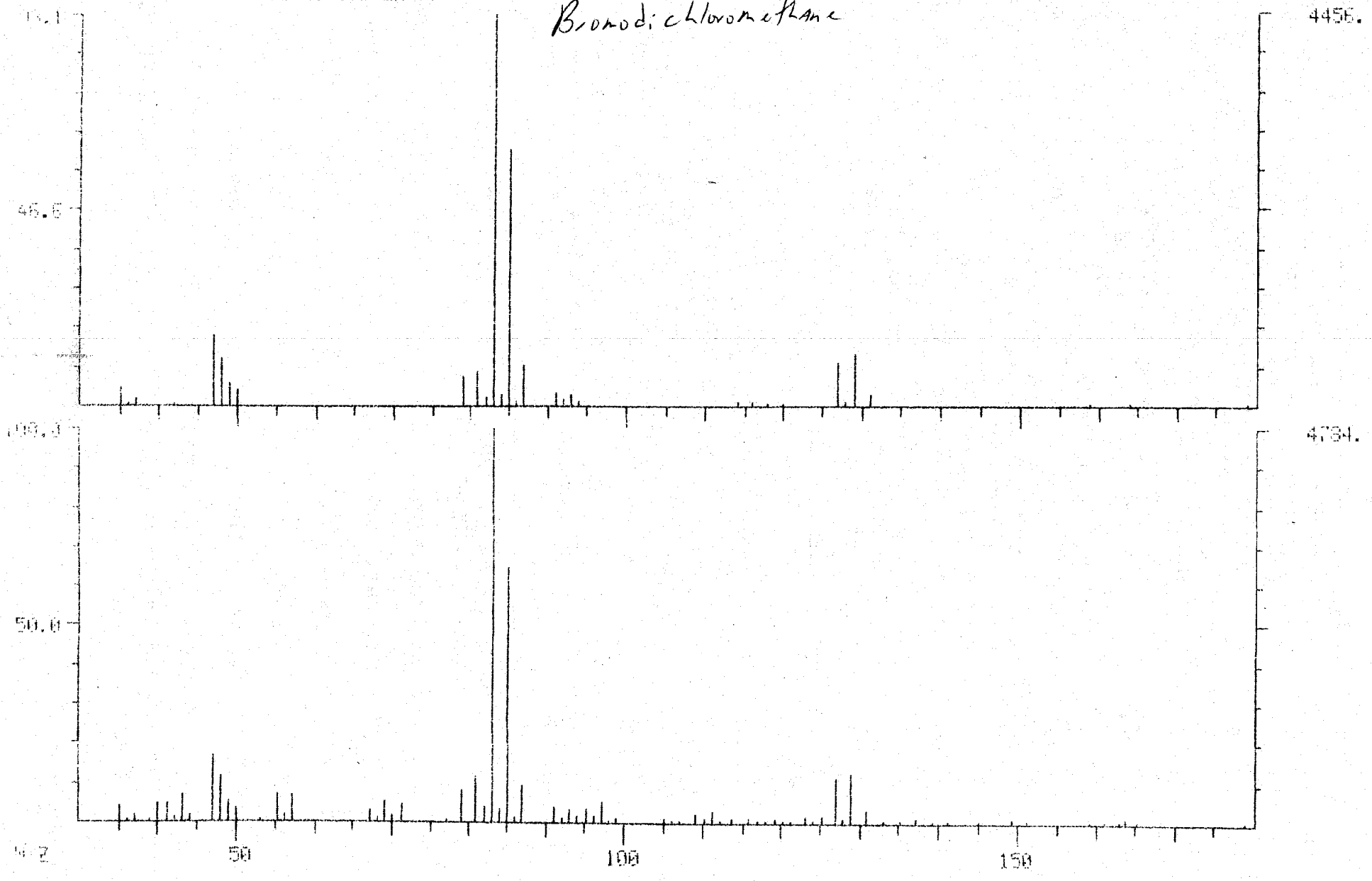
Chloroform



DUAL MASS SPECTRUM
10 05/88 17:29:00 + 17:28
SAMPLE: CLP V11978,,E0-2_1215,L,W,11978015,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 15B 2N 0T)

DATA: C1V0001813 #1048 BASE M/Z: 83 83
CALI: C1V0001813 #3 PIC: 12863. 18015.

Bromodichloromethane



000142

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB_92388

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 11978016

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C2VO001823

Level: (low/med) LOW Date Received: 09/24/88

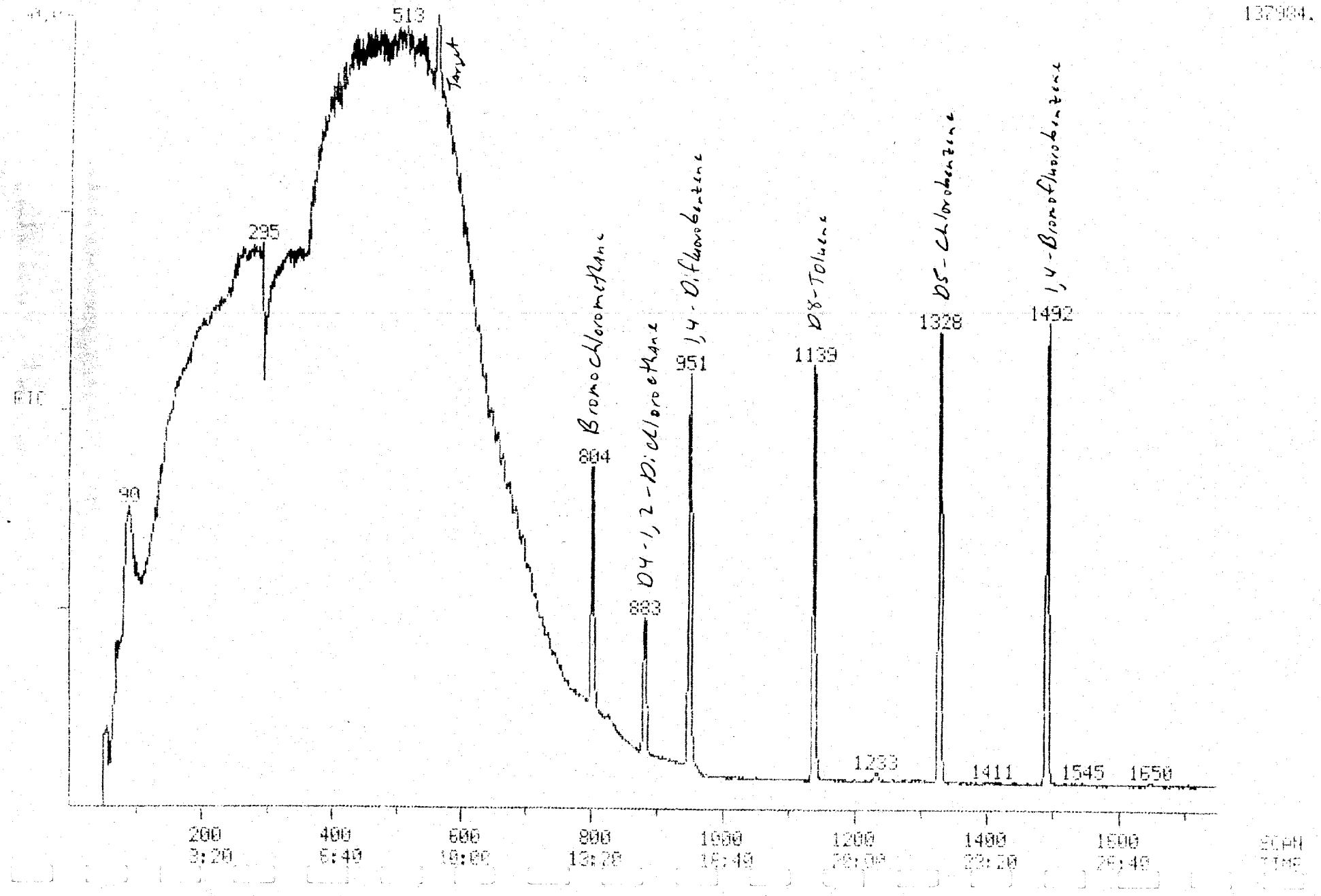
% Moisture: not dec. ____ Date Analyzed: 10/06/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	12	B
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

FIC DATA: C2V0001823 #1 SCANS 1 TO 1750
10/06/88 9:50:00 CALI: C2V0001823 #5
SAMPLE: CLP,V11978,,TB,92388,L,W,11978016,V,,
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
RANGE: G 1,1750 LABEL: M 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

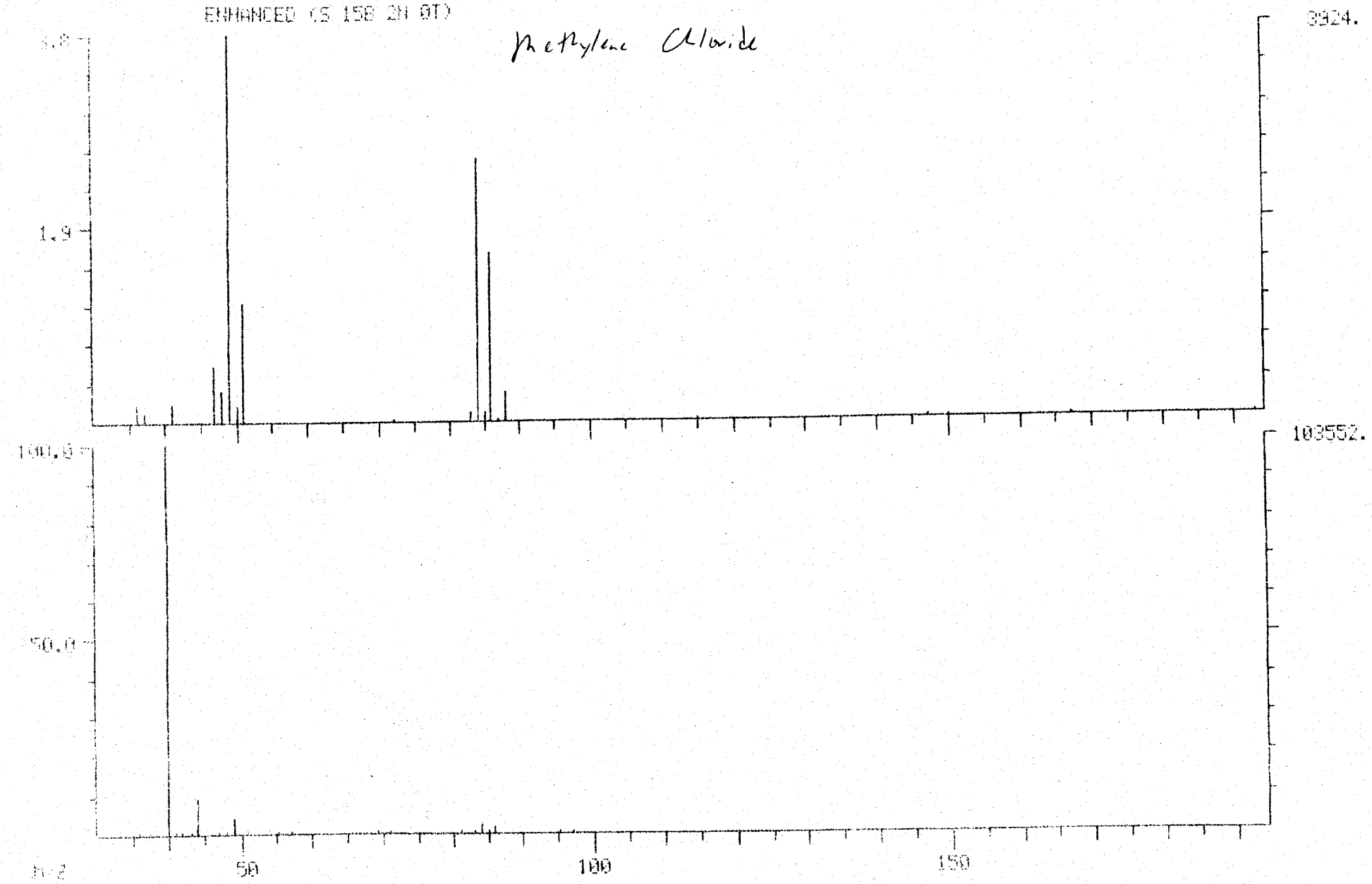


000144

DUAL MASS SPECTRUM
10/06/88 9:50:00 + 9:21
SAMPLE: CLP/011978/TB_92388/L.W/11978016.V/
CONDS.: -10DG TO 160DG @ 6DG/MIN IH=5.0 MIN
ENHANCED (S 158 2N 0T)

DATA: C200001823 #561 BASE M/Z: 44 40
CALI: C200001823 #5 PIC: 11567. 13465.

Methylene Chloride



000145

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKW2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: A10058B5

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: ABVO001162

Level: (low/med) LOW Date Received: 10/05/88

% Moisture: not dec. ____ Date Analyzed: 10/05/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKW1

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: X10068B1

Sample wt/vol: _____ (g/mL) ML Lab File ID: CBV0001822

Level: (low/med) LOW Date Received: 10/06/88

% Moisture: not dec. _____ Date Analyzed: 10/06/88

Column: (pack/cap) CAP Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	4	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

RS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKW

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: X10058B2

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: CBV0001811

Level: (low/med) LOW Date Received: 10/05/88

% Moisture: not dec. ____ Date Analyzed: 10/05/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	8	BJ
67-64-1	Acetone	11	B
75-15-0	Carbon Disulfide	1	BJ
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	2B-FB1	94	96	79		0
02	2B-MW-3_DL	91	95	80		0
03	2B-MW1	93	97	80		0
04	2B-MW11345DL	100	102	97		0
05	2B-MW2	95	93	102		0
06	2B-MW3	98	99	100		0
07	2B-MW4_0800	99	100	94		0
08	2B-MW5_0900	98	99	93		0
09	2B-MW6	97	100	97		0
10	2B-MW7	92	97	84		0
11	2B-MW7_DL	90	97	78		0
12	2C-MW1_1100	99	99	95		0
13	2C-MW1_DL	98	103	97		0
14	2C-MW2_1015	100	100	93		0
15	2C-MW4	99	97	85		0
16	2C-PW1_1000	99	99	93		0
17	2C_MW-3	98	101	100		0
18	EQ-1	99	101	76		0
19	EQ-2_1215	101	100	100		0
20	TB_92388	100	101	94		0
21	MS	99	98	93		0
22	MSD	95	96	86		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	VBLKW2	95	96	88		0
02	VBLKW	99	101	99		0
03	VBLKW1	101	101	98		0

	QC LIMITS
S1 (TOL) = Toluene-d8	(88-110)
S2 (BFB) = Bromofluorobenzene	(86-115)
S3 (DCE) = 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No.: 2B-MW7

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	5.84	66.5	121	61-145
Trichloroethene	50.0	239	364	250 *	71-120
Benzene	50.0	0	50.9	102	76-127
Toluene	50.0	0	50.5	101	76-125
Chlorobenzene	50.0	0	52.0	104	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.0	59.5	107	12	14	61-145
Trichloroethene	50.0	366	254 *	-2	14	71-120
Benzene	50.0	50.2	100	2	11	76-127
Toluene	50.0	48.8	98	3	13	76-125
Chlorobenzene	50.0	52.7	105	-1	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 2 out of 10 outside limits

COMMENTS: CLP,11978,,2B-MW7,L,W,11978003,V,
-10DG - 150DG @6DG/MIN IH=5MIN

RS

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Lab File ID: ABVO001162 Lab Sample ID: A10058B5

Date Analyzed: 10/05/88 Time Analyzed: 1534

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: 4000

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2B-FB1	11978009	A1VO001163	1711
02	2B-MW-3_DL	11978006DL	A2VO001175	0006
03	2B-MW1	11978011	A1VO001172	2221
04	2B-MW2	11978007	A1VO001170	2111
05	2B-MW3	11978006	A1VO001168	2002
06	2B-MW7	11978003	A2VO001173	2256
07	2B-MW7_DL	11978003DL	A3VO001174	2331
08	2C-MW4	11978008	A1VO001171	2146
09	EQ-1	11978010	A1VO001164	1745
10	MS	11978M03	AMVO001166	1853
11	MSD	11978D03	AMVO001167	1928

COMMENTS: CLP,11978,,A10058B5,L,W,A10058B5,V,BLANK,
-10DG - 150DG @6DG/MIN IH=5MIN

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Lab File ID: CBVO001811 Lab Sample ID: X10058B2

Date Analyzed: 10/05/88 Time Analyzed: 1549

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2B-MW6	11978012	C1VO001818	2032
02	2C_MW-3	11978014	C1VO001817	1958
03	EQ-2_1215	11978015	C1VO001813	1729

COMMENTS: CLP,11978,,,L,W,X10058B2,V,BLANK,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Lab File ID: CBV0001822 Lab Sample ID: X10068B1

Date Analyzed: 10/06/88 Time Analyzed: 0912

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	2B-MW11345DL	11978011DL	C2V0001824	1026
02	2B-MW4_0800	11978005	C2V0001828	1305
03	2B-MW5_0900	11978004	C2V0001827	1230
04	2C-MW1_1100	11978013	C1V0001829	1340
05	2C-MW1_DL	11978013DL	C3V0001831	1743
06	2C-MW2_1015	11978001	C1V0001825	1101
07	2C-PW1_1000	11978002	C1V0001826	1137
08	TB_92388	11978016	C2V0001823	0950

COMMENTS: CLP,BLNK,,VBLKW1,L,W,X10068B1,V,BLANK,
-10DG TO 160DG @ 6DG/MIN IH=5.0 MIN

RS

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Lab File ID: ABV0001159 BFB Injection Date: 10/05/88

Instrument ID: 4000 BFB Injection Time: 1228

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	33.8
75	30.0 - 60.0% of mass 95	48.2
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.3 (0.4)1
174	Greater than 50.0% of mass 95	64.8
175	5.0 - 9.0% of mass 174	4.9 (7.6)1
176	Greater than 95.0%, but less than 101.0% of mass 174	62.9 (97.1)1
177	5.0 - 9.0% of mass 176	4.2 (6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	50_STD	ASV0001160	10/05/88	1418
02	VBLKW2	A10058B5	ABV0001162	10/05/88	1534
03	2B-FB1	11978009	A1V0001163	10/05/88	1711
04	EQ-1	11978010	A1V0001164	10/05/88	1745
05	MS	11978M03	AMV0001166	10/05/88	1853
06	MSD	11978D03	AMV0001167	10/05/88	1928
07	2B-MW3	11978006	A1V0001168	10/05/88	2002
08	2B-MW2	11978007	A1V0001170	10/05/88	2111
09	2C-MW4	11978008	A1V0001171	10/05/88	2146
10	2B-MW1	11978011	A1V0001172	10/05/88	2221
11	2B-MW7	11978003	A2V0001173	10/05/88	2256
12	2B-MW7_DL	11978003DL	A3V0001174	10/05/88	2331
13	2B-MW-3_DL	11978006DL	A2V0001175	10/06/88	0006

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Lab File ID: C1BF001819 BFB Injection Date: 10/06/88

Instrument ID: 4500 BFB Injection Time: 0721

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.1
75	30.0 - 60.0% of mass 95	42.2
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.6
173	Less than 2.0% of mass 174	0.5 (0.6)1
174	Greater than 50.0% of mass 95	90.0
175	5.0 - 9.0% of mass 174	6.7 (7.4)1
176	Greater than 95.0%, but less than 101.0% of mass 174	86.0 (95.5)1
177	5.0 - 9.0% of mass 176	6.0 (7.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VOA_50_STD	CSVO001820	10/06/88	0755
02	VBLKW1	X10068B1	CBVO001822	10/06/88	0912
03	TB_92388	11978016	C2VO001823	10/06/88	0950
04	2B-MW11345DL	11978011DL	C2VO001824	10/06/88	1026
05	2C-MW2_1015	11978001	C1VO001825	10/06/88	1101
06	2C-PW1_1000	11978002	C1VO001826	10/06/88	1137
07	2B-MW5_0900	11978004	C2VO001827	10/06/88	1230
08	2B-MW4_0800	11978005	C2VO001828	10/06/88	1305
09	2C-MW1_1100	11978013	C1VO001829	10/06/88	1340
10	2C-MW1_DL	11978013DL	C3VO001831	10/06/88	1743

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Lab File ID: C1BF001802 BFB Injection Date: 10/05/88

Instrument ID: 4500 BFB Injection Time: 0856

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.5
75	30.0 - 60.0% of mass 95	41.2
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.4 (0.4)1
174	Greater than 50.0% of mass 95	91.3
175	5.0 - 9.0% of mass 174	5.8 (6.4)1
176	Greater than 95.0%, but less than 101.0% of mass 174	90.5 (99.1)1
177	5.0 - 9.0% of mass 176	5.6 (6.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	CSVO001803	10/05/88	0931
02	VBLKW	X10058B2	CBVO001811	10/05/88	1549
03	EQ-2_1215	11978015	C1VO001813	10/05/88	1729
04	2C_MW-3	11978014	C1VO001817	10/05/88	1958
05	2B-MW6	11978012	C1VO001818	10/05/88	2032

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Lab File ID: A1BF001144 BFB Injection Date: 10/04/88

Instrument ID: 4000 BFB Injection Time: 2059

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	31.2
75	30.0 - 60.0% of mass 95	46.4
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	69.6
175	5.0 - 9.0% of mass 174	5.2 (7.5)1
176	Greater than 95.0%, but less than 101.0% of mass 174	67.8 (97.4)1
177	5.0 - 9.0% of mass 176	4.5 (6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	50_STD	ASVO001145	10/04/88	2136
02	VSTD020	20_STD	ASVO001146	10/04/88	2211
03	VSTD100	100_STD	ASVO001147	10/04/88	2246
04	VSTD150	150_STD	ASVO001148	10/04/88	2322
05	VSTD200	200_STD	ASVO001149	10/04/88	2356

RS

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Lab File ID: C2BF001761 BFB Injection Date: 10/03/88

Instrument ID: 4500 BFB Injection Time: 1734

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.9
75	30.0 - 60.0% of mass 95	41.9
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.9
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	90.5
175	5.0 - 9.0% of mass 174	6.7 (7.4)1
176	Greater than 95.0%, but less than 101.0% of mass 174	87.0 (96.1)1
177	5.0 - 9.0% of mass 176	6.5 (7.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	CSVO001764	10/03/88	1949
02	VSTD020	VSTD020	CSVO001765	10/03/88	2049
03	VSTD100	VSTD100	CSVO001766	10/03/88	2204
04	VSTD150	VSTD150	CSVO001767	10/03/88	2238
05	VSTD200	VSTD200	CSVO001768	10/03/88	2313

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Instrument ID: 4500 Calibration Date(s): 10/03/88 10/03/88

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min $\overline{RRF}$ for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = CSV0001765 RRF50 = CSV0001764
RRF100= CSV0001766 RRF150= CSV0001767 RRF200= CSV0001768

COMPOUND		RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane	#	2.431	2.535	1.790	1.761	1.588	2.021	21.3#
Bromomethane		2.028	1.911	1.483	1.483	1.359	1.653	17.9
Vinyl Chloride	*	2.242	2.383	1.696	1.697	1.518	1.907	20.0*
Chloroethane		1.485	1.496	1.152	1.144	1.041	1.264	16.8
Methylene Chloride		2.966	2.256	2.020	1.948	1.839	2.206	20.5
Acetone		0.834	0.583	0.599	0.514	0.623	0.631	19.1
Carbon Disulfide		6.780	5.706	4.942	4.558	3.968	5.191	21.0
1,1-Dichloroethene	*	1.936	1.758	1.480	1.335	1.169	1.536	20.3*
1,1-Dichloroethane	#	3.907	3.450	3.004	3.128	2.817	3.261	13.1#
1,2-Dichloroethene (total)		2.537	2.198	1.929	1.973	1.786	2.085	14.1
Chloroform	*	3.796	3.080	2.977	2.891	2.758	3.100	13.1*
1,2-Dichloroethane		2.352	1.847	1.811	1.740	1.697	1.889	14.0
2-Butanone		0.058	0.041	0.050	0.039	0.054	0.048	17.1
1,1,1-Trichloroethane		0.652	0.559	0.615	0.544	0.557	0.585	7.9
Carbon Tetrachloride		0.648	0.558	0.602	0.538	0.545	0.578	8.0
Vinyl Acetate		0.960	0.794	0.947	0.774	0.928	0.881	10.1
Bromodichloromethane		0.579	0.471	0.532	0.481	0.515	0.516	8.4
1,2-Dichloropropane	*	0.392	0.316	0.353	0.319	0.342	0.344	9.0*
cis-1,3-Dichloropropene		0.574	0.480	0.538	0.481	0.510	0.517	7.7
Trichloroethene		0.464	0.386	0.411	0.385	0.395	0.408	8.1
Dibromochloromethane		0.551	0.439	0.509	0.452	0.498	0.490	9.2
1,1,2-Trichloroethane		0.366	0.289	0.328	0.291	0.322	0.319	9.9
Benzene		1.363	1.138	1.238	1.109	1.152	1.200	8.6
trans-1,3-Dichloropropene		0.512	0.409	0.468	0.416	0.451	0.451	9.3
Bromoform	#	0.491	0.381	0.429	0.378	0.442	0.424	11.1#
2-Hexanone		0.433	0.280	0.331	0.272	0.343	0.332	19.4
4-Methyl-2-Pentanone		0.632	0.412	0.478	0.401	0.489	0.482	19.1
Tetrachloroethene		0.436	0.375	0.355	0.356	0.335	0.371	10.5
1,1,2,2-Tetrachloroethane	#	0.740	0.541	0.566	0.509	0.569	0.585	15.4#
Toluene	*	0.943	0.758	0.758	0.744	0.714	0.783	11.6*
Chlorobenzene	#	1.208	0.973	0.970	0.949	0.934	1.007	11.3#
Ethylbenzene	*	0.658	0.534	0.531	0.527	0.515	0.553	10.7*
Styrene		1.462	1.099	1.190	1.190	1.171	1.222	11.4
Xylenes (total)		0.832	0.631	0.694	0.694	0.683	0.707	10.6
Toluene-d8 - SS		0.498	0.506	0.504	0.506	0.496	0.502	0.9
1,4-Bromofluorobenzene - SS		0.278	0.277	0.274	0.270	0.268	0.273	1.6
1,2-Dichloroethane-d4 - SS		0.631	0.628	0.625	0.625	0.629	0.628	0.4

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Instrument ID: 4000 Calibration Date(s): 10/04/88 10/04/88

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min $\overline{RRF}$ for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = ASV0001146 RRF50 = ASV0001145
RRF100= ASV0001147 RRF150= ASV0001148 RRF200= ASV0001149

COMPOUND		RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane	#	1.742	1.447	1.292	1.435	1.282	1.440	12.9#
Bromomethane		1.310	1.120	1.040	1.168	1.050	1.138	9.6
Vinyl Chloride	*	1.615	1.316	1.187	1.157	1.241	1.303	14.2*
Chloroethane		1.206	0.996	0.730	0.911	0.963	0.961	17.8
Methylene Chloride		2.461	2.252	1.969	1.979	1.804	2.093	12.5
Acetone		1.007	0.848	0.754	0.767	0.663	0.808	16.0
Carbon Disulfide		5.789	5.557	5.064	4.794	3.664	4.974	16.7
1,1-Dichloroethene	*	1.524	1.423	1.317	1.245	1.094	1.321	12.5*
1,1-Dichloroethane	#	4.726	4.430	4.234	4.115	3.856	4.272	7.7#
1,2-Dichloroethene (total)		2.028	2.014	1.866	1.847	1.718	1.895	6.8
Chloroform	*	3.532	3.359	3.228	3.158	3.133	3.282	5.0*
1,2-Dichloroethane		2.633	2.659	2.845	3.116	2.840	2.819	6.9
2-Butanone		0.051	0.042	0.040	0.039	0.038	0.042	12.5
1,1,1-Trichloroethane		0.318	0.309	0.289	0.274	0.290	0.296	5.9
Carbon Tetrachloride		0.246	0.243	0.230	0.225	0.252	0.239	4.7
Vinyl Acetate		1.217	1.063	0.732	0.935	0.856	0.961	19.5
Bromodichloromethane		0.680	0.643	0.628	0.621	0.611	0.637	4.2
1,2-Dichloropropane	*	0.705	0.673	0.642	0.626	0.615	0.652	5.6*
cis-1,3-Dichloropropene		0.791	0.748	0.728	0.709	0.698	0.735	5.0
Trichloroethene		0.368	0.358	0.339	0.335	0.326	0.345	5.0
Dibromochloromethane		0.481	0.469	0.457	0.454	0.434	0.459	3.8
1,1,2-Trichloroethane		0.405	0.387	0.376	0.387	0.356	0.382	4.7
Benzene		1.145	1.113	1.065	1.295	1.274	1.178	8.6
trans-1,3-Dichloropropene		0.648	0.623	0.599	0.589	0.578	0.607	4.6
Bromoform	#	0.388	0.381	0.380	0.373	0.364	0.377	2.4#
2-Hexanone		0.806	0.714	0.678	0.714	0.673	0.717	7.4
4-Methyl-2-Pentanone		1.167	0.989	0.965	0.978	0.975	1.015	8.4
Tetrachloroethene		0.304	0.298	0.286	0.281	0.283	0.290	3.5
1,1,2,2-Tetrachloroethane	#	0.914	0.845	0.814	0.818	0.838	0.846	4.8#
Toluene	*	0.941	0.866	0.862	0.853	0.876	0.880	4.0*
Chlorobenzene	#	0.973	0.940	0.917	0.916	0.902	0.930	3.0#
Ethylbenzene	*	0.496	0.489	0.482	0.483	0.481	0.486	1.3*
Styrene		1.188	1.162	1.162	1.132	1.134	1.156	2.0
Xylenes (total)		0.650	0.638	0.637	0.624	0.626	0.635	1.7
Toluene-d8 - SS		0.568	0.552	0.567	0.573	0.594	0.571	2.7
1,4-Bromofluorobenzene - SS		0.331	0.333	0.333	0.330	0.348	0.335	2.2
1,2-Dichloroethane-d4 - SS		0.980	0.956	0.946	1.178	1.086	1.029	9.7

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Instrument ID: 4000 Calibration date: 10/05/88 Time: 1418

Lab File ID: ASV0001160 Init. Calib. Date(s): 10/04/88 10/04/88

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	1.440	1.298	9.9	#
Bromomethane		1.138	0.528	53.6	
Vinyl Chloride	*	1.303	1.274	2.2	*
Chloroethane		0.961	0.836	13.0	
Methylene Chloride		2.093	2.083	0.5	
Acetone		0.808	0.786	2.7	
Carbon Disulfide		4.974	4.956	0.4	
1,1-Dichloroethene	*	1.321	1.360	-3.0	*
1,1-Dichloroethane	#	4.272	4.337	-1.5	#
1,2-Dichloroethene (total)		1.895	1.959	-3.4	
Chloroform	*	3.282	3.202	2.4	*
1,2-Dichloroethane		2.819	3.097	-9.9	
2-Butanone		0.042	0.038	9.5	
1,1,1-Trichloroethane		0.296	0.283	4.4	
Carbon Tetrachloride		0.239	0.219	8.4	
Vinyl Acetate		0.961	0.924	3.9	
Bromodichloromethane		0.637	0.617	3.1	
1,2-Dichloropropane	*	0.652	0.613	6.0	*
cis-1,3-Dichloropropene		0.735	0.719	2.2	
Trichloroethene		0.345	0.331	4.1	
Dibromochloromethane		0.459	0.412	10.2	
1,1,2-Trichloroethane		0.382	0.345	9.7	
Benzene		1.178	1.322	-12.2	
trans-1,3-Dichloropropene		0.607	0.586	3.5	
Bromoform	#	0.377	0.341	9.5	#
2-Hexanone		0.717	0.691	3.6	
4-Methyl-2-Pentanone		1.015	1.060	-4.4	
Tetrachloroethene		0.290	0.289	0.3	
1,1,2,2-Tetrachloroethane	#	0.846	0.770	9.0	#
Toluene	*	0.880	0.925	-5.1	*
Chlorobenzene	#	0.930	0.908	2.4	#
Ethylbenzene	*	0.486	0.468	3.7	*
Styrene		1.156	1.161	-0.4	
Xylenes (total)		0.635	0.636	-0.2	
Toluene-d8 - SS		0.571	0.612	-7.2	
1,4-Bromofluorobenzene - SS		0.335	0.339	-1.2	
1,2-Dichloroethane-d4 - SS		1.029	1.196	-16.2	

RS

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Instrument ID: 4500 Calibration date: 10/05/88 Time: 0931

Lab File ID: CSV0001803 Init. Calib. Date(s): 10/03/88 10/03/88

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	2.021	1.909	5.5	#
Bromomethane		1.653	1.590	3.8	
Vinyl Chloride	*	1.907	1.867	2.1	*
Chloroethane		1.264	1.253	0.9	
Methylene Chloride		2.206	2.301	-4.3	
Acetone		0.631	0.573	9.2	
Carbon Disulfide		5.191	5.353	-3.1	
1,1-Dichloroethene	*	1.536	1.507	1.9	*
1,1-Dichloroethane	#	3.261	3.424	-5.0	#
1,2-Dichloroethene (total)		2.085	2.227	-6.8	
Chloroform	*	3.100	3.025	2.4	*
1,2-Dichloroethane		1.889	1.771	6.2	
2-Butanone		0.048	0.039	18.8	
1,1,1-Trichloroethane		0.585	0.539	7.9	
Carbon Tetrachloride		0.578	0.519	10.2	
Vinyl Acetate		0.881	0.746	15.3	
Bromodichloromethane		0.516	0.442	14.3	
1,2-Dichloropropane	*	0.344	0.292	15.1	*
cis-1,3-Dichloropropene		0.517	0.439	15.1	
Trichloroethene		0.408	0.368	9.8	
Dibromochloromethane		0.490	0.421	14.1	
1,1,2-Trichloroethane		0.319	0.268	16.0	
Benzene		1.200	1.091	9.1	
trans-1,3-Dichloropropene		0.451	0.368	18.4	
Bromoform	#	0.424	0.353	16.8	#
2-Hexanone		0.332	0.294	11.5	
4-Methyl-2-Pentanone		0.482	0.444	7.9	
Tetrachloroethene		0.371	0.402	-8.4	
1,1,2,2-Tetrachloroethane	#	0.585	0.567	3.1	#
Toluene	*	0.783	0.814	-4.0	*
Chlorobenzene	#	1.007	1.049	-4.2	#
Ethylbenzene	*	0.553	0.580	-4.9	*
Styrene		1.222	1.262	-3.3	
Xylenes (total)		0.707	0.734	-3.8	
Toluene-d8 - SS		0.502	0.520	-3.6	
1,4-Bromofluorobenzene - SS		0.273	0.269	1.5	
1,2-Dichloroethane-d4 - SS		0.628	0.590	6.1	

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Instrument ID: 4500 Calibration date: 10/06/88 Time: 0755

Lab File ID: CSV0001820 Init. Calib. Date(s): 10/03/88 10/03/88

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	2.021	1.601	20.8	#
Bromomethane		1.653	1.323	20.0	
Vinyl Chloride	*	1.907	1.596	16.3	*
Chloroethane		1.264	1.064	15.8	
Methylene Chloride		2.206	1.924	12.8	
Acetone		0.631	0.528	16.3	
Carbon Disulfide		5.191	4.717	9.1	
1,1-Dichloroethene	*	1.536	1.299	15.4	*
1,1-Dichloroethane	#	3.261	2.881	11.7	#
1,2-Dichloroethene (total)		2.085	1.858	10.9	
Chloroform	*	3.100	2.730	11.9	*
1,2-Dichloroethane		1.889	1.629	13.8	
2-Butanone		0.048	0.036	25.0	
1,1,1-Trichloroethane		0.585	0.476	18.6	
Carbon Tetrachloride		0.578	0.465	19.6	
Vinyl Acetate		0.881	0.574	34.9	
Bromodichloromethane		0.516	0.392	24.0	
1,2-Dichloropropane	*	0.344	0.263	23.6	*
cis-1,3-Dichloropropene		0.517	0.386	25.3	
Trichloroethene		0.408	0.337	17.4	
Dibromochloromethane		0.490	0.376	23.3	
1,1,2-Trichloroethane		0.319	0.239	25.1	
Benzene		1.200	0.953	20.6	
trans-1,3-Dichloropropene		0.451	0.327	27.5	
Bromoform	#	0.424	0.314	25.9	#
2-Hexanone		0.332	0.271	18.4	
4-Methyl-2-Pentanone		0.482	0.401	16.8	
Tetrachloroethene		0.371	0.348	6.2	
1,1,2,2-Tetrachloroethane	#	0.585	0.488	16.6	#
Toluene	*	0.783	0.708	9.6	*
Chlorobenzene	#	1.007	0.914	9.2	#
Ethylbenzene	*	0.553	0.498	9.9	*
Styrene		1.222	1.083	11.4	
Xylenes (total)		0.707	0.636	10.0	
Toluene-d8 - SS		0.502	0.519	-3.4	
1,4-Bromofluorobenzene - SS		0.273	0.267	2.2	
1,2-Dichloroethane-d4 - SS		0.628	0.603	4.0	

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): ASV0001160 Date Analyzed: 10/05/88

Instrument ID: 4000 Time Analyzed: 1418

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	40300	14.15	257000	16.27	232000	21.95
	UPPER LIMIT	80600		514000		464000	
	LOWER LIMIT	20150		128500		116000	
	EPA SAMPLE NO.						
01	2B-FB1	42900	14.09	270000	16.24	249000	21.95
02	2B-MW-3_DL	38200	14.09	252000	16.22	248000	21.94
03	2B-MW1	39800	14.07	262000	16.22	253000	21.92
04	2B-MW2	40600	14.15	262000	16.25	237000	21.95
05	2B-MW3	30200	14.12	179000	16.24	168000	21.94
06	2B-MW7	46400	14.12	261000	16.24	248000	21.94
07	2B-MW7_DL	39400	14.05	260000	16.20	254000	21.94
08	2C-MW4	44000	14.12	226000	16.24	200000	21.94
09	EQ-1	43000	14.07	267000	16.20	251000	21.92
10	MS	43800	14.14	261000	16.22	230000	21.94
11	MSD	48500	14.15	278000	16.24	263000	21.94
12	VBLKW2	49100	14.14	279000	16.25	254000	21.95

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): CSV0001803 Date Analyzed: 10/05/88

Instrument ID: 4500 Time Analyzed: 0931

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	36200	13.39	180000	15.85	138000	22.12
	UPPER LIMIT	72400		360000		276000	
	LOWER LIMIT	18100		90000		69000	
	EPA SAMPLE NO.						
01	2B-MW6	37400	13.32	184000	15.80	144000	22.10
02	2C_MW-3	37300	13.34	181000	15.82	141000	22.12
03	EQ-2_1215	40900	13.37	200000	15.84	154000	22.12
04	VBLKW	25100	13.37	102000	15.84	92200	22.12

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V11978 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): CSVO001820 Date Analyzed: 10/06/88

Instrument ID: 4500 Time Analyzed: 0755

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	42700	13.40	218000	15.87	171000	22.14
	UPPER LIMIT	85400		436000		342000	
	LOWER LIMIT	21350		109000		85500	
	EPA SAMPLE NO.						
01	2B-MW11345DL	34300	13.37	170000	15.84	135000	22.12
02	2B-MW5_0900	34100	13.39	171000	15.87	132000	22.14
03	2C-MW1_1100	35600	13.37	175000	15.84	135000	22.14
04	2C-MW1_DL	41200	13.39	194000	15.85	155000	22.12
05	2C-MW2_1015	35800	13.37	179000	15.84	141000	22.12
06	2C-PW1_1000	32700	13.42	166000	15.87	128000	22.12
07	TB_92388	35100	13.39	174000	15.85	139000	22.14
08	VBLKW1	37400	13.35	188000	15.82	146000	22.10

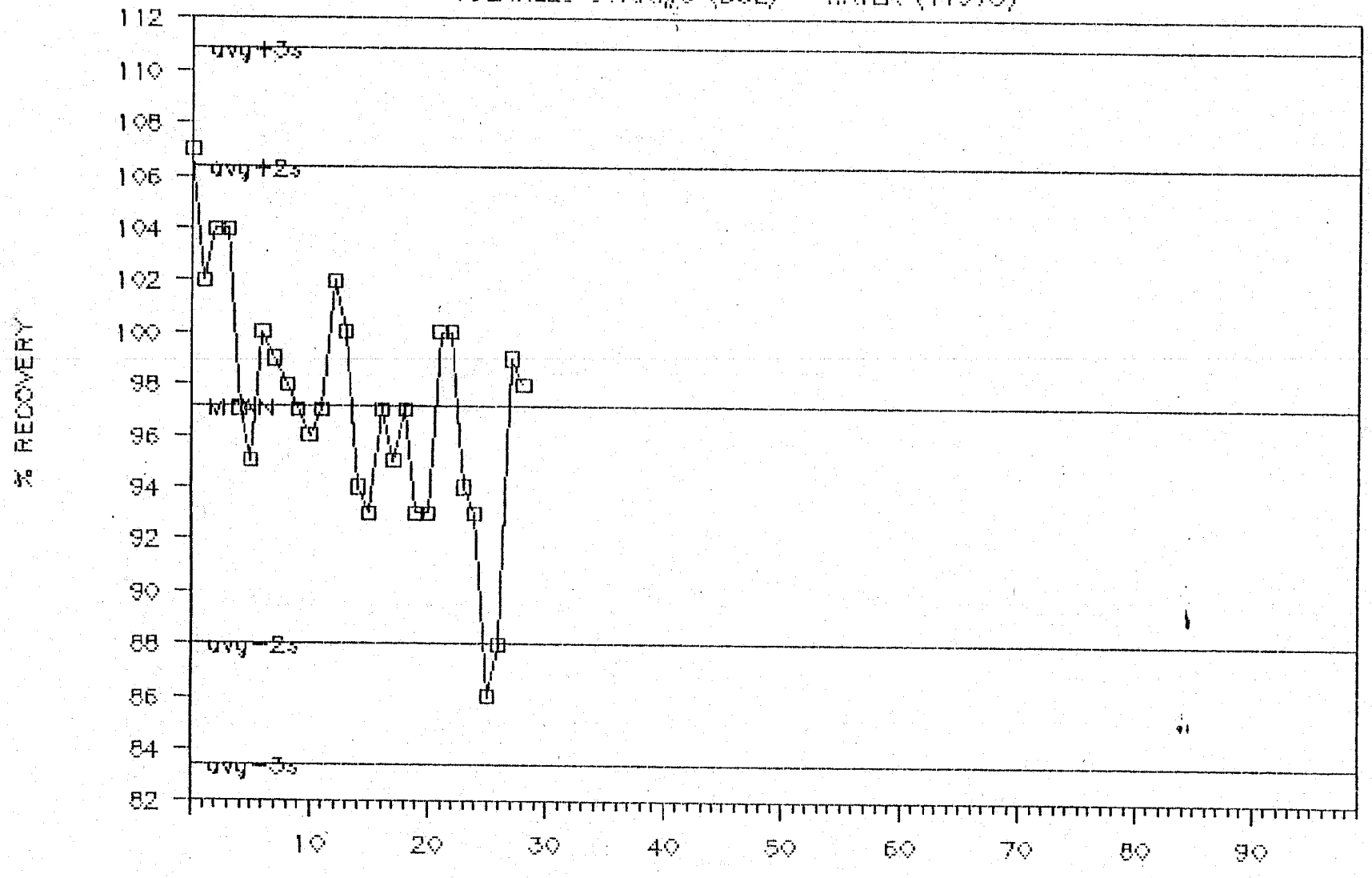
IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

SURROGATE RECOVERY

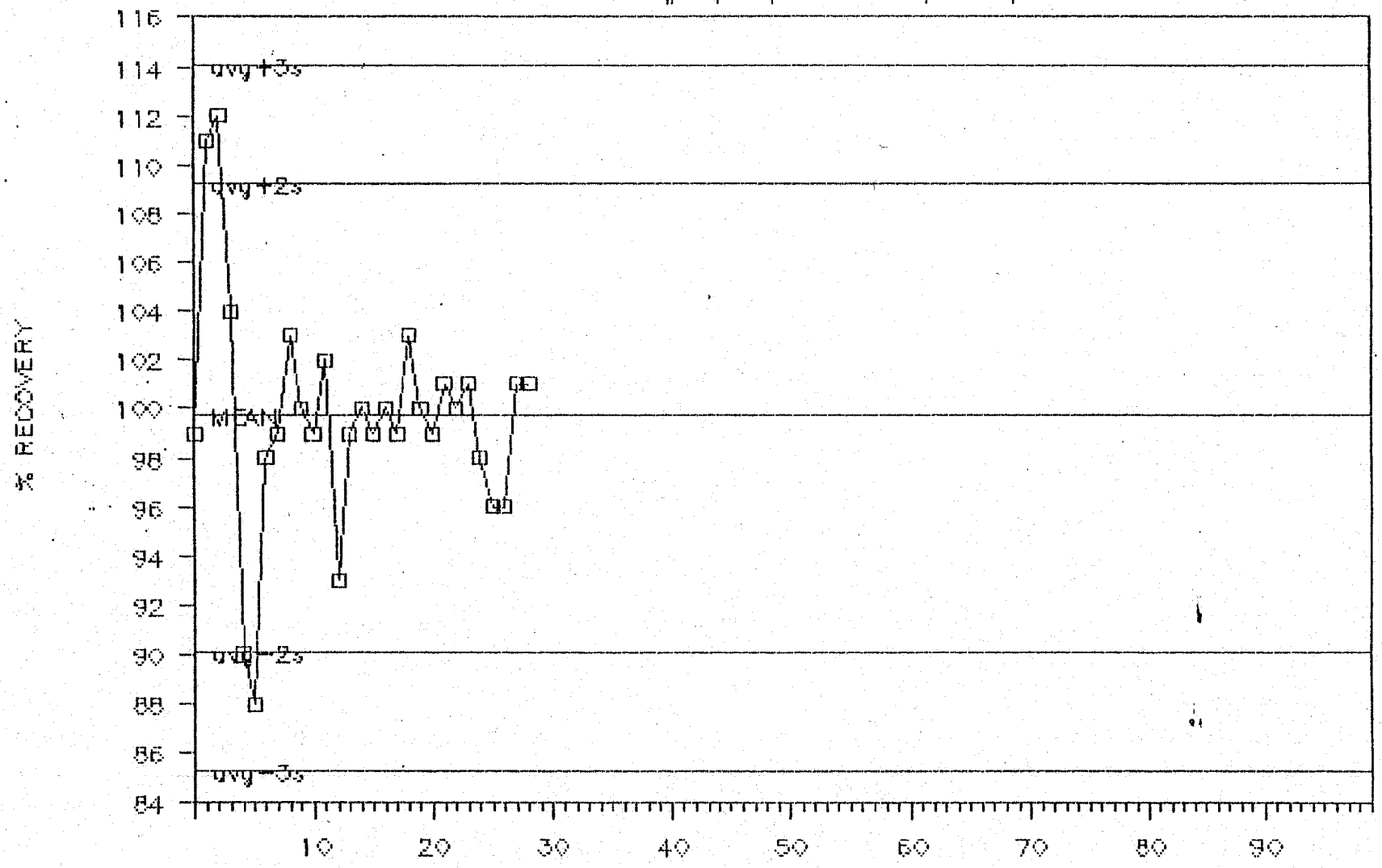
VOLATILES SURR.#3 (DCE) – WATER (11978)



000168

SURROGATE RECOVERY

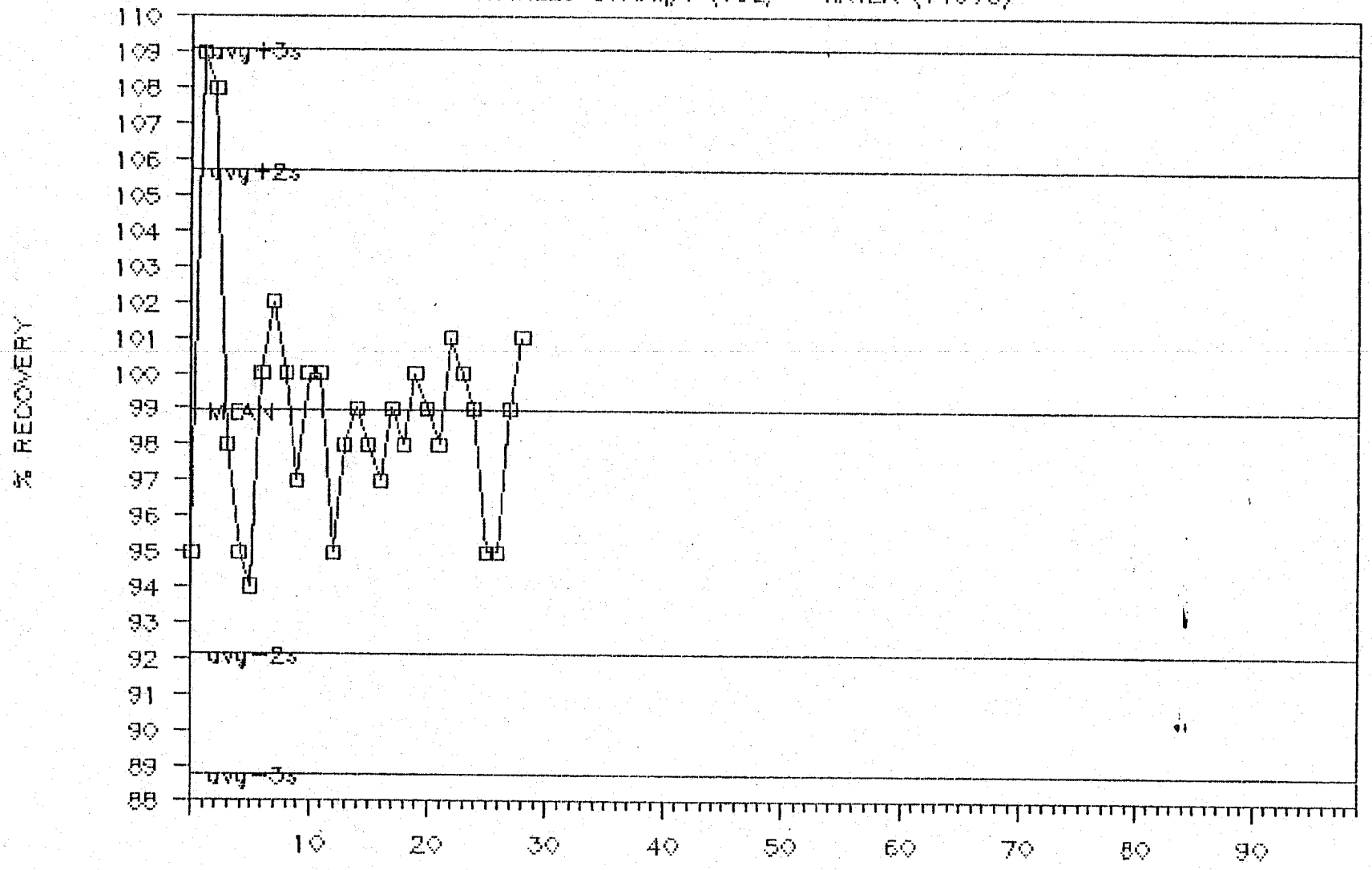
VOLATILES SURR.#2 (BFB) – WATER (11978)



D00169

SURROGATE RECOVERY

VOLATILES SURR.#1 (TOL) – WATER (11978)



000176

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 11/22/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11978

RE: Sample(s) received by CH2M HILL on 09/24/88.
LANTDIV

Analysis Description	[Method]	2C-MW2 * 9/23/88 1015 GRAB	2C-PW1 * 9/23/88 1000 GRAB	2B-MW7 * 9/22/88 1340 GRAB	2B-MW5 * 9/23/88 0900 GRAB	2B-MW4 * 9/23/88 0800 GRAB	2B-MW3 * 9/22/88 1630 GRAB	2B-MW2 * 9/22/88 1515 GRAB
		WATER	WATER	WATER	WATER	WATER	WATER	WATER
Silver (ug/L)	[EPA200.7]	<3	<3	<3	<3	<3	<3	<3
Aluminum (ug/L)	[EPA200.7]	<200	<200	<200	<200	<200	<200	<200
Arsenic (ug/L)	[EPA206.2]	<5	<5	<5	13	<5	<5	<5
Barium (ug/L)	[EPA200.7]	<200	<200	<200	<200	<200	<200	<200
Beryllium (ug/L)	[EPA200.7]	<5	<5	<5	<5	<5	<5	<5
Calcium (mg/L)	[EPA200.7]	52.3	59.2	13.5	37.6	47.5	104	42.2
Cadmium (ug/L)	[EPA200.7]	5	<3	<3	<3	<3	<3	<3
Cobalt (ug/L)	[EPA200.7]	<50	<50	<50	<50	<50	<50	<50
Chromium (ug/L)	[EPA200.7]	<10	<10	<10	<10	<10	<10	<10
Copper (ug/L)	[EPA200.7]	<25	<25	<25	70	<25	<25	<25
Iron (ug/L)	[EPA200.7]	8300	3680	5670	23.4*	12.1*	7470	1340
Mercury (ug/L)	[EPA245.1]	<0.2	<0.2	<0.2	<0.2	<0.2	1.0	<0.2
Potassium (mg/L)	[EPA200.7]	11.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Magnesium (mg/L)	[EPA200.7]	8.2	14.4	14.8	26.3	16.3	10.0	5.6
Manganese (ug/L)	[EPA200.7]	430	370	190	1000	420	640	310
Sodium (mg/L)	[EPA200.7]	31.0	52.7	40.3	23.3	25.6	62.9	24.0
Nickle (ug/L)	[EPA200.7]	<40	<40	<40	<40	<40	<40	<40
Lead (ug/L)	[EPA200.7]	<5	<5	<5	<5	<5	<5	<5
Antimony (ug/L)	[EPA204.2]	<5	<5	<5	<5	<5	<5	<5
Selenium (ug/L)	[EPA270.2]	<5	<5	<5	<5	<5	<5	<5
Thallium (ug/L)	[EPA279.2]	<56	<5	<5	<5	<5	<5	<5

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 11/22/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11978

RE: Sample(s) received by CH2M HILL on 09/24/88.
LANTDIV

Analysis Description	[Method]	2C-MW2 * 9/23/88 1015 GRAB	2C-PW1 * 9/23/88 1000 GRAB	2B-MW7 * 9/22/88 1340 GRAB	2B-MW5 * 9/23/88 0900 GRAB	2B-MW4 * 9/23/88 0800 GRAB	2B-MW3 * 9/22/88 1630 GRAB	2B-MW2 * 9/22/88 1515 GRAB
		WATER	WATER	WATER	WATER	WATER	WATER	WATER
Vanadium (ug/L)	[EPA200.7]	<50	<50	<50	<50	<50	<50	<50
Zinc (ug/L)	[EPA200.7]	120	50	160	170	220	160	50

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 11/22/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11978

RE: Sample(s) received by CH2M HILL on 09/24/88.
LANTDIV

Analysis Description	[Method]	2C-MW4 * 9/22/88 1730 GRAB	2B-FB1 * 9/22/88 1350 GRAB FIELD BLANK	EQ-1 * 9/22/88 1430 GRAB EQUIPMENT BLANK	2B-MW1 * 9/22/88 1345 GRAB	2B-MW6 * 9/22/88 1200 GRAB	2C-MW1 * 9/23/88 1100 GRAB	2C MW-3 9/23/88 1200 GRAB
		WATER	WATER	WATER	WATER	WATER	WATER	WATER
Silver (ug/L)	[EPA200.7]	<3	<3	<3	<3	<3	<3	<3
Aluminum (ug/L)	[EPA200.7]	<200	<200	<200	<200	<200	<200	<200
Arsenic (ug/L)	[EPA206.2]	6	<5	<5	<5	17	<5	<5
Barium (ug/L)	[EPA200.7]	<200	<200	<200	<200	<200	<200	<200
Beryllium (ug/L)	[EPA200.7]	<5	<5	<5	<5	<5	<5	<5
Calcium (mg/L)	[EPA200.7]	33.0	21.8	22.9	14.5	16.8	60.8	39.0
Cadmium (ug/L)	[EPA200.7]	<3	<3	<3	17	<3	<3	<3
Cobalt (ug/L)	[EPA200.7]	<50	<50	<50	<50	<50	<50	<50
Chromium (ug/L)	[EPA200.7]	<10	<10	<10	<10	<10	<10	<10
Copper (ug/L)	[EPA200.7]	<25	150	60	<25	<25	<25	<25
Iron (ug/L)	[EPA200.7]	4500	1460	100	5840	13.7*	13.5*	7100
Mercury (ug/L)	[EPA245.1]	<0.2	0.4	0.9	0.4	0.5	<0.2	<0.2
Potassium (mg/L)	[EPA200.7]	<5.0	<5.0	<5.0	<5.0	<5.0	40.0	<5.0
Magnesium (mg/L)	[EPA200.7]	10.6	<5.0	<5.0	15.7	8.2	6.9	15.9
Manganese (ug/L)	[EPA200.7]	350	<15	<15	190	390	610	690
Sodium (mg/L)	[EPA200.7]	44.2	10.5	16.2	42.8	14.0	37.7	50.6
Nickle (ug/L)	[EPA200.7]	<40	<40	<40	<40	<40	<40	50
Lead (ug/L)	[EPA200.7]	<5	11	6	<5	<5	<5	<5
Antimony (ug/L)	[EPA204.2]	<5	<5	<5	<5	<5	<5	<5
Selenium (ug/L)	[EPA270.2]	<5	<5	<5	<5	<5	<5	<5
Thallium (ug/L)	[EPA279.2]	<5	<5	<5	<5	<5	<5	<5

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 11/22/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11978

RE: Sample(s) received by CH2M HILL on 09/24/88.
LANTDIV

Analysis Description	[Method]	2C-MW4 * 9/22/88 1730 GRAB	2B-FB1 * 9/22/88 1350 GRAB FIELD BLANK	EQ-1 * 9/22/88 1430 GRAB EQUIPMENT BLANK	2B-MW1 * 9/22/88 1345 GRAB	2B-MW6 * 9/22/88 1200 GRAB	2C-MW1 * 9/23/88 1100 GRAB	2C MW-3 9/23/88 1200 GRAB
		WATER	WATER	WATER	WATER	WATER	WATER	WATER
Vanadium (ug/L)	[EPA200.7]	<50	<50	<50	<50	<50	<50	<50
Zinc (ug/L)	[EPA200.7]	120	550	130	170	130	170	160

Engineers
Planners
CH2M HILL Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 11/22/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11978

RE: Sample(s) received by CH2M HILL on 09/24/88.
LANTDIV

Analysis Description	[Method]	EQ-2 * 9/23/88 1215 GRAB EQUIPMENT BLANK	MSD * MATRIX SPIKE DUPLICATE 9/22/88	MS * MATRIX SPIKE 9/22/88
		WATER	WATER	WATER
Silver (ug/L)	[EPA200.7]	<3	120%	100%
Aluminum (ug/L)	[EPA200.7]	<200	99%	95%
Arsenic (ug/L)	[EPA206.2]	<5	105%	106%
Barium (ug/L)	[EPA200.7]	<200	97%	93%
Beryllium (ug/L)	[EPA200.7]	<5	99%	95%
Calcium (mg/L)	[EPA200.7]	22.6	N-A	N-A
Cadmium (ug/L)	[EPA200.7]	<3	86%	84%
Cobalt (ug/L)	[EPA200.7]	<50	98%	94%
Chromium (ug/L)	[EPA200.7]	<10	93%	90%
Copper (ug/L)	[EPA200.7]	170	103%	79%
Iron (ug/L)	[EPA200.7]	120	104%	104%
Mercury (ug/L)	[EPA245.1]	0.5	0%	90%
Potassium (mg/L)	[EPA200.7]	<5.0	N-A	N-A
Magnesium (mg/L)	[EPA200.7]	<5.0	N-A	N-A
Manganese (ug/L)	[EPA200.7]	<15	100%	95%
Sodium (mg/L)	[EPA200.7]	11.1	N-A	N-A
Nickle (ug/L)	[EPA200.7]	<40	95%	91%
Lead (ug/L)	[EPA200.7]	<5	125%	123%
Antimony (ug/L)	[EPA204.2]	<5	117%	103%
Selenium (ug/L)	[EPA270.2]	<5	94%	79%
Thallium (ug/L)	[EPA279.2]	<5	82%	84%

Engineers
Planners
Economists
Scientists

INORGANIC REPORT OF ANALYSIS

Date: 11/22/88

CH2M HILL/WDC
P.O. BOX 4400
RESTON, VIRGINIA 22090

Project Number: W20368.D0

ATTN: MR. DOUG DRONFIELD/WDC

Laboratory Number: 11978

RE: Sample(s) received by CH2M HILL on 09/24/88.
LANTDIV

Analysis Description	[Method]	EQ-2 * 9/23/88 1215 GRAB EQUIPMENT BLANK	MSD * MATRIX SPIKE DUPLICATE 9/22/88	MS * MATRIX SPIKE 9/22/88
		WATER	WATER	WATER
Vanadium (ug/L)	[EPA200.7]	<50	100%	96%
Zinc (ug/L)	[EPA200.7]	150	99%	94%

Analyses performed in accordance with methods approved by the USEPA.

COMMENT: * = Results expressed in mg/L.
N-A: = Not applicable.

Respectfully Submitted,

Mr. James M. Schoen
Inorganic Laboratory Manager

cc: MR. FRANK LEWIS/WDC, MS. MARY WISDOM/MGM

INORG(MGM-8809C)