AR TARGET SHEET

The following document was too large to scan as one unit, therefore it has been broken down into sections.

DOCUMENT # B07MK9-TMA-369

EDMC # 0045426

SECTION 7 OF 18

9613492.4282

0045426

26 of 42

E-93-22/2978-62

WESTINGHOUSE HANFORD COMPANY
241-T-106 DATA VALIDATION
DISTRIBUTION FORM

SDG: B07ML1

Document Title Final QA Record Case #: N3-03-175-7173

Fraction: RAD

Document Number: _____ Date: 4/15/94

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L. Hammerle (HCSEA)		A. Shen (HCSEA)			
K. Pool (WHC)					

Project Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

1.1	File Index	1.6.6.3	Plans Doc. Log	3.4	Original Chemical Data		
1.2	Distribution Lists	1.6.6.4	Deliverables Doc. Log	3.5	Original Radiochemical Data		
1.3	Project Procedures	1.7	Budget				
1.4	Project Modifications	1.7.1	Downloads	4.1	Task Plan		
1.5	Staff	1.7.2	M-113s				
1.5.1	Staff Resumes	1.7.3	A-208s	4.2	Data Pkg. Completeness Verif. Checklist		
1.5.2	Staff Training	1.7.4	Budget Status	4.3	Data Valididation Calcs./Annotated DP	X	
1.5.3	Auth. Former Site Employee	1.7.5	Invoices	4.4	Prelim. QA Records		
1.6	QA	1.8	Requisitions				
1.6.1	QA Manual	1.9	Meeting Minutes	4.5	Data Valid. & Qual. Summary Rpts.		
1.6.2	QA Implementation	1.10	Record of Telecon	4.5.1	Internal Drafts/Comments/Resol.		
1.6.3.1	QA Audits-Deliverables	1.11	Progress Reports	4.5.2	WHC Review Draft Comments/Resol.		
1.6.3.2	QA Audits-Files	1.12	Subcontractor (HC)	4.5.3	Final Report		
1.6.4.1	Audit Resps. - Deliverables			4.6	Weekly Status Reports		
1.6.4.2	Audit Resps. - Files	2.1	Incoming Correspondence	4.7	Weekly Management Reports		
1.6.5	QA Training	2.2	Outgoing Correspondence				
1.6.6.1	QA Manual Document Log	2.3	Internal Correspondence				
1.6.6.2	Procedure Document Log						
		3.1	Task Order				
		3.2	Sample Lists				
		3.3	Data Validation Procedures				

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THIS APPENDIX CONSISTS OF FIVE ATTACHMENTS

Attachment 1 - Glossary of Data Qualifiers

This attachment provides a glossary explaining all data qualifiers applied as a results of the validation.

Attachment 2 - As Received Laboratory Sample Concentration Reports

This attachment provides a copy of the as-received sample concentration reports. This may be tabular summary to that provided in Attachment 4, or may be a copy of the laboratory reports.

Attachment 3 - Summary of Data Qualifications

This attachment provides a complete summary of all qualifications applied as a result of the validation.

Attachment 4 - As Qualified Data Summary

This attachment provides a copy of the as-received sample concentration reports, with data qualifiers assigned.

Attachment 5 - Data Review Supporting Documentation

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

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ATTACHMENT 1

Glossary of Data Qualifiers

9613492.4285

ATTACHMENT 1

Glossary of Data Qualifiers

U - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported nay not accurately reflect the sample quantitation limit.

J - Indicate the compound or analyte was analyzed for and detected. The associated values is estimated but the data are useable for decision making processes.

R - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

9613492.4286

ATTACHMENT 2

As Received Laboratory Sample Concentration Reports

9613492.4287

TMA

N303175-01

TMA NORCAL
REPORTING GROUP 7173

DATA SHEET

B07ML1

SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N303175-01
Dept sample id 7173-001
Received 03/17/93

Client sample id B07ML1
Matrix LIQUID
Collected 03/17/93
Chain of custody id EFL-1053

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	0.13	1.2	2	3	U	80A
Gross Beta	Beta	0.79	1.1	2	4	U	80B
Uranium 233/234		0.31	0.24	0.3	0.2		U
Uranium 235	15117-96-1	0	0.095	0.4	0.2	U	U
Uranium 238	7440-61-1	0	0.078	0.3	0.2	U	U
Total Uranium (ug/L)	7440-61-1	U		0.08		U	U_T
Plutonium 238	13981-16-3	0.011	0.017	0.03	0.05	U	PU
Plutonium 239/240		0.004	0.008	0.02	0.05	U	PU
Americium 241	14596-10-2	0.004	0.011	0.02	0.05	U	AM
Strontium 90	10098-97-2	0.089	0.19	0.7	2	U	Y
Technetium 99	14133-76-7	13	1.9	3	5	B	TC
Carbon 14	14762-75-5	-26	25	40	50	U	C
Neptunium 237	13994-20-2	0.27	0.13	0.1	1	JN	NP
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59	14596-12-4	U		30	30	U	GAM
Chromium 51	14392-02-0	U		100		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	13982-39-3	U		20		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	13967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		9	20	U	GAM
Cerium 144	14762-78-8	U		50		U	GAM
Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		10	40	U	GAM
Radium 226	13982-63-3	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 06/24/93

TMA NORCAL
REPORTING GROUP 7173

N303175-01

DATA SHEET, cont

B07ML1

SDG	7173	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N303175-01	Client sample id	B07ML1
Dept sample id	7173-001	Matrix	LIQUID
Received	03/17/93	Collected	03/17/93
		Chain of custody id	EFL-1053

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Thorium 232	7440-29-1	U		50		U	GAM

Lab id	TMAN
Protocol	WHC-HASM
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	06/24/93

9613492.4289

ATTACHMENT 3

Summary of Data Qualifications

Gross Alpha (CRDL = 3 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	0.117	0.126	0.13	UJ
QC 7173-2	21.105	21.200	71	
QC 7173-3	0.134	0.133	0.44	
QC 7173-4	-0.102	-0.102	-0.1	

Uranium 235 (CRDL = 0.2 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	0.000	0.000	0.000	R
QC 7173-2	0.404	0.392	0.390	
QC 7173-3	0.027	0.033	0.000	
QC 7173-4	0.042	0.045	0.045	

Gross Beta (CRDL = 4 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	0.795	0.793	0.79	UJ
QC 7173-2	16.130	16.100	54	
QC 7173-3	-0.059	-0.059	-0.2	
QC 7173-4	-0.108	-0.106	-0.11	

Uranium 238 (CRDL = 0.2 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	0.000	0.000	0.000	R
QC 7173-2	5.277	5.279	5.300	
QC 7173-3	0.000	0.000	0.000	
QC 7173-4	0.053	0.056	0.056	

Uranium 233/234 (CRDL = 0.2 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	0.296	0.314	0.310	R
QC 7173-2	5.380	5.372	5.400	
QC 7173-3	-0.018	-0.014	-0.014	
QC 7173-4	0.024	0.019	0.019	

Total Uranium

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	0.057	<0.084	U	UJ
QC 7173-2	26.306	26.306	26.000	
QC 7173-3	0.002	0.002	U	
QC 7173-4	0.049	<0.084	U	

Raw Data Results units are pCi/sample.
Reported Results units are pCi/L.

Plutonium 238 (CRDL = 0.05 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	0.011	0.011	0.011	UJ
QC 7173-2	0.004	0.006	0.006	
QC 7173-3	0.014	0.013	0.013	
QC 7173-4	0.025	0.025	0.025	

Strontium 90 (CRDL = 2 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	0.121	0.089	0.089	UJ
QC 7173-2	16.005	16.015	16.000	
QC 7173-3	0.072	0.072	0.072	
QC 7173-4	0.114	-0.301	-0.300	

Plutonium 239 (CRDL = 0.05 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	0.003	0.004	0.004	UJ
QC 7173-2	1.063	1.062	1.100	
QC 7173-3	0.006	0.005	0.005	
QC 7173-4	-0.001	0.000	0.000	

Technetium 99 (CRDL = 5 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	13.151	13.195	13.000	
QC 7173-2	46.953	46.956	230.000	
QC 7173-3	2.141	2.141	2.140	
QC 7173-4	11.212	11.231	11.000	

Americium 241 (CRDL = 0.05 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	0.004	0.004	0.004	UJ
QC 7173-2	1.160	1.160	1.200	
QC 7173-3	0.001	0.000	0.000	
QC 7173-4	-0.004	-0.002	-0.002	

Carbon 14 (CRDL = 50 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	-26.177	-26.190	-26.000	R
QC 7173-8	191.283	191.020	6400.000	
QC 7173-9	-1.393	-1.391	-46.000	
QC 7173-4	4.924	4.922	4.900	

Raw Data Results units are pCi/sample.
Reported Results units are pCi/L.

Neptunium 237 (CRDL = 1 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	0.267	0.268	0.270	J
QC 7173-2	6.011	6.011	30.000	
QC 7173-3	0.015	0.015	0.074	
QC 7173-4	0.058	0.055	0.055	

Cesium 137 (CRDL = 20 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	8.652	<	U	UJ
QC 7173-2	126.128	126.000	250.000	
QC 7173-3	5.857	<	U	
QC 7173-4	13.305	<	U	

Cobalt 60 (CRDL = 30 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	15.759	<	U	UJ
QC 7173-2	167.504	167.600	340.000	
QC 7173-3	5.424	<	U	
QC 7173-4	11.556	<	U	

Thorium 228

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07ML1	16.613	<	U	UJ
QC 7173-2	10.729	<	U	
QC 7173-3	8.837	<	U	
QC 7173-4	20.045	<	U	

Raw Data Results units are pCi/sample.
Reported Results units are pCi/L.

96134 2.1292

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ATTACHMENT 4

As Qualified Data Summary

9613492.4294

TMA

TMA NORCAL
REPORTING GROUP 7173

N303175-03

REAGENT BLANK

Reagent Blank

SDG 7173
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N303175-03
Dept sample id 7173-003
Matrix LIQUID
Material

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	0.44	1.2	2	3	U	80A
Gross Beta	Beta	-0.20	1.2	2	4	U	80B
Uranium 233/234		-0.014	0.028	0.1	0.2	U	U
Uranium 235	15117-96-1	0.033	0.034	0.1	0.2	U	U
Uranium 238	7440-61-1	0	0.028	0.1	0.2	U	U
Total Uranium (ug/L)	7440-61-1	U		0.08		UX	U_T
Plutonium 238	13981-16-3	0.013	0.021	0.03	0.05	U	PU
Plutonium 239/240		0.005	0.010	0.02	0.05	U	PU
Americium 241	14596-10-2	0	0.018	0.03	0.05	U	AM
Strontium 90	10098-97-2	0.072	0.22	0.8	2	U	Y
Technetium 99	14133-76-7	11	1.7	3	5		TC
Neptunium 237	13994-20-2	0.074	0.064	0.3	1	UN	NP
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59	14596-12-4	U		20	30	U	GAM
Chromium 51	14392-02-0	U		70		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	13982-39-3	U		20		U	GAM
Ruthenium 106	13967-48-1	U		80		U	GAM
Cesium 134	13967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Cerium 144	14762-78-8	U		40		U	GAM
Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		10	40	U	GAM
Radium 226	13982-63-3	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		40		U	GAM

Typo error - actual & calculated level = 2.14 OK

all blanks OK

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 06/24/93

TMA NORCAL
REPORTING GROUP 7173

N303175-09

REAGENT BLANK

Reagent Blank

SDG 7173
Contact Dinkar Kharkar
Lab sample id N303175-09
Dept sample id 7173-009

Client Westinghouse Hanford
Contract MBH-SVV-069262
Matrix LIQUID
Material

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-46	28	50	50	U	C

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 06/24/93

9613492.4296

TMA

TMA NORCAL

REPORTING GROUP 7173

N303175-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N303175-02
Dept sample id 7173-002

Matrix LIQUID
Material

PARAMETER	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	71	6.9	2	3		80A	74.8	3.0	95	68-132	
Gross Beta	54	3.1	2	4		80B	53.1	2.1	102	75-125	
Uranium 233/234	5.4	1.0	0.3	0.2		U	5.21	0.21	104	69-131	
Uranium 235	0.39	0.23	0.2	0.2		U	0.239	0.019	163	-46-246	
Uranium 238	5.3	1.0	0.2	0.2		U	5.21	0.21	102	70-130	
Total Uranium (ug/L)	26	4.5	0.8		X	U_T	24.4	0.98	107	68-132	
Plutonium 238	0.006	0.011	0.02	0.05	U	PU	0	0			
Plutonium 239/240	1.1	0.13	0.02	0.05		PU	1.17	0.047	94	80-120	
Americium 241	1.2	0.12	0.03	0.05		AM	1.17	0.047	103	81-119	
Strontium 90	16	0.88	0.8	2		Y	14.9	0.60	107	80-120	
Technetium 99	230	9.4	4	5	B	TC	255	10	90	84-116	
Neptunium 237	30	1.9	0.2	1	N	NP	30.7	1.2	98	87-113	
GAMMA SCAN ANALYTES											
Potassium 40	U		200		U	GAM					
Iron 59	U		40	30	U	GAM					
Chromium 51	U		100		U	GAM					
Cobalt 60	340	29		30		GAM	361	14	94	75-125	
Zinc 65	U		40		U	GAM					
Ruthenium 106	U		100		U	GAM					
Cesium 134	U		20		U	GAM					
Cesium 137	250	22		20		GAM	246	9.8	102	73-127	
Cerium 144	U		60		U	GAM					
Europium 152	U		30	40	U	GAM					
Europium 154	U		20	40	U	GAM					
Radium 226	U		30		U	GAM					
Thorium 228	U		20		U	GAM					
Thorium 232	U		80		U	GAM					

$\frac{\text{Result}}{\text{Amount added}} \times 100$

C_{14} > 120% – R – (140%)
U235 > 120% – R – (163%)

all others OK

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-LCS
Version 2.23
Report date 06/24/93

9613492.4297

TMA

TMA NORCAL

REPORTING GROUP 7173

N303175-08

LAB CONTROL SAMPLE

Lab Control Sample

SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N303175-08
Dept sample id 7173-008

Matrix LIQUID
Material

PARAMETER	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Carbon 14	6400	94	50	50		C	4570	180	140	77-123	

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-LCS
Version 2.23
Report date 06/24/93

9613492.4298

TMA

TMA NORCAL

REPORTING GROUP 7173

N303175-04

B07ML1

REPLICATE

SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

REPLICATE
Lab sample id N303175-04
Dept sample id 7173-004

ORIGINAL
Lab sample id N303175-01
Dept sample id 7173-001
Received 03/17/93

Client sample id B07ML1
Matrix LIQUID
Collected 03/17/93
Chain of custody id EFL-1053

PARAMETER	REPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	-0.10	1.2	2	3	U	80A	0.13	1.2	2	U	-	
Gross Beta	-0.11	1.0	2	4	U	80B	0.79	1.1	2	U	-	Replicate
Uranium 233/234	0.019	0.075	0.2	0.2	U	U	0.31	0.24	0.3		177	230 < MDA
Uranium 235	0.045	0.046	0.2	0.2	U	U	0	0.095	0.4	U	-	
Uranium 238	0.056	0.075	0.1	0.2	U	U	0	0.078	0.3	U	-	
Total Uranium (ug/L)	U		0.08		U	U_T	U		0.08	U	-	
Plutonium 238	0.025	0.020	0.02	0.05	J	PU	0.011	0.017	0.03	U	78	219
Plutonium 239/240	0	0.008	0.02	0.05	U	PU	0.004	0.008	0.02	U	-	Both
Americium 241	-0.002	0.014	0.03	0.05	U	AM	0.004	0.011	0.02	U	-	< MDA
Strontium 90	-0.30	0.58	0.7	2	U	Y	0.089	0.19	0.7	U	-	
Technetium 99	11	1.4	2	5	B	TC	13	1.9	3	B	17	37 OK
Carbon 14	4.9	26	50	50	U	C	-26	25	40	U	-	
Neptunium 237	0.055	0.074	0.06	1	UN	NP	0.27	0.13	0.1	JN	132	139
												Replicate
GAMMA SCAN ANALYTES												< MDA
Potassium 40	U		200		U	GAM	U		100	U	-	
Iron 59	U		40	30	U	GAM	U		30	U	-	
Chromium 51	U		200		U	GAM	U		100	U	-	
Cobalt 60	U		10	30	U	GAM	U		20	U	-	
Zinc 65	U		20		U	GAM	U		20	U	-	
Ruthenium 106	U		100		U	GAM	U		100	U	-	
Cesium 134	U		10		U	GAM	U		10	U	-	
Cesium 137	U		10	20	U	GAM	U		9	U	-	
Cerium 144	U		60		U	GAM	U		50	U	-	
Europium 152	U		20	40	U	GAM	U		20	U	-	
Europium 154	U		10	40	U	GAM	U		10	U	-	
Radium 226	U		20		U	GAM	U		20	U	-	
Thorium 228	U		20		U	GAM	U		20	U	-	

~~Pu~~
Tc^{99} OK

All others < MDA

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-REP
Version 2.23
Report date 06/24/93

9613492.4299

TMA

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REPORTING GROUP 7173

N303175-04

B07ML1

REPLICATE, cont.

SDG 7173
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

REPLICATE
Lab sample id N303175-04
Dept sample id 7173-004

ORIGINAL
Lab sample id N303175-01
Dept sample id 7173-001
Received 03/17/93

Client sample id B07ML1
Matrix LIQUID
Collected 03/17/93
Chain of custody id EFL-1053

PARAMETER	REPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Thorium 232	U		60		U	GAM	U		50	U	-		

QC 12530-12537 REP

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-REP
Version 2.23
Report date 06/24/93

9613492.4500

TMA

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REPORTING GROUP 7173

DATA SHEET

N303175-01

B07ML1

SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N303175-01
Dept sample id 7173-001
Received 03/17/93

Client sample id B07ML1
Matrix LIQUID
Collected 03/17/93
Chain of custody id EFL-1053

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALIFIERS	TEST
Gross Alpha	Alpha	0.13	1.2	2	3	~~U~~ U ~~UJ~~	80A
Gross Beta	Beta	0.79	1.1	2	4	~~U~~ U ~~UJ~~	80B
Uranium 233/234		0.31	0.24	0.3	0.2	— R	U
Uranium 235	15117-96-1	0	0.095	0.4	0.2	~~U~~ R	U
Uranium 238	7440-61-1	0	0.078	0.3	0.2	~~U~~ R	U
Total Uranium (ug/L)	7440-61-1	U		0.08		~~U~~ U ~~UJ~~	U_T
Plutonium 238	13981-16-3	0.011	0.017	0.03	0.05	~~U~~ U	PU
Plutonium 239/240		0.004	0.008	0.02	0.05	~~U~~ U	PU
Americium 241	14596-10-2	0.004	0.011	0.02	0.05	~~U~~ R	AM
Strontium 90	10098-97-2	0.089	0.19	0.7	2	~~U~~ U ~~UJ~~	Y
Technetium 99	14133-76-7	13	1.9	3	5	~~B~~ —	TC
Carbon 14	14762-75-5	-26	25	40	50	~~U~~ R	C
Neptunium 237	13994-20-2	0.27	0.13	0.1	1	~~JN~~ J	NP
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		~~U~~ U ~~UJ~~	GAM
Iron 59	14596-12-4	U		30	30	~~U~~	GAM
Chromium 51	14392-02-0	U		100		~~U~~	GAM
Cobalt 60	10198-40-0	U		20	30	~~U~~ U	GAM
Zinc 65	13982-39-3	U		20		~~U~~	GAM
Ruthenium 106	13967-48-1	U		100		~~U~~	GAM
Cesium 134	13967-70-9	U		10		~~U~~	GAM
Cesium 137	10045-97-3	U		9	20	~~U~~ U	GAM
Cerium 144	14762-78-8	U		50		~~U~~	GAM
Europium 152	14683-23-9	U		20	40	~~U~~	GAM
Europium 154	15585-10-1	U		10	40	~~U~~	GAM
Radium 226	13982-63-3	U		20		~~U~~	GAM
Thorium 228	14274-82-9	U		20		~~U~~ U ~~UJ~~	GAM

22594

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 06/24/93

9615492.4301

TMA

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REPORTING GROUP 7173

N303175-01

DATA SHEET, cont

B07ML1

SDG	7173	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N303175-01	Client sample id	B07ML1
Dept sample id	7173-001	Matrix	LIQUID
Received	03/17/93	Collected	03/17/93
		Chain of custody id	EFL-1053

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Thorium 232	7440-29-1	U		50		~~U~~ ~~UJ~~	GAM

Dups - Tc^{99} ok, All others < MDA (J)

LCS - C^{14} @ 140% } (R) because > 120%
U^{235} @ 163% }

All others (ok)

Blank - All (ok)

Holding Times - All (ok)

Detection Limits - All (ok) except Iso U MDA > RDL

Calibration - Sources traceable, equipment in control OK

Yields - ^{241}Am (50-62%) (ok)

^{237}Np Sample - 43%
Blank - 46%
LCS & Replicate 26%, 23% < 30% Reject LCS & Replicate
~~no~~ (J") sample

Pu (44-60%) (ok)

^{150}U sample 24% - (R)
ac (49-56%) - (ok)

^{99}Tc (57-70%) - (ok)

^{90}Sr (75-89%) - (ok)

notes!

Lab id	TMAN
Protocol	WHC-HASM
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	06/24/93

9613492.4302

ATTACHMENT 5

Data Review Supporting Documentation

9613492.4503

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
P. O. Box 4040
Richmond, CA 94804-0040
(510) 235-2633 Fax No. (510) 235-0438

RECORD COPY

JUN 199
RL
SDL

June 26, 1993

SENT BY FEDERAL EXPRESS

Ref: TMA/Norcal N3-03-175-7173

Ms. Briana Colley
Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23
345 Hills Street/3000 Area
Richland, WA 99352

Dear Ms. Colley:

Enclosed in the Summary Data Section, are the ^{237}Np results for the water sample from 241-T-106 Location we received 19 March 1993. The QA/QC results are also given in the Summary Data Section.

The "N" shown as a qualifier means that Neptunium is the only new data.

The Summary Data Section is numbered pages 1 to 51, and the appendices are numbered pages 52 through 112.

The results of all other nuclides were reported to you on 3 June 1993 and 14 June 1993.

Please call if you have any questions concerning this data.

Sincerely,

Dinkar P. Kharkar, Ph.D.
Manager, Nuclear Programs

DPK/ss

Enclosures: Section 1 and 2
Appendices

9613492.4504

TMA NORCAL
REPORTING GROUP 7173

SDG	7173
Contact	Dinkar Kharkar

Client	Westinghouse Hanford
Contract	MBH-SVV-069262

SUMMARY DATA SECTION

TABLE OF CONTENTS

About this section	1
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Lab id	TMAN
Protocol	WHC-HASM
Version	Ver 1.0
Form	DVD-TOC
Version	2.23
Report date	06/24/93

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample Summary Reports (variously titled LAB, SAMPLE, DEPARTMENT and QC SUMMARY to reflect the sort order) show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

REAGENT BLANKS

The Reagent Blank Reports, one for each Reagent Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

ABOUT THE DATA SUMMARY SECTION

REPLICATES

The Replicate Reports, one for each Replicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

RESULT SUMMARIES

The Result Summary Reports, one for each test used in the SDG, show all results and QC for one parameter on one page. (A test is a short code for the method used to do certain work to the client's specification.)

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show performance data for each method on one page.

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

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TMA

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REPORTING GROUP 7173

SAMPLE SUMMARY

SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	MATRIX	CHAIN OF CUSTODY	COLLECTED	RECEIVED	SAMPLE WT/VOL	BASIS WT/VOL	% MOIST	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
B07ML1	LIQUID	EFL-1053	03/17/93	03/17/93				N303175-01	7173-001
Reagent Blank	LIQUID							N303175-03	7173-003
Reagent Blank	LIQUID							N303175-09	7173-009
Lab Control Sample	LIQUID							N303175-02	7173-002
Lab Control Sample	LIQUID							N303175-08	7173-008
Replicate (N303175-01)	LIQUID		03/17/93					N303175-04	7173-004

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CS
Version 2.23
Report date 06/24/93

9613492.4508

TMA

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REPORTING GROUP 7173

QC SUMMARY

SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	LEVEL	COLLECTED	RECEIVED	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7173	EFL-1053	B07ML1	LIQUID		03/17/93	03/17/93	N303175-01	7173-001
		Reagent Blank	LIQUID				N303175-03	7173-003
		Reagent Blank	LIQUID				N303175-09	7173-009
		Lab Control Sample	LIQUID				N303175-02	7173-002
		Lab Control Sample	LIQUID				N303175-08	7173-008
		Replicate (N303175-01)	LIQUID		03/17/93		N303175-04	7173-004

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-QS
Version 2.23
Report date 06/24/93

9613492.4509

TMA

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REPORTING GROUP 7173

SDG 7173
Contact Dinkar Kharkar

PREP BATCH SUMMARY

Client Westinghouse Hanford
Contract MBH-SVV-069262

TEST	MATRIX	METHOD	PREPARATION BATCH	PREP ERROR	PLANCHETS ANALYZED CLIENT	RE	BLANK	LCS	REP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy											
AM	LIQUID	Americium 241 in Water	2436-188	5.0	1		1	1	1/1		
NP	LIQUID	Neptunium in Water	2436-188	5.0	1		1	1	1/1		N
PU	LIQUID	Plutonium, Isotopic in Water	2436-188	5.0	1		1	1	1/1		
U	LIQUID	Uranium, Isotopic in Water	2436-188	5.0	1		1	1	1/1		
Beta Counting											
TC	LIQUID	Technetium 99 in Water	2436-188	10.0	1		1	1	1/1		
Y	LIQUID	Strontium 90 in Water	2436-188	10.0	1		1	1	1/1		
Gas Proportional Counting											
80A	LIQUID	Gross Alpha in Water	2436-188	20.0	1		1	1	1/1		
80B	LIQUID	Gross Beta in Water	2436-188	15.0	1		1	1	1/1		
Gamma Scan											
GAM	LIQUID	Gamma Emitters	2436-188	15.0	1		1	1	1/1		
Kinetic Phosphorimetry											
U_T	LIQUID	Uranium, Total in Water	2436-188	9.0	1		1	1	1/1		
Liquid Scintillation											
C	LIQUID	Carbon 14 in Water	2436-188	10.0	1		1	1	1/1		

Replicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Replicate or Spike sample.

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-PBS
Version 2.23
Report date 06/24/93

TMA NORCAL

REPORTING GROUP 7173

WORK SUMMARY

SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID / MATRIX / CUSTODY	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	PREPARED	ANALYZED	METHOD
B07ML1	N303175-01	7173-001	80A/80		04/09/93	04/09/93	Gross Alpha in Water
LIQUID	03/17/93	7173-001	80B/80		04/09/93	04/09/93	Gross Beta in Water
EFL-1053	03/17/93	7173-001	AM		04/14/93	04/20/93	Americium 241 in Water
		7173-001	C	A2	05/04/93	05/04/93	Carbon 14 in Water
		7173-001	GAM		04/10/93	04/10/93	Gamma Emitters
		7173-001	NP		06/16/93	06/16/93	Neptunium in Water
		7173-001	PU		04/14/93	04/20/93	Plutonium, Isotopic in Water
		7173-001	TC		04/15/93	04/20/93	Technetium 99 in Water
		7173-001	U		04/14/93	04/16/93	Uranium, Isotopic in Water
		7173-001	U_T		06/09/93	06/09/93	Uranium, Total in Water
		7173-001	Y		04/14/93	06/14/93	Strontium 90 in Water
Reagent Blank	N303175-03	7173-003	80A/80		04/09/93	04/09/93	Gross Alpha in Water
LIQUID		7173-003	80B/80		04/09/93	04/09/93	Gross Beta in Water
		7173-003	AM		04/14/93	04/20/93	Americium 241 in Water
		7173-003	GAM		04/10/93	04/10/93	Gamma Emitters
		7173-003	NP		06/16/93	06/16/93	Neptunium in Water
		7173-003	PU		04/14/93	04/20/93	Plutonium, Isotopic in Water
		7173-003	TC		04/15/93	04/20/93	Technetium 99 in Water
		7173-003	U		04/14/93	04/21/93	Uranium, Isotopic in Water
		7173-003	U_T		06/09/93	06/09/93	Uranium, Total in Water
		7173-003	Y		04/14/93	04/14/93	Strontium 90 in Water
Reagent Blank	N303175-09	7173-009	C		05/04/93	05/04/93	Carbon 14 in Water
LIQUID							
Lab Control Sample	N303175-02	7173-002	80A/80		04/09/93	04/09/93	Gross Alpha in Water
LIQUID		7173-002	80B/80		04/09/93	04/09/93	Gross Beta in Water
		7173-002	AM		04/14/93	04/20/93	Americium 241 in Water
		7173-002	GAM		04/10/93	04/10/93	Gamma Emitters
		7173-002	NP		06/16/93	06/16/93	Neptunium in Water
		7173-002	PU		04/14/93	05/03/93	Plutonium, Isotopic in Water
		7173-002	TC		04/15/93	04/19/93	Technetium 99 in Water
		7173-002	U		04/14/93	04/16/93	Uranium, Isotopic in Water
		7173-002	U_T		06/09/93	06/09/93	Uranium, Total in Water
		7173-002	Y		04/14/93	04/14/93	Strontium 90 in Water
Lab Control Sample	N303175-08	7173-008	C		05/04/93	05/04/93	Carbon 14 in Water
LIQUID							

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CWS
Version 2.23
Report date 06/24/93

TMA NORCAL

REPORTING GROUP 7173

SDG 7173
Contact Dinkar Kharkar

WORK SUMMARY, cont.

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID / MATRIX / CUSTODY	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	PREPARED	ANALYZED	METHOD
Replicate (N303175-01)	N303175-04	7173-004	80A/80		04/09/93	04/09/93	Gross Alpha in Water
LIQUID	03/17/93	7173-004	80B/80		04/09/93	04/09/93	Gross Beta in Water
EFL-1053	03/17/93	7173-004	AM		04/14/93	04/20/93	Americium 241 in Water
		7173-004	C	A1	04/27/93	04/27/93	Carbon 14 in Water
		7173-004	GAM		04/10/93	04/15/93	Gamma Emitters
		7173-004	NP		06/16/93	06/16/93	Neptunium in Water
		7173-004	PU		04/14/93	04/20/93	Plutonium, Isotopic in Water
		7173-004	TC		04/15/93	04/21/93	Technetium 99 in Water
		7173-004	U		04/14/93	04/21/93	Uranium, Isotopic in Water
		7173-004	U_T		06/09/93	06/09/93	Uranium, Total in Water
		7173-004	Y		04/14/93	04/14/93	Strontium 90 in Water

COUNTS OF TESTS BY SAMPLE TYPE

TEST	METHOD	REFERENCE	CLIENT	RE	BLANK	LCS	REP SPIKE	TOTALS
80A/80	Gross Alpha in Water	ASTM 1943-90; EPA 900	1		1	1	1	4
80B/80	Gross Beta in Water	ASTM 1943-90; EPA 900	1		1	1	1	4
AM	Americium 241 in Water	HASL 300/AM-03	1		1	1	1	4
C	Carbon 14 in Water		1		1	1	1	4
GAM	Gamma Emitters	ASTM 3649-85; EPA 901.1	1		1	1	1	4
NP	Neptunium in Water		1		1	1	1	4
PU	Plutonium, Isotopic in Water	ASTM 3865-90	1		1	1	1	4
TC	Technetium 99 in Water	HASL 300/TC-01	1		1	1	1	4
U	Uranium, Isotopic in Water	ASTM 3972-90	1		1	1	1	4
U_T	Uranium, Total in Water	ASTM D5174-91	1		1	1	1	4
Y	Strontium 90 in Water	HASL 300/SR-01,-02	1		1	1	1	4
TOTALS			11		11	11	11	44

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CWS
Version 2.23
Report date 06/24/93

9613492.4312

TMA

N303175-03

TMA NORCAL
REPORTING GROUP 7173

REAGENT BLANK

Reagent Blank

SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N303175-03
Dept sample id 7173-003

Matrix LIQUID
Material

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	0.44	1.2	2	3	U	80A
Gross Beta	Beta	-0.20	1.2	2	4	U	80B
Uranium 233/234		-0.014	0.028	0.1	0.2	U	U
Uranium 235	15117-96-1	0.033	0.034	0.1	0.2	U	U
Uranium 238	7440-61-1	0	0.028	0.1	0.2	U	U
Total Uranium (ug/L)	7440-61-1	U		0.08		UX	U_T
Plutonium 238	13981-16-3	0.013	0.021	0.03	0.05	U	PU
Plutonium 239/240		0.005	0.010	0.02	0.05	U	PU
Americium 241	14596-10-2	0	0.018	0.03	0.05	U	AM
Strontium 90	10098-97-2	0.072	0.22	0.8	2	U	Y
Technetium 99	14133-76-7	11	1.7	3	5		TC
Neptunium 237	13994-20-2	0.074	0.064	0.3	1	UN	NP
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59	14596-12-4	U		20	30	U	GAM
Chromium 51	14392-02-0	U		70		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	13982-39-3	U		20		U	GAM
Ruthenium 106	13967-48-1	U		80		U	GAM
Cesium 134	13967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Cerium 144	14762-78-8	U		40		U	GAM
Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		10	40	U	GAM
Radium 226	13982-63-3	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		40		U	GAM

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 06/24/93

9613492.4313

TMA

TMA NORCAL
REPORTING GROUP 7173

N303175-09

REAGENT BLANK

Reagent Blank

SDG	7173	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N303175-09	Matrix	LIQUID
Dept sample id	7173-009	Material	

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-46	28	50	50	U	C

Lab id	TMAN
Protocol	WHC-HASM
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	06/24/93

9613492.4314

TMA

TMA NORCAL

REPORTING GROUP 7173

N303175-02

LAB CONTROL SAMPLE

Lab Control Sample

SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N303175-02
Dept sample id 7173-002

Matrix LIQUID
Material

PARAMETER	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	71	6.9	2	3		80A	74.8	3.0	95	68-132	
Gross Beta	54	3.1	2	4		80B	53.1	2.1	102	75-125	
Uranium 233/234	5.4	1.0	0.3	0.2		U	5.21	0.21	104	69-131	
Uranium 235	0.39	0.23	0.2	0.2		U	0.239	0.019	163	-46-246	
Uranium 238	5.3	1.0	0.2	0.2		U	5.21	0.21	102	70-130	
Total Uranium (ug/L)	26	4.5	0.8		X	U_T	24.4	0.98	107	68-132	
Plutonium 238	0.006	0.011	0.02	0.05	U	PU	0	0			
Plutonium 239/240	1.1	0.13	0.02	0.05		PU	1.17	0.047	94	80-120	
Americium 241	1.2	0.12	0.03	0.05		AM	1.17	0.047	103	81-119	
Strontium 90	16	0.88	0.8	2		Y	14.9	0.60	107	80-120	
Technetium 99	230	9.4	4	5	B	TC	255	10	90	84-116	
Neptunium 237	30	1.9	0.2	1	N	NP	30.7	1.2	98	87-113	
GAMMA SCAN ANALYTES											
Potassium 40	U		200		U	GAM					
Iron 59	U		40	30	U	GAM					
Chromium 51	U		100		U	GAM					
Cobalt 60	340	29		30		GAM	361	14	94	75-125	
Zinc 65	U		40		U	GAM					
Ruthenium 106	U		100		U	GAM					
Cesium 134	U		20		U	GAM					
Cesium 137	250	22		20		GAM	246	9.8	102	73-127	
Cerium 144	U		60		U	GAM					
Europium 152	U		30	40	U	GAM					
Europium 154	U		20	40	U	GAM					
Radium 226	U		30		U	GAM					
Thorium 228	U		20		U	GAM					
Thorium 232	U		80		U	GAM					

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-LCS
Version 2.23
Report date 06/24/93

9613492.4315

TMA

N303175-08

TMA NORCAL

REPORTING GROUP 7173

LAB CONTROL SAMPLE

Lab Control Sample

SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N303175-08
Dept sample id 7173-008

Matrix LIQUID
Material

PARAMETER	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Carbon 14	6400	94	50	50		C	4570	180	140	77-123	

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-LCS
Version 2.23
Report date 06/24/93

9613492.4346

TMA

TMA NORCAL

REPORTING GROUP 7173

N303175-04

B07ML1

REPLICATE

SDG 7173

Contact Dinkar Kharkar

Client Westinghouse Hanford

Contract MBH-SVV-069262

REPLICATE		ORIGINAL	
Lab sample id	N303175-04	Lab sample id	N303175-01
Dept sample id	7173-004	Dept sample id	7173-001
		Received	03/17/93

Client sample id B07ML1

Matrix LIQUID

Collected 03/17/93

Chain of custody id EFL-1053

PARAMETER	REPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Gross Alpha	-0.10	1.2	2	3	U	80A	0.13	1.2	2	U	-		
Gross Beta	-0.11	1.0	2	4	U	80B	0.79	1.1	2	U	-		
Uranium 233/234	0.019	0.075	0.2	0.2	U	U	0.31	0.24	0.3		177	230	
Uranium 235	0.045	0.046	0.2	0.2	U	U	0	0.095	0.4	U	-		
Uranium 238	0.056	0.075	0.1	0.2	U	U	0	0.078	0.3	U	-		
Total Uranium (ug/L)	U		0.08		U	U_T	U		0.08	U	-		
Plutonium 238	0.025	0.020	0.02	0.05	J	PU	0.011	0.017	0.03	U	78	219	
Plutonium 239/240	0	0.008	0.02	0.05	U	PU	0.004	0.008	0.02	U	-		
Americium 241	-0.002	0.014	0.03	0.05	U	AM	0.004	0.011	0.02	U	-		
Strontium 90	-0.30	0.58	0.7	2	U	Y	0.089	0.19	0.7	U	-		
Technetium 99	11	1.4	2	5	B	TC	13	1.9	3	B	17	37	
Carbon 14	4.9	26	50	50	U	C	-26	25	40	U	-		
Neptunium 237	0.055	0.074	0.06	1	UN	NP	0.27	0.13	0.1	JN	132	139	
GAMMA SCAN ANALYTES													
Potassium 40	U		200		U	GAM	U		100	U	-		
Iron 59	U		40	30	U	GAM	U		30	U	-		
Chromium 51	U		200		U	GAM	U		100	U	-		
Cobalt 60	U		10	30	U	GAM	U		20	U	-		
Zinc 65	U		20		U	GAM	U		20	U	-		
Ruthenium 106	U		100		U	GAM	U		100	U	-		
Cesium 134	U		10		U	GAM	U		10	U	-		
Cesium 137	U		10	20	U	GAM	U		9	U	-		
Cerium 144	U		60		U	GAM	U		50	U	-		
Europium 152	U		20	40	U	GAM	U		20	U	-		
Europium 154	U		10	40	U	GAM	U		10	U	-		
Radium 226	U		20		U	GAM	U		20	U	-		
Thorium 228	U		20		U	GAM	U		20	U	-		

Lab id TMAN

Protocol WHC-HASM

Version Ver 1.0

Form DVD-REP

Version 2.23

Report date 06/24/93

TMA NORCAL

REPORTING GROUP 7173

N303175-04

B07ML1

REPLICATE, cont.

SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

REPLICATE
Lab sample id N303175-04
Dept sample id 7173-004

ORIGINAL
Lab sample id N303175-01
Dept sample id 7173-001
Received 03/17/93

Client sample id B07ML1
Matrix LIQUID
Collected 03/17/93
Chain of custody id EFL-1053

PARAMETER	REPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Thorium 232	U		60		U	GAM	U		50	U	-		

QC 12530-12537 REP

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-REP
Version 2.23
Report date 06/24/93

N303175-01

TMA NORCAL
REPORTING GROUP 7173

DATA SHEET

B07ML1

SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N303175-01
Dept sample id 7173-001
Received 03/17/93

Client sample id B07ML1
Matrix LIQUID
Collected 03/17/93
Chain of custody id EFL-1053

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	0.13	1.2	2	3	U	80A
Gross Beta	Beta	0.79	1.1	2	4	U	80B
Uranium 233/234		0.31	0.24	0.3	0.2		U
Uranium 235	15117-96-1	0	0.095	0.4	0.2	U	U
Uranium 238	7440-61-1	0	0.078	0.3	0.2	U	U
Total Uranium (ug/L)	7440-61-1	U		0.08		U	U_T
Plutonium 238	13981-16-3	0.011	0.017	0.03	0.05	U	PU
Plutonium 239/240		0.004	0.008	0.02	0.05	U	PU
Americium 241	14596-10-2	0.004	0.011	0.02	0.05	U	AM
Strontium 90	10098-97-2	0.089	0.19	0.7	2	U	Y
Technetium 99	14133-76-7	13	1.9	3	5	B	TC
Carbon 14	14762-75-5	-26	25	40	50	U	C
Neptunium 237	13994-20-2	0.27	0.13	0.1	1	JN	NP
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59	14596-12-4	U		30	30	U	GAM
Chromium 51	14392-02-0	U		100		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	13982-39-3	U		20		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	13967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		9	20	U	GAM
Cerium 144	14762-78-8	U		50		U	GAM
Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		10	40	U	GAM
Radium 226	13982-63-3	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 06/24/93

TMA NORCAL
REPORTING GROUP 7173

N303175-01

DATA SHEET, cont

B07ML1

SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N303175-01
Dept sample id 7173-001
Received 03/17/93

Client sample id B07ML1
Matrix LIQUID
Collected 03/17/93
Chain of custody id EFL-1053

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Thorium 232	7440-29-1	U		50		U	GAM

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 06/24/93

9613492.4320

TMA

TMA NORCAL

REPORTING GROUP 7173

Test AM Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

RESULT SUMMARY

AMERICIUM 241 IN WATER

ALPHA SPECTROSCOPY

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	SUF-FIX	PLANCHET	Americium 241
Preparation batch 2436-188 Prep error 5.0 %				
B07ML1	N303175-01		7173-001	U
Reagent Blank	N303175-03		7173-003	U
Lab Control Sample	N303175-02		7173-002	ok
Replicate (N303175-01)	N303175-04		7173-004	- U
Nominal values and limits from method			RDLs (pCi/L)	0.05

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CRS
Version 2.23
Report date 06/24/93

9613492.4321

TMA

TMA NORCAL

REPORTING GROUP 7173

Test NP Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

RESULT SUMMARY

NEPTUNIUM IN WATER
ALPHA SPECTROSCOPY

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 2436-188 Prep error 5.0 % N					
B07ML1	N303175-01	-	7173-001	0.27	J
Reagent Blank	N303175-03		7173-003	U	
Lab Control Sample	N303175-02		7173-002	ok	
Replicate (N303175-01)	N303175-04		7173-004	ok	U
Nominal values and limits from method			RDLs (pCi/L)	1	

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CRS
Version 2.23
Report date 06/24/93

TMA NORCAL

REPORTING GROUP 7173

Test PU Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

RESULT SUMMARY

PLUTONIUM, ISOTOPIC IN WATER
ALPHA SPECTROSCOPY

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 2436-188 Prep error 5.0 %							
B07ML1	N303175-01		7173-001	U		U	
Reagent Blank	N303175-03		7173-003	U		U	
Lab Control Sample	N303175-02		7173-002	ok	U	ok	
Replicate (N303175-01)	N303175-04		7173-004	ok	J	-	U
Nominal values and limits from method			RDLs (pCi/L)	0.05		0.05	

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CRS
Version 2.23
Report date 06/24/93

9613492.1423

TMA

TMA NORCAL

REPORTING GROUP 7173

Test U Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

RESULT SUMMARY

URANIUM, ISOTOPIC IN WATER
ALPHA SPECTROSCOPY

CLIENT SAMPLE ID	LAB SAMPLE ID	SUF-FIX	PLANCHET	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1÷3	2σ	2÷3	2σ
Preparation batch 2436-188 Prep error 5.0 %										
B07ML1	N303175-01		7173-001	0.31	U	U				
Reagent Blank	N303175-03		7173-003	U	U	U				
Lab Control Sample	N303175-02		7173-002	ok	ok	ok	102	27	7	5
Replicate (N303175-01)	N303175-04		7173-004	ok U	- U	- U				
Nominal values and limits from method			RDLs (pCi/L)	0.2	0.2	0.2	100		4	
						Averages				

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CRS
Version 2.23
Report date 06/24/93

9613492.4324

TMA

TMA NORCAL

REPORTING GROUP 7173

Test TC Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

RESULT SUMMARY

TECHNETIUM 99 IN WATER

BETA COUNTING

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	SUF-FIX	PLANCHET	Technetium 99
Preparation batch 2436-188 Prep error 10.0 %				
B07ML1	N303175-01		7173-001	13
Reagent Blank	N303175-03		7173-003	11
Lab Control Sample	N303175-02		7173-002	ok
Replicate (N303175-01)	N303175-04		7173-004	ok
Nominal values and limits from method			RDLs (pCi/L)	5

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CRS
Version 2.23
Report date 06/24/93

9613492.4325

TMA

TMA NORCAL

REPORTING GROUP 7173

Test Y Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

RESULT SUMMARY

STRONTIUM 90 IN WATER
BETA COUNTING

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	SUF-FIX	PLANCHET	Strontium 90
Preparation batch 2436-188 Prep error 10.0 %				
B07ML1	N303175-01		7173-001	U
Reagent Blank	N303175-03		7173-003	U
Lab Control Sample	N303175-02		7173-002	ok
Replicate (N303175-01)	N303175-04		7173-004	- U

Nominal values and limits from method RDLs (pCi/L) 2

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CRS
Version 2.23
Report date 06/24/93

9613492.4326

TMA

TMA NORCAL

REPORTING GROUP 7173

Test 80A Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

RESULT SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	SUF-FIX	PLANCHET	1: Gross Alpha	2: Sum, Alpha Emitters	RESULT RATIO (%) 2÷1	2σ
Preparation batch 2436-188 Prep error 20.0 %							
B07ML1	N303175-01		7173-001	U	0.58		
Reagent Blank	N303175-03		7173-003	U			
Lab Control Sample	N303175-02		7173-002	ok			
Replicate (N303175-01)	N303175-04		7173-004	- U			
Nominal values and limits from method			RDLs (pCi/L)	3			
					Average		

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CRS
Version 2.23
Report date 06/24/93

9613492.4327

TMA

TMA NORCAL

REPORTING GROUP 7173

Test 80B Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

RESULT SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	SUF-FIX	PLANCHET	1: Gross Beta	2: Sum, Beta Emitters	RESULT RATIO (%) 2÷1	2σ
Preparation batch 2436-188 Prep error 15.0 %							
B07ML1	N303175-01		7173-001	U	7.8		
Reagent Blank	N303175-03		7173-003	U			
Lab Control Sample	N303175-02		7173-002	ok			
Replicate (N303175-01)	N303175-04		7173-004	- U			
Nominal values and limits from method			RDLs (pCi/L)	4			
					Average		

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CRS
Version 2.23
Report date 06/24/93

TMA

TMA NORCAL

REPORTING GROUP 7173

Test GAM Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

RESULT SUMMARY

GAMMA EMITTERS

GAMMA SCAN

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 2436-188 Prep error 15.0 %					
B07ML1	N303175-01		7173-001	U	U
Reagent Blank	N303175-03		7173-003	U	U
Lab Control Sample	N303175-02		7173-002	ok	ok
Replicate (N303175-01)	N303175-04		7173-004	- U	- U
Nominal values and limits from method			RDLs (pCi/L)	30	20

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CRS
Version 2.23
Report date 06/24/93

9613492.4529

TMA

TMA NORCAL

REPORTING GROUP 7173

Test U T Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

RESULT SUMMARY

URANIUM, TOTAL IN WATER
KINETIC PHOSPHORIMETRY

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	SUF-FIX	PLANCHET	Total Uranium	
Preparation batch 2436-188 Prep error 9.0 %					
B07ML1	N303175-01		7173-001	U	
Reagent Blank	N303175-03		7173-003	U	X
Lab Control Sample	N303175-02		7173-002	ok	X
Replicate (N303175-01)	N303175-04		7173-004	-	U

Nominal values and limits from method RDLs (ug/L)

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CRS
Version 2.23
Report date 06/24/93

TMA NORCAL

REPORTING GROUP 7173

Test C Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

RESULT SUMMARY

CARBON 14 IN WATER
LIQUID SCINTILLATION

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	SUF-FIX	PLANCHET	Carbon 14
Preparation batch 2436-188	Prep error 10.0 %			
B07ML1	N303175-01	A2	7173-001	U
Reagent Blank	N303175-09		7173-009	U
Lab Control Sample	N303175-08		7173-008	HIGH
Replicate (N303175-01)	N303175-04	A1	7173-004	- U
Nominal values and limits from method			RDLs (pCi/L)	50

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CRS
Version 2.23
Report date 06/24/93

9613492.4331

TMA

TMA NORCAL

REPORTING GROUP 7173

Test AM Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

METHOD SUMMARY

AMERICIUM 241 IN WATER

ALPHA SPECTROSCOPY

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	MDA pCi/L	ALIQUOT L	RESID mg	YIELD %	COUNT min	FWHM keV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 2436-188 Prep error 5.0 %														
B07ML1	N303175-01			7173-001	0.02	1.00		57	1076		34	04/14/93	04/20	SS-041
Blank (Stnd=12525)	N303175-03			7173-003	0.03	1.00		50	1065			04/14/93	04/20	SS-043
LCS (Stnd=12517)	N303175-02			7173-002	0.03	1.00		55	1076			04/14/93	04/20	SS-042
Replicate (N303175-01)	N303175-04			7173-004	0.03	1.00		62	1065		34	04/14/93	04/20	SS-044
Nominal values and limits from method					0.05	1.00	-	20-105	700	100	180			

PROCEDURES	REFERENCE	HASL 300/AM-03
	EP-040	Environmental water dissolution
	EP-940	Plutonium Purification
	EP-960	Americium-Curium Purification
	EP-008	Heavy Elements Electroplating

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	0.03	±	0.01
	YIELD	56	±	10
	FWHM		±	

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CMS
Version 2.23
Report date 06/24/93

9613492.4332

TMA

TMA NORCAL

REPORTING GROUP 7173

Test NP Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

METHOD SUMMARY

NEPTUNIUM IN WATER
ALPHA SPECTROSCOPY

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	MDA pCi/L	ALIQUOT L	RESID mg	YIELD %	COUNT min	FWHM keV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 2436-188 Prep error 5.0 % N														
B07ML1	N303175-01			7173-001	0.1	0.200		43			91	06/16/93	06/16	BETA
Blank (Stnd=12528)	N303175-03			7173-003	0.3	0.200		46				06/16/93	06/16	BETA
LCS (Stnd=12520)	N303175-02			7173-002	0.2	0.200		26				06/16/93	06/16	BETA
Replicate (N303175-01)	N303175-04			7173-004	0.06	0.200		27			91	06/16/93	06/16	BETA
Nominal values and limits from method					1	0.200	-	20-105	100		180			

PROCEDURES EP-040 Environmental water dissolution
EP-930 Neptunium purification

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.2 ± 0.2
YIELD 36 ± 21
FWHM ____ ± ____

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CMS
Version 2.23
Report date 06/24/93

9613492.4573

TMA

TMA NORCAL

REPORTING GROUP 7173

Test PU Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN WATER
ALPHA SPECTROSCOPY

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	MAX MDA pCi/L	ALIQUOT L	RESID mg	YIELD %	COUNT min	FWHM keV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 2436-188 Prep error 5.0 %														
B07ML1	N303175-01			7173-001	0.03	1.00		53	1065		34	04/14/93	04/20	SS-046
Blank (Stnd=12525)	N303175-03			7173-003	0.03	1.00		44	1065			04/14/93	04/20	SS-048
LCS (Stnd=12517)	N303175-02			7173-002	0.02	1.00		32	1450			04/14/93	05/03	SS-051
Replicate (N303175-01)	N303175-04			7173-004	0.02	1.00		60	1065		34	04/14/93	04/20	SS-049
Nominal values and limits from method					0.05	1.00	-	20-105	700	100	180			

PROCEDURES	REFERENCE	ASTM 3865-90
	EP-040	Environmental water dissolution
	EP-940	Plutonium Purification
	EP-008	Heavy Elements Electroplating

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	0.02	±	0.01
	YIELD	47	±	24
	FWHM		±	

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CMS
Version 2.23
Report date 06/24/93

TMA NORCAL

REPORTING GROUP 7173

Test U Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

METHOD SUMMARY

URANIUM, ISOTOPIC IN WATER
ALPHA SPECTROSCOPY

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	MAX MDA pCi/L	ALIQUOT L	RESID mg	YIELD %	COUNT min	FWHM keV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 2436-188 Prep error 5.0 %														
B07ML1	N303175-01			7173-001	0.4	1.00		29	150		30	04/14/93	04/16	SS-004
Blank (Stnd=12524)	N303175-03			7173-003	0.1	1.00		56	212			04/14/93	04/21	SS-008
LCS (Stnd=12516)	N303175-02			7173-002	0.3	1.00		49	150			04/14/93	04/16	SS-005
Replicate (N303175-01)	N303175-04			7173-004	0.2	1.00		51	168		35	04/14/93	04/21	SS-006
Nominal values and limits from method					0.2	1.00	-	30-105	150	100	180			

PROCEDURES	REFERENCE	ASTM 3972-90
	EP-040	Environmental water dissolution
	EP-910	Uranium purification
	EP-008	Heavy Elements Electroplating

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	0.2	±	0.3
	YIELD	46	±	24
	FWHM		±	

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CMS
Version 2.23
Report date 06/24/93

9613092.9355

TMA

TMA NORCAL

REPORTING GROUP 7173

Test TC Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

METHOD SUMMARY

TECHNETIUM 99 IN WATER

BETA COUNTING

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	MDA pCi/L	ALIQUOT L	RESID mg	YIELD %	COUNT min	FWHM keV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 2436-188 Prep error 10.0 %														
B07ML1	N303175-01			7173-001	3	0.200		60	108		34	04/15/93	04/20	LBG-012
Blank (Stnd=12527)	N303175-03			7173-003	3	0.200		67	108			04/15/93	04/20	LBG-015
LCS (Stnd=12519)	N303175-02			7173-002	4	0.200		57	78			04/15/93	04/19	LBG-010
Replicate (N303175-01)	N303175-04			7173-004	2	0.200		70	145		35	04/15/93	04/21	LBG-011
Nominal values and limits from method					5	0.200	-	-	50		180			

PROCEDURES	REFERENCE	HASL 300/TC-01
	EP-020	Sample leach technique for Technetium-99
	EP-540	Technetium-99 Purification

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	3	±	2
	YIELD	64	±	12
	FWHM		±	

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CMS
Version 2.23
Report date 06/24/93

9613492.4336

TMA

TMA NORCAL

REPORTING GROUP 7173

Test Y Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

METHOD SUMMARY

STRONTIUM 90 IN WATER
BETA COUNTING

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	MDA pCi/L	ALIQUOT L	RESID mg	YIELD %	COUNT min	FWHM keV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 2436-188 Prep error 10.0 %														
B07ML1	N303175-01			7173-001	0.7	1.00		88	33		89	04/14/93	06/14	BETA
Blank (Stnd=12526)	N303175-03			7173-003	0.8	1.00		75	33			04/14/93	04/14	BETA
LCS (Stnd=12518)	N303175-02			7173-002	0.8	1.00		79	33			04/14/93	04/14	BETA
Replicate (N303175-01)	N303175-04			7173-004	0.7	1.00		89	33		28	04/14/93	04/14	BETA
Nominal values and limits from method					2	1.00	-	20-105	25		180			

PROCEDURES	REFERENCE	HASL 300/SR-01,-02
	EP-040	Environmental water dissolution
	EP-520	Yttrium purification for strontium-90 analysis

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	0.8	±	0.1
	YIELD	83	±	14
	FWHM		±	

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CMS
Version 2.23
Report date 06/24/93

9613492.4357

TMA

TMA NORCAL

REPORTING GROUP 7173

Test 80A Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	MDA pCi/L	ALIQUOT L	RESID mg	YIELD %	COUNT min	FWHM keV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 2436-188 Prep error 20.0 %														
B07ML1	N303175-01	80		7173-001	2	0.300	118		100		23	04/09/93	04/09	GRB-104
Blank (Stnd=12522)	N303175-03	80		7173-003	2	0.300	106		100			04/09/93	04/09	GRB-106
LCS (Stnd=12514)	N303175-02	80		7173-002	2	0.300	103		100			04/09/93	04/09	GRB-105
Replicate (N303175-01)	N303175-04	80		7173-004	2	0.300	118		100		23	04/09/93	04/09	GRB-107
Nominal values and limits from method					3	0.300	5-150	-	100		180			

PROCEDURES REFERENCE ASTM 1943-90; EPA 900
EP-120 Gross Alpha and Gross Beta in environmenal water

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 2 ± 0
YIELD ____ ± ____
FWHM ____ ± ____

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CMS
Version 2.23
Report date 06/24/93

9613492.4538

TMA

TMA NORCAL

REPORTING GROUP 7173

Test 80B Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	MDA pCi/L	ALIQUOT L	RESID mg	YIELD %	COUNT min	FWHM keV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 2436-188 Prep error 15.0 %														
B07ML1	N303175-01	80		7173-001	2	0.300	118		100		23	04/09/93	04/09	GRB-104
Blank (Stnd=12522)	N303175-03	80		7173-003	2	0.300	106		100			04/09/93	04/09	GRB-106
LCS (Stnd=12514)	N303175-02	80		7173-002	2	0.300	103		100			04/09/93	04/09	GRB-105
Replicate (N303175-01)	N303175-04	80		7173-004	2	0.300	118		100		23	04/09/93	04/09	GRB-107
Nominal values and limits from method					4	0.300	5-150	-	100		180			

PROCEDURES REFERENCE ASTM 1943-90; EPA 900
EP-120 Gross Alpha and Gross Beta in environmenal water

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 2 ± 0
YIELD ____ ± ____
FWHM ____ ± ____

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CMS
Version 2.23
Report date 06/24/93

9613492.4339

TMA

TMA NORCAL

REPORTING GROUP 7173

Test GAM Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

METHOD SUMMARY

GAMMA EMITTERS

GAMMA SCAN

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	MDA pCi/L	ALIQUOT L	RESID mg	YIELD %	COUNT min	FWHM keV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 2436-188 Prep error 15.0 %														
B07ML1	N303175-01			7173-001	9	0.500			546		24	04/10/93	04/10	MB,02,00
Blank (Stnd=12523)	N303175-03			7173-003	10	0.500			547			04/10/93	04/10	MB,05,00
LCS (Stnd=12515)	N303175-02			7173-002		0.500			546			04/10/93	04/10	MB,03,00
Replicate (N303175-01)	N303175-04			7173-004	10	0.500			439		29	04/10/93	04/15	MB,05,00
Nominal values and limits from method					20	0.500	-	-	400		180			

PROCEDURES REFERENCE ASTM 3649-85; EPA 901.1
EP-100 Preparation

AVERAGES ± 2 SD FOR 3 SAMPLES
MDA 10 ± 1
YIELD ____ ± ____
FWHM ____ ± ____

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CMS
Version 2.23
Report date 06/24/93

9613492.4440

TMA

TMA NORCAL

REPORTING GROUP 7173

Test U T Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

METHOD SUMMARY

URANIUM, TOTAL IN WATER
KINETIC PHOSPHORIMETRY

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	MDA ug/L	ALIQUOT L	RESID mg	YIELD %	COUNT min	FWHM keV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 2436-188 Prep error 9.0 %														
B07ML1	N303175-01			7173-001	0.08	0.0200					84	06/09/93	06/09	KPA1
Blank (Stnd=13640)	N303175-03			7173-003	0.08	0.0200						06/09/93	06/09	KPA1
LCS (Stnd=13639)	N303175-02			7173-002	0.8	0.0200						06/09/93	06/09	KPA1
Replicate (N303175-01)	N303175-04			7173-004	0.08	0.0200					84	06/09/93	06/09	KPA1
Nominal values and limits from method						0.0200	-	-			180			

PROCEDURES	REFERENCE	ASTM D5174-91
	EP-040	Environmental water dissolution
	EP-044	Total uranium by kinetic phosphorimetry
	EP-928	Total Uranium by Kinetic Phosphorimetry

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	0.3	±	0.7
	YIELD		±	
	FWHM		±	

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CMS
Version 2.23
Report date 06/24/93

9613492.4541

TMA

TMA NORCAL

REPORTING GROUP 7173

Test C Matrix LIQUID
SDG 7173
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

METHOD SUMMARY

CARBON 14 IN WATER
LIQUID SCINTILLATION

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	MDA pCi/L	ALIQUOT L	RESID mg	YIELD %	COUNT min	FWHM keV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 2436-188 Prep error 10.0 %														
B07ML1	N303175-01		A2	7173-001	40	0.0300			150		48	05/04/93	05/04	LSC-004
Blank (Stnd=13075)	N303175-09			7173-009	50	0.0300			150			05/04/93	05/04	LSC-004
LCS (Stnd=13074)	N303175-08			7173-008	50	0.0300			150			05/04/93	05/04	LSC-004
Replicate (N303175-01)	N303175-04		A1	7173-004	50	0.0300			150		41	04/27/93	04/27	LSC-005
Nominal values and limits from method					50	0.0300	-	-	150		180			

PROCEDURES EP-240 Carbon-14 in aqueous solutions

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 50 ± 10
YIELD ____ ± ____
FWHM ____ ± ____

Lab id TMAN
Protocol WHC-HASM
Version Ver 1.0
Form DVD-CMS
Version 2.23
Report date 06/24/93

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: Wendy S. Thompson

PROJECT NUMBER 92-336

Company Contact: Wendy S. Thompson

Telephone (509) 376-2153

Project Designation/Sampling Locations: 241-T-106

Collection Date: ~~6~~ 3-17-93 (WST 3-17-93)

Borehole Number: 299-W10-196

Time: 0920, 0900

Ice Chest No.: SML#108

Field Logbook No. EFL-1053

Bill of Lading/Airbill No.: 2536954046

Offsite Property No.: W93-0-0285 #3

Method of Shipment: AIR (Emery)

Shipped to: TMA-Norcal

Possible Sample Hazards/Remarks: Keep samples chilled. All analysis per lab statement of work.

Sample Identification

(1) ~~B08~~ B07ML1 (WST 3-17-93)

3 x 40 ml., amber glass, water, CLP-VOA

~~3 x 1000~~ 1 x 1000 (WST 3-17-93) ml., amber glass, water, CLP- Semi-VOA, ~~IC Anions, SO_4, PO_4, NO_2-NO_3, pH, Cl, F~~ (WST 3-17-93)

1 x 1000 ml., plastic, water (HNO_3), ICP/AA metals, Bi, Hg

1 x 1000 ml., plastic, water (NaOH, ~~ascorbic acid~~ (WST 3-17-93)), CLP-CN

1 x 250 ml., plastic, water, IC Anions, SO_4, PO_4, Cl, F, pH (WST 3-17-93)

~~1 x 250 ml., amber glass, water (H_2SO_4), TOC~~

1 x 250 ml., plastic, water (H_2SO_4), NO_2-NO_3 (WST 3-17-93)

1 x 4000 ml., plastic, water (HNO_3) } gross alpha, gross beta, GEA including Co-60, Ru-106,

1 x 2000 ml., plastic, water (HNO_3) } Ce-144, Cs-137, isotopic U, total U, Am-241, Np-237, Pu-238, -239, -240, Sr-90.

1 x 1000 ml., plastic, water (HCL), Tc-99

~~2 x 250~~ 1 x 500 (WST 3-17-93) ml., amber glass, water, C-14

C-14; Pu238/239/240; Cs137; Sr90; Tc99; isotopic U; total U; Am241; Np237

(2) B086Y4 – 1 x 500 ml, amber glass; Soil; gross alpha, gross beta, GEA including Co60, Ru106

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.S. Thompson / Wendy S. Thompson 3-18-93 1230	WST 3-18-93 / Monica Rodriguez	3/18/93 1130
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90)

9613492.4343

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

Collector Wendy S. Thompson Date 3-17-93

Company Contact Wendy S. Thompson Telephone (509) 376-2153

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Requested
B07ML1	W	3-17-93	0920	3 x 40 ml., amber glass, water, CLP-VOA
				~~2~~ x 1000 ml., amber glass, water, CLP- Semi-VOA, ~~IC Anions~~
				WSI 3-17-93 ~~SO_4, PO_4, NO_2-NO_3, pH.~~ WSI 3-17-93
				1 x 1000 ml., plastic, water (HNO_3), ICP/AA metals, Bi, Ho
				1 x 1000 ml., plastic, water (NaOH, ascorbic acid), CLP-CN
				1x 250ml; plastic; water; IC Anions; SO_4, PO_4, Cl, F, pH
				~~1 x 250 ml., amber glass, water (H_2SO_4), TOC~~ WSI 3-17-93
				1 x 4000 ml., plastic, water (HNO_3)
				1 x 2000 ml., plastic, water (HNO_3)
				gross alpha, gross beta, GEA including Co-60,
				Ru-106, Ce-144, Cs-137, isotopic U, total U,
				Am-241, Np-237, Pu-238,-239,-240, Sr-90.
				1=x 1000 ml., plastic, water (HCL), Tc-99
			WSI 3-17-93	~~2~~ x ~~250~~ 500 ml., amber glass, water, C-14
				1x 250ml; plastic; water (H_2SO_4) NO_2-NO_3
B086Y4	S	3-17-93	0900	1x500ml; amber glass; soil; Gross alpha,
				gross beta; GEA to include Co_{60}, Ru106,
				Ce144; isotopic U; Am241; Np237; Pu238/239/240
				Cs137; Sr90; Tc99; total U; C-14

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information: Samples support the 241-T-106 soil investigation. All analysis per lab statement of work. Project # 92-336.

Special Handling and/or Storage: Keep samples chilled.

Possible Sample Hazards: Samples are nonhazardous/nonradioactive with field instruments.

A-6000-406 (06/91)

Overnight Delivery — ~~Signature Security Services~~ WST 3-17-93

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
Westinghouse Hanford Company		W73-0-0285 #36

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Environmental	Env Field Services	Env Charac & Sampling

The following items are to be shipped from ☒ Contractor ☐ Vendor

Routing Air ☒ Contractor ☐ Vendor

Shipped to	Off-Site Custodian
TMA/NORCAL 2030 Wright Ave. Richmond, CA 94804	Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 #1 of 75	SMLIOR poly cooler. Contains soil samples that are double-bagged and packed in wet ice and vermiculite. Samples are nonhazardous.	N/A
	Sample #'s: B0B6Y4 - B0B7M1	

☐ Classified ☒ Unclassified ☐ Shipped Under DOE Contract ☒ Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property
To support drilling and sampling of the 241-T-106 soil investigation

Bill of Lading 2536954006

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.

RM Clearance for Public Release	RM Survey No.	Date

Location of Property (Area & Bldg.)	Contact	Phone
200W/241-T	W. S. Thompson	(509) 376-2153

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
3-18-93	81710 PFSAG	N/A

Originated By:	Relinquished by:	Date	Authorized By	Date
		3-18-93		3-18-93
Signature and Name of Property Control		Custodian Date	Property Management Approval	Date
			Approved for TJC	3/18/93

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
Date 3-18-93				

DISTRIBUTION

By Originator	Shipping Operation – Sign all Copies and Forward to:
White, Green, Yellow, Pink – Property Management Goldenrod – Retain	White – Property Management; Green – Property Control Custodian (Issuing Office) Yellow – Retain; Pink – Originator

45 000 (9/09/89)

241-T-106 Samples

Gross Alpha/Beta

Sample #	7173-1		7173-2		7173-3		7173-4	
Cust. I.D. #	B07ML1		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Aliquot (g or l)	0.300		1.000		1.000		0.300	
Sample Weight (g or l)	118.100		103.000		106.000		117.900	
Counted Weight (g or l)	118.100		103.000		106.000		117.900	
[GROSS BETA]								
Gross Counts	124.000		1716.000		137.000		92.000	
Time (min)	100.000		100.000		100.000		100.000	
Gross CPM	1.240		17.160		1.370		0.920	
BKG CPM	1.023		1.171		1.415		0.951	
Observed CPM	0.217		15.989		-0.045		-0.031	
Alpha to Beta Xtalk	0.319		0.305		0.309		0.319	
Observed Alpha	0.008		4.492		0.027		-0.006	
Beta to Alpha Xtalk	0.006		0.006		0.006		0.006	
True CPM	0.215		14.646		-0.053		-0.029	
Efficiency (CPM/DPM)	0.406		0.409		0.409		0.406	
DPM of Aliquot	0.529		35.809		-0.131		-0.072	
Reported Results (pCi/g or pCi/l)	0.793		16.100		-0.059		-0.106	
Calculated Results (pCi/g or pCi/l)	0.795	OK	16.130	OK	-0.059	OK	-0.108	OK
Reported MDA	1.740		0.555		0.611		1.680	
Calculated MDA	1.743	OK	0.555	OK	0.611	OK	1.681	OK
Results > MDA?	NO		YES		NO		NO	
[GROSS ALPHA]								
Gross Counts	6.000		454.000		8.000		6.000	
Time (min)	100.000		100.000		100.000		100.000	
Gross CPM	0.060		4.540		0.080		0.060	
BKG CPM	0.052		0.048		0.053		0.066	
Observed CPM	0.008		4.492		0.027		-0.006	
Beta to Alpha Xtalk	0.006		0.006		0.006		0.006	
True CPM	0.007		4.404		0.027		-0.006	
Efficiency (CPM/DPM)	0.086		0.094		0.092		0.086	
DPM of Aliquot	0.076		46.652		0.297		-0.068	
Reported Results (pCi/g or pCi/l)	0.126		21.200		0.133		-0.102	
Calculated Results (pCi/g or pCi/l)	0.117	OK	21.105	OK	0.134	OK	-0.102	OK
Reported MDA	1.850		0.493		0.526		2.090	
Calculated MDA	1.855	OK	0.469	OK	0.525	OK	2.090	OK
Results > MDA?	NO		YES		NO		NO	

241-T-106 Samples

Carbon 14

Sample #	7173-1		7173-8		7173-9		7173-4A1	
Cust. I.D. #	B07ML1		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Sample Count 1	1268.000		22298.000		1211.000		968.000	
Sample Count 2	0.000		0.000		0.000		0.000	
Sample Count 3	0.000		0.000		0.000		0.000	
Sample Count Time	150.000		150.000		150.000		150.000	
WsubS1	17.761		5.981		18.594		23.253	
WsubS2	0.000		0.000		0.000		0.000	
WsubS3	0.000		0.000		0.000		0.000	
Blank Count 1	1377.000		1377.000		1377.000		1019.000	
Blank Count 2	0.000		0.000		0.000		884.000	
Blank Count 3	0.000		0.000		0.000		0.000	
Blank Count time	150.000		150.000		150.000		150.000	
WsubB1	16.359		16.359		16.359		22.091	
WsubB2	0.000		0.000		0.000		25.460	
WsubB3	0.000		0.000		0.000		0.000	
Blank CPM Average	9.180		9.180		9.180		6.311	
Sample CPM average	8.453		148.653		8.073		6.453	
Net CPM	-0.727		139.473		-1.107		0.142	
Decay Correction	1.022		1.011		0.814		0.955	
Efficiency	0.408		0.325		0.440		0.453	
DPM of Aliquot	-1.743		424.647		-3.091		0.328	
Aliquot	0.030		1.000		1.000		0.030	
Reported Results (pCi/l)	-26.190		191.020		-1.391		4.922	
Calculated Results (pCi/l)	-26.177	OK	191.283	OK	-1.393	OK	4.924	OK
Reported MDA	41.461		1.576		1.446		51.052	
Calculated MDA (method 1)	42.401		1.597		1.180		22.399	
Calculated MDA (method 2)	42.426		1.598		1.180		22.404	

241-T-106 Samples

Strontium 90	ET	GROSS COUNTS	COUNT TIME	BKG CPM	SF	NET CPM	X	Ws	Wb	WY	WX	WXY	WX^2
7173-1	0.54300	23.00000	33.00000	0.52230	0.99700	0.17416	0.86683	44.89501	957.30429	7.81827	38.91854	6.77716	33.73420
B07ML1	1.03300	16.00000	33.00000	0.43770	0.99550	0.04694	0.76318	64.01774	1142.33493	3.00476	48.85721	2.29318	37.26697
Water	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	DELTA=	30.87838					SUMS=	108.91274	2099.63916	10.82303	87.77376	9.07033	71.02117

				PRODUCT	NBS CORR.	REPORTED RESULTS	CALCULATED RESULTS		Calculated MDA	Calculated Results > MDA ?
Y @ MILK	REPORTED	CALCULATED		0.86117	1.00000					
1 COMP=	0.09300	0.12771	*			0.08853	0.12137	OK	0.55629	No
2 COMP=	NA	1.22727	*	P-FACTOR	C-ZERO					
				1.85900	0.14494					

7173-2	0.54300	464.00000	33.00000	0.45270	0.99400	13.52626	0.86683	2.12104	1104.48421	28.68972	1.83859	24.86924	1.59375
LCS	1.03300	392.00000	33.00000	0.47790	0.99320	11.32336	0.76318	2.54668	1046.24398	28.83700	1.94358	22.00769	1.48331
Water	2.02400	325.00000	33.00000	0.43840	1.00460	9.45337	0.58989	3.11392	1140.51065	29.43700	1.83687	17.36459	1.08356
	3.03600	232.00000	33.00000	0.48990	1.00740	6.58880	0.45346	4.44168	1020.61645	29.26536	2.01415	13.27081	0.91334
	4.18300	187.00000	33.00000	0.82280	0.99730	4.83079	0.33657	5.53747	807.68109	26.75036	1.86376	9.00342	0.62729
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	DELTA=	11.06865					SUMS=	17.76079	4919.53868	142.97945	9.49695	86.51596	5.70124

				PRODUCT	NBS CORR.	REPORTED RESULTS	CALCULATED RESULTS		Calculated MDA	Calculated Results > MDA ?
Y @ MILK	REPORTED	CALCULATED		0.79394	1.00000					
1 COMP=	15.18400	15.17492	OK			16.01500	16.00537	OK	0.57394	Yes
2 COMP=	NA	16.14978	*	P-FACTOR	C-ZERO					
				1.85900	19.11345					

7173-3	0.54300	21.00000	33.00000	0.47790	0.99280	0.15732	0.86683	49.18679	1046.24398	7.73820	42.63881	6.70774	36.95906
BLANK	1.03300	11.00000	33.00000	0.38740	1.01370	-0.06481	0.76318	91.73630	1290.65585	0.09174	70.01153	0.07001	53.43157
Water	2.02400	22.00000	33.00000	0.83220	0.99770	-0.16515	0.58989	45.52403	600.81711	0.04552	26.85417	0.02685	15.84101
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	DELTA=	345.63184					SUMS=	186.44712	2937.71675	7.87546	139.50252	6.80460	106.23164

				PRODUCT	NBS CORR.	REPORTED RESULTS	CALCULATED RESULTS		Calculated MDA	Calculated Results > MDA ?
Y @ MILK	REPORTED	CALCULATED		0.74680	1.00000					
1 COMP=	0.06400	0.06406	OK			0.07184	0.07182	OK	0.62654	No
2 COMP=	NA	0.49200	*	P-FACTOR	C-ZERO					
				1.85900	0.08577					

Strontium 90	ET	GROSS COUNTS	COUNT TIME	BKG CPM	SF	NET CPM	X	Ws	Wb	WY	WX	WXY	WX^2
7173-4	0.54300	17.00000	33.00000	0.43770	0.99580	0.07713	0.86683	60.43643	1142.33493	4.66139	52.39012	4.04065	45.41357
REPLICATE	1.03300	12.00000	33.00000	0.48990	1.00900	-0.12740	0.76318	83.13356	1020.61645	0.08313	63.44608	0.06345	48.42093
Water	2.02400	23.00000	33.00000	0.47070	1.00570	0.22756	0.58989	45.10398	1062.24772	10.26384	26.60639	6.05454	15.69485
	3.03600	16.00000	33.00000	0.44040	0.99810	0.04436	0.45346	63.99561	1135.33152	2.83910	29.01975	1.28743	13.15943
	4.18300	25.00000	33.00000	0.46810	1.00520	0.29098	0.33657	41.62821	1068.14783	12.11302	14.01089	4.07690	4.71567
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	DELTA=	3094.78527					SUMS=	294.29980	5428.67845	29.96048	185.47323	15.52297	127.40445

Y @ MILK	REPORTED	CALCULATED		PRODUCT	NBS CORR.	REPORTED RESULTS	CALCULATED RESULTS		Calculated MDA	Calculated Results > MDA ?
				0.89125	1.00000					
1 COMP=	-0.32100	0.12184	*			-0.30140	0.11448	*	0.50319	No
2 COMP=	NA	-0.31940	*	P-FACTOR	C-ZERO					
				1.85900	0.13671					

241-T-106 Samples

TECHNETIUM 99

Sample #	7173-1		7173-2		7173-3		7173-4	
Cust I.D. #	B07ML1		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Aliquot	0.20000		1.00000		1.00000		0.20000	
Average Net CPM	1.49000		25.48000		1.36000		1.48000	
P-Factor	2.34000		2.34000		2.34000		2.34000	
Yield	0.59710		0.57200		0.66940		0.69570	
Reported Results	13.19500		46.95600		2.14050		11.23100	
Calculated Results	13.15140	OK	46.95332	OK	2.14149	OK	11.21173	OK
Bkg 1	0.53000		0.59000		0.55000		0.58000	
Time 1	78.70000		78.70000		78.70000		129.10000	
SF 1	1.02000		1.03900		0.99300		1.03900	
Reported MDA	3.20930		0.84214		0.66607		2.30980	
Calculated MDA 1	3.44288	OK	0.77252	OK	0.60912	OK	2.47956	OK
Results > MDA ?	YES		YES		YES		YES	

All ok

241-T-106 Samples

Isotopic Uranium

Sample #	7173-1		7173-2		7173-3		7173-4	
Cust. I.D. #	B07ML1		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
U232 Tracer Added (DPM)	10.540		10.540		10.540		10.540	
Sample Size (g or l)	1.000		1.000		1.000		1.000	
Tracer BKG (CPM)	0.009		0.020		0.012		0.017	
Tracer Counts	122.000		208.000		347.000		257.000	
Counting Time (min)	150.500		150.500		212.630		188.230	
Detector Efficiency	0.261		0.262		0.273		0.283	
Reported Yield	0.292		0.494		0.562		0.507	
Calculated Yield	0.291	OK	0.494	OK	0.562	OK	0.507	OK
[U233/234]								
BKG (CPM)	0.003		0.011		0.006		0.010	
Gross Counts	8.000		236.000		1.000		3.000	
U235 Counts	0.000		2.000		0.000		0.000	
Branch Ratio	1.000		1.000		1.000		1.000	
Tracer Counts	0.000		0.000		1.000		0.000	
Reported Results (pCi/g or pCi/l)	0.314		5.372		-0.014		0.019	
Calculated Results (pCi/g or pCi/l)	0.296	OK	5.380	OK	-0.018	*	0.024	*
MDA Reported	0.300		0.285		0.106		0.179	
MDA Calculated	0.126	*	0.207	*	0.145	*	0.114	*
Results > MDA?	YES		YES		NO		NO	
[U235]								
BKG (CPM)	0.000		0.004		0.002		0.001	
Gross Counts	0.000		15.000		2.000		2.000	
U235 Counts	0.000		0.000		0.000		0.000	
Branch Ratio	0.826		0.826		0.826		0.826	
Tracer Counts	0.000		0.000		0.000		0.000	
Table Counts	0.000		0.000		0.000		0.000	
Reported Results (pCi/g or pCi/l)	0.000		0.392		0.033		0.045	
Calculated Results (pCi/g or pCi/l)	0.000	ERR	0.404	OK	0.027	*	0.042	OK
MDA Reported	0.363		0.214		0.128		0.173	
MDA Calculated	0.000	ERR	0.160	*	0.049	*	0.041	*
Results > MDA?	NO		YES		NO		NO	
[U238]								
BKG (CPM)	0.000		0.001		0.000		0.001	
Gross Counts	0.000		229.000		0.000		3.000	
U235 Counts	0.000		1.000		0.000		0.000	
Branch Ratio	1.000		1.000		1.000		1.000	
Tracer Counts	0.000		0.000		0.000		0.000	
Reported Results (pCi/g or pCi/l)	0.000		5.279		0.000		0.056	
Calculated Results (pCi/g or pCi/l)	0.000	ERR	5.277	OK	0.000	ERR	0.053	OK
MDA Reported	0.300		0.177		0.106		0.143	
MDA Calculated	0.000	ERR	0.114	*	0.000	ERR	0.034	*
Results > MDA?	NO		YES		NO		NO	

241-T-106 Samples

Total Uranium

Sample #	7173-1		7173-2		7173-3		7173-4	
Cust. I.D. #	B07ML1		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Final Result (ug/l)	0.05700		26.30800		0.08400		0.04900	
Prep Volume (l)	0.02000		0.02000		0.02000		0.02000	
Aliquot (g or l)	0.02000		1.00000		1.00000		0.02000	
Reported Results (ug/unit aliquot)	0.08400		0.52600		0.00168		0.08400	
Calclulated Results (ug/unit aliquot)	0.05700	•	0.52612	OK	0.00168	OK	0.04900	•
MDA	0.08400		NA		0.08400		0.08400	
Results > MDA ?	NO		YES		NO		NO	

Reported as MDA - ok

Reported as MDA - ok

$$\frac{0.526}{0.02} = 26.3 \text{ OK}$$

241-T-106 Samples

Isotopic Plutonium

Sample #	7173-1		7173-2		7173-3		7173-4	
Cust. I.D. #	B07ML1		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Pu242 Tracer Added (DPM)	4.86000		4.86000		4.86000		4.86000	
Sample Size (g or l)	1.00000		1.00000		1.00000		1.00000	
Tracer BKG (CPM)	0.00044		0.00000		0.00309		0.00220	
Tracer Counts	1039.00000		789.00000		844.00000		1126.00000	
Counting Time (min)	1065.63000		1450.70000		1065.63000		1065.63000	
Detector Efficiency	0.37560		0.34800		0.36870		0.36120	
Reported Yield	0.53450		0.32190		0.44080		0.60130	
Calculated Yield	0.53389	OK	0.32158	OK	0.44028	OK	0.60068	OK
[Pu238]								
BKG (CPM)	0.00353		0.00098		0.00441		0.00397	
Gross Counts	9.00000		3.00000		10.00000		17.00000	
Branch Ratio	1.00000		1.00000		1.00000		1.00000	
Tracer Counts	0.00000		0.00000		0.00000		0.00000	
Reported Results (pCi/g or pCi/l)	0.01053		0.00555		0.01300		0.02532	
Calculated Results (pCi/g or pCi/l)	0.01104	OK	0.00438	*	0.01380	OK	0.02488	OK
MDA Reported	0.02590		0.02120		0.03480		0.02400	
MDA Calculated	0.01903	*	0.01540	*	0.02627	*	0.01865	*
Results > MDA?	NO		NO		NO		YES	
[Pu239]								
BKG (CPM)	0.00132		0.00000		0.00176		0.00220	
Gross Counts	3.00000		383.00000		4.00000		2.00000	
Branch Ratio	1.00000		1.00000		1.00000		1.00000	
Tracer Counts	0.00000		0.00000		0.00000		0.00000	
Reported Results (pCi/g or pCi/l)	0.00421		1.06200		0.00520		0.00000	
Calculated Results (pCi/g or pCi/l)	0.00338	*	1.06269	OK	0.00553	OK	-0.00067	*
MDA Reported	0.01610		0.02120		0.02490		0.01860	
MDA Calculated	0.01164	*	0.00000	ERR	0.01660	*	0.01389	*
Results > MDA?	NO		YES		NO		NO	

OK

OK

OK

241-T-106 Samples

Americium 241

Sample #	7173-1		7173-2		7173-3		7173-4	
Cust. I.D. #	B07ML1		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Am243 Tracer Added (DPM)	4.95000		4.95000		4.95000		4.95000	
Sample Size (g or l)	1.00000		1.00000		1.00000		1.00000	
Tracer BKG (CPM)	0.00088		0.00309		0.00132		0.00044	
Tracer Counts	1231.00000		1188.00000		1015.00000		1259.00000	
Counting Time (min)	1076.67000		1076.67000		1065.63000		1065.63000	
Detector Efficiency	0.40710		0.40260		0.38580		0.38460	
Reported Yield	0.58650		0.55190		0.49790		0.62030	
Calculated Yield	0.58694	OK	0.55212	OK	0.49807	OK	0.62036	OK
[Am241]								
BKG (CPM)	0.00353		0.00706		0.00529		0.00661	
Gross Counts	8.00000		626.00000		8.00000		7.00000	
Branch Ratio	1.00000		1.00000		1.00000		1.00000	
Tracer Counts	2.00000		2.00000		2.00000	OK	2.00000	
Reported Results (pCi/g or pCi/l)	0.00363		1.16000		0.00000		-0.00177	OK
Calculated Results (pCi/g or pCi/l)	0.00399	OK	1.16015	OK	0.00080	*	-0.00362	*
MDA Reported	0.02230		0.03040		0.03170		0.02710	
MDA Calculated	0.02036	OK	0.02719	*	0.02834	*	0.02483	OK
Results > MDA?	NO		YES		NO		NO	

OK

241-T-106 Samples

Neptunium 237

Sample #	7173-1		7173-2		7173-3		7173-4	
Cust. I.D. #	B07ML1		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Count Time (min)	1110.130		1110.130		1110.130		1110.130	
Gross Alpha (dpm)	0.051		3.443		0.015		0.007	
Bkg CPM	0.002		0.001		0.000		0.000	
Tracer Counts	0.000		0.000		0.000		0.000	
Yield	0.431		0.258		0.460		0.272	
Aliquot (g or l)	0.200		1.000		1.000		0.200	
Efficiency	0.351		0.398		0.417		0.404	
Reported Results (pCi/g or pCi/l)	0.268		6.011		0.015		0.055	
Calculated Results (pCi/g or pCi/l)	0.267	OK	6.011	OK	0.015	OK	0.058	OK
MDA Reported	0.129		0.030		0.064		0.055	
MDA Calculated	0.130	OK	0.030	OK	0.006	*	0.050	*

6/L

241-T-106 Samples

Gamma Spectroscopy

Sample #	7173-1		7173-2		7173-3		7173-4	
Cust. I.D. #	B07ML1		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Detector	G-2 MB		G-3 MB		G-5 MB		G-5 MB	
Aliquot (g or l)	0.50000		1.00000		1.00000		0.50000	
Counting Time (min)	546.13000		546.41000		526.78000		438.76000	
[Cobalt 60; C0-60]								
Background CTS	10.00000		0.00000		0.00000		0.00000	
Background CPM	0.05650		0.02200		0.02080		0.02080	
Net CPM	0.06000		1.36100		0.04600		0.04900	
Branch Fraction	1.00000		1.00000		1.00000		1.00000	
Efficiency	0.00343		0.00366		0.00382		0.00382	
Reported Results (pCi/g or pCi/l)	<	*	167.60000	OK	<	*	<	*
Calculated Results (pCi/g or pCi/l)	15.75920		167.50357		5.42427		11.55606	
Reported MDA	15.75000	OK	NA	*	5.39500	OK	11.58000	OK
Calculated MDA	14.32526		3.63918		3.45292		7.56690	
Detect/Non Detect	Non Detect		Detect		Non Detect		Non Detect	
[Cesium 137; Cs-137]								
Background CTS	0.00000		194.00000		0.00000		0.00000	
Background CPM	0.02560		0.02650		0.00000		0.00000	
Net CPM	0.05500		1.74900		0.08100		0.09200	
Branch Fraction	0.85100		0.85100		0.85100		0.85100	
Efficiency	0.00673		0.00734		0.00732		0.00732	
Reported Results (pCi/g or pCi/l)	<	*	126.00000	OK	<	*	<	*
Calculated Results (pCi/g or pCi/l)	8.65157		126.12791		5.85722		13.30529	
Reported MDA	8.60700	OK	NA	*	5.86000	OK	13.28000	OK
Calculated MDA	5.01869		8.88016		0.00000		0.00000	
Detect/Non Detect	Non Detect		Detect		Non Detect		Non Detect	
[Thorium 228; Th-228]								
Background CTS	0.00000		0.00000		0.00000		0.00000	
Background CPM	0.15000		0.23980		0.27640		0.27640	
Net CPM	0.14300		0.21800		0.16400		0.18600	
Branch Fraction	0.44800		0.44800		0.44600		0.44800	
Efficiency	0.01731		0.02043		0.01866		0.01866	
Reported Results (pCi/g or pCi/l)	<	*	<	*	<	*	<	*
Calculated Results (pCi/g or pCi/l)	16.61261		10.72895		8.83693		20.04473	
Reported MDA	17.00000	OK	10.74000	OK	8.83500	OK	20.69000	OK
Calculated MDA	8.97192		4.80454		5.75172		12.60459	
Detect/Non Detect	Non Detect		Non Detect		Non Detect		Non Detect	

OK
83

9613492.4356

Transmittal Number _____

Transmittal Form to Validator

1 To Validator (ECA) _____

Project/CU 241-T-106

2 Data Packages Attached (list and attach) _____

B07ML1 TMA-470

3 The attached data packages have been verified and (check one):

✓ All required checklist items are included.

_____ Checklist items circled on attached verification checklist forms cannot be provided and the decision has been made to proceed with validation anyway.

NCR # _____

4 Certified by Verifier

Janet R. Rome

Signature

6/17/93 3:15 pm

Date

5 Received by Validator

_____

Signature

_____

Date

Verification No. T-00247-93 **RADIOCHEMICAL DATA PACKAGE VERIFICATION COVER SHEET** Page 1 of 1

Project: 241-T-106	Reviewer: Jim Rouse	Date: 6/17/93
Laboratory: TMA	Case: N3-03-175-7173	SDG: B07ML1
HASM Data Package ID: B07ML1 - TMA - 470 N3-03-175-7173		

	Beta and Gas Proportional Counting			Alpha Spectroscopy									
	GAB	Sr90	Tc99	Iso U	Iso Pu	Iso Am	GEA	Ra-226	LSC	Total U	C14	Np	
Analyses Performed:	X	X	X	X	X	X	X			X	X		
Case Narrative:	X	X	X	X	X	X	X			X	X		
Batch Sheet:	X	X	X	X	X	X	X			X	X		

HEIS NO.	Sample Matrix	WHC COC	WHC SAR													
B07ML1	Water	X	X	X	X	X	X	X	X	X			X	X		

Date: 6/17/93

RADIOCHEMICAL INITIAL CALIBRATION DATA VERIFICATION CHECKLIST

Laboratory: TMA

HASM Calibration Data Package ID: B07M61-TMA-470

Required Information	GAB		Sr90		Tc99		GEA		ASp		Ra226											
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Date of Initial Calibration:	3/1980		1/1991		1/1991		3/1990		3/1989													
Detector ID:	X		X		X		X		X													
Detector Efficiency:	X		X		X		X		X													
Lucas Cell ID:																						
Lucas Cell Efficiency:																						
Calibration Standard ID:	X		X		X		X		X													
NIST Certificates:	X		X		X		X		X													
Initial Calibration Data:	X		X		X		X		X													
High Voltage Plateau Determination:																						
Self-absorption curve:	X		X		X																	
Preparation weight:	X		X		X																	
Carrier Standardization:			X		X																	
Alpha crosstalk:	X																					
Beta crosstalk:	X																					
FWHM Values:							X		X													
Sample Geometry:							X															

Comments:

9617926.1508

Date: 6/17/93

RADIOCHEMICAL CONTINUING CALIBRATION DATA VERIFICATION CHECKLIST

Laboratory: TMA

HASM Data Package ID: B07MLI-TMA-470

Required Information	GAB		Sr90		Tc99		GEA		ASp		Ra226									
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Calibration Time Period, From/To	Cont.		Cont.		Cont.		Cont.		Cont.											
Detector ID:	X		X		X		X		X											
Detector Efficiency:	X		X		X		X		X											
Lucas Cell ID:																				
Lucas Cell Efficiency:																				
Check Standard ID:	X		X		X		X		X											
Check Standard Activity:	X		X		X		X		X											
Check Standard Traceability:	X		X		X		X		X											
Check Standard Raw Data:	X		X		X		X		X											
Control Charts:	X		X		X		X		X											
Background Data, CPM:	X		X		X		X		X											
Background Count Time:	X		X		X		X		X											
Background Control Charts:	X		X		X		X		X											
Preparation Weights:	X		X		X															
Carrier Recovery Checks:			X		X															
Alpha/Beta Cross Talk:	X																			
FWHM Control Charts:							X		X											
Sample Geometry:							X													

Comments: _____

96 1092 1469

9613492.4360

Package ID: B07MLI-TMA-470

VERIFICATION CHECKLIST FOR BETA AND GAS PROPORTIONAL COUNTING

Analysis: Gross Alpha/Beta

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Gravimetric/Chemical Yields			☒
Results Report for Chemical Yields	☐	☐	
Raw Data (Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Sample Identifications	☐	☐	
Chemical Yield Source Identification, Traceability and Dilution Log	☐	☐	
Calculated Recoveries	☐	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Detector Identifications	☐	☐	
Detector Efficiencies	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4361
C-14

Package ID: B07MLI-TMA-470

VERIFICATION CHECKLIST FOR LIQUID SCINTILLATION COUNTING

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Internal Standard or Quench Monitoring Results, Activity and Traceability	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Instrument Identifications	☒	☐	
Dates of Analysis	☒	☐	
Continuing Calibration			
Instrument Identification	☒	☐	
Continuing Calibration Results Report, Control Charts and Control Limits	☒	☐	
Calibration Standard Identification, Traceability, Activity, Dilution Log and Expiration Date	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Counting Efficiency Determination Method and Results	☒	☐	
Internal Standard or Quench Monitoring Values	☒	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Instrument Identifications	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Instrument Identifications	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4362

Package ID: B07M11-TMA-470

VERIFICATION CHECKLIST FOR BETA AND GAS PROPORTIONAL COUNTING

Analysis: Sr-90

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Gravimetric/Chemical Yields			☒
Results Report for Chemical Yields	☐	☐	
Raw Data (Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Sample Identifications	☐	☐	
Chemical Yield Source Identification, Traceability and Dilution Log	☐	☐	
Calculated Recoveries	☐	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Detector Identifications	☐	☐	
Detector Efficiencies	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4363

Package ID: B07MLI-TMA-470

VERIFICATION CHECKLIST FOR BETA AND GAS PROPORTIONAL COUNTING

Analysis: Tc-99

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Gravimetric/Chemical Yields			☒
Results Report for Chemical Yields	☐	☐	
Raw Data (Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Sample Identifications	☐	☐	
Chemical Yield Source Identification, Traceability and Dilution Log	☐	☐	
Calculated Recoveries	☐	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Detector Identifications	☐	☐	
Detector Efficiencies	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4364

Package ID: B07MLI-TMA-470

VERIFICATION CHECKLIST FOR ALPHA SPECTROSCOPY

Analysis: Iso 4

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheet	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Detector Identifications	☐	☐	
Detector Efficiencies	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Tracer Recovery			
Results Report for Tracer Analyses	☒	☐	
Raw Data (Spectra and Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Tracer Identification, Traceability and Dilution Log	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4365

Package ID: BOTMLI-TMA-470

VERIFICATION CHECKLIST FOR ALPHA SPECTROSCOPY

Analysis: Iso Pu

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheet	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Detector Identifications	☐	☐	
Detector Efficiencies	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Tracer Recovery			
Results Report for Tracer Analyses	☒	☐	
Raw Data (Spectra and Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Tracer Identification, Traceability and Dilution Log	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4366

Package ID: B07MC1-TMA-470

VERIFICATION CHECKLIST FOR ALPHA SPECTROSCOPY

Analysis: Iso Am

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheet	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Detector Identifications	☐	☐	
Detector Efficiencies	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Tracer Recovery			
Results Report for Tracer Analyses	☒	☐	
Raw Data (Spectra and Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Tracer Identification, Traceability and Dilution Log	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4367

Package ID: B07ML1-TMA-470

VERIFICATION CHECKLIST FOR GAMMA SPECTROSCOPY

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Geometry and Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

Comments:

9613492.4368

Package ID: B07ML1-TMA-470

VERIFICATION CHECKLIST FOR TOTAL URANIUM ANALYSIS BY KINETIC PHOSPHORIMETRY

	Yes	No	NA
Analysis Results			
Results Report			
for Sample Analyses, Reruns, and Reanalyses	☒	☐	
for Blank Analyses, Reruns, and Reanalyses	☒	☐	
for Duplicate Analyses, Reruns and Reanalyses	☒	☐	
Raw Data (Phosphorimeter Readings and Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Instrument Identifications	☒	☐	
Dates of Analysis	☒	☐	
Initial and Continuing Calibration			
Instrument Identifications	☒	☐	
Initial Calibration Results and Linearity	☒	☐	
Initial and Continuing Calibration Verification	☒	☐	
Calibration Standard Concentration, Traceability and Dilution Logs	☒	☐	
Raw Data (Phosphorimeter Readings and Printouts or Notebook Pages	☒	☐	
Sample Preparation Data	☒	☐	
Detection Limit Verification	☒	☐	
Matrix Spike Recovery			☒
Results Reports for Matrix Spike Analyses, Reruns and Reanalyses	☐	☐	
Raw Data (Phosphorimeter Readings and Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Instrument Identifications	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Laboratory Control Samples (LCS)			
Results Reports for LCS Analyses, Reruns and Reanalyses	☒	☐	
Raw Data (Phosphorimeter Readings and Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Concentration and Traceability	☒	☐	
Instrument Identifications	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4369

Package ID: 607MLI-TMA-470

VERIFICATION CHECKLIST FOR BETA AND GAS PROPORTIONAL COUNTING

Analysis: Np N3-03-175-7173

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Gravimetric/Chemical Yields			☐
Results Report for Chemical Yields	☒	☐	
Raw Data (Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Chemical Yield Source Identification, Traceability and Dilution Log	☒	☐	
Calculated Recoveries	☒	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Detector Identifications	☐	☐	
Detector Efficiencies	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4370

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E-93-22/2978-62

WESTINGHOUSE HANFORD COMPANY
241-T-106 DATA VALIDATION
DISTRIBUTION FORM

SDG: B07M1C9
Case #: 12-017
Fraction: VOA

Document Title Final QA Record

Document Number: _____ Date: 4/15/94

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M. Baker (HCRL)		D. Mantooth (ERL)		D. Wiley (ERL)	
P. Bartley (ERL)		T. McDonald (HCRL)		N. Wold (ERL)	
Y. Chun (HCSEA)		R. Potter (HCRL)		ERL Project File/J. Pawlowski	
B. Downs (HCSEA)		K. Rolla (HCSEA)		Project File/D. Simpson (HCRL)	
M. Gerboth (HCRL)		C. Sater (ERL)		Duplicate Project File/T. Trevino (HCSEA)	
J. Grover (ERL)		M. Schwarz (ERL)		Westinghouse EDMC	X
L. Hammerle (HCSEA)		A. Shen (HCSEA)			
K. Pool (WHC)					

Project Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

1.1	File Index		1.6.6.3	Plans Doc. Log		3.4	Original Chemical Data
1.2	Distribution Lists		1.6.6.4	Deliverables Doc. Log		3.5	Original Radiochemical Data
1.3	Project Procedures		1.7	Budget			
1.4	Project Modifications		1.7.1	Downloads		4.1	Task Plan
1.5	Staff		1.7.2	M-113s			
1.5.1	Staff Resumes		1.7.3	A-208s		4.2	Data Pkg. Completeness Verif. Checklist
1.5.2	Staff Training		1.7.4	Budget Status		4.3	Data Valididation Calcs./Annotated DP
1.5.3	Auth. Former Site Employee		1.7.5	Invoices		4.4	Prelim. QA Records
1.6	QA		1.8	Requisitions			
1.6.1	QA Manual		1.9	Meeting Minutes		4.5	Data Valid. & Qual. Summary Rpts.
1.6.2	QA Implementation		1.10	Record of Telecon		4.5.1	Internal Drafts/Comments/Resol.
1.6.3.1	QA Audits-Deliverables		1.11	Progress Reports		4.5.2	WHC Review Draft Comments/Resol.
1.6.3.2	QA Audits-Files		1.12	Subcontractor (HC)		4.5.3	Final Report
1.6.4.1	Audit Resps. - Deliverables					4.6	Weekly Status Reports
1.6.4.2	Audit Resps. - Files		2.1	Incoming Correspondence		4.7	Weekly Management Reports
1.6.5	QA Training		2.2	Outgoing Correspondence			
1.6.6.1	QA Manual Document Log		2.3	Internal Correspondence			
1.6.6.2	Procedure Document Log						
			3.1	Task Order			
			3.2	Sample Lists			
			3.3	Data Validation Procedures			

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VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: 241-T-106	REVIEWER: CR	DATE: 10/18/93
LABORATORY: TMA	CASE: 12-017	SDG: B07M19
SAMPLES/MATRIX:		
B07M19		
B07M12		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	✓		
Data Summary	✓		
Chain-of-Custody	✓		
QC Summary			
Surrogate report	✓		
MS/MSD report	✓		
Blank summary report	✓		
GC/MS tuning report	✓		
Internal standard summary report	✓		
Sample Data			
Sample reports	✓		
TIC reports for each sample	✓		
RIC reports for all samples	✓		
Raw and corrected spectra for all detected results	✓		
Raw and corrected library search data for all reported TIC	✓		
Quantitation and calculation data for all TIC			
Standards Data			
Initial calibration report	✓		
RIC and quantitation reports for initial calibration	✓		
Continuing calibration reports	✓		
RIC and quantitation reports for cont. calibrations	✓		
Internal standard summary report			
Raw QC Data			
Tuning report, spectra and mass lists	✓		
Blank analysis reports	✓		
TIC reports for all blanks	✓		
RIC and quantitation reports for blanks	✓		
Raw and corrected spectra for all detected results in blanks	✓		
Raw and corrected library search data for all reported TIC	✓		

Data Package Item	Present?: Yes	No	N/A
Quantitation and calculation data for all TIC	✓	—	—
MS/MSD report forms	✓	—	—
RIC and quantitation reports for MS/MSD	✓	—	—
Additional Data			
Moisture/% solids data sheets	—	—	—
Reduction formulae	—	—	—
Instrument time logs	—	—	—
Chemist notebook pages	—	—	—
Sample preparation sheets	—	—	—

2. HOLDING TIMES

Complete the holding time summary form listing all samples and dates of collection and analysis.

Were all samples analyzed within holding time? Yes No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a bromofluorobenzene tune report present for each applicable 12-h period? Yes No N/A

Do all tunes on all instruments meet the tuning criteria? Yes No N/A

Do all tunes on all instruments meet the expanded criteria? Yes No N/A

Has the laboratory made any calculation or transciption errors? Yes No N/A

Have the proper significant figures been reported? Yes No N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects or UJ for nondetects). If all tuning criteria are missed, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments? Yes No N/A

Are all RSD values ≤30% (2/88 SOW)? Yes No N/A

Are all RRF values ≥0.05 (2/88 SOW)? Yes No N/A

Are all applicable RSD values ≤20.5% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every 12-h period in which samples were analyzed?	Yes	No	N/A
Are TCL compounds present in the laboratory blanks?	Yes	No	N/A

trip blank. No qual is required AS 1/25/94

ACTION: Qualify all sample results ≤10 time the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is <CRQL. Qualify all remaining sample results ≤5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are TCL compounds present in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results ≤ 5 times the amount in any valid field blank as nondetects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries < 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated sample results as estimated (J for detects or UJ for nondetects) for surrogates out of specification but > 10%. Qualify all associated positive sample results as estimated (J) and all nondetect results as unusable (R) for all surrogates below 10%. If method blank surrogates are out of specification and the associated sample surrogates are acceptable no qualification is necessary, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is > 5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are > 5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for nondetects). If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	N/A
Are all ions at a relative intensity of ≥ 10% in the standard spectra present in the sample spectra?	Yes	No	N/A
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	N/A
Have all ions > 10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination?	Yes	No	N/A
Are molecular ions present in the reference specrum present in the sample spectrum?	Yes	No	N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R). Note the results in the validation narrative.

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standard(s) for quantitation?	Yes	No	N/A
Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	Yes	No	N/A
Has the laboratory properly identified and coded all TIC?	Yes	No	N/A

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

HOLDING TIME SUMMARY - FORM B-1

SDG:	REVIEWER: C Douglas	DATE: 10-15-93	PAGE 1 OF 1
COMMENTS: Case 12-017 GC/MS VOAs			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07MK9	VOA	12/2/92		12/9/92	7	7	—
B07MK2	VOA	12/2/92		12/8/92	7	6	—

AS
10/27/93

CALIBRATION DATA SUMMARY - FORM B-2

SDG:	REVIEWER: C Rodgers	DATE: 10/18/93	PAGE 1 OF 1
COMMENTS: CAR# 12-017			
CALIB. TYPE: INITIAL CONTINUING		INSTRUMENT: GC/MS VOA	

CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
12/8/92	ALL VALUES FOR INITIAL			—	—
	CALIBRATION WITHIN				
	LIMITS.				
12/8/92	ALL CONT. CALIB VALUES			—	—
12/9/92	ARE WITHIN LIMITS.			—	—
	All 3/90 SOW contractual				
	criteria were met.			AS	
	AS 1/25/94			10/27/93	

ACCURACY DATA SUMMARY - FORM B-4

SDG:	REVIEWER: C Eastman	DATE: 10/18/93	PAGE 1 OF 1	
COMMENTS: CASE 12-017 Collins VOA				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
—	ALL SURROGATE AND	—	—	—
	SPIKE RECOVERIES ARE			
	WITHIN LIMITS.			
		AS		
		10/27/93		

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG:	REVIEWER: C Rhodes	DATE: 10/19/93	PAGE 1 OF 1
COMMENTS: CASE 12-017 GC/MS VOA			

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VSLK12158L	Methylene Chloride	2	J				20	—	—
B07MK2	Methylene Chloride	6	J				60	~~B07MK2~~	~~U at CRQL~~
								No qual required	
								This sample is a	
									trip blank
									AS 1/25/94
							AS 10/27/93		

PRECISION DATA SUMMARY - FORM B-5

SDG:	REVIEWER C Robertson	DATE: 10/14/93	PAGE 1 OF 7
COMMENTS: CAS# 12-077 GC/MS VOA			

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
ALL MS/MSD RPDs			—	—	—
WITHIN LIMITS			—	—	—

HG
10/27/93

CALCULATION SUMMARY - FORM B-6

SDG:	REVIEWER: C Fickas	DATE: 10/19	PAGE 1 OF 1

COMMENTS: CASE 12-017 GC/MS VOAS

BOTMK2

METHYLENE CHLORIDE RFAC/RLIB x 50 =

.179/1.605 x 50 = 5.58

AREA MECL/AREA STD = .179

✓ AS 10/27/93

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 12017	REVIEWER: CR	DATE: 10/25/93	PAGE___OF___
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
~~No data qualifications were required.~~			
~~Methylene Chloride~~	~~U at CRQL~~	~~B07MK2~~	~~Blank Contamination~~
		No qualifier is required.	
		this sample is a trip blank.	

TELEPHONE CONTACT SUMMARY - FORM B-8

REVIEWER:	DATE:	TIME:	PAGE___OF___
COMPANY:			
ADDRESS:			
PERSON CONTACTED:			
TELEPHONE:		FAX:	
PROJECT/CASE/SDG:			
REMARKS:			
ACTION:			

9613492.4587

000002A

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: Wendy S. Thompson

PROJECT NUMBER 92-336

Company Contact: Wendy S. Thompson

Telephone (509) 376-2153

Project Designation/Sampling Locations: 241-T-106

Collection Date: 12-2-92

Borehole Number: 299-W10-196

Time: 0945; 0230 ① ②

Ice Chest No. SML200

Field Logbook No. EFL-1053

Bill of Lading/Airbill No. 2519007304

Offsite Property No. W93-0-0122 #22

Method of Shipment: AIR (Emery)

Shipped to: TMA-Norcal

Possible Sample Hazards/Remarks: Keep samples chilled. All analysis per lab statement of work.

No hazards detected with field instruments

Sample Identification

) B07MK9

3 x 40 ml., amber glass, water, CLP-VOA

1 x 4000 ml ~~3 x 1000 ml~~., amber glass, water, CLP- Semi-VOA, IC Anions, SO_4, PO_4, NO_2-NO_3, pH, Cl, F — wst 12-2-92

1 x 1000 ml.,plastic, water (HNO_3), ICP/AA metals, Bi, Hg

1 x 1000 ml., plastic, water (NaOH, ~~ascorbic acid~~), CLP-CN — wst 12-2-92

1 x 250 ml., amber glass, water (H_2SO_4), TOC

1 x 4000 ml., plastic, water ((HNO_3)) gross alpha, gross beta, GEA including Co-60, Ru-106;
1 x 2000 ml., plastic, water (HNO_3) } Ce-144, Cs-137,isotopic U, total U, Am-241, Np-237, Pu-238,-239,-240, Sr-90.

1 x 1000 ml., plastic, water (HCL), Tc-99

2 x 250 ml., amber glass, water, C-14

) B07MK2 - 3x40 ml amber glass water; CLP-VOA

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.S. Thompson / Wendy S Thompson	Kermit Blum	12-4-92 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: TOC aliquot B07MK9 sent to WESTON, INC. 12-7-92

9613492.4388

RECEIVED

JAN 1993
RECEIVED
OSM DMO

CASE NO. 12-017

DATA SUMMARY REPORT
ORGANICS

PREPARED BY:

TMA ARLI
160 TAYLOR ST.
MONROVIA CA 91016

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07MK2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-02A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21208R12

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. ____ Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	6 ~~6~~	~~BJ~~ B) ~~10U~~
67-64-1	Acetone	10	U
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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

C Pahl 12/18/93

9613492.4590

000005

EPA SAMPLE NO.

B07MK2

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-02A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21208R12

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. ____ Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

CRA
12/18/93

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000006

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07MK9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21209R03

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. ____ Date Analyzed: 12/09/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	10	U
67-64-1	Acetone	10	U
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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

10/18/92

9613492.4392

000007

EPA SAMPLE NO.

B07MK9

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21209R03

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. ____ Date Analyzed: 12/09/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

10/18/93

CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 12-017

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : December 4, 1992

1.0 DESCRIPTION OF CASE :

Two water samples were analyzed for TCL Organics-Volatiles and Semivolatiles according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8.

2.0 SAMPLE LIST :

WESTINGHOUSE ID	LAB ID	ANALYSIS REQUESTED	MATRIX	pH
B07MK9	A2-12-017-01A	V	WATER	7
B07MK9	A2-12-017-01B	SV	WATER	
B07MK9 MS	A2-12-017-01C	SV	WATER	
B07MK9 MSD	A2-12-017-01D	SV	WATER	
B07MK2	A2-12-017-02A	V	WATER	7
B07MK2 MS	A2-12-017-02B	V	WATER	7
B07MK2 MSD	A2-12-017-02C	V	WATER	7

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

The samples were received unbroken and properly documented.

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL WATER :

The samples were analyzed within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All of the BFB tunes are injected directly into the GC/MS instrument.

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL WATER :

The samples were extracted and analyzed within the CLP SOW holding times. Samples B07MK9MS and B07MK9MSD had spike recoveries for 4-Nitrophenol that were above the advisory QC limit. The % RPD for 4-Nitrophenol was only 5. Sample B07MK9MS also contained Bis (2-ethylhexyl) phthalate at a concentration that exceeded the calibration of the GCMS. However, samples B07MK9 and B07MK9MSD did not contain Bis (2-ethylhexyl) phthalate. In accordance with the protocol, no further action was required.

All of the other QC results were within the QC limits specified by the EPA CLP SOW.

We certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data in this hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth
CLP Program Manager

Nicole Roth
for Wida Ang
Organics Supervisor

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07MK2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-02A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21208R12

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. ____ Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	6	BJ
67-64-1	Acetone	10	U
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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

9613492.4396

000003

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07MK2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-02A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21208R12

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. ____ Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9613492.4597

000006

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07MK9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21209R03

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. ____ Date Analyzed: 12/09/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

9613492.4398

000007

EPA SAMPLE NO.

B07MK9

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21209R03

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. ____ Date Analyzed: 12/09/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07MK9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01B

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S08

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	25	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 000003

B07MK9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01B

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S08

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	4	J
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07MK9

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01B

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S08

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: ____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9613492.4402

000011

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
01	B07MK2	109	111	109	0	0
02	B07MK9	102	93	98	0	0
03	B07MK2MS	109	108	104	0	0
04	B07MK2MSD	109	107	103	0	0
05	VBLK1208R	100	100	99	0	0
06	VBLK1209R	99	100	100	0	0

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(88-110)
SMC2 (BFB)	= Bromofluorobenzene	(86-115)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

OK
10/16/93

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	S7 (2CP)#	S8 (DCB)#	TOT OUT
01	B07MK9	91	85	97	90	101	89	93	81	0
02	B07MK9MS	86	85	97	90	97	96	89	80	0
03	B07MK9MSD	94	92	113	97	102	104	97	87	0
04	SBLK1208C	90	83	82	92	101	82	91	77	0

		QC LIMITS	
S1 (NBZ)	= Nitrobenzene-d5	(35-114)	
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)	
S3 (TPH)	= Terphenyl-d14	(33-141)	
S4 (PHL)	= Phenol-d5	(10-110)	
S5 (2FP)	= 2-Fluorophenol	(21-110)	
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)	
S7 (2CP)	= 2-Chlorophenol-d4	(33-110)	(advisory)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(16-110)	(advisory)

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

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix Spike - EPA Sample No.: B07MK2

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.00	0	49.00	98	61-145
Trichloroethene	50.00	0	50.60	101	71-120
Benzene	50.00	0	51.90	104	76-127
Toluene	50.00	0	48.90	98	76-125
Chlorobenzene	50.00	0	46.40	93	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.00	48.40	97	1	14	61-145
Trichloroethene	50.00	50.40	101	0	14	71-120
Benzene	50.00	51.50	103	1	11	76-127
Toluene	50.00	49.40	99	1	13	76-125
Chlorobenzene	50.00	46.60	93	0	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: 0 out of 10 outside limits

COMMENTS: CLP,12017,,B07MK2,L,W,A212017-02A,VOA,EPA PACK/2,21208R01,2BFB1208,21208R07

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix Spike - EPA Sample No.: B07MK9

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	75.00	0	63.70	85	12-110
2-Chlorophenol	75.00	0	61.60	82	27-123
1,4-Dichlorobenzene	50.00	0	33.10	66	36- 97
N-Nitroso-di-n-prop.(1)	50.00	0	36.90	74	41-116
1,2,4-Trichlorobenzene	50.00	0	35.30	71	39- 98
4-Chloro-3-methylphenol	75.00	0	64.30	86	23- 97
Acenaphthene	50.00	0	33.90	68	46-118
4-Nitrophenol	75.00	0	64.40	86 *	10- 80
2,4-Dinitrotoluene	50.00	0	39.40	79	24- 96
Pentachlorophenol	75.00	0	71.50	95	9-103
Pyrene	50.00	0	33.40	67	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	75.00	66.20	88	3	42	12-110
2-Chlorophenol	75.00	65.30	87	6	40	27-123
1,4-Dichlorobenzene	50.00	38.80	78	17	28	36- 97
N-Nitroso-di-n-prop.(1)	50.00	40.50	81	9	38	41-116
1,2,4-Trichlorobenzene	50.00	40.20	80	12	28	39- 98
4-Chloro-3-methylphenol	75.00	65.50	87	1	42	23- 97
Acenaphthene	50.00	36.90	74	8	31	46-118
4-Nitrophenol	75.00	67.20	90 *	5	50	10- 80
2,4-Dinitrotoluene	50.00	42.10	84	6	38	24- 96
Pentachlorophenol	75.00	73.60	98	3	50	9-103
Pyrene	50.00	39.30	79	16	31	26-127

(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: 2 out of 22 outside limits

COMMENTS: CLP,12017,,B07MK9,L,W,A212017-01B,B,EPA
CAP/.32,21211S06,2DFT1211S2,21211S07,21211S09,21211S10

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK1208R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID: 21208R07 Lab Sample ID: WBLK1208

Date Analyzed: 12/08/92 Time Analyzed: 1254

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) N

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	B07MK2	A212017-02A	21208R12	1646
02	B07MK2MS	A212017-02B	21208R13	1726
03	B07MK2MSD	A212017-02C	21208R14	1806

COMMENTS: CLP,,,VBLK1208R,L,W,WBLK1208,VOA,BLANK
PACK/2,21208R01,2BFB1208,,

9613492.4407

000016

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1208R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: WBLK1208

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21208R07

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	2	J
67-64-1	Acetone	10	U
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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK1208R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: WBLK1208

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21208R07

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK1209R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID: 21209R02 Lab Sample ID: WBLK1209

Date Analyzed: 12/09/92 Time Analyzed: 1106

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) N

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	B07MK9	A212017-01A	21209R03	1155

COMMENTS: CLP,,,VBLK1209R,L,W,WBLK1209,VOA,BLANK
PACK/2,21209R01,2BFB1209,,

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1209R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: WBLK1209

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21209R02

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 12/09/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

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000020

EPA SAMPLE NO.

VBLK1209R

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: WBLK1209

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21209R02

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 12/09/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK1208C

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID: 21211S07 Lab Sample ID: A212017-BLK

Instrument ID: SHERMA Date Extracted: 12/08/92

Matrix: (soil/water) WATER Date Analyzed: 12/11/92

Level:(low/med) LOW Time Analyzed: 1532

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	B07MK9	A212017-01B	21211S08	12/11/92
02	B07MK9MS	A212017-01C	21211S09	12/11/92
03	B07MK9MSD	A212017-01D	21211S10	12/11/92

COMMENTS: CLP,12017,,SBLK1208C,L,W,A212017-BLK,B,BLANK
CAP/.32,21211S06,2DFT1211S2

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK1208C

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-BLK

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S07

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	25	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK1208C

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-BLK

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S07

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

SBLK1208C

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-BLK

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S07

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID (Standard): 21208R01 Date Analyzed: 12/08/92

Instrument ID: 4500 Time Analyzed: 850

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) N

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	22794	9.37	87405	17.37	80807	21.37
	UPPER LIMIT	45588	9.87	174810	17.87	161614	21.87
	LOWER LIMIT	11397	8.87	43702	16.87	40404	20.87
	EPA SAMPLE NO.						
01	B07MK2	24716	9.42	96703	17.37	82803	21.42
02	B07MK2MS	24642	9.42	94256	17.42	81800	21.45
03	B07MK2MSD	26780	9.42	103605	17.42	87849	21.42
04	VBLK1208R	22318	9.42	93941	17.42	82012	21.45

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

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

FORM VIII VOA 3/90

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID (Standard): 21209R01 Date Analyzed: 12/09/92

Instrument ID: 4500 Time Analyzed: 903

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) N

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	23958	9.37	89034	17.37	79376	21.37
	UPPER LIMIT	47916	9.87	178068	17.87	158752	21.87
	LOWER LIMIT	11979	8.87	44517	16.87	39688	20.87
	EPA SAMPLE NO.						
01	B07MK9	24621	9.37	103482	17.37	90490	21.42
02	VBLK1209R	22637	9.37	90685	17.37	77941	21.42

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

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

10/14

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID (Standard): 21211S06 Date Analyzed: 12/11/92

Instrument ID: SHERMA Time Analyzed: 1449

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STD	25542	9.25	103670	12.32	66066	16.84
	UPPER LIMIT	51084	9.75	207340	12.82	132132	17.34
	LOWER LIMIT	12771	8.75	51835	11.82	33033	16.34
	EPA SAMPLE NO.						
01	B07MK9	26458	9.27	100620	12.34	61018	16.85
02	B07MK9MS	26240	9.27	99444	12.32	64242	16.85
03	B07MK9MSD	24078	9.27	91060	12.34	57232	16.87
04	SBLK1208C	27932	9.25	102802	12.32	60378	16.84

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

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

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

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID (Standard): 21211S06 Date Analyzed: 12/11/92

Instrument ID: SHERMA Time Analyzed: 1449

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	114628	20.54	118750	26.74	76525	31.01
	UPPER LIMIT	229256	21.04	237500	27.24	153050	31.51
	LOWER LIMIT	57314	20.04	59375	26.24	38262	30.51
	EPA SAMPLE NO.						
01	B07MK9	98100	20.54	74914	26.74	55796	31.01
02	B07MK9MS	105932	20.54	86098	26.72	63860	31.01
03	B07MK9MSD	93848	20.54	67096	26.74	53354	31.01
04	SBLK1208C	93956	20.54	73036	26.72	58501	31.01

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

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

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

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CASE NO. 12-017

ORGANICS

9613492.4421

CASE NO. 12-017

VOLATILES

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
01	B07MK2	109	111	109	0	0
02	B07MK9	102	93	98	0	0
03	B07MK2MS	109	108	104	0	0
04	B07MK2MSD	109	107	103	0	0
05	VBLK1208R	100	100	99	0	0
06	VBLK1209R	99	100	100	0	0

	QC LIMITS
SMC1 (TOL) = Toluene-d8	(88-110)
SMC2 (BFB) = Bromofluorobenzene	(86-115)
SMC3 (DCE) = 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix Spike - EPA Sample No.: B07MK2

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.00	0	49.00	98	61-145
Trichloroethene	50.00	0	50.60	101	71-120
Benzene	50.00	0	51.90	104	76-127
Toluene	50.00	0	48.90	98	76-125
Chlorobenzene	50.00	0	46.40	93	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.00	48.40	97	1	14	61-145
Trichloroethene	50.00	50.40	101	0	14	71-120
Benzene	50.00	51.50	103	1	11	76-127
Toluene	50.00	49.40	99	1	13	76-125
Chlorobenzene	50.00	46.60	93	0	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: 0 out of 10 outside limits

COMMENTS: CLP,12017,,B07MK2,L,W,A212017-02A,VOA,EPA PACK/2,21208R01,2BFB1208,21208R07

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK1208R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID: 21208R07 Lab Sample ID: WBLK1208

Date Analyzed: 12/08/92 Time Analyzed: 1254

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) N

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	B07MK2	A212017-02A	21208R12	1646
02	B07MK2MS	A212017-02B	21208R13	1726
03	B07MK2MSD	A212017-02C	21208R14	1806

COMMENTS: CLP,,,VBLK1208R,L,W,WBLK1208,VOA,BLANK
PACK/2,21208R01,2BFB1208,,

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4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK1209R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID: 21209R02 Lab Sample ID: WBLK1209

Date Analyzed: 12/09/92 Time Analyzed: 1106

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) N

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	B07MK9	A212017-01A	21209R03	1155

COMMENTS: CLP,,,VBLK1209R,L,W,WBLK1209,VOA,BLANK
PACK/2,21209R01,2BFB1209,,

9615492.4426

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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID: 2BFB1208 BFB Injection Date: 12/08/92

Instrument ID: 4500 BFB Injection Time: 0828

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	24.3
75	30.0 - 66.0% of mass 95	45.7
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	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	73.1
175	4.0 - 9.0% of mass 174	4.9 (6.7)1
176	93.0 - 101.0% of mass 174	70.4 (96.3)1
177	5.0 - 9.0% of mass 176	4.2 (6.0)2

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

THIS CHECK 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	50PPB-V1001A	21208R01	12/08/92	850
02	VSTD020	20PPB-V1001A	21208R02	12/08/92	932
03	VSTD010	10PPB-V1001A	21208R03	12/08/92	1013
04	VSTD200	200PPB-V1001A	21208R04	12/08/92	1054
05	VSTD100	100PPB-V1001A	21208R05	12/08/92	1134
06	VBLK1208R	WBLK1208	21208R07	12/08/92	1254
07	B07MK2	A212017-02A	21208R12	12/08/92	1646
08	B07MK2MS	A212017-02B	21208R13	12/08/92	1726
09	B07MK2MSD	A212017-02C	21208R14	12/08/92	1806

ok CRR2-2 10/18

FORM V VOA 3/90

9613492.4427

000036

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID: 2BFB1209 BFB Injection Date: 12/09/92

Instrument ID: 4500 BFB Injection Time: 0838

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	24.8
75	30.0 - 66.0% of mass 95	46.1
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	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	72.3
175	4.0 - 9.0% of mass 174	4.8 (6.6)1
176	93.0 - 101.0% of mass 174	69.8 (96.6)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 CHECK 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	50PPB-V1001A	21209R01	12/09/92	903
02	VBLK1209R	WBLK1209	21209R02	12/09/92	1106
03	B07MK9	A212017-01A	21209R03	12/09/92	1155

OK ✓ 12/14

FORM V VOA 3/90

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID (Standard): 21208R01 Date Analyzed: 12/08/92

Instrument ID: 4500 Time Analyzed: 850

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) N

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	22794	9.37	87405	17.37	80807	21.37
	UPPER LIMIT	45588	9.87	174810	17.87	161614	21.87
	LOWER LIMIT	11397	8.87	43702	16.87	40404	20.87
	EPA SAMPLE NO.						
01	B07MK2	24716	9.42	96703	17.37	82803	21.42
02	B07MK2MS	24642	9.42	94256	17.42	81800	21.45
03	B07MK2MSD	26780	9.42	103605	17.42	87849	21.42
04	VBLK1208R	22318	9.42	93941	17.42	82012	21.45

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

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

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID (Standard): 21209R01 Date Analyzed: 12/09/92

Instrument ID: 4500 Time Analyzed: 903

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) N

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	23958	9.37	89034	17.37	79376	21.37
	UPPER LIMIT	47916	9.87	178068	17.87	158752	21.87
	LOWER LIMIT	11979	8.87	44517	16.87	39688	20.87
	EPA SAMPLE NO.						
01	B07MK9	24621	9.37	103482	17.37	90490	21.42
02	VBLK1209R	22637	9.37	90685	17.37	77941	21.42

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07MK2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-02A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21208R12

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. ____ Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	6	BJ
67-64-1	Acetone	10	U
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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07MK2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-02A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21208R12

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. ____ Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

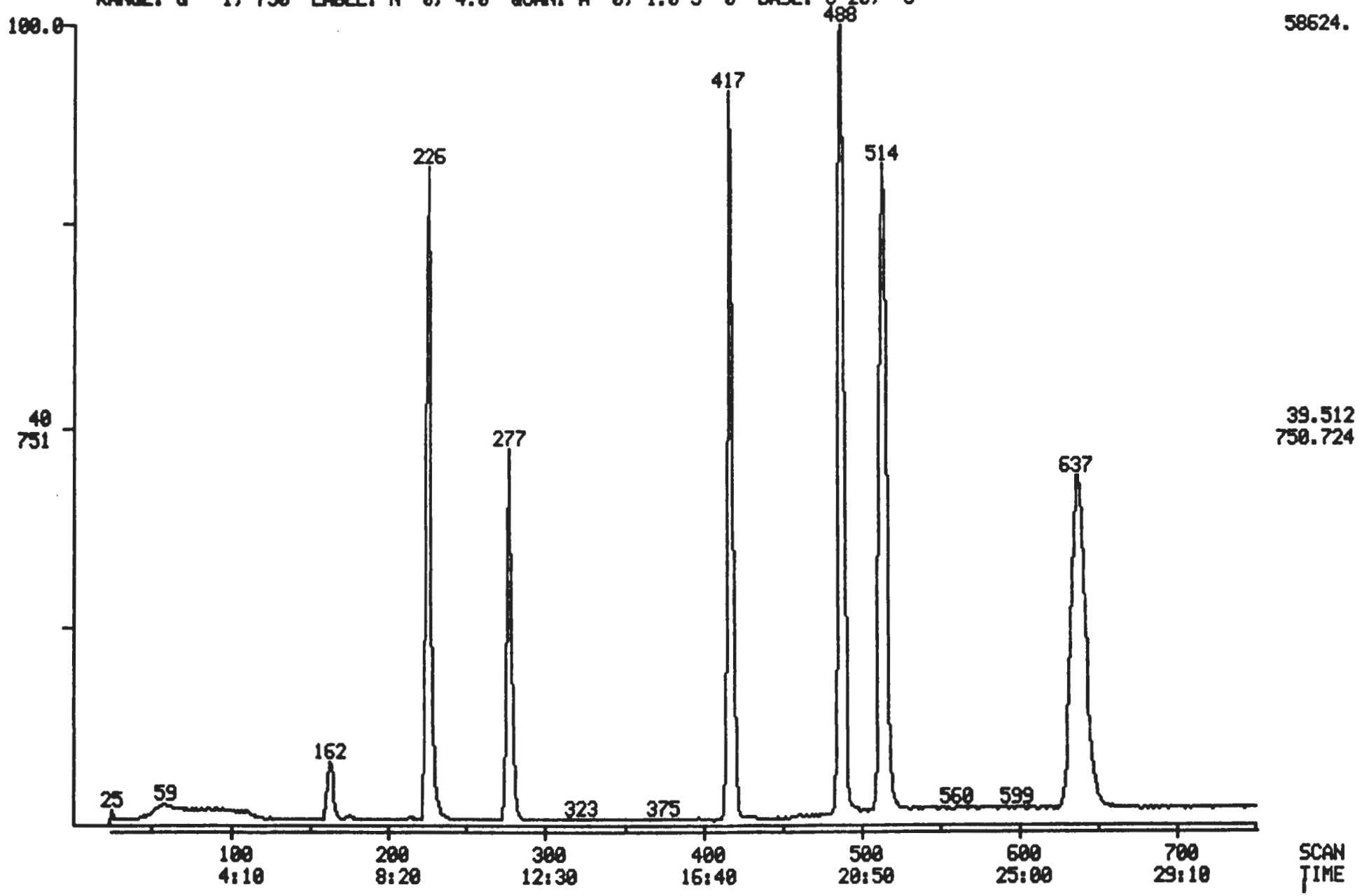
Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000041

MASS CHROMATOGRAM DATA: 21208R12 #1 SCANS 1 TO 750
12/08/92 16:46:00 CALI: 21208R12 #7
SAMPLE: CLP,12017,,B07MK2,L,W,A212017-02A,VOA,EPA
CONDS.: PACK/2,21208R01,2BFB1208,21208R07
RANGE: G 1, 750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



9613492.4452

9613492.4433

Quantitation Report File: 21208R12

000042

Data: 21208R12.TI
12/08/92 16:46:00
Sample: CLP,12017,,B07MK2,L,W,A212017-02A,VOA,EPA
Conds.: PACK/2,21208R01,2BFB1208,21208R07
Formula: 5 Instrument: 4500 Weight: 0.001
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	CO30	METHYLENE CHLORIDE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	226	9:25	1	1.000	A BB	24716.	50.000 PPB	15.62
2	114	417	17:22	2	1.000	A BB	96703.	50.000 PPB	15.62
3	117	514	21:25	3	1.000	A BB	82803.	50.000 PPB	15.62
4	65	277	11:32	1	1.226	A BB	36622.	54.522 PPB	17.04
5	98	488	20:20	3	0.949	A BB	88692.	54.553 PPB	17.05
6	95	637	26:32	3	1.239	A BB	53764.	55.372 PPB	17.30
7	84	162	6:45	1	0.717	A BB	4432.	5.585 PPB	1.75

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	54.52	50.00	1.482	1.359	1.09
5	20:17	1.00	0.949	1.00	54.55	50.00	1.071	0.982	1.09
6	26:27	1.00	1.238	1.00	55.37	50.00	0.649	0.586	1.11
7	6:45	1.00	0.720	1.00	5.59	50.00	0.179	1.605	0.11

TCA FINISHED, 8 FOUND
FINISHED AT: 12/09/92 8:32:44
Quantitation Report File: 21208R12

Data: 21208R12.TI
12/08/92 16:46:00
Sample: CLP,12017,,B07MK2,L,W,A212017-02A,VOA,EPA
Conds.: PACK/2,21208R01,2BFB1208,21208R07
Formula: 5 Instrument: 4500 Weight: 0.001
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C036	ACROLEIN
14	C037	ACRYLONITRILE
15	C040	CARBON DISULFIDE
16	C045	1,1-DICHLOROETHENE
17	C050	1,1-DICHLOROETHANE
18	C053	1,2-DICHLOROETHENE(TOTAL)
19	C060	CHLOROFORM
20	C110	2-BUTANONE
21	C065	1,2-DICHLOROETHANE
22	C115	1,1,1-TRICHLOROETHANE
23	C120	CARBON TETRACHLORIDE
24	C125	VINYL ACETATE
25	C130	BROMODICHLOROMETHANE
26	C140	1,2-DICHLOROPROPANE
27	C143	CIS-1,3-DICHLOROPROPENE
28	C150	TRICHLOROETHENE
29	C155	DIBROMOCHLOROMETHANE
30	C165	BENZENE
31	C160	1,1,2-TRICHLOROETHANE
32	C172	TRANS-1,3-DICHLOROPROPENE
33	C175	2-CHLOROETHOXY ETHENE
34	C180	BROMOFORM
35	C205	4-METHYL-2-PENTANONE
36	C210	2-HEXANONE
37	C225	1,1,2,2-TETRACHLOROETHANE
38	C220	TETRACHLOROETHENE
39	C230	TOLUENE
40	C235	CHLOROBENZENE
41	C240	ETHYL BENZENE
42	C245	STYRENE
43	C250	OP-XYLENE
44	C255	M-XYLENE
45	A170	TRICHLOROFLUOROMETHANE

9615492.9435

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	226	9:25	1	1.000	A BB	24716.	50.000 PPB	15.35
2	114	417	17:22	2	1.000	A BB	96703.	50.000 PPB	15.35
3	117	514	21:25	3	1.000	A BB	82803.	50.000 PPB	15.35
4	65	277	11:32	1	1.226	A BB	36622.	54.522 PPB	16.74
5	98	488	20:20	3	0.949	A BB	88692.	54.553 PPB	16.75
6	95	637	26:32	3	1.239	A BB	53764.	55.372 PPB	17.00
7	NOT FOUND								
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
11	84	162	6:45	1	0.717	A BB	4432.	5.585 PPB	1.71
12	~~43~~	~~178~~	~~7:17~~	~~1~~	~~0.774~~	~~A BB~~	~~1004.~~	~~5.277 PPB~~	~~1.62~~
13	NOT FOUND								
14	NOT FOUND								
15	NOT FOUND								
16	NOT FOUND								
17	NOT FOUND								
18	NOT FOUND								
19	~~83~~	~~266~~	~~11:05~~	~~1~~	~~1.177~~	~~A BB~~	~~154.~~	~~0.106 PPB~~	~~0.03~~
20	~~43~~	~~277~~	~~11:32~~	~~1~~	~~1.226~~	~~A BB~~	~~347.~~	~~1.253 PPB~~	~~0.38~~
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	NOT FOUND								
29	NOT FOUND								
30	NOT FOUND								
31	NOT FOUND								
32	NOT FOUND								
33	NOT FOUND								
34	NOT FOUND								
35	~~43~~	~~432~~	~~18:00~~	~~3~~	~~0.840~~	~~A BB~~	~~253.~~	~~0.441 PPB~~	~~0.14~~
36	~~43~~	~~461~~	~~19:12~~	~~3~~	~~0.897~~	~~A BB~~	~~620.~~	~~1.619 PPB~~	~~0.50~~
37	NOT FOUND								
38	NOT FOUND								
39	~~92~~	~~491~~	~~20:27~~	~~3~~	~~0.955~~	~~A BB~~	~~130.~~	~~0.105 PPB~~	~~0.03~~
40	NOT FOUND								
41	NOT FOUND								
42	NOT FOUND								
43	NOT FOUND								
44	NOT FOUND								
45	NOT FOUND								

LS/12-09-92

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	54.52	50.00	1.482	1.359	1.09
5	20:17	1.00	0.949	1.00	54.55	50.00	1.071	0.982	1.09
6	26:27	1.00	1.238	1.00	55.37	50.00	0.649	0.586	1.11
7	1:37		0.173						
8	2:47		0.298						
9	3:40		0.391						

12/11/92

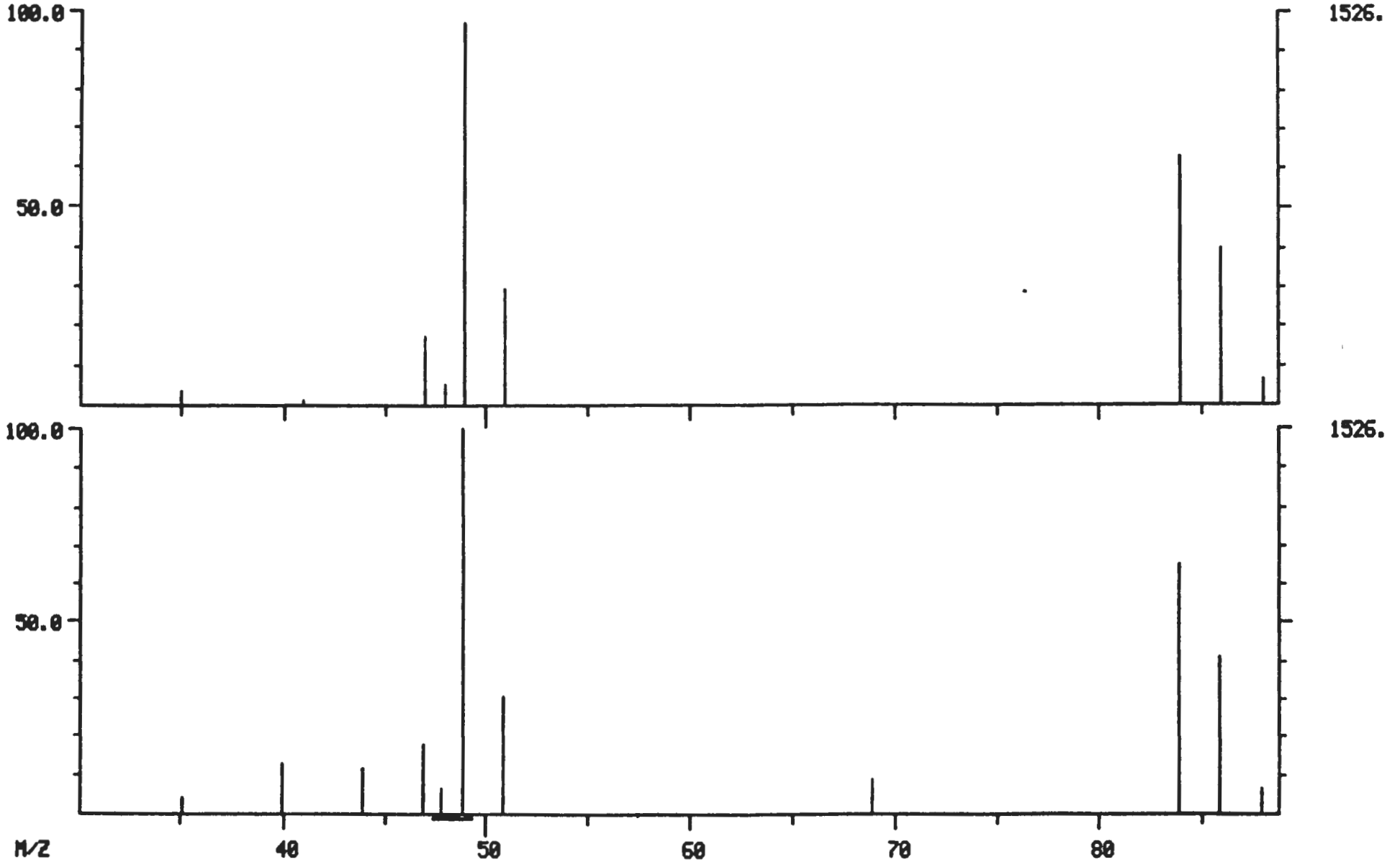
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
10	4:47		0.511						
11	6:45	1.00	0.720	1.00	5.59	50.00	0.179	1.605	0.11
12	7:22	0.99	0.787	0.98	5.28	50.00	0.041	0.385	0.11
13	5:47		0.713						
14	7:05		0.850						
15	7:55		0.844						
16	8:55		0.951						
17	10:00		1.067						
18	10:32		1.124						
19	11:02	1.00	1.178	1.00	0.11	50.00	0.006	2.949	0.00
20	11:30	1.00	1.227	1.00	1.25	50.00	0.014	0.560	0.03
21	11:37		1.240						
22	12:37		0.727						
23	12:55		0.743						
24	12:57		0.746						
25	13:22		0.770						
26	14:25		0.830						
27	14:37		0.842						
28	15:00		0.863						
29	15:35		0.897						
30	15:22		0.885						
31	15:37		0.899						
32	15:37		0.899						
33	16:25		0.945						
34	17:42		1.019						
35	17:57	1.00	0.840	1.00	0.44	50.00	0.003	0.347	0.01
36	19:10	1.00	0.897	1.00	1.62	50.00	0.007	0.231	0.03
37	19:30		0.912						
38	19:25		0.908						
39	20:27	1.00	0.957	1.00	0.10	50.00	0.002	0.748	0.00
40	21:30		1.006						
41	23:32		1.101						
42	28:07		1.316						
43	29:32		1.382						
44	28:22		1.327						
45	6:50		0.863						

000046

DUAL MASS SPECTRUM
12/08/92 16:46:00 + 6:45
SAMPLE: CLP,12017,,B07MK2,L,W,A212017-02A,VOA,EPA
CONDS.: PACK/2,21208R01,2BFB1208,21208R07
ENHANCED (S 15B 2N 0T)

DATA: 21208R12 #162
CALI: 21208R12 #7

BASE M/Z: 49/ 49
RIC: 4027./ 4655.



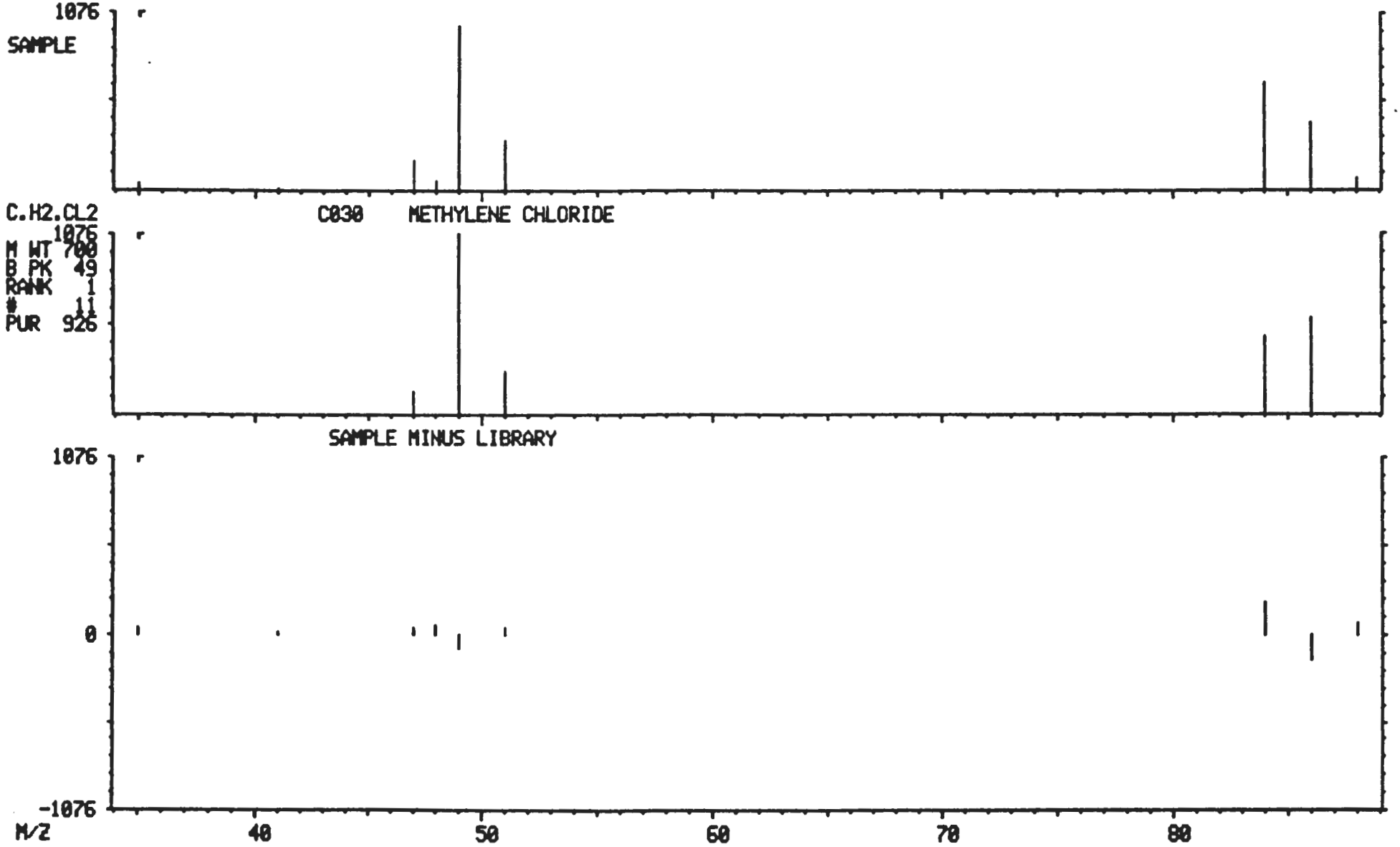
9613492.4487

000047

LIBRARY SEARCH
12/08/92 16:46:00 + 6:45
SAMPLE: CLP,12017,,B07MK2,L,W,A212017-02A,VOA,EPA
CONDS.: PACK/2,21208R01,2BFB1208,21208R07
ENHANCED (S 15B 2N 0T)

DATA: 21208R12 # 162
CALI: 21208R12 # 7

BASE M/Z: 49
RIC: 4027.



96134924468

9613492.4439

000048

EPA SAMPLE NO.

B07MK9

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21209R03

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. ____ Date Analyzed: 12/09/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07MK9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21209R03

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. ____ Date Analyzed: 12/09/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

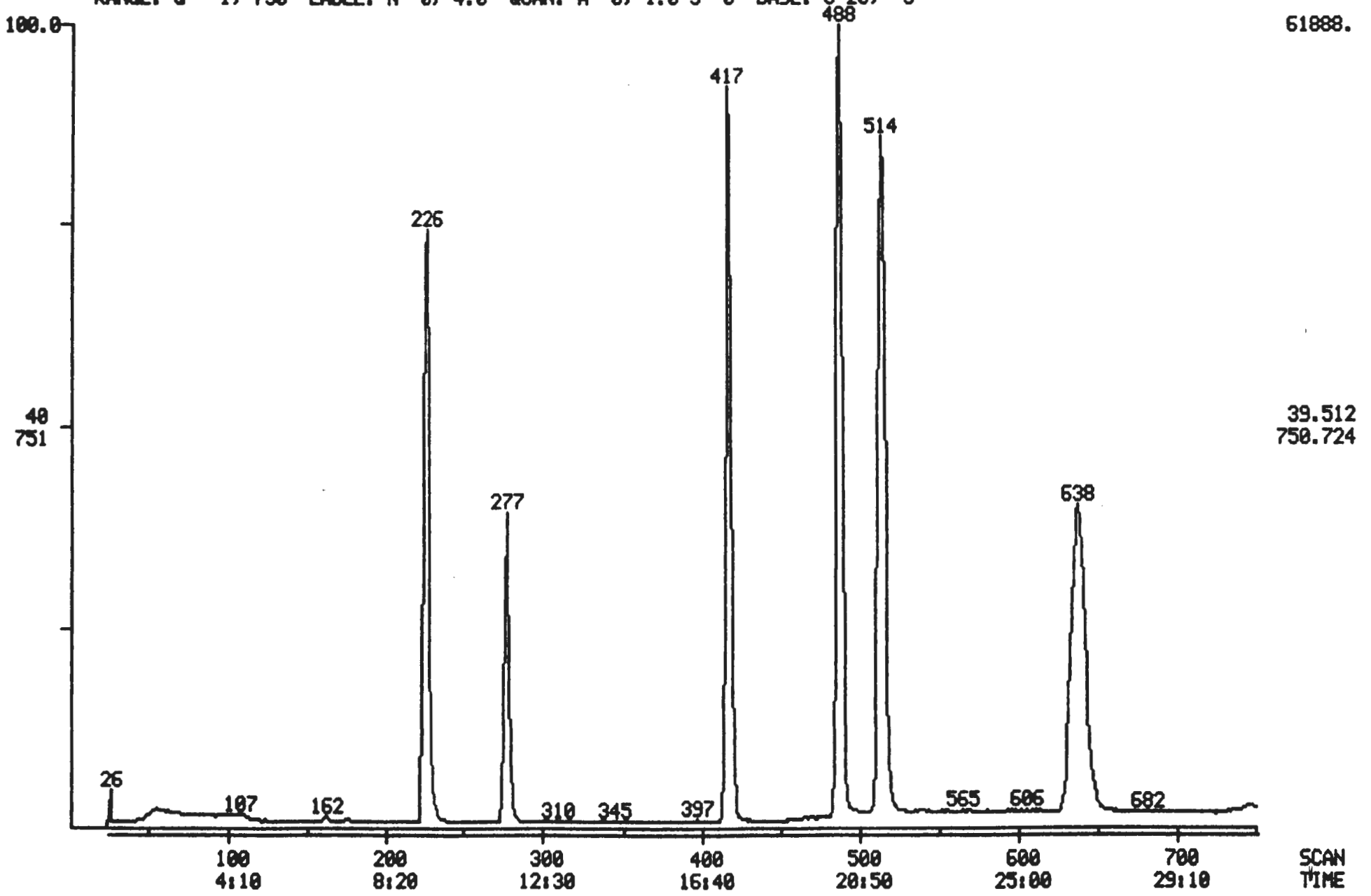
Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

000050

MASS CHROMATOGRAM DATA: 21209R03 #1 SCANS 1 TO 750
12/09/92 11:55:00 CALI: 21209R03 #7
SAMPLE: CLP,12017,,B07MK9,L,W,A212017-01A,VOA,EPA
CONDS.: PACK/2,21209R01,2BFB1209,21209R02
RANGE: G 1, 750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



9613492.4449

9613492.4442

Quantitation Report File: 21209R03

Data: 21209R03.TI
12/09/92 11:55:00
Sample: CLP,12017,,B07MK9,L,W,A212017-01A,VOA,EPA
Conds.: PACK/2,21209R01,2BFB1209,21209R02
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	225	9:22	1	1.000	A BB	24621.	50.000 PPB	16.86
2	114	417	17:22	2	1.000	A BB	103482.	50.000 PPB	16.86
3	117	514	21:25	3	1.000	A BB	90490.	50.000 PPB	16.86
4	65	277	11:32	1	1.231	A BB	31720.	49.059 PPB	16.55
5	98	488	20:20	3	0.949	A BB	90897.	50.837 PPB	17.14
6	95	638	26:35	3	1.241	A BB	51093.	46.619 PPB	15.72

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	49.06	50.00	1.288	1.313	0.98
5	20:17	1.00	0.949	1.00	50.84	50.00	1.004	0.988	1.02
6	26:27	1.00	1.238	1.00	46.62	50.00	0.565	0.606	0.93

9613492.4443

000052

TCA FINISHED, 8 FOUND
FINISHED AT: 12/09/92 12:33:03
Quantitation Report File: 21209R03

Data: 21209R03.TI
12/09/92 11:55:00
Sample: CLP,12017,,B07MK9,L,W,A212017-01A,VOA,EPA
Conds.: PACK/2,21209R01,2BFB1209,21209R02
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C036	ACROLEIN
14	C037	ACRYLONITRILE
15	C040	CARBON DISULFIDE
16	C045	1,1-DICHLOROETHENE
17	C050	1,1-DICHLOROETHANE
18	C053	1,2-DICHLOROETHENE(TOTAL)
19	C060	CHLOROFORM
20	C110	2-BUTANONE
21	C065	1,2-DICHLOROETHANE
22	C115	1,1,1-TRICHLOROETHANE
23	C120	CARBON TETRACHLORIDE
24	C125	VINYL ACETATE
25	C130	BROMODICHLOROMETHANE
26	C140	1,2-DICHLOROPROPANE
27	C143	CIS-1,3-DICHLOROPROPENE
28	C150	TRICHLOROETHENE
29	C155	DIBROMOCHLOROMETHANE
30	C165	BENZENE
31	C160	1,1,2-TRICHLOROETHANE
32	C172	TRANS-1,3-DICHLOROPROPENE
33	C175	2-CHLOROETHOXY ETHENE
34	C180	BROMOFORM
35	C205	4-METHYL-2-PENTANONE
36	C210	2-HEXANONE
37	C225	1,1,2,2-TETRACHLOROETHANE
38	C220	TETRACHLOROETHENE
39	C230	TOLUENE
40	C235	CHLOROBENZENE
41	C240	ETHYL BENZENE
42	C245	STYRENE
43	C250	OP-XYLENE
44	C255	M-XYLENE
45	A170	TRICHLOROFLUOROMETHANE

9613492.4444

000053

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	225	9:22	1	1.000	A BB	24621.	50.000 PPB	16.98
2	114	417	17:22	2	1.000	A BB	103482	50.000 PPB	16.98
3	117	514	21:25	3	1.000	A BB	90490.	50.000 PPB	16.98
4	65	277	11:32	1	1.231	A BB	31720.	49.059 PPB	16.66
5	98	488	20:20	3	0.949	A BB	90897.	50.837 PPB	17.27
6	95	638	26:35	3	1.241	A BB	51093.	46.619 PPB	15.83
7	NOT FOUND								
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
11	~~84~~	~~162~~	~~6:45~~	~~1~~	~~0.720~~	~~A BB~~	~~380.~~	~~0.491 PPB~~	~~0.17~~
12	NOT FOUND								
13	NOT FOUND								
14	NOT FOUND								
15	NOT FOUND								
16	NOT FOUND								
17	NOT FOUND								
18	NOT FOUND								
19	~~89~~	~~265~~	~~11:02~~	~~1~~	~~1.178~~	~~A BB~~	~~160.~~	~~0.110 PPB~~	~~0.04~~
20	NOT FOUND								
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	NOT FOUND								
29	NOT FOUND								
30	NOT FOUND								
31	NOT FOUND								
32	NOT FOUND								
33	NOT FOUND								
34	NOT FOUND								
35	NOT FOUND								
36	NOT FOUND								
37	NOT FOUND								
38	NOT FOUND								
39	~~92~~	~~491~~	~~20:27~~	~~3~~	~~0.988~~	~~A BB~~	~~677.~~	~~0.498 PPB~~	~~0.17~~
40	NOT FOUND								
41	NOT FOUND								
42	NOT FOUND								
43	NOT FOUND								
44	NOT FOUND								
45	NOT FOUND								

LS/12-09-92

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	49.06	50.00	1.288	1.313	0.98
5	20:17	1.00	0.949	1.00	50.84	50.00	1.004	0.988	1.02
6	26:27	1.00	1.238	1.00	46.62	50.00	0.565	0.606	0.93
7	1:37		0.173						
8	2:47		0.298						
9	3:40		0.391						

12/11/92

9613492.4445

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
10	4:47		0.511						
11	6:45	1.00	0.720	1.00	0.49	50.00	0.015	1.571	0.01
12	7:22		0.787						
13	5:47		0.713						
14	7:05		0.850						
15	7:55		0.844						
16	8:55		0.951						
17	10:00		1.067						
18	10:32		1.124						
19	11:02	1.00	1.178	1.00	0.11	50.00	0.006	2.960	0.00
20	11:30		1.227						
21	11:37		1.240						
22	12:37		0.727						
23	12:55		0.743						
24	12:57		0.746						
25	13:22		0.770						
26	14:25		0.830						
27	14:37		0.842						
28	15:00		0.863						
29	15:35		0.897						
30	15:22		0.885						
31	15:37		0.899						
32	15:37		0.899						
33	16:25		0.945						
34	17:42		1.019						
35	17:57		0.840						
36	19:10		0.897						
37	19:30		0.912						
38	19:25		0.908						
39	20:27	1.00	0.957	1.00	0.50	50.00	0.007	0.751	0.01
40	21:30		1.006						
41	23:32		1.101						
42	28:07		1.316						
43	29:32		1.382						
44	28:22		1.327						
45	6:50		0.863						

9613492.4446

000055

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Instrument ID: 4500 Calibration Date(s): 12/08/92 12/08/92

Heated Purge: (Y/N): N Calibration Times: 0850 1134

GC Column: PACK ID: 2.00(mm)

LAB FILE ID: RRF10 = 21208R03 RRF20 = 21208R02
RRF50= 21208R01 RRF100= 21208R05 RRF200= 21208R04

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	$\overline{RRF}$	% RSD
Chloromethane	1.230	1.291	1.358	1.450	1.306	1.327	6.2
Bromomethane *	1.420	1.554	1.433	1.447	1.206	1.412	9.0*
Vinyl Chloride *	1.712	1.941	1.897	2.048	1.392	1.798	14.3*
Chloroethane	0.947	1.078	1.102	1.235	0.991	1.071	10.4
Methylene Chloride	1.996	1.730	1.605	1.657	1.482	1.694	11.3
Acetone	0.404	0.393	0.385	0.349	0.295	0.365	12.2
Carbon Disulfide	4.935	4.572	4.415	4.564	4.249	4.547	5.6
1,1-Dichloroethene *	1.517	1.414	1.419	1.448	1.350	1.430	4.2*
1,1-Dichloroethane *	3.128	2.824	2.787	2.879	2.669	2.857	5.9*
1,2-Dichloroethene (total)	1.818	1.664	1.650	1.647	1.530	1.662	6.2
Chloroform *	3.361	3.009	2.949	3.053	2.769	3.028	7.1*
1,2-Dichloroethane *	1.818	1.666	1.636	1.702	1.506	1.666	6.8*
2-Butanone	0.377	0.484	0.560	0.532	0.451	0.481	14.9
1,1,1-Trichloroethane *	0.633	0.600	0.595	0.590	0.546	0.593	5.2*
Carbon Tetrachloride *	0.582	0.547	0.536	0.542	0.502	0.542	5.3*
Bromodichloromethane *	0.746	0.713	0.699	0.709	0.654	0.704	4.7*
1,2-Dichloropropane	0.430	0.403	0.397	0.408	0.380	0.404	4.5
cis-1,3-Dichloropropene *	0.559	0.545	0.540	0.544	0.499	0.537	4.2*
Trichloroethene *	0.456	0.430	0.423	0.431	0.406	0.429	4.2*
Dibromochloromethane *	0.587	0.558	0.555	0.557	0.500	0.551	5.7*
1,1,2-Trichloroethane *	0.338	0.311	0.313	0.313	0.281	0.311	6.5*
Benzene *	1.237	1.134	1.093	1.144	1.045	1.131	6.3*
trans-1,3-Dichloropropene *	0.562	0.500	0.511	0.517	0.468	0.512	6.6*
Bromoform *	0.355	0.354	0.363	0.361	0.322	0.351	4.7*
4-Methyl-2-Pentanone	0.277	0.332	0.347	0.326	0.263	0.309	11.9
2-Hexanone	0.199	0.228	0.231	0.219	0.170	0.209	12.1
Tetrachloroethene *	0.430	0.390	0.381	0.390	0.370	0.392	5.8*
1,1,2,2-Tetrachloroethane *	0.655	0.639	0.614	0.605	0.538	0.610	7.4*
Toluene *	0.856	0.775	0.748	0.758	0.702	0.768	7.3*
Chlorobenzene *	1.055	0.974	0.966	0.975	0.903	0.975	5.5*
Ethylbenzene *	0.495	0.459	0.454	0.453	0.432	0.459	5.0*
Styrene *	1.052	0.977	0.885	0.889	0.845	0.930	9.0*
Xylene (total) *	0.644	0.533	0.493	0.517	0.475	0.532	12.4*
Toluene-d8	0.783	1.048	0.982	1.067	0.918	0.960	12.0
Bromofluorobenzene *	0.492	0.682	0.586	0.648	0.572	0.596	12.3*
1,2-Dichloroethane-d4	1.074	1.423	1.359	1.516	1.259	1.326	12.8

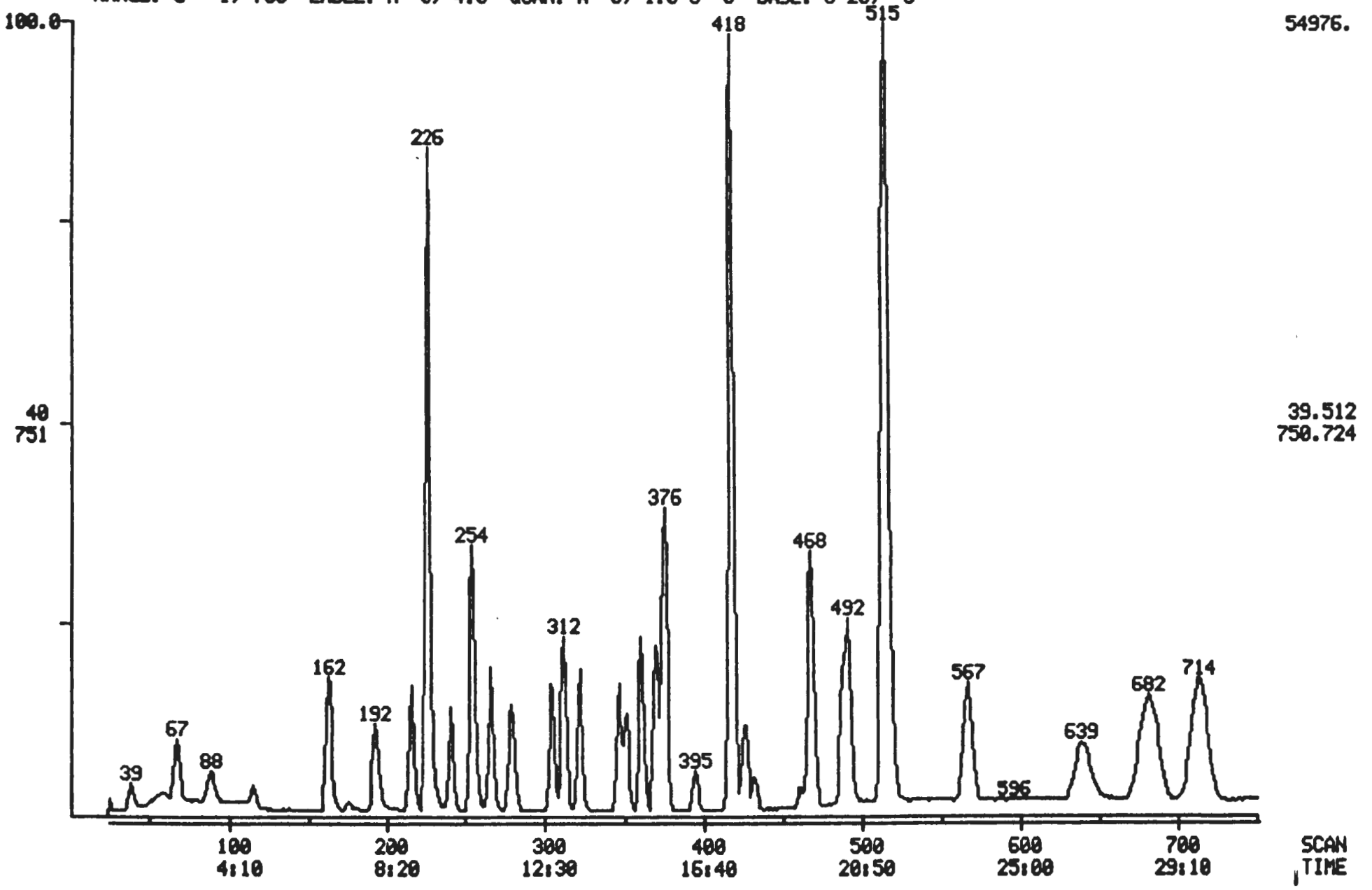
* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

FORM VI VOA 3/90

10/18/93

000056

MASS CHROMATOGRAM DATA: 21208R03 #1 SCANS 1 TO 750
12/08/92 10:13:00 CALI: 21208R03 #7
SAMPLE: CLP,,,VSTD010,L,W,10PPB-V1001A,VOA,IC-010
CONDS.: PACK/2,,2BFB1208,,
RANGE: G 1, 750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



96 1298 2445

9613492.4448

000057

Quantitation Report File: 21208R03

Data: 21208R03.TI
12/08/92 10:13:00
Sample: CLP,,,VSTD010,L,W,10PPB-V1001A,VOA,IC-010
Conds.: PACK/2,,2BFB1208,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C036	ACROLEIN
14	C037	ACRYLONITRILE
15	C040	CARBON DISULFIDE
16	C045	1,1-DICHLOROETHENE
17	C050	1,1-DICHLOROETHANE
18	C053	1,2-DICHLOROETHENE(TOTAL)
19	C060	CHLOROFORM
20	C110	2-BUTANONE
21	C065	1,2-DICHLOROETHANE
22	C115	1,1,1-TRICHLOROETHANE
23	C120	CARBON TETRACHLORIDE
24	C125	VINYL ACETATE
25	C130	BROMODICHLOROMETHANE
26	C140	1,2-DICHLOROPROPANE
27	C143	CIS-1,3-DICHLOROPROPENE
28	C150	TRICHLOROETHENE
29	C155	DIBROMOCHLOROMETHANE
30	C165	BENZENE
31	C160	1,1,2-TRICHLOROETHANE
32	C172	TRANS-1,3-DICHLOROPROPENE
33	C175	2-CHLOROETHOXY ETHENE
34	C180	BROMOFORM
35	C205	4-METHYL-2-PENTANONE
36	C210	2-HEXANONE
37	C225	1,1,2,2-TETRACHLOROETHANE
38	C220	TETRACHLOROETHENE
39	C230	TOLUENE
40	C235	CHLOROBENZENE
41	C240	ETHYL BENZENE
42	C245	STYRENE
43	C250	OP-XYLENE
44	C255	M-XYLENE
45	A170	TRICHLOROFLUOROMETHANE

9613492.4449

000058

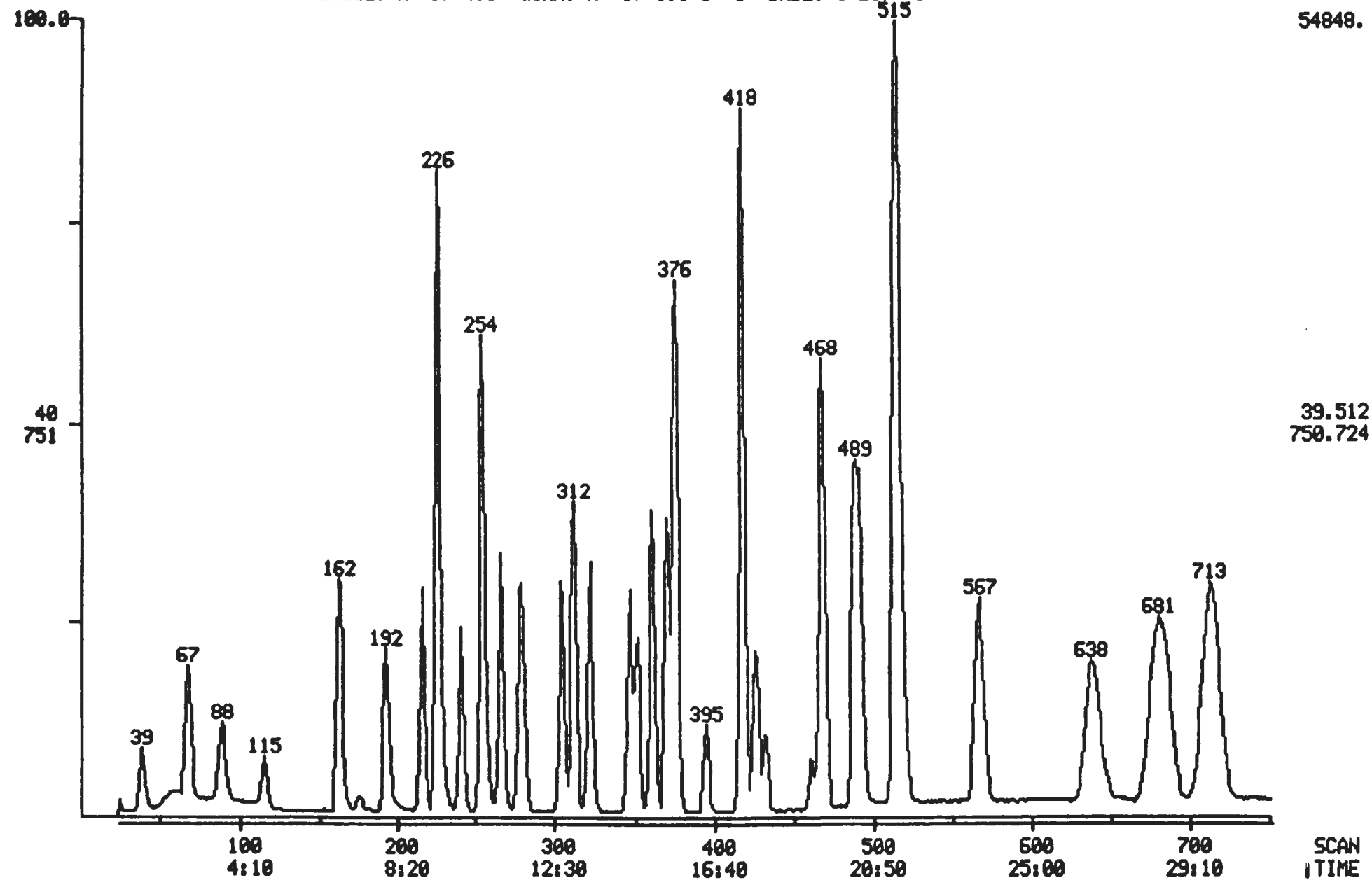
No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	226	9:25	1	1.000	A BB	24142.	50.000 PPB	8.98
2	114	418	17:25	2	1.000	A BB	97447.	50.000 PPB	8.98
3	117	515	21:27	3	1.000	A BB	86200.	50.000 PPB	8.98
4	65	278	11:35	1	1.230	A BB	5188.	10.000 PPB	1.80
5	98	488	20:20	3	0.948	A BB	13496.	10.000 PPB	1.80
6	95	638	26:35	3	1.239	A BB	8474.	10.000 PPB	1.80
7	50	39	1:37	1	0.173	A BB	5938.	10.000 PPB	1.80
8	94	67	2:47	1	0.296	A BB	6858.	10.000 PPB	1.80
9	62	88	3:40	1	0.389	A BB	8265.	10.000 PPB	1.80
10	64	115	4:47	1	0.509	A BB	4571.	10.000 PPB	1.80
11	84	162	6:45	1	0.717	A BB	9636.	10.000 PPB	1.80
12	43	175	7:17	1	0.774	A BB	1951.	10.000 PPB	1.80
13	NOT FOUND								
14	NOT FOUND								
15	76	192	8:00	1	0.850	A BB	23829.	10.000 PPB	1.80
16	96	215	8:57	1	0.951	A BB	7326.	10.000 PPB	1.80
17	63	241	10:02	1	1.066	A BB	15103.	10.000 PPB	1.80
18	96	254	10:35	1	1.124	A BB	17554.	20.000 PPB	3.59
19	83	266	11:05	1	1.177	A BB	16228.	10.000 PPB	1.80
20	43	277	11:32	1	1.226	A BB	1818.	10.000 PPB	1.80
21	62	280	11:40	1	1.239	A BB	8776.	10.000 PPB	1.80
22	97	304	12:40	2	0.727	A BB	12344.	10.000 PPB	1.80
23	117	312	13:00	2	0.746	A VB	11339.	10.000 PPB	1.80
24	43	312	13:00	2	0.746	A BB	11642.	10.000 PPB	1.80
25	83	322	13:25	2	0.770	A BB	14531.	10.000 PPB	1.80
26	63	347	14:27	2	0.830	A BB	8381.	10.000 PPB	1.80
27	75	352	14:40	2	0.842	A BB	13078.	12.000 PPB	2.16
28	130	361	15:02	2	0.864	A BB	8889.	10.000 PPB	1.80
29	129	375	15:37	2	0.897	A BB	11435.	10.000 PPB	1.80
30	78	370	15:25	2	0.885	A BB	24105.	10.000 PPB	1.80
31	97	376	15:40	2	0.900	A BB	6589.	10.000 PPB	1.80
32	75	376	15:40	2	0.900	A BB	8769.	8.000 PPB	1.44
33	63	395	16:27	2	0.945	A BB	2856.	10.000 PPB	1.80
34	173	426	17:45	2	1.019	A BB	6911.	10.000 PPB	1.80
35	43	433	18:02	3	0.841	A BB	4773.	10.000 PPB	1.80
36	43	462	19:15	3	0.897	A BB	3423.	10.000 PPB	1.80
37	83	469	19:32	3	0.911	A BB	11294.	10.000 PPB	1.80
38	164	467	19:27	3	0.907	A BB	7413.	10.000 PPB	1.80
39	92	492	20:30	3	0.955	A BB	14754.	10.000 PPB	1.80
40	112	517	21:32	3	1.004	A BB	18192.	10.000 PPB	1.80
41	106	567	23:37	3	1.101	A BB	8526.	10.000 PPB	1.80
42	104	678	28:15	3	1.317	A BB	18128.	10.000 PPB	1.80
43	106	714	29:45	3	1.386	A BB	22213.	20.000 PPB	3.59
44	106	685	28:32	3	1.330	A BB	11007.	10.000 PPB	1.80
45	NOT FOUND								

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	10.00	10.00	1.074	1.074	1.00
5	20:17	1.00	0.949	1.00	10.00	10.00	0.783	0.783	1.00
6	26:27	1.00	1.238	1.00	10.00	10.00	0.492	0.492	1.00
7	1:37	1.00	0.173	1.00	10.00	10.00	1.230	1.230	1.00
8	2:47	1.00	0.298	1.00	10.00	10.00	1.420	1.420	1.00
9	3:40	1.00	0.391	1.00	10.00	10.00	1.712	1.712	1.00

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
10	4:47	1.00	0.511	1.00	10.00	10.00	0.947	0.947	1.00
11	6:45	1.00	0.720	1.00	10.00	10.00	1.996	1.996	1.00
12	7:22	0.99	0.787	0.98	10.00	10.00	0.404	0.404	1.00
13	5:47		0.713						
14	7:05		0.850						
15	7:55	1.01	0.844	1.01	10.00	10.00	4.935	4.935	1.00
16	8:55	1.00	0.951	1.00	10.00	10.00	1.517	1.517	1.00
17	10:00	1.00	1.067	1.00	10.00	10.00	3.128	3.128	1.00
18	10:32	1.00	1.124	1.00	20.00	20.00	1.818	1.818	1.00
19	11:02	1.00	1.178	1.00	10.00	10.00	3.361	3.361	1.00
20	11:30	1.00	1.227	1.00	10.00	10.00	0.377	0.377	1.00
21	11:37	1.00	1.240	1.00	10.00	10.00	1.818	1.818	1.00
22	12:37	1.00	0.727	1.00	10.00	10.00	0.633	0.633	1.00
23	12:55	1.01	0.743	1.00	10.00	10.00	0.582	0.582	1.00
24	12:57	1.00	0.746	1.00	10.00	10.00	0.597	0.597	1.00
25	13:22	1.00	0.770	1.00	10.00	10.00	0.746	0.746	1.00
26	14:25	1.00	0.830	1.00	10.00	10.00	0.430	0.430	1.00
27	14:37	1.00	0.842	1.00	12.00	12.00	0.559	0.559	1.00
28	15:00	1.00	0.863	1.00	10.00	10.00	0.456	0.456	1.00
29	15:35	1.00	0.897	1.00	10.00	10.00	0.587	0.587	1.00
30	15:22	1.00	0.885	1.00	10.00	10.00	1.237	1.237	1.00
31	15:37	1.00	0.899	1.00	10.00	10.00	0.338	0.338	1.00
32	15:37	1.00	0.899	1.00	8.00	8.00	0.562	0.562	1.00
33	16:25	1.00	0.945	1.00	10.00	10.00	0.147	0.147	1.00
34	17:42	1.00	1.019	1.00	10.00	10.00	0.355	0.355	1.00
35	17:57	1.00	0.840	1.00	10.00	10.00	0.277	0.277	1.00
36	19:10	1.00	0.897	1.00	10.00	10.00	0.199	0.199	1.00
37	19:30	1.00	0.912	1.00	10.00	10.00	0.655	0.655	1.00
38	19:25	1.00	0.908	1.00	10.00	10.00	0.430	0.430	1.00
39	20:27	1.00	0.957	1.00	10.00	10.00	0.856	0.856	1.00
40	21:30	1.00	1.006	1.00	10.00	10.00	1.055	1.055	1.00
41	23:32	1.00	1.101	1.00	10.00	10.00	0.495	0.495	1.00
42	28:07	1.00	1.316	1.00	10.00	10.00	1.052	1.052	1.00
43	29:32	1.01	1.382	1.00	20.00	20.00	0.644	0.644	1.00
44	28:22	1.01	1.327	1.00	10.00	10.00	0.638	0.638	1.00
45	6:50		0.863						

000060

MASS CHROMATOGRAM DATA: 21208R02 #1 SCANS 1 TO 750
12/08/92 9:32:00 CALI: 21208R02 #7
SAMPLE: CLP,,,VSTD020,L,W,20PPB-V1001A,VOA,IC-020
CONDS.: PACK/2,,20FB1208,,
RANGE: G 1, 750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



96152492.WMS1

Quantitation Report File: 21208R02

Data: 21208R02.TI
12/08/92 9:32:00
Sample: CLP,,,VSTD020,L,W,20PPB-V1001A,VOA,IC-020
Conds.: PACK/2,,2BFB1208,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C036	ACROLEIN
14	C037	ACRYLONITRILE
15	C040	CARBON DISULFIDE
16	C045	1,1-DICHLOROETHENE
17	C050	1,1-DICHLOROETHANE
18	C053	1,2-DICHLOROETHENE(TOTAL)
19	C060	CHLOROFORM
20	C110	2-BUTANONE
21	C065	1,2-DICHLOROETHANE
22	C115	1,1,1-TRICHLOROETHANE
23	C120	CARBON TETRACHLORIDE
24	C125	VINYL ACETATE
25	C130	BROMODICHLOROMETHANE
26	C140	1,2-DICHLOROPROPANE
27	C143	CIS-1,3-DICHLOROPROPENE
28	C150	TRICHLOROETHENE
29	C155	DIBROMOCHLOROMETHANE
30	C165	BENZENE
31	C160	1,1,2-TRICHLOROETHANE
32	C172	TRANS-1,3-DICHLOROPROPENE
33	C175	2-CHLOROETHOXY ETHENE
34	C180	BROMOFORM
35	C205	4-METHYL-2-PENTANONE
36	C210	2-HEXANONE
37	C225	1,1,2,2-TETRACHLOROETHANE
38	C220	TETRACHLOROETHENE
39	C230	TOLUENE
40	C235	CHLOROBENZENE
41	C240	ETHYL BENZENE
42	C245	STYRENE
43	C250	OP-XYLENE
44	C255	M-XYLENE
-45	A170	TRICHLOROFLUOROMETHANE

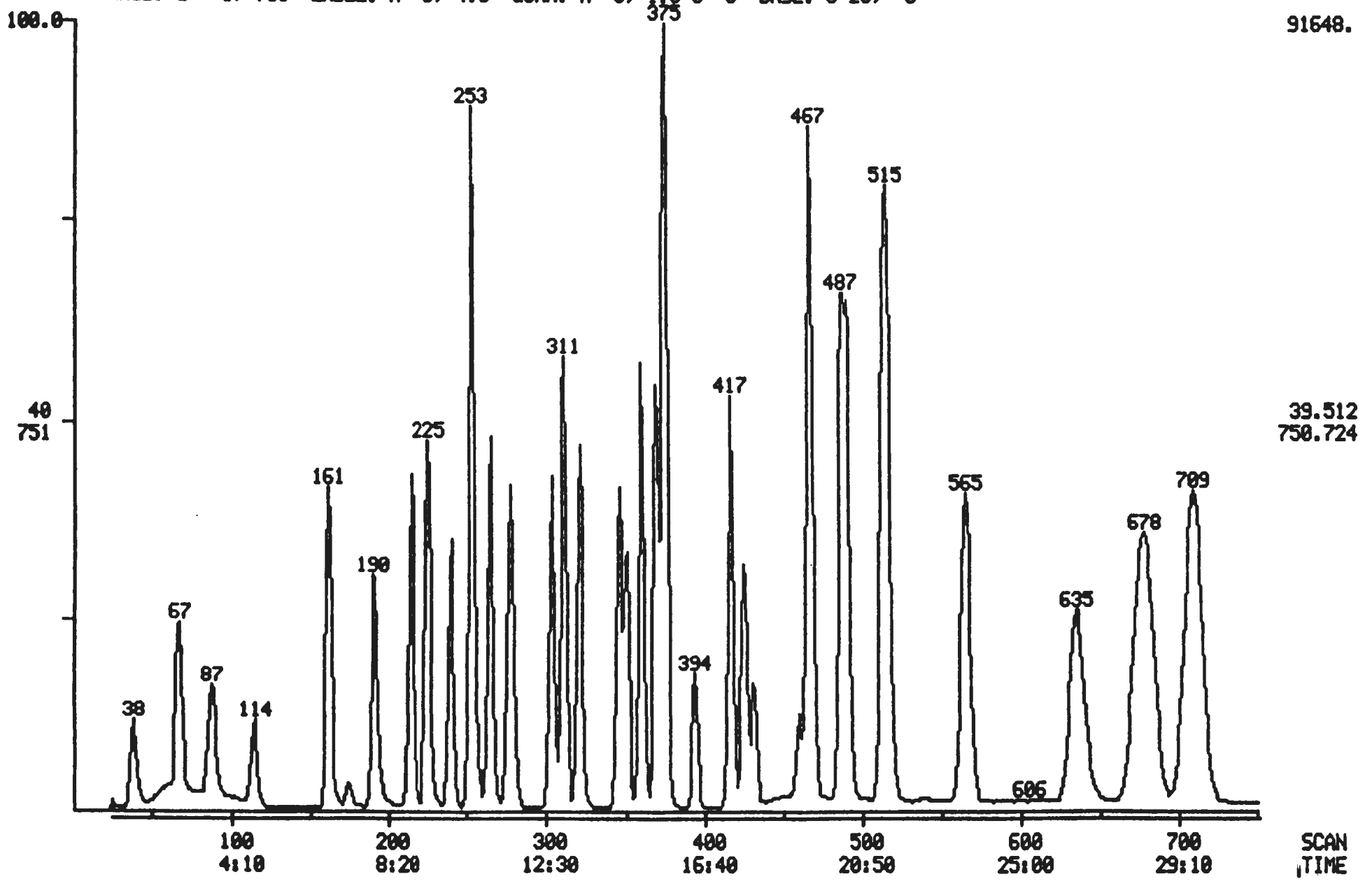
No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	226	9:25	1	1.000	A BB	23148.	50.000 PPB	5.17
2	114	418	17:25	2	1.000	A BB	88706.	50.000 PPB	5.17
3	117	514	21:25	3	1.000	A BB	79190.	50.000 PPB	5.17
4	65	278	11:35	1	1.230	A BB	13179.	20.000 PPB	2.07
5	98	488	20:20	3	0.949	A BB	33191.	20.000 PPB	2.07
6	95	638	26:35	3	1.241	A BB	21592.	20.000 PPB	2.07
7	50	39	1:37	1	0.173	A BB	11951.	20.000 PPB	2.07
8	94	67	2:47	1	0.296	A BB	14388.	20.000 PPB	2.07
9	62	88	3:40	1	0.389	A BB	17968.	20.000 PPB	2.07
10	64	115	4:47	1	0.509	A BB	9986.	20.000 PPB	2.07
11	84	162	6:45	1	0.717	A BB	16014.	20.000 PPB	2.07
12	43	175	7:17	1	0.774	A BB	3635.	20.000 PPB	2.07
13	NOT FOUND								
14	NOT FOUND								
15	76	192	8:00	1	0.850	A BB	42335.	20.000 PPB	2.07
16	96	215	8:57	1	0.951	A BB	13096.	20.000 PPB	2.07
17	63	241	10:02	1	1.066	A BB	26148.	20.000 PPB	2.07
18	96	254	10:35	1	1.124	A BB	30821.	40.000 PPB	4.14
19	83	266	11:05	1	1.177	A BB	27864.	20.000 PPB	2.07
20	43	277	11:32	1	1.226	A BB	4479.	20.000 PPB	2.07
21	62	280	11:40	1	1.239	A BB	15429.	20.000 PPB	2.07
22	97	304	12:40	2	0.727	A BB	21291.	20.000 PPB	2.07
23	117	312	13:00	2	0.746	A VB	19400.	20.000 PPB	2.07
24	43	312	13:00	2	0.746	A BB	21108.	20.000 PPB	2.07
25	83	322	13:25	2	0.770	A BB	25303.	20.000 PPB	2.07
26	63	347	14:27	2	0.830	A BB	14304.	20.000 PPB	2.07
27	75	352	14:40	2	0.842	A BB	22252.	23.000 PPB	2.38
28	130	361	15:02	2	0.864	A BB	15267.	20.000 PPB	2.07
29	129	375	15:37	2	0.897	A BB	19795.	20.000 PPB	2.07
30	78	370	15:25	2	0.885	A BB	40244.	20.000 PPB	2.07
31	97	376	15:40	2	0.900	A BB	11041.	20.000 PPB	2.07
32	75	376	15:40	2	0.900	A BB	15070.	17.000 PPB	1.76
33	63	395	16:27	2	0.945	A BB	5748.	20.000 PPB	2.07
34	173	426	17:45	2	1.019	A BB	12565.	20.000 PPB	2.07
35	43	433	18:02	3	0.842	A BB	10513.	20.000 PPB	2.07
36	43	461	19:12	3	0.897	A BB	7210.	20.000 PPB	2.07
37	83	469	19:32	3	0.912	A BB	20246.	20.000 PPB	2.07
38	164	467	19:27	3	0.909	A BB	12345.	20.000 PPB	2.07
39	92	492	20:30	3	0.957	A BB	24561.	20.000 PPB	2.07
40	112	517	21:32	3	1.006	A BB	30852.	20.000 PPB	2.07
41	106	567	23:37	3	1.103	A BB	14540.	20.000 PPB	2.07
42	104	677	28:12	3	1.317	A BB	30937.	20.000 PPB	2.07
43	106	713	29:42	3	1.387	A BB	33771.	40.000 PPB	4.14
44	106	684	28:30	3	1.331	A BB	18101.	20.000 PPB	2.07
45	NOT FOUND								

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	20.00	20.00	1.423	1.423	1.00
5	20:17	1.00	0.949	1.00	20.00	20.00	1.048	1.048	1.00
6	26:27	1.00	1.238	1.00	20.00	20.00	0.682	0.682	1.00
7	1:37	1.00	0.173	1.00	20.00	20.00	1.291	1.291	1.00
8	2:47	1.00	0.298	1.00	20.00	20.00	1.554	1.554	1.00
9	3:40	1.00	0.391	1.00	20.00	20.00	1.941	1.941	1.00

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
10	4:47	1.00	0.511	1.00	20.00	20.00	1.078	1.078	1.00
11	6:45	1.00	0.720	1.00	20.00	20.00	1.730	1.730	1.00
12	7:22	0.99	0.787	0.98	20.00	20.00	0.393	0.393	1.00
13	5:47		0.713						
14	7:05		0.850						
15	7:55	1.01	0.844	1.01	20.00	20.00	4.572	4.572	1.00
16	8:55	1.00	0.951	1.00	20.00	20.00	1.414	1.414	1.00
17	10:00	1.00	1.067	1.00	20.00	20.00	2.824	2.824	1.00
18	10:32	1.00	1.124	1.00	40.00	40.00	1.664	1.664	1.00
19	11:02	1.00	1.178	1.00	20.00	20.00	3.009	3.009	1.00
20	11:30	1.00	1.227	1.00	20.00	20.00	0.484	0.484	1.00
21	11:37	1.00	1.240	1.00	20.00	20.00	1.666	1.666	1.00
22	12:37	1.00	0.727	1.00	20.00	20.00	0.600	0.600	1.00
23	12:55	1.01	0.743	1.00	20.00	20.00	0.547	0.547	1.00
24	12:57	1.00	0.746	1.00	20.00	20.00	0.595	0.595	1.00
25	13:22	1.00	0.770	1.00	20.00	20.00	0.713	0.713	1.00
26	14:25	1.00	0.830	1.00	20.00	20.00	0.403	0.403	1.00
27	14:37	1.00	0.842	1.00	23.00	23.00	0.545	0.545	1.00
28	15:00	1.00	0.863	1.00	20.00	20.00	0.430	0.430	1.00
29	15:35	1.00	0.897	1.00	20.00	20.00	0.558	0.558	1.00
30	15:22	1.00	0.885	1.00	20.00	20.00	1.134	1.134	1.00
31	15:37	1.00	0.899	1.00	20.00	20.00	0.311	0.311	1.00
32	15:37	1.00	0.899	1.00	17.00	17.00	0.500	0.500	1.00
33	16:25	1.00	0.945	1.00	20.00	20.00	0.162	0.162	1.00
34	17:42	1.00	1.019	1.00	20.00	20.00	0.354	0.354	1.00
35	17:57	1.00	0.840	1.00	20.00	20.00	0.332	0.332	1.00
36	19:10	1.00	0.897	1.00	20.00	20.00	0.228	0.228	1.00
37	19:30	1.00	0.912	1.00	20.00	20.00	0.639	0.639	1.00
38	19:25	1.00	0.908	1.00	20.00	20.00	0.390	0.390	1.00
39	20:27	1.00	0.957	1.00	20.00	20.00	0.775	0.775	1.00
40	21:30	1.00	1.006	1.00	20.00	20.00	0.974	0.974	1.00
41	23:32	1.00	1.101	1.00	20.00	20.00	0.459	0.459	1.00
42	28:07	1.00	1.316	1.00	20.00	20.00	0.977	0.977	1.00
43	29:32	1.01	1.382	1.00	40.00	40.00	0.533	0.533	1.00
44	28:22	1.00	1.327	1.00	20.00	20.00	0.571	0.571	1.00
45	6:50		0.863						

000064

MASS CHROMATOGRAM DATA: 21208R01 #1 SCANS 1 TO 750
12/08/92 8:50:00 CALI: 21208R01 #7
SAMPLE: CLP,,,VSTD050,L,W,50PPB-V1001A,VOA,IC-050
CONDS.: PACK/2,,28FB1208,,
RANGE: G 1, 750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



96173492 4455

Quantitation Report File: 21208R01

Data: 21208R01.TI
12/08/92 8:50:00
Sample: CLP,,,VSTD050,L,W,50PPB-V1001A,VOA,IC-050
Conds.: PACK/2,,2BFB1208,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C036	ACROLEIN
14	C037	ACRYLONITRILE
15	C040	CARBON DISULFIDE
16	C045	1,1-DICHLOROETHENE
17	C050	1,1-DICHLOROETHANE
18	C053	1,2-DICHLOROETHENE(TOTAL)
19	C060	CHLOROFORM
20	C110	2-BUTANONE
21	C065	1,2-DICHLOROETHANE
22	C115	1,1,1-TRICHLOROETHANE
23	C120	CARBON TETRACHLORIDE
24	C125	VINYL ACETATE
25	C130	BROMODICHLOROMETHANE
26	C140	1,2-DICHLOROPROPANE
27	C143	CIS-1,3-DICHLOROPROPENE
28	C150	TRICHLOROETHENE
29	C155	DIBROMOCHLOROMETHANE
30	C165	BENZENE
31	C160	1,1,2-TRICHLOROETHANE
32	C172	TRANS-1,3-DICHLOROPROPENE
33	C175	2-CHLOROETHOXY ETHENE
34	C180	BROMOFORM
35	C205	4-METHYL-2-PENTANONE
36	C210	2-HEXANONE
37	C225	1,1,2,2-TETRACHLOROETHANE
38	C220	TETRACHLOROETHENE
39	C230	TOLUENE
40	C235	CHLOROBENZENE
41	C240	ETHYL BENZENE
42	C245	STYRENE
43	C250	OP-XYLENE
44	C255	M-XYLENE
-45	A170	TRICHLOROFLUOROMETHANE

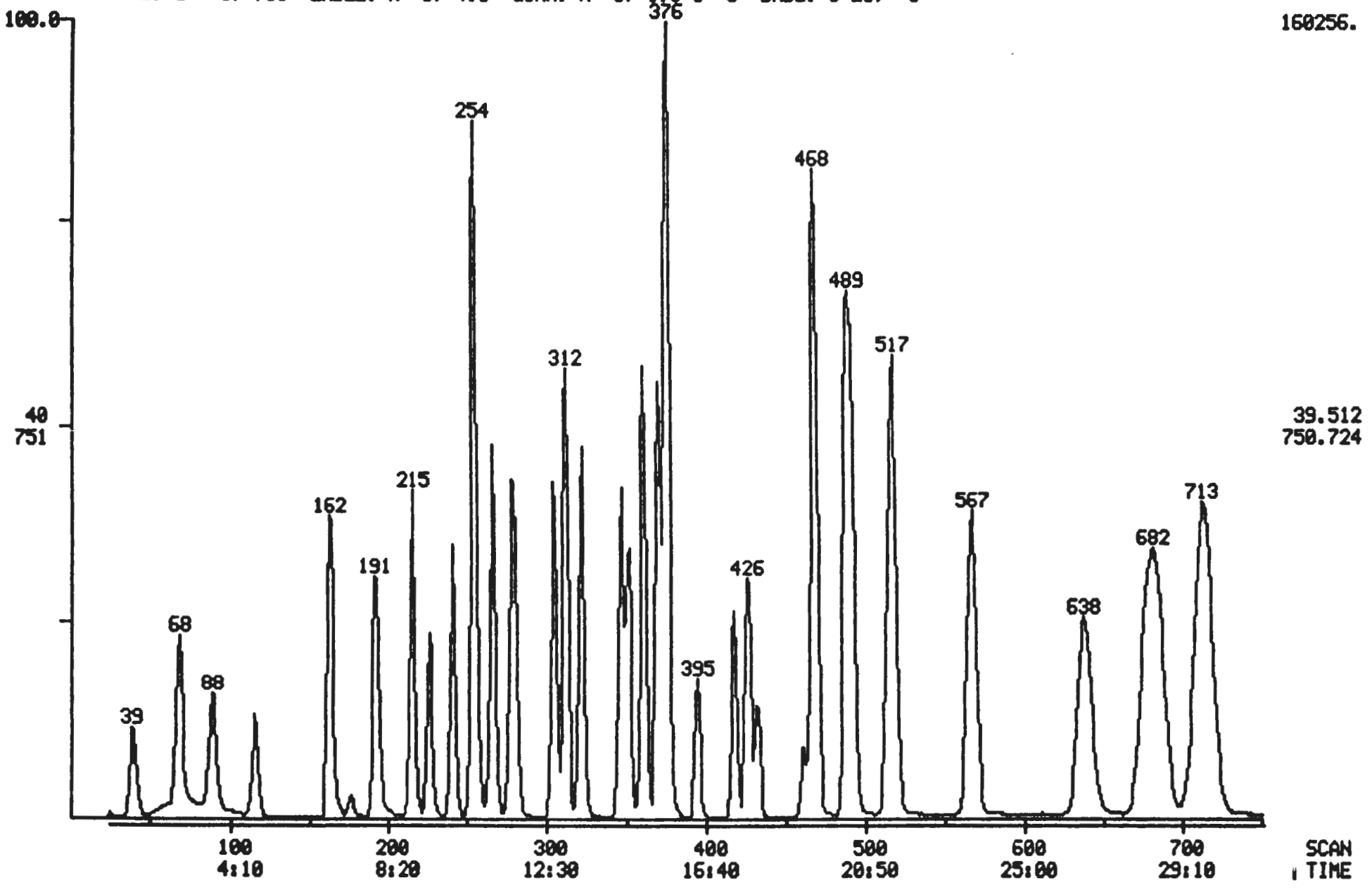
No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	225	9:22	1	1.000	A BB	22794.	50.000 PPB	2.28
2	114	417	17:22	2	1.000	A BB	87405.	50.000 PPB	2.28
3	117	513	21:22	3	1.000	A BB	80807.	50.000 PPB	2.28
4	65	277	11:32	1	1.231	A BB	30973.	50.000 PPB	2.28
5	98	487	20:17	3	0.949	A BB	79330.	50.000 PPB	2.28
6	95	635	26:27	3	1.238	A BB	47378.	50.000 PPB	2.28
7	50	38	1:35	1	0.169	A BB	30957.	50.000 PPB	2.28
8	94	67	2:47	1	0.298	A BB	32673.	50.000 PPB	2.28
9	62	87	3:37	1	0.387	A BB	43251.	50.000 PPB	2.28
10	64	114	4:45	1	0.507	A BB	25126.	50.000 PPB	2.28
11	84	161	6:42	1	0.716	A BB	36592.	50.000 PPB	2.28
12	43	174	7:15	1	0.773	A BB	8773.	50.000 PPB	2.28
13	NOT FOUND								
14	NOT FOUND								
15	76	190	7:55	1	0.844	A BB	100639.	50.000 PPB	2.28
16	96	214	8:55	1	0.951	A BB	32352.	50.000 PPB	2.28
17	63	240	10:00	1	1.067	A BV	63516.	50.000 PPB	2.28
18	96	253	10:32	1	1.124	A BB	75209.	100.000 PPB	4.55
19	83	265	11:02	1	1.178	A BB	67216.	50.000 PPB	2.28
20	43	276	11:30	1	1.227	A BB	12775.	50.000 PPB	2.28
21	62	279	11:37	1	1.240	A BB	37296.	50.000 PPB	2.28
22	97	303	12:37	2	0.727	A BB	52004.	50.000 PPB	2.28
23	117	310	12:55	2	0.743	A VB	46827.	50.000 PPB	2.28
24	43	311	12:57	2	0.746	A BB	52283.	50.000 PPB	2.28
25	83	321	13:22	2	0.770	A BB	61125.	50.000 PPB	2.28
26	63	346	14:25	2	0.830	A BB	34661.	50.000 PPB	2.28
27	75	351	14:37	2	0.842	A BB	54727.	58.000 PPB	2.64
28	130	360	15:00	2	0.863	A BB	37005.	50.000 PPB	2.28
29	129	374	15:35	2	0.897	A BB	48472.	50.000 PPB	2.28
30	78	369	15:22	2	0.885	A BB	95517.	50.000 PPB	2.28
31	97	375	15:37	2	0.899	A BB	27320.	50.000 PPB	2.28
32	75	375	15:37	2	0.899	A BB	37520.	42.000 PPB	1.91
33	63	394	16:25	2	0.945	A BB	15522.	50.000 PPB	2.28
34	173	425	17:42	2	1.019	A BB	31766.	50.000 PPB	2.28
35	43	431	17:57	3	0.840	A BB	28008.	50.000 PPB	2.28
36	43	460	19:10	3	0.897	A BB	18691.	50.000 PPB	2.28
37	83	468	19:30	3	0.912	A BB	49599.	50.000 PPB	2.28
38	164	466	19:25	3	0.908	A BB	30820.	50.000 PPB	2.28
39	92	491	20:27	3	0.957	A BB	60456.	50.000 PPB	2.28
40	112	516	21:30	3	1.006	A BB	78040.	50.000 PPB	2.28
41	106	565	23:32	3	1.101	A BB	36650.	50.000 PPB	2.28
42	104	674	28:05	3	1.314	A BB	71546.	50.000 PPB	2.28
43	106	709	29:32	3	1.382	A BB	79741.	100.000 PPB	4.55
44	106	681	28:22	3	1.327	A BB	41675.	50.000 PPB	2.28
45	NOT FOUND								

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	50.00	50.00	1.359	1.359	1.00
5	20:17	1.00	0.949	1.00	50.00	50.00	0.982	0.982	1.00
6	26:27	1.00	1.238	1.00	50.00	50.00	0.586	0.586	1.00
7	1:37	0.97	0.173	0.97	50.00	50.00	1.358	1.358	1.00
8	2:47	1.00	0.298	1.00	50.00	50.00	1.433	1.433	1.00
9	3:40	0.99	0.391	0.99	50.00	50.00	1.897	1.897	1.00

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
10	4:47	0.99	0.511	0.99	50.00	50.00	1.102	1.102	1.00
11	6:45	0.99	0.720	0.99	50.00	50.00	1.605	1.605	1.00
12	7:22	0.98	0.787	0.98	50.00	50.00	0.385	0.385	1.00
13	5:47		0.713						
14	7:05		0.850						
15	7:55	1.00	0.844	1.00	50.00	50.00	4.415	4.415	1.00
16	8:55	1.00	0.951	1.00	50.00	50.00	1.419	1.419	1.00
17	10:00	1.00	1.067	1.00	50.00	50.00	2.787	2.787	1.00
18	10:32	1.00	1.124	1.00	100.00	100.00	1.650	1.650	1.00
19	11:02	1.00	1.178	1.00	50.00	50.00	2.949	2.949	1.00
20	11:30	1.00	1.227	1.00	50.00	50.00	0.560	0.560	1.00
21	11:37	1.00	1.240	1.00	50.00	50.00	1.636	1.636	1.00
22	12:37	1.00	0.727	1.00	50.00	50.00	0.595	0.595	1.00
23	12:55	1.00	0.743	1.00	50.00	50.00	0.536	0.536	1.00
24	12:57	1.00	0.746	1.00	50.00	50.00	0.598	0.598	1.00
25	13:22	1.00	0.770	1.00	50.00	50.00	0.699	0.699	1.00
26	14:25	1.00	0.830	1.00	50.00	50.00	0.397	0.397	1.00
27	14:37	1.00	0.842	1.00	58.00	58.00	0.540	0.540	1.00
28	15:00	1.00	0.863	1.00	50.00	50.00	0.423	0.423	1.00
29	15:35	1.00	0.897	1.00	50.00	50.00	0.555	0.555	1.00
30	15:22	1.00	0.885	1.00	50.00	50.00	1.093	1.093	1.00
31	15:37	1.00	0.899	1.00	50.00	50.00	0.313	0.313	1.00
32	15:37	1.00	0.899	1.00	42.00	42.00	0.511	0.511	1.00
33	16:25	1.00	0.945	1.00	50.00	50.00	0.178	0.178	1.00
34	17:42	1.00	1.019	1.00	50.00	50.00	0.363	0.363	1.00
35	17:57	1.00	0.840	1.00	50.00	50.00	0.347	0.347	1.00
36	19:10	1.00	0.897	1.00	50.00	50.00	0.231	0.231	1.00
37	19:30	1.00	0.912	1.00	50.00	50.00	0.614	0.614	1.00
38	19:25	1.00	0.908	1.00	50.00	50.00	0.381	0.381	1.00
39	20:27	1.00	0.957	1.00	50.00	50.00	0.748	0.748	1.00
40	21:30	1.00	1.006	1.00	50.00	50.00	0.966	0.966	1.00
41	23:32	1.00	1.101	1.00	50.00	50.00	0.454	0.454	1.00
42	28:07	1.00	1.316	1.00	50.00	50.00	0.885	0.885	1.00
43	29:32	1.00	1.382	1.00	100.00	100.00	0.493	0.493	1.00
44	28:22	1.00	1.327	1.00	50.00	50.00	0.516	0.516	1.00
45	6:50		0.863						

000068

MASS CHROMATOGRAM DATA: 21208R05 #1 SCANS 1 TO 750
12/08/92 11:34:00 CALI: 21208R05 #7
SAMPLE: CLP,,,VSTD100,L,W,100PPB-V1001A,VOA,IC-100
CONDS.: PACK/2,,2BFB1208,,
RANGE: G 1, 750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



9613492.4469

Quantitation Report File: 21208R05

Data: 21208R05.TI
12/08/92 11:34:00
Sample: CLP,,,VSTD100,L,W,100PPB-V1001A,VOA,IC-100
Conds.: PACK/2,,2BFB1208,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C036	ACROLEIN
14	C037	ACRYLONITRILE
15	C040	CARBON DISULFIDE
16	C045	1,1-DICHLOROETHENE
17	C050	1,1-DICHLOROETHANE
18	C053	1,2-DICHLOROETHENE(TOTAL)
19	C060	CHLOROFORM
20	C110	2-BUTANONE
21	C065	1,2-DICHLOROETHANE
22	C115	1,1,1-TRICHLOROETHANE
23	C120	CARBON TETRACHLORIDE
24	C125	VINYL ACETATE
25	C130	BROMODICHLOROMETHANE
26	C140	1,2-DICHLOROPROPANE
27	C143	CIS-1,3-DICHLOROPROPENE
28	C150	TRICHLOROETHENE
29	C155	DIBROMOCHLOROMETHANE
30	C165	BENZENE
31	C160	1,1,2-TRICHLOROETHANE
32	C172	TRANS-1,3-DICHLOROPROPENE
33	C175	2-CHLOROETHOXY ETHENE
34	C180	BROMOFORM
35	C205	4-METHYL-2-PENTANONE
36	C210	2-HEXANONE
37	C225	1,1,2,2-TETRACHLOROETHANE
38	C220	TETRACHLOROETHENE
39	C230	TOLUENE
40	C235	CHLOROBENZENE
41	C240	ETHYL BENZENE
42	C245	STYRENE
43	C250	OP-XYLENE
44	C255	M-XYLENE
-45	A170	TRICHLOROFLUOROMETHANE

9613492.4461

000070

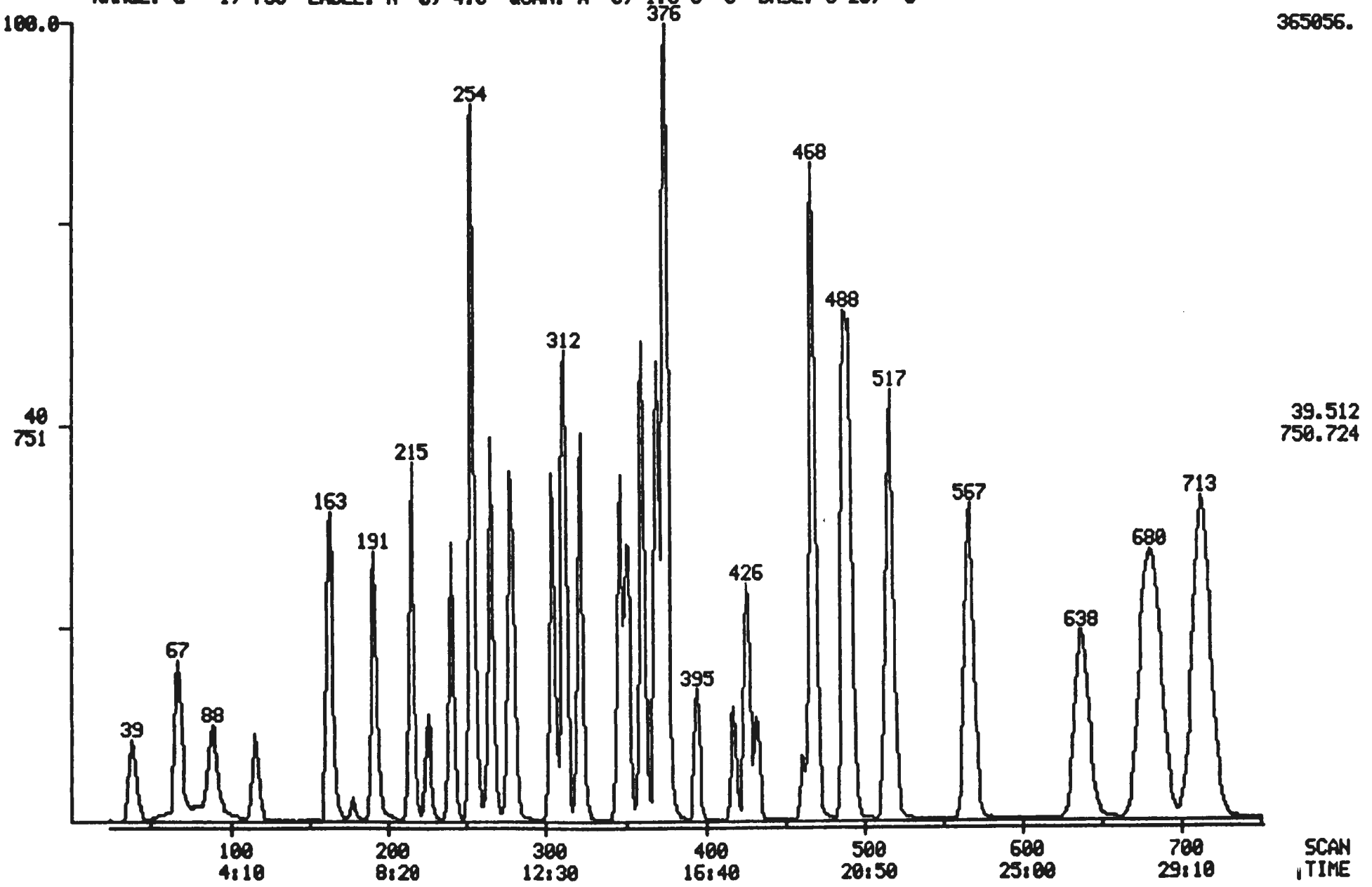
No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	226	9:25	1	1.000	A BB	19080.	50.000 PPB	1.18
2	114	418	17:25	2	1.000	A BB	75784.	50.000 PPB	1.18
3	117	515	21:27	3	1.000	A BB	67124.	50.000 PPB	1.18
4	65	278	11:35	1	1.230	A BB	57864.	100.000 PPB	2.36
5	98	488	20:20	3	0.948	A BB	143234.	100.000 PPB	2.36
6	95	638	26:35	3	1.239	A BB	86977.	100.000 PPB	2.36
7	50	39	1:37	1	0.173	A BB	55323.	100.000 PPB	2.36
8	94	68	2:50	1	0.301	A BB	55235.	100.000 PPB	2.36
9	62	88	3:40	1	0.389	A BB	78151.	100.000 PPB	2.36
10	64	115	4:47	1	0.509	A BB	47133.	100.000 PPB	2.36
11	84	162	6:45	1	0.717	A BB	63230.	100.000 PPB	2.36
12	43	176	7:20	1	0.779	A BB	13325.	100.000 PPB	2.36
13	NOT FOUND								
14	NOT FOUND								
15	76	191	7:57	1	0.845	A BB	174176.	100.000 PPB	2.36
16	96	215	8:57	1	0.951	A BB	55255.	100.000 PPB	2.36
17	63	241	10:02	1	1.066	A BV	109872.	100.000 PPB	2.36
18	96	254	10:35	1	1.124	A BB	125701.	200.000 PPB	4.71
19	83	266	11:05	1	1.177	A BB	116491.	100.000 PPB	2.36
20	43	277	11:32	1	1.226	A BB	20307.	100.000 PPB	2.36
21	62	280	11:40	1	1.239	A BB	64933.	100.000 PPB	2.36
22	97	304	12:40	2	0.727	A BB	89428.	100.000 PPB	2.36
23	117	312	13:00	2	0.746	A VB	82189.	100.000 PPB	2.36
24	43	312	13:00	2	0.746	A BB	83141.	100.000 PPB	2.36
25	83	322	13:25	2	0.770	A BB	107508.	100.000 PPB	2.36
26	63	347	14:27	2	0.830	A BB	61901.	100.000 PPB	2.36
27	75	352	14:40	2	0.842	A BB	95700.	116.000 PPB	2.73
28	130	361	15:02	2	0.864	A BV	65258.	100.000 PPB	2.36
29	129	375	15:37	2	0.897	A BB	84410.	100.000 PPB	2.36
30	78	370	15:25	2	0.885	A BB	173453.	100.000 PPB	2.36
31	97	376	15:40	2	0.900	A BB	47369.	100.000 PPB	2.36
32	75	376	15:40	2	0.900	A BB	65801.	84.000 PPB	1.98
33	63	395	16:27	2	0.945	A BB	26826.	100.000 PPB	2.36
34	173	426	17:45	2	1.019	A BB	54704.	100.000 PPB	2.36
35	43	433	18:02	3	0.841	A BB	43728.	100.000 PPB	2.36
36	43	461	19:12	3	0.895	A BB	29426.	100.000 PPB	2.36
37	83	469	19:32	3	0.911	A BB	81260.	100.000 PPB	2.36
38	164	467	19:27	3	0.907	A BB	52320.	100.000 PPB	2.36
39	92	492	20:30	3	0.955	A BB	101708.	100.000 PPB	2.36
40	112	517	21:32	3	1.004	A BB	130831.	100.000 PPB	2.36
41	106	567	23:37	3	1.101	A BB	60831.	100.000 PPB	2.36
42	104	678	28:15	3	1.317	A BB	119284.	100.000 PPB	2.36
43	106	713	29:42	3	1.384	A BB	138758.	200.000 PPB	4.71
44	106	685	28:32	3	1.330	A BB	71219.	100.000 PPB	2.36
45	NOT FOUND								

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	100.00	100.00	1.516	1.516	1.00
5	20:17	1.00	0.949	1.00	100.00	100.00	1.067	1.067	1.00
6	26:27	1.00	1.238	1.00	100.00	100.00	0.648	0.648	1.00
7	1:37	1.00	0.173	1.00	100.00	100.00	1.450	1.450	1.00
8	2:47	1.01	0.298	1.01	100.00	100.00	1.447	1.447	1.00
9	3:40	1.00	0.391	1.00	100.00	100.00	2.048	2.048	1.00

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
10	4:47	1.00	0.511	1.00	100.00	100.00	1.235	1.235	1.00
11	6:45	1.00	0.720	1.00	100.00	100.00	1.657	1.657	1.00
12	7:22	0.99	0.787	0.99	100.00	100.00	0.349	0.349	1.00
13	5:47		0.713						
14	7:05		0.850						
15	7:55	1.01	0.844	1.00	100.00	100.00	4.564	4.564	1.00
16	8:55	1.00	0.951	1.00	100.00	100.00	1.448	1.448	1.00
17	10:00	1.00	1.067	1.00	100.00	100.00	2.879	2.879	1.00
18	10:32	1.00	1.124	1.00	200.00	200.00	1.647	1.647	1.00
19	11:02	1.00	1.178	1.00	100.00	100.00	3.053	3.053	1.00
20	11:30	1.00	1.227	1.00	100.00	100.00	0.532	0.532	1.00
21	11:37	1.00	1.240	1.00	100.00	100.00	1.702	1.702	1.00
22	12:37	1.00	0.727	1.00	100.00	100.00	0.590	0.590	1.00
23	12:55	1.01	0.743	1.00	100.00	100.00	0.542	0.542	1.00
24	12:57	1.00	0.746	1.00	100.00	100.00	0.549	0.549	1.00
25	13:22	1.00	0.770	1.00	100.00	100.00	0.709	0.709	1.00
26	14:25	1.00	0.830	1.00	100.00	100.00	0.408	0.408	1.00
27	14:37	1.00	0.842	1.00	116.00	116.00	0.544	0.544	1.00
28	15:00	1.00	0.863	1.00	100.00	100.00	0.431	0.431	1.00
29	15:35	1.00	0.897	1.00	100.00	100.00	0.557	0.557	1.00
30	15:22	1.00	0.885	1.00	100.00	100.00	1.144	1.144	1.00
31	15:37	1.00	0.899	1.00	100.00	100.00	0.313	0.313	1.00
32	15:37	1.00	0.899	1.00	84.00	84.00	0.517	0.517	1.00
33	16:25	1.00	0.945	1.00	100.00	100.00	0.177	0.177	1.00
34	17:42	1.00	1.019	1.00	100.00	100.00	0.361	0.361	1.00
35	17:57	1.00	0.840	1.00	100.00	100.00	0.326	0.326	1.00
36	19:10	1.00	0.897	1.00	100.00	100.00	0.219	0.219	1.00
37	19:30	1.00	0.912	1.00	100.00	100.00	0.605	0.605	1.00
38	19:25	1.00	0.908	1.00	100.00	100.00	0.390	0.390	1.00
39	20:27	1.00	0.957	1.00	100.00	100.00	0.758	0.758	1.00
40	21:30	1.00	1.006	1.00	100.00	100.00	0.975	0.975	1.00
41	23:32	1.00	1.101	1.00	100.00	100.00	0.453	0.453	1.00
42	28:07	1.00	1.316	1.00	100.00	100.00	0.889	0.889	1.00
43	29:32	1.01	1.382	1.00	200.00	200.00	0.517	0.517	1.00
44	28:22	1.01	1.327	1.00	100.00	100.00	0.531	0.531	1.00
45	6:50		0.863						

0000072

MASS CHROMATOGRAM DATA: 21208R04 #1 SCANS 1 TO 750
12/08/92 10:54:00 CALI: 21208R04 #7
SAMPLE: CLP,,,VSTD200,L,W,200PPB-V1001A,VOA,IC-200
CONDS.: PACK/2,,2BFB1208,,
RANGE: G 1, 750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



9613492.4463

Quantitation Report File: 21208R04

Data: 21208R04.TI
12/08/92 10:54:00
Sample: CLP,,,VSTD200,L.W,200PPB-V1001A,VOA,IC-200
Conds.: PACK/2,,2BFB1208,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C036	ACROLEIN
14	C037	ACRYLONITRILE
15	C040	CARBON DISULFIDE
16	C045	1,1-DICHLOROETHENE
17	C050	1,1-DICHLOROETHANE
18	C053	1,2-DICHLOROETHENE(TOTAL)
19	C060	CHLOROFORM
20	C110	2-BUTANONE
21	C065	1,2-DICHLOROETHANE
22	C115	1,1,1-TRICHLOROETHANE
23	C120	CARBON TETRACHLORIDE
24	C125	VINYL ACETATE
25	C130	BROMODICHLOROMETHANE
26	C140	1,2-DICHLOROPROPANE
27	C143	CIS-1,3-DICHLOROPROPENE
28	C150	TRICHLOROETHENE
29	C155	DIBROMOCHLOROMETHANE
30	C165	BENZENE
31	C160	1,1,2-TRICHLOROETHANE
32	C172	TRANS-1,3-DICHLOROPROPENE
33	C175	2-CHLOROETHOXY ETHENE
34	C180	BROMOFORM
35	C205	4-METHYL-2-PENTANONE
36	C210	2-HEXANONE
37	C225	1,1,2,2-TETRACHLOROETHANE
38	C220	TETRACHLOROETHENE
39	C230	TOLUENE
40	C235	CHLOROBENZENE
41	C240	ETHYL BENZENE
42	C245	STYRENE
43	C250	OP-XYLENE
44	C255	M-XYLENE
45	A170	TRICHLOROFLUOROMETHANE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	226	9:25	1	1.000	A BB	25069.	50.000 PPB	0.60
2	114	418	17:25	2	1.000	A BB	96274.	50.000 PPB	0.60
3	117	514	21:25	3	1.000	A BB	83863.	50.000 PPB	0.60
4	65	277	11:32	1	1.226	A BB	126230.	200.000 PPB	2.40
5	98	488	20:20	3	0.949	A BB	307888.	200.000 PPB	2.40
6	95	638	26:35	3	1.241	A BB	191840.	200.000 PPB	2.40
7	50	39	1:37	1	0.173	A BB	131007.	200.000 PPB	2.40
8	94	67	2:47	1	0.296	A BB	120940.	200.000 PPB	2.40
9	62	88	3:40	1	0.389	A BB	139622.	200.000 PPB	2.40
10	64	115	4:47	1	0.509	A BB	99353.	200.000 PPB	2.40
11	84	163	6:47	1	0.721	A BB	148621.	200.000 PPB	2.40
12	43	177	7:22	1	0.783	A BB	29584.	200.000 PPB	2.40
13	NOT FOUND								
14	NOT FOUND								
15	76	191	7:57	1	0.845	A BB	426090.	200.000 PPB	2.40
16	96	215	8:57	1	0.951	A BB	135369.	200.000 PPB	2.40
17	63	241	10:02	1	1.066	A BV	267665.	200.000 PPB	2.40
18	96	254	10:35	1	1.124	A BB	306769.	400.000 PPB	4.79
19	83	266	11:05	1	1.177	A BB	277632.	200.000 PPB	2.40
20	43	277	11:32	1	1.226	A BB	45225.	200.000 PPB	2.40
21	62	279	11:37	1	1.235	A BB	151002.	200.000 PPB	2.40
22	97	304	12:40	2	0.727	A BB	210193.	200.000 PPB	2.40
23	117	311	12:57	2	0.744	A VB	193142.	200.000 PPB	2.40
24	43	312	13:00	2	0.746	A BB	202077.	200.000 PPB	2.40
25	83	322	13:25	2	0.770	A BB	251893.	200.000 PPB	2.40
26	63	347	14:27	2	0.830	A BV	146331.	200.000 PPB	2.40
27	75	352	14:40	2	0.842	A BB	223034.	232.000 PPB	2.78
28	130	361	15:02	2	0.864	A BV	156180.	200.000 PPB	2.40
29	129	375	15:37	2	0.897	A BB	192476.	200.000 PPB	2.40
30	78	370	15:25	2	0.885	A BB	402515.	200.000 PPB	2.40
31	97	376	15:40	2	0.900	A VB	108360.	200.000 PPB	2.40
32	75	376	15:40	2	0.900	A BB	151419.	168.000 PPB	2.01
33	63	395	16:27	2	0.945	A BB	58462.	200.000 PPB	2.40
34	173	426	17:45	2	1.019	A BB	123884.	200.000 PPB	2.40
35	43	432	18:00	3	0.840	A BB	88240.	200.000 PPB	2.40
36	43	461	19:12	3	0.897	A BB	56950.	200.000 PPB	2.40
37	83	469	19:32	3	0.912	A BB	180383.	200.000 PPB	2.40
38	164	467	19:27	3	0.909	A BB	124186.	200.000 PPB	2.40
39	92	492	20:30	3	0.957	A BB	235472.	200.000 PPB	2.40
40	112	517	21:32	3	1.006	A BB	302889.	200.000 PPB	2.40
41	106	567	23:37	3	1.103	A BB	145065.	200.000 PPB	2.40
42	104	677	28:12	3	1.317	A BB	283576.	200.000 PPB	2.40
43	106	713	29:42	3	1.387	A BB	318524.	400.000 PPB	4.79
44	106	684	28:30	3	1.331	A BB	169543.	200.000 PPB	2.40
45	NOT FOUND								

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	200.00	200.00	1.259	1.259	1.00
5	20:17	1.00	0.949	1.00	200.00	200.00	0.918	0.918	1.00
6	26:27	1.00	1.238	1.00	200.00	200.00	0.572	0.572	1.00
7	1:37	1.00	0.173	1.00	200.00	200.00	1.306	1.306	1.00
8	2:47	1.00	0.298	1.00	200.00	200.00	1.206	1.206	1.00
- 9	3:40	1.00	0.391	1.00	200.00	200.00	1.392	1.392	1.00

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
10	4:47	1.00	0.511	1.00	200.00	200.00	0.991	0.991	1.00
11	6:45	1.01	0.720	1.00	200.00	200.00	1.482	1.482	1.00
12	7:22	1.00	0.787	1.00	200.00	200.00	0.295	0.295	1.00
13	5:47		0.713						
14	7:05		0.850						
15	7:55	1.01	0.844	1.00	200.00	200.00	4.249	4.249	1.00
16	8:55	1.00	0.951	1.00	200.00	200.00	1.350	1.350	1.00
17	10:00	1.00	1.067	1.00	200.00	200.00	2.669	2.669	1.00
18	10:32	1.00	1.124	1.00	400.00	400.00	1.530	1.530	1.00
19	11:02	1.00	1.178	1.00	200.00	200.00	2.769	2.769	1.00
20	11:30	1.00	1.227	1.00	200.00	200.00	0.451	0.451	1.00
21	11:37	1.00	1.240	1.00	200.00	200.00	1.506	1.506	1.00
22	12:37	1.00	0.727	1.00	200.00	200.00	0.546	0.546	1.00
23	12:55	1.00	0.743	1.00	200.00	200.00	0.502	0.502	1.00
24	12:57	1.00	0.746	1.00	200.00	200.00	0.525	0.525	1.00
25	13:22	1.00	0.770	1.00	200.00	200.00	0.654	0.654	1.00
26	14:25	1.00	0.830	1.00	200.00	200.00	0.380	0.380	1.00
27	14:37	1.00	0.842	1.00	232.00	232.00	0.499	0.499	1.00
28	15:00	1.00	0.863	1.00	200.00	200.00	0.406	0.406	1.00
29	15:35	1.00	0.897	1.00	200.00	200.00	0.500	0.500	1.00
30	15:22	1.00	0.885	1.00	200.00	200.00	1.045	1.045	1.00
31	15:37	1.00	0.899	1.00	200.00	200.00	0.281	0.281	1.00
32	15:37	1.00	0.899	1.00	168.00	168.00	0.468	0.468	1.00
33	16:25	1.00	0.945	1.00	200.00	200.00	0.152	0.152	1.00
34	17:42	1.00	1.019	1.00	200.00	200.00	0.322	0.322	1.00
35	17:57	1.00	0.840	1.00	200.00	200.00	0.263	0.263	1.00
36	19:10	1.00	0.897	1.00	200.00	200.00	0.170	0.170	1.00
37	19:30	1.00	0.912	1.00	200.00	200.00	0.538	0.538	1.00
38	19:25	1.00	0.908	1.00	200.00	200.00	0.370	0.370	1.00
39	20:27	1.00	0.957	1.00	200.00	200.00	0.702	0.702	1.00
40	21:30	1.00	1.006	1.00	200.00	200.00	0.903	0.903	1.00
41	23:32	1.00	1.101	1.00	200.00	200.00	0.432	0.432	1.00
42	28:07	1.00	1.316	1.00	200.00	200.00	0.845	0.845	1.00
43	29:32	1.01	1.382	1.00	400.00	400.00	0.475	0.475	1.00
44	28:22	1.00	1.327	1.00	200.00	200.00	0.505	0.505	1.00
45	6:50		0.863						

9613492.4467

000076

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Instrument ID: 4500 Calibration date: 12/08/92 Time: 850

Lab File ID: 21208R01 Init. Calib. Date(s): 12/08/92 12/08/92

Heated Purge: (Y/N) N Init. Calib. Times: 0850 1134

GC Column: PACK ID: 2.00(mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Chloromethane	1.327	1.358	0.010	-2.3	
Bromomethane	1.412	1.433	0.100	-1.5	25.0
Vinyl Chloride	1.798	1.897	0.100	-5.5	25.0
Chloroethane	1.071	1.102	0.010	-2.9	
Methylene Chloride	1.694	1.605	0.010	5.3	
Acetone	0.365	0.385	0.010	-5.5	
Carbon Disulfide	4.547	4.415	0.010	2.9	
1,1-Dichloroethene	1.430	1.419	0.100	0.8	25.0
1,1-Dichloroethane	2.857	2.787	0.200	2.4	25.0
1,2-Dichloroethene (total)	1.662	1.650	0.010	0.7	
Chloroform	3.028	2.949	0.200	2.6	25.0
1,2-Dichloroethane	1.666	1.636	0.100	1.8	25.0
2-Butanone	0.481	0.560	0.010	-16.4	
1,1,1-Trichloroethane	0.593	0.595	0.100	-0.3	25.0
Carbon Tetrachloride	0.542	0.536	0.100	1.1	25.0
Bromodichloromethane	0.704	0.699	0.200	0.7	25.0
1,2-Dichloropropane	0.404	0.397	0.010	1.7	
cis-1,3-Dichloropropene	0.537	0.540	0.200	-0.6	25.0
Trichloroethene	0.429	0.423	0.300	1.4	25.0
Dibromochloromethane	0.551	0.555	0.100	-0.7	25.0
1,1,2-Trichloroethane	0.311	0.313	0.100	-0.6	25.0
Benzene	1.131	1.093	0.500	3.4	25.0
trans-1,3-Dichloropropene	0.512	0.511	0.100	0.2	25.0
Bromoform	0.351	0.363	0.100	-3.4	25.0
4-Methyl-2-Pentanone	0.309	0.347	0.010	-12.3	
2-Hexanone	0.209	0.231	0.010	-10.5	
Tetrachloroethene	0.392	0.381	0.200	2.8	25.0
1,1,2,2-Tetrachloroethane	0.610	0.614	0.500	-0.7	25.0
Toluene	0.768	0.748	0.400	2.6	25.0
Chlorobenzene	0.975	0.966	0.500	0.9	25.0
Ethylbenzene	0.459	0.454	0.100	1.1	25.0
Styrene	0.930	0.885	0.300	4.8	25.0
Xylene (total)	0.532	0.493	0.300	7.3	25.0
Toluene-d8	0.960	0.982	0.010	-2.3	
Bromofluorobenzene	0.596	0.586	0.200	1.7	25.0
1,2-Dichloroethane-d4	1.326	1.359	0.010	-2.5	

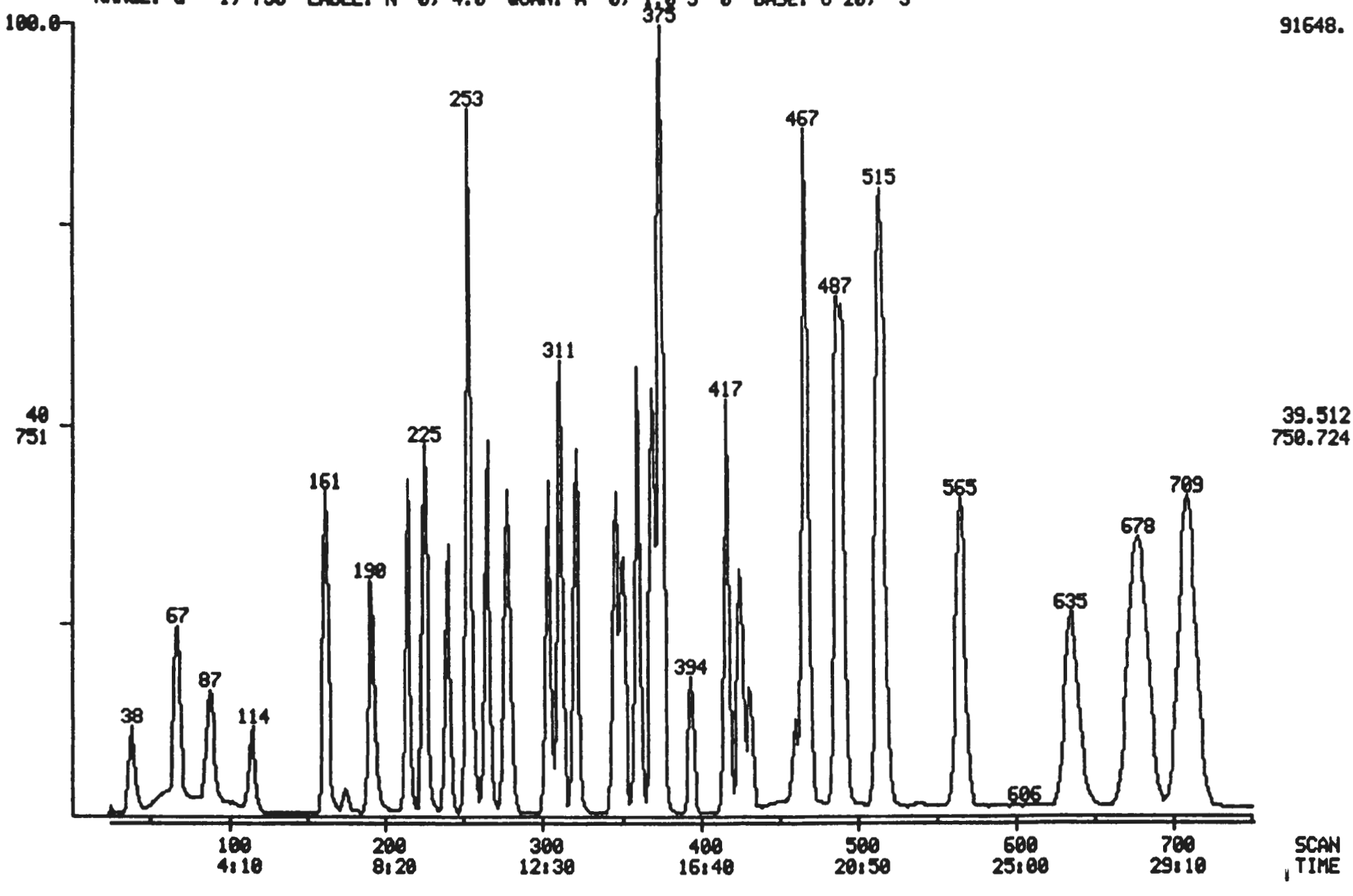
All other compounds must meet a minimum RRF of 0.010.

FORM VII VOA 3/90

✓ DIL
Chlorbn
10/1/92

000077

MASS CHROMATOGRAM DATA: 21208R01 #1 SCANS 1 TO 750
12/08/92 8:50:00 CALI: 21208R01 #7
SAMPLE: CLP,,,VSTD050,L,W,50PPB-V1001A,VOA,IC&CC-050
CONDS.: PACK/2,,2BFB1208,,
RANGE: G 1, 750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



96104724 0016

Quantitation Report File: 21208R01

Data: 21208R01.TI
12/08/92 8:50:00
Sample: CLP,,,VSTD050,L,W,50PPB-V1001A,VOA,IC&CC-050
Conds.: PACK/2,,2BFB1208,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C036	ACROLEIN
14	C037	ACRYLONITRILE
15	C040	CARBON DISULFIDE
16	C045	1,1-DICHLOROETHENE
17	C050	1,1-DICHLOROETHANE
18	C053	1,2-DICHLOROETHENE(TOTAL)
19	C060	CHLOROFORM
20	C110	2-BUTANONE
21	C065	1,2-DICHLOROETHANE
22	C115	1,1,1-TRICHLOROETHANE
23	C120	CARBON TETRACHLORIDE
24	C125	VINYL ACETATE
25	C130	BROMODICHLOROMETHANE
26	C140	1,2-DICHLOROPROPANE
27	C143	CIS-1,3-DICHLOROPROPENE
28	C150	TRICHLOROETHENE
29	C155	DIBROMOCHLOROMETHANE
30	C165	BENZENE
31	C160	1,1,2-TRICHLOROETHANE
32	C172	TRANS-1,3-DICHLOROPROPENE
33	C175	2-CHLOROETHOXY ETHENE
34	C180	BROMOFORM
35	C205	4-METHYL-2-PENTANONE
36	C210	2-HEXANONE
37	C225	1,1,2,2-TETRACHLOROETHANE
38	C220	TETRACHLOROETHENE
39	C230	TOLUENE
40	C235	CHLOROBENZENE
41	C240	ETHYL BENZENE
42	C245	STYRENE
43	C250	OP-XYLENE
44	C255	M-XYLENE
45	A170	TRICHLOROFLUOROMETHANE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	225	9:22	1	1.000	A BB	22794.	50.000 PPB	2.28
2	114	417	17:22	2	1.000	A BB	87405.	50.000 PPB	2.28
3	117	513	21:22	3	1.000	A BB	80807.	50.000 PPB	2.28
4	65	277	11:32	1	1.231	A BB	30973.	50.000 PPB	2.28
5	98	487	20:17	3	0.949	A BB	79330.	50.000 PPB	2.28
6	95	635	26:27	3	1.238	A BB	47378.	50.000 PPB	2.28
7	50	38	1:35	1	0.169	A BB	30957.	50.000 PPB	2.28
8	94	67	2:47	1	0.298	A BB	32673.	50.000 PPB	2.28
9	62	87	3:37	1	0.387	A BB	43251.	50.000 PPB	2.28
10	64	114	4:45	1	0.507	A BB	25126.	50.000 PPB	2.28
11	84	161	6:42	1	0.716	A BB	36592.	50.000 PPB	2.28
12	43	174	7:15	1	0.773	A BB	8773.	50.000 PPB	2.28
13	NOT FOUND								
14	NOT FOUND								
15	76	190	7:55	1	0.844	A BB	100639.	50.000 PPB	2.28
16	96	214	8:55	1	0.951	A BB	32352.	50.000 PPB	2.28
17	63	240	10:00	1	1.067	A BV	63516.	50.000 PPB	2.28
18	96	253	10:32	1	1.124	A BB	75209.	100.000 PPB	4.55
19	83	265	11:02	1	1.178	A BB	67216.	50.000 PPB	2.28
20	43	276	11:30	1	1.227	A BB	12775.	50.000 PPB	2.28
21	62	279	11:37	1	1.240	A BB	37296.	50.000 PPB	2.28
22	97	303	12:37	2	0.727	A BB	52004.	50.000 PPB	2.28
23	117	310	12:55	2	0.743	A VB	46827.	50.000 PPB	2.28
24	43	311	12:57	2	0.746	A BB	52283.	50.000 PPB	2.28
25	83	321	13:22	2	0.770	A BB	61125.	50.000 PPB	2.28
26	63	346	14:25	2	0.830	A BB	34661.	50.000 PPB	2.28
27	75	351	14:37	2	0.842	A BB	54727.	58.000 PPB	2.64
28	130	360	15:00	2	0.863	A BB	37005.	50.000 PPB	2.28
29	129	374	15:35	2	0.897	A BB	48472.	50.000 PPB	2.28
30	78	369	15:22	2	0.885	A BB	95517.	50.000 PPB	2.28
31	97	375	15:37	2	0.899	A BB	27320.	50.000 PPB	2.28
32	75	375	15:37	2	0.899	A BB	37520.	42.000 PPB	1.91
33	63	394	16:25	2	0.945	A BB	15522.	50.000 PPB	2.28
34	173	425	17:42	2	1.019	A BB	31766.	50.000 PPB	2.28
35	43	431	17:57	3	0.840	A BB	28008.	50.000 PPB	2.28
36	43	460	19:10	3	0.897	A BB	18691.	50.000 PPB	2.28
37	83	468	19:30	3	0.912	A BB	49599.	50.000 PPB	2.28
38	164	466	19:25	3	0.908	A BB	30820.	50.000 PPB	2.28
39	92	491	20:27	3	0.957	A BB	60456.	50.000 PPB	2.28
40	112	516	21:30	3	1.006	A BB	78040.	50.000 PPB	2.28
41	106	565	23:32	3	1.101	A BB	36650.	50.000 PPB	2.28
42	104	674	28:05	3	1.314	A BB	71546.	50.000 PPB	2.28
43	106	709	29:32	3	1.382	A BB	79741.	100.000 PPB	4.55
44	106	681	28:22	3	1.327	A BB	41675.	50.000 PPB	2.28
45	NOT FOUND								

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	50.00	50.00	1.359	1.359	1.00
5	20:17	1.00	0.949	1.00	50.00	50.00	0.982	0.982	1.00
6	26:27	1.00	1.238	1.00	50.00	50.00	0.586	0.586	1.00
7	1:37	0.97	0.173	0.97	50.00	50.00	1.358	1.358	1.00
8	2:47	1.00	0.298	1.00	50.00	50.00	1.433	1.433	1.00
9	3:40	0.99	0.391	0.99	50.00	50.00	1.897	1.897	1.00

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
10	4:47	0.99	0.511	0.99	50.00	50.00	1.102	1.102	1.00
11	6:45	0.99	0.720	0.99	50.00	50.00	1.605	1.605	1.00
12	7:22	0.98	0.787	0.98	50.00	50.00	0.385	0.385	1.00
13	5:47		0.713						
14	7:05		0.850						
15	7:55	1.00	0.844	1.00	50.00	50.00	4.415	4.415	1.00
16	8:55	1.00	0.951	1.00	50.00	50.00	1.419	1.419	1.00
17	10:00	1.00	1.067	1.00	50.00	50.00	2.787	2.787	1.00
18	10:32	1.00	1.124	1.00	100.00	100.00	1.650	1.650	1.00
19	11:02	1.00	1.178	1.00	50.00	50.00	2.949	2.949	1.00
20	11:30	1.00	1.227	1.00	50.00	50.00	0.560	0.560	1.00
21	11:37	1.00	1.240	1.00	50.00	50.00	1.636	1.636	1.00
22	12:37	1.00	0.727	1.00	50.00	50.00	0.595	0.595	1.00
23	12:55	1.00	0.743	1.00	50.00	50.00	0.536	0.536	1.00
24	12:57	1.00	0.746	1.00	50.00	50.00	0.598	0.598	1.00
25	13:22	1.00	0.770	1.00	50.00	50.00	0.699	0.699	1.00
26	14:25	1.00	0.830	1.00	50.00	50.00	0.397	0.397	1.00
27	14:37	1.00	0.842	1.00	58.00	58.00	0.540	0.540	1.00
28	15:00	1.00	0.863	1.00	50.00	50.00	0.423	0.423	1.00
29	15:35	1.00	0.897	1.00	50.00	50.00	0.555	0.555	1.00
30	15:22	1.00	0.885	1.00	50.00	50.00	1.093	1.093	1.00
31	15:37	1.00	0.899	1.00	50.00	50.00	0.313	0.313	1.00
32	15:37	1.00	0.899	1.00	42.00	42.00	0.511	0.511	1.00
33	16:25	1.00	0.945	1.00	50.00	50.00	0.178	0.178	1.00
34	17:42	1.00	1.019	1.00	50.00	50.00	0.363	0.363	1.00
35	17:57	1.00	0.840	1.00	50.00	50.00	0.347	0.347	1.00
36	19:10	1.00	0.897	1.00	50.00	50.00	0.231	0.231	1.00
37	19:30	1.00	0.912	1.00	50.00	50.00	0.614	0.614	1.00
38	19:25	1.00	0.908	1.00	50.00	50.00	0.381	0.381	1.00
39	20:27	1.00	0.957	1.00	50.00	50.00	0.748	0.748	1.00
40	21:30	1.00	1.006	1.00	50.00	50.00	0.966	0.966	1.00
41	23:32	1.00	1.101	1.00	50.00	50.00	0.454	0.454	1.00
42	28:07	1.00	1.316	1.00	50.00	50.00	0.885	0.885	1.00
43	29:32	1.00	1.382	1.00	100.00	100.00	0.493	0.493	1.00
44	28:22	1.00	1.327	1.00	50.00	50.00	0.516	0.516	1.00
45	6:50		0.863						

9613492.4172

000081

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Instrument ID: 4500 Calibration date: 12/09/92 Time: 903

Lab File ID: 21209R01 Init. Calib. Date(s): 12/08/92 12/08/92

Heated Purge: (Y/N) N Init. Calib. Times: 0850 1134

GC Column: PACK ID: 2.00(mm)

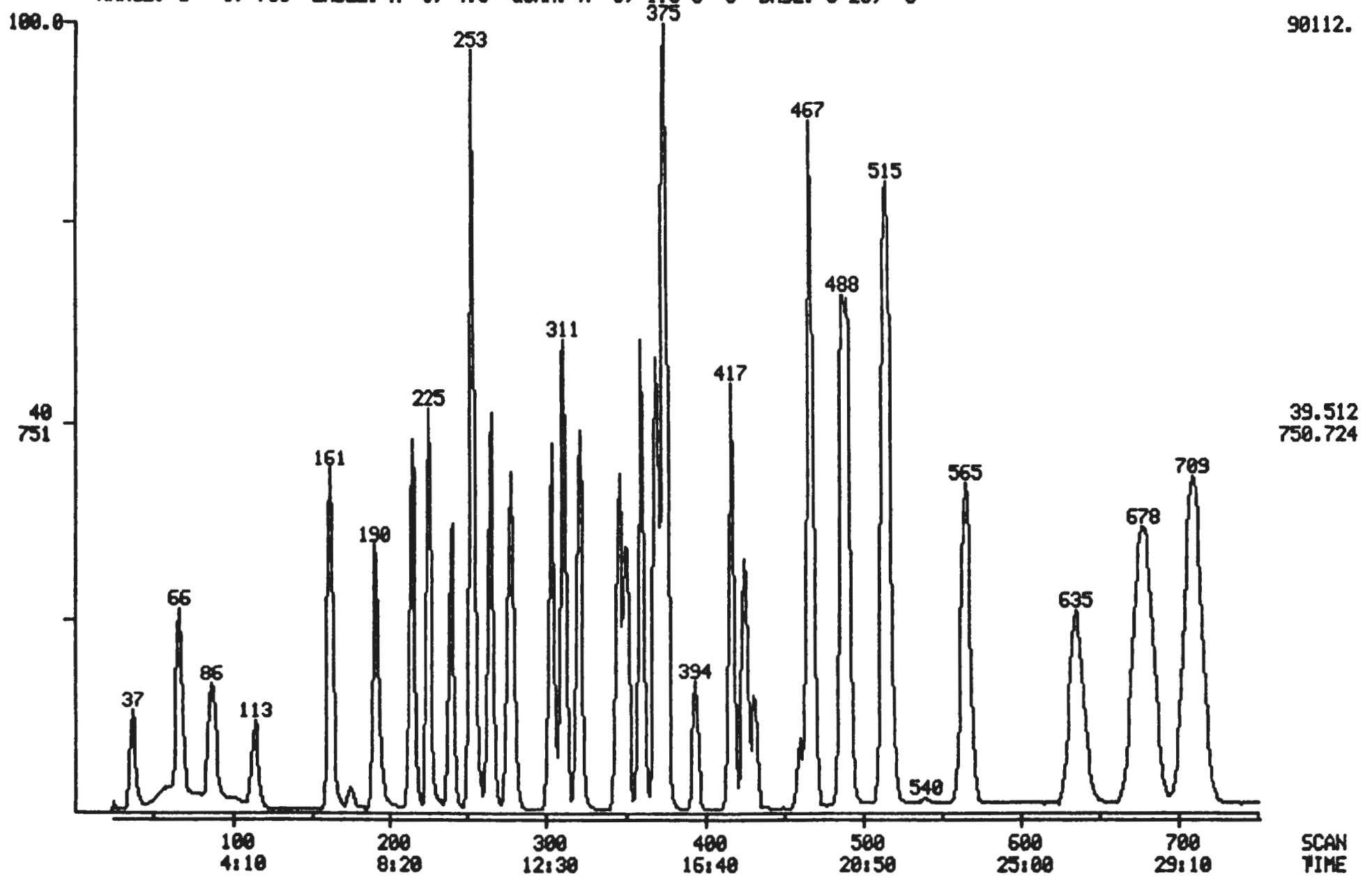
COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Chloromethane	1.327	1.249	0.010	5.9	
Bromomethane	1.412	1.340	0.100	5.1	25.0
Vinyl Chloride	1.798	1.819	0.100	-1.2	25.0
Chloroethane	1.071	1.025	0.010	4.3	
Methylene Chloride	1.694	1.571	0.010	7.3	
Acetone	0.365	0.343	0.010	6.0	
Carbon Disulfide	4.547	4.588	0.010	-0.9	
1,1-Dichloroethene	1.430	1.446	0.100	-1.1	25.0
1,1-Dichloroethane	2.857	2.844	0.200	0.5	25.0
1,2-Dichloroethene (total)	1.662	1.656	0.010	0.4	
Chloroform	3.028	2.960	0.200	2.2	25.0
1,2-Dichloroethane	1.666	1.566	0.100	6.0	25.0
2-Butanone	0.481	0.480	0.010	0.2	
1,1,1-Trichloroethane	0.593	0.618	0.100	-4.2	25.0
Carbon Tetrachloride	0.542	0.567	0.100	-4.6	25.0
Bromodichloromethane	0.704	0.702	0.200	0.3	25.0
1,2-Dichloropropane	0.404	0.399	0.010	1.2	
cis-1,3-Dichloropropene	0.537	0.524	0.200	2.4	25.0
Trichloroethene	0.429	0.434	0.300	-1.2	25.0
Dibromochloromethane	0.551	0.548	0.100	0.5	25.0
1,1,2-Trichloroethane	0.311	0.301	0.100	3.2	25.0
Benzene	1.131	1.142	0.500	-1.0	25.0
trans-1,3-Dichloropropene	0.512	0.495	0.100	3.3	25.0
Bromoform	0.351	0.357	0.100	-1.7	25.0
4-Methyl-2-Pentanone	0.309	0.323	0.010	-4.5	
2-Hexanone	0.209	0.204	0.010	2.4	
Tetrachloroethene	0.392	0.397	0.200	-1.3	25.0
1,1,2,2-Tetrachloroethane	0.610	0.623	0.500	-2.1	25.0
Toluene	0.768	0.751	0.400	2.2	25.0
Chlorobenzene	0.975	0.965	0.500	1.0	25.0
Ethylbenzene	0.459	0.459	0.100	0.0	25.0
Styrene	0.930	0.891	0.300	4.2	25.0
Xylene (total)	0.532	0.511	0.300	3.9	25.0
Toluene-d8	0.960	0.988	0.010	-2.9	
Bromofluorobenzene	0.596	0.606	0.200	-1.7	25.0
1,2-Dichloroethane-d4	1.326	1.313	0.010	1.0	

All other compounds must meet a minimum RRF of 0.010.

10/13/93

000082

MASS CHROMATOGRAM DATA: 21209R01 #1 SCANS 1 TO 750
12/09/92 9:03:00 CALI: 21209R01 #7
SAMPLE: CLP,,,VSTD050,L,W,50PPB-V1001A,VOA,CC
CONDS.: PACK/2,21208WAVE,2BFB1209,,
RANGE: G 1, 750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



9613492.1473

Quantitation Report File: 21209R01

Data: 21209R01.TI
12/09/92 9:03:00
Sample: CLP,,,VSTD050,L,W,50PPB-V1001A,VOA,CC
Conds.: PACK/2,21208WAVE,2BFB1209,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C036	ACROLEIN
14	C037	ACRYLONITRILE
15	C040	CARBON DISULFIDE
16	C045	1,1-DICHLOROETHENE
17	C050	1,1-DICHLOROETHANE
18	C053	1,2-DICHLOROETHENE(TOTAL)
19	C060	CHLOROFORM
20	C110	2-BUTANONE
21	C065	1,2-DICHLOROETHANE
22	C115	1,1,1-TRICHLOROETHANE
23	C120	CARBON TETRACHLORIDE
24	C125	VINYL ACETATE
25	C130	BROMODICHLOROMETHANE
26	C140	1,2-DICHLOROPROPANE
27	C143	CIS-1,3-DICHLOROPROPENE
28	C150	TRICHLOROETHENE
29	C155	DIBROMOCHLOROMETHANE
30	C165	BENZENE
31	C160	1,1,2-TRICHLOROETHANE
32	C172	TRANS-1,3-DICHLOROPROPENE
33	C175	2-CHLOROETHOXY ETHENE
34	C180	BROMOFORM
35	C205	4-METHYL-2-PENTANONE
36	C210	2-HEXANONE
37	C225	1,1,2,2-TETRACHLOROETHANE
38	C220	TETRACHLOROETHENE
39	C230	TOLUENE
40	C235	CHLOROBENZENE
41	C240	ETHYL BENZENE
42	C245	STYRENE
43	C250	OP-XYLENE
44	C255	M-XYLENE
-45	A170	TRICHLOROFLUOROMETHANE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	225	9:22	1	1.000	A BB	23958.	50.000 PPB	2.28
2	114	417	17:22	2	1.000	A BB	89034.	50.000 PPB	2.28
3	117	513	21:22	3	1.000	A BB	79376.	50.000 PPB	2.28
4	65	277	11:32	1	1.231	A BB	31458.	50.000 PPB	2.28
5	98	487	20:17	3	0.949	A BB	78420.	50.000 PPB	2.28
6	95	635	26:27	3	1.238	A BB	48067.	50.000 PPB	2.28
7	50	37	1:32	1	0.164	A BB	29918.	50.000 PPB	2.28
8	94	66	2:45	1	0.293	A BB	32104.	50.000 PPB	2.28
9	62	86	3:35	1	0.382	A BB	43570.	50.000 PPB	2.28
10	64	113	4:42	1	0.502	A BB	24562.	50.000 PPB	2.28
11	84	161	6:42	1	0.716	A BB	37643.	50.000 PPB	2.28
12	43	174	7:15	1	0.773	A BB	8214.	50.000 PPB	2.28
13	NOT FOUND								
14	NOT FOUND								
15	76	190	7:55	1	0.844	A BB	109922.	50.000 PPB	2.28
16	96	214	8:55	1	0.951	A BB	34641.	50.000 PPB	2.28
17	63	240	10:00	1	1.067	A BB	68143.	50.000 PPB	2.28
18	96	253	10:32	1	1.124	A BB	79334.	100.000 PPB	4.55
19	83	265	11:02	1	1.178	A BB	70922.	50.000 PPB	2.28
20	43	276	11:30	1	1.227	A BB	11495.	50.000 PPB	2.28
21	62	279	11:37	1	1.240	A BB	37524.	50.000 PPB	2.28
22	97	303	12:37	2	0.727	A BB	55017.	50.000 PPB	2.28
23	117	310	12:55	2	0.743	A VB	50458.	50.000 PPB	2.28
24	43	311	12:57	2	0.746	A BB	50400.	50.000 PPB	2.28
25	83	321	13:22	2	0.770	A BB	62537.	50.000 PPB	2.28
26	63	346	14:25	2	0.830	A BB	35545.	50.000 PPB	2.28
27	75	351	14:37	2	0.842	A BB	54083.	58.000 PPB	2.64
28	130	360	15:00	2	0.863	A BB	38602.	50.000 PPB	2.28
29	129	374	15:35	2	0.897	A BB	48778.	50.000 PPB	2.28
30	78	369	15:22	2	0.885	A BB	101696.	50.000 PPB	2.28
31	97	375	15:37	2	0.899	A BB	26795.	50.000 PPB	2.28
32	75	375	15:37	2	0.899	A BB	37038.	42.000 PPB	1.91
33	63	394	16:25	2	0.945	A BB	14258.	50.000 PPB	2.28
34	173	425	17:42	2	1.019	A BB	31822.	50.000 PPB	2.28
35	43	431	17:57	3	0.840	A BB	25617.	50.000 PPB	2.28
36	43	460	19:10	3	0.897	A BB	16183.	50.000 PPB	2.28
37	83	468	19:30	3	0.912	A BB	49435.	50.000 PPB	2.28
38	164	466	19:25	3	0.908	A BB	31516.	50.000 PPB	2.28
39	92	491	20:27	3	0.957	A BB	59650.	50.000 PPB	2.28
40	112	516	21:30	3	1.006	A BB	76617.	50.000 PPB	2.28
41	106	565	23:32	3	1.101	A BB	36417.	50.000 PPB	2.28
42	104	675	28:07	3	1.316	A BB	70696.	50.000 PPB	2.28
43	106	709	29:32	3	1.382	A BB	81184.	100.000 PPB	4.55
44	106	681	28:22	3	1.327	A BB	42185.	50.000 PPB	2.28
45	NOT FOUND								

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	50.00	50.00	1.313	1.313	1.00
5	20:17	1.00	0.949	1.00	50.00	50.00	0.988	0.988	1.00
6	26:27	1.00	1.238	1.00	50.00	50.00	0.606	0.606	1.00
7	1:37	0.95	0.173	0.95	50.00	50.00	1.249	1.249	1.00
8	2:47	0.99	0.298	0.99	50.00	50.00	1.340	1.340	1.00
9	3:40	0.98	0.391	0.98	50.00	50.00	1.819	1.819	1.00

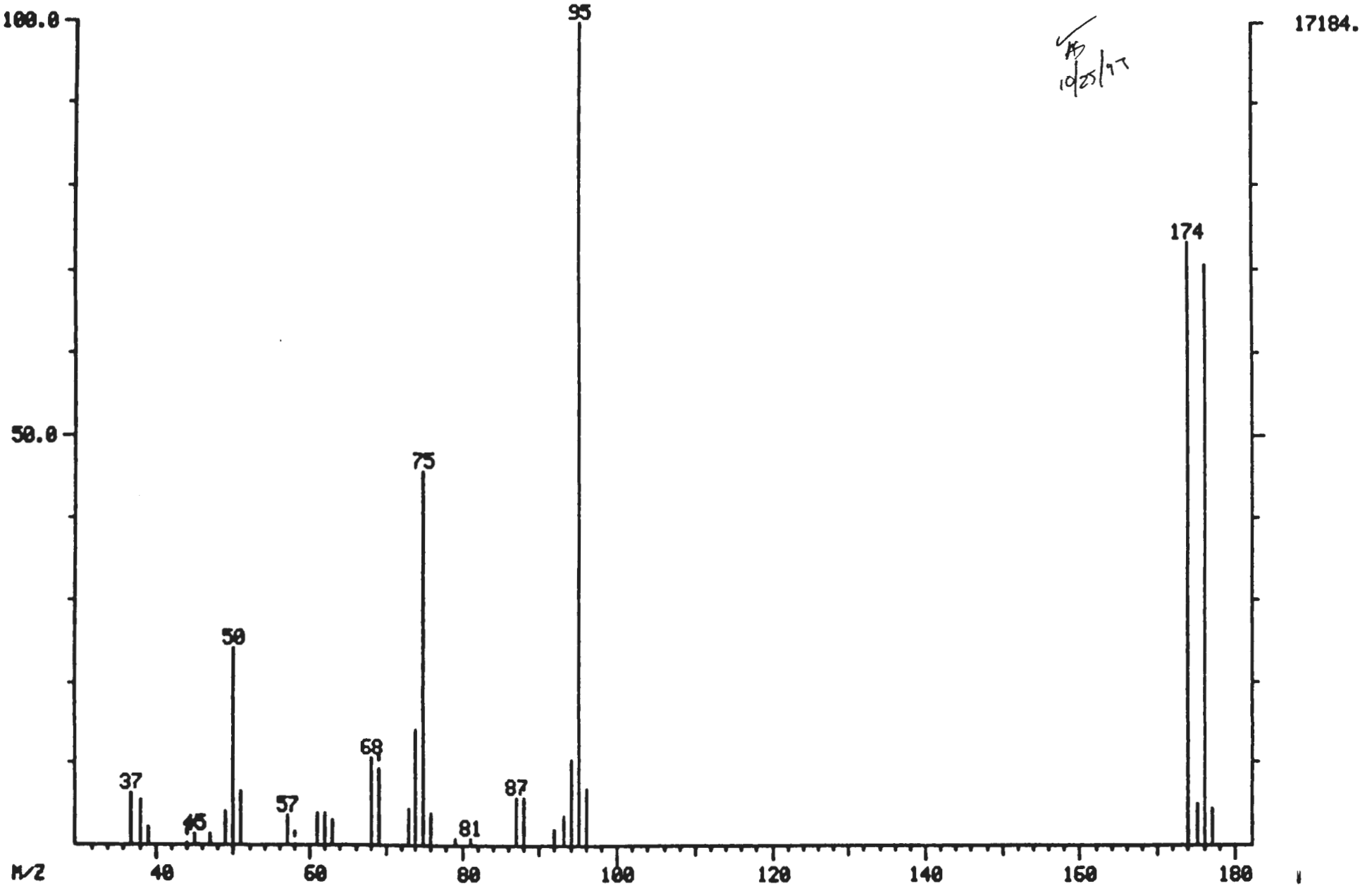
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
10	4:47	0.98	0.511	0.98	50.00	50.00	1.025	1.025	1.00
11	6:45	0.99	0.720	0.99	50.00	50.00	1.571	1.571	1.00
12	7:22	0.98	0.787	0.98	50.00	50.00	0.343	0.343	1.00
13	5:47		0.713						
14	7:05		0.850						
15	7:55	1.00	0.844	1.00	50.00	50.00	4.588	4.588	1.00
16	8:55	1.00	0.951	1.00	50.00	50.00	1.446	1.446	1.00
17	10:00	1.00	1.067	1.00	50.00	50.00	2.844	2.844	1.00
18	10:32	1.00	1.124	1.00	100.00	100.00	1.656	1.656	1.00
19	11:02	1.00	1.178	1.00	50.00	50.00	2.960	2.960	1.00
20	11:30	1.00	1.227	1.00	50.00	50.00	0.480	0.480	1.00
21	11:37	1.00	1.240	1.00	50.00	50.00	1.566	1.566	1.00
22	12:37	1.00	0.727	1.00	50.00	50.00	0.618	0.618	1.00
23	12:55	1.00	0.743	1.00	50.00	50.00	0.567	0.567	1.00
24	12:57	1.00	0.746	1.00	50.00	50.00	0.566	0.566	1.00
25	13:22	1.00	0.770	1.00	50.00	50.00	0.702	0.702	1.00
26	14:25	1.00	0.830	1.00	50.00	50.00	0.399	0.399	1.00
27	14:37	1.00	0.842	1.00	58.00	58.00	0.524	0.524	1.00
28	15:00	1.00	0.863	1.00	50.00	50.00	0.434	0.434	1.00
29	15:35	1.00	0.897	1.00	50.00	50.00	0.548	0.548	1.00
30	15:22	1.00	0.885	1.00	50.00	50.00	1.142	1.142	1.00
31	15:37	1.00	0.899	1.00	50.00	50.00	0.301	0.301	1.00
32	15:37	1.00	0.899	1.00	42.00	42.00	0.495	0.495	1.00
33	16:25	1.00	0.945	1.00	50.00	50.00	0.160	0.160	1.00
34	17:42	1.00	1.019	1.00	50.00	50.00	0.357	0.357	1.00
35	17:57	1.00	0.840	1.00	50.00	50.00	0.323	0.323	1.00
36	19:10	1.00	0.897	1.00	50.00	50.00	0.204	0.204	1.00
37	19:30	1.00	0.912	1.00	50.00	50.00	0.623	0.623	1.00
38	19:25	1.00	0.908	1.00	50.00	50.00	0.397	0.397	1.00
39	20:27	1.00	0.957	1.00	50.00	50.00	0.751	0.751	1.00
40	21:30	1.00	1.006	1.00	50.00	50.00	0.965	0.965	1.00
41	23:32	1.00	1.101	1.00	50.00	50.00	0.459	0.459	1.00
42	28:07	1.00	1.316	1.00	50.00	50.00	0.891	0.891	1.00
43	29:32	1.00	1.382	1.00	100.00	100.00	0.511	0.511	1.00
44	28:22	1.00	1.327	1.00	50.00	50.00	0.531	0.531	1.00
45	6:50		0.863						

000086

MASS SPECTRUM
12/08/92 8:28:00 + 10:05
SAMPLE: 50NG OF BFB
CONDS.: 2UL DI
#241 TO #243 SUMMED - #230

DATA: 2BFB1208 #242
CALI: 21207R02 #7

BASE M/Z: 95
RIC: 75776.



AB 10/25/97

96130402 4/4

9613492.4478

000087

Mass List
12/08/92 8:28:00 + 10:05
Sample: 50NG OF BFB
Conds.: 2UL DI
#241 to #243 summed - #230

Data: 2BFB1208 # 242
Cali: 21207R02 # 7

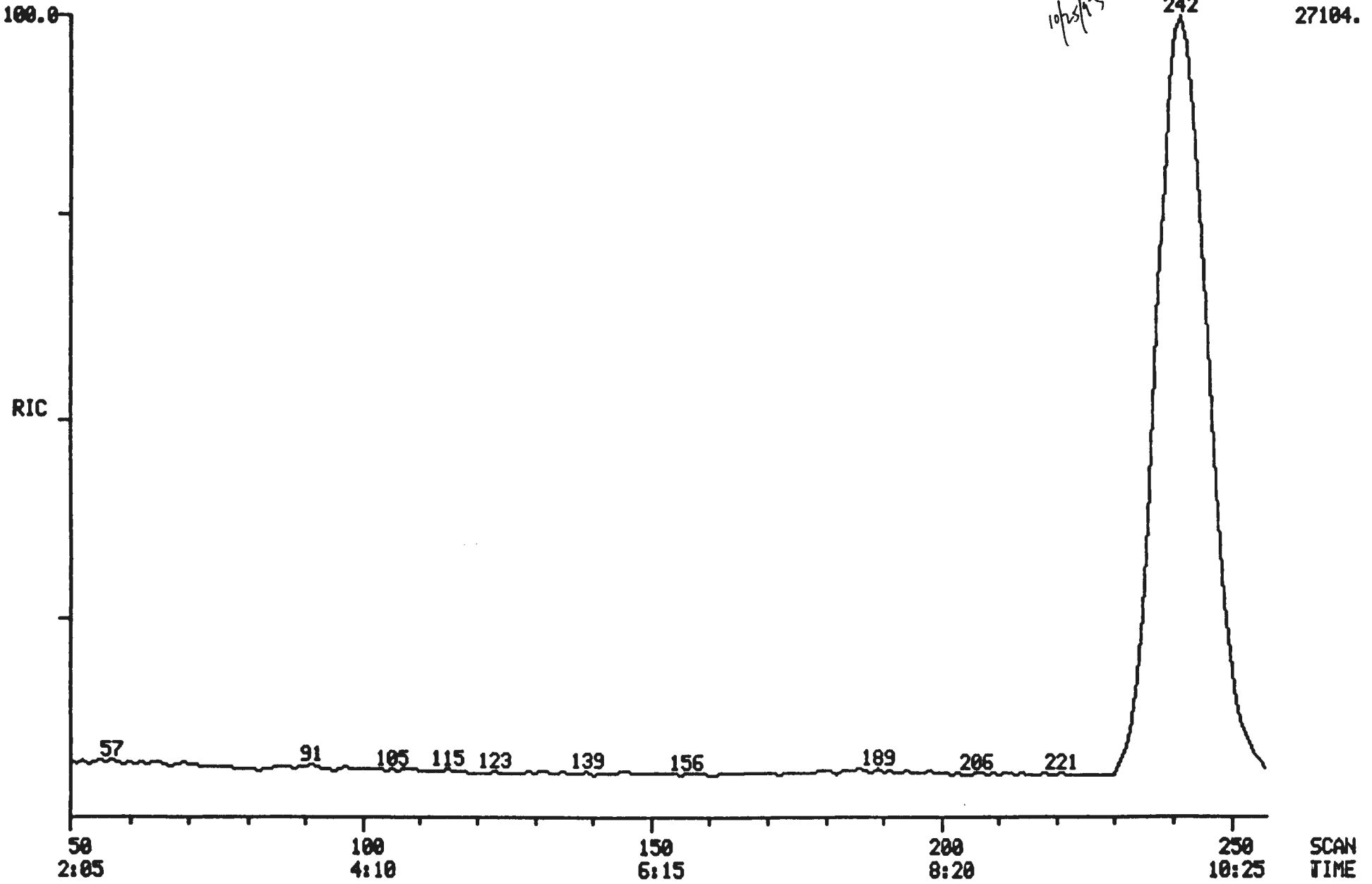
Base m/z: 95
RIC: 75776.

37		0.00	0.	Minima	Min Inten: 0.
177				Maxima	# 0
Mass		% RA	Inten.		
37?		6.30	1082.		
38?		5.47	940.		
39?		2.04	350.		
44?	S	0.27	46.		
45?	S	1.32	226.		
47?		1.29	221.		
49?		4.09	703.		
50?		24.26	4168.		
51?		6.44	1106.		
57?		3.37	579.		
58?	S	0.06	10.		
61?		3.89	668.		
62?		3.70	636.		
63?		2.83	486.		
68?		10.50	1804.		
69	S	9.26	1592.		
73		4.28	736.		
74		13.94	2396.		
75		45.72	7856.		
76		3.68	633.		
79		0.70	121.		
81		0.81	139.		
87		5.69	978.		
88	S	5.57	957.		
92		1.85	318.		
93		3.47	597.		
94		10.29	1768.		
95		100.00	17184.		
96		6.77	1164.		
174		73.09	12560.		
175		4.88	838.		
176		70.39	12096.		
177		4.23	727.		

12/21/01

RIC
12/08/92 8:28:00
SAMPLE: 50NG OF BFB
CONDS.: 2UL DI
RANGE: G 1, 256 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 2BFB1208 #241 SCANS 50 TO 256
CALI: 21207R02 #7

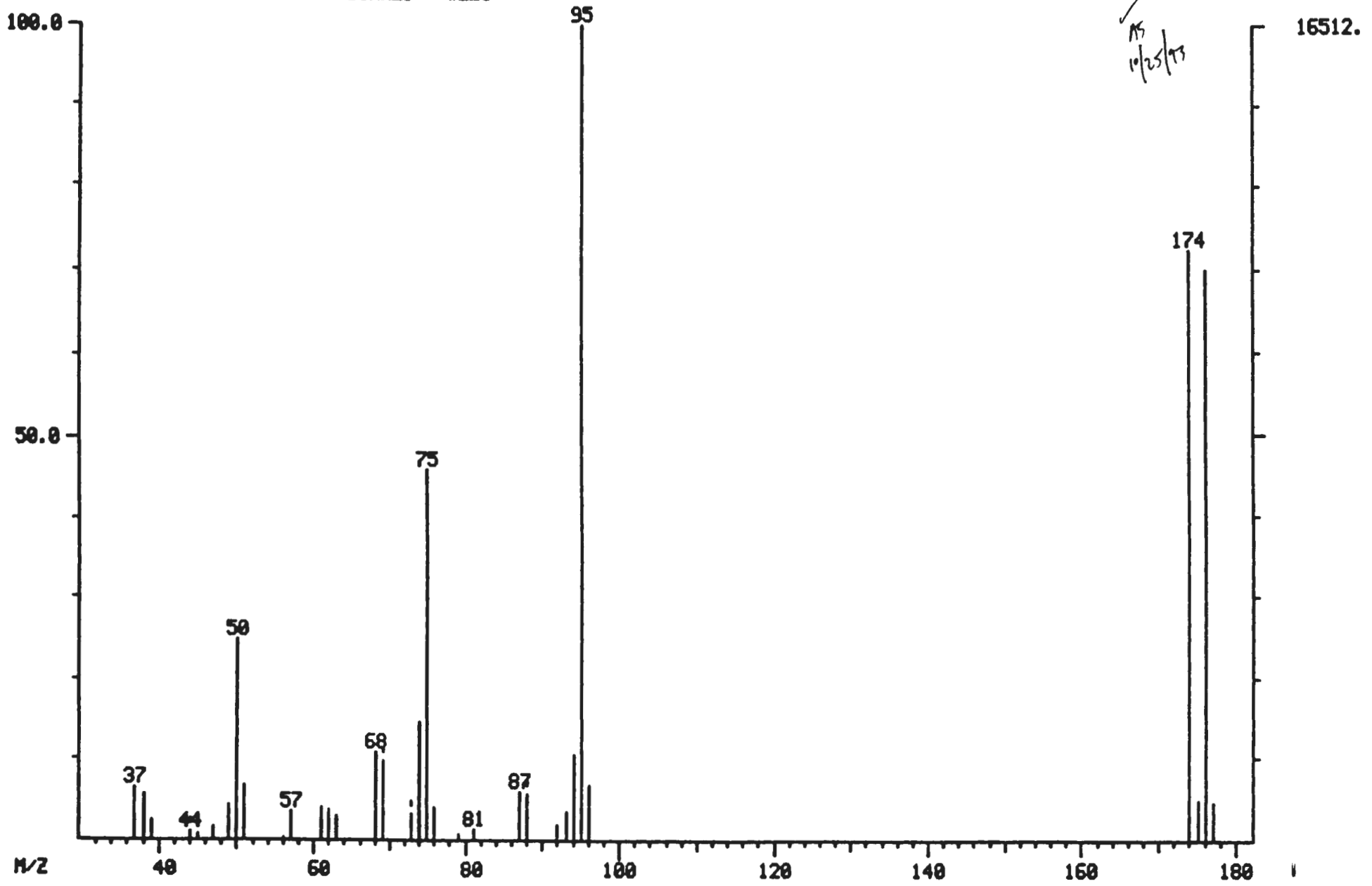


000089

MASS SPECTRUM
12/09/92 8:38:00 + 9:57
SAMPLE: 50NG OF BFB
CONDS.: 2UL DI
#238 TO #240 SUMMED - #226

DATA: 2BFB1209 #239
CALI: 21207R02 #7

BASE M/Z: 95
RIC: 73472.



AS 10/25/93

0044 2/13/96

9613492.4481

000090

Mass List
12/09/92 8:38:00 + 9:57
Sample: 50NG OF BFB
Conds.: 2UL DI
#238 to #240 summed - #226

Data: 2BFB1209 # 239
Cali: 21207R02 # 7

Base m/z: 95
RIC: 73472.

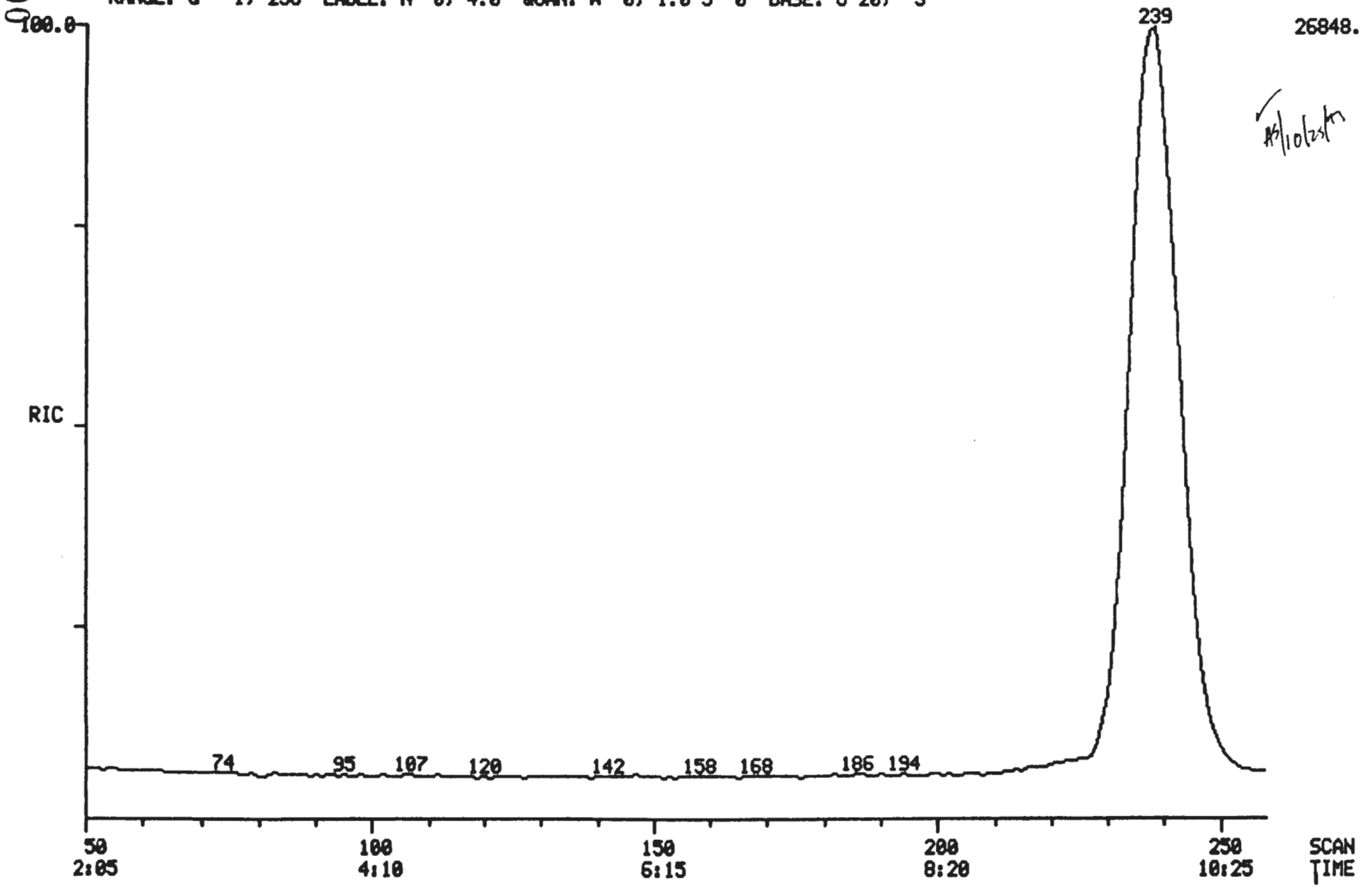
37		0.00	0.	Minima	Min Inten:	0.
177				Maxima	# 0	

Mass		% RA	Inten.
37?		6.41	1058.
38?		5.77	953.
39?		2.43	401.
44?	S	1.08	178.
45?	S	0.93	153.
47?		1.48	245.
49?		4.20	694.
50?		24.85	4104.
51?		6.81	1124.
56?		0.37	61.
57?		3.60	594.
61?		3.92	647.
62?		3.85	635.
63?		2.83	467.
68?		10.86	1794.
69	S	9.65	1594.
73	S	3.35	553.
74		14.41	2380.
75		46.08	7608.
76		3.93	649.
79		0.69	114.
81		1.32	218.
87		5.83	962.
88	S	5.70	941.
92		1.81	299.
93		3.63	599.
94		10.57	1746.
95		100.00	16512.
96		6.71	1108.
174		72.29	11936.
175		4.74	783.
176		69.86	11536.
177		4.52	746.

AS
10/25/93

RIC
12/09/92 8:38:00
SAMPLE: 50NG OF BFB
CONDS.: 2UL DI
RANGE: G 1, 258 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 2BFB1209 #238 SCANS 50 TO 258
CALI: 21207R02 #7



A3/10/25/96

2014_2943196

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1208R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: WBLK1208

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21208R07

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	J
67-64-1	Acetone	10	U
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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK1208R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: WBLK1208

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21208R07

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

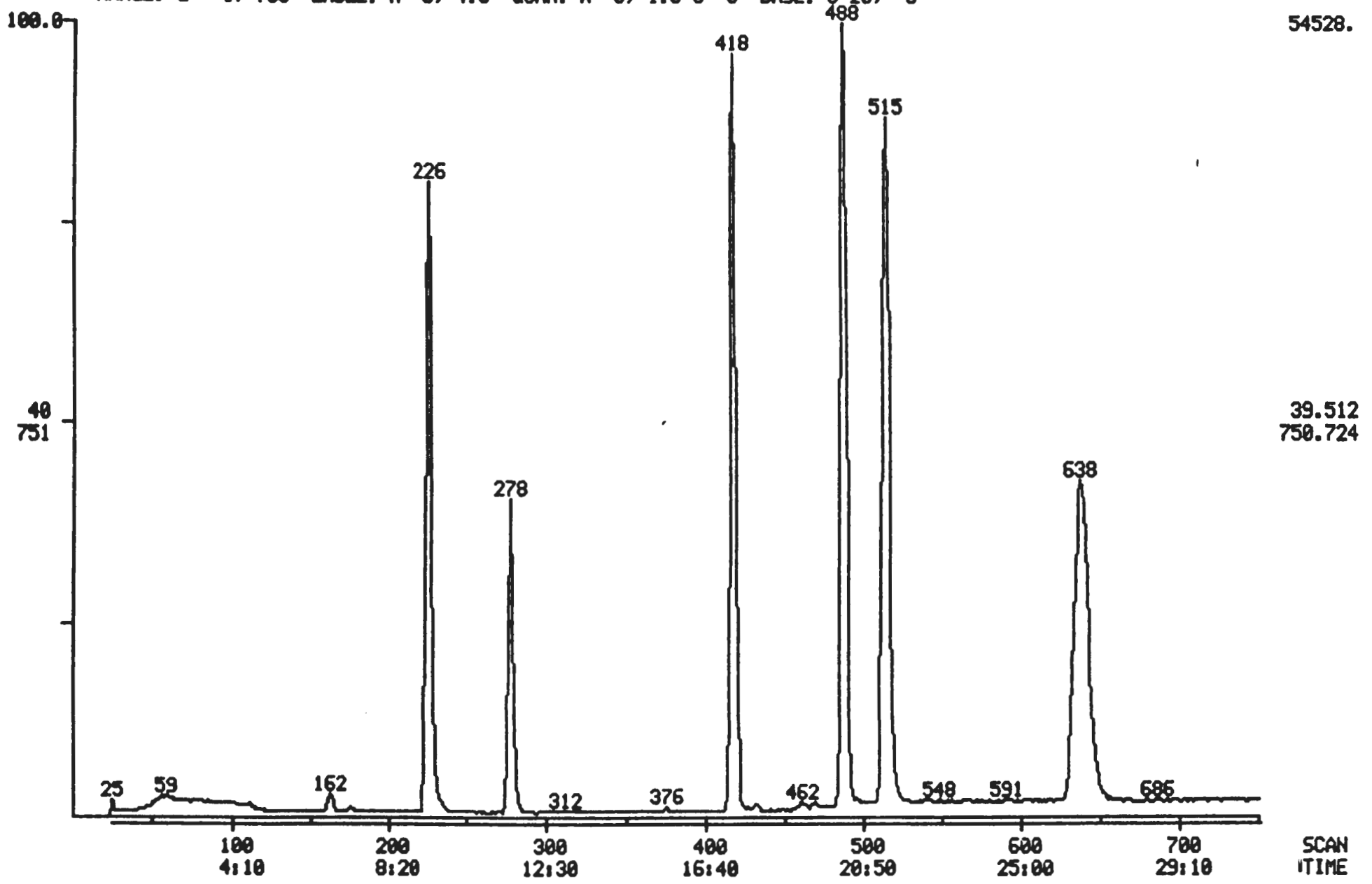
Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

960000

MASS CHROMATOGRAM DATA: 21208R07 #1 SCANS 1 TO 750
12/08/92 12:54:00 CALI: 21208R07 #7
SAMPLE: CLP,,,VBLK1208R,L,W,WBLK1208,VOA,BLANK
CONDS.: PACK/2,21208R01,2BFB1208,,
RANGE: G 1, 750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



96 13092.0006

Quantitation Report File: 21208R07

Data: 21208R07.TI
12/08/92 12:54:00
Sample: CLP,,,VBLK1208R,L,W,WBLK1208,VOA,BLANK
Conds.: PACK/2,21208R01,2BFB1208,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	CO30	METHYLENE CHLORIDE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	226	9:25	1	1.000	A BB	22318.	50.000 PPB	16.60
2	114	418	17:25	2	1.000	A BB	93941.	50.000 PPB	16.60
3	117	515	21:27	3	1.000	A BB	82012.	50.000 PPB	16.60
4	65	278	11:35	1	1.230	A BB	29973.	49.418 PPB	16.40
5	98	488	20:20	3	0.948	A BB	80688.	50.109 PPB	16.63
6	95	638	26:35	3	1.239	A BB	48100.	50.016 PPB	16.60
7	84	162	6:45	1	0.717	A BB	1253.	1.749 PPB	0.58

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	49.42	50.00	1.343	1.359	0.99
5	20:17	1.00	0.949	1.00	50.11	50.00	0.984	0.982	1.00
6	26:27	1.00	1.238	1.00	50.02	50.00	0.586	0.586	1.00
7	6:45	1.00	0.720	1.00	1.75	50.00	0.056	1.605	0.03

TCA FINISHED, 8 FOUND
FINISHED AT: 12/08/92 13:31:14
Quantitation Report File: 21208R07

Data: 21208R07.TI
12/08/92 12:54:00
Sample: CLP,,,VBLK1208R,L,W,WBLK1208,VOA,BLANK
Conds.: PACK/2,21208R01,2BFB1208,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C036	ACROLEIN
14	C037	ACRYLONITRILE
15	C040	CARBON DISULFIDE
16	C045	1,1-DICHLOROETHENE
17	C050	1,1-DICHLOROETHANE
18	C053	1,2-DICHLOROETHENE(TOTAL)
19	C060	CHLOROFORM
20	C110	2-BUTANONE
21	C065	1,2-DICHLOROETHANE
22	C115	1,1,1-TRICHLOROETHANE
23	C120	CARBON TETRACHLORIDE
24	C125	VINYL ACETATE
25	C130	BROMODICHLOROMETHANE
26	C140	1,2-DICHLOROPROPANE
27	C143	CIS-1,3-DICHLOROPROPENE
28	C150	TRICHLOROETHENE
29	C155	DIBROMOCHLOROMETHANE
30	C165	BENZENE
31	C160	1,1,2-TRICHLOROETHANE
32	C172	TRANS-1,3-DICHLOROPROPENE
33	C175	2-CHLOROETHOXY ETHENE
34	C180	BROMOFORM
35	C205	4-METHYL-2-PENTANONE
36	C210	2-HEXANONE
37	C225	1,1,2,2-TETRACHLOROETHANE
38	C220	TETRACHLOROETHENE
39	C230	TOLUENE
40	C235	CHLOROBENZENE
41	C240	ETHYL BENZENE
42	C245	STYRENE
43	C250	OP-XYLENE
44	C255	M-XYLENE
45	A170	TRICHLOROFLUOROMETHANE

9613492.0488

000097

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	226	9:25✓	1	1.000	A BB	22318.✓	50.000 PPB	16.04
2	114	418	17:25✓	2	1.000	A BB	93941.✓	50.000 PPB	16.04
3	117	515	21:27✓	3	1.000	A BB	82012.✓	50.000 PPB	16.04
4	65	278	11:35	1	1.230	A BB	29973.	49.418 PPB ✓	15.85
5	98	488	20:20	3	0.948	A BB	80688.	50.109 PPB ✓	16.07
6	95	638	26:35	3	1.239	A BB	48100.	50.016 PPB ✓	16.04
7	NOT FOUND								
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
11	84	162	6:45	1	0.717	A BB	1253.	1.749 PPB	0.56
12	~~43~~	~~175~~	~~7:17~~	~~1~~	~~0.774~~	~~A BB~~	~~902.~~	~~5.250 PPB~~	~~1.68~~
13	NOT FOUND								
14	NOT FOUND								
15	NOT FOUND								
16	NOT FOUND								
17	NOT FOUND								
18	NOT FOUND								
19	NOT FOUND								
20	~~43~~	~~277~~	~~11:32~~	~~1~~	~~1.226~~	~~A BB~~	~~291.~~	~~1.163 PPB~~	~~0.37~~
21	~~62~~	~~279~~	~~11:37~~	~~1~~	~~1.238~~	~~A BB~~	~~108.~~	~~0.148 PPB~~	~~0.05~~
22	NOT FOUND								
23	NOT FOUND								
24	~~43~~	~~312~~	~~13:00~~	~~2~~	~~0.746~~	~~A BB~~	~~229.~~	~~0.204 PPB~~	~~0.07~~
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	NOT FOUND								
29	~~129~~	~~375~~	~~15:37~~	~~2~~	~~0.897~~	~~A BB~~	~~139.~~	~~0.133 PPB~~	~~0.04~~
30	~~78~~	~~370~~	~~15:25~~	~~2~~	~~0.885~~	~~A BB~~	~~172.~~	~~0.084 PPB~~	~~0.03~~
31	~~97~~	~~377~~	~~15:42~~	~~2~~	~~0.902~~	~~A BB~~	~~123.~~	~~0.207 PPB~~	~~0.07~~
32	NOT FOUND								
33	NOT FOUND								
34	NOT FOUND								
35	~~43~~	~~432~~	~~18:00~~	~~3~~	~~0.839~~	~~A BB~~	~~1037.~~	~~1.828 PPB~~	~~0.59~~
36	~~43~~	~~462~~	~~19:13~~	~~3~~	~~0.897~~	~~A BB~~	~~1539.~~	~~4.056 PPB~~	~~1.30~~
37	~~88~~	~~470~~	~~19:35~~	~~3~~	~~0.913~~	~~A BB~~	~~633.~~	~~0.627 PPB~~	~~0.20~~
38	NOT FOUND								
39	~~92~~	~~492~~	~~20:30~~	~~3~~	~~0.955~~	~~A BB~~	~~128.~~	~~0.104 PPB~~	~~0.03~~
40	~~112~~	~~517~~	~~21:32~~	~~3~~	~~1.004~~	~~A BB~~	~~234.~~	~~0.148 PPB~~	~~0.05~~
41	NOT FOUND								
42	NOT FOUND								
43	NOT FOUND								
44	NOT FOUND								
45	NOT FOUND								

LS/12-09-92

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	49.42	50.00	1.343	1.359	0.99
5	20:17	1.00	0.949	1.00	50.11	50.00	0.984	0.982	1.00
6	26:27	1.00	1.238	1.00	50.02	50.00	0.586	0.586	1.00
7	1:37		0.173						
8	2:47		0.298						
9	3:40		0.391						

12/11/92

9613492.4489

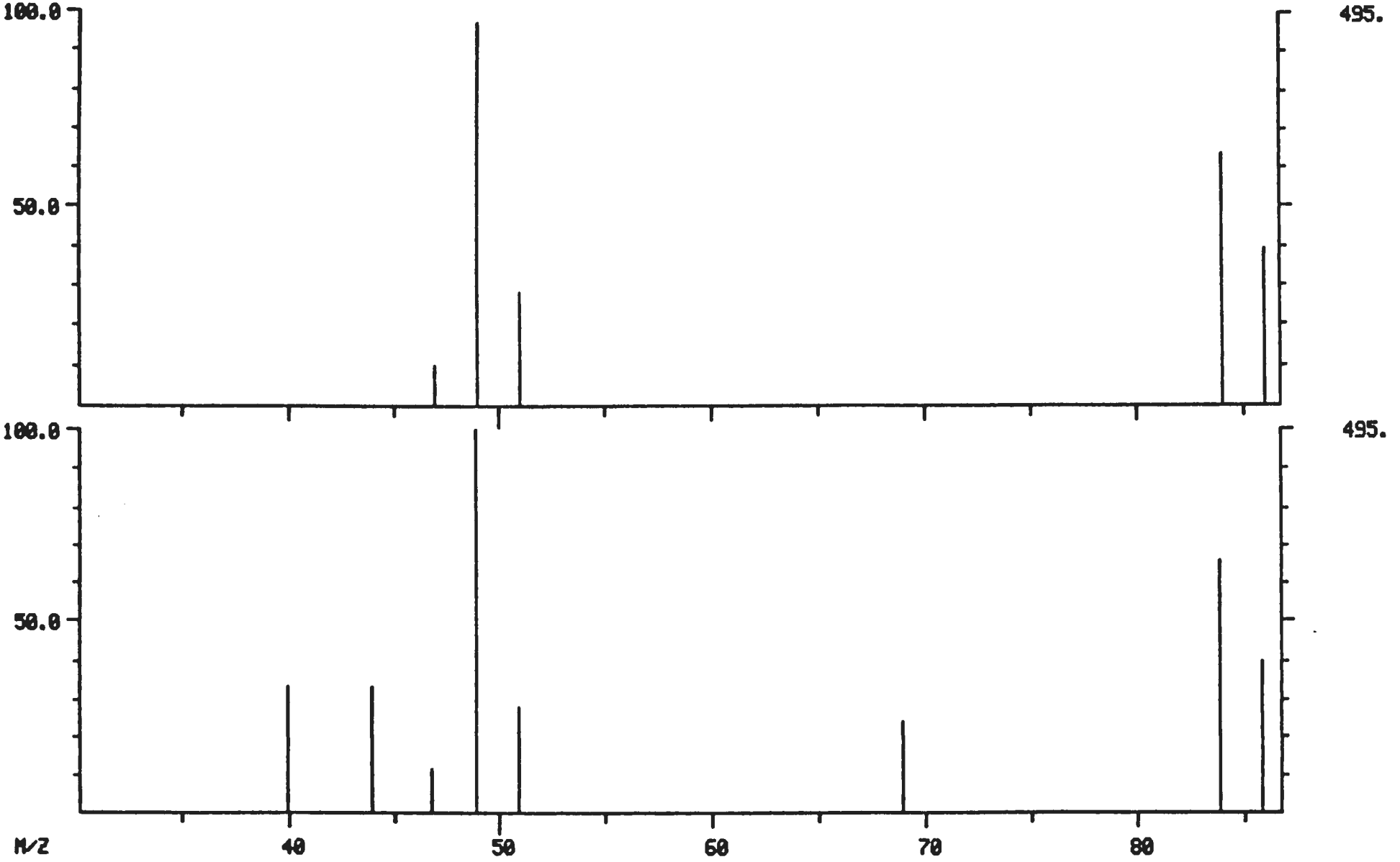
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
10	4:47		0.511						
11	6:45	1.00	0.720	1.00	1.75	50.00	0.056	1.605	0.03
12	7:22	0.99	0.787	0.98	5.25	50.00	0.040	0.385	0.11
13	5:47		0.713						
14	7:05		0.850						
15	7:55		0.844						
16	8:55		0.951						
17	10:00		1.067						
18	10:32		1.124						
19	11:02		1.178						
20	11:30	1.00	1.227	1.00	1.16	50.00	0.013	0.560	0.02
21	11:37	1.00	1.240	1.00	0.15	50.00	0.005	1.636	0.00
22	12:37		0.727						
23	12:55		0.743						
24	12:57	1.00	0.746	1.00	0.20	50.00	0.002	0.598	0.00
25	13:22		0.770						
26	14:25		0.830						
27	14:37		0.842						
28	15:00		0.863						
29	15:35	1.00	0.897	1.00	0.13	50.00	0.001	0.555	0.00
30	15:22	1.00	0.885	1.00	0.08	50.00	0.002	1.093	0.00
31	15:37	1.01	0.899	1.00	0.21	50.00	0.001	0.313	0.00
32	15:37		0.899						
33	16:25		0.945						
34	17:42		1.019						
35	17:57	1.00	0.840	1.00	1.83	50.00	0.013	0.347	0.04
36	19:10	1.00	0.897	1.00	4.06	50.00	0.019	0.231	0.08
37	19:30	1.00	0.912	1.00	0.63	50.00	0.008	0.614	0.01
38	19:25		0.908						
39	20:27	1.00	0.957	1.00	0.10	50.00	0.002	0.748	0.00
40	21:30	1.00	1.006	1.00	0.15	50.00	0.003	0.966	0.00
41	23:32		1.101						
42	28:07		1.316						
43	29:32		1.382						
44	28:22		1.327						
45	6:50		0.863						

000099

DUAL MASS SPECTRUM
12/08/92 12:54:00 + 6:45
SAMPLE: CLP,,,VBLK1208R,L,W,WBLK1208,VOA,BLANK
CONDS.: PACK/2,21208R01,2BFB1208,,
ENHANCED (S 15B 2N 0T)

DATA: 21208R07 #162
CALI: 21208R07 #7

BASE M/Z: 49/ 49
RIC: 1181./ 1669.



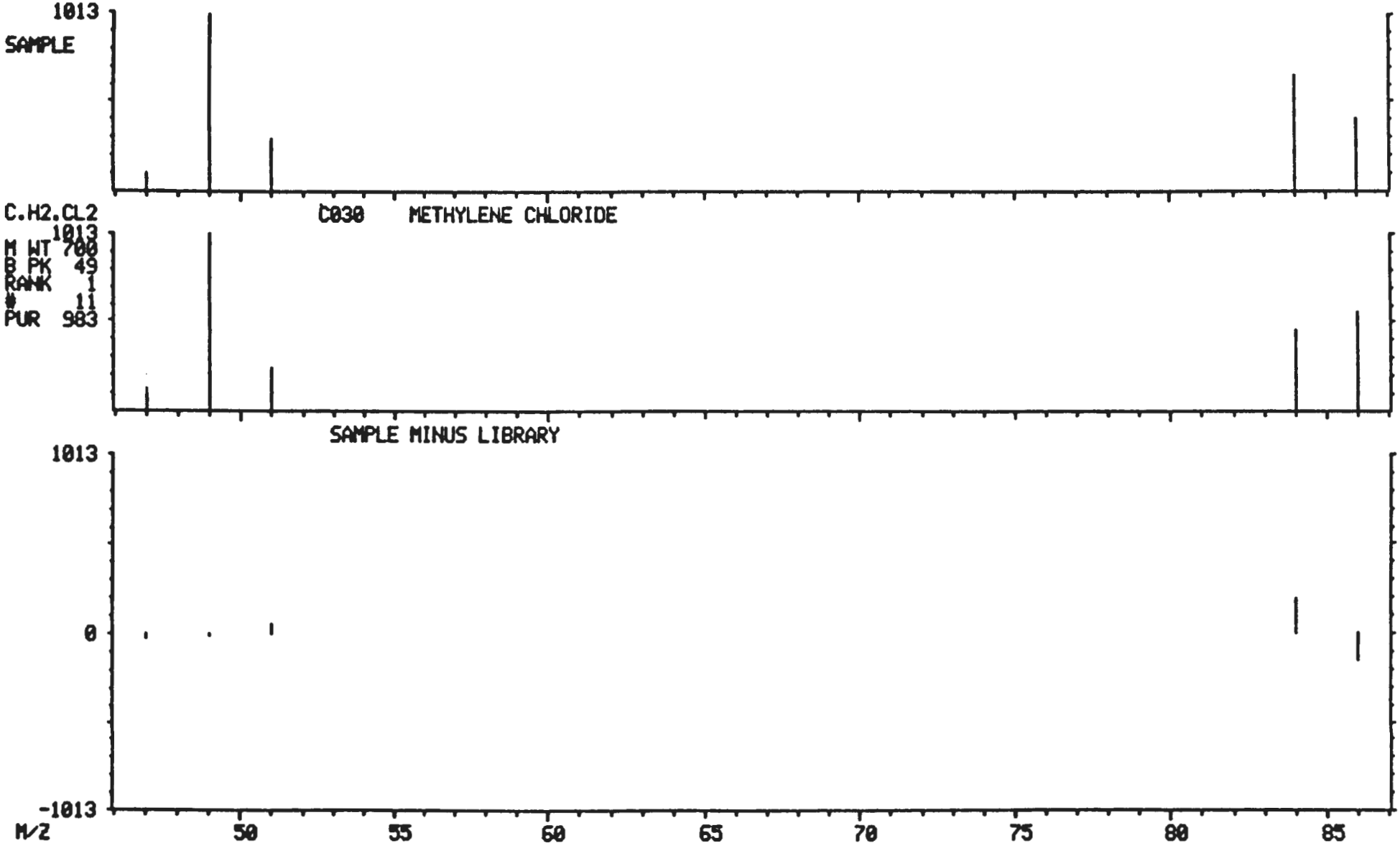
06/17/2002 11:00

000100

LIBRARY SEARCH
12/08/92 12:54:00 + 6:45
SAMPLE: CLP,,,VBLK1208R,L,W,WBLK1208,VOA,BLANK
CONDS.: PACK/2,21208R01,2BFB1208,,
ENHANCED (S 15B 2N 0T)

DATA: 21208R07 # 162
CALI: 21208R07 # 7

BASE M/Z: 49
RIC: 1181.



96130402.4401

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1209R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: WBLK1209

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21209R02

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 12/09/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

10/18

9613492.4493

000102

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK1209R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: WBLK1209

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21209R02

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 12/09/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

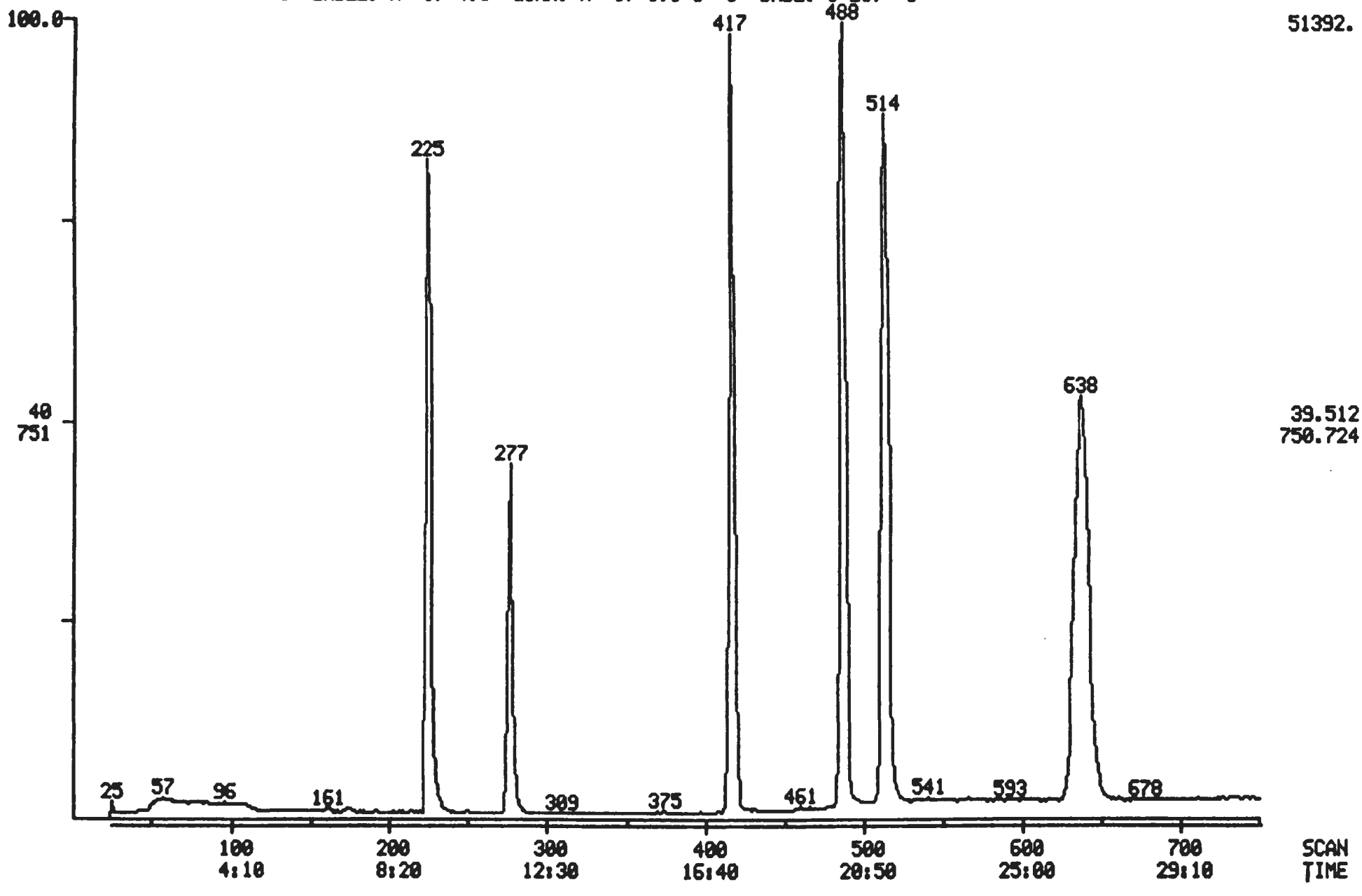
Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

MASS CHROMATOGRAM DATA: 21209R02 #1 SCANS 1 TO 750
12/09/92 11:06:00 CALI: 21209R02 #7
SAMPLE: CLP,,,VBLK1209R,L,W,WBLK1209,VOA,BLANK
CONDS.: PACK/2,21209R01,2BFB1209,,
RANGE: G 1, 750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



Quantitation Report File: 21209R02

Data: 21209R02.TI
12/09/92 11:06:00
Sample: CLP,,,VBLK1209R,L,W,WBLK1209,VOA,BLANK
Conds.: PACK/2,21209R01,2BFB1209,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	225	9:22	1	1.000	A BB	22637.	50.000 PPB	16.67
2	114	417	17:22	2	1.000	A BB	90685.	50.000 PPB	16.67
3	117	514	21:25	3	1.000	A BB	77941.	50.000 PPB	16.67
4	65	277	11:32	1	1.231	A BB	29867.	50.242 PPB	16.75
5	98	488	20:20	3	0.949	A BB	76450.	49.641 PPB	16.55
6	95	637	26:32	3	1.239	A BB	47183.	49.984 PPB	16.67

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	50.24	50.00	1.319	1.313	1.00
5	20:17	1.00	0.949	1.00	49.64	50.00	0.981	0.988	0.99
6	26:27	1.00	1.238	1.00	49.98	50.00	0.605	0.606	1.00

TCA FINISHED, 7 FOUND
FINISHED AT: 12/09/92 11:43:20
Quantitation Report File: 21209R02

Data: 21209R02.TI
12/09/92 11:06:00
Sample: CLP,,,VBLK1209R,L,W,WBLK1209,VOA,BLANK
Conds.: PACK/2,21209R01,2BFB1209,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C036	ACROLEIN
14	C037	ACRYLONITRILE
15	C040	CARBON DISULFIDE
16	C045	1,1-DICHLOROETHENE
17	C050	1,1-DICHLOROETHANE
18	C053	1,2-DICHLOROETHENE(TOTAL)
19	C060	CHLOROFORM
20	C110	2-BUTANONE
21	C065	1,2-DICHLOROETHANE
22	C115	1,1,1-TRICHLOROETHANE
23	C120	CARBON TETRACHLORIDE
24	C125	VINYL ACETATE
25	C130	BROMODICHLOROMETHANE
26	C140	1,2-DICHLOROPROPANE
27	C143	CIS-1,3-DICHLOROPROPENE
28	C150	TRICHLOROETHENE
29	C155	DIBROMOCHLOROMETHANE
30	C165	BENZENE
31	C160	1,1,2-TRICHLOROETHANE
32	C172	TRANS-1,3-DICHLOROPROPENE
33	C175	2-CHLOROETHOXY ETHENE
34	C180	BROMOFORM
35	C205	4-METHYL-2-PENTANONE
36	C210	2-HEXANONE
37	C225	1,1,2,2-TETRACHLOROETHANE
38	C220	TETRACHLOROETHENE
39	C230	TOLUENE
40	C235	CHLOROBENZENE
41	C240	ETHYL BENZENE
42	C245	STYRENE
43	C250	OP-XYLENE
44	C255	M-XYLENE
45	A170	TRICHLOROFLUOROMETHANE

9613492.4497

000106

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	225	9:22	1	1.000	A BB	22637	50.000 PPB	16.40
2	114	417	17:22	2	1.000	A BB	90685.	50.000 PPB	16.40
3	117	514	21:25	3	1.000	A BB	77941	50.000 PPB	16.40
4	65	277	11:32	1	1.231	A BB	29867.	50.242 PPB	16.48
5	98	488	20:20	3	0.949	A BB	76450.	49.641 PPB	16.28
6	95	637	26:32	3	1.239	A BB	47183.	49.984 PPB	16.39
7	NOT FOUND								
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
11	84	161	6:42	1	0.716	A BB	216.	0.304 PPB	0.10
12	43	174	7:15	1	0.772	A BB	691.	4.482 PPB	1.46
13	NOT FOUND								
14	NOT FOUND								
15	NOT FOUND								
16	NOT FOUND								
17	NOT FOUND								
18	NOT FOUND								
19	NOT FOUND								
20	43	277	11:32	1	1.231	A BB	114.	0.525 PPB	0.17
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	NOT FOUND								
29	NOT FOUND								
30	NOT FOUND								
31	NOT FOUND								
32	NOT FOUND								
33	NOT FOUND								
34	NOT FOUND								
35	43	432	18:00	3	0.840	A BB	363.	0.722 PPB	0.24
36	43	461	19:12	3	0.897	A BB	765.	2.407 PPB	0.79
37	NOT FOUND								
38	NOT FOUND								
39	92	492	20:30	3	0.957	A BB	130.	0.111 PPB	0.04
40	NOT FOUND								
41	NOT FOUND								
42	NOT FOUND								
43	NOT FOUND								
44	NOT FOUND								
45	NOT FOUND								

LS/12-09-92

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	50.24	50.00	1.319	1.313	1.00
5	20:17	1.00	0.949	1.00	49.64	50.00	0.981	0.988	0.99
6	26:27	1.00	1.238	1.00	49.98	50.00	0.605	0.606	1.00
7	1:37		0.173						
8	2:47		0.298						
9	3:40		0.391						

12/11/92

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
10	4:47		0.511						
11	6:45	0.99	0.720	0.99	0.30	50.00	0.010	1.571	0.01
12	7:22	0.98	0.787	0.98	4.45	50.00	0.031	0.343	0.09
13	5:47		0.713						
14	7:05		0.850						
15	7:55		0.844						
16	8:55		0.951						
17	10:00		1.067						
18	10:32		1.124						
19	11:02		1.178						
20	11:30	1.00	1.227	1.00	0.52	50.00	0.005	0.480	0.01
21	11:37		1.240						
22	12:37		0.727						
23	12:55		0.743						
24	12:57		0.746						
25	13:22		0.770						
26	14:25		0.830						
27	14:37		0.842						
28	15:00		0.863						
29	15:35		0.897						
30	15:22		0.885						
31	15:37		0.899						
32	15:37		0.899						
33	16:25		0.945						
34	17:42		1.019						
35	17:57	1.00	0.840	1.00	0.72	50.00	0.005	0.323	0.01
36	19:10	1.00	0.897	1.00	2.41	50.00	0.010	0.204	0.05
37	19:30		0.912						
38	19:25		0.908						
39	20:27	1.00	0.957	1.00	0.11	50.00	0.002	0.751	0.00
40	21:30		1.006						
41	23:32		1.101						
42	28:07		1.316						
43	29:32		1.382						
44	28:22		1.327						
45	6:50		0.863						

9613492.4198

000108

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07MK2MS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-02B

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21208R13

Level: (low/med) LOW Date Received: 12/04/92

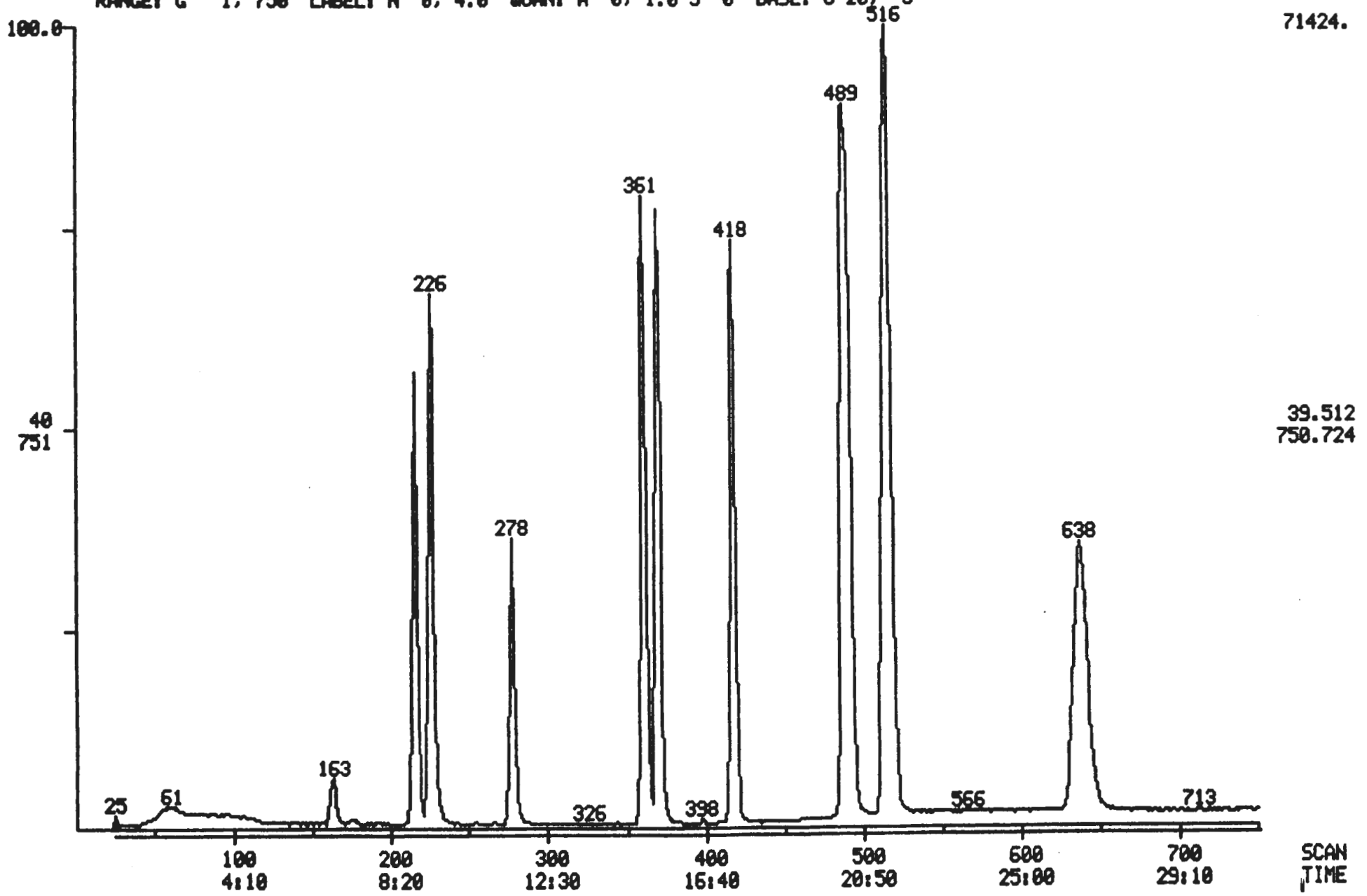
% Moisture: not dec. ____ Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	5	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	49	
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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	51	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	52	
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	49	
108-90-7	Chlorobenzene	46	
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

MASS CHROMATOGRAM DATA: 21208R13 #1 SCANS 1 TO 750
12/08/92 17:26:00 CALI: 21208R13 #7
SAMPLE: CLP,12017,,B07MK2MS,L,W,A212017-02B,VOA,MS
CONDS.: PACK/2,21208R01,2BFB1208,21208R07
RANGE: G 1, 750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



9613492.4501

Quantitation Report File: 21208R13

000110

Data: 21208R13.TI
12/08/92 17:26:00
Sample: CLP,12017,,B07MK2MS,L,W,A212017-02B,VOA,MS
Conds.: PACK/2,21208R01,2BFB1208,21208R07
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C030	METHYLENE CHLORIDE
8	C045	1,1-DICHLOROETHENE
9	C150	TRICHLOROETHENE
10	C165	BENZENE
11	C230	TOLUENE
12	C235	CHLOROBENZENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	226	9:25	1	1.000	A BB	24642.	50.000 PPB	8.89
2	114	418	17:25	2	1.000	A BB	94256.	50.000 PPB	8.89
3	117	515	21:27	3	1.000	A BB	81800.	50.000 PPB	8.89
4	65	278	11:35	1	1.230	A BB	34692.	51.804 PPB	9.22
5	98	488	20:20	3	0.948	A BB	87281.	54.343 PPB	9.67
6	95	638	26:35	3	1.239	A BB	51643.	53.840 PPB	9.58
7	84	162	6:45	1	0.717	A BB	4290.	5.422 PPB	0.96
8	96	215	8:57	1	0.951	A BB	34242.	48.952 PPB	8.71
9	130	361	15:02	2	0.864	A BB	40392.	50.610 PPB	9.00
10	78	370	15:25	2	0.885	A BB	106856.	51.870 PPB	9.23
11	92	492	20:30	3	0.955	A BB	59836.	48.886 PPB	8.70
12	112	517	21:32	3	1.004	A BB	73332.	46.413 PPB	8.26

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	51.80	50.00	1.408	1.359	1.04
5	20:17	1.00	0.949	1.00	54.34	50.00	1.067	0.982	1.09
6	26:27	1.00	1.238	1.00	53.84	50.00	0.631	0.586	1.08
7	6:45	1.00	0.720	1.00	5.42	50.00	0.174	1.605	0.11
8	8:55	1.00	0.951	1.00	48.95	50.00	1.390	1.419	0.98
9	15:00	1.00	0.863	1.00	50.61	50.00	0.429	0.423	1.01
10	15:22	1.00	0.885	1.00	51.87	50.00	1.134	1.093	1.04
11	20:27	1.00	0.957	1.00	48.89	50.00	0.731	0.748	0.98
12	21:30	1.00	1.006	1.00	46.41	50.00	0.896	0.966	0.93

TCA FINISHED, 13 FOUND
FINISHED AT: 12/09/92 8:36:32
Quantitation Report File: 21208R13

Data: 21208R13.TI
12/08/92 17:26:00
Sample: CLP,12017,,B07MK2MS,L,W,A212017-02B,VOA,MS
Conds.: PACK/2,21208R01,2BFB1208,21208R07
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C036	ACROLEIN
14	C037	ACRYLONITRILE
15	C040	CARBON DISULFIDE
16	C045	1,1-DICHLOROETHENE
17	C050	1,1-DICHLOROETHANE
18	C053	1,2-DICHLOROETHENE(TOTAL)
19	C060	CHLOROFORM
20	C110	2-BUTANONE
21	C065	1,2-DICHLOROETHANE
22	C115	1,1,1-TRICHLOROETHANE
23	C120	CARBON TETRACHLORIDE
24	C125	VINYL ACETATE
25	C130	BROMODICHLOROMETHANE
26	C140	1,2-DICHLOROPROPANE
27	C143	CIS-1,3-DICHLOROPROPENE
28	C150	TRICHLOROETHENE
29	C155	DIBROMOCHLOROMETHANE
30	C165	BENZENE
31	C160	1,1,2-TRICHLOROETHANE
32	C172	TRANS-1,3-DICHLOROPROPENE
33	C175	2-CHLOROETHOXY ETHENE
34	C180	BROMOFORM
35	C205	4-METHYL-2-PENTANONE
36	C210	2-HEXANONE
37	C225	1,1,2,2-TETRACHLOROETHANE
38	C220	TETRACHLOROETHENE
39	C230	TOLUENE
40	C235	CHLOROBENZENE
41	C240	ETHYL BENZENE
42	C245	STYRENE
43	C250	OP-XYLENE
44	C255	M-XYLENE
45	A170	TRICHLOROFLUOROMETHANE

9613492.4503

000112

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	226	9:25	1	1.000	A BB	24642.	50.000 PPB	8.78
2	114	418	17:25	2	1.000	A BB	94256.	50.000 PPB	8.78
3	117	515	21:27	3	1.000	A BB	81800.	50.000 PPB	8.78
4	65	278	11:35	1	1.230	A BB	34692.	51.804 PPB	9.10
5	98	488	20:20	3	0.948	A BB	87281.	54.343 PPB	9.54
6	95	638	26:35	3	1.239	A BB	51643.	53.840 PPB	9.46
7	NOT FOUND								
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
11	84	162	6:45	1	0.717	A BB	4290.	5.422 PPB	0.95
12	~~43~~	~~175~~	~~7:17~~	~~1~~	~~0.774~~	~~A BB~~	~~1260.~~	~~6.643 PPB~~	~~1.17~~
13	NOT FOUND								
14	NOT FOUND								
15	NOT FOUND								
16	96	215	8:57	1	0.951	A BB	34242.	48.952 PPB	8.60
17	NOT FOUND								
18	NOT FOUND								
19	~~83~~	~~266~~	~~11:05~~	~~1~~	~~1.177~~	~~A BB~~	~~298.~~	~~0.203 PPB~~	~~0.04~~
20	~~43~~	~~277~~	~~11:32~~	~~1~~	~~1.226~~	~~A BB~~	~~558.~~	~~2.020 PPB~~	~~0.35~~
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	130	361	15:02	2	0.864	A BB	40392.	50.610 PPB	8.89
29	NOT FOUND								
30	78	370	15:25	2	0.885	A BB	106856.	51.870 PPB	9.11
31	NOT FOUND								
32	NOT FOUND								
33	NOT FOUND								
34	NOT FOUND								
35	~~43~~	~~433~~	~~18:02~~	~~3~~	~~0.841~~	~~A BB~~	~~136.~~	~~0.240 PPB~~	~~0.04~~
36	~~43~~	~~462~~	~~19:18~~	~~3~~	~~0.897~~	~~A BV~~	~~485.~~	~~1.282 PPB~~	~~0.23~~
37	NOT FOUND								
38	NOT FOUND								
39	92	492	20:30	3	0.955	A BB	59836.	48.886 PPB	8.59
40	112	517	21:32	3	1.004	A BB	73332.	46.413 PPB	8.15
41	NOT FOUND								
42	NOT FOUND								
43	NOT FOUND								
44	NOT FOUND								
45	NOT FOUND								

LS/ 12-09-92

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	51.80	50.00	1.408	1.359	1.04
5	20:17	1.00	0.949	1.00	54.34	50.00	1.067	0.982	1.09
6	26:27	1.00	1.238	1.00	53.84	50.00	0.631	0.586	1.08
7	1:37		0.173						
8	2:47		0.298						
9	3:40		0.391						

12/11/92

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
10	4:47		0.511						
11	6:45	1.00	0.720	1.00	5.42	50.00	0.174	1.605	0.11
12	7:22	0.99	0.787	0.98	6.64	50.00	0.051	0.385	0.13
13	5:47		0.713						
14	7:05		0.850						
15	7:55		0.844						
16	8:55	1.00	0.951	1.00	48.95	50.00	1.390	1.419	0.98
17	10:00		1.067						
18	10:32		1.124						
19	11:02	1.00	1.178	1.00	0.20	50.00	0.012	2.949	0.00
20	11:30	1.00	1.227	1.00	2.02	50.00	0.023	0.560	0.04
21	11:37		1.240						
22	12:37		0.727						
23	12:55		0.743						
24	12:57		0.746						
25	13:22		0.770						
26	14:25		0.830						
27	14:37		0.842						
28	15:00	1.00	0.863	1.00	50.61	50.00	0.429	0.423	1.01
29	15:35		0.897						
30	15:22	1.00	0.885	1.00	51.87	50.00	1.134	1.093	1.04
31	15:37		0.899						
32	15:37		0.899						
33	16:25		0.945						
34	17:42		1.019						
35	17:57	1.00	0.840	1.00	0.24	50.00	0.002	0.347	0.00
36	19:10	1.00	0.897	1.00	1.28	50.00	0.006	0.231	0.03
37	19:30		0.912						
38	19:25		0.908						
39	20:27	1.00	0.957	1.00	48.89	50.00	0.731	0.748	0.98
40	21:30	1.00	1.006	1.00	46.41	50.00	0.896	0.966	0.93
41	23:32		1.101						
42	28:07		1.316						
43	29:32		1.382						
44	28:22		1.327						
45	6:50		0.863						

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07MK2MSD

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-02C

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21208R14

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. ____ Date Analyzed: 12/08/92

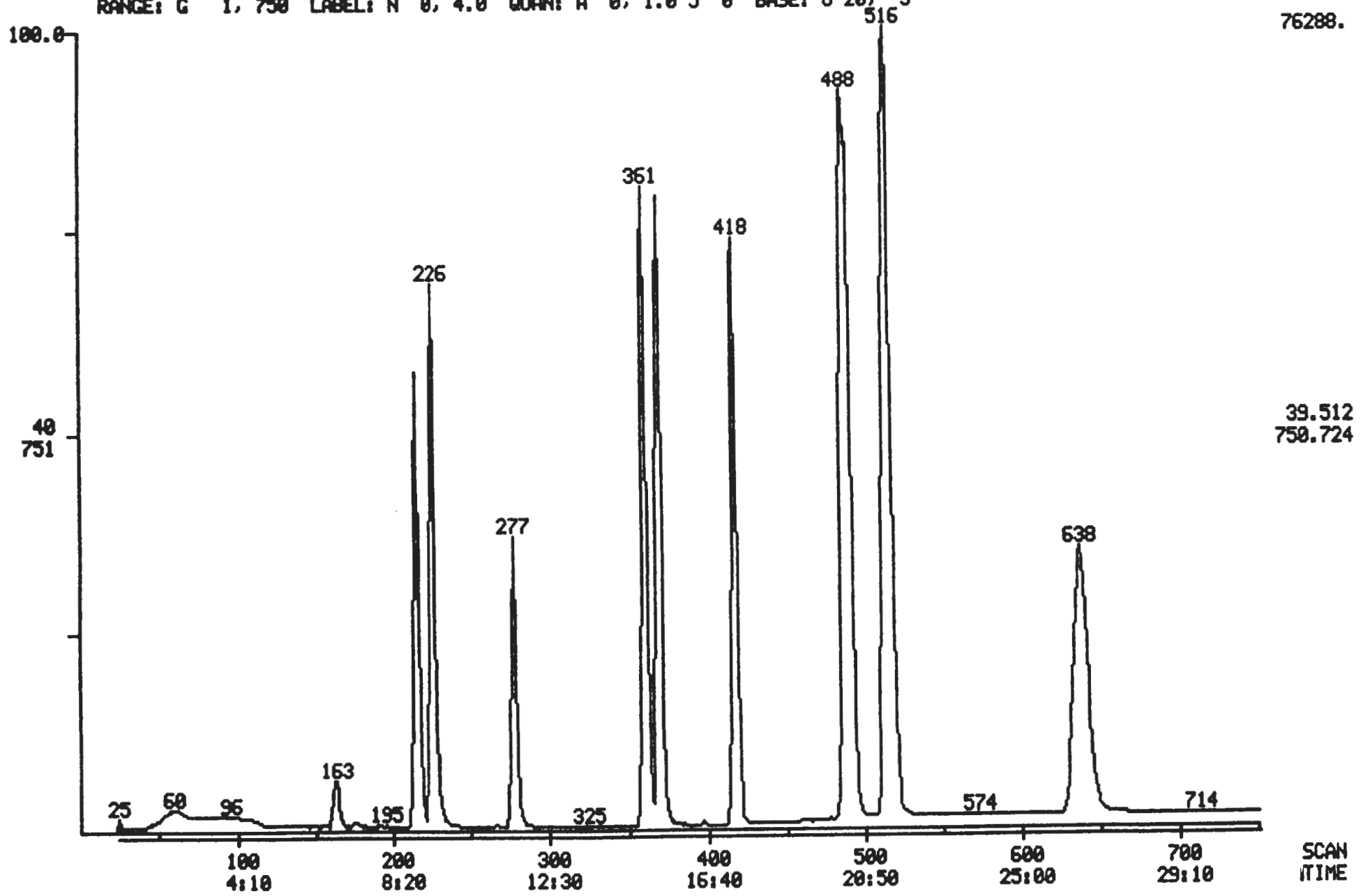
GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	10	U
75-35-4	1,1-Dichloroethene	48	
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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	50	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	52	
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	49	
108-90-7	Chlorobenzene	47	
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

000115

MASS CHROMATOGRAM DATA: 21208R14 #1 SCANS 1 TO 750
12/08/92 18:06:00 CALI: 21208R14 #7
SAMPLE: CLP,12017,,B07MK2MSD,L,W,A212017-02C,VOA,MSD
CONDS.: PACK/2,21208R01,2BFB1208,21208R07
RANGE: G 1, 750 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



96130192.4506

9613492.4507

Quantitation Report File: 21208R14

000116

Data: 21208R14.TI
12/08/92 18:06:00
Sample: CLP,12017,,B07MK2MSD,L,W,A212017-02C,VOA,MSD
Conds.: PACK/2,21208R01,2BFB1208,21208R07
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C030	METHYLENE CHLORIDE
8	C045	1,1-DICHLOROETHENE
9	C150	TRICHLOROETHENE
10	C165	BENZENE
11	C230	TOLUENE
12	C235	CHLOROBENZENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	226	9:25	1	1.000	A BB	26780.	50.000 PPB	8.91
2	114	418	17:25	2	1.000	A BB	103605.	50.000 PPB	8.91
3	117	514	21:25	3	1.000	A BB	87849.	50.000 PPB	8.91
4	65	277	11:32	1	1.226	A BB	37340.	51.306 PPB	9.14
5	98	488	20:20	3	0.949	A BB	93854.	54.412 PPB	9.69
6	95	638	26:35	3	1.241	A BB	55360.	53.740 PPB	9.58
7	84	163	6:47	1	0.721	A BB	4785.	5.565 PPB	0.99
8	96	215	8:57	1	0.951	A BB	36758.	48.354 PPB	8.62
9	130	361	15:02	2	0.864	A BB	44256.	50.447 PPB	8.99
10	78	370	15:25	2	0.885	A BB	116505.	51.451 PPB	9.17
11	92	492	20:30	3	0.957	A BB	64928.	49.394 PPB	8.80
12	112	517	21:32	3	1.006	A BB	79038.	46.580 PPB	8.30

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	51.31	50.00	1.394	1.359	1.03
5	20:17	1.00	0.949	1.00	54.41	50.00	1.068	0.982	1.09
6	26:27	1.00	1.238	1.00	53.74	50.00	0.630	0.586	1.07
7	6:45	1.01	0.720	1.00	5.57	50.00	0.179	1.605	0.11
8	8:55	1.00	0.951	1.00	48.35	50.00	1.373	1.419	0.97
9	15:00	1.00	0.863	1.00	50.45	50.00	0.427	0.423	1.01
10	15:22	1.00	0.885	1.00	51.45	50.00	1.125	1.093	1.03
11	20:27	1.00	0.957	1.00	49.39	50.00	0.739	0.748	0.99
12	21:30	1.00	1.006	1.00	46.58	50.00	0.900	0.966	0.93

TCA FINISHED, 13 FOUND
FINISHED AT: 12/09/92 8:40:50
Guantitation Report File: 21208R14

Data: 21208R14.TI
12/08/92 18:06:00
Sample: CLP,12017,,B07MK2MSD,L,W,A212017-02C,VOA,MSD
Conds.: PACK/2,21208R01,2BFB1208,21208R07
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C036	ACROLEIN
14	C037	ACRYLONITRILE
15	C040	CARBON DISULFIDE
16	C045	1,1-DICHLOROETHENE
17	C050	1,1-DICHLOROETHANE
18	C053	1,2-DICHLOROETHENE(TOTAL)
19	C060	CHLOROFORM
20	C110	2-BUTANONE
21	C065	1,2-DICHLOROETHANE
22	C115	1,1,1-TRICHLOROETHANE
23	C120	CARBON TETRACHLORIDE
24	C125	VINYL ACETATE
25	C130	BROMODICHLOROMETHANE
26	C140	1,2-DICHLOROPROPANE
27	C143	CIS-1,3-DICHLOROPROPENE
28	C150	TRICHLOROETHENE
29	C155	DIBROMOCHLOROMETHANE
30	C165	BENZENE
31	C160	1,1,2-TRICHLOROETHANE
32	C172	TRANS-1,3-DICHLOROPROPENE
33	C175	2-CHLOROETHOXY ETHENE
34	C180	BROMOFORM
35	C205	4-METHYL-2-PENTANONE
36	C210	2-HEXANONE
37	C225	1,1,2,2-TETRACHLOROETHANE
38	C220	TETRACHLOROETHENE
39	C230	TOLUENE
40	C235	CHLOROBENZENE
41	C240	ETHYL BENZENE
42	C245	STYRENE
43	C250	OP-XYLENE
44	C255	M-XYLENE
45	A170	TRICHLOROFLUOROMETHANE

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000113

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	226	9:25	1	1.000	A BB	26780.	50.000 PPB	8.79
2	114	418	17:25	2	1.000	A BB	103605.	50.000 PPB	8.79
3	117	514	21:25	3	1.000	A BB	87849.	50.000 PPB	8.79
4	65	277	11:32	1	1.226	A BB	37340.	51.306 PPB	9.02
5	98	488	20:20	3	0.949	A BB	93854.	54.412 PPB	9.57
6	95	638	26:35	3	1.241	A BB	55360.	53.740 PPB	9.45
7	NOT FOUND								
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
11	84	163	6:47	1	0.721	A BB	4785.	5.565 PPB	0.98
12	~~43~~	~~178~~	~~7:17~~	~~1~~	~~0.774~~	~~A BB~~	~~1302.~~	~~6.316 PPB~~	~~1.11~~
13	NOT FOUND								
14	NOT FOUND								
15	NOT FOUND								
16	96	215	8:57	1	0.951	A BB	36758.	48.354 PPB	8.50
17	NOT FOUND								
18	NOT FOUND								
19	~~83~~	~~266~~	~~11:05~~	~~1~~	~~1.177~~	~~A BB~~	~~287.~~	~~0.163 PPB~~	~~0.03~~
20	~~43~~	~~277~~	~~11:32~~	~~1~~	~~1.226~~	~~A BB~~	~~630.~~	~~2.099 PPB~~	~~0.37~~
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	130	361	15:02	2	0.864	A BB	44256.	50.447 PPB	8.87
29	NOT FOUND								
30	78	370	15:25	2	0.885	A BB	116505.	51.451 PPB	9.05
31	NOT FOUND								
32	NOT FOUND								
33	NOT FOUND								
34	NOT FOUND								
35	~~43~~	~~432~~	~~18:00~~	~~3~~	~~0.840~~	~~A BB~~	~~348.~~	~~0.571 PPB~~	~~0.10~~
36	~~43~~	~~461~~	~~19:12~~	~~3~~	~~0.897~~	~~A BV~~	~~468.~~	~~1.152 PPB~~	~~0.20~~
37	NOT FOUND								
38	NOT FOUND								
39	92	492	20:30	3	0.957	A BB	64928.	49.394 PPB	8.69
40	112	517	21:32	3	1.006	A BB	79038.	46.580 PPB	8.19
41	NOT FOUND								
42	NOT FOUND								
43	NOT FOUND								
44	NOT FOUND								
45	NOT FOUND								

LS/12-09-92

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	17:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	21:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	11:32	1.00	1.231	1.00	51.31	50.00	1.394	1.359	1.03
5	20:17	1.00	0.949	1.00	54.41	50.00	1.068	0.982	1.09
6	26:27	1.00	1.238	1.00	53.74	50.00	0.630	0.586	1.07
7	1:37		0.173						
8	2:47		0.298						
9	3:40		0.391						

12/11/92

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
10	4:47		0.511						
11	6:45	1.01	0.720	1.00	5.57	50.00	0.179	1.605	0.11
12	7:22	0.99	0.787	0.98	6.32	50.00	0.049	0.385	0.13
13	5:47		0.713						
14	7:05		0.850						
15	7:55		0.844						
16	8:55	1.00	0.951	1.00	48.35	50.00	1.373	1.419	0.97
17	10:00		1.067						
18	10:32		1.124						
19	11:02	1.00	1.178	1.00	0.16	50.00	0.010	2.949	0.00
20	11:30	1.00	1.227	1.00	2.10	50.00	0.024	0.560	0.04
21	11:37		1.240						
22	12:37		0.727						
23	12:55		0.743						
24	12:57		0.746						
25	13:22		0.770						
26	14:25		0.830						
27	14:37		0.842						
28	15:00	1.00	0.863	1.00	50.45	50.00	0.427	0.423	1.01
29	15:35		0.897						
30	15:22	1.00	0.885	1.00	51.45	50.00	1.125	1.093	1.03
31	15:37		0.899						
32	15:37		0.899						
33	16:25		0.945						
34	17:42		1.019						
35	17:57	1.00	0.840	1.00	0.57	50.00	0.004	0.347	0.01
36	19:10	1.00	0.897	1.00	1.15	50.00	0.005	0.231	0.02
37	19:30		0.912						
38	19:25		0.908						
39	20:27	1.00	0.957	1.00	49.39	50.00	0.739	0.748	0.99
40	21:30	1.00	1.006	1.00	46.58	50.00	0.900	0.966	0.93
41	23:32		1.101						
42	28:07		1.316						
43	29:32		1.382						
44	28:22		1.327						
45	6:50		0.863						

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0045426

E-93-22/2978-62
WESTINGHOUSE HANFORD COMPANY
241-T-106 DATA VALIDATION
DISTRIBUTION FORM

28 of 42

SDG: B07MK9
Case #: 12-017
Fraction: SVOA

Document Title Final QA Record

Document Number: _____ Date: 4/15/94

DISTRIBUTION					
M. Baker (HCRL)		D. Mantooth (ERL)		D. Wiley (ERL)	
P. Bartley (ERL)		T. McDonald (HCRL)		N. Wold (ERL)	
Y. Chun (HCSEA)		R. Potter (HCRL)		ERL Project File/J. Pawlowski	
B. Downs (HCSEA)		K. Rolla (HCSEA)		Project File/D. Simpson (HCRL)	
M. Gerboth (HCRL)		C. Sater (ERL)		Duplicate Project File/T. Trevino (HCSEA)	
J. Grover (ERL)		M. Schwarz (ERL)		Westinghouse EDMC	X
L. Hammerle (HCSEA)		A. Shen (HCSEA)			
K. Pool (WHC)					

Project Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

1.1	File Index		1.6.6.3	Plans Doc. Log		3.4	Original Chemical Data
1.2	Distribution Lists		1.6.6.4	Deliverables Doc. Log		3.5	Original Radiochemical Data
1.3	Project Procedures		1.7	Budget			
1.4	Project Modifications		1.7.1	Downloads		4.1	Task Plan
1.5	Staff		1.7.2	M-113s			
1.5.1	Staff Resumes		1.7.3	A-208s		4.2	Data Pkg. Completeness Verif. Checklist
1.5.2	Staff Training		1.7.4	Budget Status		4.3	Data Valididation Calcs./Annotated DP X
1.5.3	Auth. Former Site Employee		1.7.5	Invoices		4.4	Prelim. QA Records
1.6	QA		1.8	Requisitions			
1.6.1	QA Manual		1.9	Meeting Minutes		4.5	Data Valid. & Qual. Summary Rpts.
1.6.2	QA Implementation		1.10	Record of Telecon		4.5.1	Internal Drafts/Comments/Resol.
1.6.3.1	QA Audits-Deliverables		1.11	Progress Reports		4.5.2	WHC Review Draft Comments/Resol.
1.6.3.2	QA Audits-Files		1.12	Subcontractor (HC)		4.5.3	Final Report
1.6.4.1	Audit Resps. - Deliverables					4.6	Weekly Status Reports
1.6.4.2	Audit Resps. - Files		2.1	Incoming Correspondence		4.7	Weekly Management Reports
1.6.5	QA Training		2.2	Outgoing Correspondence			
1.6.6.1	QA Manual Document Log		2.3	Internal Correspondence			
1.6.6.2	Procedure Document Log						
			3.1	Task Order			
			3.2	Sample Lists			
			3.3	Data Validation Procedures			

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COC ✓

WHC-SD-EN-SPP-002,Rev. 1

SEMI-VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-2

PROJECT: 241-T-106	REVIEWER: CL	DATE: 10/20/93
LABORATORY: TMA	CASE: 12-017	SDG: B07MK9
SAMPLES/MATRIX:		
B07MK9 - water		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?:	Yes	No	N/A
Case Narrative		✓		
Data Summary		✓		
Chain-of-Custody		✓		
QC Summary				
Surrogate report		✓		
MS/MSD report		✓		
Blank summary report		✓		
GC/MS tuning report		✓		
Internal standard summary report		✓		
Sample Data				
Sample reports		✓		
TIC reports for each sample		✓		
RIC reports for all samples		✓		
Raw and corrected spectra for all detected results		✓		
Raw and corrected library search data for all reported TIC		✓		
Quantitation and calculation data for all TIC		✓		
Standards Data				
Initial calibration report		✓		
RIC and quantitation reports for initial calibration		✓		
Continuing calibration reports		✓		
RIC and quantitation reports for cont. calibrations		✓		
Internal standard summary report		✓		
Raw QC Data				
Tuning report, spectra and mass lists		✓		
Blank analysis reports		✓		
TIC reports for all blanks		✓		
RIC and quantitation reports for blanks		✓		
Raw and corrected spectra for all detected results in blanks		✓		✓
Raw and corrected library search data for all reported TIC		✓		✓
Quantitation and calculation data for all TIC		✓		
MS/MSD report forms		✓		

Data Package Item	Present?: Yes	No	N/A
RIC and quantitation reports for MS/MSD	✓		
Additional Data			
Moisture/% solids data sheets			✓
Reduction formulae			
Instrument time logs			
Chemist notebook pages			
Sample preparation sheets	✓		

2. HOLDING TIMES

Were all samples extracted within holding time?	Yes	No	N/A
Were all samples analyzed within holding time?	Yes	No	N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a DFTPP tune report present for each applicable 12h period?	Yes	No	N/A
Do all tunes on all instruments meet the tuning criteria?	Yes	No	N/A
Do all tunes on all instruments meet the expanded criteria?	Yes	No	N/A
Has the laboratory made any calculation or transciption errors?	Yes	No	N/A
Have the proper significant figures been reported?	Yes	No	N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects and UJ for nondetects). If all tuning criteria are not met, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments?	Yes	No	N/A
Are all RSD values ≤30% (2/88 SOW)?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤20.5% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A

Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every extraction batch?	Yes	No	N/A
Are compounds reported in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results < 10 times the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is < CRQL. Qualify all remaining sample results < 5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are compounds reported in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results ≤5 times the amount in any valid field blank as nondetects (U) and note the results of the field blanks in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries < 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated data as estimated (J for detects and UJ for nondetects) if at least two semivolatile surrogates are out of specification. If any surrogate is below 10% recovery qualify associated detected results as estimated (J) and associated nondetect results as unusable (R). If method blank surrogates are out of specification and associated sample surrogates are acceptable no qualification is required, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

NO

5.3 PERFORMANCE AUDIT SAMPLES

Are the results for the performance audit samples within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are all RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are > 5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects and UJ for nondetects. If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	N/A
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	Yes	No	N/A
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	N/A
Have all ions > 10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination?	Yes	No	N/A
Are molecular ions in the reference spectrum present in the sample spectrum?	Yes	No	N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R).

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standards for quantitation?	Yes	No	N/A
Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

ACTION: If the quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	Yes	No	N/A
Has the laboratory properly identified and coded all TIC?	Yes	No	N/A

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

HOLDING TIME SUMMARY

SDG:		VALIDATOR: C Ruberis			DATE: 10/19	PAGE 1 OF 1	
COMMENTS: 12-017 GC/MS SEMIVOL							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07MK9	Semi-VOL	12/2/92	12/4/92	12/11/92	6	7	—
					AS 10/27/93		

CALIBRATION DATA SUMMARY

SDG:	VALIDATOR: C Roberts	DATE: 10/15	PAGE 1 OF 1
COMMENTS: 92-017 GC/MS Semi-VOL			
CALIB. TYPE:	INITIAL / CONTINUING	INSTRUMENT:	

CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
12/11/92	ALL VALUES FOR				
	INITIAL AND CONTINUING				
	CALIBRATION ARE				
	WITHIN CLP LIMITS				
	All contractural criteria				
	met.			AS	
	AS 1/26/93			10/27/93	

BLANK AND SAMPLE DATA SUMMARY

SDG:		VALIDATOR: C Bingham				DATE: 10/20		PAGE 1 OF	
COMMENTS: 12-017 GC/MS Semi-VOA									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
SBLK120SC	NONE IN BLANK.								
							AS 10/27/90		

ACCURACY DATA SUMMARY

SDG:	VALIDATOR: C Robertson	DATE: 10/20	PAGE 1 OF 1	
COMMENTS: CASE 12-017 Celgas Semi-vol / NO POSITIVE RESULTS IN SAMPLE				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
MS	4-NITROANIL	86		—
MSD	" "	90		—

HS
10/27/93

PRECISION DATA SUMMARY

SDG:	VALIDATOR: CRUSHRIS	DATE: 10/20/93	PAGE 1 OF 1
COMMENTS: 12-017 Calms Semi-VOC			

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
ALL RPDs WITHIN					
LIMITS					
		AS 10/27/93			

CALCULATION SUMMARY

SDG:	REVIEWER: C. Hughes	DATE: 10/20	PAGE 1 OF 1

COMMENTS: 12-017 GC/MS SEMI-VOL

DIETHYLTHALATE

507mkg ~~18888/10103 = .309 x 25 = 7.73~~

RF / RF25

= .248 / 1.533 x 25 = 4.04

RS
10/27/93

DATA QUALIFICATION SUMMARY

SDG:	VALIDATOR: C Quarles	DATE: 10/20/93	PAGE 1 OF 1
COMMENTS: 12-017 Semi-VOL / ND QUALIFIERS			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
		AS	
		10/27/93	

9613492.4527

000002A

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: Wendy S. Thompson

PROJECT NUMBER 92-336

Company Contact: Wendy S. Thompson

Telephone (509) 376-2153

Project Designation/Sampling Locations: 241-T-106

Borehole Number: 299-W10-196

Collection Date 12-2-92

Time 0945; 0230 ① ②

Ice Chest No. SML200

Field Logbook No. EFL-1053

Bill of Lading/Airbill No. 2519007304

Offsite Property No. ~~W93-0-0122~~ #22

Method of Shipment: AIR (Emery)

Shipped to: TMA-Norcal

Possible Sample Hazards/Remarks: Keep samples chilled. All analysis per lab statement of work.

No hazards detected with field instruments

Sample Identification

) B07MK9

3 x 40 ml., amber glass, water, CLP-VOA

1 x 4000 ml wst 12-2-92
3 x 1000 ml., amber glass, water, CLP- Semi-VOA, IC Anions, SO_4, PO_4, NO_2-NO_3, pH, Cl, F

1 x 1000 ml.,plastic, water (HNO_3), ICP/AA metals, Bi, Hg

1 x 1000 ml., plastic, water (NaOH, ~~ascorbic acid~~) wst 12-2-92, CLP-CN

1 x 250 ml., amber glass, water (H_2SO_4), TOC

1 x 4000 ml., plastic, water ((HNO_3)) gross alpha, gross beta, GEA including Co-60, Ru-106,
1 x 2000 ml., plastic, water (HNO_3) } Ce-144, Cs-137, isotopic U, total U, Am-241, Np-237, Pu-238,-239,-240, Sr-90.

1 x 1000 ml., plastic, water (HCL), Tc-99

2 x 250 ml., amber glass, water, C-14

) B07MK2 - 3x40 ml amber glass water; CLP-VOA

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.S. Thompson / Wendy S Thompson	Kermit Blum	12-4-92 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: TOC aliquot B07MK9 sent to WESTON, INC 12-7-92

9613492.4528

CASE NO. 12-017

SEMIVOLATILES

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
01	B07MK9	91	85	97	90	101	89	93	81	0
02	B07MK9MS	86	85	97	90	97	96	89	80	0
03	B07MK9MSD	94	92	113	97	102	104	97	87	0
04	SBLK1208C	90	83	82	92	101	82	91	77	0

		QC LIMITS	
S1 (NBZ)	= Nitrobenzene-d5	(35-114)	
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)	
S3 (TPH)	= Terphenyl-d14	(33-141)	
S4 (PHL)	= Phenol-d5	(10-110)	
S5 (2FP)	= 2-Fluorophenol	(21-110)	
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)	
S7 (2CP)	= 2-Chlorophenol-d4	(33-110)	(advisory)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(16-110)	(advisory)

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

CFabb
10/20

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix Spike - EPA Sample No.: B07MK9

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	75.00	0	63.70	85	12-110
2-Chlorophenol	75.00	0	61.60	82	27-123
1,4-Dichlorobenzene	50.00	0	33.10	66	36- 97
N-Nitroso-di-n-prop.(1)	50.00	0	36.90	74	41-116
1,2,4-Trichlorobenzene	50.00	0	35.30	71	39- 98
4-Chloro-3-methylphenol	75.00	0	64.30	86	23- 97
Acenaphthene	50.00	0	33.90	68	46-118
4-Nitrophenol	75.00	0	64.40	86 *	10- 80
2,4-Dinitrotoluene	50.00	0	39.40	79	24- 96
Pentachlorophenol	75.00	0	71.50	95	9-103
Pyrene	50.00	0	33.40	67	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	75.00	66.20	88	3	42	12-110
2-Chlorophenol	75.00	65.30	87	6	40	27-123
1,4-Dichlorobenzene	50.00	38.80	78	17	28	36- 97
N-Nitroso-di-n-prop.(1)	50.00	40.50	81	9	38	41-116
1,2,4-Trichlorobenzene	50.00	40.20	80	12	28	39- 98
4-Chloro-3-methylphenol	75.00	65.50	87	1	42	23- 97
Acenaphthene	50.00	36.90	74	8	31	46-118
4-Nitrophenol	75.00	67.20	90 *	5	50	10- 80
2,4-Dinitrotoluene	50.00	42.10	84	6	38	24- 96
Pentachlorophenol	75.00	73.60	98	3	50	9-103
Pyrene	50.00	39.30	79	16	31	26-127

(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: 2 out of 22 outside limits

COMMENTS: CLP,12017,,B07MK9,L,W,A212017-01B,B,EPA
CAP/.32,21211S06,2DFT1211S2,21211S07,21211S09,21211S10

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK1208C

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID: 21211S07 Lab Sample ID: A212017-BLK

Instrument ID: SHERMA Date Extracted: 12/08/92

Matrix: (soil/water) WATER Date Analyzed: 12/11/92

Level:(low/med) LOW Time Analyzed: 1532

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	B07MK9	A212017-01B	21211S08	12/11/92
02	B07MK9MS	A212017-01C	21211S09	12/11/92
03	B07MK9MSD	A212017-01D	21211S10	12/11/92

COMMENTS: CLP,12017,,SBLK1208C,L,W,A212017-BLK,B,BLANK
CAP/.32,21211S06,2DFT1211S2

C Fish
10/20/93

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000124

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID: 2DFT1211S1 DFTPP Injection Date: 12/11/92

Instrument ID: SHERMA DFTPP Injection Time: 0942

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	45.6
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	50.6
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	25.0 - 75.0% of mass 198	48.1
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	6.6
275	10.0 - 30.0% of mass 198	24.8
365	Greater than 0.75% of mass 198	2.63
441	Present, but less than mass 443	8.7
442	40.0 - 110.0% of mass 198	68.6
443	15.0 - 24.0% of mass 442	13.2 (19.2)2

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

THIS CHECK 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	25PPM2SV1103	21211S01	12/11/92	1002
02	SSTD080	40PPM2SV1103	21211S02	12/11/92	1044
03	SSTD120	60PPM2SV1103	21211S03	12/11/92	1130
04	SSTD160	80PPM2SV1103	21211S04	12/11/92	1217
05	SSTD020	10PPM2SV1103	21211S05	12/11/92	1304

OK
10/14

FORM V SV 3/90

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000125

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID: 2DFT1211S2 DFTPP Injection Date: 12/11/92

Instrument ID: SHERMA DFTPP Injection Time: 1432

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	46.9
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	51.8
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	25.0 - 75.0% of mass 198	48.7
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	6.5
275	10.0 - 30.0% of mass 198	23.2
365	Greater than 0.75% of mass 198	2.50
441	Present, but less than mass 443	8.0
442	40.0 - 110.0% of mass 198	64.6
443	15.0 - 24.0% of mass 442	11.7 (18.1)2

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

THIS CHECK 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	25PPM2SV1103	21211S06	12/11/92	1449
02	SBLK1208C	A212017-BLK	21211S07	12/11/92	1532
03	B07MK9	A212017-01B	21211S08	12/11/92	1618
04	B07MK9MS	A212017-01C	21211S09	12/11/92	1704
05	B07MK9MSD	A212017-01D	21211S10	12/11/92	1750

OK
CRH
10/13/93

FORM V SV

3/90

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8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY 000126

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID (Standard): 21211S06 Date Analyzed: 12/11/92

Instrument ID: SHERMA Time Analyzed: 1449

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STD	25542	9.25	103670	12.32	66066	16.84
	UPPER LIMIT	51084	9.75	207340	12.82	132132	17.34
	LOWER LIMIT	12771	8.75	51835	11.82	33033	16.34
	EPA SAMPLE NO.						
01	B07MK9	26458	9.27	100620	12.34	61018	16.85
02	B07MK9MS	26240	9.27	99444	12.32	64242	16.85
03	B07MK9MSD	24078	9.27	91060	12.34	57232	16.87
04	SBLK1208C	27932	9.25	102802	12.32	60378	16.84

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

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

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

CDZ
10/28

FORM VIII SV-1 3/90

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000127

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Lab File ID (Standard): 21211S06 Date Analyzed: 12/11/92

Instrument ID: SHERMA Time Analyzed: 1449

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	114628	20.54	118750	26.74	76525	31.01
	UPPER LIMIT	229256	21.04	237500	27.24	153050	31.51
	LOWER LIMIT	57314	20.04	59375	26.24	38262	30.51
	EPA SAMPLE NO.						
01	B07MK9	98100	20.54	74914	26.74	55796	31.01
02	B07MK9MS	105932	20.54	86098	26.72	63860	31.01
03	B07MK9MSD	93848	20.54	67096	26.74	53354	31.01
04	SBLK1208C	93956	20.54	73036	26.72	58501	31.01

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

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

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

CRim
10/19

FORM VIII SV-2 3/90

9613492.4536

000125

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07MK9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01B

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S08

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	25	U

9613492.4537

000129

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07MK9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01B

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S08

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	4	J
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

9613492.4538

000130

EPA SAMPLE NO.

B07MK9

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01B

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S08

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

Number TICs found: 0

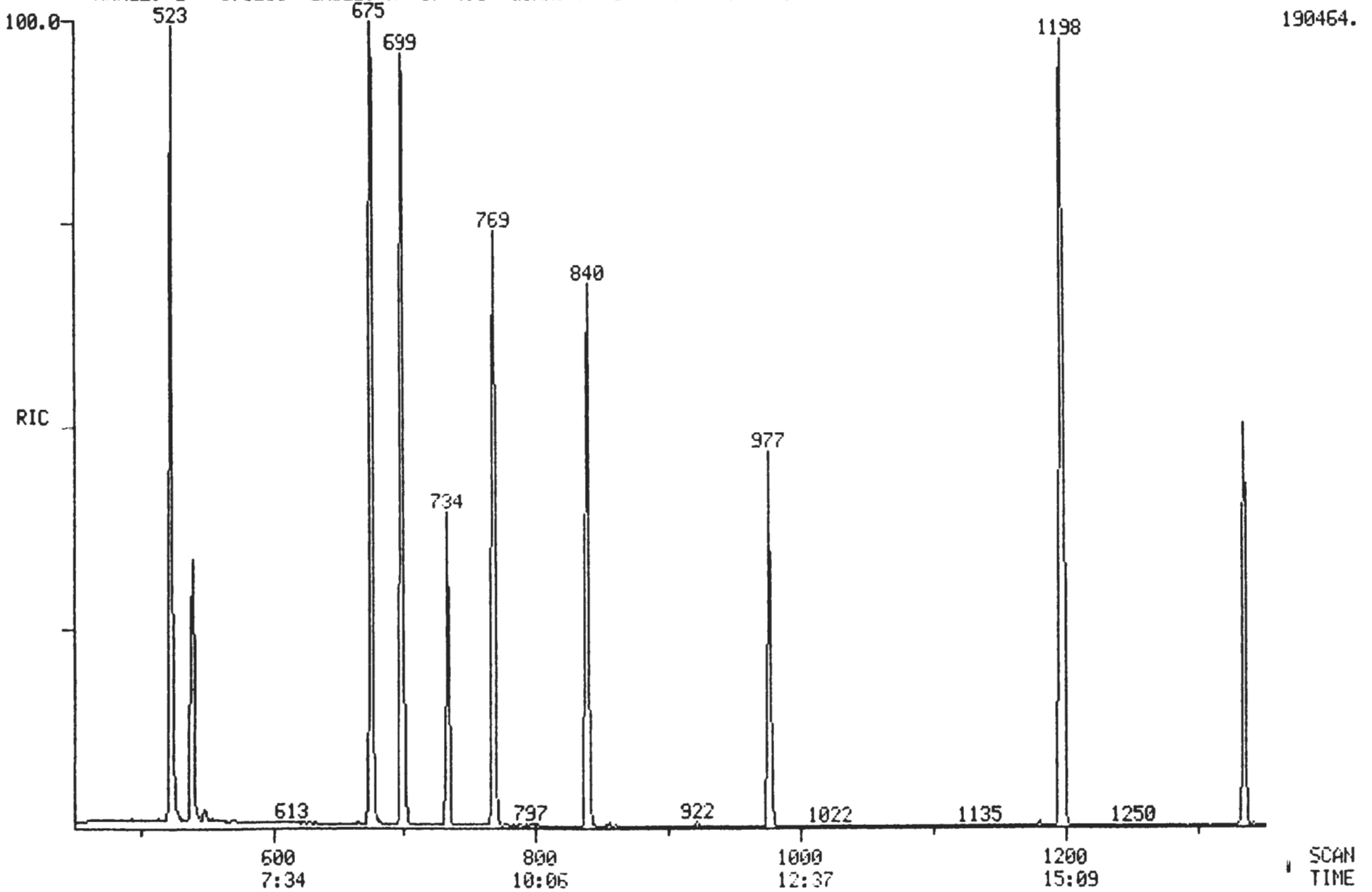
CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

000131

RIC
12/11/92 16:18:00
SAMPLE: CLP,12017,,B07MK9,L,W,A212017-01B,B,EPA
CONDS.: CAP/.32,21211S06,2DFT1211S2,21211S07,21211S09,21211S10
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

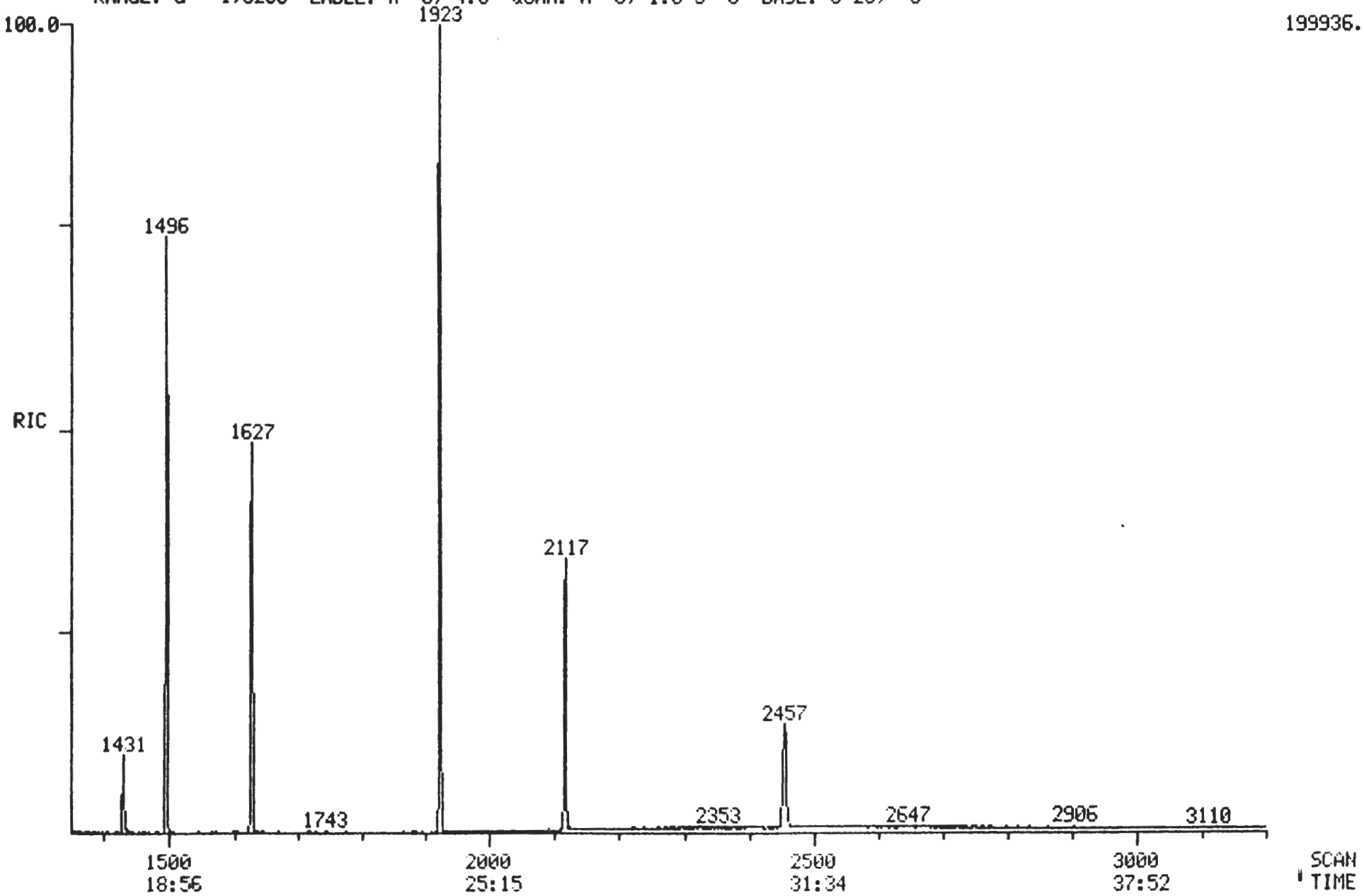
DATA: 21211S08 #1 SCANS 450 TO 1350
CALI: 21211S08 #3



96139492.1539

0001132

RIC DATA: 21211S08 #1 SCANS 1350 TO 3200
12/11/92 16:18:00 CALI: 21211S08 #3
SAMPLE: CLP,12017,,B07MK9,L,W,A212017-01B,B,EPA
CONDS.: CAP/.32,21211S06,2DFT121152,21211S07,21211S09,21211S10
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



96/4492.0540

Quantitation Report File: 21211S08

Data: 21211S08.TI
12/11/92 16:18:00
Sample: CLP,12017,,B07MK9,L,W,A212017-01B,B,EPA
Conds.: CAP/.32,21211S06,2DFT1211S2,21211S07,21211S09,21211S10
Formula: 1L:1ML Instrument: SHERMA Weight: 0.000
Submitted by: 21211S06 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name
1	CI30 *IS1* 1,4-DICHLOROBENZENE-D4
2	CI40 *IS2* NAPHTHALENE-D8
3	CI50 *IS3* ACENAPTHENE-D8
4	CI60 *IS4* PHENANTHRENE-D10
5	CI70 *IS5* CHRYSENE-D12
6	CI75 *IS6* PERYLENE-D12
7	CS50 *SU1* 2-FLUOROPHENOL
8	CS45 *SU2* PHENOL-D5
9	CS55 *SU3* 2,4,6,-TRIBROMOPHENOL
10	CS20 *SU4* NITROBENZENE-D5
11	CS25 *SU5* 2-FLUOROBIPHENYL
12	CS30 *SU6* TERPHENYL-D14
13	CS70 2-CHLOROPHENOL-D4
14	CS75 1,2-DICHLOROBENZENE-D4
15	C580 DIETHYLPHTHALATE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	152	734	9:16	1	1.000	A BB	26458.	20.000 NG/UL	3.45
2	136	977	12:20	2	1.000	A BB	100620.	20.000 NG/UL	3.45
3	164	1335	16:51	3	1.000	A BB	61018.	20.000 NG/UL	3.45
4	188	1627	20:32	4	1.000	A BV	98100.	20.000 NG/UL	3.45
5	240	2117	26:44	5	1.000	A BB	74914.	20.000 NG/UL	3.45
6	264	2456	31:00	6	1.000	A BB	55796.	20.000 NG/UL	3.45
7	112	523	6:36	1	0.713	A BB	109762.	75.605 NG/UL	13.05
8	99	675	8:31	1	0.920	A BB	143428.	67.233 NG/UL	11.61
9	330	1495	18:52	3	1.120	A BB	43804.	66.411 NG/UL	11.47
10	82	840	10:36	2	0.860	A BB	110886.	45.297 NG/UL	7.82
11	172	1198	15:07	3	0.897	A BB	147997.	42.415 NG/UL	7.32
12	244	1923	24:17	5	0.908	A BB	177122.	48.271 NG/UL	8.33
13	132	699	8:49	1	0.952	A BB	117184.	69.352 NG/UL	11.97
14	152	769	9:42	1	1.048	A BB	50532.	40.555 NG/UL	7.00
15	149	1431	18:04	3	1.072	A BB	18888.	4.039 NG/UL	0.70

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:15	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
2	12:19	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
3	16:50	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
4	20:32	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
5	26:44	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
6	31:00	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
7	6:35	1.00	0.712	1.00	75.61	25.00	3.319	1.097	3.02
8	8:31	1.00	0.920	1.00	67.23	25.00	4.337	1.613	2.69
9	18:52	1.00	1.120	1.00	66.41	25.00	0.574	0.216	2.66

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000134

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
10	10:36	1.00	0.860	1.00	45.30	25.00	0.882	0.487	1.81
11	15:06	1.00	0.897	1.00	42.42	25.00	1.940	1.144	1.70
12	24:16	1.00	0.908	1.00	48.27	25.00	1.891	0.980	1.93
13	8:49	1.00	0.952	1.00	69.35	25.00	3.543	1.277	2.77
14	9:42	1.00	1.048	1.00	40.55	25.00	1.528	0.942	1.62
15	18:04	1.00	1.073	1.00	4.04	25.00	0.248	1.533	0.16

Quantitation Report File: 21211S08

Data: 21211S08.TI
12/11/92 16:18:00
Sample: CLP,12017,,B07MK9,L,W,A212017-01B,B,EPA
Conds.: CAP/.32,21211S06,2DFT1211S2,21211S07,21211S09,21211S10
Formula: 1L:1ML Instrument: SHERMA Weight: 0.000
Submitted by: 21211S06 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI30	*IS1* 1,4-DICHLOROBENZENE-D4
2	CI40	*IS2* NAPHTHALENE-D8
3	CI50	*IS3* ACENAPTHENE-D8
4	CI60	*IS4* PHENANTHRENE-D10
5	CI70	*IS5* CHRYSENE-D12
6	CI75	*IS6* PERYLENE-D12
7	CS50	*SU1* 2-FLUOROPHENOL
8	CS45	*SU2* PHENOL-D5
9	CS55	*SU3* 2,4,6,-TRIBROMOPHENOL
10	CS20	*SU4* NITROBENZENE-D5
11	CS25	*SU5* 2-FLUOROBIPHENYL
12	CS30	*SU6* TERPHENYL-D14
13	CS70	2-CHLOROPHENOL-D4
14	CS75	1,2-DICHLOROBENZENE-D4
15	C315	PHENOL
16	C325	BIS(2-CHLOROETHYL)ETHER
17	C330	2-CHLOROPHENOL
18	C335	1,3-DICHLOROBENZENE
19	C340	1,4-DICHLOROBENZENE
20	C345	BENZYL ALCOHOL
21	C350	1,2-DICHLOROBENZENE
22	C355	2-METHYLPHENOL
23	C360	BIS(2-CHLOROISOPROPYL)ETHER
24	C365	4-METHYLPHENOL
25	C370	N-NITROSO-DI-N-PROPYLAMINE
26	C375	HEXACHLOROETHANE
27	C410	NITROBENZENE
28	C415	ISOPHORONE
29	C420	2-NITROPHENOL
30	C425	2,4-DIMETHYLPHENOL
31	C435	BIS(2-CHLOROETHOXY)METHANE
32	C430	BENZOIC ACID
33	C440	2,4-DICHLOROPHENOL
34	C445	1,2,4-TRICHLOROBENZENE
35	C450	NAPHTHALENE
36	C455	4-CHLOROANILINE
37	C460	HEXACHLOROBUTADIENE
38	C465	4-CHLORO-3-METHYLPHENOL
39	C470	2-METHYLNAPHTHALENE
40	C510	HEXACHLOROCYCLOPENTADIENE
41	C515	2,4,6-TRICHLOROPHENOL
42	C520	2,4,5-TRICHLOROPHENOL
43	C525	2-CHLORONAPHTHALENE
44	C530	2-NITROANILINE
45	C535	DIMETHYL PHTHALATE
46	C540	ACENAPHTHYLENE
47	C545	3-NITROANILINE

9613492.4544

000136

No	Name
48	C550 ACENAPHTHENE
49	C555 2,4-DINITROPHENOL
50	C560 4-NITROPHENOL

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hgh)	Amount	%Tot
1	152	734	9:16	1	1.000	A BB	26458.	20.000 NG/UL	3.44
2	136	977	12:20	2	1.000	A BB	100620.	20.000 NG/UL	3.44
3	164	1335	16:51	3	1.000	A BB	61018.	20.000 NG/UL	3.44
4	188	1627	20:32	4	1.000	A BV	98100.	20.000 NG/UL	3.44
5	240	2117	26:44	5	1.000	A BB	74914.	20.000 NG/UL	3.44
6	264	2456	31:00	6	1.000	A BB	55796.	20.000 NG/UL	3.44
7	112	523	6:36	1	0.713	A BB	109762.	75.605 NG/UL	13.02
8	99	675	8:31	1	0.920	A BB	143428.	67.233 NG/UL	11.58
9	330	1495	18:52	3	1.120	A BB	43804.	66.411 NG/UL	11.44
10	82	840	10:36	2	0.860	A BB	110886.	45.297 NG/UL	7.80
11	172	1198	15:07	3	0.897	A BB	147997.	42.415 NG/UL	7.30
12	244	1923	24:17	5	0.908	A BB	177122.	48.271 NG/UL	8.31
13	132	699	8:49	1	0.952	A BB	117184.	69.352 NG/UL	11.94
14	152	769	9:42	1	1.048	A BB	50532.	40.555 NG/UL	6.98
~~15~~	~~94~~	~~677~~	~~8:33~~	~~1~~	~~0.922~~	~~A BB~~	~~2254.~~	~~0.879 NG/UL~~	~~0.15~~
16	NOT FOUND								
17	NOT FOUND								
18	NOT FOUND								
19	NOT FOUND								
20	NOT FOUND								
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	NOT FOUND								
29	NOT FOUND								
30	NOT FOUND								
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32	NOT FOUND								
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34	NOT FOUND								
35	NOT FOUND								
36	NOT FOUND								
37	NOT FOUND								
38	NOT FOUND								
39	NOT FOUND								
40	NOT FOUND								
41	NOT FOUND								
42	NOT FOUND								
43	NOT FOUND								
44	NOT FOUND								
45	NOT FOUND								
46	NOT FOUND								
47	NOT FOUND								
48	NOT FOUND								
49	NOT FOUND								
50	NOT FOUND								

12/14/92

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:15	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
2	12:19	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
3	16:51	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
4	20:32	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
5	26:44	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
6	31:00	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
7	6:35	1.00	0.712	1.00	75.61	25.00	3.319	1.097	3.02
8	8:31	1.00	0.920	1.00	67.23	25.00	4.337	1.613	2.69
9	18:52	1.00	1.119	1.00	66.41	25.00	0.574	0.216	2.66
10	10:36	1.00	0.860	1.00	45.30	25.00	0.882	0.487	1.81
11	15:07	1.00	0.897	1.00	42.42	25.00	1.940	1.144	1.70
12	24:16	1.00	0.908	1.00	48.27	25.00	1.891	0.980	1.93
13	8:49	1.00	0.952	1.00	69.35	25.00	3.543	1.277	2.77
14	9:42	1.00	1.048	1.00	40.55	25.00	1.528	0.942	1.62
15	8:32	1.00	0.922	1.00	0.88	25.00	0.068	1.939	0.04
16	8:43		0.941						
17	8:51		0.956						
18	9:11		0.992						
19	9:18		1.004						
20	9:36		1.037						
21	9:43		1.050						
22	9:53		1.068						
23	9:58		1.078						
24	10:14		1.106						
25	10:18		1.113						
26	10:28		1.131						
27	10:38		0.863						
28	11:12		0.909						
29	11:25		0.926						
30	11:31		0.934						
31	11:45		0.954						
32	11:46		0.955						
33	12:00		0.973						
34	12:13		0.992						
35	12:22		1.004						
36	12:32		1.017						
37	12:51		1.043						
38	13:46		1.117						
39	14:08		1.147						
40	14:43		0.873						
41	14:54		0.884						
42	14:59		0.889						
43	15:22		0.912						
44	15:41		0.930						
45	16:14		0.963						
46	16:27		0.976						
47	16:44		0.993						
48	16:56		1.004						
49	17:00		1.008						
50	17:09		1.018						

Quantitation Report File: 21211S08

Data: 21211S08.TI
12/11/92 16:18:00
Sample: CLP,12017,,B07MK9,L,W,A212017-01B,B,EPA
Conds.: CAP/.32,21211S06,2DFT1211S2,21211S07,21211S09,21211S10
Formula: 1L:1ML Instrument: SHERMA Weight: 0.000
Submitted by: 21211S06 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
51	C565	DIBENZOFURAN
52	C575	2,6-DINITROTOLUENE
53	C580	DIETHYLPHTHALATE
54	C570	2,4-DINITROTOLUENE
55	C590	FLUORENE
56	C585	4-CHLOROPHENYL-PHENYLETHER
57	C595	4-NITROANILINE
58	C610	4,6-DINITRO-2-METHYLPHENOL
59	C615	N-NITROSODIPHENYLAMINE
60	C625	4-BROMOPHENYL-PHENYLETHER
61	C630	HEXACHLOROBENZENE
62	C635	PENTACHLOROPHENOL
63	C640	PHENANTHRENE
64	C645	ANTHRACENE
65	C648	CARBAZOLE
66	C650	DI-N-BUTYLPHTHALATE
67	C655	FLUORANTHENE
68	C715	PYRENE
69	C720	BUTYLBENZYLPHTHALATE
70	C725	3,3'-DICHLOROBENZIDINE
71	C730	BENZO(A)ANTHRACENE
72	C740	CHRYSENE
73	C735	BIS(2-ETHYLHEXYL)PHTHALATE
74	C760	DI-N-OCTYL PHTHALATE
75	C765	BENZO(B)FLUROANTHENE
76	C770	BENZO(K)FLUORANTHENE
77	C775	BENZO(A)PYRENE
78	C780	INDENO(1,2,3-CD)PYRENE
79	C785	DIBENZO(A,H)ANTHRACENE
80	C790	BENZO(GHI)PERYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
51	NOT FOUND								
52	NOT FOUND								
53	149	1431	18:04	3	1.072	A BB	18888.	4.039 NG/UL	0.70
54	NOT FOUND								
55	NOT FOUND								
56	NOT FOUND								
57	NOT FOUND								
58	NOT FOUND								
59	NOT FOUND								
60	NOT FOUND								
61	NOT FOUND								
62	NOT FOUND								
63	NOT FOUND								

12/14/92

9613492.4547

000139

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
64	NOT FOUND								
65	NOT FOUND								
~~66~~	~~149~~	~~1743~~	~~22:00~~	~~4~~	~~1.071~~	~~A BB~~	~~888.~~	~~0.099 NG/UL~~	~~0.02~~
67	NOT FOUND								
68	NOT FOUND								
69	NOT FOUND								
70	NOT FOUND								
71	NOT FOUND								
72	NOT FOUND								
73	NOT FOUND								
74	NOT FOUND								
75	NOT FOUND								
76	NOT FOUND								
77	NOT FOUND								
78	NOT FOUND								
79	NOT FOUND								
80	NOT FOUND								

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
51	17:21		1.029						
52	16:23		0.972						
53	18:04	1.00	1.072	1.00	4.04	25.00	0.248	1.533	0.16
54	17:24		1.032						
55	18:14		1.082						
56	18:14		1.082						
57	18:19		1.087						
58	18:27		0.899						
59	18:31		0.902						
60	19:26		0.946						
61	19:48		0.965						
62	20:13		0.985						
63	20:35		1.003						
64	20:42		1.009						
65	21:03		1.026						
66	22:00	1.00	1.071	1.00	0.10	25.00	0.007	1.835	0.00
67	23:24		1.140						
68	23:55		0.895						
69	25:26		0.951						
70	26:37		0.996						
71	26:41		0.999						
72	26:47		1.002						
73	26:50		1.004						
74	28:27		0.917						
75	29:41		0.957						
76	29:45		0.960						
77	30:49		0.994						
78	36:08		1.165						
79	36:16		1.170						
80	37:41		1.215						

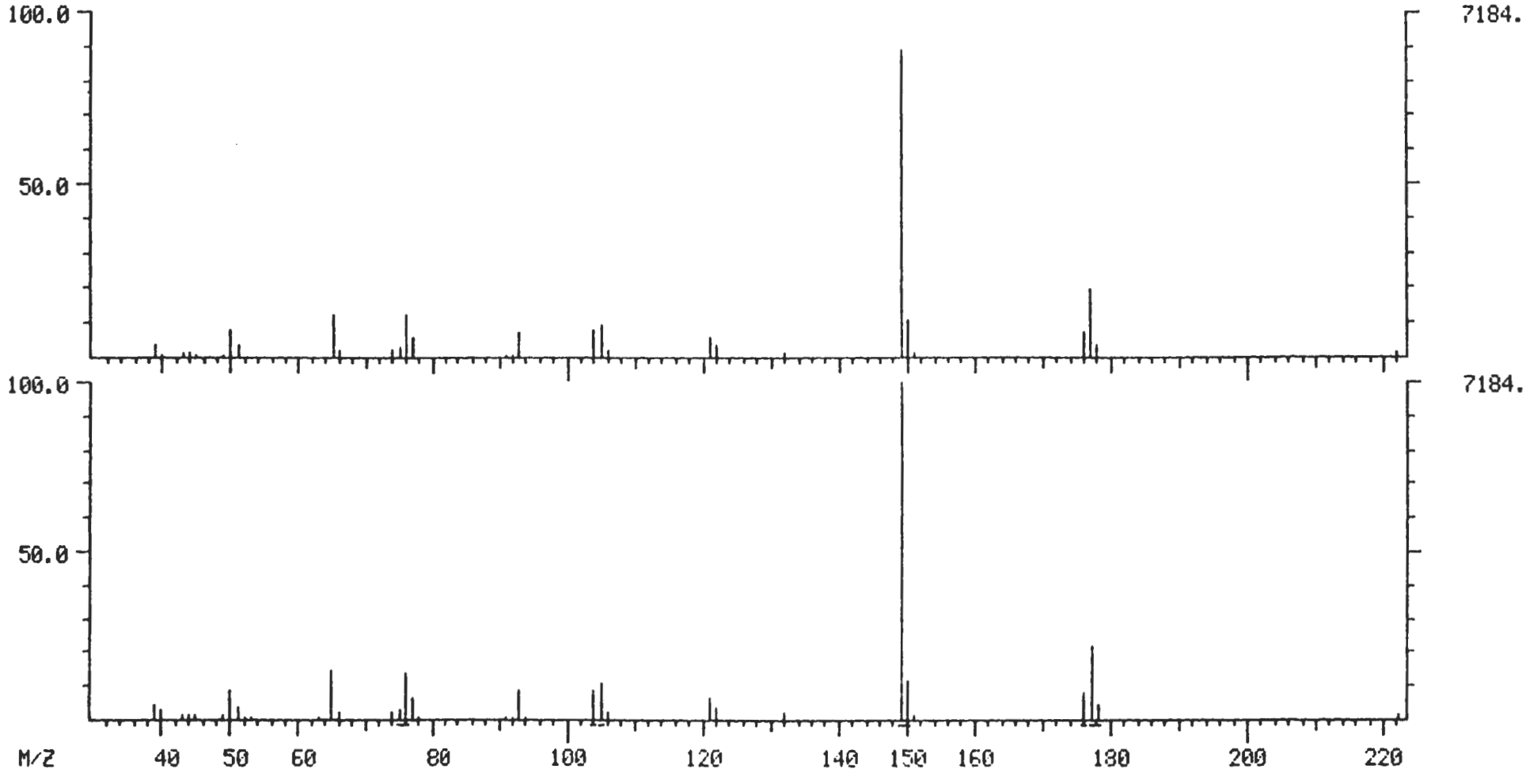
12/14/92

000140

DUAL MASS SPECTRUM
12/11/92 16:18:00 + 18:04
SAMPLE: CLP,12017,,B07MK9,L,W,A212017-01B,B,EPA
CONDS.: CAP/.32,21211S06,2DFT1211S2,21211S07,21211S09,21211S10
TEMP: 205 DEG. C
ENHANCED (S 15B 2N 0T)

DATA: 21211S08 #1431
CALI: 21211S08 #3

BASE M/Z: 149/ 149
RIC: 16704./ 19040.



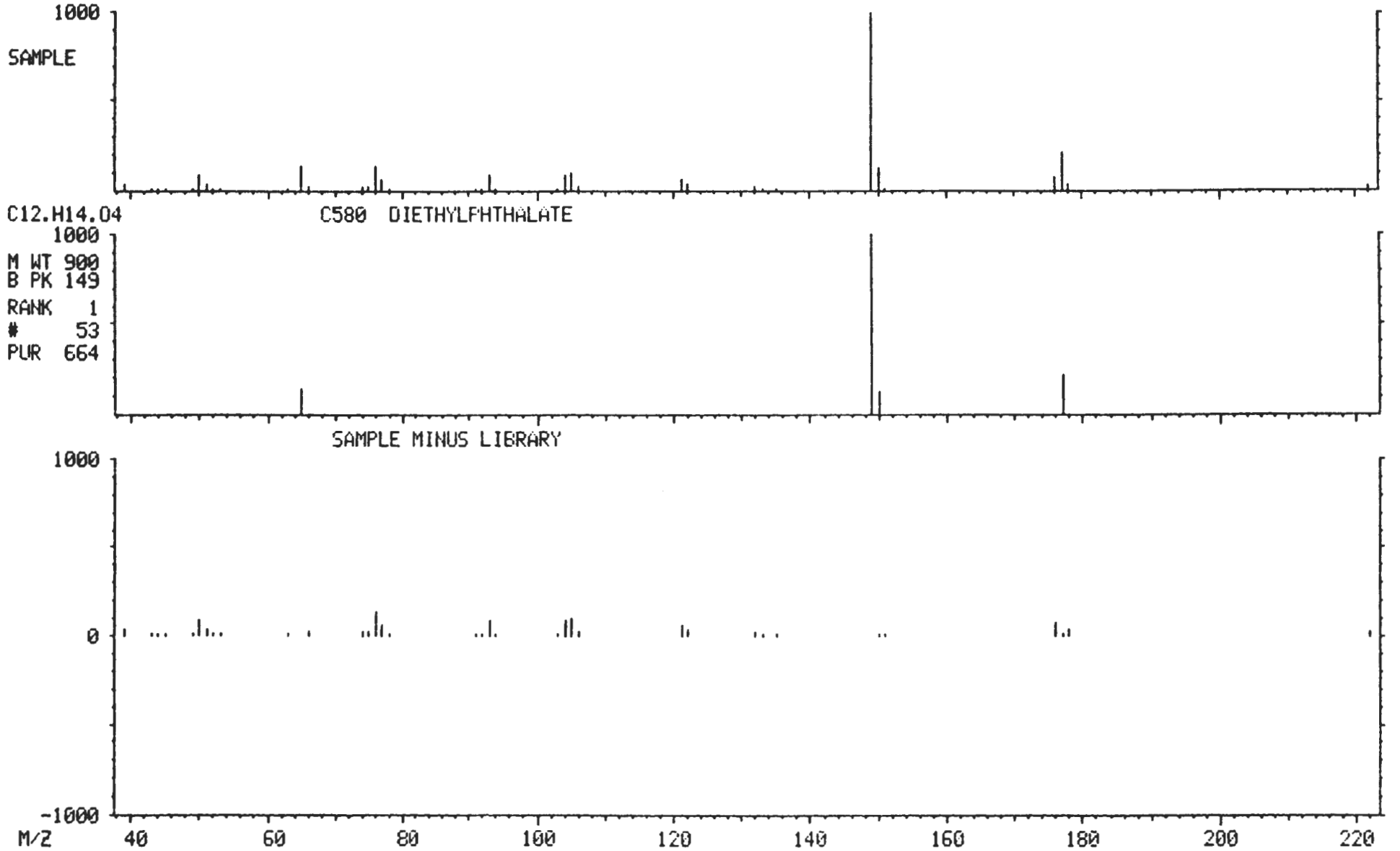
96A392.MS10

000141

MID LIBRARY SEARCH (LIBRARYJY)
12/11/92 16:18:00 + 18:04
SAMPLE: CLP,12017,,B07MK9,L,W,A212017-01B,B,EPA
CONDS.: CAP/.32,21211S06,2DFT121152,21211S07,21211S09,21211S10
ENHANCED (S 15B 2N 0T)

DATA: 21211S08 #1431
CALI: 21211S08 # 3

BASE M/Z: 149
RIC: 16608.



01534 2/12/96

6B
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Instrument ID: SHERMA Calibration Date(s): 12/11/92 12/11/92

Calibration Times: 1002 1304

LAB FILE ID: RRF20 = 21211S05 RRF50 = 21211S01
RRF80 = 21211S02 RRF120= 21211S03 RRF160= 21211S04

COMPOUND		RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Phenol	*	1.961	1.946	2.028	1.925	1.794	1.931	4.4*
bis(2-Chloroethyl)Ether	*	1.753	1.696	1.795	1.740	1.656	1.728	3.1*
2-Chlorophenol	*	1.462	1.475	1.490	1.406	1.359	1.438	3.8*
1,3-Dichlorobenzene	*	1.584	1.592	1.580	1.482	1.421	1.532	5.0*
1,4-Dichlorobenzene	*	1.623	1.632	1.640	1.546	1.532	1.595	3.2*
1,2-Dichlorobenzene	*	1.520	1.523	1.546	1.474	1.576	1.528	2.5*
2-Methylphenol	*	1.349	1.328	1.408	1.385	1.482	1.390	4.3*
2,2'-oxybis(1-Chloropropane		2.981	2.758	3.089	3.235	3.563	3.125	9.6
4-Methylphenol	*	1.410	1.402	1.498	1.518	1.652	1.496	6.8*
N-Nitroso-Di-n-Propylamine	*	1.532	1.484	1.618	1.649	1.779	1.612	7.1*
Hexachloroethane	*	0.780	0.793	0.829	0.818	0.888	0.822	5.1*
Nitrobenzene	*	0.498	0.501	0.518	0.500	0.486	0.501	2.3*
Isophorone	*	0.891	0.916	0.968	0.943	0.910	0.926	3.3*
2-Nitrophenol	*	0.190	0.201	0.212	0.204	0.197	0.201	4.1*
2,4-Dimethylphenol	*	0.294	0.279	0.301	0.285	0.280	0.288	3.3*
bis(2-Chloroethoxy)Methane	*	0.580	0.596	0.621	0.603	0.585	0.597	2.7*
2,4-Dichlorophenol	*	0.301	0.329	0.332	0.310	0.295	0.313	5.3*
1,2,4-Trichlorobenzene	*	0.340	0.368	0.359	0.328	0.311	0.341	6.8*
Naphthalene	*	1.153	1.202	1.275	1.252	1.123	1.201	5.3*
4-Chloroaniline		0.477	0.519	0.551	0.559	0.493	0.520	6.8
Hexachlorobutadiene		0.231	0.253	0.246	0.233	0.202	0.233	8.4
4-Chloro-3-Methylphenol	*	0.337	0.369	0.383	0.379	0.362	0.366	5.0*
2-Methylnaphthalene	*	0.691	0.735	0.743	0.707	0.674	0.710	4.1*
Hexachlorocyclopentadiene		0.429	0.473	0.463	0.406	0.388	0.432	8.4
2,4,6-Trichlorophenol	*	0.358	0.383	0.388	0.342	0.358	0.366	5.2*
2,4,5-Trichlorophenol	*	0.372	0.399	0.389	0.337	0.319	0.363	9.4*
2-Chloronaphthalene	*	1.155	1.202	1.194	1.079	1.066	1.139	5.6*
2-Nitroaniline		0.488	0.528	0.568	0.552	0.544	0.536	5.7
Dimethylphthalate		1.356	1.449	1.482	1.364	1.288	1.388	5.6
Acenaphthylene	*	1.935	1.984	2.075	1.899	1.762	1.931	6.0*
3-Nitroaniline		0.312	0.335	0.389	0.388	0.372	0.359	9.5
Acenaphthene	*	1.196	1.252	1.250	1.153	1.067	1.184	6.5*
2,4-Dinitrophenol		0.128	0.182	0.218	0.212	0.206	0.189	19.5
4-Nitrophenol		0.173	0.212	0.225	0.209	0.197	0.203	9.7
Dibenzofuran	*	1.578	1.678	1.723	1.607	1.490	1.615	5.6*
2,4-Dinitrotoluene	*	0.392	0.448	0.495	0.475	0.403	0.443	10.1*
2,6-Dinitrotoluene	*	0.288	0.312	0.331	0.325	0.270	0.305	8.4*

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

9613492.4551

000143

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Instrument ID: SHERMA Calibration Date(s): 12/11/92 12/11/92

Calibration Times: 1002 1304

LAB FILE ID: RRF20 = 21211S05 RRF50 = 21211S01
RRF80 = 21211S02 RRF120= 21211S03 RRF160= 21211S04

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Diethylphthalate	1.372	1.518	1.582	1.492	1.365	1.466	6.5
4-Chlorophenyl-phenylether *	0.721	0.779	0.773	0.692	0.618	0.717	9.2*
55 Fluorene *	1.370	1.451	1.487	1.355	1.234	1.379	7.1*
4-Nitroaniline	0.279	0.323	0.366	0.370	0.365	0.341	11.6
4,6-Dinitro-2-methylphenol	0.125	0.159	0.181	0.181	0.174	0.164	14.4
N-Nitrosodiphenylamine (1)	0.614	0.646	0.671	0.655	0.617	0.641	3.8
4-Bromophenyl-phenylether *	0.265	0.292	0.292	0.281	0.255	0.277	6.0*
Hexachlorobenzene *	0.282	0.303	0.309	0.291	0.270	0.291	5.4*
Pentachlorophenol *	0.138	0.169	0.186	0.181	0.172	0.169	11.1*
Phenanthrene *	1.250	1.322	1.352	1.217	1.086	1.245	8.4*
Anthracene *	1.204	1.264	1.345	1.169	0.975	1.191	11.6*
Carbazole	0.922	0.999	1.134	1.013	0.891	0.992	9.5
Di-n-Butylphthalate	1.549	1.802	2.073	1.747	1.479	1.730	13.5
Fluoranthene *	1.218	1.414	1.495	1.246	1.075	1.290	12.9*
100 Pyrene *	1.447	1.439	1.486	1.301	1.210	1.377	8.5*
Butylbenzylphthalate	0.711	0.739	0.776	0.743	0.726	0.739	3.3
3,3'-Dichlorobenzidine	0.326	0.320	0.300	0.296	0.304	0.309	4.2
Benzo(a)Anthracene *	1.278	1.310	1.293	1.238	1.185	1.261	4.0*
bis(2-Ethylhexyl)Phthalate	1.157	1.304	1.365	1.192	1.060	1.216	9.9
125 Chrysene *	1.229	1.273	1.185	1.055	0.886	1.126	13.9*
Di-n-Octyl Phthalate	1.943	2.523	2.698	2.492	2.120	2.355	13.2
Benzo(b)Fluoranthene *	1.581	2.025	1.973	1.861	1.649	1.818	10.8*
Benzo(k)Fluoranthene *	1.297	1.540	1.456	1.498	1.152	1.389	11.6*
Benzo(a)Pyrene *	1.253	1.573	1.488	1.433	1.285	1.406	9.6*
Indeno(1,2,3-cd)Pyrene *	1.048	1.232	1.115	0.960	0.904	1.052	12.3*
Dibenz(a,h)Anthracene *	0.936	1.155	1.064	0.897	1.257	1.062	14.1*
Benzo(g,h,i)Perylene *	0.922	1.027	0.950	1.234	0.889	1.004	13.8*
Nitrobenzene-d5 *	0.440	0.470	0.482	0.480	0.469	0.468	3.6*
2-Fluorobiphenyl *	1.166	1.202	1.158	1.061	1.044	1.126	6.2*
Terphenyl-d14 *	0.960	0.971	0.976	0.907	0.850	0.933	5.8*
Phenol-d5 *	1.590	1.602	1.638	1.612	1.452	1.579	4.6*
2-Fluorophenol *	1.022	1.266	1.276	1.242	1.110	1.183	9.5*
2,4,6-Tribromophenol	0.190	0.224	0.235	0.241	0.224	0.223	8.9
2-Chlorophenol-d4 *	1.210	1.283	1.277	1.264	1.178	1.242	3.7*
1,2-Dichlorobenzene-d4 *	0.668	0.916	0.937	0.927	0.959	0.881	13.7*

(1) Cannot be separated from Diphenylamine
* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

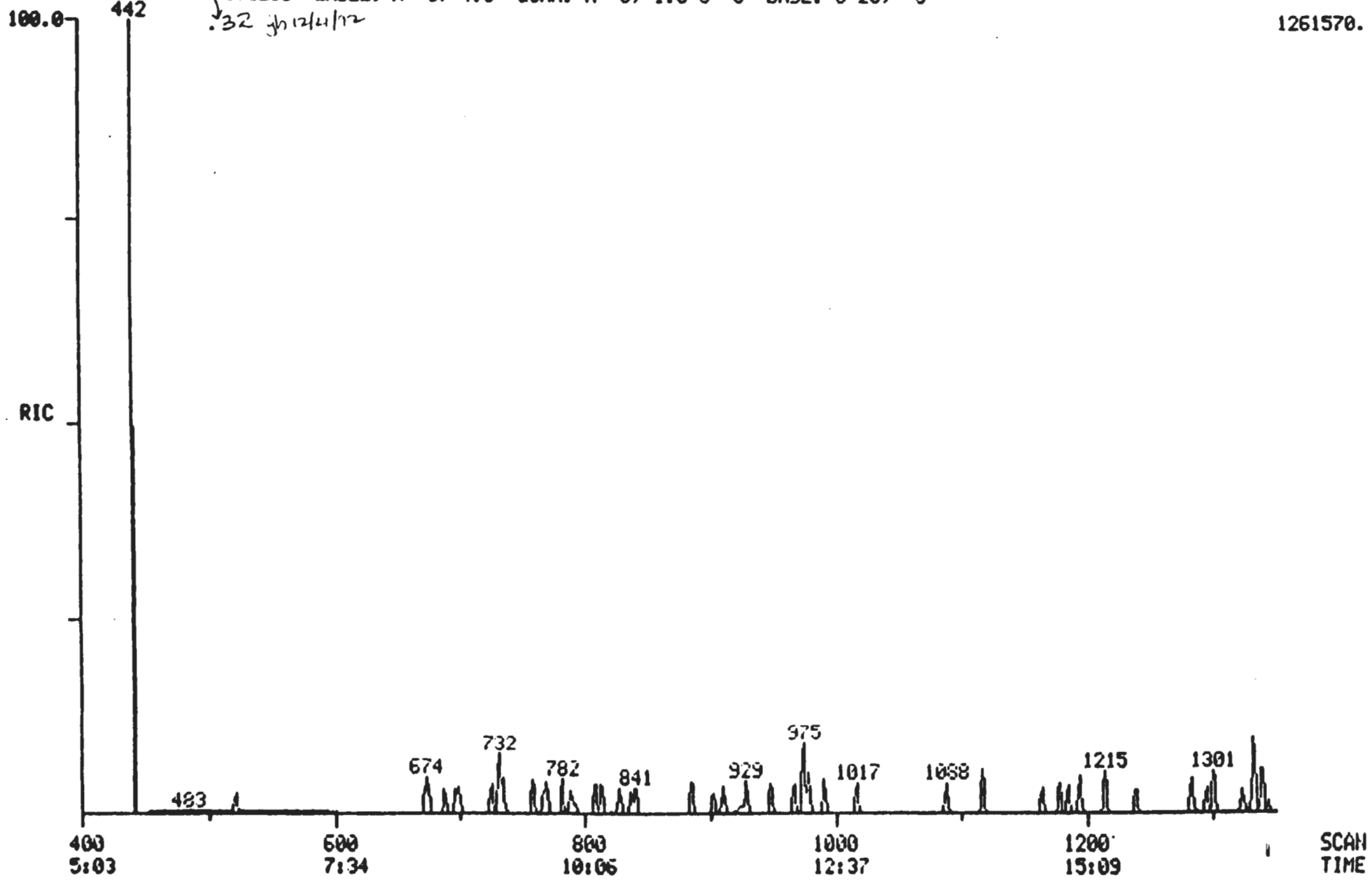
GL
CDuzin
10/19/93

000144

RIC
12/11/92 13:04:00
SAMPLE: CLP,,,SSTD020,,,10PPM2SV1103,SV,IC-020
CONDS.: CAP/,25,,2DFT1211S1
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 21211S05 #1 SCANS 400 TO 1350
CALI: 21211S05 #3

.32 jh 12/21/92



9613492.4552

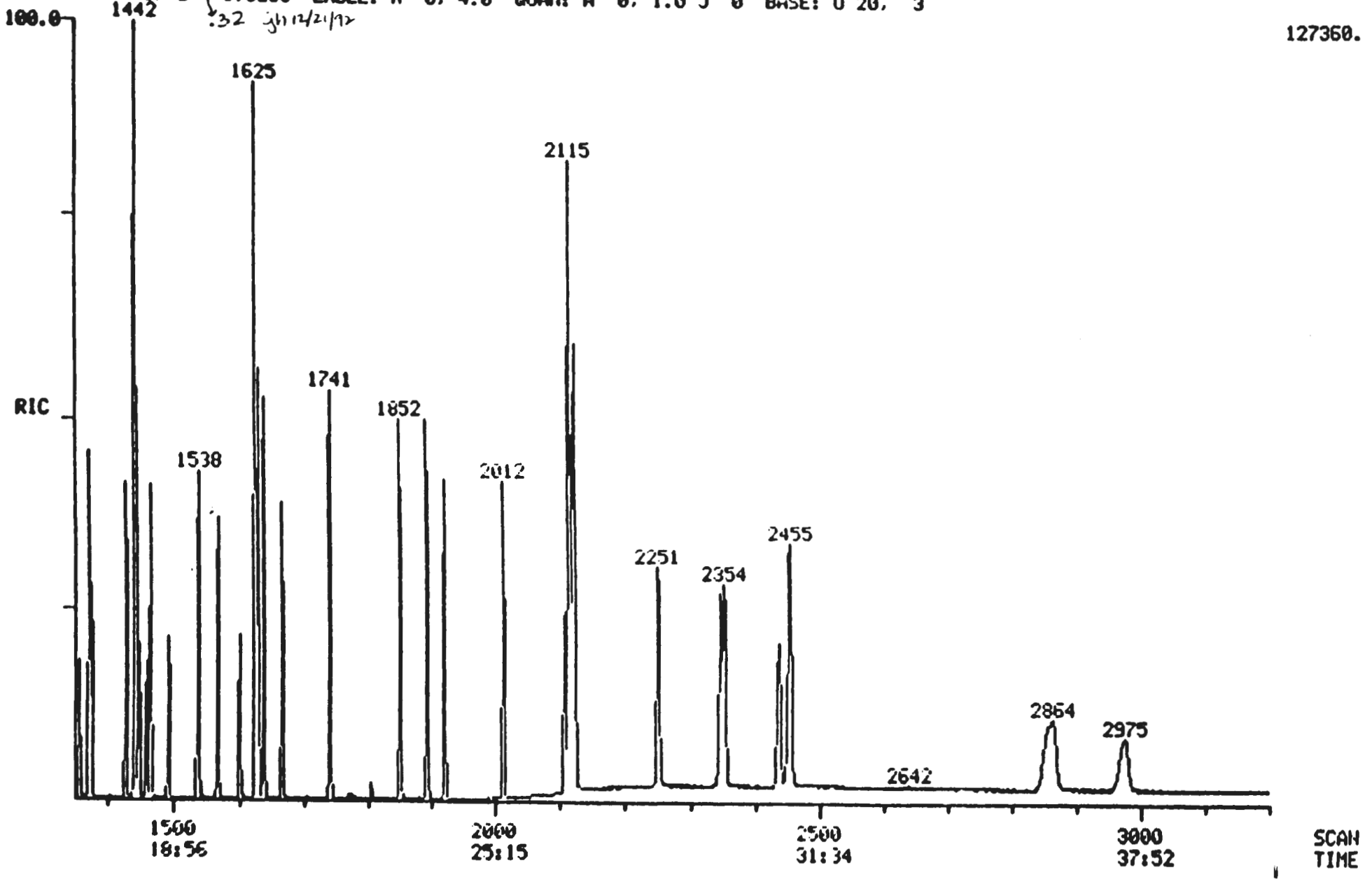
0001145

RIC
12/11/92 13:04:00
SAMPLE: CLP,,,SSTD020,,,10PPM2SV1103,SV,IC-020
CONDS.: CAP/.25,,2DFT121151
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 21211S05 #1
CALI: 21211S05 #3

SCANS 1350 TO 3200

.32 jh 12/21/92



96B492.HCS

Quantitation Report File: 21211S05

Data. 21211S05.TI
12/11/92 13:04:00
Sample: CLP,,,SSTD020,,,10PPM2SV1103,SV,IC-020
Conds.: CAP/.25,2DFT1211S1
Formula: 2DFT1211S1 Instrument: SHERMA Weight: 0.000
Submitted by: 21211S01 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI30	*IS1* 1,4-DICHLOROBENZENE-D4
2	CI40	*IS2* NAPHTHALENE-D8
3	CI50	*IS3* ACENAPTHENE-D8
4	CI60	*IS4* PHENANTHRENE-D10
5	CI70	*IS5* CHRYSENE-D12
6	CI75	*IS6* PERYLENE-D12
7	CS50	*SU1* 2-FLUOROPHENOL
8	CS45	*SU2* PHENOL-D5
9	CS55	*SU3* 2,4,6,-TRIBROMOPHENOL
10	CS20	*SU4* NITROBENZENE-D5
11	CS25	*SU5* 2-FLUOROBIPHENYL
12	CS30	*SU6* TERPHENYL-D14
13	CS70	2-CHLOROPHENOL-D4
14	CS75	1,2-DICHLOROBENZENE-D4
15	C315	PHENOL
16	C325	BIS(2-CHLOROETHYL)ETHER
17	C330	2-CHLOROPHENOL
18	C335	1,3-DICHLOROBENZENE
19	C340	1,4-DICHLOROBENZENE
20	C345	BENZYL ALCOHOL
21	C350	1,2-DICHLOROBENZENE
22	C355	2-METHYLPHENOL
23	C360	BIS(2-CHLOROISOPROPYL)ETHER
24	C365	4-METHYLPHENOL
25	C370	N-NITROSO-DI-N-PROPYLAMINE
26	C375	HEXACHLOROETHANE
27	C410	NITROBENZENE
28	C415	ISOPHORONE
29	C420	2-NITROPHENOL
30	C425	2,4-DIMETHYLPHENOL
31	C435	BIS(2-CHLOROETHOXY)METHANE
32	C430	BENZOIC ACID
33	C440	2,4-DICHLOROPHENOL
34	C445	1,2,4-TRICHLOROBENZENE
35	C450	NAPHTHALENE
36	C455	4-CHLOROANILINE
37	C460	HEXACHLOROBUTADIENE
38	C465	4-CHLORO-3-METHYLPHENOL
39	C470	2-METHYLNAPHTHALENE
40	C510	HEXACHLOROCYCLOPENTADIENE
41	C515	2,4,6-TRICHLOROPHENOL
42	C520	2,4,5-TRICHLOROPHENOL
43	C525	2-CHLORONAPHTHALENE
44	C530	2-NITROANILINE
45	C535	DIMETHYL PHTHALATE
46	C540	ACENAPHTHYLENE
47	C545	3-NITROANILINE

No	Name	
48	C550	ACENAPHTHENE
49	C555	2,4-DINITROPHENOL
50	C560	4-NITROPHENOL

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	152	732	9:14	1	1.000	A BB	32788.	20.000 NG/UL	2.33
2	136	975	12:19	2	1.000	A BB	128702.	20.000 NG/UL	2.33
3	164	1333	16:50	3	1.000	A BB	76924.	20.000 NG/UL	2.33
4	188	1625	20:31	4	1.000	A BV	120760.	20.000 NG/UL	2.33
5	240	2115	26:42	5	1.000	A BB	104787.	20.000 NG/UL	2.33
6	264	2455	31:00	6	1.000	A BB	85260.	20.000 NG/UL	2.33
7	112	521	6:35	1	0.712	A BB	16750.	10.000 NG/UL	1.16
8	99	672	8:29	1	0.918	A BB	26072.	10.000 NG/UL	1.16
9	330	1493	18:51	3	1.120	A BB	7312.	10.000 NG/UL	1.16
10	82	837	10:34	2	0.858	A BB	28310.	10.000 NG/UL	1.16
11	172	1195	15:05	3	0.896	A BB	44832.	10.000 NG/UL	1.16
12	244	1920	24:14	5	0.908	A BB	50300.	10.000 NG/UL	1.16
13	132	697	8:48	1	0.952	A BB	19836.	10.000 NG/UL	1.16
14	152	766	9:40	1	1.046	A BB	10952.	10.000 NG/UL	1.16
15	94	674	8:31	1	0.921	A BB	32150.	10.000 NG/UL	1.16
16	93	688	8:41	1	0.940	A BB	28746.	10.000 NG/UL	1.16
17	128	699	8:49	1	0.955	A BB	23960.	10.000 NG/UL	1.16
18	146	726	9:10	1	0.992	A BB	25964.	10.000 NG/UL	1.16
19	146	735	9:17	1	1.004	A BB	26608.	10.000 NG/UL	1.16
20	108	758	9:34	1	1.036	A BB	16340.	10.000 NG/UL	1.16
21	146	769	9:42	1	1.051	A BB	24914.	10.000 NG/UL	1.16
22	108	782	9:52	1	1.068	A BB	22110.	10.000 NG/UL	1.16
23	45	789	9:58	1	1.078	A BB	48868.	10.000 NG/UL	1.16
24	108	808	10:12	1	1.104	A BB	23118.	10.000 NG/UL	1.16
25	70	813	10:16	1	1.111	A BB	25118.	10.000 NG/UL	1.16
26	117	828	10:27	1	1.131	A BB	12790.	10.000 NG/UL	1.16
27	77	841	10:37	2	0.863	A BB	32020.	10.000 NG/UL	1.16
28	82	885	11:10	2	0.908	A BB	57356.	10.000 NG/UL	1.16
29	139	903	11:24	2	0.926	A BB	12196.	10.000 NG/UL	1.16
30	122	910	11:29	2	0.933	A BB	18936.	10.000 NG/UL	1.16
31	93	929	11:44	2	0.953	A BB	37300.	10.000 NG/UL	1.16
32	122	925	11:41	2	0.949	A VB	9410.	10.000 NG/UL	1.16
33	162	948	11:58	2	0.972	A BB	19342.	10.000 NG/UL	1.16
34	180	966	12:12	2	0.991	A BB	21848.	10.000 NG/UL	1.16
35	128	979	12:22	2	1.004	A BB	74222.	10.000 NG/UL	1.16
36	127	991	12:31	2	1.016	A BB	30716.	10.000 NG/UL	1.16
37	225	1017	12:50	2	1.043	A BB	14836.	10.000 NG/UL	1.16
38	107	1088	13:44	2	1.116	A BB	21708.	10.000 NG/UL	1.16
39	142	1117	14:06	2	1.146	A BB	44466.	10.000 NG/UL	1.16
40	237	1165	14:42	3	0.874	A BB	16514.	10.000 NG/UL	1.16
41	198	1179	14:53	3	0.884	A BV	13764.	10.000 NG/UL	1.16
42	198	1186	14:58	3	0.890	A VB	14308.	10.000 NG/UL	1.16
43	162	1215	15:20	3	0.911	A BB	44436.	10.000 NG/UL	1.16
44	65	1239	15:39	3	0.929	A BB	18772.	10.000 NG/UL	1.16
45	163	1284	16:13	3	0.963	A BB	52164.	10.000 NG/UL	1.16
46	152	1301	16:25	3	0.976	A BB	74430.	10.000 NG/UL	1.16
47	138	1324	16:43	3	0.993	A BB	11998.	10.000 NG/UL	1.16
48	153	1339	16:54	3	1.005	A BB	45996.	10.000 NG/UL	1.16
-49	184	1344	16:58	3	1.008	A BB	4924.	10.000 NG/UL	1.16
50	109	1357	17:08	3	1.018	A BB	6646.	10.000 NG/UL	1.16

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:14	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
2	12:19	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
3	16:50	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
4	20:31	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
5	26:42	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
6	31:00	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
7	6:35	1.00	0.712	1.00	10.00	10.00	1.022	1.022	1.00
8	8:29	1.00	0.918	1.00	10.00	10.00	1.590	1.590	1.00
9	18:51	1.00	1.120	1.00	10.00	10.00	0.190	0.190	1.00
10	10:34	1.00	0.858	1.00	10.00	10.00	0.440	0.440	1.00
11	15:05	1.00	0.896	1.00	10.00	10.00	1.166	1.166	1.00
12	24:14	1.00	0.908	1.00	10.00	10.00	0.960	0.960	1.00
13	8:48	1.00	0.952	1.00	10.00	10.00	1.210	1.210	1.00
14	9:40	1.00	1.046	1.00	10.00	10.00	0.668	0.668	1.00
15	8:31	1.00	0.921	1.00	10.00	10.00	1.961	1.961	1.00
16	8:41	1.00	0.940	1.00	10.00	10.00	1.753	1.753	1.00
17	8:49	1.00	0.955	1.00	10.00	10.00	1.462	1.462	1.00
18	9:10	1.00	0.992	1.00	10.00	10.00	1.584	1.584	1.00
19	9:17	1.00	1.004	1.00	10.00	10.00	1.623	1.623	1.00
20	9:34	1.00	1.036	1.00	10.00	10.00	0.997	0.997	1.00
21	9:42	1.00	1.051	1.00	10.00	10.00	1.520	1.520	1.00
22	9:52	1.00	1.068	1.00	10.00	10.00	1.349	1.349	1.00
23	9:58	1.00	1.078	1.00	10.00	10.00	2.981	2.981	1.00
24	10:12	1.00	1.104	1.00	10.00	10.00	1.410	1.410	1.00
25	10:16	1.00	1.111	1.00	10.00	10.00	1.532	1.532	1.00
26	10:27	1.00	1.131	1.00	10.00	10.00	0.780	0.780	1.00
27	10:37	1.00	0.863	1.00	10.00	10.00	0.498	0.498	1.00
28	11:10	1.00	0.908	1.00	10.00	10.00	0.891	0.891	1.00
29	11:24	1.00	0.926	1.00	10.00	10.00	0.190	0.190	1.00
30	11:29	1.00	0.933	1.00	10.00	10.00	0.294	0.294	1.00
31	11:44	1.00	0.953	1.00	10.00	10.00	0.580	0.580	1.00
32	11:41	1.00	0.949	1.00	10.00	10.00	0.146	0.146	1.00
33	11:58	1.00	0.972	1.00	10.00	10.00	0.301	0.301	1.00
34	12:12	1.00	0.991	1.00	10.00	10.00	0.340	0.340	1.00
35	12:22	1.00	1.004	1.00	10.00	10.00	1.153	1.153	1.00
36	12:31	1.00	1.016	1.00	10.00	10.00	0.477	0.477	1.00
37	12:50	1.00	1.043	1.00	10.00	10.00	0.231	0.231	1.00
38	13:44	1.00	1.116	1.00	10.00	10.00	0.337	0.337	1.00
39	14:06	1.00	1.146	1.00	10.00	10.00	0.691	0.691	1.00
40	14:42	1.00	0.874	1.00	10.00	10.00	0.429	0.429	1.00
41	14:53	1.00	0.884	1.00	10.00	10.00	0.358	0.358	1.00
42	14:58	1.00	0.890	1.00	10.00	10.00	0.372	0.372	1.00
43	15:20	1.00	0.911	1.00	10.00	10.00	1.155	1.155	1.00
44	15:39	1.00	0.929	1.00	10.00	10.00	0.488	0.488	1.00
45	16:13	1.00	0.963	1.00	10.00	10.00	1.356	1.356	1.00
46	16:25	1.00	0.976	1.00	10.00	10.00	1.935	1.935	1.00
47	16:43	1.00	0.993	1.00	10.00	10.00	0.312	0.312	1.00
48	16:54	1.00	1.004	1.00	10.00	10.00	1.196	1.196	1.00
49	16:58	1.00	1.008	1.00	10.00	10.00	0.128	0.128	1.00
50	17:08	1.00	1.018	1.00	10.00	10.00	0.173	0.173	1.00

Quantitation Report File: 21211S05

Data: 21211S05.TI
12/11/92 13:04:00
Sample: CLP,,,SSTD020,,,10PPM2SV1103,SV,IC-020
Conds.: CAP/~~25~~,2DFT1211S1
Formula 2DFT1211S1 .32 gh Instrument: SHERMA Weight: 0.000
Submitted by: 21211S01 12/11/92 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
51	C565	DIBENZOFURAN
52	C575	2,6-DINITROTOLUENE
53	C580	DIETHYLPHTHALATE
54	C570	2,4-DINITROTOLUENE
55	C590	FLUORENE
56	C585	4-CHLOROPHENYL-PHENYLETHER
57	C595	4-NITROANILINE
58	C610	4,6-DINITRO-2-METHYLPHENOL
59	C615	N-NITROSODIPHENYLAMINE
60	C625	4-BROMOPHENYL-PHENYLETHER
61	C630	HEXACHLOROBENZENE
62	C635	PENTACHLOROPHENOL
63	C640	PHENANTHRENE
64	C645	ANTHRACENE
65	C648	CARBAZOLE
66	C650	DI-N-BUTYLPHTHALATE
67	C655	FLUORANTHENE
68	C715	PYRENE
69	C720	BUTYLBENZYLPHTHALATE
70	C725	3,3'-DICHLOROBENZIDINE
71	C730	BENZO(A)ANTHRACENE
72	C740	CHRYSENE
73	C735	BIS(2-ETHYLHEXYL)PHTHALATE
74	C760	DI-N-OCTYL PHTHALATE
75	C765	BENZO(B)FLUROANTHENE
76	C770	BENZO(K)FLUORANTHENE
77	C775	BENZO(A)PYRENE
78	C780	INDENO(1,2,3-CD)PYRENE
79	C785	DIBENZO(A,H)ANTHRACENE
80	C790	BENZO(GHI)PERYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
51	168	1372	17:19	3	1.029	A BB	60678.	10.000 NG/UL	1.16
52	165	1296	16:22	3	0.972	A BB	11074.	10.000 NG/UL	1.16
53	149	1429	18:02	3	1.072	A BB	52756.	10.000 NG/UL	1.16
54	165	1376	17:22	3	1.032	A BB	15058.	10.000 NG/UL	1.16
55	166	1442	18:12	3	1.082	A BB	52696.	10.000 NG/UL	1.16
56	204	1442	18:12	3	1.082	A BB	27714.	10.000 NG/UL	1.16
57	138	1448	18:17	3	1.086	A VB	10720.	10.000 NG/UL	1.16
58	198	1459	18:25	4	0.898	A BB	7572.	10.000 NG/UL	1.16
59	169	1466	18:30	4	0.902	A BB	37076.	10.000 NG/UL	1.16
60	248	1538	19:25	4	0.946	A BB	16030.	10.000 NG/UL	1.16
61	284	1568	19:48	4	0.965	A BB	17036.	10.000 NG/UL	1.16
62	266	1600	20:12	4	0.985	A BB	8308.	10.000 NG/UL	1.16
63	178	1629	20:34	4	1.002	A BV	75478.	10.000 NG/UL	1.16

9613492.4558

000150

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
64	178	1638	20:41	4	1.008	A VB	72674.	10.000	NG/UL	1.16
65	167	1667	21:03	4	1.026	A BB	55684.	10.000	NG/UL	1.16
66	149	1741	21:59	4	1.071	A BB	93540.	10.000	NG/UL	1.16
67	202	1852	23:23	4	1.140	A BB	73554.	10.000	NG/UL	1.16
68	202	1893	23:54	5	0.895	A BB	75822.	10.000	NG/UL	1.16
69	149	2012	25:24	5	0.951	A BB	37232.	10.000	NG/UL	1.16
70	252	2106	26:35	5	0.996	A BB	17068.	10.000	NG/UL	1.16
71	228	2112	26:40	5	0.999	A BV	66950.	10.000	NG/UL	1.16
72	228	2119	26:45	5	1.002	A VB	64382.	10.000	NG/UL	1.16
73	149	2123	26:48	5	1.004	A VB	60596.	10.000	NG/UL	1.16
74	149	2251	28:25	6	0.917	A BB	82812.	10.000	NG/UL	1.16
75	252	2348	29:39	6	0.956	A BV	67405.	10.000	NG/UL	1.16
76	252	2354	29:43	6	0.959	A VB	55299.	10.000	NG/UL	1.16
77	252	2437	30:46	6	0.993	A BB	53415.	10.000	NG/UL	1.16
78	276	2855	36:03	6	1.163	A BB	44673.	10.000	NG/UL	1.16
79	278	2864	36:09	6	1.167	A BB	39897.	10.000	NG/UL	1.16
80	276	2974	37:33	6	1.211	A BB	39313.	10.000	NG/UL	1.16

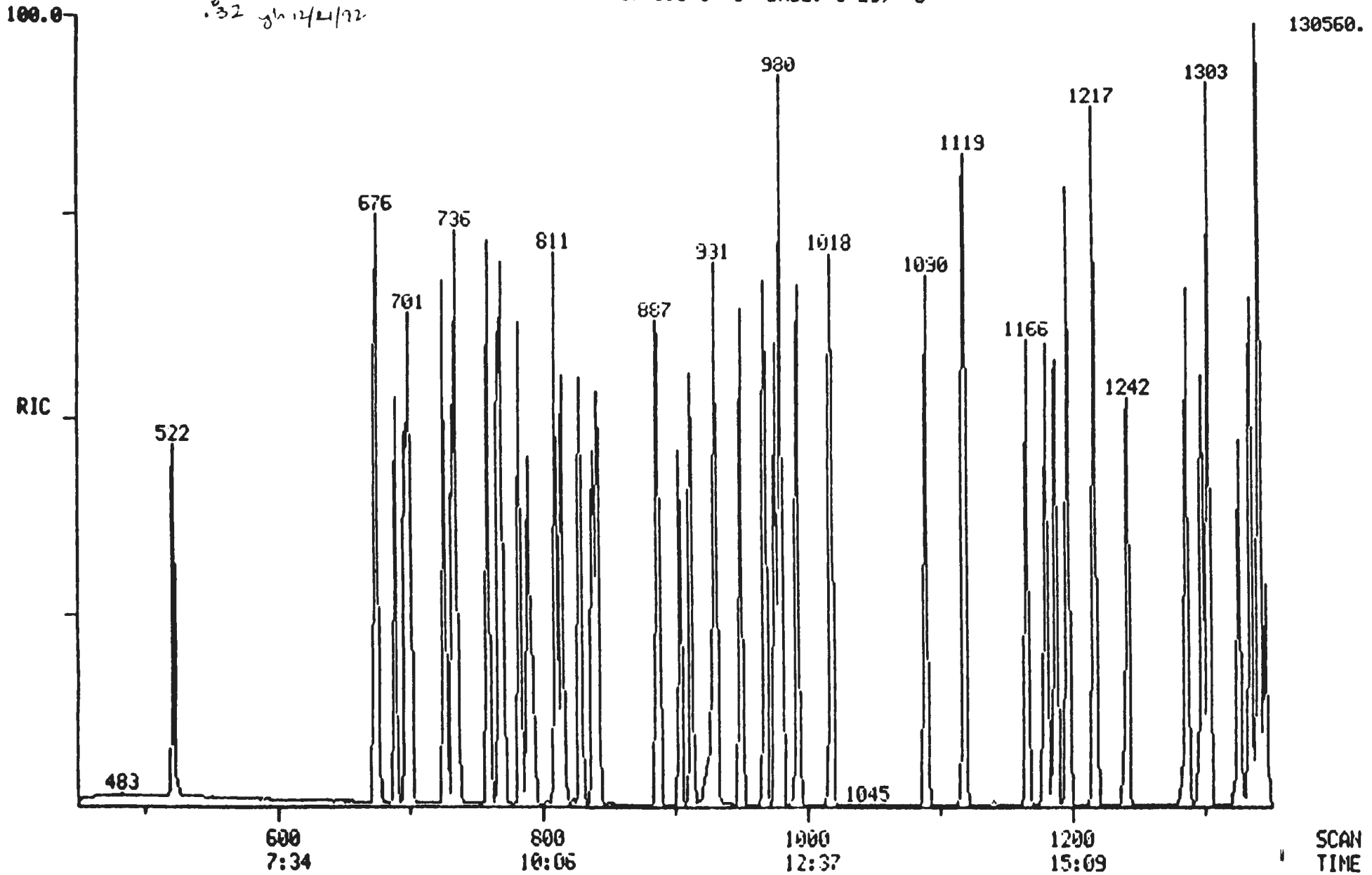
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
51	17:19	1.00	1.029	1.00	10.00	10.00	1.578	1.578	1.00
52	16:22	1.00	0.972	1.00	10.00	10.00	0.288	0.288	1.00
53	18:02	1.00	1.072	1.00	10.00	10.00	1.372	1.372	1.00
54	17:22	1.00	1.032	1.00	10.00	10.00	0.392	0.392	1.00
55	18:12	1.00	1.082	1.00	10.00	10.00	1.370	1.370	1.00
56	18:12	1.00	1.082	1.00	10.00	10.00	0.721	0.721	1.00
57	18:17	1.00	1.086	1.00	10.00	10.00	0.279	0.279	1.00
58	18:25	1.00	0.898	1.00	10.00	10.00	0.125	0.125	1.00
59	18:30	1.00	0.902	1.00	10.00	10.00	0.614	0.614	1.00
60	19:25	1.00	0.946	1.00	10.00	10.00	0.265	0.265	1.00
61	19:48	1.00	0.965	1.00	10.00	10.00	0.282	0.282	1.00
62	20:12	1.00	0.985	1.00	10.00	10.00	0.138	0.138	1.00
63	20:34	1.00	1.002	1.00	10.00	10.00	1.250	1.250	1.00
64	20:41	1.00	1.008	1.00	10.00	10.00	1.204	1.204	1.00
65	21:03	1.00	1.026	1.00	10.00	10.00	0.922	0.922	1.00
66	21:59	1.00	1.071	1.00	10.00	10.00	1.549	1.549	1.00
67	23:23	1.00	1.140	1.00	10.00	10.00	1.218	1.218	1.00
68	23:54	1.00	0.895	1.00	10.00	10.00	1.447	1.447	1.00
69	25:24	1.00	0.951	1.00	10.00	10.00	0.711	0.711	1.00
70	26:35	1.00	0.996	1.00	10.00	10.00	0.326	0.326	1.00
71	26:40	1.00	0.999	1.00	10.00	10.00	1.278	1.278	1.00
72	26:45	1.00	1.002	1.00	10.00	10.00	1.229	1.229	1.00
73	26:48	1.00	1.004	1.00	10.00	10.00	1.157	1.157	1.00
74	28:25	1.00	0.917	1.00	10.00	10.00	1.943	1.943	1.00
75	29:39	1.00	0.956	1.00	10.00	10.00	1.581	1.581	1.00
76	29:43	1.00	0.959	1.00	10.00	10.00	1.297	1.297	1.00
77	30:46	1.00	0.993	1.00	10.00	10.00	1.253	1.253	1.00
78	36:03	1.00	1.163	1.00	10.00	10.00	1.048	1.048	1.00
79	36:09	1.00	1.167	1.00	10.00	10.00	0.936	0.936	1.00
80	37:33	1.00	1.211	1.00	10.00	10.00	0.922	0.922	1.00

000151

RIC
12/11/92 10:02:00
SAMPLE: CLP,,,SSTD050,,,25PPM25V1103,SV,IC-050
CONDS.: CAP/.25,,2DFT121151
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 21211S01 #2985 SCANS 450 TO 1350
CALI: CALTAB #3

.32 gh 12/21/92

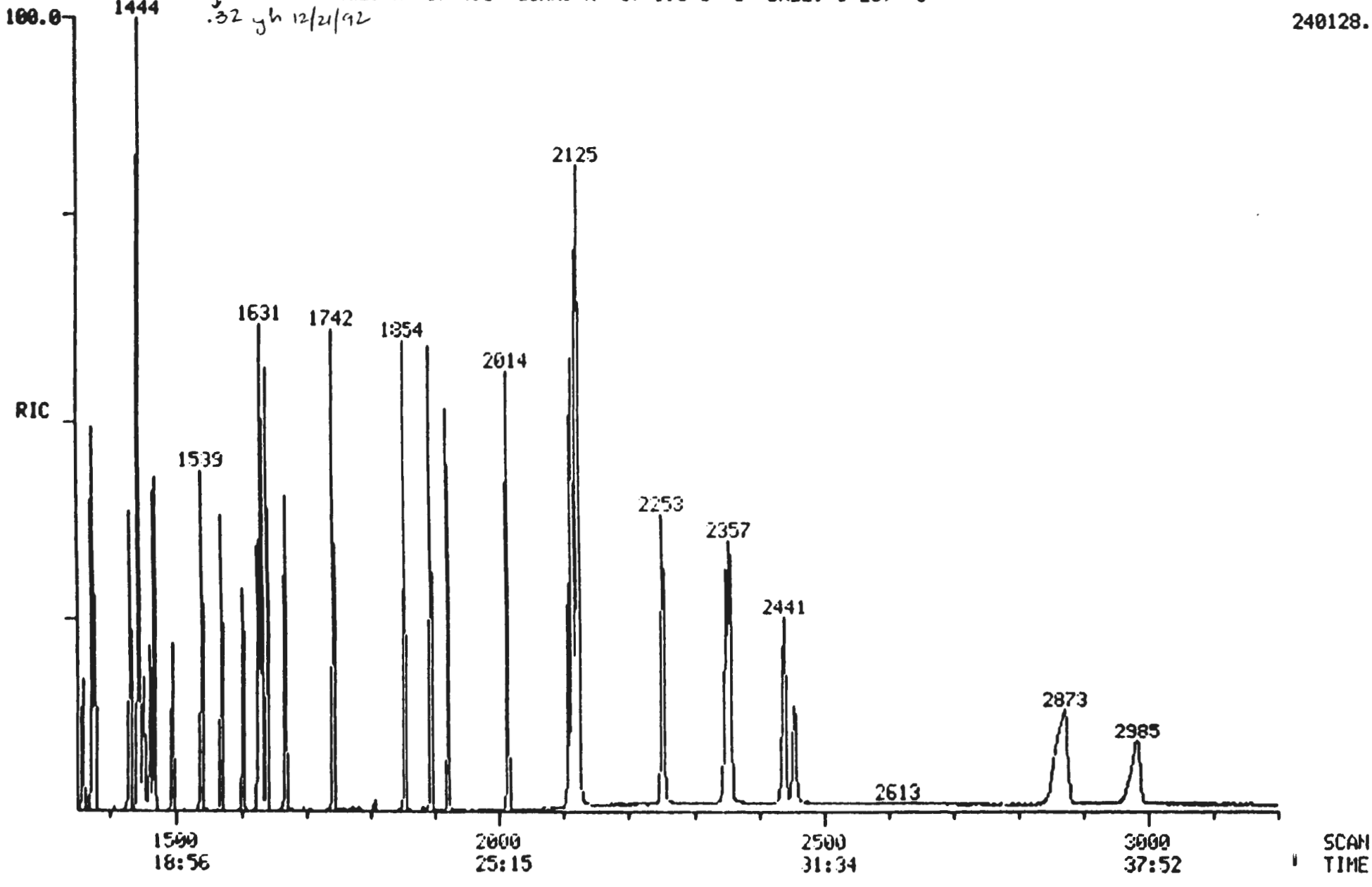


0054 7/19/96

RIC
12/11/92 10:02:00
SAMPLE: CLP,,,SSTD050,,,25PPM2SV1103,SV,IC-050
CONDS.: CAP/.25,,2DFT121151
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

.32 yh 12/21/92

DATA: 21211S01 #2985 SCANS 1350 TO 3200
CALI: CALTAB #3



00015
9613492.4560

9613492.4561

000153

Quantitation Report File: 21211S01

Data: 21211S01.TI
12/11/92 10:02:00
Sample: CLP,,,SSTD050,,,25PPM2SV1103,SV,IC-050
Conds : CAP/ ~~25~~ ,2DFT1211S1
Formula: 2DFT1211S1 ~.32 gh Instrument: SHERMA Weight: 0.000
Submitted by: 21211S01 12/21/92 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI30	*IS1* 1,4-DICHLOROBENZENE-D4
2	CI40	*IS2* NAPHTHALENE-D8
3	CI50	*IS3* ACENAPTHENE-D8
4	CI60	*IS4* PHENANTHRENE-D10
5	CI70	*IS5* CHRYSENE-D12
6	CI75	*IS6* PERYLENE-D12
7	CS50	*SU1* 2-FLUOROPHENOL
8	CS45	*SU2* PHENOL-D5
9	CS55	*SU3* 2,4,6,-TRIBROMOPHENOL
10	CS20	*SU4* NITROBENZENE-D5
11	CS25	*SU5* 2-FLUOROBIPHENYL
12	CS30	*SU6* TERPHENYL-D14
13	CS70	2-CHLOROPHENOL-D4
14	CS75	1,2-DICHLOROBENZENE-D4
15	C315	PHENOL
16	C325	BIS(2-CHLOROETHYL)ETHER
17	C330	2-CHLOROPHENOL
18	C335	1,3-DICHLOROBENZENE
19	C340	1,4-DICHLOROBENZENE
20	C345	BENZYL ALCOHOL
21	C350	1,2-DICHLOROBENZENE
22	C355	2-METHYLPHENOL
23	C360	BIS(2-CHLOROISOPROPYL)ETHER
24	C365	4-METHYLPHENOL
25	C370	N-NITROSO-DI-N-PROPYLAMINE
26	C375	HEXACHLOROETHANE
27	C410	NITROBENZENE
28	C415	ISOPHORONE
29	C420	2-NITROPHENOL
30	C425	2,4-DIMETHYLPHENOL
31	C435	BIS(2-CHLOROETHOXY)METHANE
32	C430	BENZOIC ACID
33	C440	2,4-DICHLOROPHENOL
34	C445	1,2,4-TRICHLOROBENZENE
35	C450	NAPHTHALENE
36	C455	4-CHLOROANILINE
37	C460	HEXACHLOROBUTADIENE
38	C465	4-CHLORO-3-METHYLPHENOL
39	C470	2-METHYLNAPHTHALENE
40	C510	HEXACHLOROCYCLOPENTADIENE
41	C515	2,4,6-TRICHLOROPHENOL
42	C520	2,4,5-TRICHLOROPHENOL
43	C525	2-CHLORONAPHTHALENE
44	C530	2-NITROANILINE
45	C535	DIMETHYL PHTHALATE
46	C540	ACENAPHTHYLENE
47	C545	3-NITROANILINE

No	Name	
48	C550	ACENAPHTHENE
49	C555	2,4-DINITROPHENOL
50	C560	4-NITROPHENOL

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	152	733	9:15	1	1.000	A BB	24298.	20.000 NG/UL	1.02
2	136	976	12:19	2	1.000	A BB	92846.	20.000 NG/UL	1.02
3	164	1335	16:51	3	1.000	A BB	58450.	20.000 NG/UL	1.02
4	188	1626	20:32	4	1.000	A BB	97354	20.000 NG/UL	1.02
5	240	2117	26:44	5	1.000	A BB	99556.	20.000 NG/UL	1.02
6	264	2456	31:00	6	1.000	A BB	67159.	20.000 NG/UL	1.02
7	112	522	6:35	1	0.712	A BB	38450.	25.000 NG/UL	1.27
8	99	674	8:31	1	0.920	A BB	48654.	25.000 NG/UL	1.27
9	330	1494	18:52	3	1.119	A BB	16342.	25.000 NG/UL	1.27
10	82	839	10:36	2	0.860	A BB	54590.	25.000 NG/UL	1.27
11	172	1197	15:07	3	0.897	A BB	87826.	25.000 NG/UL	1.27
12	244	1922	24:16	5	0.908	A BB	120864.	25.000 NG/UL	1.27
13	132	698	8:49	1	0.952	A BB	38964.	25.000 NG/UL	1.27
14	152	768	9:42	1	1.048	A BB	27816.	25.000 NG/UL	1.27
15	94	676	8:32	1	0.922	A BB	59102.	25.000 NG/UL	1.27
16	93	690	8:43	1	0.941	A BB	51500.	25.000 NG/UL	1.27
17	128	701	8:51	1	0.956	A BB	44806.	25.000 NG/UL	1.27
18	146	727	9:11	1	0.992	A BB	48340.	25.000 NG/UL	1.27
19	146	736	9:18	1	1.004	A BB	49576.	25.000 NG/UL	1.27
20	108	760	9:36	1	1.037	A BB	30936.	25.000 NG/UL	1.27
21	146	770	9:43	1	1.050	A BB	46258	25.000 NG/UL	1.27
22	108	783	9:53	1	1.066	A BB	40320	25.000 NG/UL	1.27
23	45	790	9:58	1	1.078	A BB	83778	25.000 NG/UL	1.27
24	108	811	10:14	1	1.106	A BB	42576.	25.000 NG/UL	1.27
25	70	816	10:18	1	1.113	A BB	45082.	25.000 NG/UL	1.27
26	117	829	10:28	1	1.131	A BB	24074	25.000 NG/UL	1.27
27	77	842	10:38	2	0.863	A BB	58102	25.000 NG/UL	1.27
28	82	887	11:12	2	0.909	A BB	106302.	25.000 NG/UL	1.27
29	139	904	11:25	2	0.926	A BB	23296	25.000 NG/UL	1.27
30	122	912	11:31	2	0.934	A BV	32422.	25.000 NG/UL	1.27
31	93	931	11:45	2	0.954	A BB	69194.	25.000 NG/UL	1.27
32	122	932	11:46	2	0.955	A VB	20608	25.000 NG/UL	1.27
33	162	950	12:00	2	0.973	A BB	38146.	25.000 NG/UL	1.27
34	180	968	12:13	2	0.992	A BB	42720.	25.000 NG/UL	1.27
35	128	980	12:22	2	1.004	A BB	139486.	25.000 NG/UL	1.27
36	127	993	12:32	2	1.017	A BB	60278.	25.000 NG/UL	1.27
37	225	1018	12:51	2	1.043	A BB	29340.	25.000 NG/UL	1.27
38	107	1090	13:46	2	1.117	A BB	42824.	25.000 NG/UL	1.27
39	142	1119	14:08	2	1.147	A BB	85254.	25.000 NG/UL	1.27
40	237	1166	14:43	3	0.873	A BB	34580.	25.000 NG/UL	1.27
41	198	1180	14:54	3	0.884	A BV	27982.	25.000 NG/UL	1.27
42	198	1187	14:59	3	0.889	A VB	29182.	25.000 NG/UL	1.27
43	162	1217	15:22	3	0.912	A BB	87786.	25.000 NG/UL	1.27
44	65	1242	15:41	3	0.930	A BB	38612.	25.000 NG/UL	1.27
45	163	1286	16:14	3	0.963	A BB	105846.	25.000 NG/UL	1.27
46	152	1303	16:27	3	0.976	A BB	144992.	25.000 NG/UL	1.27
47	138	1326	16:44	3	0.993	A BB	24478.	25.000 NG/UL	1.27
48	153	1341	16:56	3	1.004	A BB	91474.	25.000 NG/UL	1.27
49	184	1346	17:00	3	1.008	A BB	13310.	25.000 NG/UL	1.27
50	109	1359	17:09	3	1.018	A BB	15454.	25.000 NG/UL	1.27

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:15	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
2	12:19	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
3	16:51	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
4	20:32	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
5	26:44	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
6	31:00	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
7	6:35	1.00	0.712	1.00	25.00	25.00	1.266	1.266	1.00
8	8:31	1.00	0.920	1.00	25.00	25.00	1.602	1.602	1.00
9	18:52	1.00	1.119	1.00	25.00	25.00	0.224	0.224	1.00
10	10:36	1.00	0.860	1.00	25.00	25.00	0.470	0.470	1.00
11	15:07	1.00	0.897	1.00	25.00	25.00	1.202	1.202	1.00
12	24:16	1.00	0.908	1.00	25.00	25.00	0.971	0.971	1.00
13	8:49	1.00	0.952	1.00	25.00	25.00	1.283	1.283	1.00
14	9:42	1.00	1.048	1.00	25.00	25.00	0.916	0.916	1.00
15	8:32	1.00	0.922	1.00	25.00	25.00	1.946	1.946	1.00
16	8:43	1.00	0.941	1.00	25.00	25.00	1.696	1.696	1.00
17	8:51	1.00	0.956	1.00	25.00	25.00	1.475	1.475	1.00
18	9:11	1.00	0.992	1.00	25.00	25.00	1.592	1.592	1.00
19	9:18	1.00	1.004	1.00	25.00	25.00	1.632	1.632	1.00
20	9:36	1.00	1.037	1.00	25.00	25.00	1.019	1.019	1.00
21	9:43	1.00	1.050	1.00	25.00	25.00	1.523	1.523	1.00
22	9:53	1.00	1.068	1.00	25.00	25.00	1.328	1.328	1.00
23	9:58	1.00	1.078	1.00	25.00	25.00	2.758	2.758	1.00
24	10:14	1.00	1.106	1.00	25.00	25.00	1.402	1.402	1.00
25	10:18	1.00	1.113	1.00	25.00	25.00	1.484	1.484	1.00
26	10:28	1.00	1.131	1.00	25.00	25.00	0.793	0.793	1.00
27	10:36	1.00	0.863	1.00	25.00	25.00	0.501	0.501	1.00
28	11:12	1.00	0.909	1.00	25.00	25.00	0.916	0.916	1.00
29	11:25	1.00	0.926	1.00	25.00	25.00	0.201	0.201	1.00
30	11:31	1.00	0.934	1.00	25.00	25.00	0.279	0.279	1.00
31	11:45	1.00	0.954	1.00	25.00	25.00	0.596	0.596	1.00
32	11:46	1.00	0.955	1.00	25.00	25.00	0.178	0.178	1.00
33	12:00	1.00	0.973	1.00	25.00	25.00	0.329	0.329	1.00
34	12:13	1.00	0.992	1.00	25.00	25.00	0.368	0.368	1.00
35	12:22	1.00	1.004	1.00	25.00	25.00	1.202	1.202	1.00
36	12:32	1.00	1.017	1.00	25.00	25.00	0.519	0.519	1.00
37	12:51	1.00	1.043	1.00	25.00	25.00	0.253	0.253	1.00
38	13:46	1.00	1.117	1.00	25.00	25.00	0.369	0.369	1.00
39	14:08	1.00	1.147	1.00	25.00	25.00	0.735	0.735	1.00
40	14:43	1.00	0.873	1.00	25.00	25.00	0.473	0.473	1.00
41	14:54	1.00	0.884	1.00	25.00	25.00	0.383	0.383	1.00
42	14:59	1.00	0.889	1.00	25.00	25.00	0.399	0.399	1.00
43	15:22	1.00	0.912	1.00	25.00	25.00	1.202	1.202	1.00
44	15:41	1.00	0.930	1.00	25.00	25.00	0.528	0.528	1.00
45	16:14	1.00	0.963	1.00	25.00	25.00	1.449	1.449	1.00
46	16:27	1.00	0.976	1.00	25.00	25.00	1.984	1.984	1.00
47	16:44	1.00	0.993	1.00	25.00	25.00	0.335	0.335	1.00
48	16:56	1.00	1.004	1.00	25.00	25.00	1.252	1.252	1.00
49	17:00	1.00	1.008	1.00	25.00	25.00	0.182	0.182	1.00
50	17:09	1.00	1.018	1.00	25.00	25.00	0.212	0.212	1.00

9613492.4564

000158

Quantitation Report File: 21211S01

Data: 21211S01.TI
12/11/92 10:02:00
Sample: CLP,,,SSTD050,,,25PPM2SV1103,SV,IC-050
Conds : CAP/25,2DFT1211S1
Formula: 2DFT1211S1 .32 gh Instrument: SHERMA Weight: 0.000
Submitted by: 21211S01 12/4/92 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
51	C565	DIBENZOFURAN
52	C575	2,6-DINITROTOLUENE
53	C580	DIETHYLPHTHALATE
54	C570	2,4-DINITROTOLUENE
55	C590	FLUORENE
56	C585	4-CHLOROPHENYL-PHENYLETHER
57	C595	4-NITROANILINE
58	C610	4,6-DINITRO-2-METHYLPHENOL
59	C615	N-NITROSODIPHENYLAMINE
60	C625	4-BROMOPHENYL-PHENYLETHER
61	C630	HEXACHLOROBENZENE
62	C635	PENTACHLOROPHENOL
63	C640	PHENANTHRENE
64	C645	ANTHRACENE
65	C648	CARBAZOLE
66	C650	DI-N-BUTYLPHTHALATE
67	C655	FLUORANTHENE
68	C715	PYRENE
69	C720	BUTYLBENZYLPHTHALATE
70	C725	3,3'-DICHLOROBENZIDINE
71	C730	BENZO(A)ANTHRACENE
72	C740	CHRYSENE
73	C735	BIS(2-ETHYLHEXYL)PHTHALATE
74	C760	DI-N-OCTYL PHTHALATE
75	C765	BENZO(B)FLUROANTHENE
76	C770	BENZO(K)FLUORANTHENE
77	C775	BENZO(A)PYRENE
78	C780	INDENO(1,2,3-CD)PYRENE
79	C785	DIBENZO(A,H)ANTHRACENE
80	C790	BENZO(GHI)PERYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
51	168	1374	17:21	3	1.029	A BB	122630.	25.000 NG/UL	1.27
52	165	1298	16:23	3	0.972	A BB	22832.	25.000 NG/UL	1.27
53	149	1431	18:04	3	1.072	A BB	110944.	25.000 NG/UL	1.27
54	165	1378	17:24	3	1.032	A BB	32720.	25.000 NG/UL	1.27
55	166	1444	18:14	3	1.082	A BB	105982.	25.000 NG/UL	1.27
56	204	1444	18:14	3	1.082	A BB	56918.	25.000 NG/UL	1.27
57	138	1451	18:19	3	1.087	A BB	23588.	25.000 NG/UL	1.27
58	198	1461	18:27	4	0.899	A BB	19402.	25.000 NG/UL	1.27
59	169	1467	18:31	4	0.902	A BB	78656.	25.000 NG/UL	1.27
60	248	1539	19:26	4	0.946	A BB	35586.	25.000 NG/UL	1.27
61	284	1569	19:48	4	0.965	A BB	36814.	25.000 NG/UL	1.27
62	266	1602	20:13	4	0.985	A BB	20514.	25.000 NG/UL	1.27
63	178	1631	20:35	4	1.003	A BV	160824.	25.000 NG/UL	1.27

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
64	178	1640	20:42	4	1.009	A VB	153879.	25.000 NG/UL	1.27
65	167	1668	21:03	4	1.026	A BB	121619.	25.000 NG/UL	1.27
66	149	1742	22:00	4	1.071	A BB	219264.	25.000 NG/UL	1.27
67	202	1854	23:24	4	1.140	A BB	172060.	25.000 NG/UL	1.27
68	202	1895	23:55	5	0.895	A BB	179048.	25.000 NG/UL	1.27
69	149	2014	25:26	5	0.951	A BB	91972.	25.000 NG/UL	1.27
70	252	2108	26:37	5	0.996	A BV	39820.	25.000 NG/UL	1.27
71	228	2114	26:41	5	0.999	A BV	163055.	25.000 NG/UL	1.27
72	228	2122	26:47	5	1.002	A VB	158361.	25.000 NG/UL	1.27
73	149	2125	26:50	5	1.004	A VB	162262.	25.000 NG/UL	1.27
74	149	2253	28:27	6	0.917	A BV	211813.	25.000 NG/UL	1.27
75	252	2351	29:41	6	0.957	A BV	169981.	25.000 NG/UL	1.27
76	252	2357	29:45	6	0.960	A VB	129265.	25.000 NG/UL	1.27
77	252	2441	30:49	6	0.994	A BB	132039.	25.000 NG/UL	1.27
78	276	2862	36:08	6	1.165	A BB	103427.	25.000 NG/UL	1.27
79	278	2873	36:16	6	1.170	A BB	96948.	25.000 NG/UL	1.27
80	276	2985	37:41	6	1.215	A BB	86216.	25.000 NG/UL	1.27

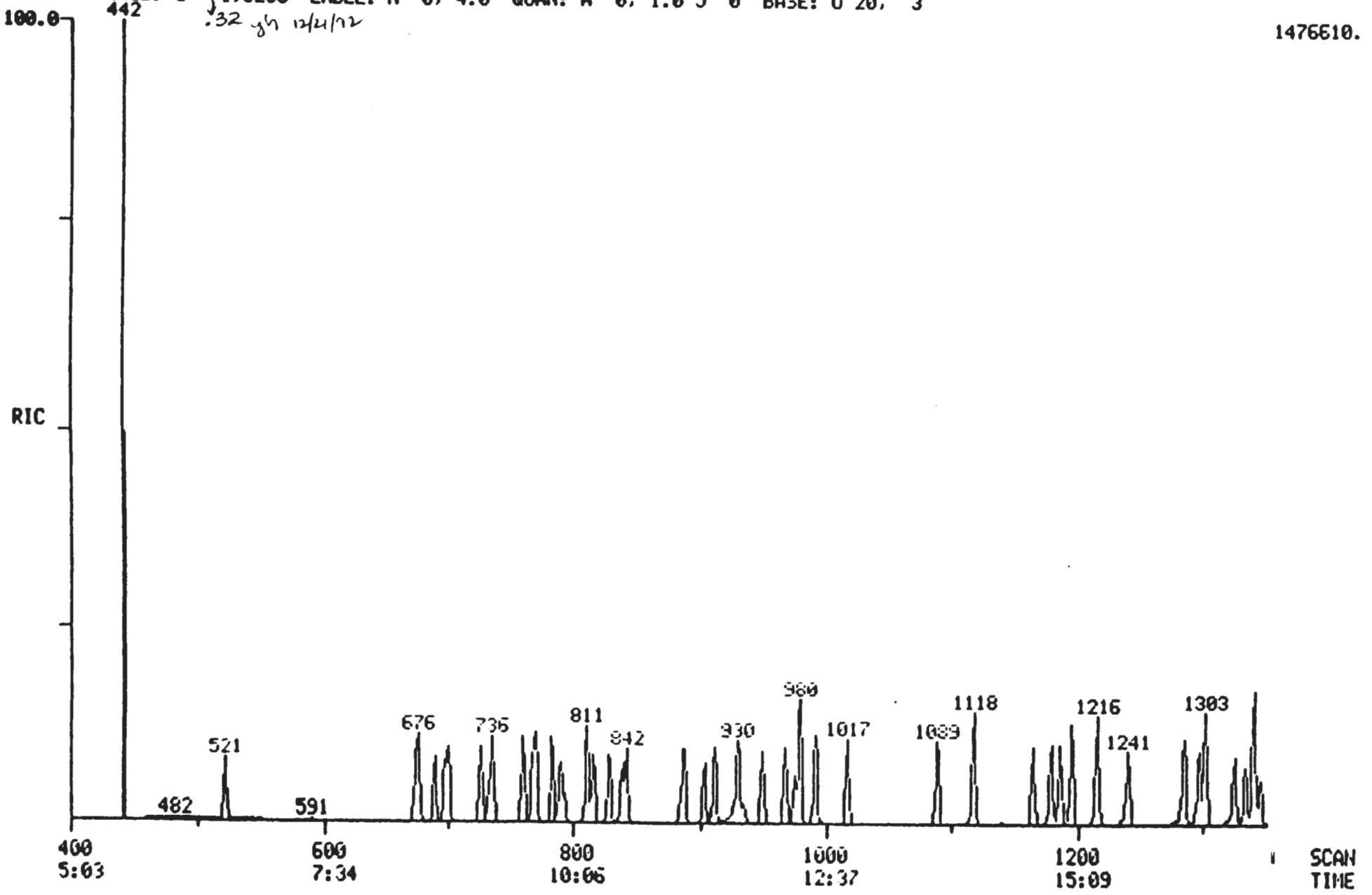
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
51	17:21	1.00	1.029	1.00	25.00	25.00	1.678	1.678	1.00
52	16:23	1.00	0.972	1.00	25.00	25.00	0.312	0.312	1.00
53	18:04	1.00	1.072	1.00	25.00	25.00	1.518	1.518	1.00
54	17:24	1.00	1.032	1.00	25.00	25.00	0.448	0.448	1.00
55	18:14	1.00	1.082	1.00	25.00	25.00	1.451	1.451	1.00
56	18:14	1.00	1.082	1.00	25.00	25.00	0.779	0.779	1.00
57	18:19	1.00	1.087	1.00	25.00	25.00	0.323	0.323	1.00
58	18:27	1.00	0.899	1.00	25.00	25.00	0.159	0.159	1.00
59	18:31	1.00	0.902	1.00	25.00	25.00	0.646	0.646	1.00
60	19:26	1.00	0.946	1.00	25.00	25.00	0.292	0.292	1.00
61	19:48	1.00	0.965	1.00	25.00	25.00	0.303	0.303	1.00
62	20:13	1.00	0.985	1.00	25.00	25.00	0.169	0.169	1.00
63	20:35	1.00	1.003	1.00	25.00	25.00	1.322	1.322	1.00
64	20:42	1.00	1.009	1.00	25.00	25.00	1.264	1.264	1.00
65	21:03	1.00	1.026	1.00	25.00	25.00	0.999	0.999	1.00
66	22:00	1.00	1.071	1.00	25.00	25.00	1.802	1.802	1.00
67	23:24	1.00	1.140	1.00	25.00	25.00	1.414	1.414	1.00
68	23:55	1.00	0.895	1.00	25.00	25.00	1.439	1.439	1.00
69	25:26	1.00	0.951	1.00	25.00	25.00	0.739	0.739	1.00
70	26:37	1.00	0.996	1.00	25.00	25.00	0.320	0.320	1.00
71	26:41	1.00	0.999	1.00	25.00	25.00	1.310	1.310	1.00
72	26:47	1.00	1.002	1.00	25.00	25.00	1.273	1.273	1.00
73	26:50	1.00	1.004	1.00	25.00	25.00	1.304	1.304	1.00
74	28:27	1.00	0.917	1.00	25.00	25.00	2.523	2.523	1.00
75	29:41	1.00	0.957	1.00	25.00	25.00	2.025	2.025	1.00
76	29:45	1.00	0.960	1.00	25.00	25.00	1.540	1.540	1.00
77	30:49	1.00	0.994	1.00	25.00	25.00	1.573	1.573	1.00
78	36:08	1.00	1.165	1.00	25.00	25.00	1.232	1.232	1.00
79	36:16	1.00	1.170	1.00	25.00	25.00	1.155	1.155	1.00
80	37:41	1.00	1.215	1.00	25.00	25.00	1.027	1.027	1.00

000150

RIC
12/11/92 10:44:00
SAMPLE: CLP,,,SSTD080,,,40PPM2SV1103,SV,IC-080
CONDS.: CAP/.25,,2DFT121151
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 21211S02 #1
CALI: 21211S02 #3
SCANS 400 TO 1350

.32 gh 12/4/92



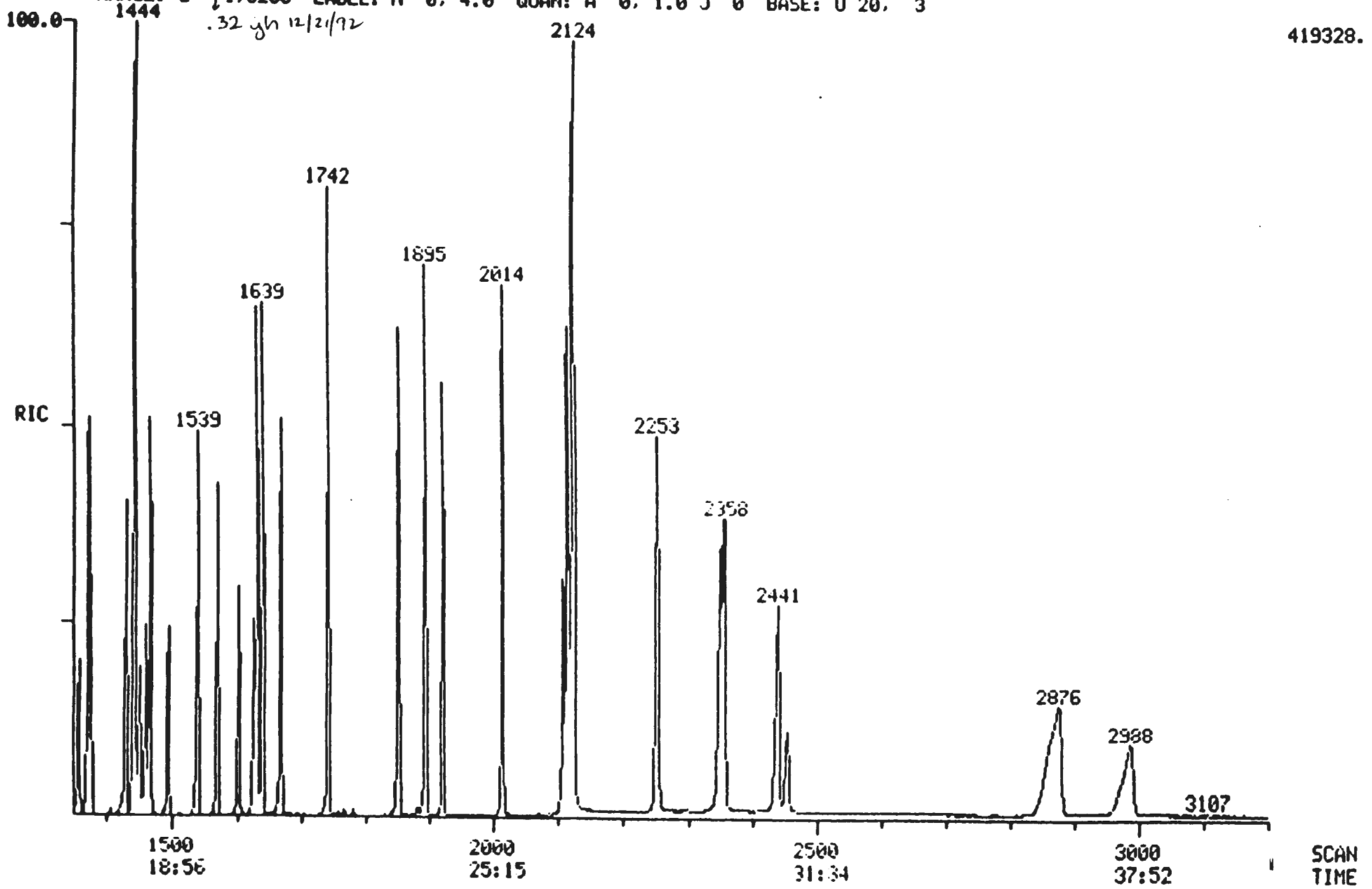
9613492.4566

000153

RIC
12/11/92 10:44:00
SAMPLE: CLP,,,SSTD080,,,40PPM2SV1103,SV,IC-080
CONDS.: CAP/.25,,2DFT1211S1
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3
.32 gh 12/21/92

DATA: 21211S02 #1
CALI: 21211S02 #3

SCANS 1350 TO 3200



9613492.4567

Quantitation Report File: 21211S02

Data: 21211S02.TI
12/11/92 10:44:00
Sample: CLP,,,SSTD080,,,40PPM2SV1103,SV,IC-080
Conds.: CAP/ ~~25~~ .32, 2DFT1211S1
Formula 2DFT1211S1 Instrument: SHERMA Weight: 0.000
Submitted by: 21211S01 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI30	*IS1* 1,4-DICHLOROBENZENE-D4
2	CI40	*IS2* NAPHTHALENE-D8
3	CI50	*IS3* ACENAPTHENE-D8
4	CI60	*IS4* PHENANTHRENE-D10
5	CI70	*IS5* CHRYSENE-D12
6	CI75	*IS6* PERYLENE-D12
7	CS50	*SU1* 2-FLUOROPHENOL
8	CS45	*SU2* PHENOL-D5
9	CS55	*SU3* 2,4,6,-TRIBROMOPHENOL
10	CS20	*SU4* NITROBENZENE-D5
11	CS25	*SU5* 2-FLUOROBIPHENYL
12	CS30	*SU6* TERPHENYL-D14
13	CS70	2-CHLOROPHENOL-D4
14	CS75	1,2-DICHLOROBENZENE-D4
15	C315	PHENOL
16	C325	BIS(2-CHLOROETHYL)ETHER
17	C330	2-CHLOROPHENOL
18	C335	1,3-DICHLOROBENZENE
19	C340	1,4-DICHLOROBENZENE
20	C345	BENZYL ALCOHOL
21	C350	1,2-DICHLOROBENZENE
22	C355	2-METHYLPHENOL
23	C360	BIS(2-CHLOROISOPROPYL)ETHER
24	C365	4-METHYLPHENOL
25	C370	N-NITROSO-DI-N-PROPYLAMINE
26	C375	HEXACHLOROETHANE
27	C410	NITROBENZENE
28	C415	ISOPHORONE
29	C420	2-NITROPHENOL
30	C425	2,4-DIMETHYLPHENOL
31	C435	BIS(2-CHLOROETHOXY)METHANE
32	C430	BENZOIC ACID
33	C440	2,4-DICHLOROPHENOL
34	C445	1,2,4-TRICHLOROBENZENE
35	C450	NAPHTHALENE
36	C455	4-CHLOROANILINE
37	C460	HEXACHLOROBUTADIENE
38	C465	4-CHLORO-3-METHYLPHENOL
39	C470	2-METHYLNAPHTHALENE
40	C510	HEXACHLOROCYCLOPENTADIENE
41	C515	2,4,6-TRICHLOROPHENOL
42	C520	2,4,5-TRICHLOROPHENOL
43	C525	2-CHLORONAPHTHALENE
44	C530	2-NITROANILINE
45	C535	DIMETHYL PHTHALATE
46	C540	ACENAPHTHYLENE
47	C545	3-NITROANILINE

No	Name	
48	C550	ACENAPHTHENE
49	C555	2,4-DINITROPHENOL
50	C560	4-NITROPHENOL

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	152	732	9:14	1	1.000	A BB	27956.	20.000 NG/UL	0.65
2	136	975	12:19	2	1.000	A BB	110584.	20.000 NG/UL	0.65
3	164	1334	16:50	3	1.000	A BB	69874.	20.000 NG/UL	0.65
4	188	1626	20:32	4	1.000	A BV	117706.	20.000 NG/UL	0.65
5	240	2116	26:43	5	1.000	A BB	124658.	20.000 NG/UL	0.65
6	264	2456	31:00	6	1.000	A BB	87166.	20.000 NG/UL	0.65
7	112	521	6:35	1	0.712	A BB	71340.	40.000 NG/UL	1.30
8	99	674	8:31	1	0.921	A BB	91590.	40.000 NG/UL	1.30
9	330	1494	18:52	3	1.120	A BB	32800.	40.000 NG/UL	1.30
10	82	839	10:36	2	0.861	A BB	106560.	40.000 NG/UL	1.30
11	172	1196	15:06	3	0.897	A BB	161790.	40.000 NG/UL	1.30
12	244	1921	24:15	5	0.908	A BB	243266.	40.000 NG/UL	1.30
13	132	698	8:49	1	0.954	A BB	71420.	40.000 NG/UL	1.30
14	152	767	9:41	1	1.048	A BB	52390.	40.000 NG/UL	1.30
15	94	676	8:32	1	0.923	A BB	113366.	40.000 NG/UL	1.30
16	93	690	8:43	1	0.943	A BB	100378.	40.000 NG/UL	1.30
17	128	701	8:51	1	0.958	A BB	83330.	40.000 NG/UL	1.30
18	146	726	9:10	1	0.992	A BV	88354.	40.000 NG/UL	1.30
19	146	736	9:18	1	1.005	A VB	91718.	40.000 NG/UL	1.30
20	108	760	9:36	1	1.038	A BV	60300.	40.000 NG/UL	1.30
21	146	770	9:43	1	1.052	A BB	86450.	40.000 NG/UL	1.30
22	108	783	9:53	1	1.070	A BV	78714.	40.000 NG/UL	1.30
23	45	790	9:58	1	1.079	A BB	172688.	40.000 NG/UL	1.30
24	108	811	10:14	1	1.108	A BB	83764.	40.000 NG/UL	1.30
25	70	816	10:18	1	1.115	A BB	90470.	40.000 NG/UL	1.30
26	117	828	10:27	1	1.131	A BB	46358.	40.000 NG/UL	1.30
27	77	842	10:38	2	0.864	A BV	114584.	40.000 NG/UL	1.30
28	82	887	11:12	2	0.910	A BB	214116.	40.000 NG/UL	1.30
29	139	904	11:25	2	0.927	A BB	46920.	40.000 NG/UL	1.30
30	122	912	11:31	2	0.935	A BB	66552.	40.000 NG/UL	1.30
31	93	930	11:44	2	0.954	A BB	137260.	40.000 NG/UL	1.30
32	122	935	11:48	2	0.959	A BB	42142.	40.000 NG/UL	1.30
33	162	949	11:59	2	0.973	A BB	73318.	40.000 NG/UL	1.30
34	180	967	12:12	2	0.992	A BB	79400.	40.000 NG/UL	1.30
35	128	980	12:22	2	1.005	A BV	282080.	40.000 NG/UL	1.30
36	127	992	12:31	2	1.017	A BB	121904.	40.000 NG/UL	1.30
37	225	1017	12:50	2	1.043	A BB	54302.	40.000 NG/UL	1.30
38	107	1089	13:45	2	1.117	A BB	84744.	40.000 NG/UL	1.30
39	142	1118	14:07	2	1.147	A BB	164238.	40.000 NG/UL	1.30
40	237	1165	14:42	3	0.873	A BB	64728.	40.000 NG/UL	1.30
41	198	1180	14:54	3	0.885	A BV	54180.	40.000 NG/UL	1.30
42	198	1187	14:59	3	0.890	A VB	54316.	40.000 NG/UL	1.30
43	162	1216	15:21	3	0.912	A BB	166810.	40.000 NG/UL	1.30
44	65	1241	15:40	3	0.930	A BB	79326.	40.000 NG/UL	1.30
45	163	1286	16:14	3	0.964	A BB	207077.	40.000 NG/UL	1.30
46	152	1302	16:26	3	0.976	A BB	289970.	40.000 NG/UL	1.30
47	138	1326	16:44	3	0.994	A BB	54329.	40.000 NG/UL	1.30
48	153	1341	16:56	3	1.005	A BB	174750.	40.000 NG/UL	1.30
49	184	1346	17:00	3	1.009	A BB	30438.	40.000 NG/UL	1.30
50	109	1359	17:09	3	1.019	A BB	31398.	40.000 NG/UL	1.30

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R. Fac	R. Fac(L)	Ratio
1	9:14	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
2	12:19	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
3	16:50	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
4	20:32	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
5	26:43	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
6	31:00	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
7	6:35	1.00	0.712	1.00	40.00	40.00	1.276	1.276	1.00
8	8:31	1.00	0.921	1.00	40.00	40.00	1.638	1.638	1.00
9	18:52	1.00	1.120	1.00	40.00	40.00	0.235	0.235	1.00
10	10:36	1.00	0.861	1.00	40.00	40.00	0.482	0.482	1.00
11	15:06	1.00	0.897	1.00	40.00	40.00	1.158	1.158	1.00
12	24:15	1.00	0.908	1.00	40.00	40.00	0.976	0.976	1.00
13	8:49	1.00	0.954	1.00	40.00	40.00	1.277	1.277	1.00
14	9:41	1.00	1.048	1.00	40.00	40.00	0.937	0.937	1.00
15	8:32	1.00	0.923	1.00	40.00	40.00	2.028	2.028	1.00
16	8:43	1.00	0.943	1.00	40.00	40.00	1.795	1.795	1.00
17	8:51	1.00	0.958	1.00	40.00	40.00	1.490	1.490	1.00
18	9:10	1.00	0.992	1.00	40.00	40.00	1.580	1.580	1.00
19	9:18	1.00	1.005	1.00	40.00	40.00	1.640	1.640	1.00
20	9:36	1.00	1.038	1.00	40.00	40.00	1.078	1.078	1.00
21	9:43	1.00	1.052	1.00	40.00	40.00	1.546	1.546	1.00
22	9:53	1.00	1.070	1.00	40.00	40.00	1.408	1.408	1.00
23	9:58	1.00	1.079	1.00	40.00	40.00	3.089	3.089	1.00
24	10:14	1.00	1.108	1.00	40.00	40.00	1.498	1.498	1.00
25	10:18	1.00	1.115	1.00	40.00	40.00	1.618	1.618	1.00
26	10:27	1.00	1.131	1.00	40.00	40.00	0.829	0.829	1.00
27	10:38	1.00	0.864	1.00	40.00	40.00	0.518	0.518	1.00
28	11:12	1.00	0.910	1.00	40.00	40.00	0.968	0.968	1.00
29	11:25	1.00	0.927	1.00	40.00	40.00	0.212	0.212	1.00
30	11:31	1.00	0.935	1.00	40.00	40.00	0.301	0.301	1.00
31	11:44	1.00	0.954	1.00	40.00	40.00	0.621	0.621	1.00
32	11:48	1.00	0.959	1.00	40.00	40.00	0.191	0.191	1.00
33	11:59	1.00	0.973	1.00	40.00	40.00	0.332	0.332	1.00
34	12:12	1.00	0.992	1.00	40.00	40.00	0.359	0.359	1.00
35	12:22	1.00	1.005	1.00	40.00	40.00	1.275	1.275	1.00
36	12:31	1.00	1.017	1.00	40.00	40.00	0.551	0.551	1.00
37	12:50	1.00	1.043	1.00	40.00	40.00	0.246	0.246	1.00
38	13:45	1.00	1.117	1.00	40.00	40.00	0.383	0.383	1.00
39	14:07	1.00	1.147	1.00	40.00	40.00	0.743	0.743	1.00
40	14:42	1.00	0.873	1.00	40.00	40.00	0.463	0.463	1.00
41	14:54	1.00	0.885	1.00	40.00	40.00	0.388	0.388	1.00
42	14:59	1.00	0.890	1.00	40.00	40.00	0.389	0.389	1.00
43	15:21	1.00	0.912	1.00	40.00	40.00	1.194	1.194	1.00
44	15:40	1.00	0.930	1.00	40.00	40.00	0.568	0.568	1.00
45	16:14	1.00	0.964	1.00	40.00	40.00	1.482	1.482	1.00
46	16:26	1.00	0.976	1.00	40.00	40.00	2.075	2.075	1.00
47	16:44	1.00	0.994	1.00	40.00	40.00	0.389	0.389	1.00
48	16:56	1.00	1.005	1.00	40.00	40.00	1.250	1.250	1.00
49	17:00	1.00	1.009	1.00	40.00	40.00	0.218	0.218	1.00
50	17:09	1.00	1.019	1.00	40.00	40.00	0.225	0.225	1.00

Quantitation Report File: 21211S02

Data: 21211S02.TI
12/11/92 10:44:00
Sample: CLP,,,SSTD080,,,40PPM2SV1103,SV,IC-080
Conds : CAP/25,2DFT1211S1
Formula 2DFT1211S1 .32 gh Instrument: SHERMA Weight: 0.000
Submitted by: 21211S01 12/21/92 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
51	C565	DIBENZOFURAN
52	C575	2,6-DINITROTOLUENE
53	C580	DIETHYLPHTHALATE
54	C570	2,4-DINITROTOLUENE
55	C590	FLUORENE
56	C585	4-CHLOROPHENYL-PHENYLETHER
57	C595	4-NITROANILINE
58	C610	4,6-DINITRO-2-METHYLPHENOL
59	C615	N-NITROSODIPHENYLAMINE
60	C625	4-BROMOPHENYL-PHENYLETHER
61	C630	HEXACHLOROBENZENE
62	C635	PENTACHLOROPHENOL
63	C640	PHENANTHRENE
64	C645	ANTHRACENE
65	C648	CARBAZOLE
66	C650	DI-N-BUTYLPHTHALATE
67	C655	FLUORANTHENE
68	C715	PYRENE
69	C720	BUTYLBENZYLPHTHALATE
70	C725	3,3'-DICHLOROBENZIDINE
71	C730	BENZO(A)ANTHRACENE
72	C740	CHRYSENE
73	C735	BIS(2-ETHYLHEXYL)PHTHALATE
74	C760	DI-N-OCTYL PHTHALATE
75	C765	BENZO(B)FLUROANTHENE
76	C770	BENZO(K)FLUORANTHENE
77	C775	BENZO(A)PYRENE
78	C780	INDENO(1,2,3-CD)PYRENE
79	C785	DIBENZO(A,H)ANTHRACENE
80	C790	BENZO(GHI)PERYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
51	168	1373	17:20	3	1.029	A BB	240790.	40.000 NG/UL	1.30
52	165	1298	16:23	3	0.973	A VB	46316.	40.000 NG/UL	1.30
53	149	1431	18:04	3	1.073	A BB	221145.	40.000 NG/UL	1.30
54	165	1378	17:24	3	1.033	A BB	69168.	40.000 NG/UL	1.30
55	166	1444	18:14	3	1.082	A BB	207816.	40.000 NG/UL	1.30
56	204	1443	18:13	3	1.082	A BB	107992.	40.000 NG/UL	1.30
57	138	1451	18:19	3	1.088	A BB	51135.	40.000 NG/UL	1.30
58	198	1461	18:27	4	0.899	A BB	42680.	40.000 NG/UL	1.30
59	169	1467	18:31	4	0.902	A BB	157971.	40.000 NG/UL	1.30
60	248	1539	19:26	4	0.946	A BB	68780.	40.000 NG/UL	1.30
61	284	1569	19:48	4	0.965	A BB	72712.	40.000 NG/UL	1.30
62	266	1601	20:13	4	0.985	A BB	43672.	40.000 NG/UL	1.30
63	178	1631	20:35	4	1.003	A BV	318243.	40.000 NG/UL	1.30

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
64	178	1639	20:42	4	1.008	A VB	316722.	40.000 NG/UL	1.30
65	167	1668	21:03	4	1.026	A BB	267038.	40.000 NG/UL	1.30
66	149	1742	22:00	4	1.071	A BB	487945.	40.000 NG/UL	1.30
67	202	1853	23:24	4	1.140	A BB	351829.	40.000 NG/UL	1.30
68	202	1895	23:55	5	0.896	A BB	370477.	40.000 NG/UL	1.30
69	149	2014	25:26	5	0.952	A BB	193494.	40.000 NG/UL	1.30
70	252	2107	26:36	5	0.996	A BB	74780.	40.000 NG/UL	1.30
71	228	2114	26:41	5	0.999	A BV	322345	40.000 NG/UL	1.30
72	228	2121	26:47	5	1.002	A VB	295421.	40.000 NG/UL	1.30
73	149	2124	26:49	5	1.004	A BB	340224.	40.000 NG/UL	1.30
74	149	2253	28:27	6	0.917	A BB	470379.	40.000 NG/UL	1.30
75	252	2352	29:42	6	0.958	A BV	343922.	40.000 NG/UL	1.30
76	252	2357	29:45	6	0.960	A VB	253901.	40.000 NG/UL	1.30
77	252	2441	30:49	6	0.994	A BB	259365.	40.000 NG/UL	1.30
78	276	2864	36:09	6	1.166	A BB	194324.	40.000 NG/UL	1.30
79	278	2877	36:19	6	1.171	A BB	185404.	40.000 NG/UL	1.30
80	276	2988	37:43	6	1.217	A BB	165656.	40.000 NG/UL	1.30

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
51	17:20	1.00	1.029	1.00	40.00	40.00	1.723	1.723	1.00
52	16:23	1.00	0.973	1.00	40.00	40.00	0.331	0.331	1.00
53	18:04	1.00	1.073	1.00	40.00	40.00	1.582	1.582	1.00
54	17:24	1.00	1.033	1.00	40.00	40.00	0.495	0.495	1.00
55	18:14	1.00	1.082	1.00	40.00	40.00	1.487	1.487	1.00
56	18:13	1.00	1.082	1.00	40.00	40.00	0.773	0.773	1.00
57	18:19	1.00	1.088	1.00	40.00	40.00	0.366	0.366	1.00
58	18:27	1.00	0.899	1.00	40.00	40.00	0.181	0.181	1.00
59	18:31	1.00	0.902	1.00	40.00	40.00	0.671	0.671	1.00
60	19:26	1.00	0.946	1.00	40.00	40.00	0.292	0.292	1.00
61	19:48	1.00	0.965	1.00	40.00	40.00	0.309	0.309	1.00
62	20:13	1.00	0.985	1.00	40.00	40.00	0.186	0.186	1.00
63	20:35	1.00	1.003	1.00	40.00	40.00	1.352	1.352	1.00
64	20:42	1.00	1.008	1.00	40.00	40.00	1.345	1.345	1.00
65	21:03	1.00	1.026	1.00	40.00	40.00	1.134	1.134	1.00
66	22:00	1.00	1.071	1.00	40.00	40.00	2.073	2.073	1.00
67	23:24	1.00	1.140	1.00	40.00	40.00	1.495	1.495	1.00
68	23:55	1.00	0.896	1.00	40.00	40.00	1.486	1.486	1.00
69	25:26	1.00	0.952	1.00	40.00	40.00	0.776	0.776	1.00
70	26:36	1.00	0.996	1.00	40.00	40.00	0.300	0.300	1.00
71	26:41	1.00	0.999	1.00	40.00	40.00	1.293	1.293	1.00
72	26:47	1.00	1.002	1.00	40.00	40.00	1.185	1.185	1.00
73	26:49	1.00	1.004	1.00	40.00	40.00	1.365	1.365	1.00
74	28:27	1.00	0.917	1.00	40.00	40.00	2.698	2.698	1.00
75	29:42	1.00	0.958	1.00	40.00	40.00	1.973	1.973	1.00
76	29:45	1.00	0.960	1.00	40.00	40.00	1.456	1.456	1.00
77	30:49	1.00	0.994	1.00	40.00	40.00	1.488	1.488	1.00
78	36:09	1.00	1.166	1.00	40.00	40.00	1.115	1.115	1.00
79	36:19	1.00	1.171	1.00	40.00	40.00	1.064	1.064	1.00
80	37:43	1.00	1.217	1.00	40.00	40.00	0.950	0.950	1.00

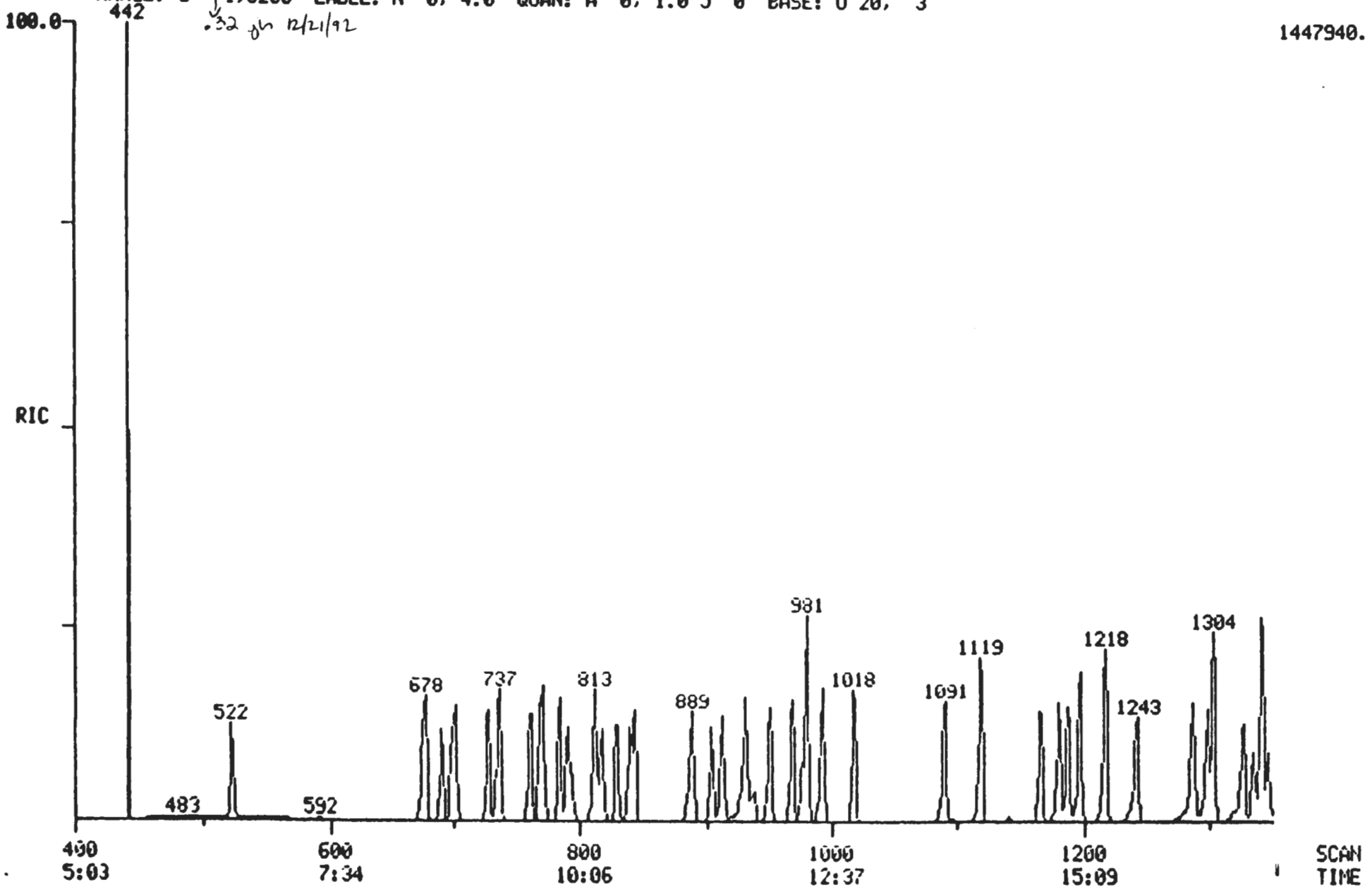
0001000

RIC
12/11/92 11:30:00
SAMPLE: CLP,,,SSTD120,,,60PPM2SV1103,SV,IC-120
CONDS.: CAP/.25,,2DFT121151
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 21211S03 #1
CALI: 21211S03 #3

SCANS 400 TO 1350

.32 gh 12/21/92



96134927 4573

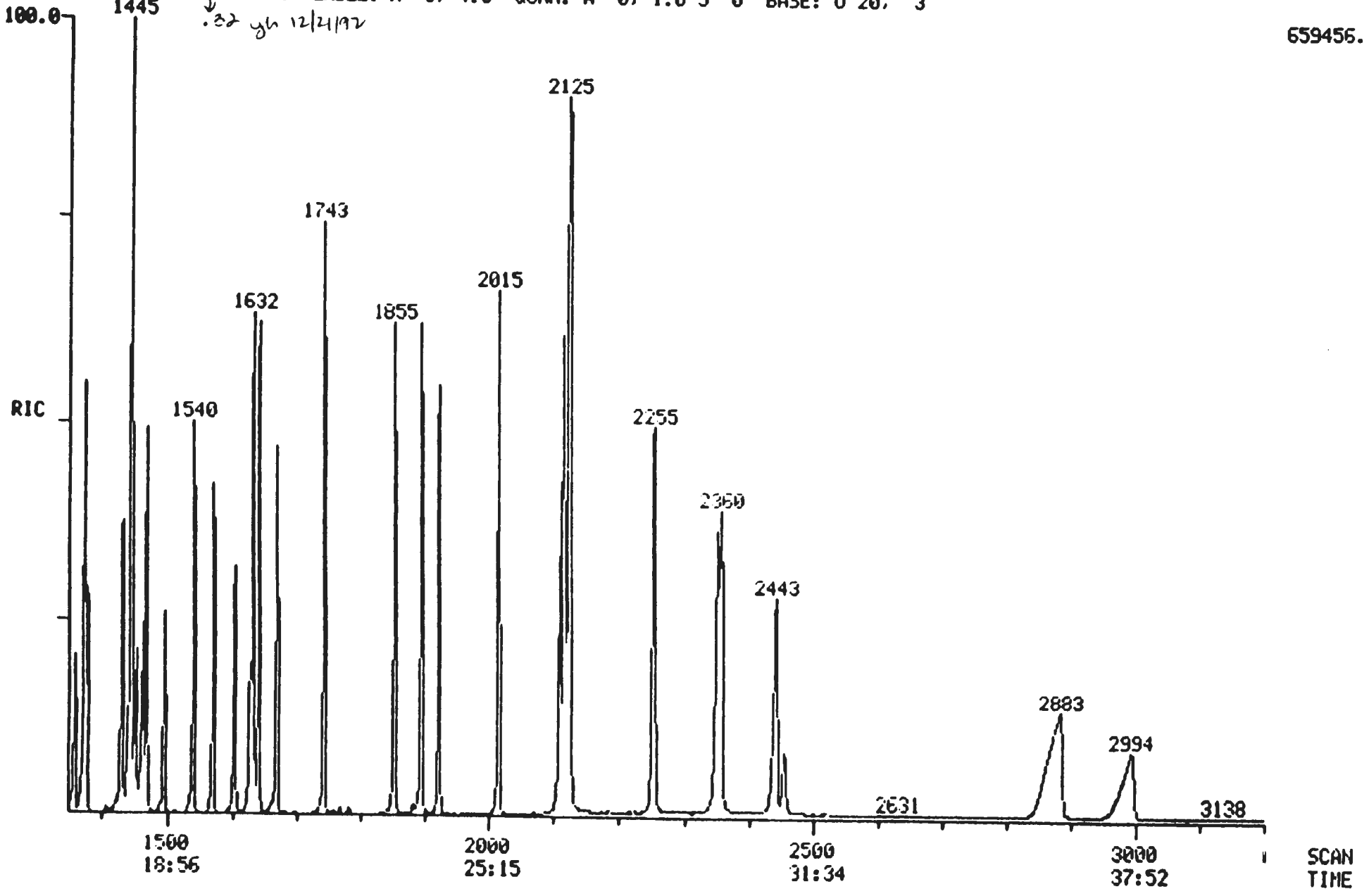
000163

RIC
12/11/92 11:30:00
SAMPLE: CLP,,,SSTD120,,,60PPM2SV1103,SV,IC-120
CONDS.: CAP/.25,,20FT1211S1
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

.32 yh 12/21/92

DATA: 21211S03 #1
CALI: 21211S03 #3

SCANS 1350 TO 3200



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9613492.4575

Quantitation Report File: 21211S03

Data: 21211S03.TI
12/11/92 11:30:00
Sample: CLP,,,SSTD120,,,60PPM2SV1103,SV,IC-120
Conds : CAP/.25, 2DFT1211S1
Formula: 2DFT1211S1 .32 gh Instrument: SHERMA Weight: 0.000
Submitted by: 21211S01 12/21/92 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI30	*IS1* 1,4-DICHLOROBENZENE-D4
2	CI40	*IS2* NAPHTHALENE-D8
3	CI50	*IS3* ACENAPTHENE-D8
4	CI60	*IS4* PHENANTHRENE-D10
5	CI70	*IS5* CHRYSENE-D12
6	CI75	*IS6* PERYLENE-D12
7	CS50	*SU1* 2-FLUOROPHENOL
8	CS45	*SU2* PHENOL-D5
9	CS55	*SU3* 2,4,6,-TRIBROMOPHENOL
10	CS20	*SU4* NITROBENZENE-D5
11	CS25	*SU5* 2-FLUOROBIPHENYL
12	CS30	*SU6* TERPHENYL-D14
13	CS70	2-CHLOROPHENOL-D4
14	CS75	1,2-DICHLOROBENZENE-D4
15	C315	PHENOL
16	C325	BIS(2-CHLOROETHYL)ETHER
17	C330	2-CHLOROPHENOL
18	C335	1,3-DICHLOROBENZENE
19	C340	1,4-DICHLOROBENZENE
20	C345	BENZYL ALCOHOL
21	C350	1,2-DICHLOROBENZENE
22	C355	2-METHYLPHENOL
23	C360	BIS(2-CHLOROISOPROPYL)ETHER
24	C365	4-METHYLPHENOL
25	C370	N-NITROSO-DI-N-PROPYLAMINE
26	C375	HEXACHLOROETHANE
27	C410	NITROBENZENE
28	C415	ISOPHORONE
29	C420	2-NITROPHENOL
30	C425	2,4-DIMETHYLPHENOL
31	C435	BIS(2-CHLOROETHOXY)METHANE
32	C430	BENZOIC ACID
33	C440	2,4-DICHLOROPHENOL
34	C445	1,2,4-TRICHLOROBENZENE
35	C450	NAPHTHALENE
36	C455	4-CHLOROANILINE
37	C460	HEXACHLOROBUTADIENE
38	C465	4-CHLORO-3-METHYLPHENOL
39	C470	2-METHYLNAPHTHALENE
40	C510	HEXACHLOROCYCLOPENTADIENE
41	C515	2,4,6-TRICHLOROPHENOL
42	C520	2,4,5-TRICHLOROPHENOL
43	C525	2-CHLORONAPHTHALENE
44	C530	2-NITROANILINE
45	C535	DIMETHYL PHTHALATE
46	C540	ACENAPHTHYLENE
47	C545	3-NITROANILINE

9613492.4576

000168

No	Name	
48	C550	ACENAPHTHENE
49	C555	2,4-DINITROPHENOL
50	C560	4-NITROPHENOL

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	152	733	9:15	1	1.000	A BB	29358.	20.000 NG/UL	0.44
2	136	977	12:20	2	1.000	A BB	125538.	20.000 NG/UL	0.44
3	164	1335	16:51	3	1.000	A BB	84602.	20.000 NG/UL	0.44
4	188	1627	20:32	4	1.000	A BV	139186.	20.000 NG/UL	0.44
5	240	2117	26:44	5	1.000	A BB	142725.	20.000 NG/UL	0.44
6	264	2457	31:01	6	1.000	A BB	104994.	20.000 NG/UL	0.44
7	112	522	6:35	1	0.712	A BB	109396.	60.000 NG/UL	1.32
8	99	675	8:31	1	0.921	A BB	142010.	60.000 NG/UL	1.32
9	330	1495	18:52	3	1.120	A BB	61150.	60.000 NG/UL	1.32
10	82	840	10:36	2	0.860	A VB	180936.	60.000 NG/UL	1.32
11	172	1198	15:07	3	0.897	A BB	269242.	60.000 NG/UL	1.32
12	244	1923	24:17	5	0.908	A BB	388568.	60.000 NG/UL	1.32
13	132	699	8:49	1	0.954	A BB	111312.	60.000 NG/UL	1.32
14	152	768	9:42	1	1.048	A BB	81628.	60.000 NG/UL	1.32
15	94	678	8:34	1	0.925	A BV	169556.	60.000 NG/UL	1.32
16	93	691	8:43	1	0.943	A BB	153270.	60.000 NG/UL	1.32
17	128	702	8:52	1	0.958	A BB	123802.	60.000 NG/UL	1.32
18	146	727	9:11	1	0.992	A BV	130548.	60.000 NG/UL	1.32
19	146	737	9:18	1	1.005	A VB	136162.	60.000 NG/UL	1.32
20	108	761	9:36	1	1.038	A BV	93250.	60.000 NG/UL	1.32
21	146	771	9:44	1	1.052	A BB	129846.	60.000 NG/UL	1.32
22	108	785	9:55	1	1.071	A BV	121962.	60.000 NG/UL	1.32
23	45	791	9:59	1	1.079	A BB	284912.	60.000 NG/UL	1.32
24	108	812	10:15	1	1.108	A BB	133708.	60.000 NG/UL	1.32
25	70	818	10:20	1	1.116	A BB	145251.	60.000 NG/UL	1.32
26	117	830	10:29	1	1.132	A BB	72018.	60.000 NG/UL	1.32
27	77	844	10:39	2	0.864	A BB	188316.	60.000 NG/UL	1.32
28	82	889	11:13	2	0.910	A BB	355296	60.000 NG/UL	1.32
29	139	905	11:26	2	0.926	A BB	76857.	60.000 NG/UL	1.32
30	122	913	11:32	2	0.934	A BB	107474.	60.000 NG/UL	1.32
31	93	932	11:46	2	0.954	A BB	227012.	60.000 NG/UL	1.32
32	122	939	11:51	2	0.961	A BB	71556.	60.000 NG/UL	1.32
33	162	951	12:00	2	0.973	A BB	116590.	60.000 NG/UL	1.32
34	180	969	12:14	2	0.992	A BB	123684.	60.000 NG/UL	1.32
35	128	981	12:23	2	1.004	A BV	471502.	60.000 NG/UL	1.32
36	127	993	12:32	2	1.016	A VB	210528.	60.000 NG/UL	1.32
37	225	1018	12:51	2	1.042	A BB	87592.	60.000 NG/UL	1.32
38	107	1091	13:46	2	1.117	A BB	142822.	60.000 NG/UL	1.32
39	142	1119	14:08	2	1.145	A BB	266349.	60.000 NG/UL	1.32
40	237	1166	14:43	3	0.873	A BB	103122.	60.000 NG/UL	1.32
41	198	1181	14:55	3	0.885	A BV	86846.	60.000 NG/UL	1.32
42	198	1188	15:00	3	0.890	M XX	85624.	60.000 NG/UL	1.32
43	162	1218	15:23	3	0.912	A BB	273912.	60.000 NG/UL	1.32
44	65	1243	15:42	3	0.931	A BB	140225.	60.000 NG/UL	1.32
45	163	1287	16:15	3	0.964	A BB	346101.	60.000 NG/UL	1.32
46	152	1304	16:28	3	0.977	A BB	482048.	60.000 NG/UL	1.32
47	138	1327	16:45	3	0.994	A BB	98504.	60.000 NG/UL	1.32
48	153	1342	16:57	3	1.005	A BB	292666.	60.000 NG/UL	1.32
49	184	1347	17:00	3	1.009	A BB	53814.	60.000 NG/UL	1.32
50	109	1361	17:11	3	1.019	A BB	53092.	60.000 NG/UL	1.32

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R. Fac	R. Fac(L)	Ratio
1	9 15	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
2	12 20	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
3	16 51	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
4	20 32	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
5	26 44	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
6	31 01	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
7	6 35	1.00	0.712	1.00	60.00	60.00	1.242	1.242	1.00
8	8 31	1.00	0.921	1.00	60.00	60.00	1.612	1.612	1.00
9	18 52	1.00	1.120	1.00	60.00	60.00	0.241	0.241	1.00
10	10:36	1.00	0.860	1.00	60.00	60.00	0.480	0.480	1.00
11	15:07	1.00	0.897	1.00	60.00	60.00	1.061	1.061	1.00
12	24:17	1.00	0.908	1.00	60.00	60.00	0.907	0.907	1.00
13	8:49	1.00	0.954	1.00	60.00	60.00	1.264	1.264	1.00
14	9:42	1.00	1.048	1.00	60.00	60.00	0.927	0.927	1.00
15	8:34	1.00	0.925	1.00	60.00	60.00	1.925	1.925	1.00
16	8:43	1.00	0.943	1.00	60.00	60.00	1.740	1.740	1.00
17	8:52	1.00	0.958	1.00	60.00	60.00	1.406	1.406	1.00
18	9:11	1.00	0.992	1.00	60.00	60.00	1.482	1.482	1.00
19	9:18	1.00	1.005	1.00	60.00	60.00	1.546	1.546	1.00
20	9:36	1.00	1.038	1.00	60.00	60.00	1.059	1.059	1.00
21	9:44	1.00	1.052	1.00	60.00	60.00	1.474	1.474	1.00
22	9:55	1.00	1.071	1.00	60.00	60.00	1.385	1.385	1.00
23	9:59	1.00	1.079	1.00	60.00	60.00	3.235	3.235	1.00
24	10:15	1.00	1.108	1.00	60.00	60.00	1.518	1.518	1.00
25	10:20	1.00	1.116	1.00	60.00	60.00	1.649	1.649	1.00
26	10:29	1.00	1.132	1.00	60.00	60.00	0.818	0.818	1.00
27	10 39	1.00	0.864	1.00	60.00	60.00	0.500	0.500	1.00
28	11:13	1.00	0.910	1.00	60.00	60.00	0.943	0.943	1.00
29	11:26	1.00	0.926	1.00	60.00	60.00	0.204	0.204	1.00
30	11:32	1.00	0.934	1.00	60.00	60.00	0.285	0.285	1.00
31	11:46	1.00	0.954	1.00	60.00	60.00	0.603	0.603	1.00
32	11.51	1.00	0.961	1.00	60.00	60.00	0.190	0.190	1.00
33	12:00	1.00	0.973	1.00	60.00	60.00	0.310	0.310	1.00
34	12 14	1.00	0.992	1.00	60.00	60.00	0.328	0.328	1.00
35	12:23	1.00	1.004	1.00	60.00	60.00	1.252	1.252	1.00
36	12:32	1.00	1.016	1.00	60.00	60.00	0.559	0.559	1.00
37	12:51	1.00	1.042	1.00	60.00	60.00	0.233	0.233	1.00
38	13:46	1.00	1.117	1.00	60.00	60.00	0.379	0.379	1.00
39	14:08	1.00	1.145	1.00	60.00	60.00	0.707	0.707	1.00
40	14 43	1.00	0.873	1.00	60.00	60.00	0.406	0.406	1.00
41	14:55	1.00	0.885	1.00	60.00	60.00	0.342	0.342	1.00
42	15:00	1.00	0.890	1.00	60.00	60.00	0.337	0.337	1.00
43	15:23	1.00	0.912	1.00	60.00	60.00	1.079	1.079	1.00
44	15:42	1.00	0.931	1.00	60.00	60.00	0.552	0.552	1.00
45	16:15	1.00	0.964	1.00	60.00	60.00	1.364	1.364	1.00
46	16:28	1.00	0.977	1.00	60.00	60.00	1.899	1.899	1.00
47	16:45	1.00	0.994	1.00	60.00	60.00	0.388	0.388	1.00
48	16:57	1.00	1.005	1.00	60.00	60.00	1.153	1.153	1.00
49	17:00	1.00	1.009	1.00	60.00	60.00	0.212	0.212	1.00
50	17:11	1.00	1.019	1.00	60.00	60.00	0.209	0.209	1.00

Quantitation Report File: 21211S03

Data 21211S03.TI
12/11/92 11:30:00
Sample CLP...SSTD120...60PPM2SV1103.SV.IC-120
Conds.: CAP/25.2DFT1211S1
Formula 2DFT1211S1 v.32 gh Instrument: SHERMA Weight: 0.000
Submitted by: 21211S01 12/21/92 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac from Library Entry

No	Name	
51	C565	DIBENZOFURAN
52	C575	2,6-DINITROTOLUENE
53	C580	DIETHYLPHTHALATE
54	C570	2,4-DINITROTOLUENE
55	C590	FLUORENE
56	C585	4-CHLOROPHENYL-PHENYLETHER
57	C595	4-NITROANILINE
58	C610	4,6-DINITRO-2-METHYLPHENOL
59	C615	N-NITROSODIPHENYLAMINE
60	C625	4-BROMOPHENYL-PHENYLETHER
61	C630	HEXACHLOROBENZENE
62	C635	PENTACHLOROPHENOL
63	C640	PHENANTHRENE
64	C645	ANTHRACENE
65	C648	CARBAZOLE
66	C650	DI-N-BUTYLPHTHALATE
67	C655	FLUORANTHENE
68	C715	PYRENE
69	C720	BUTYLBENZYLPHTHALATE
70	C725	3,3'-DICHLOROBENZIDINE
71	C730	BENZO(A)ANTHRACENE
72	C740	CHRYSENE
73	C735	BIS(2-ETHYLHEXYL)PHTHALATE
74	C760	DI-N-OCTYL PHTHALATE
75	C765	BENZO(B)FLUROANTHENE
76	C770	BENZO(K)FLUORANTHENE
77	C775	BENZO(A)PYRENE
78	C780	INDENO(1,2,3-CD)PYRENE
79	C785	DIBENZO(A,H)ANTHRACENE
80	C790	BENZO(GHI)PERYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
51	168	1375	17:22	3	1.030	A BB	407873.	60.000 NG/UL	1.32
52	165	1299	16:24	3	0.973	A BB	82614.	60.000 NG/UL	1.32
53	149	1432	18:05	3	1.073	A BB	378733.	60.000 NG/UL	1.32
54	165	1379	17:25	3	1.033	A BB	120511.	60.000 NG/UL	1.32
55	166	1445	18:15	3	1.082	A BB	343989.	60.000 NG/UL	1.32
56	204	1445	18:15	3	1.082	A BB	175756.	60.000 NG/UL	1.32
57	138	1453	18:21	3	1.088	A BB	93857.	60.000 NG/UL	1.32
58	198	1462	18:27	4	0.899	A BB	75705.	60.000 NG/UL	1.32
59	169	1468	18:32	4	0.902	A BB	273615.	60.000 NG/UL	1.32
60	248	1540	19:27	4	0.947	A BB	117152.	60.000 NG/UL	1.32
61	284	1570	19:49	4	0.965	A BB	121456.	60.000 NG/UL	1.32
62	266	1603	20:14	4	0.985	A BB	75766.	60.000 NG/UL	1.32
63	178	1632	20:36	4	1.003	A BV	508206.	60.000 NG/UL	1.32

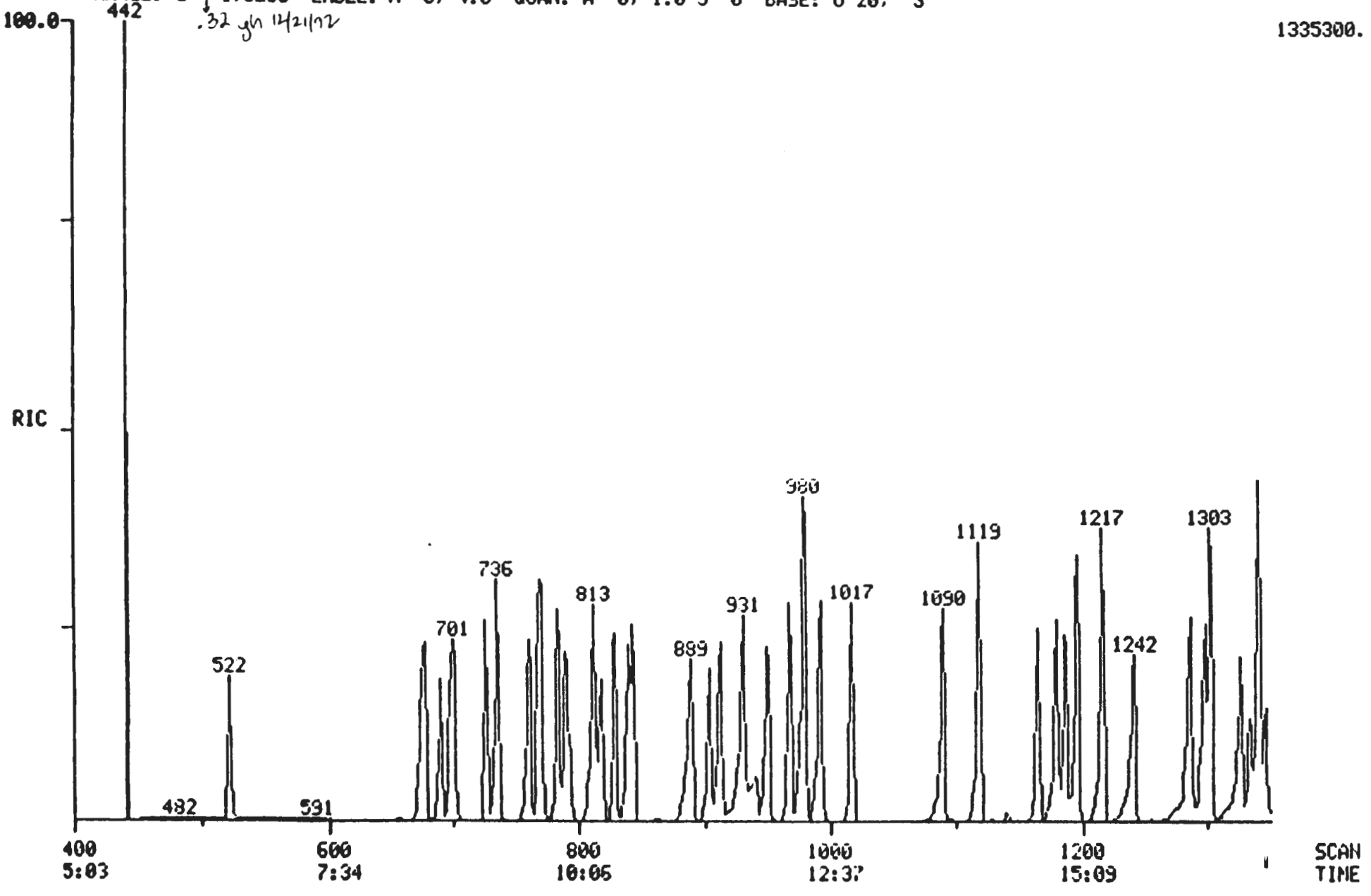
No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	XTot
64	178	1641	20:43	4	1 009	A VB	487952.	60.000 NG/UL	1.32
65	167	1669	21:04	4	1.026	A BB	422894.	60.000 NG/UL	1.32
66	149	1743	22:00	4	1.071	A BB	729624.	60.000 NG/UL	1.32
67	202	1855	23:25	4	1 140	A BB	520243.	60.000 NG/UL	1.32
68	202	1896	23:56	5	0 896	A BB	557146.	60.000 NG/UL	1.32
69	149	2015	25:26	5	0 952	A BB	318105.	60.000 NG/UL	1.32
70	252	2108	26.37	5	0 996	A BB	126924.	60.000 NG/UL	1.32
71	228	2115	26:42	5	0 999	A BV	530208.	60.000 NG/UL	1.32
72	228	2123	26:48	5	1 003	A VB	451840.	60.000 NG/UL	1.32
73	149	2125	26:50	5	1.004	A BB	510323.	60.000 NG/UL	1.32
74	149	2255	28:28	6	0.918	A BB	784982.	60.000 NG/UL	1.32
75	252	2354	29:43	6	0 958	A BV	586316.	60.000 NG/UL	1.32
76	252	2359	29:47	6	0 960	M XX	471688.	60.000 NG/UL	1.32
77	252	2443	30:51	6	0.994	A BB	451278.	60.000 NG/UL	1.32
78	276	2869	36:13	6	1.168	A BB	302306.	60.000 NG/UL	1.32
79	278	2884	36:25	6	1.174	A BB	282520.	60.000 NG/UL	1.32
80	276	2994	37:48	6	1.219	M XX	388676.	60.000 NG/UL	1.32

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
51	17:22	1.00	1.030	1.00	60.00	60.00	1.607	1.607	1.00
52	16:24	1.00	0.973	1.00	60.00	60.00	0.325	0.325	1.00
53	18:05	1.00	1.073	1.00	60.00	60.00	1.492	1.492	1.00
54	17:25	1.00	1.033	1.00	60.00	60.00	0.475	0.475	1.00
55	18:15	1.00	1.082	1.00	60.00	60.00	1.355	1.355	1.00
56	18:15	1.00	1.082	1.00	60.00	60.00	0.692	0.692	1.00
57	18:21	1.00	1.088	1.00	60.00	60.00	0.370	0.370	1.00
58	18:27	1.00	0.899	1.00	60.00	60.00	0.181	0.181	1.00
59	18:32	1.00	0.902	1.00	60.00	60 00	0.655	0.655	1.00
60	19.27	1.00	0.947	1.00	60.00	60.00	0.281	0.281	1.00
61	19.49	1.00	0.965	1.00	60.00	60.00	0.291	0.291	1.00
62	20:14	1.00	0.985	1.00	60.00	60.00	0.181	0.181	1.00
63	20:36	1.00	1.003	1.00	60.00	60 00	1.217	1.217	1.00
64	20:43	1.00	1 009	1.00	60.00	60 00	1.169	1.169	1.00
65	21:04	1.00	1.026	1.00	60.00	60.00	1.013	1.013	1.00
66	22:00	1.00	1.071	1.00	60.00	60.00	1.747	1.747	1.00
67	23:25	1.00	1.140	1.00	60.00	60.00	1.246	1.246	1.00
68	23:56	1.00	0.896	1.00	60.00	60.00	1.301	1.301	1.00
69	25:26	1.00	0.952	1.00	60.00	60.00	0.743	0.743	1.00
70	26:37	1.00	0.996	1.00	60.00	60.00	0.296	0.296	1.00
71	26:42	1.00	0.999	1.00	60.00	60.00	1.238	1.238	1.00
72	26:48	1.00	1.003	1.00	60.00	60.00	1.055	1.055	1.00
73	26:50	1.00	1.004	1.00	60.00	60.00	1.192	1.192	1.00
74	28:28	1.00	0.918	1.00	60.00	60.00	2.492	2.492	1.00
75	29:43	1.00	0.958	1.00	60.00	60.00	1.861	1.861	1.00
76	29:47	1.00	0.960	1.00	60.00	60.00	1.498	1.498	1.00
77	30:51	1.00	0.994	1.00	60.00	60.00	1.433	1.433	1.00
78	36:13	1.00	1.168	1.00	60.00	60.00	0.960	0.960	1.00
79	36:25	1.00	1.174	1.00	60.00	60.00	0.897	0.897	1.00
80	37:48	1.00	1.219	1.00	60.00	60.00	1.234	1.234	1.00

000172

RIC
12/11/92 12:17:00
SAMPLE: CLP,,,SSTD160,,,80PPM2SV1103,SV,IC-~~080~~ 160 gh 12/21/92
CONDS.: CAP/.25,,2DFT121151
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3
.32 gh 12/21/92

DATA: 21211S04 #1
CALI: 21211S04 #3
SCANS 400 TO 1350



0013762 USGS

0001173

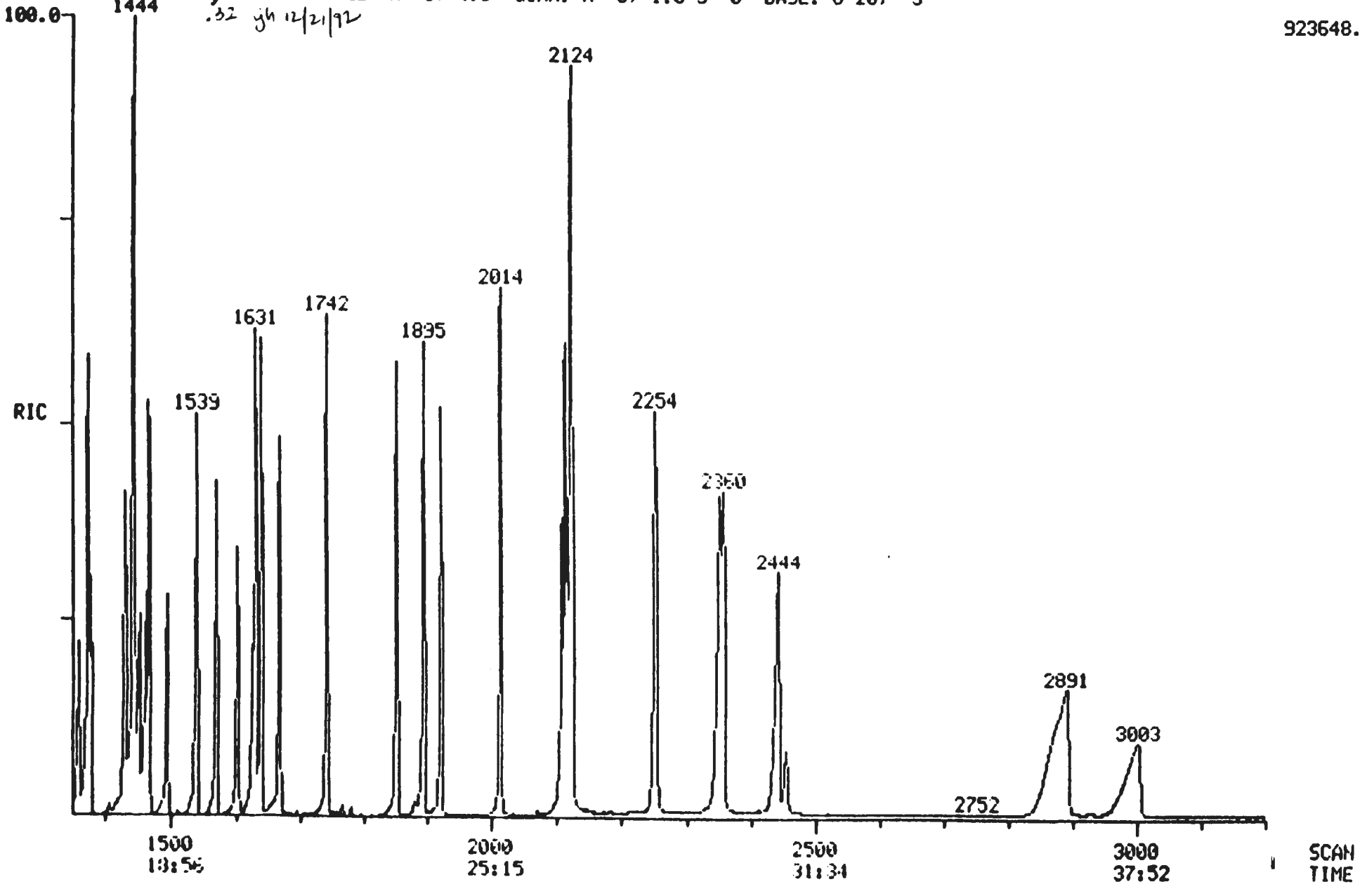
RIC
12/11/92 12:17:00
SAMPLE: CLP,,,SSTD160,,,80PPM2SV1103,SV,IC-080
CONDS.: CAP/.25,,2DFT121151
RANGE: G 1.3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 21211S04 #1
CALI: 21211S04 #3

SCANS 1350 TO 3200

160 gh 12/21/92

.32 gh 12/21/92



95-2013-96

Quantitation Report File: 21211S04

Data: 21211S04 TI
12/11/92 12 17:00
Sample: CLP...SSTD160...80PPM2SV1103.SV.IC-160
Conds : CAP/ 25 .2DFT1211S1
Formula: 2DFT1211S1.32 gh Instrument: SHERMA Weight: 0.000
Submitted by 21211S01 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac from Library Entry

No	Name	
1	CI30	*IS1* 1,4-DICHLOROBENZENE-D4
2	CI40	*IS2* NAPHTHALENE-D8
3	CI50	*IS3* ACENAPTHENE-D8
4	CI60	*IS4* PHENANTHRENE-D10
5	CI70	*IS5* CHRYSENE-D12
6	CI75	*IS6* PERYLENE-D12
7	CS50	*SU1* 2-FLUOROPHENOL
8	CS45	*SU2* PHENOL-D5
9	CS55	*SU3* 2,4,6,-TRIBROMOPHENOL
10	CS20	*SU4* NITROBENZENE-D5
11	CS25	*SU5* 2-FLUOROBIPHENYL
12	CS30	*SU6* TERPHENYL-D14
13	CS70	2-CHLOROPHENOL-D4
14	CS75	1,2-DICHLOROBENZENE-D4
15	C315	PHENOL
16	C325	BIS(2-CHLOROETHYL)ETHER
17	C330	2-CHLOROPHENOL
18	C335	1,3-DICHLOROBENZENE
19	C340	1,4-DICHLOROBENZENE
20	C345	BENZYL ALCOHOL
21	C350	1,2-DICHLOROBENZENE
22	C355	2-METHYLPHENOL
23	C360	BIS(2-CHLOROISOPROPYL)ETHER
24	C365	4-METHYLPHENOL
25	C370	N-NITROSO-DI-N-PROPYLAMINE
26	C375	HEXACHLOROETHANE
27	C410	NITROBENZENE
28	C415	ISOPHORONE
29	C420	2-NITROPHENOL
30	C425	2,4-DIMETHYLPHENOL
31	C435	BIS(2-CHLOROETHOXY)METHANE
32	C430	BENZOIC ACID
33	C440	2,4-DICHLOROPHENOL
34	C445	1,2,4-TRICHLOROBENZENE
35	C450	NAPHTHALENE
36	C455	4-CHLOROANILINE
37	C460	HEXACHLOROBUTADIENE
38	C465	4-CHLORO-3-METHYLPHENOL
39	C470	2-METHYLNAPHTHALENE
40	C510	HEXACHLOROCYCLOPENTADIENE
41	C515	2,4,6-TRICHLOROPHENOL
42	C520	2,4,5-TRICHLOROPHENOL
43	C525	2-CHLORONAPHTHALENE
44	C530	2-NITROANILINE
45	C535	DIMETHYL PHTHALATE
46	C540	ACENAPHTHYLENE
47	C545	3-NITROANILINE

No	Name	
48	C550	ACENAPHTHENE
49	C555	2,4-DINITROPHENOL
50	C560	4-NITROPHENOL

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	152	733	9:15	1	1.000	A BB	37166	20.000 NG/UL	0.33
2	136	976	12.19	2	1.000	A BB	177950.	20.000 NG/UL	0.33
3	164	1334	16:50	3	1.000	A BB	114674.	20.000 NG/UL	0.33
4	188	1626	20:32	4	1.000	A BB	185031.	20.000 NG/UL	0.33
5	240	2116	26:43	5	1.000	A BB	174545.	20.000 NG/UL	0.33
6	264	2456	31:00	6	1.000	A BB	148859.	20.000 NG/UL	0.33
7	112	522	6:35	1	0.712	A BB	165028.	80.000 NG/UL	1.32
8	99	675	8:31	1	0.921	A BB	215884.	80.000 NG/UL	1.32
9	330	1494	18.52	3	1.120	A BB	102860.	80.000 NG/UL	1.32
10	82	840	10:36	2	0.861	A VB	334127.	80.000 NG/UL	1.32
11	172	1197	15:07	3	0.897	A BB	479106.	80.000 NG/UL	1.32
12	244	1921	24:15	5	0.908	A BB	593585.	80.000 NG/UL	1.32
13	132	698	8:49	1	0.952	A BB	175114.	80.000 NG/UL	1.32
14	152	768	9:42	1	1.048	A BB	142622.	80.000 NG/UL	1.32
15	94	678	8:34	1	0.925	A BV	266660.	80.000 NG/UL	1.32
16	93	691	8:43	1	0.943	A BV	246229.	80.000 NG/UL	1.32
17	128	701	8:51	1	0.956	A BB	201972.	80.000 NG/UL	1.32
18	146	727	9:11	1	0.992	A BV	211318.	80.000 NG/UL	1.32
19	146	736	9:18	1	1.004	A VB	227748.	80.000 NG/UL	1.32
20	108	761	9:36	1	1.038	A BV	161646.	80.000 NG/UL	1.32
21	146	770	9:43	1	1.050	A BB	234352	80.000 NG/UL	1.32
22	108	784	9:54	1	1.070	A BV	220289.	80.000 NG/UL	1.32
23	45	790	9:58	1	1.078	A BB	529646.	80.000 NG/UL	1.32
24	108	812	10:15	1	1.108	A BB	245643	80.000 NG/UL	1.32
25	70	818	10:20	1	1.116	A BB	264423.	80.000 NG/UL	1.32
26	117	829	10:28	1	1.131	A BB	131946.	80.000 NG/UL	1.32
27	77	843	10:39	2	0.864	A VB	345626.	80.000 NG/UL	1.32
28	82	889	11:13	2	0.911	A BB	647690.	80.000 NG/UL	1.32
29	139	904	11:25	2	0.926	A BB	140070.	80.000 NG/UL	1.32
30	122	913	11:32	2	0.935	A BB	199565.	80.000 NG/UL	1.32
31	93	931	11:45	2	0.954	A BB	416239	80.000 NG/UL	1.32
32	122	941	11:53	2	0.964	A BB	122032.	80.000 NG/UL	1.32
33	162	950	12:00	2	0.973	A BB	210297.	80.000 NG/UL	1.32
34	180	968	12:13	2	0.992	A BB	221210.	80.000 NG/UL	1.32
35	128	980	12:22	2	1.004	A BV	799532.	80.000 NG/UL	1.32
36	127	993	12:32	2	1.017	A VB	350573.	80.000 NG/UL	1.32
37	225	1017	12:50	2	1.042	A BB	143884.	80.000 NG/UL	1.32
38	107	1090	13:46	2	1.117	A BB	257672.	80.000 NG/UL	1.32
39	142	1118	14:07	2	1.145	A BB	480067.	80.000 NG/UL	1.32
40	237	1165	14:42	3	0.873	A BB	178112.	80.000 NG/UL	1.32
41	198	1180	14:54	3	0.885	A BV	164222.	80.000 NG/UL	1.32
42	198	1187	14:59	3	0.890	M XX	146356.	80.000 NG/UL	1.32
43	162	1217	15:22	3	0.912	A BB	488921.	80.000 NG/UL	1.32
44	65	1242	15:41	3	0.931	A BB	249559.	80.000 NG/UL	1.32
45	163	1287	16:15	3	0.965	A BB	590946.	80.000 NG/UL	1.32
46	152	1303	16:27	3	0.977	A BB	808212.	80.000 NG/UL	1.32
47	138	1327	16:45	3	0.995	A BB	170506.	80.000 NG/UL	1.32
48	153	1342	16:57	3	1.006	A BB	489504.	80.000 NG/UL	1.32
49	184	1346	17:00	3	1.009	A BB	94331.	80.000 NG/UL	1.32
50	109	1360	17:10	3	1.019	A BB	90459.	80.000 NG/UL	1.32

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R. Fac	R. Fac(L)	Ratio
1	9.15	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
2	12:19	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
3	16:50	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
4	20:32	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
5	26:43	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
6	31:00	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
7	6:35	1.00	0.712	1.00	80.00	80.00	1.110	1.110	1.00
8	8:31	1.00	0.921	1.00	80.00	80.00	1.452	1.452	1.00
9	18:52	1.00	1.120	1.00	80.00	80.00	0.224	0.224	1.00
10	10:36	1.00	0.861	1.00	80.00	80.00	0.469	0.469	1.00
11	15:07	1.00	0.897	1.00	80.00	80.00	1.044	1.044	1.00
12	24:15	1.00	0.908	1.00	80.00	80.00	0.850	0.850	1.00
13	8:49	1.00	0.952	1.00	80.00	80.00	1.178	1.178	1.00
14	9:42	1.00	1.048	1.00	80.00	80.00	0.959	0.959	1.00
15	8:34	1.00	0.925	1.00	80.00	80.00	1.794	1.794	1.00
16	8:43	1.00	0.943	1.00	80.00	80.00	1.656	1.656	1.00
17	8:51	1.00	0.956	1.00	80.00	80.00	1.359	1.359	1.00
18	9:11	1.00	0.992	1.00	80.00	80.00	1.421	1.421	1.00
19	9:18	1.00	1.004	1.00	80.00	80.00	1.532	1.532	1.00
20	9:36	1.00	1.038	1.00	80.00	80.00	1.087	1.087	1.00
21	9:43	1.00	1.050	1.00	80.00	80.00	1.576	1.576	1.00
22	9:54	1.00	1.070	1.00	80.00	80.00	1.482	1.482	1.00
23	9.58	1.00	1.078	1.00	80.00	80.00	3.563	3.563	1.00
24	10:15	1.00	1.108	1.00	80.00	80.00	1.652	1.652	1.00
25	10:20	1.00	1.116	1.00	80.00	80.00	1.779	1.779	1.00
26	10:28	1.00	1.131	1.00	80.00	80.00	0.888	0.888	1.00
27	10:39	1.00	0.864	1.00	80.00	80.00	0.486	0.486	1.00
28	11:13	1.00	0.911	1.00	80.00	80.00	0.910	0.910	1.00
29	11:25	1.00	0.926	1.00	80.00	80.00	0.197	0.197	1.00
30	11:32	1.00	0.935	1.00	80.00	80.00	0.280	0.280	1.00
31	11:45	1.00	0.954	1.00	80.00	80.00	0.585	0.585	1.00
32	11:53	1.00	0.964	1.00	80.00	80.00	0.171	0.171	1.00
33	12:00	1.00	0.973	1.00	80.00	80.00	0.295	0.295	1.00
34	12:13	1.00	0.992	1.00	80.00	80.00	0.311	0.311	1.00
35	12:22	1.00	1.004	1.00	80.00	80.00	1.123	1.123	1.00
36	12:32	1.00	1.017	1.00	80.00	80.00	0.493	0.493	1.00
37	12:50	1.00	1.042	1.00	80.00	80.00	0.202	0.202	1.00
38	13:46	1.00	1.117	1.00	80.00	80.00	0.362	0.362	1.00
39	14:07	1.00	1.145	1.00	80.00	80.00	0.674	0.674	1.00
40	14:42	1.00	0.873	1.00	80.00	80.00	0.388	0.388	1.00
41	14:54	1.00	0.885	1.00	80.00	80.00	0.358	0.358	1.00
42	14:59	1.00	0.890	1.00	80.00	80.00	0.319	0.319	1.00
43	15:22	1.00	0.912	1.00	80.00	80.00	1.066	1.066	1.00
44	15:41	1.00	0.931	1.00	80.00	80.00	0.544	0.544	1.00
45	16:15	1.00	0.965	1.00	80.00	80.00	1.288	1.288	1.00
46	16:27	1.00	0.977	1.00	80.00	80.00	1.762	1.762	1.00
47	16:45	1.00	0.995	1.00	80.00	80.00	0.372	0.372	1.00
48	16:57	1.00	1.006	1.00	80.00	80.00	1.067	1.067	1.00
49	17:00	1.00	1.009	1.00	80.00	80.00	0.206	0.206	1.00
50	17:10	1.00	1.019	1.00	80.00	80.00	0.197	0.197	1.00

9613492.4585

000177

Quantitation Report File: 21211S04

Data: 21211S04.TI
12/11/92 12:17:00
Sample: CLP...SSTD160...80PPM2SV1103,SV,IC-160
Conds : CAP/25.2DFT1211S1
Formula: 2DFT1211S1.32 gh Instrument: SHERMA Weight: 0.000
Submitted by 21211S01 12/21/92 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
51	C565	DIBENZOFURAN
52	C575	2,6-DINITROTOLUENE
53	C580	DIETHYLPHTHALATE
54	C570	2,4-DINITROTOLUENE
55	C590	FLUORENE
56	C585	4-CHLOROPHENYL-PHENYLETHER
57	C595	4-NITROANILINE
58	C610	4,6-DINITRO-2-METHYLPHENOL
59	C615	N-NITROSODIPHENYLAMINE
60	C625	4-BROMOPHENYL-PHENYLETHER
61	C630	HEXACHLOROBENZENE
62	C635	PENTACHLOROPHENOL
63	C640	PHENANTHRENE
64	C645	ANTHRACENE
65	C648	CARBAZOLE
66	C650	DI-N-BUTYLPHTHALATE
67	C655	FLUORANTHENE
68	C715	PYRENE
69	C720	BUTYLBENZYLPHTHALATE
70	C725	3,3'-DICHLOROBENZIDINE
71	C730	BENZO(A)ANTHRACENE
72	C740	CHRYSENE
73	C735	BIS(2-ETHYLHEXYL)PHTHALATE
74	C760	DI-N-OCTYL PHTHALATE
75	C765	BENZO(B)FLUROANTHENE
76	C770	BENZO(K)FLUORANTHENE
77	C775	BENZO(A)PYRENE
78	C780	INDENO(1,2,3-CD)PYRENE
79	C785	DIBENZO(A,H)ANTHRACENE
80	C790	BENZO(GHI)PERYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
51	168	1374	17:21	3	1.030	A BB	683614.	80.000 NG/UL	1.32
52	165	1298	16:23	3	0.973	A VB	123824.	80.000 NG/UL	1.32
53	149	1431	18:04	3	1.073	A BB	626336.	80.000 NG/UL	1.32
54	165	1379	17:25	3	1.034	A VB	184877.	80.000 NG/UL	1.32
55	166	1445	18:15	3	1.083	A BB	565992.	80.000 NG/UL	1.32
56	204	1444	18:14	3	1.082	A BB	283518.	80.000 NG/UL	1.32
57	138	1453	18:21	3	1.089	A BB	167407.	80.000 NG/UL	1.32
58	198	1462	18:27	4	0.899	A BB	128608.	80.000 NG/UL	1.32
59	169	1467	18:31	4	0.902	A BB	456345.	80.000 NG/UL	1.32
60	248	1539	19:26	4	0.946	A BB	188944.	80.000 NG/UL	1.32
61	284	1569	19:48	4	0.965	A BB	200020.	80.000 NG/UL	1.32
62	266	1602	20:13	4	0.985	A BB	127461.	80.000 NG/UL	1.32
63	178	1631	20:35	4	1.003	A BV	803856.	80.000 NG/UL	1.32

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
64	178	1640	20:42	4	1.009	A VB	721824.	80.000	NG/UL	1.32
65	167	1668	21:03	4	1.026	A BB	659226.	80.000	NG/UL	1.32
66	149	1741	21:59	4	1.071	A BB	1094300.	80.000	NG/UL	1.32
67	202	1854	23:24	4	1.140	A BB	795779.	80.000	NG/UL	1.32
68	202	1895	23:55	5	0.896	A BB	844618.	80.000	NG/UL	1.32
69	149	2013	25:25	5	0.951	A BB	506970	80.000	NG/UL	1.32
70	252	2107	26:36	5	0.996	A BB	212089	80.000	NG/UL	1.32
71	228	2114	26:41	5	0.999	A BV	827632.	80.000	NG/UL	1.32
72	228	2122	26:47	5	1.003	A VB	618736.	80.000	NG/UL	1.32
73	149	2124	26:49	5	1.004	A BB	740411.	80.000	NG/UL	1.32
74	149	2253	28:27	6	0.917	A BB	1262540.	80.000	NG/UL	1.32
75	252	2354	29:43	6	0.958	A BV	981968.	80.000	NG/UL	1.32
76	252	2359	29:47	6	0.961	M XX	685934.	80.000	NG/UL	1.32
77	252	2444	30:51	6	0.995	A BB	765330.	80.000	NG/UL	1.32
78	276	2875	36:18	6	1.171	A BB	538060.	80.000	NG/UL	1.32
79	278	2892	36:31	6	1.178	M XX	748236.	80.000	NG/UL	1.32
80	276	3003	37:55	6	1.223	M XX	529279.	80.000	NG/UL	1.32

12/11/97

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
51	17:21	1.00	1.030	1.00	80.00	80.00	1.490	1.490	1.00
52	16:23	1.00	0.973	1.00	80.00	80.00	0.270	0.270	1.00
53	18:04	1.00	1.073	1.00	80.00	80.00	1.365	1.365	1.00
54	17:25	1.00	1.034	1.00	80.00	80.00	0.403	0.403	1.00
55	18:15	1.00	1.083	1.00	80.00	80.00	1.234	1.234	1.00
56	18:14	1.00	1.082	1.00	80.00	80.00	0.618	0.618	1.00
57	18:21	1.00	1.089	1.00	80.00	80.00	0.365	0.365	1.00
58	18:27	1.00	0.899	1.00	80.00	80.00	0.174	0.174	1.00
59	18:31	1.00	0.902	1.00	80.00	80.00	0.617	0.617	1.00
60	19:26	1.00	0.946	1.00	80.00	80.00	0.255	0.255	1.00
61	19:48	1.00	0.965	1.00	80.00	80.00	0.270	0.270	1.00
62	20:13	1.00	0.985	1.00	80.00	80.00	0.172	0.172	1.00
63	20:35	1.00	1.003	1.00	80.00	80.00	1.086	1.086	1.00
64	20:42	1.00	1.009	1.00	80.00	80.00	0.975	0.975	1.00
65	21:03	1.00	1.026	1.00	80.00	80.00	0.891	0.891	1.00
66	21:59	1.00	1.071	1.00	80.00	80.00	1.479	1.479	1.00
67	23:24	1.00	1.140	1.00	80.00	80.00	1.075	1.075	1.00
68	23:55	1.00	0.896	1.00	80.00	80.00	1.210	1.210	1.00
69	25:25	1.00	0.951	1.00	80.00	80.00	0.726	0.726	1.00
70	26:36	1.00	0.996	1.00	80.00	80.00	0.304	0.304	1.00
71	26:41	1.00	0.999	1.00	80.00	80.00	1.185	1.185	1.00
72	26:47	1.00	1.003	1.00	80.00	80.00	0.886	0.886	1.00
73	26:49	1.00	1.004	1.00	80.00	80.00	1.060	1.060	1.00
74	28:27	1.00	0.917	1.00	80.00	80.00	2.120	2.120	1.00
75	29:43	1.00	0.958	1.00	80.00	80.00	1.649	1.649	1.00
76	29:47	1.00	0.961	1.00	80.00	80.00	1.152	1.152	1.00
77	30:51	1.00	0.995	1.00	80.00	80.00	1.285	1.285	1.00
78	36:18	1.00	1.171	1.00	80.00	80.00	0.904	0.904	1.00
79	36:31	1.00	1.178	1.00	80.00	80.00	1.257	1.257	1.00
80	37:55	1.00	1.223	1.00	80.00	80.00	0.889	0.889	1.00

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:15	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
2	12:19	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
3	16:51	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
4	20:32	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
5	26:44	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
6	31:00	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
7	6:35	1.00	0.712	1.00	25.00	25.00	1.097	1.097	1.00
8	8:31	1.00	0.920	1.00	25.00	25.00	1.613	1.613	1.00
9	18:52	1.00	1.119	1.00	25.00	25.00	0.216	0.216	1.00
10	10:36	1.00	0.860	1.00	25.00	25.00	0.487	0.487	1.00
11	15:07	1.00	0.897	1.00	25.00	25.00	1.144	1.144	1.00
12	24:16	1.00	0.908	1.00	25.00	25.00	0.980	0.980	1.00
13	8:49	1.00	0.952	1.00	25.00	25.00	1.277	1.277	1.00
14	9:42	1.00	1.048	1.00	25.00	25.00	0.942	0.942	1.00
15	8:32	1.00	0.922	1.00	25.00	25.00	1.939	1.939	1.00
16	8:43	1.00	0.941	1.00	25.00	25.00	1.748	1.748	1.00
17	8:51	1.00	0.956	1.00	25.00	25.00	1.473	1.473	1.00
18	9:11	1.00	0.992	1.00	25.00	25.00	1.590	1.590	1.00
19	9:18	1.00	1.004	1.00	25.00	25.00	1.633	1.633	1.00
20	9:36	1.00	1.037	1.00	25.00	25.00	1.039	1.039	1.00
21	9:43	1.00	1.050	1.00	25.00	25.00	1.557	1.557	1.00
22	9:53	1.00	1.068	1.00	25.00	25.00	1.370	1.370	1.00
23	9:58	1.00	1.078	1.00	25.00	25.00	3.067	3.067	1.00
24	10:14	1.00	1.106	1.00	25.00	25.00	1.457	1.457	1.00
25	10:18	1.00	1.113	1.00	25.00	25.00	1.601	1.601	1.00
26	10:28	1.00	1.131	1.00	25.00	25.00	0.852	0.852	1.00
27	10:38	1.00	0.863	1.00	25.00	25.00	0.514	0.514	1.00
28	11:12	1.00	0.909	1.00	25.00	25.00	0.941	0.941	1.00
29	11:25	1.00	0.926	1.00	25.00	25.00	0.204	0.204	1.00
30	11:31	1.00	0.934	1.00	25.00	25.00	0.275	0.275	1.00
31	11:45	1.00	0.954	1.00	25.00	25.00	0.610	0.610	1.00
32	11:46	1.00	0.955	1.00	25.00	25.00	0.190	0.190	1.00
33	12:00	1.00	0.973	1.00	25.00	25.00	0.326	0.326	1.00
34	12:13	1.00	0.992	1.00	25.00	25.00	0.360	0.360	1.00
35	12:22	1.00	1.004	1.00	25.00	25.00	1.197	1.197	1.00
36	12:32	1.00	1.017	1.00	25.00	25.00	0.528	0.528	1.00
37	12:51	1.00	1.043	1.00	25.00	25.00	0.246	0.246	1.00
38	13:46	1.00	1.117	1.00	25.00	25.00	0.382	0.382	1.00
39	14:08	1.00	1.147	1.00	25.00	25.00	0.729	0.729	1.00
40	14:43	1.00	0.873	1.00	25.00	25.00	0.456	0.456	1.00
41	14:54	1.00	0.884	1.00	25.00	25.00	0.373	0.373	1.00
42	14:59	1.00	0.889	1.00	25.00	25.00	0.390	0.390	1.00
43	15:22	1.00	0.912	1.00	25.00	25.00	1.155	1.155	1.00
44	15:41	1.00	0.930	1.00	25.00	25.00	0.552	0.552	1.00
45	16:14	1.00	0.963	1.00	25.00	25.00	1.448	1.448	1.00
46	16:27	1.00	0.976	1.00	25.00	25.00	1.949	1.949	1.00
47	16:44	1.00	0.993	1.00	25.00	25.00	0.369	0.369	1.00
48	16:56	1.00	1.004	1.00	25.00	25.00	1.223	1.223	1.00
49	17:00	1.00	1.008	1.00	25.00	25.00	0.186	0.186	1.00
50	17:09	1.00	1.018	1.00	25.00	25.00	0.214	0.214	1.00

Quantitation Report File: 21211S06

Data: 21211S06.TI
12/11/92 14:49:00
Sample: CLP,,,SSTD050,,,25PPM2SV1103,SV,CC
Conds.: CAP/.32,21211SAVG,2DFT1211S2
Formula: 2DFT1211S2 Instrument: SHERMA Weight: 0.000
Submitted by: 21211S06 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
51	C565	DIBENZOFURAN
52	C575	2,6-DINITROTOLUENE
53	C580	DIETHYLPHTHALATE
54	C570	2,4-DINITROTOLUENE
55	C590	FLUORENE
56	C585	4-CHLOROPHENYL-PHENYLETHER
57	C595	4-NITROANILINE
58	C610	4,6-DINITRO-2-METHYLPHENOL
59	C615	N-NITROSODIPHENYLAMINE
60	C625	4-BROMOPHENYL-PHENYLETHER
61	C630	HEXACHLOROBENZENE
62	C635	PENTACHLOROPHENOL
63	C640	PHENANTHRENE
64	C645	ANTHRACENE
65	C648	CARBAZOLE
66	C650	DI-N-BUTYLPHTHALATE
67	C655	FLUORANTHENE
68	C715	PYRENE
69	C720	BUTYLBENZYLPHTHALATE
70	C725	3,3'-DICHLOROBENZIDINE
71	C730	BENZO(A)ANTHRACENE
72	C740	CHRYSENE
73	C735	BIS(2-ETHYLHEXYL)PHTHALATE
74	C760	DI-N-OCTYL PHTHALATE
75	C765	BENZO(B)FLUROANTHENE
76	C770	BENZO(K)FLUORANTHENE
77	C775	BENZO(A)PYRENE
78	C780	INDENO(1,2,3-CD)PYRENE
79	C785	DIBENZO(A,H)ANTHRACENE
80	C790	BENZO(GHI)PERYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
51	168	1373	17:20	3	1.029	A BB	137032.	25.000 NG/UL	1.27
52	165	1297	16:22	3	0.972	A BB	26514.	25.000 NG/UL	1.27
53	149	1431	18:04	3	1.073	A BB	126592.	25.000 NG/UL	1.27
54	165	1378	17:24	3	1.033	A BB	37942.	25.000 NG/UL	1.27
55	166	1444	18:14	3	1.082	A BB	115972.	25.000 NG/UL	1.27
56	204	1443	18:13	3	1.082	A BB	60176.	25.000 NG/UL	1.27
57	138	1451	18:19	3	1.088	A BB	29111.	25.000 NG/UL	1.27
58	198	1460	18:26	4	0.898	A BB	22674.	25.000 NG/UL	1.27
59	169	1467	18:31	4	0.902	A BB	90132.	25.000 NG/UL	1.27
60	248	1539	19:26	4	0.946	A BB	39614.	25.000 NG/UL	1.27
61	284	1569	19:48	4	0.965	A BB	41162.	25.000 NG/UL	1.27
62	266	1601	20:13	4	0.985	A BB	24262.	25.000 NG/UL	1.27
63	178	1631	20:35	4	1.003	A BV	183444.	25.000 NG/UL	1.27

9613492.4589

000175

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Instrument ID: SHERMA Calibration date: 12/11/92 Time: 1449

Lab File ID: 21211S06 Init. Calib. Date(s): 12/11/92 12/11/92

Init. Calib. Times: 1002 1304

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Phenol	1.931	1.939	0.800	-0.4	25.0
bis(2-Chloroethyl)Ether	1.728	1.748	0.700	-1.2	25.0
2-Chlorophenol	1.438	1.473	0.800	-2.4	25.0
1,3-Dichlorobenzene	1.532	1.590	0.600	-3.8	25.0
1,4-Dichlorobenzene	1.595	1.633	0.500	-2.4	25.0
1,2-Dichlorobenzene	1.528	1.557	0.400	-1.9	25.0
2-Methylphenol	1.390	1.370	0.700	1.4	25.0
2,2'-oxybis(1-Chloropropane)	3.125	3.067	0.010	1.9	
4-Methylphenol	1.496	1.457	0.600	2.6	25.0
N-Nitroso-Di-n-Propylamine	1.612	1.601	0.500	0.7	25.0
Hexachloroethane	0.822	0.852	0.300	-3.6	25.0
Nitrobenzene	0.501	0.514	0.200	-2.6	25.0
Isophorone	0.926	0.941	0.400	-1.6	25.0
2-Nitrophenol	0.201	0.204	0.100	-1.5	25.0
2,4-Dimethylphenol	0.288	0.275	0.200	4.5	25.0
bis(2-Chloroethoxy)Methane	0.597	0.610	0.300	-2.2	25.0
2,4-Dichlorophenol	0.313	0.326	0.200	-4.2	25.0
1,2,4-Trichlorobenzene	0.341	0.360	0.200	-5.6	25.0
Naphthalene	1.201	1.197	0.700	0.3	25.0
4-Chloroaniline	0.520	0.528	0.010	-1.5	
Hexachlorobutadiene	0.233	0.246	0.010	-5.6	
4-Chloro-3-Methylphenol	0.366	0.382	0.200	-4.4	25.0
2-Methylnaphthalene	0.710	0.729	0.400	-2.7	25.0
Hexachlorocyclopentadiene	0.432	0.456	0.010	-5.6	
2,4,6-Trichlorophenol	0.366	0.373	0.200	-1.9	25.0
2,4,5-Trichlorophenol	0.363	0.390	0.200	-7.4	25.0
2-Chloronaphthalene	1.139	1.155	0.800	-1.4	25.0
2-Nitroaniline	0.536	0.552	0.010	-3.0	
Dimethylphthalate	1.388	1.448	0.010	-4.3	
Acenaphthylene	1.931	1.949	1.300	-0.9	25.0
3-Nitroaniline	0.359	0.369	0.010	-2.8	
Acenaphthene	1.184	1.223	0.800	-3.3	25.0
2,4-Dinitrophenol	0.189	0.186	0.010	1.6	
4-Nitrophenol	0.203	0.214	0.010	-5.4	
Dibenzofuran	1.615	1.659	0.800	-2.7	25.0
2,4-Dinitrotoluene	0.443	0.459	0.200	-3.6	25.0
2,6-Dinitrotoluene	0.305	0.321	0.200	-5.2	25.0

All other compounds must meet a minimum RRF of 0.010.

✓ OK
Chris L
10/14

9613492.4590

000180

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Instrument ID: SHERMA Calibration date: 12/11/92 Time: 1449

Lab File ID: 21211S06 Init. Calib. Date(s): 12/11/92 12/11/92

Init. Calib. Times: 1002 1304

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Diethylphthalate	1.466	1.533	0.010	-4.6	
4-Chlorophenyl-phenylether	0.717	0.729	0.400	-1.7	25.0
Fluorene	1.379	1.404	0.900	-1.8	25.0
4-Nitroaniline	0.341	0.353	0.010	-3.5	
4,6-Dinitro-2-methylphenol	0.164	0.158	0.010	3.7	
N-Nitrosodiphenylamine (1)	0.641	0.629	0.010	1.9	
4-Bromophenyl-phenylether	0.277	0.276	0.100	0.4	25.0
Hexachlorobenzene	0.291	0.287	0.100	1.4	25.0
Pentachlorophenol	0.169	0.169	0.050	0.0	25.0
Phenanthrene	1.245	1.280	0.700	-2.8	25.0
Anthracene	1.191	1.268	0.700	-6.5	25.0
Carbazole	0.992	1.046	0.010	-5.4	
Di-n-Butylphthalate	1.730	1.835	0.010	-6.1	
Fluoranthene	1.290	1.444	0.600	-11.9	25.0
Pyrene	1.377	1.454	0.600	-5.6	25.0
Butylbenzylphthalate	0.739	0.751	0.010	-1.6	
3,3'-Dichlorobenzidine	0.309	0.334	0.010	-8.1	
Benzo(a)Anthracene	1.261	1.312	0.800	-4.0	25.0
bis(2-Ethylhexyl)Phthalate	1.216	1.311	0.010	-7.8	
Chrysene	1.126	1.249	0.700	-10.9	25.0
Di-n-Octyl Phthalate	2.355	2.673	0.010	-13.5	
Benzo(b)Fluoranthene	1.818	2.158	0.700	-18.7	25.0
Benzo(k)Fluoranthene	1.389	1.476	0.700	-6.3	25.0
Benzo(a)Pyrene	1.406	1.574	0.700	-12.0	25.0
Indeno(1,2,3-cd)Pyrene	1.052	1.302	0.500	-23.8	25.0
Dibenz(a,h)Anthracene	1.062	1.146	0.400	-7.9	25.0
Benzo(g,h,i)Perylene	1.004	1.070	0.500	-6.6	25.0
Nitrobenzene-d5	0.468	0.487	0.200	-4.1	25.0
2-Fluorobiphenyl	1.126	1.144	0.700	-1.6	25.0
Terphenyl-d14	0.933	0.980	0.500	-5.0	25.0
Phenol-d5	1.579	1.613	0.800	-2.2	25.0
2-Fluorophenol	1.183	1.097	0.600	7.3	25.0
2,4,6-Tribromophenol	0.223	0.216	0.010	3.1	
2-Chlorophenol-d4	1.242	1.277	0.800	-2.8	25.0
1,2-Dichlorobenzene-d4	0.881	0.942	0.800	-6.9	25.0

(1) Cannot be separated from Diphenylamine
All other compounds must meet a minimum RRF of 0.010.

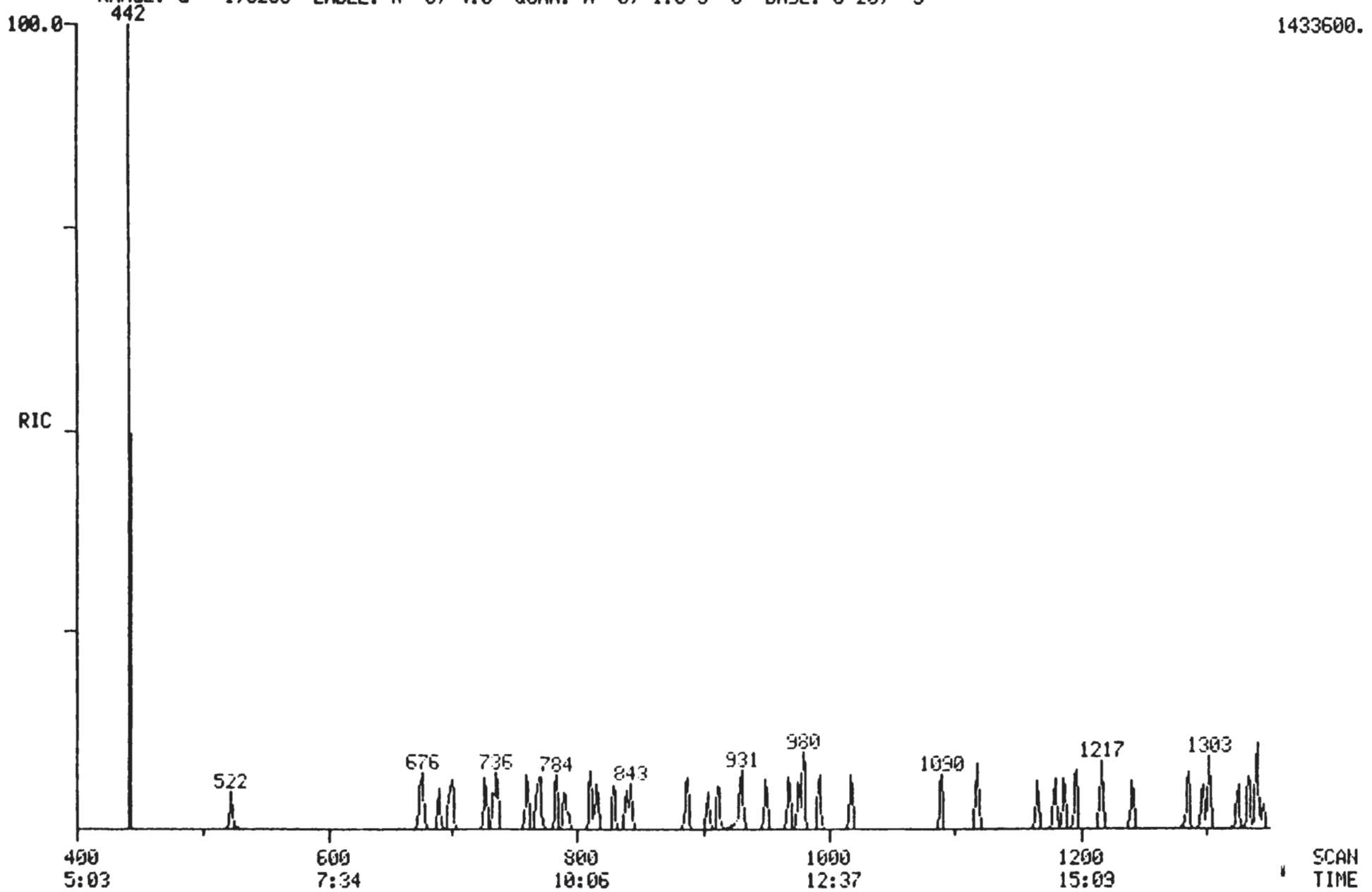
OK
C Bolsa
10/16

000181

RIC
12/11/92 14:49:00
SAMPLE: CLP,,,SSTD050,,,25PPM25V1103,SV,CC
CONDS.: CAP/.32,21211SAVG,2DFT1211S2
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 21211S06 #1
CALI: 21211S06 #3

SCANS 400 TO 1350

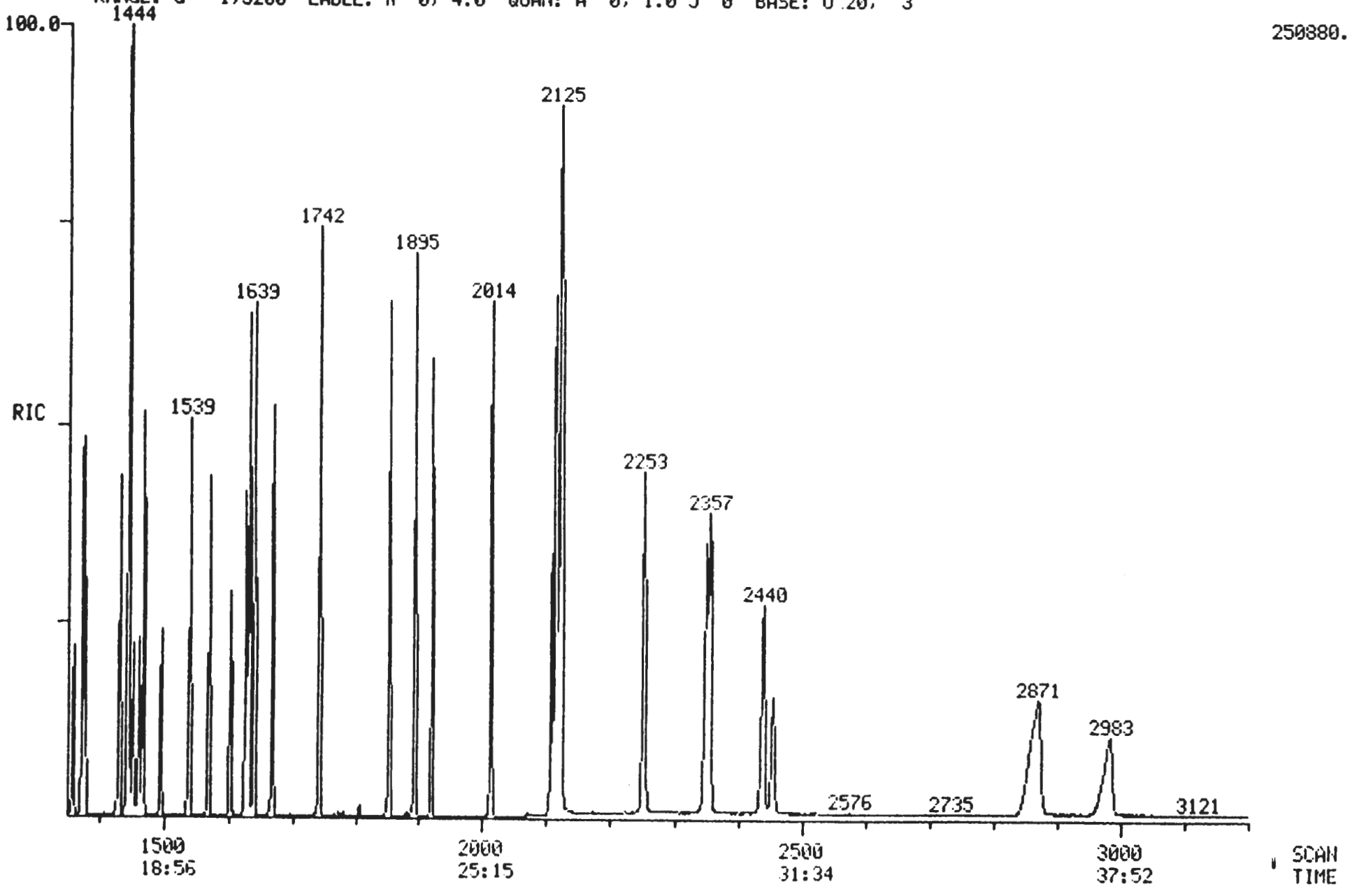


1694.2413196

000182

RIC
12/11/92 14:49:00
SAMPLE: CLP,,,SSTD050,,,25PPM2SV1103,SV,CC
CONDS.: CAP/.32,21211SAVG,2DFT121152
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 21211S06 #1
CALI: 21211S06 #3
SCANS 1350 TO 3200



96130922.4592

Quantitation Report File: 21211S06

Data: 21211S06.TI
12/11/92 14:49:00
Sample: CLP,,,SSTD050,,,25PPM2SV1103,SV,CC
Conds.: CAP/.32,21211SAVG,2DFT1211S2
Formula: 2DFT1211S2 Instrument: SHERMA Weight: 0.000
Submitted by: 21211S06 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI30	*IS1* 1,4-DICHLOROBENZENE-D4
2	CI40	*IS2* NAPHTHALENE-D8
3	CI50	*IS3* ACENAPTHENE-D8
4	CI60	*IS4* PHENANTHRENE-D10
5	CI70	*IS5* CHRYSENE-D12
6	CI75	*IS6* PERYLENE-D12
7	CS50	*SU1* 2-FLUOROPHENOL
8	CS45	*SU2* PHENOL-D5
9	CS55	*SU3* 2,4,6,-TRIBROMOPHENOL
10	CS20	*SU4* NITROBENZENE-D5
11	CS25	*SU5* 2-FLUOROBIPHENYL
12	CS30	*SU6* TERPHENYL-D14
13	CS70	2-CHLOROPHENOL-D4
14	CS75	1,2-DICHLOROBENZENE-D4
15	C315	PHENOL
16	C325	BIS(2-CHLOROETHYL)ETHER
17	C330	2-CHLOROPHENOL
18	C335	1,3-DICHLOROBENZENE
19	C340	1,4-DICHLOROBENZENE
20	C345	BENZYL ALCOHOL
21	C350	1,2-DICHLOROBENZENE
22	C355	2-METHYLPHENOL
23	C360	BIS(2-CHLOROISOPROPYL)ETHER
24	C365	4-METHYLPHENOL
25	C370	N-NITROSO-DI-N-PROPYLAMINE
26	C375	HEXACHLOROETHANE
27	C410	NITROBENZENE
28	C415	ISOPHORONE
29	C420	2-NITROPHENOL
30	C425	2,4-DIMETHYLPHENOL
31	C435	BIS(2-CHLOROETHOXY)METHANE
32	C430	BENZOIC ACID
33	C440	2,4-DICHLOROPHENOL
34	C445	1,2,4-TRICHLOROBENZENE
35	C450	NAPHTHALENE
36	C455	4-CHLOROANILINE
37	C460	HEXACHLOROBUTADIENE
38	C465	4-CHLORO-3-METHYLPHENOL
39	C470	2-METHYLNAPHTHALENE
40	C510	HEXACHLOROCYCLOPENTADIENE
41	C515	2,4,6-TRICHLOROPHENOL
42	C520	2,4,5-TRICHLOROPHENOL
43	C525	2-CHLORONAPHTHALENE
44	C530	2-NITROANILINE
45	C535	DIMETHYL PHTHALATE
46	C540	ACENAPHTHYLENE
47	C545	3-NITROANILINE

No	Name	
48	C550	ACENAPHTHENE
49	C555	2,4-DINITROPHENOL
50	C560	4-NITROPHENOL

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	152	733	9:15	1	1.000	A BB	25542.	20.000 NG/UL	1.02
2	136	976	12:19	2	1.000	A BB	103670.	20.000 NG/UL	1.02
3	164	1334	16:50	3	1.000	A BB	66066.	20.000 NG/UL	1.02
4	188	1626	20:32	4	1.000	A BV	114628.	20.000 NG/UL	1.02
5	240	2117	26:44	5	1.000	A BB	118750.	20.000 NG/UL	1.02
6	264	2456	31:00	6	1.000	A BB	76525.	20.000 NG/UL	1.02
7	112	522	6:35	1	0.712	A BB	35038.	25.000 NG/UL	1.27
8	99	674	8:31	1	0.920	A BB	51486.	25.000 NG/UL	1.27
9	330	1494	18:52	3	1.120	A BB	17854.	25.000 NG/UL	1.27
10	82	839	10:36	2	0.860	A BB	63054.	25.000 NG/UL	1.27
11	172	1196	15:06	3	0.897	A BB	94448.	25.000 NG/UL	1.27
12	244	1922	24:16	5	0.908	A BB	145412.	25.000 NG/UL	1.27
13	132	698	8:49	1	0.952	A BB	40780.	25.000 NG/UL	1.27
14	152	768	9:42	1	1.048	A BB	30072.	25.000 NG/UL	1.27
15	94	676	8:32	1	0.922	A BB	61894.	25.000 NG/UL	1.27
16	93	690	8:43	1	0.941	A BB	55806.	25.000 NG/UL	1.27
17	128	701	8:51	1	0.956	A BB	47044.	25.000 NG/UL	1.27
18	146	727	9:11	1	0.992	A BB	50764.	25.000 NG/UL	1.27
19	146	736	9:18	1	1.004	A BB	52124.	25.000 NG/UL	1.27
20	108	760	9:36	1	1.037	A BB	33170.	25.000 NG/UL	1.27
21	146	771	9:44	1	1.052	A BB	49704.	25.000 NG/UL	1.27
22	108	784	9:54	1	1.070	A BB	43732.	25.000 NG/UL	1.27
23	45	790	9:58	1	1.078	A BB	97928.	25.000 NG/UL	1.27
24	108	811	10:14	1	1.106	A BB	46508.	25.000 NG/UL	1.27
25	70	816	10:18	1	1.113	A BB	51106	25.000 NG/UL	1.27
26	117	829	10:28	1	1.131	A BB	27214.	25.000 NG/UL	1.27
27	77	843	10:39	2	0.864	A BB	66550.	25.000 NG/UL	1.27
28	82	888	11:13	2	0.910	A BB	121970.	25.000 NG/UL	1.27
29	139	904	11:25	2	0.926	A BB	26396.	25.000 NG/UL	1.27
30	122	912	11:31	2	0.934	A BB	35694.	25.000 NG/UL	1.27
31	93	931	11:45	2	0.954	A BB	78990.	25.000 NG/UL	1.27
32	122	932	11:46	2	0.955	A VB	24640.	25.000 NG/UL	1.27
33	162	950	12:00	2	0.973	A BB	42204.	25.000 NG/UL	1.27
34	180	968	12:13	2	0.992	A BB	46678.	25.000 NG/UL	1.27
35	129	980	12:22	2	1.004	A BB	155084.	25.000 NG/UL	1.27
36	127	993	12:32	2	1.017	A BB	68364.	25.000 NG/UL	1.27
37	225	1018	12:51	2	1.043	A BB	31910.	25.000 NG/UL	1.27
38	107	1090	13:46	2	1.117	A BB	49448.	25.000 NG/UL	1.27
39	142	1118	14:07	2	1.145	A BB	94494.	25.000 NG/UL	1.27
40	237	1166	14:43	3	0.874	A BB	37656.	25.000 NG/UL	1.27
41	198	1180	14:54	3	0.885	A BV	30778.	25.000 NG/UL	1.27
42	198	1187	14:59	3	0.890	A VB	32176.	25.000 NG/UL	1.27
43	162	1217	15:22	3	0.912	A BB	95396.	25.000 NG/UL	1.27
44	65	1241	15:40	3	0.930	A BB	45598.	25.000 NG/UL	1.27
45	163	1286	16:14	3	0.964	A BB	119540.	25.000 NG/UL	1.27
46	152	1303	16:27	3	0.977	A BB	160978.	25.000 NG/UL	1.27
47	138	1326	16:44	3	0.994	A BB	30458.	25.000 NG/UL	1.27
48	153	1341	16:56	3	1.005	A BB	100980.	25.000 NG/UL	1.27
49	184	1346	17:00	3	1.009	A BB	15382.	25.000 NG/UL	1.27
50	109	1359	17:09	3	1.019	A BB	17660.	25.000 NG/UL	1.27

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
64	178	1639	20:42	4	1.008	A VB	181718.	25.000	NG/UL	1.27
65	167	1668	21:03	4	1.026	A BB	149903.	25.000	NG/UL	1.27
66	149	1742	22:00	4	1.071	A BB	262858.	25.000	NG/UL	1.27
67	202	1854	23:24	4	1.140	A BB	206911.	25.000	NG/UL	1.27
68	202	1895	23:55	5	0.895	A BB	215829.	25.000	NG/UL	1.27
69	149	2014	25:26	5	0.951	A BB	111421.	25.000	NG/UL	1.27
70	252	2108	26:37	5	0.996	A BB	49572.	25.000	NG/UL	1.27
71	228	2114	26:41	5	0.999	A BV	194746.	25.000	NG/UL	1.27
72	228	2121	26:47	5	1.002	A VB	185373.	25.000	NG/UL	1.27
73	149	2125	26:50	5	1.004	A BB	194592.	25.000	NG/UL	1.27
74	149	2253	28:27	6	0.917	A BB	255665.	25.000	NG/UL	1.27
75	252	2351	29:41	6	0.957	A BV	206398.	25.000	NG/UL	1.27
76	252	2357	29:45	6	0.960	A VB	141164.	25.000	NG/UL	1.27
77	252	2440	30:48	6	0.993	A BB	150579.	25.000	NG/UL	1.27
78	276	2860	36:06	6	1.164	A BB	124570.	25.000	NG/UL	1.27
79	278	2871	36:15	6	1.169	A BB	109603.	25.000	NG/UL	1.27
80	276	2983	37:40	6	1.215	A BB	102390.	25.000	NG/UL	1.27

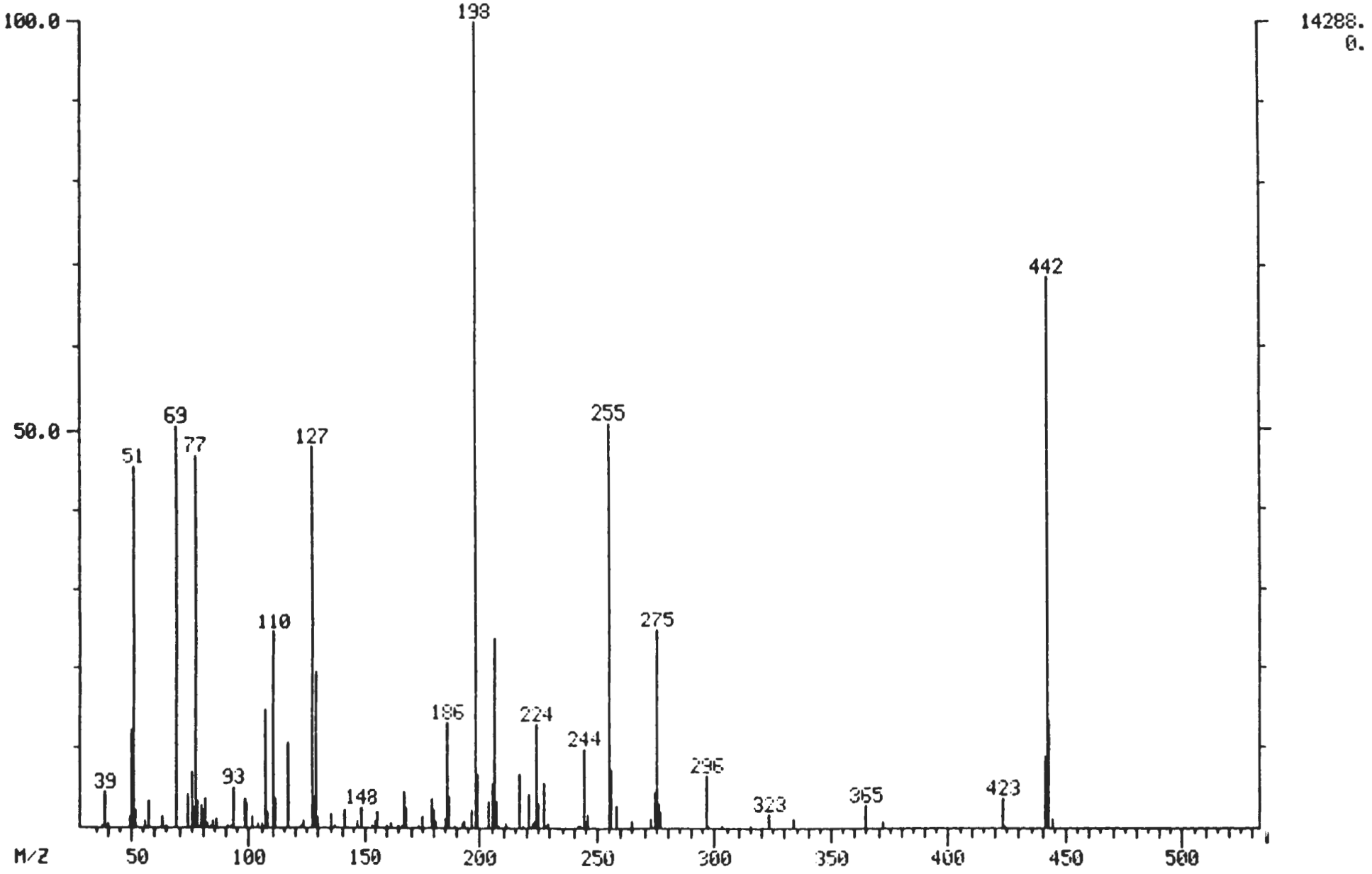
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
51	17:21	1.00	1.029	1.00	25.00	25.00	1.659	1.659	1.00
52	16:23	1.00	0.972	1.00	25.00	25.00	0.321	0.321	1.00
53	18:04	1.00	1.072	1.00	25.00	25.00	1.533	1.533	1.00
54	17:24	1.00	1.032	1.00	25.00	25.00	0.459	0.459	1.00
55	18:14	1.00	1.082	1.00	25.00	25.00	1.404	1.404	1.00
56	18:14	1.00	1.082	1.00	25.00	25.00	0.729	0.729	1.00
57	18:19	1.00	1.087	1.00	25.00	25.00	0.353	0.353	1.00
58	18:27	1.00	0.899	1.00	25.00	25.00	0.158	0.158	1.00
59	18:31	1.00	0.902	1.00	25.00	25.00	0.629	0.629	1.00
60	19:26	1.00	0.946	1.00	25.00	25.00	0.276	0.276	1.00
61	19:48	1.00	0.965	1.00	25.00	25.00	0.287	0.287	1.00
62	20:13	1.00	0.985	1.00	25.00	25.00	0.169	0.169	1.00
63	20:35	1.00	1.003	1.00	25.00	25.00	1.280	1.280	1.00
64	20:42	1.00	1.009	1.00	25.00	25.00	1.268	1.268	1.00
65	21:03	1.00	1.026	1.00	25.00	25.00	1.046	1.046	1.00
66	22:00	1.00	1.071	1.00	25.00	25.00	1.835	1.835	1.00
67	23:24	1.00	1.140	1.00	25.00	25.00	1.444	1.444	1.00
68	23:55	1.00	0.895	1.00	25.00	25.00	1.454	1.454	1.00
69	25:26	1.00	0.951	1.00	25.00	25.00	0.751	0.751	1.00
70	26:37	1.00	0.996	1.00	25.00	25.00	0.334	0.334	1.00
71	26:41	1.00	0.999	1.00	25.00	25.00	1.312	1.312	1.00
72	26:47	1.00	1.002	1.00	25.00	25.00	1.249	1.249	1.00
73	26:50	1.00	1.004	1.00	25.00	25.00	1.311	1.311	1.00
74	28:27	1.00	0.917	1.00	25.00	25.00	2.673	2.673	1.00
75	29:41	1.00	0.957	1.00	25.00	25.00	2.158	2.158	1.00
76	29:45	1.00	0.960	1.00	25.00	25.00	1.476	1.476	1.00
77	30:49	1.00	0.994	1.00	25.00	25.00	1.574	1.574	1.00
78	36:08	1.00	1.165	1.00	25.00	25.00	1.302	1.302	1.00
79	36:16	1.00	1.170	1.00	25.00	25.00	1.146	1.146	1.00
80	37:41	1.00	1.215	1.00	25.00	25.00	1.070	1.070	1.00

0001383

MASS SPECTRUM
12/11/92 9:42:00 + 8:54
SAMPLE: 50NG/2UL DFTPP 09/04/92 JY
CONDS.: SHERMA
TEMP: 256 DEG. C
#704 TO #706 SUMMED - #700

DATA: 2DFT1211S1 #705
CALI: 2DFT1211S1 #3

BASE M/Z: 198
RIC: 112256.



96/12/92 10:06

Mass List Data: 2DFT1211S1 # 705 Base m/z: 198
12/11/92 9:42:00 + 8:54 Cali: 2DFT1211S1 # 3 RIC: 112256.
Sample: 50NG/2UL DFTPP 09/04/92 JY
Conds.: SHERMA
#704 to #706 summed - #700

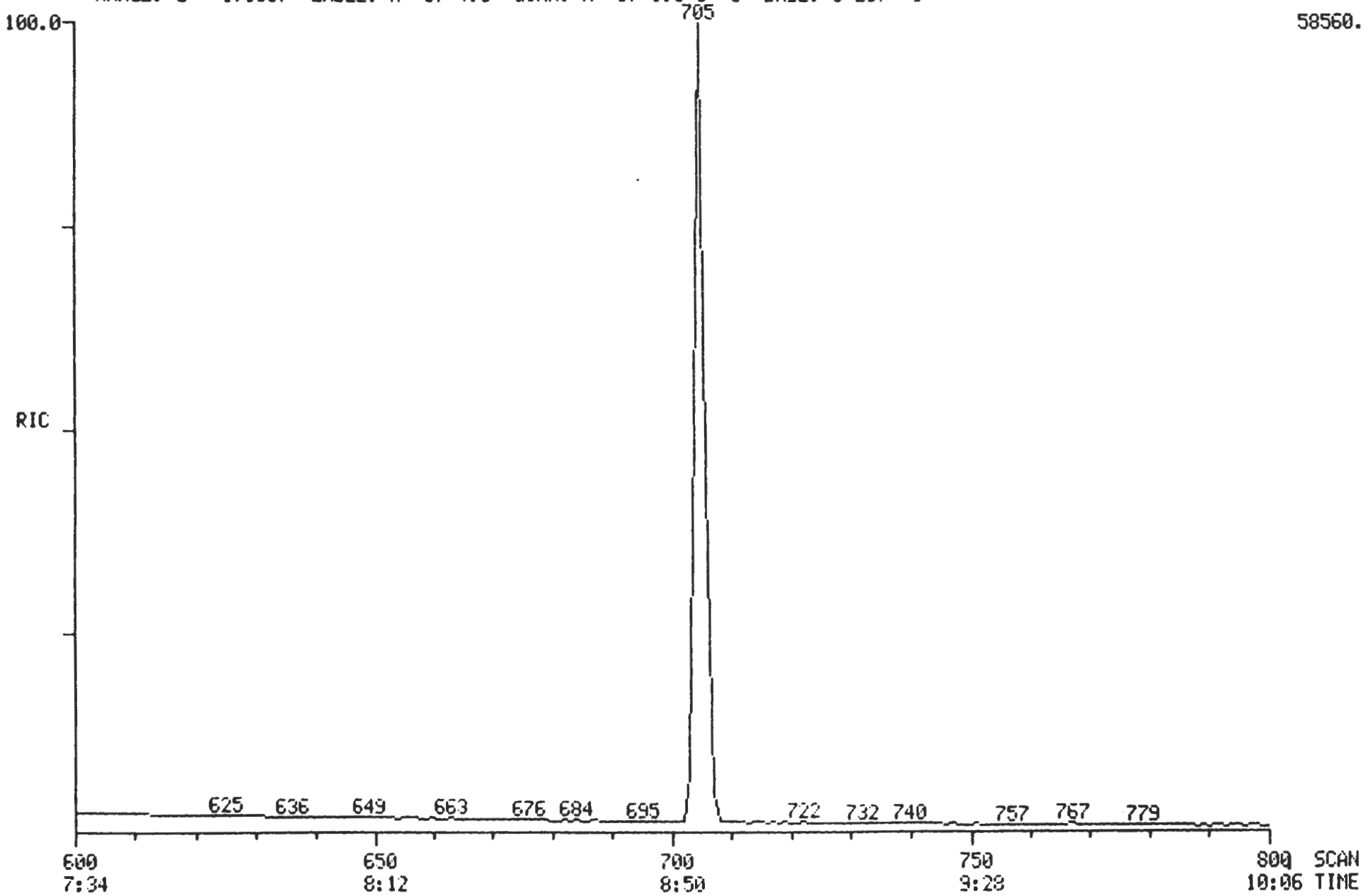
38 0.00 0. Minima Min Inten: 0.
444 Maxima # 0

Mass	% RA	Inten.	Mass	% RA	Inten.	Mass	% RA	Inten.
38	0.21	30.	153	0.28	40.	273	1.15	164.
39	4.30	614.	154	0.13	18.	274	4.34	620.
40	0.67	96.	155	0.71	102.	275	24.75	3536.
49	1.41	202.	156	1.82	260.	276	2.94	420.
50	12.28	1754.	160	0.17	24.	277	1.88	268.
51	45.63	6520.	161	0.45	64.	296	6.35	908.
52	2.17	310.	165	0.29	42.	297	0.34	48.
56	0.87	124.	166	0.21	30.	303	0.18	26.
57	3.39	484.	167	4.49	642.	315	0.25	36.
63	1.44	206.	168	2.39	342.	323	1.69	242.
65	0.34	48.	174	0.39	56.	334	0.99	142.
69	50.62	7232.	175	1.41	202.	365	2.63	376.
74	4.23	604.	177	0.13	18.	372	0.77	110.
75	7.00	1000.	179	3.50	500.	423	3.53	504.
76	2.52	360.	180	2.31	330.	424	0.17	24.
77	47.03	6720.	181	0.73	104.	441	8.72	1246.
78	3.30	472.	185	1.20	172.	442	68.64	9808.
79	2.70	386.	186	13.06	1866.	443	13.19	1884.
80	2.14	306.	187	3.88	554.	444	1.02	146.
81	3.46	494.	189	0.17	24.			
82	0.43	62.	192	0.53	76.			
83	0.35	50.	193	0.77	110.			
84	0.77	110.	196	2.17	310.			
86	1.22	174.	198	100.00	14288.			
91	0.17	24.	199	6.56	938.			
92	0.29	42.	204	3.19	456.			
93	4.98	712.	205	5.57	796.			
98	3.64	520.	206	23.82	3404.			
99	3.16	452.	207	3.30	472.			
101	1.32	188.	208	0.25	36.			
104	0.49	70.	211	0.43	62.			
105	0.48	68.	217	6.51	930.			
107	14.53	2076.	218	0.38	54.			
108	1.90	272.	221	4.03	576.			
110	24.66	3524.	222	0.46	66.			
111	3.64	520.	223	0.91	130.			
116	0.11	16.	224	12.70	1814.			
117	10.61	1516.	225	3.02	432.			
122	0.17	24.	227	5.60	800.			
123	0.84	120.	228	0.31	44.			
127	48.10	6872.	229	0.69	98.			
128	3.81	544.	242	0.21	30.			
129	19.23	2748.	243	0.20	28.			
130	1.27	182.	244	9.60	1372.			
135	1.68	240.	245	0.85	122.			
137	0.32	46.	246	1.78	254.			
- 141	2.23	318.	255	50.95	7280.			
142	0.13	18.	256	7.29	1042.			
147	0.74	106.	258	2.72	388.			
148	2.53	362.	265	0.78	112.			

0001930

RIC
12/11/92 9:42:00
SAMPLE: 50NG/2UL DFTPP 09/04/92 JY
CONDS.: SHERMA
RANGE: G 1,1037 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 2DFT121151 #704 SCANS 600 TO 800
CALI: 2DFT121151 #3



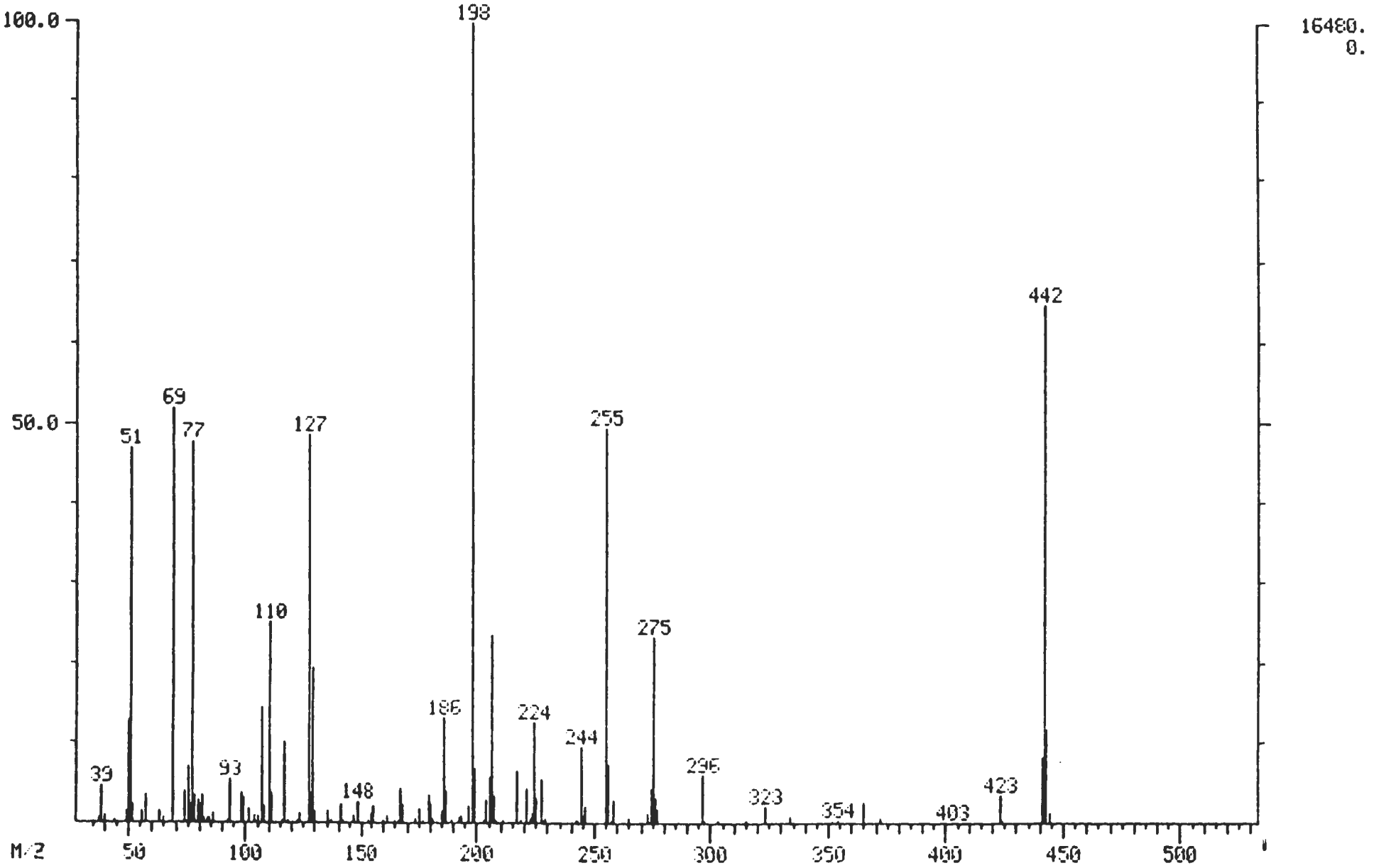
96K02.1598

000191

MASS SPECTRUM
12/11/92 14:32:00 + 8:53
SAMPLE: 50NG/2UL DFTPP 09/04/92 JY
CONDS.: SHERMA
TEMP: 256 DEG. C
#703 TO #705 SUMMED - #700

DATA: 2DFT121152 #704
CALI: 2DFT121152 #3

BASE M/Z: 198
RIC: 128384.



Mass List Data: 2DFT1211S2 # 704 Base m/z: 198
12/11/92 14:32:00 + 8:53 Cali: 2DFT1211S2 # 3 RIC: 128384.
Sample: 50NG/2UL DFTPP 09/04/92 JY
Conds.: SHERMA
#703 to #705 summed - #700

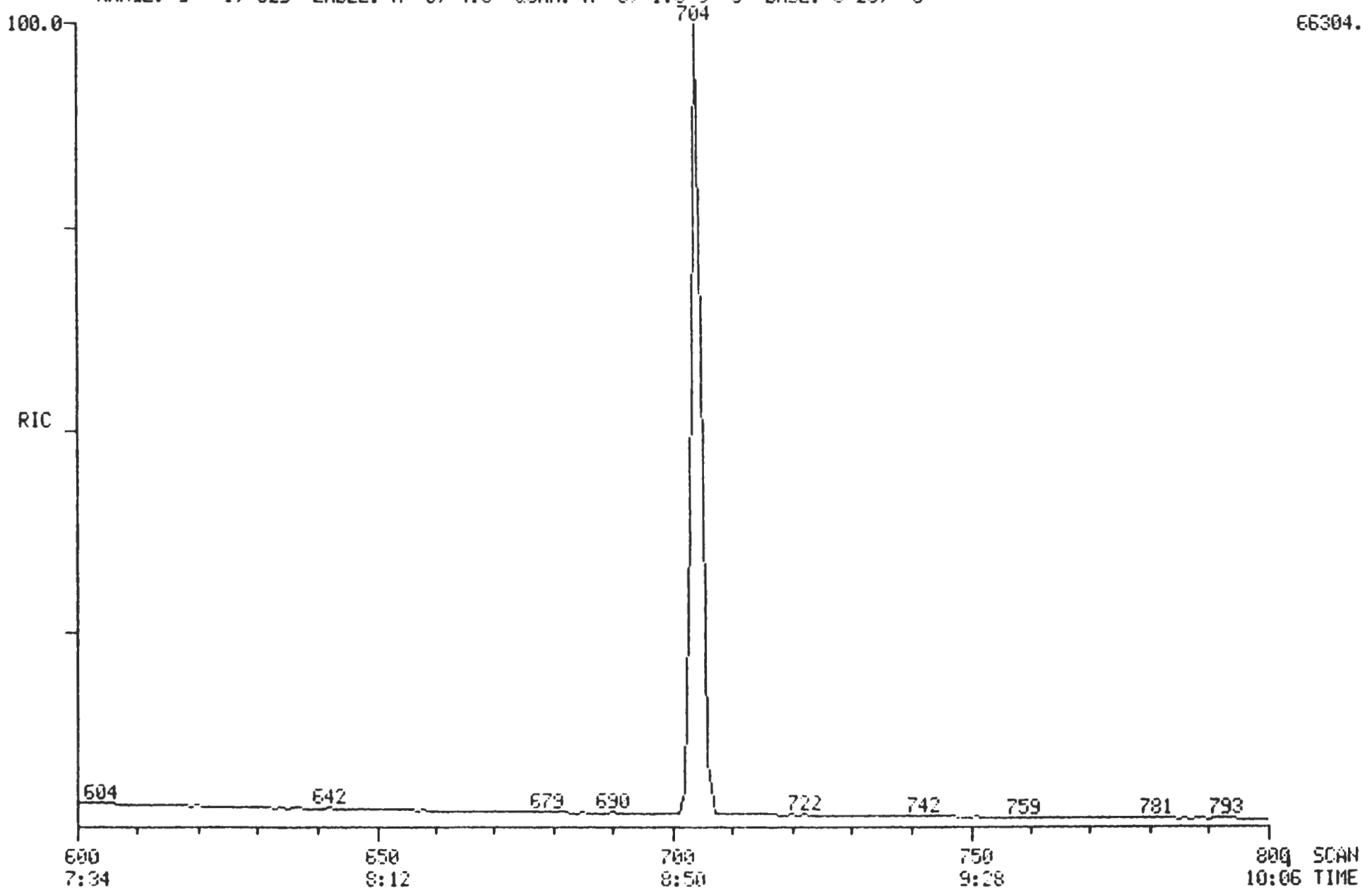
38 0.00 0. Minima Min Inten: 0.
444 Maxima # 0

Mass	% RA	Inten.	Mass	% RA	Inten.	Mass	% RA	Inten.
38	0.52	86.	135	1.37	226.	244	9.41	1550.
39	4.31	710.	136	0.11	18.	245	0.76	126.
40	0.72	118.	137	0.36	60.	246	1.91	314.
44	0.29	48.	141	2.21	364.	255	49.56	8168.
47	0.07	12.	142	0.22	36.	256	7.15	1178.
48	0.11	18.	147	0.93	154.	257	0.15	24.
49	1.52	250.	148	2.44	402.	258	2.73	450.
50	12.65	2084.	153	0.18	30.	265	0.67	110.
51	46.89	7728.	155	1.01	166.	273	1.12	184.
52	2.31	380.	156	1.97	324.	274	4.15	684.
56	1.32	218.	160	0.22	36.	275	23.23	3828.
57	3.34	550.	161	0.78	128.	276	2.91	480.
62	0.11	18.	165	0.25	42.	277	1.65	272.
63	1.52	250.	166	0.23	38.	296	5.84	962.
65	0.56	92.	167	4.26	702.	297	0.36	60.
69	51.84	8544.	168	2.29	378.	303	0.23	38.
74	3.96	652.	174	0.57	94.	315	0.22	36.
75	6.99	1152.	175	1.66	274.	323	1.81	298.
76	2.17	358.	177	0.23	38.	334	0.87	144.
77	47.82	7880.	179	3.42	564.	352	0.18	30.
78	3.25	536.	180	2.27	374.	354	0.19	32.
79	2.77	456.	181	0.55	90.	365	2.50	412.
80	2.11	348.	185	1.31	216.	372	0.58	96.
81	3.45	568.	186	12.91	2128.	403	0.13	22.
82	0.57	94.	187	3.80	626.	421	0.11	18.
83	0.63	104.	189	0.36	60.	423	3.41	562.
84	0.64	106.	192	0.68	112.	424	0.28	46.
86	0.98	162.	193	0.87	144.	441	8.00	1318.
91	0.11	18.	196	2.05	338.	442	64.56	10640.
92	0.27	44.	198	100.00	16480.	443	11.71	1930.
93	5.19	856.	199	6.50	1072.	444	0.98	162.
98	3.59	592.	203	0.18	30.			
99	3.01	496.	204	2.89	476.			
101	1.55	256.	205	5.46	900.			
104	0.72	118.	206	23.45	3864.			
105	0.72	118.	207	3.34	550.			
107	14.42	2376.	208	0.23	38.			
108	1.94	320.	211	0.41	68.			
110	25.10	4136.	217	6.43	1060.			
111	3.70	610.	218	0.34	56.			
116	0.22	36.	221	4.03	664.			
117	10.05	1656.	222	0.45	74.			
118	0.30	50.	223	1.09	180.			
122	0.33	54.	224	12.38	2040.			
123	1.09	180.	225	3.00	494.			
124	0.11	18.	227	5.27	868.			
-127	48.69	8024.	228	0.24	40.			
128	3.71	612.	229	0.66	108.			
129	19.47	3208.	242	0.17	28.			
130	1.29	212.	243	0.22	36.			

000193

RIC
12/11/92 14:32:00
SAMPLE: 50NG/2UL DFTPP 09/04/92 JY
CONDS.: SHERMA
RANGE: G 1, 829 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 2DFT121152 #703 SCANS 600 TO 800
CALI: 2DFT121152 #3



96 3492 160

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK1208C

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-BLK

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S07

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	25	U

10/26/93

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK1208C

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-BLK

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S07

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

CAh 12/2
10/20/92

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLK1208C

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-BLK

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S07

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

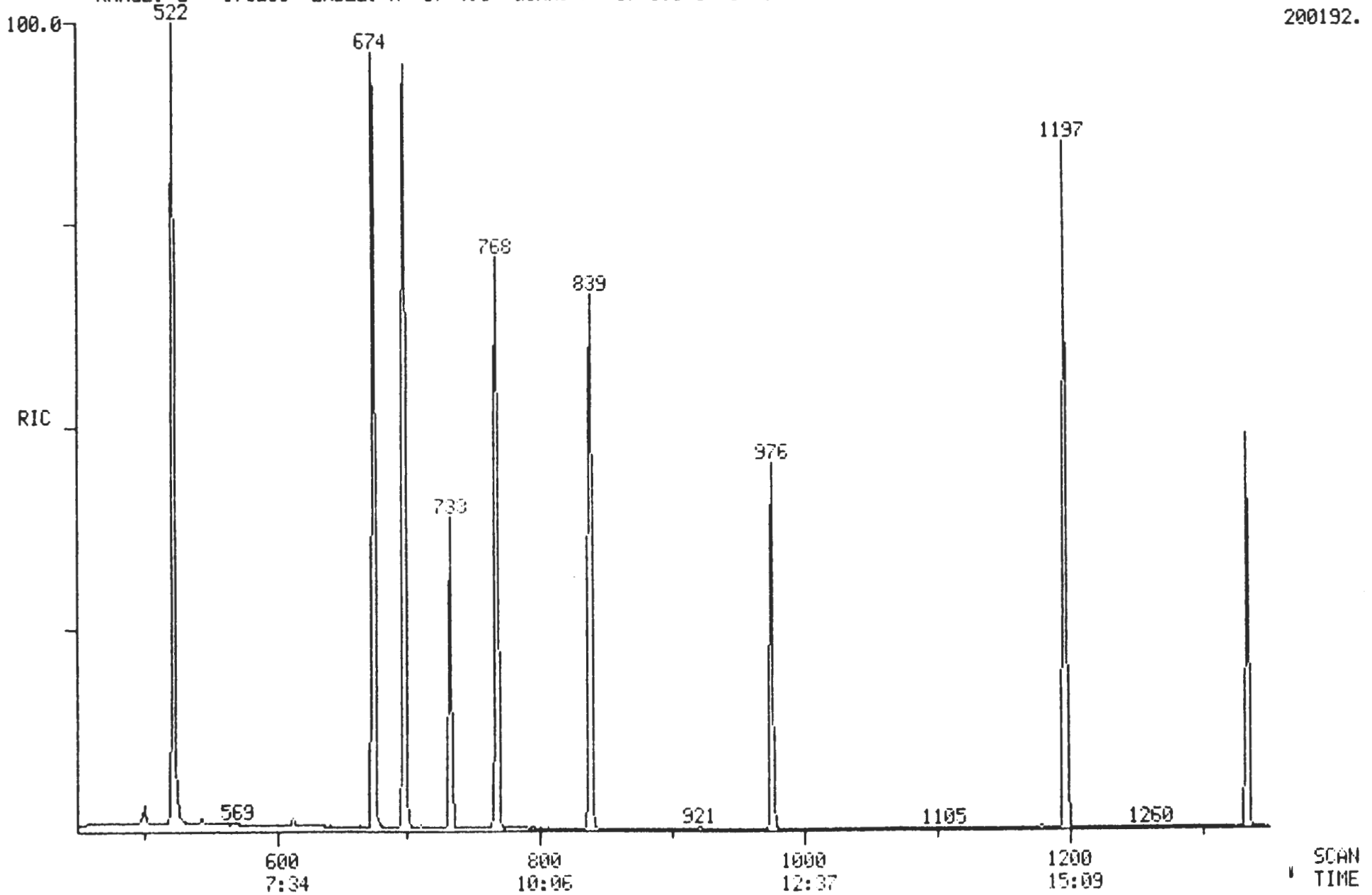
Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

000197

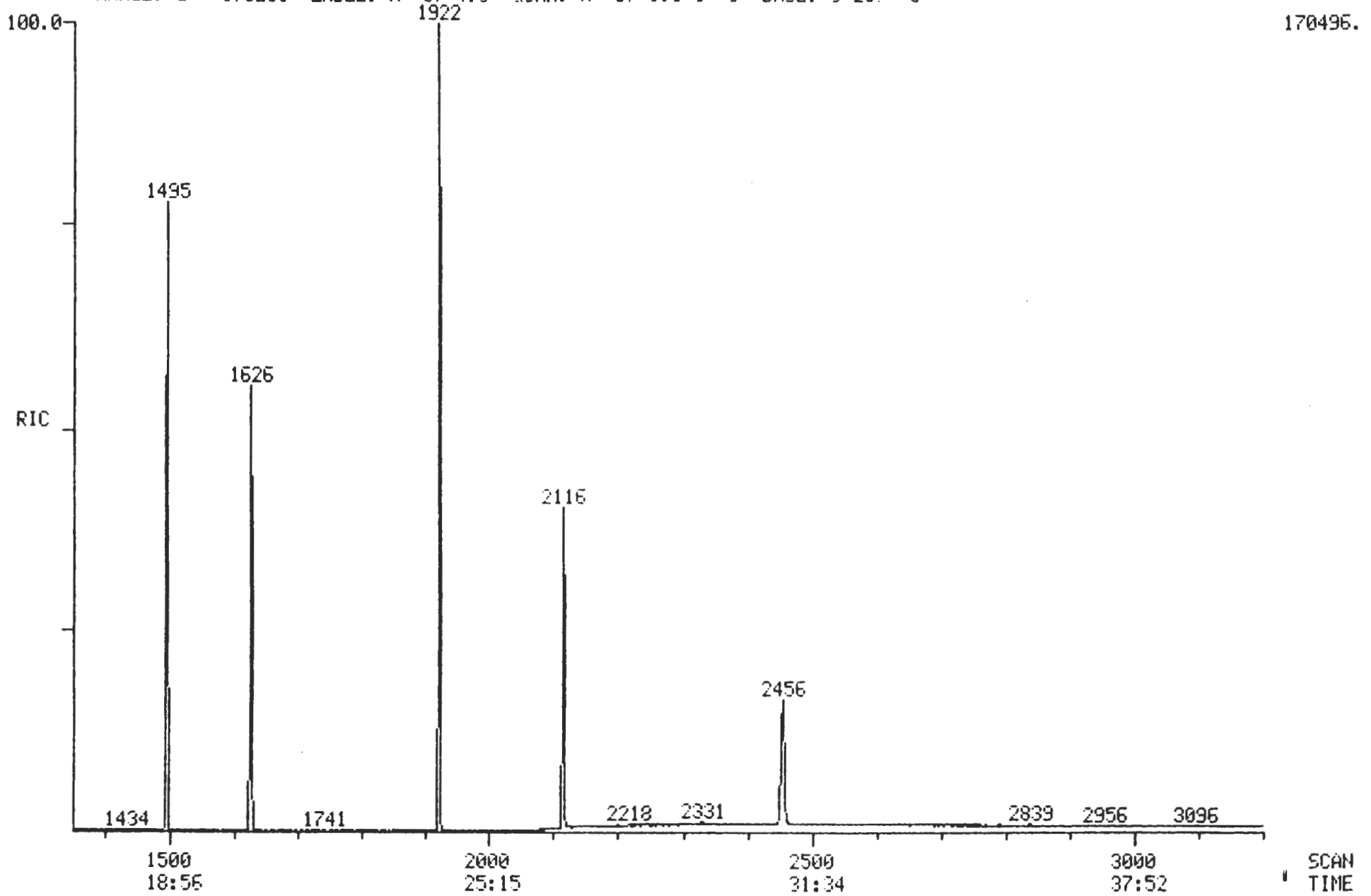
RIC DATA: 21211S07 #1 SCANS 450 TO 1350
12/11/92 15:32:00 CALI: 21211S07 #3
SAMPLE: CLP,12017,,SBLK1208C,L,W,A212017-BLK,B,BLANK
CONDS.: CAP/.32,21211S06,2DFT121152
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



961402.1605

RIC
12/11/92 15:32:00
SAMPLE: CLP,12017,,SBLK1208C,L,W,A212017-BLK,B,BLANK
CONDS.: CAP/.32,21211S06,2DFT1211S2
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 21211S07 #1
CALI: 21211S07 #3
SCANS 1350 TO 3200



9613492.1606

Quantitation Report File: 21211S07

Data: 21211S07.TI
12/11/92 15:32:00
Sample: CLP,12017,,SBLK1208C,L,W,A212017-BLK,B,BLANK
Conds.: CAP/.32,21211S06,2DFT1211S2
Formula: 1L:1ML Instrument: SHERMA Weight: 0.000
Submitted by: 21211S06 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name
1	CI30 *IS1* 1,4-DICHLOROBENZENE-D4
2	CI40 *IS2* NAPHTHALENE-D8
3	CI50 *IS3* ACENAPTHENE-D8
4	CI60 *IS4* PHENANTHRENE-D10
5	CI70 *IS5* CHRYSENE-D12
6	CI75 *IS6* PERYLENE-D12
7	CS50 *SU1* 2-FLUOROPHENOL
8	CS45 *SU2* PHENOL-D5
9	CS55 *SU3* 2,4,6,-TRIBROMOPHENOL
10	CS20 *SU4* NITROBENZENE-D5
11	CS25 *SU5* 2-FLUOROBIPHENYL
12	CS30 *SU6* TERPHENYL-D14
13	CS70 2-CHLOROPHENOL-D4
14	CS75 1,2-DICHLOROBENZENE-D4

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	152	733	9:15	1	1.000	A BB	27932.	20.000 NG/UL	3.57
2	136	976	12:19	2	1.000	A BB	102802.	20.000 NG/UL	3.57
3	164	1334	16:50	3	1.000	A BB	60378.	20.000 NG/UL	3.57
4	188	1626	20:32	4	1.000	A BV	93956.	20.000 NG/UL	3.57
5	240	2116	26:43	5	1.000	A BB	73036.	20.000 NG/UL	3.57
6	264	2455	31:00	6	1.000	A BB	58501.	20.000 NG/UL	3.57
7	112	522	6:35	1	0.712	A BB	115490	75.353 NG/UL	13.45
8	99	674	8:31	1	0.920	A BB	155842.	69.197 NG/UL	12.36
9	330	1494	18:52	3	1.120	A BB	39926.	61.173 NG/UL	10.92
10	82	839	10:36	2	0.860	A BB	112888.	45.136 NG/UL	8.06
11	172	1196	15:06	3	0.897	A BV	143844.	41.662 NG/UL	7.44
12	244	1922	24:16	5	0.908	A BB	146516.	40.956 NG/UL	7.31
13	132	698	8:49	1	0.952	A BB	121316.	68.009 NG/UL	12.14
14	152	768	9:42	1	1.048	A BB	50746.	38.577 NG/UL	6.89

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:15	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
2	12:19	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
3	16:50	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
4	20:32	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
5	26:44	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
6	31:00	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
7	6:35	1.00	0.712	1.00	75.35	25.00	3.308	1.097	3.01
8	8:31	1.00	0.920	1.00	69.20	25.00	4.463	✓1.613	2.77
9	18:52	1.00	1.120	1.00	61.17	25.00	0.529	0.216	2.45
10	10:36	1.00	0.860	1.00	45.14	25.00	0.878	0.487	1.81
11	15:06	1.00	0.897	1.00	41.66	25.00	1.906	1.144	1.67

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
12	24:16	1.00	0.908	1.00	40.96	25.00	1.605	0.980	1.64
13	8:49	1.00	0.952	1.00	68.01	25.00	3.475	1.277	2.72
14	9:42	1.00	1.048	1.00	38.58	25.00	1.453	0.942	1.54

9613492.4609

000202

No	Name	
48	C550	ACENAPHTHENE
49	C555	2,4-DINITROPHENOL
50	C560	4-NITROPHENOL

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	152	733	9:15	1	1.000	A BB	27932.	20.000	NG/UL	3.57
2	136	976	12:19	2	1.000	A BB	102802.	20.000	NG/UL	3.57
3	164	1334	16:50	3	1.000	A BB	60378.	20.000	NG/UL	3.57
4	188	1626	20:32	4	1.000	A BV	93956.	20.000	NG/UL	3.57
5	240	2116	26:43	5	1.000	A BB	73036.	20.000	NG/UL	3.57
6	264	2455	31:00	6	1.000	A BB	58501.	20.000	NG/UL	3.57
7	112	522	6:35	1	0.712	A BB	115490.	75.353	NG/UL	13.43
8	99	674	8:31	1	0.920	A BB	155842.	69.197	NG/UL	12.34
9	330	1494	18:52	3	1.120	A BB	39926.	61.173	NG/UL	10.91
10	82	839	10:36	2	0.860	A BB	112888.	45.136	NG/UL	8.05
11	172	1196	15:06	3	0.897	A BV	143844.	41.662	NG/UL	7.43
12	244	1922	24:16	5	0.908	A BB	146516.	40.956	NG/UL	7.30
13	132	698	8:49	1	0.952	A BB	121316.	68.009	NG/UL	12.12
14	152	768	9:42	1	1.048	A BB	50746.	38.577	NG/UL	6.88
~~15~~	~~94~~	~~676~~	~~8:32~~	~~1~~	~~0.922~~	~~A BB~~	~~750~~	~~0.277~~	~~NG/UL~~	~~0.05~~
16	NOT FOUND									
17	NOT FOUND									
18	NOT FOUND									
19	NOT FOUND									
20	NOT FOUND									
21	NOT FOUND									
22	NOT FOUND									
23	NOT FOUND									
24	NOT FOUND									
25	NOT FOUND									
26	NOT FOUND									
27	NOT FOUND									
28	NOT FOUND									
29	NOT FOUND									
30	NOT FOUND									
31	NOT FOUND									
32	NOT FOUND									
33	NOT FOUND									
34	NOT FOUND									
35	NOT FOUND									
36	NOT FOUND									
37	NOT FOUND									
38	NOT FOUND									
39	NOT FOUND									
40	NOT FOUND									
41	NOT FOUND									
42	NOT FOUND									
43	NOT FOUND									
44	NOT FOUND									
45	NOT FOUND									
46	NOT FOUND									
47	NOT FOUND									
48	NOT FOUND									
49	NOT FOUND									
50	NOT FOUND									

12/14/92

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:15	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
2	12:19	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
3	16:51	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
4	20:32	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
5	26:44	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
6	31:00	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
7	6:35	1.00	0.712	1.00	75.35	25.00	3.308	1.097	3.01
8	8:31	1.00	0.920	1.00	69.20	25.00	4.463	1.613	2.77
9	18:52	1.00	1.119	1.00	61.17	25.00	0.529	0.216	2.45
10	10:36	1.00	0.860	1.00	45.14	25.00	0.878	0.487	1.81
11	15:07	1.00	0.897	1.00	41.66	25.00	1.906	1.144	1.67
12	24:16	1.00	0.908	1.00	40.96	25.00	1.605	0.980	1.64
13	8:49	1.00	0.952	1.00	68.01	25.00	3.475	1.277	2.72
14	9:42	1.00	1.048	1.00	38.58	25.00	1.453	0.942	1.54
15	8:32	1.00	0.922	1.00	0.28	25.00	0.021	1.939	0.01
16	8:43		0.941						
17	8:51		0.956						
18	9:11		0.992						
19	9:18		1.004						
20	9:36		1.037						
21	9:43		1.050						
22	9:53		1.068						
23	9:58		1.078						
24	10:14		1.106						
25	10:18		1.113						
26	10:28		1.131						
27	10:38		0.863						
28	11:12		0.909						
29	11:25		0.926						
30	11:31		0.934						
31	11:45		0.954						
32	11:46		0.955						
33	12:00		0.973						
34	12:13		0.992						
35	12:22		1.004						
36	12:32		1.017						
37	12:51		1.043						
38	13:46		1.117						
39	14:08		1.147						
40	14:43		0.873						
41	14:54		0.884						
42	14:59		0.889						
43	15:22		0.912						
44	15:41		0.930						
45	16:14		0.963						
46	16:27		0.976						
47	16:44		0.993						
48	16:56		1.004						
49	17:00		1.008						
50	17:09		1.018						

Quantitation Report File: 21211S07

Data: 21211S07.TI
12/11/92 15:32:00
Sample: CLP,12017,,SBLK1208C,L,W,A212017-BLK,B,BLANK
Conds.: CAP/.32,21211S06,2DFT1211S2
Formula: 1L:1ML Instrument: SHERMA Weight: 0.000
Submitted by: 21211S06 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
51	C565	DIBENZOFURAN
52	C575	2,6-DINITROTOLUENE
53	C580	DIETHYLPHTHALATE
54	C570	2,4-DINITROTOLUENE
55	C590	FLUORENE
56	C585	4-CHLOROPHENYL-PHENYLETHER
57	C595	4-NITROANILINE
58	C610	4,6-DINITRO-2-METHYLPHENOL
59	C615	N-NITROSODIPHENYLAMINE
60	C625	4-BROMOPHENYL-PHENYLETHER
61	C630	HEXACHLOROBENZENE
62	C635	PENTACHLOROPHENOL
63	C640	PHENANTHRENE
64	C645	ANTHRACENE
65	C648	CARBAZOLE
66	C650	DI-N-BUTYLPHTHALATE
67	C655	FLUORANTHENE
68	C715	PYRENE
69	C720	BUTYLBENZYLPHTHALATE
70	C725	3,3'-DICHLOROBENZIDINE
71	C730	BENZO(A)ANTHRACENE
72	C740	CHRYSENE
73	C735	BIS(2-ETHYLHEXYL)PHTHALATE
74	C760	DI-N-OCTYL PHTHALATE
75	C765	BENZO(B)FLUROANTHENE
76	C770	BENZO(K)FLUORANTHENE
77	C775	BENZO(A)PYRENE
78	C780	INDENO(1,2,3-CD)PYRENE
79	C785	DIBENZO(A,H)ANTHRACENE
80	C790	BENZO(GHI)PERYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
51	NOT FOUND								
52	NOT FOUND								
53	NOT FOUND								
54	NOT FOUND								
55	NOT FOUND								
56	NOT FOUND								
57	NOT FOUND								
58	NOT FOUND								
59	NOT FOUND								
60	NOT FOUND								
61	NOT FOUND								
62	NOT FOUND								
63	NOT FOUND								

9615492.4612

000206

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07MK9MS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01C

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S09

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	64	
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	62	
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	33	
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	37	
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	35	
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	64	
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	34	
51-28-5	2,4-Dinitrophenol	25	U

9613492.4613

000207

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07MK9MS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01C

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S09

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-02-7	4-Nitrophenol	64	
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	39	
606-20-2	2,6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	72	
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	33	
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	450	E
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

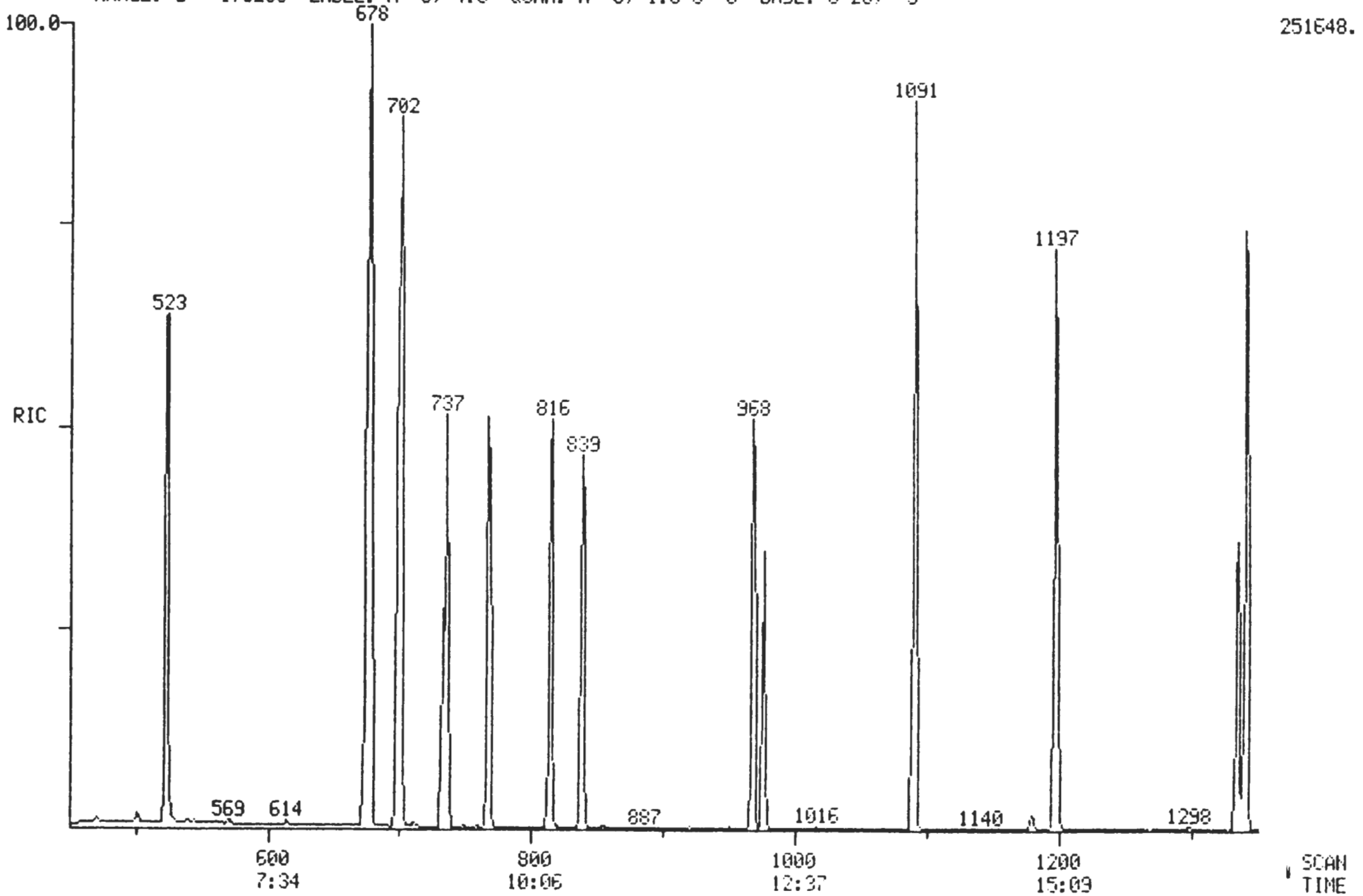
(1) - Cannot be separated from Diphenylamine

C Rich 10/20/93

000203

RIC
12/11/92 17:04:00
SAMPLE: CLP,12017,,B07MK9MS,L,W,A212017-01C,B,MS
CONDS.: CAP/.32,21211S06,2DFT1211S2,21211S07
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

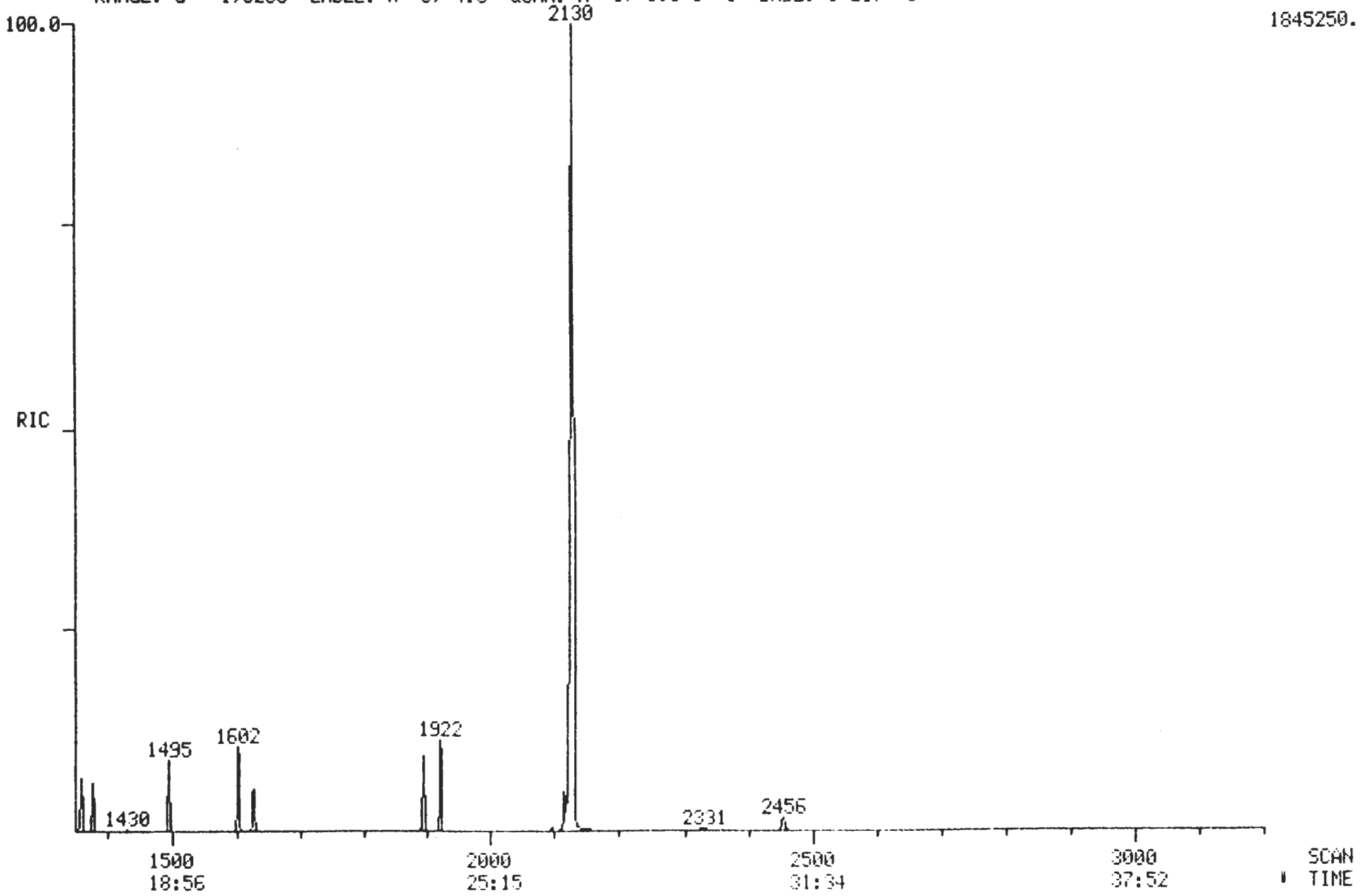
DATA: 21211S09 #1
CALI: 21211S09 #3
SCANS 450 TO 1350



96 3102 4411

000203

RIC DATA: 21211S09 #1 SCANS 1350 TO 3200
12/11/92 17:04:00 CALI: 21211S09 #3
SAMPLE: CLP,12017,,B07MK9MS,L,W,A212017-01C,B,MS
CONDS.: CAP/.32,21211S06,2DFT121152,21211S07
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



96 13492.4615

9613492.4616

000203

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
64	NOT FOUND								
65	NOT FOUND								
~~66~~	~~149~~	~~1742~~	~~22:00~~	~~4~~	~~1.071~~	~~A BB~~	~~716.~~	~~0.083 NG/UL~~	~~0.01~~
67	NOT FOUND								
68	NOT FOUND								
69	NOT FOUND								
70	NOT FOUND								
71	NOT FOUND								
72	NOT FOUND								
73	NOT FOUND								
74	NOT FOUND								
75	NOT FOUND								
76	NOT FOUND								
77	NOT FOUND								
78	NOT FOUND								
79	NOT FOUND								
80	NOT FOUND								

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
51	17:21		1.029						
52	16:23		0.972						
53	18:04		1.072						
54	17:24		1.032						
55	18:14		1.082						
56	18:14		1.082						
57	18:19		1.087						
58	18:27		0.899						
59	18:31		0.902						
60	19:26		0.946						
61	19:48		0.965						
62	20:13		0.985						
63	20:35		1.003						
64	20:42		1.009						
65	21:03		1.026						
66	22:00	1.00	1.071	1.00	0.08	25.00	0.006	1.835	0.00
67	23:24		1.140						
68	23:55		0.895						
69	25:26		0.951						
70	26:37		0.996						
71	26:41		0.999						
72	26:47		1.002						
73	26:50		1.004						
74	28:27		0.917						
75	29:41		0.957						
76	29:45		0.960						
77	30:49		0.994						
78	36:08		1.165						
79	36:16		1.170						
80	37:41		1.215						

92/14/92

Quantitation Report File: 21211S09

Data: 21211S09.TI
12/11/92 17:04:00
Sample: CLP,12017,,B07MK9MS,L,W,A212017-01C,B,MS
Conds.: CAP/.32,21211S06,2DFT1211S2,21211S07
Formula: 1L:1ML Instrument: SHERMA Weight: 0.000
Submitted by: 21211S06 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI30	*IS1* 1,4-DICHLOROBENZENE-D4
2	CI40	*IS2* NAPHTHALENE-D8
3	CI50	*IS3* ACENAPTHENE-D8
4	CI60	*IS4* PHENANTHRENE-D10
5	CI70	*IS5* CHRYSENE-D12
6	CI75	*IS6* PERYLENE-D12
7	CS50	*SU1* 2-FLUOROPHENOL
8	CS45	*SU2* PHENOL-D5
9	CS55	*SU3* 2,4,6,-TRIBROMOPHENOL
10	CS20	*SU4* NITROBENZENE-D5
11	CS25	*SU5* 2-FLUOROBIPHENYL
12	CS30	*SU6* TERPHENYL-D14
13	CS70	2-CHLOROPHENOL-D4
14	CS75	1,2-DICHLOROBENZENE-D4
15	C315	PHENOL
16	C330	2-CHLOROPHENOL
17	C340	1,4-DICHLOROBENZENE
18	C370	N-NITROSO-DI-N-PROPYLAMINE
19	C445	1,2,4-TRICHLOROBENZENE
20	C465	4-CHLORO-3-METHYLPHENOL
21	C550	ACENAPHTHENE
22	C560	4-NITROPHENOL
23	C570	2,4-DINITROTOLUENE
24	C635	PENTACHLOROPHENOL
25	C715	PYRENE
26	C735	BIS(2-ETHYLHEXYL)PHTHALATE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	152	734	9:16	1	1.000	A BB	26240.	20.000 NG/UL	1.28
2	136	976	12:19	2	1.000	A BB	99444.	20.000 NG/UL	1.28
3	164	1335	16:51	3	1 000	A BB	64242.	20.000 NG/UL	1.28
4	188	1626	20:32	4	1.000	A BV	105932.	20.000 NG/UL	1.28
5	240	2116	26:43	5	1.000	A BB	86098.	20.000 NG/UL	1.28
6	264	2456	31:00	6	1.000	A BB	63860.	20.000 NG/UL	1.28
7	112	522	6:35	1	0.711	A BB	104894.	72.852 NG/UL	4.66
8	99	676	8:32	1	0.921	A BB	143410.	67.783 NG/UL	4.33
9	330	1495	18:52	3	1.120	A BB	50228.	72.328 NG/UL	4.62
10	82	839	10:36	2	0.860	A BB	104058.	43.011 NG/UL	2.75
11	172	1197	15:07	3	0.897	A BB	155884.	42.433 NG/UL	2.71
12	244	1922	24:16	5	0.908	A BB	204785.	48.560 NG/UL	3.10
13	132	699	8:49	1	0.952	A BB	112034.	66.855 NG/UL	4.27
14	152	768	9:42	1	1.046	A BB	49360.	39.943 NG/UL	2.55
15	94	678	8:34	1	0.924	A BB	161960.	63.678 NG/UL	4.07
16	128	702	8:52	1	0.956	A BB	119150.	61.634 NG/UL	3.94
17	146	737	9:18	1	1.004	A BB	70800.	33.054 NG/UL	2.11

9613492.4618

000211

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
18	70	816	10:18	1	1.112	A BB	77400.	36.855	NG/UL	2.36
19	180	968	12:13	2	0.992	A BB	63186.	35.280	NG/UL	2.25
20	107	1091	13:46	2	1.118	A BB	122006.	64.305	NG/UL	4.11
21	153	1341	16:56	3	1.004	A BB	133200.	33.913	NG/UL	2.17
22	109	1361	17:11	3	1.019	A BB	44258.	64.432	NG/UL	4.12
23	165	1379	17:25	3	1.033	A BB	58168.	39.415	NG/UL	2.52
24	266	1602	20:13	4	0.985	A BB	64138.	71.514	NG/UL	4.57
25	202	1895	23:55	5	0.896	A BB	208895.	33.373	NG/UL	2.13
26	149	2130	26:53	5	1.007	A BB	2560540.	453.723	NG/UL	28.99

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:15	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
2	12:19	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
3	16:50	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
4	20:32	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
5	26:44	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
6	31:00	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
7	6:35	1.00	0.712	1.00	72.85	25.00	3.198	1.097	2.91
8	8:31	1.00	0.920	1.00	67.78	25.00	4.372	1.613	2.71
9	18:52	1.00	1.120	1.00	72.33	25.00	0.625	0.216	2.89
10	10:36	1.00	0.860	1.00	43.01	25.00	0.837	0.487	1.72
11	15:06	1.00	0.897	1.00	42.43	25.00	1.941	1.144	1.70
12	24:16	1.00	0.908	1.00	48.56	25.00	1.903	0.980	1.94
13	8:49	1.00	0.952	1.00	66.86	25.00	3.416	1.277	2.67
14	9:42	1.00	1.048	1.00	39.94	25.00	1.505	0.942	1.60
15	8:32	1.00	0.922	1.00	63.68	25.00	4.938	1.939	2.55
16	8:51	1.00	0.956	1.00	61.63	25.00	3.633	1.473	2.47
17	9:18	1.00	1.004	1.00	33.05	25.00	2.159	1.633	1.32
18	10:18	1.00	1.113	1.00	36.86	25.00	2.360	1.601	1.47
19	12:13	1.00	0.992	1.00	35.28	25.00	0.508	0.360	1.41
20	13:46	1.00	1.117	1.00	64.31	25.00	0.982	0.382	2.57
21	16:56	1.00	1.005	1.00	33.91	25.00	1.659	1.223	1.36
22	17:09	1.00	1.019	1.00	64.43	25.00	0.551	0.214	2.58
23	17:24	1.00	1.033	1.00	39.42	25.00	0.724	0.459	1.58
24	20:13	1.00	0.985	1.00	71.51	25.00	0.484	0.169	2.86
25	23:55	1.00	0.895	1.00	33.37	25.00	1.941	1.454	1.33
26	26:50	1.00	1.004	1.00	453.72	25.00	23.792	1.311	18.15

C Rin
10/70

Quantitation Report File: 21211S09

Data: 21211S09.TI
12/11/92 17:04:00
Sample: CLP,12017,,B07MK9MS,L,W,A212017-01C,B,MS
Conds.: CAP/.32,21211S06,2DFT1211S2,21211S07
Formula: 1L:1ML Instrument: SHERMA Weight: 0.000
Submitted by: 21211S06 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI30	*IS1* 1,4-DICHLOROBENZENE-D4
2	CI40	*IS2* NAPHTHALENE-D8
3	CI50	*IS3* ACENAPTHENE-D8
4	CI60	*IS4* PHENANTHRENE-D10
5	CI70	*IS5* CHRYSENE-D12
6	CI75	*IS6* PERYLENE-D12
7	CS50	*SU1* 2-FLUOROPHENOL
8	CS45	*SU2* PHENOL-D5
9	CS55	*SU3* 2,4,6,-TRIBROMOPHENOL
10	CS20	*SU4* NITROBENZENE-D5
11	CS25	*SU5* 2-FLUOROBIPHENYL
12	CS30	*SU6* TERPHENYL-D14
13	CS70	2-CHLOROPHENOL-D4
14	CS75	1,2-DICHLOROBENZENE-D4
15	C315	PHENOL
16	C325	BIS(2-CHLOROETHYL)ETHER
17	C330	2-CHLOROPHENOL
18	C335	1,3-DICHLOROBENZENE
19	C340	1,4-DICHLOROBENZENE
20	C345	BENZYL ALCOHOL
21	C350	1,2-DICHLOROBENZENE
22	C355	2-METHYLPHENOL
23	C360	BIS(2-CHLOROISOPROPYL)ETHER
24	C365	4-METHYLPHENOL
25	C370	N-NITROSO-DI-N-PROPYLAMINE
26	C375	HEXACHLOROETHANE
27	C410	NITROBENZENE
28	C415	ISOPHORONE
29	C420	2-NITROPHENOL
30	C425	2,4-DIMETHYLPHENOL
31	C435	BIS(2-CHLOROETHOXY)METHANE
32	C430	BENZOIC ACID
33	C440	2,4-DICHLOROPHENOL
34	C445	1,2,4-TRICHLOROBENZENE
35	C450	NAPHTHALENE
36	C455	4-CHLOROANILINE
37	C460	HEXACHLOROBUTADIENE
38	C465	4-CHLORO-3-METHYLPHENOL
39	C470	2-METHYLNAPHTHALENE
40	C510	HEXACHLOROCYCLOPENTADIENE
41	C515	2,4,6-TRICHLOROPHENOL
42	C520	2,4,5-TRICHLOROPHENOL
43	C525	2-CHLORONAPHTHALENE
44	C530	2-NITROANILINE
45	C535	DIMETHYL PHTHALATE
46	C540	ACENAPHTHYLENE
47	C545	3-NITROANILINE

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000213

No	Name
48	C550 ACENAPHTHENE
49	C555 2,4-DINITROPHENOL
50	C560 4-NITROPHENOL

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	152	734	9:16	1	1.000	A BB	26240	20.000	NG/UL	1.25
2	136	976	12:19	2	1.000	A BB	99444	20.000	NG/UL	1.25
3	164	1335	16:51	3	1.000	A BB	64242	20.000	NG/UL	1.25
4	188	1626	20:32	4	1.000	A BV	105932	20.000	NG/UL	1.25
5	240	2116	26:43	5	1.000	A BB	86098	20.000	NG/UL	1.25
6	264	2456	31:00	6	1.000	A BB	63860	20.000	NG/UL	1.25
7	112	522	6:35	1	0.711	A BB	104894.	72.852	NG/UL	4.55
8	99	676	8:32	1	0.921	A BB	143410.	67.783	NG/UL	4.23
9	330	1495	18:52	3	1.120	A BB	50228.	72.328	NG/UL	4.52
10	82	839	10:36	2	0.860	A BB	104058.	43.011	NG/UL	2.69
11	172	1197	15:07	3	0.897	A BB	155884.	42.433	NG/UL	2.65
12	244	1922	24:16	5	0.908	A BB	204785.	48.560	NG/UL	3.03
13	132	699	8:49	1	0.952	A BB	112034.	66.855	NG/UL	4.18
14	152	768	9:42	1	1.046	A BB	49360.	39.943	NG/UL	2.49
15	94	678	8:34	1	0.924	A BB	161960.	63.678	NG/UL	3.98
16	NOT FOUND									
17	128	702	8:52	1	0.956	A BB	119150.	61.634	NG/UL	3.85
~~18~~	~~146~~	~~737~~	~~9:18~~	~~1~~	~~1.004~~	~~A BB~~	~~70800.~~	~~33.940~~	~~NG/UL~~	~~2.12~~
19	146	737	9:18	1	1.004	A BB	70800.	33.054	NG/UL	2.06
20	NOT FOUND									
21	NOT FOUND									
22	NOT FOUND									
23	NOT FOUND									
24	NOT FOUND									
25	70	816	10:18	1	1.112	A BB	77400.	36.855	NG/UL	2.30
26	NOT FOUND									
27	NOT FOUND									
28	NOT FOUND									
29	NOT FOUND									
30	NOT FOUND									
31	NOT FOUND									
32	NOT FOUND									
33	NOT FOUND									
34	180	968	12:13	2	0.992	A BB	63186.	35.280	NG/UL	2.20
35	NOT FOUND									
36	NOT FOUND									
37	NOT FOUND									
38	107	1091	13:46	2	1.118	A BB	122006.	64.305	NG/UL	4.02
39	NOT FOUND									
40	NOT FOUND									
41	NOT FOUND									
42	NOT FOUND									
43	NOT FOUND									
44	NOT FOUND									
45	NOT FOUND									
46	NOT FOUND									
47	NOT FOUND									
48	153	1341	16:56	3	1.004	A BB	133200.	33.913	NG/UL	2.12
49	NOT FOUND									
50	109	1361	17:11	3	1.019	A BB	44258.	64.432	NG/UL	4.02

12/14/92

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:15	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
2	12:19	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
3	16:51	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
4	20:32	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
5	26:44	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
6	31:00	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
7	6:35	1.00	0.712	1.00	72.85	25.00	3.198	1.097	2.91
8	8:31	1.00	0.920	1.00	67.78	25.00	4.372	1.613	2.71
9	18:52	1.00	1.119	1.00	72.33	25.00	0.625	0.216	2.89
10	10:36	1.00	0.860	1.00	43.01	25.00	0.837	0.487	1.72
11	15:07	1.00	0.897	1.00	42.43	25.00	1.941	1.144	1.70
12	24:16	1.00	0.908	1.00	48.56	25.00	1.903	0.980	1.94
13	8:49	1.00	0.952	1.00	66.86	25.00	3.416	1.277	2.67
14	9:42	1.00	1.048	1.00	39.94	25.00	1.505	0.942	1.60
15	8:32	1.00	0.922	1.00	63.68	25.00	4.938	1.939	2.55
16	8:43		0.941						
17	8:51	1.00	0.956	1.00	61.63	25.00	3.633	1.473	2.47
18	9:11	1.01	0.992	1.01	33.94	25.00	2.159	1.590	1.36
19	9:18	1.00	1.004	1.00	33.05	25.00	2.159	✓1.633	1.32
20	9:36		1.037						
21	9:43		1.050						
22	9:53		1.068						
23	9:58		1.078						
24	10:14		1.106						
25	10:18	1.00	1.113	1.00	36.86	25.00	2.360	1.601	1.47
26	10:28		1.131						
27	10:38		0.863						
28	11:12		0.909						
29	11:25		0.926						
30	11:31		0.934						
31	11:45		0.954						
32	11:46		0.955						
33	12:00		0.973						
34	12:13	1.00	0.992	1.00	35.28	25.00	0.508	0.360	1.41
35	12:22		1.004						
36	12:32		1.017						
37	12:51		1.043						
38	13:46	1.00	1.117	1.00	64.31	25.00	0.982	0.382	2.57
39	14:08		1.147						
40	14:43		0.873						
41	14:54		0.884						
42	14:59		0.889						
43	15:22		0.912						
44	15:41		0.930						
45	16:14		0.963						
46	16:27		0.976						
47	16:44		0.993						
48	16:56	1.00	1.004	1.00	33.91	25.00	1.659	1.223	1.36
49	17:00		1.008						
50	17:09	1.00	1.018	1.00	64.43	25.00	0.551	0.214	2.58

Quantitation Report File: 21211S09

Data: 21211S09.TI
12/11/92 17:04:00
Sample: CLP,12017,,B07MK9MS,L,W,A212017-01C,B,MS
Conds.: CAP/.32,21211S06,2DFT1211S2,21211S07
Formula: 1L:1ML Instrument: SHERMA Weight: 0.000
Submitted by: 21211S06 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name
51	C565 DIBENZOFURAN
52	C575 2,6-DINITROTOLUENE
53	C580 DIETHYLPHTHALATE
54	C570 2,4-DINITROTOLUENE
55	C590 FLUORENE
56	C585 4-CHLOROPHENYL-PHENYLETHER
57	C595 4-NITROANILINE
58	C610 4,6-DINITRO-2-METHYLPHENOL
59	C615 N-NITROSODIPHENYLAMINE
60	C625 4-BROMOPHENYL-PHENYLETHER
61	C630 HEXACHLOROBENZENE
62	C635 PENTACHLOROPHENOL
63	C640 PHENANTHRENE
64	C645 ANTHRACENE
65	C648 CARBAZOLE
66	C650 DI-N-BUTYLPHTHALATE
67	C655 FLUORANTHENE
68	C715 PYRENE
69	C720 BUTYLBENZYLPHTHALATE
70	C725 3,3'-DICHLOROBENZIDINE
71	C730 BENZO(A)ANTHRACENE
72	C740 CHRYSENE
73	C735 BIS(2-ETHYLHEXYL)PHTHALATE
74	C760 DI-N-OCTYL PHTHALATE
75	C765 BENZO(B)FLUROANTHENE
76	C770 BENZO(K)FLUORANTHENE
77	C775 BENZO(A)PYRENE
78	C780 INDENO(1,2,3-CD)PYRENE
79	C785 DIBENZO(A,H)ANTHRACENE
80	C790 BENZO(GHI)PERYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
51	NOT FOUND								
52	NOT FOUND								
~~53~~	~~149~~	~~1430~~	~~18:03~~	~~3~~	~~1.071~~	~~A BB~~	~~4560.~~	~~0.926 NG/UL~~	~~0.06~~
54	165	1379	17:25	3	1.033	A BB	58168.	39.415 NG/UL	2.46
55	NOT FOUND								
56	NOT FOUND								
57	NOT FOUND								
58	NOT FOUND								
59	NOT FOUND								
60	NOT FOUND								
61	NOT FOUND								
62	266	1602	20:13	4	0.985	A BB	64138.	71.514 NG/UL	4.47
63	NOT FOUND								

12/14/92

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
64	NOT FOUND								
65	NOT FOUND								
~~66~~	~~149~~	~~1742~~	~~22:00~~	~~4~~	~~1.071~~	~~A BB~~	~~2556.~~	~~0.263 NG/UL~~	~~0.02~~
67	NOT FOUND								
68	202	1895	23:55	5	0.896	A BB	208895.	33.373 NG/UL	2.08
~~69~~	~~149~~	~~2014~~	~~25:26~~	~~5~~	~~0.952~~	~~A BB~~	~~502.~~	~~0.155 NG/UL~~	~~0.01~~
70	NOT FOUND								
71	NOT FOUND								
72	NOT FOUND								
73	149	2130	26:53	5	1.007	A BB	2560540.	453.723 NG/UL	28.34
74	NOT FOUND								
75	NOT FOUND								
76	NOT FOUND								
77	NOT FOUND								
78	NOT FOUND								
79	NOT FOUND								
80	NOT FOUND								

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
51	17:21		1.029						
52	16:23		0.972						
53	18:04	1.00	1.072	1.00	0.93	25.00	0.057	1.533	0.04
54	17:24	1.00	1.032	1.00	39.42	25.00	0.724	0.459	1.58
55	18:14		1.082						
56	18:14		1.082						
57	18:19		1.087						
58	18:27		0.899						
59	18:31		0.902						
60	19:26		0.946						
61	19:48		0.965						
62	20:13	1.00	0.985	1.00	71.51	25.00	0.484	0.169	2.86
63	20:35		1.003						
64	20:42		1.009						
65	21:03		1.026						
66	22:00	1.00	1.071	1.00	0.26	25.00	0.019	1.835	0.01
67	23:24		1.140						
68	23:55	1.00	0.895	1.00	33.37	25.00	1.941	1.454	1.33
69	25:26	1.00	0.951	1.00	0.16	25.00	0.005	0.751	0.01
70	26:37		0.996						
71	26:41		0.999						
72	26:47		1.002						
73	26:50	1.00	1.004	1.00	453.72	25.00	23..792	1.311	18.15
74	28:27		0.917						
75	29:41		0.957						
76	29:45		0.960						
77	30:49		0.994						
78	36:08		1.165						
79	36:16		1.170						
80	37:41		1.215						

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07MK9MSD

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01D

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S10

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	66	
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	65	
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	39	
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	40	
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	40	
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	66	
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	37	
51-28-5	2,4-Dinitrophenol	25	U

9613492.4625

000210

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07MK9MSD

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12017 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212017-01D

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21211S10

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/08/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

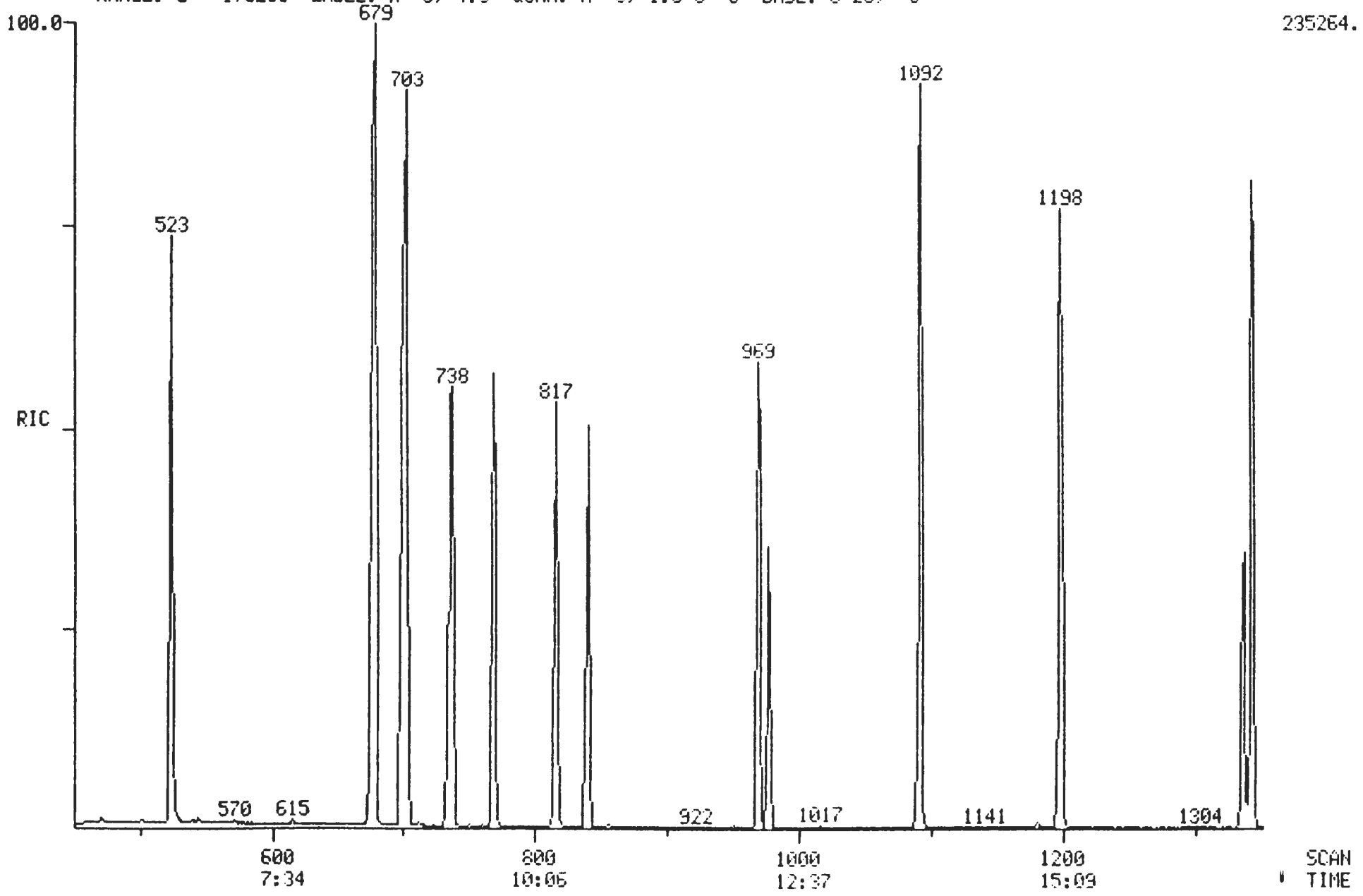
GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-02-7	4-Nitrophenol	67	
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	42	
606-20-2	2,6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	74	
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	39	
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

000213

RIC DATA: 21211S10 #1 SCANS 450 TO 1350
12/11/92 17:50:00 CALI: 21211S10 #3
SAMPLE: CLP,12017,,B07MK9MSD,L,W,A212017-01C,B,MSD
CONDS.: CAP/.32,21211S06,2DFT1211S2,21211S07
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



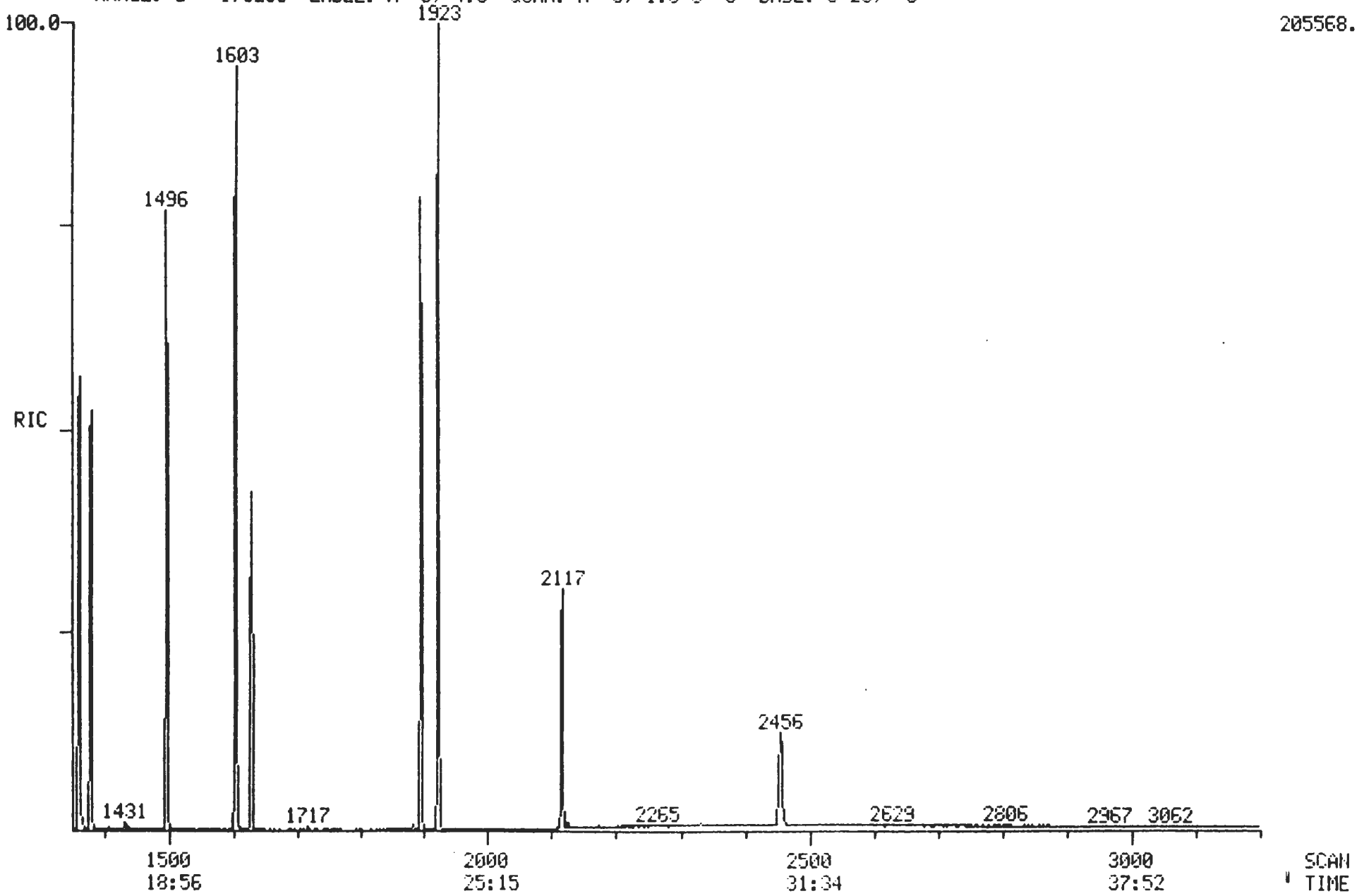
96B492.4626

000220

RIC
12/11/92 17:50:00
SAMPLE: CLP,12017,,B07MK9MSD,L,W,A212017-01C,B,MSD
CONDS.: CAP/.32,21211S06,2DFT121152,21211S07
RANGE: G 1,3200 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 21211S10 #1
CALI: 21211S10 #3

SCANS 1350 TO 3200



Quantitation Report File: 21211S10

Data: 21211S10.TI
12/11/92 17:50:00
Sample: CLP,12017,,B07MK9MSD,L,W,A212017-01C,B,MSD
Conds.: CAP/.32,21211S06,2DFT1211S2,21211S07
Formula: 1L:1ML Instrument: SHERMA Weight: 0.000
Submitted by: 21211S06 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI30	*IS1* 1,4-DICHLOROBENZENE-D4
2	CI40	*IS2* NAPHTHALENE-D8
3	CI50	*IS3* ACENAPTHENE-D8
4	CI60	*IS4* PHENANTHRENE-D10
5	CI70	*IS5* CHRYSENE-D12
6	CI75	*IS6* PERYLENE-D12
7	CS50	*SU1* 2-FLUOROPHENOL
8	CS45	*SU2* PHENOL-D5
9	CS55	*SU3* 2,4,6,-TRIBROMOPHENOL
10	CS20	*SU4* NITROBENZENE-D5
11	CS25	*SU5* 2-FLUOROBIPHENYL
12	CS30	*SU6* TERPHENYL-D14
13	CS70	2-CHLOROPHENOL-D4
14	CS75	1,2-DICHLOROBENZENE-D4
15	C315	PHENOL
16	C330	2-CHLOROPHENOL
17	C340	1,4-DICHLOROBENZENE
18	C370	N-NITROSO-DI-N-PROPYLAMINE
19	C445	1,2,4-TRICHLOROBENZENE
20	C465	4-CHLORO-3-METHYLPHENOL
21	C550	ACENAPHTHENE
22	C560	4-NITROPHENOL
23	C570	2,4-DINITROTOLUENE
24	C635	PENTACHLOROPHENOL
25	C715	PYRENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	152	734	9:16	1	1.000	A BB	24078.	20.000 NG/UL	1.68
2	136	977	12:20	2	1.000	A BB	91060.	20.000 NG/UL	1.68
3	164	1336	16:52	3	1.000	A BB	57232.	20.000 NG/UL	1.68
4	188	1627	20:32	4	1.000	A BV	93848.	20.000 NG/UL	1.68
5	240	2117	26:44	5	1.000	A BB	67096.	20.000 NG/UL	1.68
6	264	2456	31:00	6	1.000	A BB	53354.	20.000 NG/UL	1.68
7	112	523	6:36	1	0.713	A BB	100928.	76.392 NG/UL	6.43
8	99	676	8:32	1	0.921	A BB	141452.	72.861 NG/UL	6.13
9	330	1495	18:52	3	1.119	A BB	48344.	78.142 NG/UL	6.57
10	82	840	10:36	2	0.860	A BB	103934.	46.915 NG/UL	3.95
11	172	1198	15:07	3	0.897	A BB	151128.	46.178 NG/UL	3.88
12	244	1923	24:17	5	0.908	A BB	184877.	56.255 NG/UL	4.73
13	132	700	8:50	1	0.954	A BB	111804.	72.708 NG/UL	6.12
14	152	769	9:42	1	1.048	A BB	49564.	43.710 NG/UL	3.68
15	94	679	8:34	1	0.925	A BB	154398.	66.156 NG/UL	5.57
16	128	703	8:53	1	0.958	A BB	115874.	65.322 NG/UL	5.50
17	146	737	9:18	1	1.004	A BB	76330.	38.836 NG/UL	3.27
18	70	816	10:18	1	1.112	A BB	78020.	40.486 NG/UL	3.41

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
19	180	969	12:14	2	0.992	A BB	65880.	40.170	NG/UL	3.38
20	107	1092	13:47	2	1.118	A BB	113800.	65.503	NG/UL	5.51
21	153	1342	16:57	3	1.004	A BB	129252.	36.939	NG/UL	3.11
22	109	1362	17:12	3	1.019	A BB	41100.	67.163	NG/UL	5.65
23	165	1379	17:25	3	1.032	A BB	55332.	42.086	NG/UL	3.54
24	266	1603	20:14	4	0.985	A BB	58484.	73.607	NG/UL	6.19
25	202	1896	23:56	5	0.896	A BB	191482.	39.255	NG/UL	3.30

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	9:15	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
2	12:19	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
3	16:50	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
4	20:32	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
5	26:44	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
6	31:00	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
7	6:35	1.00	0.712	1.00	76.39	25.00	3.353	1.097	3.06
8	8:31	1.00	0.920	1.00	72.86	25.00	4.700	1.613	2.91
9	18:52	1.00	1.120	1.00	78.14	25.00	0.676	0.216	3.13
10	10:36	1.00	0.860	1.00	46.91	25.00	0.913	0.487	1.88
11	15:06	1.00	0.897	1.00	46.18	25.00	2.112	1.144	1.85
12	24:16	1.00	0.908	1.00	56.25	25.00	2.204	0.980	2.25
13	8:49	1.00	0.952	1.00	72.71	25.00	3.715	1.277	2.91
14	9:42	1.00	1.048	1.00	43.71	25.00	1.647	0.942	1.75
15	8:32	1.00	0.922	1.00	66.16	25.00	5.130	1.939	2.65
16	8:51	1.00	0.956	1.00	65.32	25.00	3.850	1.473	2.61
17	9:18	1.00	1.004	1.00	38.84	25.00	2.536	1.633	1.55
18	10:18	1.00	1.113	1.00	40.49	25.00	2.592	1.601	1.62
19	12:13	1.00	0.992	1.00	40.17	25.00	0.579	0.360	1.61
20	13:46	1.00	1.117	1.00	65.50	25.00	1.000	0.382	2.62
21	16:56	1.00	1.005	1.00	36.94	25.00	1.807	1.223	1.48
22	17:09	1.00	1.019	1.00	67.16	25.00	0.575	0.214	2.69
23	17:24	1.00	1.033	1.00	42.09	25.00	0.773	0.459	1.68
24	20:13	1.00	0.985	1.00	73.61	25.00	0.499	0.169	2.94
25	23:55	1.00	0.895	1.00	39.26	25.00	2.283	1.454	1.57

CAvin
10/20

Quantitation Report File: 21211S10

Data: 21211S10.TI
12/11/92 17:50:00
Sample: CLP,12017,,B07MK9MSD,L,W,A212017-01C,B,MSD
Conds.: CAP/.32,21211S06,2DFT1211S2,21211S07
Formula: 1L:1ML Instrument: SHERMA Weight: 0.000
Submitted by: 21211S06 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI30	*IS1* 1,4-DICHLOROBENZENE-D4
2	CI40	*IS2* NAPHTHALENE-D8
3	CI50	*IS3* ACENAPTHENE-D8
4	CI60	*IS4* PHENANTHRENE-D10
5	CI70	*IS5* CHRYSENE-D12
6	CI75	*IS6* PERYLENE-D12
7	CS50	*SU1* 2-FLUOROPHENOL
8	CS45	*SU2* PHENOL-D5
9	CS55	*SU3* 2,4,6,-TRIBROMOPHENOL
10	CS20	*SU4* NITROBENZENE-D5
11	CS25	*SU5* 2-FLUOROBIPHENYL
12	CS30	*SU6* TERPHENYL-D14
13	CS70	2-CHLOROPHENOL-D4
14	CS75	1,2-DICHLOROBENZENE-D4
15	C315	PHENOL
16	C325	BIS(2-CHLOROETHYL)ETHER
17	C330	2-CHLOROPHENOL
18	C335	1,3-DICHLOROBENZENE
19	C340	1,4-DICHLOROBENZENE
20	C345	BENZYL ALCOHOL
21	C350	1,2-DICHLOROBENZENE
22	C355	2-METHYLPHENOL
23	C360	BIS(2-CHLOROISOPROPYL)ETHER
24	C365	4-METHYLPHENOL
25	C370	N-NITROSO-DI-N-PROPYLAMINE
26	C375	HEXACHLOROETHANE
27	C410	NITROBENZENE
28	C415	ISOPHORONE
29	C420	2-NITROPHENOL
30	C425	2,4-DIMETHYLPHENOL
31	C435	BIS(2-CHLOROETHOXY)METHANE
32	C430	BENZOIC ACID
33	C440	2,4-DICHLOROPHENOL
34	C445	1,2,4-TRICHLOROBENZENE
35	C450	NAPHTHALENE
36	C455	4-CHLOROANILINE
37	C460	HEXACHLOROBUTADIENE
38	C465	4-CHLORO-3-METHYLPHENOL
39	C470	2-METHYLNAPHTHALENE
40	C510	HEXACHLOROCYCLOPENTADIENE
41	C515	2,4,6-TRICHLOROPHENOL
42	C520	2,4,5-TRICHLOROPHENOL
43	C525	2-CHLORONAPHTHALENE
44	C530	2-NITROANILINE
45	C535	DIMETHYL PHTHALATE
46	C540	ACENAPHTHYLENE
47	C545	3-NITROANILINE

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000224

No	Name
48	C550 ACENAPHTHENE
49	C555 2,4-DINITROPHENOL
50	C560 4-NITROPHENOL

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	152	734	9:16	1	1.000	A BB	24078.	20.000	NG/UL	1.63
2	136	977	12:20	2	1.000	A BB	91060.	20.000	NG/UL	1.63
3	164	1336	16:52	3	1.000	A BB	57232.	20.000	NG/UL	1.63
4	188	1627	20:32	4	1.000	A BV	93848.	20.000	NG/UL	1.63
5	240	2117	26:44	5	1.000	A BB	67096.	20.000	NG/UL	1.63
6	264	2456	31:00	6	1.000	A BB	53354.	20.000	NG/UL	1.63
7	112	523	6:36	1	0.713	A BB	100928.	76.392	NG/UL	6.21
8	99	676	8:32	1	0.921	A BB	141452.	72.861	NG/UL	5.92
9	330	1495	18:52	3	1.119	A BB	48344.	78.142	NG/UL	6.35
10	82	840	10:36	2	0.860	A BB	103934.	46.915	NG/UL	3.81
11	172	1198	15:07	3	0.897	A BB	151128.	46.178	NG/UL	3.75
12	244	1923	24:17	5	0.908	A BB	184877.	56.255	NG/UL	4.57
13	132	700	8:50	1	0.954	A BB	111804.	72.708	NG/UL	5.91
14	152	769	9:42	1	1.048	A BB	49564.	43.710	NG/UL	3.55
15	94	679	8:34	1	0.925	A BB	154398.	66.156	NG/UL	5.38
16	NOT FOUND									
17	128	703	8:53	1	0.958	A BB	115874.	65.322	NG/UL	5.31
~~18~~	~~146~~	~~737~~	~~9:18~~	~~1~~	~~1.004~~	~~A BB~~	~~76330.~~	~~39.876~~	~~NG/UL~~	~~3.24~~
19	146	737	9:18	1	1.004	A BB	76330.	38.836	NG/UL	3.16
20	NOT FOUND									
21	NOT FOUND									
22	NOT FOUND									
23	NOT FOUND									
24	NOT FOUND									
25	70	816	10:18	1	1.112	A BB	78020.	40.486	NG/UL	3.29
26	NOT FOUND									
27	NOT FOUND									
28	NOT FOUND									
29	NOT FOUND									
30	NOT FOUND									
31	NOT FOUND									
32	NOT FOUND									
33	NOT FOUND									
34	180	969	12:14	2	0.992	A BB	65880.	40.170	NG/UL	3.27
35	NOT FOUND									
36	NOT FOUND									
37	NOT FOUND									
38	107	1092	13:47	2	1.118	A BB	113800.	65.503	NG/UL	5.32
39	NOT FOUND									
40	NOT FOUND									
41	NOT FOUND									
42	NOT FOUND									
43	NOT FOUND									
44	NOT FOUND									
45	NOT FOUND									
46	NOT FOUND									
47	NOT FOUND									
48	153	1342	16:57	3	1.004	A BB	129252.	36.939	NG/UL	3.00
49	NOT FOUND									
50	109	1362	17:12	3	1.019	A BB	41100.	67.163	NG/UL	5.46

12/14/92

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R. Fac	R. Fac(L)	Ratio
1	9:15	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
2	12:19	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
3	16:51	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
4	20:32	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
5	26:44	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
6	31:00	1.00	1.000	1.00	20.00	20.00	1.000	1.000	1.00
7	6:35	1.00	0.712	1.00	76.39	25.00	3.353	1.097	3.06
8	8:31	1.00	0.920	1.00	72.86	25.00	4.700	1.613	2.91
9	18:52	1.00	1.119	1.00	78.14	25.00	0.676	0.216	3.13
10	10:36	1.00	0.860	1.00	46.91	25.00	0.913	0.487	1.88
11	15:07	1.00	0.897	1.00	46.18	25.00	2.112	1.144	1.85
12	24:16	1.00	0.908	1.00	56.25	25.00	2.204	0.980	2.25
13	8:49	1.00	0.952	1.00	72.71	25.00	3.715	1.277	2.91
14	9:42	1.00	1.048	1.00	43.71	25.00	1.647	0.942	1.75
15	8:32	1.00	0.922	1.00	66.16	25.00	5.130	1.939	2.65
16	8:43		0.941						
17	8:51	1.00	0.956	1.00	65.32	25.00	3.850	1.473	2.61
18	9:11	1.01	0.992	1.01	39.88	25.00	2.536	1.590	1.60
19	9:18	1.00	1.004	1.00	38.84	25.00	2.536	1.633	1.55
20	9:36		1.037						
21	9:43		1.050						
22	9:53		1.068						
23	9:58		1.078						
24	10:14		1.106						
25	10:18	1 00	1.113	1.00	40.49	25.00	2.592	1.601	1.62
26	10:28		1.131						
27	10:38		0.863						
28	11:12		0.909						
29	11:25		0.926						
30	11:31		0.934						
31	11:45		0.954						
32	11:46		0.955						
33	12:00		0.973						
34	12:13	1.00	0.992	1.00	40.17	25.00	0.579	0.360	1.61
35	12:22		1.004						
36	12:32		1.017						
37	12:51		1.043						
38	13:46	1.00	1.117	1.00	65.50	25.00	1.000	0.382	2.62
39	14:08		1.147						
40	14:43		0.873						
41	14:54		0.884						
42	14:59		0.889						
43	15:22		0.912						
44	15:41		0.930						
45	16:14		0.963						
46	16:27		0.976						
47	16:44		0.993						
48	16:56	1.00	1.004	1.00	36.94	25.00	1.807	1.223	1.48
49	17:00		1.008						
50	17:09	1.00	1.018	1.00	67.16	25.00	0.575	0.214	2.69

9613492.4633

000226

Quantitation Report File: 21211S10

Data: 21211S10.TI
12/11/92 17:50:00
Sample: CLP,12017,,B07MK9MSD,L,W,A212017-01C,B,MSD
Conds.: CAP/.32,21211S06,2DFT1211S2,21211S07
Formula: 1L:1ML Instrument: SHERMA Weight: 0.000
Submitted by: 21211S06 Analyst: JY#9S Acct. No.: CALTAB

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
51	C565	DIBENZOFURAN
52	C575	2,6-DINITROTOLUENE
53	C580	DIETHYLPHTHALATE
54	C570	2,4-DINITROTOLUENE
55	C590	FLUORENE
56	C585	4-CHLOROPHENYL-PHENYLETHER
57	C595	4-NITROANILINE
58	C610	4,6-DINITRO-2-METHYLPHENOL
59	C615	N-NITROSODIPHENYLAMINE
60	C625	4-BROMOPHENYL-PHENYLETHER
61	C630	HEXACHLOROBENZENE
62	C635	PENTACHLOROPHENOL
63	C640	PHENANTHRENE
64	C645	ANTHRACENE
65	C648	CARBAZOLE
66	C650	DI-N-BUTYLPHTHALATE
67	C655	FLUORANTHENE
68	C715	PYRENE
69	C720	BUTYLBENZYLPHTHALATE
70	C725	3,3'-DICHLOROBENZIDINE
71	C730	BENZO(A)ANTHRACENE
72	C740	CHRYSENE
73	C735	BIS(2-ETHYLHEXYL)PHTHALATE
74	C760	DI-N-OCTYL PHTHALATE
75	C765	BENZO(B)FLUROANTHENE
76	C770	BENZO(K)FLUORANTHENE
77	C775	BENZO(A)PYRENE
78	C780	INDENO(1,2,3-CD)PYRENE
79	C785	DIBENZO(A,H)ANTHRACENE
80	C790	BENZO(GHI)PERYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
51	NOT FOUND								
52	NOT FOUND								
~~53~~	~~149~~	~~1431~~	~~18:04~~	~~3~~	~~1.071~~	~~A BB~~	~~2412.~~	~~0.550 NG/UL~~	~~0.04~~
54	165	1379	17:25	3	1.032	A BB	55332.	42.086 NG/UL	3.42
55	NOT FOUND								
56	NOT FOUND								
57	NOT FOUND								
58	NOT FOUND								
59	NOT FOUND								
60	NOT FOUND								
61	NOT FOUND								
62	266	1603	20:14	4	0.985	A BB	58484.	73.607 NG/UL	5.98
63	NOT FOUND								

12/14/92

9613492.4634

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
64	NOT FOUND								
65	NOT FOUND								
~~66~~	~~149~~	~~1743~~	~~22:00~~	~~4~~	~~1.071~~	~~A BB~~	~~782.~~	~~0.091 NG/UL~~	~~0.01~~
67	NOT FOUND								
68	202	1896	23:56	5	0.896	A BB	191482.	39.255 NG/UL	3.19
69	NOT FOUND								
70	NOT FOUND								
71	NOT FOUND								
72	NOT FOUND								
~~73~~	~~149~~	~~2125~~	~~26:50~~	~~5~~	~~1.004~~	~~A BB~~	~~1158.~~	~~0.263 NG/UL~~	~~0.02~~
74	NOT FOUND								
75	NOT FOUND								
76	NOT FOUND								
77	NOT FOUND								
78	NOT FOUND								
79	NOT FOUND								
80	NOT FOUND								

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
51	17:21		1.029						
52	16:23		0.972						
53	18:04	1.00	1.072	1.00	0.55	25.00	0.034	1.533	0.02
54	17:24	1.00	1.032	1.00	42.09	25.00	0.773	0.459	1.68
55	18:14		1.082						
56	18:14		1.082						
57	18:19		1.087						
58	18:27		0.899						
59	18:31		0.902						
60	19:26		0.946						
61	19:48		0.965						
62	20:13	1.00	0.985	1.00	73.61	25.00	0.499	0.169	2.94
63	20:35		1.003						
64	20:42		1.009						
65	21:03		1.026						
66	22:00	1.00	1.071	1.00	0.09	25.00	0.007	1.835	0.00
67	23:24		1.140						
68	23:55	1.00	0.895	1.00	39.26	25.00	2.283	1.454	1.57
69	25:26		0.951						
70	26:37		0.996						
71	26:41		0.999						
72	26:47		1.002						
73	26:50	1.00	1.004	1.00	0.26	25.00	0.014	1.311	0.01
74	28:27		0.917						
75	29:41		0.957						
76	29:45		0.960						
77	30:49		0.994						
78	36:08		1.165						
79	36:16		1.170						
80	37:41		1.215						

12/14/92

9613492.4635

ADDITIONAL RAW DATA

000223

TMA/ARLI
Thermo Analytical Inc.

Semi VOA Extraction

Book No. 873
Page No. 16

Work Order # / Client: A2-12-017 / WHC
Matrix / Method: Liquid / EPA 3520

Holding time expires: 12-9-92
Date extracted: 12-8-92
Date completed: 12-9-92

Sample Number	Sample Vol./Wt.	BN Surr./ ID / Acid Surr./ ID	BN Spikes/ID / Acid Spikes/ID	BN pH (>10) / Acid pH (<2)	BN Vf / Acid Vf	Vol Extracted, mL	GPC Y/N	Tot Vf, mL	Comments (pH for water, extract characteristics, reagents lot #, etc.)
SBLK12U8C	1000ml DI H_2O	0.5ml/0.13.1C 0.5ml/0.132C		pH<2/HK		1ml	N		Methylene chloride lot # BD330 Sodium Sulfate lot # 802414-5NY.
OIB	1000ml								
OICMS			0.5ml/0.1.3C. 0.5ml/0.114C.						
OIDMSD									

Surr. & Spikes added by: K.K.S.
Observed by: [illegible]

Reviewed by: [illegible] 12/11/92

96 3102 2496

9613492.4637

0045426

E-93-22/2978-62

WESTINGHOUSE HANFORD COMPANY

241-T-106 DATA VALIDATION

DISTRIBUTION FORM

29 of 42

SDG: B07M19

Document Title Final QA Record Case #: 12-017

Fraction: Wet Chem

Document Number: _____ Date: 4/15/94

DISTRIBUTION					
M. Baker (HCRL)		D. Mantooth (ERL)		D. Wiley (ERL)	
P. Bartley (ERL)		T. McDonald (HCRL)		N. Wold (ERL)	
Y. Chun (HCSEA)		R. Potter (HCRL)		ERL Project File/J. Pawlowski	
B. Downs (HCSEA)		K. Rolla (HCSEA)		Project File/D. Simpson (HCRL)	
M. Gerboth (HCRL)		C. Sater (ERL)		Duplicate Project File/T. Trevino (HCSEA)	
J. Grover (ERL)		M. Schwarz (ERL)		Westinghouse EDMC	X
L. Hammerle (HCSEA)		A. Shen (HCSEA)			
K. Pool (WHC)					

Project Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

1.1	File Index		1.6.6.3	Plans Doc. Log		3.4	Original Chemical Data
1.2	Distribution Lists		1.6.6.4	Deliverables Doc. Log		3.5	Original Radiochemical Data
1.3	Project Procedures		1.7	Budget			
1.4	Project Modifications		1.7.1	Downloads		4.1	Task Plan
1.5	Staff		1.7.2	M-113s			
1.5.1	Staff Resumes		1.7.3	A-208s		4.2	Data Pkg. Completeness Verif. Checklist
1.5.2	Staff Training		1.7.4	Budget Status		4.3	Data Valididation Calcs./Annotated DP
1.5.3	Auth. Former Site Employee		1.7.5	Invoices		4.4	Prelim. QA Records
1.6	QA		1.8	Requisitions			
1.6.1	QA Manual		1.9	Meeting Minutes		4.5	Data Valid. & Qual. Summary Rpts.
1.6.2	QA Implementation		1.10	Record of Telecon		4.5.1	Internal Drafts/Comments/Resol.
1.6.3.1	QA Audits-Deliverables		1.11	Progress Reports		4.5.2	WHC Review Draft Comments/Resol.
1.6.3.2	QA Audits-Files		1.12	Subcontractor (HC)		4.5.3	Final Report
1.6.4.1	Audit Resps. - Deliverables					4.6	Weekly Status Reports
1.6.4.2	Audit Resps. - Files		2.1	Incoming Correspondence		4.7	Weekly Management Reports
1.6.5	QA Training		2.2	Outgoing Correspondence			
1.6.6.1	QA Manual Document Log		2.3	Internal Correspondence			
1.6.6.2	Procedure Document Log						
			3.1	Task Order			
			3.2	Sample Lists			
			3.3	Data Validation Procedures			

9613492.4648

AS 10/18/93

COC ✓

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: 241-T-106	REVIEWER: AS	DATE: 10/18/93
LABORATORY: TMA	CASE: 12-017	SDG: B07MK9
SAMPLES/MATRIX:		
B07MK9 - water		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

No verification

Data Package Item	Present?: Yes	No	N/A
Case Narrative	—	—	—
Cover Page	—	—	—
Traffic Reports/Chain-of-Custody	—	—	—
Sample Analysis Data Report Forms	—	—	—
Standards Data	—	—	—
QC Summary			
Blanks Summary Report Forms	—	—	—
Spike Sample Recovery Report Forms	—	—	—
Duplicate Sample Analysis Report Forms	—	—	—
Laboratory Control Sample Report Forms	—	—	—
Raw Data			
Ion Chromatograph Chromatograms	—	—	—
TOC and TOX Instrument Printouts	—	—	—
Laboratory Bench Sheets	—	—	—
Additional Data			
Laboratory Sample Preparation Logs	—	—	—
Instrument Run Logs	—	—	—
Internal Laboratory Chain-of-Custory	—	—	—
Percent Solids Analysis Records	—	—	—
Reduction Formulae	—	—	—
Chemist Notebook Pages	—	—	—

2. HOLDING TIMES

Were all samples analyzed within holding times? Yes (No) N/A

Action: If any holding times were exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? Yes **No** N/A

No ical raw data

Are the correlation coefficients ≥ 0.995? **Yes** No N/A

Was a balance check conducted prior to the TDS analysis? Yes No **N/A**

Was the titrant normality checked? Yes No **N/A**

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Have ICV and CCV been analyzed at the proper frequency? Yes **No** N/A

No ical raw data provided

Are ICV and CCV percent recoveries within control? **Yes** No N/A

Are there calculation errors? Yes **No** N/A

ACTION: Qualify all affected data in accordance with the validation requirements.

5. LABORATORY BLANKS

Are target analytes present in the laboratory blanks? Yes **No** N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U) and list the affected samples and analytes below.

6. FIELD BLANKS

Are target analytes present in the field blanks? Yes No **N/A**

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

7. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the acceptance limits? Yes **No** N/A

No MS/MSD for NO_2/NO_3, ccal & LCS ok

ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are >CRQL, qualify the data as estimated (J). If the spike recovery is <30% and the sample results are less then the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results > IDL, for which the LCS %R falls within the range 50-79% or > 120%. Qualify as estimated (UJ), all sample results < IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R < 50%.

SOLID LCS - Qualify as estimated (J), all sample results > IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results < IDL for which the LCS %R are lower than the established control limits.

9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

10. DUPLICATE SAMPLE ANALYSIS

Are RPD values within the acceptance limits? Yes No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

12. FIELD SPLIT SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

13. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly? Yes No N/A

Are instrument detection limits below the CRDL? Yes No N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

14. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? Yes No N/A

Were project specific data quality objectives met for this analysis? Yes No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

9613492.4642

COMMENTS (attach additional sheets as necessary):

9613492.4643

9613492.4644

APPENDIX B

DATA SUMMARY FORMS

HOLDING TIME SUMMARY

SDG: 12-017	VALIDATOR: AS	DATE: 10/18/97	PAGE 1 OF 8
COMMENTS:			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07MK9	Anions	12/2/92	—	1/11/93	—	43	J
	pH	↓	—	12/7/93	—	5	J
	phosphate	12/2/92	—	1/11/93	—	43	J

CALIBRATION DATA SUMMARY

SDG: B07MK9	VALIDATOR: AS	DATE: 10/18/93	PAGE 2 OF 8
COMMENTS:			
CALIB. TYPE:	INITIAL	CONTINUING	INSTRUMENT:

CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
12/4/93	Same calibration as			B07MK9	RJ
	B07JZ1 / B07JZ2. However,		no raw		
	data for the rest was provided			ok	
				Rec'd	
	pH = ok			11/10/93	

BLANK AND SAMPLE DATA SUMMARY

SDG: B07MK9	VALIDATOR: AS	DATE: 10/18/93	PAGE 3 OF 8
COMMENTS:			

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
Blank	Non-detect	—						—	—

ACCURACY DATA SUMMARY

SDG: B07MK9	VALIDATOR: AS	DATE: 10/18/93	PAGE 5 OF 8	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B07MK9	Cl	~~97~~ 94 %	—	—
	F	97 %	—	—
	P-PO_4	100 %	—	—
	SO_4	95 %	—	—

PRECISION DATA SUMMARY

SDG: B07MK9	VALIDATOR: HS	DATE: 10/18/93	PAGE 5 OF 8

COMMENTS:

COMPOUND	SAMPLE ID: B07MK9	SAMPLE ID: B07MK9 Dup	RPD	SAMPLES AFFECTED	QUALIFIER
Cl	ND	ND		—	—
F	ND	ND		—	—
P-PO_4	ND	ND		—	—
pH	5.9	5.8	1.7	—	—
SO_4	ND	ND		—	—
NO_2-N	ND	ND		—	—
NO_3-N	ND	ND		—	—

CALCULATION SUMMARY

SDG: B07MK9	REVIEWER: AS	DATE: 10/18/93	PAGE 6 OF 8

COMMENTS:

B07MK9

F = 20.236 / 20.9 = 97%

Cl = 27.899 / 29.8 = 94%

P-PO4 = 148.279 / 148.0 = 100 %

SO4 = 141.537 / 149.0 = 95 %

N-NO3 = ~~21.326~~ 94.4 / 100.00 = 94 %

DATA QUALIFICATION SUMMARY

SDG: B07MK9	VALIDATOR: AS	DATE: 10/18/93	PAGE 7 OF 8
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
~~Anions~~	~~R~~ ~~J~~	~~B07MK9~~	~~No real raw data~~ AS 11/12/93
Anions	J	B07MK9	Exceeded holding time for all anions
			No MS for NO_2/NO_3
pH	J	B07MK9	Exceeded holding time.

TELEPHONE CONTACT SUMMARY

VALIDATOR:	DATE:	TIME:	PAGE 8 OF 8
COMPANY:			
ADDRESS:			
PERSON CONTACTED:			
TELEPHONE:		FAX:	
PROJECT/CASE/SDG:			
REMARKS:			
ACTION:			

9613492.4653

RECORD COPY

JAN 1993
RECEIVED
OSM DMO

WESTINGHOUSE HANFORD COMPANY

Results of Analyses For:

ORGANICS & GENERAL CHEMISTRY
Case No. 12-017
(TMA/ARLI Work Order # A2-12-017)

METALS
Case No. N2-12-023
(TMA/Skinner & Sherman W.O. # S2-12-096)

January 27, 1993

TMA Master Work Order N2-12-023

OFFICE OF SAMPLE MANAGEMENT
RECORD OF DISPOSITION

ROD-93-00042
Record of Disposition No.

DATE: 2/22/93	LABORATORY: TMA
PROJECT TITLE/NO.: 241-T-106/92-336	NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS:

All samples for this project.

DESCRIPTION OF EVENT:

Analyses for Flouride and Chloride were not asked for on the SAR despite request on SAF.

DISPOSITION OF SAMPLES:

Include Flouride and Chloride in anions analysis.

APPROVAL SIGNATURES:

R.C. Smith/ R Clayton Smith — 2/22/93
OSM Project Coordinator (Print/Sign Name) — Date

J. Freeman-Pollard/ J Freeman-Pollard — 3/1/93
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

OFFICE OF SAMPLE MANAGEMENT

RECORD OF DISPOSITION

ROD-93-00043
Record of Disposition No.

DATE: 2/22/93

LABORATORY: TMA

PROJECT TITLE/NO.: 241-T-106/92-336

NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS:

B07MK9, B07K04, B07ML0

DESCRIPTION OF EVENT:

Water samples to be analyzed for nitrite-nitrate were not preserved as required.

DISPOSITION OF SAMPLES:

Per telecon with J. Freeman-Pollard, project engineer, cancel nitrite-nitrate analysis for those samples.

APPROVAL SIGNATURES:

R. C. Smith/ R C Smith — 2/22/93
OSM Project Coordinator (Print/Sign Name) — Date

J. Freeman-Pollard/ J Freeman-Pollard — 3/1/93
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

9613492.4656

WESTINGHOUSE HANFORD COMPANY

Results of Analyses For:

GENERAL CHEMISTRY
CASE NO. 12-017
(TMA/ARLI Work Order # A2-12-017)

ORGANICS
CASE NO. 12-017
(TMA/ARLI Work Order # A2-12-017)

General Chemistry and Organics results are presented
for the following WHC WATER sample(s):

B07MK9 B07MK2

Norcal Work Order # N2-12-023

Thermo Analytical Inc.
160 Taylor Street
Monrovia, CA 91016
(818) 357-3247

9613492.4657

000002

PAGE 1 TRA/Norcal CHAIN OF CUSTODY ORD # N2-12-023

RCVD: 12/04/92 DUE: 01/03/93 12/04/92 15:39:22 KEEP: 04/03/93 DISP: S

DASH	SAMPLE IDENTIFICATION	STORED	TESTS for FRACTIONS with work in DEPT: SV and CATEGORY			
01A-W	B07MK9	ARLI	WH018	WH020	WH043	WH121
01C	B07MK9 MS	ARLI	WH018	WH020	WH043	
01D-S	B07MK9 MSD	ARLI	WH018	WH020		
01E-S	B07MK9 DUP	ARLI	WH043	WH121		
02A-W	B07MK2	ARLI	WH018			

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
ryamamoto	12-4-92	ARLI	12-4-92	[illegible]	12/7/92

9613492.4658

000002A

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: Wendy S. Thompson

PROJECT NUMBER: 92-336

Company Contact: Wendy S. Thompson

Telephone: (509) 376-2153

Project Designation/Sampling Locations: 241-T-106

Borehole Number: 299-W10-196

Collection Date: 12-2-92

Time: 0945; 0730 (1) (2)

Ice Chest No.: SML200

Field Logbook No.: EFL-1053

Bill of Lading/Airbill No.: 2519007304

Offsite Property No.: ~~W93-0-0122~~ #22

Method of Shipment: AIR (Emery)

Shipped to: TMA-Norcal

Possible Sample Hazards/Remarks: Keep samples chilled. All analysis per lab statement of work.

No hazards detected with field instruments

Sample Identification

) B07MK9

3 x 40 ml., amber glass, water, CLP-VOA

~~3 x 1000 ml.~~ 1 x 4000 ml wst 12-2-92, amber glass, water, CLP- Semi-VOA, IC Anions, SO_4, PO_4, NO_2-NO_3, pH, Cl, F

1 x 1000 ml., plastic, water (HNO_3), ICP/AA metals, Bi, Hg

1 x 1000 ml., plastic, water (NaOH, ~~ascorbic acid~~ wst 12-2-92), CLP-CN

1 x 250 ml., amber glass, water (H_2SO_4), TOC

1 x 4000 ml., plastic, water ((HNO_3)) gross alpha, gross beta, GEA including Co-60, Ru-106,
1 x 2000 ml., plastic, water (HNO_3) } Ce-144, Cs-137, isotopic U, total U, Am-241, Np-237, Pu-238,-239,-240, Sr-90.

1 x 1000 ml., plastic, water (HCL), Tc-99

2 x 250 ml., amber glass, water, C-14

) B07MK2 - 3x40 ml amber glass water; CLP-VOA

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.S. Thompson / Wendy S Thompson	Kermit Blum	12-4-92 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: TOC aliquot B07MK9 sent to WESTON, INC 12-7-92

9613492.9659

000002B

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

Collector: Wendy S. Thompson Date: 12-2-92

Company Contact: Wendy S. Thompson Telephone: (509) 376-2153

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Requested
B07MK9	W	12-2-92	0945	3 x 40 ml., amber glass, water, CLP-VOA
				~~3 x 1000~~ ml., amber glass, water, CLP- Semi-VOA, IC Anions
				1 x 4000 SO_4, PO_4, NO_2-NO_3, pH, Cl, F; wrt 12-2-92
				1 x 1000 ml., plastic, water (HNO_3), ICP/AA metals, Bi, Hg
				1 x 1000 ml., plastic, water (NaOH, ~~ascorbic acid~~), CLP-CN; wrt 12-2-92
				1 x 250 ml., amber glass, water (H_2SO_4), TOC
				1 x 4000 ml., plastic, water (HNO_3)
				1 x 2000 ml., plastic, water (HNO_3)
				gross alpha, gross beta, GEA including Co-60, Ru-106, Ce-144, Cs-137, isotopic U, total U, Am-241, Np-237, Pu-238,-239,-240, Sr-90.
				1 x 1000 ml., plastic, water (HCL), Tc-99
				2 x 250 ml., amber glass, water, C-14
B07MK2(W)		12-2-92	0730	3x40ml, amber glass, CLP-VOA

12-3-92

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information: Samples support the 241-T-106 soil investigation. All analysis per lab statement of work. Project # 92-336

Special Handling and/or Storage: Keep samples chilled.

Possible Sample Hazards: None indicated with field instruments

A-6000-406 (06/91)

9613492.4660

000003

TMA/ARLI
Thermo Analytical Inc.

RADIATION DOSE RATE SURVEY FORM

Date 12/07/92 COMPANY NORC (WHC) OTHER ORD # 518804274E

Surveyor's Name MARK E. McCray

Model No. HP-210 / ESP-1 Model No. AC-3-7 / ESP-1

Serial Nos. 710289 / 02619 Serial Nos. 407776 / 02628

Calibration Date N/A Calibration Date 8/01/92

Instrument Calibration Factor N/A Instrument Calibration Factor 0.188

Sample	Location	HP-210 Cpm	HP-210 Factor	HP-210 DPM	AC-3-7 Cpm	AC-3-7 Factor	AC-3-7 DPM	Spillage or Breakage?	Activity, mCi/ml or mCi/g
Background					0				
Consistency					5,000	0.1838			
Smear: OT 5					2.0				
Reported (WHC) (6) air samples each < 50 pCi/gram									

Comments:

All OK ✓ Approved MBM

Not OK Date 12/07/92

9613492.4661

SAMPLE LOG-IN SHEET

000004

LAB NAME : TMA/ARLI

PAGE : 1 OF 1

RECEIVED BY (PRINT NAME): Trudy Golub

LOG-IN-DATE : 12/7/92

RECEIVED BY (SIGNATURE): Trudy Golub

CASE NUMBER:

SAMPLE DELIVERY GROUP NO.:

SAS NUMBER:

REMARKS: CT-5

1. Custody Seal(s) Present/Absent* Intact/Broken
2. Custody Seal Nos:
3. Chain of Custody Records Present/Absent*
4. Traffic Reports or Packing List Present/Absent*
5. Airbill Airbill/Sticker Present/Absent*
6. Airbill No.: 5188642742
7. Sample Tags Present/Absent*
8. Sample Tags Numbers Listed/Not Listed on Chain of Custody
9. Sample Condition: Intact/Broken*/ Leaking
10. Does information on custody records, traffic reports, and sample tags agree Yes/No*
11. Date Recieved at Lab: 12/7/92
12. Temp of ice chest °C
13. Time Recieved: 1645

SAMPLE TRANSFER

Fraction:

Area #:

By:

On:

EPA SAMPLE #	CORRESPONDING SAMPLE TAG #	CORRESPONDING ASSIGNED LAB #	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC
	B07P24	A2-12-018-05	
	B07P49	A2-12-018-02	
	B07PZ3	A2-12-018-03	
	B07PZ2	A2-12-018-04	
	B07PZ1	A2-12-018-01	
	B07MK9	A2-12-017-01	
	B07MK2	A2-12-017-02	

* Contact SMO and attach record of resolution

Reviewed By: Logbook No.:

Date: Logbook Page No.:

FORM DC-1

QUESTIONS? CALL 800-238-5355 TOLL FREE.

TRACKING NUMBER 5188042742

5188042742

RECIPIENT'S COPY

1 Date

From (Your Name) Please Print: Sample contact

Your Phone Number (Very Important): (310) 3[illegible]

Company: T M A / MICRAL

Department/Floor No

Street Address: 2000 [illegible] AVE.

City: [illegible]

State: CA

ZIP Required: [illegible]

2 To (Recipient's Name) Please Print: Sample contact ( )

Recipient's Phone Number (Very Important)

Company: TMA/ARI

Department/Floor No

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes): 160 Tapo Street

City: Monrovia

State: CA

ZIP Required: 91016

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice): [illegible]

H IF HOLD FOR PICK-UP, Print FEDEX Address Here

Street Address

City

State

ZIP Required

3 PAYMENT 1 ☑ Bill Sender 2 ☐ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card

$ ☐ Carry Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning)
- 11 ☑ YOUR PACKAGING
- 16 ☐ FEDEX LETTER*
- 12 ☐ FEDEX PAK*
- 13 ☐ FEDEX BOX
- 14 ☐ FEDEX TUBE

Standard Overnight (Delivery by next business afternoon)
- 51 ☐ YOUR PACKAGING
- 56 ☐ FEDEX LETTER*
- 52 ☐ FEDEX PAK*
- 53 ☐ FEDEX BOX
- 54 ☐ FEDEX TUBE

Economy Two-Day (Delivery by second business day)
- 30 ☐ ECONOMY

Government Overnight (Available to authorized users only)
- 46 ☐ GOVT LETTER
- 41 ☐ GOVT PACKAGE

Freight Service (For packages over 150 lbs.)
- 70 ☐ OVERNIGHT FREIGHT** (Confirmed reservation required)
- 80 ☐ TWO-DAY FREIGHT**

1 Delivery commitment may be later in some areas

*Declared Value Limit $500
**Call for delivery schedule

5 DELIVERY AND SPECIAL HANDLING (Check services required)
- 1 ☐ HOLD FOR PICK-UP (Fill in Box H)
- 2 ☐ DELIVER WEEKDAY
- 3 DELIVER SATURDAY (Extra charge) ☑
- 4 ☐ DANGEROUS GOODS (Extra charge)
- 5 ☐
- 6 ☐ DRY ICE Lbs.
- 7 ☐ OTHER SPECIAL SERVICE
- 8 ☐
- 9 ☐ SATURDAY PICK-UP (Extra charge)
- 10 ☐
- ☐
- 12 ☐ HOLIDAY DELIVERY (Extra charge)

6 PACKAGES | WEIGHT in Pounds Only | YOUR DECLARED VALUE

Total | Total | Total

60

DIM SHIPMENT (Chargeable Weight) ☐ lbs.

L x W x H

Received At
- 1 ☑ Regular Stop
- 2 ☐ On Call Stop
- 3 ☐ Drop Box
- 4 ☐ B S C
- 5 ☐ Station

7 Release Signature

Emp. No. | Date

☐ Cash Received
☐ Return Shipment
☐ Third Party ☐ Chg. To Del. ☐ Chg. To Hold

Street Address

City | State | Zip

Received By: X Nicole [illegible]

Date/Time Received: 12/5/92 9:45am

FedEx Employee Number

Federal Express Use

Base Charges

Declared Value Charge

Other 1

Other 2

Total Charges

REVISION DATE 2/9
PART #137204
FORMAT #126

126

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000005

GENERAL CHEMISTRY RESULTS

CASE NO. 12-017

Water Sample #:

B07MK9

CASE NARRATIVE

Due to a miss communication, the analysis for Nitrate and Nitrite was not acknowledged upon receipt. Therefore, the matrix spike sample was not spiked for Nitrate and Nitrite. The duplicate analysis for Nitrate and Nitrite has been reported.

No other problems were encountered during sample analysis. All QC results were acceptable.

Ernesto Vazquez

Ernesto Vazquez

TMA Inc. REPORT Work Order # A2-12-017

Received: 12/04/92 01/26/93 06:53:37

REPORT TO: Westinghouse Hanford Company
2355 Stevens Dr.
Richland,WA,99352
MO-346/200 West/T6-08

ATTEN: Jeanette Duncan

PREPARED BY: Thermo Analytical, Inc.
160 Taylor Street
Monrovia, CA 91016

ATTEN: Ms. Carole Harris

PHONE: 818-357-3247

CERTIFIED BY: Ernesto Vayzag

CONTACT: EVV CIN

CLIENT: WHC SAMPLES: 3

COMPANY: Westinghouse Hanford Company

FACILITY:

This report is for the sole and exclusive use of the client to whom it is addressed and represents only those samples herein described. Samples not destroyed in testing are retained a maximum of 30 days unless otherwise requested.

WORK ID: 241-T-106

TAKEN: By Westinghouse Staff

TRANS: Federal Express

TYPE: Liquid

P.O. #: N2-12-023-SU-AR

INVOICE: under separate cover

SAMPLE IDENTIFICATION

01	B07MK9
01	B07MK9 MS
01	B07MK9 MSD
01	B07MK9
01	B07MK9 MS
01	B07MK9 Duplicate
02	B07MK2
02	B07MK2 MS
02	B07MK2 MSD
03	Wet Chemistry Blank

TEST CODES and NAMES used on this workorder

BNCLPW	CLP Semivol. Water - WH020
VOCLPL	CLP Volatile Org.Liq.
WCCLPL	Anions & Wet Chem. - WH043
WCL L	Chloride - WH120
WCQCD	Quality Control Summary
WCQCS	Quality Control Summary
WF L	Fluoride in Water
WNO2 L	Nitrite (Liquids)
WNO3 L	Nitrate (water)
WPH L	pH of Liquid - WH121
WPO4 L	Phosphate in Liquids
WSO4 L	Sulfate (in Waters)

9613492.4665

SAMPLE RESULTS

TMA Inc. REPORT Work Order # A2-12-017

Received: 12/04/92

Results by Sample

SAMPLE ID B07MK9 FRACTION 01E TEST CODE VCCLPL NAME Anions & Wet Chem. - VH043

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - LIQUIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT	
Chloride	300.0	<0.2	mg/L	0.2	U)
Fluoride	300.0	<0.1	mg/L	0.1	U)
Phosphate	300.0	<0.4	mg/L	0.4	U)
pH	150.1	5.9	pH	0.1	)
Sulfate	300.0	<1	mg/L	1	U)
Nitrate Nitrogen	300.0	<0.2	mg/L	0.2	Cancelled
Nitrite Nitrogen	300.0	<0.1	mg/L	0.1	Cancelled

AS
9/15/93

FORM I

TMA Inc. REPORT Work Order # A2-12-017

Received: 12/04/92 Results by Sample

SAMPLE ID Wet Chemistry Blank FRACTION 03A TEST CODE WCCLPL NAME Anions & Wet Chem. - WW043

Date & Time Collected not specified Category

ANIONS AND WET CHEMISTRY - LIQUIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Chloride	300.0	<0.2	mg/L	0.2
Fluoride	300.0	<0.1	mg/L	0.1
Phosphate	300.0	<0.4	mg/L	0.4
Sulfate	300.0	<1	mg/L	1
Nitrate Nitrogen	300.0	<0.2	mg/L	0.2
Nitrite Nitrogen	300.0	<0.1	mg/L	0.1

FORM I

9613492.4668

QC RESULTS

TMA Inc. REPORT Work Order # A2-12-017

Received: 12/04/92 Results by Sample

SAMPLE ID B07MK9 MS FRACTION 01F TEST CODE VCQCS NAME Quality Control Summary

Date & Time Collected 12/02/92 Category

SPIKE QC SUMMARY

ANALYSIS	SAMPLE ID	SAMPLE RESULT	SPIKE RESULT	AMOUNT ADDED	% R
Chloride	B07MK9	<0.2	9.2	10.00	92.0
Fluoride	B07MK9	<0.1	9.4	10.00	94.0
Phosphate	B07MK9	<0.4	9.1	10.00	91.0
Sulfate	B07MK9	<1	28	30.00	93.3

FORM V

TNA Inc. REPORT Work Order # A2-12-017

Received: 12/04/92 Results by Sample

SAMPLE ID B07MK9 Duplicate FRACTION 016 TEST CODE WCQCD NAME Quality Control Summary

Date & Time Collected 12/02/92 Category

DUPLICATE QC SUMMARY

ANALYSIS	SAMPLE ID	SAMPLE RESULT	DUPL. RESULT	RPD
Chloride	B07MK9	<0.2	<0.2	
Fluoride	B07MK9	<0.1	<0.1	
Phosphate	B07MK9	<0.4	<0.4	
pH	B07MK9	5.9	5.8	1.7
Sulfate	B07MK9	<1	<1	
Nitrate Nitrogen	B07MK9	<0.2	<0.2	
Nitrite Nitrogen	B07MK9	<0.1	<0.1	

9615492.9671

STANDARDS DATA

ION CHROMATOGRAPHIC 5 POINT CALIBRATION
12/04/92
CHLORIDE
CONCENTRATION IN 100 MLS INJECTION SOLN *
100 uMHOs, full scale

	Cl CONC, * mg/L	AREA	CALC AREA	RT	mg/L	mg/L DIFF
1	0	0	-161767		0.50	-0.50
2	1.25	302295	257951	1.32	1.39	-0.14
3	2.5	637880	677670	1.32	2.39	0.11
4	5.0	1346333	1517107	1.32	4.50	0.50
5	10.0	3115093	3195981	1.42	9.75	0.25
6	20.0	6639068	6553729	1.40	20.22	-0.22

Avg Rt = 1.345 Sd = 0.342
Avg Rf = 281943

Area = a x (mg/L) + b

Regression Output:

Constant	-2E+05
Std Err of Y Est	134821
R Squared	0.9977
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s)	335774.8
Std Err of Coef.	8020.665

mg/L = a x (AREA) + b

Regression Output:

Constant	b =	0.4953 mg/L
Std Err of Y Est		0.4010
R Squared		0.9977 0.9989 = R
No. of Observations		6
Degrees of Freedom		4
X Coefficient(s)		0.000002 = a
Std Err of Coef.		0.000000

ION CHROMATOGRAPHIC 5 POINT CALIBRATION
12/04/92
FLUORIDE
CONCENTRATION IN 100 MLS INJECTION SOLN *
100 uMHOs, full scale

	F CONC, * mg/L	AREA	CALC AREA	RT	mg/L	mg/L DIFF
1	0	0	-77153		0.17	-0.17
2	0.625	216484	210449	0.92	0.64	-0.02
3	1.25	454855	498050	0.92	1.16	0.09
4	2.5	1004922	1073252	0.91	2.35	0.15
5	5.0	2236121	2223657	0.98	5.03	-0.03
6	10.0	4540339	4524466	0.96	10.03	-0.03

Avg Rt = 0.9325 Sd = 0.110
Avg Rf = 402697

Area = a x (mg/L) + b

Regression Output:

Constant	-77152
Std Err of Y Est	56857.
R Squared	0.9991
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s)	460162
Std Err of Coef.	6765

mg/L = a x (AREA) + b

Regression Output:

Constant	b = 0.1703 mg/L
Std Err of Y Est	0.1235
R Squared	0.9991 0.9996 = R
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s)	0.000002 = a
Std Err of Coef.	0.000000

ION CHROMATOGRAPHIC 5 POINT CALIBRATION
12/04/92
NITRITE NITROGEN
CONCENTRATION IN 100 MLS INJECTION SOLN *
100 uMHOs, full scale

	N(NO2) CONC, * mg/L	AREA	CALC AREA	RT	mg/L	mg/L DIFF
1	0	0	-80594		0.13	-0.13
2	1	529921	551468	1.55	0.97	0.03
3	2.0	1121770	1183529	1.55	1.90	0.10
4	4.0	2341277	2447653	1.55	3.83	0.17
5	8.0	5122755	4975900	1.66	8.23	-0.23
5	16.0	9994626	10032393	1.64	15.93	0.07

Avg Rt = 1.5775 Sd = 0.147
Avg Rf = 588226

Area = a x (mg/L) + b

Regression Output:

Constant	-80593
Std Err of Y Est	106163
R Squared	0.9993
No. of Observations	6
Degrees of Freedom	4

X Coefficient(s) 632061.6
Std Err of Coef. 7894.689

mg/L = a x (AREA) + b

Regression Output:

Constant	b = 0.1306 mg/L
Std Err of Y Est	0.1679
R Squared	0.9993 0.9997 = R
No. of Observations	6
Degrees of Freedom	4

X Coefficient(s) 0.000001 = a
Std Err of Coef. 0.000000

ION CHROMATOGRAPHIC 5 POINT CALIBRATION
12/04/92
NITRATE NITROGEN
CONCENTRATION IN 100 MLS INJECTION SOLN *
100 uMHOs, full scale

	N(NO3) CONC, * mg/L	AREA	CALC AREA	RT	mg/L	mg/L DIFF
1	0	0	-283391		0.4	-0.36
2	1	590073	532261	2.55	1.1	-0.08
3	2.0	1289014	1347913	2.54	1.9	0.07
4	4.0	2684616	2979217	2.51	3.6	0.36
5	8.0	6111618	6241825	2.64	7.8	0.16
5	16.0	12909544	12767041	2.52	16.2	-0.16

Avg Rt = 2.56 Sd = 0.240
Avg Rf = 695306

Area = a x (mg/L) + b

Regression Output:

Constant	-3E+05
Std Err of Y Est	229767
R Squared	0.9982
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s)	815652.0
Std Err of Coef.	17086.35

mg/L = a x (AREA) + b

Regression Output:

Constant	b = 0.3558 mg/L
Std Err of Y Est	0.2814
R Squared	0.9982 0.9991 = R
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s)	0.000001 =a
Std Err of Coef.	0.000000

ION CHROMATOGRAPHIC 5 POINT CALIBRATION
12/04/92
PHOSPHATE PHOSPHORUS
CONCENTRATION IN 100 MLS INJECTION SOLN *
100 uMHOs, full scale

	P(PO4) * mg/L	AREA	CALC AREA	RT	mg/L	mg/L DIFF
1	0	0	-343629		1.1	-1.15
2	2.5	492334	430718	3.13	2.7	-0.23
3	5.0	1162584	1205065	3.14	4.9	0.11
4	10.0	2426034	2753760	3.12	9.0	1.05
5	20.0	5614292	5851148	3.28	19.2	0.78
5	40.0	12247743	12045924	3.17	40.6	-0.57

Avg Rt = 3.1675 Sd = 0.777
Avg Rf = 251792

Area = a x (mg/L) + b

Regression Output:

Constant	-3E+05
Std Err of Y Est	286320
R Squared	0.9969
No. of Observations	6
Degrees of Freedom	4

X Coefficient(s) 309738.8
Std Err of Coef. 8516.731

mg/L = a x (AREA) + b

Regression Output:

Constant	b = 1.1450 mg/L
Std Err of Y Est	0.9229
R Squared	0.9969 0.9985 = R
No. of Observations	6
Degrees of Freedom	4

X Coefficient(s) 0.000003 = a
Std Err of Coef. 0.000000

ION CHROMATOGRAPHIC 5 POINT CALIBRATION
12/04/92
SULFATE
CONCENTRATION IN 100 MLS INJECTION SOLN *
100 uMHOs, full scale

	SO4 CONC, * mg/L	AREA	CALC AREA	RT	mg/L	mg/L DIFF
1	0	0	-404647		1.8	-1.76
2	5.0	879308	776420	4.24	5.5	-0.48
3	10.0	1892788	1957487	4.28	9.8	0.24
4	20.0	3957506	4319621	4.22	18.5	1.52
5	40.0	8698074	9043889	4.42	38.5	1.49
5	80.0	18757517	18492424	4.28	81.0	-1.01

Avg Rt = 4.29 Sd = 1.24
Avg Rf = 202987

Area = a x (mg/L) + b

Regression Output:

Constant	-4E+05
Std Err of Y Est	353376
R Squared	0.9980
No. of Observations	6
Degrees of Freedom	4

X Coefficient(s) 236213.3
Std Err of Coef. 5255.675

mg/L = a x (AREA) + b

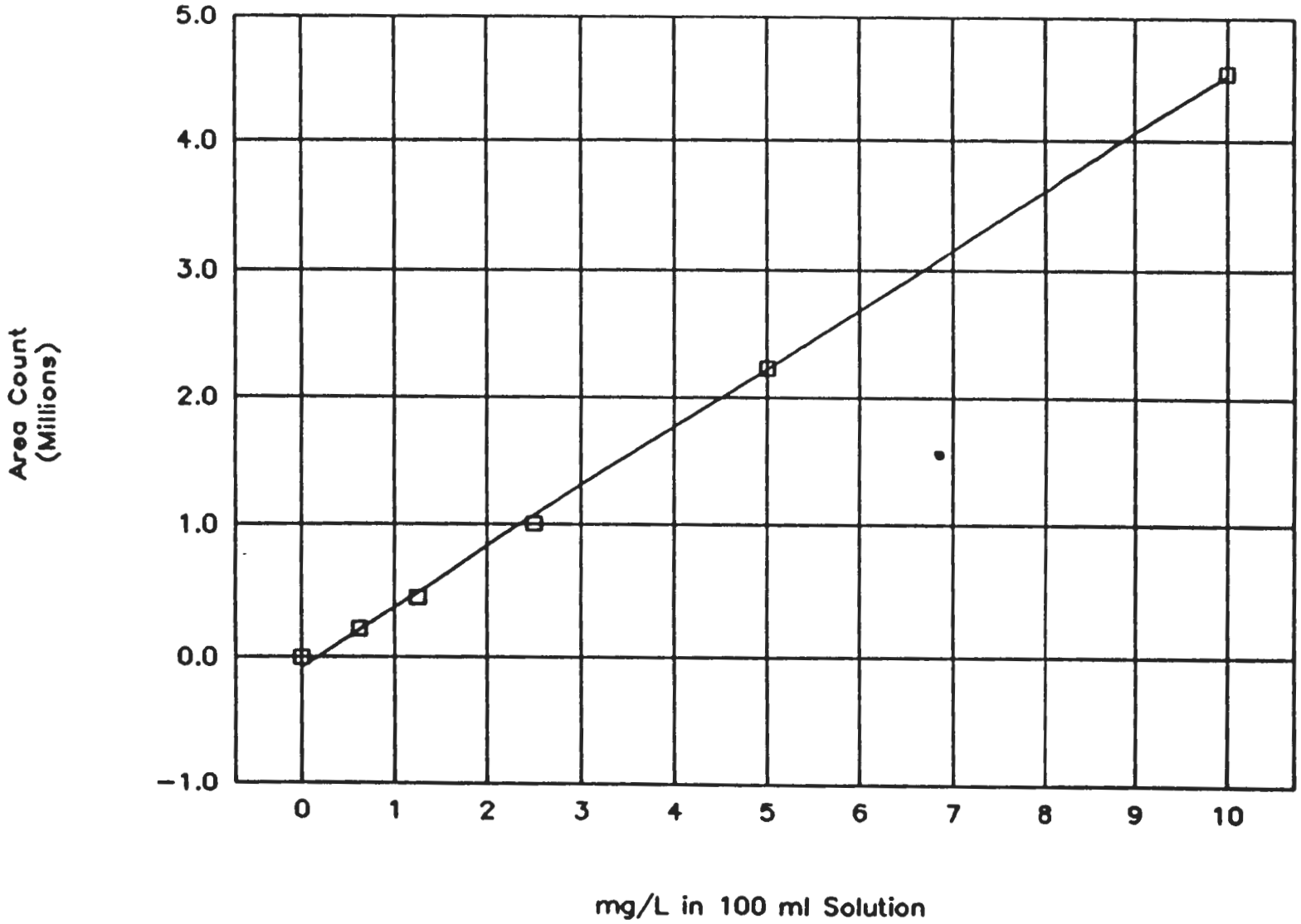
Regression Output:

Constant	b = 1.7607 mg/L
Std Err of Y Est	1.4945
R Squared	0.9980 0.9990 = R
No. of Observations	6
Degrees of Freedom	4

X Coefficient(s) 0.000004 = a
Std Err of Coef. 0.000000

ION CHROMATOGRAPH CALIBRATION

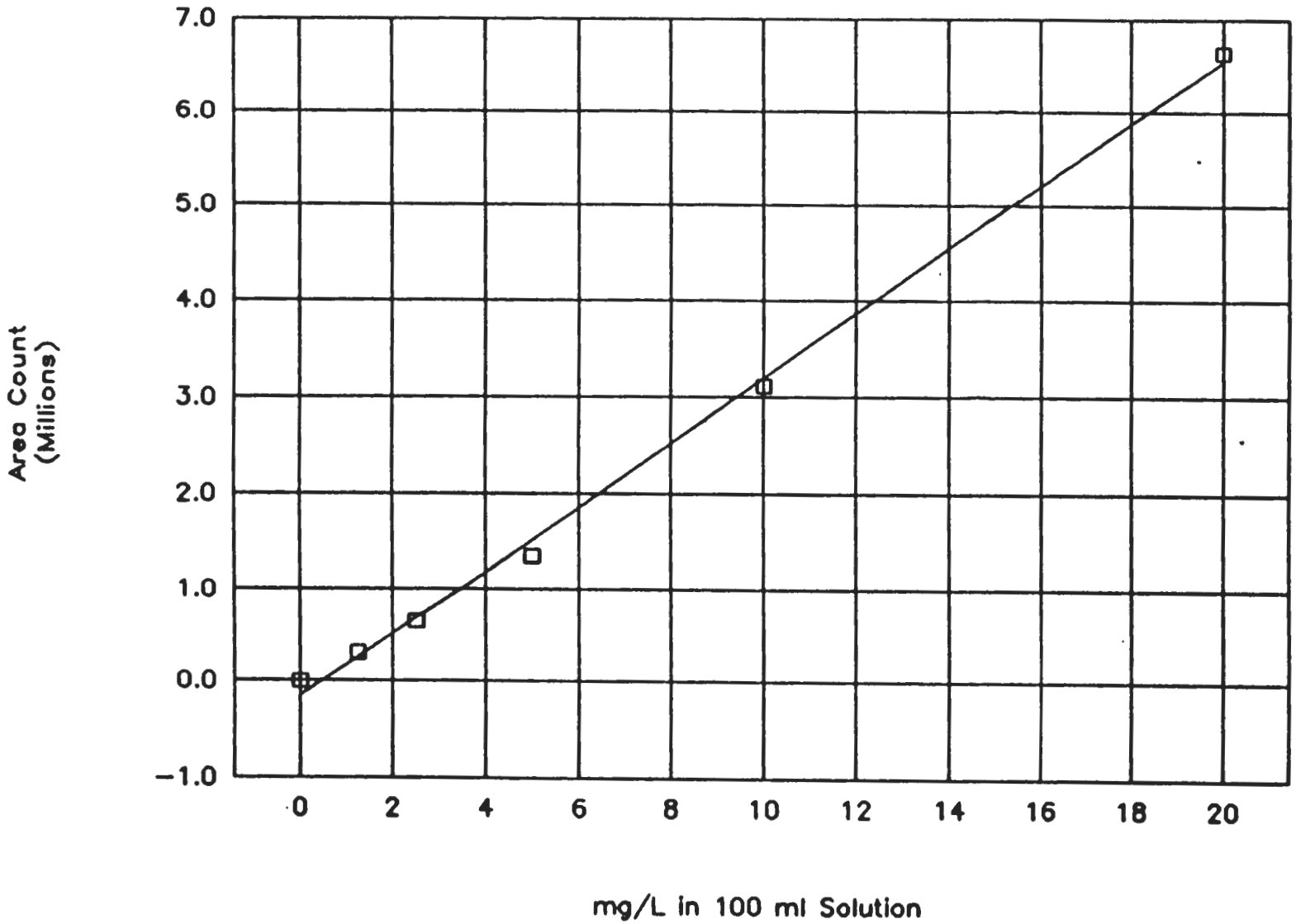
Fluoride, 12/04/92



000020

ION CHROMATOGRAPH CALIBRATION

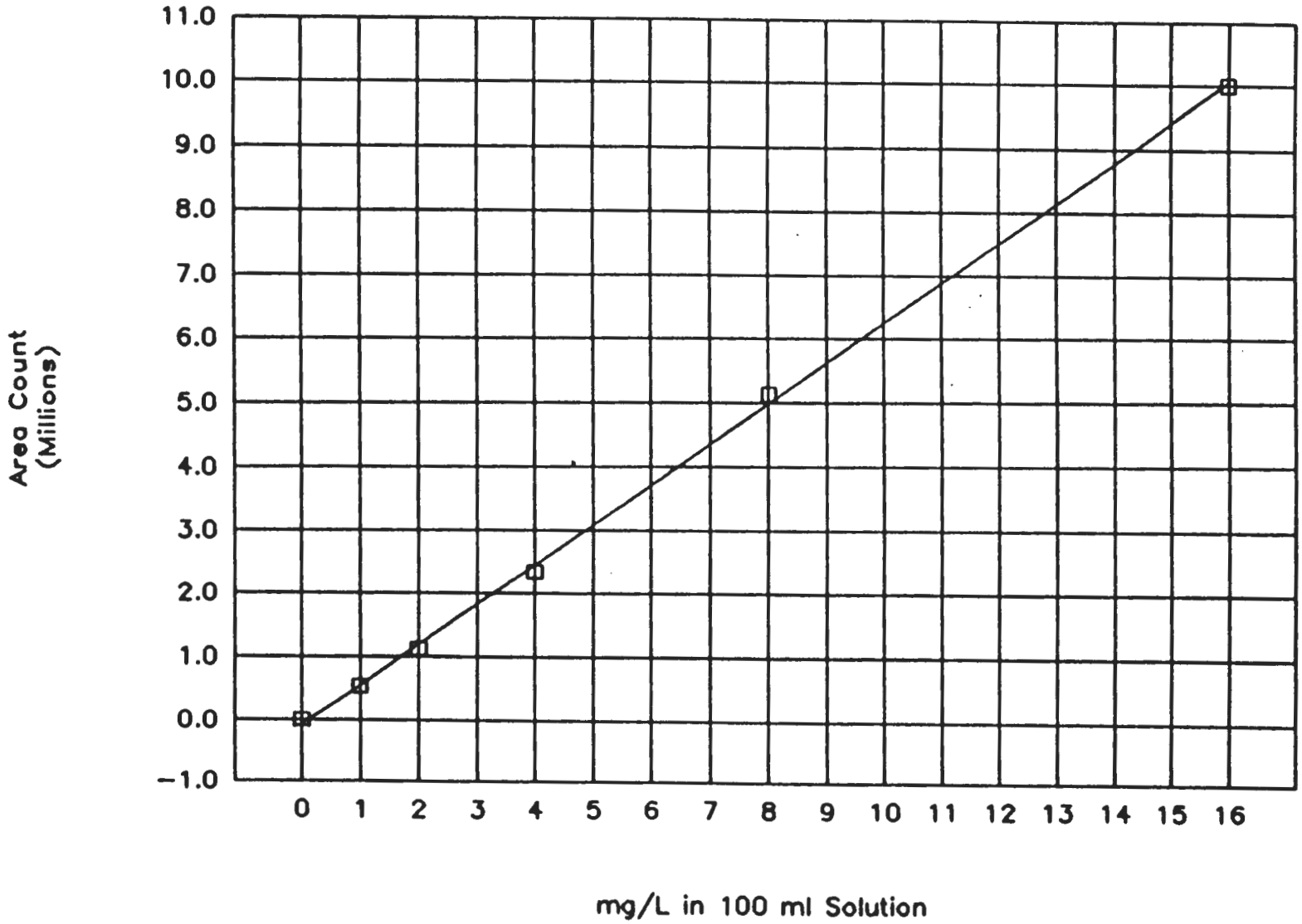
Chloride, 12/04/92



96193942.4675

ION CHROMATOGRAPH CALIBRATION

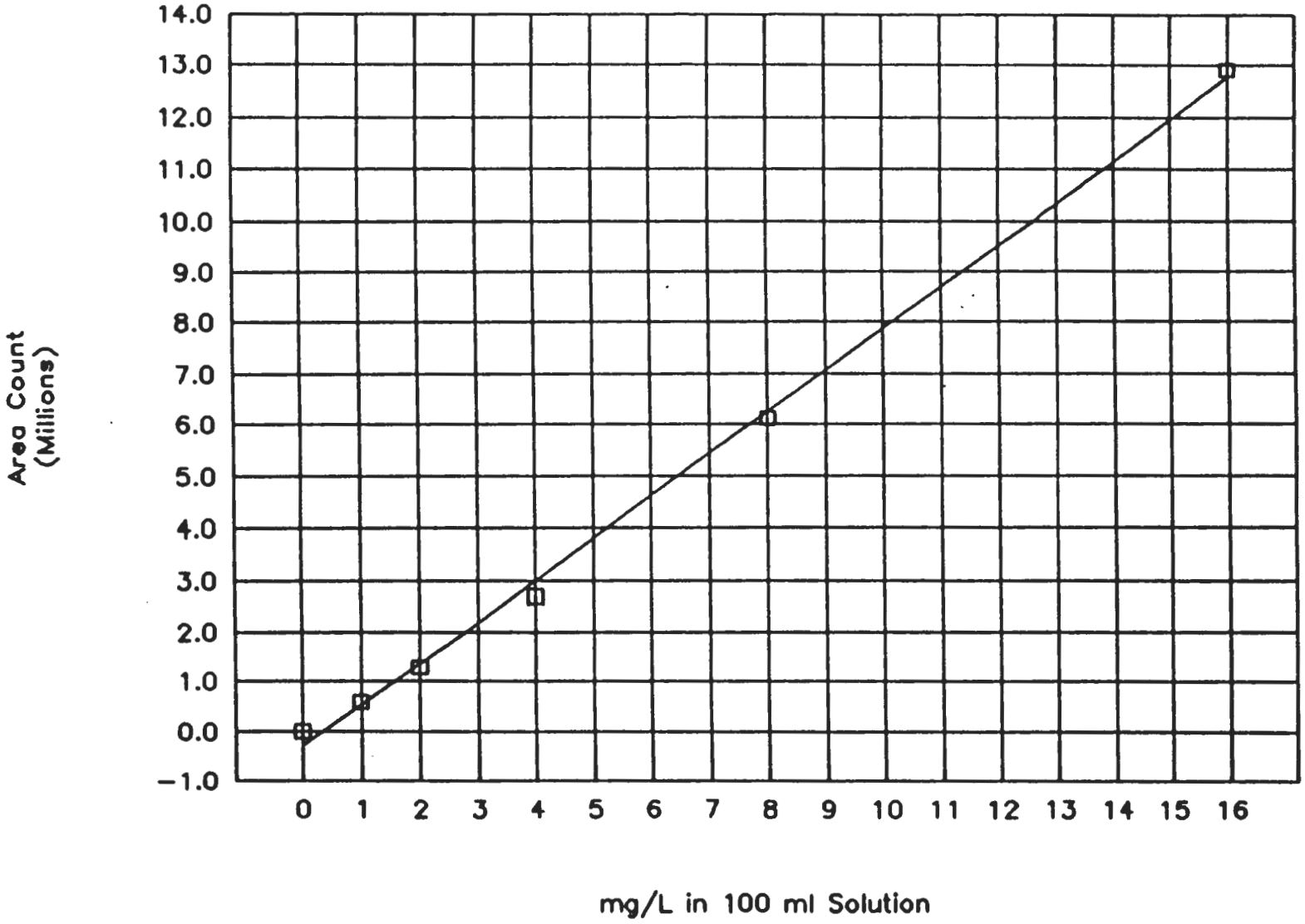
Nitrite Nitrogen, 12/04/92



000021A

ION CHROMATOGRAPH CALIBRATION

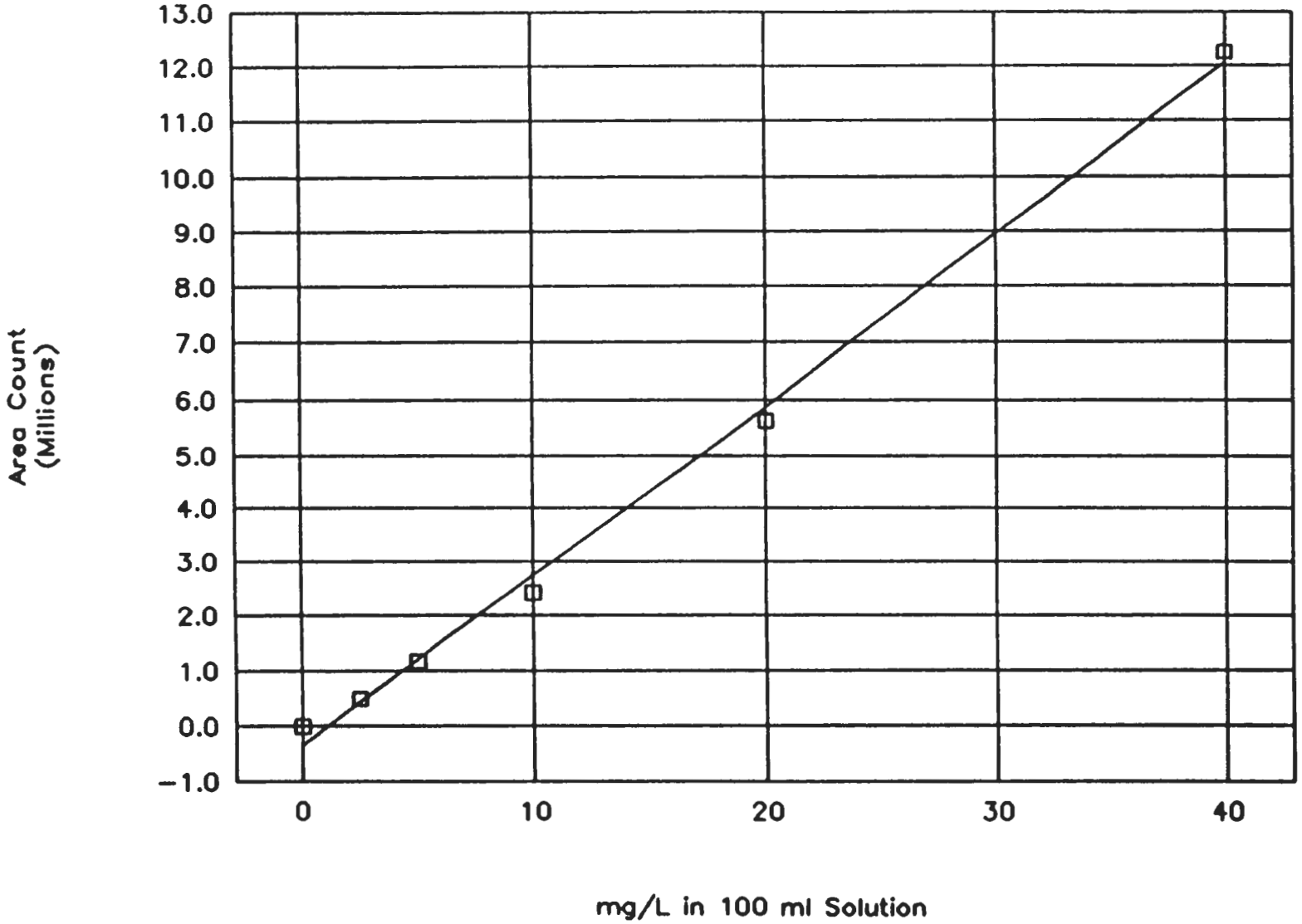
Nitrate Nitrogen, 12/04/92



000021 6

ION CHROMATOGRAPH CALIBRATION

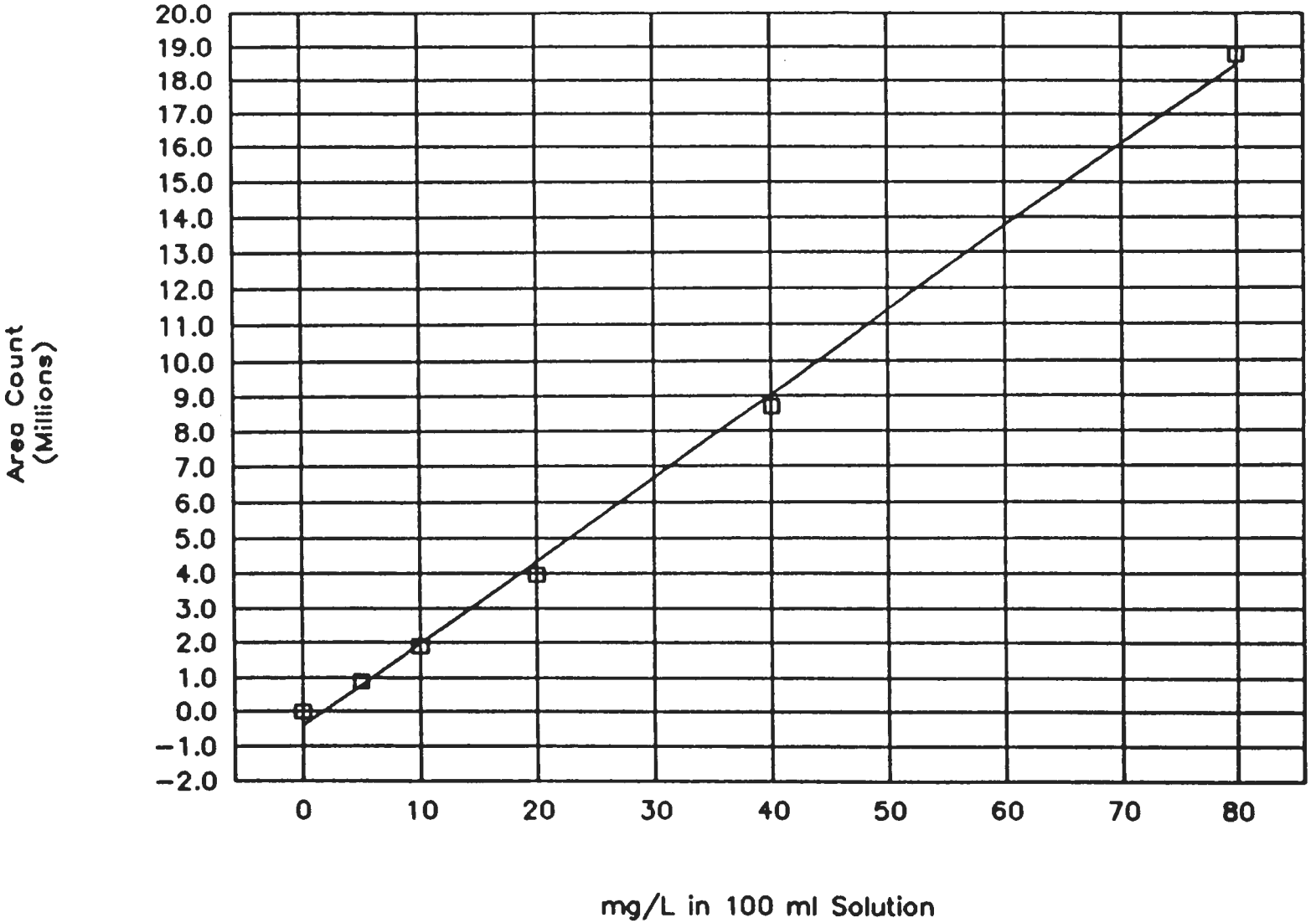
Phosphate P, 12/04/92



961342 0002
961342 1002
000022

ION CHROMATOGRAPH CALIBRATION

Sulfate, 12/04/92



9613492.4604

000024

052

```
SAMPLE TABLE...
ANALYST:AN=" RL
INJECTIONS/SAMPLE:RA=
SAMPLES BETWEEN CALIB:CI=
CONC UNITS:CU=" MG/L
SAM IDX   NAME          SAM AMT     SCALE FACTOR
SI= 1     SN=" BLK      SA= 1       XF= 1
SI= 2     SN=" STD1MIX  SA= 1       XF= 1
SI= 3     SN=" STD2MIX  SA= 1       XF= 1
SI= 4     SN=" STD3MIX  SA= 1       XF= 1
SI= 3+5   SN=" STD4MIX  SA= 1       XF= 1
SI= 6     SN=" STD5MIX  SA= 1       XF= 1
SI=
END OF DIALOG
```

wl/pat Hgt. 2a 95 (full lab)

```
CHANNEL A     INJECT  12/21/92 18:06:22
              PM 1
              II 0
```

Blk.

WC-92-12-21-Blank-06

by BK 888/2

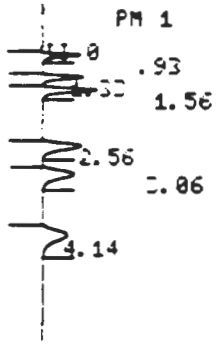
12/21/92 18:06:22 CH= "A" PS= 1.

FILE 2. METHOD 5. RUN 54 INDEX 1 CALIB

ANALYST: RL

NAME	MG/L	RT	AREA	BC	RF
TOTALS	0.				

```
CHANNEL A     INJECT  12/21/92 18:13:14
              PM 1
```



Std 1 WC-92-12-21-STD15-6

by BK 88c/43

12/21/92 18:13:14 CH= "A" PS= 1.

FILE 2. METHOD 5. RUN 55 INDEX 2 CALIB

ANALYST: RL

053

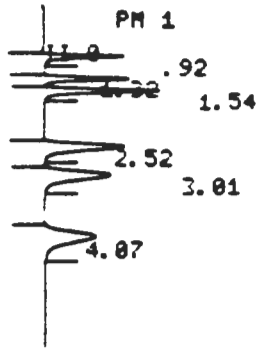
NAME	MG/L	RT	AREA	BC	RF
F	0.25	0.93	300414	01	
CL	0.437	1.33	349467	02	
NNO2	0.313	1.56	536507	03	
NNO3	0.313	2.56	612393	01	
PPO4	0.937	3.06	612669	01	
SO4	1.25	4.14	653197	01	
TOTALS	3.5		3064647		

9613492.9605

000025

CHANNEL A INJECT 12/21/92 18:20:12

PM 1



Std 2 WC-92-4.1-12-21-SM2S-6
Lg BK 990/48

12/21/92 18:20:12 CH= "A" PS= 1.

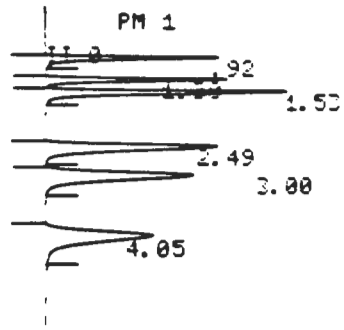
FILE 2. METHOD 5. RUN 56 INDEX 3 CALIB

ANALYST: RL

NAME	MG/L	RT	AREA	BC	RF
F	0.5	0.92	610972	01	
CL	0.875	1.32	707924	02	
NNO2	0.625	1.54	1093145	03	
NNO3	0.625	2.52	1241962	01	
PPO4	1.875	3.01	1294501	01	
SO4	2.5	4.07	1334958	01	
TOTALS	7.		6283462		

CHANNEL A INJECT 12/21/92 18:26:51

PM 1



Std 3 WC-92-4.1-12-21-SM3S-6
Lg BK 990/49

12/21/92 18:26:51 CH= "A" PS= 1.

FILE 2. METHOD 5. RUN 57 INDEX 4 CALIB

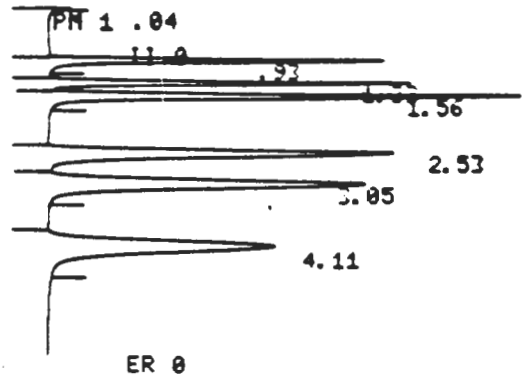
ANALYST: RL

NAME	MG/L	RT	AREA	BC	RF
F	1.	0.92	1255117	01	
CL	1.75	1.3	1455325	02	
NNO2	1.25	1.53	2267109	03	
NNO3	1.25	2.49	2576326	01	
PPO4	3.75	3.	2783570	01	
SO4	5.	4.05	2778416	01	
TOTALS	14.		13115863		

054

9615492.4686

CHANNEL A INJECT 12/21/92 18:40:26



Std 4
4C-92-4.2-12-21-STD4S-C
Lot# P90/50

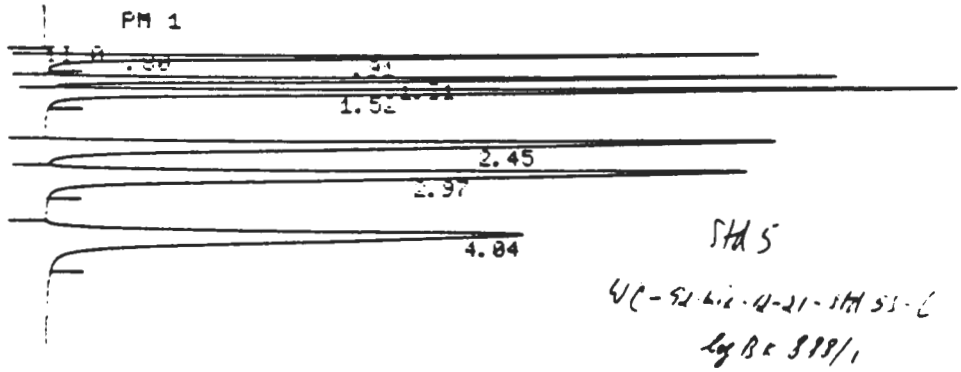
12/21/92 18:40:26 CH= "A" PS= 1.

FILE 2. METHOD 5. RUN 58 INDEX 5 CALIB

ANALYST: RL

NAME	MG/L	RT	AREA	BC	RF
1	0.	0.04	51171	01	
F	2.	0.93	2699107	01	
CL	3.5	1.33	3113161	02	
NNO2	2.5	1.56	4821370	03	
NNO3	2.5	2.53	5421128	02	
PPO4	7.5	3.05	6011340	03	
SO4	10.	4.11	5786853	01	
TOTALS	28.		27904130		

CHANNEL A INJECT 12/21/92 18:47:48



Std 5
4C-92-4.2-12-21-STD5S-C
Lot# P90/1

12/21/92 18:47:48 CH= "A" PS= 1.

FILE 2. METHOD 5. RUN 59 INDEX 6 CALIB

ANALYST: RL

NAME	MG/L	RT	AREA	BC	RF
1	0.	0.8	43212	02	
F	4.	0.91	5502616	03	
CL	7.	1.31	6518402	02	
NNO2	5.	1.52	9671756	03	
NNO3	5.	2.45	11580439	02	
PPO4	15.	2.97	13192714	03	
SO4	20.	4.04	12431451	01	
TOTALS	56.		58940590		

COEFFICIENTS OF LEAST SQUARES FIT TO A LINEAR EQUATION

FILE ENTRY	KA	KB	KC
1	0.0000↑+01	0.1385↑+07	-.608↑+05
2	0.0000↑+01	0.9359↑+06	-.914↑+05
3	0.0000↑+01	0.1948↑+07	-.806↑+05
4	0.0000↑+01	0.2324↑+07	-.180↑+06
5	0.0000↑+01	0.8851↑+06	-.305↑+06
6	0.0000↑+01	0.6232↑+06	-.194↑+06

829016

Date	pH Meter	buffer solution	Calib pH	Temp	Initial
12/3/92	Allex	pH = 4.00 (T=20°C)	3.99 → 4.00	T = 20°C	DR
		pH = 10.05 (T=20°C)	10.01 → 10.05	T = 20°C	DR
		Check pH = 7.02	→ 7.01	T = 20°C	DR
12/4/92	orion	pH = 4.00	3.99 → 4.00	T = 21°C	DR
		pH = 10.05	10.05 → 10.05	T = 21°C	DR
		check pH = 7.02	→ 7.02	T = 21°C	DR
12/7/92	orion	pH = 4.00	4.03 → 4.00	T = 21°C	DR
		pH = 10.05	10.03 → 10.05	T = 21°C	DR
		check pH = 7.02	→ 7.03	T = 21°C	DR
12/8/92	orion	pH = 4.00	4.03 → 4.00	T = 20°C	DR
		pH = 10.05	10.03 → 10.05	T = 20°C	DR
		check pH = 7.02	→ 7.02	T = 20°C	DR
12/9/92	orion	pH = 4.00	4.50 → 4.00	T = 21°C	DR
		pH = 10.05	9.97 → 10.05	T = 21°C	DR
		check pH = 7.02	→ 7.03	T = 21°C	DR
12/10/92	orion	pH = 4.00	4.01 → 4.00	T = 20°C	DR
		pH = 10.05	10.05 → 10.05	T = 20°C	DR
		check pH = 7.02	→ 7.02	T = 20°C	DR

9613492.4688

RAW DATA

9613492.4689

A2-12 080039

SAMPLE TABLE...
ANALYST:AN=" RL
INJECTIONS/SAMPLE:RA=
SAMPLES BETWEEN CALIB:CI=
CONC UNITS:CU=" MG/L

SAM IDX	NAME	SAM AMT	SCALE FACTOR
SI= 1	SN=" BLK	SA= 1	XF= 1
SI=			

END OF DIALOG

CHANNEL A INJECT 01/11/93 14:44:32

PM 1

II 0

01/11/93 14:44:32 CH= "A" PS= 1.

FILE 1. METHOD 5. RUN 66 INDEX 1

ANALYST: RL

SAMPLE 1 BLK 13A

SA	IS	XF
1.	0.	1.

NAME	MG/L	RT	AREA BC	RF
TOTALS	0.			

9613492.4690

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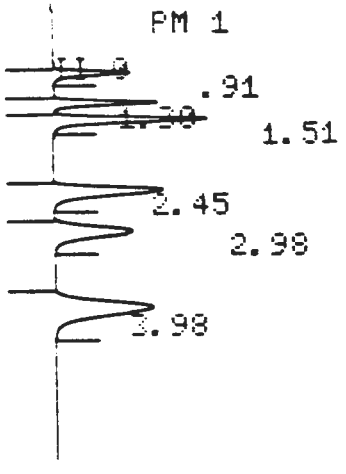
SAMPLE TABLE...
ANALYST:AN=" RL
INJECTIONS/SAMPLE:RA=
SAMPLES BETWEEN CALIB:CI=
CONC UNITS:CU=" MG/L

SAM IDX	NAME	SAM AMT	SCALE FACTOR
SI= 1	SN=" STD2P+-5	SA= 1	XF= 1

SI=
END OF DIALOG

CHANNEL A INJECT 01/11/93 14:52:37



01/11/93 14:52:37 CH= "A" PS= 1.

FILE 1. METHOD 5. RUN 67 INDEX 1

ANALYST: RL

SAMPLE 1 STD2-5

SA	IS	XF
1.	0.	1.

Check Std 2
(NC-92-12-3-Std 2-5)
[illegible] 8/20/11

NAME	MG/L	RT	AREA	BC	RF
F	1.127	0.91	441484	01	391733.807
CL	2.284	1.3	605232	02	264987.741
NNO2	1.83	1.51	1075955	03	587953.552
NNO3	1.852	2.45	1227135	01	662599.892
PPO4	4.626	2.98	1089065	01	235422.612
SO4	9.331	3.98	1799602	01	192862.716
TOTALS	21.05		6238473		

F = 1.25 mg/l
cl = 2.50 mg/l
NO_2 = 2.0 mg/l
NO_3 = 2.0 mg/l
PO_4 = 5.0 mg/l
SO_4 = 10.0 mg/l

9613492.4691

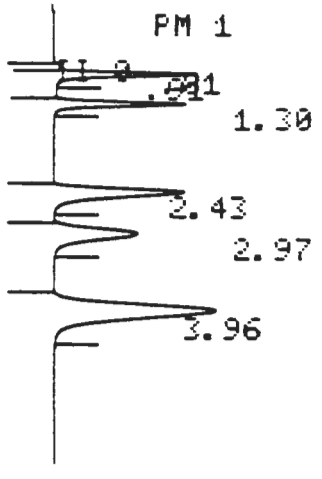
000031

SAMPLE TABLE...
ANALYST:AN=" RL
INJECTIONS/SAMPLE:RA=
SAMPLES BETWEEN CALIB:CI=
CONC UNITS:CU=" MG/L

SAM IDX	NAME	SAM AMT	SCALE FACTOR
SI= 1	SN=" DS-0+01	SA= 10	XF= 100

SI=
END OF DIALOG

CHANNEL A INJECT 01/11/93 15:18:31



01/11/93 15:18:31 CH= "A" PS= 1.

FILE 1. METHOD 5. RUN 69 INDEX 1

ANALYST: RL

$NNO_3 \rightarrow NO_3 = 21.326 \times \frac{62}{14}$ mg/l = 94.4 mg/l

SAMPLE 1 DS-015

$P\text{-}PO_4 \rightarrow PO_4 = 48.299 \times \frac{95}{31}$ mg/l = 148.0 mg/l

SA	IS	XF
10.	0.	100.

NAME	MG/L	RT	AREA	BC	RF
1	0.	0.81	39205	02	
F	20.236	0.91	854023	03	42203.153
CL	27.899	1.3	775019	01	27779.454
NNO3	21.326	2.43	1456090	01	68277.689
PPO4	48.299	2.97	1152358	01	23858.838
SO4	141.537	3.96	2938646	01	20762.387
TOTALS	259.297		7215341		

Check Omex-Std
(WC-92-123-IC-DS-011)
by BK 880115
F = 20.9 mg/l SO4 = 149.0
Cl = 29.8 mg/l
NO_3 = 100.0 mg/l
PO_4 = 148.0 mg/l

010

9613492.4692

A2-12-017
000032

```
SAMPLE TABLE...
ANALYST:AN=" RL
INJECTIONS/SAMPLE:RA=
SAMPLES BETWEEN CALIB:CI=
CONC UNITS:CU=" MG/L
SAM IDX   NAME            SAM AMT      SCALE FACTOR
SI= 1     SN=" 1201701E   SA= 1        XF= 1
SI=
END OF DIALOG
```

CHANNEL A INJECT 01/11/93 15:25:44

PM 1

II 0

01/11/93 15:25:44 CH= "A" PS= 1.

FILE 1. METHOD 5. RUN 70 INDEX 1

ANALYST: RL

SAMPLE 1 1201701E

SA	IS	XF
1.	0.	1.

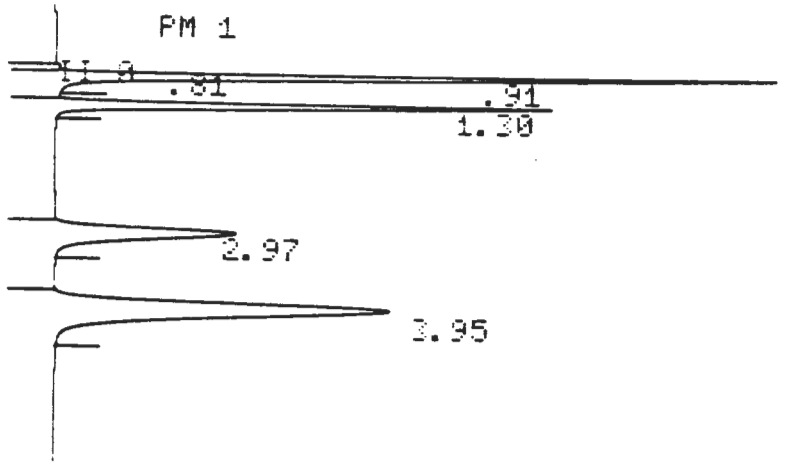
NAME	MG/L	RT	AREA BC	RF
TOTALS	0.			

9613492.4693

000033

```
SAMPLE TABLE...
ANALYST:AN=" RL
INJECTIONS/SAMPLE:RA=
SAMPLES BETWEEN CALIB:CI=
CONC UNITS:CU=" MG/L
SAM IDX    NAME            SAM AMT      SCALE FACTOR
SI= 1     SN=" 1201701FMSSA= 1          XF= 1
SI=
END OF DIALOG

CHANNEL A      INJECT  01/11/93 15:46:18
```




```
                                01/11/93 15:46:18     CH= "A"  PS=  1.

FILE  1.      METHOD  5.      RUN  72      INDEX   1

ANALYST: RL

SAMPLE   1      1201701FMS

   SA        IS        XF
    1.        0.        1.
```

NAME	MG/L	RT	AREA	BC	RF
1	0.	0.81	23787	02	
F	9.439	0.91	4266316	03	451988.134
CL	9.233	1.3	2938576	01	318268.818
PPO4	9.1	2.97	2474783	01	271954.176
SO4	27.708	3.95	6140443	01	221612.639
TOTALS	55.48		15843905		

Spike level
F = 10.0 mg/L
(WC-92-12-3-F-03 lot# 85C/...
Cl = 10.0 mg/L
(WC-92-12-3-Cl-03 lot# 18C/...
P-PO4 = 10.0 mg/L
(WC-92-12-3-P-PO4-03 lot# 8C/...
SO4 = 30.0 mg/L
(WC-92-12-3-SO4-03 lot# 8C/...

012

011

SAMPLE TABLE...
ANALYST:AN=" RL
INJECTIONS/SAMPLE:RA=
SAMPLES BETWEEN CALIB:CI=
CONC UNITS:CU=" MG/L
SAM IDX   NAME   SAM AMT   SCALE FACTOR
SI= 1   SN=" 1201701GDPSA= 1   XF= 1
SI=
END OF DIALOG

CHANNEL A   INJECT 01/11/93 15:32:37

PM 1

II 0

01/11/93 15:32:37   CH= "A"   PS= 1.

FILE 1.   METHOD 5.   RUN 71   INDEX 1

ANALYST: RL

SAMPLE 1   1201701GDP

SA	IS	XF
1.	0.	1.

NAME	MG/L	RT	AREA BC	RF
TOTALS	0.			

THERMO ANALYTICAL, INC.
TMA/ARLI

WORK ORDER # A2-12017 BOOK # 878

CLIENT: WTC PAGE # 30

METHODS USED pH (EPA 150.1)

DATA & CALCULATIONS:

Sample I.D. pH T = 14°C

01E 5.86/5.97

01G-Dup 5.75/5.77

pH Calibration: log BK 829/16

829/16 RL 12/8/92

COMMENTS:

DATE	12	7	92	Total Hrs.
Signed	DR			
Approved	RL 12/8/92			

HARTCROWSER

Earth and Environmental Technologies

Hart Crowser, Inc.
1201 Jadwin Avenue, Suite 204
Richland, Washington 99352
FAX 509.946.4203
509.946.4344

FAX Transmittal

DATE 11/8/93 RECIPIENT'S FAX NO.

NO. OF PAGES (INCLUDING FAX FORM) ~~10~~ 9

SEND TO Albert Shen

COMPANY HC-Seattle

RECIPIENT'S DIRECT TELEPHONE NO.

SENDER'S NAME Mark G JOB NO. 2978-62

MESSAGE:

New! Improved! Ion chromatograph calibration data for B07JZ2.

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PLEASE CONTACT (509) 946-4344 IF THERE ARE ANY TRANSMITTAL DIFFICULTIES.

0001-4A

ION CHROMATOGRAPHIC 5 POINT CALIBRATION
12/21/92
NITRITE NITROGEN
CONCENTRATION IN 100 MLS INJECTION SOLN *
30 uMHOs, full scale

	N(NO2) CONC, * mg/L	AREA	CALC AREA	RT	mg/L	mg/L DIFF
1	0	0	-80894		0.04	-0.04
2	0.313	536507	528928	1.56	0.32	0.00
3	0.625	1093145	1136801	1.54	0.60	0.02
4	1.250	2267109	2354497	1.53	1.21	0.04
5	2.500	4821370	4789887	1.56	2.52	-0.02
6	5.000	9671756	9660668	1.52	5.00	0.00

Avg Rt = 1.5475 Sd = 0.030
Avg Rf = 2E+06

Area = a x (mg/L) + b

Regression Output:

Constant	-80893
Std Err of Y Est	65684.
R Squared	0.9997
No. of Observations	6
Degrees of Freedom	4

X Coefficient(s) 1948312.
Std Err of Coef. 15631.11

mg/L = a x (AREA) + b

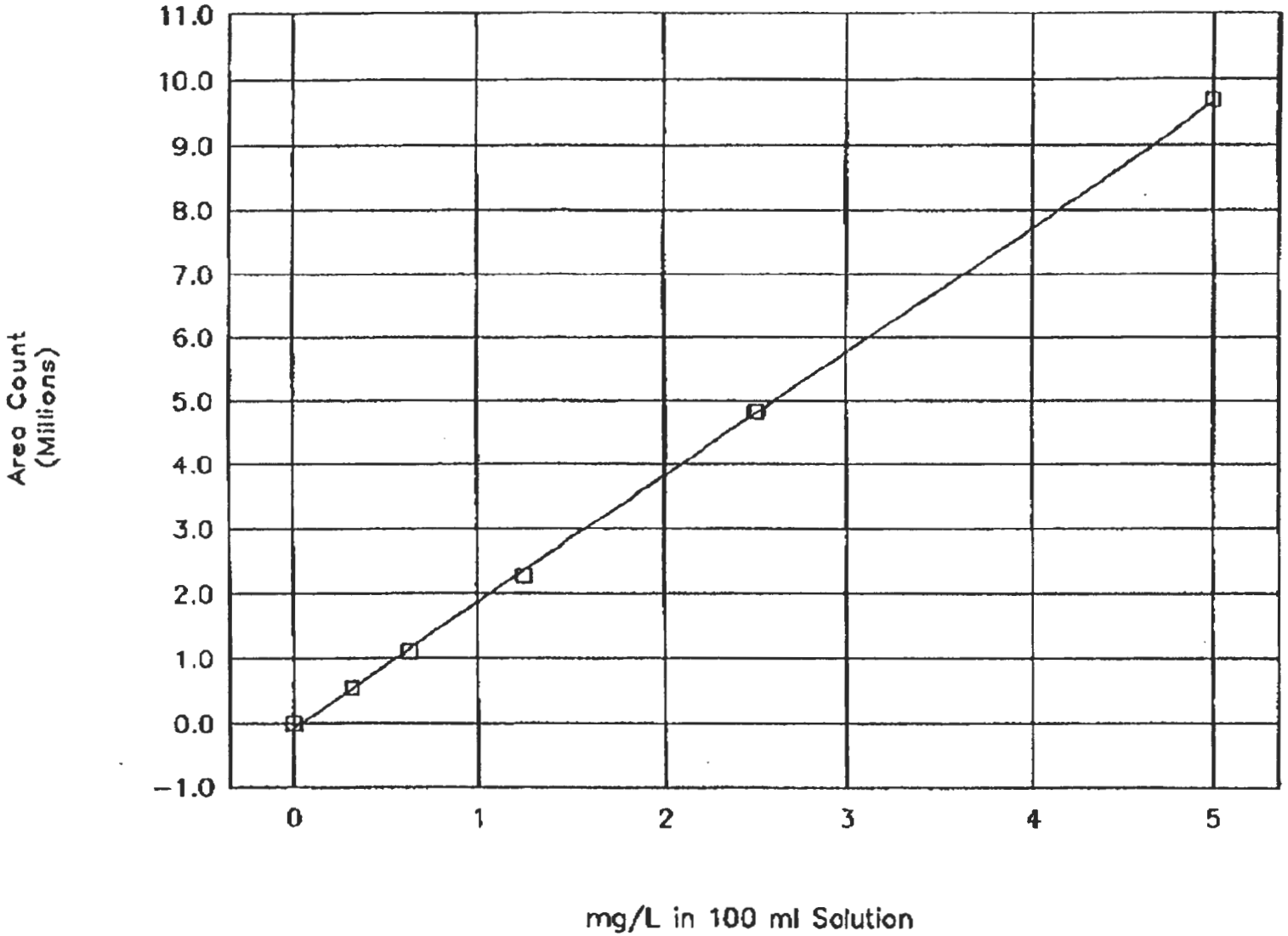
Regression Output:

Constant	b = 0.0419	mg/L
Std Err of Y Est	0.0337	
R Squared	0.9997	0.9999 = R
No. of Observations	6	
Degrees of Freedom	4	

X Coefficient(s) 0.000000 = a
Std Err of Coef. 0.000000

ION CHROMATOGRAPH CALIBRATION

Nitrite Nitrogen, 12/21/92



000014C

ION CHROMATOGRAPHIC 5 POINT CALIBRATION
12/21/92
NITRATE NITROGEN
CONCENTRATION IN 100 MLS INJECTION SOLN *
30 uMHOs, full scale

	N(NO3) CONC, * mg/L	AREA	CALC AREA	RT	mg/L	mg/L DIFF
1	0	0	-180419		0.4	-0.37
2	0.313	612393	546988	2.56	1.1	-0.81
3	0.625	1241962	1272071	2.52	1.9	-1.27
4	1.250	2576326	2724562	2.49	3.5	-2.29
5	2.500	5421128	5629542	2.53	7.0	-4.53
5	5.000	11580439	11439504	2.45	14.6	-9.61

Avg Rt = 2.525 Sd = 1.484
Avg Rf = 2E+06

Area = a x (mg/L) + b

Regression Output:

Constant	-2E+05
Std Err of Y Est	175362
R Squared	0.9987
No. of Observations	6
Degrees of Freedom	4

X Coefficient(s) 2323984.
Std Err of Coef. 41731.52

mg/L = a x (AREA) + b

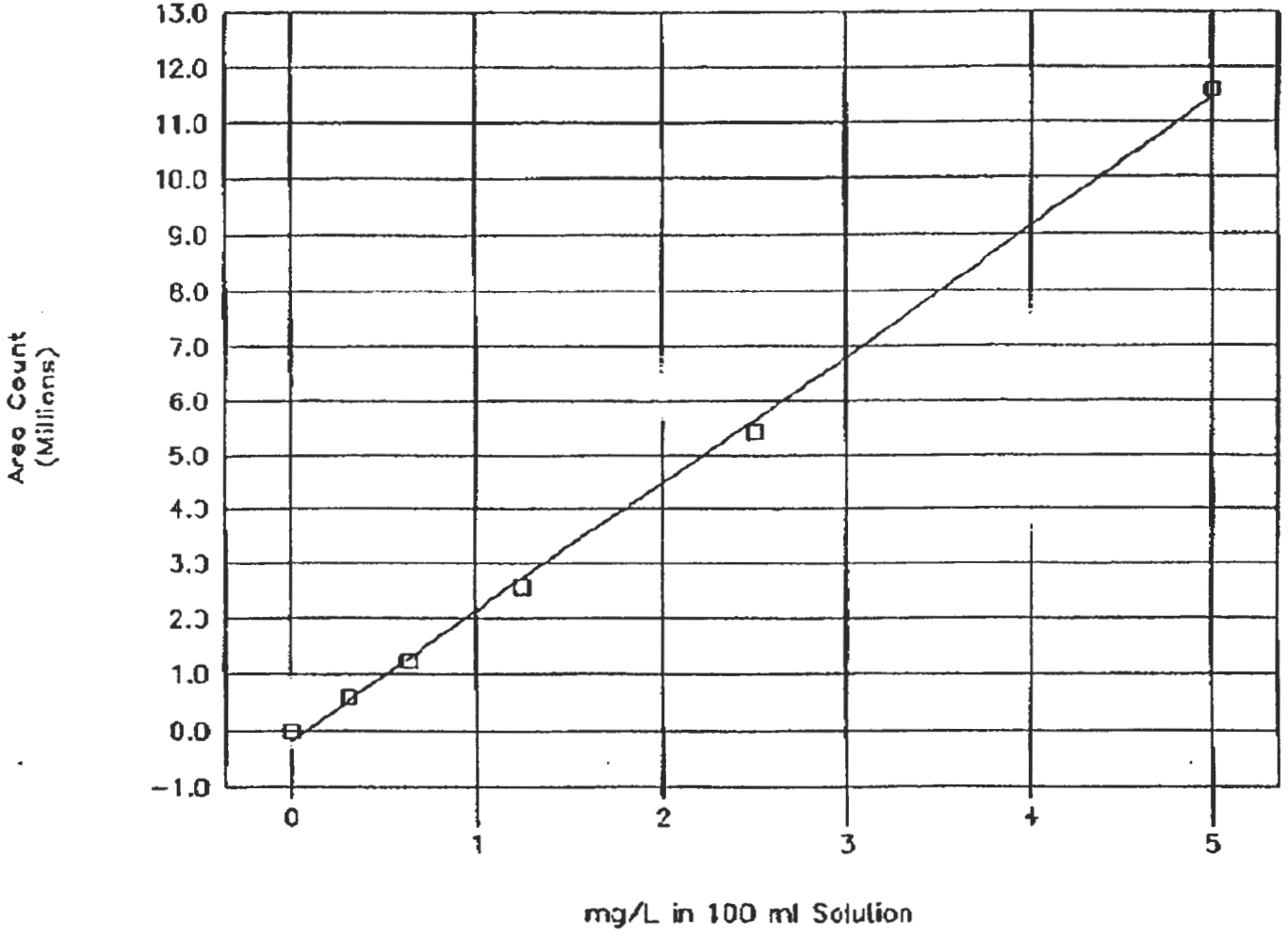
Regression Output:

Constant	b = 0.3671 mg/L
Std Err of Y Est	0.3120
R Squared	0.9970 0.9909 - R
No. of Observations	6
Degrees of Freedom	4

X Coefficient(s) 0.000001 =a
Std Err of Coef. 0.000000

ION CHROMATOGRAPH CALIBRATION

Nitrate Nitrogen, 12/21/92



ION CHROMATOGRAPHIC 5 POINT CALIBRATION
12/21/92
PHOSPHATE PHOSPHORUS
CONCENTRATION IN 100 MLS INJECTION SOLN *
30 uMHOs, full scale

	P(PO4) * mg/L	AREA	CALC AREA	RT	mg/L	mg/L DIFF
1	0	0	-304654		1.2	-1.20
2	0.937	612669	524683	3.06	3.1	-2.20
3	1.875	1294501	1354905	3.01	5.3	-3.42
4	3.750	2783570	3014463	3	10.0	-6.26
5	7.500	6011340	6333581	3.05	20.2	******
5	15.000	13192714	12971816	2.97	42.9	******

Avg Rt = 3.03 Sd = 4.138
Avg Rf = 753514

Area = a x (mg/L) + b

Regression Output:

Constant	-3E+05
Std Err of Y Est	278456
R Squared	0.9975
No. of Observations	6
Degrees of Freedom	4

X Coefficient(s) 885097.9
Std Err of Coef. 22087.21

mg/L = a x (AREA) + b

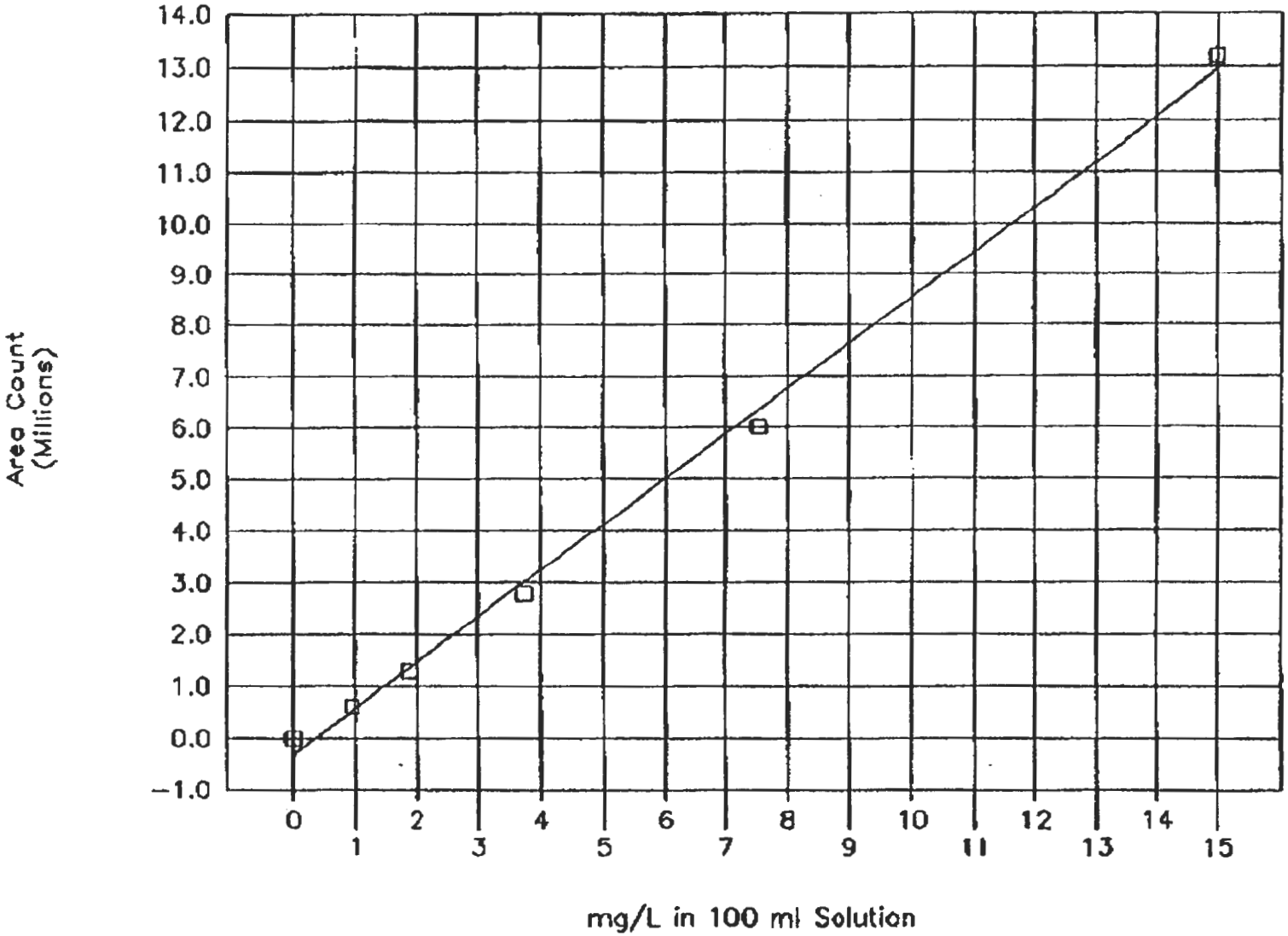
Regression Output:

Constant	b = 1.2040 mg/L
Std Err of Y Est	1.0342
R Squared	0.9962 0.9981 = R
No. of Observations	6
Degrees of Freedom	4

X Coefficient(s) 0.000003 = a
Std Err of Coef. 0.000000

ION CHROMATOGRAPH CALIBRATION

Phosphate P, 12/21/92



ION CHROMATOGRAPHIC 5 POINT CALIBRATION
12/21/92
SULFATE
CONCENTRATION IN 100 MLS INJECTION SOLN *
30 uMHOs, full scale

	SO4 CONC, * mg/L	AREA	CALC AREA	RT	mg/L	mg/L DIFF
1	0	0	-194320		1.9	-1.88
2	1.3	653197	584738	4.14	4.6	-3.34
3	2.5	1334958	1363796	4.07	7.4	-4.92
4	5.0	2778416	2921912	4.05	13.4	-8.41
5	10.0	5786853	6038143	4.11	25.9	******
5	20.0	12431451	12270606	4.04	53.5	******

Avg Rt = 4.0925 Sd = 5.00
Avg Rf = 562496

Area = a x (mg/L) + b

Regression Output:

Constant	-2E+05
Std Err of Y Est	195504
R Squared	0.9986
No. of Observations	6
Degrees of Freedom	4

X Coefficient(s) 623246.2
Std Err of Coef. 11630.71

mg/L = a x (AREA) + b

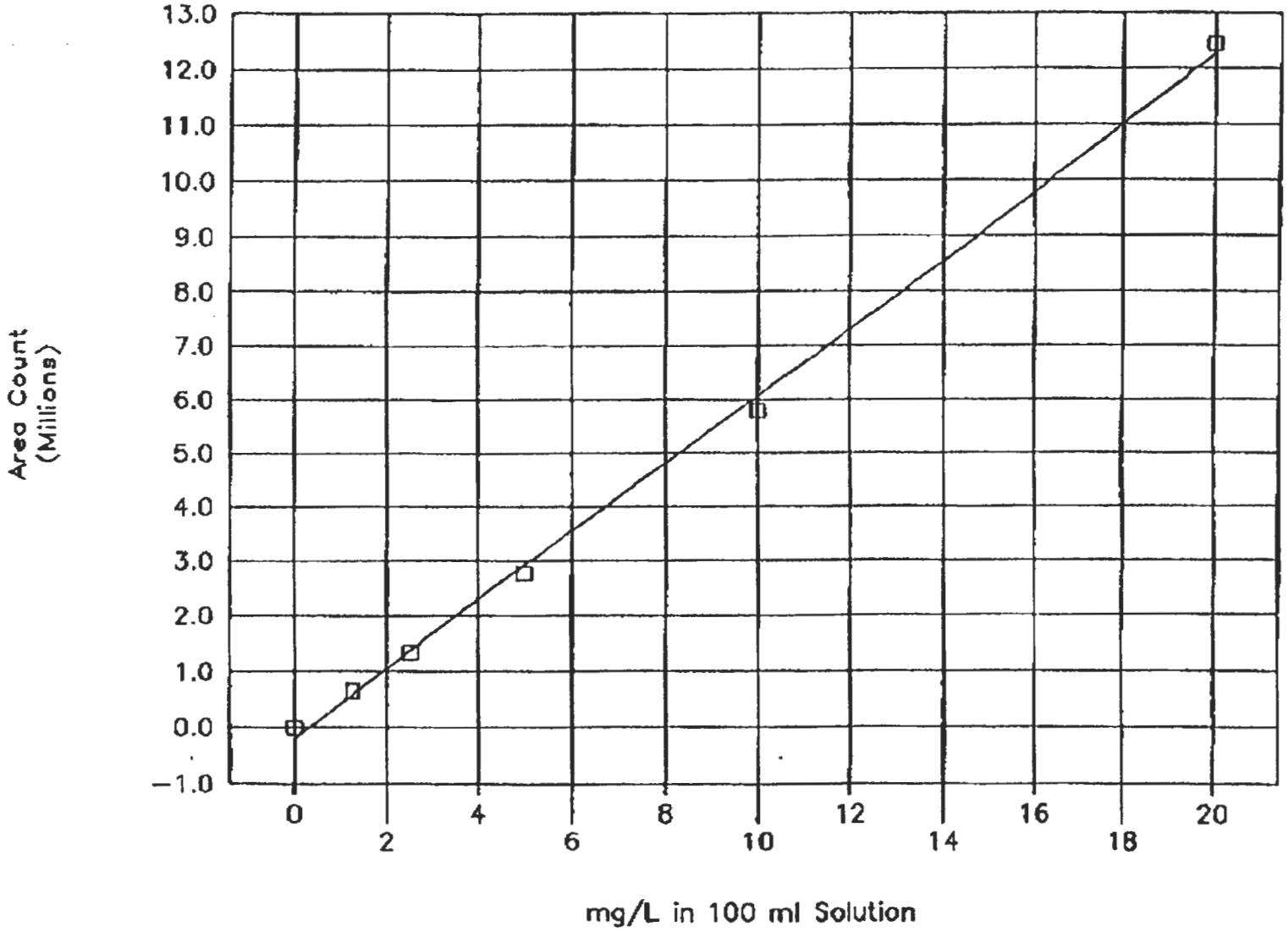
Regression Output:

Constant	b = 1.8772 mg/L
Std Err of Y Est	1.6165
R Squared	0.9976 0.9988 = R
No. of Observations	6
Degrees of Freedom	4

X Coefficient(s) 0.000004 = a
Std Err of Coef. 0.000000

ION CHROMATOGRAPH CALIBRATION

Sulfate, 12/21/92



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30 of 42

E-93-22/2978-62

WESTINGHOUSE HANFORD COMPANY
241-T-106 DATA VALIDATION
DISTRIBUTION FORM

SDG: B07MK9
Case #: N2-12-023
Fraction: Metals

Document Title Final QA Record

Document Number: _____ Date: 4/15/94

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K. Pool (WHC)					

Project Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

1.1	File Index		1.6.6.3	Plans Doc. Log		3.4	Original Chemical Data
1.2	Distribution Lists		1.6.6.4	Deliverables Doc. Log		3.5	Original Radiochemical Data
1.3	Project Procedures		1.7	Budget			
1.4	Project Modifications		1.7.1	Downloads		4.1	Task Plan
1.5	Staff		1.7.2	M-113s			
1.5.1	Staff Resumes		1.7.3	A-208s		4.2	Data Pkg. Completeness Verif. Checklist
1.5.2	Staff Training		1.7.4	Budget Status		4.3	Data Valididation Calcs./Annotated DP X
1.5.3	Auth. Former Site Employee		1.7.5	Invoices		4.4	Prelim. QA Records
1.6	QA		1.8	Requisitions			
1.6.1	QA Manual		1.9	Meeting Minutes		4.5	Data Valid. & Qual. Summary Rpts.
1.6.2	QA Implementation		1.10	Record of Telecon		4.5.1	Internal Drafts/Comments/Resol.
1.6.3.1	QA Audits-Deliverables		1.11	Progress Reports		4.5.2	WHC Review Draft Comments/Resol.
1.6.3.2	QA Audits-Files		1.12	Subcontractor (HC)		4.5.3	Final Report
1.6.4.1	Audit Resps. - Deliverables					4.6	Weekly Status Reports
1.6.4.2	Audit Resps. - Files		2.1	Incoming Correspondence		4.7	Weekly Management Reports
1.6.5	QA Training		2.2	Outgoing Correspondence			
1.6.6.1	QA Manual Document Log		2.3	Internal Correspondence			
1.6.6.2	Procedure Document Log						
			3.1	Task Order			
			3.2	Sample Lists			
			3.3	Data Validation Procedures			

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COC ✓

WHC-SD-EN-SPP-002, Rev. 1

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: 241-T-106	REVIEWER:	DATE:
LABORATORY: TMA	CASE: N2-12-023	SDG: B07MK9
SAMPLES/MATRIX:		
B07MK9/water		

1. COMPLETENESS AND CONTRACT COMPLIANCE

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Cover Page	X		
Traffic Reports	X		
Sample Data			
Inorganic Analysis Data Sheets	X		
Standards Data			
Initial and Continuing Calibration Verification	X		
CRDL Standard for AA and ICP	X		
QC Summary			
Blanks	X		
ICP Interference Check Summary	X		
Spike Sample Recovery	X		
Post-Digestion Spike Sample Recovery			
Duplicate	X		
Laboratory Control Sample	X		
Standard Addition Results			
ICP Serial Dilutions	X		
Instrument Detection Limits	X		
ICP Interelement Correction Factors	X		
ICP Linear Ranges	X		
Preparation Log	X		
Analysis Run Log	X		
Raw Data			
ICP Raw Data	X		
Furnace AA Raw Data	X		
Mercury Raw Data	X		
Cyanide Raw Data	X		
Additional Data			
Internal laboratory chain-of-custody	X		
Laboratory Sample Preparation Records	X		

Data Package Item	Present?: Yes	No	N/A
Percent Solids Analysis Records	—	—	—
Reduction Formulae	—	—	—
Instrument Run Logs	—	—	—
Chemist Notebook Pages	—	—	—

2. HOLDING TIMES

Have all samples been analyzed within holding times? Yes No N/A

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? Yes No N/A

Are the correlation coefficients ≥0.995? Yes No N/A

Was a midrange cyanide standard distilled? Yes No N/A

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results > IDL as estimated (J) and results < IDL as estimated (UJ), if the correlation coefficient is <0.995 or the laboratory did not distill the midrange cyanide standard.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency? Yes No N/A

Are the AB solution %R values within control? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

6. LABORATORY BLANKS

Are target analytes present in the laboratory blanks? Yes No N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U). If analyte concentrations in the blank are >CRDL or below the negative CRDL, verify the laboratory has redigested and reanalyzed associated samples with analyte concentrations < 10 times the blank concentration. If the laboratory has not redigested and reanalyzed the samples, note in the validation narrative.

7. FIELD BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

8. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the control limits? Yes No N/A

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is > 125% and sample results are < IDL no qualification is required. If spike recovery is > 125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all nondetects as estimated (UJ). If spike recovery is <30%, reject all nondetects (R). If the field blank has been used for spike analysis, note in the validation narrative.

9. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the sample data according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or > 120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS result is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

10. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample analyses in the data validation narrative.

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? Yes No N/A

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits. If field blanks were used for laboratory duplicates, note in the validation narrative.

12. ICP SERIAL DILUTION

Are the serial dilution results acceptable? Yes No N/A

Is there evidence of negative interference? Yes No N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Do all applicable analyses have duplicate injections? Yes No N/A

Are applicable duplicate injection RSD values within control? Yes No N/A

If no, were samples rerun once as required? Yes No N/A

Does the RSD for the rerun fall within the control limits? Yes No N/A

Were analytical spike recoveries within the control limits? Yes No N/A

If no, were MSA analyses performed when required?	Yes	No	N/A
Are MSA correlation coefficients $\geq$0.995?	Yes	No	N/A
If no, was a second MSA analysis performed?	Yes	No	N/A

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for nondetects). If the analytical spike recovery is <40% qualify detects as estimated (J). If the analytical spike recovery is $\geq$10% but <40%, qualify all nondetects as estimated (UJ) and if the analytical spike recovery is <10%, reject all nondetects (R). If the sample absorbance is <50% of the analytical spike absorbance and the analytical spike recovery is <85% or >115%, qualify all results as estimated (J for detects and UJ for nondetects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correllation coefficient was <0.995, qualify the associated detected results as estimated (J).

17. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	Yes	No	N/A
Are results within the calibrated range of the instruments and within the linear range of the ICP?	Yes	No	N/A
Are all detection limits below the CRQL?	Yes	No	N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

18. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

HOLDING TIME SUMMARY

Cave N2-12-623

SDG: B07MK9	VALIDATOR: Krishna Kolla	DATE: 1/17	PAGE 1 OF ___
COMMENTS: All analyses performed within recommended holding time.			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07MK9	ICP	12/3/92	1/6	1/7	35	1	—
B07MK9	GFAA	↓	1/6	1/5	35	2	—
	CV		12/10	12/16	8	0	—
	CA		12/10	12/11	5	1	—
	AA	↓	1/6	1/11	35	5	—

CALIBRATION DATA SUMMARY

SDG: ~~B07K05~~ B07MK9	VALIDATOR: Kristine Kolla	DATE: 10/17	PAGE 1 OF 1
COMMENTS:			
CALIB. TYPE: INITIAL	CONTINUING	INSTRUMENT:	

CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
All calibration %R meeting limits					
1/11/93	Barium r=0.964			B07MK9	UJ
	ICP interference check	not	in control	limits	
	Manganese, Vanadium, Zinc	recovered	over	DL for Mg, that	
	~~the~~ residual signal	values	the spike	solution	

BLANK AND SAMPLE DATA SUMMARY

SDG: B07MK9	VALIDATOR: Kristin N	DATE: 10/17/93	PAGE 1 OF 2
COMMENTS:			

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB1	Aluminum	32.2	B		ug/L			B07MK9	UL
CCB3		46.8	B						
PB		23.0	B						
CCB2	Barium	0.8	B					B07MK9	UL
CCB3		1.2	B						
CCB1	Cadmium	1.8	B					---	--
CCB3		1.6	B						
CCB1	Calcium	29.7	B					B07MK9	UL
CCB3		32.4	B						
PB		33.0	B						
CCB2	Chromium	-3.5	B					B07MK9	UJ
CCB1	Cobalt	1.5	B					---	--
CCB3		1.5	B						
FCB	Copper	3.5	B					B07MK9	UL
CCB1		7.8	B						
CCB2		3.9	B						
CCB3		7.4	B						
PB		4.3	B						

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: B07MK9	REVIEWER: Kristine R	DATE: 10/17/93	PAGE 2 OF 2
COMMENTS:			

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
ICB	Iron	-9.2	B		ug/L				
CCB1		5.9	B			29.5		B07MK9	U
CCB2		5.5	B						
CCB3		7.1	B						
CCB1	Magnesium	26.4	B					—	—
CCB3		27.1	B						
CCB1	Manganese	1.4	B					B07MK9	U
CCB2		1.1	B						
CCB3		1.2	B						
CCB2	NICKEL	-3.4	B					B07MK9	UJ
PB		-3.2	B						
CCB1	Potassium	90.5	B					B07MK9	U
CCB1	Sodium	32.8						B07MK9	U

ACCURACY DATA SUMMARY

SDG: B07MK9	VALIDATOR: Kristine Rolla	DATE: 10/16	PAGE 1 OF ___
COMMENTS: All matrix spike and laboratory control sample % Recoveries were within limits			

SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
	No LCS analyzed with the Hg analysis. Matrix spike			
	%R was acceptable. No qualification necessary.			

PRECISION DATA SUMMARY

SDG: B07MK01	VALIDATOR: Krishnie Kolla	DATE: 10/17/93	PAGE 1 OF 1

COMMENTS:

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
No sample results greater than 5x the CRDL.					
All applicable results are within 2x the CRDL.					
ICP Serial dilution: No results were greater than 50x IDL.					
Results NOT calculated.					
GFAA QC					
Se: Post digestion spike	%R not acceptable (81.97%)				J

CALCULATION SUMMARY

SDG: [illegible]	REVIEWER: [illegible] Rilla	DATE: 10/17	PAGE 1 OF 1

COMMENTS:

[illegible] All [illegible]
[illegible] Attached sheets

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Calculations

HARTCROWSER

Correlation Coefficients

Page 1 of

Job No. 2973-62

Project Westinghouse/Hanford

Date 10/17/93

Calculations for 241-T-106 Calibration

Made by KKilla

As 1/8

0	0
10	0.0250
50	0.1385
100	.2550

r = 0.999

Se 1/8

0	0
5	.0135
50	.1150
100	.1915

r = .995

Pb 1/8

0	0
3	.0150
50	.337
100	~~.2430~~ .6155

r = 0.999

Tl 1/8

0	0
10	.0410
50	.1675
100	.2930

r = 0.997

Hg 12/10/92

0	0
.2	5
.5	14
1.0	33
2.0	61
5.0	143

r = .999

CN 12/11/92

0	1.091
10	9.741
40	40.23
100	99.15
200	200.6
400	399.9

r = 0.999

Bi 1/11

0	.019
2	.008
5	5.71
9.99	8.60

r = 0.964

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Calculations

HARTCROWSER

Initial and Continuing Verification

Page 1 of

Job No. 2978-62

Project Westinghouse Hanford

Date 10/18/93

Calculations for 241-T-106 Data Validation

Made by KBolla

	ICV	CCV1	CCV2	CCV3
Al	1898.3/18.78 = 101.1 ✓			
Sb		2444.2/25 = 97.8 ✓		
As			46.46/.05 92.9 ✓	
Ba				2461.2/25 98.4
Be	473.28/4.78 ~~100.1~~ 99.0 ✓			
Cd		2391.4/25 = 95.7		
Ca			25460/250 101.8 ✓	
Cr				~~2451.2/25 = 98.0~~
Co	479.76/48.7 = 98.5			2459.9/25 = 94.4
Cu		2438.6/25 = 97.5		
Fe			10128.0/100 101.2	
Pb				49.08/.05 98.1
Mg	24585/238.59 = 103.0			
Mn		2412.6/25 96.5		
Hg			2.33/.02 116.5	
Ni				2449.4/25 98.
K	49283/491.82 100.2 ✓			
Se		48.42/.5 96.84		
Ag			490.68/5 98.1	
Na				25237/250 100
Tl	102.19/1.007 101.5			
V		2430/25 97.2		
Zn			2448.5/25 97.9	
Cn				200.62/2 100.
Bi	5000/50 100 ✓			

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Calculations

HARTCROWSER

ICP Interference Check Samples

Page 1 of 1

Job No. 2978.62

Project Westinghouse Hanford

Date 10/17/93

Calculations for 241-T-106 Data Validation

Made by KRolla

	initial		final	
Al	52331 / ~~531610~~ 507757 = 103.0		531610 / ~~538080~~ 507757	104.7
Ba	465.4 / 499	= 93.3	472.5 / 499	94.7
Be	462.1 / 488	94.7	468.9 / 488	96.1
Cd	847.9 / 928	91.4	867.3 / 928	93.5
Ca	495950 / 525385	94.4	505750 / 525385	96.3
Cr	457 / 464	98.5	464.1 / 464	100.0
Co	458.4 / 475	~~101.9~~ 96.5	472.8 / 475	99.5
Cu	468.8 / 488	96.1	473.2 / 488	97.0
Fe	189610 / 187957	100.9	192940 / 187957	102.7
Mg	533710 / 533685	100.0	541840 / 533685	101.5
Mn	473.7 / 502	94.4	481.5 / 502	95.9
Ni	836.8 / 897	93.3	855.2 / 897	95.3
Ag	949.3 / 899	105.6	962.3 / 899	107.0
V	461.9 / 473	97.7	465.1 / 473	98.3
Zn	973.8 / 1001	97.3	1010.4 / 1001	100.9

No calculations were necessary for the duplicate analysis, nor for the ICP Serial dilutions therefore the numbers were only verified against the raw data.

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Calculations

HARTCROWSER

Spike Sample Recovery & LCS

Page 1 of 1

Job No. 2973-62

Project Westinghouse Hanford

Date 10/18/93

Calculations for 241-T-106

Made by KRolla

	Spike	% R	LCS	% R
Al	(2023.6-43.35)/200 =	99.0	1749.4/18.78	93.2
Sb	506.89/5	101.4	921.3/10.94	~~89.~~ 90.0
As	37.6625/.4	94.2	43.95/.504	87.2
Ba	(1977-0.83)/200 =	98.8	1763/18.91	93.2
Be	50.6/.5 =	101.2	437.03/~~475~~ 4.78	91.4
Cd	51.71/.5 =	103.4	437.04/4.93	88.6
Ca	—		45016/488.10	92.2
Cr	197.7/200 =	98.8	443.77/4.80	92.5
Co	497.56/5 =	99.5	439.5/4.87	90.2
Cu	(251.62-5.04)/250 =	98.6	456.25/4.86	93.9
Fe	(1058.3-20.83)/10 =	103.7	1811.3/19.62	92.3
Pb	(28.0215-4.1665)/.2 =	119.3	48.03/.492	97.6
Mg	—		22350/239.59	93.7
Mn	(498.17-1.24)/5 =	99.4	438.53/4.74	92.5
Hg	(0.7641)/.01 =	76.4	—	
Ni	502.35/5 =	100.5	437.37/4.88	89.6
Se	8.9785/0.1 =	89.8	~~45059/491.82~~	94.7
Ag	48.23/.5 =	96.5	47.65/.503 441.13/478	92.3
Na	—		449.90/468.04	96.1
Tl	47.8585/.5 =	95.7	47.19/.504	93.6
V	499.08/5 =	99.8	446.27/4.82	92.6
Zn	(502.59-26.09)/5 =	95.3	2622.8/29.21	89.8
Cr	499.3236/5 =	99.9	—	
~~As~~ Bi	4430/50 =	88.6	2320/25	92.8
~~Ba~~ K			45059/491.82	91.6

Recycled Paper

DATA QUALIFICATION SUMMARY

SDG: B07MK9	VALIDATOR: Kristine Kella	DATE: 6/17	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Al, Ba, Ca, Co, Mn	UL	B07MK9	Blank Cont.
K, Na, Fe	UL	B07MK9	Blank Cont.
Cr, Ni	UJ	B07MK9	Negative blank cont.
Bi	UJ	B07MK9	r < 0.995
Se	J	B07MK9	GFAA post ⊕ %R < 85%

TELEPHONE CONTACT SUMMARY

VALIDATOR: Kristine Reiter	DATE: 10/17	TIME:	PAGE____OF____
COMPANY:			
ADDRESS:			
PERSON CONTACTED:			
TELEPHONE:		FAX:	
PROJECT/CASE/SDG:			
REMARKS:			
No Phone Contact			
ACTION:			

9613492.4725

000302A

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: Wendy S. Thompson

PROJECT NUMBER: 92-336

Company Contact: Wendy S. Thompson

Telephone: (509) 376-2153

Project Designation/Sampling Locations: 241-T-106

Borehole Number: 299-W10-196

Collection Date: 12-2-92

Time: 0945; 0730 ① ②

Ice Chest No.: SML200

Field Logbook No.: EFL-1053

Bill of Lading/Airbill No.: 2519007304

Offsite Property No.: W93-0-0122 #22

Method of Shipment: AIR (Emery)

Shipped to: TMA-Norcal

Possible Sample Hazards/Remarks: Keep samples chilled. All analysis per lab statement of work.

No hazards detected with field instruments

Sample Identification

) B07MK9

3 x 40 ml., amber glass, water, CLP-VOA

1 x 4000 ml wrt 12-2-92

~~3 x 1000 ml.~~, amber glass, water, CLP- Semi-VOA, IC Anions, SO_4, PO_4, NO_2-NO_3, pH, Cl, F

1 x 1000 ml., plastic, water (HNO_3), ICP/AA metals, Bi, Hg

1 x 1000 ml., plastic, water (NaOH, ~~ascorbic acid~~) wrt 12-2-92, CLP-CN

1 x 250 ml., amber glass, water (H_2SO_4), TOC

1 x 4000 ml., plastic, water ((HNO_3)) gross alpha, gross beta, GEA including Co-60, Ru-106,
1 x 2000 ml., plastic, water (HNO_3) } Ce-144, Cs-137, isotopic U, total U, Am-241, Np-237, Pu-238,-239,-240, Sr-90.

1 x 1000 ml., plastic, water (HCL), Tc-99

2 x 250 ml., amber glass, water, C-14

) B07MK2 - 3x40 ml amber glass water; CLP-VOA

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.S. Thompson Wendy S Thompson	Kermit Blum	12-4-92 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: TOC aliquot B07MK9 sent to WESTON, INC 12-7-92

9613492.4726

TMA
Thermo Analytical Inc.

Skinner & Sherman Labs., Inc.
300 Second Avenue
Post Office Box 521
Waltham, MA 02254-0521
(617) 890-7200
FAX (617) 890-3883

FILE COPY

JAN 1993
RECEIVED
OSM DMO

January 12, 1993

TMA/NORCAL
2030 Wright Avenue
Richmond, CA 94804
Attention: Dan Stuermer

Quality Control Narrative

Scope
One (1) water sample was submitted to TMA/Skinner & Sherman Laboratories, Inc. on December 05, 1992 from TMA/Norcal. The samples were analyzed for the USEPA CLP metals and cyanide plus bismuth. The analysis was performed under TMA/Skinner and Sherman work order S212096.

Methodology
The samples were prepared, analyzed and reported in accordance with the USEPA Contract Laboratory Program Statement of Work ILM02. Bismuth was analyzed by Flame Atomic Absorption Spectroscopy.

Discussion
All quality control requirements were met for the samples with no exceptions.

Please feel free to call if there are any questions concerning the data package.

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES, INC.

David N. Peterson
Assistant Laboratory Manager

WESTINGHOUSE/HANFORD

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023 SAS No.: SDG No.: B07MK9

SOW No.: 7/88

SAMPLE NUMBER:	Lab Sample ID.
B07MK9	12096-01S
B07MK9D	12096-01S2
B07MK9S	12096-01DS

Were ICP interelement corrections applied? Yes/No YES
Were ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Steven R Provencal Name: Steven R. Provencal

Date: 1/12/93 Title: Lead Chemist

9613492.4728

WESTINGHOUSE/HANFORD
1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07MK9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Matrix (soil/water): WATER Lab Sample ID: 12096-01S

Level (low/med): LOW Date Received: 12/05/92

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	43.4	~~B~~	UL	P	B
7440-36-0	Antimony	14.8	U		P	
7440-38-2	Arsenic	2.9	U		F	
7440-39-3	Barium	0.83	~~B~~	UL	P	B
7440-41-7	Beryllium	0.30	U		P	
7440-43-9	Cadmium	1.5	U		P	
7440-70-2	Calcium	58.8	~~B~~	UL	P	B
7440-47-3	Chromium	2.6	U	J	P	Neg B
7440-48-4	Cobalt	1.3	U		P	
7440-50-8	Copper	5.0	~~B~~	UL	P	B
7439-89-6	Iron	20.8	~~B~~	UL	P	B
7439-92-1	Lead	4.2			F	
7439-95-4	Magnesium	18.0	U		P	
7439-96-5	Manganese	1.2	~~B~~	UL	P	B
7439-97-6	Mercury	0.10	U		CV	
7440-02-0	Nickel	2.6	U	J	P	Neg B
7440-09-7	Potassium	80.4	~~B~~	UL	P	B
7782-49-2	Selenium	3.8	U	~~W~~ J	F	
7440-22-4	Silver	3.6	U		P	
7440-23-5	Sodium	65.6	~~B~~	UL	P	B
7440-28-0	Thallium	3.8	U		F	
7440-62-2	Vanadium	2.5	U		P	
7440-66-6	Zinc	26.1			P	
	Cyanide	10.0	U		CA	
7440-69-9	Bismuth	500	U	J	A	<CRDL

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

KAC
10/26/93

Comments:

005

WESTINGHOUSE/HANFORD

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SKINER

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	1878.0	1898.30	101.1	25000.0	24785.00	99.1	25156.00	100.6	P
Antimony	978.0	1005.40	102.8	2500.0	2444.20	97.8	2490.90	99.6	P
Arsenic	50.4	50.75	100.7	50.0	47.62	95.2	46.46	92.9	F
Barium	1891.0	1927.80	101.9	2500.0	2420.50	96.8	2449.30	98.0	P
Beryllium	478.0	473.28	99.0	500.0	493.92	98.8	499.78	100.0	P
Cadmium	493.0	477.63	96.9	2500.0	2391.40	95.7	2452.90	98.1	P
Calcium	48810.0	49505.00	101.4	25000.0	24993.00	100.0	25460.00	101.8	P
Chromium	480.0	491.35	102.4	2500.0	2403.30	96.1	2451.20	98.0	P
Cobalt	487.0	479.76	98.5	2500.0	2403.20	96.1	2459.00	98.4	P
Copper	486.0	489.27	100.7	2500.0	2438.60	97.5	2463.50	98.5	P
Iron	1962.0	2016.70	102.8	10000.0	9997.30	100.0	10128.00	101.3	P
Lead	98.4	103.53	105.2	50.0	48.92	97.8	50.21	100.4	F
Magnesium	23859.0	24585.00	103.0	25000.0	24952.00	99.8	25314.00	101.3	P
Manganese	474.0	479.62	101.2	2500.0	2412.60	96.5	2453.00	98.1	P
Mercury	5.0	4.53	90.6	2.0	2.26	113.0	2.33	116.5	CV
Nickel	488.0	488.26	100.1	2500.0	2390.70	95.6	2441.10	97.6	P
Potassium	49182.0	49283.00	100.2	25000.0	24839.00	99.4	25127.00	100.5	P
Selenium	50.3	53.68	106.7	50.0	48.42	96.8	51.02	102.0	F
Silver	478.0	488.99	102.3	500.0	480.76	96.2	490.68	98.1	P
Sodium	46804.0	49297.00	105.3	25000.0	24775.00	99.1	25063.00	100.3	P
Thallium	100.7	102.19	101.5	50.0	49.57	99.1	48.37	96.7	F
Vanadium	482.0	491.66	102.0	2500.0	2430.00	97.2	2471.30	98.9	P
Zinc	2921.0	2911.90	99.7	2500.0	2418.70	96.7	2448.50	97.9	P
Cyanide	94.0	96.86	103.0	200.0	201.20	100.6	200.52	100.3	CA
Bismuth	5000.0	5000.00	100.0	5000.0	4660.00	93.2	4890.00	97.8	A

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

WESTINGHOUSE/HANFORD

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SKINER

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				25000.0	25261.00	101.0			P
Antimony				2500.0	2491.80	99.7			P
Arsenic				50.0	46.85	93.7	48.40	96.8	F
Barium				2500.0	2461.20	98.4			P
Beryllium				500.0	502.09	100.4			P
Cadmium				2500.0	2460.40	98.4			P
Calcium				25000.0	25567.00	102.3			P
Chromium				2500.0	2459.90	98.4			P
Cobalt				2500.0	2477.10	99.1			P
Copper				2500.0	2475.50	99.0			P
Iron				10000.0	10196.00	102.0			P
Lead				50.0	49.08	98.2			F
Magnesium				25000.0	25414.00	101.7			P
Manganese				2500.0	2455.70	98.2			P
Mercury				2.0	2.33	116.5	2.05	102.5	CV
Nickel				2500.0	2449.40	98.0			P
Potassium				25000.0	25034.00	100.1			P
Selenium				50.0	51.29	102.6	50.76	101.5	F
Silver				500.0	489.27	97.9			P
Sodium				25000.0	25237.00	100.9			P
Thallium				50.0	48.03	96.1			F
Vanadium				2500.0	2479.20	99.2			P
Zinc				2500.0	2522.40	100.9			P
Cyanide				200.0	200.62	100.3	203.04	101.5	CA
Bismuth				5000.0	4720.00	94.4			A

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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WESTINGHOUSE/HANFORD

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SKINER

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury				2.0	2.19	109.5	2.05	102.5	CV
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide				200.0	201.72	100.9	202.69	101.3	CA
Bismuth									NR

KH 10/17

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

WESTINGHOUSE/HANFORD

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SKINER

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury				2.0	1.88	94.0			CV
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR
Bismuth									NR

KR 10/17

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

WESTINGHOUSE/HANFORD

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

AA CRDL Standard Source: SKINER

ICP CRDL Standard Source: SKINER

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
					Initial		Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony				120.0	109.82	91.5	115.11	95.9
Arsenic	10.0	9.33	93.3					
Barium								
Beryllium				10.0	9.43	94.3	9.43	94.3
Cadmium				10.0	10.24	102.4	11.14	111.4
Calcium								
Chromium				20.0	15.23	76.2	16.97	84.8
Cobalt				100.0	90.87	90.9	94.56	94.6
Copper				50.0	8.54	17.1	7.38	14.8
Iron								
Lead	3.0	3.76	125.3					
Magnesium								
Manganese				30.0	28.57	95.2	28.57	95.2
Mercury								
Nickel				80.0	75.05	93.8	77.35	96.7
Potassium								
Selenium	5.0	6.45	129.0					
Silver				20.0	22.86	114.3	21.68	108.4
Sodium								
Thallium	10.0	9.49	94.9					
Vanadium				100.0	93.54	93.5	94.24	94.2
Zinc				40.0	42.83	107.1	42.83	107.1
Bismuth								

Low!

RK 10/17

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3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	14.7	U	33.2	B	14.7	U	46.8	B	23.0	B	P
Antimony	14.8	U	14.8	U	14.8	U	14.8	U	14.8	U	P
Arsenic	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	F
Barium	0.7	U	0.7	U	0.8	B	1.2	B	0.7	U	P
Beryllium	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	P
Cadmium	1.5	U	1.8	B	1.5	U	1.6	B	1.5	U	P
Calcium	13.7	U	29.7	B	13.7	U	32.4	B	33.0	B	P
Chromium	2.6	U	2.6	U	-3.5	B	2.6	U	2.6	U	P
Cobalt	1.3	U	1.5	B	1.3	U	1.5	B	1.3	U	P
Copper	3.5	B	7.8	B	3.9	B	7.4	B	4.3	B	P
Iron	-9.2	B	5.9	B	-5.5	B	7.1	B	4.0	U	P
Lead	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	F
Magnesium	18.0	U	20.4	B	18.0	U	27.0	B	18.0	U	P
Manganese	0.9	U	1.4	B	1.1	B	1.2	B	0.9	U	P
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	CV
Nickel	2.6	U	2.6	U	-3.4	B	2.6	U	-3.2	B	P
Potassium	79.4	U	90.5	B	79.4	U	79.4	U	79.4	U	P
Selenium	3.8	U	3.8	U	3.8	U	3.8	U	3.8	U	F
Silver	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	P
Sodium	32.7	U	32.8	B	32.7	U	32.7	U	32.7	U	P
Thallium	3.8	U	3.8	U	3.8	U	3.8	U	3.8	U	F
Vanadium	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	P
Zinc	5.7	U	5.7	U	5.7	U	5.7	U	5.7	U	P
Cyanide	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	CA
Bismuth	500.0	U	500.0	U	500.0	U	500.0	U	500.0	U	A

WESTINGHOUSE/HANFORD

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic			2.9	U							F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury			0.1	U	0.1	U	0.1	U			CV
Nickel											NR
Potassium											NR
Selenium			3.8	U							F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide			10.0	U	10.0	U	10.0	U			CA
Bismuth											NR

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3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury			0.1	U							CV
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
Bismuth											NR

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4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

ICP ID Number: P2 ICS Source: ICF-0292

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum	514927	507757	528760	523310.0	103.1	538080	531610.0	104.7
Antimony	0	0	-21	-8.1		-17	2.9	
Arsenic								
Barium	0	499	-2	465.4	93.3	-2	472.5	94.7
Beryllium	0	488	0	462.1	94.7	0	468.9	96.1
Cadmium	0	928	1	847.9	91.4	1	867.3	93.5
Calcium	529351	525385	502290	495950.0	94.4	510190	505750.0	96.3
Chromium	14	464	13	457.0	98.5	15	464.1	100.0
Cobalt	0	475	-5	458.4	96.5	-3	472.8	99.5
Copper	0	488	-8	468.8	96.1	-10	473.2	97.0
Iron	190348	187957	191510	189610.0	100.9	194170	192940.0	102.7
Lead								
Magnesium	543610	533685	539580	533710.0	100.0	546740	541840.0	101.5
Manganese	36	502	29	473.7	94.4	29	481.5	95.9
Mercury								
Nickel	0	897	-3	836.8	93.3	-5	855.2	95.3
Potassium	0	0	121	305.0		144	134.1	
Selenium								
Silver	0	899	-5	949.3	105.6	-3	962.2	107.0
Sodium	0	0	904	837.4		885	834.0	
Thallium								
Vanadium	0	473	1	461.9	97.7	1	465.1	98.3
Zinc	71	1001	71	973.8	97.3	76	1010.4	100.9
Bismuth								

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WESTINGHOUSE/HANFORD

5A

SPIKE SAMPLE RECOVERY

SAMPLE NUMBER: B07MK9S

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2023.6000		43.3500	B	2000.00	99.0		P
Antimony	75-125	506.8900		14.8000	U	500.00	101.4		P
Arsenic	75-125	37.6625		2.9000	U	40.00	94.2		F
Barium	75-125	1977.0000		0.8300	B	2000.00	98.8		P
Beryllium	75-125	50.6000		0.3000	U	50.00	101.2		P
Cadmium	75-125	51.7100		1.5000	U	50.00	103.4		P
Calcium									NR
Chromium	75-125	197.7000		2.6000	U	200.00	98.8		P
Cobalt	75-125	497.5600		1.3000	U	500.00	99.5		P
Copper	75-125	251.6200		5.0400	B	250.00	98.6		P
Iron	75-125	1058.3000		20.8300	B	1000.00	103.7		P
Lead	75-125	28.0215		4.1665		20.00	119.3		F
Magnesium									NR
Manganese	75-125	498.1700		1.2400	B	500.00	99.4		P
Mercury	75-125	0.7641		0.1000	U	1.00	76.4		CV
Nickel	75-125	502.3500		2.6000	U	500.00	100.5		P
Potassium									NR
Selenium	75-125	8.9785		3.8000	U	10.00	89.8		F
Silver	75-125	48.2300		3.6000	U	50.00	96.5		P
Sodium									NR
Thallium	75-125	47.8585		3.8000	U	50.00	95.7		F
Vanadium	75-125	499.0800		2.5000	U	500.00	99.8		P
Zinc	75-125	502.5900		26.0900		500.00	95.3		P
Cyanide	75-125	499.3236		10.0000	U	500.00	99.9		CA
Bismuth	75-125	4430.0000		500.0000	U	5000.00	88.6		A

KR 10/17

Comments:

~~002~~ 14A

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6
DUPLICATES

SAMPLE NUMBER:

B07MK9D

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

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

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M	
Aluminum		43.3500	B	14.7000	U	~~200.0~~		P	
Antimony		14.8000	U	14.8000	U			P	
Arsenic		2.9000	U	2.9000	U			F	
Barium		0.8300	B	0.7000	U	~~200.0~~		P	
Beryllium		0.3000	U	0.3000	U			P	
Cadmium		1.5000	U	1.5000	U			P	
Calcium		58.8500	B	67.3200	B	13.4		P	± 10,000 ✓
Chromium		2.6000	U	2.6000	U			P	
Cobalt		1.3000	U	1.3000	U			P	
Copper		5.0400	B	3.1000	B	47.7		P	± 500 ✓
Iron		20.8300	B	34.6800	B	49.9		P	± 1000 ✓
Lead	3.0	4.1665		4.4420		6.4		F	± [illegible] ✓
Magnesium		18.0000	U	18.0000	U			P	
Manganese		1.2400	B	1.2500	B	0.8		P	± [illegible] ✓
Mercury		0.1000	U	0.1000	U			CV	
Nickel		2.6000	U	2.6000	U			P	
Potassium		80.4500	B	79.4000	U	200.0		P	
Selenium		3.8000	U	3.8000	U			F	
Silver		3.6000	U	3.6000	U			P	
Sodium		65.6400	B	45.4400	B	36.4		P	± 10,000 ✓
Thallium		3.8000	U	3.8000	U			F	
Vanadium		2.5000	U	2.5000	U			P	
Zinc	20.0	26.0900		6.6900	B	118.4		P	± 40 ✓
Cyanide		10.0000	U	10.0000	U			CA	
Bismuth		500.0000	U	500.0000	U			A	

8/14/93
~~003~~
14B

WESTINGHOUSE/HANFORD

7

LABORATORY CONTROL SAMPLE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Solid LCS Source:

Aqueous LCS Source: EPA-LV 0692

Analyte	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/kg) True	Solid (mg/kg) Found	C	Limits		%R
Aluminum	1878.0	1749.40	93.2						
Antimony	1024.0	921.30	90.0						
Arsenic	50.4	43.95	87.2						
Barium	1891.0	1763.00	93.2						
Beryllium	478.0	437.03	91.4						
Cadmium	493.0	437.04	88.6						
Calcium	48810.0	45016.00	92.2						
Chromium	480.0	443.77	92.5						
Cobalt	487.0	439.50	90.2						
Copper	486.0	456.25	93.9						
Iron	1962.0	1811.30	92.3						
Lead	49.2	48.03	97.6						
Magnesium	23859.0	22350.00	93.7						
Manganese	474.0	438.53	92.5						
Mercury									
Nickel	488.0	437.37	89.6						
Potassium	49182.0	45059.00	91.6						
Selenium	50.3	47.65	94.7						
Silver	478.0	441.13	92.3						
Sodium	46804.0	44990.00	96.1						
Thallium	50.4	47.19	93.6						
Vanadium	482.0	446.27	92.6						
Zinc	2921.0	2622.80	89.8						
Cyanide									
Bismuth	2500.0	2320.00	92.8						

KR 10/17

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8

STANDARD ADDITION RESULTS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Concentration Units: ug/L

EPA Sample No.	An	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q

9613492.4742

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9

ICP SERIAL DILUTIONS

SAMPLE NUMBER: B07MK9L

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

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

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	43.35	B	73.50	U	~~100.0~~		P
Antimony	14.80	U	74.00	U			P
Arsenic							NR
Barium	0.83	B	3.50	U	100.0		P
Beryllium	0.30	U	1.50	U			P
Cadmium	1.50	U	7.50	U			P
Calcium	58.85	B	68.50	U	~~100.0~~		P
Chromium	2.60	U	13.00	U			P
Cobalt	1.30	U	6.50	U			P
Copper	5.04	B	9.50	U	100.0		P
Iron	20.83	B	20.00	U	~~100.0~~		P
Lead							NR
Magnesium	18.00	U	90.00	U			P
Manganese	1.24	B	4.50	U	~~100.0~~		P
Mercury							NR
Nickel	2.60	U	13.00	U			P
Potassium	80.45	B	397.00	U	100.0		P
Selenium							NR
Silver	3.60	U	18.00	U			P
Sodium	65.64	B	163.50	U	100.0		P
Thallium							NR
Vanadium	2.50	U	12.50	U			P
Zinc	26.09		38.45	B	47.4		P
Bismuth							NR

No sample reduced 75% the IDL.

~~004~~ 16A

WESTINGHOUSE/HANFORD

10

Instrument Detection Limits (Quarterly)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

ICP ID Number: Date: 10/15/92

Flame AA ID Number:

Furnace AA ID Number: F2

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Calcium			5000		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Iron			100		NR
Lead	283.30	BS	3	1.0	F
Magnesium			5000		NR
Manganese			15		NR
Mercury			0.2		NR
Nickel			40		NR
Potassium			5000		NR
Selenium			5		NR
Silver			10		NR
Sodium			5000		NR
Thallium	276.80	BS	10	3.8	F
Vanadium			50		NR
Zinc			20		NR
Bismuth			2000		NR

Comments:
F2: THERMO JARRELL-ASH VIDEO 22E (#2511)

WESTINGHOUSE/HANFORD

10

Instrument Detection Limits (Quarterly)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

ICP ID Number: Date: 10/15/92

Flame AA ID Number:

Furnace AA ID Number: F4

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic	197.20	BS	10	2.9	F
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Calcium			5000		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Iron			100		NR
Lead			3		NR
Magnesium			5000		NR
Manganese			15		NR
Mercury			0.2		NR
Nickel			40		NR
Potassium			5000		NR
Selenium	196.00	BS	5	3.8	F
Silver			10		NR
Sodium			5000		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR
Bismuth			2000		NR

Comments:

F4: THERMO JARRELL-ASH VIDEO 22E (#2664)

WESTINGHOUSE/HANFORD

10

Instrument Detection Limits (Quarterly)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

ICP ID Number: Date: 10/15/92

Flame AA ID Number: F7

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Calcium			5000		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Iron			100		NR
Lead			3		NR
Magnesium			5000		NR
Manganese			15		NR
Mercury			0.2		NR
Nickel			40		NR
Potassium			5000		NR
Selenium			5		NR
Silver			10		NR
Sodium			5000		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR
Bismuth	223.00	BS	2000	500.0	A

Comments:
F7: PERKIN-ELMER 3030B

WESTINGHOUSE/HANFORD

10

Instrument Detection Limits (Quarterly)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

ICP ID Number: Date: 10/15/92

Flame AA ID Number: M1

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Calcium			5000		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Iron			100		NR
Lead			3		NR
Magnesium			5000		NR
Manganese			15		NR
Mercury	253.70		0.2	0.1	CV
Nickel			40		NR
Potassium			5000		NR
Selenium			5		NR
Silver			10		NR
Sodium			5000		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR
Bismuth			2000		NR

Comments:
M1: TECHNICON MERCURY ANALYZER (#SS4199A-D)

WESTINGHOUSE/HANFORD

10

Instrument Detection Limits (Quarterly)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

ICP ID Number: P2 Date: 10/15/92

Flame AA ID Number:

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.20		200	14.7	P
Antimony	206.80		60	14.8	P
Arsenic			10		NR
Barium	493.40		200	0.7	P
Beryllium	313.00		5	0.3	P
Cadmium	226.50		5	1.5	P
Calcium	317.90		5000	13.7	P
Chromium	267.70		10	2.6	P
Cobalt	228.60		50	1.3	P
Copper	324.70		25	1.9	P
Iron	259.90		100	4.0	P
Lead			3		NR
Magnesium	279.00		5000	18.0	P
Manganese	257.60		15	0.9	P
Mercury			0.2		NR
Nickel	231.60		40	2.6	P
Potassium	766.40		5000	79.4	P
Selenium			5		NR
Silver	328.00		10	3.6	P
Sodium	588.90		5000	32.7	P
Thallium			10		NR
Vanadium	292.40		50	2.5	P
Zinc	213.80		20	5.7	P
Bismuth			2000		NR

Comments:
P2: THERMO JARRELL-ASH ICAP61 (#22982)

WESTINGHOUSE/HANFORD

11

ICP Interelement Correction Factors (Annually)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

ICP ID Number: P2 Date: 07/01/92

Analyte	Wave-length (nm)	Al	Ca	Fe	Mg	Cr
Aluminum	308.20	0.0000000	0.0000000	0.0000000	0.0000000	-0.0006600
Antimony	206.80	0.0000000	0.0000000	0.0002200	0.0000000	0.0130700
Arsenic						
Barium	493.40	0.0000300	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	0.0000000	0.0000000	0.0002000	0.0000000	0.0000000
Calcium	317.90	0.0000000	0.0000000	-0.0001800	0.0000700	0.0000000
Chromium	267.70	0.0000000	0.0000000	-0.0000300	0.0000000	0.0000000
Cobalt	228.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0002500
Copper	324.70	0.0000000	0.0000000	0.0000000	0.0000000	-0.0000600
Iron	259.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead						
Magnesium	279.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.60	0.0000200	0.0000000	-0.0000100	0.0000000	0.0000000
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium						
Silver	328.00	0.0000000	0.0000000	-0.0003100	0.0000000	0.0000000
Sodium	588.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium						
Vanadium	292.40	0.0000000	0.0000000	-0.0000300	0.0000000	-0.0037800
Zinc	213.80	0.0000000	0.0000000	0.0001200	0.0000000	0.0000000
Bismuth						

Comments:

P2: THERMO JARRELL-ASH ICAP61 (#22982)

WESTINGHOUSE/HANFORD

11

ICP Interelement Correction Factors (Annually)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

ICP ID Number: P2 Date: 07/01/92

Analyte	Wave-length (nm)	Cu	Mn	Mo	Ni	Sn
Aluminum	308.20	0.0000000	0.0009700	0.0006000	0.0000000	0.0000000
Antimony	206.80	0.0000000	0.0000000	0.0000000	-0.0017900	0.0000000
Arsenic						
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	0.0000000	0.0000000	0.0000000	-0.0002300	0.0000000
Calcium	317.90	0.0000000	0.0003000	0.0000000	0.0000000	0.0000000
Chromium	267.70	0.0000000	0.0002500	0.0000700	0.0000000	0.0000000
Cobalt	228.60	0.0000000	0.0000000	0.0000000	-0.0001800	0.0000000
Copper	324.70	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Iron	259.90	0.0000000	-0.0030600	0.0002000	0.0000000	-0.0000500
Lead						
Magnesium	279.00	0.0000000	-0.0038500	0.0002000	0.0000000	0.0000000
Manganese	257.60	-0.0000400	0.0000000	0.0000000	0.0000000	0.0000000
Mercury						
Nickel	231.60	0.0000000	0.0000000	-0.0002300	0.0000000	0.0000000
Potassium	766.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium						
Silver	328.00	0.0000000	0.0001000	0.0000000	0.0000000	0.0000000
Sodium	588.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium						
Vanadium	292.40	0.0000000	-0.0001100	0.0000000	0.0000000	0.0000000
Zinc	213.80	0.0018900	0.0001100	0.0000000	0.0039800	0.0000000
Bismuth						

Comments:

P2: THERMO JARRELL-ASH ICAP61 (#22982)

WESTINGHOUSE/HANFORD

11

ICP Interelement Correction Factors (Annually)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

ICP ID Number: P2 Date: 07/01/92

Analyte	Wave-length (nm)	Sr	Ti	V	Zn	__
Aluminum	308.20	0.0000000	0.0000000	-0.0323900	0.0000000	
Antimony	206.80	0.0000000	0.0015000	-0.0094100	-0.0007400	
Arsenic						
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000	
Beryllium	313.00	0.0000000	0.0000000	-0.0014700	0.0000000	
Cadmium	226.50	0.0000000	0.0000000	0.0000000	0.0000000	
Calcium	317.90	0.0000300	0.0000000	0.0000000	0.0000000	
Chromium	267.70	0.0000000	0.0000000	0.0005100	0.0000000	
Cobalt	228.60	0.0000000	0.0014400	0.0000000	0.0000000	
Copper	324.70	0.0000000	0.0000000	0.0000000	0.0000000	
Iron	259.90	0.0000050	0.0000000	0.0000000	0.0000000	
Lead						
Magnesium	279.00	0.0000000	-0.0038300	0.0000000	0.0000000	
Manganese	257.60	0.0000000	0.0000000	0.0000000	0.0000000	
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	
Potassium	766.40	0.0000000	0.0000000	0.0000000	0.0000000	
Selenium						
Silver	328.00	0.0000000	-0.0001400	0.0000000	0.0000000	
Sodium	588.90	0.0000000	0.0000000	0.0000000	0.0000000	
Thallium						
Vanadium	292.40	0.0000000	0.0003400	0.0000000	0.0000000	
Zinc	213.80	0.0000000	0.0000000	0.0000000	0.0000000	
Bismuth						

Comments:

P2: THERMO JARRELL-ASH ICAP61 (#22982)

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12
ICP Linear Ranges (Quarterly)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

ICP ID Number: P2 Date: 10/15/92

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Aluminum	5.00	1000000.0	
Antimony	5.00	25000.0	
Arsenic			
Barium	5.00	100000.0	
Beryllium	5.00	25000.0	
Cadmium	5.00	25000.0	
Calcium	5.00	800000.0	
Chromium	5.00	200000.0	
Cobalt	5.00	100000.0	
Copper	5.00	250000.0	
Iron	5.00	550000.0	
Lead			
Magnesium	5.00	1000000.0	
Manganese	5.00	100000.0	
Mercury			
Nickel	5.00	250000.0	
Potassium	5.00	900000.0	
Selenium			
Silver	5.00	40000.0	
Sodium	5.00	1000000.0	
Thallium			
Vanadium	5.00	50000.0	
Zinc	5.00	150000.0	
Bismuth			

Comments:
P2: THERMO JARRELL-ASH ICAP61 (#22982)

WESTINGHOUSE/HANFORD

13
PREPARATION LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Method: A

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
B07MK9	01/06/93		100
B07MK9D	01/06/93		100
B07MK9S	01/06/93		100
LCSW	01/06/93		100
PBW	01/06/93		100

FORM XIII - IN 3/90

WESTINGHOUSE/HANFORD

13
PREPARATION LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Method: CA

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
B07MK9	12/10/92		50
B07MK9D	12/10/92		50
B07MK9S	12/10/92		50
PBW	12/10/92		50

FORM XIII - IN 3/90

WESTINGHOUSE/HANFORD

13
PREPARATION LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Method: CV

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
B07MK9	12/10/92		100
B07MK9D	12/10/92		100
B07MK9S	12/10/92		100
PBW	12/10/92		100

FORM XIII - IN 3/90

WESTINGHOUSE/HANFORD

13
PREPARATION LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Method: F

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
B07MK9	01/06/93		100
B07MK9D	01/06/93		100
B07MK9S	01/06/93		100
LCSW	01/06/93		100
PBW	01/06/93		100

FORM XIII - IN 3/90

WESTINGHOUSE/HANFORD

13
PREPARATION LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Method: P

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
B07MK9	01/06/93		100
B07MK9D	01/06/93		100
B07MK9S	01/06/93		100
LCSW	01/06/93		100
PBW	01/06/93		100

FORM XIII - IN 3/90

WESTINGHOUSE/HANFORD

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ANALYSIS RUN LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Instrument ID Number: F4 Method: F

Start date: 01/08/93 End date: 01/08/93

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	BI
S0	1.00	1426				X																						
S10	1.00	1430				X																						
S50	1.00	1435				X																						
S100	1.00	1440				X																						
ICV	1.00	1505				X																						
ICB	1.00	1508				X																						
CRA	1.00	1511				X																						
CCV	1.00	1513				X																						
CCB	1.00	1516				X																						
ZZZZZZ	1.00	1518																										
ZZZZZZ	1.00	1521																										
ZZZZZZ	1.00	1524																										
ZZZZZZ	1.00	1526																										
ZZZZZZ	1.00	1529																										
ZZZZZZ	1.00	1532																										
CCV	1.00	1534				X																						
CCB	1.00	1537				X																						
PBW	1.00	1600																										
PBWA	1.00	1605	82.8																									
LCSW	1.00	1610				X																						
LCSWA	1.00	1615	92.0			X																						
B07MK9	1.00	1620				X																						
B07MK9A	1.00	1624	84.6			X																						
B07MK9D	1.00	1629				X																						
B07MK9DA	1.00	1634	81.0			X																						
B07MK9S	1.00	1639				X																						
ZZZZZZ	1.00	1643																										
CCV	1.00	1648				X																						
CCB	1.00	1653				X																						
PBW	1.00	1658				X																						
PBWA	1.00	1703	92.7			X																						
ZZZZZZ	1.00	1708																										

Round up - 85C

WESTINGHOUSE/HANFORD

14

ANALYSIS RUN LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Instrument ID Number: F4 Method: F

Start date: 01/08/93 End date: 01/08/93

EPA Sample No.	D/F	Time	% R	Analytes																						
				ALB	SB	ASA	BAE	BED	CDA	CAR	CRO	COU	CUE	FEB	PBG	MGN	MNG	HGI	NI	KSE	SEG	AGA	NAL	TL	VN	ZN	CN	BI
ZZZZZZ	1.00	1713																										
ZZZZZZ	1.00	1718																										
ZZZZZZ	1.00	1722																										
ZZZZZZ	1.00	1727																										
ZZZZZZ	1.00	1732																										
CCV	1.00	1737				X																						
CCB	1.00	1741				X																						

9613492.4759

WESTINGHOUSE/HANFORD

14

ANALYSIS RUN LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Instrument ID Number: F4 Method: F

Start date: 01/08/93 End date: 01/08/93

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	BI
S0	1.00	1426																			X							
S5	1.00	1430																			X							
S50	1.00	1435																			X							
S100	1.00	1440																			X							
ICV	1.00	1505																			X							
ICB	1.00	1508																			X							
CRA	1.00	1511																			X							
CCV	1.00	1513																			X							
CCB	1.00	1516																			X							
ZZZZZZ	1.00	1518																										
ZZZZZZ	1.00	1521																										
ZZZZZZ	1.00	1524																										
ZZZZZZ	1.00	1526																										
ZZZZZZ	1.00	1529																										
ZZZZZZ	1.00	1532																										
CCV	1.00	1534																			X							
CCB	1.00	1537																			X							
PBW	1.00	1600																										
PBWA	1.00	1605	81.9																									
LCSW	1.00	1610																			X							
LCSWA	1.00	1615	55.0																		X							
B07MK9	1.00	1620																										
B07MK9A	1.00	1624	78.1																									
B07MK9D	1.00	1629																										
B07MK9DA	1.00	1634	87.9																									
B07MK9S	1.00	1639																										
ZZZZZZ	1.00	1643																										
CCV	1.00	1648																			X							
CCB	1.00	1653																			X							
PBW	1.00	1658																			X							
PBWA	1.00	1703	91.7																		X							
B07MK9	1.00	1708																			X							

Outlier should have been reran

ok

ok

9613492.4760

WESTINGHOUSE/HANFORD

14

ANALYSIS RUN LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Instrument ID Number: F4 Method: F

Start date: 01/08/93 End date: 01/08/93

EPA Sample No.	D/F	Time	% R	Analytes																						
				ALK	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	BI
B07MK9A	1.00	1713	82.0																		X							
B07MK9D	1.00	1718																			X							
B07MK9DA	1.00	1722	93.7																		X							
B07MK9S	1.00	1727																			X							
ZZZZZZ	1.00	1732																										
CCV	1.00	1737																			X							
CCB	1.00	1741																			X							

C L P M E T A L S 3.02e

ARSENIC

Run id: F4 9300804
THERMO JARRELL-ASH VIDEO 22E (#2664)
Analytical method: F
Element: Multi-Element

Acquired: 01/08/93 by JGS
Crunched: 01/11/93 by JGS
Time: 1620
Processing protocol: 3/90

Pos	Sample	Code	Preparation Meth	Batch	Date	Client ID	Date	Time
1	0 PPB	WS0	F			S0	01/08/93	14:26
2	10 PPB	WS1	F			S10	01/08/93	14:30
3	50 PPB	WS2	F			S50	01/08/93	14:35
4	100 PPB	WS3	F			S100	01/08/93	14:40
5	ICV-2	ICV	F			ICV	01/08/93	15:05
6	CAL BLK	ICB	F			ICB	01/08/93	15:08
7	CRA	CRA0	F			CRA	01/08/93	15:11
8	50 PPB	CCV	F			CCV	01/08/93	15:13
9	CAL BLK	CCB	F			CCB	01/08/93	15:16
10	X	X	F			ZZZZZZ	01/08/93	15:18
11	X	X	F			ZZZZZZ	01/08/93	15:21
12	X	X	F			ZZZZZZ	01/08/93	15:24
13	X	X	F			ZZZZZZ	01/08/93	15:26
14	X	X	F			ZZZZZZ	01/08/93	15:29
15	X	X	F			ZZZZZZ	01/08/93	15:32
16	50 PPB	CCV	F			CCV	01/08/93	15:34
17	CAL BLK	CCB	F			CCB	01/08/93	15:37
18	PB	PBW	F	1254	01/06/93	PBW	01/08/93	16:00
19	PB	ASPBW	F	1254		PBWA	01/08/93	16:05
20	LCSFW	LCSW	F	1254	01/06/93	LCSW	01/08/93	16:10
21	LCSFW	ASLCSW	F	1254		LCSWA	01/08/93	16:15
22	S212096-01	S	F	1254	01/06/93	B07MK9	01/08/93	16:20
23	S212096-01	AS	F	1254		B07MK9A	01/08/93	16:24
24	S212096-01	S2	F	1254	01/06/93	B07MK9D	01/08/93	16:29
25	S212096-01	ASS2	F	1254		B07MK9DA	01/08/93	16:34
26	S212096-01	DS	F	1254	01/06/93	B07MK9S	01/08/93	16:39
27	X	X	F			ZZZZZZ	01/08/93	16:43
28	50 PPB	CCV	F			CCV	01/08/93	16:48
29	CAL BLK	CCB	F			CCB	01/08/93	16:53
30	PB	PBW	F	1254	01/06/93	PBW	01/08/93	16:58
31	PB	ASPBW	F	1254		PBWA	01/08/93	17:03
32	X	X	F			ZZZZZZ	01/08/93	17:08
33	X	X	F			ZZZZZZ	01/08/93	17:13
34	X	X	F			ZZZZZZ	01/08/93	17:18
35	X	X	F			ZZZZZZ	01/08/93	17:22
36	X	X	F			ZZZZZZ	01/08/93	17:27
37	X	X	F			ZZZZZZ	01/08/93	17:32
38	50 PPB	CCV	F			CCV	01/08/93	17:37
39	CAL BLK	CCB	F			CCB	01/08/93	17:41

9613492.4762

C L P M E T A L S 3.02e

SELENIUM

Run id: F4 9300854
THERMO JARRELL-ASH VIDEO 22E (#2664)
Analytical method: F
Element: Multi-Element

Acquired: 01/08/93 by JGS
Crunched: 01/11/93 by JGS
Time: 1622
Processing protocol: 3/90

Pos	Sample	Code	Preparation Meth	Batch	Date	Client ID	Date	Time
1	0 PPB	WS0	F			S0	01/08/93	14:26
2	5 PPB	WS1	F			S5	01/08/93	14:30
3	50 PPB	WS2	F			S50	01/08/93	14:35
4	100 PPB	WS3	F			S100	01/08/93	14:40
5	ICV-2	ICV	F			ICV	01/08/93	15:05
6	CAL BLK	ICB	F			ICB	01/08/93	15:08
7	CRA	CRA0	F			CRA	01/08/93	15:11
8	50 PPB	CCV	F			CCV	01/08/93	15:13
9	CAL BLK	CCB	F			CCB	01/08/93	15:16
10	X	X	F			ZZZZZZ	01/08/93	15:18
11	X	X	F			ZZZZZZ	01/08/93	15:21
12	X	X	F			ZZZZZZ	01/08/93	15:24
13	X	X	F			ZZZZZZ	01/08/93	15:26
14	X	X	F			ZZZZZZ	01/08/93	15:29
15	X	X	F			ZZZZZZ	01/08/93	15:32
16	50 PPB	CCV	F			CCV	01/08/93	15:34
17	CAL BLK	CCB	F			CCB	01/08/93	15:37
18	PB	PBW	F	1254	01/06/93	PBW	01/08/93	16:00
19	PB	ASPBW	F	1254		PBWA	01/08/93	16:05
20	LCSFW	LCSW	F	1254	01/06/93	LCSW	01/08/93	16:10
21	LCSFW	ASLCSW	F	1254		LCSWA	01/08/93	16:15
22	S212096-01	S	F	1254	01/06/93	B07MK9	01/08/93	16:20
23	S212096-01	AS	F	1254		B07MK9A	01/08/93	16:24
24	S212096-01	S2	F	1254	01/06/93	B07MK9D	01/08/93	16:29
25	S212096-01	ASS2	F	1254		B07MK9DA	01/08/93	16:34
26	S212096-01	DS	F	1254	01/06/93	B07MK9S	01/08/93	16:39
27	X	X	F			ZZZZZZ	01/08/93	16:43
28	50 PPB	CCV	F			CCV	01/08/93	16:48
29	CAL BLK	CCB	F			CCB	01/08/93	16:53
30	PB	PBW	F	1254	01/06/93	PBW	01/08/93	16:58
31	PB	ASPBW	F	1254		PBWA	01/08/93	17:03
32	S212096-01	S	F	1254	01/06/93	B07MK9	01/08/93	17:08
33	S212096-01	AS	F	1254		B07MK9A	01/08/93	17:13
34	S212096-01	S2	F	1254	01/06/93	B07MK9D	01/08/93	17:18
35	S212096-01	ASS2	F	1254		B07MK9DA	01/08/93	17:22
36	S212096-01	DS	F	1254	01/06/93	B07MK9S	01/08/93	17:27
37	X	X	F			ZZZZZZ	01/08/93	17:32
38	50 PPB	CCV	F			CCV	01/08/93	17:37
39	CAL BLK	CCB	F			CCB	01/08/93	17:41

9615482.4763

TMA/SKINNER & SHERMAN LABORATORIES, INC.
GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence # 2309 GFAA ID: F1 F2 F3 (F4) F5 F6 Method: 150

Date: 1/8/93 Reviewed By: 1/12/93 Standards Prepared: 800 1/8/93

Operator: SG

Disk # 14

Acq 5212096

SAMIN ✓✓ ~~5212124~~

Standards Source
1. Calibration: 10 ppm
2. ICV: [✓] ICV-2 [] ICV-4(1:1)
3. CCV: 50 ppb

Channel A:			Channel B:		
RUN ID:	9300~~803~~ 04		RUN ID:	9300~~853~~ 54	
Element:	[✓] AS	[] PB	Element:	[✓] SE	[] TL
Background:	BS	BS	Background:	BS	BS
Wavelength (nm):	197.2	283.3	Wavelength (nm):	196.0	276.8
Slitwidth (nm):	2.0	1.0	Slitwidth (nm):	2.0	1.0
Integ Time (sec):	3.0	3.0	Integ Time (sec):	3.0	3.0

Comments			Sample ID	Dilution	Comments
	STD1	1	0 PPB		
	STD2	2	[✓] 10,5 [] 3,10		
	STD3	3	50 PPB		
	STD4	4	100 PPB		
		5	ICV		
		6	ICB		
		7	CRA		
		8	CCV		
		9	CCB		
		10	01		
		11	+5		10/milly
		12	+10		
		13	+15		
		14	X		
		15	X		
		16	CCV		
		17	CCB		
rerun		18	PBW		rerun
		19	PBWA		
		20	LCSW		
		21	LCSWA		
		22	5212096-01		R5D
		23	01A		
		24	01D		R6D
		25	01DA		
		26	01S		R5D
		27	X		
		28	CCV		
		29	CCB		
		30	PBW		
		31	PBWA		
		32	01		
		33	01A		
		34	01D		
10/milly		35	01DA		
		36	016		
		37	X		
		38	CCV		
		39	CCB		

086

9613492.4764

Jarrell-Ash Video 22
Run: F4 9300804 Analyst: KH Page 1

Concentrations/Absorbances

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
1	STD1(0)	XWS0	S0	1.00x	01/08/93	14:26

	<-As->		<-Se->	
Burns (Abs)	[0]A	[0]A	[0]A	[0]A
Mean	0.0000		0.0000	
CV %	---		---	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
2	STD2(10,5)	WS1	S	1.00x	01/08/93	14:30

	<-As->		<-Se->	
Burns (Abs)	0.030 A	0.020 A	0.011A	0.016A
Mean	0.0250		0.0135	
CV %	28.28		26.19 ***	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
3	STD3(50)	WS2	S	1.00x	01/08/93	14:35

	<-As->		<-Se->	
Burns (Abs)	0.139 A	0.138 A	0.113A	0.117A
Mean	0.1385		0.1150	
CV %	0.00		0.00	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
4	STD4(100)	WS3	S	1.00x	01/08/93	14:40

	<-As->		<-Se->	
Burns (Abs)	0.256 A	0.254 A	0.190A	0.193A
Mean	0.2550		0.1915	
CV %	0.00		0.00	r = 0.995 ok

- Calibration coefficients -

	<-As->	<-Se->
Order:	2	2
Coef[0]:	0	0
Coef[1]:	0.002930324	0.002687074
Coef[2]:	-3.771836e-006	-7.721906e-006
Correl. coef.:	0.9997	1.0000

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
5	ICV-2	ICV	ICV	1.00x	01/08/93	15:05

	<-As->	<-Se->
Burns (Conc)	50.750	53.685
Mean	50.7500	53.6850
CV %	---	---
Sample value	50.75	53.69

ARGOS MODEL SA4 Version 1.29

Jarrell-Ash Video 22
Run: F4 9300804 Analyst: KH Page 2

Concentrations/Absorbances

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
6	CAL BLK	ICB	ICB	1.00x	01/08/93	15:08

	<-As->	<-Se->
Burns (Conc)	0.683	3.382
Mean	0.6830	3.3820
CV %	---	---
Sample value	2.90U	3.80U

7	CRA	CRA	CRA	1.00x	01/08/93	15:11

	<-As->	<-Se->
Burns (Conc)	9.326	6.446
Mean	9.3260	6.4460
CV %	---	---
Sample value	9.33	6.45

8	50 PPB	CCV	CCV	1.00x	01/08/93	15:13

	<-As->	<-Se->
Burns (Conc)	47.624	48.418
Mean	47.6240	48.4180
CV %	---	---
Sample value	47.62	48.42

9	CAL BLK	CCB	CCB	1.00x	01/08/93	15:16

	<-As->	<-Se->
Burns (Conc)	-2.721	1.120
Mean	-2.7210	1.1200
CV %	---	---
Sample value	2.90U	3.80U

10	X	MOS	ZZZZZZ0	1.00x	01/08/93	15:18

	<-As->	<-Se->
Burns (Abs)	0.025 A	0.005A
Mean	0.0250	0.0050
CV %	---	---
Spike added:	0.00	0.00

11	X	MIS	ZZZZZZ1	1.00x	01/08/93	15:21

	<-As->	<-Se->
Burns (Abs)	0.044 A	0.013A
Mean	0.0440	0.0130
CV %	---	---
Spike added:	10.00	5.00

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Jarrell-Ash Video 22
Run: F4 9300804 Analyst: KH Page 3

Concentrations/Absorbances

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
12	X	M2S	ZZZZZZ2	1.00x	01/08/93	15:24

	<-As->	<-Se->
Burns (Abs)	0.076 A	0.024A
Mean	0.0760	0.0240
CV %	---	---
Spike added:	20.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
13	X	M3S	ZZZZZZ3	1.00x	01/08/93	15:26

	<-As->	<-Se->
Burns (Abs)	0.092 A	0.028A
Mean	0.0920	0.0280
CV %	---	---
Spike added:	30.00	15.00
- MSA calculations -		
Intercept:	0.02430	0.00550
Slope:	0.00233	0.00160
Correlation:	0.9919	0.9862
X intercept:	-10.429	-3.437
Sample value:	10.429	3.437

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
14	X	X	ZZZZZZ	1.00x	01/08/93	15:29

	<-As->	<-Se->
Burns (Conc)	-3.736	3.003
Mean	-3.7360	3.0030
CV %	---	---
Sample value	2.90U	3.80U

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
15	X	X	ZZZZZZ	1.00x	01/08/93	15:32

	<-As->	<-Se->
Burns (Conc)	-2.042	1.495
Mean	-2.0420	1.4950
CV %	---	---
Sample value	2.90U	3.80U

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
16	50 PPB	CCV	2 CCV	1.00x	01/08/93	15:34

	<-As->	<-Se->
Burns (Conc)	46.460	51.023
Mean	46.4600	51.0230
CV %	---	---
Sample value	46.46	51.02

ARGOS MODEL SA4 Version 1.29

9613492.4767

Jarrell-Ash Video 22
Run: F4 9300804 Analyst: KH Page 4

Concentrations/Absorbances

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
17	CAL BLK	CCB 2	CCB	1.00x	01/08/93	15:37

	<-As->		<-Se->	
Burns (Conc)	-1.703		1.120	
Mean	-1.7030		1.1200	
CV %	---		---	
Sample value	2.90U		3.80U	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
18	PB	PBW	PBW	1.00x	01/08/93	16:00

	<-As->		<-Se->	
Burns (Conc)	2.053	3.428	0.373	1.495
Mean	2.7405		0.9340	
CV %	35.48		84.94	
Sample value	2.90U		3.80U	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
19	PB	ASPBW	PBWA	1.00x	01/08/93	16:05

	<-As->		<-Se->	
Burns (Conc)	17.813	15.317	7.999	8.390
Mean	16.5650		8.1945	
CV %	10.65		3.37	
Sample value	16.57		8.19	
Spike added	20.00		10.00	
Spike recovery, %	82.83 ***		81.94 ***	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
20	LCSFW	LCSW	LCSW	1.00x	01/08/93	16:10

	<-As->		<-Se->	
Burns (Conc)	42.989	44.913	47.903	47.391
Mean	43.9510		47.6470	
CV %	3.10		0.76	
Sample value	43.95		47.65	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
21	LCSFW	ASLCSW	LCSWA	1.00x	01/08/93	16:15

	<-As->		<-Se->	
Burns (Conc)	64.781	59.903	53.685	52.613
Mean	62.3420		53.1490	
CV %	5.53		1.43	
Sample value	62.34		53.15	
Spike added	20.00		10.00	
Spike recovery, %	91.95		55.02 ***	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
22	S212096-01	S	B07MK9	1.00x	01/08/93	16:20

	<-As->		<-Se->	
Burns (Conc)	1.025	0.683	1.120	3.003
Mean	0.8540		2.0615	
CV %	28.32		64.59	
Sample value	2.90U		3.80U	

050

ARGOS MODEL SA4 Version 1.29

9613492.4768

Jarrell-Ash Video 22
Run: F4 9300804 Analyst: KH Page 5

Concentrations/Absorbances

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
23	-01	AS	B07MK9A	1.00x	01/08/93	16:24

	<-As->		<-Se->	
Burns (Conc)	16.385	17.455	6.446	9.173
Mean	16.9200		7.8095	
CV %	4.47		24.69 ***	
Sample value	16.92		7.81	
Spike added	20.00		10.00	
Spike recovery, %	84.60 ***		78.10 ***	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
24	-01	S2	B07MK9D	1.00x	01/08/93	16:29

	<-As->		<-Se->	
Burns (Conc)	-2.042	-1.022	1.495	-0.378
Mean	-1.5320		0.5615	
CV %	47.08		235.11	
Sample value	2.90U		3.80U	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
25	-01	ASS2	B07MK9DA	1.00x	01/08/93	16:34

	<-As->		<-Se->	
Burns (Conc)	16.029	16.385	7.221	10.356
Mean	16.2070		8.7885	
CV %	1.55		25.22 ***	
Sample value	16.21		8.79	
Spike added	20.00		10.00	
Spike recovery, %	81.04 ***		87.89	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
26	-01	DS	B07MK9S	1.00x	01/08/93	16:39

	<-As->		<-Se->	
Burns (Conc)	39.552	35.773	7.999	10.753
Mean	37.6625		9.3760	
CV %	7.10		20.77 ***	
Sample value	37.66		9.38	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
27	X	X	ZZZZZZ	1.00x	01/08/93	16:43

	<-As->		<-Se->	
Burns (Conc)	-2.042	0.000	0.373	0.373
Mean	-1.0210		0.3730	
CV %	141.42		0.00	
Sample value	2.90U		3.80U	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
28	50 PPB	CCV 3	CCV	1.00x	01/08/93	16:48

	<-As->		<-Se->	
Burns (Conc)	44.913	48.793	49.974	52.613
Mean	46.8530		51.2935	
CV %	5.86		3.64	
Sample value	46.85		51.29	

091

ARGOS MODEL 904 Version 1.29

Jarrell-Ash Video 22
Run: F4 9300804 Analyst: KH Page 6

Concentrations/Absorbances

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
29	CAL BLK	CCB 3	CCB	1.00x	01/08/93	16:53

	<-As->		<-Se->	
Burns (Conc)	0.341	-1.022	2.247	1.495
Mean	-0.3405		1.8710	
CV %	283.05		28.42	
Sample value	2.90U		3.80U	

30	PB	PBW	PBW	1.00x	01/08/93	16:58

	<-As->		<-Se->	
Burns (Conc)	0.341	-3.398	1.871	0.373
Mean	-1.5285		1.1220	
CV %	172.97		94.41	
Sample value	2.90U		3.80U	

31	PB	ASPBW	PBWA	1.00x	01/08/93	17:03

	<-As->		<-Se->	
Burns (Conc)	20.325	16.741	9.173	9.173
Mean	18.5330		9.1730	
CV %	13.67		0.00	
Sample value	18.53		9.17	
Spike added	20.00		10.00	
Spike recovery, %	92.67		91.73	

32	-01	S	B07MK9	1.00x	01/08/93	17:08

	<-As->		<-Se->	
Burns (Conc)	-1.022	-1.022	0.746	-0.372
Mean	-1.0220		0.1870	
CV %	0.00		422.75	
Sample value	2.90U		3.80U	

1/8/93 SR
Se only

33	-01	AS	B07MK9A	1.00x	01/08/93	17:13

	<-As->		<-Se->	
Burns (Conc)	19.246	17.098	7.221	9.173
Mean	18.1720		8.1970	
CV %	8.36		16.84	
Sample value	18.17		8.20	
Spike added	20.00		10.00	
Spike recovery, %	90.86		81.97 ***	

34	-01	S2	B07MK9D	1.00x	01/08/93	17:18

	<-As->		<-Se->	
Burns (Conc)	-3.398	0.683	-0.372	-1.851
Mean	-1.3575		-1.1115	
CV %	212.57		94.09	
Sample value	2.90U		3.80U	

092

Jarrell-Ash Video 22
Run: F4 9300804 Analyst: KH Page 7

Concentrations/Absorbances

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
35	-01	ASS2	B07MK9DA	1.00x	01/08/93	17:22

	<-As->		<-Se->	
Burns (Conc)	19.965	17.455	10.356	8.390
Mean	18.7100		9.3730	
CV %	9.49		14.83	
Sample value	18.71		9.37	
Spike added	20.00		10.00	
Spike recovery, %	93.55		93.73	

1/8/93 Se only

36	-01	DS	B07MK9S	1.00x	01/08/93	17:27

	<-As->		<-Se->	
Burns (Conc)	38.793	36.526	8.390	9.567
Mean	37.6595		8.9785	
CV %	4.26		9.27	
Sample value	37.66		8.98	

37	X	X	ZZZZZZ	1.00x	01/08/93	17:32

	<-As->		<-Se->	
Burns (Conc)	1.025	0.341	3.382	-0.743
Mean	0.6830		1.3195	
CV %	70.81		221.05	
Sample value	2.90U		3.80U	

38	50 PPB	CCV	CCV	1.00x	01/08/93	17:37

	<-As->		<-Se->	
Burns (Conc)	48.793	48.014	51.023	50.498
Mean	48.4035		50.7605	
CV %	1.14		0.73	
Sample value	48.40		50.76	

39	CAL BLK	CCB	CCB	1.00x	01/08/93	17:41

	<-As->		<-Se->	
Burns (Conc)	-1.363	-2.042	3.382	1.871
Mean	-1.7025		2.6265	
CV %	28.20		40.68	
Sample value	2.90U		3.80U	

WESTINGHOUSE/HANFORD

14

ANALYSIS RUN LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Instrument ID Number: F2 Method: F

Start date: 01/08/93 End date: 01/08/93

EPA Sample No.	D/F	Time	% R	Analytes																							
				ALSB	ASA	BAE	BCD	CAR	CCO	CUE	FEB	MGN	MNG	HGI	NK	SEG	ANAL	TL	VN	ZNC	CNB	BI					
S0	1.00	1945										X															
S3	1.00	1950										X															
S50	1.00	1954										X															
S100	1.00	1958										X															
ICV	2.00	2006										X															
ICB	1.00	2010										X															
CRA	1.00	2014										X															
CCV	1.00	2019										X															
CCB	1.00	2023										X															
PBW	1.00	2037										X															
PBWA	1.00	2041	104.0									X															
ZZZZZZ	1.00	2046																									
ZZZZZZ	1.00	2050																									
B07MK9	1.00	2054																									
B07MK9A	1.00	2059	22.7																								
B07MK9D	1.00	2103										X															
B07MK9DA	1.00	2107	99.7									X															
B07MK9S	1.00	2112										X															
ZZZZZZ	1.00	2116																									
CCV	1.00	2120										X															
CCB	1.00	2125										X															
ZZZZZZ	1.00	2136																									
ZZZZZZ	1.00	2141																									
LCSW	1.00	2145										X															
LCSWA	1.00	2149	98.5									X															
B07MK9	1.00	2154										X															
B07MK9A	1.00	2158	92.6									X															
CCV	1.00	2202										X															
CCB	1.00	2207										X															

9613492.4772

WESTINGHOUSE/HANFORD

14

ANALYSIS RUN LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Instrument ID Number: F2 Method: F

Start date: 01/08/93 End date: 01/08/93

EPA Sample No.	D/F	Time	% R	Analytes																						
				ALB	SBS	ASA	BBE	CDA	CCAR	CCO	CCU	FE	PB	MG	MN	HG	NI	KSE	AG	NA	TL	V	ZN	CN	BI
S0	1.00	1945																			X				
S10	1.00	1950																			X				
S50	1.00	1954																			X				
S100	1.00	1958																			X				
ICV	2.00	2006																			X				
ICB	1.00	2010																			X				
CRA	1.00	2014																			X				
CCV	1.00	2019																			X				
CCB	1.00	2023																			X				
PBW	1.00	2037																							
PBWA	1.00	2041	84.4																						
ZZZZZZ	1.00	2046																							
ZZZZZZ	1.00	2050																							
B07MK9	1.00	2054																			X				
B07MK9A	1.00	2059	100.8																		X				
B07MK9D	1.00	2103																			X				
B07MK9DA	1.00	2107	103.8																		X				
B07MK9S	1.00	2112																			X				
ZZZZZZ	1.00	2116																							
CCV	1.00	2120																			X				
CCB	1.00	2125																			X				
PBW	1.00	2136																			X				
PBWA	1.00	2141	99.4																		X				
LCSW	1.00	2145																			X				
LCSWA	1.00	2149	104.9																		X				
ZZZZZZ	1.00	2154																							
ZZZZZZ	1.00	2158																							
CCV	1.00	2202																			X				
CCB	1.00	2207																			X				

FORM XIV - IN 3/90

C L P M E T A L S 3.02e

LEAD

Run id: F2 9300804
THERMO JARRELL-ASH VIDEO 22E (#2511)
Analytical method: F
Element: Multi-Element

Acquired: 01/08/93 by JGS
Crunched: 01/11/93 by JGS
Time: 1617
Processing protocol: 3/90

Pos	Sample	Code	Preparation Meth	Batch	Date	Client ID	Date	Time
1	0 PPB	WS0	F			S0	01/08/93	19:45
2	3 PPB	WS1	F			S3	01/08/93	19:50
3	50 PPB	WS2	F			S50	01/08/93	19:54
4	100 PPB	WS3	F			S100	01/08/93	19:58
5	ICV-4	ICV	F			ICV	01/08/93	20:06
6	CAL BLK	ICB	F			ICB	01/08/93	20:10
7	CRA	CRA0	F			CRA	01/08/93	20:14
8	50 PPB	CCV	F			CCV	01/08/93	20:19
9	CAL BLK	CCB	F			CCB	01/08/93	20:23
10	PB	PBW	F	1254	01/06/93	PBW	01/08/93	20:37
11	PB	ASPBW	F	1254		PBWA	01/08/93	20:41
12	X	X	F			ZZZZZZ	01/08/93	20:46
13	X	X	F			ZZZZZZ	01/08/93	20:50
14	S212096-01	S	F	1254	01/06/93	B07MK9	01/08/93	20:54
15	S212096-01	AS	F	1254		B07MK9A	01/08/93	20:59
16	S212096-01	S2	F	1254	01/06/93	B07MK9D	01/08/93	21:03
17	S212096-01	ASS2	F	1254		B07MK9DA	01/08/93	21:07
18	S212096-01	DS	F	1254	01/06/93	B07MK9S	01/08/93	21:12
19	X	X	F			ZZZZZZ	01/08/93	21:16
20	50 PPB	CCV	F			CCV	01/08/93	21:20
21	CAL BLK	CCB	F			CCB	01/08/93	21:25
22	X	X	F			ZZZZZZ	01/08/93	21:36
23	X	X	F			ZZZZZZ	01/08/93	21:41
24	LCSFW	LCSW	F	1254	01/06/93	LCSW	01/08/93	21:45
25	LCSFW	ASLCSW	F	1254		LCSWA	01/08/93	21:49
26	S212096-01	S	F	1254	01/06/93	B07MK9	01/08/93	21:54
27	S212096-01	AS	F	1254		B07MK9A	01/08/93	21:58
28	50 PPB	CCV	F			CCV	01/08/93	22:02
29	CAL BLK	CCB	F			CCB	01/08/93	22:07

C L P M E T A L S 3.02e

THALLIUM

Run id: F2 9300854
THERMO JARRELL-ASH VIDEO 22E (#2511)
Analytical method: F
Element: Multi-Element

Acquired: 01/08/93 by JGS
Crunched: 01/11/93 by JGS
Time: 1619
Processing protocol: 3/90

Pos	Sample	Code	Preparation Meth	Batch	Date	Client ID	Date	Time
1	0 PPB	WS0	F			S0	01/08/93	19:45
2	10 PPB	WS1	F			S10	01/08/93	19:50
3	50 PPB	WS2	F			S50	01/08/93	19:54
4	100 PPB	WS3	F			S100	01/08/93	19:58
5	ICV-4	ICV	F			ICV	01/08/93	20:06
6	CAL BLK	ICB	F			ICB	01/08/93	20:10
7	CRA	CRA0	F			CRA	01/08/93	20:14
8	50 PPB	CCV	F			CCV	01/08/93	20:19
9	CAL BLK	CCB	F			CCB	01/08/93	20:23
10	PB	PBW	F	1254	01/06/93	PBW	01/08/93	20:37
11	PB	ASPBW	F	1254		PBWA	01/08/93	20:41
12	X	X	F			ZZZZZZ	01/08/93	20:46
13	X	X	F			ZZZZZZ	01/08/93	20:50
14	S212096-01	S	F	1254	01/06/93	B07MK9	01/08/93	20:54
15	S212096-01	AS	F	1254		B07MK9A	01/08/93	20:59
16	S212096-01	S2	F	1254	01/06/93	B07MK9D	01/08/93	21:03
17	S212096-01	ASS2	F	1254		B07MK9DA	01/08/93	21:07
18	S212096-01	DS	F	1254	01/06/93	B07MK9S	01/08/93	21:12
19	X	X	F			ZZZZZZ	01/08/93	21:16
20	50 PPB	CCV	F			CCV	01/08/93	21:20
21	CAL BLK	CCB	F			CCB	01/08/93	21:25
22	PB	PBW	F	1254	01/06/93	PBW	01/08/93	21:36
23	PB	ASPBW	F	1254		PBWA	01/08/93	21:41
24	LCSFW	LCSW	F	1254	01/06/93	LCSW	01/08/93	21:45
25	LCSFW	ASLCSW	F	1254		LCSWA	01/08/93	21:49
26	X	X	F			ZZZZZZ	01/08/93	21:54
27	X	X	F			ZZZZZZ	01/08/93	21:58
28	50 PPB	CCV	F			CCV	01/08/93	22:02
29	CAL BLK	CCB	F			CCB	01/08/93	22:07

9613492.4775

TMA/SKINNER & SHERMAN LABORATORIES, INC.
GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence # 2226 GFAA ID: F1 (F2) F3 F4 F5 F6 Method: 160

Date: 1/8/93 Reviewed By: 1/12/93 Standards Prepared: 8:00 1/8/93
Operator: SJ

Disk # 17
Acq ____
SAMIN ____ S212096

Standards Source
1. Calibration: 10 ppm
2. ICV: [] ICV-2 [X] ICV-4(1:1)
3. CCV: 50 ppb

Channel A:			Channel B:		
RUN ID:	9300804		RUN ID:	9300854	
Element:	[] AS	[X] PB	Element:	[] SE	[X] TL
Background:	BS	BS	Background:	BS	BS
Wavelength (nm):	197.2	283.3	Wavelength (nm):	196.0	276.8
Slitwidth (nm):	2.0	1.0	Slitwidth (nm):	2.0	1.0
Integ Time (sec):	3.0	3.0	Integ Time (sec):	3.0	3.0

Comments			Sample ID	Dilution	Comments
	STD1	1	0 PPB		
	STD2	2	[] 10,5 [X] 3,10		
	STD3	3	50 PPB		
	STD4	4	100 PPB		
		5	ICV		
		6	ICB		
		7	CRA		
		8	CCV		
		9	CCB		
		10	PBW		Rerun
		11	PBWA		
		12	X		
		13	X		
RSD		14	O1		
		15	O1A		
		16	O1D		
		17	O1DA		
		18	O1S		
		19	X		
		20	CCV		
		21	CCB		
TL only		22	PBW		
		23	PBWA		
		24	LCSW		
		25	LCSWA		
		26	O1		Pb only
		27	O1A		
		28	CCV		
		29	CCB		
		30			
		31			
		32			
		33			
		34			
		35			
		36			
		37			
		38			
		39			

9613492.4776

Jarrell-Ash Video 22
Run: F2 9300804 Analyst: LL Page 1

Concentrations/Absorbances

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
1	STD1(0)	XWS0	S0	1.00x	01/08/93	19:45

	<-Pb->		<-Tl->	
Burns (Abs)	[0]A	[0]A	[0]A	[0]A
Mean	0.0000		0.0000	
CV %	---		---	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
2	STD2(3,10)	WS1	S	1.00x	01/08/93	19:50

	<-Pb->		<-Tl->	
Burns (Abs)	0.015 A	0.015 A	0.038A	0.044A
Mean	0.0150		0.0410	
CV %	0.00		10.35	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
3	STD3(50)	WS2	S	1.00x	01/08/93	19:54

	<-Pb->		<-Tl->	
Burns (Abs)	0.337 A	0.341 A	0.163A	0.178A
Mean	0.3390		0.1675	
CV %	0.00		3.80	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
4	STD4(100)	WS3	S	1.00x	01/08/93	19:58

	<-Pb->		<-Tl->	
Burns (Abs)	0.631 A	0.600 A	0.297A	0.289A
Mean	0.6155		0.2930	
CV %	3.56		1.93	

- Calibration coefficients -

	<-Pb->	<-Tl->
Order:	2	2
Coef[0]:	0	0
Coef[1]:	0.007370425	0.003825395
Coef[2]:	-1.213451e-005	-8.983106e-006
Correl. coef.:	0.9999	0.9998

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
5	ICV-4	ICV	ICV	2.00x	01/08/93	20:06

	<-Pb->		<-Tl->	
Burns (Conc)	52.254	51.272	50.406	51.782
Mean	51.7630		51.0940	
CV %	1.34		1.90	
Sample value	103.53		102.19	

ARGOS MODEL SA4 Version 1.29

9613492.9777

Jarrell-Ash Video 22
Run: F2 9300804 Analyst: LL Page 2

Concentrations/Absorbances

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
6	CAL BLK	ICB	ICB	1.00x	01/08/93	20:10

	<-Pb->		<-Tl->	
Burns (Conc)	0.136	-0.136	0.000	0.263
Mean	0.0000		0.1310	
CV %	>9999.99		141.42	
Sample value	1.00U		3.80U	

7	CRA	CRA	CRA	1.00x	01/08/93	20:14

	<-Pb->		<-Tl->	
Burns (Conc)	4.236	3.274	9.628	9.355
Mean	3.7550		9.4915	
CV %	18.12		2.03	
Sample value	3.76		9.49	

8	50 PPB	CCV	CCV	1.00x	01/08/93	20:19

	<-Pb->		<-Tl->	
Burns (Conc)	48.836	48.997	47.017	52.128
Mean	48.9165		49.5721	
CV %	0.23		7.29	
Sample value	48.92		49.57	

9	CAL BLK	CCB	CCB	1.00x	01/08/93	20:23

	<-Pb->		<-Tl->	
Burns (Conc)	0.271	-0.407	0.522	0.523
Mean	-0.0680		0.5230	
CV %	705.03		0.03	
Sample value	1.00U		3.80U	

10	PB	PBW	PBW	1.00x	01/08/93	20:37

	<-Pb->		<-Tl->	
Burns (Conc)	-0.136	0.000	-0.261	2.102
Mean	-0.0680		0.9205	
CV %	141.42		181.52	
Sample value	1.00U		3.80U	

11	PB	ASPBW	PBWA	1.00x	01/08/93	20:41

	<-Pb->		<-Tl->	
Burns (Conc)	20.792	20.792	18.015	15.744
Mean	20.7920		16.8795	
CV %	0.00 ✓		9.51 ✓	
Sample value	20.79		16.88	
Spike added	20.00		20.00	
Spike recovery, %	103.96		84.40 ***	

ARGOS MODEL SA4 Version 1.29

Jarrell-Ash Video 22
Run: F2 9300804 Analyst: LL Page 3

Concentrations/Absorbances

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
12	X	X	ZZZZZZ	1.00x	01/08/93	20:46

	<-Pb->		<-Tl->	
Burns (Conc)	60.247	78.170	47.689	48.703
Mean	69.2085		48.1960	
CV %	18.31		1.49	
Sample value	69.21		48.20	

13	X	X	ZZZZZZ	1.00x	01/08/93	20:50

	<-Pb->		<-Tl->	
Burns (Conc)	72.933	68.511	73.645	68.158
Mean	70.7220		70.9015	
CV %	4.42		5.47	
Sample value	70.72		70.90	

14	S212096-01	S	B07MK9	1.00x	01/08/93	20:54

	<-Pb->		<-Tl->	
Burns (Conc)	13.175	26.828	0.262	0.260
Mean	20.0015		0.2620	
CV %	48.27 ***		0.00	
Sample value	20.00		3.80U	

15	-01	AS	B07MK9A	1.00x	01/08/93	20:59

	<-Pb->		<-Tl->	
Burns (Conc)	25.492	23.573	20.313	20.025
Mean	24.5325		20.1690	
CV %	5.53		1.01	
Sample value	24.53		20.17	
Spike added	20.00		20.00	
Spike recovery, %	22.65 ***		100.85	

16	-01	S2	B07MK9D	1.00x	01/08/93	21:03

	<-Pb->		<-Tl->	
Burns (Conc)	4.786	4.098	0.262	0.000
Mean	4.4420		0.1310	
CV %	10.95		141.42	
Sample value	4.44		3.80U	

17	-01	ASS2	B07MK9DA	1.00x	01/08/93	21:07

	<-Pb->		<-Tl->	
Burns (Conc)	25.936	22.838	22.932	18.857
Mean	24.3870		20.7595	
CV %	8.98		14.80	
Sample value	24.39		20.76	
Spike added	20.00		20.00	
Spike recovery, %	99.72		103.80	

ARGOS MODEL SA4 Version 1.29

9613492.4779

Jarrell-Ash Video 22
Run: F2 9300804 Analyst: LL Page 4

Concentrations/Absorbances

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
18	-01	DS	B07MK9S	1.00x	01/08/93	21:12

	<-Pb->		<-Tl->	
Burns (Conc)	27.573	28.470	48.364	47.353
Mean	28.0215		47.8585	
CV %	2.26		1.49	
Sample value	28.02		47.86	

19	X	X	ZZZZZZ	1.00x	01/08/93	21:16

	<-Pb->		<-Tl->	
Burns (Conc)	0.543	-0.136	0.523	1.048
Mean	0.2035		0.7855	
CV %	235.93		47.26	
Sample value	1.00U		3.80U	

20	50 PPB	CCV	CCV 2	1.00x	01/08/93	21:20

	<-Pb->		<-Tl->	
Burns (Conc)	50.620	49.808	49.382	47.353
Mean	50.2140		48.3675	
CV %	1.14		2.97	
Sample value	50.21		48.37	

21	CAL BLK	CCB	CCB 2	1.00x	01/08/93	21:25

	<-Pb->		<-Tl->	
Burns (Conc)	0.136	0.136	-0.261	-0.782
Mean	0.1360		-0.5220	
CV %	0.00		70.71	
Sample value	1.00U		3.80U	

22	PB	PBW	PBW	1.00x	01/08/93	21:36

	<-Pb->		<-Tl->	
Burns (Conc)	3.686	3.274	0.262	1.311
Mean	3.4800		0.7865	
CV %	8.37		94.31	
Sample value	3.48		3.80U	

Pb only

23	PB	ASPBW	PBWA	1.00x	01/08/93	21:41

	<-Pb->		<-Tl->	
Burns (Conc)	23.867	22.252	21.182	18.587
Mean	23.0595		19.8845	
CV %	4.95		9.20	
Sample value	23.06		19.89	
Spike added	20.00		20.00	
Spike recovery, %	97.90		99.43	

MS 1/9/93

ARGOS MODEL SA4 Version 1.29

Jarrell-Ash Video 22
Run: F2 9300804 Analyst: LL Page 5

Concentrations/Absorbances

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
24	LCSFW	LCSW	LCSW	1.00x	01/08/93	21:45

	<-Pb->		<-Tl->	
Burns (Conc)	48.836	47.224	48.703	45.680
Mean	48.0300		47.1915	
CV %	2.37		4.53	
Sample value	48.03		47.19	

25	LCSFW	ASLCSW	LCSWA	1.00x	01/08/93	21:49

	<-Pb->		<-Tl->	
Burns (Conc)	67.637	67.811	69.704	66.628
Mean	67.7240		68.1660	
CV %	0.18		3.19	
Sample value	67.72		68.17	
Spike added	20.00		20.00	
Spike recovery, %	98.47		104.87	

26	-01	S	B07MK9	1.00x	01/08/93	21:54

	<-Pb->		<-Tl->	
Burns (Conc)	3.960	4.373	0.162	-0.500
Mean	4.1665		-0.1300	
CV %	7.01		426.44	
Sample value	4.17		3.80U	

Pb only

27	-01	AS	B07MK9A	1.00x	01/08/93	21:58

	<-Pb->		<-Tl->	
Burns (Conc)	22.692	22.692	20.313	18.301
Mean	22.6920		19.3070	
CV %	0.00		7.37	
Sample value	22.69		19.31	
Spike added	20.00		20.00	
Spike recovery, %	92.63		96.53	

MS 1/9/93

28	50 PPB	CCV	CCV 3	1.00x	01/08/93	22:02

	<-Pb->		<-Tl->	
Burns (Conc)	49.808	48.351	49.042	47.017
Mean	49.0795		48.0295	
CV %	2.10		2.98	
Sample value	49.08		48.03	

29	CAL BLK	CCB	CCB 3	1.00x	01/08/93	22:07

	<-Pb->		<-Tl->	
Burns (Conc)	-0.136	-0.136	0.000	-1.303
Mean	-0.1360		-0.6515	
CV %	0.00		141.42	
Sample value	1.00U		3.80U	

WESTINGHOUSE/HANFORD

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ANALYSIS RUN LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Instrument ID Number: P2 Method: P

Start date: 01/07/93 End date: 01/07/93

EPA Sample No.	D/F	Time	% R	Analytes																									
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	B1
S0	1.00	1305		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
S	1.00	1308		X						X				X		X				X			X					
S	1.00	1310			X		X	X	X		X	X	X				X		X						X	X		
S	1.00	1314																				X						
ICV	1.00	1317		X			X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
ICV	1.00	1320																										
ICV	1.00	1322			X																							
ICB	1.00	1325		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
ICSA	1.00	1328		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
ICSAB	1.00	1331		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
CRI	1.00	1334			X			X	X		X	X	X				X		X			X			X	X		
CCV	1.00	1336		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
CCB	1.00	1339		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
PBW	1.00	1342		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
LCSW	1.00	1344		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
B07MK9	1.00	1347		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
B07MK9D	1.00	1350		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
B07MK9S	1.00	1352		X	X		X	X	X		X	X	X	X			X		X			X			X	X		
B07MK9L	5.00	1355		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
B07MK9A	1.00	1358																										
CCV	1.00	1400		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
CCB	1.00	1403		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
ICSA	1.00	1409		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
ICSAB	1.00	1412		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
CRI	1.00	1414			X			X	X		X	X	X				X		X			X			X	X		
CCV	1.00	1417		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		
CCB	1.00	1719		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X		

9613492.4782

C L P M E T A L S 3.02e

HANFORD NOR

Run id: P2 9300701
THERMO JARRELL-ASH ICAP61 (#22982)
Analytical method: P
Element: Multi-Element

Acquired: 01/07/93 by LYN
Crunched: 01/08/93 by LYN
Time: 2138
Processing protocol: 3/90

Al Sb Ba Be Cd Ca Cr Co Cu Fe
Mg Mn Ni K Na V Zn Ag

Pos	Sample	Code	Preparation Meth	Batch	Date	Client ID	Date	Time
1	ICV1	ICV	P			ICV	01/07/93	13:17
2	ICV2	ICV	P			ICV	01/07/93	13:20
3	ICV3	ICV	P			ICV	01/07/93	13:22
4	STDB	ICB	P			ICB	01/07/93	13:25
5	ICSAA	ICSA0	P			ICSA	01/07/93	13:28
6	ICSABE	ICSAB0	P			ICSAB	01/07/93	13:31
7	2XCRDL29204	CRI0	P		10/15/92	CRI	01/07/93	13:34
8	HALFSTD	CCV	P			CCV	01/07/93	13:36
9	STDB	CCB	P			CCB	01/07/93	13:39
10	PB	PBW	P	1254	01/06/93	PBW	01/07/93	13:42
11	LCSPW	LCSW	P	1254	01/06/93	LCSW	01/07/93	13:44
12	9212096-01	S	P	1254	01/06/93	B07MK9	01/07/93	13:47
13	9212096-01	S2	P	1254	01/06/93	B07MK9D	01/07/93	13:50
14	9212096-01	DS	P	1254	01/06/93	B07MK9S	01/07/93	13:52
15	9212096-01	ISD	P	1254		B07MK9L	01/07/93	13:55
16	9212096-01	PS	P	1254		B07MK9A	01/07/93	13:58
17	HALFSTD	CCV	P			CCV	01/07/93	14:00
18	STDB	CCB	P			CCB	01/07/93	14:07
19	ICSAA	ICSA1	P			ICSA	01/07/93	14:09
20	ICSABE	ICSAB1	P			ICSAB	01/07/93	14:12
21	2XCRDL29204	CRI1	P		10/15/92	CRI	01/07/93	14:14
22	HALFSTD	CCV	P			CCV	01/07/93	14:17
23	STDB	CCB	P			CCB	01/07/93	17:19
24	STDB	WS0	P			S0	01/07/93	13:05
25	STD3	WS1	P			S	01/07/93	13:08
26	STD1	WS2	P			S	01/07/93	13:10
27	STD2	WS3	P			S	01/07/93	13:14

Standardization Rpt. Thu 01-07-93 01:08:44 PM page 1

Method: CLP01AP2 Standard: STD8

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Avge	.00947	.00100	-.00333	.00013	.00047	.00007	.00364
SDev	.00201	.00336	.00114	.00023	.00012	.00061	.00110
%RSD	21.267	336.45	34.117	173.21	24.744	916.57	30.300
#1	.00760	-.00020	-.00460	.00040	.00060	-.00060	.00296
#2	.01160	-.00160	-.00240	.00000	.00040	.00060	.00492
#3	.00920	.00480	-.00300	.00000	.00040	.00020	.00305

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn257[illegible]
Avge	.00087	.00020	.00040	.00753	.00333	.00320	.00107
SDev	.00046	.00000	.00020	.00431	.00151	.00072	.00[illegible]
%RSD	53.294	.00000	50.000	57.208	45.431	22.535	10.825
#1	.00140	.00020	.00060	.01240	.00400	.00340	.00100
#2	.00060	.00020	.00020	.00600	.00440	.00240	.00120
#3	.00060	.00020	.00040	.00420	.00160	.00380	.00100

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Avge	.00100	.00253	.04280	.06340	.00040	.00013
SDev	.00053	.00094	.00871	.00125	.00040	.00[illegible]
%RSD	52.915	37.309	20.320	1.9700	100.000	173.[illegible]
#1	.00140	.00180	.05260	.06300	.00080	.00000
#2	.00120	.00360	.03980	.06480	.00040	.00140
#3	.00040	.00220	.03600	.06240	.00000	.00000

Standardization Rpt. Thu 01-07-93 01:11:05 PM page 1

Method: CLP01AP2 Standard: STD3

Elem	Al3082	Ca3179	Fe2599	Mg2790	K_7664	Na5889
Avge	8.8450	21.711	10.695	4.0853	.99693	4.0243
SDev	.0165	.071	.026	.0168	.00210	.0095
%RSD	.18681	.32651	.24210	.41199	.21073	.23570
#1	8.8340	21.629	10.665	4.0664	.99900	4.0228
#2	8.8640	21.754	10.712	4.0986	.99700	4.0344
#3	8.8370	21.750	10.708	4.0910	.99430	4.0156

Standardization Rpt. Thu 01-07-93 01:13:41 PM page 1

Method: CLP01AP2 Standard: STD1

Elem	Sb2068	As1936	Ba4934	Be3130	Cd2265	Cr2677	Co2286
Avge	1.1325	1.1165	1.5985	.66747	1.8551	.96020	.90267
SDev	.0062	.0039	.0078	.00239	.0063	.00340	.00300
%RSD	.54612	.34935	.48722	.35748	.33705	.35409	.33186
#1	1.1254	1.1120	1.5896	.66480	1.8484	.95680	.90020
#2	1.1364	1.1192	1.6016	.66940	1.8608	.96360	.90600
#3	1.1358	1.1182	1.6042	.66820	1.8560	.96020	.90180

Elem	Cu3247	Pb2203	Mn2576	Ni2316	V_2924	Zn2138
Avge	.85947	.87687	1.8671	1.1602	.97380	.99633
SDev	.00284	.00240	.0070	.0033	.00303	.00352
%RSD	.33101	.27402	.37434	.28794	.31080	.35362
#1	.85620	.87700	1.8594	1.1566	.97040	.99260
#2	.86080	.87920	1.8730	1.1632	.97620	.99680
#3	.86140	.87440	1.8690	1.1608	.97480	.99960

Standardization Rpt. Thu 01-07-93 01:17:12 PM page 1

Method: CLP01AP2 Standard: STD2

Elem	Ag3280
Avge	2.6368
SDev	.0347
%RSD	1.3159
#1	2.6468
#2	2.5982
#3	2.6654

Analysis Report QC Standard Thu 01-07-93 01:20:00 PM page 1

Method: CLP01AP2 Sample Name: ICV1:ICV Operator: LP
Run Time: 01/07/93 13:17:22
Comment: ICV#1
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.8983	-.00009	.00843	1.9278	.47329	.47764	49.505
SDev	.0092	.01019	.00627	.0088	.00121	.00062	.100
%RSD	.48298	10841.	74.337	.45437	.25653	.13037	.20283
#1	1.8920	-.01159	.01499	1.9340	.47439	.47728	49.597
#2	1.8942	.00346	.00250	1.9315	.47349	.47728	49.520
#3	1.9088	.00785	.00781	1.9178	.47198	.47836	[illegible]
Errors	QC Pass	NOCHECK	NOCHECK	QC Pass	QC Pass	QC Pass	QC Pass
Value	1.8780			1.8910	.47800	.49300	[illegible]
Range	10.000			10.000	10.000	10.000	[illegible]

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	[illegible]
Avge	.49135	.47976	.48928	2.0167	4.8330	24.585	[illegible]
SDev	.00130	.00111	.00116	.0122	.0067	.064	[illegible]
%RSD	.26721	.23098	.23793	.11714	.13872	.26132	[illegible]
#1	.49343	.47976	.48928	2.0193	4.8360	24.650	[illegible]
#2	.49031	.47865	.49044	2.0156	4.8252	24.575	[illegible]
#3	.49041	.48087	.48811	2.0148	4.8379	24.506	[illegible]
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	.48000	.48700	.48600	1.9800	4.7300	23.800	[illegible]
Range	10.000	10.000	10.000	10.000	10.000	10.000	[illegible]

Elem	Ni2316	K_7664	Ag3280	Na3302	V_4924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.48827	49.283	.48900	49.297	.49166	2.9119
SDev	.00086	.098	.00329	.239	.00158	.0126
%RSD	.17668	.19818	.67283	.48496	.32027	.43366
#1	.48913	49.390	.49244	49.454	.49304	2.9253
#2	.48741	49.259	.48866	49.416	.49200	2.9102
#3	.48827	49.199	.48589	49.022	.48995	2.9002
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	.48800	49.182	.47800	46.804	.48200	2.9210
Range	10.000	10.000	10.000	10.000	10.000	10.000

Analysis Report QC Standard Thu 01-07-93 01:22:41 PM page 1

Method: CLP01AP2 Sample Name: ICV2;ICV Operator: LP
Run Time: 01/07/93 13:20:06
Comment: ICV#1
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01807	-.00341	.19848	.00146	.00040	.00054	.40369
SDev	.01323	.00307	.00308	.00063	.00018	.00082	.00287
%RSD	73.174	90.094	1.5521	42.846	44.122	153.14	2.1962
#1	.01537	-.00520	.19881	.00146	.00020	.00036	.41179
#2	.03244	-.00518	.20138	.00208	.00050	.00144	.40805
#3	.00641	.00014	.19525	.00083	.00050	-.00017	.39422
Errors	NOCHECK	NOCHECK	QC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value			.20200				
Range			10.0000				

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00000	-.00111	.00233	.00050	-.01528	.02859	.00143
SDev	.00060	.00192	.00202	.00135	.00367	.01965	.00005
%RSD	331030.	173.11	86.607	268.07	24.030	68.732	0.1483
#1	-.00035	-.00000	.00349	.00200	-.01680	.02609	.00145
#2	.00069	-.00000	.00349	.00013	-.01109	.04900	.00143
#3	-.00035	-.00333	-.00000	-.00062	-.01794	.00980	.00143
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value							
Range							

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00374	11733	-.00242	.03921	-.00103	.18839
SDev	.00327	11785	.00259	.03136	.00178	.00407
%RSD	87.368	100.45	107.02	35.160	173.34	2.1610
#1	-.00604	.16425	-.00254	.10604	-.00308	.18907
#2	-.00000	.20448	.00023	.10856	.00000	.18403
#3	-.00518	-.01676	-.00493	.05302	-.00000	.19208
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value						
Range						

9613492.4709

Analysis Report QC Standard Thu 01-07-93 01:25:22 PM page 1

Method: CLP01AP2 Sample Name: TCV3:ICV Operator: LP
Run Time: 01/07/93 13:22:47
Comment: TCV#1
Mode: CONC Corr Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00033	1.0054	.00270	-.00021	-.00020	-.00036	.00865
SDev	.00972	.0141	.00696	.00036	.00018	.00031	.00269
%RSD	2943.5	1.4066	257.65	173.22	86.821	86.729	31.140
#1	-.00833	1.0048	.01047	-.00042	-.00010	-.00018	.00749
#2	.01084	1.0199	-.00298	-.00042	-.00040	-.00018	.00674
#3	-.00151	.99161	.00061	.00021	-.00010	-.00072	.01174
Errors	NOCHECK	QC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value		97800					
Range		10.000					

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00313	-.00074	-.00233	-.00923	-.00878	-.00653	[illegible]
SDev	.00159	.00169	.00116	.00112	.01092	.01426	[illegible]
%RSD	50.919	229.1[illegible]	49.972	12.144	124.45	226.05	[illegible]
#1	-.00139	-.00111	-.00233	-.00923	-.01449	-.01490	[illegible]
#2	-.00450	.00111	-.00349	-.01038	-.01525	-.02204	.00143
#3	-.00347	-.00222	-.00117	-.00811	.00382	.00235	.00136
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value							
Range							

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00460	.35868	-.00442	.03619	-.00138	.00170
SDev	.00180	.05892	.00171	.00956	.00157	.00154
%RSD	39.031	16.428	38.602	26.414	113.78	90.625
#1	-.00259	.31510	-.00247	.02525	-.00103	.00135
#2	-.00604	.33521	-.00563	.04292	-.00310	.00338
#3	-.00518	.42572	-.00517	.04040	-.00001	.00036
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value						
Range						

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Method: CLP01AP2 Sample Name: STDB:ICB Operator: LP
Run Time: 01/07/93 13:25:29
Comment: ICB#1 See next page for STDB;ICB RAW DATA. LF 1/4/93
Mode: CONC Corr Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00451	-.00940	.00684	-.00021	-.00020	-.00054	.00302
SDev	.01016	.01512	.00961	.00036	.00017	.00062	[illegible]
%RSD	225.13	160.90	140.52	173.24	86.164	115.59	90.043

051

#3	.01094	-.01942	H.01484	-.00042	-.00010	-.00018	.00568
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.20000	.06000	.01220	.20000	.00500	.00500	5.0000
Low	-.20000	-.06000	-.01220	-.20000	-.00500	-.00500	-5.0000
Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00243	.00000	.00349	-.00923	-.00496	.00735	-.00018
SDev	.00104	.00222	.00000	.00000	.00066	.01715	.00000
%RSD	42.856	1559200.	.00179	.00000	13.253	233.36	.11377
#1	-.00243	-.00222	.00349	-.00923	-.00534	.01470	-.00018
#2	-.00347	-.00000	.00349	-.00923	-.00420	.01960	-.00018
#3	-.00139	.00222	.00349	-.00923	-.00535	-.01225	-.00018
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.01430	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.01430	-5.0000	-.01500
Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138	
Units	ppm	ppm	ppm	ppm	ppm	ppm	
Avge	-.00259	.05363	-.00144	.01178	-.00035	.00402	
SDev	.00228	.01006	.00093	.01245	.00059	.00059	
%RSD	88.192	18.750	64.464	105.71	168.54	14.565	
#1	-.00173	.06369	-.00232	-.00252	-.00104	.00435	
#2	-.00518	.04358	-.00047	.01767	-.00001	.00436	
#3	-.00086	.05363	-.00154	.02020	-.00001	.00334	
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	
High	.04000	5.0000	.01000	5.0000	.05000	.02000	
Low	-.04000	-5.0000	-.01000	-5.0000	-.05000	-.02000	

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Method: CLP01AP2 Sample Name: ICSAA;ICSA Operator: LP
Run Time: 01/07/93 13:28:53
Comment:
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	528.76	-.02133	-.28841	-.00168	.00000	.00086	502.29
SDev	.36	.03494	.01388	.00035	.00017	.00079	.89
%RSD	.06880	163.86	4.8131	20.870	11720.	92.192	.17672
#1	529.16	-.06165	-.29693	-.00128	.00020	.00105	501.95
#2	528.45	-.00246	-.27240	-.00188	-.00010	-.00001	501.62
#3	528.68	.00013	-.29591	-.00189	-.00010	.00154	503.30
Errors	LC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	LC Pass
High	617.91						635.22
Low	411.94						423.48

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01269	-.00517	-.00818	191.51	.01723	539.58	.02867
SDev	.00208	.00231	.00198	.24	.01765	.61	.00001
%RSD	16.419	44.582	24.144	.12698	102.39	.11330	.02629
#1	.01060	-.00444	-.00703	191.43	.03565	539.37	.02866
#2	.01477	-.00776	-.00705	191.32	.01557	539.11	.02868
#3	.01269	-.00333	-.01047	191.78	.00048	540.27	.02868
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	NOCHECK	LC Pass	NOCHECK
High				228.42		652.33	
Low				152.28		434.89	

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00316	.12068	-.00537	.90384	.00100	.07140
SDev	.00180	.04064	.00056	.01536	.00060	.00250
%RSD	56.773	33.679	10.415	1.6991	59.893	3.5061
#1	-.00518	.11397	-.00478	.91394	.00065	.06874
#2	-.00259	.08380	-.00589	.88617	.00066	.07176
#3	-.00173	.16425	-.00545	.91142	.00170	.07371
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
High						
Low						

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Method: CLP01AP2 Sample Name: ICSABB:ICSAB Operator: LP
Run Time: 01/07/93 13:31:34
Comment:
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	523.31	-.00813	-.29378	.46543	.46215	.84786	495.95
SDev	1.93	.00586	.01801	.00186	.00125	.00056	.77
%RSD	.36831	72.130	6.1318	.39986	.27086	.06613	.15525
#1	524.80	-.00138	-.29613	.46747	.46355	.84728	496.73
#2	521.13	-.01105	-.31051	.46382	.46115	.84790	495.93
#3	524.01	-.01196	-.27471	.46499	.46175	.84840	495.19
Errors	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High	609.31			.59880	.58560	1.1140	630.46
Low	406.21			.39920	.39040	.74240	420.31

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.45704	.45841	.46878	189.61	4.4544	533.71	.47375
SDev	.00216	.00169	.00119	.27	.0107	.67	.00079
%RSD	.47370	.36934	.25268	.14171	.24012	.12548	.16628
#1	.45635	.45878	.46883	189.89	4.4659	534.40	.47461
#2	.45946	.45989	.46757	189.35	4.4525	533.06	.47307
#3	.45530	.45656	.46994	189.59	4.4447	533.67	.47355
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.55680	.57000	.58560	225.55	5.6540	640.42	.60240
Low	.37120	.38000	.39040	150.37	3.7700	426.95	.40160

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.83678	.30504	.94934	.83736	.46189	.97378
SDev	.00566	.07252	.00263	.02041	.00238	.00513
%RSD	.67602	23.773	.27695	2.4371	.51476	.52660
#1	.83592	.28493	.94993	.81548	.46463	.97810
#2	.84282	.38549	.94646	.85587	.46052	.97513
#3	.83161	.24470	.95162	.84073	.46051	.96811
Errors	LC Pass	NOCHECK	LC Pass	NOCHECK	LC Pass	LC Pass
High	1.0760		1.0790		.56760	1.2010
Low	.71760		.71920		.37840	.80080

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Method: CLP01AP2 Sample Name: 2XCRDL29204:CRI Operator: LP
Run Time: 01/07/93 13:34:15
Comment:
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.18674	.10983	.02432	-.00001	.00943	.01025	.17699
SDev	.03742	.00885	.00710	.00072	.00046	.00136	.04125
%RSD	20.040	8.0578	29.179	12909.	4.8506	13.269	23.308
#1	.22896	.09982	.01641	-.00042	.00903	.00899	.22382
#2	.17360	.11662	.02644	-.00042	.00934	.01007	.16111
#3	.15766	.11305	.03012	.00083	.00993	.01169	.14603

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01524	.09087	.00855	.07307	.01131	.14546	.02858
SDev	.00180	.00000	.00135	.02289	.00702	.04676	.00031
%RSD	11.842	.00020	15.753	31.333	62.101	32.145	1.0844
#1	.01315	.09087	.00933	.09864	.00365	.19853	.02822
#2	.01628	.09087	.00932	.06608	.01285	.12750	.02876
#3	.01628	.09087	.00699	.05448	.01744	.11035	.02876

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.07505	.01006	.02287	.01262	.09355	.04284
SDev	.00311	.05806	.00139	.01100	.00178	.00153
%RSD	4.1443	577.35	6.0902	87.178	1.9055	3.5840
#1	.07160	-.05699	.02138	.00505	.09252	.04418
#2	.07764	.04358	.02307	.00757	.09561	.04316
#3	.07591	.04358	.02415	.02525	.09253	.04117

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Method: CLP01AP2 Sample Name: HALFSTD:CCV Operator: LP
Run Time: 01/07/93 13:36:56
Comment: CCV#1
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	24.785	2.4442	2.3913	2.4205	.49393	2.3914	24.993
SDev	.134	.0119	.0145	.0097	.00305	.0114	.161
%RSD	.53915	.48816	.60755	.40054	.61779	.47699	.64427
#1	24.634	2.4328	2.3746	2.4095	.49041	2.3785	24.807
#2	24.837	2.4566	2.4010	2.4245	.49554	2.4000	25.081
#3	24.885	2.4433	2.3982	2.4276	.49583	2.3957	25.090
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	27.500	2.7500	2.7500	2.7500	.55000	2.7500	27.500
Low	22.500	2.2500	2.2500	2.2500	.45000	2.2500	22.500

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.4033	2.4032	2.4386	9.9973	2.4141	24.952	2.4126
SDev	.0140	.0117	.0115	.0591	.0235	.137	.0149
%RSD	.58212	.48796	.47138	.59105	.97274	.54756	.61708
#1	2.3873	2.3899	2.4254	9.9294	2.3875	24.795	2.3955
#2	2.4133	2.4121	2.4440	10.026	2.4228	25.016	2.4201
#3	2.4092	2.4077	2.4464	10.037	2.4320	25.045	2.4223
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.7500	2.7500	2.7500	11.000	2.7500	27.500	2.7500
Low	2.2500	2.2500	2.2500	9.0000	2.2500	22.500	2.2500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.3907	24.839	.48076	24.775	2.4300	2.4187
SDev	.0205	.091	.00315	.076	.0129	.0195
%RSD	.85719	.36512	.65487	.30622	.53033	.80698
#1	2.3671	24.752	.47720	24.689	2.4156	2.3970
#2	2.4008	24.832	.48193	24.803	2.4403	2.4240
#3	2.4042	24.933	.48316	24.833	2.4342	2.4350
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.7500	27.500	.55000	27.500	2.7500	2.7500
Low	2.2500	22.500	.45000	22.500	2.2500	2.2500

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Method: CLP01AP2 Sample Name: STDB;CCB Operator: LP
Run Time: 01/07/93 13:39:36
Comment: CCB#1
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.03315	.00060	.00553	.00042	.00010	.00180	.02972
SDev	.01747	.02043	.00945	.00130	.00035	.00082	.00653
%RSD	52.707	3397.8	170.92	312.87	354.04	45.891	21.975
#1	.04153	-.00174	.00755	.00083	-.00010	.00198	.03661
#2	.01307	-.01856	-.00477	-.00104	-.00011	.00090	.02363
#3	.04486	.02210	H.01381	.00146	.00050	.00252	.02890
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.20000	.06000	.01220	.20000	.00500	.00500	5.0000
Low	-.20000	-.06000	-.01220	-.20000	-.00500	-.00500	-5.0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00208	.00148	.00776	.00587	-.01376	.02042	.00143
SDev	.00120	.00128	.00336	.00382	.01031	.01349	.00000
%RSD	57.695	86.615	43.305	65.150	74.949	66.073	.02185
#1	-.00139	.00222	.01164	.01023	I-.01453	.02940	.00143
#2	-.00347	-.00000	.00582	.00312	I-.02367	.00490	.00143
#3	-.00139	.00222	.00582	.00425	-.00308	.02695	.00143
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.01430	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.01430	-5.0000	-.01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00201	.09051	-.00270	.03282	-.00138	.00367
SDev	.00349	.10658	.00104	.03562	.00259	.00210
%RSD	173.21	117.76	38.634	108.51	188.02	57.103
#1	-.00000	.07375	-.00378	.03787	.00102	.00433
#2	-.00604	-.00670	-.00170	-.00505	-.00412	.00537
#3	-.00000	.20448	-.00262	.06564	-.00103	.00133
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.04000	5.0000	.01000	5.0000	.05000	.02000
Low	-.04000	-5.0000	-.01000	-5.0000	-.05000	-.02000

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Method: CLP01AP2 Sample Name: PB:PBW Operator: LP
Run Time: 01/07/93 13:42:17
Comment:
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.02301	-.00145	-.00396	.00021	-.00010	.00036	.03302
SDev	.01495	.01698	.01603	.00063	.00030	.00054	.00237
%RSD	64.991	1172.6	404.35	300.78	299.23	150.52	7.1653
#1	.03923	-.01676	.00936	.00083	.00020	.00090	.03532
#2	.00977	.01681	-.02176	-.00042	-.00010	-.00018	.03059
#3	.02003	-.00439	.00050	.00021	-.00040	.00036	.03315
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.20000	.06000	.01220	.20000	.00500	.00500	5.0000
Low	-.20000	-.06000	-.01220	-.20000	-.00500	-.00500	-5.0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00208	-.00000	.00427	.00337	-.01337	.00735	.00071
SDev	.00060	.00111	.00134	.00043	.00114	.00883	.00031
%RSD	28.848	2296700.	31.490	12.836	8.5339	120.12	43.314
#1	-.00243	.00111	.00582	.00387	-.01338	.00000	.00089
#2	-.00243	-.00000	.00349	.00312	-.01451	.00490	.00089
#3	-.00139	-.00111	.00349	.00312	-.01222	.01715	.00036
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.01430	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.01430	-5.0000	-.01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00316	-.02682	-.00360	.03198	-.00001	.00569
SDev	.00132	.05599	.00085	.00386	.00103	.00059
%RSD	41.660	208.79	23.613	12.059	13365.	10.273
#1	-.00345	.02346	-.00262	.02777	-.00001	.00536
#2	-.00431	-.08715	-.00416	.03535	-.00104	.00637
#3	-.00173	-.01676	-.00401	.03282	.00102	.00535
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.04000	5.0000	.01000	5.0000	.05000	.02000
Low	-.04000	-5.0000	-.01000	-5.0000	-.05000	-.02000

9613492.4797

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Method: CLP01AP2 Sample Name: LCSPW;LCSW Operator: LP
Run Time: 01/07/93 13:44:58
Comment: LCS
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.7494	.92130	.00496	1.7630	.43704	.43704	45.016
SDev	.0120	.00311	.00331	.0169	.00312	.00112	.234
%RSD	.68319	.33774	66.688	.95901	.71488	.25645	.51943
#1	1.7615	.92161	.00638	1.7758	.43954	.43740	45.215
#2	1.7490	.92425	.00733	1.7695	.43804	.43794	45.075
#3	1.7376	.91805	.00118	1.7438	.43354	.43579	44.759
Errors	LC Pass	LC Pass	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High	2.2540	1.1760		2.2690	.57360	.59160	58.573
Low	1.5020	.78400		1.5130	.38240	.39440	39.049

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.44378	.43950	.45626	1.8113	4.3988	22.350	.43854
SDev	.00120	.00279	.00178	.0131	.0097	.131	.00327
%RSD	.27086	.63444	.39022	.72414	.22114	.58457	.74664
#1	.44447	.44209	.45781	1.8242	4.4099	22.453	.44139
#2	.44447	.43987	.45664	1.8118	4.3950	22.394	.43925
#3	.44239	.43655	.45431	1.7980	4.3916	22.203	.43496
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.57600	.58440	.58320	2.3540	5.6870	28.631	.56880
Low	.38400	.39960	.38880	1.5670	3.7910	19.087	.37920

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.43737	45.059	.44114	44.990	.44627	2.6228
SDev	.00086	.252	.00648	.416	.00238	.0074
%RSD	.19724	.56033	1.4683	.92436	.53280	.28189
#1	.43823	45.297	.44698	45.291	.44764	2.6285
#2	.43651	45.086	.44227	45.164	.44764	2.6255
#3	.43737	44.794	.43417	44.516	.44352	2.6144
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.58560	59.018	.57360	56.165	.57840	3.5050
Low	.39040	39.346	.38240	37.443	.38560	2.3370

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Method: CLP01AP2 Sample Name: S212096-01;S Operator: LP
Run Time: 01/07/93 13:47:39
Comment: B07MK9
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.04336	.00152	.00815	.00083	.00010	.00072	.05886
SDev	.00689	.00943	.00253	.00063	.00017	.00031	.00318
%RSD	15.882	618.19	31.088	75.128	172.81	43.531	5.4048
#1	.04263	.00359	.00666	.00021	.00020	.00036	.06226
#2	.05058	-.00876	.01108	.00083	-.00010	.00090	.05597
#3	.03687	.00975	.00672	.00146	.00020	.00089	.05834

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00347	.00000	.00505	.02084	-.01110	.01307	.00125
SDev	.00000	.00222	.00134	.00142	.00525	.01556	.00031
%RSD	.03174	310680.	26.626	6.7971	47.285	119.04	24.755
#1	-.00347	.00000	.00350	.02184	-.00537	-.00490	.00089
#2	-.00347	-.00221	.00582	.01922	-.01568	.02205	.00143
#3	-.00347	.00222	.00582	.02146	-.01224	.02205	.00143

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00086	.08045	-.00259	.06564	-.00070	.02609
SDev	.00228	.07548	.00156	.00505	.00214	.00057
%RSD	264.58	93.819	60.291	7.6923	306.71	2.2040
#1	-.00173	.08380	-.00308	.07069	-.00001	.02643
#2	.00173	.00335	-.00084	.06059	.00101	.02641
#3	-.00259	.15420	-.00385	.06564	-.00309	.02543

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Method: CLP01AP2 Sample Name: S212096-01:S2 Operator: LP
Run Time: 01/07/93 13:50:19
Comment: B07MK9D
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01389	-.00972	.00085	-.00021	-.00010	.00071	.06732
SDev	.00426	.01685	.00051	.00072	.00030	.00082	.00216
%RSD	30.664	173.33	59.664	345.68	290.45	115.43	3.2116
#1	.01087	-.02031	.00057	-.00104	-.00040	.00089	.06942
#2	.01876	.00971	.00143	.00021	.00020	.00143	.06510
#3	.01204	-.01856	.00054	.00021	-.00010	-.00018	.06745

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00208	-.00074	.00311	.03469	-.00879	.00490	.00125
SDev	.00120	.00279	.00178	.00094	.01732	.01490	.00031
%RSD	57.787	377.56	57.183	2.7130	197.09	303.83	24.732
#1	-.00347	-.00332	.00117	.03381	-.02825	-.01224	.00143
#2	-.00139	.00222	.00350	.03456	.00495	.01225	.00143
#3	-.00139	-.00111	.00466	.03568	-.00306	.01470	.00089

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00230	.02346	-.00385	.04544	-.00206	.00669
SDev	.00249	.05599	.00217	.01515	.00103	.00253
%RSD	108.25	238.62	56.471	33.333	49.837	37.750
#1	-.00518	.08380	-.00631	.03030	-.00207	.00637
#2	-.00086	.01341	-.00223	.06059	-.00309	.00936
#3	-.00086	-.02682	-.00300	.04544	-.00103	.00434

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Method: CLP01AP2 Sample Name: S212096-01:DS Operator: LP
Run Time: 01/07/93 13:52:58
Comment: B07MK9S
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.0236	.50689	2.0108	1.9770	.05061	.05172	.05540
SDev	.0210	.01193	.0505	.0276	.00070	.00136	.00019
%RSD	1.0370	2.3539	2.5130	1.3976	1.3786	2.6239	.34925
#1	2.0290	.49457	2.0476	1.9960	.05101	.05154	.05519
#2	2.0005	.50773	1.9532	1.9453	.04980	.05046	.05556
#3	2.0414	.51838	2.0315	1.9897	.05101	.05316	.05546

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.19771	.49757	.25163	1.0583	.49610	-.01523	.49818
SDev	.00159	.00586	.00308	.0079	.00401	.01271	.00560
%RSD	.80502	1.1786	1.2245	.74706	.80849	83.438	1.1230
#1	.19632	.49978	.25279	1.0627	.50030	-.02257	.50086
#2	.19736	.49092	.24813	1.0492	.49231	-.00056	.49175
#3	.19944	.50200	.25396	1.0631	.49571	-.02256	.50193

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.50236	.03017	.04824	.12119	.49909	.50260
SDev	.00636	.05062	.00095	.01515	.00356	.00656
%RSD	1.2658	167.77	1.9735	12.500	.71345	1.3054
#1	.50466	-.01676	.04744	.10604	.50114	.50961
#2	.49517	.02346	.04798	.13633	.49498	.49661
#3	.50725	.08380	.04929	.12119	.50115	.50157

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Method: CLP01AP2 Sample Name: S212096-01;ISD/5 Operator: LP
Run Time: 01/07/93 13:55:37
Comment: B07MK9L
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00107	-.00823	.01193	.00042	-.00000	-.00018	.01039
SDev	.00773	.00486	.01072	.00036	.00017	.00054	.00279
%RSD	719.77	58.991	89.916	86.625	6876.3	299.46	26.882
#1	-.00155	-.01146	.01312	.00083	.00020	-.00072	.01008
#2	.00977	-.01058	.02200	.00021	-.00010	-.00018	.01332
#3	-.00501	-.00265	.00066	.00021	-.00010	.00036	.00776

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00243	-.00074	.00155	-.00037	-.00878	.00490	.00054
SDev	.00000	.00064	.00178	.00284	.00751	.02245	.00062
%RSD	.02778	86.619	114.61	761.02	85.523	458.11	115.46
#1	-.00243	-.00111	.00349	.00162	-.00076	.02450	.00089
#2	-.00243	.00000	.00116	.00088	-.00993	.00980	.00089
#3	-.00243	-.00111	-.00000	-.00362	-.01564	-.01960	-.00018

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00173	.05363	-.00275	.00084	-.00172	.00770
SDev	.00149	.05321	.00245	.00887	.00119	.00057
%RSD	86.603	99.216	88.944	1053.6	68.923	7.4052
#1	-.00000	.07375	-.00015	-.00000	-.00104	.00836
#2	-.00259	.09386	-.00501	.01010	-.00104	.00737
#3	-.00259	-.00670	-.00309	-.00757	-.00309	.00737

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Method: CLP01AP2 Sample Name: S212096-01:PS Operator: LP
Run Time: 01/07/93 13:58:16
Comment: B07MK9A
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.03879	-.00587	-.00521	.00021	-.00010	.00072	.03482
SDev	.01090	.01864	.00716	.00000	.00000	.00125	.00190
%RSD	28.091	317.77	137.50	.15762	1.4720	173.97	5.4621
#1	.02898	-.02650	-.01201	.00021	-.00010	-.00072	.03377
#2	.03687	-.00085	.00226	.00021	-.00010	.00143	.03701
#3	.05052	.00975	-.00586	.00021	-.00010	.00143	.03367

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00278	-.00148	.00078	.01847	-.00995	-.00816	.00107
SDev	.00159	.00169	.00067	.00037	.00997	.01105	.00031
%RSD	57.300	114.58	86.291	2.0222	100.23	135.35	28.883
#1	-.00139	-.00332	.00117	.01884	-.01452	.00245	.00089
#2	-.00452	.00000	.00000	.01809	-.01682	-.00734	.00143
#3	-.00243	-.00111	.00117	.01847	.00149	-.01959	.00089

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00316	.01676	-.00398	.03030	-.00206	.02510
SDev	.00132	.08786	.00051	.03061	.00103	.00153
%RSD	41.660	524.21	12.907	101.04	49.952	6.0837
#1	-.00173	-.05699	-.00385	-.00252	-.00206	.02644
#2	-.00431	-.00670	-.00454	.05807	-.00310	.02344
#3	-.00345	.11397	-.00354	.03535	-.00104	.02544

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Method: CLP01AP2 Sample Name: HALFSTD;CCV Operator: LP
Run Time: 01/07/93 14:00:56
Comment: CCV#2
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	25.156	2.4909	2.4605	2.4493	.49978	2.4529	25.460
SDev	.083	.0192	.0114	.0135	.00168	.0043	.010
%RSD	.32888	.77110	.46209	.55093	.33595	.17581	.03791
#1	25.209	2.5016	2.4480	2.4551	.50159	2.4572	25.471
#2	25.061	2.5024	2.4703	2.4339	.49827	2.4529	25.452
#3	25.198	2.4687	2.4633	2.4589	.49949	2.4486	25.457
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	27.500	2.7500	2.7500	2.7500	.55000	2.7500	27.500
Low	22.500	2.2500	2.2500	2.2500	.45000	2.2500	22.500

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.4512	2.4590	2.4635	10.128	2.4730	25.314	2.4530
SDev	.0053	.0023	.0055	.011	.0154	.040	.0056
%RSD	.21815	.09376	.22332	.11191	.62433	.15920	.22942
#1	2.4498	2.4609	2.4615	10.140	2.4775	25.344	2.4587
#2	2.4467	2.4564	2.4592	10.118	2.4856	25.268	2.4474
#3	2.4571	2.4597	2.4697	10.125	2.4558	25.330	2.4528
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.7500	2.7500	2.7500	11.000	2.7500	27.500	2.7500
Low	2.2500	2.2500	2.2500	9.0000	2.2500	22.500	2.2500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.4411	25.127	.49069	25.063	2.4713	2.4485
SDev	.0051	.108	.00169	.096	.0067	.0101
%RSD	.20708	.42793	.34471	.38266	.27297	.41055
#1	2.4431	25.034	.49013	25.045	2.4775	2.4408
#2	2.4448	25.104	.48935	24.977	2.4641	2.4599
#3	2.4353	25.245	.49259	25.166	2.4724	2.4448
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.7500	27.500	.55000	27.500	2.7500	2.7500
Low	2.2500	22.500	.45000	22.500	2.2500	2.2500

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Method: CLP01AP2 Sample Name: STDB:CCB Operator: LP
Run Time: 01/07/93 14:03:38
Comment: CCB#2
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00905	.00535	.00831	.00083	.00010	.00054	.01169
SDev	.01119	.00539	.01337	.00063	.00035	.00112	.00356
%RSD	123.67	100.82	161.01	75.028	347.76	208.18	30.443
#1	.01437	-.00086	H.02375	.00146	.00050	.00144	.01559
#2	-.00381	.00800	.00063	.00083	-.00010	-.00072	.01083
#3	.01659	.00889	.00054	.00021	-.00010	.00090	.00863
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.20000	.06000	.01220	.20000	.00500	.00500	5.0000
Low	-.20000	-.06000	-.01220	-.20000	-.00500	-.00500	-5.0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00348	.00037	.00388	-.00549	L-.01832	-.00326	.00107
SDev	.00180	.00128	.00269	.00112	.00174	.00990	.00062
%RSD	51.941	346.12	69.309	20.467	9.5022	303.50	57.724
#1	-.00139	.00111	.00698	-.00436	L-.01794	.00735	.00143
#2	-.00452	-.00111	.00233	-.00549	L-.02022	-.00490	.00036
#3	-.00452	.00111	.00233	-.00661	L-.01680	-.01224	.00143
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Low	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.01430	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.01430	-5.0000	-.01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00345	.03352	-.00178	.02104	-.00001	.00469
SDev	.00086	.10499	.00160	.01436	.00103	.00059
%RSD	25.000	313.21	90.403	68.235	7838.7	12.473
#1	-.00259	.08380	-.00093	.03282	.00102	.00435
#2	-.00345	-.08715	-.00077	.00505	-.00104	.00436
#3	-.00431	.10392	-.00363	.02525	-.00002	.00537
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.04000	5.0000	.01000	5.0000	.05000	.02000
Low	-.04000	-5.0000	-.01000	-5.0000	-.05000	-.02000

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Method: CLP01AP2 Sample Name: TCSAA;TCSA Operator: LP
Run Time: 01/07/93 14:09:21
Comment:
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	538.08	-.01693	-.24402	-.00154	-.00010	.00121	510.19
SDev	3.21	.02192	.00551	.00010	.00030	.00051	2.92
%RSD	.59599	129.45	2.2596	6.2315	304.19	41.897	.57305
#1	537.64	.00756	-.23790	-.00153	-.00010	.00177	509.42
#2	541.49	-.02365	-.24861	-.00165	.00020	.00105	513.42
#3	535.12	-.03469	-.24554	-.00145	-.00040	.00080	507.73
Errors	LC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	LC Pass
High	617.91						635.22
Low	411.94						423.48

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01520	-.00333	-.00967	194.17	.02634	546.74	.02923
SDev	.00118	.00192	.00298	1.01	.01648	3.18	.00058
%RSD	7.7287	57.662	30.783	.52256	62.588	.58247	1.9719
#1	.01589	-.00222	-.00660	193.99	.04422	545.78	.02959
#2	.01384	-.00222	-.00988	195.26	.02304	550.30	.02953
#3	.01587	-.00555	-.01254	193.25	.01175	544.15	.02856
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	NOCHECK	LC Pass	NOCHECK
High				228.42		552.33	
Low				159.28		434.89	

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00460	.14414	-.00301	.88533	.00143	.07645
SDev	.00264	.03484	.00116	.00812	.00154	.00185
%RSD	57.282	24.168	38.633	.91670	107.61	2.4132
#1	-.00173	.18437	-.00257	.88869	.00177	.07745
#2	-.00690	.12403	-.00213	.89122	-.00025	.07432
#3	-.00518	.12403	-.00433	.87607	.00278	.07757
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
High						
Low						

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Method: CLP01AP2 Sample Name: ICSABB:ICSAB Operator: LP
Run Time: 01/07/93 14:12:03
Comment:
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	531.61	.00292	-.23070	.47248	.46895	.86735	505.75
SDev	4.54	.01501	.02077	.00426	.00346	.00722	3.42
%RSD	.85323	513.95	9.0029	.90129	.73846	.83245	.67611
#1	531.99	-.00634	-.25468	.47288	.46775	.86097	503.85
#2	535.94	-.00514	-.21906	.47652	.47285	.87519	509.70
#3	526.89	.02023	-.21836	.46803	.46625	.86588	503.71
Errors	I.C. Pass	NOCHECK	NOCHECK	I.C. Pass	I.C. Pass	I.C. Pass	I.C. Pass
High	609.31			.59880	.58560	1.1140	630.46
Low	406.21			.39920	.39040	.7424	420.31

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn257[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.46408	.47282	.47323	192.94	4.5653	541.84	.48147
SDev	.00438	.00320	.00263	1.53	.0296	4.08	.00412
%RSD	.94388	.67658	.55572	.79534	.64872	.75259	.85631
#1	.46059	.47097	.47388	192.24	4.5338	539.81	.47932
#2	.46900	.47651	.47547	194.70	4.5925	546.53	.48623
#3	.46266	.47097	.47033	191.88	4.5695	539.18	.47888
Errors	I.C. Pass	I.C. Pass	I.C. Pass	I.C. Pass	I.C. Pass	I.C. Pass	I.C. Pass
High	.55680	.57000	.58560	225.55	5.6540	640.42	.60240
Low	.37120	.38000	.39040	150.37	3.7700	426.95	.40160

Elem	Ni2316	K_7664	Ag3280	Na5889	V_[illegible]	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.85519	13.408	.96225	.83399	.46510	1.0104
SDev	.00914	.02011	.00318	.00292	.00336	.0036
%RSD	1.0691	15.000	.33085	.34956	.72332	.35492
#1	.84541	13.408	.96225	.83063	.46369	1.0089
#2	.86353	15.420	.96543	.83568	.46894	1.0145
#3	.85663	11.397	.95907	.83568	.46266	1.0079
Errors	I.C. Pass	NOCHECK	I.C. Pass	NOCHECK	I.C. Pass	I.C. Pass
High	1.0760		1.0790		.56760	1.2010
Low	.71760		.71920		.37840	.80080

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Method: CLP01AP2 Sample Name: 2XCRDL29204:CRI Operator: LP
Run Time: 01/07/93 14:14:44
Comment:
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.19016	.11512	.03680	.00020	.00943	.01115	.17816
SDev	.03897	.00742	.00226	.00063	.00017	.00054	.05390
%RSD	20.496	6.4472	6.1280	307.99	1.8398	4.8069	30.255
#1	.23469	.11038	.03689	.00083	.00963	.01168	.24040
#2	.17354	.11130	.03450	-.00042	.00933	.01115	.14649
#3	.16225	.12367	.03901	.00020	.00933	.01061	.14760

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01697	.09457	.00739	.07282	.02237	.14709	.02858
SDev	.00120	.00231	.00067	.02667	.00241	.04271	.00062
%RSD	7.0959	2.4395	9.0731	36.627	10.777	29.037	2.1660
#1	.01836	.09198	.00700	.10351	.01967	.19608	.02822
#2	.01628	.09530	.00816	.05972	.02429	.12750	.02929
#3	.01628	.09641	.00699	.05523	.02316	.11769	.02822

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.07735	-.01006	.02168	.00084	.09424	.04283
SDev	.00264	.09558	.00169	.01296	.00060	.00290
%RSD	3.4071	950.44	7.7731	1539.6	.63209	6.7645
#1	.07678	-.10727	.02285	-.01010	.09459	.04618
#2	.08023	.08380	.02245	-.00252	.09355	.04115
#3	.07505	-.00670	.01975	.01515	.09458	.04117

Analysis Report Thu 01-07-93 02:19:58 PM page 1

Method: CLP01AP2 Sample Name: HALFSTD:CCV Operator: LP
Run Time: 01/07/93 14:17:23
Comment: CCV#3
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	25.261	2.4918	2.4558	2.4612	.50210	2.4604	25.567
SDev	.085	.0230	.0097	.0056	.00087	.0066	.058
%RSD	.33615	.92392	.39596	.22916	.17353	.26644	.22677
#1	25.358	2.5183	2.4669	2.4670	.50310	2.4680	25.634
#2	25.200	2.4768	2.4489	2.4558	.50160	2.4572	25.539
#3	25.224	2.4803	2.4515	2.4608	.50159	2.4561	25.529
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	27.500	2.7500	2.7500	2.7500	.55000	2.7500	27.500
Low	22.500	2.2500	2.2500	2.2500	.45000	2.2500	22.500

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.4599	2.4771	2.4755	10.196	2.4561	25.414	2.4557
SDev	.0030	.0078	.0031	.028	.0056	.076	.0049
%RSD	.12935	.31420	.12454	.27041	.22736	.29722	.20154
#1	2.4633	2.4852	2.4778	10.228	2.4625	25.499	2.4614
#2	2.4592	2.4697	2.4720	10.181	2.4523	25.388	2.4528
#3	2.4571	2.4764	2.4767	10.180	2.4535	25.354	2.4528
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.7500	2.7500	2.7500	11.000	2.7500	27.500	2.7500
Low	2.2500	2.2500	2.2500	9.0000	2.2500	22.500	2.2500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.4494	25.034	.48927	25.237	2.4792	2.5224
SDev	.0051	.101	.00276	.079	.0046	.0091
%RSD	.20637	.40171	.56355	.31333	.18737	.36216
#1	2.4551	25.134	.48676	25.328	2.4837	2.5140
#2	2.4457	25.034	.49222	25.199	2.4796	2.5321
#3	2.4474	24.933	.48883	25.184	2.4744	2.5211
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.7500	27.500	.55000	27.500	2.7500	2.7500
Low	2.2500	22.500	.45000	22.500	2.2500	2.2500

Analysis Report Thu 01-07-93 02:22:40 PM page 1

Method: CLP01AP2 Sample Name: STDR:CCB Operator: LP
Run Time: 01/07/93 14:20:04
Comment: CCB#3
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.04679	.00442	.00664	.00125	.00010	.00162	.03241
SDev	.02651	.01862	.02892	.00096	.00017	.00156	.00915
%RSD	56.665	421.44	435.62	76.399	174.07	96.286	28.233
#1	.05731	.00618	.00750	.00146	-.00010	.00251	.03812
#2	.06643	.02209	H.03512	.00208	.00020	.00252	.03726
#3	.01663	-.01502	L-.02270	.00021	.00020	-.00018	.02186
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.20000	.06000	.01220	.20000	.00500	.00500	5.0000
Low	-.20000	-.06000	-.01220	-.20000	-.00500	-.00500	-5.0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00035	.00148	.00737	.00711	-.01377	.02695	.00125
SDev	.00120	.00169	.00178	.00481	.02049	.02122	.00031
%RSD	346.61	114.62	24.125	67.651	148.80	78.720	24.721
#1	-.00035	.00111	.00699	.00911	L-.03629	.03920	.00143
#2	.00174	.00332	.00931	.01061	.00377	.03920	.00143
#3	-.00035	-.00000	.00582	.00162	-.00879	.00245	.00089
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.01430	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.01430	-5.0000	-.01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00058	.06704	-.00118	.02861	.00034	.00333
SDev	.00574	.08434	.00318	.03333	.00119	.00265
%RSD	998.75	125.80	269.42	116.50	345.38	79.422
#1	-.00431	.01341	-.00370	.03535	-.00103	.00536
#2	.00604	.16425	.00239	.05807	.00103	.00431
#3	-.00345	.02346	-.00224	-.00757	.00103	.00034
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.04000	5.0000	.01000	5.0000	.05000	.02000
Low	-.04000	-5.0000	-.01000	-5.0000	-.05000	-.02000

WESTINGHOUSE/HANFORD

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ANALYSIS RUN LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Instrument ID Number: F7 Method: A

Start date: 01/11/93 End date: 01/11/93

EPA Sample No.	D/F	Time	% R	Analytes																							
				ALB	SB	ASA	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	BI
S0	1.00	1445																									X
S2000	1.00	1445																									X
S5000	1.00	1445																									X
S10000	1.00	1446																									X
ICV	1.00	1446																									X
ICB	1.00	1446																									X
CRA	1.00	1447																									
CCV	1.00	1447																									X
CCB	1.00	1447																									X
ZZZZZZ	1.00	1448																									
ZZZZZZ	1.00	1448																									
ZZZZZZ	1.00	1448																									
ZZZZZZ	1.00	1449																									
ZZZZZZ	1.00	1449																									
CCV	1.00	1449																									X
CCB	1.00	1450																									X
PBW	1.00	1450																									X
LCSW	1.00	1450																									X
B07MK9	1.00	1451																									X
B07MK9D	1.00	1451																									X
ZZZZZZ	1.00	1451																									
B07MK9S	1.00	1452																									X
CCV	1.00	1452																									X
CCB	1.00	1452																									X

C L P M E T A L S 3.02e

S212096--BISMUTH

Run id: F7 9301102
PERKIN-ELMER 3030B
Analytical method: A
Element: Bi

Acquired: 01/11/93 by SRP
Crunched: 01/12/93 by SRP
Time: 1347
Processing protocol: 3/90

Pos	Sample	Code	Preparation Meth	Batch	Date	Client ID	Date	Time
1	0 PPB	WS0	A			S0	01/11/93	14:45
2	2000 PPB	WS1	A			S2000	01/11/93	14:45
3	5000 PPB	WS2	A			S5000	01/11/93	14:45
4	10000 PPB	WS3	A			S10000	01/11/93	14:46
5	ICVBI	ICV	A			ICV	01/11/93	14:46
6	CAL BLK	ICB	A			ICB	01/11/93	14:46
7	CRA	CRA0	A			CRA	01/11/93	14:47
8	5000 PPB	CCV	A			CCV	01/11/93	14:47
9	CAL BLK	CCB	A			CCB	01/11/93	14:47
10	X	X	A			ZZZZZZ	01/11/93	14:48
11	X	X	A			ZZZZZZ	01/11/93	14:48
12	X	X	A			ZZZZZZ	01/11/93	14:48
13	X	X	A			ZZZZZZ	01/11/93	14:49
14	X	X	A			ZZZZZZ	01/11/93	14:49
15	5000 PPB	CCV	A			CCV	01/11/93	14:49
16	CAL BLK	CCB	A			CCB	01/11/93	14:50
17	PB	PBW	A	1254	01/06/93	PBW	01/11/93	14:50
18	LCSPW	LCSW	A	1254	01/06/93	LCSW	01/11/93	14:50
19	S212096-01	S	A	1254	01/06/93	B07MK9	01/11/93	14:51
20	S212096-01	S2	A	1254	01/06/93	B07MK9D	01/11/93	14:51
21	X	X	A			ZZZZZZ	01/11/93	14:51
22	S212096-01	DS	A	1254	01/06/93	B07MK9S	01/11/93	14:52
23	5000 PPB	CCV	A			CCV	01/11/93	14:52
24	CAL BLK	CCB	A			CCB	01/11/93	14:52

FLAME ATOMIC ABSORPTION RUN BENCH SHEET
Skinner and Sherman Laboratories, Inc.

AA Sequence #: 294 Instrument ID: F7 Page 1 of 1
Date: 1/11/93 Operator: SRP Reviewed by: SRP 1/12/93

Instrument Method: 29
Background: BS BD
Time Calibrated: 14:45
ACQ
Run ID: 930110 (02)
Element: Bi
STD1: 0 STD2: 2 ppm
STD3: 5 ppm STD4: 10 ppm

Standard Source:
1. Calibration: HPBi-1
2. ICV: ICV Bi
3. CCV: 5 ppm
Wavelength (nm): 223
Slitwidth (nm): .2
Integration Time (sec):

5212096

	SAMPLE ID	DILUTION	COMMENTS
1	ICV		
2	ICB		
3	CRA		
4	CCV		
5	CCB		
6	~~5212033 PBS~~		
7	LCSS	another	
8	01	case	
9	01D	1/11/93	
10	01S	SRP	
11	CCV		
12	CCB		
13	PBW		
14	LCSW		
15	5212096-01		
16	01D		
17	X		
18	01S		
19	CCV		
20	CCB		
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			

BI

	AA	AA-BG	BG
ABSORBANCE	0.001	0.002	-0.002

0.43

	AA	AA-BG	BG
ABSORBANCE	-0.001	0.000	-0.001

-0.04

	AA	AA-BG	BG
ABSORBANCE	-0.001	0.001	-0.002

0.18 14:45

MEAN= 0.19 STD.DEV.= 0.23 COEF.VAR.= 99.99 %

****

0.00 ppm AUTOZERO

****

BI

	AA	AA-BG	BG
ABSORBANCE	0.009	0.007	0.002

0.007

	AA	AA-BG	BG
ABSORBANCE	0.012	0.009	0.003

0.009

	AA	AA-BG	BG
ABSORBANCE	0.011	0.009	0.003

0.009

BI (CONTINUED)

MEAN= 0.008 STD.DEV.= 0.001 COEF.VAR.= 11.66 %

****

2.00 ppm STANDARD 1

****

BI

	AA	AA-BG	BG
ABSORBANCE	0.026	0.026	0.000

6.29

	AA	AA-BG	BG
ABSORBANCE	0.023	0.020	0.003

4.87

9613492.4614

ABSORBANCE 0.026 0.024 0.002

5.97

MEAN= 5.71 STD.DEV.= 0.75 COEF.VAR.= 13.10 %

****

5.00 ppm STANDARD 2

****

BI

	AA	AA-BG	BG
ABSORBANCE	0.051	0.047	0.004

8.47

	AA	AA-BG	BG
ABSORBANCE	0.050	0.048	0.002

8.48

	AA	AA-BG	BG
ABSORBANCE	0.051	0.051	0.001

8.83 14:46

MEAN= 8.60 STD.DEV.= 0.02 COEF.VAR.= 0.27 %

****

9.99 ppm STANDARD 3

****

BI 0001

r = 0.9588

	AA	AA-BG	BG
ABSORBANCE	0.025	0.021	0.004

4.55

	AA	AA-BG	BG
ABSORBANCE	0.024	0.023	0.001

5.02

	AA	AA-BG	BG
ABSORBANCE	0.026	0.025	0.001

5.44 ICV #1

MEAN= 5.00 STD.DEV.= 0.42 COEF.VAR.= 8.40 %

****

BI 0002

	AA	AA-BG	BG
ABSORBANCE	0.001	-0.001	0.002

-0.32

	AA	AA-BG	BG
ABSORBANCE	0.001	-0.001	0.002

9613492.4615

	AA	AA-BG	BG
ABSORBANCE	0.000	-0.001	0.001

-0.14 ICB #1

MEAN= -0.20 STD.DEV.= 0.11 COEF.VAR.= 52.29 %

****

BI 0003

	AA	AA-BG	BG
ABSORBANCE	0.011	0.011	0.000

2.37

	AA	AA-BG	BG
ABSORBANCE	0.010	0.010	0.001

2.13

	AA	AA-BG	BG
ABSORBANCE	0.011	0.011	0.000

2.44 CRA 14:47

MEAN= 2.31 STD.DEV.= 0.16 COEF.VAR.= 6.71 %

****

BI 0004

	AA	AA-BG	BG
ABSORBANCE	0.023	0.021	0.002

4.54

	AA	AA-BG	BG
ABSORBANCE	0.023	0.023	0.000

4.92

	AA	AA-BG	BG
ABSORBANCE	0.023	0.021	0.002

4.53 CCV#1

MEAN= 4.66 STD.DEV.= 0.21 COEF.VAR.= 4.45 %

****

BI 0005

	AA	AA-BG	BG
ABSORBANCE	0.000	-0.001	0.001

-0.21

	AA	AA-BG	BG
ABSORBANCE	0.000	0.000	0.000

-0.08

	AA	AA-BG	BG
ABSORBANCE	-0.001	-0.002	0.001

-0.54 CCB#1 -077

MEAN= -0.28 STD.DEV.= 0.24 COEF.VAR.= 85.06 %

****

BI 0006

9615492.4817

0006 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.002	0.000	0.001

0.03

	AA	AA-BG	BG
ABSORBANCE	0.000	0.002	-0.002

0.46

	AA	AA-BG	BG
ABSORBANCE	0.004	0.002	0.002

0.43 PB 14:48

MEAN= 0.31 STD.DEV.= 0.24 COEF.VAR.= 78.55 %

****

BI 0007

	AA	AA-BG	BG
ABSORBANCE	0.004	0.000	0.004

-0.02

	AA	AA-BG	BG
ABSORBANCE	0.005	0.002	0.003

0.42

	AA	AA-BG	BG
ABSORBANCE	0.005	0.001	0.005

0.17 LCSS

MEAN= 0.19 STD.DEV.= 0.22 COEF.VAR.= 99.99 %

****

BI 0008

	AA	AA-BG	BG
ABSORBANCE	0.001	-0.001	0.001

-0.18

	AA	AA-BG	BG
ABSORBANCE	0.000	-0.001	0.002

-0.31

	AA	AA-BG	BG
ABSORBANCE	0.001	-0.001	0.002

-0.12 S212033-01 B0723 078

MEAN= -0.20 STD.DEV.= 0.10 COEF.VAR.= 49.60 %

****

BI 0009

0009 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.002	0.000	0.001

0.10

	AA	AA-BG	BG
ABSORBANCE	0.002	0.000	0.001

0.11

	AA	AA-BG	BG
ABSORBANCE	0.001	0.000	0.001

0.03 -010 B07230 14:49

MEAN= 0.08 STD.DEV.= 0.04 COEF.VAR.= 58.10 %

****

BI 0010

	AA	AA-BG	BG
ABSORBANCE	0.021	0.021	0.000

4.57

	AA	AA-BG	BG
ABSORBANCE	0.023	0.020	0.003

4.31

	AA	AA-BG	BG
ABSORBANCE	0.022	0.019	0.003

4.13 -015 B07235

MEAN= 4.34 STD.DEV.= 0.21 COEF.VAR.= 4.87 %

****

BI 0011

	AA	AA-BG	BG
ABSORBANCE	0.024	0.022	0.001

4.81

	AA	AA-BG	BG
ABSORBANCE	0.024	0.022	0.002

4.80

	AA	AA-BG	BG
ABSORBANCE	0.024	0.023	0.001

079

5.05 CCV #2

MEAN= 4.89 STD.DEV.= 0.13 COEF.VAR.= 2.64 %

****

9613492.4819

0012 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.000	0.000	0.001

-0.09

	AA	AA-BG	BG
ABSORBANCE	0.000	-0.001	0.001

-0.28

	AA	AA-BG	BG
ABSORBANCE	0.001	0.001	0.000

0.12 CCB#2 14:50

MEAN= -0.08 STD.DEV.= 0.20 COEF.VAR.= 99.99 %

****

BI 0013

	AA	AA-BG	BG
ABSORBANCE	0.002	-0.001	0.003

-0.34

	AA	AA-BG	BG
ABSORBANCE	0.002	0.000	0.002

-0.04

	AA	AA-BG	BG
ABSORBANCE	0.001	0.000	0.001

-0.06 PBW

MEAN= -0.14 STD.DEV.= 0.17 COEF.VAR.= 99.99 %

****

BI 0014

	AA	AA-BG	BG
ABSORBANCE	0.011	0.009	0.002

2.06

	AA	AA-BG	BG
ABSORBANCE	0.013	0.011	0.001

2.48

	AA	AA-BG	BG
ABSORBANCE	0.012	0.011	0.002

080

2.43 LCSW

MEAN= 2.32 STD.DEV.= 0.23 COEF.VAR.= 9.80 %

****

BI 0015

9613492.4820

0015 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	-0.001	-0.002	0.001

-0.38

	AA	AA-BG	BG
ABSORBANCE	0.000	-0.002	0.002

-0.43

	AA	AA-BG	BG
ABSORBANCE	0.000	-0.002	0.002

-0.44 S212096-01 B07MK9 14:51

MEAN= -0.42 STD.DEV.= 0.03 COEF.VAR.= 7.84 %

****

BI 0016

	AA	AA-BG	BG
ABSORBANCE	0.000	-0.002	0.003

-0.58

	AA	AA-BG	BG
ABSORBANCE	0.001	0.000	0.001

-0.10

	AA	AA-BG	BG
ABSORBANCE	0.000	-0.001	0.001

-0.18 -01D B07MK9D

MEAN= -0.28 STD.DEV.= 0.26 COEF.VAR.= 90.05 %

****

BI 0017

	AA	AA-BG	BG
ABSORBANCE	0.020	0.018	0.002

3.98

	AA	AA-BG	BG
ABSORBANCE	0.022	0.018	0.003

4.05

	AA	AA-BG	BG
ABSORBANCE	0.019	0.018	0.001

X

- 4.01

081

MEAN= 4.01 STD.DEV.= 0.03 COEF.VAR.= 0.79 %

****

BI 0018

9613492.4821

0018 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.025	0.022	0.003

4.77

	AA	AA-BG	BG
ABSORBANCE	0.024	0.021	0.003

4.55

	AA	AA-BG	BG
ABSORBANCE	0.022	0.018	0.004

3.98 -01S B07MK9S 14:52

MEAN= 4.43 STD.DEV.= 0.39 COEF.VAR.= 8.82 %

****

9613492.4822

BI 0019

	AA	AA-BG	BG
ABSORBANCE	0.023	0.021	0.002

4.58

	AA	AA-BG	BG
ABSORBANCE	0.023	0.021	0.003

4.54

	AA	AA-BG	BG
ABSORBANCE	0.024	0.023	0.001

5.03 CCV #3

MEAN= 4.72 STD.DEV.= 0.26 COEF.VAR.= 5.42 %

****

BI 0020

	AA	AA-BG	BG
ABSORBANCE	0.000	-0.003	0.002

-0.62

	AA	AA-BG	BG
ABSORBANCE	0.000	-0.003	0.003

-0.68

	AA	AA-BG	BG
ABSORBANCE	-0.002	0.000	-0.002

0.03 CCB #3

MEAN= -0.42 STD.DEV.= 0.39 COEF.VAR.= 92.62 %

****

WESTINGHOUSE/HANFORD

14

ANALYSIS RUN LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Instrument ID Number: C1 Method: CA

Start date: 12/11/92 End date: 12/11/92

EPA Sample No.	D/F	Time	% R	Analytes																							
				ALSB	ASA	BAE	BCD	CAR	CRO	CUE	FEB	PBG	MGN	HGI	NIK	SEG	AGA	NAL	TLV	VZN	ZNC	CNB	BI
S0	1.00	1807																				X	
S10	1.00	1808																				X	
S40	1.00	1809																				X	
S100	1.00	1810																				X	
S200	1.00	1810																				X	
S400	1.00	1811																				X	
S400	1.00	1812																				X	
S40	1.00	1813																				X	
S40	1.00	1813																				X	
ICV	1.00	1814																				X	
ICB	1.00	1815																				X	
CCV	1.00	1816																				X	
CCB	1.00	1816																				X	
ZZZZZZ	1.00	1817																					
ZZZZZZ	1.00	1818																					
ZZZZZZ	1.00	1819																					
ZZZZZZ	1.00	1819																					
ZZZZZZ	2.00	1820																					
ZZZZZZ	1.00	1821																					
ZZZZZZ	1.00	1822																					
ZZZZZZ	1.00	1822																					
ZZZZZZ	1.00	1823																					
ZZZZZZ	1.00	1824																					
CCV	1.00	1825																				X	
CCB	1.00	1825																				X	
ZZZZZZ	1.00	1826																					
ZZZZZZ	1.00	1827																					
ZZZZZZ	1.00	1828																					
ZZZZZZ	1.00	1828																					
ZZZZZZ	1.00	1829																					
ZZZZZZ	1.00	1830																					
ZZZZZZ	1.00	1831																					

WESTINGHOUSE/HANFORD

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ANALYSIS RUN LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Instrument ID Number: C1 Method: CA

Start date: 12/11/92 End date: 12/11/92

EPA Sample No.	D/F	Time	% R	Analytes																							
				ALSB	SBAS	ABAE	BBED	CCAD	CCAR	CCOR	CCUO	FEBU	PBEG	MGMN	MNHG	HGNI	NIK	KSE	SEAG	AGNA	NATL	TLV	VZN	ZNC	CNB	CIB
ZZZZZZ	1.00	1831																									
ZZZZZZ	1.00	1832																									
ZZZZZZ	1.00	1833																									
CCV	1.00	1834																							X		
CCB	1.00	1834																							X		
ZZZZZZ	1.00	1835																									
ZZZZZZ	1.00	1836																									
ZZZZZZ	1.00	1837																									
ZZZZZZ	1.00	1837																									
ZZZZZZ	1.00	1838																									
CCV	1.00	1839																							X		
CCB	1.00	1840																							X		
ZZZZZZ	1.00	1840																									
ZZZZZZ	1.00	1841																									
CCV	1.00	1842																							X		
CCB	1.00	1843																							X		
PBW	1.00	1843																							X		
B07MK9	1.00	1844																							X		
B07MK9D	1.00	1845																							X		
B07MK9S	2.00	1846																							X		
B07MK9A	1.00	1846																									
CCV	1.00	1847																							X		
CCB	1.00	1848																							X		

C L P M E T A L S 3.02e

s212096--cyanide

Run id: C1 9234605
TRAACS 800 AUTOANALYZER (#TC0451)
Analytical method: CA
Element: CN

Acquired: 12/11/92 by SRP
Crunched: 01/12/93 by SRP
Time: 1356
Processing protocol: 3/90

Pos	Sample	Code	Preparation Meth Batch	Date	Client ID	Date	Time
2	0 PPB	WS1	CA		S0	12/11/92	18:07:45
3	10 PPB	WS2	CA		S10	12/11/92	18:08:30
4	40 PPB	WS3	CA		S40	12/11/92	18:09:15
5	100 PPB	WS4	CA		S100	12/11/92	18:10:00
6	200 PPB	WS5	CA		S200	12/11/92	18:10:45
7	400 PPB	WS6	CA		S400	12/11/92	18:11:30
8	400 PPB	WS7	CA		S400	12/11/92	18:12:15
9	40 PPB	WS8	CA		S40	12/11/92	18:13:00
10	40 PPB	WS9	CA		S40	12/11/92	18:13:45
11	ICV-6	ICV	CA		ICV	12/11/92	18:14:30
12	CAL BLK	ICB	CA		ICB	12/11/92	18:15:15
13	200 PPB	CCV	CA		CCV	12/11/92	18:16:00
14	CAL BLK	CCB	CA		CCB	12/11/92	18:16:45
15	DIST STD	X	CA		ZZZZZZ	12/11/92	18:17:30
16	X	X	CA		ZZZZZZ	12/11/92	18:18:15
17	X	X	CA		ZZZZZZ	12/11/92	18:19:00
18	X	X	CA		ZZZZZZ	12/11/92	18:19:45
19	X	X	CA		ZZZZZZ	12/11/92	18:20:30
20	X	X	CA		ZZZZZZ	12/11/92	18:21:15
21	X	X	CA		ZZZZZZ	12/11/92	18:22:00
22	X	X	CA		ZZZZZZ	12/11/92	18:22:45
23	X	X	CA		ZZZZZZ	12/11/92	18:23:30
24	X	X	CA		ZZZZZZ	12/11/92	18:24:15
25	200 PPB	CCV	CA		CCV	12/11/92	18:25:00
26	CAL BLK	CCB	CA		CCB	12/11/92	18:25:45
27	X	X	CA		ZZZZZZ	12/11/92	18:26:30
28	X	X	CA		ZZZZZZ	12/11/92	18:27:15
29	X	X	CA		ZZZZZZ	12/11/92	18:28:00
30	X	X	CA		ZZZZZZ	12/11/92	18:28:45
31	X	X	CA		ZZZZZZ	12/11/92	18:29:30
32	X	X	CA		ZZZZZZ	12/11/92	18:30:15
33	X	X	CA		ZZZZZZ	12/11/92	18:31:00
34	X	X	CA		ZZZZZZ	12/11/92	18:31:45
35	X	X	CA		ZZZZZZ	12/11/92	18:32:30
36	X	X	CA		ZZZZZZ	12/11/92	18:33:15
37	200 PPB	CCV	CA		CCV	12/11/92	18:34:00
38	CAL BLK	CCB	CA		CCB	12/11/92	18:34:45
39	X	X	CA		ZZZZZZ	12/11/92	18:35:30
40	X	X	CA		ZZZZZZ	12/11/92	18:36:15
41	X	X	CA		ZZZZZZ	12/11/92	18:37:00
42	X	X	CA		ZZZZZZ	12/11/92	18:37:45
43	X	X	CA		ZZZZZZ	12/11/92	18:38:30
44	200 PPB	CCV	CA		CCV	12/11/92	18:39:15

9613492.4826

s212096--cyanide

Pos	Sample	Code	Preparation Meth	Batch	Date	Client ID	Date	Time
45	CAL BLK	CCB	CA			CCB	12/11/92	18:40:00
46	X	X	CA			ZZZZZZ	12/11/92	18:40:45
47	X	X	CA			ZZZZZZ	12/11/92	18:41:30
48	200 PPB	CCV	CA			CCV	12/11/92	18:42:15
49	CAL BLK	CCB	CA			CCB	12/11/92	18:43:00
50	PB	PBW	CA	1254	12/10/92	PBW	12/11/92	18:43:45
51	S212096-01	S	CA	1254	12/10/92	B07MK9	12/11/92	18:44:30
52	S212096-01	S2	CA	1254	12/10/92	B07MK9D	12/11/92	18:45:15
53	S212096-01	DS	CA	1254	12/10/92	B07MK9S	12/11/92	18:46:00
54	S212096-01	PS	CA	1254		B07MK9A	12/11/92	18:46:45
55	200 PPB	CCV	CA			CCV	12/11/92	18:47:30
56	CAL BLK	CCB	CA			CCB	12/11/92	18:48:15

NO LCS

SKINNER & SHERMAN LAB
TRAACS 800 SYSTEM BENCH SHEET
CYANIDE ANALYSIS

DATE: 12/11/92
ANALYST: [illegible]

METHOD: 335.3
SEMI-AUTOMATED MIDI DISTILLATION

FRM VER 2.4b 03/30/92

RUN ID'S		WORKORDER
92346	- 03	92120038-01-20
	- 04	92120036 01
	- [redacted]	[redacted]
	-	
	-	
	-	
	-	

STANDARDS:	NAME	SOURCE	PREPARED
ICV	ICV-6	[illegible]	
CCV & DIST STD	200 PPB	[illegible]	
ICB/CCB	CAL BLK		

POS	LAB ID	SAMPLE ID	COMMENTS
01	PRIMER	400 PPB	ABS: 0.2600
02	STD0	0 PPB	
03	STD1	10 PPB	
04	STD2	40 PPB	
05	STD3	100 PPB	
06	STD4	200 PPB	
07	STD5	400 PPB	
08	HIGH STD	400 PPB	
09	LOW STD1	40 PPB	
10	LOW STD2	40 PPB	
11	ICV	ICV-6	
12	ICB	CAL BLK	
13	CCV	200 PPB	
14	CAL BLK	CAL BLK	
15	200 PPB	DIST STD	
16	Blow		
17	92120038-01		
18		01	
19		01S	2x dilution
20		01PS	
21		02	
22		03	
23		04	
24		05	
25	CCV 2		
26	CCB 2		
27		06	
28		07	
29		08	
30		09	
31		10	
32		11	
33		12	
34		13	
35		14	

(46)

9613492.4828

SKINNER & SHERMAN LAB
TRAACS BENCH SHEET CYANIDE
DATE: 12/11/96

PAGE 2 of 2

RUN ID: 92346

POS	LAB ID	SAMPLE ID	COMMENTS
36	15		
37	CW3		
38	CW3		
39	16		
40	17		
41	18		
42	19		
43	20		
44	CW4		
45	CW4		
46	PBW		
47	S212036-01		
48	CW5		
49	CW5		
50	PBW		
51	S212056-01		
52	OIW		
53	OIS		
54	OIPS		
55	CW6		
56	CW6		
57			
58			
59			
60			
61			
62			
63			
64			
65			
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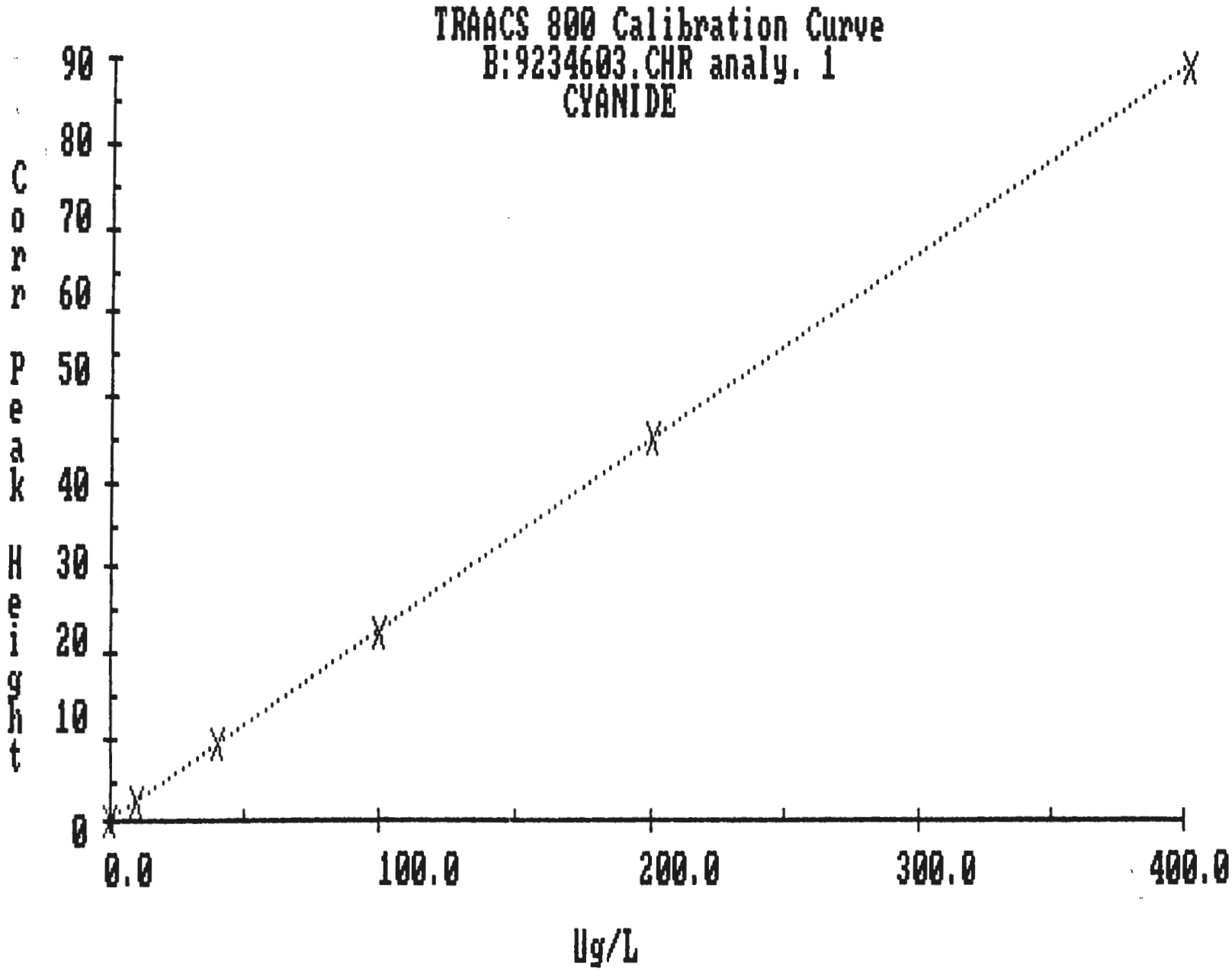
84			
85			



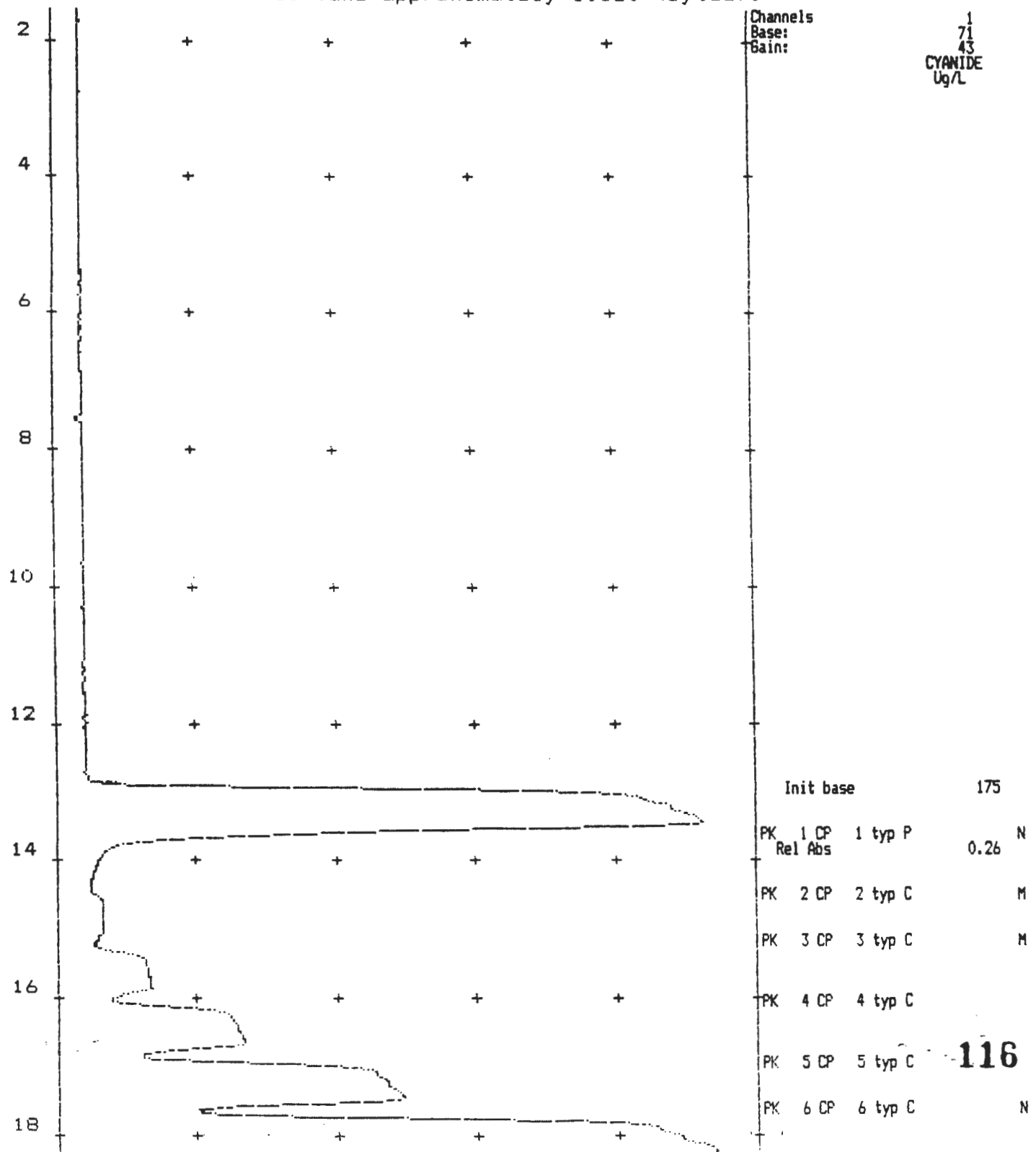
96 13492 4829

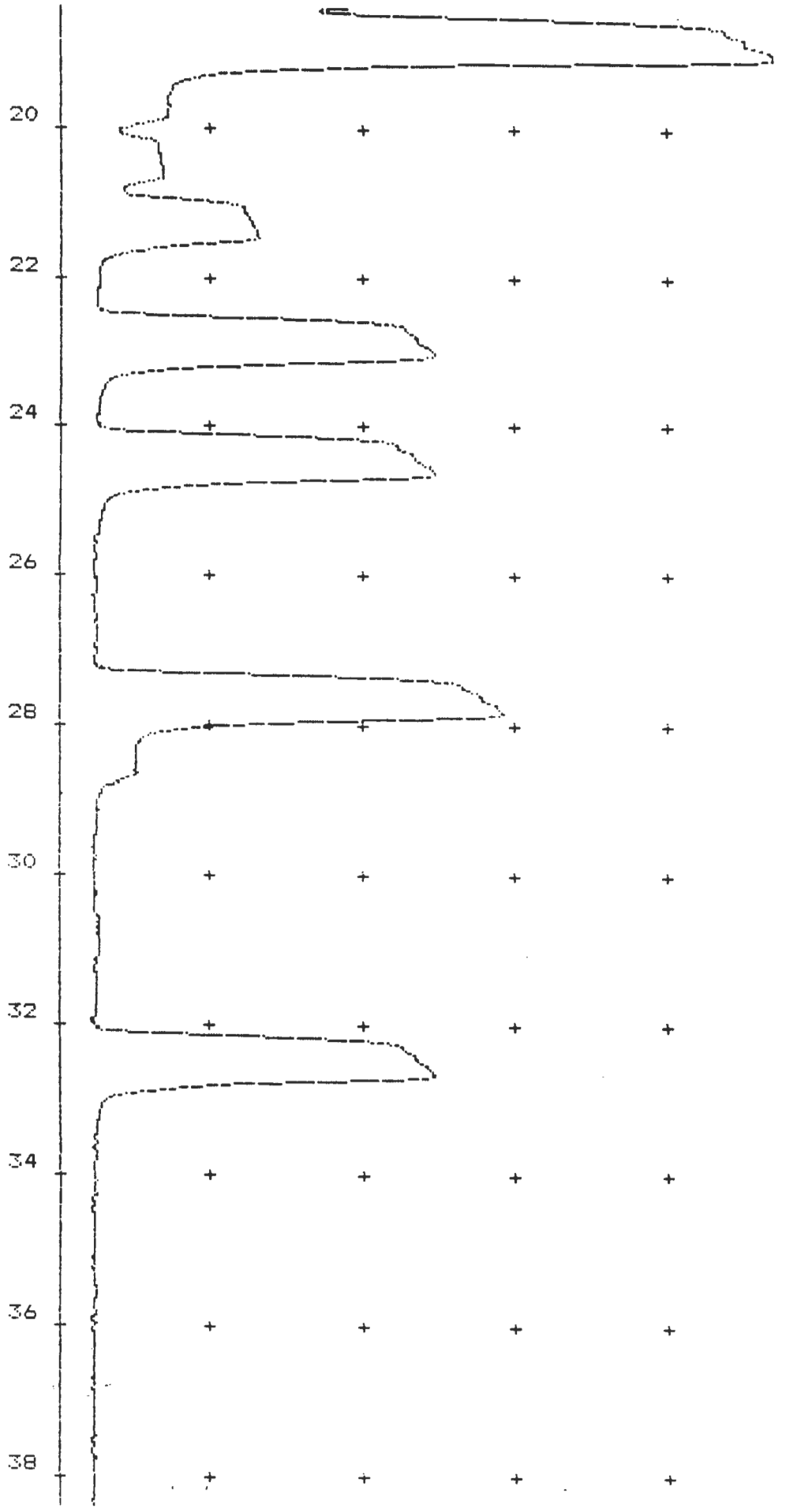
9613492.4830

Input Filename: B:CYANIDE.INP
Time: 18:07; Date: 12-11-92
Operator: NEEDHAM

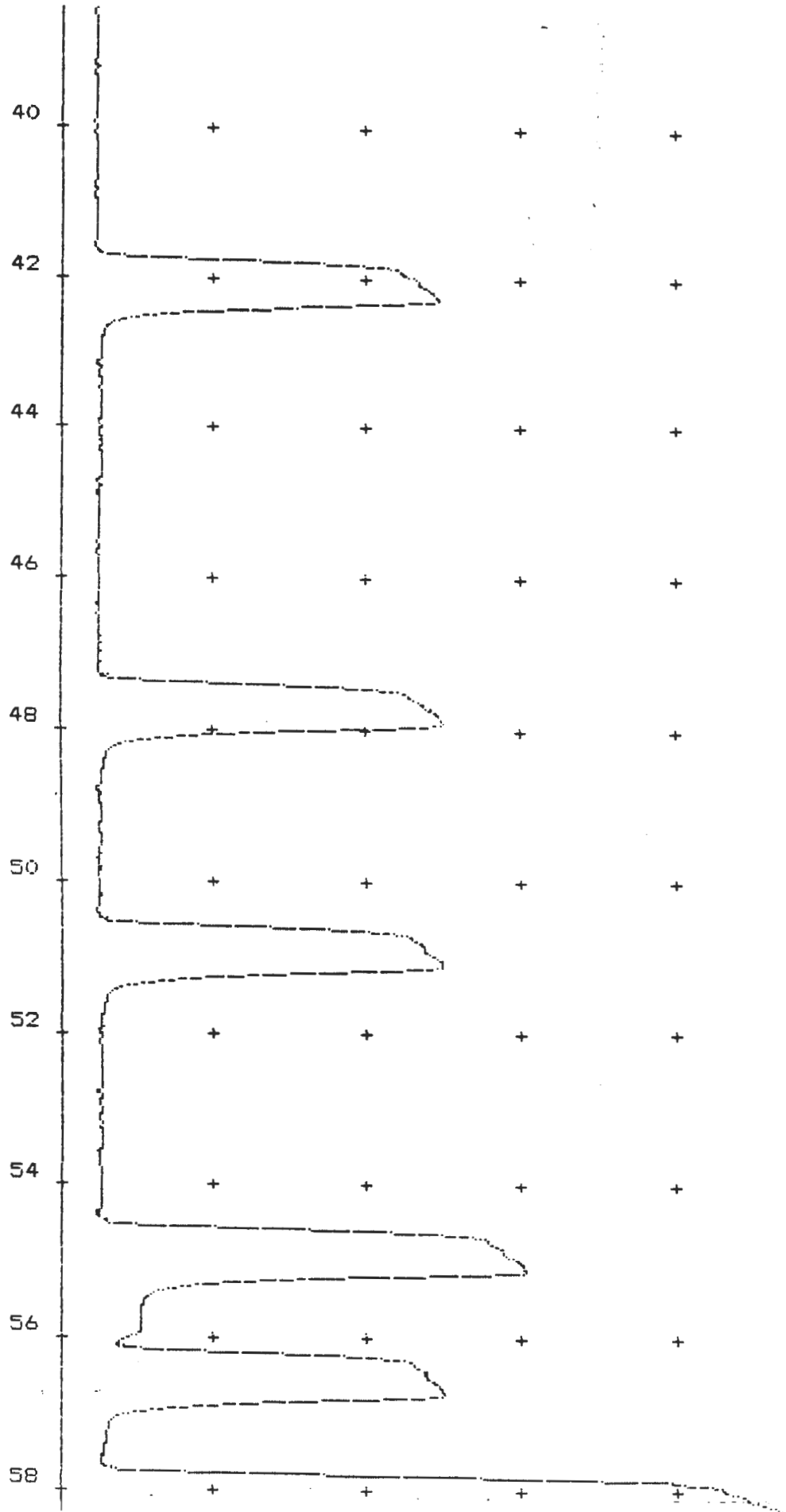
Comment: CYANIDE AT SEVENTY FIVE SAMPLES PER HOUR

There are 14245888 (bytes) free on disk.
File B:9234603.CHR will take approximately 10160 (bytes).



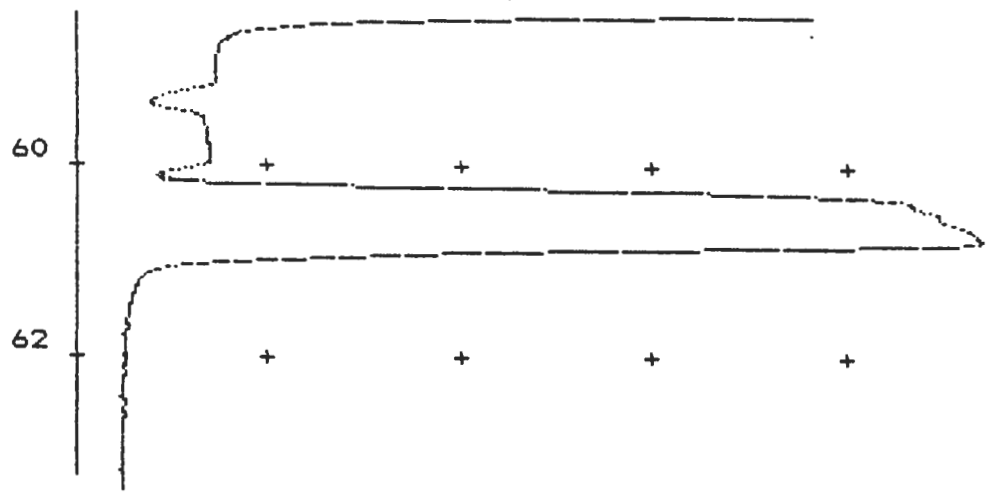


PK	7 CP	7 typ C		400.0 N
PK	8 CP	8 typ H		399.4 N
PK	9 CP	9 typ L		43.28
PK	10 CP	10 typ L		41.31
PK	11 CP	11 typ S		96.78
PK	12 CP	12 typ S		1.709 M
PK	13 CP	13 typ S		200.7 N
PK	14 CP	14 typ S		2.147 M
PK	15 CP	15 typ S		200.8 N
PK	16 CP	16 typ S		2.694 M
PK	17 CP	17 typ S		0.9435 M
PK	18 CP	18 typ S		0.9435 M
PK	19 CP	19 typ S		241.0 N
PK	20 CP	20 typ S		24.03
PK	21 CP	21 typ S		1.053 M
PK	22 CP	22 typ S		0.3965 M
PK	23 CP	23 typ S		2.803 M
PK	24 CP	24 typ S		1.381 M
PK	25 CP	25 typ S		200.4 N
PK	26 CP	26 typ S		1.491 M
PK	27 CP	27 typ S		0.6153 M
PK	28 CP	28 typ S		0.3965 M
PK	29 CP	29 typ S		0.8341 M
PK	30 CP	30 typ S		-0.04113 M
PK	31 CP	31 typ S		0.1777 M



PK	32	CP	32	typ S	0.2871 M
PK	33	CP	33	typ S	-0.3693 M
PK	34	CP	34	typ S	0.2871 M
PK	35	CP	35	typ S	0.1777 M
PK	36	CP	36	typ S	-0.04113 M
PK	37	CP	37	typ S	200.8 N
PK	38	CP	38	typ S	2.585 M
PK	39	CP	39	typ S	2.585 M
PK	40	CP	40	typ S	2.147 M
PK	41	CP	41	typ S	1.272 M
PK	42	CP	42	typ S	1.491 M
PK	43	CP	43	typ S	2.038 M
PK	44	CP	44	typ S	203.4 N
PK	45	CP	45	typ S	3.022 M
PK	46	CP	46	typ S	2.256 M
PK	47	CP	47	typ S	1.928 M
PK	48	CP	48	typ S	202.2 N
PK	49	CP	49	typ S	3.460 M
PK	50	CP	50	typ S	2.803 M
PK	51	CP	51	typ S	2.147 M
PK	52	CP	52	typ S	2.366 M
PK	53	CP	53	typ S	250.1 N
PK	54	CP	54	typ S	25.67
PK	55	CP	55	typ S	[illegible] N
PK	56	CP	56	typ S	4.226 M

9613492.4833



PK	57 CP	57 typ H		401.4 N
PK	58 CP	58 typ L		45.14
PK	59 CP	59 typ L		42.63
PK	60 CP	60 typ G		399.7 N
		Last base		202

Time: 18:07; Date: 12-11-92
Operator: NEEDHAM

Comment: CYANIDE AT SEVENTY FIVE SAMPLES PER HOUR

Channels 1
Base: 71
Gain: 43

CYANIDE
Ug/L
Base drift correction made
Carryover correction made
Gain drift correction made

	Init base				175		
	PK 1 CP	1	typ	P	394.0	N	
	Rel Abs				0.26		
	PK 2 CP	2	typ	C	1.091	M	
	PK 3 CP	3	typ	C	9.741	M	
	PK 4 CP	4	typ	C	40.23		
	PK 5 CP	5	typ	C	99.18		
	PK 6 CP	6	typ	C	200.6	N	
	PK 7 CP	7	typ	C	399.9	N	
	PK 8 CP	8	typ	H	398.0	N	
	PK 9 CP	9	typ	L	41.18		
	PK 10 CP	10	typ	L	41.30		
3:14:30	PK 11 CP	11	typ	S	96.86		CW1
3:15:15	PK 12 CP	12	typ	S	1.198	M	CW3
3:16:00	PK 13 CP	13	typ	S	201.2	N	CW1
3:16:45	PK 14 CP	14	typ	S	0.9185	M	CW3
	PK 15 CP	15	typ	S	201.2	N	Dist Std
	PK 16 CP	16	typ	S	1.373	M	Pbw
	PK 17 CP	17	typ	S	0.7634	M	MBKG 41
	PK 18 CP	18	typ	S	0.7273	M	410
	PK 19 CP	19	typ	S	241.4	N	415 ZX=4828
	PK 20 CP	20	typ	S	22.34		41PS
	PK 21 CP	21	typ	S	0.5582	M	47
	PK 22 CP	22	typ	S	-0.00862	M	49
	PK 23 CP	23	typ	S	2.363	M	51
	PK 24 CP	24	typ	S	0.8754	M	53
3:25:00	PK 25 CP	25	typ	S	200.5	N	CW2
3:25:45	PK 26 CP	26	typ	S	-0.2978	M	CW2

9613492.4834

	PK	27	CP	27	typ	S	-0.02522	M	MBKG 55
	PK	28	CP	28	typ	S	-0.2863	M	57
	PK	29	CP	29	typ	S	0.1076	M	59
	PK	30	CP	30	typ	S	-0.8204	M	61
	PK	31	CP	31	typ	S	-0.6423	M	63
	PK	32	CP	32	typ	S	-0.5805	M	65
	PK	33	CP	33	typ	S	-1.287	M	67
	PK	34	CP	34	typ	S	-0.6708	M	69
	PK	35	CP	35	typ	S	-0.8314	M	71
	PK	36	CP	36	typ	S	-1.097	M	73
8:39:00	PK	37	CP	37	typ	S	200.6	N	CW 3
3:39:45	PK	38	CP	38	typ	S	0.2372	M	CCB3
	PK	39	CP	39	typ	S	1.385	M	MBKG 75
	PK	40	CP	40	typ	S	0.8991	M	77
	PK	41	CP	41	typ	S	-0.02437	M	79
	PK	42	CP	42	typ	S	0.1540	M	81
	PK	43	CP	43	typ	S	0.6557	M	83
8:39:15	PK	44	CP	44	typ	S	203.0	N	CW 4
3:40:00	PK	45	CP	45	typ	S	0.3339	M	CCB4
	PK	46	CP	46	typ	S	0.7262	M	PbW
	PK	47	CP	47	typ	S	0.3541	M	~~5212036~~ MCKY 87
3:40:15	PK	48	CP	48	typ	S	201.7	N	CW 5
3:43:00	PK	49	CP	49	typ	S	0.5942	M	CCB5
	PK	50	CP	50	typ	S	1.087	M	PbW
	PK	51	CP	51	typ	S	0.3838	M	B07MK9
	PK	52	CP	52	typ	S	0.5610	M	K9D
	PK	53	CP	53	typ	S	249.7	N	K95 ZK= 499.4
	PK	54	CP	54	typ	S	22.41		K9B
3:47:30	PK	55	CP	55	typ	S	202.7	N	CW 6
3:48:15	PK	56	CP	56	typ	S	1.029	M	CCB6
	PK	57	CP	57	typ	H	401.8	N	
	PK	58	CP	58	typ	L	40.92		
	PK	59	CP	59	typ	L	40.49		
	PK	60	CP	60	typ	G	399.9	N	
	Last base						202		

Sample statistics

Anal	level	cups	avg	std dev	cv
1	all	46	44.66	84.8	190%

Anal 1: linear fit
Carryover factor: 0.60%.

Chart saved to file B:9234603.CHR.

text file B:9234603.TXT has been saved to disk.

WESTINGHOUSE/HANFORD

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ANALYSIS RUN LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Instrument ID Number: M1 Method: CV

Start date: 12/10/92 End date: 12/10/92

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	BI
S0	1.00	1500																X									
S0.2	1.00	1503																X									
S0.5	1.00	1506																X									
S1.0	1.00	1509																X									
S2.0	1.00	1512																X									
S5.0	1.00	1515																X									
ICV	2.00	1521																X									
ICB	1.00	1524																X									
CCV	1.00	1527																X									
CCB	1.00	1530																X									
ZZZZZZ	1.00	1533																									
ZZZZZZ	1.00	1536																									
ZZZZZZ	1.00	1539																									
ZZZZZZ	1.00	1542																									
ZZZZZZ	1.00	1545																									
ZZZZZZ	1.00	1548																									
ZZZZZZ	1.00	1551																									
ZZZZZZ	1.00	1554																									
ZZZZZZ	1.00	1557																									
ZZZZZZ	1.00	1600																									
CCV	1.00	1603																X									
CCB	1.00	1606																X									
ZZZZZZ	1.00	1609																									
ZZZZZZ	1.00	1612																									
ZZZZZZ	1.00	1615																									
ZZZZZZ	1.00	1618																									
ZZZZZZ	1.00	1621																									
ZZZZZZ	1.00	1624																									
ZZZZZZ	1.00	1627																									
ZZZZZZ	1.00	1630																									
ZZZZZZ	1.00	1633																									
ZZZZZZ	1.00	1636																									

WESTINGHOUSE/HANFORD

14

ANALYSIS RUN LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Instrument ID Number: M1 Method: CV

Start date: 12/10/92 End date: 12/10/92

EPA Sample No.	D/F	Time	% R	Analytes																								
				ALS	BS	ASA	BAE	BED	CDA	CAR	CRO	CUE	FEB	PBG	MGN	MHG	NIK	KSE	SGA	NAL	TLV	VZN	ZNC	CNB	BI				
CCV	1.00	1639														X												
CCB	1.00	1642														X												
ZZZZZZ	1.00	1645																										
ZZZZZZ	1.00	1648																										
ZZZZZZ	1.00	1651																										
ZZZZZZ	1.00	1654																										
ZZZZZZ	1.00	1657																										
ZZZZZZ	1.00	1700																										
ZZZZZZ	1.00	1703																										
ZZZZZZ	1.00	1706																										
ZZZZZZ	1.00	1709																										
ZZZZZZ	1.00	1712																										
CCV	1.00	1715														X												
CCB	1.00	1718														X												
ZZZZZZ	1.00	1721																										
ZZZZZZ	1.00	1724																										
ZZZZZZ	1.00	1727																										
ZZZZZZ	1.00	1730																										
ZZZZZZ	1.00	1733																										
ZZZZZZ	1.00	1736																										
ZZZZZZ	1.00	1739																										
ZZZZZZ	1.00	1742																										
ZZZZZZ	1.00	1745																										
ZZZZZZ	1.00	1748																										
CCV	1.00	1751														X												
CCB	1.00	1754														X												
ZZZZZZ	1.00	1757																										
ZZZZZZ	1.00	1800																										
ZZZZZZ	1.00	1803																										
ZZZZZZ	1.00	1806																										
ZZZZZZ	1.00	1809																										
ZZZZZZ	1.00	1812																										

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WESTINGHOUSE/HANFORD

14

ANALYSIS RUN LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-023SAS No.: SDG No.: B07MK9

Instrument ID Number: M1 Method: CV

Start date: 12/10/92 End date: 12/10/92

EPA Sample No.	D/F	Time	% R	Analytes																							
				ALB	SBS	ABA	BBE	BCD	CCA	CCR	COU	CUE	FEB	PBG	MGN	MHG	NIK	KSE	SAG	NAL	TLV	VZN	ZNC	CNB	BI		
ZZZZZZ	1.00	1815																									
ZZZZZZ	1.00	1818																									
ZZZZZZ	1.00	1821																									
ZZZZZZ	1.00	1824																									
CCV	1.00	1827														X											
CCB	1.00	1830														X											
ZZZZZZ	1.00	1833																									
ZZZZZZ	1.00	1836																									
PBW	1.00	1839														X											
B07MK9	1.00	1842														X											
B07MK9D	1.00	1845														X											
B07MK9S	1.00	1848														X											
CCV	1.00	1851														X											
CCB	1.00	1854														X											

NOLCS

FORM XIV - IN 3/90

C L P M E T A L S 3.02e

S212095--MERCURY

Run id: M1 9234510
TECHNICON MERCURY ANALYZER (#SS4199A-D)
Analytical method: CV
Element: Hg

Acquired: 12/10/92 by MAS
Crunched: 01/12/93 by SRP
Time: 1348
Processing protocol: 3/90

Pos	Sample	Code	Preparation Meth	Batch	Date	Client ID	Date	Time
1	0 PPB	WS0	CV			S0	12/10/92	15:00
2	0.2 PPB	WS1	CV			S0.2	12/10/92	15:03
3	0.5 PPB	WS2	CV			S0.5	12/10/92	15:06
4	1.0 PPB	WS3	CV			S1.0	12/10/92	15:09
5	2.0 PPB	WS4	CV			S2.0	12/10/92	15:12
6	5.0 PPB	WS5	CV			S5.0	12/10/92	15:15
7	ICV-5	ICV	CV			ICV	12/10/92	15:21
8	CAL BLK	ICB	CV			ICB	12/10/92	15:24
9	2 PPB	CCV	CV			CCV	12/10/92	15:27
10	CAL BLK	CCB	CV			CCB	12/10/92	15:30
11	X	X	CV			ZZZZZZ	12/10/92	15:33
12	X	X	CV			ZZZZZZ	12/10/92	15:36
13	X	X	CV			ZZZZZZ	12/10/92	15:39
14	X	X	CV			ZZZZZZ	12/10/92	15:42
15	X	X	CV			ZZZZZZ	12/10/92	15:45
16	X	X	CV			ZZZZZZ	12/10/92	15:48
17	X	X	CV			ZZZZZZ	12/10/92	15:51
18	X	X	CV			ZZZZZZ	12/10/92	15:54
19	X	X	CV			ZZZZZZ	12/10/92	15:57
20	X	X	CV			ZZZZZZ	12/10/92	16:00
21	2 PPB	CCV	CV			CCV	12/10/92	16:03
22	CAL BLK	CCB	CV			CCB	12/10/92	16:06
23	X	X	CV			ZZZZZZ	12/10/92	16:09
24	X	X	CV			ZZZZZZ	12/10/92	16:12
25	X	X	CV			ZZZZZZ	12/10/92	16:15
26	X	X	CV			ZZZZZZ	12/10/92	16:18
27	X	X	CV			ZZZZZZ	12/10/92	16:21
28	X	X	CV			ZZZZZZ	12/10/92	16:24
29	X	X	CV			ZZZZZZ	12/10/92	16:27
30	X	X	CV			ZZZZZZ	12/10/92	16:30
31	X	X	CV			ZZZZZZ	12/10/92	16:33
32	X	X	CV			ZZZZZZ	12/10/92	16:36
33	2 PPB	CCV	CV			CCV	12/10/92	16:39
34	CAL BLK	CCB	CV			CCB	12/10/92	16:42
35	X	X	CV			ZZZZZZ	12/10/92	16:45
36	X	X	CV			ZZZZZZ	12/10/92	16:48
37	X	X	CV			ZZZZZZ	12/10/92	16:51
38	X	X	CV			ZZZZZZ	12/10/92	16:54
39	X	X	CV			ZZZZZZ	12/10/92	16:57
40	X	X	CV			ZZZZZZ	12/10/92	17:00
41	X	X	CV			ZZZZZZ	12/10/92	17:03
42	X	X	CV			ZZZZZZ	12/10/92	17:06
43	X	X	CV			ZZZZZZ	12/10/92	17:09

S212095--MERCURY

Pos	Sample	Code	Preparation Meth	Batch	Date	Client ID	Date	Time
44	X	X	CV			ZZZZZZ	12/10/92	17:12
45	2 PPB	CCV	CV			CCV	12/10/92	17:15
46	CAL BLK	CCB	CV			CCB	12/10/92	17:18
47	X	X	CV			ZZZZZZ	12/10/92	17:21
48	X	X	CV			ZZZZZZ	12/10/92	17:24
49	X	X	CV			ZZZZZZ	12/10/92	17:27
50	X	X	CV			ZZZZZZ	12/10/92	17:30
51	X	X	CV			ZZZZZZ	12/10/92	17:33
52	X	X	CV			ZZZZZZ	12/10/92	17:36
53	X	X	CV			ZZZZZZ	12/10/92	17:39
54	X	X	CV			ZZZZZZ	12/10/92	17:42
55	X	X	CV			ZZZZZZ	12/10/92	17:45
56	X	X	CV			ZZZZZZ	12/10/92	17:48
57	2 PPB	CCV	CV			CCV	12/10/92	17:51
58	CAL BLK	CCB	CV			CCB	12/10/92	17:54
59	X	X	CV			ZZZZZZ	12/10/92	17:57
60	X	X	CV			ZZZZZZ	12/10/92	18:00
61	X	X	CV			ZZZZZZ	12/10/92	18:03
62	X	X	CV			ZZZZZZ	12/10/92	18:06
63	X	X	CV			ZZZZZZ	12/10/92	18:09
64	X	X	CV			ZZZZZZ	12/10/92	18:12
65	X	X	CV			ZZZZZZ	12/10/92	18:15
66	X	X	CV			ZZZZZZ	12/10/92	18:18
67	X	X	CV			ZZZZZZ	12/10/92	18:21
68	X	X	CV			ZZZZZZ	12/10/92	18:24
69	2 PPB	CCV	CV			CCV	12/10/92	18:27
70	CAL BLK	CCB	CV			CCB	12/10/92	18:30
71	X	X	CV			ZZZZZZ	12/10/92	18:33
72	X	X	CV			ZZZZZZ	12/10/92	18:36
73	PB	PBW	CV	1254	12/10/92	PBW	12/10/92	18:39
74	S212096-01	S	CV	1254	12/10/92	B07MK9	12/10/92	18:42
75	S212096-01	S2	CV	1254	12/10/92	B07MK9D	12/10/92	18:45
76	S212096-01	DS	CV	1254	12/10/92	B07MK9S	12/10/92	18:48
77	2 PPB	CCV	CV			CCV	12/10/92	18:51
78	CAL BLK	CCB	CV			CCB	12/10/92	18:54

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TMA/Skinner & Sherman Labs
MERCURY BENCH SHEET

SEQ NO: 489
RUN IDS:
Reviewed SRP 1/12/93

Pg 1 of 2

9234505 06 07 08 09 10

Copy
Original is filed in CSF MAB442 19205

ANALYST MS
INSTR: M1(water)
METHOD: HG
WAVELENGTH 253.7 mm

CALIBRATION TIME 15:00

RUN DATE 12/10/92 MS 12/10/92
STANDARDS PREPPED
DATE: 12/10/92
STANDARD SOURCE
CALIB: 10ppm HD 290930
ICV: ICV-5-24 CCV: 2ppb

		PK HT(mm)
01	BLANK	0
02	0.2 PPB	5
03	0.5 PPB	14
04	1.0 PPB	33
05	2.0 PPB	61
06	5.0 PPB	143

r = 0.9991

	SAMPLE ID	CLIENT ID	PK HT(mm)	CONC(ppb)	COMMENT
07	ICV-5	ICV	66	2.26	
08	CAL BLK	ICB	0	-0.04	
09	2 PPB	CCV	66	2.26	
10	CAL BLK	CCB	0	-0.04	
11	S211283-05	MYK360			
12	06	MYK361			
13	07	MYK362			
14	08	MYK363			
15	09	MYK364			
16	10	MYK365			
17	11	MYK366			
18	12	MYK367	10	0.31	
19	13	MYK368	0	-0.04	
20	14	MYK369	0	-0.04	
21	CCV		68	2.33	
22	CCB		0	-0.04	
23	PB				
24	S211264-01	MAZ201			
25	02	MAZ203			
26	03	MAZ205			
27	04	MAZ207			
28	05	MAZ209			
29	05D	MAZ209D			
30	05S	MAZ209S	30	1.01	
31	06 MS 12/10/92	MAZ209211	0	-0.04	
32	07	MAZ213	0	-0.04	
33	CCV		68	2.33	
34	CCB		0	-0.04	
35	08	MAZ215			
36	09	MAZ217			
37	PB				
38	S212018-01	MCLM27			
39	01D	MCLM27D			

Revised 07/92

9613492.4841

TMA/Skinner & Sherman Labs
COLD VAPOR ATOMIC ABSORPTION
MERCURY BENCH SHEET

SEQ: 489

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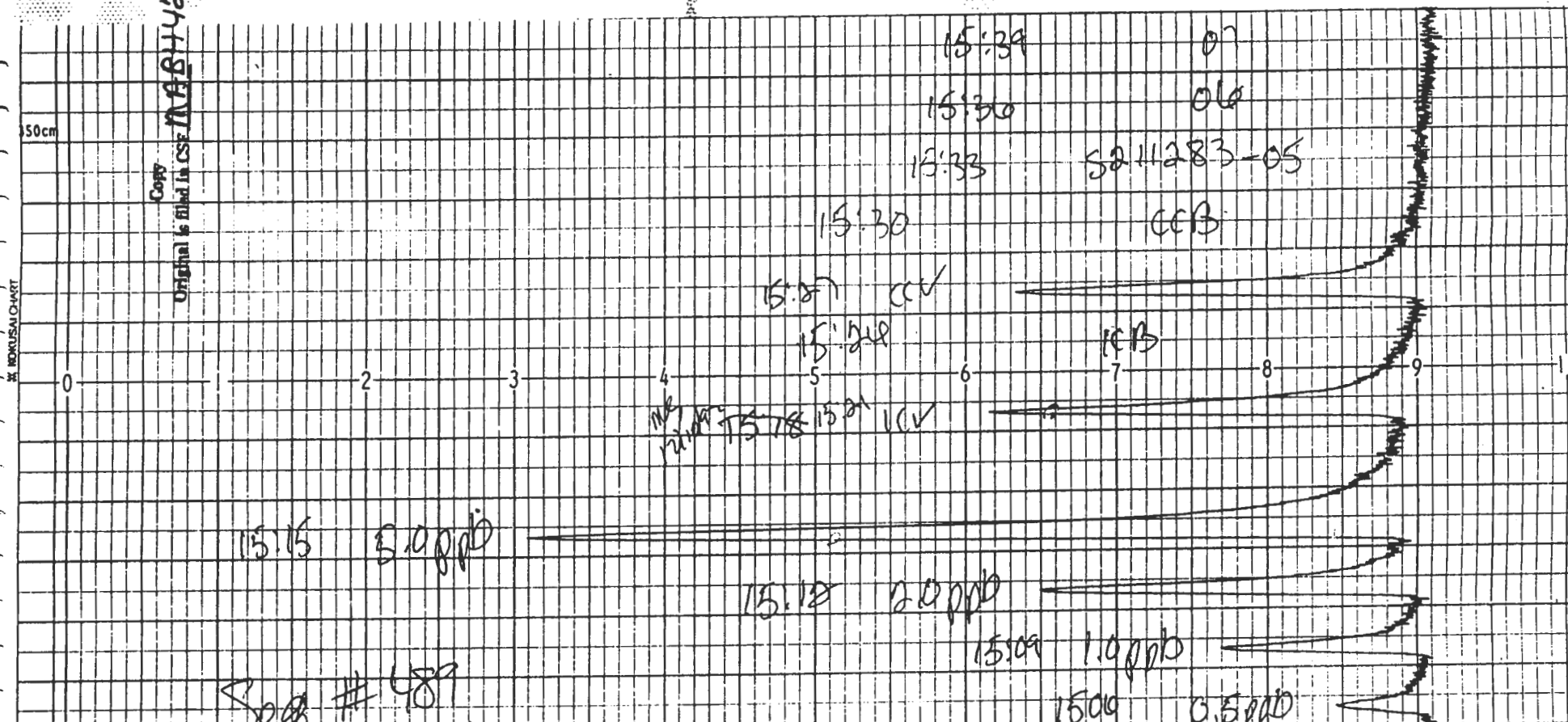
	SAMPLE ID	CLIENT ID	PK HT (mm)	CONC (ppb)	COMMENT
40	01S	MCLM27S	22	0.73	rerun
41	02	MCLM28	0	-0.04	
42	03	MCLM29			
43	PB				
44	~~S2112~~ S212114-01	MABH42			
45	CCV		60	2.05	
46	CCB		0	-0.04	
47	~~S212018~~-01	X			
48	~~01S~~	X			
49	PB				
50	S212016-01	MYK370			
51	02	MYK371			
52	02D	MYK371D			
53	02S	MYK371S	35	1.18	
54	03	MYK372	0	-0.04	
55	04	MYK373	3	0.07	
56	05	MYK376	0	-0.04	
57	CCV		64	2.19	
58	CCB		0	-0.04	
59	S212018-01	MCLM27	0	-0.04	
60	01S	MCLM27S	24	0.80	
61	S212016-06	MYK377	0	-0.04	
62	07	MYK378			
63	08	MYK379			
64	09	MYK380			
65	10	MYK381	5	0.14	
66	11	MYK382	0	-0.04	
67	12	MYK383			
68	13	MYK384			
69	CCV		60	2.05	
70	CCB		0	-0.04	
71	14	MYK385	4	0.07	
72	15	MYK386	0	-0.04	
73	PB				
74	S212096-01	B07MK9			
75	01D	B07MK9D			
76	01S	B07MK9S	23	0.76	
77	CCV		55	1.88	
78	CCB		0	-0.04	
79					
80					
81					
82					
83					
84					
85					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15:39 07
15:36 06
15:33 S2411283-05
15:30 CCB
15:27 CCV
15:24 ICB
15:21 ICV
15:15 5.0ppb
15:12 2.0ppb
15:09 1.0ppb
15:06 0.5ppb
15:03 0.2ppb
15:00 20ppb
Seq # 489
12/10/92

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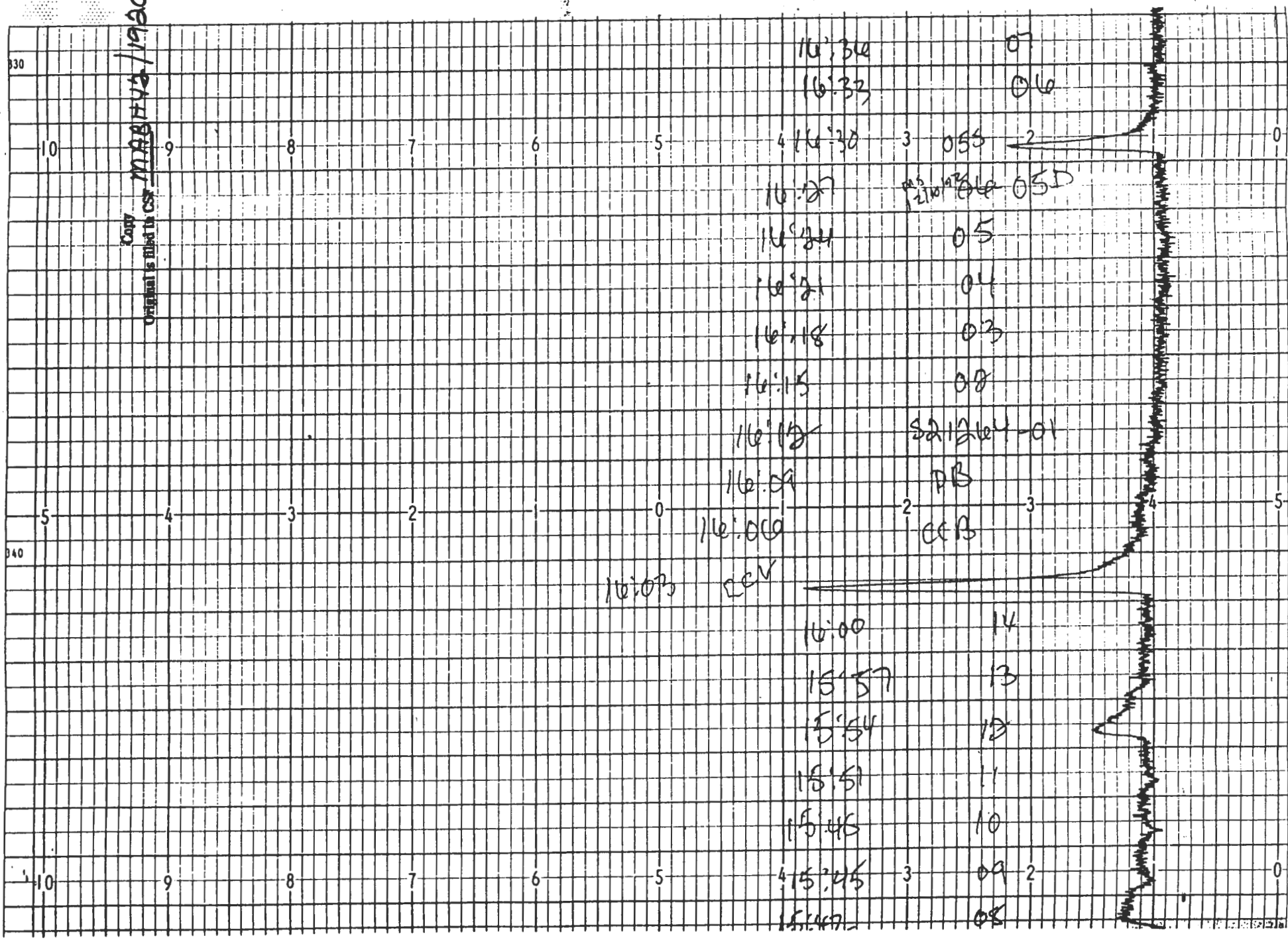

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108

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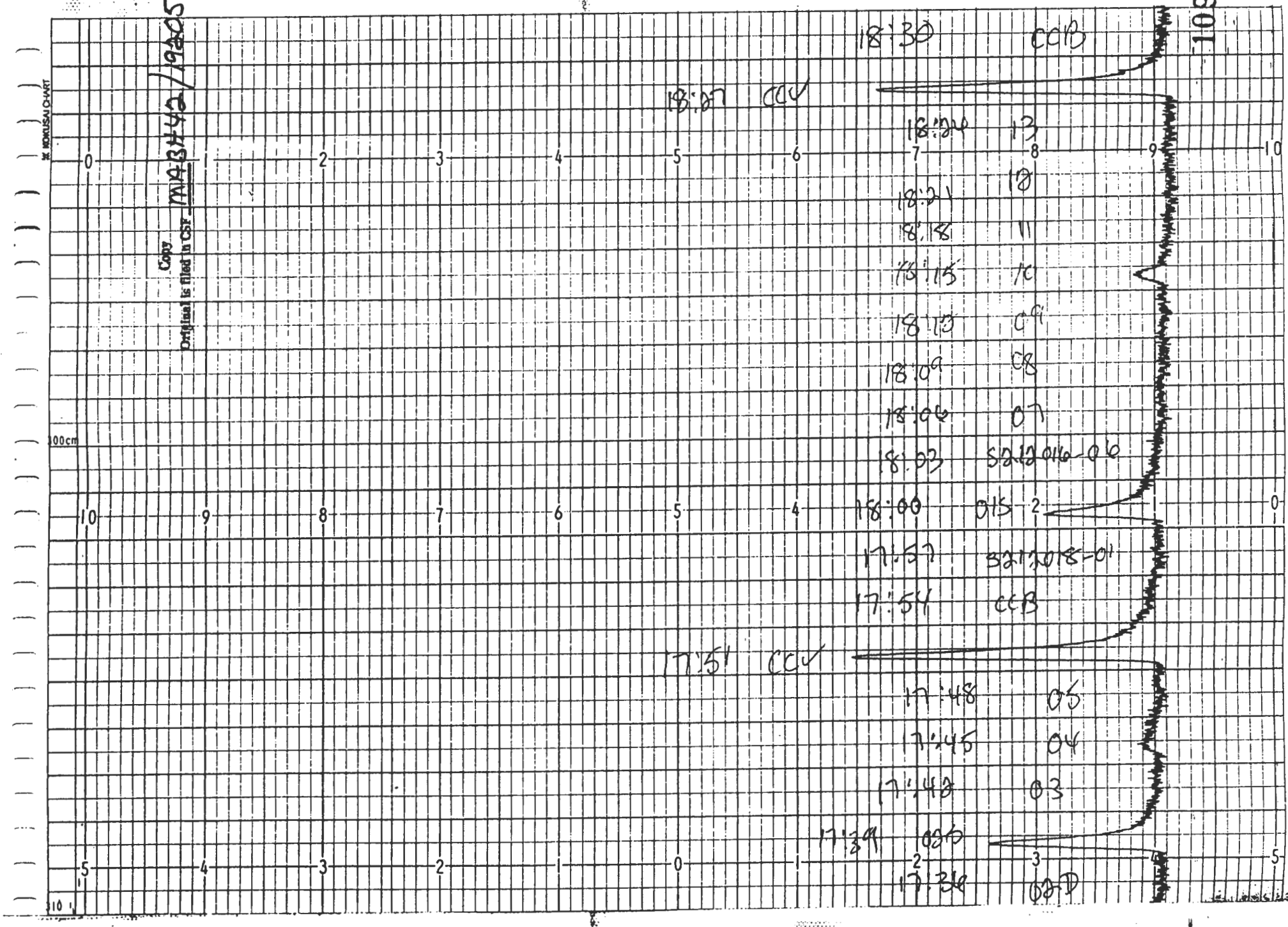
17:33 08
17:30 SA 21016-01
17:27 PB
17:24 X
17:21 X
17:18 CCB
17:15 CCV
17:12 SA 21144-01
17:09 PB
17:06 ~~08~~ 03 RXD 12/19/96
17:03 08
17:00 03
16:57 03
16:54 SA 12018-01
16:51 PB
16:48 09
16:45 08
16:42 CCB
16:39 CCV

320

KOKUSAI CHART


109
18:30 CCB
18:27 CCV
18:24 13
18:21 12
18:18 11
18:15 10
18:12 09
18:09 08
18:06 07
18:03 S2120116-06
18:00 015 2
17:57 S2120118-04
17:54 CCB
17:51 CCV
17:48 05
17:45 04
17:42 03
17:39 02
17:36 02D
Copy
Original is filed in CSF MA8342/1985
KOKUSAI CHART
300cm

9613492.4846

SAMPLE PREPARATION REPORT: AQUEOUS

Prep batch: 1254
Printed by KDJ

Date: 01/12/93
Approved: SRP

pH AS RECEIVED

Sample ID	Lab code	pH	pH(CN)
S212096-01	S	2.0	12.0
S212096-01	S2	2.0	12.0

Prep code A (Flame AA)

Client ID	Sample ID	Lab Code	Initial vol, ml	Final vol,ml	Date Prep.	Ana-lyst	Overall Dilution
	LCSPW	LCSW	100	100	01/06/93 0800	KDJ	1.00
	PB	PBW	100	100	01/06/93 0800	KDJ	1.00
B07MK9S	S212096-01	DS	100	100	01/06/93 0800	KDJ	1.00
B07MK9	S212096-01	S	100	100	01/06/93 0800	KDJ	1.00
B07MK9D	S212096-01	S2	100	100	01/06/93 0800	KDJ	1.00

Prep code CA (Midi Cyanide)

Client ID	Sample ID	Lab Code	Initial vol, ml	Final vol,ml	Date Prep.	Ana-lyst	Overall Dilution
	PB	PBW	50	50	12/10/92 0800	JLS	1.00
B07MK9S	S212096-01	DS	50	50	12/10/92 0800	JLS	1.00
B07MK9	S212096-01	S	50	50	12/10/92 0800	JLS	1.00
B07MK9D	S212096-01	S2	50	50	12/10/92 0800	JLS	1.00

Prep code CV (Mercury)

Client ID	Sample ID	Lab Code	Initial vol, ml	Final vol,ml	Date Prep.	Ana-lyst	Overall Dilution
	PB	PBW	100	100	12/10/92 0800	JLS	1.00
B07MK9S	S212096-01	DS	100	100	12/10/92 0800	JLS	1.00
B07MK9	S212096-01	S	100	100	12/10/92 0800	JLS	1.00
B07MK9D	S212096-01	S2	100	100	12/10/92 0800	JLS	1.00

SAMPLE PREPARATION REPORT: AQUEOUS

Prep batch: 1254
Printed by KDJ

Date: 01/12/93
Approved: SRP

Prep code F (Furnace)

Client ID	Sample ID	Lab Code	Initial vol, ml	Final vol,ml	Date Prep.	Ana-lyst	Overall Dilution
	LCSFW	LCSW	100	100	01/06/93 0800	JLS	1.00
	PB	PBW	100	100	01/06/93 0800	JLS	1.00
B07MK9S	S212096-01	DS	100	100	01/06/93 0800	JLS	1.00
B07MK9	S212096-01	S	100	100	01/06/93 0800	JLS	1.00
B07MK9D	S212096-01	S2	100	100	01/06/93 0800	JLS	1.00

Prep code P (ICP)

Client ID	Sample ID	Lab Code	Initial vol, ml	Final vol,ml	Date Prep.	Ana-lyst	Overall Dilution
	LCSPW	LCSW	100	100	01/06/93 0800	JLS	1.00
	PB	PBW	100	100	01/06/93 0800	JLS	1.00
B07MK9S	S212096-01	DS	100	100	01/06/93 0800	JLS	1.00
B07MK9	S212096-01	S	100	100	01/06/93 0800	JLS	1.00
B07MK9D	S212096-01	S2	100	100	01/06/93 0800	JLS	1.00

DATE 1-6-93 ANALYST JR/LAE FOR GFAA/ICP

WATERS PREP LOG

DATE _____ ANALYST _____ FOR MERCURY

PREP BATCH # 254

REVIEWED BY [illegible]

Thermo Analytical/ SKINNER & SHERMAN

LCS SOURCE		Digest 1 (GFAA)		Digest 2 (ICP)			Digest 3 (Hg)	Description Color Clarity
Client ID	Lab ID	Initial Vol(ml)	Final Vol(ml)	Initial Vol(ml)	Final Vol(ml)	pH	Initial Vol(ml)	
B07MK9	S212096 01	100	100	100	100	2.0		Colorless, Clear
D	01:52							
S	01:05							
	LCSW							
	PB							

9613492.4850

TMA/SKINNER & SHERMAN LABORATORIES
MERCURY PREPARATION LOG

DATE 12/10/92

PREPARED BY MS

NS 12/10/92

S21Ø2096

WORK ORDER

SKINNER & SHERMAN ID	CLIENT ID	INITIAL VOL (ML)	INITIAL WT (GM)	FINAL VOL (ML)	COMMENTS
PB				100	
LCSHG	LCSS	XXXX			
S212096-01	B07MK9	100		100	
01D	B07MK9D	↓		↓	
01S	B07MK9S	↓		↓	

REVIEWED BY: KG 12/11/92

PAGE: 003

F24

9613492.4851

S212096

CYANIDE MIDI-DISTILLATION LOG

Case No. Commercial DATE RECEIVED 12-5-92 Analyst(s) RB.
SDG No. Hu-Ford/Mr DATE DISTILLED 12-10-92 Approval TMA 12/24

WATER SAMPLE	CLIENT ID (EPA)	VOLUME USED	pH	SOIL/SOLID SAMPLE ID	CLIENT ID (EPA)	WET WT
PREP BLANK	PBW	50 ml	--	PREP BLANK	PBS	1.00 g
				LCSS	LCSS	1.00 g
S212096-01	307MK9	50ml	12			
01-D	↓	↓	↓			
01-S						

NOTE: FINAL DISTILLATE VOLUME IS 50 ml

DISTILLED STANDARD IS 10 UG OR 200 UG/L

ICV-6: EMSL-LV: VOLUME USED 0.5 ml: TRUE VALUE = 94 UG/L

S2 = DUPLICATE SAMPLE DS = MATRIX SPIKE 25 UG CN

INTERFERENCE CHECKS

* SAMPLE EXHIBITS CHLORINE ODOR
DOES POTASSIUM IODIDE-STARCH PAPER TEST BLUE? No
IF YES, ADD ASCORBIC ACID CRYSTALLS AND DISTILL.

** DISTILLATE IS CLOUDY
IS LEAD ACETATE PAPER DISCOLORED (INDICATES SULFIDE)? No
IF YES, TREAT WITH CADMIUM CARBONATE AND ANALYZE.

COMMENTS:

TMA/Skinner & Sherman Labs

(1)

SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

STANDARD PREPARATION LOG
++++++++++++++++++++++++

STANDARD IDENTITY: STANDARD B

DATE PREPARED: 1/7/93
PREPARED BY: [illegible]

FINAL VOLUME: 1000 ml

MATRIX: 1 %HNO3
5 %HCl
___ Other

MLS ADDED: 10 HNO3
50 HCl
___ Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

(2)

STANDARD PREPARATION LOG
++++++++++++++++++++

STANDARD IDENTITY: STANDARD 1

DATE PREPARED: 1/7/93
PREPARED BY: [illegible]

FINAL VOLUME: 1000 ml

MATRIX: 1 %HNO3
5 %HCl
___ Other

MLS ADDED: 10 HNO3
50 HCl
___ Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
Sb	MVSb-3		1000 ppm	5 ml	5 ppm
As	HPAs-2		1000 ppm	5 ml	5 ppm
Ba	HPBa-1		1000 ppm	5 ml	5 ppm
Be	HPBe-1		1000 ppm	1 ml	1 ppm
Cd	HPCd-1		1000 ppm	5 ml	5 ppm
Cr	HPCr-1		1000 ppm	5 ml	5 ppm
Co	HPCo-1		1000 ppm	5 ml	5 ppm
Cu	HPCu-1		1000 ppm	5 ml	5 ppm
Pb	HPPb-1		1000 ppm	5 ml	5 ppm
Mn	MVMn-3		1000 ppm	5 ml	5 ppm
Ni	MVNi-3		1000 ppm	5 ml	5 ppm
Se	HPSe-1		1000 ppm	5 ml	5 ppm
Tl	HPTl-1		1000 ppm	5 ml	5 ppm
V	HPV-1		1000 ppm	5 ml	5 ppm
Zn	HPZn-1		1000 ppm	5 ml	5 ppm
Ti	HPTi-1		1000 ppm	5 ml	5 ppm

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

9613492.4854

SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

(3)

STANDARD PREPARATION LOG
++++++++++++++++++++++++

STANDARD IDENTITY: STANDARD 2

DATE PREPARED: 12/23/92
PREPARED BY: [illegible]

FINAL VOLUME: 1000 ml

MATRIX: 2 %HNO3
___%HCl
___Other

MLS ADDED: 20 HNO3
___HCl
___Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
Ag	HPAg-1		1000 ppm	1 ml	1.0 ppm

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

(4)

STANDARD PREPARATION LOG
++++++++++++++++++++++++

STANDARD IDENTITY: STANDARD 3

DATE PREPARED: 1/7/93
PREPARED BY: [illegible]

FINAL VOLUME: 1000 ml

MATRIX: 1 %HNO3
5 %HCl
___ Other

MLS ADDED: 10 HNO3
50 HCl
___ Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
AL	HPAL-1		10,000 ppm	5 ml	50 ppm
Ca	HPCa-1		10,000 ppm	5 ml	50 ppm
Fe	HPFe-1		10,000 ppm	2 ml	20 ppm
Mg	HPMg-1		10,000 ppm	5 ml	50 ppm
K	HPK-1		10000 ppm	5.0 ml	50 ppm
Na	HPNa-1		10000 ppm	5.0 ml	50 ppm

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

(5)

STANDARD PREPARATION LOG
++++++++++++++++++++++++

STANDARD IDENTITY: Initial Calibration Verification Solutions

DATE PREPARED: 12/31/92
PREPARED BY: SRP

FINAL VOLUME:

MATRIX: 2 %HNO3
___%HCl
___Other

MLS ADDED: 4/2 HNO3 ← ICV 2
___HCl
___Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
a) ICV-1	QCICV1	-200		20ml → 200ml	
b) ICV-2	QCICV2	-152		20ml → 100ml	
c) ICV-3	QCICV3	-179		20ml → 200ml	

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

(6)

STANDARD PREPARATION LOG
++++++++++++++++++++++++

STANDARD IDENTITY: Interference Check Sample Solutions

DATE PREPARED: 1/7/93
PREPARED BY: LP

FINAL VOLUME: 200 ml

MATRIX: 2 %HNO3
___%HCl
___Other

MLS ADDED: 4 HNO3
___HCl
___Other

	ELEMENT	SOURCE LOT#	STOCK CONC	VOLUME	FINAL CONC
a)	ICSAA	QCICSA-84		20 ml →	200 ml
b)	ICSABR	QCICSA-84		20 ml →	200 ml
		QCICSB-47		20 ml →	

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

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SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

STANDARD PREPARATION LOG
++++++++++++++++++++++++

STANDARD IDENTITY: 2X CONTRACT REQUIRED DETECTION LIMIT SOLUTION P2

DATE PREPARED: 1/5/93
PREPARED BY: [illegible]

FINAL VOLUME: 1000 ml

MATRIX: 1 %HNO3
5 %HCl
___ Other

MLS ADDED: 10 HNO3
50 HCl
___ Other

ELEMENT	SOURCE LOT#	STOCK CONC	VOLUME	FINAL CONC
Sb	MVSb-3	1000 PPM	120 ul	120 PPb
As	HPAs-2	1000 PPM	30 ul	30 PPb
Be	HPBe-1	1000 PPM	10 ul	10 PPb
Cd	HPCd-1	1000 PPM	10 ul	10 ppb
Cr	HPCr-1	1000 PPM	20 ul	20 ppb
Co	HPCo-1	1000 PPM	100 ul	100 ppb
Cu	HPCu-1	1000 PPM	50 ul	50 ppb
Pb	HPPb-1	1000 PPM	30 ul	30 PPb
Mn	MVMn-3	1000 PPM	30 ul	30 ppb
Ni	MVNi-3	1000 PPM	80 ul	80 ppb
Se	HPSe-1	1000 PPM	100 ul	100 ppb
V	HPV-1	1000 PPM	100 ul	100 ppb
Tl	HPTl-1	1000 PPM	500 ul	500 ppb
Ag	HPAg-1	1000 PPM	20 ul	20 ppb
Zn	HPZn-1	1000 PPM	40 ul	40 ppb
Ti	HPTi-1	1000 PPM	100 ul	100 ppb
Sr	MVSr-3	1000 PPM	400 ul	400 ppb
Mo	MVMo-3	1000 PPM	400 ul	400 ppb
Sn	MVSn-2	1000 PPM	400 ul	400 ppb
Li	MVLi-3	1000 PPM	200 ul	200 ppb

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

DOCUMENT# _____
(BOOK# - PAGE#)

SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

(8)

STANDARD PREPARATION LOG
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STANDARD IDENTITY: Continuing Calibration Verification Solution (HalfSTD)

DATE PREPARED: 1/7/93
PREPARED BY: [illegible]

FINAL VOLUME: 500 ml

MATRIX: 1 %HNO3
5 %HCl
___Other

MLS ADDED: ___HNO3
___HCl
___Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
STD1	In House			250 ml	500 ml
STD3	In House			250 ml	
Ag	HP Ag-1		1000 ppm	250 ul	

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

TMA/SKINNER & SHERMAN LABORATORIES, INC.
STANDARDS TRACKING LOG BOOK -- SECTION 2
STANDARD PREPARATION LOG

STANDARD IDENTITY Hg Working Standard

DATE PREPARED: PREPARED BY:

FINAL VOLUME: 100 ml

MATRIX: 2 %HNO3 ___ %HCL ___ Other

MLS ADDED: 2 HNO3 ___ HCl ___ Other

ELEMENT	SOURCE/LOT#	STOCK CONC	VOLUME ADDED	FINAL CONC
12/1/92	MV-Hg-3	10 ppm	1 ml	100 ppb
	Cr	5%	25 ul	—
12/2/92	MV-Hg-3	10 ppm	1 ml	100 ppb
	Cr	5%	25 ul	—
12/3/92	MV-Hg-3	10 ppm	1 ml	100 ppb
	Cr	5%	25 ul	—
JW 12/8/92	Hg Lot#290930	10 ppm	1 ml	100 ppb
	Cr	5%	25 µl	—
MS 12/9/92	Hg Lot#290930	10 ppm	1 ml	100 ppb
	Cr	5%	25 ul	—
MS 12/10/92	Hg Lot#290930	10 ppm	1 ml	100 ppb
	Cr	5%	25 µl	—

SOURCE: QC=USEPA ICV=USEPA MV=METALS VENTURES S=SPEX OTHER=IDENTIFY

ver 1.1 04/17/91

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TMA/SKINNER & SHERMAN LABORATORIES, INC.
STANDARDS TRACKING LOG BOOK

STANDARDIZATIONS AND PREPARATION OF CYANIDE SOLUTIONS

Standization with 0.0192 N AgNO3 (1.0 mL = 1.0 mg CN)

SOURCE: KCN Mallinckrodt DATE RECEIVED: 5/1/90 DATE OPENED: 5/1/90 LOT#: 6881 KDS6

Date	By	Volume of Stock Solution Titrated	Volume AgNO3 Required	
12/9/92	DN	10ml CN-5 @ ~1000ppm	8.3	18.35
			000	10.00
			8.3	8.35 $\bar{x}$ 8.325

Calculation

$\frac{8.325}{10} = 0.8325$ $\frac{10}{.8325} = 12.012$

Volume of stock solution required for 10 mg CN is 12.012 mL.

Calibration Standards: Add 10 mL of 1.25 N NAOH solution to each of the required number of 50 mL volumetric flasks. Add quantities of the 5 ug/mL CN standard solution as listed below and dilute to volume.

Standard Solution in mLs	Micrograms CN	ug/L CN
0	0.0 (blank)	0
0.1	2.5	10
0.2	5.0	20
0.4	10.0	40
1.0	25.0	100
2.0	50.0	200
4.0	100.0	400

Preparation of Dilute Standards

Standard ID	Date	By	Concentration mg/L CN	Preparation Information
INT STD	12/9/92	DN	50 ppm	12.012 ml CN-5 IN 200 mL DS
WRK STD	12/9/92	DN	5 ppm	20ml 50ppm IN 200 ml.
CAL STD	12/9/92	DN	From 5ppm	For: S212025, S212023, S212025, S212026
CAL STD	12/9/92	DN	From 5ppm	For: S212037, S212036, S212038, S212036, S212039
CAL STD	12/9/92	DN	From 5ppm	For: S212029, S212021, S212089, S212087
CAL STD	12/9/92	DN	From 5ppm	For: S212067, S212060, S212062, S212108, S212106
CAL STD	12/11/92	DN	From 5ppm	For: S212143, S212124, S212146, S212137

DOCUMENT #_____ ver 2.1 01/13/92

Book# - Page# 16

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Sampled 12/2/92

TMA/Skinner & Sherman Labs SAMPLE LOG-IN
WORKORDER N212096 CLIENT Hanford Nav No. SAMPLES:
PROTCL CLP TURNARND 33 Days
COOLER TEMP: 5 oC, or NA (Soil) (Water) (Specify Other)
CUSTODIAN B Powell SDG/BATCH N/A
CUSTODY SEAL: PRESENT/ABSENT/INTACT/NOT CLIENT CASE N212023
SHIPER & # Fed Ex PO/CONTRACT# ↓
TAGS: PRESENT/ABSENT/NA/SEE COC CONTACT D. Sanchez
CHAIN OF CUSTODY: PRESENT/ABSENT/NA, # N/A COMMENTS: none

SAMPLE CONTAINERS-INTACT/BROKEN COMMENTS

CLIENT COMMENT? YES/NO
SAMPLE LABELS AGREE WITH CHAIN OF CUSTODY INFO? YES/NO (COMMENT)
CLIENT PAPERWORK AGREES WITH SAMPLES & COC? YES /NO (COMMENT)

SHIPMENT DATES 12-5-92
LIST ANY DATE WITH PAPERWORK/SHIPMENT PROBLEMS & SPECIFY THE PROBLEM:

N/A

	CLIENT ID	MATRIX	RECEIVED	PH*	TEST(S) & QC	HOLD TIME UP
1	B07MK9	water	12-5-92	1.80/12.01	Tm/CN + Bismuth	
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

Samples are from site known to have Rad-Contamination: YES ✓ NO
Samples have detectable amounts of Radioactive Material: YES NO ✓

SUBCONTRACT: YES/NO TO: DATE:

REVIEWED complete 12/7/92 BP

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* EPA/CLP required Rev 1.6 PAGE:

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PAGE 1 TMA/Norcal CHAIN OF CUSTODY ORD # M2-12-023

RCVD: 12/04/92 DUE: 01/03/93 12/04/92 15:39:26 KEEP: 04/03/93 DISP: S

DASN	SAMPLE IDENTIFICATION	STORED	TESTS for FRACTIONS with work in DEPT: SU and CATEGORY				
01B-W	B07MK9	S&S	WH007	WH008	WH010	WH011	WH075A
01F-W	B07MK9 MS	S&S	WH007	WH008	WH010	WH011	WH075A
01G-W	B07MK9 DUP	S&S	WH007	WH008	WH010	WH011	WH075A
01H-W	LCS	S&S	WH007	WH008	WH010	WH011	WH075A

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
yyamamoto	12-4-92	SKINNER	12-4-92	[illegible]	12/5/92

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E-93-22/2978-62
WESTINGHOUSE HANFORD COMPANY
241-T-106 DATA VALIDATION
DISTRIBUTION FORM

31 of 42

SDG: B07MK#9
Case #: N2-12-125-7135
Fraction: Rad

Document Title Final QA Record

Document Number: _____ Date: 4/15/94

DISTRIBUTION					
M. Baker (HCRL)		D. Mantooth (ERL)		D. Wiley (ERL)	
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Y. Chun (HCSEA)		R. Potter (HCRL)		ERL Project File/J. Pawlowski	
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M. Gerboth (HCRL)		C. Sater (ERL)		Duplicate Project File/T. Trevino (HCSEA)	
J. Grover (ERL)		M. Schwarz (ERL)		Westinghouse EDMC	X
L. Hammerle (HCSEA)		A. Shen (HCSEA)			
K. Pool (WHC)					

Project Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

1.1	File Index		1.6.6.3	Plans Doc. Log		3.4	Original Chemical Data
1.2	Distribution Lists		1.6.6.4	Deliverables Doc. Log		3.5	Original Radiochemical Data
1.3	Project Procedures		1.7	Budget			
1.4	Project Modifications		1.7.1	Downloads		4.1	Task Plan
1.5	Staff		1.7.2	M-113s			
1.5.1	Staff Resumes		1.7.3	A-208s		4.2	Data Pkg. Completeness Verif. Checklist
1.5.2	Staff Training		1.7.4	Budget Status		4.3	Data Valididation Calcs./Annotated DP
1.5.3	Auth. Former Site Employee		1.7.5	Invoices		4.4	Prelim. QA Records
1.6	QA		1.8	Requisitions			
1.6.1	QA Manual		1.9	Meeting Minutes		4.5	Data Valid. & Qual. Summary Rpts.
1.6.2	QA Implementation		1.10	Record of Telecon		4.5.1	Internal Drafts/Comments/Resol.
1.6.3.1	QA Audits-Deliverables		1.11	Progress Reports		4.5.2	WHC Review Draft Comments/Resol.
1.6.3.2	QA Audits-Files		1.12	Subcontractor (HC)		4.5.3	Final Report
1.6.4.1	Audit Resps. - Deliverables					4.6	Weekly Status Reports
1.6.4.2	Audit Resps. - Files		2.1	Incoming Correspondence		4.7	Weekly Management Reports
1.6.5	QA Training		2.2	Outgoing Correspondence			
1.6.6.1	QA Manual Document Log		2.3	Internal Correspondence			
1.6.6.2	Procedure Document Log						
			3.1	Task Order			
			3.2	Sample Lists			
			3.3	Data Validation Procedures			

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Gross Alpha (CRDL = 3 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	1.231	0.915	0.920	U
QC 7135-2	19.533	19.500	65.000	
QC 7135-3	-0.012	-0.012	-0.040	
QC 7135-4	1.387	1.400	1.400	

Uranium 235 (CRDL = 0.2 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.040	0.042	0.042	R
QC 7135-2	0.004	0.161	0.160	
QC 7135-3	0.018	0.033	0.033	
QC 7135-4	0.089	0.088	0.088	

Gross Beta (CRDL = 4 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.186	0.250	0.190	U
QC 7135-2	9.060	9.063	30.000	
QC 7135-3	0.067	0.067	0.220	
QC 7135-4	3.010	3.016	3.000	

Uranium 238 (CRDL = 0.2 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.254	0.255	0.250	R
QC 7135-2	0.417	4.196	4.200	
QC 7135-3	-0.000	0.000	0.000	
QC 7135-4	0.209	0.219	0.220	

Uranium 233/234 (CRDL = 0.2 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.398	0.394	0.390	R
QC 7135-2	0.451	4.551	4.600	
QC 7135-3	-0.020	-0.027	-0.027	
QC 7135-4	0.282	0.292	0.290	

Total Uranium

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.059	<0.059	U	U
QC 7135-2	34.233	34.233	34.000	
QC 7135-3	0.001	<0.001	U	
QC 7135-4	0.059	<0.059	U	

Raw Data Results units are pCi/sample.
Reported Results units are pCi/L.

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Plutonium 238 (CRDL = 0.05 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.009	0.008	0.008	R
QC 7135-2	0.002	0.003	0.003	
QC 7135-3	-0.003	-0.003	-0.003	
QC 7135-4	0.009	0.007	0.007	

Strontium 90 (CRDL = 2 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.011	-0.110	-0.110	U
QC 7135-2	9.360	9.366	9.400	
QC 7135-3	0.076	0.061	0.061	
QC 7135-4	0.256	0.059	0.059	

Plutonium 239 (CRDL = 0.05 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.008	0.008	0.008	R
QC 7135-2	0.905	0.903	0.900	
QC 7135-3	0.003	0.003	0.003	
QC 7135-4	0.004	0.004	0.004	

Technetium 99 (CRDL = 5 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	1.368	1.397	1.400	U
QC 7135-2	46.459	46.457	230.000	
QC 7135-3	0.043	0.048	0.240	
QC 7135-4	1.049	1.061	1.100	

Americium 241 (CRDL = 0.05 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	-0.009	-0.008	-0.008	R
QC 7135-2	0.624	0.624	0.620	
QC 7135-3	0.017	0.017	0.017	
QC 7135-4	0.003	0.004	0.004	

Carbon 14 (CRDL = 50 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	-45.974	-46.003	-46.000	UJ
QC 7135-2	94.053	94.250	3100.000	
QC 7135-3	-2.154	-2.156	-72.000	
QC 7135-4	-51.224	-51.193	-51.000	

Raw Data Results units are pCi/sample.
Reported Results units are pCi/L.

Neptunium 237 (CRDL = 1 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.423	0.416	0.420	R
QC 7135-10	4.281	4.281	21.000	
QC 7135-11	0.008	0.008	0.042	
QC 7135-12	0.010	0.010	0.052	

Cesium 137 (CRDL = 20 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	13.413	<10	~~0~~	U
QC 7135-2	94.366	94.330	190.000	
QC 7135-3	4.955	<	U	
QC 7135-4	0.020	<	U	

Cobalt 60 (CRDL = 30 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	13.292	<10	~~0~~	U
QC 7135-2	124.287	124.300	250.000	
QC 7135-3	7.617	<	U	
QC 7135-4	0.030	<	U	

Thorium 228

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	18.407	<30 <	~~0~~	U
QC 7135-2	27.556	<	U	
QC 7135-3	8.597	<	U	
QC 7135-4	0.034	<	U	

Raw Data Results units are pCi/sample.
Reported Results units are pCi/L.

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2978-62

October 29, 1993

Mr. Karl Pool
Westinghouse Hanford Company
P.O. Box 1970 MSIN H4-23
Richland, WA 99352

Subject: WHC Order No. MLW-SVV-037106
Task Order E-93-22
Preliminary Quality Assurance Record- 241-T-106
Data Package B07MK9, TMA Case Number N2-12-125-7135

Dear Mr. Pool:

Ebasco and Hart Crowser are pleased to provide you with the results of our review and validation of the subject data from the 241-T-106 sampling activities. The attached results are provided to you in partial fulfillment of Milestone 02 of our task plan dated September 2, 1993. The subject data package consisted of one water sample submitted for gross alpha, gross beta, isotopic uranium, total uranium, isotopic plutonium, americium 241, strontium 90, technetium 99, carbon 14, neptunium 237, and gamma scan radiochemical analysis. The samples were analyzed by Thermo Analytical, Inc. according to requirements specified in the Analytical Laboratory Statement of Work issued by Westinghouse Hanford Company (WHC). The data packages were verified for completeness by Bovay Northwest as required by WHC. All applicable QA/QC samples were validated using Level IV validation criteria. These results, together with the data qualifiers assigned as a result of our review, are provided in Attachment 4.

DATA QUALITY OBJECTIVES SUMMARY

All data quality objectives were met with the exception of initial and continuing calibration verification for alpha spectroscopy results.

MAJOR DEFICIENCIES (REJECTED DATA)

The alpha spectroscopy results from all samples were rejected (qualified R) because the laboratory did not provide evidence of initial or continuing calibration. Additionally, the National Institue for Standards and Testing (NIST) traceability certificates for americium 243 standard H-E2 and uranium 232 tracer F-H1 were not provided.

MINOR DEFICIENCIES (OTHER QUALIFIED DATA)

One minor deficiency was noted. The result for carbon 14 is qualified as an estimated nondetect (UJ) because the method accuracy, as indicated by the laboratory control sample (LCS) recovery, is not within the acceptable range.

We trust that these preliminary results meet your needs. Our qualifier assignments will be finalized at the time the summary report for this sampling round is published. The final qualifiers may vary from those presented here, reflecting any trends in data quality or laboratory performance observed over this validation effort, or receipt of additional information from the laboratories. Please contact me if you have questions with regard to our activities.

Sincerely,

HART CROWSER, INC.

D. MARK GERBOTH, P.E.
Project Manager

Attachments

cc: Mark Gerboth (w/o attachments)
Jeff Grover (w/o attachments)
Westinghouse EDMC
Project File (

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ATTACHMENT 1

Glossary of Data Qualifiers

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ATTACHMENT 1

Glossary of Data Qualifiers

U - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported nay not accurately reflect the sample quantitation limit.

J - Indicate the compound or analyte was analyzed for and detected. The associated values is estimated but the data are useable for decision making processes.

R - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

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ATTACHMENT 2

As Received Laboratory Sample Concentration Reports

9613492.4875

TMA NORCAL
REPORTING GROUP 7135

N212125-01

DATA SHEET

B07MK9

SDG 7135
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212125-01
Dept sample id 7135-001
Received 12/24/92

Client sample id B07MK9
Matrix WATER
Collected 12/02/92
Chain of custody id EFL-1053

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	0.92	1.8	3	3	U	80A
Gross Beta	Beta	0.19	1.1	2	4	U	80B
Uranium 233/234		0.39	0.14	0.09	0.2		U
Uranium 235	15117-96-1	0.042	0.056	0.1	0.2	U	U
Uranium 238	7440-61-1	0.25	0.12	0.09	0.2		U
Total Uranium (ug/L)		U		0.06		U	U_T
Plutonium 238	13981-16-3	0.008	0.039	0.08	0.05	U	PU
Plutonium 239/240		0.008	0.008	0.03	0.05	U	PU
Americium 241	14596-10-2	-0.008	0.040	0.07	0.05	U	AM
Strontium 90	10098-97-2	-0.11	1.7	0.9	2	U	Y
Technetium 99	14133-76-7	1.4	1.1	3	5	U	TC
Carbon 14	14762-75-5	-46	53	90	50	U	C
Neptunium 237	13994-20-2	0.42	0.31	0.2	1	J	NP
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		200		U	GAM
Iron 59	14596-12-4	U		70	30	U	GAM
Chromium 51	14392-02-0	U		500		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	13982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	13967-70-9	U		20		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Cerium 144	14762-78-8	U		70		U	GAM
Europium 152	14683-23-9	U		30	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-63-3	U		30		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		70		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/24/93

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ATTACHMENT 3

Summary of Data Qualifications

TMA NORCAL N2-12-125-7135

241-T-106 Samples

Gross Alpha (CRDL = 3 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	1.231	0.915	0.920	U

Gross Beta (CRDL = 4 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.186	0.250	0.190	U

Uranium 233/234 (CRDL = 0.2 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.398	0.394	0.390	R

Plutonium 238 (CRDL = 0.05 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.009	0.008	0.008	R

Uranium 235 (CRDL = 0.2 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.040	0.042	0.042	R

Uranium 238 (CRDL = 0.2 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.254	0.255	0.250	R

Total Uranium

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.059	<0.059	*	U

Strontium 90 (CRDL = 2 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.011	-0.110	-0.110	U

Raw Data Results units are pCi/sample.
Reported Results units are pCi/G.
* - Sample reported as "U" on results reported printout

241-T-106 Samples

Plutonium 239 (CRDL = 0.05 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.008	0.008	0.008	R

Technetium 99 (CRDL = 5 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	1.368	1.397	1.400	U

Americium 241 (CRDL = 0.05 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	-0.009	-0.008	-0.008	R

Carbon 14 (CRDL = 50 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	-45.974	-46.003	-46.000	UJ

Neptunium 237 (CRDL = 1 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	0.423	0.416	0.420	R

Cesium 137 (CRDL = 20 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	13.413	<10.0	*	U

Cobalt 60 (CRDL = 30 pCi/L)

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	13.292	<10.0	*	U

Thorium 228

Customer I.D. #	Calculated Results	Raw Data Results	Reported Results	Q
B07MK9	18.407	<20.0	*	U

Raw Data Results units are pCi/sample.
Reported Results units are pCi/G.

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ATTACHMENT 4

As Qualified Data Summary

9613492.4880

TMA NORCAL
REPORTING GROUP 7135

DATA SHEET

N212125-01

B07MK9

SDG 7135
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212125-01
Dept sample id 7135-001
Received 12/24/92

Client sample id B07MK9
Matrix WATER
Collected 12/02/92
Chain of custody id EFL-1053

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	0.92	1.8	3	3	U	80A
Gross Beta	Beta	0.19	1.1	2	4	U	80B
Uranium 233/234		0.39	0.14	0.09	0.2	~~R~~U	U
Uranium 235	15117-96-1	0.042	0.056	0.1	0.2	~~U~~ ~~R~~U	U
Uranium 238	7440-61-1	0.25	0.12	0.09	0.2	~~R~~U	U
Total Uranium (ug/L)		U		0.06		U	U_T
Plutonium 238	13981-16-3	0.008	0.039	0.08	0.05	~~U~~ ~~R~~U	PU
Plutonium 239/240		0.008	0.008	0.03	0.05	~~U~~ ~~R~~U	PU
Americium 241	14596-10-2	-0.008	0.040	0.07	0.05	~~U~~ ~~R~~	AM
Strontium 90	10098-97-2	-0.11	1.7	0.9	2	U	Y
Technetium 99	14133-76-7	1.4	1.1	3	5	U	TC
Carbon 14	14762-75-5	-46	53	90	50	~~U~~ ~~J~~U	C
Neptunium 237	13994-20-2	0.42	0.31	0.2	1	~~J~~ ~~R~~	NP
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		200		U	GAM
Iron 59	14596-12-4	U		70	30	U	GAM
Chromium 51	14392-02-0	U		500		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	13982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	13967-70-9	U		20		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Cerium 144	14762-78-8	U		70		U	GAM
Europium 152	14683-23-9	U		30	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-63-3	U		30		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		70		U	GAM

GP 2-22-94

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/24/93

9613492.4881

ATTACHMENT 5

Data Review Supporting Documentation

9613492.4882

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
P. O. Box 4040
Richmond, CA 94804-0040
(510) 235-2633 Fax No. (510) 235-0438

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MAR 1993
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March 24, 1993

SENT BY FEDERAL EXPRESS

Ref. TMA/Norcal N2-12-125-7135

Ms. Briana Colley
Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23
345 Hills Street/3000 Area
Richland, WA 99352

Dear Ms. Colley:

Enclosed in the Summary Data Section, are the gross alpha, gross beta, ^{14}C, ^{90}Sr, ^{99}Tc, total uranium, isotopic uranium, isotopic plutonium, ^{241}Am, ^{237}Np and gamma scan results for the water sample from 241-T-106 Location we received 4 December 1992. The QA/QC results are also given in the Summary Data Section. The Summary Data Section is numbered pages 1 to 50, and the appendices are numbered pages 51 to 335.

Please call if you have any questions concerning this data.

Sincerely,

D.P. Kharkar

Dinkar P. Kharkar, Ph.D.
Manager, Nuclear Programs

DPK/ss

Enclosures: Section 1 and 2
Appendices

9613492.4883

SECTION 1 Case Narrative

SDG	7135	Client	Westinghouse Hanford
Contact	Dinkar P. Kharkar	Contract	MBH-SVV-069262

CASE NARRATIVE

1.0 GENERAL

Water sample results from 241-T-106 location (TMA/Norcal Group 7135) are provided in this report. TMA/Norcal Group 7135 is comprised of the sample listed on the Chain-of-Custody document below which is identified as sample 1.

1.1 CHAINS-OF-CUSTODY

This report includes data from the sample delivered under Chain-of-Custody document Field Logbook No. EFL-1053.

1.2 SAMPLE VOLUME

2-L and 1-L plastic bottles, and 250 mL glass bottles containing the sample were received for analysis.

1.3 MISSING SAMPLES

The sample was accounted for in an undamaged condition.

1.4 HOLDING TIMES

The sample was collected 12/02/92 and sample processing was initiated within 180 days of collection.

2.0 QUALITY CONTROL

The internal quality control consisted of one sample each of a laboratory control, a blank, and a replicate. All original analyses were performed with QC samples 7135-2, 3, 4, 10, 11 and 12.

The QC samples were prepared and labelled by the quality control officer. Copies of The QC notebook pages are included in the data package.

2.1 LABORATORY CONTROL SAMPLES

The LCS recovery for ^{14}C was low (68%) and did not pass at the 3σ protocol limits. The low recovery was due to the low scintillation counting efficiency. LCS recoveries for all other nuclides were satisfactory.

The MDA of the results for ^{14}C was higher than the RDL. This was due to a low counting efficiency. The MDA of the result for ^{99}Tc was also higher, but within 1σ of the RDL.

SDG	7135		Client	Westinghouse Hanford
Contact	Dinkar P. Kharkar		Contract	MBH-SVV-069262

CASE NARRATIVE

2.2 BLANKS

The MDA's of the results for all analyses except $^{233/234}U$, ^{235}U and ^{14}C met RDL requirements. The higher MDA's for uranium were due to a low chemical yield. The higher MDA for ^{14}C was due to a low counting efficiency. The ^{14}C result is underlined because the negative result is less than the negative of its 2σ counting error.

2.3 REPLICATES

Results were satisfactory for all replicate analyses except gross beta. The RPD was however, within 1σ of the 3σ total limits. The MDA's of the results for $^{233/234}U$, ^{235}U, ^{238}U, ^{238}Pu, ^{241}Am, ^{14}C and ^{59}Fe were higher than the RDL's. The higher MDA's for the uranium nuclides was due to a low chemical yield. The ^{59}Fe MDA was higher than the RDL due to the short half-life of ^{59}Fe. The higher MDA's for ^{238}Pu and ^{241}Am were due to high background. The higher MDA for ^{14}C was due to low counter efficiency.

The ^{237}Np analysis had to be repeated three times to obtain reasonable chemical yields and therefore adequate sample volumes were not available to do the replicate analyses.

3.0 ANALYTICAL NOTES

3.1 Gross Alpha Analyses: The average MDA for gross alpha was (3 ± 1) pCi/L. Gross alpha activity above the RDL was not found in the sample.

3.2 Gross Beta Analyses: The average MDA for gross beta was (2 ± 0) pCi/L. Gross beta activity above the RDL was not found in the sample.

3.3 Carbon-14 Analyses: The average MDA for four analyses was (80 ± 30) pCi/L. ^{14}C activity above the RDL was not found in the sample. The sample MDA was above the RDL due to low counting efficiency.

3.4 Strontium-90 Analyses: The average yield for four analyses was (81 ± 12)%. The lowest yield was 73% and the highest was 86%. The average MDA was (1 ± 1) pCi/L. ^{90}Sr activity above the RDL was not found in the sample.

3.5 Technicium-99 Analyses: The average yield for four analyses was (52 ± 15)%. The lowest yield was 45% and the highest was 62%. The average MDA was (4 ± 3) pCi/L. ^{99}Tc activity above the RDL was not found in the sample.

SDG	7135		Client	Westinghouse Hanford
Contact	Dinkar P. Kharkar		Contract	MBH-SVV-069262

CASE NARRATIVE

3.6 Uranium-233, 234, 238 Analyses: The average yield for four analyses was (52 ± 58)%. The lowest yield was 30% and the highest was 94%. The average MDA was (0.3 ± 0.5) pCi/L. $^{233/234}U$ and ^{238}U activity above the RDL was found in the sample.

3.7 Total Uranium: The average MDA for four analyses was (2 ± 3) ug/L. Total uranium activity above the RDL was not found in the sample.

3.8 Plutonium-238, 239/240 Analyses: The average yield for four analyses was (64 ± 40)%. The lowest yield was 42% and the highest was 90%. The average MDA was (0.05 ± 0.06) pCi/L. Plutonium activity above the RDL was not found in the sample. The MDA of the results for sample B07MK9 was higher than the RDL due to low chemical recovery.

3.9 Americium-241 Analyses: The average yield for four analyses was (61 ± 33)%. The lowest yield was 42% and the highest yield was 82%. The average MDA was (0.06 ± 0.03) pCi/L. Americium activity above the RDL was not found in the sample.

3.10 Neptunium-237 Analyses: The average yield for four analyses was (35 ± 27)%. The lowest yield was 21% and the highest was 49%. The average MDA was (0.2 ± 0.1) pCi/L. ^{237}Np activity above the RDL was not found in the sample.

3.11 Gamma Scan Analyses: Gamma scan analysis did not find positive gamma nuclide activity in the sample.

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SECTION 2 Summary Data Including QC's

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TMA NORCAL
REPORTING GROUP 7135

SDG 7135	Client Westinghouse Hanford
Contact Dinkar Kharkar	Contract MBH-SVV-069262

SUMMARY DATA SECTION

TABLE OF CONTENTS

About this section	1
Sample Summaries	3
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Reagent Blanks	8
Lab Control Samples	11
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Report Guides	37

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-TOC
Version	2.23
Report date	03/24/93

SDG 7135
Contact Dinkar Kharkar

TMA NORCAL
REPORTING GROUP 7135

REPORT GUIDE

Client Westinghouse Hanford
Contract MBH-SVV-069262

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample Summary Reports (variously titled LAB, SAMPLE, DEPARTMENT and QC SUMMARY to reflect the sort order) show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

REAGENT BLANKS

The Reagent Blank Reports, one for each Reagent Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-RG
Version 2.23
Report date 03/24/93

ABOUT THE DATA SUMMARY SECTION

REPLICATES

The Replicate Reports, one for each Replicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

RESULT SUMMARIES

The Result Summary Reports, one for each test used in the SDG, show all results and QC for one parameter on one page. (A test is a short code for the method used to do certain work to the client's specification.)

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show performance data for each method on one page.

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

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TMA NORCAL

REPORTING GROUP 7135

SDG 7135
Contact Dinkar Kharkar

SAMPLE SUMMARY

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID	MATRIX	CHAIN OF CUSTODY	COLLECTED	RECEIVED	SAMPLE WT/VOL	BASIS WT/VOL	% MOIST	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
B07MK9	WATER	EFL-1053	12/02/92	12/24/92				N212125-01	7135-001
Reagent Blank	WATER							N212125-03	7135-003
Reagent Blank	WATER							N212125-11	7135-011
Reagent Blank	WATER							N212125-12	7135-012
Lab Control Sample	WATER							N212125-02	7135-002
Lab Control Sample	WATER							N212125-10	7135-010
Replicate (N212125-01)	WATER		12/02/92					N212125-04	7135-004

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-CS
Version 2.23
Report date 03/24/93

9613492.4892

TMA NORCAL

REPORTING GROUP 7135

QC SUMMARY

SDG 7135
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	LEVEL	COLLECTED	RECEIVED	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7135	EFL-1053	B07MK9	WATER		12/02/92	12/24/92	N212125-01	7135-001
		Reagent Blank	WATER				N212125-03	7135-003
		Reagent Blank	WATER				N212125-11	7135-011
		Reagent Blank	WATER				N212125-12	7135-012
		Lab Control Sample	WATER				N212125-02	7135-002
		Lab Control Sample	WATER				N212125-10	7135-010
		Replicate (N212125-01)	WATER		12/02/92		N212125-04	7135-004

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-QS
Version 2.23
Report date 03/24/93

9613492.4893

TMA NORCAL

REPORTING GROUP 7135

SDG 7135
Contact Dinkar Kharkar

PREP BATCH SUMMARY

Client Westinghouse Hanford
Contract MBH-SVV-069262

TEST	MATRIX	METHOD	PREPARATION BATCH	PREP ERROR	PLANCHETS ANALYZED CLIENT	RE	BLANK	LCS	REP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy											
AM	WATER	Americium 241 in Water	2427-116	5.0	1		1	1	1/1		
NP	WATER	Neptunium in Water	2427-116	5.0	1		2	1			
PU	WATER	Plutonium, Isotopic in Water	2427-116	5.0	1		1	1	1/1		
U	WATER	Uranium, Isotopic in Water	2427-116	5.0	1		1	1	1/1		
Beta Counting											
TC	WATER	Technetium 99 in Water	2427-116	10.0	1		1	1	1/1		
Y	WATER	Strontium 90 in Water	2427-116	10.0	1		1	1	1/1		
Gas Proportional Counting											
80A	WATER	Gross Alpha in Water	2427-116	20.0	1		1	1	1/1		
80B	WATER	Gross Beta in Water	2427-116	15.0	1		1	1	1/1		
Gamma Scan											
GAM	WATER	Gamma Emitters	2427-116	15.0	1		1	1	1/1		
Kinetic Phosphorimetry											
U_T	WATER	Uranium, Total in Water	2427-116	9.0	1		1	1	1/1		
Liquid Scintillation											
C	WATER	Carbon 14 in Water	2427-116	10.0	1		1	1	1/1		

Replicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Replicate or Spike sample.

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-PBS
Version 2.23
Report date 03/24/93

9613492.4894

TMA NORCAL

REPORTING GROUP 7135

WORK SUMMARY

SDG 7135
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID / MATRIX / CUSTODY	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	PREPARED	ANALYZED	METHOD
B07MK9	N212125-01	7135-001	80A/80		02/11/93	02/11/93	Gross Alpha in Water
WATER	12/02/92	7135-001	80B/80		02/11/93	02/11/93	Gross Beta in Water
EFL-1053	12/24/92	7135-001	AM		02/23/93	03/12/93	Americium 241 in Water
		7135-001	C		02/25/93	03/01/93	Carbon 14 in Water
		7135-001	GAM		02/11/93	02/11/93	Gamma Emitters
		7135-001	NP	A2	03/20/93	03/24/93	Neptunium in Water
		7135-001	PU		02/17/93	03/03/93	Plutonium, Isotopic in Water
		7135-001	TC		02/12/93	02/19/93	Technetium 99 in Water
		7135-001	U		02/23/93	03/12/93	Uranium, Isotopic in Water
		7135-001	U_T		02/09/93	02/09/93	Uranium, Total in Water
		7135-001	Y		02/12/93	02/12/93	Strontium 90 in Water
Reagent Blank	N212125-03	7135-003	80A/80		02/11/93	02/11/93	Gross Alpha in Water
WATER		7135-003	80B/80		02/11/93	02/11/93	Gross Beta in Water
		7135-003	AM		02/23/93	03/12/93	Americium 241 in Water
		7135-003	C		02/25/93	03/01/93	Carbon 14 in Water
		7135-003	GAM		02/11/93	02/11/93	Gamma Emitters
		7135-003	PU		02/23/93	03/03/93	Plutonium, Isotopic in Water
		7135-003	TC		02/12/93	02/19/93	Technetium 99 in Water
		7135-003	U		02/23/93	03/12/93	Uranium, Isotopic in Water
		7135-003	U_T		02/09/93	02/09/93	Uranium, Total in Water
		7135-003	Y		02/12/93	02/12/93	Strontium 90 in Water
Reagent Blank	N212125-11	7135-011	NP		03/20/93	03/24/93	Neptunium in Water
WATER							
Reagent Blank	N212125-12	7135-012	NP		03/20/93	03/24/93	Neptunium in Water
WATER							
Lab Control Sample	N212125-02	7135-002	80A/80		02/11/93	02/11/93	Gross Alpha in Water
WATER		7135-002	80B/80		02/11/93	02/11/93	Gross Beta in Water
		7135-002	AM		02/23/93	03/12/93	Americium 241 in Water
		7135-002	C		02/25/93	03/01/93	Carbon 14 in Water
		7135-002	GAM		02/11/93	02/11/93	Gamma Emitters
		7135-002	PU		02/17/93	03/03/93	Plutonium, Isotopic in Water
		7135-002	TC		02/12/93	02/18/93	Technetium 99 in Water
		7135-002	U		02/23/93	03/12/93	Uranium, Isotopic in Water
		7135-002	U_T		02/09/93	02/09/93	Uranium, Total in Water
		7135-002	Y		02/12/93	02/12/93	Strontium 90 in Water

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-CWS
Version 2.23
Report date 03/24/93

9613492.4895

TMA NORCAL

REPORTING GROUP 7135

SDG 7135
Contact Dinkar Kharkar

WORK SUMMARY, cont.

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID / MATRIX / CUSTODY	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	PREPARED	ANALYZED	METHOD
Lab Control Sample / WATER	N212125-10	7135-010	NP		03/20/93	03/24/93	Neptunium in Water
Replicate (N212125-01) / WATER / EFL-1053	N212125-04 / 12/02/92 / 12/24/92	7135-004	80A/80		02/11/93	02/11/93	Gross Alpha in Water
		7135-004	80B/80		02/11/93	02/11/93	Gross Beta in Water
		7135-004	AM		02/23/93	03/12/93	Americium 241 in Water
		7135-004	C		02/25/93	03/01/93	Carbon 14 in Water
		7135-004	GAM		02/11/93	02/16/93	Gamma Emitters
		7135-004	PU		02/23/93	03/03/93	Plutonium, Isotopic in Water
		7135-004	TC		02/12/93	02/19/93	Technetium 99 in Water
		7135-004	U		02/23/93	03/12/93	Uranium, Isotopic in Water
		7135-004	U_T		02/09/93	02/09/93	Uranium, Total in Water
		7135-004	Y		02/12/93	02/12/93	Strontium 90 in Water

COUNTS OF TESTS BY SAMPLE TYPE

TEST	METHOD	REFERENCE	CLIENT	RE BLANK	LCS	REP SPIKE	TOTALS
80A/80	Gross Alpha in Water	ASTM 1943-90; EPA 900	1	1	1	1	4
80B/80	Gross Beta in Water	ASTM 1943-90; EPA 900	1	1	1	1	4
AM	Americium 241 in Water	HASL 300/AM-03	1	1	1	1	4
C	Carbon 14 in Water		1	1	1	1	4
GAM	Gamma Emitters	ASTM 3649-85; EPA 901.1	1	1	1	1	4
NP	Neptunium in Water		1	2	1		4
PU	Plutonium, Isotopic in Water	ASTM 3865-90	1	1	1	1	4
TC	Technetium 99 in Water	HASL 300/TC-01	1	1	1	1	4
U	Uranium, Isotopic in Water	ASTM 3972-90	1	1	1	1	4
U_T	Uranium, Total in Water	ASTM D5174-91	1	1	1	1	4
Y	Strontium 90 in Water	HASL 300/SR-01,-02	1	1	1	1	4
TOTALS			11	12	11	10	44

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-CWS
Version 2.23
Report date 03/24/93

9613492.4896

N212125-03

TMA NORCAL
REPORTING GROUP 7135

REAGENT BLANK

Reagent Blank

SDG 7135
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212125-03
Dept sample id 7135-003

Matrix WATER
Material

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	-0.040	1.3	2	3	U	80A
Gross Beta	Beta	0.22	1.1	2	4	U	80B
Uranium 233/234		-0.027	0.11	0.3	0.2	U	U
Uranium 235	15117-96-1	0.033	0.066	0.3	0.2	U	U
Uranium 238	7440-61-1	0	0.054	0.2	0.2	U	U
Total Uranium (ug/L)		U		3		U	U_T
Plutonium 238	13981-16-3	-0.003	0.016	0.04	0.05	U	PU
Plutonium 239/240		0.003	0.005	0.02	0.05	U	PU
Americium 241	14596-10-2	0.017	0.022	0.04	0.05	U	AM
Strontium 90	10098-97-2	0.061	0.62	0.7	2	U	Y
Technetium 99	14133-76-7	0.24	1.4	4	5	U	TC
Carbon 14	14762-75-5	-72	41	70	50	U	C
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		200		U	GAM
Iron 59	14596-12-4	U		20	30	U	GAM
Chromium 51	14392-02-0	U		70		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	13982-39-3	U		20		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	13967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Cerium 144	14762-78-8	U		50		U	GAM
Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-63-3	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		50		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/24/93

9613492.4897

N212125-11

TMA NORCAL
REPORTING GROUP 7135

REAGENT BLANK

Reagent Blank

SDG	7135	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N212125-11	Matrix	WATER
Dept sample id	7135-011	Material	

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Neptunium 237	13994-20-2	0.042	0.063	0.1	1	U	NP
GAMMA SCAN ANALYTES							

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/24/93

9613492.4898

N212125-12

TMA NORCAL
REPORTING GROUP 7135

REAGENT BLANK

Reagent Blank

SDG	7135	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N212125-12	Matrix	WATER
Dept sample id	7135-012	Material	

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Neptunium 237	13994-20-2	0.052	0.077	0.1	1	U	NP
GAMMA SCAN ANALYTES							

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/24/93

9613492.4899

N212125-02

TMA NORCAL

REPORTING GROUP 7135

LAB CONTROL SAMPLE

Lab Control Sample

SDG 7135
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212125-02
Dept sample id 7135-002

Matrix WATER
Material

PARAMETER	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	65	7.7	3	3		80A	60.3	2.4	108	62-138	
Gross Beta	30	2.6	2	4		80B	32.0	1.3	94	75-125	
Uranium 233/234	4.6	0.89	0.2	0.2		U	4.34	0.17	106	68-132	
Uranium 235	0.16	0.11	0.2	0.2	U	U	0.199	0.016	80	16-184	
Uranium 238	4.2	0.86	0.2	0.2		U	4.34	0.17	97	69-131	
Total Uranium (ug/L)	34	8.5	3			U_T	32.5	1.3	105	58-142	
Plutonium 238	0.003	0.010	0.02	0.05	U	PU	0	0			
Plutonium 239/240	0.90	0.12	0.02	0.05		PU	0.901	0.036	100	78-122	
Americium 241	0.62	0.095	0.05	0.05		AM	0.647	0.026	96	76-124	
Strontium 90	9.4	0.63	0.8	2		Y	10.0	0.40	94	82-118	
Technetium 99	230	21	6	5		TC	255	10	90	81-119	
Carbon 14	3100	97	90	50		C	4570	180	68	89-112	
GAMMA SCAN ANALYTES											
Potassium 40	180	130				GAM					
Iron 59	U		30	30	U	GAM					
Chromium 51	U		100		U	GAM					
Cobalt 60	250	26		30		GAM	270	11	93	74-126	
Zinc 65	U		40		U	GAM					
Ruthenium 106	U		100		U	GAM					
Cesium 134	U		20		U	GAM					
Cesium 137	190	19		20		GAM	181	7.2	105	71-129	
Cerium 144	U		90		U	GAM					
Europium 152	U		30	40	U	GAM					
Europium 154	U		20	40	U	GAM					
Radium 226	U		30		U	GAM					
Thorium 228	U		20		U	GAM					
Thorium 232	U		80		U	GAM					

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-LCS
Version 2.23
Report date 03/24/93

9613492.4900

N212125-10

TMA NORCAL

REPORTING GROUP 7135

LAB CONTROL SAMPLE

Lab Control Sample

SDG 7135
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212125-10
Dept sample id 7135-010

Matrix WATER
Material

PARAMETER	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Neptunium 237	21	1.7	0.2	1		NP	20.5	0.82	102	84-116	
GAMMA SCAN ANALYTES											

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-LCS
Version 2.23
Report date 03/24/93

9613492.4901

N212125-04

TMA NORCAL

REPORTING GROUP 7135

REPLICATE

B07MK9

SDG 7135
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

REPLICATE
Lab sample id N212125-04
Dept sample id 7135-004

ORIGINAL
Lab sample id N212125-01
Dept sample id 7135-001
Received 12/24/92

Client sample id B07MK9
Matrix WATER
Collected 12/02/92
Chain of custody id EFL-1053

PARAMETER	REPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	1.4	1.8	2	3	U	80A	0.92	1.8	3	U	-	
Gross Beta	3.0	1.2	2	4	J	80B	0.19	1.1	2	U	176	159
Uranium 233/234	0.29	0.30	0.6	0.2	U	U	0.39	0.14	0.09		29	147
Uranium 235	0.088	0.18	0.7	0.2	U	U	0.042	0.056	0.1	U	-	
Uranium 238	0.22	0.29	0.6	0.2	U	U	0.25	0.12	0.09		13	201
Total Uranium (ug/L)	U		0.06		U	U_T	U		0.06	U	-	
Plutonium 238	0.007	0.037	0.07	0.05	U	PU	0.008	0.039	0.08	U	-	
Plutonium 239/240	0.004	0.007	0.03	0.05	U	PU	0.008	0.008	0.03	U	-	
Americium 241	0.004	0.043	0.07	0.05	U	AM	-0.008	0.040	0.07	U	-	
Strontium 90	0.059	4.4	2	2	U	Y	-0.11	1.7	0.9	U	-	
Technetium 99	1.1	1.6	4	5	U	TC	1.4	1.1	3	U	-	
Carbon 14	-51	35	60	50	U	C	-46	53	90	U	-	
GAMMA SCAN ANALYTES												
Potassium 40	U		100		U	GAM	U		200	U	-	
Iron 59	U		40	30	U	GAM	U		70	U	-	
Chromium 51	U		300		U	GAM	U		500	U	-	
Cobalt 60	U		10	30	U	GAM	U		10	U	-	
Zinc 65	U		20		U	GAM	U		30	U	-	
Ruthenium 106	U		70		U	GAM	U		100	U	-	
Cesium 134	U		8		U	GAM	U		20	U	-	
Cesium 137	U		7	20	U	GAM	U		10	U	-	
Cerium 144	U		50		U	GAM	U		70	U	-	
Europium 152	U		10	40	U	GAM	U		30	U	-	
Europium 154	U		10	40	U	GAM	U		20	U	-	
Radium 226	U		10		U	GAM	U		30	U	-	
Thorium 228	U		10		U	GAM	U		20	U	-	
Thorium 232	U		30		U	GAM	U		70	U	-	

Gross α
Gross β
Total U
Iso Pu
Am 241
Sr 90
Tc 99
C 14
Gamma
All LMDA

REPLICATES
Page 1
SUMMARY DATA SECTION
← Page 13

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-REP
Version 2.23
Report date 03/24/93

9613492.4902

N212125-01

TMA NORCAL
REPORTING GROUP 7135

DATA SHEET

B07MK9

SDG 7135
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212125-01
Dept sample id 7135-001
Received 12/24/92
Client sample id B07MK9
Matrix WATER
Collected 12/02/92
Chain of custody id EFL-1053

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	0.92	1.8	3	3	U	80A
Gross Beta	Beta	0.19	1.1	2	4	U	80B
Uranium 233/234		0.39	0.14	0.09	0.2		U
Uranium 235	15117-96-1	0.042	0.056	0.1	0.2	U	U
Uranium 238	7440-61-1	0.25	0.12	0.09	0.2		U
Total Uranium (ug/L)		U		0.06		U	U_T
Plutonium 238	13981-16-3	0.008	0.039	0.08	0.05	U	PU
Plutonium 239/240		0.008	0.008	0.03	0.05	U	PU
Americium 241	14596-10-2	-0.008	0.040	0.07	0.05	U	AM
Strontium 90	10098-97-2	-0.11	1.7	0.9	2	U	Y
Technetium 99	14133-76-7	1.4	1.1	3	5	U	TC
Carbon 14	14762-75-5	-46	53	90	50	U	C
Neptunium 237	13994-20-2	0.42	0.31	0.2	1	J	NP
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		200		U	GAM
Iron 59	14596-12-4	U		70	30	U	GAM
Chromium 51	14392-02-0	U		500		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	13982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	13967-70-9	U		20		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Cerium 144	14762-78-8	U		70		U	GAM
Europium 152	14683-23-9	U		30	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-63-3	U		30		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		70		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/24/93

9613492.4504

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: Wendy S. Thompson

PROJECT NUMBER 92-336

Company Contact: Wendy S. Thompson

Telephone (509) 376-2153

Project Designation/Sampling Locations: 241-T-106

Borehole Number: 299-W10-196

Collection Date 12-2-92

Time 0945; 0230 ① ②

Ice Chest No. SML200

Field Logbook No. EFL-1053

Bill of Lading/Airbill No. 2519007304

Offsite Property No. ~~W93-0-0122~~ #22

Method of Shipment: AIR (Emery)

Shipped to: TMA-Norcal

Possible Sample Hazards/Remarks: Keep samples chilled. All analysis per lab statement of work.

No hazards detected with field instruments

Sample Identification

1) B07MK9

3 x 40 ml., amber glass, water, CLP-VOA

1 x 4000 ml wst 12-2-92
~~3 x 1000 ml.~~, amber glass, water, CLP- Semi-VOA, IC Anions, SO_4, PO_4, NO_2-NO_3, pH, Cl, F

1 x 1000 ml.,plastic, water (HNO_3), ICP/AA metals, Bi, Hg

1 x 1000 ml., plastic, water (NaOH, ~~ascorbic acid~~ wst 12-2-92), CLP-CN

1 x 250 ml., amber glass, water (H_2SO_4), TOC

1 x 4000 ml., plastic, water ((HNO_3)) gross alpha, gross beta, GEA including Co-60, Ru-106,
1 x 2000 ml., plastic, water (HNO_3) } Ce-144, Cs-137,isotopic U, total U, Am-241, Np-237, Pu-238,-239,-240, Sr-90.

1 x 1000 ml., plastic, water (HCL), Tc-99

2 x 250 ml., amber glass, water, C-14

2) B07MK2 - 3x40 ml amber glass water; CLP-VOA

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.S. Thompson / Wendy S Thompson	Kermit Blum	12-4-92 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

052

Comments: TOC aliquot B07MK9 sent to Weston, Inc. 12-7-92 KB

9613492.9904

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

Collector: Wendy S. Thompson Date: 12-2-92

Company Contact: Wendy S. Thompson Telephone: (509) 376-2153

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Requested
B07MK9	W	12-2-92	0945	✓ 3 x 40 ml., amber glass, water, CLP-VOA
				~~3 x 1000~~ ml., amber glass, water, CLP- Semi-VOA, IC Anions
				✓ 1 X 4000 SO_4, PO_4, NO_2-NO_3, pH, Cl, F
				WSt 12-2-92
				✓ 1 x 1000 ml., plastic, water (HNO_3), ICP/AA metals, Bi, Hg
				✓ 1 x 1000 ml., plastic, water (NaOH, ~~ascorbic acid~~), CLP-
				WSt 12-2-92 CN
				✓ 1 x 250 ml., amber glass, water (H_2SO_4), TOC
				✓ 1 x 4000 ml., plastic, water (HNO_3)
				✓ 1 x 2000 ml., plastic, water (HNO_3)
				gross alpha, gross beta, GEA including Co-60,
				Ru-106, Ce-144, Cs-137, isotopic U, total U,
				Am-241, Np-237, Pu-238,-239,-240, Sr-90.
				✓ 1 x 1000 ml., plastic, water (HCL), Tc-99
				✓ 2 x 250 ml., amber glass, water, C-14
B07MK2(W)		12-2-92	0730	✓ 3x40ml, amber glass; CLP-VOA

12-3-92

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information: Samples support the 241-T-106 soil investigation. All analysis per lab statement of work. Project # 92-336

Special Handling and/or Storage: Keep samples chilled.

Possible Sample Hazards: None indicated with field instruments

053

9613492.4905

Transmittal Number T00245

Transmittal Form to Validator

1 To Validator (BOA) _____

Project/OU 241-T-106

2 Data Packages Attached (list and attach)

B07MK9-TMA-369

3 The attached data packages have been verified and (check one)

X All required checklist items are included

___ Checklist items circled on attached verification checklist forms cannot be provided and the decision has been made to proceed with validation anyway

NCR # _____

4 Certified by Verifier

Signature

4/22/93 450 pm

Date

5 Received by Validator

Signature

10/5/93

Date

MRAUM01219331

Verification No. T 00054-93 **RADIOCHEMICAL DATA PACKAGE VERIFICATION COVER SHEET** Page 1 of 1

Project: 241-T-106	Reviewer: S. Lindberg	Date: 4/7/93
Laboratory: TMA	Case: N2-12-125-7135	SDG: B07MK9
HASM Data Package ID: B07MK9-TMA-369		

				Beta and Gas Proportional Counting			Alpha Spectroscopy										
				GAB	Sr90	Tc99	Iso U	Iso Pu	Iso Am	GEA	Ra-226	LSC C-14	Total U	AlphaSpec Np237			
Analyses Performed:				X	X	X	X	X	X	X		X	X	X			
Case Narrative: yes				X	X	X	X	X	X	X		X	X	X			
Batch Sheet: yes				X	X	X	X	X	X	X		X	X	X			
HEIS NO.	Sample Matrix	WHC COC	WHC SAR														
B07MK9	Water	X	X	X	X	X	X	X	X	X		X	X	X			

Date: 4 / 7 / 93

RADIOCHEMICAL INITIAL CALIBRATION DATA VERIFICATION CHECKLIST

Laboratory: TMA

HASM Calibration Data Package ID: B07MK9-TMA-369

Required Information	GAB		Sr90		Tc99		GEA		ASp		Ra226											
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Date of Initial Calibration:	3/90		8/91				2/90		N/A													
Detector ID:	X		X				X		/													
Detector Efficiency:	X		X				X															
Lucas Cell ID:																						
Lucas Cell Efficiency:																						
Calibration Standard ID:	X		X				X															
NIST Certificates:	X		X				X															
Initial Calibration Data:	X		X				X															
High Voltage Plateau Determination:																						
Self-absorption curve:	X		X																			
Preparation weight:	X		X																			
Carrier Standardization:			X																			
Alpha crosstalk:	X																					
Beta crosstalk:	X																					
FWHM Values:																						
Sample Geometry:																						

Comments: _____

_____

_____

9613492.4908

Westinghouse Hanford Company | **Internal Memo**

From: Technical And Quality Oversite 12520-93-020
Phone: 2-2557 H4-23
Date: April 22, 1993
Subject: THERMO ANALYTICAL, INCORPORATED TC-99 PRIMARY CALIBRATION DOCUMENTATION

To: J. G. Paetel H4-19

cc: B. M. Colley H4-19
J. M. Duncan H4-23
D. G. Farwick H4-16
J. H. Kessner H4-23
KNP File/LB

The primary calibration documentation required by the environmental radiochemical validation procedure currently in use by WHC and WHC-contracted validators can not be provided by the Thermo Analytical, Incorporated (TMA) laboratory. TMA has notified WHC Hanford Analytical Services Management that the primary calibration documentation generated in 1983 for Tc-99 can not be regenerated. TMA has provided the enclosed certificate of calibration for the detector systems for Tc-99 analysis. The certificate of calibration documents the fact that TMA can not regenerate the calibration documentation. A new calibration for Tc-99 is currently in progress and the documentation for this calibration will be provided to WHC when complete. TMA feels confident that the calibration currently in use is valid and correct in light of historical recoveries on laboratory Quality Control check samples and inter-laboratory exchange sample results that have been obtained during the effective period of this calibration.

A copy of this letter, along with the enclosed TMA certificate of calibration for Tc-99, shall be placed in each radiochemistry data package received from TMA to date that has Tc-99 results reported. This letter, along with the enclosed TMA certificate of calibration, shall be placed in each radiochemistry data package received from TMA until the new calibration documentation has been received by WHC and has been implemented at TMA.

K. N. Pool
Manager

llr

Enclosure

CONCURRENCE:

D. G. Farwick, Manager
Environmental Services Quality Assurance

9613492.4999

Certificate of Calibration		TMA/*Norcal*
Calibration: ^{99}Tc	Instrument: LBG beta counters	Type: Gas Flow Geiger Counter
Calibration Standard:) (Unknown		

Status	Date	Reference Document
Original Calibration:	1983	Unknown
Verification:		

Summary of Results	Standard Efficiency = 42.7% P-Factor = 2.34

Self Absorption Correction Table

(Samples are mounted as weightless deposits, no self absorption corrections are performed)

Note: The current calibration was performed in 1983 but the documentation for this calibration is unavailable. A confirming calibration is in process as of 4/1/93.

Date: 4 / 7 / 93

RADIOCHEMICAL CONTINUING CALIBRATION DATA VERIFICATION CHECKLIST

Laboratory: TMA

HASM Data Package ID: B07MK9-TMA-369

Required Information	GAB		Sr90		Tc99		GEA		ASp		Ra226									
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Calibration Time Period, From/To	Continuous		Continuous		Continuous		Continuous		Continuous											
Detector ID:	X		X		X		X		*											
Detector Efficiency:	X		X		X		X													
Lucas Cell ID:																				
Lucas Cell Efficiency:																				
Check Standard ID:	X		X		X		X													
Check Standard Activity:	X		X		X		X													
Check Standard Traceability:	X		X		X		X													
Check Standard Raw Data:	X		X		X		X													
Control Charts:	X		X		X		X													
Background Data, CPM:	X		X		X		X													
Background Count Time:	X		X		X		X													
Background Control Charts:	X		X		X		X													
Preparation Weights:	X		X		X															
Carrier Recovery Checks:			X		X															
Alpha/Beta Cross Talk:	X																			
FWHM Control Charts:							X													
Sample Geometry:							X													

Comments: * Aspec & Background Checks

9613492.4911

Package ID: B07MK9-TMA-369

VERIFICATION CHECKLIST FOR BETA AND GAS PROPORTIONAL COUNTING

Analysis: Gross Alpha/Beta

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Gravimetric/Chemical Yields			☒
Results Report for Chemical Yields	☐	☐	
Raw Data (Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Sample Identifications	☐	☐	
Chemical Yield Source Identification, Traceability and Dilution Log	☐	☐	
Calculated Recoveries	☐	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Detector Identifications	☐	☐	
Detector Efficiencies	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4912

Package ID: B07MC9-TMA-369

VERIFICATION CHECKLIST FOR BETA AND GAS PROPORTIONAL COUNTING

Analysis: Sr 90

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Gravimetric/Chemical Yields			☐
Results Report for Chemical Yields	☒	☐	
Raw Data (Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Chemical Yield Source Identification, Traceability and Dilution Log	☒	☐	
Calculated Recoveries	☒	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Detector Identifications	☐	☐	
Detector Efficiencies	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☒	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

SRL 4/7/93

9613492.4913

Package ID: B07MK9-TMA-369

VERIFICATION CHECKLIST FOR BETA AND GAS PROPORTIONAL COUNTING

Analysis: Tc-99

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Gravimetric/Chemical Yields			☐
Results Report for Chemical Yields	☒	☐	
Raw Data (Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Chemical Yield Source Identification, Traceability and Dilution Log	☒	☐	
Calculated Recoveries	☒	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Detector Identifications	☐	☐	
Detector Efficiencies	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☒	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

SLL 4/7/93

9613492.4914

Package ID: B07M19-TMA-369

VERIFICATION CHECKLIST FOR ALPHA SPECTROSCOPY

Analysis: Iso-U

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheet	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Detector Identifications	☐	☐	
Detector Efficiencies	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Tracer Recovery			
Results Report for Tracer Analyses	☒	☐	
Raw Data (Spectra and Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Tracer Identification, Traceability and Dilution Log	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4915

Package ID: R07MK9-TMA-3169

VERIFICATION CHECKLIST FOR ALPHA SPECTROSCOPY

Analysis: Neptunium

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheet	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Detector Identifications	☐	☐	
Detector Efficiencies	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Tracer Recovery			
Results Report for Tracer Analyses	☒	☐	
Raw Data (Spectra and Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Tracer Identification, Traceability and Dilution Log	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4916

Package ID: B07MK9-TMA-369

VERIFICATION CHECKLIST FOR ALPHA SPECTROSCOPY

Analysis: Iso Pu

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheet	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Detector Identifications	☐	☐	
Detector Efficiencies	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Tracer Recovery			
Results Report for Tracer Analyses	☒	☐	
Raw Data (Spectra and Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Tracer Identification, Traceability and Dilution Log	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4917

Package ID: B07M19-TMA-369

VERIFICATION CHECKLIST FOR ALPHA SPECTROSCOPY

Analysis: Am 241

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheet	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Detector Identifications	☐	☐	
Detector Efficiencies	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Tracer Recovery			
Results Report for Tracer Analyses	☒	☐	
Raw Data (Spectra and Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Tracer Identification, Traceability and Dilution Log	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4918

Package ID: B07MK9-TMA-369

VERIFICATION CHECKLIST FOR GAMMA SPECTROSCOPY

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Geometry and Spectra or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Detector Identifications	☒	☐	
Detector Efficiencies	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

Comments:

9613492.4919

Package ID: BOMK9-TMA-369

VERIFICATION CHECKLIST FOR LIQUID SCINTILLATION COUNTING

C-14

	Yes	No	NA
Analysis Results			
Results and Minimum Detectable Activity (MDA) Report			
for Sample Analyses, Recounts and Reanalyses	☒	☐	
for Blank Analyses, Recounts and Reanalyses	☒	☐	
for Duplicate Analyses, Recounts and Reanalyses	☒	☐	
Internal Standard or Quench Monitoring Results, Activity and Traceability	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Instrument Identifications	☒	☐	
Dates of Analysis	☒	☐	
Continuing Calibration			
Instrument Identification	☒	☐	
Continuing Calibration Results Report, Control Charts and Control Limits	☒	☐	
Calibration Standard Identification, Traceability, Activity, Dilution Log and Expiration Date	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Counting Efficiency Determination Method and Results	☒	☐	
Internal Standard or Quench Monitoring Values	☒	☐	
Matrix Spike Recovery			☒
Results and MDA Reports for Matrix Spike Analyses, Recounts and Reanalyses	☐	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☐	☐	
Sample Preparation Data	☐	☐	
Calculation Sheets	☐	☐	
Matrix Spike Sample Identifications	☐	☐	
Matrix Spike Source Traceability and Dilution Log	☐	☐	
Instrument Identifications	☐	☐	
Dates of Analysis	☐	☐	
Calculated Recoveries	☐	☐	
Laboratory Control Samples (LCS)			
Results and MDA Reports for LCS Analyses, Recounts and Reanalyses	☒	☐	
Raw Data (Counting Logs or Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Activity and Traceability	☒	☐	
Instrument Identifications	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4920

Package ID: B02M1C9-TMA-369

VERIFICATION CHECKLIST FOR TOTAL URANIUM ANALYSIS BY KINETIC PHOSPHORIMETRY

	Yes	No	NA
Analysis Results			
Results Report			
for Sample Analyses, Reruns, and Reanalyses	☒	☐	
for Blank Analyses, Reruns, and Reanalyses	☒	☐	
for Duplicate Analyses, Reruns and Reanalyses	☒	☐	
Raw Data (Phosphorimeter Readings and Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Sample Identifications	☒	☐	
Instrument Identifications	☒	☐	
Dates of Analysis	☒	☐	
Initial and Continuing Calibration			
Instrument Identifications	☒	☐	
Initial Calibration Results and Linearity ~~Can't read dates, though~~ gr 4/8/93	☒	☐	
Initial and Continuing Calibration Verification	☒	☐	
Calibration Standard Concentration, Traceability and Dilution Logs	☒	☐	
Raw Data (Phosphorimeter Readings and Printouts or Notebook Pages	☒	☐	
Sample Preparation Data	☒	☐	
Detection Limit Verification	☒	☐	
Matrix Spike Recovery			~~☒~~ e gr 4/7/93
Results Reports for Matrix Spike Analyses, Reruns and Reanalyses	☒	☐	
Raw Data (Phosphorimeter Readings and Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
Matrix Spike Sample Identifications	☒	☐	
Matrix Spike Source Traceability and Dilution Log	☒	☐	
Instrument Identifications	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	
Laboratory Control Samples (LCS)			
Results Reports for LCS Analyses, Reruns and Reanalyses	☒	☐	
Raw Data (Phosphorimeter Readings and Printouts or Notebook Pages)	☒	☐	
Sample Preparation Data	☒	☐	
Calculation Sheets	☒	☐	
LCS Identification, Concentration and Traceability	☒	☐	
Instrument Identifications	☒	☐	
Dates of Analysis	☒	☐	
Calculated Recoveries	☒	☐	

9613492.4921

Safety Performance Measurement System

1 of 6

Data Package B07MK9

one sample, Lab I.D. 7135-1, Water

Holding Times OK

(1) Gross Alpha, Gross Beta Determination

Initial & Continuing Calibration OK

- Blank Sample Results

α & β Result < MDA ok

Detection Limit / Sample Results

β Result < MDA

α Result < MDA

Radiometric Yield — N/A

Duplicate Sample Results.

Both Results < Applicable MDA

No Qualifier

Laboratory Control Sample

% Recovery β 108%

α β 94% ok

9613492.4922

Safety Performance Measurement System

27-6

(2) Carbon-14

Initial & Continuing Calibration OK

Blanks

Result < MDA

Sample Result / Detection Limit

Sample Result < MDA

Yield

Efficiency = 0.262 ok
yield = 0.7230

Duplicate Result

R1 & R2 < MDA No Qualifier Assigned

Laboratory Control Sample

LCS Recovery = 68% "J"

(3) Sr-90 Determination

Int. Cal & Cont. Cal ok

Blank

Results < MDA

Sample Result

< MDA

Safety Performance Measurement System

(3) Sr-90 (cont)

Yield

= 72.9% ok

Duplicate Result

~~B~~ R1 & R2 < MDA No Qualifier Assigned

Laboratory Control Sample

LCS Recovery = 94% ok

(4) Technetium 99

I.C. Documentation Not Provided But Memo detailed initial cal. & on-going effort to verify cal.
No Qualifier Assigned

Cont cal ok.

Blanks
Result < MDA ok

Yield – ok, all samples & QC

Result: Result < MDA

Duplicate: Both R1 & R2 < MDA ; No Qualifier Assigned

LCS: LCS Recovery = 90% ok

9613492.4924

Safety Performance Measurement System

(a) Total Uranium

Calibration ok

Blank

Result < MDA

Results vs MDA

Result < MDA

Yield — ~~ok~~ N/A

Duplicates: Both R1 & R2 < MDA No Qualifiers

LCS: LCS Recovery = 105% ok

(b) Isotopic Uranium

No Initial or Continuing Calibration Info (R)

Blanks

U-234, U-235, U-238 < MDA

Results U234 > MDA
U235 < MDA
U238 > MDA

Yields = 0.939 (ok)

Duplicates = U234, U238 : 29% & 13% ok
U235 : R1 & R2 < MDA No Qualifiers

LCS : U234 106%
U235 80%
U238 97%
} ok

9613492.4925

Safety Performance Measurement System

5 of 6

(7) Isotopic Plutonium

No Initial or Continuing Calibration Info.

(R)

~~Results~~

Pu 238 < MDA

PU 239/240 < ~~[illegible]~~ MDA

Results Pu-238 < MDA

Pu-239/240 < MDA

Yield: yield (tracer) = ~~0.42~~ 42.9% ok

Duplicate: R1 & R2 < MDA; No Qualifier Assigned

LCS: Pu 239/240 = 100% ok

~~Pu-238 - ok~~ serves for Pu-238

(8) American 241

No Initial or Continuing Calib. Confirmation

All results (R)

Blank Result < MDA

Results Result < MDA

Yield: yield = 42% ok

Duplicate: R1 & R2 < MDA; No Qualifier Assigned.

LCS: LCS Recovery = 96% ok

Safety Performance Measurement System

(9) Neptunium 237

No Initial or Continuing Calib - R

Blank

Blank Result < MDA

Result. Sample Result > MDA

Yield: Sample Yield = ~~0.21~~ 21.3% R

Duplicate: ~~RPD =~~ Yield out for R1. Precision non-determinate

J

LCS: Yield low (26%) for LCS sample - Result No Good.

J

Gamma Spectroscopy

Initial & Continuing Calib. - ok

Blanks: All Analytes < MDA

Recovery: All Analytes < MDA

Yield: N/A

Duplicate R1 & R2 < MDA; No Qualifier Assigned.

LCS Recovery ok for ~~all~~ spiked analyte

241-T-106 Samples

Gross Alpha/Beta

Sample #	7135-1		7135-2		7135-3		7135-4	
Cust. I.D. #	B07MK9		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Aliquot (g or l)	0.300		1.000		1.000		0.300	
Sample Weight (g or l)	140.400		149.300		105.200		131.500	
Counted Weight (g or l)	104.400		149.300		105.200		131.500	
[GROSS BETA]								
Gross Counts	109.000		1060.000		113.000		183.000	
Time (min)	100.000		100.000		100.000		100.000	
Gross CPM	1.090		10.600		1.130		1.830	
BKG CPM	1.022		1.452		1.070		0.993	
Observed CPM	0.068		9.148		0.060		0.837	
Alpha to Beta Xtalk	0.307		0.349		0.308		0.332	
Observed Alpha	0.057		3.084		-0.002		0.076	
Beta to Alpha Xtalk	0.006		0.006		0.006		0.006	
True CPM	0.051		8.089		0.061		0.813	
Efficiency (CPM/DPM)	0.409		0.402		0.409		0.405	
DPM of Aliquot	0.166		20.121		0.148		2.008	
Reported Results (pCi/g or pCi/l)	0.186		9.060		0.067		3.010	
Calculated Results (pCi/g or pCi/l)	0.250	*	9.063	OK	0.067	OK	3.016	OK
Reported MDA	1.730		0.629		0.531		1.720	
Calculated MDA	2.326	*	0.629	OK	0.531	OK	1.722	OK
Results > MDA?	NO		YES		NO		YES	
[GROSS ALPHA]								
Gross Counts	18.000		316.000		8.000		14.000	
Time (min)	100.000		100.000		100.000		100.000	
Gross CPM	0.180		3.160		0.080		0.140	
BKG CPM	0.123		0.076		0.082		0.064	
Observed CPM	0.057		3.084		-0.002		0.076	
Beta to Alpha Xtalk	0.006		0.006		0.006		0.006	
True CPM	0.057		3.035		-0.002		0.071	
Efficiency (CPM/DPM)	0.093		0.070		0.092		0.077	
DPM of Aliquot	0.820		43.364		-0.026		0.924	
Reported Results (pCi/g or pCi/l)	0.915		19.500		-0.012		1.400	
Calculated Results (pCi/g or pCi/l)	1.231	*	19.533	OK	-0.012	OK	1.387	OK
Reported MDA	2.650		0.823		0.651		2.310	
Calculated MDA	3.549	*	0.827	OK	0.653	OK	2.299	OK
Results > MDA?	NO		YES		NO		NO	

9614942.1927

241-T-106 Samples

Carbon 14

Sample #	7135-1		7135-2		7135-3		7135-4	
Cust. I.D. #	B07MK9		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Sample Count 1	1197.000		7293.000		1112.000		1139.000	
Sample Count 2	0.000		0.000		0.000		0.000	
Sample Count 3	0.000		0.000		0.000		0.000	
Sample Count Time	150.000		150.000		150.000		150.000	
WsubS1	18.811		3.617		20.246		19.767	
WsubS2	0.000		0.000		0.000		0.000	
WsubS3	0.000		0.000		0.000		0.000	
Blank Count 1	1284.000		1284.000		1284.000		1284.000	
Blank Count 2	0.000		0.000		0.000		0.000	
Blank Count 3	0.000		0.000		0.000		0.000	
Blank Count time	150.000		150.000		150.000		150.000	
WsubB1	17.540		17.540		17.540		17.540	
WsubB2	0.000		0.000		0.000		0.000	
WsubB3	0.000		0.000		0.000		0.000	
Blank CPM Average	8.560		8.560		8.560		8.560	
Sample CPM average	7.980		48.620		7.413		7.593	
Net CPM	-0.580		40.060		-1.147		-0.967	
Decay Correction	0.723		1.060		1.016		0.926	
Efficiency	0.262		0.181		0.236		0.306	
DPM of Aliquot	-3.062		208.798		-4.782		-3.411	
Aliquot	0.030		1.000		1.000		0.030	
Reported Results (pCi/l)	-46.003		94.250		-2.156		-51.193	
Calculated Results (pCi/l)	-45.974	OK	94.053	OK	-2.154	OK	-51.224	OK
Reported MDA	88.106		2.614		2.089		58.827	
Calculated MDA (method 1)	63.767		2.769		2.124		54.598	
Calculated MDA (method 2)	63.797		2.770		2.125		54.624	

241-T-106 Samples

Strontium 90	ET	GROSS COUNTS	COUNT TIME	BKG CPM	SF	NET CPM	X	Ws	Wb	WY	WX	WXY	WX^2
7135-1	1.21700	13.00000	45.03000	0.53840	1.02500	-0.25595	0.72707	133.21336	928.67758	0.13321	96.85578	0.09686	70.42119
B07MK9	2.07200	17.00000	37.02000	0.53840	1.02550	-0.08121	0.58245	73.91717	928.67758	0.07392	43.05309	0.04305	25.07629
Water	2.25400	20.00000	35.17000	0.53840	1.02550	-0.03104	0.55560	57.74126	928.67758	1.79219	32.06063	0.99573	17.82400
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	DELTA=	435.20169					SUMS=	264.87179	2786.03269	1.99932	171.99970	1.13554	113.32147

			PRODUCT	NBS CORR.	REPORTED	CALCULATED		Calculated	Calculated
Y @ MILK	REPORTED	CALCULATED	0.72550	1.00000	RESULTS	RESULTS		MDA	Results > MDA ?
1 COMP=	-0.10100	0.01082			-0.11005	0.01094	OK	0.56341	No
2 COMP=	NA	0.00000	P-FACTOR	C-ZERO					
			1.75900	0.01091					

Strontium 90	ET	GROSS COUNTS	COUNT TIME	BKG CPM	SF	NET CPM	X	Ws	Wb	WY	WX	WXY	WX^2
7135-2	1.21700	344.00000	45.03000	0.56530	1.03940	7.35277	0.72707	5.43739	884.49611	39.97967	3.95338	29.06827	2.87439
LCS	2.07200	239.00000	37.02000	0.56530	1.03920	6.12158	0.58245	5.40633	884.49611	33.10756	3.15000	19.28351	1.83477
Water	2.25400	204.00000	35.17000	0.56530	1.03920	5.44031	0.55560	5.75653	884.49611	31.33366	3.19997	17.40687	1.77789
	5.26400	169.00000	53.76000	0.54380	0.99710	2.59226	0.25366	16.18494	919.45568	41.95561	4.10853	10.65039	1.04295
	5.97500	176.00000	70.00000	0.50350	0.97880	1.96816	0.21083	26.07716	993.04866	51.32395	5.49797	10.82098	1.15916
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	DELTA=	119.10234					SUMS=	58.66735	4565.96268	197.70063	19.90994	67.23191	8.68917

			PRODUCT	NBS CORR.	REPORTED	CALCULATED		Calculated	Calculated
Y @ MILK	REPORTED	CALCULATED	0.84980	1.00000	RESULTS	RESULTS		MDA	Results > MDA ?
1 COMP=	10.04500	10.03916	OK		9.36830	9.36037	OK	0.49632	Yes
2 COMP=	NA	10.41597	*	P-FACTOR	C-ZERO				
				1.75900	11.01354				

Strontium 90	ET	GROSS COUNTS	COUNT TIME	BKG CPM	SF	NET CPM	X	Ws	Wb	WY	WX	WXY	WX^2
7135-3	1.21700	22.00000	45.03000	0.52990	0.98820	-0.04065	0.72707	83.56945	943.57426	0.06359	60.77580	0.06078	44.18827
BLANK	2.07200	30.00000	37.02000	0.52990	0.98930	0.27747	0.58245	43.29497	943.57426	12.01296	25.21652	6.99605	14.68755
Water	2.25400	15.00000	35.17000	0.52990	0.98930	-0.10229	0.55560	76.59987	943.57426	0.07560	42.00301	0.04200	23.33672
	5.26400	36.00000	53.76000	0.73880	1.01210	-0.06999	0.25366	71.26223	676.77315	0.07125	18.06731	0.01809	4.59146
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	DELTA=	2421.20048					SUMS=	273.73591	3507.49692	12.24340	146.08275	7.11752	88.80399

			PRODUCT	NBS CORR.	REPORTED	CALCULATED		Calculated	Calculated
Y @ MILK	REPORTED	CALCULATED	0.85774	1.00000	RESULTS	RESULTS		MDA	Results > MDA ?
1 COMP=	0.06600	0.00000			0.06120	0.07575		0.49420	No
2 COMP=	NA	0.00002	P-FACTOR	C-ZERO					
			1.75900	0.00000					

9613492.4929

Strontium 90	ET	GROSS COUNTS	COUNT TIME	BKG CPM	SF	NET CPM	X	Ws	Wb	WY	WX	WXY	WX^2
7135-4	1.21700	33.00000	45.03000	0.64120	0.97170	0.08906	0.72707	56.56903	779.78790	5.03745	41.12907	3.66259	29.90352
REPLICATE	2.07200	25.00000	37.02000	0.64120	0.97270	0.03318	0.58245	50.85077	779.78790	1.69052	29.67830	0.96464	17.26497
Water	2.25400	27.00000	35.17000	0.64120	0.97270	0.12305	0.55580	43.02322	779.78790	5.29385	23.90355	2.94124	13.29072
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	DELTA=	133.42824					SUMS=	150.54203	2339.36369	12.02182	94.70691	7.58848	60.46951

			PRODUCT	NBS CORR.	REPORTED	CALCULATED		Calculated	Calculated
Y @ MILK	REPORTED	CALCULATED	0.38820	1.00000	RESULTS	RESULTS		MDA	Results > MDA ?
1 COMP=	0.02900	0.12549 *			0.05851	0.25614	*	1.11882	No
2 COMP=	NA	0.02857 *	P-FACTOR	C-ZERO					
			1.75900	0.12027					

9613492.4930

241-T-106 Samples

TECHNETIUM 99

Sample #	7135-1		7135-2		7135-3		7135-4	
Cust. I.D. #	B07MK9		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Aliquot	0.20000		1.00000		1.00000		0.20000	
Average Net CPM	0.16000		22.10000		0.02000		0.09000	
P-Factor	2.34000		2.34000		2.34000		2.34000	
Yield	0.61630		0.50140		0.49090		0.45200	
Reported Results	1.39740		46.45700		0.04801		1.06080	
Calculated Results	1.36824	OK	48.45910	OK	0.04294	*	1.04939	OK
Bkg 1	0.54000		0.74000		0.54000		0.56000	
Time 1	96.00000		56.40000		56.40000		56.40000	
SF 1	1.02300		1.01100		1.02300		1.03900	
Reported MDA	3.28929		1.24430		0.85608		4.29200	
Calculated MDA 1	3.02612	OK	1.13447	OK	1.00159	*	5.62536	*
Results > MDA ?	NO		YES		NO		NO	

241-T-106 Samples

Total Uranium

Sample #	7135-1		7135-2		7135-3		7135-4	
Cust. I.D. #	B07MK9		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Final Result (ug/l)	0.05900		34.23300		0.05900		0.05900	
Prep Volume (l)	0.02000		0.02000		0.02000		0.02000	
Aliquot (g or l)	0.02000		1.00000		1.00000		0.02000	
Reported Results (ug/unit aliquot)	0.05900		0.68466		0.00120		0.05900	
Calclulated Results (ug/unit aliquot)	0.05900	OK	0.68466	OK	0.00118	OK	0.05900	OK
MDA	0.05900				0.05900		0.05900	
Results > MDA ?	NO		YES		NO		NO	

241-T-106 Samples

Isotopic Uranium

Sample #	7135-1		7135-2		7135-3		7135-4	
Cust. I.D. #	B07MK9		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
U232 Tracer Added (DPM)	10.550		10.550		10.550		10.550	
Sample Size (g or l)	1.000		1.000		1.000		0.500	
Tracer BKG (CPM)	0.008		0.008		0.017		0.000	
Tracer Counts	411.000		2158.000		179.000		130.000	
Counting Time (min)	156.330		156.330		156.330		156.330	
Detector Efficiency	0.285		0.285		0.281		0.259	
Reported Yield	0.939		0.456		0.380		0.304	
Calculated Yield	0.938	OK	4.595	*	0.381	OK	0.304	OK
[U233/234]								
BKG (CPM)	0.005		0.002		0.018		0.001	
Gross Counts	38.000		206.000		2.000		4.000	
U235 Counts	0.000		1.000		0.000		0.000	
Branch Ratio	1.000		1.000		1.000		1.000	
Tracer Counts	1.000		0.000		0.000		0.000	
Reported Results (pCi/g or pCi/l)	0.394		4.551		-0.027		0.292	
Calculated Results (pCi/g or pCi/l)	0.398	OK	0.451	*	-0.020	*	0.282	OK
MDA Reported	0.089		0.170		0.298		0.559	
MDA Calculated	0.071	*	0.117	*	0.208	*	0.129	*
Results > MDA?	YES		YES		NO		NO	
[U235]								
BKG (CPM)	0.001		0.028		0.003		0.000	
Gross Counts	3.000		6.000		1.000		1.000	
U235 Counts	0.000		0.000		0.000		0.000	
Branch Ratio	0.826		0.826		0.826		0.826	
Tracer Counts	0.000		0.000		0.000		0.000	
Table Counts	0.000		0.000		0.000		0.000	
Reported Results (pCi/g or pCi/l)	0.042		0.161		0.033		0.088	
Calculated Results (pCi/g or pCi/l)	0.040	OK	0.004	*	0.018	*	0.089	OK
MDA Reported	0.107		0.206		0.250		0.677	
MDA Calculated	0.025	*	0.261	*	0.100	*	0.000	ERR
Results > MDA?	NO		NO		NO		NO	
[U238]								
BKG (CPM)	0.001		0.004		0.006		0.001	
Gross Counts	22.000		191.000		1.000		3.000	
U235 Counts	0.000		1.000		0.000		0.000	
Branch Ratio	1.000		1.000		1.000		1.000	
Tracer Counts	0.000		0.000		0.000		0.000	
Reported Results (pCi/g or pCi/l)	0.255		4.196		0.000		0.219	
Calculated Results (pCi/g or pCi/l)	0.254	OK	0.417	*	-0.000	*	0.209	OK
MDA Reported	0.089		0.213		0.207		0.559	
MDA Calculated	0.020	*	0.130	*	0.127	*	0.129	*
Results > MDA?	YES		YES		NO		NO	

241-T-106 Samples

Isotopic Plutonium

Sample #	7135-1		7135-2		7135-3		7135-4	
Cust. I.D. #	B07MK9		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Pu242 Tracer Added (DPM)	4.86000		4.86000		4.86000		4.86000	
Sample Size (g or l)	1.00000		1.00000		1.00000		0.50000	
Tracer BKG (CPM)	0.00266		0.00000		0.00000		0.00089	
Tracer Counts	563.00000		845.00000		829.00000		1180.00000	
Counting Time (min)	720.52000		720.45000		720.52000		720.52000	
Detector Efficiency	0.37700		0.41580		0.35880		0.37380	
Reported Yield	0.42490		0.58090		0.66040		0.90150	
Calculated Yield	0.42501	OK	0.58041	OK	0.65981	OK	0.90100	OK
[Pu238]								
BKG (CPM)	0.01772		0.00177		0.00709		0.01329	
Gross Counts	15.00000		2.00000		4.00000		12.00000	
Branch Ratio	1.00000		1.00000		1.00000		1.00000	
Tracer Counts	0.00000		0.00000		0.00000		0.00000	
Reported Results (pCi/g or pCi/l)	0.00781		0.00259		-0.00264		0.00744	
Calculated Results (pCi/g or pCi/l)	0.00871	*	0.00188	*	-0.00293	OK	0.00900	*
MDA Reported	0.07720		0.01980		0.03540		0.06580	
MDA Calculated	0.06499	*	0.01362	*	0.02779	*	0.05351	*
Results > MDA?	NO		NO		NO		NO	
[Pu239]								
BKG (CPM)	0.00000		0.00089		0.00000		0.00000	
Gross Counts	2.00000		350.00000		1.00000		1.00000	
Branch Ratio	1.00000		1.00000		1.00000		1.00000	
Tracer Counts	0.00000		0.00000		0.00000		0.00000	
Reported Results (pCi/g or pCi/l)	0.00798		0.90340		0.00264		0.00371	
Calculated Results (pCi/g or pCi/l)	0.00780	OK	0.90510	OK	0.00264	OK	0.00371	OK
MDA Reported	0.02980		0.01980		0.02020		0.02840	
MDA Calculated	0.00000	ERR	0.00986	*	0.00000	ERR	0.00000	ERR
Results > MDA?	NO		YES		NO		NO	

241-T-106 Samples

Americium 241

Sample #	7135-1		7135-2		7135-3		7135-4	
Cust. I.D. #	B07MK9		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Am243 Tracer Added (DPM)	4.95000		4.95000		4.95000		4.95000	
Sample Size (g or l)	1.00000		1.00000		1.00000		0.50000	
Tracer BKG (CPM)	0.00277		0.00554		0.00185		0.01201	
Tracer Counts	561.00000		846.00000		812.00000		1050.00000	
Counting Time (min)	720.55000		720.55000		720.55000		720.55000	
Detector Efficiency	0.38900		0.38230		0.39700		0.35650	
Reported Yield	0.42440		0.61860		0.57230		0.81800	
Calculated Yield	0.42474	OK	0.61897	OK	0.57251	OK	0.81897	OK
[Am241]								
BKG (CPM)	0.01571		0.01941		0.00832		0.01294	
Gross Counts	10.00000		252.00000		13.00000		12.00000	
Branch Ratio	1.00000		1.00000		1.00000		1.00000	
Tracer Counts	1.00000		2.00000		1.00000		2.00000	
Reported Results (pCi/g or pCi/l)	-0.00799		0.62390		0.01651		0.00429	
Calculated Results (pCi/g or pCi/l)	-0.00925	*	0.62351	OK	0.01652	OK	0.00290	*
MDA Reported	0.07360		0.05390		0.03960		0.07270	
MDA Calculated	0.06529	*	0.04925	OK	0.03391	*	0.06723	OK
Results > MDA?	NO		YES		NO		NO	

241-T-106 Samples

Neptunium 237

Sample #	7135-1		7135-2		7135-3		7135-4	
Cust. I.D. #	B07MK9		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Count Time (min)	1101.930		1101.930		1075.520		1075.520	
Gross Alpha (dpm)	0.020		2.474		0.000		0.545	
Bkg CPM	0.000		0.001		0.001		0.003	
Tracer Counts	0.000		0.000		0.000		0.000	
Yield	0.213		0.260		0.527		0.629	
Aliquot (g or l)	0.100		1.000		1.000		1.000	
Efficiency	0.369		0.385		0.395		0.362	
Reported Results (pCi/g or pCi/l)	0.416		4.281		0.000		0.391	
Calculated Results (pCi/g or pCi/l)	0.423	OK	4.281	OK	0.000	ERR	0.391	OK
MDA Reported	0.156		0.031		0.015		0.023	
MDA Calculated	0.141	*	0.031	OK	0.015	OK	0.020	*

241-T-106 Samples

Gamma Spectroscopy

Sample #	7135-1		7135-2		7135-3		7135-4	
Cust. I.D. #	B07MK9		LCS		BLANK		REPLICATE	
Type	Water		Water		Water		Water	
Detector	G-3 MB		G-5 MB		G-2 MB		G-2 MB	
Aliquot (g or l)	0.50000		1.00000		1.00000		188.98000	
Counting Time (min)	455.21000		455.21000		422.20000		163.56000	
[Cobalt 60; Co-60]								
Background CTS	26.00000		0.00000		16.00000		0.00000	
Background CPM	0.03420		0.02080		0.06550		0.06420	
Net CPM	0.05400		1.05400		0.05800		0.04300	
Branch Fraction	1.00000		1.00000		1.00000		1.00000	
Efficiency	0.00366		0.00382		0.00343		0.00343	
Reported Results (pCi/g or pCi/l)	<	*	124.30000	OK	<	*	<	*
Calculated Results (pCi/g or pCi/l)	13.29198		124.28659		7.61695		0.02988	
Reported MDA	13.62000	OK	NA	*	7.62000	OK	16.16800	*
Calculated MDA	16.24615		3.71446		9.57708		0.06416	
Detect/Non Detect	Non Detect		Detect		Non Detect		Non Detect	
[Cesium 137; Cs-137]								
Background CTS	0.00000		86.00000		0.00000		0.00000	
Background CPM	0.04780		0.00000		0.02560		0.02560	
Net CPM	0.09300		1.30500		0.06300		0.04700	
Branch Fraction	0.85100		0.85100		0.85100		0.85100	
Efficiency	0.00734		0.00732		0.00673		0.00673	
Reported Results (pCi/g or pCi/l)	<	*	94.33000	OK	<	*	<	*
Calculated Results (pCi/g or pCi/l)	13.41326		94.36629		4.95499		0.01956	
Reported MDA	13.43000	OK	NA	*	4.92400	OK	7.49800	*
Calculated MDA	6.88724		6.86483		2.85397		0.02426	
Detect/Non Detect	Non Detect		Detect		Non Detect		Non Detect	
[Thorium 228; Th-228]								
Background CTS	0.00000		0.00000		0.00000		0.00000	
Background CPM	0.21830		0.28460		0.17050		0.17370	
Net CPM	0.18700		0.22500		0.14800		0.11100	
Branch Fraction	0.44800		0.44800		0.44800		0.44800	
Efficiency	0.02043		0.00821		0.01731		0.01731	
Reported Results (pCi/g or pCi/l)	<	*	<	*	<	*	<	*
Calculated Results (pCi/g or pCi/l)	18.40854		27.55550		8.59674		0.03412	
Reported MDA	19.71000	OK	12.15000	*	8.57000	OK	13.87000	*
Calculated MDA	10.04471		14.26998		5.43952		0.04868	
Detect/Non Detect	Non Detect		Non Detect		Non Detect		Non Detect	

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E-93-22/2978-62
WESTINGHOUSE HANFORD COMPANY
241-T-106 DATA VALIDATION
DISTRIBUTION FORM

SDG: B07K11
Case #: 02-041
Fraction: VOA

Document Title Final QA Record

Document Number: _____ Date: 4/15/94

		DISTRIBUTION			
M. Baker (HCRL)		D. Mantooth (ERL)		D. Wiley (ERL)	
P. Bartley (ERL)		T. McDonald (HCRL)		N. Wold (ERL)	
Y. Chun (HCSEA)		R. Potter (HCRL)		ERL Project File/J. Pawlowski	
B. Downs (HCSEA)		K. Rolla (HCSEA)		Project File/D. Simpson (HCRL)	
M. Gerboth (HCRL)		C. Sater (ERL)		Duplicate Project File/T. Trevino (HCSEA)	
J. Grover (ERL)		M. Schwarz (ERL)		Westinghouse EDMC	X
L. Hammerle (HCSEA)		A. Shen (HCSEA)			
K. Pool (WHC)					

Project Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

1.1 File Index		1.6.6.3 Plans Doc. Log		3.4 Original Chemical Data	
1.2 Distribution Lists		1.6.6.4 Deliverables Doc. Log		3.5 Original Radiochemical Data	
1.3 Project Procedures		1.7 Budget			
1.4 Project Modifications		1.7.1 Downloads		4.1 Task Plan	
1.5 Staff		1.7.2 M-113s			
1.5.1 Staff Resumes		1.7.3 A-208s		4.2 Data Pkg. Completeness Verif. Checklist	
1.5.2 Staff Training		1.7.4 Budget Status		4.3 Data Valididation Calcs./Annotated DP	X
1.5.3 Auth. Former Site Employee		1.7.5 Invoices		4.4 Prelim. QA Records	
1.6 QA		1.8 Requisitions			
1.6.1 QA Manual		1.9 Meeting Minutes		4.5 Data Valid. & Qual. Summary Rpts.	
1.6.2 QA Implementation		1.10 Record of Telecon		4.5.1 Internal Drafts/Comments/Resol.	
1.6.3.1 QA Audits-Deliverables		1.11 Progress Reports		4.5.2 WHC Review Draft Comments/Resol.	
1.6.3.2 QA Audits-Files		1.12 Subcontractor (HC)		4.5.3 Final Report	
1.6.4.1 Audit Resps. - Deliverables				4.6 Weekly Status Reports	
1.6.4.2 Audit Resps. - Files		2.1 Incoming Correspondence		4.7 Weekly Management Reports	
1.6.5 QA Training		2.2 Outgoing Correspondence			
1.6.6.1 QA Manual Document Log		2.3 Internal Correspondence			
1.6.6.2 Procedure Document Log					
		3.1 Task Order			
		3.2 Sample Lists			
		3.3 Data Validation Procedures			

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V. COC ✓

VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: 241-T-106	REVIEWER: KR	DATE: 10/24/93
LABORATORY: TMA	CASE: 02-041	SDG: B07K11
SAMPLES/MATRIX:		
B07K09		
B07K11		
B07K13		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
GC/MS tuning report	X		
Internal standard summary report	X		
Sample Data			
Sample reports	X		
TIC reports for each sample	X		
RIC reports for all samples	X		
Raw and corrected spectra for all detected results	X		
Raw and corrected library search data for all reported TIC	X		
Quantitation and calculation data for all TIC	X		
Standards Data			
Initial calibration report	X		
RIC and quantitation reports for initial calibration	X		
Continuing calibration reports	X		
RIC and quantitation reports for cont. calibrations	X		
Internal standard summary report	X		
Raw QC Data			
Tuning report, spectra and mass lists	X		
Blank analysis reports	X		
TIC reports for all blanks	X		
RIC and quantitation reports for blanks	X		
Raw and corrected spectra for all detected results in blanks	X		
Raw and corrected library search data for all reported TIC	X		

Data Package Item	Present?: Yes	No	N/A
Quantitation and calculation data for all TIC	X		
MS/MSD report forms	X		
RIC and quantitation reports for MS/MSD	X		
Additional Data			
Moisture/% solids data sheets			
Reduction formulae			
Instrument time logs			
Chemist notebook pages			
Sample preparation sheets			

2. HOLDING TIMES

Complete the holding time summary form listing all samples and dates of collection and analysis.

Were all samples analyzed within holding time? Yes No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a bromofluorobenzene tune report present for each applicable 12-h period? Yes No N/A

Do all tunes on all instruments meet the tuning criteria? Yes No N/A

Do all tunes on all instruments meet the expanded criteria? Yes No N/A

Has the laboratory made any calculation or transciption errors? Yes No N/A

Have the proper significant figures been reported? Yes No N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects or UJ for nondetects). If all tuning criteria are missed, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments? Yes No N/A

Are all RSD values ≤30% (2/88 SOW)? Yes No N/A

Are all RRF values ≥0.05 (2/88 SOW)? Yes No N/A

2-butanone 25.6
4methyl-2-Pentanone 21.4
2-hexanone 21.5

Are all applicable RSD values ≤20.5% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every 12-h period in which samples were analyzed?	Yes	No	N/A
Are TCL compounds present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results ≤10 time the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is <CRQL. Qualify all remaining sample results ≤5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are TCL compounds present in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results ≤ 5 times the amount in any valid field blank as nondetects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries < 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated sample results as estimated (J for detects or UJ for nondetects) for surrogates out of specification but > 10%. Qualify all associated positive sample results as estimated (J) and all nondetect results as unusable (R) for all surrogates below 10%. If method blank surrogates are out of specification and the associated sample surrogates are acceptable no qualification is necessary, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is > 5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are > 5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for nondetects). If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard? Yes No N/A

Are all ions at a relative intensity of ≥ 10% in the standard spectra present in the sample spectra? Yes No N/A

Do the relative intensities between the standard and sample spectra agree within 20%? Yes No N/A

Have all ions > 10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination? Yes No N/A

Are molecular ions present in the reference specrum present in the sample spectrum? Yes No N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R). Note the results in the validation narrative.

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standard(s) for quantitation? Yes No N/A

Are results and quantitation limits calculated properly? Yes No N/A

Has the laboratory reported the sample quantitation limits within 5xCRQL values? Yes No N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW? Yes No N/A

Has the laboratory properly identified and coded all TIC? Yes No N/A

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? Yes No N/A

Were project specific data quality objectives met for this analysis? Yes No N/A

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10.0 of the data validation requirements.

HOLDING TIME SUMMARY

SDG: B07ML1 | VALIDATOR: Kristine Rolla | DATE: 10/24 | PAGE 1 OF 1

COMMENTS:

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07K09	VOA	2/9/93		2/18/93		9 days	NONE*
B07K11	↓	↓		↓		↓	↓
B07K13	↓	↓		↓		↓	↓ *
*	The trip blank was analyzed past the recommended						
	holding time for VOA but no qualifiers were made since						
	this was the trip blank associated with the soil samples.						

CALIBRATION DATA SUMMARY

SDG: B07K11	VALIDATOR: Kristine Rolla	DATE: 10/24	PAGE 1 OF 1
COMMENTS: No Qualifications were made			

CALIB. TYPE:	INITIAL	CONTINUING	INSTRUMENT:			
CALIB. DATE	COMPOUND		RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
GCMS Tuning report is within Control.						
					None - Trip blank. No qual required.	
	Acetone			26.4	None -	—
	2-butanone			25.6	allowance of 4	—
	4-methyl-2-Pentanone			21.4 ok	Compounds	—
	2-hexanone			21.5 ok	Two TCL allowed	—
					to exceed criteria.	
Ccal	Acetone			33.0	two TCL allowed	—
					AS 1/25/94	

BLANK AND SAMPLE DATA SUMMARY

SDG: B07K11	VALIDATOR: Kristine Kolla	DATE: 10/24/93	PAGE 1 OF 1

COMMENTS:

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
(soil) VBLK0213R	methylene Chloride	4	J		ug/kg			~~B07K09~~	~~U~~
	Acetone	11						B07K13 B07K11	U
	TIC#1 Unknown Hydro	10	J	1.53	ug/kg				

ACCURACY DATA SUMMARY

SDG: B07MK11	VALIDATOR: Kristine Rolla	DATE: 10/24/93	PAGE 1 OF 1	
COMMENTS: MS/MSD ✓ R. unrelated Control Limits on 1 surrogates				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED

PRECISION DATA SUMMARY

SDG: B07KB11	VALIDATOR: Kristine Rolla	DATE: 10/24/93	PAGE 1 OF 1

COMMENTS: MS/MSD % R are within control. Internal standard area o.k.

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER

CALCULATION SUMMARY

SDG: B07K11	REVIEWER: Kristine Rolla	DATE: 10/24/93	PAGE 1 OF 1

COMMENTS:

B07K13 — B07K11

Toluene @ 1J

(2035)(50)(~~1000~~) = 1.4

(~~50~~)(70969)(1.021)(.91)

g soil — RRF 50 — % moist

= 66867

See calc sheet = 1.5

Toluene @ 2J

(2168)(50)(~~1000~~)

(~~1~~)(74600)(1.248)(.91)

g soil — RRF 50 — % moist

= 84721

= 1.27

DATA QUALIFICATION SUMMARY

SDG: B07K11	VALIDATOR: KR/AS	DATE: 10/24/93	PAGE____OF____
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
~~Methylene Chloride~~	~~U~~)	~~B07 B07K09~~	~~Detected below CRQL~~ AS 1/25/94
Acetone	U	B07K13	Blank Contamination
		B07K11	↓
Methylene Chloride	U at CRQL	~~B07K09~~	~~Blank contamination~~
		No qual required	Trip Blank AS 1/25/94
~~Toluene~~	)	~~B07K11~~	~~Detected below CRQL~~ AS 1/25/94

TELEPHONE CONTACT SUMMARY

VALIDATOR:	DATE:	TIME:	PAGE_____OF____
COMPANY:			
ADDRESS:			
PERSON CONTACTED:			
TELEPHONE:		FAX:	
PROJECT/CASE/SDG:			
REMARKS:			
ACTION:			

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11,13,09

Package ID: B07R11-TMA-441

VOLATILE ORGANIC DATA VERIFICATION CHECKLIST - FORM A-1

Review the data package for completeness and check off the items below. If any data review elements are missing, contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Quality Control (QC) Summary			
Surrogate Summary report	X		
MS/MSD Summary report	X		
Blank summary report	X		
GC/MS tuning report	X		
Sample Data			
Sample reports	X		
TIC reports for each sample	X		
Chromatograms for all samples	X		
Raw and corrected spectra for all detected results	X		
Raw and corrected library search data for all reported TIC	X		
Quantitation and calculation data for all TIC	X		
Standards Data			
Initial calibration report	X		
RIC and quantitation reports for initial calibration	X		
Continuing calibration reports	X		
RIC and quantitation reports for cont. calibrations	X		
Internal standard summary report	X		
Raw QC Data			
Tuning, spectra and mass lists	X		
Blank Data			
Blank analysis reports	X		
TIC reports for all blanks	X		
RIC and quantitation reports for blanks	X		
Raw and corrected spectra for all detected results in blanks	X		
Raw and corrected library search data for all reported TIC	X		
Quantitation and calculation data for all TIC	X		
Matrix Spike/Matrix Spike Duplicate (MS/MSD) Data			
MS/MSD Analysis Reports	X		
RIC and quantitation reports for MS/MSD	X		
Additional Data			
Moisture/% solids data sheets			X
Sample preparation sheets			X

Comments:

Volatile Organics – Continuing Calibration Calculations
Calibration Date: 02/18/93 (Init. Calib.: 01/22/93)
Prepared by Corrie Kuhn, Hart Crowser 10/26/93

No.	Name	Avg.RRF	Std. Area		I.S. Area		Conc. I.S.		Conc. Std.		RRF50	%Difference* (avg-rrf50)/ avg*100
1	bromodichloromethane	1.000	21831	/	21831	*	50	/	50	=	1.000	0.0
2	1,4-difluorobenzene	1.000	110516	/	110516	*	50	/	50	=	1.000	0.0
3	d5-chlorobenzene	1.000	112835	/	112835	*	50	/	50	=	1.000	0.0
4	d4-1,2-dichloroethane	1.599	41115	/	21831	*	50	/	50	=	1.883	-17.8
5	d8-toluene	1.001	117195	/	112835	*	50	/	50	=	1.039	-3.8
6	bromofluorobenzene	0.834	97291	/	112835	*	50	/	50	=	0.862	-3.4
7	chloromethane	2.025	34458	/	21831	*	50	/	50	=	1.578	22.1
8	vinyl chloride	1.541	33084	/	21831	*	50	/	50	=	1.515	1.7
9	bromomethane	1.099	24741	/	21831	*	50	/	50	=	1.133	-3.1
10	chloroethane	0.790	18608	/	21831	*	50	/	50	=	0.852	-8.0
11	acetone	0.287	5001	/	21831	*	50	/	50	=	0.229	20.1
12	1,1-dichloroethene	1.341	31096	/	21831	*	50	/	50	=	1.424	-6.2
13	carbon disulfide	4.027	88570	/	21831	*	50	/	50	=	4.057	-0.8
14	methylene chloride	1.436	33217	/	21831	*	50	/	50	=	1.522	-6.0
15	trans-1,2-dichloroethene	1.504	34712	/	21831	*	50	/	50	=	1.590	-5.7
16	1,1-dichloroethane	3.084	74603	/	21831	*	50	/	50	=	3.417	-10.8
17	vinyl acetate	0.618	69263	/	110516	*	50	/	50	=	0.627	-1.4
18	2-butanone	0.526	12486	/	21831	*	50	/	50	=	0.572	-8.8
19	cis-1,2-dichloroethene	1.725	10997	/	21831	*	50	/	50	=	0.504	70.8
20	chloroform	3.351	83427	/	21831	*	50	/	50	=	3.821	-14.0
21	1,1,1-trichloroethane	0.577	67532	/	110516	*	50	/	50	=	0.611	-6.0
22	carbon tetrachloride	0.514	59461	/	110516	*	50	/	50	=	0.538	-4.7
23	benzene	1.001	115704	/	110516	*	50	/	50	=	1.047	-4.6
24	1,2-dichloroethane	2.249	52563	/	21831	*	50	/	50	=	2.408	-7.1
25	trichloroethene	0.444	50668	/	110516	*	50	/	50	=	0.458	-3.2
26	1,2-dichloropropane	0.472	55131	/	110516	*	50	/	50	=	0.499	-5.6
27	bromodichloromethane	0.696	82562	/	110516	*	50	/	50	=	0.747	-7.3
28	4-methyl-2-pentanone	0.614	64738	/	112835	*	50	/	50	=	0.574	6.5
29	cis-1,3-dichloropropene	0.634	74304	/	110516	*	50	/	50	=	0.672	-6.1
30	toluene	1.303	140802	/	112835	*	50	/	50	=	1.248	4.2
31	trans-1,3-dichloropropene	0.538	62192	/	110516	*	50	/	50	=	0.563	-4.7
32	1,1,2-tricloroethane	0.399	45831	/	110516	*	50	/	50	=	0.415	-4.0
33	2-hexanone	0.273	26931	/	112835	*	50	/	50	=	0.239	12.5
34	tetrachloroethene	0.444	46434	/	112835	*	50	/	50	=	0.412	7.3
35	dibromochloromethane	0.586	68383	/	110516	*	50	/	50	=	0.619	-5.6
36	chlorobenzene	1.035	116043	/	112835	*	50	/	50	=	1.028	0.6
37	ethylbenzene	0.481	55224	/	112835	*	50	/	50	=	0.489	-1.7
38	m,p-xylene	0.567	139276	/	112835	*	50	/	100	=	0.617	-8.9
39	o-xylene	0.589	68544	/	112835	*	50	/	50	=	0.607	-3.1
40	styrene	1.019	115801	/	112835	*	50	/	50	=	1.026	-0.7
41	bromoform	0.359	42031	/	110516	*	50	/	50	=	0.380	-6.0
42	1,1,2,2-tetrachloroethane	0.717	77533	/	112835	*	50	/	50	=	0.687	4.2
43	2-chloroethyl vinyl ether	0.250	30216	/	110516	*	50	/	50	=	0.273	-9.2

*Minor differences are due to a variance in the number of significant figures used in the calculation

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Volatile Organics - Initial Calibration Calculations
Initial Calibration Date: 01/22/93 Case No. 02041
Prepared by Corrie Kuhn, Hart Crowser 10/26/93

No.	Name	Std. Area		I.S. Area		Conc. I.S.		Conc. Std.		RRF10
1	bromodichloromethane	25900	/	25900	*	50	/	50	=	1.000
2	1,4-difluorobenzene	125118	/	125118	*	50	/	50	=	1.000
3	d5-chlorobenzene	103046	/	103046	*	50	/	50	=	1.000
4	d4-1,2-dichloroethane	5885	/	25900	*	50	/	10	=	1.136
5	d8-toluene	15622	/	103046	*	50	/	10	=	0.758
6	bromofluorobenzene	13065	/	103046	*	50	/	10	=	0.634
7	chloromethane	7505	/	25900	*	50	/	10	=	1.449
8	vinyl chloride	6089	/	25900	*	50	/	10	=	1.175
9	bromomethane	5590	/	25900	*	50	/	10	=	1.079
10	chloroethane	4185	/	25900	*	50	/	10	=	0.808
11	acetone	2305	/	25900	*	50	/	10	=	0.445
12	1,1-dichloroethene	7043	/	25900	*	50	/	10	=	1.360
13	carbon disulfide	19739	/	25900	*	50	/	10	=	3.811
14	methylene chloride	8038	/	25900	*	50	/	10	=	1.552
15	trans-1,2-dichloroethene	8220	/	25900	*	50	/	10	=	1.587
16	1,1-dichloroethane	16386	/	25900	*	50	/	10	=	3.163
17	vinyl acetate	15877	/	125118	*	50	/	10	=	0.634
18	2-butanone	3173	/	25900	*	50	/	10	=	0.613
19	cis-1,2-dichloroethene	8715	/	25900	*	50	/	10	=	1.682
20	chloroform	16260	/	25900	*	50	/	10	=	3.139
21	1,1,1-trichloroethane	13422	/	125118	*	50	/	10	=	0.536
22	carbon tetrachloride	11174	/	125118	*	50	/	10	=	0.447
23	benzene	23722	/	125118	*	50	/	10	=	0.948
24	1,2-dichloroethane	10852	/	25900	*	50	/	10	=	2.095
25	trichloroethene	10752	/	125118	*	50	/	10	=	0.430
26	1,2-dichloropropane	10882	/	125118	*	50	/	10	=	0.435
27	bromodichloromethane	15491	/	125118	*	50	/	10	=	0.619
28	4-methyl-2-pentanone	14033	/	103046	*	50	/	10	=	0.681
29	cis-1,3-dichloropropene	14454	/	125118	*	50	/	10	=	0.578
30	toluene	26760	/	103046	*	50	/	10	=	1.298
31	trans-1,3-dichloropropene	11855	/	125118	*	50	/	10	=	0.474
32	1,1,2-tricloroethane	9546	/	125118	*	50	/	10	=	0.381
33	2-hexanone	7165	/	103046	*	50	/	10	=	0.348
34	tetrachloroethene	9304	/	103046	*	50	/	10	=	0.451
35	dibromochloromethane	12577	/	125118	*	50	/	10	=	0.503
36	chlorobenzene	21005	/	103046	*	50	/	10	=	1.019
37	ethylbenzene	9249	/	103046	*	50	/	10	=	0.449
38	m,p-xylene	22210	/	103046	*	50	/	20	=	0.539
39	o-xylene	10869	/	103046	*	50	/	10	=	0.527
40	styrene	19218	/	103046	*	50	/	10	=	0.932
41	bromoform	7811	/	125118	*	50	/	10	=	0.312
42	1,1,2,2-tetrachloroethane	17037	/	103046	*	50	/	10	=	0.827
43	2-chloroethyl vinyl ether	4838	/	125118	*	50	/	10	=	0.193

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Volatile Organics – Initial Calibration Calculations
Initial Calibration Date: 01/22/93 Case No. 02041
Prepared by Corrie Kuhn, Hart Crowser 10/26/93

No.	Name	Std. Area		I.S. Area		Conc. I.S.		Conc. Std.		RRF20
1	bromodichloromethane	25417	/	25417	*	50	/	50	=	1.000
2	1,4-difluorobenzene	118348	/	118348	*	50	/	50	=	1.000
3	d5-chlorobenzene	102775	/	102775	*	50	/	50	=	1.000
4	d4-1,2-dichloroethane	15801	/	25417	*	50	/	20	=	1.554
5	d8-toluene	42000	/	102775	*	50	/	20	=	1.022
6	bromofluorobenzene	31497	/	102775	*	50	/	20	=	0.766
7	chloromethane	19541	/	25417	*	50	/	20	=	1.922
8	vinyl chloride	16263	/	25417	*	50	/	20	=	1.600
9	bromomethane	14082	/	25417	*	50	/	20	=	1.385
10	chloroethane	9772	/	25417	*	50	/	20	=	0.961
11	acetone	3010	/	25417	*	50	/	20	=	0.296
12	1,1-dichloroethene	14819	/	25417	*	50	/	20	=	1.458
13	carbon disulfide	44717	/	25417	*	50	/	20	=	4.398
14	methylene chloride	16284	/	25417	*	50	/	20	=	1.602
15	trans-1,2-dichloroethene	16126	/	25417	*	50	/	20	=	1.586
16	1,1-dichloroethane	32844	/	25417	*	50	/	20	=	3.231
17	vinyl acetate	30566	/	118348	*	50	/	20	=	0.646
18	2-butanone	4698	/	25417	*	50	/	20	=	0.462
19	cis-1,2-dichloroethene	18862	/	25417	*	50	/	20	=	1.855
20	chloroform	35616	/	25417	*	50	/	20	=	3.503
21	1,1,1-trichloroethane	28592	/	118348	*	50	/	20	=	0.604
22	carbon tetrachloride	25280	/	118348	*	50	/	20	=	0.534
23	benzene	50708	/	118348	*	50	/	20	=	1.071
24	1,2-dichloroethane	23162	/	25417	*	50	/	20	=	2.278
25	trichloroethene	22318	/	118348	*	50	/	20	=	0.471
26	1,2-dichloropropane	23947	/	118348	*	50	/	20	=	0.506
27	bromodichloromethane	33176	/	118348	*	50	/	20	=	0.701
28	4-methyl-2-pentanone	24715	/	102775	*	50	/	20	=	0.601
29	cis-1,3-dichloropropene	30461	/	118348	*	50	/	20	=	0.643
30	toluene	57220	/	102775	*	50	/	20	=	1.392
31	trans-1,3-dichloropropene	24634	/	118348	*	50	/	20	=	0.520
32	1,1,2-tricloroethane	19038	/	118348	*	50	/	20	=	0.402
33	2-hexanone	9467	/	102775	*	50	/	20	=	0.230
34	tetrachloroethene	19794	/	102775	*	50	/	20	=	0.481
35	dibromochloromethane	26152	/	118348	*	50	/	20	=	0.552
36	chlorobenzene	42816	/	102775	*	50	/	20	=	1.041
37	ethylbenzene	19200	/	102775	*	50	/	20	=	0.467
38	m,p-xylene	51076	/	102775	*	50	/	40	=	0.621
39	o-xylene	23646	/	102775	*	50	/	20	=	0.575
40	styrene	41519	/	102775	*	50	/	20	=	1.010
41	bromoform	15290	/	118348	*	50	/	20	=	0.323
42	1,1,2,2-tetrachloroethane	27524	/	102775	*	50	/	20	=	0.670
43	2-chloroethyl vinyl ether	12595	/	118348	*	50	/	20	=	0.266

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Volatile Organics - Initial Calibration Calculations
Initial Calibration Date: 01/22/93 Case No. 02041
Prepared by Corrie Kuhn, Hart Crowser 10/26/93

No.	Name	Std. Area		I.S. Area		Conc. I.S.		Conc. Std.		RRF50
1	bromodichloromethane	25358	/	25358	*	50	/	50	=	1.000
2	1,4-difluorobenzene	119910	/	119910	*	50	/	50	=	1.000
3	d5-chlorobenzene	112747	/	112747	*	50	/	50	=	1.000
4	d4-1,2-dichloroethane	42453	/	25358	*	50	/	50	=	1.674
5	d8-toluene	119171	/	112747	*	50	/	50	=	1.057
6	bromofluorobenzene	96325	/	112747	*	50	/	50	=	0.854
7	chloromethane	52648	/	25358	*	50	/	50	=	2.076
8	vinyl chloride	37711	/	25358	*	50	/	50	=	1.487
9	bromomethane	28327	/	25358	*	50	/	50	=	1.117
10	chloroethane	20579	/	25358	*	50	/	50	=	0.812
11	acetone	6536	/	25358	*	50	/	50	=	0.258
12	1,1-dichloroethene	35777	/	25358	*	50	/	50	=	1.411
13	carbon disulfide	106837	/	25358	*	50	/	50	=	4.213
14	methylene chloride	36195	/	25358	*	50	/	50	=	1.427
15	trans-1,2-dichloroethene	38781	/	25358	*	50	/	50	=	1.529
16	1,1-dichloroethane	78944	/	25358	*	50	/	50	=	3.113
17	vinyl acetate	76157	/	119910	*	50	/	50	=	0.635
18	2-butanone	13508	/	25358	*	50	/	50	=	0.533
19	cis-1,2-dichloroethene	44443	/	25358	*	50	/	50	=	1.753
20	chloroform	86706	/	25358	*	50	/	50	=	3.419
21	1,1,1-trichloroethane	73269	/	119910	*	50	/	50	=	0.611
22	carbon tetrachloride	65193	/	119910	*	50	/	50	=	0.544
23	benzene	124650	/	119910	*	50	/	50	=	1.040
24	1,2-dichloroethane	56609	/	25358	*	50	/	50	=	2.232
25	trichloroethene	55005	/	119910	*	50	/	50	=	0.459
26	1,2-dichloropropane	57660	/	119910	*	50	/	50	=	0.481
27	bromodichloromethane	85178	/	119910	*	50	/	50	=	0.710
28	4-methyl-2-pentanone	67752	/	112747	*	50	/	50	=	0.601
29	cis-1,3-dichloropropene	76675	/	119910	*	50	/	50	=	0.639
30	toluene	148595	/	112747	*	50	/	50	=	1.318
31	trans-1,3-dichloropropene	63447	/	119910	*	50	/	50	=	0.529
32	1,1,2-tricloroethane	47504	/	119910	*	50	/	50	=	0.396
33	2-hexanone	28392	/	112747	*	50	/	50	=	0.252
34	tetrachloroethene	50184	/	112747	*	50	/	50	=	0.445
35	dibromochloromethane	70197	/	119910	*	50	/	50	=	0.585
36	chlorobenzene	118712	/	112747	*	50	/	50	=	1.053
37	ethylbenzene	55380	/	112747	*	50	/	50	=	0.491
38	m,p-xylene	141458	/	112747	*	50	/	100	=	0.627
39	o-xylene	65439	/	112747	*	50	/	50	=	0.580
40	styrene	111102	/	112747	*	50	/	50	=	0.985
41	bromoform	42117	/	119910	*	50	/	50	=	0.351
42	1,1,2,2-tetrachloroethane	75207	/	112747	*	50	/	50	=	0.667
43	2-chloroethyl vinyl ether	30834	/	119910	*	50	/	50	=	0.257

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Volatile Organics - Initial Calibration Calculations
Initial Calibration Date: 01/22/93 Case No. 02041
Prepared by Corrie Kuhn, Hart Crowser 10/26/93

No.	Name	Std. Area		I.S. Area		Conc. I.S.		Conc. Std.		RRF100
1	bromodichloromethane	24088	/	24088	*	50	/	50	=	1.000
2	1,4-difluorobenzene	119226	/	119226	*	50	/	50	=	1.000
3	d5-chlorobenzene	114322	/	114322	*	50	/	50	=	1.000
4	d4-1,2-dichloroethane	88022	/	24088	*	50	/	100	=	1.827
5	d8-toluene	256905	/	114322	*	50	/	100	=	1.124
6	bromofluorobenzene	217167	/	114322	*	50	/	100	=	0.950
7	chloromethane	112015	/	24088	*	50	/	100	=	2.325
8	vinyl chloride	85245	/	24088	*	50	/	100	=	1.769
9	bromomethane	53462	/	24088	*	50	/	100	=	1.110
10	chloroethane	38071	/	24088	*	50	/	100	=	0.790
11	acetone	10962	/	24088	*	50	/	100	=	0.228
12	1,1-dichloroethene	62110	/	24088	*	50	/	100	=	1.289
13	carbon disulfide	191751	/	24088	*	50	/	100	=	3.980
14	methylene chloride	65827	/	24088	*	50	/	100	=	1.366
15	trans-1,2-dichloroethene	69515	/	24088	*	50	/	100	=	1.443
16	1,1-dichloroethane	144720	/	24088	*	50	/	100	=	3.004
17	vinyl acetate	141485	/	119226	*	50	/	100	=	0.593
18	2-butanone	24477	/	24088	*	50	/	100	=	0.508
19	cis-1,2-dichloroethene	81325	/	24088	*	50	/	100	=	1.688
20	chloroform	160485	/	24088	*	50	/	100	=	3.331
21	1,1,1-trichloroethane	133865	/	119226	*	50	/	100	=	0.561
22	carbon tetrachloride	122770	/	119226	*	50	/	100	=	0.515
23	benzene	233502	/	119226	*	50	/	100	=	0.979
24	1,2-dichloroethane	108187	/	24088	*	50	/	100	=	2.246
25	trichloroethene	104737	/	119226	*	50	/	100	=	0.439
26	1,2-dichloropropane	110751	/	119226	*	50	/	100	=	0.464
27	bromodichloromethane	170445	/	119226	*	50	/	100	=	0.715
28	4-methyl-2-pentanone	133922	/	114322	*	50	/	100	=	0.586
29	cis-1,3-dichloropropene	151895	/	119226	*	50	/	100	=	0.637
30	toluene	286551	/	114322	*	50	/	100	=	1.253
31	trans-1,3-dichloropropene	132983	/	119226	*	50	/	100	=	0.558
32	1,1,2-tricloroethane	93867	/	119226	*	50	/	100	=	0.394
33	2-hexanone	59820	/	114322	*	50	/	100	=	0.262
34	tetrachloroethene	98718	/	114322	*	50	/	100	=	0.432
35	dibromochloromethane	149497	/	119226	*	50	/	100	=	0.627
36	chlorobenzene	232605	/	114322	*	50	/	100	=	1.017
37	ethylbenzene	110598	/	114322	*	50	/	100	=	0.484
38	m,p-xylene	188012	/	114322	*	50	/	200	=	0.411
39	o-xylene	139303	/	114322	*	50	/	100	=	0.609
40	styrene	240076	/	114322	*	50	/	100	=	1.050
41	bromoform	90786	/	119226	*	50	/	100	=	0.381
42	1,1,2,2-tetrachloroethane	158364	/	114322	*	50	/	100	=	0.693
43	2-chloroethyl vinyl ether	61680	/	119226	*	50	/	100	=	0.259

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Volatile Organics - Initial Calibration Calculations
Initial Calibration Date: 01/22/93 Case No. 02041
Prepared by Corrie Kuhn, Hart Crowser 10/26/93

No.	Name	Std. Area		I.S. Area		Conc. I.S.		Conc. Std.		RRF200
1	bromodichloromethane	21810	/	21810	*	50	/	50	=	1.000
2	1,4-difluorobenzene	111056	/	111056	*	50	/	50	=	1.000
3	d5-chlorobenzene	110718	/	110718	*	50	/	50	=	1.000
4	d4-1,2-dichloroethane	157373	/	21810	*	50	/	200	=	1.804
5	d8-toluene	462241	/	110718	*	50	/	200	=	1.044
6	bromofluorobenzene	428077	/	110718	*	50	/	200	=	0.967
7	chloromethane	205290	/	21810	*	50	/	200	=	2.353
8	vinyl chloride	146102	/	21810	*	50	/	200	=	1.675
9	bromomethane	70015	/	21810	*	50	/	200	=	0.803
10	chloroethane	50308	/	21810	*	50	/	200	=	0.577
11	acetone	18041	/	21810	*	50	/	200	=	0.207
12	1,1-dichloroethene	103778	/	21810	*	50	/	200	=	1.190
13	carbon disulfide	325571	/	21810	*	50	/	200	=	3.732
14	methylene chloride	107429	/	21810	*	50	/	200	=	1.231
15	trans-1,2-dichloroethene	120092	/	21810	*	50	/	200	=	1.377
16	1,1-dichloroethane	253769	/	21810	*	50	/	200	=	2.909
17	vinyl acetate	259048	/	111056	*	50	/	200	=	0.583
18	2-butanone	44846	/	21810	*	50	/	200	=	0.514
19	cis-1,2-dichloroethene	143481	/	21810	*	50	/	200	=	1.645
20	chloroform	293427	/	21810	*	50	/	200	=	3.363
21	1,1,1-trichloroethane	253607	/	111056	*	50	/	200	=	0.571
22	carbon tetrachloride	235832	/	111056	*	50	/	200	=	0.531
23	benzene	430230	/	111056	*	50	/	200	=	0.968
24	1,2-dichloroethane	208622	/	21810	*	50	/	200	=	2.391
25	trichloroethene	187908	/	111056	*	50	/	200	=	0.423
26	1,2-dichloropropane	211289	/	111056	*	50	/	200	=	0.476
27	bromodichloromethane	326396	/	111056	*	50	/	200	=	0.735
28	4-methyl-2-pentanone	265410	/	110718	*	50	/	200	=	0.599
29	cis-1,3-dichloropropene	297966	/	111056	*	50	/	200	=	0.671
30	toluene	555523	/	110718	*	50	/	200	=	1.254
31	trans-1,3-dichloropropene	269787	/	111056	*	50	/	200	=	0.607
32	1,1,2-tricloroethane	186924	/	111056	*	50	/	200	=	0.421
33	2-hexanone	120563	/	110718	*	50	/	200	=	0.272
34	tetrachloroethene	181389	/	110718	*	50	/	200	=	0.410
35	dibromochloromethane	294624	/	111056	*	50	/	200	=	0.663
36	chlorobenzene	462223	/	110718	*	50	/	200	=	1.044
37	ethylbenzene	228681	/	110718	*	50	/	200	=	0.516
38	m,p-xylene	561890	/	110718	*	50	/	400	=	0.634
39	o-xylene	289991	/	110718	*	50	/	200	=	0.655
40	styrene	495851	/	110718	*	50	/	200	=	1.120
41	bromoform	189796	/	111056	*	50	/	200	=	0.427
42	1,1,2,2-tetrachloroethane	323113	/	110718	*	50	/	200	=	0.730
43	2-chloroethyl vinyl ether	122950	/	111056	*	50	/	200	=	0.277

Volatile Organics - Initial Calibration Calculations
Initial Calibration Date: 01/22/93 Case No. 02041
Prepared by Corrie Kuhn, Hart Crowser 10/26/93

No.	Name	@avg(RRF10,20, 50,100,200)	Unbiased Std.Dev.*	%RSD (Std.Dev./Avg.*100)
1	bromodichloromethane	1.000	0.0000	0.0
2	1,4-difluorobenzene	1.000	0.0000	0.0
3	d5-chlorobenzene	1.000	0.0000	0.0
4	d4-1,2-dichloroethane	1.599	0.2810	17.6
5	d8-toluene	1.001	0.1409	14.1
6	bromofluorobenzene	0.834	0.1379	16.5
7	chloromethane	2.025	0.3684	18.2
8	vinyl chloride	1.541	0.2291	14.9
9	bromomethane	1.099	0.2065	18.8
10	chloroethane	0.790	0.1375	17.4
11	acetone	0.287	0.0947	33.0
12	1,1-dichloroethene	1.341	0.1054	7.9
13	carbon disulfide	4.027	0.2778	6.9
14	methylene chloride	1.436	0.1480	10.3
15	trans-1,2-dichloroethene	1.504	0.0925	6.1
16	1,1-dichloroethane	3.084	0.1281	4.2
17	vinyl acetate	0.618	0.0281	4.5
18	2-butanone	0.526	0.0550	10.5
19	cis-1,2-dichloroethene	1.725	0.0827	4.8
20	chloroform	3.351	0.1354	4.0
21	1,1,1-trichloroethane	0.577	0.0309	5.4
22	carbon tetrachloride	0.514	0.0391	7.6
23	benzene	1.001	0.0518	5.2
24	1,2-dichloroethane	2.249	0.1062	4.7
25	trichloroethene	0.444	0.0202	4.6
26	1,2-dichloropropane	0.472	0.0259	5.5
27	bromodichloromethane	0.696	0.0447	6.4
28	4-methyl-2-pentanone	0.614	0.0382	6.2
29	cis-1,3-dichloropropene	0.634	0.0341	5.4
30	toluene	1.303	0.0570	4.4
31	trans-1,3-dichloropropene	0.538	0.0493	9.2
32	1,1,2-tricloroethane	0.399	0.0144	3.6
33	2-hexanone	0.273	0.0447	16.4
34	tetrachloroethene	0.444	0.0264	6.0
35	dibromochloromethane	0.586	0.0627	10.7
36	chlorobenzene	1.035	0.0158	1.5
37	ethylbenzene	0.481	0.0255	5.3
38	m,p-xylene	0.567	0.0951	16.8
39	o-xylene	0.589	0.0469	8.0
40	styrene	1.019	0.0703	6.9
41	bromoform	0.359	0.0466	13.0
42	1,1,2,2-tetrachloroethane	0.717	0.0662	9.2
43	2-chloroethyl vinyl ether	0.250	0.0328	13.1

* @SQRT(@VAR(RRF10,20,50,100,200)*(5/4))

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Volatile Organics - Initial Calibration Calculations
Initial Calibration Date: 02/17/93
Prepared by Corrie Kuhn, Hart Crowser 10/26/93

No.	Name	Std. Area		I.S. Area		Conc. I.S.		Conc. Std.		RRF10
1	bromodichloromethane	16902	/	16902	*	50	/	50	=	1.000
2	1,4-difluorobenzene	86424	/	86424	*	50	/	50	=	1.000
3	chlorobenzene-d5	93190	/	93190	*	50	/	50	=	1.000
4	d4-1,2-dichloroethane	5963	/	16902	*	50	/	10	=	1.764
5	d8-toluene	18344	/	93190	*	50	/	10	=	0.984
6	bromofluorobenzene	14443	/	93190	*	50	/	10	=	0.775
7	chloromethane	4246	/	16902	*	50	/	10	=	1.256
8	bromomethane	5022	/	16902	*	50	/	10	=	1.486
9	vinyl chloride	4253	/	16902	*	50	/	10	=	1.258
10	chloroethane	2704	/	16902	*	50	/	10	=	0.800
11	methylene chloride	6216	/	16902	*	50	/	10	=	1.839
12	acetone	2758	/	16902	*	50	/	10	=	0.816
13	carbon disulfide	10888	/	16902	*	50	/	10	=	3.221
14	1,1-dichloroethene	3786	/	16902	*	50	/	10	=	1.120
15	1,1-dichloroethane	8387	/	16902	*	50	/	10	=	2.481
16	1,2-dichloroethene (total)	8915	/	16902	*	50	/	20	=	1.319
17	chloroform	9426	/	16902	*	50	/	10	=	2.788
18	2-butanone	7288	/	16902	*	50	/	10	=	2.156
19	1,2-dichloroethane	6522	/	16902	*	50	/	10	=	1.929
20	1,1,1-trichloroethane	8288	/	86424	*	50	/	10	=	0.479
21	carbon tetrachloride	7206	/	86424	*	50	/	10	=	0.417
22	vinyl acetate	14617	/	86424	*	50	/	10	=	0.846
23	bromodichloromethane	11299	/	86424	*	50	/	10	=	0.654
24	1,2-dichloropropane	6617	/	86424	*	50	/	10	=	0.383
25	cis-1,3-dichloropropene	10290	/	86424	*	50	/	10	=	0.595
26	trichloroethene	7213	/	86424	*	50	/	10	=	0.417
27	dibromochloromethane	11452	/	86424	*	50	/	10	=	0.663
28	benzene	15143	/	86424	*	50	/	10	=	0.876
29	1,1,2-tricloroethane	7163	/	86424	*	50	/	10	=	0.414
30	trans-1,3-dichloropropene	9807	/	86424	*	50	/	10	=	0.567
31	2-chloroethoxy ethene	5116	/	86424	*	50	/	10	=	0.296
32	bromoform	9879	/	86424	*	50	/	10	=	0.572
33	4-methyl-2-pentanone	15772	/	93190	*	50	/	10	=	0.846
34	2-hexanone	12694	/	93190	*	50	/	10	=	0.681
35	1,1,2,2-tetrachloroethane	17141	/	93190	*	50	/	10	=	0.920
36	tetrachloroethene	7332	/	93190	*	50	/	10	=	0.393
37	toluene	19522	/	93190	*	50	/	10	=	1.047
38	chlorobenzene	16950	/	93190	*	50	/	10	=	0.909
39	ethylbenzene	8085	/	93190	*	50	/	10	=	0.434
40	styrene	15027	/	93190	*	50	/	10	=	0.806
41	m-xylene	10605	/	93190	*	50	/	10	=	0.569
42	o,p-xylene	13974	/	93190	*	50	/	20	=	0.375

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Volatile Organics – Initial Calibration Calculations
Initial Calibration Date: 02/17/93
Prepared by Corrie Kuhn, Hart Crowser 10/26/93

No.	Name	Std. Area		I.S. Area		Conc. I.S.		Conc. Std.		RRF20
1	bromodichloromethane	17080	/	17080	*	50	/	50	=	1.000
2	1,4-difluorobenzene	73055	/	73055	*	50	/	50	=	1.000
3	chlorobenzene-d5	88192	/	88192	*	50	/	50	=	1.000
4	d4-1,2-dichloroethane	10556	/	17080	*	50	/	20	=	1.545
5	d8-toluene	32301	/	88192	*	50	/	20	=	0.916
6	bromofluorobenzene	26360	/	88192	*	50	/	20	=	0.747
7	chloromethane	9393	/	17080	*	50	/	20	=	1.375
8	bromomethane	11058	/	17080	*	50	/	20	=	1.619
9	vinyl chloride	10469	/	17080	*	50	/	20	=	1.532
10	chloroethane	6170	/	17080	*	50	/	20	=	0.903
11	methylene chloride	11867	/	17080	*	50	/	20	=	1.737
12	acetone	7241	/	17080	*	50	/	20	=	1.060
13	carbon disulfide	23291	/	17080	*	50	/	20	=	3.409
14	1,1-dichloroethene	6986	/	17080	*	50	/	20	=	1.023
15	1,1-dichloroethane	15136	/	17080	*	50	/	20	=	2.215
16	1,2-dichloroethene (total)	16025	/	17080	*	50	/	40	=	1.173
17	chloroform	17806	/	17080	*	50	/	20	=	2.606
18	2-butanone	16219	/	17080	*	50	/	20	=	2.374
19	1,2-dichloroethane	12076	/	17080	*	50	/	20	=	1.768
20	1,1,1-trichloroethane	14763	/	73055	*	50	/	20	=	0.505
21	carbon tetrachloride	13342	/	73055	*	50	/	20	=	0.457
22	vinyl acetate	25424	/	73055	*	50	/	20	=	0.870
23	bromodichloromethane	19363	/	73055	*	50	/	20	=	0.663
24	1,2-dichloropropane	12308	/	73055	*	50	/	20	=	0.421
25	cis-1,3-dichloropropene	17832	/	73055	*	50	/	20	=	0.610
26	trichloroethene	12830	/	73055	*	50	/	20	=	0.439
27	dibromochloromethane	22018	/	73055	*	50	/	20	=	0.753
28	benzene	25441	/	73055	*	50	/	20	=	0.871
29	1,1,2-tricloroethane	13551	/	73055	*	50	/	20	=	0.464
30	trans-1,3-dichloropropene	18601	/	73055	*	50	/	20	=	0.637
31	2-chloroethoxy ethene	10714	/	73055	*	50	/	20	=	0.367
32	bromoform	20268	/	73055	*	50	/	20	=	0.694
33	4-methyl-2-pentanone	32985	/	88192	*	50	/	20	=	0.935
34	2-hexanone	27834	/	88192	*	50	/	20	=	0.789
35	1,1,2,2-tetrachloroethane	32534	/	88192	*	50	/	20	=	0.922
36	tetrachloroethene	14030	/	88192	*	50	/	20	=	0.398
37	toluene	35146	/	88192	*	50	/	20	=	0.996
38	chlorobenzene	31335	/	88192	*	50	/	20	=	0.888
39	ethylbenzene	16652	/	88192	*	50	/	20	=	0.472
40	styrene	28443	/	88192	*	50	/	20	=	0.806
41	m-xylene	15856	/	88192	*	50	/	20	=	0.449
42	o,p-xylene	30606	/	88192	*	50	/	40	=	0.434

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Volatile Organics - Initial Calibration Calculations
Initial Calibration Date: 02/17/93
Prepared by Corrie Kuhn, Hart Crowser 10/26/93

No.	Name	Std. Area		I.S. Area		Conc. I.S.		Conc. Std.		RRF50
1	bromodichloromethane	19045	/	19045	*	50	/	50	=	1.000
2	1,4-difluorobenzene	66669	/	66669	*	50	/	50	=	1.000
3	chlorobenzene-d5	82232	/	82232	*	50	/	50	=	1.000
4	d4-1,2-dichloroethane	23181	/	19045	*	50	/	50	=	1.217
5	d8-toluene	72455	/	82232	*	50	/	50	=	0.881
6	bromofluorobenzene	59941	/	82232	*	50	/	50	=	0.729
7	chloromethane	21342	/	19045	*	50	/	50	=	1.121
8	bromomethane	25555	/	19045	*	50	/	50	=	1.342
9	vinyl chloride	26540	/	19045	*	50	/	50	=	1.394
10	chloroethane	12909	/	19045	*	50	/	50	=	0.678
11	methylene chloride	24212	/	19045	*	50	/	50	=	1.271
12	acetone	20206	/	19045	*	50	/	50	=	1.061
13	carbon disulfide	62293	/	19045	*	50	/	50	=	3.271
14	1,1-dichloroethene	17550	/	19045	*	50	/	50	=	0.922
15	1,1-dichloroethane	36281	/	19045	*	50	/	50	=	1.905
16	1,2-dichloroethene (total)	35959	/	19045	*	50	/	100	=	0.944
17	chloroform	41226	/	19045	*	50	/	50	=	2.165
18	2-butanone	44419	/	19045	*	50	/	50	=	2.332
19	1,2-dichloroethane	29064	/	19045	*	50	/	50	=	1.526
20	1,1,1-trichloroethane	32072	/	66669	*	50	/	50	=	0.481
21	carbon tetrachloride	28553	/	66669	*	50	/	50	=	0.428
22	vinyl acetate	65124	/	66669	*	50	/	50	=	0.977
23	bromodichloromethane	49938	/	66669	*	50	/	50	=	0.749
24	1,2-dichloropropane	29159	/	66669	*	50	/	50	=	0.437
25	cis-1,3-dichloropropene	45235	/	66669	*	50	/	50	=	0.679
26	trichloroethene	29060	/	66669	*	50	/	50	=	0.436
27	dibromochloromethane	53237	/	66669	*	50	/	50	=	0.799
28	benzene	60805	/	66669	*	50	/	50	=	0.912
29	1,1,2-tricloroethane	32115	/	66669	*	50	/	50	=	0.482
30	trans-1,3-dichloropropene	42824	/	66669	*	50	/	50	=	0.642
31	2-chloroethoxy ethene	27219	/	66669	*	50	/	50	=	0.408
32	bromoform	51589	/	66669	*	50	/	50	=	0.774
33	4-methyl-2-pentanone	79258	/	82232	*	50	/	50	=	0.964
34	2-hexanone	67206	/	82232	*	50	/	50	=	0.817
35	1,1,2,2-tetrachloroethane	86279	/	82232	*	50	/	50	=	1.049
36	tetrachloroethene	31739	/	82232	*	50	/	50	=	0.386
37	toluene	83604	/	82232	*	50	/	50	=	1.017
38	chlorobenzene	78990	/	82232	*	50	/	50	=	0.961
39	ethylbenzene	36898	/	82232	*	50	/	50	=	0.449
40	styrene	72827	/	82232	*	50	/	50	=	0.886
41	m-xylene	42640	/	82232	*	50	/	50	=	0.519
42	o,p-xylene	80639	/	82232	*	50	/	100	=	0.490

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Volatile Organics - Initial Calibration Calculations
Initial Calibration Date: 02/17/93
Prepared by Corrie Kuhn, Hart Crowser 10/26/93

No.	Name	Std. Area		I.S. Area		Conc. I.S.		Conc. Std.		RRF100
1	bromodichloromethane	17525	/	17525	*	50	/	50	=	1.000
2	1,4-difluorobenzene	72818	/	72818	*	50	/	50	=	1.000
3	chlorobenzene-d5	79694	/	79694	*	50	/	50	=	1.000
4	d4-1,2-dichloroethane	49382	/	17525	*	50	/	100	=	1.409
5	d8-toluene	141864	/	79694	*	50	/	100	=	0.890
6	bromofluorobenzene	110417	/	79694	*	50	/	100	=	0.693
7	chloromethane	39329	/	17525	*	50	/	100	=	1.122
8	bromomethane	47831	/	17525	*	50	/	100	=	1.365
9	vinyl chloride	47067	/	17525	*	50	/	100	=	1.343
10	chloroethane	23267	/	17525	*	50	/	100	=	0.664
11	methylene chloride	44483	/	17525	*	50	/	100	=	1.269
12	acetone	17976	/	17525	*	50	/	100	=	0.513
13	carbon disulfide	122966	/	17525	*	50	/	100	=	3.508
14	1,1-dichloroethene	35495	/	17525	*	50	/	100	=	1.013
15	1,1-dichloroethane	83458	/	17525	*	50	/	100	=	2.381
16	1,2-dichloroethene (total)	80211	/	17525	*	50	/	200	=	1.144
17	chloroform	91579	/	17525	*	50	/	100	=	2.613
18	2-butanone	39513	/	17525	*	50	/	100	=	1.127
19	1,2-dichloroethane	63198	/	17525	*	50	/	100	=	1.803
20	1,1,1-trichloroethane	74840	/	72818	*	50	/	100	=	0.514
21	carbon tetrachloride	65297	/	72818	*	50	/	100	=	0.448
22	vinyl acetate	144230	/	72818	*	50	/	100	=	0.990
23	bromodichloromethane	108203	/	72818	*	50	/	100	=	0.743
24	1,2-dichloropropane	61896	/	72818	*	50	/	100	=	0.425
25	cis-1,3-dichloropropene	98852	/	72818	*	50	/	100	=	0.679
26	trichloroethene	67342	/	72818	*	50	/	100	=	0.462
27	dibromochloromethane	107462	/	72818	*	50	/	100	=	0.738
28	benzene	137811	/	72818	*	50	/	100	=	0.946
29	1,1,2-tricloroethane	66147	/	72818	*	50	/	100	=	0.454
30	trans-1,3-dichloropropene	90723	/	72818	*	50	/	100	=	0.623
31	2-chloroethoxy ethene	54885	/	72818	*	50	/	100	=	0.377
32	bromoform	99637	/	72818	*	50	/	100	=	0.684
33	4-methyl-2-pentanone	85827	/	79694	*	50	/	100	=	0.538
34	2-hexanone	73968	/	79694	*	50	/	100	=	0.464
35	1,1,2,2-tetrachloroethane	156491	/	79694	*	50	/	100	=	0.982
36	tetrachloroethene	60808	/	79694	*	50	/	100	=	0.382
37	toluene	160874	/	79694	*	50	/	100	=	1.009
38	chlorobenzene	149305	/	79694	*	50	/	100	=	0.937
39	ethylbenzene	71623	/	79694	*	50	/	100	=	0.449
40	styrene	133736	/	79694	*	50	/	100	=	0.839
41	m-xylene	79654	/	79694	*	50	/	100	=	0.500
42	o,p-xylene	141588	/	79694	*	50	/	200	=	0.444

Volatile Organics - Initial Calibration Calculations
Initial Calibration Date: 02/17/93
Prepared by Corrie Kuhn, Hart Crowser 10/26/93

No.	Name	Std. Area		I.S. Area		Conc. I.S.		Conc. Std.		RRF200
1	bromodichloromethane	17735	/	17735	*	50	/	50	=	1.000
2	1,4-difluorobenzene	85483	/	85483	*	50	/	50	=	1.000
3	chlorobenzene-d5	89738	/	89738	*	50	/	50	=	1.000
4	d4-1,2-dichloroethane	104940	/	17735	*	50	/	200	=	1.479
5	d8-toluene	307897	/	89738	*	50	/	200	=	0.858
6	bromofluorobenzene	233010	/	89738	*	50	/	200	=	0.649
7	chloromethane	86047	/	17735	*	50	/	200	=	1.213
8	bromomethane	99954	/	17735	*	50	/	200	=	1.409
9	vinyl chloride	102302	/	17735	*	50	/	200	=	1.442
10	chloroethane	43354	/	17735	*	50	/	200	=	0.611
11	methylene chloride	88193	/	17735	*	50	/	200	=	1.243
12	acetone	72913	/	17735	*	50	/	200	=	1.028
13	carbon disulfide	277100	/	17735	*	50	/	200	=	3.906
14	1,1-dichloroethene	87093	/	17735	*	50	/	200	=	1.228
15	1,1-dichloroethane	193566	/	17735	*	50	/	200	=	2.729
16	1,2-dichloroethene (total)	204278	/	17735	*	50	/	400	=	1.440
17	chloroform	220144	/	17735	*	50	/	200	=	3.103
18	2-butanone	162683	/	17735	*	50	/	200	=	2.293
19	1,2-dichloroethane	149573	/	17735	*	50	/	200	=	2.108
20	1,1,1-trichloroethane	177464	/	85483	*	50	/	200	=	0.519
21	carbon tetrachloride	153143	/	85483	*	50	/	200	=	0.448
22	vinyl acetate	341246	/	85483	*	50	/	200	=	0.998
23	bromodichloromethane	238266	/	85483	*	50	/	200	=	0.697
24	1,2-dichloropropane	141247	/	85483	*	50	/	200	=	0.413
25	cis-1,3-dichloropropene	209045	/	85483	*	50	/	200	=	0.611
26	trichloroethene	150235	/	85483	*	50	/	200	=	0.439
27	dibromochloromethane	224422	/	85483	*	50	/	200	=	0.656
28	benzene	317927	/	85483	*	50	/	200	=	0.930
29	1,1,2-tricloroethane	141024	/	85483	*	50	/	200	=	0.412
30	trans-1,3-dichloropropene	193756	/	85483	*	50	/	200	=	0.567
31	2-chloroethoxy ethene	122398	/	85483	*	50	/	200	=	0.358
32	bromoform	206080	/	85483	*	50	/	200	=	0.603
33	4-methyl-2-pentanone	353351	/	89738	*	50	/	200	=	0.984
34	2-hexanone	301464	/	89738	*	50	/	200	=	0.840
35	1,1,2,2-tetrachloroethane	331184	/	89738	*	50	/	200	=	0.923
36	tetrachloroethene	136046	/	89738	*	50	/	200	=	0.379
37	toluene	344264	/	89738	*	50	/	200	=	0.959
38	chlorobenzene	321786	/	89738	*	50	/	200	=	0.896
39	ethylbenzene	151322	/	89738	*	50	/	200	=	0.422
40	styrene	288006	/	89738	*	50	/	200	=	0.802
41	m-xylene	165370	/	89738	*	50	/	200	=	0.461
42	o,p-xylene	314404	/	89738	*	50	/	400	=	0.438

Volatile Organics - Initial Calibration Calculations
Initial Calibration Date: 02/17/93
Prepared by Corrie Kuhn, Hart Crowser 10/26/93

No.	Name	@avg(RRF10,20, 50,100,200)	Unbiased Std.Dev.*	%RSD (Std.Dev./Avg.*100)
1	bromodichloromethane	1.000	0.0000	0.0
2	1,4-difluorobenzene	1.000	0.0000	0.0
3	chlorobenzene-d5	1.000	0.0000	0.0
4	d4-1,2-dichloroethane	1.483	0.1994	13.4
5	d8-toluene	0.906	0.0485	5.4
6	bromofluorobenzene	0.719	0.0490	6.8
7	chloromethane	1.217	0.1058	8.7
8	bromomethane	1.444	0.1120	7.8
9	vinyl chloride	1.394	0.1031	7.4
10	chloroethane	0.731	0.1184	16.2
11	methylene chloride	1.472	0.2909	19.8
12	acetone	0.895	0.2370	26.5
13	carbon disulfide	3.463	0.2724	7.9
14	1,1-dichloroethene	1.061	0.1168	11.0
15	1,1-dichloroethane	2.342	0.3071	13.1
16	1,2-dichloroethene (total)	1.204	0.1877	15.6
17	chloroform	2.655	0.3403	12.8
18	2-butanone	2.057	0.5259	25.6
19	1,2-dichloroethane	1.827	0.2147	11.8
20	1,1,1-trichloroethane	0.500	0.0184	3.7
21	carbon tetrachloride	0.440	0.0164	3.7
22	vinyl acetate	0.936	0.0724	7.7
23	bromodichloromethane	0.701	0.0442	6.3
24	1,2-dichloropropane	0.416	0.0205	4.9
25	cis-1,3-dichloropropene	0.635	0.0405	6.4
26	trichloroethene	0.439	0.0160	3.7
27	dibromochloromethane	0.722	0.0611	8.5
28	benzene	0.907	0.0330	3.6
29	1,1,2-tricloroethane	0.445	0.0307	6.9
30	trans-1,3-dichloropropene	0.607	0.0373	6.1
31	2-chloroethoxy ethene	0.361	0.0411	11.4
32	bromoform	0.665	0.0801	12.0
33	4-methyl-2-pentanone	0.854	0.1839	21.5
34	2-hexanone	0.718	0.1546	21.5
35	1,1,2,2-tetrachloroethane	0.959	0.0567	5.9
36	tetrachloroethene	0.388	0.0079	2.0
37	toluene	1.006	0.0322	3.2
38	chlorobenzene	0.918	0.0299	3.3
39	ethylbenzene	0.445	0.0190	4.3
40	styrene	0.828	0.0355	4.3
41	m-xylene	0.499	0.0480	9.6
42	o,p-xylene	0.436	0.0411	9.4

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* @SQRT(@VAR(RRF10,20,50,100,200)*(5/4))

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Volatile Organics - Continuing Calibration Calculations
Calibration Date: 02/18/93 (Init. Calib.: 02/17/93)
Prepared by Corrie Kuhn, Hart Crowser 10/26/93

No.	Name	Avg.RRF	Std. Area		I.S. Area		Conc. I.S.		Conc. Std.		RRF50	%Difference* (avg-rrf50)/ avg*100
1	bromodichloromethane	1.000	19159	/	19159	*	50	/	50	=	1.000	0.0
2	1,4-difluorobenzene	1.000	87010	/	87010	*	50	/	50	=	1.000	0.0
3	chlorobenzene-d5	1.000	91919	/	91919	*	50	/	50	=	1.000	0.0
4	d4-1,2-dichloroethane	1.483	30640	/	19159	*	50	/	50	=	1.599	-7.8
5	d8-toluene	0.906	87174	/	91919	*	50	/	50	=	0.948	-4.7
6	bromofluorobenzene	0.719	63705	/	91919	*	50	/	50	=	0.693	3.6
7	chloromethane	1.217	22144	/	19159	*	50	/	50	=	1.156	5.1
8	bromomethane	1.444	26106	/	19159	*	50	/	50	=	1.363	5.6
9	vinyl chloride	1.394	27266	/	19159	*	50	/	50	=	1.423	-2.1
10	chloroethane	0.731	12432	/	19159	*	50	/	50	=	0.649	11.3
11	methylene chloride	1.472	27530	/	19159	*	50	/	50	=	1.437	2.4
12	acetone	0.895	17544	/	19159	*	50	/	50	=	0.916	-2.3
13	carbon disulfide	3.463	69959	/	19159	*	50	/	50	=	3.651	-5.4
14	1,1-dichloroethene	1.061	21584	/	19159	*	50	/	50	=	1.127	-6.2
15	1,1-dichloroethane	2.342	48448	/	19159	*	50	/	50	=	2.529	-8.0
16	1,2-dichloroethene (total)	1.204	47453	/	19159	*	50	/	100	=	1.238	-2.9
17	chloroform	2.655	55110	/	19159	*	50	/	50	=	2.876	-8.3
18	2-butanone	2.057	36989	/	19159	*	50	/	50	=	1.931	6.1
19	1,2-dichloroethane	1.827	36152	/	19159	*	50	/	50	=	1.887	-3.3
20	1,1,1-trichloroethane	0.500	46106	/	87010	*	50	/	50	=	0.530	-6.0
21	carbon tetrachloride	0.440	40563	/	87010	*	50	/	50	=	0.466	-6.0
22	vinyl acetate	0.936	82668	/	87010	*	50	/	50	=	0.950	-1.5
23	bromodichloromethane	0.701	63295	/	87010	*	50	/	50	=	0.727	-3.8
24	1,2-dichloropropane	0.416	36466	/	87010	*	50	/	50	=	0.419	-0.8
25	cis-1,3-dichloropropene	0.635	56658	/	87010	*	50	/	50	=	0.651	-2.6
26	trichloroethene	0.439	40230	/	87010	*	50	/	50	=	0.462	-5.4
27	dibromochloromethane	0.722	63124	/	87010	*	50	/	50	=	0.725	-0.5
28	benzene	0.907	81787	/	87010	*	50	/	50	=	0.940	-3.6
29	1,1,2-tricloroethane	0.445	37065	/	87010	*	50	/	50	=	0.426	4.3
30	trans-1,3-dichloropropene	0.607	52585	/	87010	*	50	/	50	=	0.604	0.5
31	2-chloroethoxy ethene	0.361	28539	/	87010	*	50	/	50	=	0.328	9.2
32	bromoform	0.665	54960	/	87010	*	50	/	50	=	0.632	5.0
33	4-methyl-2-pentanone	0.854	80414	/	91919	*	50	/	50	=	0.875	-2.5
34	2-hexanone	0.718	70062	/	91919	*	50	/	50	=	0.762	-6.1
35	1,1,2,2-tetrachloroethane	0.959	83818	/	91919	*	50	/	50	=	0.912	4.9
36	tetrachloroethene	0.388	37498	/	91919	*	50	/	50	=	0.408	-5.3
37	toluene	1.006	93855	/	91919	*	50	/	50	=	1.021	-1.5
38	chlorobenzene	0.918	85592	/	91919	*	50	/	50	=	0.931	-1.4
39	ethylbenzene	0.445	40104	/	91919	*	50	/	50	=	0.436	2.0
40	styrene	0.828	82227	/	91919	*	50	/	50	=	0.895	-8.0
41	m-xylene	0.499	44629	/	91919	*	50	/	50	=	0.486	2.8
42	o,p-xylene	0.436	87371	/	91919	*	50	/	100	=	0.475	-8.9

*Minor differences are due to a variance in the number of significant figures used in the calculation

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N3-02-089

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator Wendy S. Thompson — PROJECT NUMBER: 92-336

Company Contact Wendy S. Thompson — Telephone (509) 376-2153

Project Designation/Sampling Locations 241-T-106 — Collection Date 2-9-93

Borehole Number: 299-W10-196 — Time: ① 0930, ② 0830, ③ 0715

Ice Chest No. #SML226 — Field Logbook No. EFL-1053

Bill of Lading/Airbill No. — Offsite Property No. W93-00190-43

Method of Shipment ~~AIR (EMERY)~~ WSF 2-10-93 TRUCK

Shipped to TMA-Norcal

Possible Sample Hazards/Remarks Keep samples chilled. All analysis per lab statement of work

Samples #1+2 have ≈ 122 pCi/gm total radioactivity; Sample #3 is nonhaz/nonrad

Sample Identification

① B07K11

1x120 ml., amber glass, soil, CLP-VOA

1x250 ml., amber glass, soil, CLP-Semi-VOA

1x250 ml., amber glass, soil, Anions-SO_4, PO_4, NO_2-NO_3, Cl, F, pH

1x250 ml., amber glass, soil, ICP/AA metals, Bi, CN, Hg

1x500 ml., amber glass, soil, gross alpha, gross beta, GEA, including Co_{60}, Ru_{106}, Ce_{144}, Cs_{137} isotopic U, total U, Am_{241}, Np_{237}, $Pu_{238/239/240}$, Sr_{90}, Tc_{99}, C_{14}

② B07K13

1x120ml., amber glass, soil, CLP-VOA

~~1x250 ml., amber glass, soil, CLP-Semi-VOA~~

1x250 ml., amber glass, soil, Anions-SO_4, PO_4, NO_2-NO_3, Cl, F, pH

1x250 ml., amber glass, soil, ICP/AA metals, Bi, CN, Hg

1x500 ml., amber glass, soil, gross alpha, gross beta, GEA, including Co_{60}, Ru_{106}, Ce_{144}, Cs_{137} isotopic U, total U, Am_{241}, Np_{237}, $Pu_{238/239/240}$, Sr_{90}, Tc_{99}, C_{14}

③ B07K09, 3x40ml; amber glass, water, CLP-VOA

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Name)

Relinquished By	Date	Time	Received By	Date	Time
W.S. Thompson Wendy S Thompson	2-9-93	1030	Alfonso Rodarte	2-16-93	1145

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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(TMA - soil)

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

Collector: Wendy S. Thompson Date: 2-9-93

Company Contact: Wendy S. Thompson Telephone: (509) 376-2153

	Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Requested
1	B07K11	S	2-9-93	0830	1x120ml., amber glass, soil, CLP-VOA
					1x250 ml., amber glass, soil, CLP-Semi-VOA
					1x250 ml., amber glass, soil, IC Anions, SO_4, PO_4, NO_2-NO_3, pH Cl, F
					1x250 ml., glass, soil, ICP/AA metals, Bi, CN, Hg
					1x500 ml., glass, soil, gross alpha, gross beta, GEA,
					including Co-60, Ru-106, Ce-144, Cs-137, isotopic U, Am-241,
					Np-237, Pu-238, -239, -240, Sr-90, Tc-99, total U, C-14
2	B07K13	S	2-9-93	0830	1x120ml., amber glass, soil, CLP-VOA
					1x250 ml., amber glass, soil, CLP-Semi-VOA
					1x250 ml., amber glass, soil, IC Anions, SO_4, PO_4, NO_2-NO_3, pH Cl, F
					1x250 ml., glass, soil, ICP/AA metals, Bi, CN, Hg
					1x500 ml., glass, soil, gross alpha, gross beta, GEA,
					including Co-60, Ru-106, Ce-144, Cs-137, isotopic U, Am-241
					Np-237, Pu-238, -239, -240, Sr-90, Tc-99, total U, C-14
					3x40ml, amber glass, water, CLP-VOA
3	B07K09	~~SW~~	2-9-93	0715	~~1x120 ml., amber glass, soil, CLP-VOA~~
					~~1x250 ml., amber glass, soil, CLP-Semi-VOA~~
					~~1x250 ml., amber glass, soil, IC Anions, SO_4, PO_4, NO_2-NO_3, pH~~
					~~1x250ml., glass, soil, ICP/AA metals, Bi, CN, Hg~~
					~~1x500 ml., glass, soil, gross alpha, gross beta, GEA~~
					~~including Co-60, Ru-106, Ce-144, Cs-137, isotopic U, Am-241,~~
					~~Np-237, Pu-238, -239, -240, Sr-90, Tc-99, total U, C-14~~

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information: Samples support the 241-T-106 characterization (soil). All analysis per lab statement of work. Project # 92-336

Special Handling and/or Storage: KEEP SAMPLES CHILLED.

Possible Sample Hazards: Samples #1 & 2 have ≈122 pCi/gm total radioactivity. Sample #3 is 4mm h [illegible] radioactive.

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RECORD COPY

APR 1993
RECEIVED
OSM DMO

CASE NO. 02-041

DATA SUMMARY REPORT
ORGANICS

PREPARED BY:

TMA ARLI
160 TAYLOR ST.
MONROVIA CA 91016

CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 02-041

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : February 16, 1993

1.0 DESCRIPTION OF CASE :

Two soil and one water samples were analyzed for TCL Organics-Volatiles and Semivolatiles according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8.

2.0 SAMPLE LIST :

WESTINGHOUSE ID	LAB ID	ANALYSIS REQUESTED	MATRIX	pH
B07K11	A3-02-041-01A	V	SOIL	
B07K11 MS	A3-02-041-01B	V	SOIL	
B07K11 MSD	A3-02-041-01C	V	SOIL	
B07K11	A3-02-041-01D	SV	SOIL	
B07K11 MS	A3-02-041-01E	SV	SOIL	
B07K11 MSD	A3-02-041-01F	SV	SOIL	
B07K13	A3-02-041-02A	V	SOIL	
B07K13	A3-02-041-02B	SV	SOIL	
B07K09	A3-02-041-03A	V	WATER	7
B07K09 MS	A3-02-041-03B	V	WATER	7
B07K09 MSD	A3-02-041-03C	V	WATER	7

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received and properly documented.

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL WATER :

The samples were analyzed within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

LOW LEVEL SOIL :

The samples were analyzed by heated purge within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All BFB tune are injected directly into GC/MS instrument.

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

We certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data in this hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth 3/18/93
Nicole Roth
CLP Program Manager

Widayat 3/18/93
Wida Ang
Organics Supervisor

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07K09

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A302041-03A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 30218B07

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. ____ Date Analyzed: 02/18/93

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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	1	J
67-64-1	Acetone	10	U
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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07K09

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A302041-03A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 30218B07

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. ____ Date Analyzed: 02/18/93

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 000006

B07K11

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30218R09

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. 9 Date Analyzed: 02/18/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	8	BJ
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	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	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
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

9613492.4977

000007
EPA SAMPLE NO.

B07K11

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30218R09

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. 9 Date Analyzed: 02/18/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	1.03	82	J

9613492.4978

000008

EPA SAMPLE NO.

B07K13

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30218R12

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. 9 Date Analyzed: 02/18/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	13	B
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	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	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
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

9613492.4979

000003
EPA SAMPLE NO.

B07K13

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30218R12

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. 9 Date Analyzed: 02/18/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	1.05	82	J
2.	UNKNOWN HYDROCARBON	1.32	8	J
3.	UNKNOWN HYDROCARBON	1.43	8	J
4.	UNKNOWN HYDROCARBON	8.05	20	J

9613492.4980

000010
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07K11

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-01D

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 30224S08

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: 9 decanted: (Y/N) N Date Extracted: 02/18/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 02/24/93

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(2-Chloroethyl)Ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-Di-n-Propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethylphenol	360	U
111-91-1	bis(2-Chloroethoxy)Methane	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-Methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	870	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	870	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
99-09-2	3-Nitroaniline	870	U
83-32-9	Acenaphthene	360	U
51-28-5	2,4-Dinitrophenol	870	U

9613492.4981

000011
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07K11

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-01D

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 30224S08

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: 9 decanted: (Y/N) N Date Extracted: 02/18/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 02/24/93

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-02-7	4-Nitrophenol	870	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	870	U
534-52-1	4,6-Dinitro-2-methylphenol	870	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	870	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-Butylphthalate	150	BJ
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)Anthracene	360	U
117-81-7	bis(2-Ethylhexyl)Phthalate	360	U
218-01-9	Chrysene	360	U
117-84-0	Di-n-Octyl Phthalate	360	U
205-99-2	Benzo(b)Fluoranthene	360	U
207-08-9	Benzo(k)Fluoranthene	360	U
50-32-8	Benzo(a)Pyrene	360	U
193-39-5	Indeno(1,2,3-cd)Pyrene	360	U
53-70-3	Dibenz(a,h)Anthracene	360	U
191-24-2	Benzo(g,h,i)Perylene	360	U

(1) - Cannot be separated from Diphenylamine

9613492.4982

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EPA SAMPLE NO.

B07K11

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-01D

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 30224S08

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: 9 decanted: (Y/N) N Date Extracted: 02/18/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 02/24/93

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.8

Number TICs found: 9

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	5.22	2800	BJ
2.	UNKNOWN HYDROCARBON	5.65	93000	BJ
3.	UNKNOWN HYDROCARBON	5.85	290	BJ
4.	UNKNOWN HYDROCARBON	6.68	1100	BJ
5.	UNKNOWN KETONE	7.18	580	BJ
6.	UNKNOWN CARBOXYLIC ACID ESTE	20.13	110	BJ
7.	UNKNOWN ALKANE	26.90	110	J
8.	UNKNOWN ALKANE	28.43	220	J
9.	UNKNOWN ALKANE	30.37	110	J

9613492.4983

13 J.S.

000012

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07K13

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-02B

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 30224S11

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: 9 decanted: (Y/N) N Date Extracted: 02/18/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 02/24/93

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(2-Chloroethyl)Ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-Di-n-Propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethylphenol	360	U
111-91-1	bis(2-Chloroethoxy)Methane	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-Methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	860	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	860	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
99-09-2	3-Nitroaniline	860	U
83-32-9	Acenaphthene	360	U
51-28-5	2,4-Dinitrophenol	860	U

9613492.4984

000013 14 D.S.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07K13

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-02B

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 30224S11

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: 9 decanted: (Y/N) N Date Extracted: 02/18/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 02/24/93

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-02-7	4-Nitrophenol	860	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	860	U
534-52-1	4,6-Dinitro-2-methylphenol	860	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	860	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-Butylphthalate	150	BJ
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)Anthracene	360	U
117-81-7	bis(2-Ethylhexyl)Phthalate	360	U
218-01-9	Chrysene	360	U
117-84-0	Di-n-Octyl Phthalate	360	U
205-99-2	Benzo(b)Fluoranthene	360	U
207-08-9	Benzo(k)Fluoranthene	360	U
50-32-8	Benzo(a)Pyrene	360	U
193-39-5	Indeno(1,2,3-cd)Pyrene	360	U
53-70-3	Dibenz(a,h)Anthracene	360	U
191-24-2	Benzo(g,h,i)Perylene	360	U

(1) - Cannot be separated from Diphenylamine

9613492.4985

000015

EPA SAMPLE NO.

B07K13

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-02B

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 30224S11

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: 9 decanted: (Y/N) N Date Extracted: 02/18/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 02/24/93

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.8

Number TICs found: 11

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	5.20	2800	BJ
2.	UNKNOWN HYDROCARBON	5.65	92000	BJ
3.	UNKNOWN HYDROCARBON	5.75	250	J
4.	UNKNOWN HYDROCARBON	5.87	320	BJ
5.	UNKNOWN HYDROCARBON	6.68	1000	BJ
6.	UNKNOWN KETONE	6.93	360	J
7.	UNKNOWN KETONE	7.20	650	BJ
8.	UNKNOWN HYDROCARBON	9.15	140	J
9.	UNKNOWN HYDROCARBON	9.45	140	J
10.	UNKNOWN ALKANE	26.92	110	J
11.	UNKNOWN ALKANE	28.45	250	J

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
01	B07K09	109	100	105	0	0
02	B07K09MS	106	97	111	0	0
03	B07K09MSD	105	94	108	0	0
04	VBLK0218B	108	96	106	0	0

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(88-110)
SMC2 (BFB)	= Bromofluorobenzene	(86-115)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2B
SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Level:(low/med) LOW

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
01	B07K11	121	107	106	0	0
02	B07K13	113	107	109	0	0
03	B07K11MS	120	113	109	0	0
04	B07K11MSD	114	105	100	0	0
05	VBLK0218R	111	109	97	0	0

	QC LIMITS
SMC1 (TOL) = Toluene-d8	(84-138)
SMC2 (BFB) = Bromofluorobenzene	(59-113)
SMC3 (DCE) = 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	S7 (2CP)#	S8 (DCB)#	TOT OUT
01	B07K11	62	60	106	69	64	83	71	57	0
02	B07K13	63	65	109	68	63	85	69	59	0
03	B07K11MS	74	78	101	80	69	86	81	63	0
04	B07K11MSD	68	65	101	74	69	90	75	64	0
05	SBLK0218S2	80	79	109	83	82	79	85	78	0

		QC LIMITS	
S1 (NBZ)	= Nitrobenzene-d5	(23-120)	
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)	
S3 (TPH)	= Terphenyl-d14	(18-137)	
S4 (PHL)	= Phenol-d5	(24-113)	
S5 (2FP)	= 2-Fluorophenol	(25-121)	
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)	
S7 (2CP)	= 2-Chlorophenol-d4	(20-130)	(advisory)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(20-130)	(advisory)

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

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix Spike - EPA Sample No.: B07K09

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.00	0	44.80	90	61-145
Trichloroethene	50.00	0	42.90	86	71-120
Benzene	50.00	0	48.10	96	76-127
Toluene	50.00	0	50.40	101	76-125
Chlorobenzene	50.00	0	48.20	96	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.00	44.90	90	0	14	61-145
Trichloroethene	50.00	43.10	86	0	14	71-120
Benzene	50.00	48.80	98	2	11	76-127
Toluene	50.00	51.00	102	1	13	76-125
Chlorobenzene	50.00	48.40	97	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: 0 out of 10 outside limits

COMMENTS: CLP,02041,,B07K09,L,W,A302041-03A,VOA,EPA
CAP/.53,30218B01,3BF0218,30218B03,,

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix Spike - EPA Sample No.: B07K11 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	54.90	0	54.07	98	59-172
Trichloroethene	54.90	0	60.88	111	62-137
Benzene	54.90	0	62.42	114	66-142
Toluene	54.90	1.538	61.65	110	59-139
Chlorobenzene	54.90	0	57.69	105	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	54.90	54.07	98	0	22	59-172
Trichloroethene	54.90	57.58	105	6	24	62-137
Benzene	54.90	60.11	110	4	21	66-142
Toluene	54.90	65.16	116	5	21	59-139
Chlorobenzene	54.90	58.46	106	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,02041,,B07K11,L,S,A302041-01A,VOA/H,EPA,
PACK/2,30218R01,3BFB0218,30218R03,30218R10,30218R11,

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix Spike - EPA Sample No.: B07K11 Level:(low/med) LOW

W

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
Phenol	2710	0	1829	67	26- 90
2-Chlorophenol	2710	0	1967	73	25-102
1,4-Dichlorobenzene	1810	0	1081	60	28-104
N-Nitroso-di-n-prop.(1)	1810	0	1330	73	41-126
1,2,4-Trichlorobenzene	1810	0	1211	67	38-107
4-Chloro-3-methylphenol	2710	0	2137	79	26-103
Acenaphthene	1810	0	1377	76	31-137
4-Nitrophenol	2710	0	1858	69	11-114
2,4-Dinitrotoluene	1810	0	1363	75	28- 89
Pentachlorophenol	2710	0	2310	85	17-109
Pyrene	1810	0	1461	81	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	2730	1662	61	9	35	26- 90
2-Chlorophenol	2730	1819	67	9	50	25-102
1,4-Dichlorobenzene	1820	1142	63	5	27	28-104
N-Nitroso-di-n-prop.(1)	1820	1200	66	10	38	41-126
1,2,4-Trichlorobenzene	1820	1175	65	3	23	38-107
4-Chloro-3-methylphenol	2730	2011	74	7	33	26-103
Acenaphthene	1820	1244	68	11	19	31-137
4-Nitrophenol	2730	1971	72	4	50	11-114
2,4-Dinitrotoluene	1820	1386	76	1	47	28- 89
Pentachlorophenol	2730	2444	90	6	47	17-109
Pyrene	1820	1506	83	2	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: 0 out of 22 outside limits

COMMENTS: CLP,02041,,B07K11,L,S,A302041-01D,B,EPA
CAP/.25,30224S01,3DFT0224S1,30224S07,30224S09,30224S10

9613492.4992

000022
EPA SAMPLE NO.

4A
VOLATILE METHOD BLANK SUMMARY

VBLK0218B

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID: 30218B03 Lab Sample ID: WBLK0218

Date Analyzed: 02/18/93 Time Analyzed: 0855

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) N

Instrument ID: BULL

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	B07K09	A302041-03A	30218B07	1117
02	B07K09MS	A302041-03B	30218B08	1147
03	B07K09MSD	A302041-03C	30218B09	1217

COMMENTS: CLP,,,VBLK0218B,L,W,WBLK0218,VOA,BLANK
CAP/.53,30218B01,3BF0218,,

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK0218B

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: WBLK0218

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 30218B03

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 02/18/93

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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	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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

9613492.4994

000024
EPA SAMPLE NO.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VBLK0218B

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: WBLK0218

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 30218B03

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 02/18/93

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9613492.4995

000025

EPA SAMPLE NO.

VBLK0218R

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID: 30218R03 Lab Sample ID: SB021893

Date Analyzed: 02/18/93 Time Analyzed: 1047

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) Y

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	B07K11	A302041-01A	30218R09	1450
02	B07K13	A302041-02A	30218R12	1638
03	B07K11MS	A302041-01B	30218R10	1526
04	B07K11MSD	A302041-01C	30218R11	1602

COMMENTS: CLP,,,VBLK0218R,L,S,SB021893,VOA/H,BLANK,
PACK/2,30218R01,3BFB0218,,

9613492.4996

000026

EPA SAMPLE NO.

VBLK0218R

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: SB021893

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30218R03

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 02/18/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	J
67-64-1	Acetone	11	
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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

9613492.4997

000027

EPA SAMPLE NO.

VBLK0218R

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: SB021893

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30218R03

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 02/18/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	1.53	10	J

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK0218S2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID: 30224S07 Lab Sample ID: A302041-BLK

Instrument ID: SHERMA Date Extracted: 02/18/93

Matrix: (soil/water) SOIL Date Analyzed: 02/24/93

Level:(low/med) LOW Time Analyzed: 1450

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	B07K11	A302041-01D	30224S08	02/24/93
02	B07K13	A302041-02B	30224S11	02/24/93
03	B07K11MS	A302041-01E	30224S09	02/24/93
04	B07K11MSD	A302041-01F	30224S10	02/24/93

COMMENTS: CLP,02041,,SBLK0218S2,L,S,A302041-BLK,B,BLANK
CAP/.25,30224S01,3DFT0224S1

9613492.4999

000029
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SBLK0218S2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-BLK

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 30224S07

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) N Date Extracted: 02/18/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 02/24/93

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: _____

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
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	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
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	790	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	790	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline	790	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	790	U

9613492.5000

000030
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SBLK0218S2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-BLK

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 30224S07

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) N Date Extracted: 02/18/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 02/24/93

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-02-7	4-Nitrophenol	790	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
606-20-2	2,6-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	790	U
534-52-1	4,6-Dinitro-2-methylphenol	790	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	790	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-Butylphthalate	130	J
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)Anthracene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U
218-01-9	Chrysene	330	U
117-84-0	Di-n-Octyl Phthalate	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

9613492.5001

000031

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLK0218S2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-BLK

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 30224S07

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) N Date Extracted: 02/18/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 02/24/93

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: _____

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	5.30	720	J
2.	UNKNOWN HYDROCARBON	5.70	100000	J
3.	UNKNOWN HYDROCARBON	5.87	390	J
4.	UNKNOWN HYDROCARBON	6.70	1200	J
5.	UNKNOWN KETONE	7.22	200	J
6.	UNKNOWN CARBOXYLIC ACID ESTE	20.13	99	J

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID (Standard): 30218R01 Date Analyzed: 02/18/93

Instrument ID: 4500 Time Analyzed: 934

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	19159	7.42	87010	15.79	91919	19.74
	UPPER LIMIT	38318	7.92	174020	16.29	183838	20.24
	LOWER LIMIT	9580	6.92	43505	15.29	45960	19.24
	EPA SAMPLE NO.						
01	B07K11	16551	7.28	65941	15.85	74600	19.80
02	B07K13	11863	7.32	51315	15.89	70969	19.82
03	B07K11MS	13842	7.35	54499	15.87	61841	19.82
04	B07K11MSD	16399	7.33	69230	15.87	72715	19.80
05	VBLK0218R	12111	7.33	47652	15.87	67076	19.80

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

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

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID (Standard): 30218B01 Date Analyzed: 02/18/93

Instrument ID: BULL Time Analyzed: 753

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) N

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	21831	8.17	110516	9.77	112835	15.34
	UPPER LIMIT	43662	8.67	221032	10.27	225670	15.84
	LOWER LIMIT	10916	7.67	55258	9.27	56418	14.84
	EPA SAMPLE NO.						
01	B07K09	25552	8.20	123781	9.80	116748	15.39
02	B07K09MS	23341	8.20	117030	9.79	117108	15.39
03	B07K09MSD	23954	8.17	121517	9.75	120629	15.37
04	VBLK0218B	24996	8.18	124118	9.77	118710	15.37

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID (Standard): 30224S01 Date Analyzed: 02/24/93

Instrument ID: SHERMA Time Analyzed: 1059

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STD	27666	8.42	101746	11.40	57694	15.82
	UPPER LIMIT	55332	8.92	203492	11.90	115388	16.32
	LOWER LIMIT	13833	7.92	50873	10.90	28847	15.32
	EPA SAMPLE NO.						
01	B07K11	26954	8.45	88520	11.39	49604	15.80
02	B07K13	26998	8.47	90454	11.42	48960	15.82
03	B07K11MS	29412	8.47	97734	11.42	54418	15.82
04	B07K11MSD	28638	8.47	95059	11.40	53864	15.82
05	SBLK0218S2	27516	8.45	90010	11.40	50284	15.80

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

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

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

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID (Standard): 30224S01 Date Analyzed: 02/24/93

Instrument ID: SHERMA Time Analyzed: 1059

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	98575	19.55	74923	25.66	41745	28.89
	UPPER LIMIT	197150	20.05	149846	26.16	83490	29.39
	LOWER LIMIT	49288	19.05	37462	25.16	20872	28.39
	EPA SAMPLE NO.						
01	B07K11	83951	19.55	57864	25.64	41984	28.91
02	B07K13	81376	19.57	54892	25.67	41323	28.92
03	B07K11MS	85286	19.57	60185	25.66	42511	28.92
04	B07K11MSD	85733	19.57	59007	25.66	41497	28.91
05	SBLK0218S2	82541	19.55	51979	25.64	37460	28.91

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

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

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

9613492.5006

CASE NO. 02-041

ORGANICS

CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 02-041

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : February 16, 1993

1.0 DESCRIPTION OF CASE :

Two soil and one water samples were analyzed for TCL Organics-Volatiles and Semivolatiles according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8.

2.0 SAMPLE LIST :

WESTINGHOUSE ID	LAB ID	ANALYSIS REQUESTED	MATRIX	pH
B07K11	A3-02-041-01A	V	SOIL	
B07K11 MS	A3-02-041-01B	V	SOIL	
B07K11 MSD	A3-02-041-01C	V	SOIL	
B07K11	A3-02-041-01D	SV	SOIL	
B07K11 MS	A3-02-041-01E	SV	SOIL	
B07K11 MSD	A3-02-041-01F	SV	SOIL	
B07K13	A3-02-041-02A	V	SOIL	
B07K13	A3-02-041-02B	SV	SOIL	
B07K09	A3-02-041-03A	V	WATER	7
B07K09 MS	A3-02-041-03B	V	WATER	7
B07K09 MSD	A3-02-041-03C	V	WATER	7

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received and properly documented.

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL WATER :

The samples were analyzed within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

LOW LEVEL SOIL :

The samples were analyzed by heated purge within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All BFB tune are injected directly into GC/MS instrument.

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

We certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data in this hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth 3/18/93
Nicole Roth
CLP Program Manager

Widayat 3/18/93
Wida Ang
Organics Supervisor

9613492.5009

CASE NO. 02-041

VOLATILES

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
01	B07K09	109	100	105	0	0
02	B07K09MS	106	97	111	0	0
03	B07K09MSD	105	94	108	0	0
04	VBLK0218B	108	96	106	0	0

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(88-110)
SMC2 (BFB)	= Bromofluorobenzene	(86-115)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

YK 10/24/93

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

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2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

000041

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Level:(low/med) LOW

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
01	B07K11	121	107	106	0	0
02	B07K13	113	107	109	0	0
03	B07K11MS	120	113	109	0	0
04	B07K11MSD	114	105	100	0	0
05	VBLK0218R	111	109	97	0	0

	QC LIMITS
SMC1 (TOL) = Toluene-d8	(84-138)
SMC2 (BFB) = Bromofluorobenzene	(59-113)
SMC3 (DCE) = 1,2-Dichloroethane-d4	(70-121)

KR 10/24/13

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM II VOA-2

3/90

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix Spike - EPA Sample No.: B07K09

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.00	0	44.80	90	61-145
Trichloroethene	50.00	0	42.90	86	71-120
Benzene	50.00	0	48.10	96	76-127
Toluene	50.00	0	50.40	101	76-125
Chlorobenzene	50.00	0	48.20	96	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.00	44.90	90	0	14	61-145
Trichloroethene	50.00	43.10	86	0	14	71-120
Benzene	50.00	48.80	98	2	11	76-127
Toluene	50.00	51.00	102	1	13	76-125
Chlorobenzene	50.00	48.40	97	1	13	75-130

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

* Values outside of QC limits

KR 10/24/9

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

COMMENTS: CLP,02041,,B07K09,L,W,A302041-03A,VOA,EPA
CAP/.53,30218B01,3BF0218,30218B03,,

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix Spike - EPA Sample No.: B07K11 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	54.90	0	54.07	98	59-172
Trichloroethene	54.90	0	60.88	111	62-137
Benzene	54.90	0	62.42	114	66-142
Toluene	54.90	1.538	61.65	110	59-139
Chlorobenzene	54.90	0	57.69	105	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	54.90	54.07	98	0	22	59-172
Trichloroethene	54.90	57.58	105	6	24	62-137
Benzene	54.90	60.11	110	4	21	66-142
Toluene	54.90	65.16	116	5	21	59-139
Chlorobenzene	54.90	58.46	106	1	21	60-133

KR 10/24/

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,02041,,B07K11,L,S,A302041-01A,VOA/H,EPA,
PACK/2,30218R01,3BFB0218,30218R03,30218R10,30218R11,

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK0218B

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID: 30218B03 Lab Sample ID: WBLK0218

Date Analyzed: 02/18/93 Time Analyzed: 0855

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) N

Instrument ID: BULL

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	B07K09	A302041-03A	30218B07	1117
02	B07K09MS	A302041-03B	30218B08	1147
03	B07K09MSD	A302041-03C	30218B09	1217

COMMENTS: CLP,,,VBLK0218B,L,W,WBLK0218,VOA,BLANK
CAP/.53,30218B01,3BF0218,,

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK0218R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID: 30218R03 Lab Sample ID: SB021893

Date Analyzed: 02/18/93 Time Analyzed: 1047

GC Column: PACK ID: 2.00 (mm) Heated Purge: (Y/N) Y

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	B07K11	A302041-01A	30218R09	1450
02	B07K13	A302041-02A	30218R12	1638
03	B07K11MS	A302041-01B	30218R10	1526
04	B07K11MSD	A302041-01C	30218R11	1602

COMMENTS: CLP,,,VBLK0218R,L,S,SB021893,VOA/H,BLANK,
PACK/2,30218R01,3BFB0218,,

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000046

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID: 3BFB0217 BFB Injection Date: 02/17/93

Instrument ID: 4500 BFB Injection Time: 0905

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	23.4
75	30.0 - 66.0% of mass 95	45.9
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	50.0 - 120.0% of mass 95	76.4
175	4.0 - 9.0% of mass 174	5.6 (7.3)1
176	93.0 - 101.0% of mass 174	72.8 (95.3)1
177	5.0 - 9.0% of mass 176	5.0 (6.9)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD010	010PPB-V0121	30217R08	02/17/93	1411
02	VSTD020	020PPB-V0121	30217R09	02/17/93	1447
03	VSTD050	050PPB-V0121	30217R10	02/17/93	1524
04	VSTD100	100PPB-V0121	30217R11	02/17/93	1600
05	VSTD200	200PPB-V0121	30217R13	02/17/93	1712

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID: 3BFB0218 BFB Injection Date: 02/18/93

Instrument ID: 4500 BFB Injection Time: 0910

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	23.2
75	30.0 - 66.0% of mass 95	45.4
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	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	76.3
175	4.0 - 9.0% of mass 174	5.5 (7.2)1
176	93.0 - 101.0% of mass 174	72.7 (95.3)1
177	5.0 - 9.0% of mass 176	4.9 (6.8)2

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

THIS CHECK 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	050PPB-V0121	30218R01	02/18/93	934
02	VBLK0218R	SB021893	30218R03	02/18/93	1047
03	B07K11	A302041-01A	30218R09	02/18/93	1450
04	B07K11MS	A302041-01B	30218R10	02/18/93	1526
05	B07K11MSD	A302041-01C	30218R11	02/18/93	1602
06	B07K13	A302041-02A	30218R12	02/18/93	1638

KK 10/24/95

9613492.5018

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

000048

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID: 3BF0122A BFB Injection Date: 01/22/93

Instrument ID: BULL BFB Injection Time: 1228

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	21.7
75	30.0 - 66.0% of mass 95	45.5
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	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	55.1
175	4.0 - 9.0% of mass 174	4.6 (8.4)1
176	93.0 - 101.0% of mass 174	53.7 (97.4)1
177	5.0 - 9.0% of mass 176	3.8 (7.0)2

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

THIS CHECK 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	50PPB-V0121	30122B01	01/22/93	1243
02	VSTD100	100PPB-V0121	30122B04	01/22/93	1412
03	VSTD200	200PPB-V0121	30122B05	01/22/93	1442
04	VSTD010	10PPB-V0121	30122B07	01/22/93	1546
05	VSTD020	20PPB-V0121	30122B08	01/22/93	1617

KV 12/10/16

FORM V VOA 3/90

9613492.5019

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

000049

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID: 3BF0218 BFB Injection Date: 02/18/93

Instrument ID: BULL BFB Injection Time: 0741

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	21.7
75	30.0 - 66.0% of mass 95	44.6
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	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	56.9
175	4.0 - 9.0% of mass 174	4.3 (7.5)1
176	93.0 - 101.0% of mass 174	55.2 (97.1)1
177	5.0 - 9.0% of mass 176	3.6 (6.5)2

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

THIS CHECK 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	50PPB-V0121	30218B01	02/18/93	753
02	VBLK0218B	WBLK0218	30218B03	02/18/93	0855
03	B07K09	A302041-03A	30218B07	02/18/93	1117
04	B07K09MS	A302041-03B	30218B08	02/18/93	1147
05	B07K09MSD	A302041-03C	30218B09	02/18/93	1217

FORM V VOA 3/90

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID (Standard): 30218R01 Date Analyzed: 02/18/93

Instrument ID: 4500 Time Analyzed: 934

GC Column: PACK ID: 2.00(mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	19159	7.42	87010	15.79	91919	19.74
	UPPER LIMIT	38318	7.92	174020	16.29	183838	20.24
	LOWER LIMIT	9580	6.92	43505	15.29	45960	19.24
	EPA SAMPLE NO.						
01	B07K11	16551	7.28	65941	15.85	74600	19.80
02	B07K13	11863	7.32	51315	15.89	70969	19.82
03	B07K11MS	13842	7.35	54499	15.87	61841	19.82
04	B07K11MSD	16399	7.33	69230	15.87	72715	19.80
05	VBLK0218R	12111	7.33	47652	15.87	67076	19.80

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

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

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Lab File ID (Standard): 30218B01 Date Analyzed: 02/18/93

Instrument ID: BULL Time Analyzed: 753

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) N

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	21831	8.17	110516	9.77	112835	15.34
	UPPER LIMIT	43662	8.67	221032	10.27	225670	15.84
	LOWER LIMIT	10916	7.67	55258	9.27	56418	14.84
	EPA SAMPLE NO.						
01	B07K09	25552	8.20	123781	9.80	116748	15.39
02	B07K09MS	23341	8.20	117030	9.79	117108	15.39
03	B07K09MSD	23954	8.17	121517	9.75	120629	15.37
04	VBLK0218B	24996	8.18	124118	9.77	118710	15.37

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

KK 10/1/93

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

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

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000075
EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

B07K13

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30218R12

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. 9 Date Analyzed: 02/18/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	13	~~B~~ 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	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	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
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

KK 10/24

9613492.5023

000076

EPA SAMPLE NO.

B07K13

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30218R12

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. 9 Date Analyzed: 02/18/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Number TICs found: 4

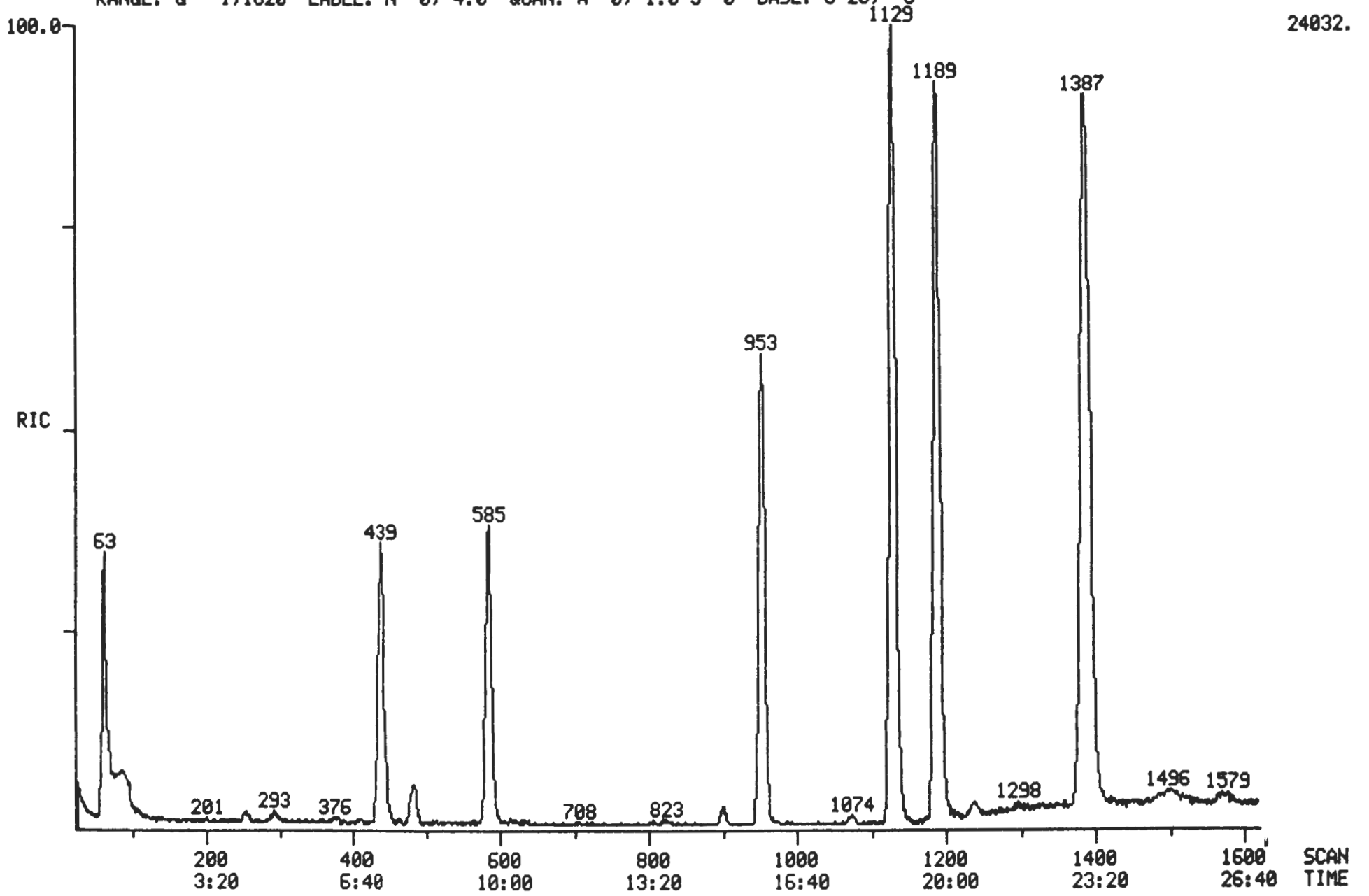
CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	1.05	82	JN
2.	UNKNOWN HYDROCARBON	1.32	8	J
3.	UNKNOWN HYDROCARBON	1.43	8	J
4.	UNKNOWN HYDROCARBON	8.05	20	J

KR
10/24/93

000077

RIC DATA: 30218R12 #1 SCANS 25 TO 1620
02/18/93 16:38:00 CALI: 30218R12 #7
SAMPLE: CLP,02041,,B07K13,L,S,A302041-02A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,
RANGE: G 1,1620 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



9613492.5024

Quantitation Report File: 30218R12

Data: 30218R12.TI
02/18/93 16:38:00
Sample: CLP,02041,,B07K13,L,S,A302041-02A,VOA/H,EPA,
Conds.: PACK/2,30218R01,3BFB0218,30218R03,
Formula: Instrument: 4500 Weight: 5.000
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C035	ACETONE
8	C230	TOLUENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	439	7:19	1	1.000	A BB	11863.	50.000 PPB	15.25
2	114	953	15:53	2	1.000	A BB	51315.	50.000 PPB	15.25
3	117	1189	19:49	3	1.000	A BB	70969.	50.000 PPB	15.25
4	65	585	9:45	1	1.333	A BB	20689.	54.527 PPB	16.63
5	98	1129	18:49	3	0.950	A BB	76338.	56.710 PPB	17.29
6	95	1387	23:07	3	1.167	A BB	52413.	53.281 PPB	16.25
7	43	293	4:53	1	0.667	A BB	2613.	12.027 PPB	3.67
8	91	1139	18:59	3	0.958	A BB	2035.	1.404 PPB	0.43

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:16	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:41	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:37	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:38	1.01	1.326	1.01	54.53	50.00	1.744	1.599	1.09
5	18:36	1.01	0.948	1.00	56.71	50.00	1.076	0.948	1.13
6	22:55	1.01	1.168	1.00	53.28	50.00	0.739	0.693	1.07
7	5:03	0.97	0.695	0.96	12.03	50.00	0.220	0.916	0.24
8	18:46	1.01	0.957	1.00	1.40	50.00	0.029	1.021	0.03

Quantitation Report File: 30218R12

Data: 30218R12.TI
02/18/93 16:38:00
Sample: CLP,02041,,B07K13,L,S,A302041-02A,VOA/H,EPA,
Conds.: PACK/2,30218R01,3BFB0218,30218R03,
Formula: Instrument: 4500 Weight: 5.000
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C040	CARBON DISULFIDE
14	C045	1,1-DICHLOROETHENE
15	C050	1,1-DICHLOROETHANE
16	C053	1,2-DICHLOROETHENE(TOTAL)
17	C060	CHLOROFORM
18	C110	2-BUTANONE
19	C065	1,2-DICHLOROETHANE
20	C115	1,1,1-TRICHLOROETHANE
21	C120	CARBON TETRACHLORIDE
22	C125	VINYL ACETATE
23	C130	BROMODICHLOROMETHANE
24	C140	1,2-DICHLOROPROPANE
25	C143	CIS-1,3-DICHLOROPROPENE
26	C150	TRICHLOROETHENE
27	C155	DIBROMOCHLOROMETHANE
28	C165	BENZENE
29	C160	1,1,2-TRICHLOROETHANE
30	C172	TRANS-1,3-DICHLOROPROPENE
31	C175	2-CHLOROETHOXY ETHENE
32	C180	BROMOFORM
33	C205	4-METHYL-2-PENTANONE
34	C210	2-HEXANONE
35	C225	1,1,2,2-TETRACHLOROETHANE
36	C220	TETRACHLOROETHENE
37	C230	TOLUENE
38	C235	CHLOROBENZENE
39	C240	ETHYL BENZENE
40	C245	STYRENE
41	C255	M-XYLENE
42	C250	O,P-XYLENE

9613492.5027

000080

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	439	7:19	1	1.000	A BB	11863.	50.000 PPB	14.16
2	114	953	15:53	2	1.000	A BB	51315.	50.000 PPB	14.16
3	117	1189	19:49	3	1.000	A BB	70969.	50.000 PPB	14.16
4	65	585	9:45	1	1.333	A BB	20689.	54.527 PPB	15.44
5	98	1129	18:49	3	0.950	A BB	76338.	56.710 PPB	16.06
6	95	1387	23:07	3	1.167	A BB	52413.	53.281 PPB	15.09
7	NOT FOUND								
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
~~11~~	~~84~~	~~255~~	~~4:15~~	~~1~~	~~0.581~~	~~A BB~~	~~728.~~	~~2.135 PPB~~	~~0.60~~
12	43	293	4:53	1	0.667	A BB	2613.	12.027 PPB	3.41
13	NOT FOUND								
14	NOT FOUND								
15	NOT FOUND								
16	NOT FOUND								
17	NOT FOUND								
~~18~~	~~43~~	~~585~~	~~9:45~~	~~1~~	~~1.333~~	~~A BB~~	~~10485.~~	~~22.891 PPB~~	~~6.48~~
19	NOT FOUND								
20	NOT FOUND								
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	NOT FOUND								
29	NOT FOUND								
30	NOT FOUND								
31	NOT FOUND								
32	NOT FOUND								
33	NOT FOUND								
34	NOT FOUND								
35	NOT FOUND								
36	NOT FOUND								
37	91	1139	18:59	3	0.958	A BB	2035.	1.404 PPB	0.40
38	NOT FOUND								
39	NOT FOUND								
40	NOT FOUND								
41	NOT FOUND								
42	NOT FOUND								

KC
02/19/93

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:16	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:41	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:37	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:38	1.01	1.326	1.01	54.53	50.00	1.744	1.599	1.09
5	18:36	1.01	0.948	1.00	56.71	50.00	1.076	0.948	1.13
6	22:55	1.01	1.168	1.00	53.28	50.00	0.739	0.693	1.07
7	0:51		0.117						
8	1:28		0.202						
9	1:53		0.259						
10	2:36		0.358						
11	4:14	1.00	0.583	1.00	2.14	50.00	0.061	1.437	0.04
12	5:03	0.97	0.695	0.96	12.03	50.00	0.220	0.916	0.24

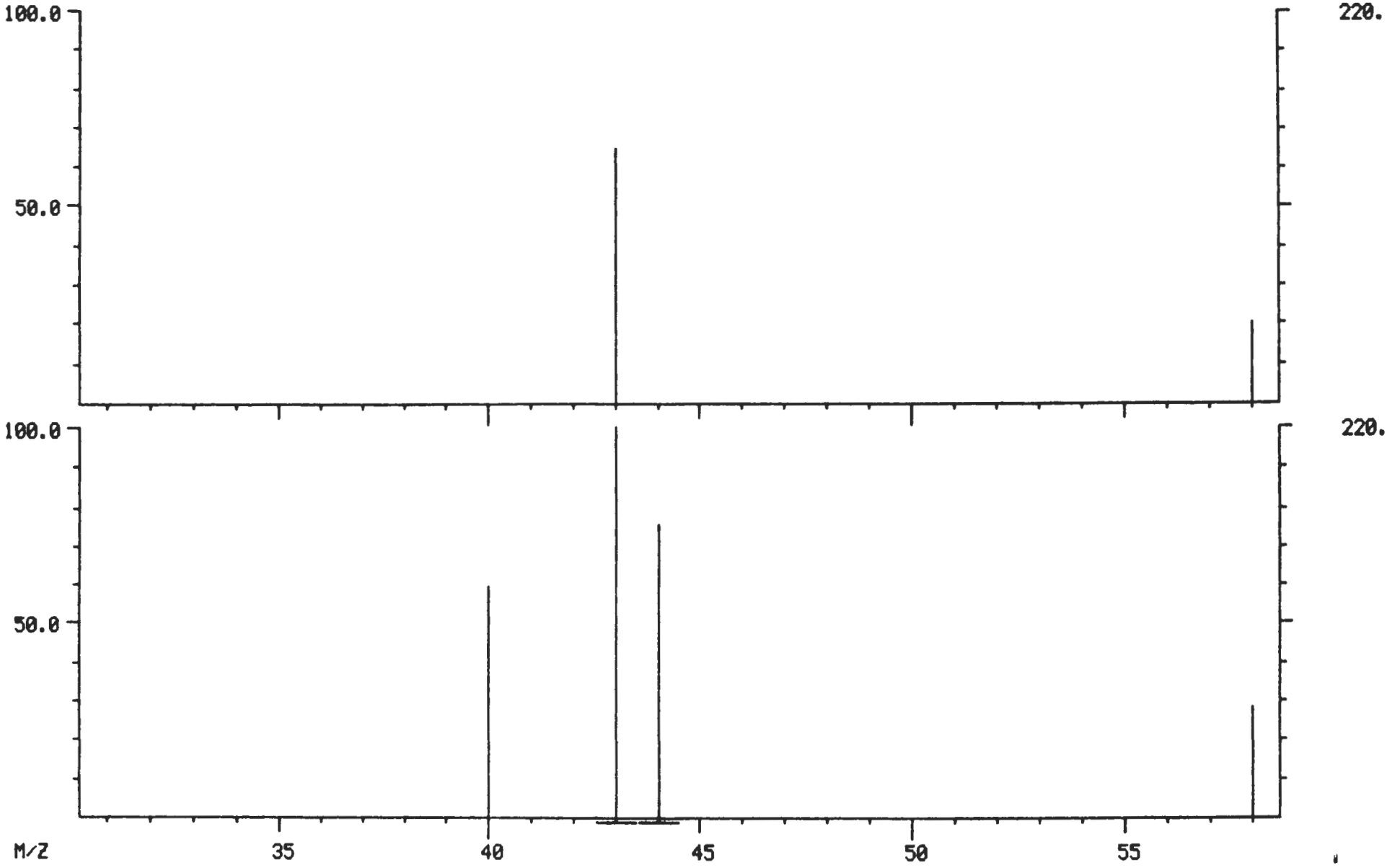
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
13	5:32		0.761						
14	6:47		0.933						
15	7:55		1.089						
16	8:36		1.183						
17	9:07		1.255						
18	9:39	1.01	1.328	1.00	22.89	50.00	0.884	1.931	0.46
19	9:43		1.337						
20	10:42		0.682						
21	11:01		0.702						
22	11:14		0.716						
23	11:34		0.738						
24	12:35		0.802						
25	12:49		0.817						
26	13:16		0.846						
27	13:49		0.881						
28	13:38		0.869						
29	13:53		0.885						
30	13:51		0.883						
31	14:41		0.936						
32	15:58		1.018						
33	16:14		0.828						
34	17:29		0.891						
35	17:47		0.907						
36	17:47		0.907						
37	18:46	1.01	0.957	1.00	1.40	50.00	0.029	1.021	0.03
38	19:43		1.005						
39	21:10		1.079						
40	23:48		1.213						
41	23:58		1.222						
42	24:38		1.256						

000082

DUAL MASS SPECTRUM
02/18/93 16:38:00 + 4:53
SAMPLE: CLP,02041,,B07K13,L,S,A302041-02A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,
ENHANCED (S 15B 2N 0T)

DATA: 30218R12 #293
CALI: 30218R12 #7

BASE M/Z: 43/ 43
RIC: 186./ 579.



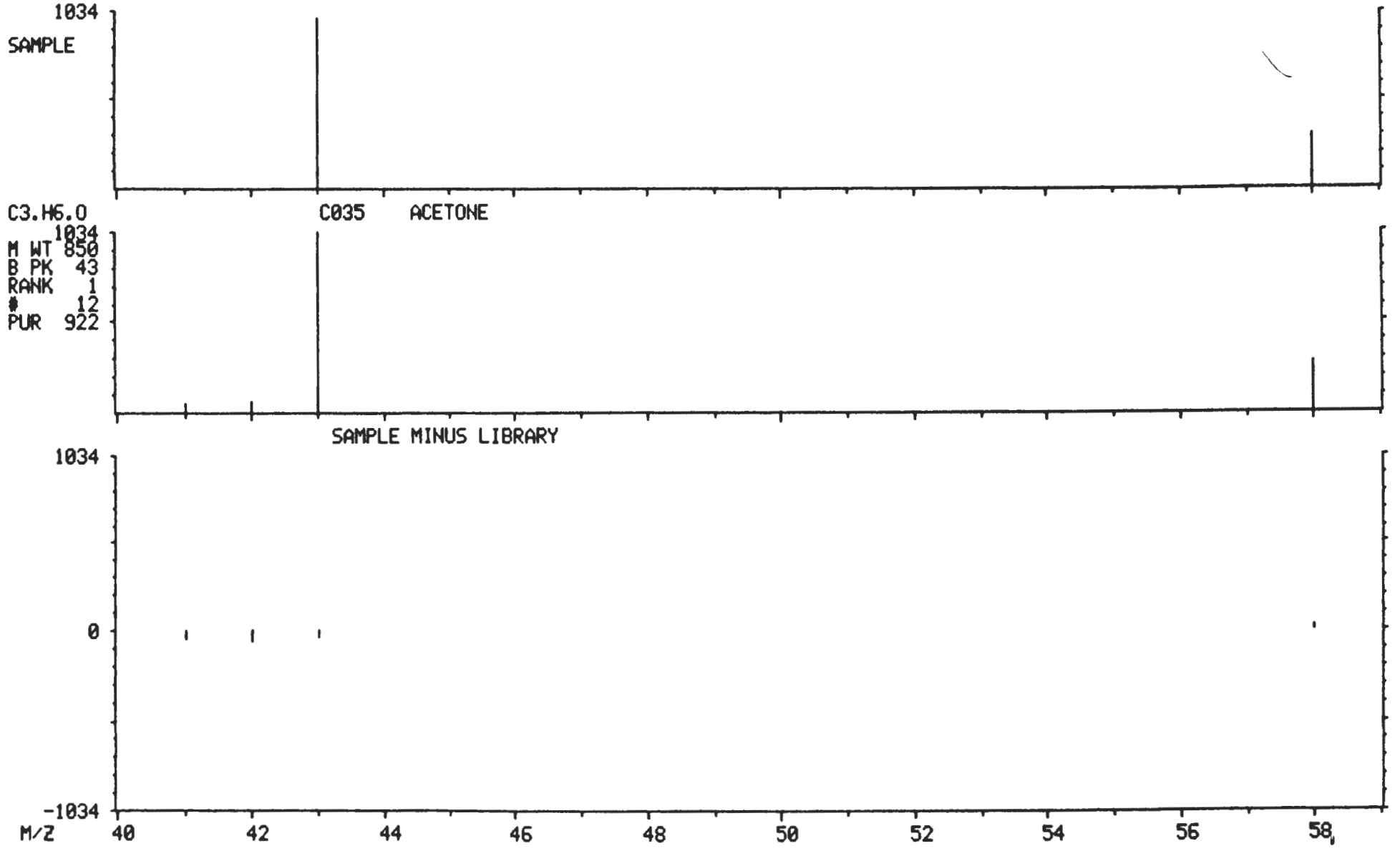
6015 2040196

000083

LIBRARY SEARCH
02/18/93 16:38:00 + 4:53
SAMPLE: CLP,02041,,B07K13,L,S,A302041-02A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,
ENHANCED (S 15B 2N 0T)

DATA: 30218R12 # 293
CALI: 30218R12 # 7

BASE M/Z: 43
RIC: 186.



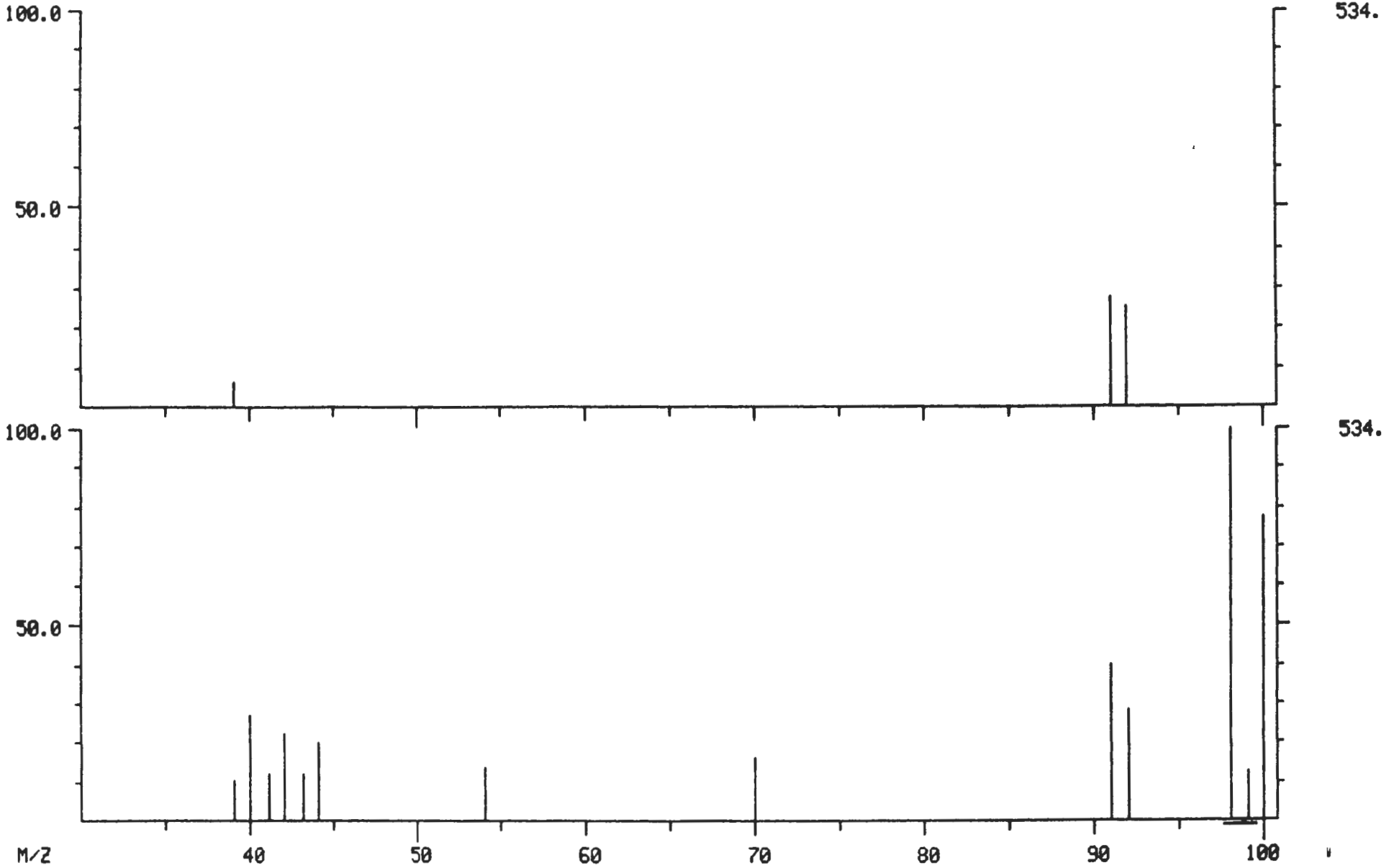
%13492.5030

000084

DUAL MASS SPECTRUM
02/18/93 16:38:00 + 18:59
SAMPLE: CLP,02041,,B07K13,L,S,A302041-02A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,
ENHANCED (S 15B 2N 0T)

DATA: 30218R12 #1139
CALI: 30218R12 #7

BASE M/Z: 91/ 98
RIC: 319./ 2103.



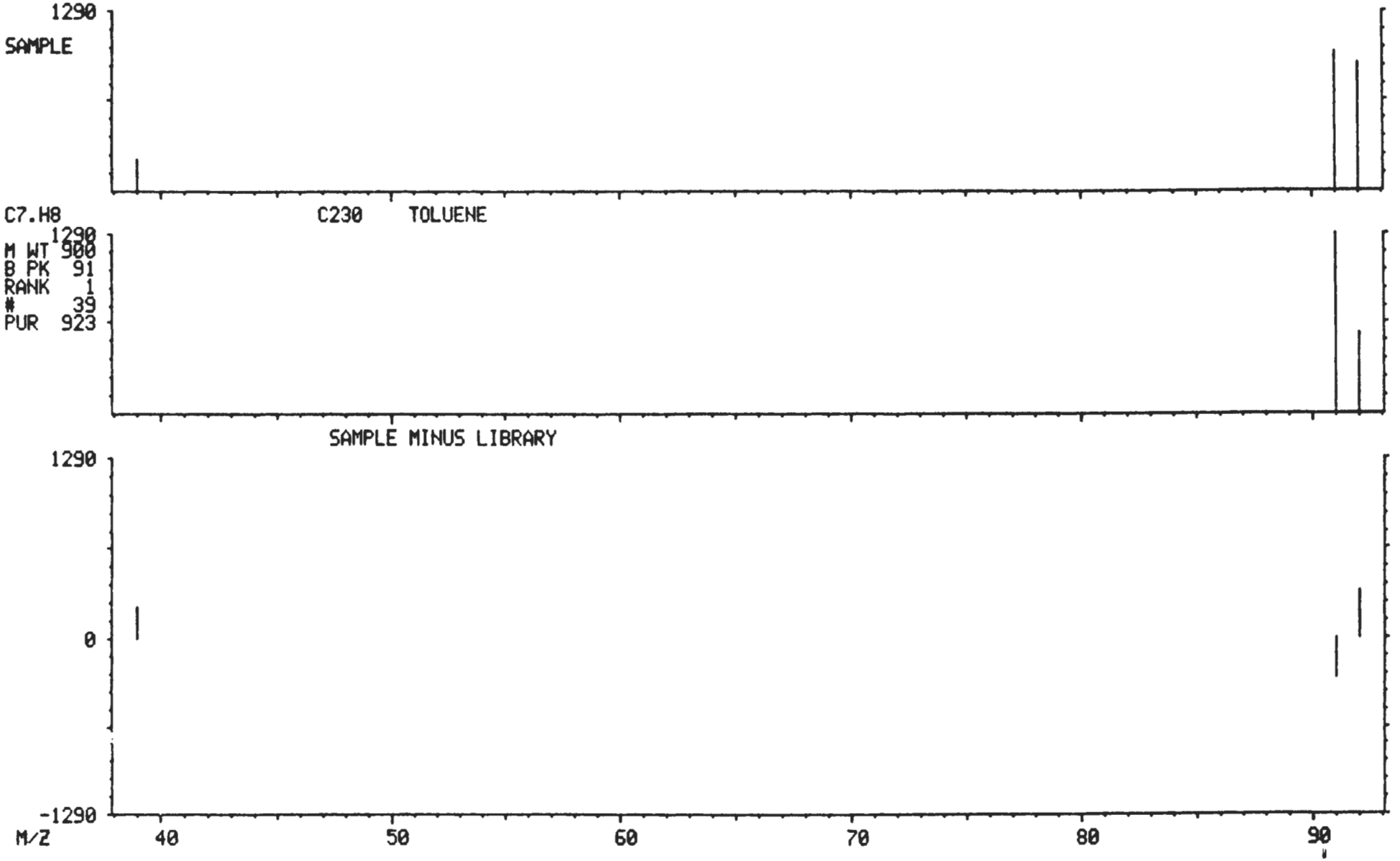
96173492.5031

000085

LIBRARY SEARCH
02/18/93 16:38:00 + 18:59
SAMPLE: CLP,02041,,B07K13,L,S,A302041-02A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,
ENHANCED (S 15B 2N 0T)

DATA: 30218R12 #1139
CALI: 30218R12 # 7

BASE M/Z: 91
RIC: 319.



2105-26C106

INTERMEDIATE A9AR.QL FILE TO GET CAS NUMBERS

Quantitation Report File: A9AR

Data: 30218R12.TI
02/18/93 16:38:00
Sample: CLP,02041,,B07K13,L,S,A302041-02A,VOA/H,EPA,
Conds.: PACK/2,30218R01,3BFB0218,30218R03,
Formula: Instrument: 4500 Weight: 5.000
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	CAS #	Name	
1	0-00-0	CI01	BROMOCHLOROMETHANE(I.S)
2	0-00-0	CI10	1,4-DIFLUORBENZENE(I.S)
3	0-00-0	CI20	CHLOROBENZENE D-5(I.S)
4	75-63-8	METHANE, BROMOTRIFLUORO-	
5	993-07-7	SILANE, TRIMETHYL-	
6	6795-87-5	BUTANE, 2-METHOXY-	
7	109-99-9	FURAN, TETRAHYDRO-	

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	TOT	440	7:20	1	1.000	A BB	32762.	50.000 PPB	24.65
2	TOT	953	15:53	2	1.000	A BB	75900.	50.000 PPB	24.65
3	TOT	1189	19:49	3	1.000	A BB	132478.	50.000 PPB	24.65
4	TOT	63	1:03	3	0.053	A BB	49082.	37.049	18.27
5	TOT	79	1:19	3	0.066	A BV	4532.	3.421	1.69
6	TOT	86	1:26	3	0.072	A VB	4709.	3.555	1.75
7	TOT	483	8:03	3	0.406	A BB	11645.	8.790	4.33

9613492.5034

000061
EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

B07K11

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30218R09

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. 9 Date Analyzed: 02/18/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	~~8~~	~~BJ~~ U 11 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	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	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
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	2	J ✓
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

KR ICP/AF

9613492.5055

000062

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07K11

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30218R09

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. 9 Date Analyzed: 02/18/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Number TICs found: 1

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

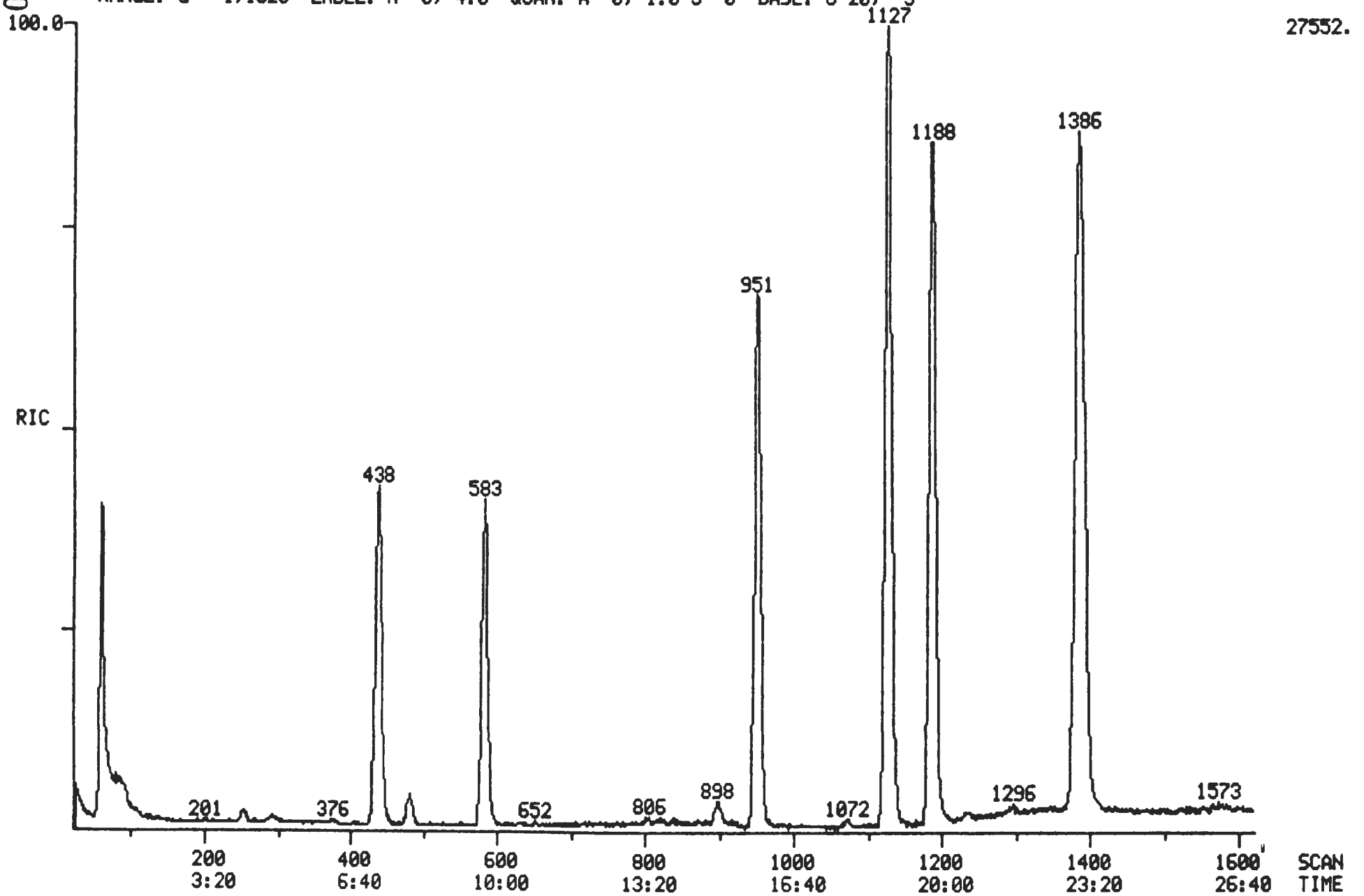
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	1.03	82	JN

KK 10/04/93

000063

RIC
02/18/93 14:50:00
SAMPLE: CLP,02041,,B07K11,L,S,A302041-01A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,30218R10,30218R11,
RANGE: G 1,1620 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30218R09 #1 SCANS 25 TO 1620
CALI: 30218R09 #7



96103482.5006

Quantitation Report File: 30218R09

Data: 30218R09.TI
02/18/93 14:50:00
Sample: CLP,02041,,B07K11,L,S,A302041-01A,VOA/H,EPA,
Conds.: PACK/2,30218R01,3BFB0218,30218R03,30218R10,30218R11,
Formula: Instrument: 4500 Weight: 5.001
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C035	ACETONE
8	C230	TOLUENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	437	7:17	1	1.000	A BB	16551.	50.000 PPB	15.38
2	114	951	15:51	2	1.000	A BB	65941.	50.000 PPB	15.38
3	117	1188	19:48	3	1.000	A BB	74600.	50.000 PPB	15.38
4	65	583	9:43	1	1.334	A BB	28109.	53.098 PPB	16.33
5	98	1127	18:47	3	0.949	A BB	85274.	60.265 PPB	18.54
6	95	1386	23:06	3	1.167	A BB	55267.	53.448 PPB	16.44
7	43	292	4:52	1	0.668	A BB	2087.	6.885 PPB	2.12
8	91	1137	18:57	3	0.957	A BB	2168.	1.423 PPB	0.44

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:16	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:41	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:37	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:38	1.01	1.326	1.01	53.10	50.00	1.698	1.599	1.06
5	18:36	1.01	0.948	1.00	60.27	50.00	1.143	0.948	1.21
6	22:55	1.01	1.168	1.00	53.45	50.00	0.741	0.693	1.07
7	5:03	0.96	0.695	0.96	6.88	50.00	0.126	0.916	0.14
8	18:46	1.01	0.957	1.00	1.42	50.00	0.029	1.021	0.03

Quantitation Report File: 30218R09

Data: 30218R09.TI
02/18/93 14:50:00
Sample: CLP,02041,,B07K11,L,S,A302041-01A,VOA/H,EPA,
Conds.: PACK/2,30218R01,3BFB0218,30218R03,30218R10,30218R11,
Formula: Instrument: 4500 Weight: 5.001
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C040	CARBON DISULFIDE
14	C045	1,1-DICHLOROETHENE
15	C050	1,1-DICHLOROETHANE
16	C053	1,2-DICHLOROETHENE(TOTAL)
17	C060	CHLOROFORM
18	C110	2-BUTANONE
19	C065	1,2-DICHLOROETHANE
20	C115	1,1,1-TRICHLOROETHANE
21	C120	CARBON TETRACHLORIDE
22	C125	VINYL ACETATE
23	C130	BROMODICHLOROMETHANE
24	C140	1,2-DICHLOROPROPANE
25	C143	CIS-1,3-DICHLOROPROPENE
26	C150	TRICHLOROETHENE
27	C155	DIBROMOCHLOROMETHANE
28	C165	BENZENE
29	C160	1,1,2-TRICHLOROETHANE
30	C172	TRANS-1,3-DICHLOROPROPENE
31	C175	2-CHLOROETHOXY ETHENE
32	C180	BROMOFORM
33	C205	4-METHYL-2-PENTANONE
34	C210	2-HEXANONE
35	C225	1,1,2,2-TETRACHLOROETHANE
36	C220	TETRACHLOROETHENE
37	C230	TOLUENE
38	C235	CHLOROBENZENE
39	C240	ETHYL BENZENE
40	C245	STYRENE
41	C255	M-XYLENE
42	C250	O,P-XYLENE

9613492.5059

000066

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	437	7:17	1	1.000	A BB	16551.	50.000 PPB	14.92
2	114	951	15:51	2	1.000	A BB	65941.	50.000 PPB	14.92
3	117	1188	19:48	3	1.000	A BB	74600.	50.000 PPB	14.92
4	65	583	9:43	1	1.334	A BB	28109.	53.098 PPB	15.84
5	98	1127	18:47	3	0.949	A BB	85274.	60.265 PPB	17.98
6	95	1386	23:06	3	1.167	A BB	55267.	53.448 PPB	15.95
7	NOT FOUND								
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
~~11~~	~~84~~	~~252~~	~~4:12~~	~~1~~	~~0.577~~	~~A BV~~	~~686.~~	~~1.442 PPB~~	~~0.43~~
12	43	292	4:52	1	0.668	A BB	2087.	6.885 PPB	2.05
13	NOT FOUND								
14	NOT FOUND								
15	NOT FOUND								
16	NOT FOUND								
17	NOT FOUND								
~~18~~	~~43~~	~~582~~	~~9:42~~	~~1~~	~~1.332~~	~~A BB~~	~~5519.~~	~~8.637 PPB~~	~~2.58~~ NC
19	NOT FOUND								
20	NOT FOUND								
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	NOT FOUND								
29	NOT FOUND								
30	NOT FOUND								
31	NOT FOUND								
32	NOT FOUND								
33	NOT FOUND								
34	NOT FOUND								
35	NOT FOUND								
36	NOT FOUND								
37	91	1137	18:57	3	0.957	A BB	2168.	1.423 PPB	0.42
38	NOT FOUND								
39	NOT FOUND								
40	NOT FOUND								
41	NOT FOUND								
42	NOT FOUND								

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:16	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:41	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:37	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:38	1.01	1.326	1.01	53.10	50.00	1.698	1.599	1.06
5	18:36	1.01	0.948	1.00	60.27	50.00	1.143	0.948	1.21
6	22:55	1.01	1.168	1.00	53.45	50.00	0.741	0.693	1.07
7	0:51		0.117						
8	1:28		0.202						
9	1:53		0.259						
10	2:36		0.358						
11	4:14	0.99	0.583	0.99	1.44	50.00	0.041	1.437	0.03
12	5:03	0.96	0.695	0.96	6.88	50.00	0.126	0.916	0.14

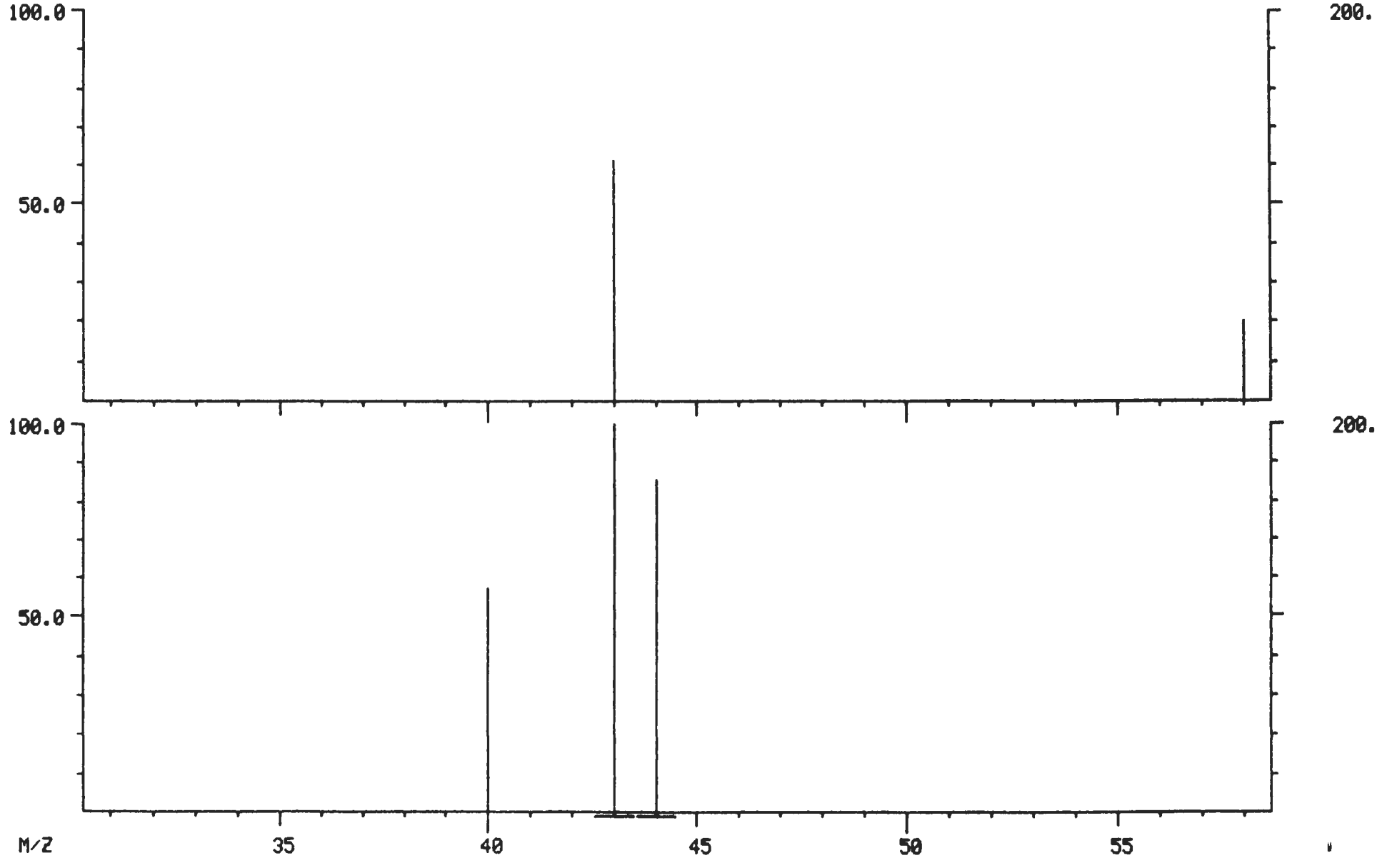
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
13	5:32		0.761						
14	6:47		0.933						
15	7:55		1.089						
16	8:36		1.183						
17	9:07		1.255						
18	9:39	1.01	1.328	1.00	8.64	50.00	0.333	1.931	0.17
19	9:43		1.337						
20	10:42		0.682						
21	11:01		0.702						
22	11:14		0.716						
23	11:34		0.738						
24	12:35		0.802						
25	12:49		0.817						
26	13:16		0.846						
27	13:49		0.881						
28	13:38		0.869						
29	13:53		0.885						
30	13:51		0.883						
31	14:41		0.936						
32	15:58		1.018						
33	16:14		0.828						
34	17:29		0.891						
35	17:47		0.907						
36	17:47		0.907						
37	18:46	1.01	0.957	1.00	1.42	50.00	0.029	1.021	0.03
38	19:43		1.005						
39	21:10		1.079						
40	23:48		1.213						
41	23:58		1.222						
42	24:38		1.256						

000068

DUAL MASS SPECTRUM
02/18/93 14:50:00 + 4:52
SAMPLE: CLP,02041,,B07K11,L,S,A302041-01A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,30218R10,30218R11,
ENHANCED (S 15B 2N 0T)

DATA: 30218R09 #292
CALI: 30218R09 #7

BASE M/Z: 43/ 43
RIC: 162./ 484.



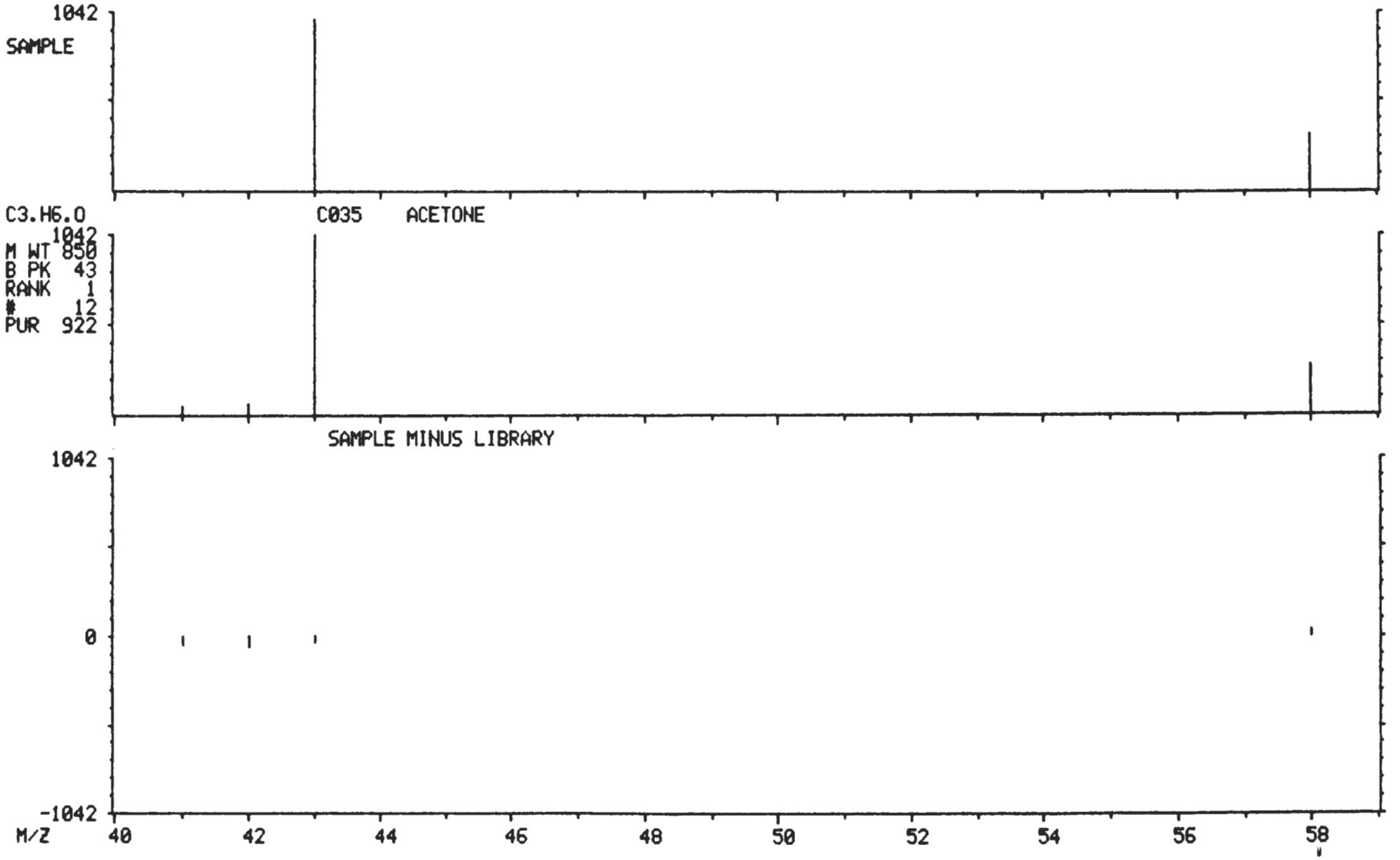
MDS 2040196

000069

LIBRARY SEARCH
02/18/93 14:50:00 + 4:52
SAMPLE: CLP,02041,,B07K11,L,S,A302041-01A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,30218R10,30218R11,
ENHANCED (S 15B 2N 0T)

DATA: 30218R09 # 292
CALI: 30218R09 # 7

BASE M/Z: 43
RIC: 162.



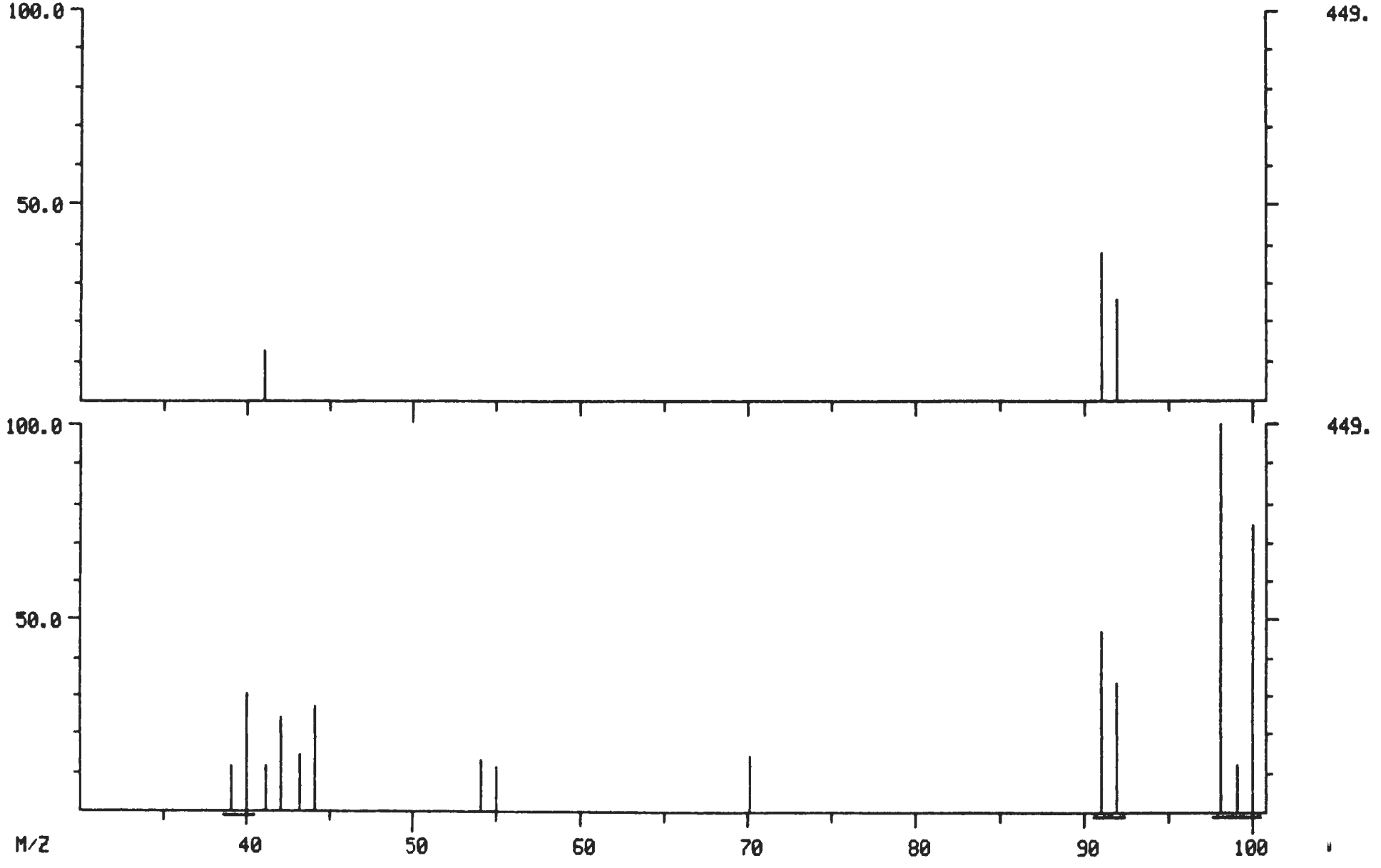
96173192.E042

000070

DUAL MASS SPECTRUM
02/18/93 14:50:00 + 18:58
SAMPLE: CLP,02041,,B07K11,L,S,A302041-01A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,30218R10,30218R11,
ENHANCED (S 15B 2N 0T)

DATA: 30218R09 #1138
CALI: 30218R09 #7

BASE M/Z: 91/ 98
RIC: 344./ 1915.



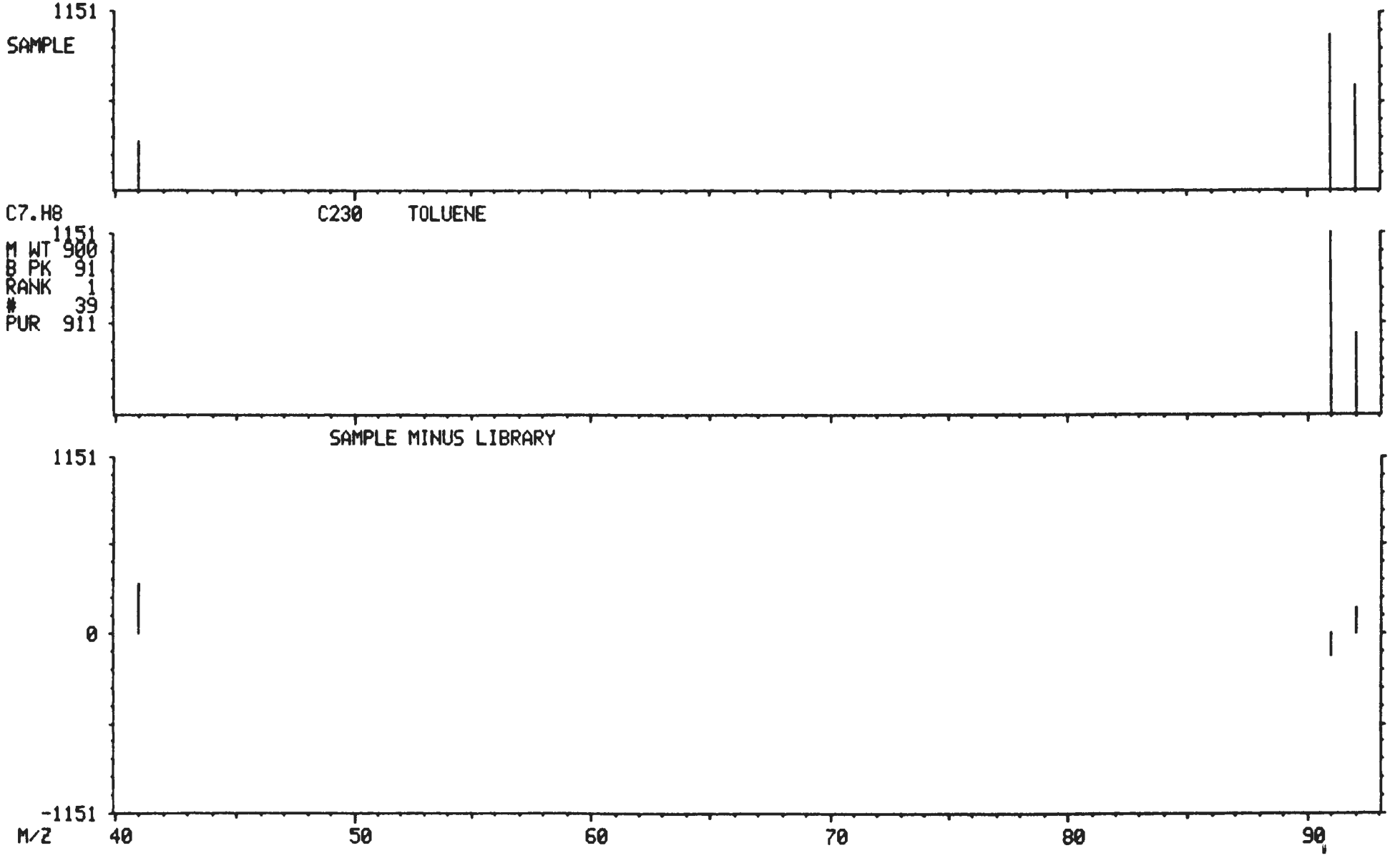
SMUE 26MY96

000071

LIBRARY SEARCH
02/18/93 14:50:00 + 18:58
SAMPLE: CLP,02041,,B07K11,L,S,A302041-01A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,30218R10,30218R11,
ENHANCED (S 15B 2N 0T)

DATA: 30218R09 #1138
CALI: 30218R09 # 7

BASE M/Z: 91
RIC: 344.



HMS 2000196

9613492.5045

INTERMEDIATE A9AR.GL FILE TO GET CAS NUMBERS

Quantitation Report File: A9AR

Data: 30218R09.TI
02/18/93 14:50:00
Sample: CLP,02041,,B07K11,L,S,A302041-01A,VOA/H,EPA,
Conds.: PACK/2,30218R01,3BFB0218,30218R03,30218R10,30218R11,
Formula: Instrument: 4500 Weight: 5.001
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	CAS #	Name	
1	0-00-0	CI01	BROMOCHLOROMETHANE(I.S)
2	0-00-0	CI10	1,4-DIFLUORBENZENE(I.S)
3	0-00-0	CI20	CHLOROBENZENE D-5(I.S)
4	75-63-8	METHANE, BROMOTRIFLUORO-	

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	TOT	438	7:18	1	1.000	A BB	44313.	50.000 PPB	25.36
2	TOT	951	15:51	2	1.000	A BB	95943.	50.000 PPB	25.36
3	TOT	1187	19:47	3	1.000	A BB	141601.	50.000 PPB	25.36
4	TOT	62	1:02	3	0.052	A BB	66742.	47.134	23.91

9613492.5046

QUANTITATION REPORT FOR TICS FILE: 30218R09

000073

DATA: 30218R09
02/18/93 14:50:00
SAMPLE: CLP,02041,,B07K11,L,S,A302041-01A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,30218R10,30218R11,
SUBMITTED BY: ANALYST: KC

NO	NAME
1	CI01 BROMOCHLOROMETHANE(I.S)
2	CI10 1,4-DIFLUORBENZENE(I.S)
3	CI20 CHLOROBENZENE D-5(I.S)
4	METHANE, BROMOTRIFLUORO-

NO	M/Z	SCAN		REF	AREA	AMOUNT
1		438	7:18	1	44313	50.
2		951	15:51	2	95943	50.
3		1187	19:47	3	141601	50.
4		62	1: 2	1	66742	75. - M.H.

KC 02-19-93

02/19/93

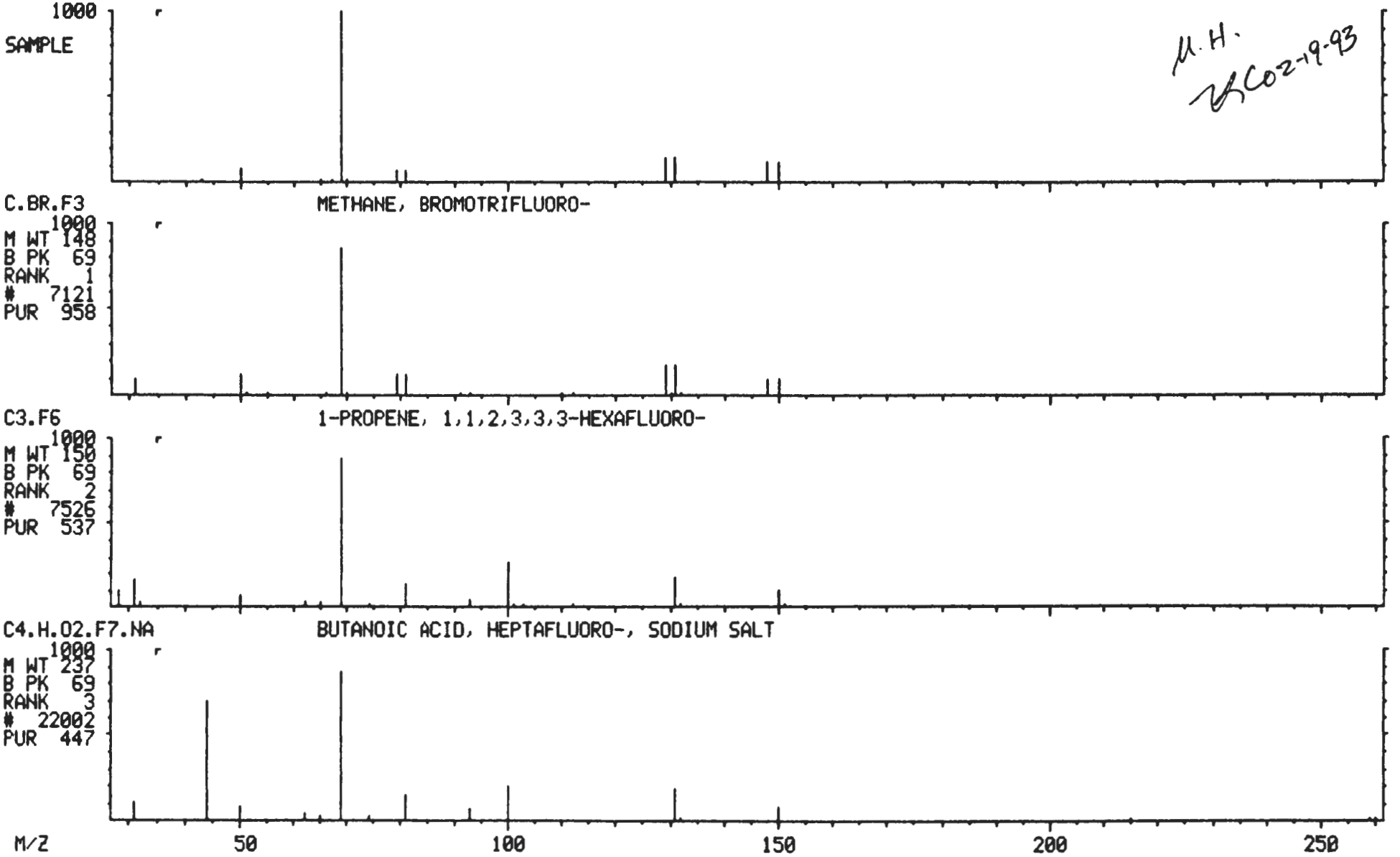
000074

LIBRARY SEARCH
02/18/93 14:50:00 + 1:02
SAMPLE: CLP,02041,,B07K11,L,S,A302041-01A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,30218R10,30218R11,
ENHANCED (S 15B 2N 0T)

DATA: 30218R09 # 62
CALI: 30218R09 # 7

BASE M/Z: 69
RIC: 8463.

M.H. 02-19-93



96 3402 5017

9613492.5048

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Trip Blank

EPA SAMPLE NO.
B07K09

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A302041-03A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 30218B07

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. ____ Date Analyzed: 02/18/93

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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	~~1~~	~~J~~
67-64-1	Acetone	10	U
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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

AS 1/18/94

AS 1/25/94

KK 10/24

9613492.5049

000053

EPA SAMPLE NO.

B07K09

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A302041-03A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 30218B07

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. ____ Date Analyzed: 02/18/93

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

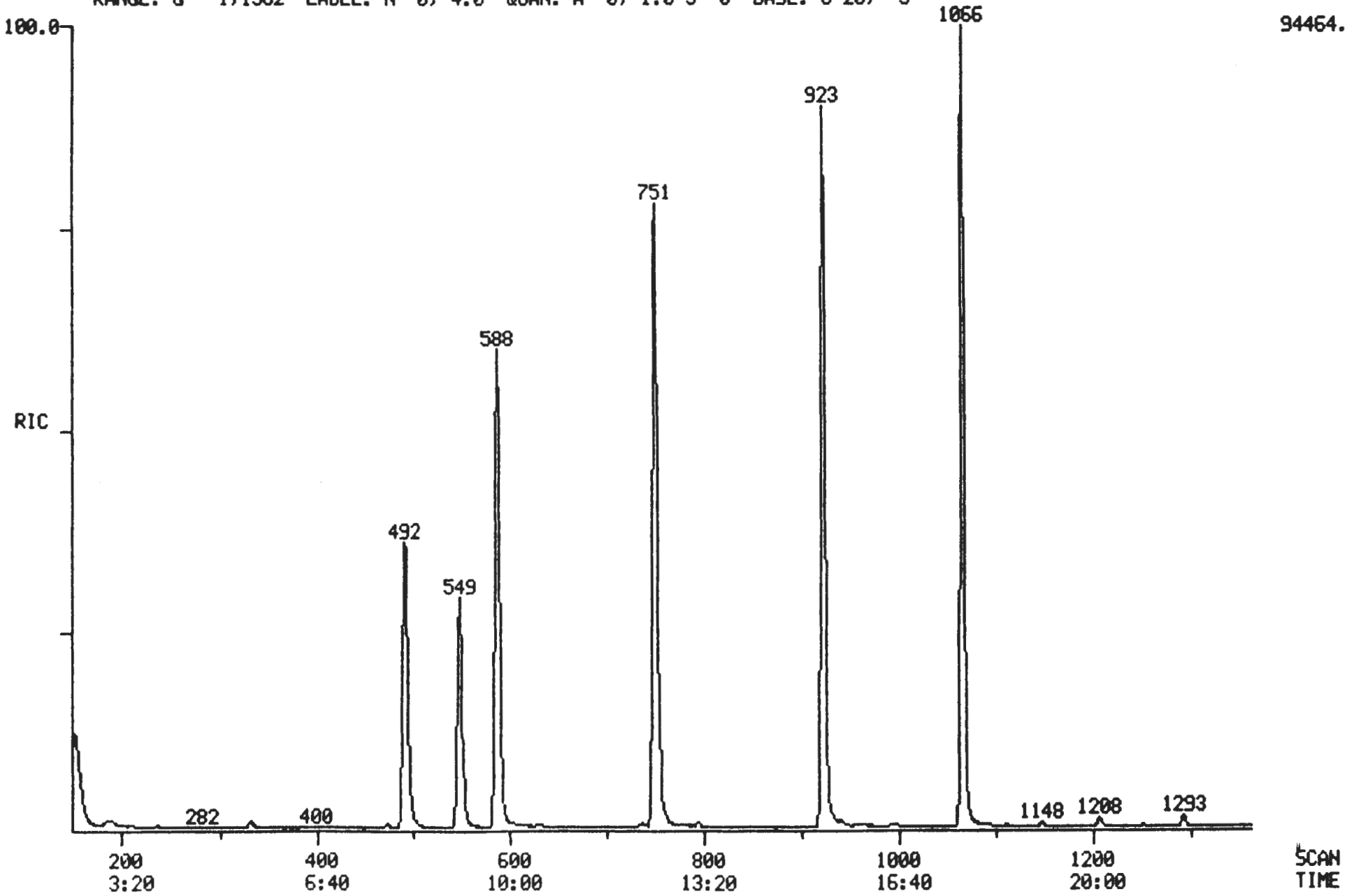
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

000054

RIC
02/18/93 11:17:00
SAMPLE: CLP,02041,,B07K09,L,W,A302041-03A,VOA,EPA
CONDS.: CAP/.53,30218B01,3BF0218,30218B03,30218B08,30218B09
RANGE: G 1,1362 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30218B07 #1
CALI: 30218B07 #3

SCANS 150 TO 1362



06/13/92 5:06 PM

9613492.5061

Quantitation Report File: 30218B07

000055

Data: 30218B07.TI
02/18/93 11:17:00
Sample: CLP,02041,,B07K09,L,W,A302041-03A,VOA,EPA
Conds.: CAP/.53,30218B01,3BF0218,30218B03,30218B08,30218B09
Formula: 5ML Instrument: BULL Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	CI01	BROMOCHLOROMETHANE	*INTERNAL STANDARD*
2	CI10	1,4-DIFLUOROBENZENE	*INTERNAL STANDARD*
3	CI20	D5-CHLOROBENZENE	*INTERNAL STANDARD*
4	CS15	D4-1,2-DICHLOROETHANE	*SURROGATE*
5	CS05	D8-TOLUENE	*SURROGATE*
6	CS10	BROMOFLUOROBENZENE	*SURROGATE*
7	C030	METHYLENE CHLORIDE	

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	128	492	8:12	1	1.000	A BB	25552.	50.000	NG/ML	16.21
2	114	588	9:48	2	1.000	A BB	123781.	50.000	NG/ML	16.21
3	117	923	15:23	3	1.000	A BB	116748.	50.000	NG/ML	16.21
4	65	549	9:09	1	1.116	A BB	50735.	52.716	NG/ML	17.09
5	98	751	12:31	3	0.814	A BB	132311.	54.559	NG/ML	17.69
6	95	1066	17:46	3	1.155	A BB	100307.	49.822	NG/ML	16.15
7	84	332	5:32	1	0.675	A BB	1018.	1.309	NG/ML	0.42

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	8:02	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	9:37	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	15:12	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	8:59	1.02	1.119	1.00	52.72	50.00	1.986	1.883	1.05
5	12:20	1.01	0.811	1.00	54.56	50.00	1.133	1.039	1.09
6	17:35	1.01	1.157	1.00	49.82	50.00	0.859	0.862	1.00
7	5:24	1.03	1.000	0.67	1.31	50.00	0.040	1.522	0.03

Quantitation Report File: 30218B07

Data: 30218B07.TI
02/18/93 11:17:00
Sample: CLP,02041,,B07K09,L,W,A302041-03A,VOA,EPA
Conds.: CAP/.53,30218B01,3BF0218,30218B03,30218B08,30218B09
Formula: 5ML Instrument: BULL Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	CI01	BROMOCHLOROMETHANE	*INTERNAL STANDARD*
2	CI10	1,4-DIFLUOROBENZENE	*INTERNAL STANDARD*
3	CI20	D5-CHLOROBENZENE	*INTERNAL STANDARD*
4	CS15	D4-1,2-DICHLOROETHANE	*SURROGATE*
5	CS05	D8-TOLUENE	*SURROGATE*
6	CS10	BROMOFLUOROBENZENE	*SURROGATE*
7	C010	CHLOROMETHANE	
8	C020	VINYL CHLORIDE	
9	C015	BROMOMETHANE	
10	C025	CHLOROETHANE	
11	C035	ACETONE	
12	C045	1,1-DICHLOROETHENE	
13	C040	CARBON DISULFIDE	
14	C030	METHYLENE CHLORIDE	
15	C055	TRANS-1,2-DICHLOROETHENE	
16	C050	1,1-DICHLOROETHANE	
17	C125	VINYL ACETATE	
18	C110	2-BUTANONE	
19	C053	CIS-1,2-DICHLOROETHENE	
20	C060	CHLOROFORM	
21	C115	1,1,1-TRICHLOROETHANE	
22	C120	CARBON TETRACHLORIDE	
23	C165	BENZENE	
24	C065	1,2-DICHLOROETHANE	
25	C150	TRICHLOROETHENE	
26	C140	1,2-DICHLOROPROPANE	
27	C130	BROMODICHLOROMETHANE	
28	C205	4-METHYL-2-PENTANONE	
29	C143	CIS-1,3-DICHLOROPROPENE	
30	C230	TOLUENE	
31	C172	TRANS-1,3-DICHLOROPROPENE	
32	C160	1,1,2-TRICHLOROETHANE	
33	C210	2-HEXANONE	
34	C220	TETRACHLOROETHENE	
35	C155	DIBROMOCHLOROMETHANE	
36	C235	CHLOROBENZENE	
37	C240	ETHYLBENZENE	
38	C250	M,P-XYLENES	
39	C251	O-XYLENE	
40	C245	STYRENE	
41	C180	BROMOFORM	
42	C225	1,1,2,2-TETRACHLOROETHANE	
43	C175	2-CHLOROETHYL VINYL ETHER	

9613492.5053

000057

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	128	492	8:12	1	1.000	A BB	25552.	50.000	NG/ML	16.10
2	114	588	9:48	2	1.000	A BB	123781.	50.000	NG/ML	16.10
3	117	923	15:23	3	1.000	A BB	116748.	50.000	NG/ML	16.10
4	65	549	9:09	1	1.116	A BB	50735.	52.716	NG/ML	16.97
5	98	751	12:31	3	0.814	A BB	132311.	54.559	NG/ML	17.57
6	95	1066	17:46	3	1.155	A BB	100307.	49.822	NG/ML	16.04
7	NOT FOUND									
8	NOT FOUND									
9	NOT FOUND									
10	NOT FOUND									
11	NOT FOUND									
12	NOT FOUND									
13	NOT FOUND									
14	84	332	5:32	1	0.675	A BB	1018.	1.309	NG/ML	0.42
15	NOT FOUND									
16	NOT FOUND									
17	NOT FOUND									
18	NOT FOUND									
19	NOT FOUND									
~~20~~	~~83~~	~~473~~	~~7:53~~	~~1~~	~~0.961~~	~~A BB~~	~~1338.~~	~~0.685~~	~~NG/ML~~	~~0.22~~
21	NOT FOUND									
22	NOT FOUND									
23	NOT FOUND									
24	NOT FOUND									
25	NOT FOUND									
26	NOT FOUND									
27	NOT FOUND									
28	NOT FOUND									
29	NOT FOUND									
~~30~~	~~91~~	~~759~~	~~12:39~~	~~3~~	~~0.822~~	~~A BB~~	~~1906.~~	~~0.654~~	~~NG/ML~~	~~0.21~~
31	NOT FOUND									
32	NOT FOUND									
33	NOT FOUND									
34	NOT FOUND									
35	NOT FOUND									
~~36~~	~~112~~	~~928~~	~~15:28~~	~~3~~	~~1.005~~	~~A BB~~	~~984.~~	~~0.410~~	~~NG/ML~~	~~0.13~~
37	NOT FOUND									
38	NOT FOUND									
39	NOT FOUND									
40	NOT FOUND									
41	NOT FOUND									
42	NOT FOUND									
43	NOT FOUND									

JC 3-4-93

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	8:02	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	9:37	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	15:12	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	8:59	1.02	1.119	1.00	52.72	50.00	1.986	1.883	1.05
5	12:20	1.01	0.811	1.00	54.56	50.00	1.133	1.039	1.09
6	17:35	1.01	1.157	1.00	49.82	50.00	0.859	0.862	1.00
7	2:53		0.356						
8	2:58		0.368						
9	3:27		0.428						
10	3:32		0.439						
11	4:35		1.000						

WA 3/10/9

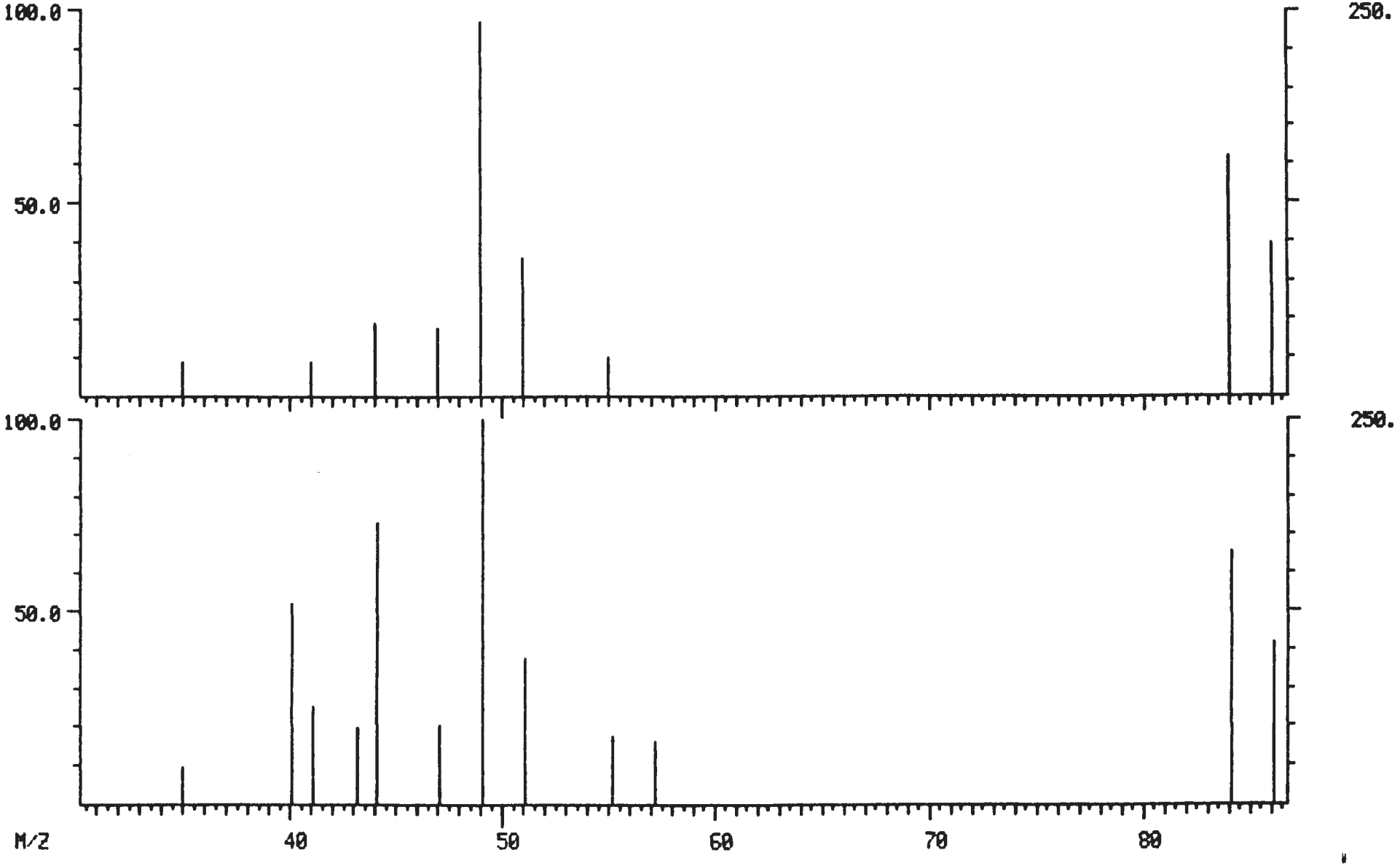
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
12	4:37		0.574						
13	5:23		1.000						
14	5:24	1.03	1.000	0.67	1.31	50.00	0.040	1.522	0.03
15	5:45		0.715						
16	6:27		0.805						
17	6:29		0.672						
18	7:14		0.902						
19	7:28		0.929						
20	7:43	1.02	0.963	1.00	0.69	50.00	0.052	3.821	0.01
21	8:21		0.868						
22	8:46		0.912						
23	9:07		0.948						
24	9:09		1.139						
25	10:09		1.055						
26	10:31		1.094						
27	10:57		1.139						
28	11:35		1.000						
29	11:57		1.241						
30	12:29	1.01	0.821	1.00	0.65	50.00	0.016	1.248	0.01
31	12:54		1.241						
32	13:11		1.369						
33	13:13		0.870						
34	13:39		0.898						
35	14:09		1.468						
36	15:17	1.01	1.004	1.00	0.41	50.00	0.008	1.028	0.01
37	15:22		1.011						
38	15:30		1.020						
39	16:21		1.076						
40	16:28		1.000						
41	17:09		1.782						
42	17:29		1.150						
43	11:33		1.000						

000059

DUAL MASS SPECTRUM
02/18/93 11:17:00 + 5:32
SAMPLE: CLP,02041,,B07K09,L,W,A302041-03A,VOA,EPA
CONDS.: CAP/.53,30218B01,3BF0218,30218B03,30218B08,30218B09
TEMP: 50 DEG. C
ENHANCED (S 15B 2N 0T)

DATA: 30218B07 #332
CALI: 30218B07 #3

BASE M/Z: 49/ 49
RIC: 746./ 1196.



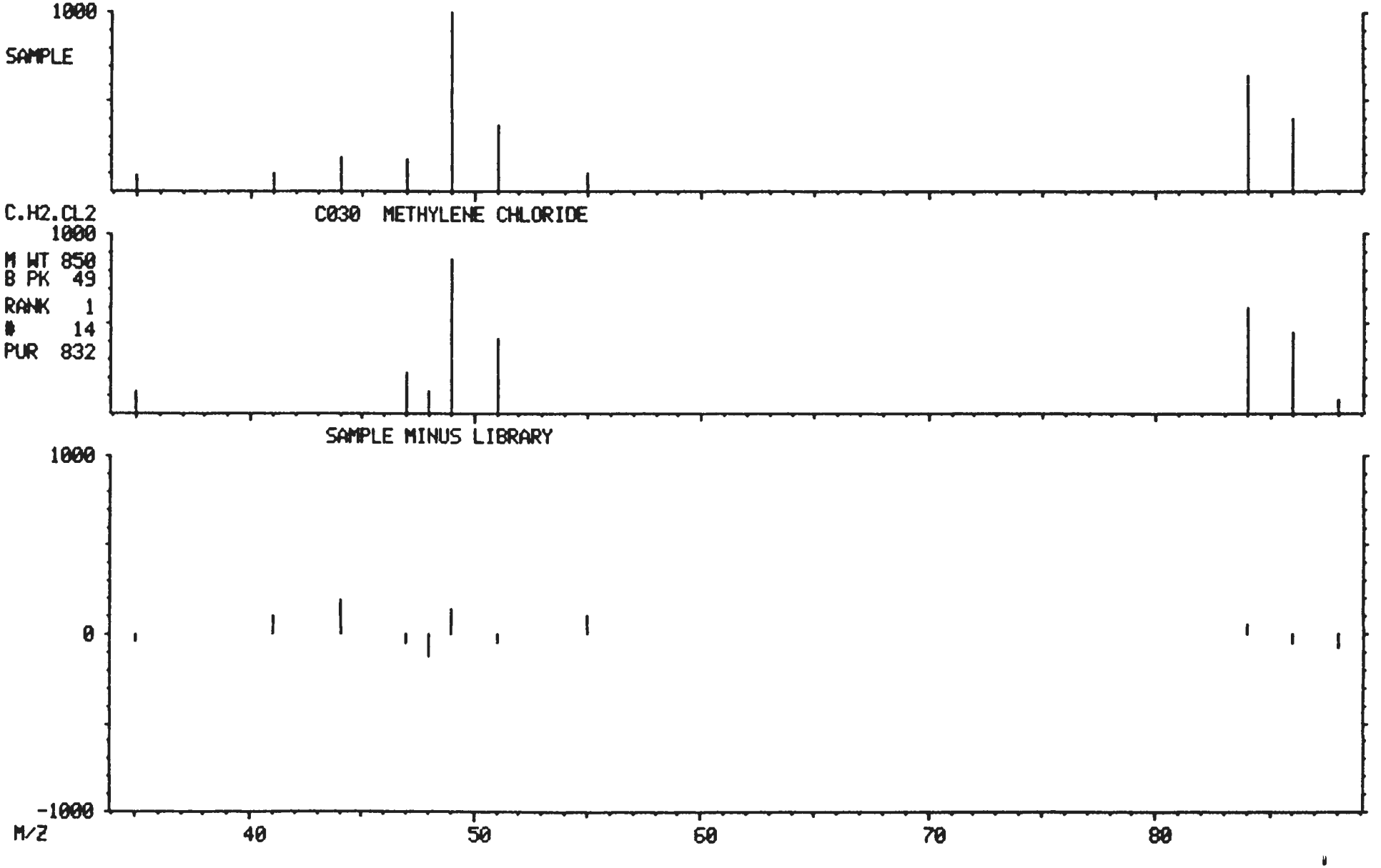
9613492.5055

000060

MID LIBRARY SEARCH (LIBRARYUP)
02/18/93 11:17:00 + 5:32
SAMPLE: CLP,02041,,B07K09,L,W,A302041-03A,VOA,EPA
CONDS.: CAP/.53,30218B01,3BF0218,30218B03,30218B08,30218B09
ENHANCED (S 15B 2N 0T)

DATA: 30218B07 # 332
CALI: 30218B07 # 3

BASE M/Z: 49
RIC: 746.



9303E 20K19

9613492.5057

QUANTITATION REPORT FOR TICS FILE: 30218R12

000087

DATA: 30218R12
02/18/93 16:38:00
SAMPLE: CLP,02041,,B07K13,L,S,A302041-02A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,
SUBMITTED BY: ANALYST: KC

NO	NAME
1	CI01 BROMOCHLOROMETHANE(I.S)
2	CI10 1,4-DIFLUORBENZENE(I.S)
3	CI20 CHLOROBENZENE D-5(I.S)
4	METHANE, BROMOTRIFLUORO-
5	SILANE, TRIMETHYL-
6	BUTANE, 2-METHOXY-
7	FURAN, TETRAHYDRO-

NO	M/Z	SCAN		REF	AREA	AMOUNT
1		440	7:20	1	32762	50.
2		953	15:53	2	75900	50.
3		1189	19:49	3	132478	50.
4		63	1: 3	1	49082	75.
5		79	1:19	1	4532	7.
6		86	1:26	1	4709	7.
7		483	8: 3	1	11645	18.

M.H.
KC 02-19-93

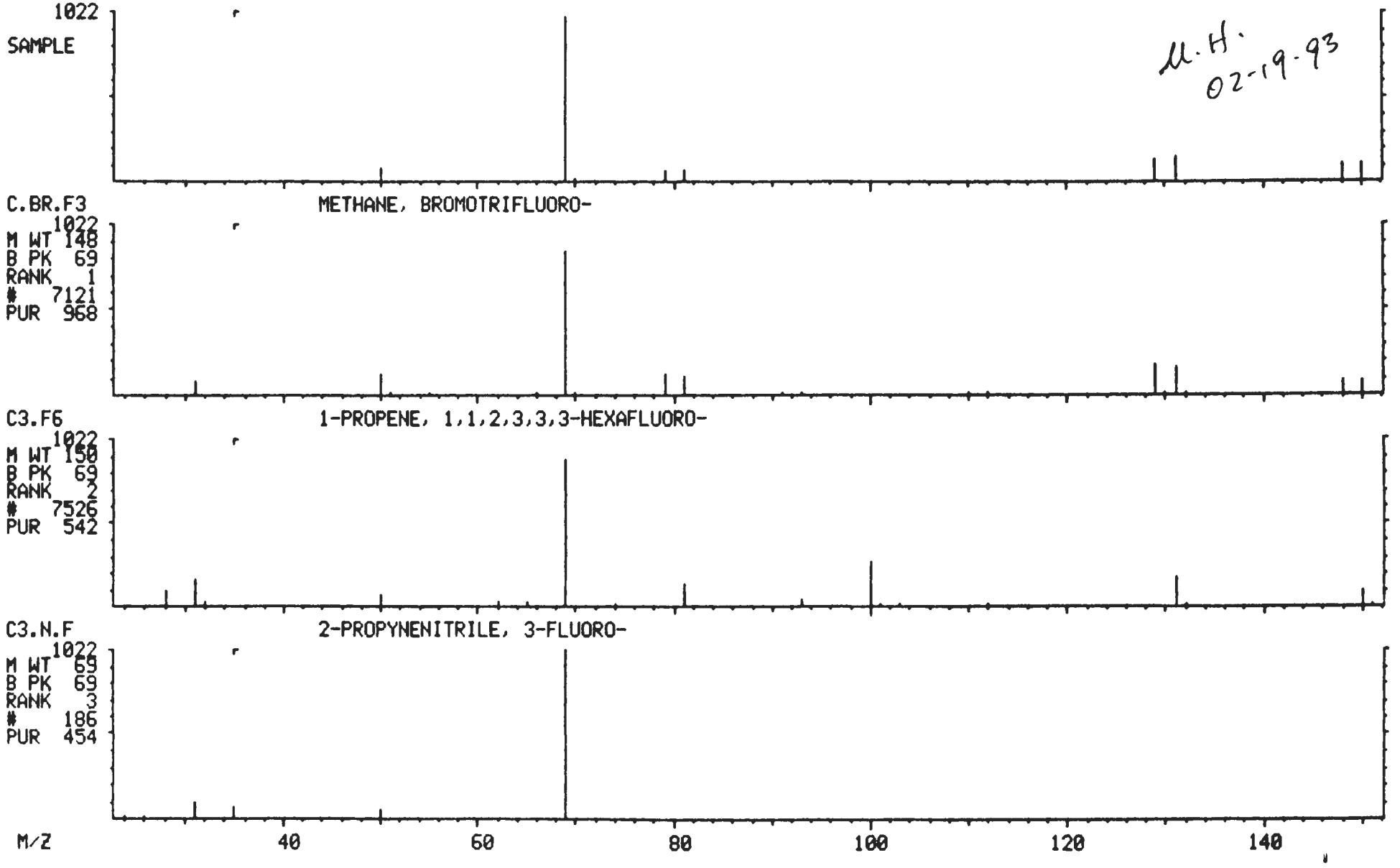
02/19/93

000088

LIBRARY SEARCH
02/18/93 16:38:00 + 1:03
SAMPLE: CLP,02041,,B07K13,L,S,A302041-02A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,
ENHANCED (S 15B 2N 0T)

DATA: 30218R12 # 63
CALI: 30218R12 # 7

BASE M/Z: 69
RIC: 6367.



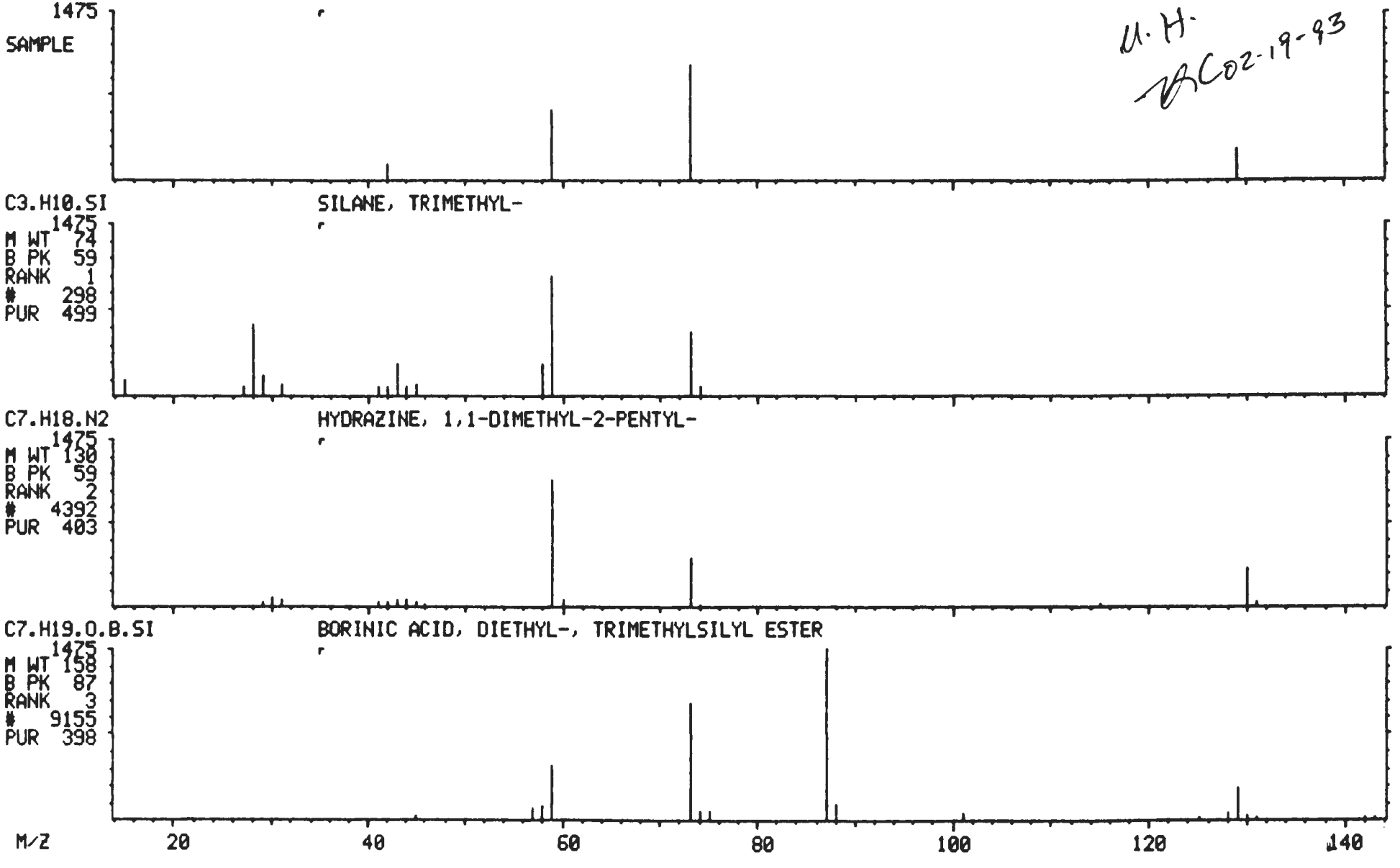
96130292 5150

000089

LIBRARY SEARCH
02/18/93 16:38:00 + 1:21
SAMPLE: CLP,02041,,B07K13,L,S,A302041-02A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,
ENHANCED (S 15B 2N 0T)

DATA: 30218R12 # 81
CALI: 30218R12 # 7

BASE M/Z: 73
RIC: 118.



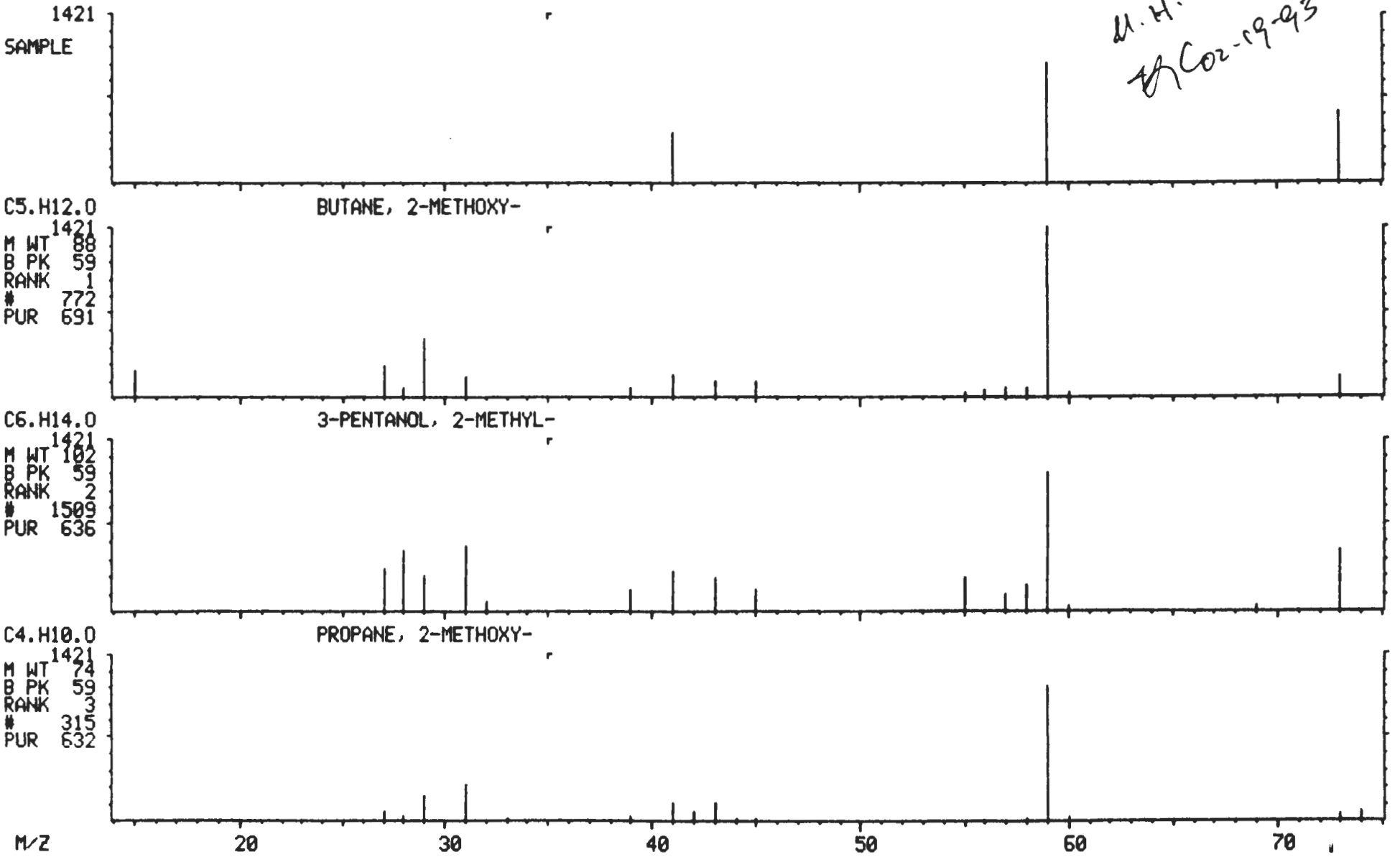
000090

LIBRARY SEARCH
02/18/93 16:38:00 + 1:26
SAMPLE: CLP,02041,,B07K13,L,S,A302041-02A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,
ENHANCED (S 15B 2N 0T)

DATA: 30218R12 # 86
CALI: 30218R12 # 7

BASE M/Z: 59
RIC: 77.

M.H.
Co2-19-93



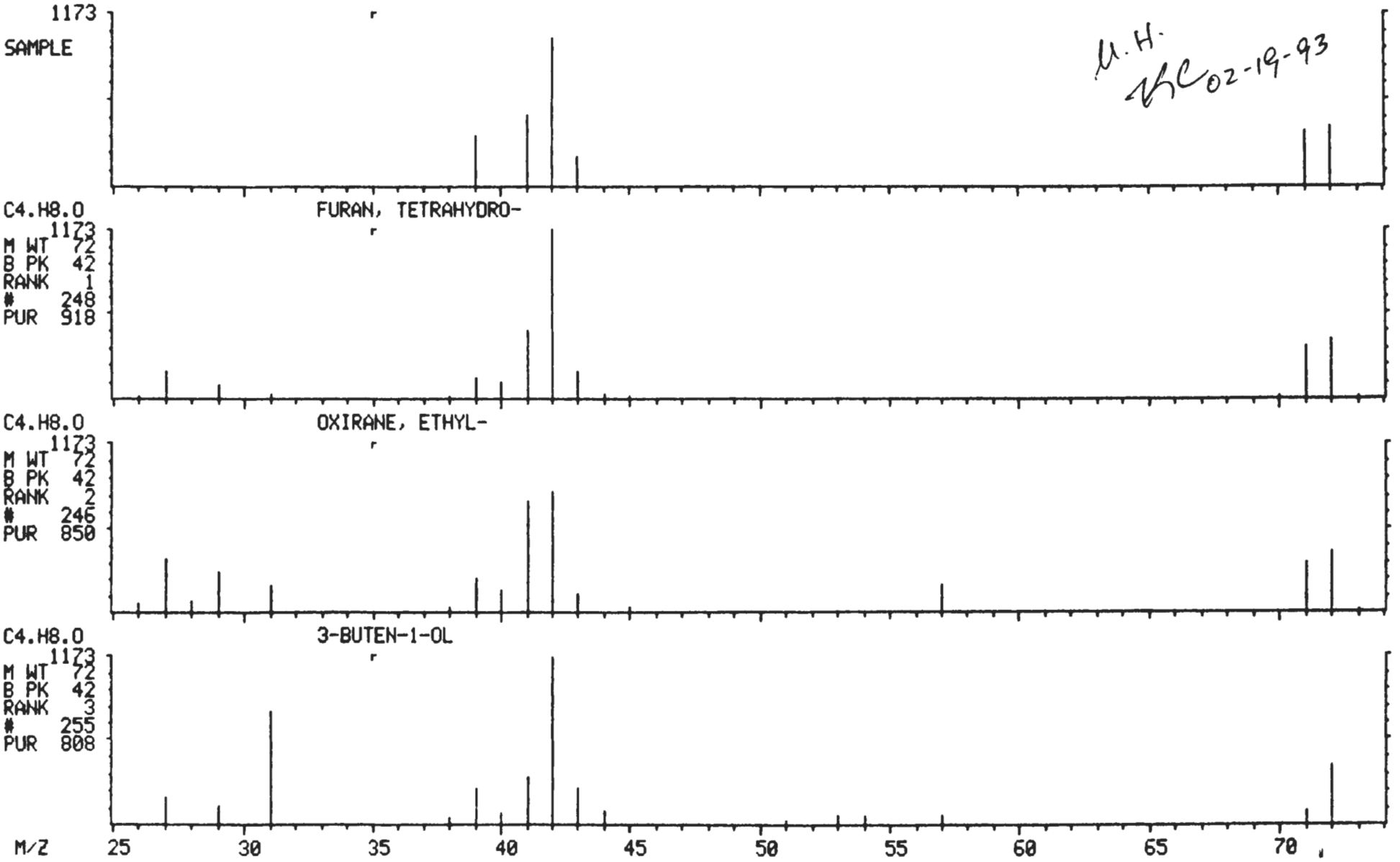
000 2 2 JUN 93

000091

LIBRARY SEARCH
02/18/93 16:38:00 + 8:03
SAMPLE: CLP,02041,,B07K13,L,S,A302041-02A,VOA/H,EPA,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,
ENHANCED (S 15B 2N 0T)

DATA: 30218R12 # 483
CALI: 30218R12 # 7

BASE M/Z: 42
RIC: 898.



96 3102 5016

9613492.5062

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

000092

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Instrument ID: BULL Calibration Date(s): 01/22/93 01/22/93

Heated Purge: (Y/N): N Calibration Times: 1243 1617

GC Column: CAP ID: 0.530(mm)

LAB FILE ID: RRF10 = 30122B07 RRF20 = 30122B08
RRF50= 30122B01 RRF100= 30122B04 RRF200= 30122B05

COMPOUND		RRF10	RRF20	RRF50	RRF100	RRF200	$\overline{RRF}$	% RSD
Chloromethane		1.449	1.922	2.076	2.325	2.353	2.025	18.2
Bromomethane	*	1.079	1.385	1.117	1.110	0.803	1.099	18.8*
Vinyl Chloride	*	1.175	1.600	1.487	1.769	1.675	1.541	14.9*
Chloroethane		0.808	0.961	0.812	0.790	0.577	0.790	17.4
Methylene Chloride		1.552	1.602	1.427	1.366	1.231	1.436	10.3
Acetone		0.445	0.296	0.258	0.228	0.207	0.287	33.0
Carbon Disulfide		3.811	4.398	4.213	3.980	3.732	4.027	6.9
1,1-Dichloroethene	*	1.360	1.458	1.411	1.289	1.190	1.342	7.9*
1,1-Dichloroethane	*	3.163	3.231	3.113	3.004	2.909	3.084	4.2*
1,2-Dichloroethene (total)		1.683	1.855	1.753	1.688	1.645	1.725	4.8
Chloroform	*	3.139	3.503	3.419	3.331	3.363	3.351	4.0*
1,2-Dichloroethane	*	2.095	2.278	2.232	2.246	2.391	2.248	4.7*
2-Butanone		0.613	0.462	0.533	0.508	0.514	0.526	10.5
1,1,1-Trichloroethane	*	0.536	0.604	0.611	0.561	0.571	0.577	5.4*
Carbon Tetrachloride	*	0.447	0.534	0.544	0.515	0.531	0.514	7.6*
Bromodichloromethane	*	0.619	0.701	0.710	0.715	0.735	0.696	6.4*
1,2-Dichloropropane		0.435	0.506	0.481	0.464	0.476	0.472	5.5
cis-1,3-Dichloropropene	*	0.578	0.643	0.639	0.637	0.671	0.634	5.4*
Trichloroethene	*	0.430	0.471	0.459	0.439	0.423	0.444	4.5*
Dibromochloromethane	*	0.503	0.552	0.585	0.627	0.663	0.586	10.7*
1,1,2-Trichloroethane	*	0.381	0.402	0.396	0.394	0.421	0.399	3.7*
Benzene	*	0.948	1.071	1.040	0.979	0.968	1.001	5.2*
trans-1,3-Dichloropropene	*	0.474	0.520	0.529	0.558	0.607	0.538	9.1*
Bromoform	*	0.312	0.323	0.351	0.381	0.427	0.359	13.0*
4-Methyl-2-Pentanone		0.681	0.601	0.601	0.586	0.599	0.614	6.2
2-Hexanone		0.348	0.230	0.252	0.262	0.272	0.273	16.4
Tetrachloroethene	*	0.451	0.481	0.445	0.432	0.410	0.444	5.9*
1,1,2,2-Tetrachloroethane	*	0.827	0.670	0.667	0.693	0.730	0.717	9.2*
Toluene	*	1.298	1.392	1.318	1.253	1.254	1.303	4.4*
Chlorobenzene	*	1.019	1.042	1.053	1.017	1.044	1.035	1.6*
Ethylbenzene	*	0.449	0.467	0.491	0.484	0.516	0.481	5.3*
Styrene	*	0.933	1.010	0.985	1.050	1.120	1.020	6.9*
Xylene (total)	*	0.539	0.621	0.627	0.630	0.634	0.610	6.6*
Toluene-d8		0.758	1.022	1.057	1.124	1.044	1.001	14.1
Bromofluorobenzene	*	0.634	0.766	0.854	0.950	0.967	0.834	16.6*
1,2-Dichloroethane-d4		1.136	1.554	1.674	1.827	1.804	1.599	17.6

*-Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

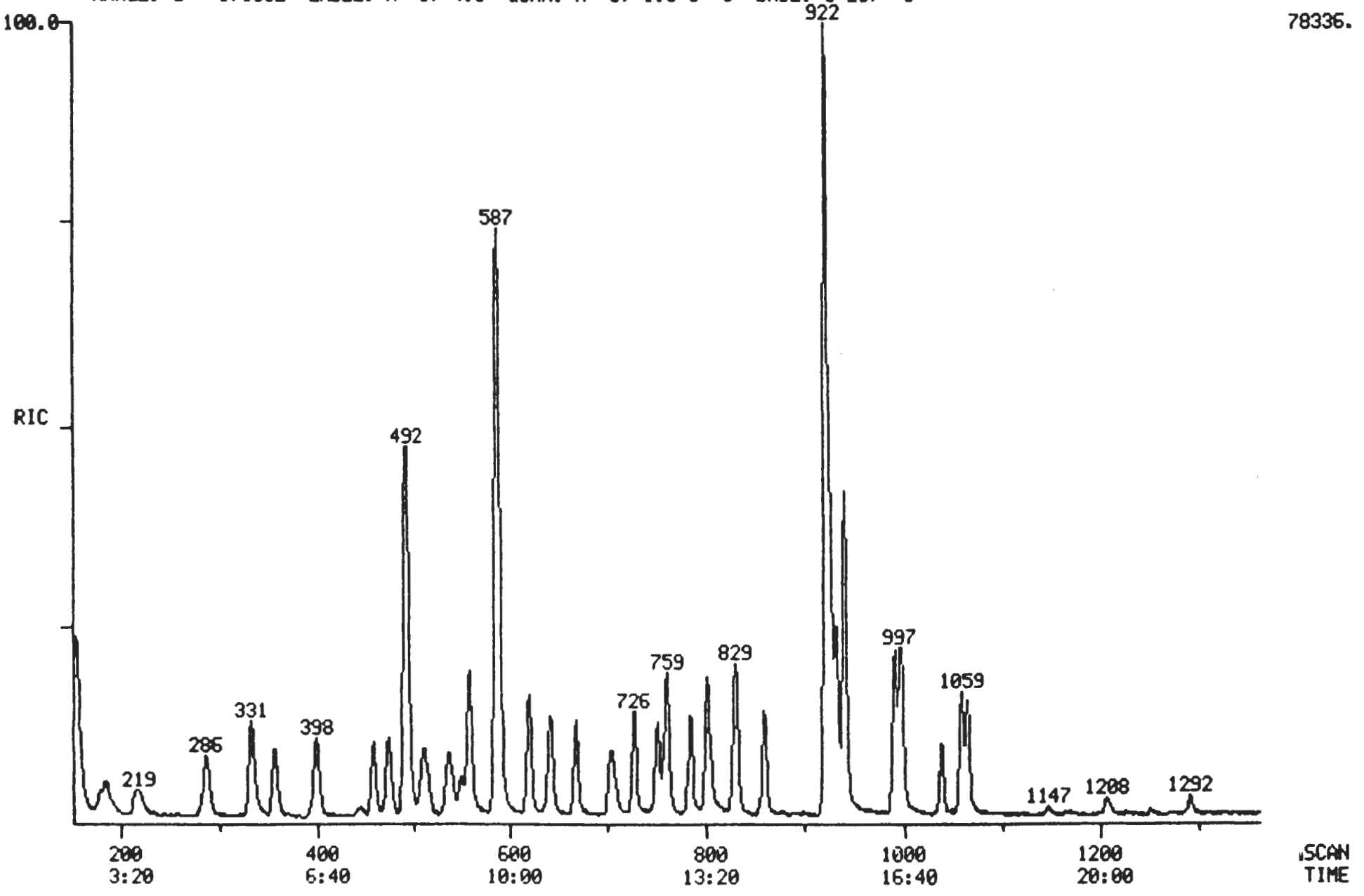
KR 10/24/93

000093

RIC
01/22/93 15:46:00
SAMPLE: CLP,,,VSTD010,L,W,10PPB-V0121,VOA,IC-010
CONDS.: CAP/.53,,38F0122A,,
RANGE: G 1,1362 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30122B07 #1
CALI: 30122B07 #3

SCANS 152 TO 1362



9613492.5063

Quantitation Report File: 30122B07

Data: 30122B07.TI
01/22/93 15:46:00
Sample: CLP,,,VSTD010,L,W,10PPB-V0121,VOA,IC-010
Conds.: CAP/.53,,3BF0122A,,
Formula: 5 Instrument: BULL Weight: 0.000
Submitted by: TMA/ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	CI01	BROMOCHLOROMETHANE	*INTERNAL STANDARD*
2	CI10	1,4-DIFLUOROBENZENE	*INTERNAL STANDARD*
3	CI20	D5-CHLOROBENZENE	*INTERNAL STANDARD*
4	CS15	D4-1,2-DICHLOROETHANE	*SURROGATE*
5	CS05	D8-TOLUENE	*SURROGATE*
6	CS10	BROMOFLUOROBENZENE	*SURROGATE*
7	C010	CHLOROMETHANE	
8	C020	VINYL CHLORIDE	
9	C015	BROMOMETHANE	
10	C025	CHLOROETHANE	
11	C035	ACETONE	
12	C045	1,1-DICHLOROETHENE	
13	C040	CARBON DISULFIDE	
14	C030	METHYLENE CHLORIDE	
15	C055	TRANS-1,2-DICHLOROETHENE	
16	C050	1,1-DICHLOROETHANE	
17	C125	VINYL ACETATE	
18	C110	2-BUTANONE	
19	C053	CIS-1,2-DICHLOROETHENE	
20	C060	CHLOROFORM	
21	C115	1,1,1-TRICHLOROETHANE	
22	C120	CARBON TETRACHLORIDE	
23	C165	BENZENE	
24	C065	1,2-DICHLOROETHANE	
25	C150	TRICHLOROETHENE	
26	C140	1,2-DICHLOROPROPANE	
27	C130	BROMODICHLOROMETHANE	
28	C205	4-METHYL-2-PENTANONE	
29	C143	CIS-1,3-DICHLOROPROPENE	
30	C230	TOLUENE	
31	C172	TRANS-1,3-DICHLOROPROPENE	
32	C160	1,1,2-TRICHLOROETHANE	
33	C210	2-HEXANONE	
34	C220	TETRACHLOROETHENE	
35	C155	DIBROMOCHLOROMETHANE	
36	C235	CHLOROBENZENE	
37	C240	ETHYLBENZENE	
38	C250	M,P-XYLENES	
39	C251	O-XYLENE	
40	C245	STYRENE	
41	C180	BROMOFORM	
42	C225	1,1,2,2-TETRACHLOROETHANE	
43	C175	2-CHLOROETHYL VINYL ETHER	

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	128	491	8:11	1	1.000	A BB	25900.	50.000	NG/ML	8.93
2	114	587	9:47	2	1.000	A BB	125118.	50.000	NG/ML	8.93
3	117	922	15:22	3	1.000	A BB	103046.	50.000	NG/ML	8.93
4	65	549	9:09	1	1.118	A BV	5885.	10.000	NG/ML	1.79
5	98	750	12:30	3	0.813	A BB	15622.	10.000	NG/ML	1.79
6	95	1066	17:46	3	1.156	A BB	13065.	10.000	NG/ML	1.79
7	50	180	3:00	1	0.367	A BB	7505.	10.000	NG/ML	1.79
8	62	185	3:05	1	0.377	A BB	6089.	10.000	NG/ML	1.79
9	94	215	3:35	1	0.438	A BB	5590.	10.000	NG/ML	1.79
10	64	221	3:41	1	0.450	A BB	4185.	10.000	NG/ML	1.79
11	43	282	4:42	1	0.574	A BB	2305.	10.000	NG/ML	1.79
12	96	286	4:46	1	0.582	A BB	7043.	10.000	NG/ML	1.79
13	76	331	5:31	1	0.674	A BB	19739.	10.000	NG/ML	1.79
14	84	331	5:31	1	0.674	A BB	8038.	10.000	NG/ML	1.79
15	96	355	5:55	1	0.723	A BB	8220.	10.000	NG/ML	1.79
16	63	398	6:38	1	0.811	A BB	16386.	10.000	NG/ML	1.79
17	43	399	6:39	2	0.680	A BB	15877.	10.000	NG/ML	1.79
18	43	444	7:24	1	0.904	A BB	3173.	10.000	NG/ML	1.79
19	96	458	7:38	1	0.933	A BB	8715.	10.000	NG/ML	1.79
20	83	473	7:53	1	0.963	A BB	16260.	10.000	NG/ML	1.79
21	97	511	8:31	2	0.871	A BB	13422.	10.000	NG/ML	1.79
22	117	536	8:56	2	0.913	A BB	11174.	10.000	NG/ML	1.79
23	78	557	9:17	2	0.949	A BB	23722.	10.000	NG/ML	1.79
24	62	558	9:18	1	1.136	A BB	10852.	10.000	NG/ML	1.79
25	130	619	10:19	2	1.055	A BB	10752.	10.000	NG/ML	1.79
26	63	641	10:41	2	1.092	A BB	10882.	10.000	NG/ML	1.79
27	83	667	11:07	2	1.136	A BB	15491.	10.000	NG/ML	1.79
28	43	705	11:45	3	0.765	A BB	14033.	10.000	NG/ML	1.79
29	75	727	12:07	2	1.239	A BV	14454.	10.000	NG/ML	1.79
30	91	759	12:39	3	0.823	A BB	26760.	10.000	NG/ML	1.79
31	75	783	13:03	2	1.334	A BB	11855.	10.000	NG/ML	1.79
32	97	800	13:20	2	1.363	A BB	9546.	10.000	NG/ML	1.79
33	43	803	13:23	3	0.871	A BB	7165.	10.000	NG/ML	1.79
34	164	829	13:49	3	0.899	A BB	9304.	10.000	NG/ML	1.79
35	129	858	14:18	2	1.462	A BB	12577.	10.000	NG/ML	1.79
36	112	927	15:27	3	1.005	A BV	21005.	10.000	NG/ML	1.79
37	106	932	15:32	3	1.011	A BV	9249.	10.000	NG/ML	1.79
38	106	940	15:40	3	1.020	A VB	22210.	20.000	NG/ML	3.57
39	106	992	16:32	3	1.076	A BB	10869.	10.000	NG/ML	1.79
40	104	998	16:38	3	1.082	A BB	19218.	10.000	NG/ML	1.79
41	173	1039	17:19	2	1.770	A BB	7811.	10.000	NG/ML	1.79
42	83	1059	17:39	3	1.149	A BB	17037.	10.000	NG/ML	1.79
43	63	702	11:42	2	1.196	A BB	4835.	10.000	NG/ML	1.79

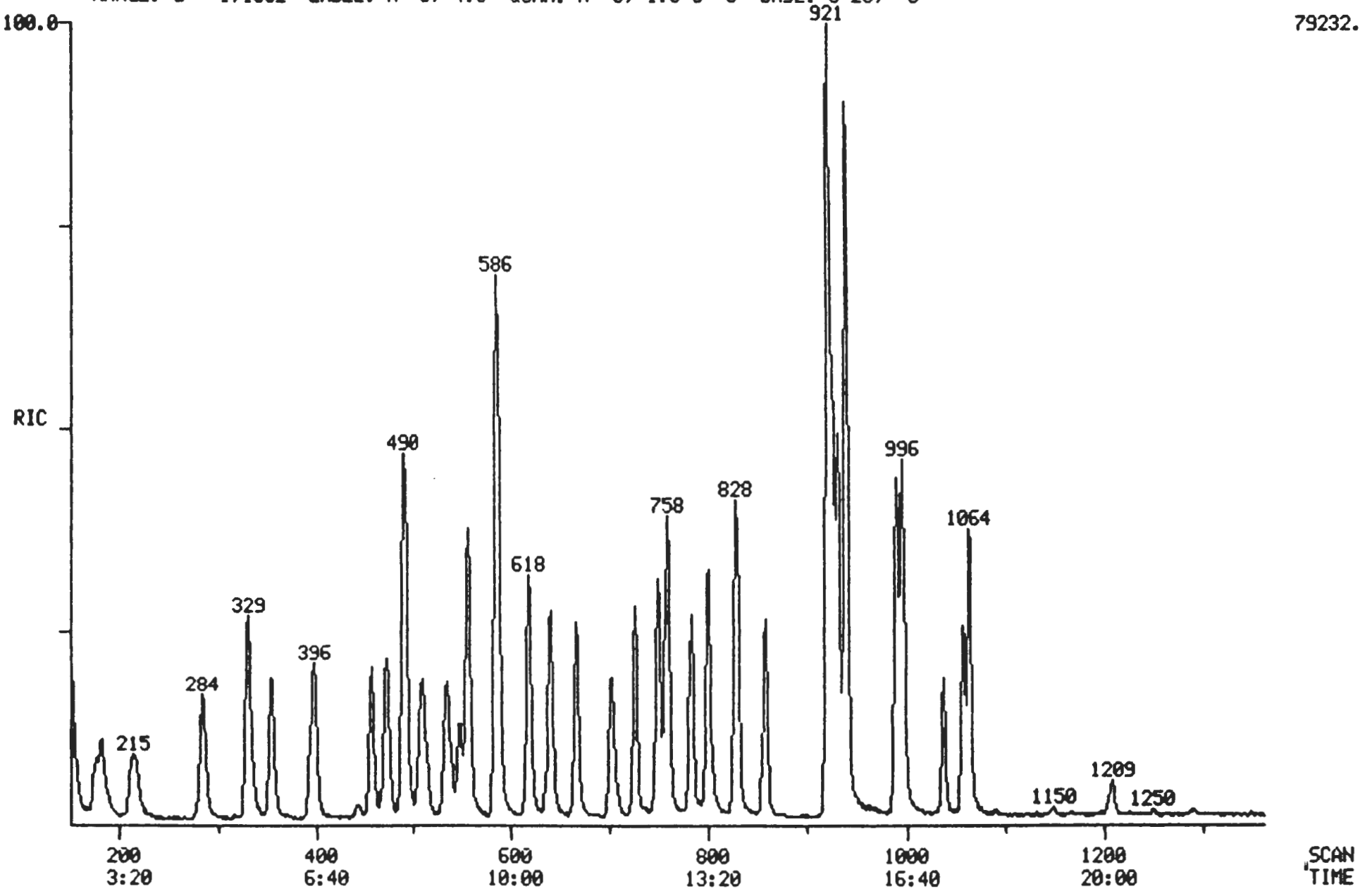
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	8:02	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	9:37	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	15:12	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	8:59	1.02	1.119	1.00	10.00	10.00	1.136	1.136	1.00
5	12:20	1.01	0.811	1.00	10.00	10.00	0.758	0.758	1.00
6	17:35	1.01	1.157	1.00	10.00	10.00	0.634	0.634	1.00
7	2:53	1.04	0.356	1.03	10.00	10.00	1.449	1.449	1.00
8	2:58	1.04	0.368	1.02	10.00	10.00	1.175	1.175	1.00
9	3:27	1.04	0.428	1.02	10.00	10.00	1.079	1.079	1.00
10	3:32	1.04	0.439	1.03	10.00	10.00	0.808	0.808	1.00
11	4:35	1.03	1.000	0.57	10.00	10.00	0.445	0.445	1.00

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
12	4:37	1.03	0.574	1.02	10.00	10.00	1.360	1.360	1.00
13	5:23	1.02	1.000	0.67	10.00	10.00	3.811	3.811	1.00
14	5:24	1.02	1.000	0.67	10.00	10.00	1.552	1.552	1.00
15	5:45	1.03	0.715	1.01	10.00	10.00	1.587	1.587	1.00
16	6:27	1.03	0.805	1.01	10.00	10.00	3.163	3.163	1.00
17	6:29	1.03	0.672	1.01	10.00	10.00	0.634	0.634	1.00
18	7:14	1.02	0.902	1.00	10.00	10.00	0.613	0.613	1.00
19	7:28	1.02	0.929	1.00	10.00	10.00	1.683	1.683	1.00
20	7:43	1.02	0.963	1.00	10.00	10.00	3.139	3.139	1.00
21	8:21	1.02	0.868	1.00	10.00	10.00	0.536	0.536	1.00
22	8:46	1.02	0.912	1.00	10.00	10.00	0.447	0.447	1.00
23	9:07	1.02	0.948	1.00	10.00	10.00	0.948	0.948	1.00
24	9:09	1.02	1.139	1.00	10.00	10.00	2.095	2.095	1.00
25	10:09	1.02	1.055	1.00	10.00	10.00	0.430	0.430	1.00
26	10:31	1.02	1.094	1.00	10.00	10.00	0.435	0.435	1.00
27	10:57	1.02	1.139	1.00	10.00	10.00	0.619	0.619	1.00
28	11:35	1.01	1.000	0.76	10.00	10.00	0.681	0.681	1.00
29	11:57	1.01	1.241	1.00	10.00	10.00	0.578	0.578	1.00
30	12:29	1.01	0.821	1.00	10.00	10.00	1.298	1.298	1.00
31	12:54	1.01	1.241	1.07	10.00	10.00	0.474	0.474	1.00
32	13:11	1.01	1.369	1.00	10.00	10.00	0.381	0.381	1.00
33	13:13	1.01	0.870	1.00	10.00	10.00	0.348	0.348	1.00
34	13:39	1.01	0.898	1.00	10.00	10.00	0.451	0.451	1.00
35	14:09	1.01	1.468	1.00	10.00	10.00	0.503	0.503	1.00
36	15:17	1.01	1.004	1.00	10.00	10.00	1.019	1.019	1.00
37	15:22	1.01	1.011	1.00	10.00	10.00	0.449	0.449	1.00
38	15:30	1.01	1.020	1.00	20.00	20.00	0.539	0.539	1.00
39	16:21	1.01	1.076	1.00	10.00	10.00	0.527	0.527	1.00
40	16:28	1.01	1.000	1.08	10.00	10.00	0.933	0.933	1.00
41	17:09	1.01	1.782	0.99	10.00	10.00	0.312	0.312	1.00
42	17:29	1.01	1.150	1.00	10.00	10.00	0.827	0.827	1.00
43	11:33	1.01	1.000	1.20	10.00	10.00	0.193	0.193	1.00

000097

RIC
01/22/93 16:17:00
SAMPLE: CLP,,,VSTD020,L,W,20PPB-V0121,VOA,IC-020
CONDS.: CAP/.53,,38F0122A,,
RANGE: G 1,1362 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30122B08 #1
CALI: 30122B08 #3
SCANS 152 TO 1362



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Quantitation Report File: 30122B08

Data: 30122B08.TI
01/22/93 16:17:00
Sample: CLP,,,VSTD020,L,W,20PPB-V0121,VOA,IC-020
Conds.: CAP/.53,,3BF0122A,,
Formula: 5 Instrument: BULL Weight: 0.000
Submitted by: TMA/ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	CI01	BROMOCHLOROMETHANE	*INTERNAL STANDARD*
2	CI10	1,4-DIFLUOROBENZENE	*INTERNAL STANDARD*
3	CI20	D5-CHLOROBENZENE	*INTERNAL STANDARD*
4	CS15	D4-1,2-DICHLOROETHANE	*SURROGATE*
5	CS05	D8-TOLUENE	*SURROGATE*
6	CS10	BROMOFLUOROBENZENE	*SURROGATE*
7	C010	CHLOROMETHANE	
8	C020	VINYL CHLORIDE	
9	C015	BROMOMETHANE	
10	C025	CHLOROETHANE	
11	C035	ACETONE	
12	C045	1,1-DICHLOROETHENE	
13	C040	CARBON DISULFIDE	
14	C030	METHYLENE CHLORIDE	
15	C055	TRANS-1,2-DICHLOROETHENE	
16	C050	1,1-DICHLOROETHANE	
17	C125	VINYL ACETATE	
18	C110	2-BUTANONE	
19	C053	CIS-1,2-DICHLOROETHENE	
20	C060	CHLOROFORM	
21	C115	1,1,1-TRICHLOROETHANE	
22	C120	CARBON TETRACHLORIDE	
23	C165	BENZENE	
24	C065	1,2-DICHLOROETHANE	
25	C150	TRICHLOROETHENE	
26	C140	1,2-DICHLOROPROPANE	
27	C130	BROMODICHLOROMETHANE	
28	C205	4-METHYL-2-PENTANONE	
29	C143	CIS-1,3-DICHLOROPROPENE	
30	C230	TOLUENE	
31	C172	TRANS-1,3-DICHLOROPROPENE	
32	C160	1,1,2-TRICHLOROETHANE	
33	C210	2-HEXANONE	
34	C220	TETRACHLOROETHENE	
35	C155	DIBROMOCHLOROMETHANE	
36	C235	CHLOROBENZENE	
37	C240	ETHYLBENZENE	
38	C250	M,P-XYLENES	
39	C251	O-XYLENE	
40	C245	STYRENE	
41	C180	BROMOFORM	
42	C225	1,1,2,2-TETRACHLOROETHANE	
43	C175	2-CHLOROETHYL VINYL ETHER	

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	128	490	8:10	1	1.000	A BB	25417.	50.000	NG/ML	5.15
2	114	586	9:46	2	1.000	A BB	118348.	50.000	NG/ML	5.15
3	117	921	15:21	3	1.000	A BB	102775.	50.000	NG/ML	5.15
4	65	547	9:07	1	1.116	A BV	15801.	20.000	NG/ML	2.06
5	98	749	12:29	3	0.813	A BB	42000.	20.000	NG/ML	2.06
6	95	1064	17:44	3	1.155	A BB	31497.	20.000	NG/ML	2.06
7	50	178	2:58	1	0.363	A BB	19541.	20.000	NG/ML	2.06
8	62	183	3:03	1	0.373	A BB	16263.	20.000	NG/ML	2.06
9	94	213	3:33	1	0.435	A BB	14082.	20.000	NG/ML	2.06
10	64	218	3:38	1	0.445	A BB	9772.	20.000	NG/ML	2.06
11	43	279	4:39	1	0.569	A BB	3010.	20.000	NG/ML	2.06
12	96	284	4:44	1	0.580	A BB	14819.	20.000	NG/ML	2.06
13	76	329	5:29	1	0.671	A BB	44717.	20.000	NG/ML	2.06
14	84	329	5:29	1	0.671	A BB	16284.	20.000	NG/ML	2.06
15	96	353	5:53	1	0.720	A BB	16126.	20.000	NG/ML	2.06
16	63	396	6:36	1	0.808	A BB	32844.	20.000	NG/ML	2.06
17	43	397	6:37	2	0.677	A BB	30566.	20.000	NG/ML	2.06
18	43	442	7:22	1	0.902	A BB	4698.	20.000	NG/ML	2.06
19	96	456	7:36	1	0.931	A BB	18862.	20.000	NG/ML	2.06
20	83	471	7:51	1	0.961	A BB	35616.	20.000	NG/ML	2.06
21	97	510	8:30	2	0.870	A BB	28592.	20.000	NG/ML	2.06
22	117	535	8:55	2	0.913	A BB	25280.	20.000	NG/ML	2.06
23	78	556	9:16	2	0.949	A BB	50708.	20.000	NG/ML	2.06
24	62	557	9:17	1	1.137	A BB	23162.	20.000	NG/ML	2.06
25	130	618	10:18	2	1.055	A BB	22318.	20.000	NG/ML	2.06
26	63	640	10:40	2	1.092	A BB	23947.	20.000	NG/ML	2.06
27	83	666	11:06	2	1.137	A BB	33176.	20.000	NG/ML	2.06
28	43	703	11:43	3	0.763	A BB	24715.	20.000	NG/ML	2.06
29	75	725	12:05	2	1.237	A BV	30461.	20.000	NG/ML	2.06
30	91	758	12:38	3	0.823	A BB	57220.	20.000	NG/ML	2.06
31	75	782	13:02	2	1.334	A BB	24634.	20.000	NG/ML	2.06
32	97	799	13:19	2	1.363	A BB	19038.	20.000	NG/ML	2.06
33	43	802	13:22	3	0.871	A BB	9467.	20.000	NG/ML	2.06
34	164	828	13:48	3	0.899	A BV	19794.	20.000	NG/ML	2.06
35	129	857	14:17	2	1.462	A BB	26152.	20.000	NG/ML	2.06
36	112	925	15:25	3	1.004	A BB	42816.	20.000	NG/ML	2.06
37	106	931	15:31	3	1.011	A BV	19200.	20.000	NG/ML	2.06
38	106	939	15:39	3	1.020	A VB	51076.	40.000	NG/ML	4.12
39	106	991	16:31	3	1.076	A BB	23646.	20.000	NG/ML	2.06
40	104	996	16:36	3	1.081	A BB	41519.	20.000	NG/ML	2.06
41	173	1038	17:18	2	1.771	A BB	15290.	20.000	NG/ML	2.06
42	83	1058	17:38	3	1.149	A BB	27524.	20.000	NG/ML	2.06
43	63	701	11:41	2	1.196	A BB	12595.	20.000	NG/ML	2.06

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	8:02	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	9:37	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	15:12	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	8:59	1.01	1.119	1.00	20.00	20.00	1.554	1.554	1.00
5	12:20	1.01	0.811	1.00	20.00	20.00	1.022	1.022	1.00
6	17:35	1.01	1.157	1.00	20.00	20.00	0.766	0.766	1.00
7	2:53	1.03	0.356	1.02	20.00	20.00	1.922	1.922	1.00
8	2:58	1.03	0.368	1.01	20.00	20.00	1.600	1.600	1.00
9	3:27	1.03	0.428	1.01	20.00	20.00	1.385	1.385	1.00
10	3:32	1.03	0.439	1.01	20.00	20.00	0.961	0.961	1.00
11	4:35	1.01	1.000	0.57	20.00	20.00	0.296	0.296	1.00

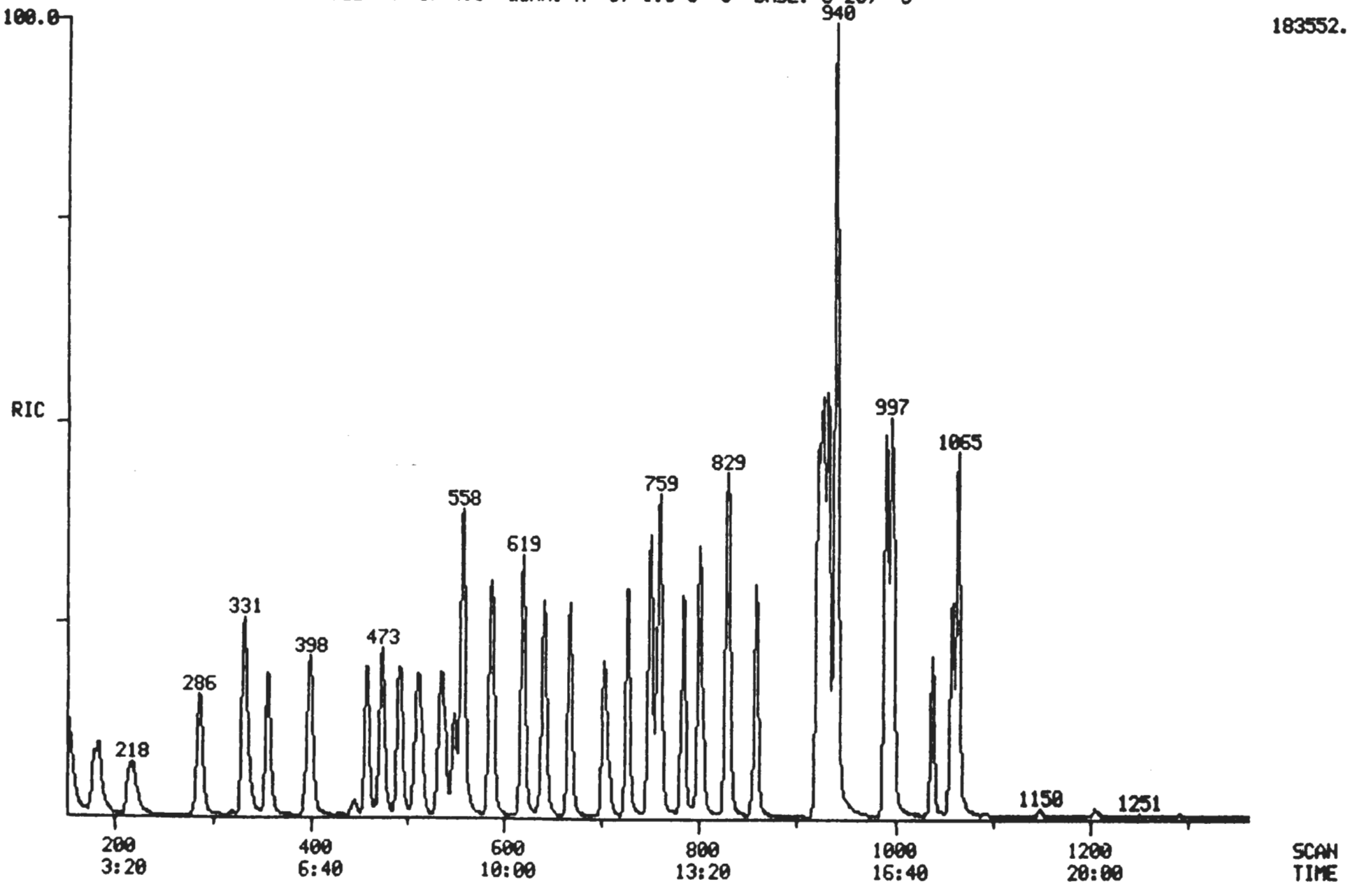
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
12	4:37	1.03	0.574	1.01	20.00	20.00	1.458	1.458	1.00
13	5:23	1.02	1.000	0.67	20.00	20.00	4.398	4.398	1.00
14	5:24	1.02	1.000	0.67	20.00	20.00	1.602	1.602	1.00
15	5:45	1.02	0.715	1.01	20.00	20.00	1.586	1.586	1.00
16	6:27	1.02	0.805	1.00	20.00	20.00	3.231	3.231	1.00
17	6:29	1.02	0.672	1.01	20.00	20.00	0.646	0.646	1.00
18	7:14	1.02	0.902	1.00	20.00	20.00	0.462	0.462	1.00
19	7:28	1.02	0.929	1.00	20.00	20.00	1.855	1.855	1.00
20	7:43	1.02	0.963	1.00	20.00	20.00	3.503	3.503	1.00
21	8:21	1.02	0.868	1.00	20.00	20.00	0.604	0.604	1.00
22	8:46	1.02	0.912	1.00	20.00	20.00	0.534	0.534	1.00
23	9:07	1.02	0.948	1.00	20.00	20.00	1.071	1.071	1.00
24	9:09	1.01	1.139	1.00	20.00	20.00	2.278	2.278	1.00
25	10:09	1.01	1.055	1.00	20.00	20.00	0.471	0.471	1.00
26	10:31	1.01	1.094	1.00	20.00	20.00	0.506	0.506	1.00
27	10:57	1.01	1.139	1.00	20.00	20.00	0.701	0.701	1.00
28	11:35	1.01	1.000	0.76	20.00	20.00	0.601	0.601	1.00
29	11:57	1.01	1.241	1.00	20.00	20.00	0.643	0.643	1.00
30	12:29	1.01	0.821	1.00	20.00	20.00	1.392	1.392	1.00
31	12:54	1.01	1.241	1.08	20.00	20.00	0.520	0.520	1.00
32	13:11	1.01	1.369	1.00	20.00	20.00	0.402	0.402	1.00
33	13:13	1.01	0.870	1.00	20.00	20.00	0.230	0.230	1.00
34	13:39	1.01	0.898	1.00	20.00	20.00	0.481	0.481	1.00
35	14:09	1.01	1.468	1.00	20.00	20.00	0.552	0.552	1.00
36	15:17	1.01	1.004	1.00	20.00	20.00	1.042	1.042	1.00
37	15:22	1.01	1.011	1.00	20.00	20.00	0.467	0.467	1.00
38	15:30	1.01	1.020	1.00	40.00	40.00	0.621	0.621	1.00
39	16:21	1.01	1.076	1.00	20.00	20.00	0.575	0.575	1.00
40	16:28	1.01	1.000	1.08	20.00	20.00	1.010	1.010	1.00
41	17:09	1.01	1.782	0.99	20.00	20.00	0.323	0.323	1.00
42	17:29	1.01	1.150	1.00	20.00	20.00	0.670	0.670	1.00
43	11:33	1.01	1.000	1.20	20.00	20.00	0.266	0.266	1.00

000101

RIC
01/22/93 12:43:00
SAMPLE: CLP,,,VSTD050,L,W,50PPB-V0121,VOA,IC-050
CONDS.: CAP/.53,,38F0122A,,
RANGE: G 1,1362 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30122B01 #1
CALI: 30122B01 #3

SCANS 152 TO 1362



9613492.5071

Quantitation Report File: 30122B01

Data: 30122B01.TI
01/22/93 12:43:00
Sample: CLP,,,VSTD050,L,W,50PPB-V0121,VOA,IC-050
Conds.: CAP/.53,,3BF0122A,,
Formula: 5 Instrument: BULL Weight: 0.000
Submitted by: TMA/ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	CI01	BROMOCHLOROMETHANE	*INTERNAL STANDARD*
2	CI10	1,4-DIFLUOROBENZENE	*INTERNAL STANDARD*
3	CI20	D5-CHLOROBENZENE	*INTERNAL STANDARD*
4	CS15	D4-1,2-DICHLOROETHANE	*SURROGATE*
5	CS05	D8-TOLUENE	*SURROGATE*
6	CS10	BROMOFLUOROBENZENE	*SURROGATE*
7	C010	CHLOROMETHANE	
8	C020	VINYL CHLORIDE	
9	C015	BROMOMETHANE	
10	C025	CHLOROETHANE	
11	C035	ACETONE	
12	C045	1,1-DICHLOROETHENE	
13	C040	CARBON DISULFIDE	
14	C030	METHYLENE CHLORIDE	
15	C055	TRANS-1,2-DICHLOROETHENE	
16	C050	1,1-DICHLOROETHANE	
17	C125	VINYL ACETATE	
18	C110	2-BUTANONE	
19	C053	CIS-1,2-DICHLOROETHENE	
20	C060	CHLOROFORM	
21	C115	1,1,1-TRICHLOROETHANE	
22	C120	CARBON TETRACHLORIDE	
23	C165	BENZENE	
24	C065	1,2-DICHLOROETHANE	
25	C150	TRICHLOROETHENE	
26	C140	1,2-DICHLOROPROPANE	
27	C130	BROMODICHLOROMETHANE	
28	C205	4-METHYL-2-PENTANONE	
29	C143	CIS-1,3-DICHLOROPROPENE	
30	C230	TOLUENE	
31	C172	TRANS-1,3-DICHLOROPROPENE	
32	C160	1,1,2-TRICHLOROETHANE	
33	C210	2-HEXANONE	
34	C220	TETRACHLOROETHENE	
35	C155	DIBROMOCHLOROMETHANE	
36	C235	CHLOROBENZENE	
37	C240	ETHYLBENZENE	
38	C250	M,P-XYLENES	
39	C251	O-XYLENE	
40	C245	STYRENE	
41	C180	BROMOFORM	
42	C225	1,1,2,2-TETRACHLOROETHANE	
43	C175	2-CHLOROETHYL VINYL ETHER	

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	128	491	8:11	1	1.000	A BB	25358.	50.000	NG/ML	2.27
2	114	587	9:47	2	1.000	A BB	119910.	50.000	NG/ML	2.27
3	117	922	15:22	3	1.000	A BB	112747.	50.000	NG/ML	2.27
4	65	548	9:08	1	1.116	A BV	42453.	50.000	NG/ML	2.27
5	98	750	12:30	3	0.813	A BB	119171.	50.000	NG/ML	2.27
6	95	1065	17:45	3	1.155	A BB	96325.	50.000	NG/ML	2.27
7	50	180	3:00	1	0.367	A BB	52648.	50.000	NG/ML	2.27
8	62	185	3:05	1	0.377	A BB	37711.	50.000	NG/ML	2.27
9	94	216	3:36	1	0.440	A BB	28327.	50.000	NG/ML	2.27
10	64	220	3:40	1	0.448	A BB	20579.	50.000	NG/ML	2.27
11	43	282	4:42	1	0.574	A BB	6536.	50.000	NG/ML	2.27
12	96	286	4:46	1	0.582	A BB	35777.	50.000	NG/ML	2.27
13	76	331	5:31	1	0.674	A BB	106837.	50.000	NG/ML	2.27
14	84	331	5:31	1	0.674	A BB	36195.	50.000	NG/ML	2.27
15	96	355	5:55	1	0.723	A BB	38781.	50.000	NG/ML	2.27
16	63	397	6:37	1	0.809	A BB	78944.	50.000	NG/ML	2.27
17	43	399	6:39	2	0.680	A BB	76157.	50.000	NG/ML	2.27
18	43	444	7:24	1	0.904	A BB	13508.	50.000	NG/ML	2.27
19	96	457	7:37	1	0.931	A BB	44443.	50.000	NG/ML	2.27
20	83	473	7:53	1	0.963	A BB	86706.	50.000	NG/ML	2.27
21	97	511	8:31	2	0.871	A BB	73269.	50.000	NG/ML	2.27
22	117	536	8:56	2	0.913	A BB	65193.	50.000	NG/ML	2.27
23	78	557	9:17	2	0.949	A BB	124650.	50.000	NG/ML	2.27
24	62	558	9:18	1	1.136	A BB	56609.	50.000	NG/ML	2.27
25	130	619	10:19	2	1.055	A BB	55005.	50.000	NG/ML	2.27
26	63	641	10:41	2	1.092	A BB	57660.	50.000	NG/ML	2.27
27	83	667	11:07	2	1.136	A BB	85178.	50.000	NG/ML	2.27
28	43	704	11:44	3	0.764	A BB	67752.	50.000	NG/ML	2.27
29	75	726	12:06	2	1.237	A BB	76675.	50.000	NG/ML	2.27
30	91	759	12:39	3	0.823	A BB	148595.	50.000	NG/ML	2.27
31	75	783	13:03	2	1.334	A BB	63447.	50.000	NG/ML	2.27
32	97	800	13:20	2	1.363	A BB	47504.	50.000	NG/ML	2.27
33	43	802	13:22	3	0.870	A BB	28392.	50.000	NG/ML	2.27
34	164	829	13:49	3	0.899	A BB	50184.	50.000	NG/ML	2.27
35	129	858	14:18	2	1.462	A BB	70197.	50.000	NG/ML	2.27
36	112	926	15:26	3	1.004	A BB	118712.	50.000	NG/ML	2.27
37	106	931	15:31	3	1.010	A BV	55380.	50.000	NG/ML	2.27
38	106	940	15:40	3	1.020	A VB	141458.	100.000	NG/ML	4.55
39	106	991	16:31	3	1.075	A BB	65439.	50.000	NG/ML	2.27
40	104	997	16:37	3	1.081	A BB	111102.	50.000	NG/ML	2.27
41	173	1039	17:19	2	1.770	A BV	42117.	50.000	NG/ML	2.27
42	83	1059	17:39	3	1.149	A BB	75207.	50.000	NG/ML	2.27
43	63	702	11:42	2	1.196	A BB	30834.	50.000	NG/ML	2.27

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	8:02	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	9:37	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	15:12	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	8:59	1.02	1.119	1.00	50.00	50.00	1.674	1.674	1.00
5	12:20	1.01	0.811	1.00	50.00	50.00	1.057	1.057	1.00
6	17:35	1.01	1.157	1.00	50.00	50.00	0.854	0.854	1.00
7	2:53	1.04	0.356	1.03	50.00	50.00	2.076	2.076	1.00
8	2:58	1.04	0.368	1.02	50.00	50.00	1.487	1.487	1.00
9	3:27	1.04	0.428	1.03	50.00	50.00	1.117	1.117	1.00
10	3:32	1.04	0.439	1.02	50.00	50.00	0.812	0.812	1.00
11	4:35	1.03	1.000	0.57	50.00	50.00	0.258	0.258	1.00

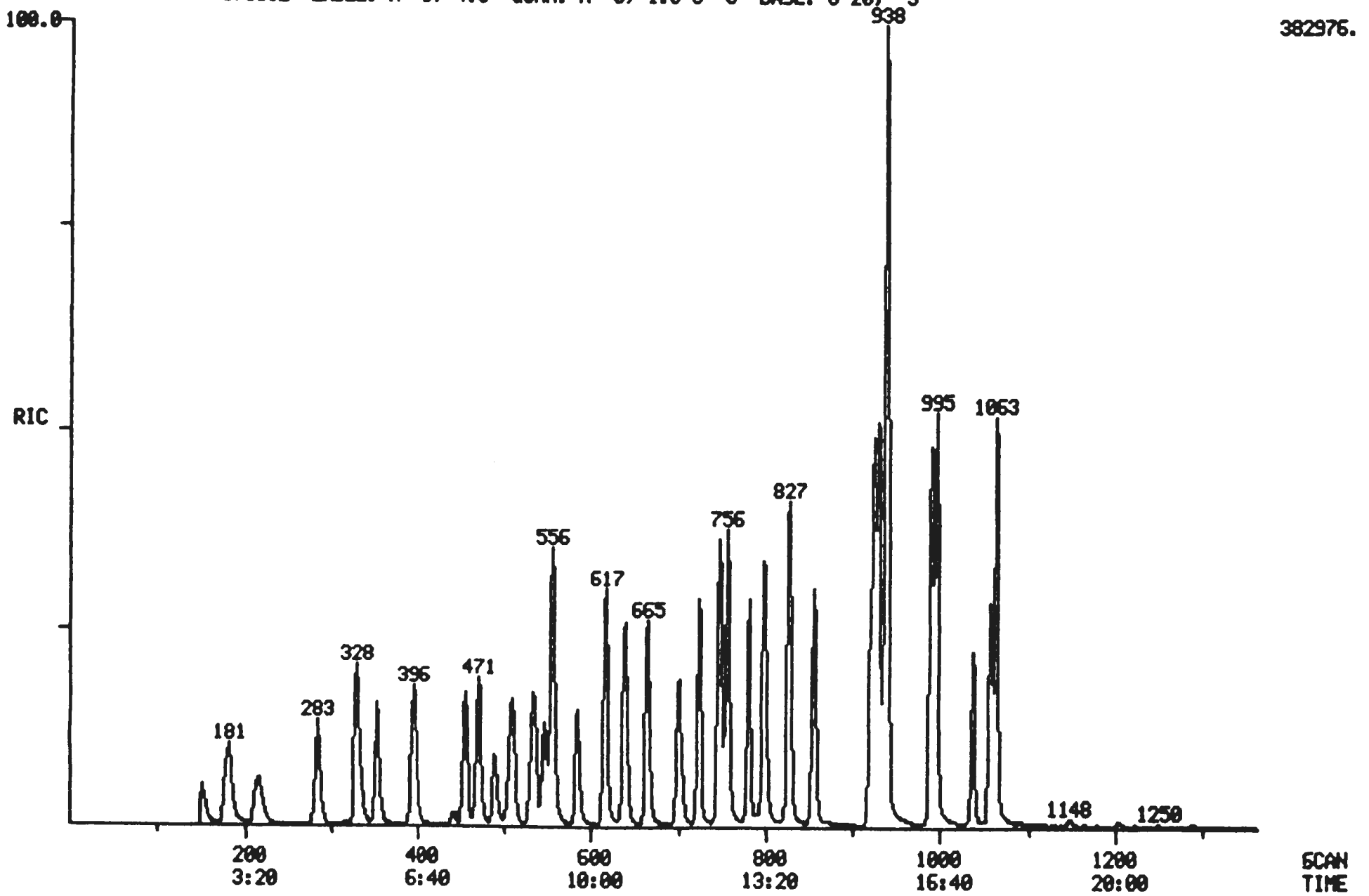
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
12	4:37	1.03	0.974	1.02	50.00	50.00	1.411	1.411	1.00
13	5:23	1.02	1.000	0.67	50.00	50.00	4.213	4.213	1.00
14	5:24	1.02	1.000	0.67	50.00	50.00	1.427	1.427	1.00
15	5:45	1.03	0.715	1.01	50.00	50.00	1.529	1.529	1.00
16	6:27	1.03	0.805	1.00	50.00	50.00	3.113	3.113	1.00
17	6:29	1.03	0.672	1.01	50.00	50.00	0.635	0.635	1.00
18	7:14	1.02	0.902	1.00	50.00	50.00	0.533	0.533	1.00
19	7:28	1.02	0.929	1.00	50.00	50.00	1.753	1.753	1.00
20	7:43	1.02	0.963	1.00	50.00	50.00	3.419	3.419	1.00
21	8:21	1.02	0.868	1.00	50.00	50.00	0.611	0.611	1.00
22	8:46	1.02	0.912	1.00	50.00	50.00	0.544	0.544	1.00
23	9:07	1.02	0.948	1.00	50.00	50.00	1.040	1.040	1.00
24	9:09	1.02	1.139	1.00	50.00	50.00	2.232	2.232	1.00
25	10:09	1.02	1.055	1.00	50.00	50.00	0.459	0.459	1.00
26	10:31	1.02	1.094	1.00	50.00	50.00	0.481	0.481	1.00
27	10:57	1.02	1.139	1.00	50.00	50.00	0.710	0.710	1.00
28	11:35	1.01	1.000	0.76	50.00	50.00	0.601	0.601	1.00
29	11:57	1.01	1.241	1.00	50.00	50.00	0.639	0.639	1.00
30	12:29	1.01	0.821	1.00	50.00	50.00	1.318	1.318	1.00
31	12:54	1.01	1.241	1.07	50.00	50.00	0.529	0.529	1.00
32	13:11	1.01	1.369	1.00	50.00	50.00	0.396	0.396	1.00
33	13:13	1.01	0.870	1.00	50.00	50.00	0.252	0.252	1.00
34	13:39	1.01	0.898	1.00	50.00	50.00	0.445	0.445	1.00
35	14:09	1.01	1.468	1.00	50.00	50.00	0.585	0.585	1.00
36	15:17	1.01	1.004	1.00	50.00	50.00	1.053	1.053	1.00
37	15:22	1.01	1.011	1.00	50.00	50.00	0.491	0.491	1.00
38	15:30	1.01	1.020	1.00	100.00	100.00	0.627	0.627	1.00
39	16:21	1.01	1.076	1.00	50.00	50.00	0.580	0.580	1.00
40	16:28	1.01	1.000	1.08	50.00	50.00	0.985	0.985	1.00
41	17:09	1.01	1.782	0.99	50.00	50.00	0.351	0.351	1.00
42	17:29	1.01	1.150	1.00	50.00	50.00	0.667	0.667	1.00
43	11:33	1.01	1.000	1.20	50.00	50.00	0.257	0.257	1.00

000105

RIC
01/22/93 14:12:00
SAMPLE: CLP,,,VSTD100,L,W,100PPB-V0121,VOA,IC-100
CONDS.: CAP/.53,,38F0122A,,
RANGE: G 1,1362 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30122B04 #1
CALI: 30122B04 #3

SCANS 1 TO 1362



96134492.5075

Quantitation Report File: 30122B04

Data: 30122B04.TI
01/22/93 14:12:00
Sample: CLP,,,VSTD100,L,W,100PPB-V0121,VOA,IC-100
Conds.: CAP/.53,,3BF0122A,,
Formula: 5 Instrument: BULL Weight: 0.000
Submitted by: TMA/ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	CI01	BROMOCHLOROMETHANE	*INTERNAL STANDARD*
2	CI10	1,4-DIFLUOROBENZENE	*INTERNAL STANDARD*
3	CI20	D5-CHLOROBENZENE	*INTERNAL STANDARD*
4	CS15	D4-1,2-DICHLOROETHANE	*SURROGATE*
5	CS05	D8-TOLUENE	*SURROGATE*
6	CS10	BROMOFLUOROBENZENE	*SURROGATE*
7	C010	CHLOROMETHANE	
8	C020	VINYL CHLORIDE	
9	C015	BROMOMETHANE	
10	C025	CHLOROETHANE	
11	C035	ACETONE	
12	C045	1,1-DICHLOROETHENE	
13	C040	CARBON DISULFIDE	
14	C030	METHYLENE CHLORIDE	
15	C055	TRANS-1,2-DICHLOROETHENE	
16	C050	1,1-DICHLOROETHANE	
17	C125	VINYL ACETATE	
18	C110	2-BUTANONE	
19	C053	CIS-1,2-DICHLOROETHENE	
20	C060	CHLOROFORM	
21	C115	1,1,1-TRICHLOROETHANE	
22	C120	CARBON TETRACHLORIDE	
23	C165	BENZENE	
24	C065	1,2-DICHLOROETHANE	
25	C150	TRICHLOROETHENE	
26	C140	1,2-DICHLOROPROPANE	
27	C130	BROMODICHLOROMETHANE	
28	C205	4-METHYL-2-PENTANONE	
29	C143	CIS-1,3-DICHLOROPROPENE	
30	C230	TOLUENE	
31	C172	TRANS-1,3-DICHLOROPROPENE	
32	C160	1,1,2-TRICHLOROETHANE	
33	C210	2-HEXANONE	
34	C220	TETRACHLOROETHENE	
35	C155	DIBROMOCHLOROMETHANE	
36	C235	CHLOROBENZENE	
37	C240	ETHYLBENZENE	
38	C250	M,P-XYLENES	
39	C251	O-XYLENE	
40	C245	STYRENE	
41	C180	BROMOFORM	
42	C225	1,1,2,2-TETRACHLOROETHANE	
43	C175	2-CHLOROETHYL VINYL ETHER	

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	128	489	8:09	1	1.000	A BB	24088.	50.000	NG/ML	1.18
2	114	585	9:45	2	1.000	A BB	119226.	50.000	NG/ML	1.18
3	117	920	15:20	3	1.000	A BB	114322.	50.000	NG/ML	1.18
4	65	547	9:07	1	1.119	A BV	88022.	100.000	NG/ML	2.35
5	98	748	12:28	3	0.813	A BB	256905.	100.000	NG/ML	2.35
6	95	1063	17:43	3	1.155	A BB	217167.	100.000	NG/ML	2.35
7	50	178	2:58	1	0.364	A BB	112015.	100.000	NG/ML	2.35
8	62	182	3:02	1	0.372	A BB	85245.	100.000	NG/ML	2.35
9	94	212	3:32	1	0.434	A BB	53462.	100.000	NG/ML	2.35
10	64	217	3:37	1	0.444	A BB	38071.	100.000	NG/ML	2.35
11	43	280	4:40	1	0.573	A BB	10962.	100.000	NG/ML	2.35
12	96	283	4:43	1	0.579	A BB	62110.	100.000	NG/ML	2.35
13	76	328	5:28	1	0.671	A BB	191751.	100.000	NG/ML	2.35
14	84	329	5:29	1	0.673	A BB	65827.	100.000	NG/ML	2.35
15	96	353	5:53	1	0.722	A BB	69515.	100.000	NG/ML	2.35
16	63	395	6:35	1	0.808	A BB	144720.	100.000	NG/ML	2.35
17	43	397	6:37	2	0.679	A BB	141485.	100.000	NG/ML	2.35
18	43	442	7:22	1	0.904	A BB	24477.	100.000	NG/ML	2.35
19	96	455	7:35	1	0.930	A BB	81325.	100.000	NG/ML	2.35
20	83	471	7:51	1	0.963	A BB	160485.	100.000	NG/ML	2.35
21	97	509	8:29	2	0.870	A BB	133865.	100.000	NG/ML	2.35
22	117	534	8:54	2	0.913	A BB	122770.	100.000	NG/ML	2.35
23	78	555	9:15	2	0.949	A BB	233502.	100.000	NG/ML	2.35
24	62	556	9:16	1	1.137	A BB	108187.	100.000	NG/ML	2.35
25	130	617	10:17	2	1.055	A BB	104737.	100.000	NG/ML	2.35
26	63	639	10:39	2	1.092	A BB	110751.	100.000	NG/ML	2.35
27	83	665	11:05	2	1.137	A BB	170445.	100.000	NG/ML	2.35
28	43	702	11:42	3	0.763	A BB	133922.	100.000	NG/ML	2.35
29	75	724	12:04	2	1.238	A BB	151895.	100.000	NG/ML	2.35
30	91	757	12:37	3	0.823	A BB	286551.	100.000	NG/ML	2.35
31	75	781	13:01	2	1.335	A BB	132983.	100.000	NG/ML	2.35
32	97	798	13:18	2	1.364	A BB	93867.	100.000	NG/ML	2.35
33	43	800	13:20	3	0.870	A BB	59820.	100.000	NG/ML	2.35
34	164	827	13:47	3	0.899	A BB	98718.	100.000	NG/ML	2.35
35	129	856	14:16	2	1.463	A BB	149497.	100.000	NG/ML	2.35
36	112	924	15:24	3	1.004	A BB	232605.	100.000	NG/ML	2.35
37	106	929	15:29	3	1.010	A BV	110598.	100.000	NG/ML	2.35
38	106	938	15:38	3	1.020	A VB	288012.	200.000	NG/ML	4.71
39	106	989	16:29	3	1.075	A BB	139303.	100.000	NG/ML	2.35
40	104	995	16:35	3	1.082	A BB	240076.	100.000	NG/ML	2.35
41	173	1037	17:17	2	1.773	A BB	90786.	100.000	NG/ML	2.35
42	83	1057	17:37	3	1.149	A BB	158364.	100.000	NG/ML	2.35
43	63	700	11:40	2	1.197	A BB	61680.	100.000	NG/ML	2.35

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	8:02	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	9:37	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	15:12	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	8:59	1.01	1.119	1.00	100.00	100.00	1.827	1.827	1.00
5	12:20	1.01	0.811	1.00	100.00	100.00	1.124	1.124	1.00
6	17:35	1.01	1.157	1.00	100.00	100.00	0.950	0.950	1.00
7	2:53	1.03	0.356	1.02	100.00	100.00	2.325	2.325	1.00
8	2:58	1.02	0.368	1.01	100.00	100.00	1.769	1.769	1.00
9	3:27	1.02	0.428	1.01	100.00	100.00	1.110	1.110	1.00
10	3:32	1.02	0.439	1.01	100.00	100.00	0.790	0.790	1.00
11	4:35	1.02	1.000	0.57	100.00	100.00	0.228	0.228	1.00

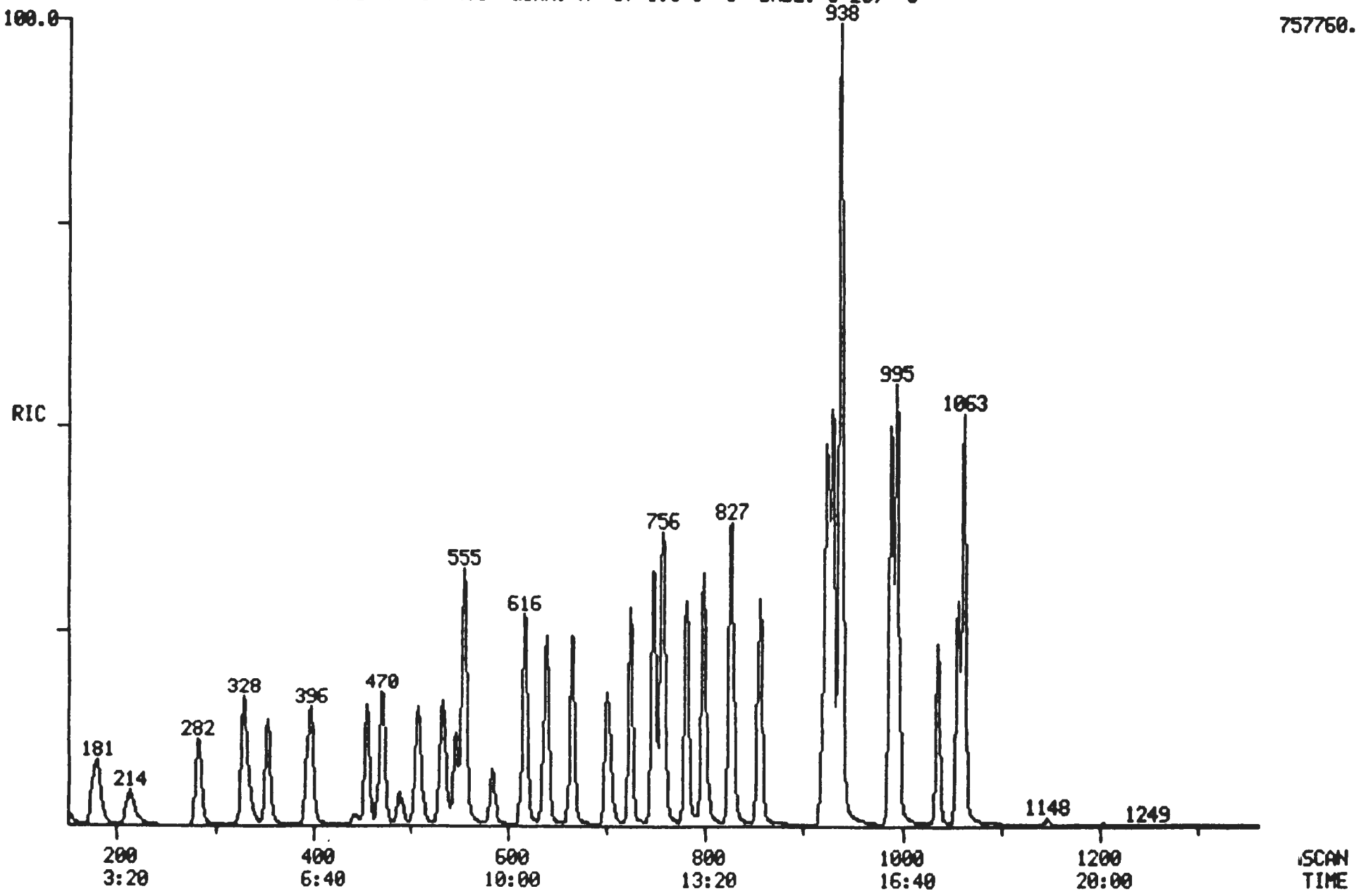
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
12	4:37	1.02	0.574	1.01	100.00	100.00	1.289	1.289	1.00
13	5:23	1.02	1.000	0.67	100.00	100.00	3.980	3.980	1.00
14	5:24	1.02	1.000	0.67	100.00	100.00	1.366	1.366	1.00
15	5:45	1.02	0.715	1.01	100.00	100.00	1.443	1.443	1.00
16	6:27	1.02	0.805	1.00	100.00	100.00	3.004	3.004	1.00
17	6:29	1.02	0.672	1.01	100.00	100.00	0.593	0.593	1.00
18	7:14	1.02	0.902	1.00	100.00	100.00	0.508	0.508	1.00
19	7:28	1.02	0.929	1.00	100.00	100.00	1.688	1.688	1.00
20	7:43	1.02	0.963	1.00	100.00	100.00	3.331	3.331	1.00
21	8:21	1.02	0.868	1.00	100.00	100.00	0.561	0.561	1.00
22	8:46	1.02	0.912	1.00	100.00	100.00	0.515	0.515	1.00
23	9:07	1.01	0.948	1.00	100.00	100.00	0.979	0.979	1.00
24	9:09	1.01	1.139	1.00	100.00	100.00	2.246	2.246	1.00
25	10:09	1.01	1.055	1.00	100.00	100.00	0.439	0.439	1.00
26	10:31	1.01	1.094	1.00	100.00	100.00	0.464	0.464	1.00
27	10:57	1.01	1.139	1.00	100.00	100.00	0.715	0.715	1.00
28	11:35	1.01	1.000	0.76	100.00	100.00	0.586	0.586	1.00
29	11:57	1.01	1.241	1.00	100.00	100.00	0.637	0.637	1.00
30	12:29	1.01	0.821	1.00	100.00	100.00	1.253	1.253	1.00
31	12:54	1.01	1.241	1.08	100.00	100.00	0.558	0.558	1.00
32	13:11	1.01	1.369	1.00	100.00	100.00	0.394	0.394	1.00
33	13:13	1.01	0.870	1.00	100.00	100.00	0.262	0.262	1.00
34	13:39	1.01	0.898	1.00	100.00	100.00	0.432	0.432	1.00
35	14:09	1.01	1.468	1.00	100.00	100.00	0.627	0.627	1.00
36	15:17	1.01	1.004	1.00	100.00	100.00	1.017	1.017	1.00
37	15:22	1.01	1.011	1.00	100.00	100.00	0.484	0.484	1.00
38	15:30	1.01	1.020	1.00	200.00	200.00	0.630	0.630	1.00
39	16:21	1.01	1.076	1.00	100.00	100.00	0.609	0.609	1.00
40	16:28	1.01	1.000	1.08	100.00	100.00	1.050	1.050	1.00
41	17:09	1.01	1.782	0.99	100.00	100.00	0.381	0.381	1.00
42	17:29	1.01	1.150	1.00	100.00	100.00	0.693	0.693	1.00
43	11:33	1.01	1.000	1.20	100.00	100.00	0.259	0.259	1.00

000109

RIC
01/22/93 14:42:00
SAMPLE: CLP,,,VSTD200,L,W,200PPB-V0121,VOA,IC-200
CONDS.: CAP/.53,,3BF0122A,,
RANGE: G 1,1362 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30122B05 #1
CALI: 30122B05 #3

SCANS 152 TO 1362



Quantitation Report File: 30122B05

Data: 30122B05.TI
01/22/93 14:42:00
Sample: CLP,,,VSTD200,L,W,200PPB-V0121,VOA,IC-200
Conds.: CAP/.53,,3BF0122A,,
Formula: 5 Instrument: BULL Weight: 0.000
Submitted by: TMA/ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	CI01	BROMOCHLOROMETHANE	*INTERNAL STANDARD*
2	CI10	1,4-DIFLUOROBENZENE	*INTERNAL STANDARD*
3	CI20	D5-CHLOROBENZENE	*INTERNAL STANDARD*
4	CS15	D4-1,2-DICHLOROETHANE	*SURROGATE*
5	CS05	D8-TOLUENE	*SURROGATE*
6	CS10	BROMOFLUOROBENZENE	*SURROGATE*
7	C010	CHLOROMETHANE	
8	C020	VINYL CHLORIDE	
9	C015	BROMOMETHANE	
10	C025	CHLOROETHANE	
11	C035	ACETONE	
12	C045	1,1-DICHLOROETHENE	
13	C040	CARBON DISULFIDE	
14	C030	METHYLENE CHLORIDE	
15	C055	TRANS-1,2-DICHLOROETHENE	
16	C050	1,1-DICHLOROETHANE	
17	C125	VINYL ACETATE	
18	C110	2-BUTANONE	
19	C053	CIS-1,2-DICHLOROETHENE	
20	C060	CHLOROFORM	
21	C115	1,1,1-TRICHLOROETHANE	
22	C120	CARBON TETRACHLORIDE	
23	C165	BENZENE	
24	C065	1,2-DICHLOROETHANE	
25	C150	TRICHLOROETHENE	
26	C140	1,2-DICHLOROPROPANE	
27	C130	BROMODICHLOROMETHANE	
28	C205	4-METHYL-2-PENTANONE	
29	C143	CIS-1,3-DICHLOROPROPENE	
30	C230	TOLUENE	
31	C172	TRANS-1,3-DICHLOROPROPENE	
32	C160	1,1,2-TRICHLOROETHANE	
33	C210	2-HEXANONE	
34	C220	TETRACHLOROETHENE	
35	C155	DIBROMOCHLOROMETHANE	
36	C235	CHLOROBENZENE	
37	C240	ETHYLBENZENE	
38	C250	M,P-XYLENES	
39	C251	O-XYLENE	
40	C245	STYRENE	
41	C180	BROMOFORM	
42	C225	1,1,2,2-TETRACHLOROETHANE	
43	C175	2-CHLOROETHYL VINYL ETHER	

9613492.5081

000111

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	128	489	8:09	1	1.000	A BB	21810.	50.000	NG/ML	0.60
2	114	584	9:44	2	1.000	A BB	111056.	50.000	NG/ML	0.60
3	117	920	15:20	3	1.000	A BB	110718.	50.000	NG/ML	0.60
4	65	546	9:06	1	1.117	A BV	157373.	200.000	NG/ML	2.40
5	98	747	12:27	3	0.812	A BB	462241.	200.000	NG/ML	2.40
6	95	1063	17:43	3	1.155	A BB	428077.	200.000	NG/ML	2.40
7	50	178	2:58	1	0.364	A BB	205290.	200.000	NG/ML	2.40
8	62	182	3:02	1	0.372	A BB	146102.	200.000	NG/ML	2.40
9	94	213	3:33	1	0.436	A BB	70015.	200.000	NG/ML	2.40
10	64	216	3:36	1	0.442	A BB	50308.	200.000	NG/ML	2.40
11	43	283	4:43	1	0.579	A BB	18041.	200.000	NG/ML	2.40
12	96	282	4:42	1	0.577	A BB	103778.	200.000	NG/ML	2.40
13	76	327	5:27	1	0.669	A BB	325571.	200.000	NG/ML	2.40
14	84	328	5:28	1	0.671	A BB	107429.	200.000	NG/ML	2.40
15	96	352	5:52	1	0.720	A BB	120092.	200.000	NG/ML	2.40
16	63	395	6:35	1	0.808	A BB	253769.	200.000	NG/ML	2.40
17	43	397	6:37	2	0.680	A BB	259048.	200.000	NG/ML	2.40
18	43	443	7:23	1	0.906	A BB	44846.	200.000	NG/ML	2.40
19	96	455	7:35	1	0.930	A BB	143481.	200.000	NG/ML	2.40
20	83	470	7:50	1	0.961	A BB	293427.	200.000	NG/ML	2.40
21	97	508	8:28	2	0.870	A BB	253607.	200.000	NG/ML	2.40
22	117	533	8:53	2	0.913	A BB	235832.	200.000	NG/ML	2.40
23	78	554	9:14	2	0.949	A BB	430230.	200.000	NG/ML	2.40
24	62	556	9:16	1	1.137	A BB	208622.	200.000	NG/ML	2.40
25	130	616	10:16	2	1.055	A BB	187908.	200.000	NG/ML	2.40
26	63	638	10:38	2	1.092	A BB	211289.	200.000	NG/ML	2.40
27	83	664	11:04	2	1.137	A BB	326396.	200.000	NG/ML	2.40
28	43	702	11:42	3	0.763	A BB	265410.	200.000	NG/ML	2.40
29	75	724	12:04	2	1.240	A BB	297966.	200.000	NG/ML	2.40
30	91	756	12:36	3	0.822	A BB	555523.	200.000	NG/ML	2.40
31	75	781	13:01	2	1.337	A BB	269787.	200.000	NG/ML	2.40
32	97	798	13:18	2	1.366	A BB	186924.	200.000	NG/ML	2.40
33	43	801	13:21	3	0.871	A BB	120563.	200.000	NG/ML	2.40
34	164	826	13:46	3	0.898	A BB	181389.	200.000	NG/ML	2.40
35	129	856	14:16	2	1.466	A BB	294624.	200.000	NG/ML	2.40
36	112	924	15:24	3	1.004	A BB	462223.	200.000	NG/ML	2.40
37	106	929	15:29	3	1.010	A BV	228681.	200.000	NG/ML	2.40
38	106	938	15:38	3	1.020	A VB	561890.	400.000	NG/ML	4.79
39	106	989	16:29	3	1.075	A BB	289991.	200.000	NG/ML	2.40
40	104	995	16:35	3	1.082	A BB	495851.	200.000	NG/ML	2.40
41	173	1037	17:17	2	1.776	A BB	189796.	200.000	NG/ML	2.40
42	83	1057	17:37	3	1.149	A BB	323113.	200.000	NG/ML	2.40
43	63	700	11:40	2	1.199	A BB	122950.	200.000	NG/ML	2.40

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	8:02	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	9:37	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	15:12	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	8:59	1.01	1.119	1.00	200.00	200.00	1.804	1.804	1.00
5	12:20	1.01	0.811	1.00	200.00	200.00	1.044	1.044	1.00
6	17:35	1.01	1.157	1.00	200.00	200.00	0.967	0.967	1.00
7	2:53	1.03	0.356	1.02	200.00	200.00	2.353	2.353	1.00
8	2:58	1.02	0.368	1.01	200.00	200.00	1.675	1.675	1.00
9	3:27	1.03	0.428	1.02	200.00	200.00	0.803	0.803	1.00
10	3:32	1.02	0.439	1.01	200.00	200.00	0.577	0.577	1.00
11	4:35	1.03	1.000	0.58	200.00	200.00	0.207	0.207	1.00

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
12	4:37	1.02	0.574	1.01	200.00	200.00	1.190	1.190	1.00
13	5:23	1.01	1.000	0.67	200.00	200.00	3.732	3.732	1.00
14	5:24	1.01	1.000	0.67	200.00	200.00	1.231	1.231	1.00
15	5:45	1.02	0.715	1.01	200.00	200.00	1.377	1.377	1.00
16	6:27	1.02	0.805	1.00	200.00	200.00	2.909	2.909	1.00
17	6:29	1.02	0.672	1.01	200.00	200.00	0.583	0.583	1.00
18	7:14	1.02	0.902	1.00	200.00	200.00	0.514	0.514	1.00
19	7:28	1.02	0.929	1.00	200.00	200.00	1.645	1.645	1.00
20	7:43	1.02	0.963	1.00	200.00	200.00	3.363	3.363	1.00
21	8:21	1.01	0.868	1.00	200.00	200.00	0.571	0.571	1.00
22	8:46	1.01	0.912	1.00	200.00	200.00	0.531	0.531	1.00
23	9:07	1.01	0.948	1.00	200.00	200.00	0.968	0.968	1.00
24	9:09	1.01	1.139	1.00	200.00	200.00	2.391	2.391	1.00
25	10:09	1.01	1.055	1.00	200.00	200.00	0.423	0.423	1.00
26	10:31	1.01	1.094	1.00	200.00	200.00	0.476	0.476	1.00
27	10:57	1.01	1.139	1.00	200.00	200.00	0.735	0.735	1.00
28	11:35	1.01	1.000	0.76	200.00	200.00	0.599	0.599	1.00
29	11:57	1.01	1.241	1.00	200.00	200.00	0.671	0.671	1.00
30	12:29	1.01	0.821	1.00	200.00	200.00	1.254	1.254	1.00
31	12:54	1.01	1.241	1.08	200.00	200.00	0.607	0.607	1.00
32	13:11	1.01	1.369	1.00	200.00	200.00	0.421	0.421	1.00
33	13:13	1.01	0.870	1.00	200.00	200.00	0.272	0.272	1.00
34	13:39	1.01	0.898	1.00	200.00	200.00	0.410	0.410	1.00
35	14:09	1.01	1.468	1.00	200.00	200.00	0.663	0.663	1.00
36	15:17	1.01	1.004	1.00	200.00	200.00	1.044	1.044	1.00
37	15:22	1.01	1.011	1.00	200.00	200.00	0.516	0.516	1.00
38	15:30	1.01	1.020	1.00	400.00	400.00	0.634	0.634	1.00
39	16:21	1.01	1.076	1.00	200.00	200.00	0.655	0.655	1.00
40	16:28	1.01	1.000	1.08	200.00	200.00	1.120	1.120	1.00
41	17:09	1.01	1.782	1.00	200.00	200.00	0.427	0.427	1.00
42	17:29	1.01	1.150	1.00	200.00	200.00	0.730	0.730	1.00
43	11:33	1.01	1.000	1.20	200.00	200.00	0.277	0.277	1.00

9615492.5086

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

000113

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Instrument ID: 4500 Calibration Date(s): 02/17/93 02/17/93

Heated Purge: (Y/N): Y Calibration Times: 1411 1712

GC Column: PACK ID: 2.00(mm)

LAB FILE ID: RRF10 = 30217R08 RRF20 = 30217R09
RRF50= 30217R10 RRF100= 30217R11 RRF200= 30217R13

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	$\overline{RRF}$	% RSD
Chloromethane	1.256	1.375	1.121	1.122	1.213	1.217	8.7
Bromomethane *	1.486	1.619	1.342	1.365	1.409	1.444	7.8*
Vinyl Chloride *	1.258	1.532	1.394	1.343	1.442	1.394	7.4*
Chloroethane	0.800	0.903	0.678	0.664	0.611	0.731	16.2
Methylene Chloride	1.839	1.737	1.271	1.269	1.243	1.472	19.8
Acetone	0.816	1.060	1.061	0.513	1.028	0.896	26.4
Carbon Disulfide	3.221	3.409	3.271	3.508	3.906	3.463	7.9
1,1-Dichloroethene *	1.120	1.023	0.922	1.013	1.228	1.061	11.0*
1,1-Dichloroethane *	2.481	2.215	1.905	2.381	2.729	2.342	13.1*
1,2-Dichloroethene (total)	1.319	1.173	0.944	1.144	1.440	1.204	15.6
Chloroform *	2.788	2.606	2.165	2.613	3.103	2.655	12.8*
1,2-Dichloroethane *	1.929	1.768	1.526	1.803	2.108	1.827	11.7*
2-Butanone	2.156	2.374	2.332	1.127	2.293	2.056	25.6
1,1,1-Trichloroethane *	0.479	0.505	0.481	0.514	0.519	0.500	3.7*
Carbon Tetrachloride *	0.417	0.457	0.428	0.448	0.448	0.440	3.8*
Bromodichloromethane *	0.654	0.663	0.749	0.743	0.697	0.701	6.3*
1,2-Dichloropropane	0.383	0.421	0.437	0.425	0.413	0.416	4.9
cis-1,3-Dichloropropene *	0.595	0.610	0.678	0.679	0.611	0.635	6.4*
Trichloroethene *	0.417	0.439	0.436	0.462	0.439	0.439	3.6*
Dibromochloromethane *	0.663	0.753	0.799	0.738	0.656	0.722	8.5*
1,1,2-Trichloroethane *	0.414	0.464	0.482	0.454	0.412	0.445	7.0*
Benzene *	0.876	0.871	0.912	0.946	0.930	0.907	3.6*
trans-1,3-Dichloropropene *	0.567	0.637	0.642	0.623	0.567	0.607	6.2*
Bromoform *	0.572	0.694	0.774	0.684	0.603	0.665	12.0*
4-Methyl-2-Pentanone	0.846	0.935	0.964	0.540	0.984	0.854	21.4
2-Hexanone	0.681	0.789	0.817	0.465	0.840	0.718	21.5
Tetrachloroethene *	0.393	0.398	0.386	0.382	0.379	0.388	2.0*
1,1,2,2-Tetrachloroethane *	0.920	0.922	1.049	0.984	0.923	0.960	5.9*
Toluene *	1.047	0.996	1.017	1.012	0.959	1.006	3.2*
Chlorobenzene *	0.909	0.888	0.961	0.939	0.896	0.919	3.3*
Ethylbenzene *	0.434	0.472	0.449	0.450	0.422	0.445	4.2*
Styrene *	0.806	0.806	0.886	0.841	0.802	0.828	4.3*
Xylene (total) *	0.375	0.434	0.490	0.445	0.438	0.436	9.4*
Toluene-d8	0.984	0.916	0.881	0.892	0.858	0.906	5.3
Bromofluorobenzene *	0.775	0.747	0.729	0.695	0.649	0.719	6.8*
1,2-Dichloroethane-d4	1.764	1.545	1.217	1.409	1.479	1.483	13.4

*-Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

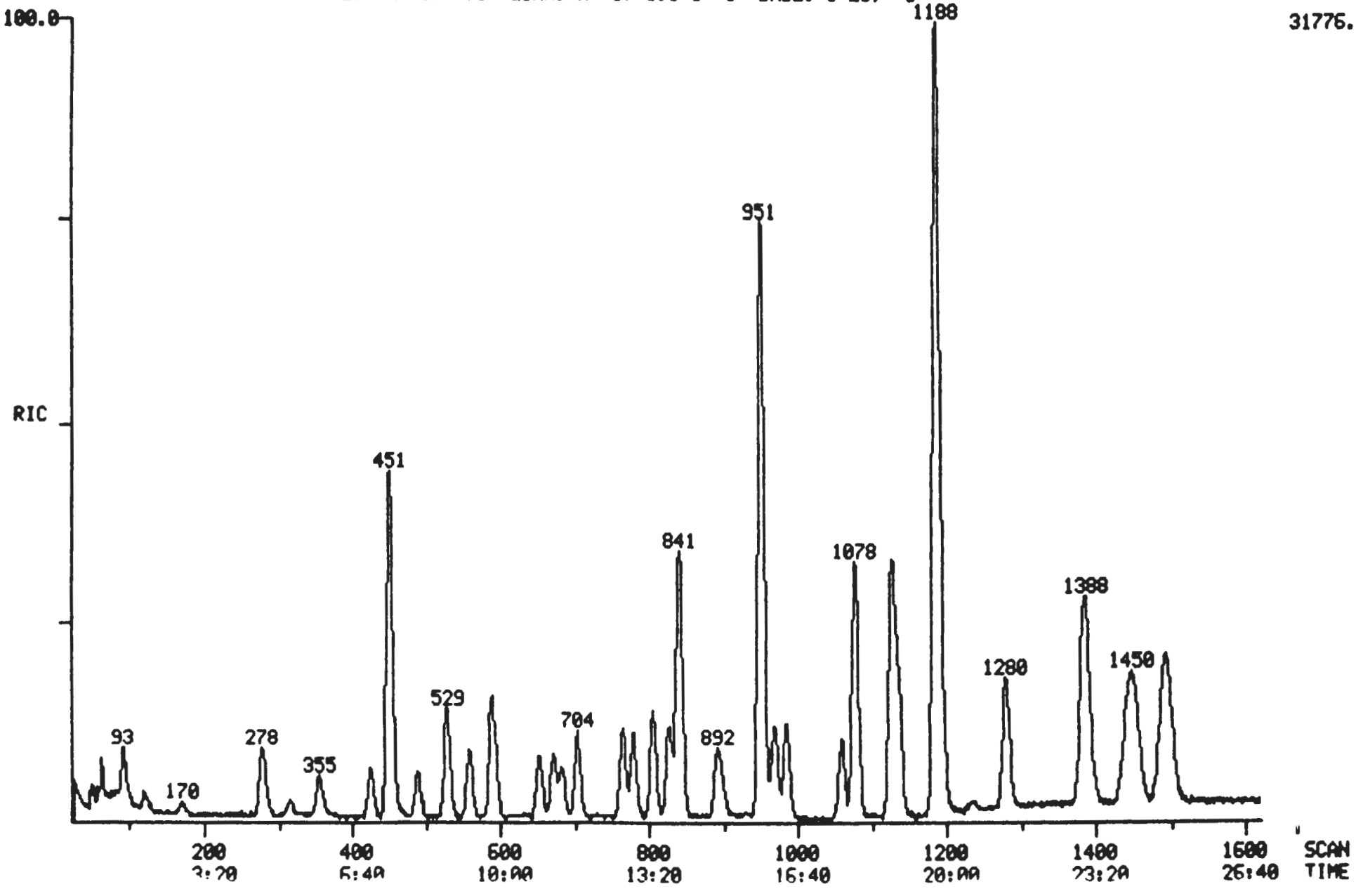
KR 10/21

000114

RIC
02/17/93 14:11:00
SAMPLE: CLP,,,VSTD010,L,S,010PPB-V0121,VOA/H,IC-010,
CONDS.: PACK/2,,38FB0217,,
RANGE: G 1,1620 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30217R08 #1
CALI: 30217R08 #7

SCANS 25 TO 1620



96134927.000

Quantitation Report File: 30217R08

Data: 30217R08.TI
02/17/93 14:11:00
Sample: CLP,,,VSTD010,L,S,010PPB-V0121,VOA/H,IC-010,
Conds.: PACK/2,,3BFB0217,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C040	CARBON DISULFIDE
14	C045	1,1-DICHLOROETHENE
15	C050	1,1-DICHLOROETHANE
16	C053	1,2-DICHLOROETHENE(TOTAL)
17	C060	CHLOROFORM
18	C110	2-BUTANONE
19	C065	1,2-DICHLOROETHANE
20	C115	1,1,1-TRICHLOROETHANE
21	C120	CARBON TETRACHLORIDE
22	C125	VINYL ACETATE
23	C130	BROMODICHLOROMETHANE
24	C140	1,2-DICHLOROPROPANE
25	C143	CIS-1,3-DICHLOROPROPENE
26	C150	TRICHLOROETHENE
27	C155	DIBROMOCHLOROMETHANE
28	C165	BENZENE
29	C160	1,1,2-TRICHLOROETHANE
30	C172	TRANS-1,3-DICHLOROPROPENE
31	C175	2-CHLOROETHOXY ETHENE
32	C180	BROMOFORM
33	C205	4-METHYL-2-PENTANONE
34	C210	2-HEXANONE
35	C225	1,1,2,2-TETRACHLOROETHANE
36	C220	TETRACHLOROETHENE
37	C230	TOLUENE
38	C235	CHLOROBENZENE
39	C240	ETHYL BENZENE
40	C245	STYRENE
41	C255	M-XYLENE
42	C250	O,P-XYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	451	7:31	1	1.000	A BB	16902.	50.000 PPB	8.93
2	114	951	15:51	2	1.000	A BB	86424.	50.000 PPB	8.93
3	117	1187	19:47	3	1.000	A BB	93190.	50.000 PPB	8.93
4	65	588	9:48	1	1.304	A BB	5963.	10.000 PPB	1.79
5	98	1127	18:47	3	0.949	A BB	18344.	10.000 PPB	1.79
6	95	1386	23:06	3	1.168	A BB	14443.	10.000 PPB	1.79
7	50	52	0:52	1	0.115	A BV	4246.	10.000 PPB	1.79
8	94	93	1:33	1	0.206	A BB	5022.	10.000 PPB	1.79
9	62	122	2:02	1	0.271	A BB	4253.	10.000 PPB	1.79
10	64	169	2:49	1	0.375	A BB	2704.	10.000 PPB	1.79
11	84	277	4:37	1	0.614	A BB	6216.	10.000 PPB	1.79
12	43	316	5:16	1	0.701	A BB	2758.	10.000 PPB	1.79
13	76	355	5:55	1	0.787	A BB	10888.	10.000 PPB	1.79
14	96	425	7:05	1	0.942	A BB	3786.	10.000 PPB	1.79
15	63	489	8:09	1	1.084	A BB	8387.	10.000 PPB	1.79
16	96	527	8:47	1	1.169	A BB	8915.	20.000 PPB	3.57
17	83	558	9:18	1	1.237	A BB	9426.	10.000 PPB	1.79
18	43	589	9:49	1	1.306	A BB	7288.	10.000 PPB	1.79
19	62	594	9:54	1	1.317	A BB	6522.	10.000 PPB	1.79
20	97	652	10:52	2	0.686	A BB	8288.	10.000 PPB	1.79
21	117	672	11:12	2	0.707	A BB	7206.	10.000 PPB	1.79
22	43	683	11:23	2	0.718	A BB	14617.	10.000 PPB	1.79
23	83	704	11:44	2	0.740	A BB	11299.	10.000 PPB	1.79
24	63	765	12:45	2	0.804	A BB	6617.	10.000 PPB	1.79
25	75	779	12:59	2	0.819	A BB	10290.	10.000 PPB	1.79
26	130	807	13:27	2	0.849	A BB	7213.	10.000 PPB	1.79
27	129	840	14:00	2	0.883	A BB	11452.	10.000 PPB	1.79
28	78	828	13:48	2	0.871	A BB	15143.	10.000 PPB	1.79
29	97	842	14:02	2	0.885	A BB	7163.	10.000 PPB	1.79
30	75	842	14:02	2	0.885	A BB	9807.	10.000 PPB	1.79
31	63	891	14:51	2	0.937	A BB	5116.	10.000 PPB	1.79
32	173	969	16:09	2	1.019	A BB	9879.	10.000 PPB	1.79
33	43	986	16:26	3	0.831	A BB	15772.	10.000 PPB	1.79
34	43	1060	17:40	3	0.893	A BB	12694.	10.000 PPB	1.79
35	83	1080	18:00	3	0.910	A BB	17141.	10.000 PPB	1.79
36	164	1077	17:57	3	0.907	A BB	7332.	10.000 PPB	1.79
37	91	1137	18:57	3	0.958	A BB	19522.	10.000 PPB	1.79
38	112	1193	19:53	3	1.005	A BB	16950.	10.000 PPB	1.79
39	106	1280	21:20	3	1.078	A BB	8085.	10.000 PPB	1.79
40	104	1444	24:04	3	1.217	A BB	15027.	10.000 PPB	1.79
41	106	1454	24:14	3	1.225	A BB	10605.	10.000 PPB	1.79
42	106	1495	24:55	3	1.259	A BB	13974.	20.000 PPB	3.57

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:33	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:51	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:47	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:49	1.00	1.300	1.00	10.00	10.00	1.764	1.764	1.00
5	18:47	1.00	0.949	1.00	10.00	10.00	0.984	0.984	1.00
6	23:07	1.00	1.168	1.00	10.00	10.00	0.775	0.775	1.00
7	0:52	1.00	0.115	1.00	10.00	10.00	1.256	1.256	1.00
8	1:33	1.00	0.205	1.00	10.00	10.00	1.486	1.486	1.00
9	2:03	0.99	0.272	1.00	10.00	10.00	1.258	1.258	1.00
10	2:51	0.99	0.377	0.99	10.00	10.00	0.800	0.800	1.00
11	4:40	0.99	0.618	0.99	10.00	10.00	1.839	1.839	1.00
12	5:25	0.97	0.717	0.98	10.00	10.00	0.816	0.816	1.00

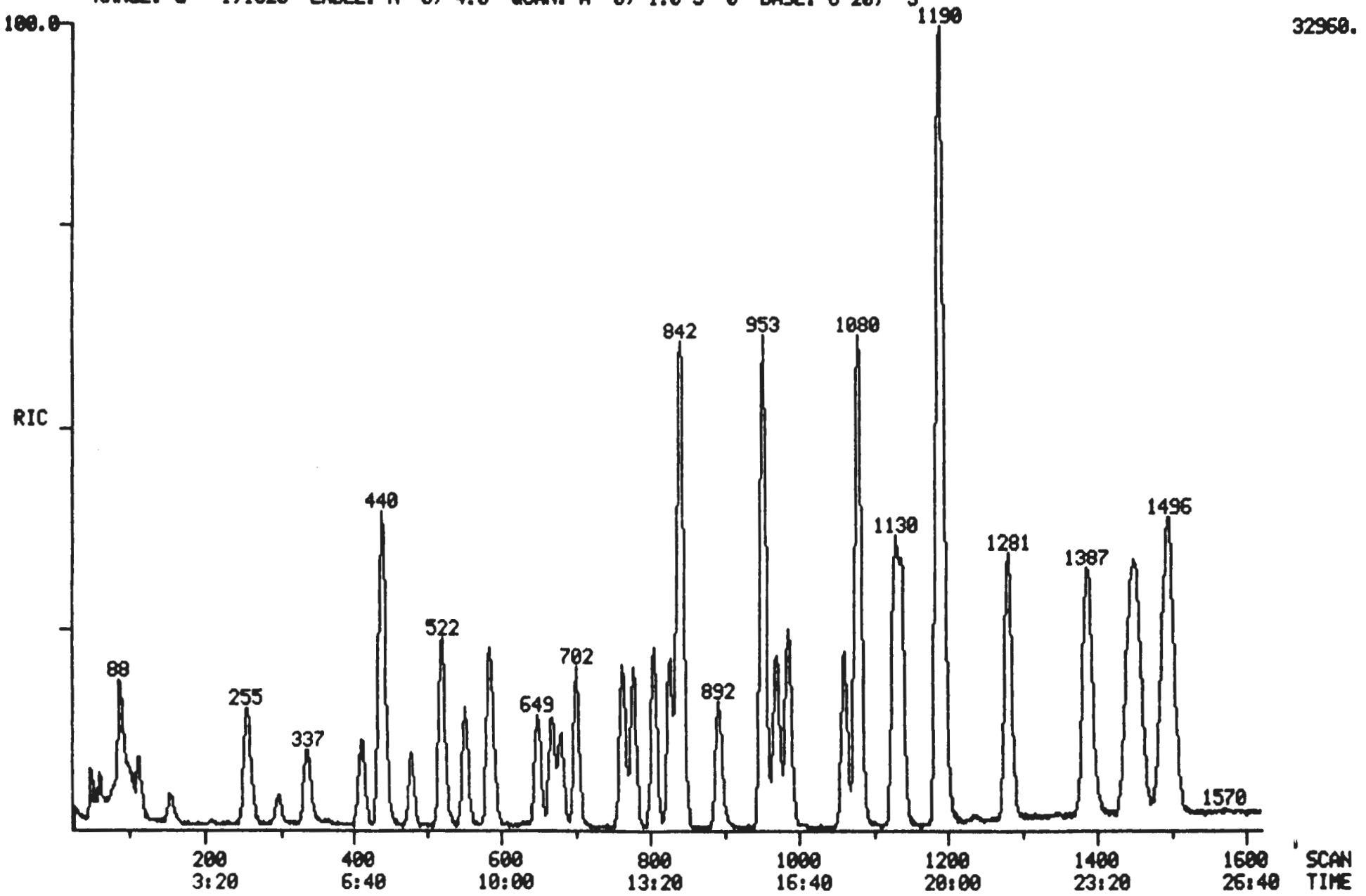
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
13	5:54	1.00	0.781	1.01	10.00	10.00	3.221	3.221	1.00
14	7:04	1.00	0.936	1.01	10.00	10.00	1.120	1.120	1.00
15	8:09	1.00	1.079	1.00	10.00	10.00	2.481	2.481	1.00
16	8:48	1.00	1.166	1.00	20.00	20.00	1.319	1.319	1.00
17	9:18	1.00	1.232	1.00	10.00	10.00	2.788	2.788	1.00
18	9:49	1.00	1.300	1.00	10.00	10.00	2.156	2.156	1.00
19	9:54	1.00	1.311	1.00	10.00	10.00	1.929	1.929	1.00
20	10:52	1.00	0.686	1.00	10.00	10.00	0.479	0.479	1.00
21	11:12	1.00	0.707	1.00	10.00	10.00	0.417	0.417	1.00
22	11:23	1.00	0.718	1.00	10.00	10.00	0.846	0.846	1.00
23	11:44	1.00	0.740	1.00	10.00	10.00	0.654	0.654	1.00
24	12:45	1.00	0.804	1.00	10.00	10.00	0.383	0.383	1.00
25	12:59	1.00	0.819	1.00	10.00	10.00	0.595	0.595	1.00
26	13:26	1.00	0.848	1.00	10.00	10.00	0.417	0.417	1.00
27	13:59	1.00	0.882	1.00	10.00	10.00	0.663	0.663	1.00
28	13:47	1.00	0.870	1.00	10.00	10.00	0.876	0.876	1.00
29	14:03	1.00	0.886	1.00	10.00	10.00	0.414	0.414	1.00
30	14:01	1.00	0.884	1.00	10.00	10.00	0.567	0.567	1.00
31	14:51	1.00	0.937	1.00	10.00	10.00	0.296	0.296	1.00
32	16:09	1.00	1.019	1.00	10.00	10.00	0.572	0.572	1.00
33	16:25	1.00	0.830	1.00	10.00	10.00	0.846	0.846	1.00
34	17:40	1.00	0.893	1.00	10.00	10.00	0.681	0.681	1.00
35	17:59	1.00	0.909	1.00	10.00	10.00	0.920	0.920	1.00
36	17:57	1.00	0.907	1.00	10.00	10.00	0.393	0.393	1.00
37	18:56	1.00	0.957	1.00	10.00	10.00	1.047	1.047	1.00
38	19:53	1.00	1.005	1.00	10.00	10.00	0.909	0.909	1.00
39	21:21	1.00	1.079	1.00	10.00	10.00	0.434	0.434	1.00
40	24:03	1.00	1.216	1.00	10.00	10.00	0.806	0.806	1.00
41	24:13	1.00	1.224	1.00	10.00	10.00	0.569	0.569	1.00
42	24:54	1.00	1.259	1.00	20.00	20.00	0.375	0.375	1.00

000118

RIC
02/17/93 14:47:00
SAMPLE: CLP,,,VSTD020,L,S,020PPB-V0121,VOA/H,IC-020,
CONDS.: PACK/2,,30FB0217,,
RANGE: G 1,1620 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30217R09 #1
CALI: 30217R09 #7

SCANS 25 TO 1620



96134492.5000

Quantitation Report File: 30217R09

Data: 30217R09.TI
02/17/93 14:47:00
Sample: CLP,,,VSTD020,L,S,020PPB-V0121,VOA/H,IC-020,
Conds.: PACK/2,,3BFB0217,,
Formula: 5 Instrument: 4500 Weight: 0.001
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C040	CARBON DISULFIDE
14	C045	1,1-DICHLOROETHENE
15	C050	1,1-DICHLOROETHANE
16	C053	1,2-DICHLOROETHENE(TOTAL)
17	C060	CHLOROFORM
18	C110	2-BUTANONE
19	C065	1,2-DICHLOROETHANE
20	C115	1,1,1-TRICHLOROETHANE
21	C120	CARBON TETRACHLORIDE
22	C125	VINYL ACETATE
23	C130	BROMODICHLOROMETHANE
24	C140	1,2-DICHLOROPROPANE
25	C143	CIS-1,3-DICHLOROPROPENE
26	C150	TRICHLOROETHENE
27	C155	DIBROMOCHLOROMETHANE
28	C165	BENZENE
29	C160	1,1,2-TRICHLOROETHANE
30	C172	TRANS-1,3-DICHLOROPROPENE
31	C175	2-CHLOROETHOXY ETHENE
32	C180	BROMOFORM
33	C205	4-METHYL-2-PENTANONE
34	C210	2-HEXANONE
35	C225	1,1,2,2-TETRACHLOROETHANE
36	C220	TETRACHLOROETHENE
37	C230	TOLUENE
38	C235	CHLOROBENZENE
39	C240	ETHYL BENZENE
40	C245	STYRENE
41	C255	M-XYLENE
42	C250	O,P-XYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	439	7:19	1	1.000	A BB	17080.	50.000 PPB	5.15
2	114	953	15:53	2	1.000	A BB	73055.	50.000 PPB	5.15
3	117	1189	19:49	3	1.000	A BB	88192.	50.000 PPB	5.15
4	65	585	9:45	1	1.333	A BB	10556.	20.000 PPB	2.06
5	98	1129	18:49	3	0.950	A BB	32301.	20.000 PPB	2.06
6	95	1388	23:08	3	1.167	A BB	26360.	20.000 PPB	2.06
7	50	50	0:50	1	0.114	A BB	9393.	20.000 PPB	2.06
8	94	88	1:28	1	0.200	A BB	11058.	20.000 PPB	2.06
9	62	113	1:53	1	0.257	A BB	10469.	20.000 PPB	2.06
10	64	155	2:35	1	0.353	A BB	6170.	20.000 PPB	2.06
11	84	257	4:17	1	0.585	A BB	11867.	20.000 PPB	2.06
12	43	297	4:57	1	0.677	A BB	7241.	20.000 PPB	2.06
13	76	337	5:37	1	0.768	A BB	23291.	20.000 PPB	2.06
14	96	411	6:51	1	0.936	A BB	6986.	20.000 PPB	2.06
15	63	480	8:00	1	1.093	A BB	15136.	20.000 PPB	2.06
16	96	522	8:42	1	1.189	A BB	16025.	40.000 PPB	4.12
17	83	553	9:13	1	1.260	A BB	17806.	20.000 PPB	2.06
18	43	585	9:45	1	1.333	A BB	16219.	20.000 PPB	2.06
19	62	590	9:50	1	1.344	A BB	12076.	20.000 PPB	2.06
20	97	649	10:49	2	0.681	A BB	14763.	20.000 PPB	2.06
21	117	669	11:09	2	0.702	A BB	13342.	20.000 PPB	2.06
22	43	681	11:21	2	0.715	A BB	25424.	20.000 PPB	2.06
23	83	702	11:42	2	0.737	A BB	19363.	20.000 PPB	2.06
24	63	764	12:44	2	0.802	A BB	12308.	20.000 PPB	2.06
25	75	778	12:58	2	0.816	A BB	17832.	20.000 PPB	2.06
26	130	806	13:26	2	0.846	A BB	12830.	20.000 PPB	2.06
27	129	840	14:00	2	0.881	A BB	22018.	20.000 PPB	2.06
28	78	827	13:47	2	0.868	A BB	25441.	20.000 PPB	2.06
29	97	843	14:03	2	0.885	A BB	13551.	20.000 PPB	2.06
30	75	841	14:01	2	0.882	A BB	18601.	20.000 PPB	2.06
31	63	892	14:52	2	0.936	A BB	10714.	20.000 PPB	2.06
32	173	970	16:10	2	1.018	A BB	20268.	20.000 PPB	2.06
33	43	986	16:26	3	0.829	A BB	32985.	20.000 PPB	2.06
34	43	1061	17:41	3	0.892	A BB	27834.	20.000 PPB	2.06
35	83	1080	18:00	3	0.908	A BB	32534.	20.000 PPB	2.06
36	164	1079	17:59	3	0.907	A BB	14030.	20.000 PPB	2.06
37	91	1139	18:59	3	0.958	A BB	35146.	20.000 PPB	2.06
38	112	1194	19:54	3	1.004	A BB	31335.	20.000 PPB	2.06
39	106	1281	21:21	3	1.077	A BB	16652.	20.000 PPB	2.06
40	104	1445	24:05	3	1.215	A BB	28443.	20.000 PPB	2.06
41	106	1455	24:15	3	1.224	A BB	15856.	20.000 PPB	2.06
42	106	1496	24:56	3	1.258	A BB	30606.	40.000 PPB	4.12

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:33	0.97	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:51	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:47	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:49	0.99	1.300	1.02	20.00	20.00	1.545	1.545	1.00
5	18:47	1.00	0.949	1.00	20.00	20.00	0.916	0.916	1.00
6	23:07	1.00	1.168	1.00	20.00	20.00	0.747	0.747	1.00
7	0:52	0.96	0.115	0.99	20.00	20.00	1.375	1.375	1.00
8	1:33	0.95	0.205	0.98	20.00	20.00	1.619	1.619	1.00
9	2:03	0.92	0.272	0.95	20.00	20.00	1.532	1.532	1.00
10	2:51	0.91	0.377	0.94	20.00	20.00	0.903	0.903	1.00
11	4:40	0.92	0.618	0.95	20.00	20.00	1.737	1.737	1.00
12	5:25	0.91	0.717	0.94	20.00	20.00	1.060	1.060	1.00

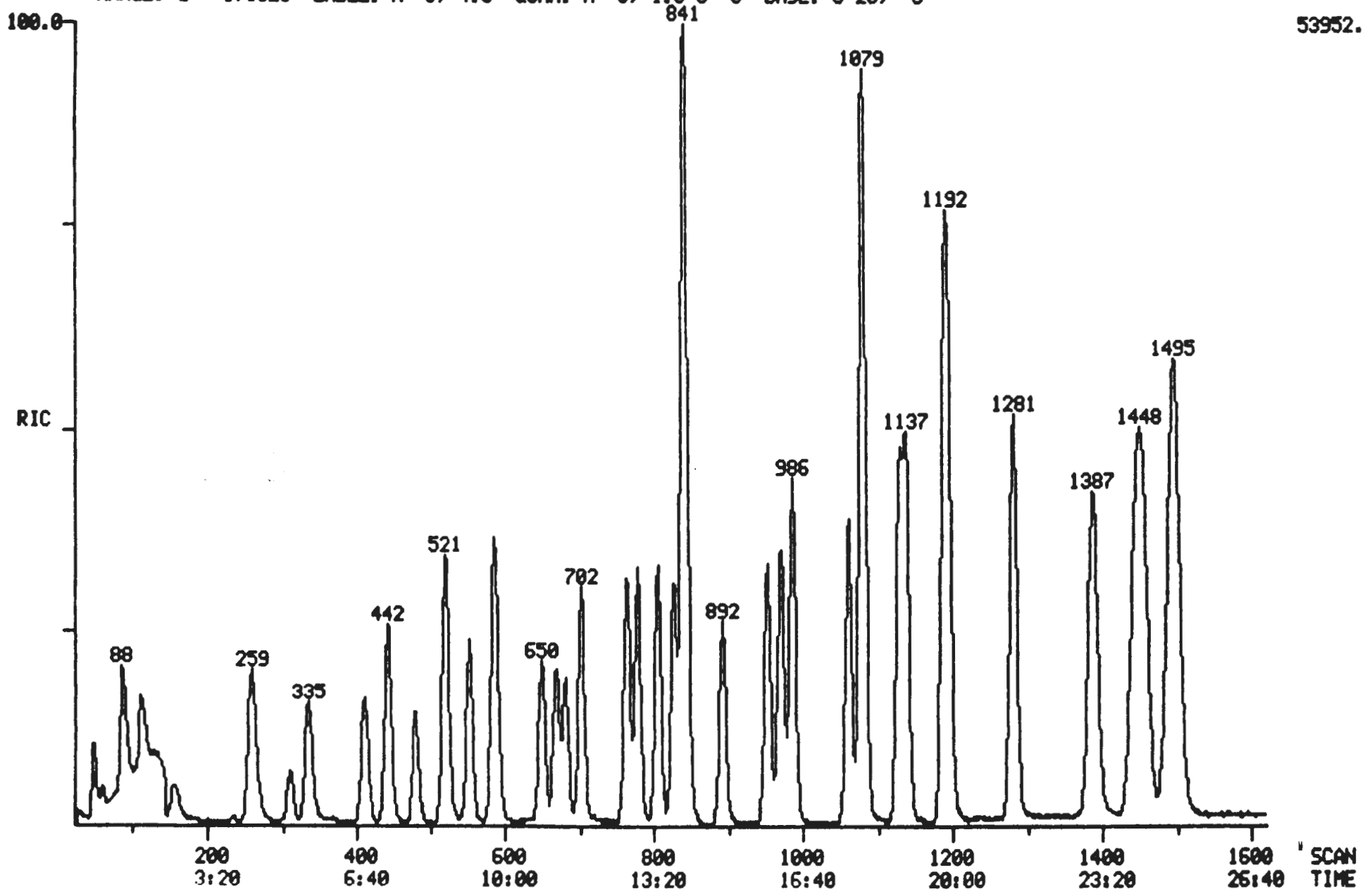
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
13	5:54	0.95	0.781	0.98	20.00	20.00	3.409	3.409	1.00
14	7:04	0.97	0.936	1.00	20.00	20.00	1.023	1.023	1.00
15	8:09	0.98	1.079	1.01	20.00	20.00	2.215	2.215	1.00
16	8:48	0.99	1.166	1.02	40.00	40.00	1.173	1.173	1.00
17	9:18	0.99	1.232	1.02	20.00	20.00	2.606	2.606	1.00
18	9:49	0.99	1.300	1.02	20.00	20.00	2.374	2.374	1.00
19	9:54	0.99	1.311	1.02	20.00	20.00	1.768	1.768	1.00
20	10:52	1.00	0.686	0.99	20.00	20.00	0.505	0.505	1.00
21	11:12	1.00	0.707	0.99	20.00	20.00	0.457	0.457	1.00
22	11:23	1.00	0.718	0.99	20.00	20.00	0.870	0.870	1.00
23	11:44	1.00	0.740	1.00	20.00	20.00	0.663	0.663	1.00
24	12:45	1.00	0.804	1.00	20.00	20.00	0.421	0.421	1.00
25	12:59	1.00	0.819	1.00	20.00	20.00	0.610	0.610	1.00
26	13:26	1.00	0.848	1.00	20.00	20.00	0.439	0.439	1.00
27	13:59	1.00	0.882	1.00	20.00	20.00	0.753	0.753	1.00
28	13:47	1.00	0.870	1.00	20.00	20.00	0.871	0.871	1.00
29	14:03	1.00	0.886	1.00	20.00	20.00	0.464	0.464	1.00
30	14:01	1.00	0.884	1.00	20.00	20.00	0.637	0.637	1.00
31	14:51	1.00	0.937	1.00	20.00	20.00	0.367	0.367	1.00
32	16:09	1.00	1.019	1.00	20.00	20.00	0.694	0.694	1.00
33	16:25	1.00	0.830	1.00	20.00	20.00	0.935	0.935	1.00
34	17:40	1.00	0.893	1.00	20.00	20.00	0.789	0.789	1.00
35	17:59	1.00	0.909	1.00	20.00	20.00	0.922	0.922	1.00
36	17:57	1.00	0.907	1.00	20.00	20.00	0.398	0.398	1.00
37	18:56	1.00	0.957	1.00	20.00	20.00	0.996	0.996	1.00
38	19:53	1.00	1.005	1.00	20.00	20.00	0.888	0.888	1.00
39	21:21	1.00	1.079	1.00	20.00	20.00	0.472	0.472	1.00
40	24:03	1.00	1.216	1.00	20.00	20.00	0.806	0.806	1.00
41	24:13	1.00	1.224	1.00	20.00	20.00	0.449	0.449	1.00
42	24:54	1.00	1.259	1.00	40.00	40.00	0.434	0.434	1.00

000122

RIC
02/17/93 15:24:00
SAMPLE: CLP,,,VSTD050,L,5,050PPB-V0121,VOA/H,IC-050,
CONDS.: PACK/2,,3BFB0217,,
RANGE: G 1,1620 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30217R10 #1
CALI: 30217R10 #7

SCANS 25 TO 1620



96 1374 92 5002

Quantitation Report File: 30217R10

Data: 30217R10.TI
02/17/93 15:24:00
Sample: CLP,,,VSTD050,L,S,050PPB-V0121,VOA/H,IC-050,
Conds.: PACK/2,,3BFB0217,,
Formula: 5 Instrument: 4500 Weight: 0.001
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C040	CARBON DISULFIDE
14	C045	1,1-DICHLOROETHENE
15	C050	1,1-DICHLOROETHANE
16	C053	1,2-DICHLOROETHENE(TOTAL)
17	C060	CHLOROFORM
18	C110	2-BUTANONE
19	C065	1,2-DICHLOROETHANE
20	C115	1,1,1-TRICHLOROETHANE
21	C120	CARBON TETRACHLORIDE
22	C125	VINYL ACETATE
23	C130	BROMODICHLOROMETHANE
24	C140	1,2-DICHLOROPROPANE
25	C143	CIS-1,3-DICHLOROPROPENE
26	C150	TRICHLOROETHENE
27	C155	DIBROMOCHLOROMETHANE
28	C165	BENZENE
29	C160	1,1,2-TRICHLOROETHANE
30	C172	TRANS-1,3-DICHLOROPROPENE
31	C175	2-CHLOROETHOXY ETHENE
32	C180	BROMOFORM
33	C205	4-METHYL-2-PENTANONE
34	C210	2-HEXANONE
35	C225	1,1,2,2-TETRACHLOROETHANE
36	C220	TETRACHLOROETHENE
37	C230	TOLUENE
38	C235	CHLOROBENZENE
39	C240	ETHYL BENZENE
40	C245	STYRENE
41	C255	M-XYLENE
42	C250	O,P-XYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	442	7:22	1	1.000	A BB	19045.	50.000 PPB	2.27
2	114	952	15:52	2	1.000	A BB	66669.	50.000 PPB	2.27
3	117	1188	19:48	3	1.000	A BB	82232.	50.000 PPB	2.27
4	65	585	9:45	1	1.324	A BB	23181.	50.000 PPB	2.27
5	98	1128	18:48	3	0.949	A BB	72455.	50.000 PPB	2.27
6	95	1387	23:07	3	1.168	A BB	59941.	50.000 PPB	2.27
7	50	51	0:51	1	0.115	A BB	21342.	50.000 PPB	2.27
8	94	88	1:28	1	0.199	A BB	25555.	50.000 PPB	2.27
9	62	113	1:53	1	0.256	A BB	26540.	50.000 PPB	2.27
10	64	155	2:35	1	0.351	A BB	12909.	50.000 PPB	2.27
11	84	259	4:19	1	0.586	A BB	24212.	50.000 PPB	2.27
12	43	310	5:10	1	0.701	A BB	20206.	50.000 PPB	2.27
13	76	334	5:34	1	0.756	A BB	62293.	50.000 PPB	2.27
14	96	411	6:51	1	0.930	A BB	17550.	50.000 PPB	2.27
15	63	481	8:01	1	1.088	A BB	36281.	50.000 PPB	2.27
16	96	521	8:41	1	1.179	A BB	35959.	100.000 PPB	4.55
17	83	553	9:13	1	1.251	A BB	41226.	50.000 PPB	2.27
18	43	586	9:46	1	1.326	A BB	44419.	50.000 PPB	2.27
19	62	590	9:50	1	1.335	A BB	29064.	50.000 PPB	2.27
20	97	649	10:49	2	0.682	A BB	32072.	50.000 PPB	2.27
21	117	669	11:09	2	0.703	A BB	28553.	50.000 PPB	2.27
22	43	681	11:21	2	0.715	A BB	65124.	50.000 PPB	2.27
23	83	702	11:42	2	0.737	A BB	49938.	50.000 PPB	2.27
24	63	764	12:44	2	0.803	A BB	29159.	50.000 PPB	2.27
25	75	778	12:58	2	0.817	A BB	45235.	50.000 PPB	2.27
26	130	805	13:25	2	0.846	A BB	29060.	50.000 PPB	2.27
27	129	839	13:59	2	0.881	A BB	53237.	50.000 PPB	2.27
28	78	827	13:47	2	0.869	A BB	60805.	50.000 PPB	2.27
29	97	843	14:03	2	0.886	A BB	32115.	50.000 PPB	2.27
30	75	841	14:01	2	0.883	A BB	42824.	50.000 PPB	2.27
31	63	892	14:52	2	0.937	A BB	27219.	50.000 PPB	2.27
32	173	970	16:10	2	1.019	A BB	51589.	50.000 PPB	2.27
33	43	986	16:26	3	0.830	A BB	79258.	50.000 PPB	2.27
34	43	1061	17:41	3	0.893	A BB	67206.	50.000 PPB	2.27
35	83	1080	18:00	3	0.909	A BB	86279.	50.000 PPB	2.27
36	164	1079	17:59	3	0.908	A BB	31739.	50.000 PPB	2.27
37	91	1138	18:58	3	0.958	A BB	83604.	50.000 PPB	2.27
38	112	1194	19:54	3	1.005	A BB	78990.	50.000 PPB	2.27
39	106	1281	21:21	3	1.078	A BB	36898.	50.000 PPB	2.27
40	104	1443	24:03	3	1.215	A BB	72827.	50.000 PPB	2.27
41	106	1454	24:14	3	1.224	A BB	42640.	50.000 PPB	2.27
42	106	1495	24:55	3	1.258	A BB	80639.	100.000 PPB	4.55

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:33	0.98	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:51	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:47	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:49	0.99	1.300	1.02	50.00	50.00	1.217	1.217	1.00
5	18:47	1.00	0.949	1.00	50.00	50.00	0.881	0.881	1.00
6	23:07	1.00	1.168	1.00	50.00	50.00	0.729	0.729	1.00
7	0:52	0.98	0.115	1.01	50.00	50.00	1.121	1.121	1.00
8	1:33	0.95	0.205	0.97	50.00	50.00	1.342	1.342	1.00
9	2:03	0.92	0.272	0.94	50.00	50.00	1.394	1.394	1.00
10	2:51	0.91	0.377	0.93	50.00	50.00	0.678	0.678	1.00
11	4:40	0.93	0.618	0.95	50.00	50.00	1.271	1.271	1.00
12	5:25	0.95	0.717	0.98	50.00	50.00	1.061	1.061	1.00

9613492.5095

000125

~~000125~~

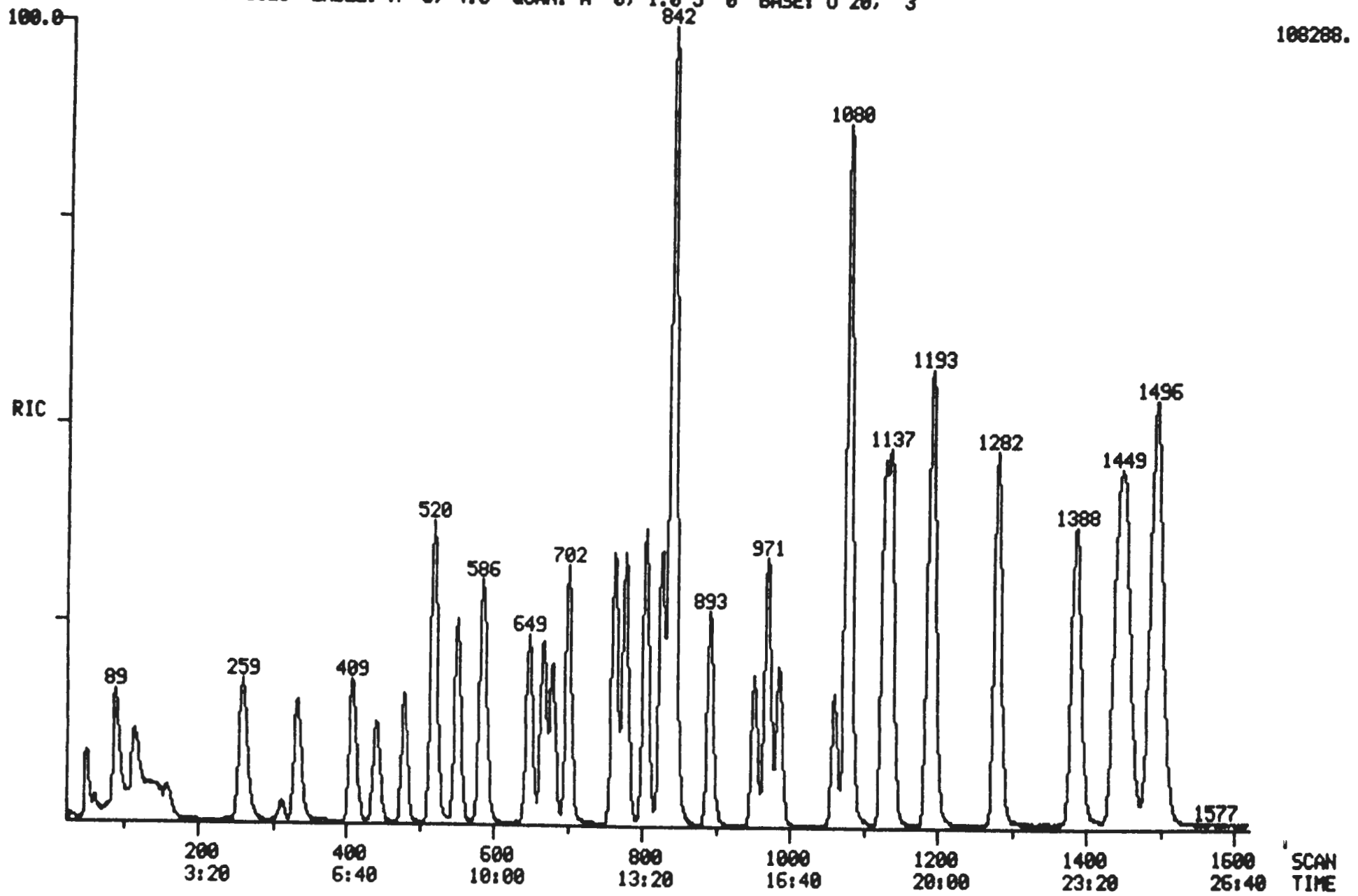
3/9/93

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
13	5:54	0.94	0.781	0.97	50.00	50.00	3.271	3.271	1.00
14	7:04	0.97	0.936	0.99	50.00	50.00	0.922	0.922	1.00
15	8:09	0.98	1.079	1.01	50.00	50.00	1.905	1.905	1.00
16	8:48	0.99	1.166	1.01	100.00	100.00	0.944	0.944	1.00
17	9:18	0.99	1.232	1.02	50.00	50.00	2.165	2.165	1.00
18	9:49	0.99	1.300	1.02	50.00	50.00	2.332	2.332	1.00
19	9:54	0.99	1.311	1.02	50.00	50.00	1.526	1.526	1.00
20	10:52	1.00	0.686	0.99	50.00	50.00	0.481	0.481	1.00
21	11:12	1.00	0.707	0.99	50.00	50.00	0.428	0.428	1.00
22	11:23	1.00	0.718	1.00	50.00	50.00	0.977	0.977	1.00
23	11:44	1.00	0.740	1.00	50.00	50.00	0.749	0.749	1.00
24	12:45	1.00	0.804	1.00	50.00	50.00	0.437	0.437	1.00
25	12:59	1.00	0.819	1.00	50.00	50.00	0.678	0.678	1.00
26	13:26	1.00	0.848	1.00	50.00	50.00	0.436	0.436	1.00
27	13:59	1.00	0.882	1.00	50.00	50.00	0.799	0.799	1.00
28	13:47	1.00	0.870	1.00	50.00	50.00	0.912	0.912	1.00
29	14:03	1.00	0.886	1.00	50.00	50.00	0.482	0.482	1.00
30	14:01	1.00	0.884	1.00	50.00	50.00	0.642	0.642	1.00
31	14:51	1.00	0.937	1.00	50.00	50.00	0.408	0.408	1.00
32	16:09	1.00	1.019	1.00	50.00	50.00	0.774	0.774	1.00
33	16:25	1.00	0.830	1.00	50.00	50.00	0.964	0.964	1.00
34	17:40	1.00	0.893	1.00	50.00	50.00	0.817	0.817	1.00
35	17:59	1.00	0.909	1.00	50.00	50.00	1.049	1.049	1.00
36	17:57	1.00	0.907	1.00	50.00	50.00	0.386	0.386	1.00
37	18:56	1.00	0.957	1.00	50.00	50.00	1.017	1.017	1.00
38	19:53	1.00	1.005	1.00	50.00	50.00	0.961	0.961	1.00
39	21:21	1.00	1.079	1.00	50.00	50.00	0.449	0.449	1.00
40	24:03	1.00	1.216	1.00	50.00	50.00	0.886	0.886	1.00
41	24:13	1.00	1.224	1.00	50.00	50.00	0.519	0.519	1.00
42	24:54	1.00	1.259	1.00	100.00	100.00	0.490	0.490	1.00

000126

RIC
02/17/93 16:00:00
SAMPLE: CLP,,,VSTD100,L,S,100PPB-V0121,VOA/H,IC-100,
CONDS.: PACK/2,,3BFB0217,,
RANGE: G 1,1620 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30217R11 #1
CALI: 30217R11 #7
SCANS 25 TO 1620



9613492.5096

Quantitation Report File: 30217R11

Data: 30217R11.TI
02/17/93 16:00:00
Sample: CLP,,,VSTD100,L,S,100PPB-V0121,VOA/H,IC-100,
Conds.: PACK/2,,3BFB0217,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C040	CARBON DISULFIDE
14	C045	1,1-DICHLOROETHENE
15	C050	1,1-DICHLOROETHANE
16	C053	1,2-DICHLOROETHENE(TOTAL)
17	C060	CHLOROFORM
18	C110	2-BUTANONE
19	C065	1,2-DICHLOROETHANE
20	C115	1,1,1-TRICHLOROETHANE
21	C120	CARBON TETRACHLORIDE
22	C125	VINYL ACETATE
23	C130	BROMODICHLOROMETHANE
24	C140	1,2-DICHLOROPROPANE
25	C143	CIS-1,3-DICHLOROPROPENE
26	C150	TRICHLOROETHENE
27	C155	DIBROMOCHLOROMETHANE
28	C165	BENZENE
29	C160	1,1,2-TRICHLOROETHANE
30	C172	TRANS-1,3-DICHLOROPROPENE
31	C175	2-CHLOROETHOXY ETHENE
32	C180	BROMOFORM
33	C205	4-METHYL-2-PENTANONE
34	C210	2-HEXANONE
35	C225	1,1,2,2-TETRACHLOROETHANE
36	C220	TETRACHLOROETHENE
37	C230	TOLUENE
38	C235	CHLOROBENZENE
39	C240	ETHYL BENZENE
40	C245	STYRENE
41	C255	M-XYLENE
42	C250	O,P-XYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	441	7:21	1	1.000	A BB	17525.	50.000 PPB	1.18
2	114	953	15:53	2	1.000	A BB	72818.	50.000 PPB	1.18
3	117	1189	19:49	3	1.000	A BB	79494.	50.000 PPB	1.18
4	65	584	9:44	1	1.324	A BB	49382.	100.000 PPB	2.35
5	98	1129	18:49	3	0.950	A BB	141864.	100.000 PPB	2.35
6	95	1387	23:07	3	1.167	A BB	110417.	100.000 PPB	2.35
7	50	51	0:51	1	0.116	A BB	39329.	100.000 PPB	2.35
8	94	89	1:29	1	0.202	A BB	47831.	100.000 PPB	2.35
9	62	114	1:54	1	0.259	A BB	47067.	100.000 PPB	2.35
10	64	157	2:37	1	0.356	A BB	23267.	100.000 PPB	2.35
11	84	259	4:19	1	0.587	A BB	44483.	100.000 PPB	2.35
12	43	312	5:12	1	0.707	A BV	17976.	100.000 PPB	2.35
13	76	334	5:34	1	0.757	A BB	122966.	100.000 PPB	2.35
14	96	410	6:50	1	0.930	A BB	35495.	100.000 PPB	2.35
15	63	480	8:00	1	1.088	A BB	83458.	100.000 PPB	2.35
16	96	520	8:40	1	1.179	A BB	80211.	200.000 PPB	4.71
17	83	553	9:13	1	1.254	A BB	91579.	100.000 PPB	2.35
18	43	585	9:45	1	1.327	A BB	39513.	100.000 PPB	2.35
19	62	589	9:49	1	1.336	A BB	63198.	100.000 PPB	2.35
20	97	650	10:50	2	0.682	A BB	74840.	100.000 PPB	2.35
21	117	669	11:09	2	0.702	A BB	65297.	100.000 PPB	2.35
22	43	681	11:21	2	0.715	A BB	144230.	100.000 PPB	2.35
23	83	702	11:42	2	0.737	A BB	108203.	100.000 PPB	2.35
24	63	764	12:44	2	0.802	A BB	61896.	100.000 PPB	2.35
25	75	778	12:58	2	0.816	A BB	98852.	100.000 PPB	2.35
26	130	806	13:26	2	0.846	A BB	67342.	100.000 PPB	2.35
27	129	840	14:00	2	0.881	A BB	107462.	100.000 PPB	2.35
28	78	828	13:48	2	0.869	A BB	137811.	100.000 PPB	2.35
29	97	843	14:03	2	0.885	A BB	66147.	100.000 PPB	2.35
30	75	841	14:01	2	0.882	A BB	90723.	100.000 PPB	2.35
31	63	893	14:53	2	0.937	A BB	54885.	100.000 PPB	2.35
32	173	971	16:11	2	1.019	A BB	99637.	100.000 PPB	2.35
33	43	987	16:27	3	0.830	A BB	85827.	100.000 PPB	2.35
34	43	1061	17:41	3	0.892	A BB	73968.	100.000 PPB	2.35
35	83	1081	18:01	3	0.909	A BB	156491.	100.000 PPB	2.35
36	164	1079	17:59	3	0.907	A BB	60808.	100.000 PPB	2.35
37	91	1138	18:58	3	0.957	A BB	160874.	100.000 PPB	2.35
38	112	1195	19:55	3	1.005	A BB	149305.	100.000 PPB	2.35
39	106	1281	21:21	3	1.077	A BB	71623.	100.000 PPB	2.35
40	104	1444	24:04	3	1.214	A BB	133736.	100.000 PPB	2.35
41	106	1456	24:16	3	1.225	A BB	79654.	100.000 PPB	2.35
42	106	1496	24:56	3	1.258	A BB	141588.	200.000 PPB	4.71

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:16	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:41	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:37	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:38	1.01	1.326	1.00	100.00	100.00	1.409	1.409	1.00
5	18:36	1.01	0.948	1.00	100.00	100.00	0.892	0.892	1.00
6	22:55	1.01	1.168	1.00	100.00	100.00	0.695	0.695	1.00
7	0:51	1.00	0.117	0.99	100.00	100.00	1.122	1.122	1.00
8	1:28	1.01	0.202	1.00	100.00	100.00	1.365	1.365	1.00
9	1:53	1.01	0.259	1.00	100.00	100.00	1.343	1.343	1.00
10	2:36	1.01	0.358	0.99	100.00	100.00	0.664	0.664	1.00
11	4:14	1.02	0.583	1.01	100.00	100.00	1.269	1.269	1.00
12	5:03	1.03	0.695	1.02	100.00	100.00	0.513	0.513	1.00

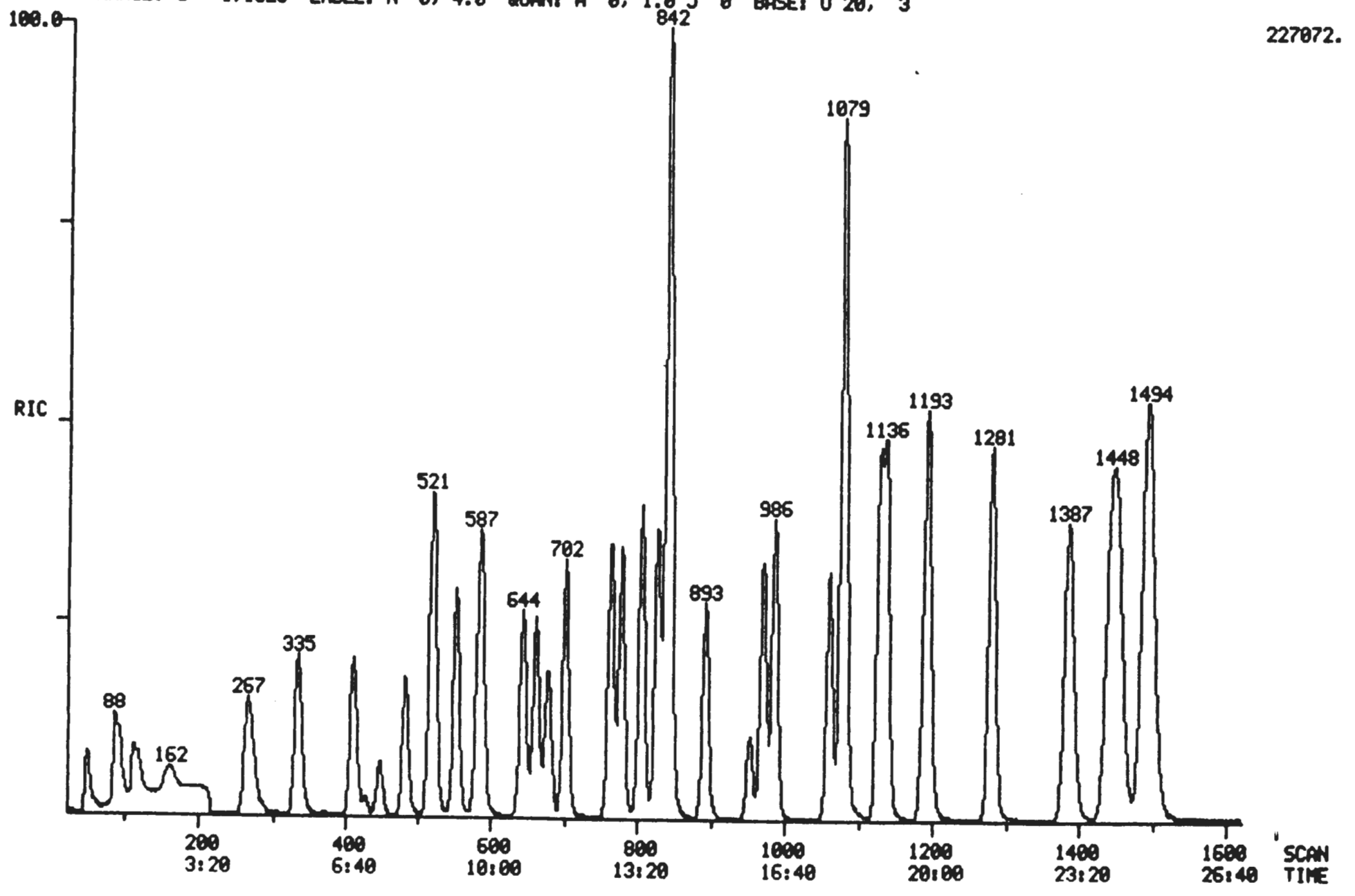
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
13	5:32	1.01	0.761	0.99	100.00	100.00	3.508	3.508	1.00
14	6:47	1.01	0.933	1.00	100.00	100.00	1.013	1.013	1.00
15	7:55	1.01	1.089	1.00	100.00	100.00	2.381	2.381	1.00
16	8:36	1.01	1.183	1.00	200.00	200.00	1.144	1.144	1.00
17	9:07	1.01	1.255	1.00	100.00	100.00	2.613	2.613	1.00
18	9:39	1.01	1.328	1.00	100.00	100.00	1.127	1.127	1.00
19	9:43	1.01	1.337	1.00	100.00	100.00	1.803	1.803	1.00
20	10:42	1.01	0.682	1.00	100.00	100.00	0.514	0.514	1.00
21	11:01	1.01	0.702	1.00	100.00	100.00	0.448	0.448	1.00
22	11:14	1.01	0.716	1.00	100.00	100.00	0.990	0.990	1.00
23	11:34	1.01	0.738	1.00	100.00	100.00	0.743	0.743	1.00
24	12:35	1.01	0.802	1.00	100.00	100.00	0.425	0.425	1.00
25	12:49	1.01	0.817	1.00	100.00	100.00	0.679	0.679	1.00
26	13:16	1.01	0.846	1.00	100.00	100.00	0.462	0.462	1.00
27	13:49	1.01	0.881	1.00	100.00	100.00	0.738	0.738	1.00
28	13:38	1.01	0.869	1.00	100.00	100.00	0.946	0.946	1.00
29	13:53	1.01	0.885	1.00	100.00	100.00	0.454	0.454	1.00
30	13:51	1.01	0.883	1.00	100.00	100.00	0.623	0.623	1.00
31	14:41	1.01	0.936	1.00	100.00	100.00	0.377	0.377	1.00
32	15:58	1.01	1.018	1.00	100.00	100.00	0.684	0.684	1.00
33	16:14	1.01	0.828	1.00	100.00	100.00	0.540	0.540	1.00
34	17:29	1.01	0.891	1.00	100.00	100.00	0.465	0.465	1.00
35	17:47	1.01	0.907	1.00	100.00	100.00	0.984	0.984	1.00
36	17:47	1.01	0.907	1.00	100.00	100.00	0.382	0.382	1.00
37	18:46	1.01	0.957	1.00	100.00	100.00	1.012	1.012	1.00
38	19:43	1.01	1.005	1.00	100.00	100.00	0.939	0.939	1.00
39	21:10	1.01	1.079	1.00	100.00	100.00	0.450	0.450	1.00
40	23:48	1.01	1.213	1.00	100.00	100.00	0.841	0.841	1.00
41	23:58	1.01	1.222	1.00	100.00	100.00	0.501	0.501	1.00
42	24:38	1.01	1.256	1.00	200.00	200.00	0.445	0.445	1.00

000130

RIC
02/17/93 17:12:00
SAMPLE: CLP,,,VSTD200,L,S,200PPB-V0121,VOA/H,IC-200,
CONDS.: PACK/2,,38FB0217,,
RANGE: G 1,1620 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30217R13 #1
CALI: 30217R13 #7

SCANS 25 TO 1620



96 3492 5100

Quantitation Report File: 30217R13

Data: 30217R13.TI
02/17/93 17:12:00
Sample: CLP,,,VSTD200,L,S,200PPB-V0121,VOA/H,IC-200,
Conds.: PACK/2,,3BFB0217,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C040	CARBON DISULFIDE
14	C045	1,1-DICHLOROETHENE
15	C050	1,1-DICHLOROETHANE
16	C053	1,2-DICHLOROETHENE(TOTAL)
17	C060	CHLOROFORM
18	C110	2-BUTANONE
19	C065	1,2-DICHLOROETHANE
20	C115	1,1,1-TRICHLOROETHANE
21	C120	CARBON TETRACHLORIDE
22	C125	VINYL ACETATE
23	C130	BROMODICHLOROMETHANE
24	C140	1,2-DICHLOROPROPANE
25	C143	CIS-1,3-DICHLOROPROPENE
26	C150	TRICHLOROETHENE
27	C155	DIBROMOCHLOROMETHANE
28	C165	BENZENE
29	C160	1,1,2-TRICHLOROETHANE
30	C172	TRANS-1,3-DICHLOROPROPENE
31	C175	2-CHLOROETHOXY ETHENE
32	C180	BROMOFORM
33	C205	4-METHYL-2-PENTANONE
34	C210	2-HEXANONE
35	C225	1,1,2,2-TETRACHLOROETHANE
36	C220	TETRACHLOROETHENE
37	C230	TOLUENE
38	C235	CHLOROBENZENE
39	C240	ETHYL BENZENE
40	C245	STYRENE
41	C255	M-XYLENE
42	C250	O,P-XYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	128	446	7:26	1	1.000	A BB	17735.	50.000	PPB	0.60
2	114	953	15:53	2	1.000	A BB	85483.	50.000	PPB	0.60
3	117	1188	19:48	3	1.000	A BB	89738.	50.000	PPB	0.60
4	65	582	9:42	1	1.305	A BB	104940.	200.000	PPB	2.40
5	98	1128	18:48	3	0.949	A BB	307897.	200.000	PPB	2.40
6	95	1387	23:07	3	1.168	A BB	233010.	200.000	PPB	2.40
7	50	52	0:52	1	0.117	A BB	86047.	200.000	PPB	2.40
8	94	88	1:28	1	0.197	A BB	99954.	200.000	PPB	2.40
9	62	113	1:53	1	0.253	A BB	102302.	200.000	PPB	2.40
10	64	161	2:41	1	0.361	A BB	43354.	200.000	PPB	2.40
11	84	266	4:26	1	0.596	A BB	88193.	200.000	PPB	2.40
12	43	335	5:35	1	0.751	A BB	72913.	200.000	PPB	2.40
13	76	334	5:34	1	0.749	A BB	277100.	200.000	PPB	2.40
14	96	410	6:50	1	0.919	A BB	87093.	200.000	PPB	2.40
15	63	483	8:03	1	1.083	A BB	193566.	200.000	PPB	2.40
16	96	521	8:41	1	1.168	A BB	204278.	400.000	PPB	4.79
17	83	553	9:13	1	1.240	A BB	220144.	200.000	PPB	2.40
18	43	589	9:49	1	1.321	A BB	162683.	200.000	PPB	2.40
19	62	588	9:48	1	1.318	A BB	149573.	200.000	PPB	2.40
20	97	644	10:44	2	0.676	A BB	177464.	200.000	PPB	2.40
21	117	662	11:02	2	0.695	A BB	153143.	200.000	PPB	2.40
22	43	678	11:18	2	0.711	A BB	341246.	200.000	PPB	2.40
23	83	702	11:42	2	0.737	A BB	238266.	200.000	PPB	2.40
24	63	764	12:44	2	0.802	A BB	141247.	200.000	PPB	2.40
25	75	779	12:59	2	0.817	A BB	209045.	200.000	PPB	2.40
26	130	806	13:26	2	0.846	A BB	150235.	200.000	PPB	2.40
27	129	840	14:00	2	0.881	A BB	224422.	200.000	PPB	2.40
28	78	827	13:47	2	0.868	A BB	317927.	200.000	PPB	2.40
29	97	844	14:04	2	0.886	A BB	141024.	200.000	PPB	2.40
30	75	842	14:02	2	0.884	A BB	193756.	200.000	PPB	2.40
31	63	893	14:53	2	0.937	A BB	122398.	200.000	PPB	2.40
32	173	970	16:10	2	1.018	A BB	206080.	200.000	PPB	2.40
33	43	987	16:27	3	0.831	A BB	353351.	200.000	PPB	2.40
34	43	1061	17:41	3	0.893	A BB	301464.	200.000	PPB	2.40
35	83	1080	18:00	3	0.909	A BB	331184.	200.000	PPB	2.40
36	164	1078	17:58	3	0.907	A BB	136046.	200.000	PPB	2.40
37	91	1137	18:57	3	0.957	A BB	344264.	200.000	PPB	2.40
38	112	1193	19:53	3	1.004	A BB	321786.	200.000	PPB	2.40
39	106	1280	21:20	3	1.077	A BB	151322.	200.000	PPB	2.40
40	104	1443	24:03	3	1.215	A BB	288006.	200.000	PPB	2.40
41	106	1453	24:13	3	1.223	A BB	165370.	200.000	PPB	2.40
42	106	1494	24:54	3	1.258	A BB	314404.	400.000	PPB	4.79

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:33	0.98	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:51	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:47	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:49	0.99	1.300	1.00	200.00	200.00	1.479	1.479	1.00
5	18:47	1.00	0.949	1.00	200.00	200.00	0.858	0.858	1.00
6	23:07	1.00	1.168	1.00	200.00	200.00	0.649	0.649	1.00
7	0:52	1.00	0.115	1.02	200.00	200.00	1.213	1.213	1.00
8	1:33	0.95	0.205	0.96	200.00	200.00	1.409	1.409	1.00
9	2:03	0.92	0.272	0.93	200.00	200.00	1.442	1.442	1.00
10	2:51	0.94	0.377	0.96	200.00	200.00	0.611	0.611	1.00
11	4:40	0.95	0.618	0.96	200.00	200.00	1.243	1.243	1.00
12	5:25	1.03	0.717	1.05	200.00	200.00	1.028	1.028	1.00

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
13	5:54	0.94	0.781	0.96	200.00	200.00	3.906	3.906	1.00
14	7:04	0.97	0.936	0.98	200.00	200.00	1.228	1.228	1.00
15	8:09	0.99	1.079	1.00	200.00	200.00	2.729	2.729	1.00
16	8:48	0.99	1.166	1.00	400.00	400.00	1.440	1.440	1.00
17	9:18	0.99	1.232	1.01	200.00	200.00	3.103	3.103	1.00
18	9:49	1.00	1.300	1.02	200.00	200.00	2.293	2.293	1.00
19	9:54	0.99	1.311	1.01	200.00	200.00	2.108	2.108	1.00
20	10:52	0.99	0.686	0.99	200.00	200.00	0.519	0.519	1.00
21	11:12	0.99	0.707	0.98	200.00	200.00	0.448	0.448	1.00
22	11:23	0.99	0.718	0.99	200.00	200.00	0.998	0.998	1.00
23	11:44	1.00	0.740	1.00	200.00	200.00	0.697	0.697	1.00
24	12:45	1.00	0.804	1.00	200.00	200.00	0.413	0.413	1.00
25	12:59	1.00	0.819	1.00	200.00	200.00	0.611	0.611	1.00
26	13:26	1.00	0.848	1.00	200.00	200.00	0.439	0.439	1.00
27	13:59	1.00	0.882	1.00	200.00	200.00	0.656	0.656	1.00
28	13:47	1.00	0.870	1.00	200.00	200.00	0.930	0.930	1.00
29	14:03	1.00	0.886	1.00	200.00	200.00	0.412	0.412	1.00
30	14:01	1.00	0.884	1.00	200.00	200.00	0.567	0.567	1.00
31	14:51	1.00	0.937	1.00	200.00	200.00	0.358	0.358	1.00
32	16:09	1.00	1.019	1.00	200.00	200.00	0.603	0.603	1.00
33	16:25	1.00	0.830	1.00	200.00	200.00	0.984	0.984	1.00
34	17:40	1.00	0.893	1.00	200.00	200.00	0.840	0.840	1.00
35	17:59	1.00	0.909	1.00	200.00	200.00	0.923	0.923	1.00
36	17:57	1.00	0.907	1.00	200.00	200.00	0.379	0.379	1.00
37	18:56	1.00	0.957	1.00	200.00	200.00	0.959	0.959	1.00
38	19:53	1.00	1.005	1.00	200.00	200.00	0.896	0.896	1.00
39	21:21	1.00	1.079	1.00	200.00	200.00	0.422	0.422	1.00
40	24:03	1.00	1.216	1.00	200.00	200.00	0.802	0.802	1.00
41	24:13	1.00	1.224	1.00	200.00	200.00	0.461	0.461	1.00
42	24:54	1.00	1.259	1.00	400.00	400.00	0.438	0.438	1.00

GC/MS Tuning and Mass Calibration

BROMOFLUOROBENZENE

Case Number:	11740	Laboratory:	TMA/ARLI	Contract:	68-01-7435
Inst ID:	4500	Sens Date:	02/17/93	Sens Time:	9:05:00
Lab ID:	3BFB0217	Cali Date:	02/07/92	Analyst:	KC

Data release authorized by: _____

m/z	Ion Abundance Criteria	Spec # 182	
50	15 to 40% of mass 95	23.40	
75	30 to 60% of mass 95	45.88	
95	base peak, 100% relative abundance	100.00	
96	5 to 9% of mass 95	7.09	
173	less than 1% of mass 95	0.00	
174	greater than 50% of mass 95	76.41	
175	5 to 9% of mass 174	5.57	(7.29) 1
176	between 95% and 101% of mass 174	72.82	(95.30) 1
177	5 to 9% of mass 176	5.00	(6.87) 2

1 - value in parenthesis is % of mass 174
2 - value in parenthesis is % of mass 176

9613492.5105

000135

Mass List Data: 3BFB0217 # 183 Base m/z: 95
02/17/93 9:05:00 + 7:37 Cali: 30209R03 # 7 RIC: 98944.
Sample: 50NG OF BFB
Conds.: 2UL DI
#182 to #184 summed - #172

36 0.00 0. Minima Min Inten: 0.
177 Maxima # 0

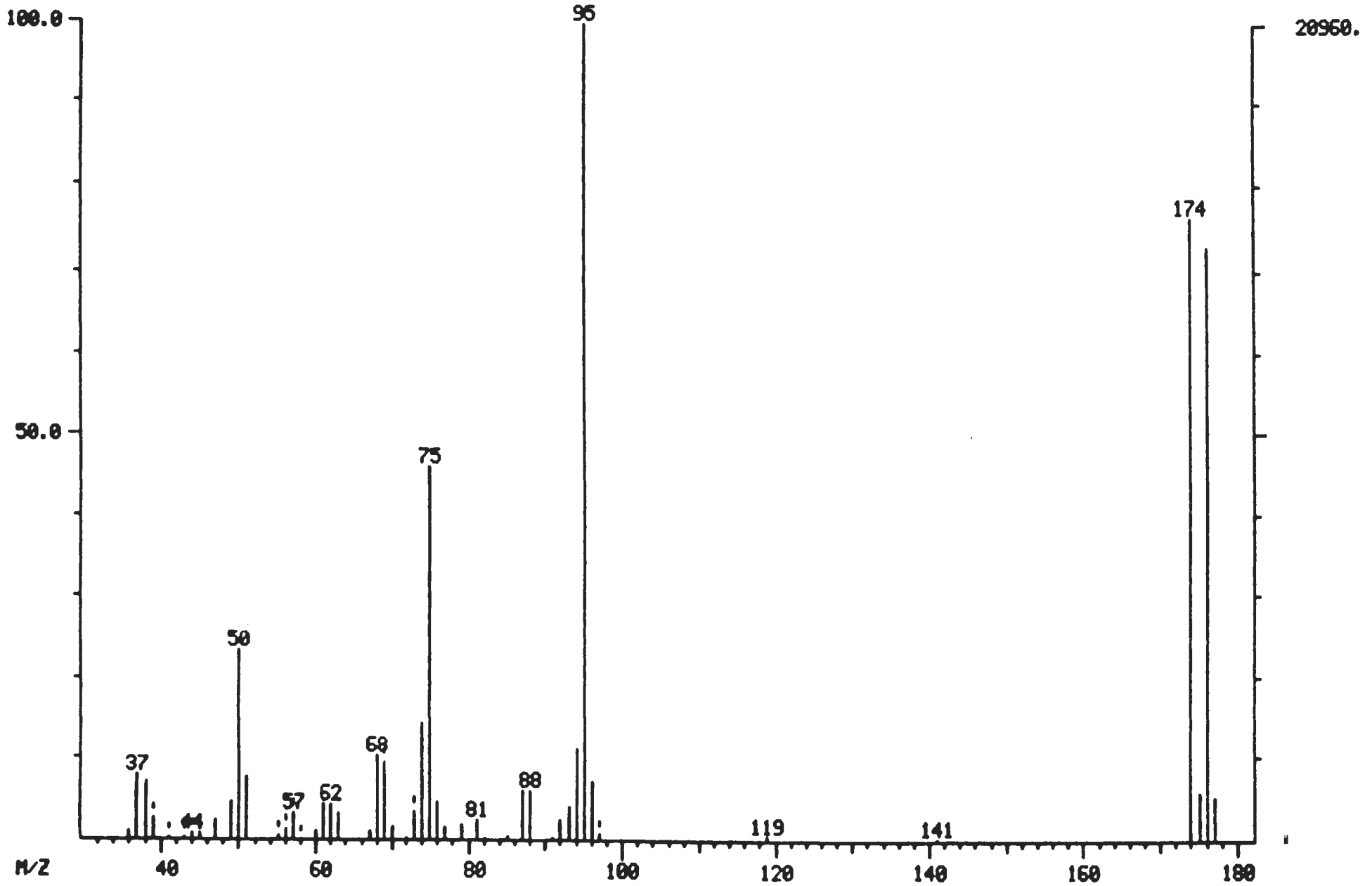
Mass		% RA	Inten.
36?		1.14	239.
37?		7.66	1606.
38?		6.90	1446.
39?	S	2.61	547.
41?	S	0.39	82.
43?	S	0.30	63.
44?	S	0.76	159.
45?	S	0.70	147.
47?		2.48	520.
49?		4.66	976.
50?		23.40	4904.
51?		7.50	1572.
55?	S	0.55	116.
56?	S	1.36	286.
57?	S	3.15	661.
58?	S	0.12	25.
60?		1.07	225.
61?		4.34	910.
62?		4.36	914.
63?		3.30	692.
67?		1.10	230.
68?		10.11	2120.
69	S	9.30	1950.
70		1.64	343.
72		0.26	54.
73	S	3.42	717.
74		14.16	2968.
75		45.88	9616.
76		4.69	984.
77		1.48	310.
79		1.92	403.
81		2.51	526.
82		0.30	62.
85		0.57	119.
87		5.82	1220.
88		5.96	1250.
91		0.29	60.
92		2.49	521.
93		4.15	869.
94		11.09	2324.
95	S	100.00	20960.
96		7.09	1486.
97	S	0.70	146.
119		0.58	121.
141		0.31	66.
174		76.41	16016.
175		5.57	1168.
176		72.82	15264.
177		5.00	1048.

000136

MASS SPECTRUM
02/1.. 93 9:05:00 + 7:37
SAMPLE: 50NG OF BFB
CONDS.: 2UL DI
#182 TO #184 SUMMED - #172

DATA: 3BFB0217 #183
CALI: 30209R03 #7

BASE M/Z: 95
RIC: 98944.

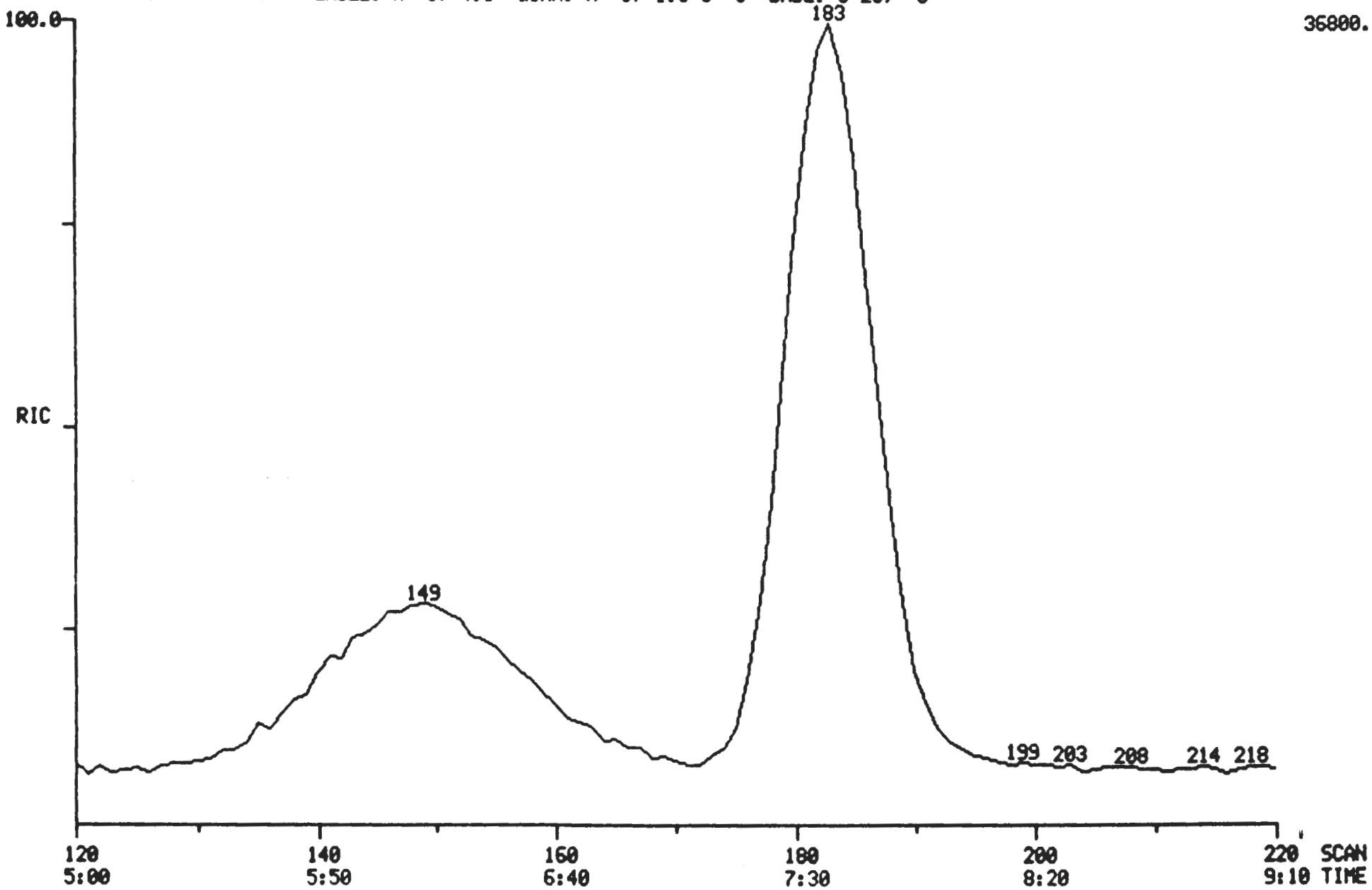


96134025.006

000137

RIC
02/17/93 9:05:00
SAMPLE: 50NG OF BFB
CONDS.: 2UL DI
RANGE: G 1, 244 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 3BFB0217 #182 SCANS 120 TO 220
CALI: 30209R03 #7



96 3192 5107

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Instrument ID: BULL Calibration date: 02/18/93 Time: 753

Lab File ID: 30218B01 Init. Calib. Date(s): 01/22/93 01/22/93

Heated Purge: (Y/N) N Init. Calib. Times: 1243 1617

GC Column: CAP ID: 0.530(mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Chloromethane	2.025	1.578	0.010	22.1	
Bromomethane	1.099	1.133	0.100	-3.1	25.0
Vinyl Chloride	1.541	1.515	0.100	1.7	25.0
Chloroethane	0.790	0.852	0.010	-7.8	
Methylene Chloride	1.436	1.522	0.010	-6.0	
Acetone	0.287	0.229	0.010	20.2	
Carbon Disulfide	4.027	4.057	0.010	-0.7	
1,1-Dichloroethene	1.342	1.424	0.100	-6.1	25.0
1,1-Dichloroethane	3.084	3.417	0.200	-10.8	25.0
1,2-Dichloroethene (total)	1.725	1.878	0.010	-8.9	
Chloroform	3.351	3.821	0.200	-14.0	25.0
1,2-Dichloroethane	2.248	2.408	0.100	-7.1	25.0
2-Butanone	0.526	0.572	0.010	-8.7	
1,1,1-Trichloroethane	0.577	0.611	0.100	-5.9	25.0
Carbon Tetrachloride	0.514	0.538	0.100	-4.7	25.0
Bromodichloromethane	0.696	0.747	0.200	-7.3	25.0
1,2-Dichloropropane	0.472	0.499	0.010	-5.7	
cis-1,3-Dichloropropene	0.634	0.672	0.200	-6.0	25.0
Trichloroethene	0.444	0.458	0.300	-3.2	25.0
Dibromochloromethane	0.586	0.619	0.100	-5.6	25.0
1,1,2-Trichloroethane	0.399	0.415	0.100	-4.0	25.0
Benzene	1.001	1.047	0.500	-4.6	25.0
trans-1,3-Dichloropropene	0.538	0.563	0.100	-4.6	25.0
Bromoform	0.359	0.380	0.100	-5.8	25.0
4-Methyl-2-Pentanone	0.614	0.574	0.010	6.5	
2-Hexanone	0.273	0.239	0.010	12.4	
Tetrachloroethene	0.444	0.412	0.200	7.2	25.0
1,1,2,2-Tetrachloroethane	0.717	0.687	0.500	4.2	25.0
Toluene	1.303	1.248	0.400	4.2	25.0
Chlorobenzene	1.035	1.028	0.500	0.7	25.0
Ethylbenzene	0.481	0.489	0.100	-1.7	25.0
Styrene	1.020	1.026	0.300	-0.6	25.0
Xylene (total)	0.610	0.617	0.300	-1.1	25.0
Toluene-d8	1.001	1.039	0.010	-3.8	
Bromofluorobenzene	0.834	0.862	0.200	-3.4	25.0
1,2-Dichloroethane-d4	1.599	1.883	0.010	-17.8	

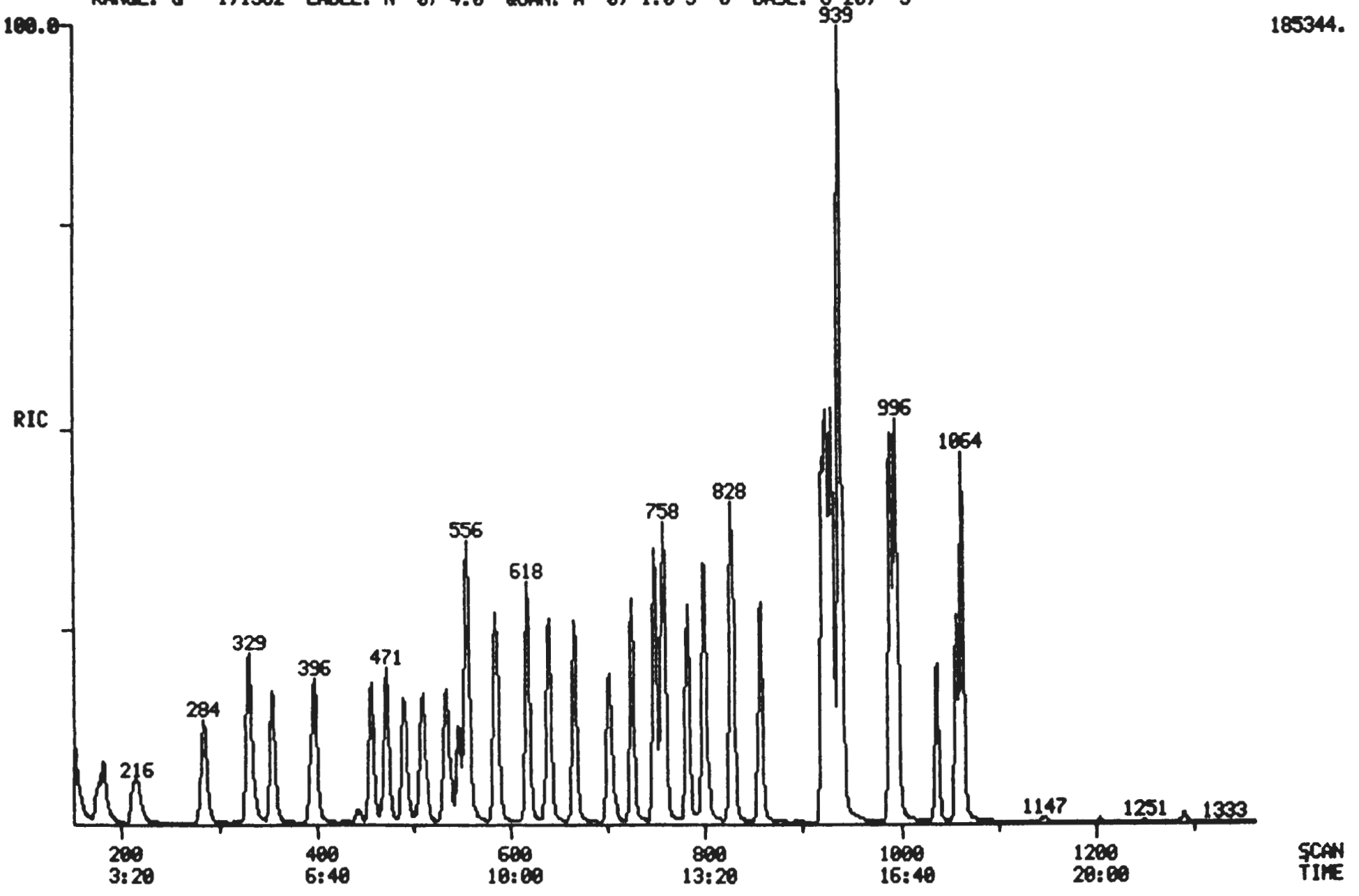
All other compounds must meet a minimum RRF of 0.010.

KK 10/24/95

000139

RIC
02/18/93 7:53:00
SAMPLE: CLP,,,VSTD050,L,W,50PPB-V0121,VOA,CC
CONDS.: CAP/.53,30122BWAVG,38F0218,,
RANGE: G 1,1362 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30218801 #1
CALI: 30218801 #3
SCANS 152 TO 1362



Quantitation Report File: 30218B01

Data: 30218B01.TI
02/18/93 7:53:00
Sample: CLP,,,VSTD050,L,W,50PPB-V0121,VOA,CC
Conds.: CAP/.53,30122BWAVG,3BF0218,,
Formula: 5ML Instrument: BULL Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	CI01	BROMOCHLOROMETHANE	*INTERNAL STANDARD*
2	CI10	1,4-DIFLUOROBENZENE	*INTERNAL STANDARD*
3	CI20	D5-CHLOROBENZENE	*INTERNAL STANDARD*
4	CS15	D4-1,2-DICHLOROETHANE	*SURROGATE*
5	CS05	D8-TOLUENE	*SURROGATE*
6	CS10	BROMOFLUOROBENZENE	*SURROGATE*
7	C010	CHLOROMETHANE	
8	C020	VINYL CHLORIDE	
9	C015	BROMOMETHANE	
10	C025	CHLOROETHANE	
11	C035	ACETONE	
12	C045	1,1-DICHLOROETHENE	
13	C040	CARBON DISULFIDE	
14	C030	METHYLENE CHLORIDE	
15	C055	TRANS-1,2-DICHLOROETHENE	
16	C050	1,1-DICHLOROETHANE	
17	C125	VINYL ACETATE	
18	C110	2-BUTANONE	
19	C053	CIS-1,2-DICHLOROETHENE	
20	C060	CHLOROFORM	
21	C115	1,1,1-TRICHLOROETHANE	
22	C120	CARBON TETRACHLORIDE	
23	C165	BENZENE	
24	C065	1,2-DICHLOROETHANE	
25	C150	TRICHLOROETHENE	
26	C140	1,2-DICHLOROPROPANE	
27	C130	BROMODICHLOROMETHANE	
28	C205	4-METHYL-2-PENTANONE	
29	C143	CIS-1,3-DICHLOROPROPENE	
30	C230	TOLUENE	
31	C172	TRANS-1,3-DICHLOROPROPENE	
32	C160	1,1,2-TRICHLOROETHANE	
33	C210	2-HEXANONE	
34	C220	TETRACHLOROETHENE	
35	C155	DIBROMOCHLOROMETHANE	
36	C235	CHLOROBENZENE	
37	C240	ETHYLBENZENE	
38	C250	M,P-XYLENES	
39	C251	O-XYLENE	
40	C245	STYRENE	
41	C180	BROMOFORM	
42	C225	1,1,2,2-TETRACHLOROETHANE	
43	C175	2-CHLOROETHYL VINYL ETHER	

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	128	490	8:10	1	1.000	A BB	21831.	50.000	NG/ML	2.27
2	114	586	9:46	2	1.000	A BB	110516.	50.000	NG/ML	2.27
3	117	920	15:20	3	1.000	A BB	112835.	50.000	NG/ML	2.27
4	65	547	9:07	1	1.116	A BV	41115.	50.000	NG/ML	2.27
5	98	749	12:29	3	0.814	A BB	117192.	50.000	NG/ML	2.27
6	95	1064	17:44	3	1.157	A BB	97291.	50.000	NG/ML	2.27
7	50	178	2:58	1	0.363	A BB	34458.	50.000	NG/ML	2.27
8	62	182	3:02	1	0.371	A BB	33084.	50.000	NG/ML	2.27
9	94	213	3:33	1	0.435	A BB	24741.	50.000	NG/ML	2.27
10	64	218	3:38	1	0.445	A BB	18608.	50.000	NG/ML	2.27
11	43	280	4:40	1	0.571	A BB	5001.	50.000	NG/ML	2.27
12	96	284	4:44	1	0.580	A BB	31096.	50.000	NG/ML	2.27
13	76	329	5:29	1	0.671	A BB	88570.	50.000	NG/ML	2.27
14	84	329	5:29	1	0.671	A BB	33217.	50.000	NG/ML	2.27
15	96	353	5:53	1	0.720	A BB	34712.	50.000	NG/ML	2.27
16	63	395	6:35	1	0.806	A BB	74603.	50.000	NG/ML	2.27
17	43	397	6:37	2	0.677	A BB	69263.	50.000	NG/ML	2.27
18	43	442	7:22	1	0.902	A BB	12486.	50.000	NG/ML	2.27
19	96	456	7:36	1	0.931	A BB	40997.	50.000	NG/ML	2.27
20	83	471	7:51	1	0.961	A BB	83427.	50.000	NG/ML	2.27
21	97	510	8:30	2	0.870	A BB	67532.	50.000	NG/ML	2.27
22	117	535	8:55	2	0.913	A BB	59461.	50.000	NG/ML	2.27
23	78	556	9:16	2	0.949	A BB	115704.	50.000	NG/ML	2.27
24	62	557	9:17	1	1.137	A BB	52563.	50.000	NG/ML	2.27
25	130	618	10:18	2	1.055	A BB	50668.	50.000	NG/ML	2.27
26	63	640	10:40	2	1.092	A BB	55131.	50.000	NG/ML	2.27
27	83	666	11:06	2	1.137	A BB	82562.	50.000	NG/ML	2.27
28	43	703	11:43	3	0.764	A BB	64738.	50.000	NG/ML	2.27
29	75	725	12:05	2	1.237	A BB	74304.	50.000	NG/ML	2.27
30	91	758	12:38	3	0.824	A BB	140802.	50.000	NG/ML	2.27
31	75	782	13:02	2	1.334	A BB	62192.	50.000	NG/ML	2.27
32	97	799	13:19	2	1.363	A BB	45831.	50.000	NG/ML	2.27
33	43	801	13:21	3	0.871	A BB	26931.	50.000	NG/ML	2.27
34	164	828	13:48	3	0.900	A BB	46434.	50.000	NG/ML	2.27
35	129	857	14:17	2	1.462	A BB	68383.	50.000	NG/ML	2.27
36	112	925	15:25	3	1.005	A BB	116043.	50.000	NG/ML	2.27
37	106	930	15:30	3	1.011	A BV	55224.	50.000	NG/ML	2.27
38	106	939	15:39	3	1.021	A VB	139276.	100.000	NG/ML	4.55
39	106	990	16:30	3	1.076	A BB	68544.	50.000	NG/ML	2.27
40	104	996	16:36	3	1.083	A BB	115801.	50.000	NG/ML	2.27
41	173	1037	17:17	2	1.770	A BB	42031.	50.000	NG/ML	2.27
42	83	1058	17:38	3	1.150	A BB	77533.	50.000	NG/ML	2.27
43	63	701	11:41	2	1.196	A BB	30216.	50.000	NG/ML	2.27

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	8:02	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	9:37	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	15:12	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	8:59	1.01	1.119	1.00	50.00	50.00	1.883	1.883	1.00
5	12:20	1.01	0.811	1.00	50.00	50.00	1.039	1.039	1.00
6	17:35	1.01	1.157	1.00	50.00	50.00	0.862	0.862	1.00
7	2:53	1.03	0.356	1.02	50.00	50.00	1.578	1.578	1.00
8	2:58	1.02	0.368	1.01	50.00	50.00	1.515	1.515	1.00
9	3:27	1.03	0.428	1.01	50.00	50.00	1.133	1.133	1.00
10	3:32	1.03	0.439	1.01	50.00	50.00	0.852	0.852	1.00
11	4:35	1.02	1.000	0.57	50.00	50.00	0.229	0.229	1.00

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
12	4:37	1.03	0.574	1.01	50.00	50.00	1.424	1.424	1.00
13	5:23	1.02	1.000	0.67	50.00	50.00	4.057	4.057	1.00
14	5:24	1.02	1.000	0.67	50.00	50.00	1.522	1.522	1.00
15	5:45	1.02	0.715	1.01	50.00	50.00	1.590	1.590	1.00
16	6:27	1.02	0.805	1.00	50.00	50.00	3.417	3.417	1.00
17	6:29	1.02	0.672	1.01	50.00	50.00	0.627	0.627	1.00
18	7:14	1.02	0.902	1.00	50.00	50.00	0.572	0.572	1.00
19	7:28	1.02	0.929	1.00	50.00	50.00	1.878	1.878	1.00
20	7:43	1.02	0.963	1.00	50.00	50.00	3.821	3.821	1.00
21	8:21	1.02	0.868	1.00	50.00	50.00	0.611	0.611	1.00
22	8:46	1.02	0.912	1.00	50.00	50.00	0.538	0.538	1.00
23	9:07	1.02	0.948	1.00	50.00	50.00	1.047	1.047	1.00
24	9:09	1.01	1.139	1.00	50.00	50.00	2.408	2.408	1.00
25	10:09	1.01	1.055	1.00	50.00	50.00	0.458	0.458	1.00
26	10:31	1.01	1.094	1.00	50.00	50.00	0.499	0.499	1.00
27	10:57	1.01	1.139	1.00	50.00	50.00	0.747	0.747	1.00
28	11:35	1.01	1.000	0.76	50.00	50.00	0.574	0.574	1.00
29	11:57	1.01	1.241	1.00	50.00	50.00	0.672	0.672	1.00
30	12:29	1.01	0.821	1.00	50.00	50.00	1.248	1.248	1.00
31	12:54	1.01	1.241	1.08	50.00	50.00	0.563	0.563	1.00
32	13:11	1.01	1.369	1.00	50.00	50.00	0.415	0.415	1.00
33	13:13	1.01	0.870	1.00	50.00	50.00	0.239	0.239	1.00
34	13:39	1.01	0.898	1.00	50.00	50.00	0.412	0.412	1.00
35	14:09	1.01	1.468	1.00	50.00	50.00	0.619	0.619	1.00
36	15:17	1.01	1.004	1.00	50.00	50.00	1.028	1.028	1.00
37	15:22	1.01	1.011	1.00	50.00	50.00	0.489	0.489	1.00
38	15:30	1.01	1.020	1.00	100.00	100.00	0.617	0.617	1.00
39	16:21	1.01	1.076	1.00	50.00	50.00	0.607	0.607	1.00
40	16:28	1.01	1.000	1.08	50.00	50.00	1.026	1.026	1.00
41	17:09	1.01	1.782	0.99	50.00	50.00	0.380	0.380	1.00
42	17:29	1.01	1.150	1.00	50.00	50.00	0.687	0.687	1.00
43	11:33	1.01	1.000	1.20	50.00	50.00	0.273	0.273	1.00

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Instrument ID: 4500 Calibration date: 02/18/93 Time: 934

Lab File ID: 30218R01 Init. Calib. Date(s): 02/17/93 02/17/93

Heated Purge: (Y/N) Y Init. Calib. Times: 1411 1712

GC Column: PACK ID: 2.00(mm)

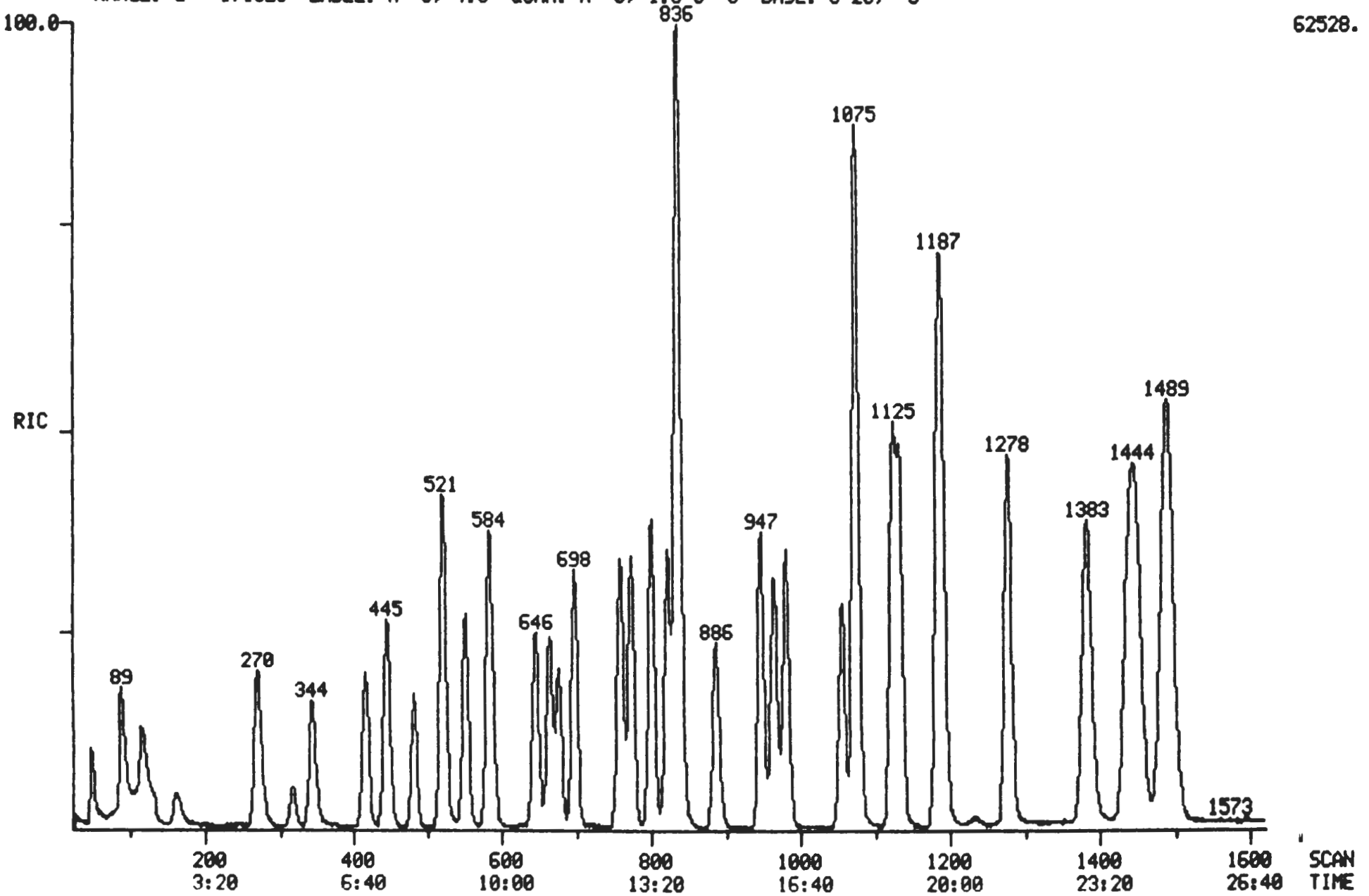
COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Chloromethane	1.217	1.156	0.010	5.0	
Bromomethane	1.444	1.363	0.100	5.6	25.0
Vinyl Chloride	1.394	1.423	0.100	-2.1	25.0
Chloroethane	0.731	0.649	0.010	11.2	
Methylene Chloride	1.472	1.437	0.010	2.4	
Acetone	0.896	0.916	0.010	-2.2	
Carbon Disulfide	3.463	3.652	0.010	-5.5	
1,1-Dichloroethene	1.061	1.127	0.100	-6.2	25.0
1,1-Dichloroethane	2.342	2.529	0.200	-8.0	25.0
1,2-Dichloroethene (total)	1.204	1.238	0.010	-2.8	
Chloroform	2.655	2.876	0.200	-8.3	25.0
1,2-Dichloroethane	1.827	1.887	0.100	-3.3	25.0
2-Butanone	2.056	1.931	0.010	6.1	
1,1,1-Trichloroethane	0.500	0.530	0.100	-6.0	25.0
Carbon Tetrachloride	0.440	0.466	0.100	-5.9	25.0
Bromodichloromethane	0.701	0.727	0.200	-3.7	25.0
1,2-Dichloropropane	0.416	0.419	0.010	-0.7	
cis-1,3-Dichloropropene	0.635	0.651	0.200	-2.5	25.0
Trichloroethene	0.439	0.462	0.300	-5.2	25.0
Dibromochloromethane	0.722	0.725	0.100	-0.4	25.0
1,1,2-Trichloroethane	0.445	0.426	0.100	4.3	25.0
Benzene	0.907	0.940	0.500	-3.6	25.0
trans-1,3-Dichloropropene	0.607	0.604	0.100	0.5	25.0
Bromoform	0.665	0.632	0.100	5.0	25.0
4-Methyl-2-Pentanone	0.854	0.875	0.010	-2.5	
2-Hexanone	0.718	0.762	0.010	-6.1	
Tetrachloroethene	0.388	0.408	0.200	-5.2	25.0
1,1,2,2-Tetrachloroethane	0.960	0.912	0.500	5.0	25.0
Toluene	1.006	1.021	0.400	-1.5	25.0
Chlorobenzene	0.919	0.931	0.500	-1.3	25.0
Ethylbenzene	0.445	0.436	0.100	2.0	25.0
Styrene	0.828	0.895	0.300	-8.1	25.0
Xylene (total)	0.436	0.475	0.300	-8.9	25.0
Toluene-d8	0.906	0.948	0.010	-4.6	
Bromofluorobenzene	0.719	0.693	0.200	3.6	25.0
1,2-Dichloroethane-d4	1.483	1.599	0.010	-7.8	

All other compounds must meet a minimum RRF of 0.010.

KR 10/24/93

000144

RIC
02/18/93 9:34:00
DATA: 30218R01 #1 SCANS 25 TO 1620
CALI: 30218R01 #7
SAMPLE: CLP,,,VSTD050,L,S,050PPB-V0121,VOA/H,CC,
CONDS.: PACK/2,30217SAVE,3BFB0218,,
RANGE: G 1,1620 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



96B342.5114

Quantitation Report File: 30218R01

Data: 30218R01.TI
02/18/93 9:34:00
Sample: CLP,,,VSTD050,L,S,050PPB-V0121,VOA/H,CC,
Conds.: PACK/2,30217SAVE,3BFB0218,,
Formula: 5 Instrument: 4500 Weight: 0.000
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C040	CARBON DISULFIDE
14	C045	1,1-DICHLOROETHENE
15	C050	1,1-DICHLOROETHANE
16	C053	1,2-DICHLOROETHENE(TOTAL)
17	C060	CHLOROFORM
18	C110	2-BUTANONE
19	C065	1,2-DICHLOROETHANE
20	C115	1,1,1-TRICHLOROETHANE
21	C120	CARBON TETRACHLORIDE
22	C125	VINYL ACETATE
23	C130	BROMODICHLOROMETHANE
24	C140	1,2-DICHLOROPROPANE
25	C143	CIS-1,3-DICHLOROPROPENE
26	C150	TRICHLOROETHENE
27	C155	DIBROMOCHLOROMETHANE
28	C165	BENZENE
29	C160	1,1,2-TRICHLOROETHANE
30	C172	TRANS-1,3-DICHLOROPROPENE
31	C175	2-CHLOROETHOXY ETHENE
32	C180	BROMOFORM
33	C205	4-METHYL-2-PENTANONE
34	C210	2-HEXANONE
35	C225	1,1,2,2-TETRACHLOROETHANE
36	C220	TETRACHLOROETHENE
37	C230	TOLUENE
38	C235	CHLOROBENZENE
39	C240	ETHYL BENZENE
40	C245	STYRENE
41	C255	M-XYLENE
42	C250	O,P-XYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	445	7:25	1	1.000	A BB	19159.	50.000 PPB	2.27
2	114	947	15:47	2	1.000	A BB	87010.	50.000 PPB	2.27
3	117	1184	19:44	3	1.000	A BB	91919.	50.000 PPB	2.27
4	65	582	9:42	1	1.308	A BB	30640.	50.000 PPB	2.27
5	98	1124	18:44	3	0.949	A BB	87174.	50.000 PPB	2.27
6	95	1383	23:03	3	1.168	A BB	63705.	50.000 PPB	2.27
7	50	50	0:50	1	0.112	A BB	22144.	50.000 PPB	2.27
8	94	89	1:29	1	0.200	A BB	26106.	50.000 PPB	2.27
9	62	116	1:56	1	0.261	A BB	27266.	50.000 PPB	2.27
10	64	162	2:42	1	0.364	A BB	12432.	50.000 PPB	2.27
11	84	270	4:30	1	0.607	A BB	27530.	50.000 PPB	2.27
12	43	317	5:17	1	0.712	A BB	17544.	50.000 PPB	2.27
13	76	344	5:44	1	0.773	A BB	69959.	50.000 PPB	2.27
14	96	416	6:56	1	0.935	A BB	21584.	50.000 PPB	2.27
15	63	482	8:02	1	1.083	A BB	48448.	50.000 PPB	2.27
16	96	521	8:41	1	1.171	A BB	47453.	100.000 PPB	4.55
17	83	552	9:12	1	1.240	A BB	55110.	50.000 PPB	2.27
18	43	583	9:43	1	1.310	A BB	36989.	50.000 PPB	2.27
19	62	587	9:47	1	1.319	A BB	36152.	50.000 PPB	2.27
20	97	646	10:46	2	0.682	A BB	46106.	50.000 PPB	2.27
21	117	665	11:05	2	0.702	A BB	40563.	50.000 PPB	2.27
22	43	677	11:17	2	0.715	A BB	82668.	50.000 PPB	2.27
23	83	697	11:37	2	0.736	A BB	63295.	50.000 PPB	2.27
24	63	759	12:39	2	0.801	A BB	36466.	50.000 PPB	2.27
25	75	773	12:53	2	0.816	A BB	56658.	50.000 PPB	2.27
26	130	800	13:20	2	0.845	A BB	40230.	50.000 PPB	2.27
27	129	833	13:53	2	0.880	A BB	63124.	50.000 PPB	2.27
28	78	822	13:42	2	0.868	A BB	81787.	50.000 PPB	2.27
29	97	837	13:57	2	0.884	A BB	37065.	50.000 PPB	2.27
30	75	836	13:56	2	0.883	A BB	52585.	50.000 PPB	2.27
31	63	887	14:47	2	0.937	A BB	28539.	50.000 PPB	2.27
32	173	964	16:04	2	1.018	A BB	54960.	50.000 PPB	2.27
33	43	981	16:21	3	0.829	A BB	80414.	50.000 PPB	2.27
34	43	1056	17:36	3	0.892	A BB	70062.	50.000 PPB	2.27
35	83	1075	17:55	3	0.908	A BB	83818.	50.000 PPB	2.27
36	164	1074	17:54	3	0.907	A BB	37498.	50.000 PPB	2.27
37	91	1133	18:53	3	0.957	A BB	93855.	50.000 PPB	2.27
38	112	1190	19:50	3	1.005	A BB	85592.	50.000 PPB	2.27
39	106	1277	21:17	3	1.079	A BB	40104.	50.000 PPB	2.27
40	104	1438	23:58	3	1.215	A BB	82227.	50.000 PPB	2.27
41	106	1449	24:09	3	1.224	A BB	44629.	50.000 PPB	2.27
42	106	1489	24:49	3	1.258	A BB	87371.	100.000 PPB	4.55

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:16	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:41	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:37	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:38	1.01	1.326	0.99	50.00	50.00	1.599	1.599	1.00
5	18:36	1.01	0.948	1.00	50.00	50.00	0.948	0.948	1.00
6	22:55	1.01	1.168	1.00	50.00	50.00	0.693	0.693	1.00
7	0:51	0.98	0.117	0.96	50.00	50.00	1.156	1.156	1.00
8	1:28	1.01	0.202	0.99	50.00	50.00	1.363	1.363	1.00
9	1:53	1.03	0.259	1.01	50.00	50.00	1.423	1.423	1.00
10	2:36	1.04	0.358	1.02	50.00	50.00	0.649	0.649	1.00
11	4:14	1.06	0.583	1.04	50.00	50.00	1.437	1.437	1.00
12	5:03	1.05	0.695	1.03	50.00	50.00	0.916	0.916	1.00

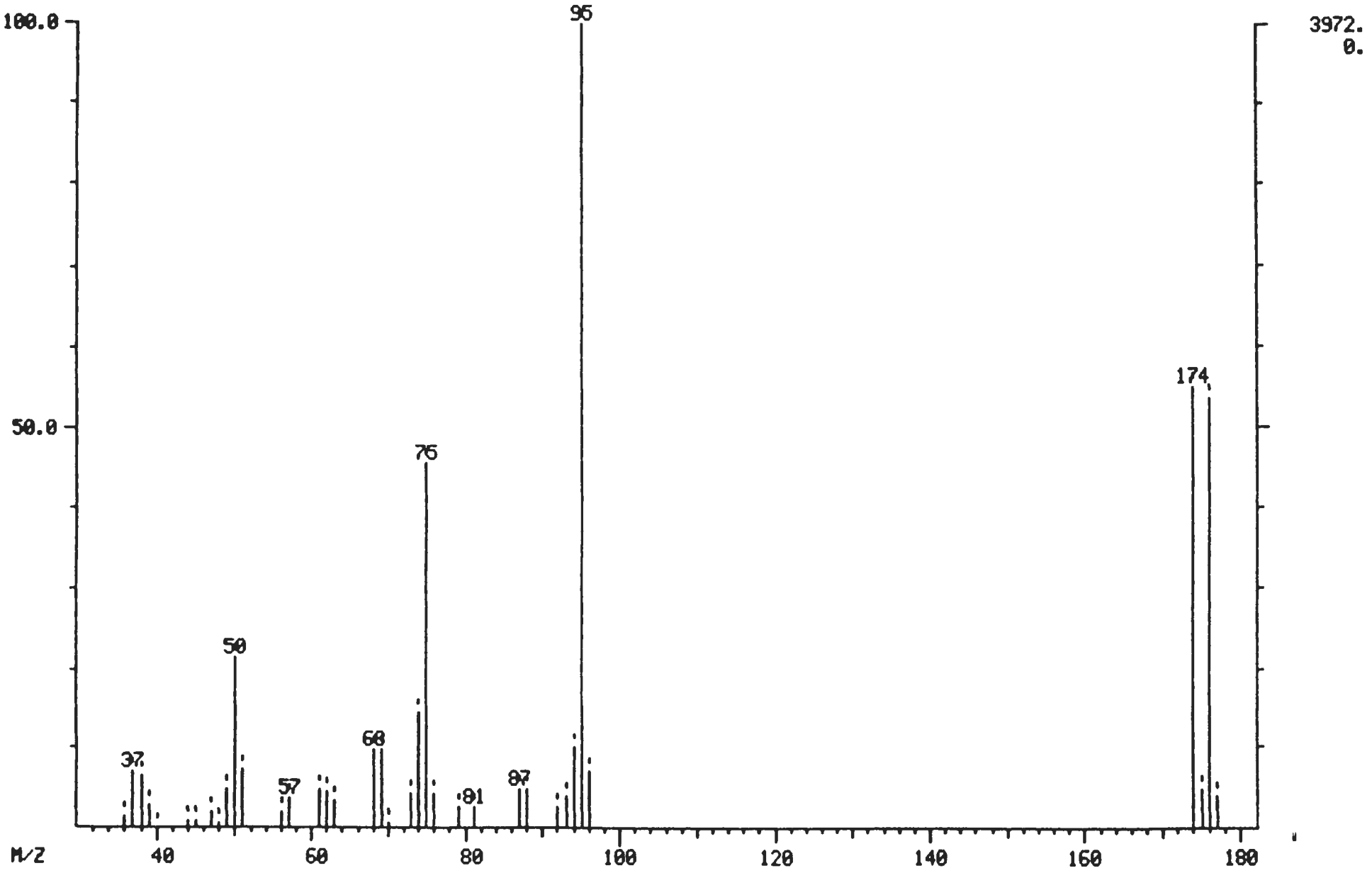
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
13	5:32	1.04	0.761	1.02	50.00	50.00	3.652	3.652	1.00
14	6:47	1.02	0.933	1.00	50.00	50.00	1.127	1.127	1.00
15	7:55	1.01	1.089	0.99	50.00	50.00	2.529	2.529	1.00
16	8:36	1.01	1.183	0.99	100.00	100.00	1.238	1.238	1.00
17	9:07	1.01	1.255	0.99	50.00	50.00	2.876	2.876	1.00
18	9:39	1.01	1.328	0.99	50.00	50.00	1.931	1.931	1.00
19	9:43	1.01	1.337	0.99	50.00	50.00	1.887	1.887	1.00
20	10:42	1.01	0.682	1.00	50.00	50.00	0.530	0.530	1.00
21	11:01	1.01	0.702	1.00	50.00	50.00	0.466	0.466	1.00
22	11:14	1.00	0.716	1.00	50.00	50.00	0.950	0.950	1.00
23	11:34	1.00	0.738	1.00	50.00	50.00	0.727	0.727	1.00
24	12:35	1.01	0.802	1.00	50.00	50.00	0.419	0.419	1.00
25	12:49	1.01	0.817	1.00	50.00	50.00	0.651	0.651	1.00
26	13:16	1.01	0.846	1.00	50.00	50.00	0.462	0.462	1.00
27	13:49	1.00	0.881	1.00	50.00	50.00	0.725	0.725	1.00
28	13:38	1.00	0.869	1.00	50.00	50.00	0.940	0.940	1.00
29	13:53	1.00	0.885	1.00	50.00	50.00	0.426	0.426	1.00
30	13:51	1.01	0.883	1.00	50.00	50.00	0.604	0.604	1.00
31	14:41	1.01	0.936	1.00	50.00	50.00	0.328	0.328	1.00
32	15:58	1.01	1.018	1.00	50.00	50.00	0.632	0.632	1.00
33	16:14	1.01	0.828	1.00	50.00	50.00	0.875	0.875	1.00
34	17:29	1.01	0.891	1.00	50.00	50.00	0.762	0.762	1.00
35	17:47	1.01	0.907	1.00	50.00	50.00	0.912	0.912	1.00
36	17:47	1.01	0.907	1.00	50.00	50.00	0.408	0.408	1.00
37	18:46	1.01	0.957	1.00	50.00	50.00	1.021	1.021	1.00
38	19:43	1.01	1.005	1.00	50.00	50.00	0.931	0.931	1.00
39	21:10	1.01	1.079	1.00	50.00	50.00	0.436	0.436	1.00
40	23:48	1.01	1.213	1.00	50.00	50.00	0.895	0.895	1.00
41	23:58	1.01	1.222	1.00	50.00	50.00	0.486	0.486	1.00
42	24:38	1.01	1.256	1.00	100.00	100.00	0.475	0.475	1.00

000148

MASS SPECTRUM
01/22/93 12:28:00 + 3:25
SAMPLE: 50NG BFB
CONDS.: CAP/.53,,DI,,
TEMP: 160 DEG. C
#235 TO #237 AVERAGED - #230

DATA: 3BF0122A #236
CALI: 3BF0122A #3

BASE M/Z: 95
RIC: 16576.



96130492.F119

Mass List
01/22/93 12:28:00 + 3:25
Sample: 50NG BFB
Conds.: CAP/.53,,DI,,
#235 to #237 averaged - #230

Data: 3BF0122A # 236
Cali: 3BF0122A # 3

Base m/z: 95
RIC: 16576.

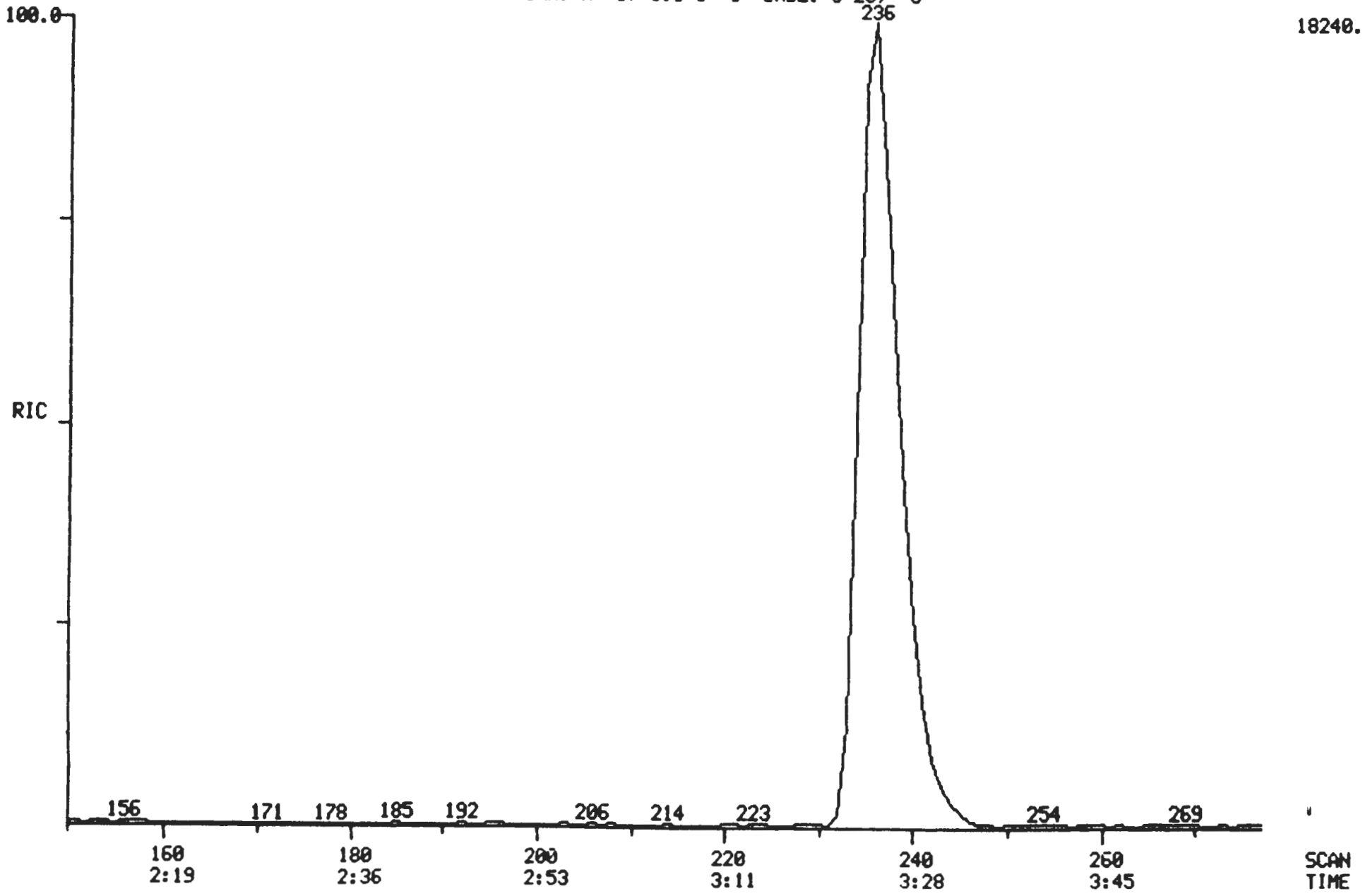
36 0.00 0. Minima Min Inten: 0.
177 Maxima # 0

Mass		% RA	Inten.
36?	S	1.38	55.
37?	S	7.02	279.
38?	S	6.29	250.
39?	S	2.74	109.
40?	S	0.03	1.
44?	S	0.81	32.
45?	S	0.93	37.
47?	S	2.04	81.
48?	S	0.43	17.
49?	S	4.76	189.
50?	S	21.68	861.
51?	S	7.05	280.
56?	S	1.94	77.
57?	S	3.70	147.
61?	S	4.71	187.
62?	S	4.51	179.
63?	S	3.27	130.
68?	S	9.79	389.
69	S	9.79	389.
70	S	0.45	18.
73	S	4.28	170.
74	S	14.45	574.
75	S	45.52	1808.
76	S	4.23	168.
79	S	2.39	95.
81	S	2.62	104.
87	S	4.81	191.
88	S	4.81	191.
92	S	2.52	100.
93	S	3.78	150.
94	S	10.05	399.
95	S	100.00	3972.
96	S	7.02	279.
174	S	55.09	2188.
175	S	4.61	183.
176	S	53.68	2132.
177	S	3.75	149.

000150

RIC
01/22/93 12:28:00
SAMPLE: 50NG BFB
CONDS.: CAP/.53,,DI,,
RANGE: G 1, 277 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 3BF0122A #235 SCANS 150 TO 277
CALI: CALTAB #3



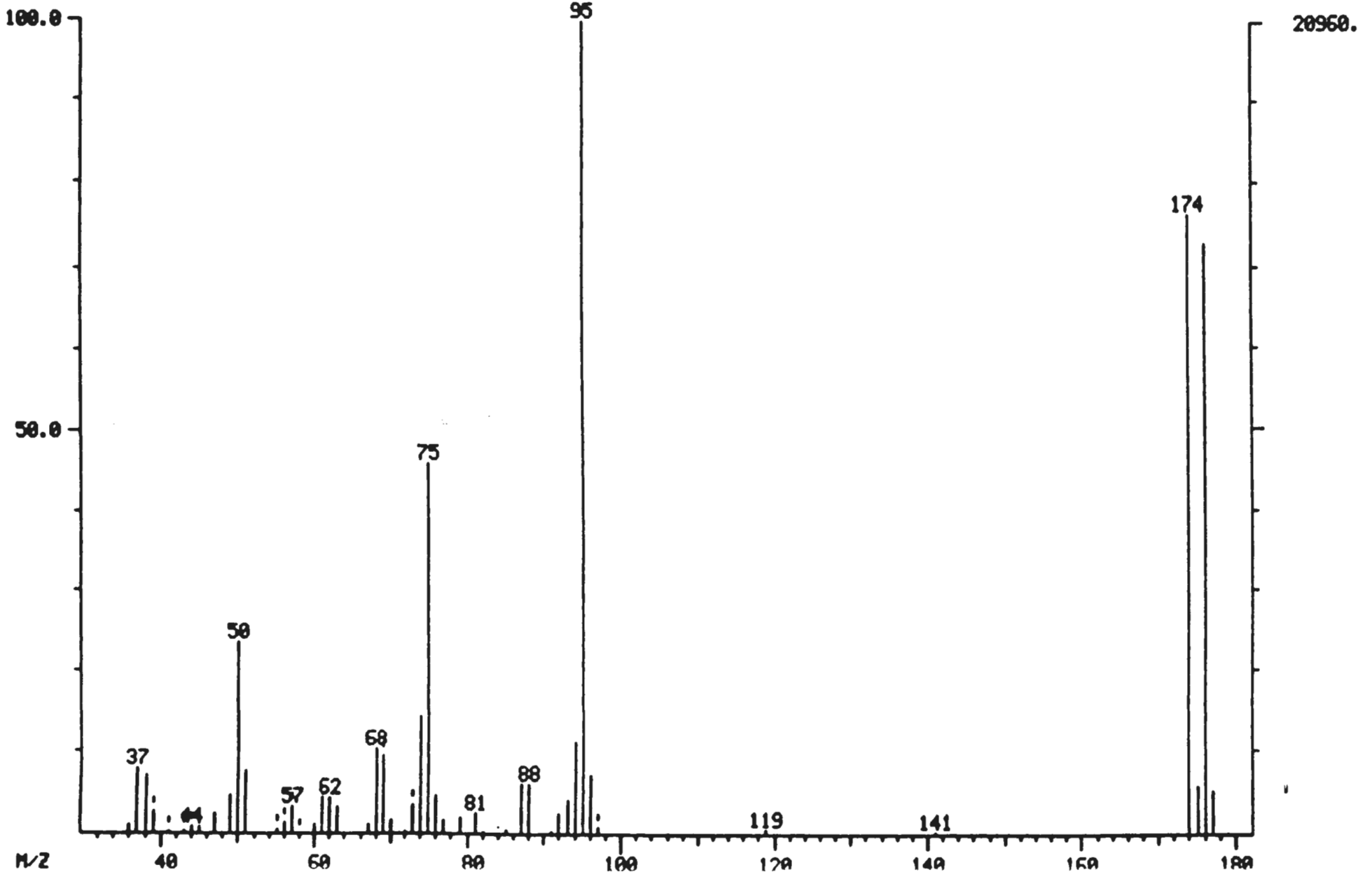
96134925120

000151

MASS SPECTRUM
02/17/93 9:05:00 + 7:37
SAMPLE: 50NG OF BFB
CONDS.: 2UL DI
#182 TO #184 SUMMED - #172

DATA: 38FB0217 #183
CALI: 30209R03 #7

BASE M/Z: 95
RIC: 98944.



9613492.5121

9613492.5122

000152

Mass List Data: 3BFB0217 # 183 Base m/z: 95
02/17/93 9:05:00 + 7:37 Cali: 30209R03 # 7 RIC: 98944.
Sample: 50NG OF BFB
Conds.: 2UL DI
#182 to #184 summed - #172

36 0.00 0. Minima Min Inten: 0.
177 Maxima # 0

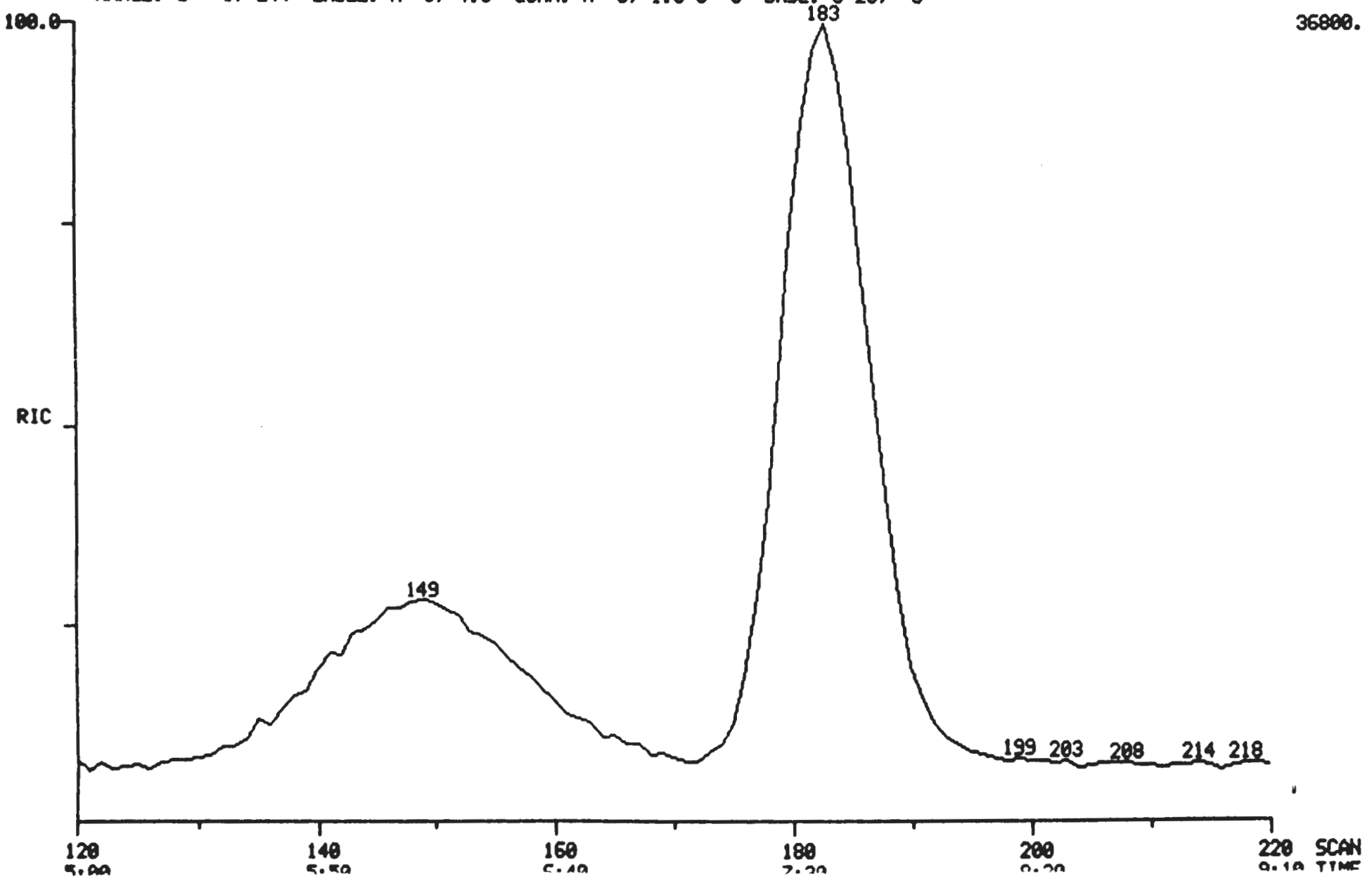
Mass		% RA	Inten.
36?		1.14	239.
37?		7.66	1606.
38?		6.90	1446.
39?	S	2.61	547.
41?	S	0.39	82.
43?	S	0.30	63.
44?	S	0.76	159.
45?	S	0.70	147.
47?		2.48	520.
49?		4.66	976.
50?		23.40	4904.
51?		7.50	1572.
55?	S	0.55	116.
56?	S	1.36	286.
57?	S	3.15	661.
58?	S	0.12	25.
60?		1.07	225.
61?		4.34	910.
62?		4.36	914.
63?		3.30	692.
67?		1.10	230.
68?		10.11	2120.
69	S	9.30	1950.
70		1.64	343.
72		0.26	54.
73	S	3.42	717.
74		14.16	2968.
75		45.88	9616.
76		4.69	984.
77		1.48	310.
79		1.92	403.
81		2.51	526.
82		0.30	62.
85		0.57	119.
87		5.82	1220.
88		5.96	1250.
91		0.29	60.
92		2.49	521.
93		4.15	869.
94		11.09	2324.
95	S	100.00	20960.
96		7.09	1486.
97	S	0.70	146.
119		0.58	121.
141		0.31	66.
174		76.41	16016.
175		5.57	1168.
176		72.82	15264.
177		5.00	1048.

000153

RIC
02/17/93 9:05:00
SAMPLE: 50NG OF BFB
CONDS.: 2UL DI
RANGE: G 1, 244 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 3BFB0217 #182
CALI: 30209R03 #7

SCANS 120 TO 220



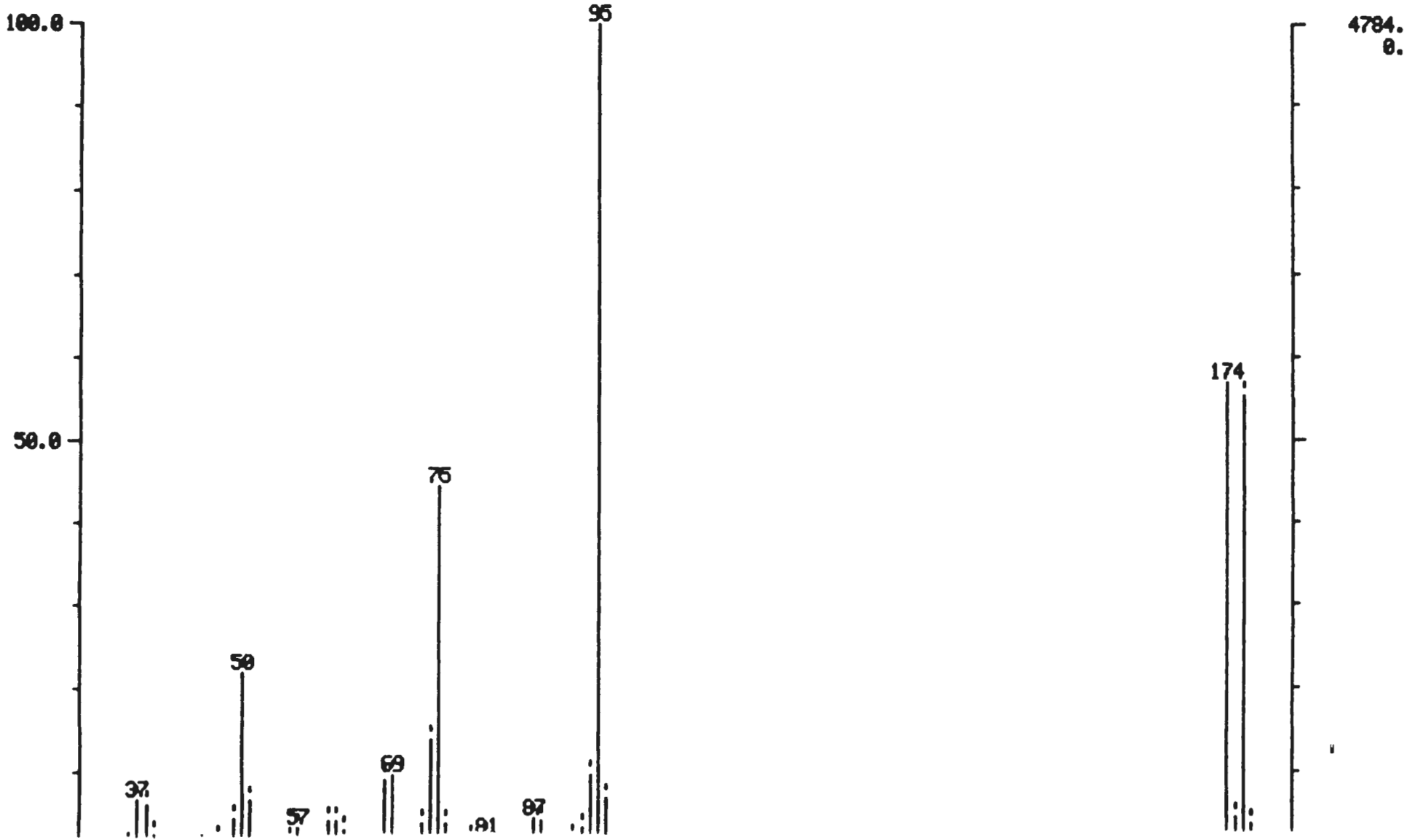
96130425.4126

000154

MASS SPECTRUM
02/18/93 7:41:00 + 3:25
SAMPLE: 50NG BFB
CONDS.: CAP/.53,,DI,,
TEMP: 160 DEG. C
#235 TO #237 AVERAGED - #231

DATA: 38F0218 #236
CALI: 38F0218 #3

BASE M/Z: 95
RIC: 19584.



96134925124

9613492.5125

000155

Mass List Data: 3BF021B # 236 Base m/z: 95
02/18/93 7:41:00 + 3:25 Cali: 3BF021B # 3 RIC: 19584.
Sample: 50NG BFB
Conds.: CAP/.53,,DI,,
#235 to #237 averaged - #231

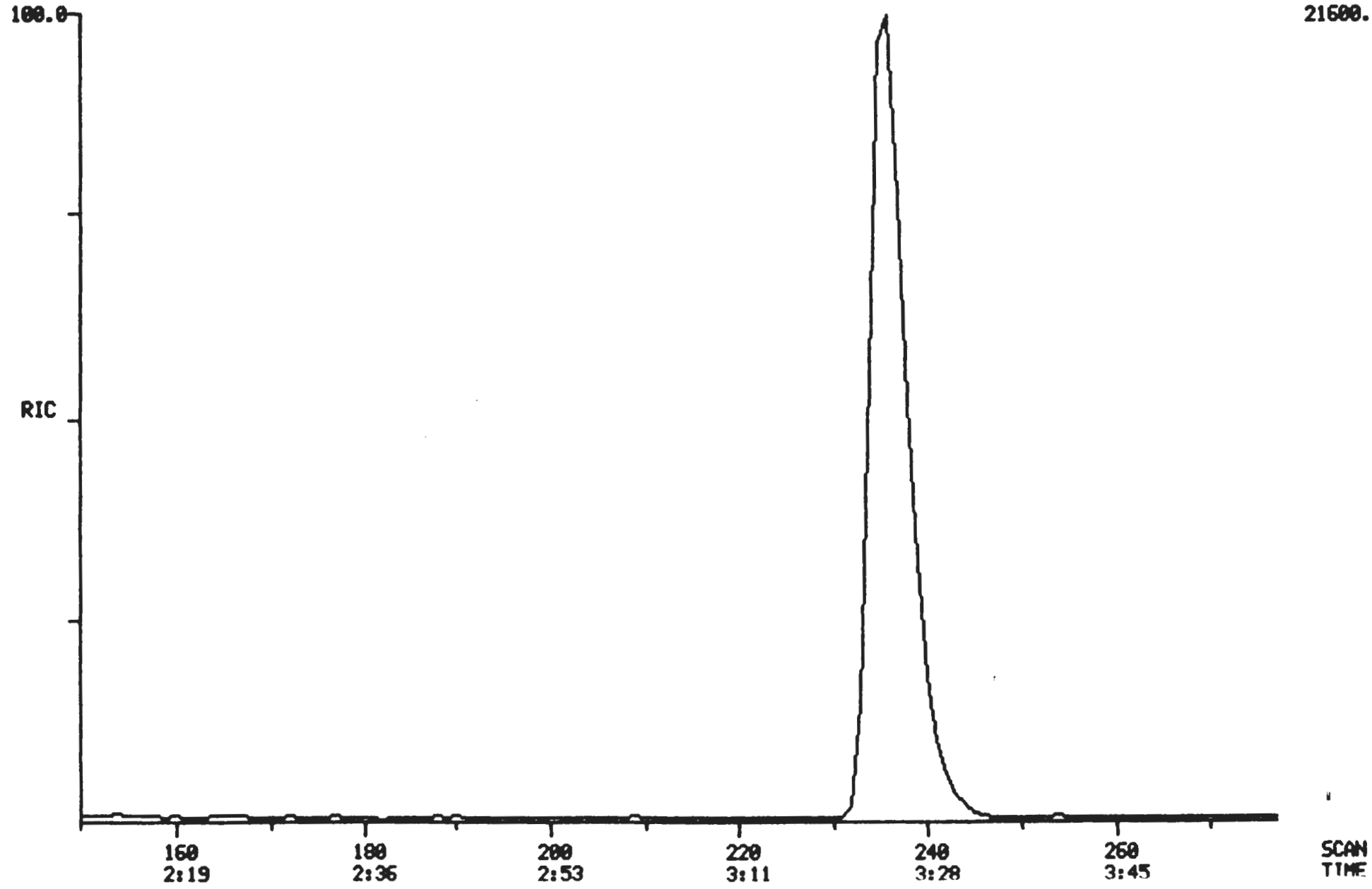
36 0.00 0. Minima Min Inten: 0.
177 Maxima # 0

Mass		% RA	Inten.
36?	S	1.19	57.
37?	S	6.52	312.
38?	S	5.96	285.
39?	S	2.55	122.
40?	S	0.13	6.
44?	S	0.54	26.
45?	S	0.79	38.
47?	S	1.82	87.
49?	S	4.43	212.
50?	S	21.70	1038.
51?	S	6.58	315.
56?	S	1.71	82.
57?	S	3.30	158.
61?	S	4.14	198.
62?	S	4.08	195.
63?	S	2.97	142.
68?	S	9.24	442.
69	S	9.64	461.
70	S	0.36	17.
73	S	3.87	185.
74	S	13.82	661.
75	S	44.57	2132.
76	S	3.97	190.
79	S	2.05	98.
81	S	2.28	109.
87	S	4.47	214.
88	S	4.26	204.
92	S	2.05	98.
93	S	3.26	156.
94	S	9.76	467.
95	S	100.00	4784.
96	S	6.88	329.
174	S	56.86	2720.
175	S	4.29	205.
176	S	55.18	2640.
177	S	3.57	171.

000156

RIC
02/18/93 7:41:00
SAMPLE: 50NG BFB
CONDS.: CAP/.53,,DI,,
RANGE: G 1, 1 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 3BF0218 #236 SCANS 150 TO 277
CALI: 3BF0218 #3



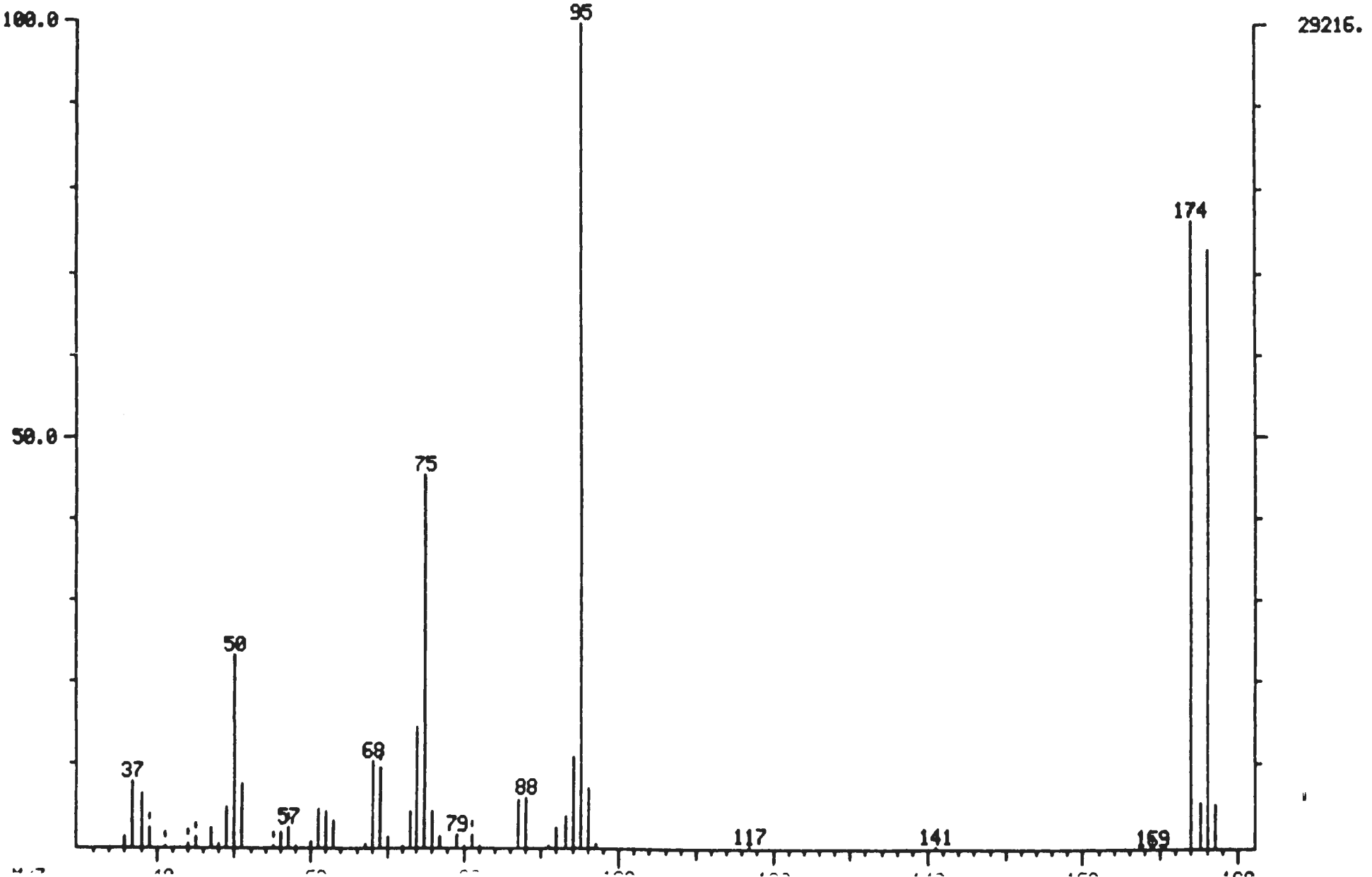
96134925126

000157

MASS SPECTRUM
02/18/93 9:10:00 + 7:10
SAMPLE: 50NG OF BFB
CONDS.: 2UL DI
#171 TO #173 SUMMED - #162

DATA: 3BFB0218 #172
CALI: 30209R03 #7

BASE M/Z: 95
RIC: 137216.



96 0302 5127

lass List Data: 3BFB021B # 172 Base m/z: 95
2/18/93 9:10:00 + 7:10 Cali: 30209R03 # 7 RIC: 137216.
ample: 50NG OF BFB
onds.: 2UL DI
#171 to #173 summed - #162

36 0.00 0. Minima Min Inten: 0.
177 Maxima # 0

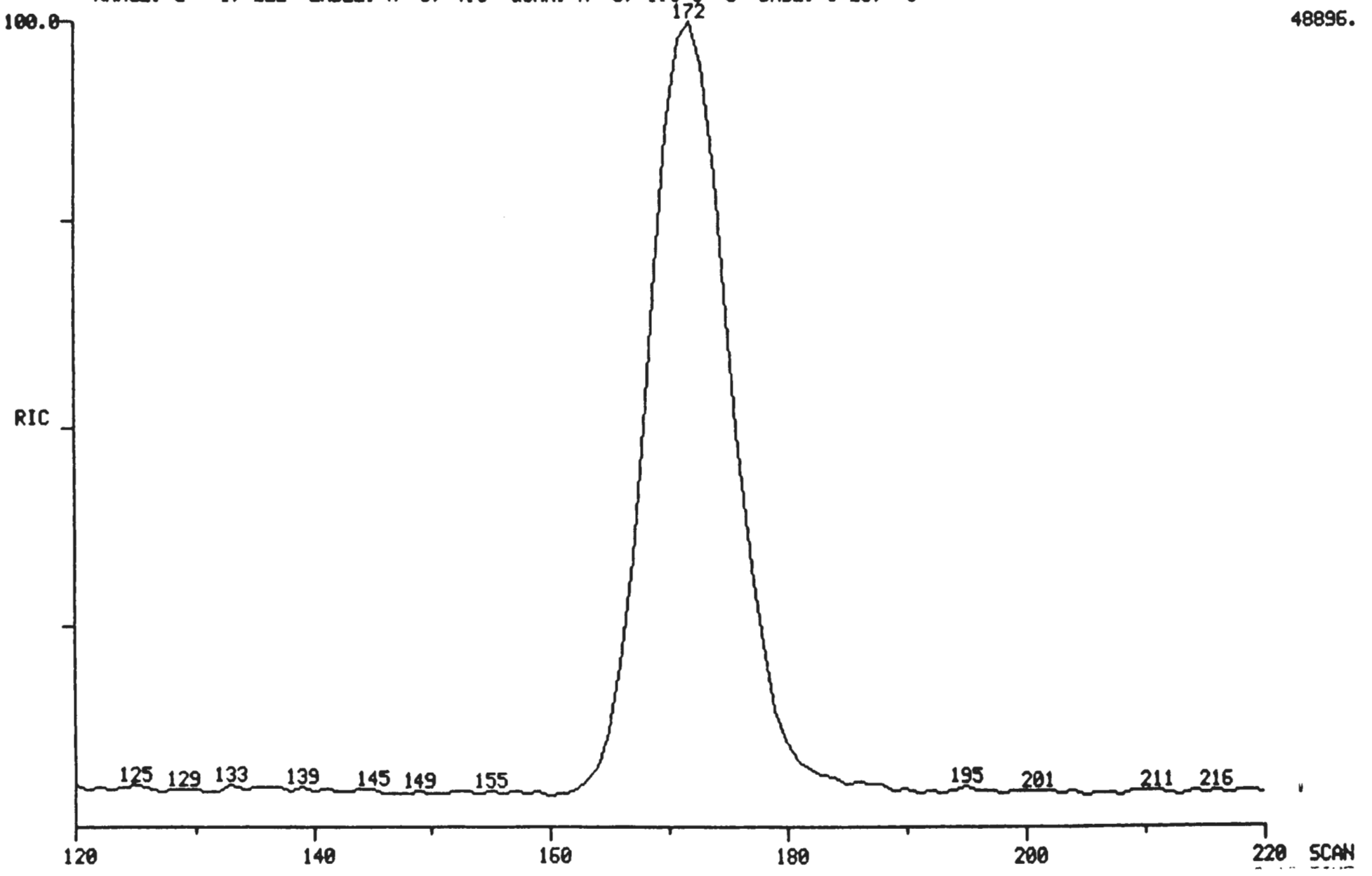
Mass		% RA	Inten.
36?		1.45	425.
37?		7.71	2252.
38?		6.59	1924.
39?	S	2.44	712.
41?	S	0.17	49.
44?	S	0.44	129.
45?	S	1.25	365.
47?		2.54	743.
48?		0.43	126.
49?		4.79	1400.
50?		23.17	6768.
51?		7.50	2192.
55?	S	0.25	74.
56?		1.95	571.
57?	S	2.51	732.
58?		0.19	56.
60?		0.88	258.
61?		4.46	1304.
62?		4.35	1270.
63?		3.34	975.
67?		0.48	141.
68?		10.27	3000.
69	S	9.42	2752.
70		1.29	377.
72		0.18	52.
73		4.34	1268.
74		14.18	4144.
75		45.40	13264.
76		4.28	1250.
77		1.36	396.
79		1.70	496.
80		0.23	68.
81	S	1.65	483.
82		0.40	117.
87		5.67	1658.
88		5.89	1720.
91		0.39	114.
92		2.40	702.
93		3.63	1062.
94		10.64	3108.
95	S	100.00	29216.
96		7.02	2052.
97		0.59	173.
117		0.24	71.
141		0.25	74.
169	S	0.09	27.
174	S	76.34	22304.
175		5.48	1602.
176		72.73	21248.
177		4.98	1456.

000159

RIC
02/18/93 9:10:00
SAMPLE: 50NG OF BFB
CONDS.: 2UL DI
RANGE: G 1, 222 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 3BFB0218 #1
CALI: 30209R03 #7

SCANS 120 TO 220



9613492.5129

9613492.5150

000160

EPA SAMPLE NO.

VBLK0218B

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: WBLK0218

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 30218B03

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 02/18/93

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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	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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

KR 10/24

9613492.5131

000161

EPA SAMPLE NO.

VBLK0218B

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: WBLK0218

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 30218B03

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 02/18/93

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

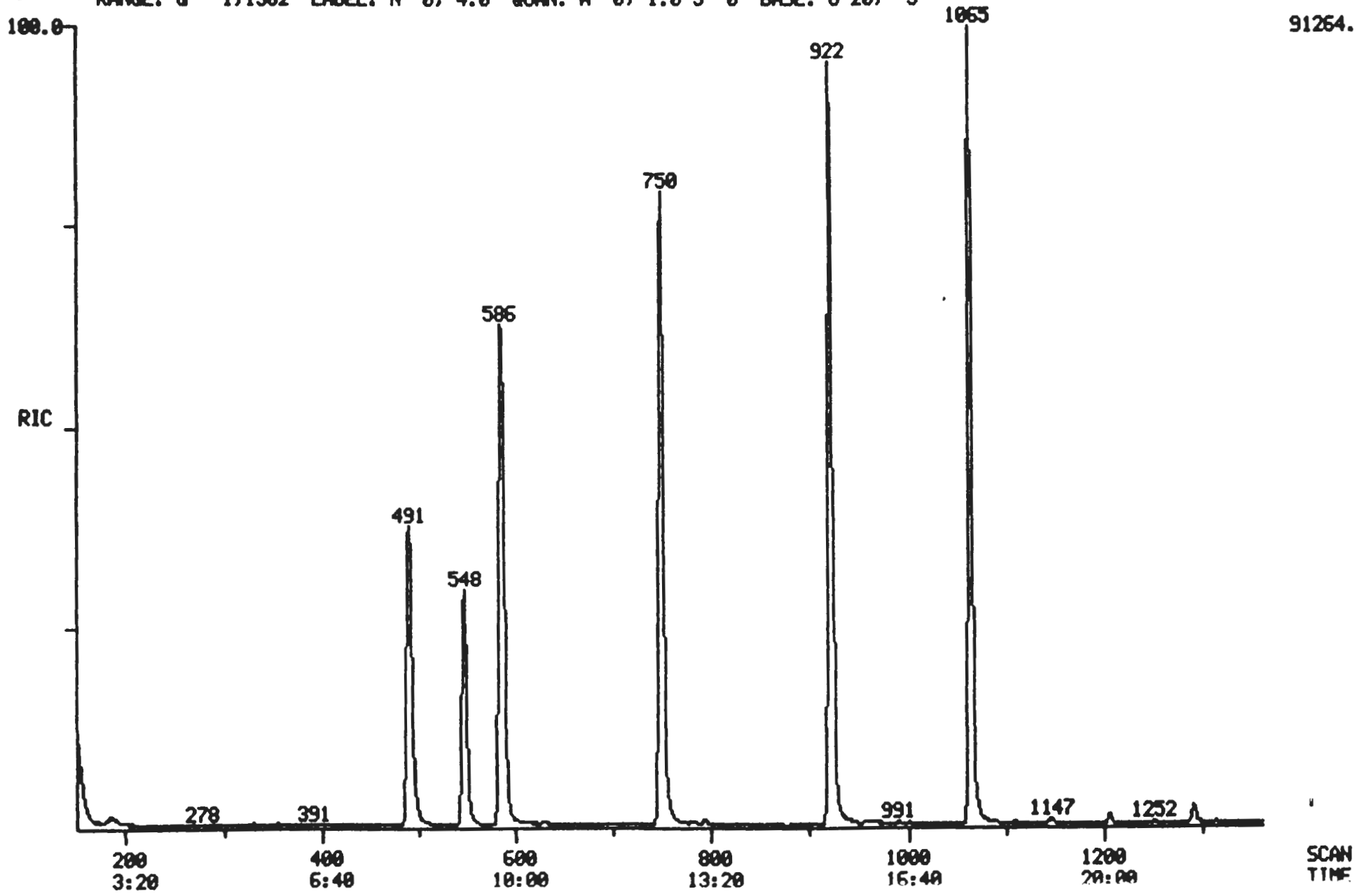
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

KP 10/24

000162

RIC
02/18/93 8:55:00
SAMPLE: CLP,,,VBLK0218B,L,W,WBLK0218,VOA,BLANK
CONDS.: CAP/.53,30218B01,3BF0218,,
RANGE: G 1,1362 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30218B03 #1 SCANS 152 TO 1362
CALI: 30218B03 #3



9613492.5133

Quantitation Report File: 30218B03

000163

Data: 30218B03.TI
02/18/93 8:55:00
Sample: CLP,,,VBLK0218B,L,W,WBLK0218,VOA,BLANK
Conds.: CAP/.53,30218B01,3BF0218,,
Formula: 5ML Instrument: BULL Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	CI01	BROMOCHLOROMETHANE	*INTERNAL STANDARD*
2	CI10	1,4-DIFLUOROBENZENE	*INTERNAL STANDARD*
3	CI20	D5-CHLOROBENZENE	*INTERNAL STANDARD*
4	CS15	D4-1,2-DICHLOROETHANE	*SURROGATE*
5	CS05	D8-TOLUENE	*SURROGATE*
6	CS10	BROMOFLUOROBENZENE	*SURROGATE*

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	128	491	8:11	1	1.000	A BB	24996.	50.000	NG/ML	16.40
2	114	586	9:46	2	1.000	A BB	124118.	50.000	NG/ML	16.40
3	117	922	15:22	3	1.000	A BB	118710.	50.000	NG/ML	16.40
4	65	548	9:08	1	1.116	A BB	49995.	53.101	NG/ML	17.41
5	98	750	12:30	3	0.813	A BB	132543.	53.751	NG/ML	17.63
6	95	1065	17:45	3	1.155	A BB	98429.	48.081	NG/ML	15.77

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	8:02	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	9:37	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	15:12	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	8:59	1.02	1.119	1.00	53.10	50.00	2.000	1.883	1.06
5	12:20	1.01	0.811	1.00	53.75	50.00	1.117	1.039	1.08
6	17:35	1.01	1.157	1.00	48.08	50.00	0.829	0.862	0.96

Quantitation Report File: 30218B03

Data: 30218B03.TI
02/18/93 8:55:00
Sample: CLP,,,VBLK0218B,L,W,WBLK0218,VOA,BLANK
Conds.: CAP/.53,30218B01,3BF0218,,
Formula: 5ML Instrument: BULL Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	CI01	BROMOCHLOROMETHANE	*INTERNAL STANDARD*
2	CI10	1,4-DIFLUOROBENZENE	*INTERNAL STANDARD*
3	CI20	D5-CHLOROBENZENE	*INTERNAL STANDARD*
4	CS15	D4-1,2-DICHLOROETHANE	*SURROGATE*
5	CS05	D8-TOLUENE	*SURROGATE*
6	CS10	BROMOFLUOROBENZENE	*SURROGATE*
7	C010	CHLOROMETHANE	
8	C020	VINYL CHLORIDE	
9	C015	BROMOMETHANE	
10	C025	CHLOROETHANE	
11	C035	ACETONE	
12	C045	1,1-DICHLOROETHENE	
13	C040	CARBON DISULFIDE	
14	C030	METHYLENE CHLORIDE	
15	C055	TRANS-1,2-DICHLOROETHENE	
16	C050	1,1-DICHLOROETHANE	
17	C125	VINYL ACETATE	
18	C110	2-BUTANONE	
19	C053	CIS-1,2-DICHLOROETHENE	
20	C060	CHLOROFORM	
21	C115	1,1,1-TRICHLOROETHANE	
22	C120	CARBON TETRACHLORIDE	
23	C165	BENZENE	
24	C065	1,2-DICHLOROETHANE	
25	C150	TRICHLOROETHENE	
26	C140	1,2-DICHLOROPROPANE	
27	C130	BROMODICHLOROMETHANE	
28	C205	4-METHYL-2-PENTANONE	
29	C143	CIS-1,3-DICHLOROPROPENE	
30	C230	TOLUENE	
31	C172	TRANS-1,3-DICHLOROPROPENE	
32	C160	1,1,2-TRICHLOROETHANE	
33	C210	2-HEXANONE	
34	C220	TETRACHLOROETHENE	
35	C155	DIBROMOCHLOROMETHANE	
36	C235	CHLOROBENZENE	
37	C240	ETHYLBENZENE	
38	C250	M,P-XYLENES	
39	C251	O-XYLENE	
40	C245	STYRENE	
41	C180	BROMOFORM	
42	C225	1,1,2,2-TETRACHLOROETHANE	
43	C175	2-CHLOROETHYL VINYL ETHER	

9613492.5155

000165

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	128	491	8:11	1	1.000	A BB	24996.	50.000	NG/ML	16.18
2	114	586	9:46	2	1.000	A BB	124118.	50.000	NG/ML	16.18
3	117	922	15:22	3	1.000	A BB	118710.	50.000	NG/ML	16.18
4	65	548	9:08	1	1.116	A BB	49995.	53.101	NG/ML	17.18
5	98	750	12:30	3	0.813	A BB	132543.	53.751	NG/ML	17.39
6	95	1065	17:45	3	1.155	A BB	98429.	48.081	NG/ML	15.56
7	NOT FOUND									
8	NOT FOUND									
9	NOT FOUND									
10	NOT FOUND									
11	NOT FOUND									
12	NOT FOUND									
13	NOT FOUND									
14	NOT FOUND									
15	NOT FOUND									
16	NOT FOUND									
17	NOT FOUND									
18	NOT FOUND									
19	NOT FOUND									
20	NOT FOUND									
21	NOT FOUND									
22	NOT FOUND									
23	NOT FOUND									
24	NOT FOUND									
25	NOT FOUND									
26	NOT FOUND									
27	NOT FOUND									
28	NOT FOUND									
29	NOT FOUND									
30	NOT FOUND									
31	NOT FOUND									
32	NOT FOUND									
33	NOT FOUND									
34	NOT FOUND									
35	NOT FOUND									
36	NOT FOUND									
37	NOT FOUND									
38	NOT FOUND									
39	NOT FOUND									
40	NOT FOUND									
41	NOT FOUND									
42	NOT FOUND									
43	NOT FOUND									

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	8:02	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	9:37	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	15:12	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	8:59	1.02	1.119	1.00	53.10	50.00	2.000	1.883	1.06
5	12:20	1.01	0.811	1.00	53.75	50.00	1.117	1.039	1.08
6	17:35	1.01	1.157	1.00	48.08	50.00	0.829	0.862	0.96
7	2:53		0.356						
8	2:58		0.368						
9	3:27		0.428						
10	3:32		0.439						
11	4:35		1.000						

02/19/93

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
12	4:37		0.574						
13	5:23		1.000						
14	5:24		1.000						
15	5:45		0.715						
16	6:27		0.805						
17	6:29		0.672						
18	7:14		0.902						
19	7:28		0.929						
20	7:43		0.963						
21	8:21		0.868						
22	8:46		0.912						
23	9:07		0.948						
24	9:09		1.139						
25	10:09		1.055						
26	10:31		1.094						
27	10:57		1.139						
28	11:35		1.000						
29	11:57		1.241						
30	12:29		0.821						
31	12:54		1.241						
32	13:11		1.369						
33	13:13		0.870						
34	13:39		0.898						
35	14:09		1.468						
36	15:17		1.004						
37	15:22		1.011						
38	15:30		1.020						
39	16:21		1.076						
40	16:28		1.000						
41	17:09		1.782						
42	17:29		1.150						
43	11:33		1.000						

9613492.5157

000167
EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLK0218R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: SB021893

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30218R03

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 02/18/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	J
67-64-1	Acetone	11	
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	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	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	Xylene (total)	10	U

KP 2/4/93

9613492.5138

000168

EPA SAMPLE NO.

VBLK0218R

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: SB021893

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30218R03

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 02/18/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Number TICs found: 1

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

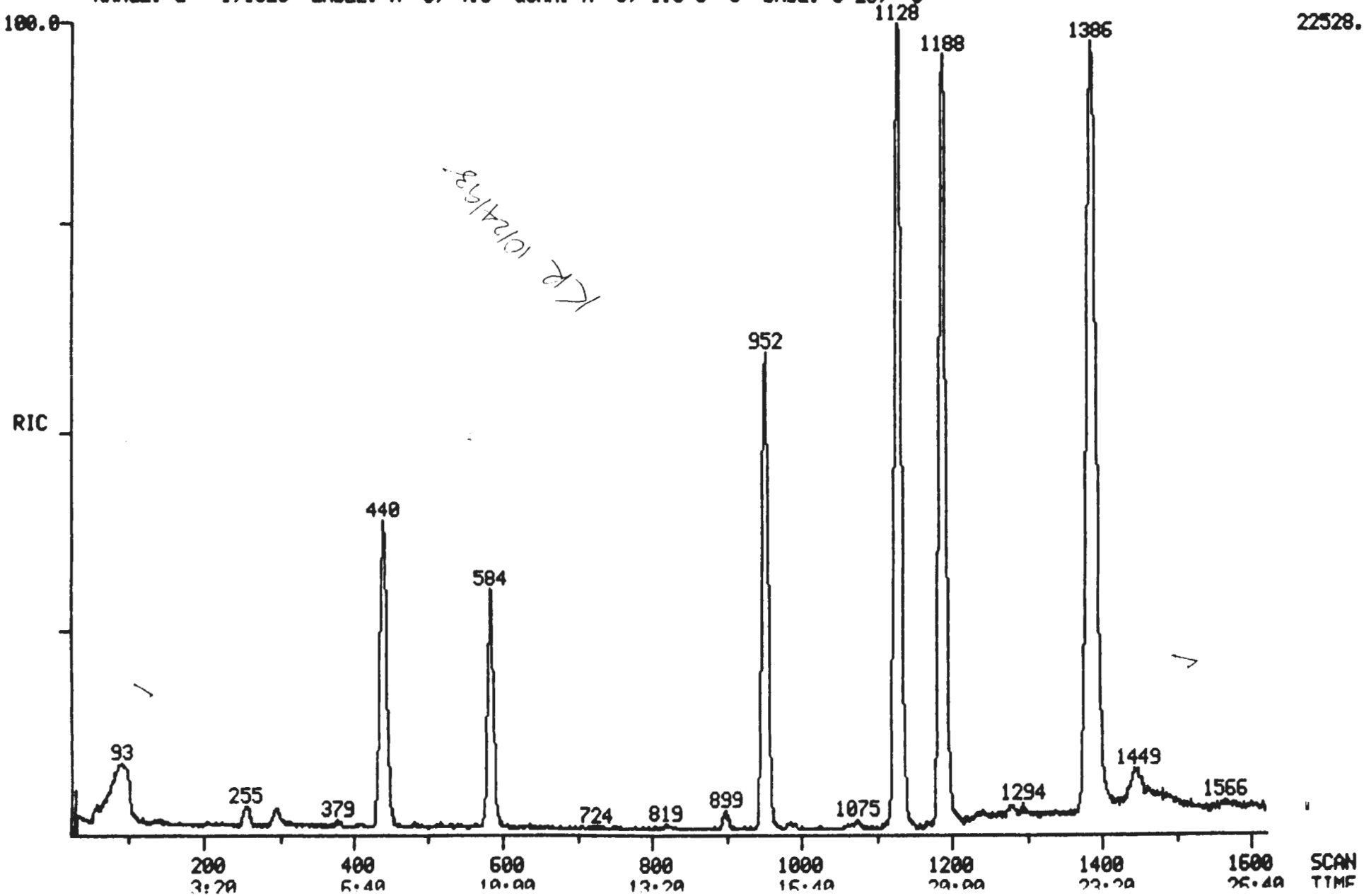
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	1.53	10	J

KR 10/24/93

000169

RIC
02/18/93 10:47:00
SAMPLE: CLP,,,VBLK0218R,L,S,SB021893,VOA/H,BLANK,
CONDS.: PACK/2,30218R01,3BFB0218,,
RANGE: G 1,1620 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30218R03 #1 SCANS 25 TO 1620
CALI: 30218R03 #7



KR 10/24/93

96130492 5130

9613492.5140

Quantitation Report File: 30218R03

000170

Data: 30218R03.TI
02/18/93 10:47:00
Sample: CLP,,,VBLK0218R,L,S,SB021893,VOA/H,BLANK,
Conds.: PACK/2,30218R01,3BFB0218,,
Formula: Instrument: 4500 Weight: 5.000
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	CO30	METHYLENE CHLORIDE
8	CO35	ACETONE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	440	7:20	1	1.000	A BB	12111.	50.000 PPB	15.44
2	114	952	15:52	2	1.000	A BB	47652.	50.000 PPB	15.44
3	117	1188	19:48	3	1.000	A BB	67076.	50.000 PPB	15.44
4	65	584	9:44	1	1.327	A BB	18854.	48.672 PPB	15.03
5	98	1128	18:48	3	0.949	A BB	70553.	55.454 PPB	17.13
6	95	1386	23:06	3	1.167	A BB	50506.	54.322 PPB	16.78
7	84	256	4:16	1	0.582	A BB	1428.	4.103 PPB	1.27
8	43	295	4:55	1	0.670	A BB	2483.	11.197 PPB	3.46

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:20	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:51	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:50	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:49	0.99	1.313	1.01	48.67	50.00	1.557	1.599	0.97
5	18:47	1.00	0.950	1.00	55.45	50.00	1.052	0.948	1.11
6	23:07	1.00	1.186	0.98	54.32	50.00	0.753	0.693	1.09
7	4:10	1.02	0.579	1.00	4.10	50.00	0.118	1.437	0.08
8	4:47	1.03	1.000	0.67	11.20	50.00	0.205	0.916	0.22

uantitation Report File: 30218R03

ata: 30218R03.TI
2/18/93 10:47:00
ample: CLP,,,VBLK0218R,L,S,SB021893,VOA/H,BLANK,
onds.: PACK/2,30218R01,3BFB0218,,
ormula: Instrument: 4500 Weight: 5.000
ubmitted by: Analyst: KC Acct. No.:

MOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
esp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C040	CARBON DISULFIDE
14	C045	1,1-DICHLOROETHENE
15	C050	1,1-DICHLOROETHANE
16	C053	1,2-DICHLOROETHENE(TOTAL)
17	C060	CHLOROFORM
18	C110	2-BUTANONE
19	C065	1,2-DICHLOROETHANE
20	C115	1,1,1-TRICHLOROETHANE
21	C120	CARBON TETRACHLORIDE
22	C125	VINYL ACETATE
23	C130	BROMODICHLOROMETHANE
24	C140	1,2-DICHLOROPROPANE
25	C143	CIS-1,3-DICHLOROPROPENE
26	C150	TRICHLOROETHENE
27	C155	DIBROMOCHLOROMETHANE
28	C165	BENZENE
29	C160	1,1,2-TRICHLOROETHANE
30	C172	TRANS-1,3-DICHLOROPROPENE
31	C175	2-CHLOROETHOXY ETHENE
32	C180	BROMOFORM
33	C205	4-METHYL-2-PENTANONE
34	C210	2-HEXANONE
35	C225	1,1,2,2-TETRACHLOROETHANE
36	C220	TETRACHLOROETHENE
37	C230	TOLUENE
38	C235	CHLOROBENZENE
39	C240	ETHYL BENZENE
40	C245	STYRENE
41	C255	M-XYLENE
42	C250	O,P-XYLENE

9613492.5142

000172

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	440	7:20	1	1.000	A BB	12111.	50.000 PPB	15.19
2	114	952	15:52	2	1.000	A BB	47652.	50.000 PPB	15.19
3	117	1188	19:48	3	1.000	A BB	67076.	50.000 PPB	15.19
4	65	584	9:44	1	1.327	A BB	18854.	48.672 PPB	14.79
5	98	1128	18:48	3	0.949	A BB	70553.	55.454 PPB	16.85
6	95	1386	23:06	3	1.167	A BB	50506.	54.322 PPB	16.50
7	NOT FOUND								
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
11	84	256	4:16	1	0.582	A BB	1428.	4.103 PPB	1.25
12	43	295	4:55	1	0.670	A BB	2483.	11.197 PPB	3.40
13	NOT FOUND								
14	NOT FOUND								
15	NOT FOUND								
16	NOT FOUND								
17	NOT FOUND								
~~18~~	~~43~~	~~584~~	~~9:44~~	~~1~~	~~1.327~~	~~A BB~~	~~2410.~~	~~5.154 PPB~~	~~1.57~~
19	NOT FOUND								
20	NOT FOUND								
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	NOT FOUND								
29	NOT FOUND								
30	NOT FOUND								
31	NOT FOUND								
32	NOT FOUND								
33	NOT FOUND								
34	NOT FOUND								
35	NOT FOUND								
36	NOT FOUND								
37	NOT FOUND								
38	NOT FOUND								
39	NOT FOUND								
40	NOT FOUND								
41	NOT FOUND								
42	NOT FOUND								

RC
02-18-93

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:20	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:51	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:50	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:49	0.99	1.313	1.01	48.67	50.00	1.557	1.599	0.97
5	18:47	1.00	0.950	1.00	55.45	50.00	1.052	0.948	1.11
6	23:07	1.00	1.186	0.98	54.32	50.00	0.753	0.693	1.09
7	0:50		0.103						
8	1:30		0.185						
9	1:57		0.241						
10	2:45		0.338						
11	4:10	1.02	0.579	1.00	4.10	50.00	0.118	1.437	0.08
12	4:47	1.03	1.000	0.67	11.20	50.00	0.205	0.916	0.22

02/19/93

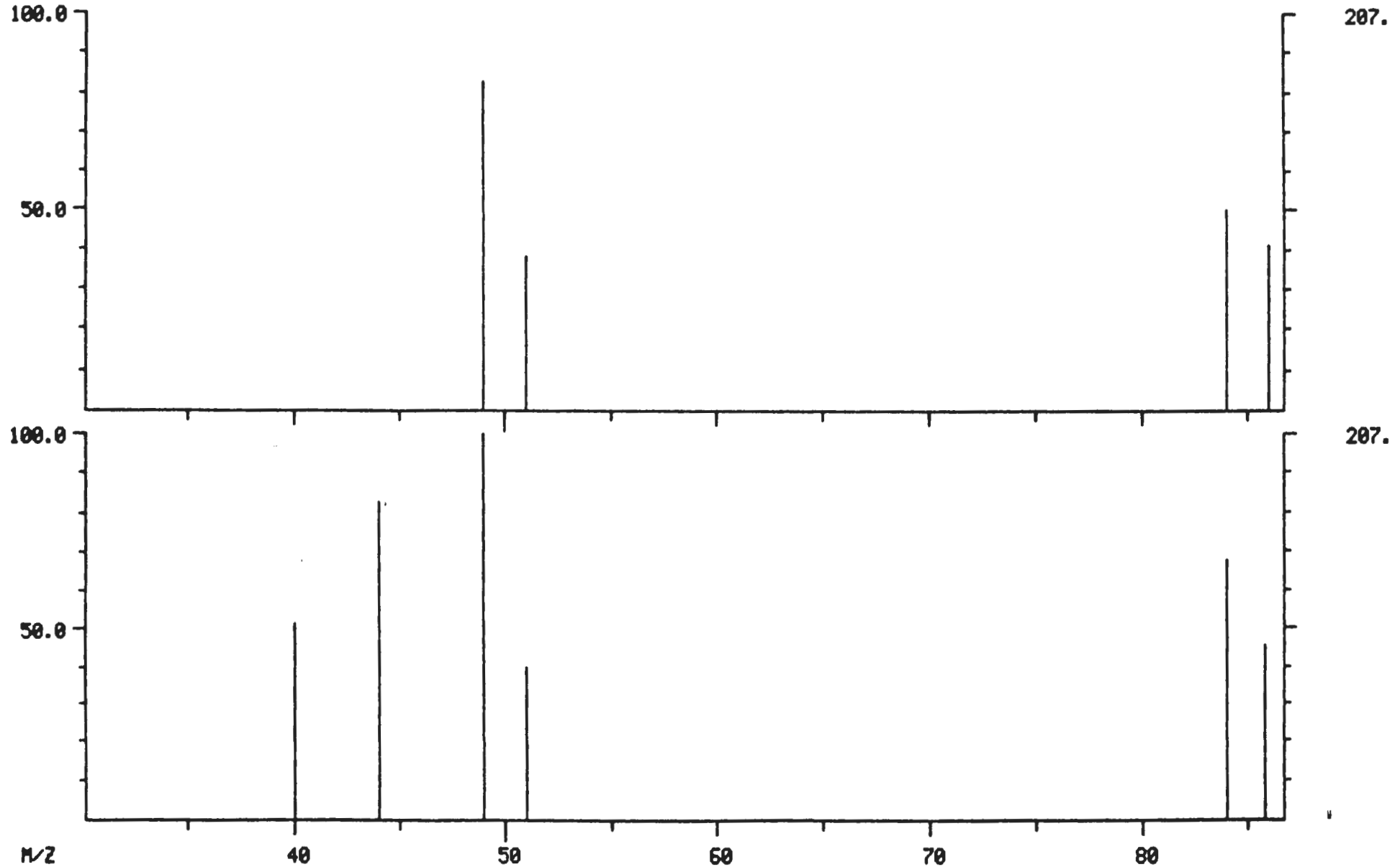
No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
13	5:40		0.759						
14	7:04		0.933						
15	8:00		1.000						
16	8:48		1.174						
17	9:18		1.241						
18	9:42	1.00	1.000	1.33	5.15	50.00	0.199	1.931	0.10
19	9:54		1.323						
20	10:52		0.698						
21	11:12		0.718						
22	11:23		0.733						
23	11:44		0.752						
24	12:45		0.812						
25	12:59		0.827						
26	13:26		0.854						
27	13:59		0.889						
28	13:47		0.876						
29	14:03		0.891						
30	14:01		0.891						
31	14:52		0.941						
32	16:09		1.017						
33	16:25		0.834						
34	17:40		0.896						
35	17:59		0.912						
36	17:57		0.910						
37	18:56		0.958						
38	19:53		1.004						
39	21:21		1.080						
40	24:02		1.242						
41	24:13		1.256						
42	24:54		1.296						

0001174

DUAL MASS SPECTRUM
02/18/93 10:47:00 + 4:16
SAMPLE: CLP,,,VBLK0218R,L,S,SB021893,VOA/H,BLANK,
CONDS.: PACK/2,30218R01,3BFB0218,,
ENHANCED (S 158 2N 0T)

DATA: 30218R03 #256
CALI: 30218R03 #7

BASE M/Z: 49/ 49
RIC: 438./ 799.



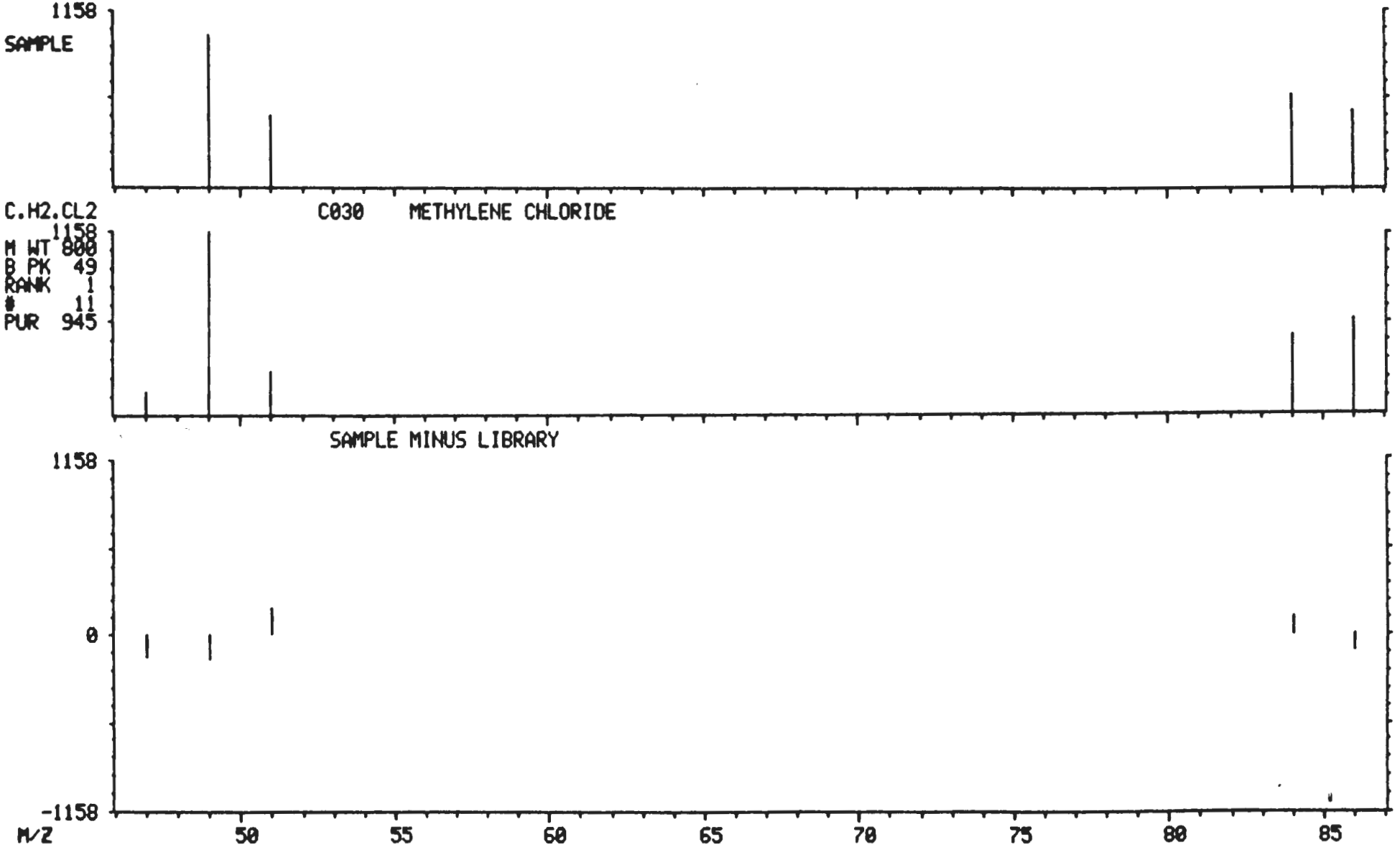
96143482.5MB

000175

LIBRARY SEARCH
02/18/93 10:47:00 + 4:16
SAMPLE: CLP,,,VBLK0218R,L,S,SB021893,VOA/H,BLANK,
CONDS.: PACK/2,30218R01,3BFB0218,,
ENHANCED (S 15B 2N 0T)

DATA: 30218R03 # 256
CALI: 30218R03 # 7

BASE M/Z: 49
RIC: 438.



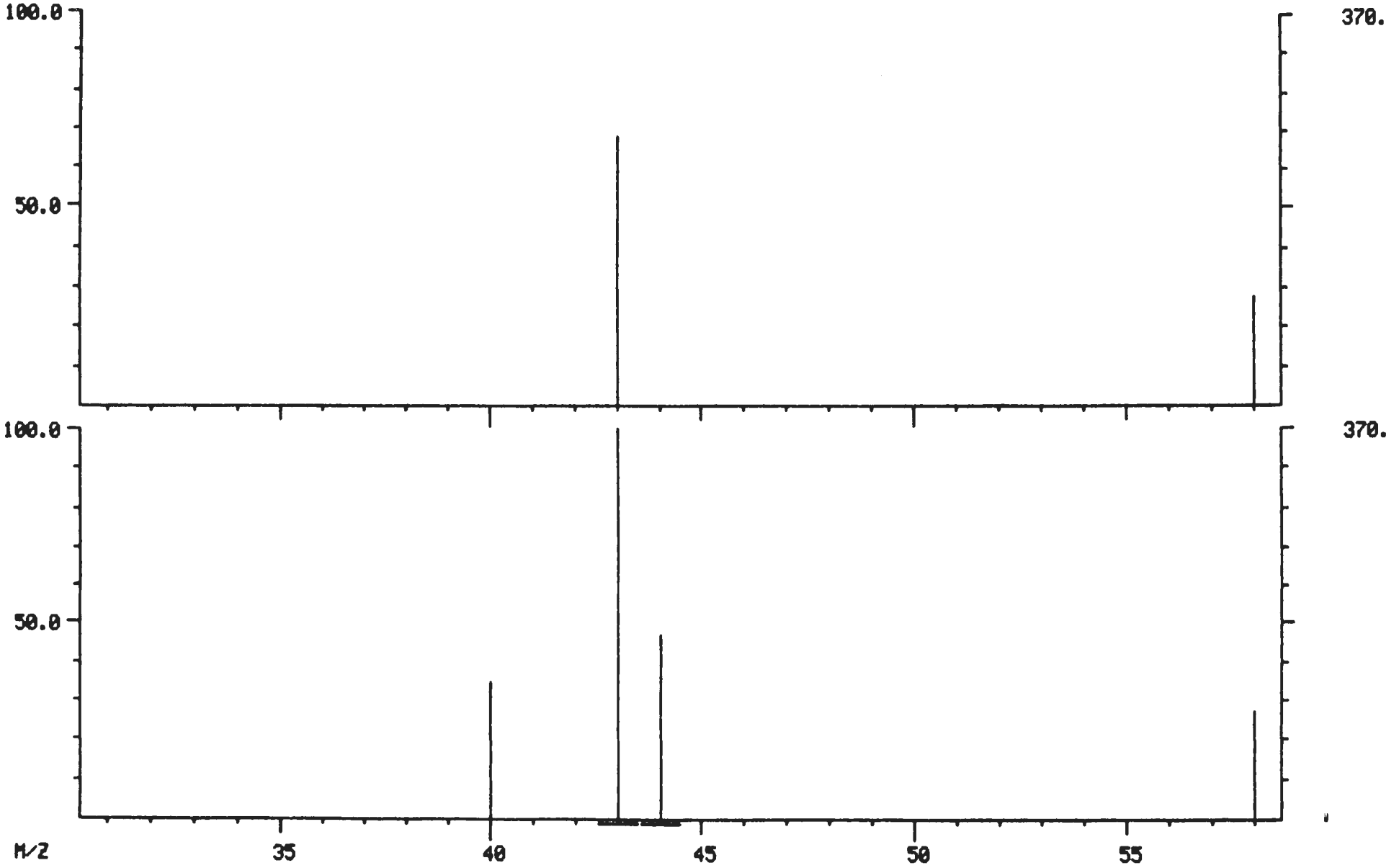
9613492.5145

000176

DUAL MASS SPECTRUM
02/18/93 10:47:00 + 4:55
SAMPLE: CLP,,,VBLK0218R,L,S,SB021893,VOA/H,BLANK,
CONDS.: PACK/2,30218R01,3BFB0218,,
ENHANCED (S 15B 2N 0T)

DATA: 30218R03 #295
CALI: 30218R03 #7

BASE M/Z: 43/ 43
RIC: 354./ 772.



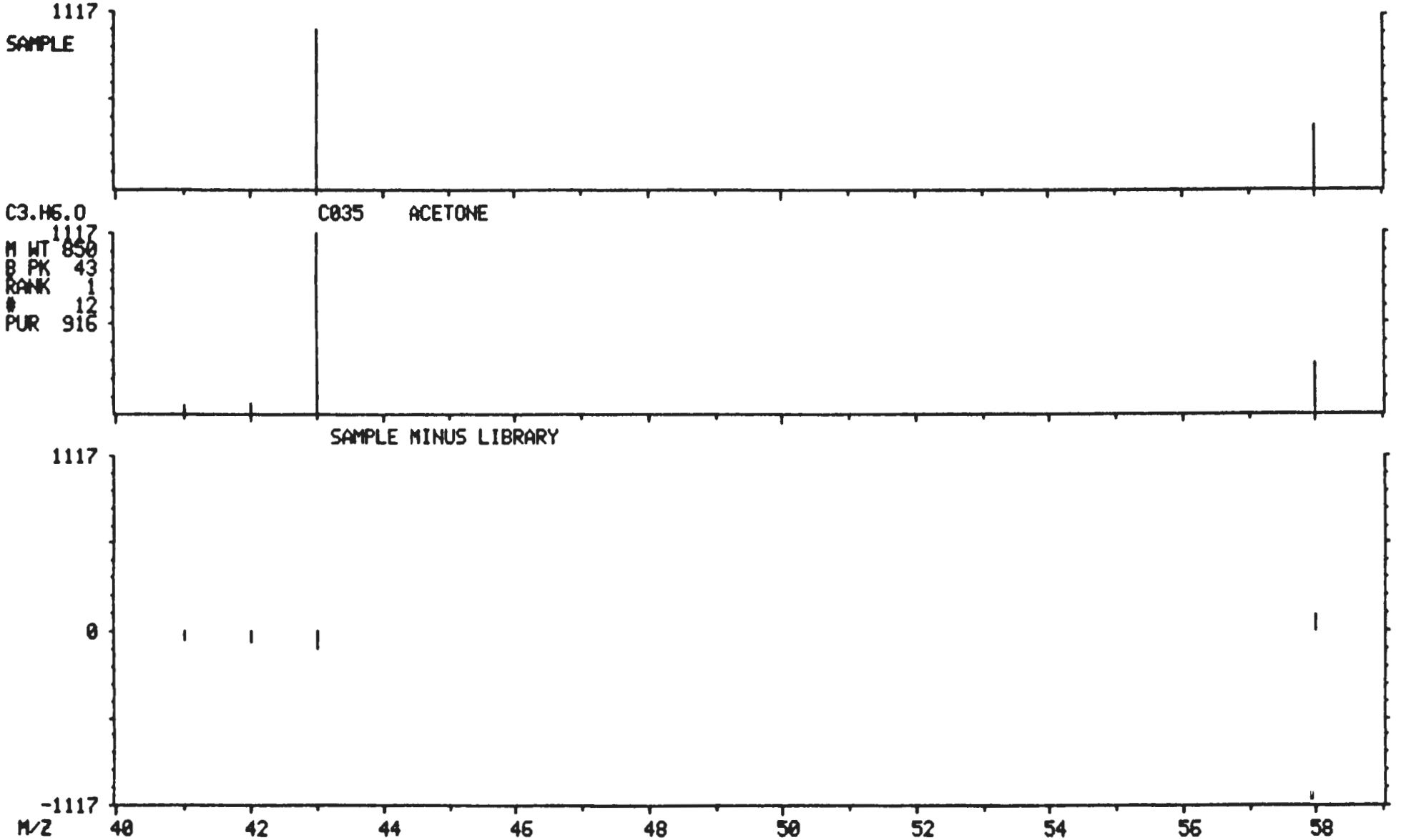
9413 2042 96

0001177

LIBRARY SEARCH
02/18/93 10:47:00 + 4:55
SAMPLE: CLP,,,VBLK0218R,L,S,SB021893,VOA/H,BLANK,
CONDS.: PACK/2,30218R01,3BFB0218,,
ENHANCED (S 15B 2N 0T)

DATA: 30218R03 # 295
CALI: 30218R03 # 7

BASE M/Z: 43
RIC: 354.



96130925147

9613492.5148

INTERMEDIATE A9AR.GL FILE TO GET CAS NUMBERS

000178

Quantitation Report File: A9AR

Data: 30218R03.TI
02/18/93 10:47:00
Sample: CLP,,,VBLK0218R,L,S,SB021893,VOA/H,BLANK,
Conds.: PACK/2,30218R01,3BFB0218,,
Formula: Instrument: 4500 Weight: 5.000
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	CAS #	Name
1	0-00-0	CI01 BROMOCHLOROMETHANE(I.S)
2	0-00-0	CI10 1,4-DIFLUORBENZENE(I.S)
3	0-00-0	CI20 CHLOROBENZENE D-5(I.S)
4	79-22-1	CARBONOCHLORIDIC ACID, METHYL ESTER

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	TOT	440	7:20	1	1.000	A BB	33646.	50.000 PPB	32.25
2	TOT	952	15:52	2	1.000	A BB	70510.	50.000 PPB	32.25
3	TOT	1188	19:48	3	1.000	A BB	127863.	50.000 PPB	32.25
4	TOT	92	1:32	3	0.077	A VB	6466.	5.057	3.26

9613492.5149

QUANTITATION REPORT FOR TICS FILE: 30218R03

000179

DATA: 30218R03
02/18/93 10:47:00
SAMPLE: CLP,,,VBLK0218R,L,S,SB021893,VOA/H,BLANK,
CONDS.: PACK/2,30218R01,3BFB0218,,
SUBMITTED BY: ANALYST: KC

NO	NAME
1	CI01 BROMOCHLOROMETHANE(I.S)
2	CI10 1,4-DIFLUORBENZENE(I.S)
3	CI20 CHLOROBENZENE D-5(I.S)
4	CARBONOCHLORIDIC ACID, METHYL ESTER

NO	M/Z	SCAN		REF	AREA	AMOUNT
1		440	7:20	1	33646	50.
2		952	15:52	2	70510	50.
3		1188	19:48	3	127863	50.
4		92	1:32	1	6466	10.

– M.H.
KC 02-18-93

02/19/93

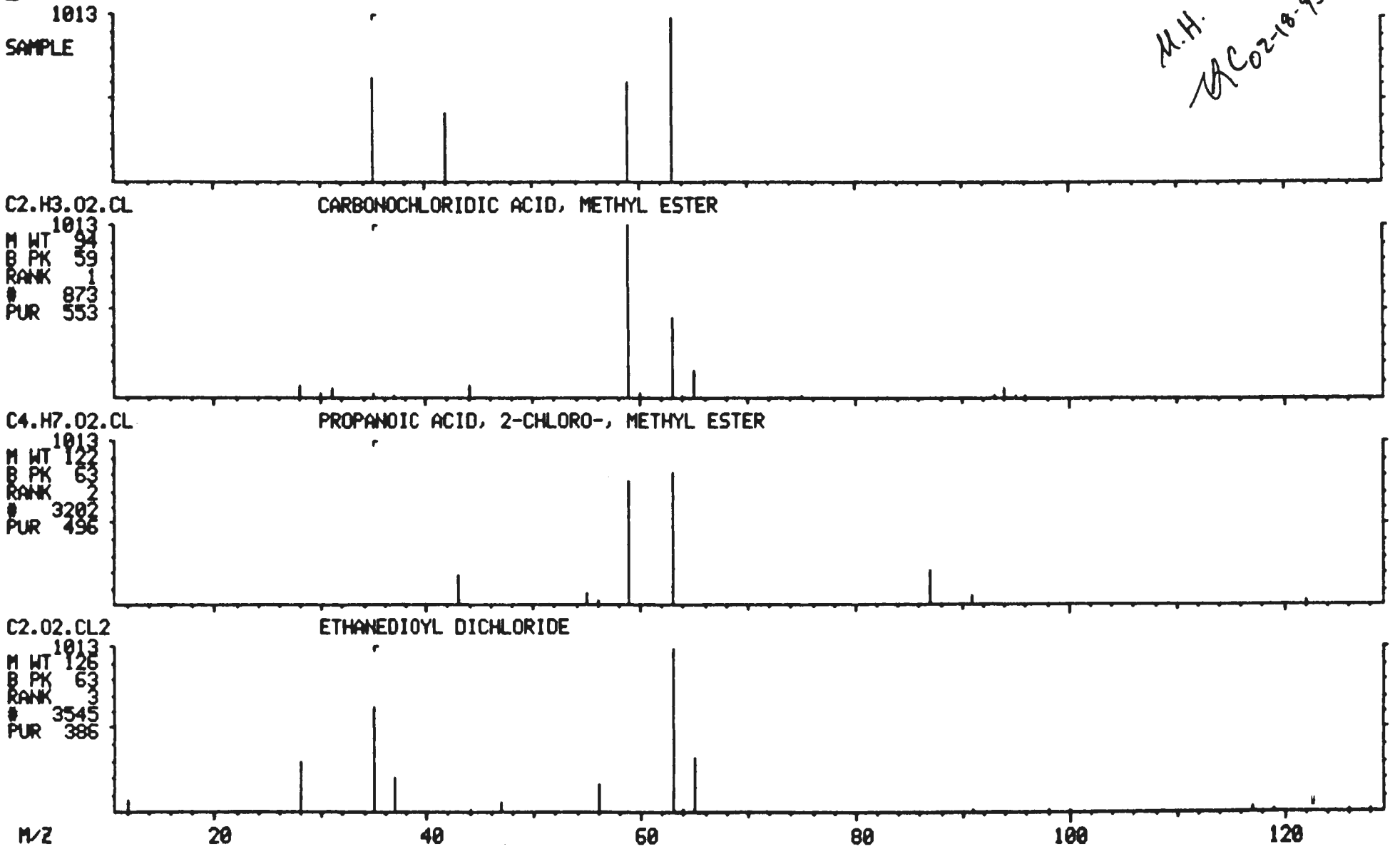
000180

LIBRARY SEARCH
02/18/93 10:47:00 + 1:33
SAMPLE: CLP,,,VBLK0218R,L,S,SB021893,VOA/H,BLANK,
CONDS.: PACK/2,30218R01,3BFB0218,,
ENHANCED (S 15B 2N 0T)

DATA: 30218R03 # 93
CALI: 30218R03 # 7

BASE M/Z: 63
RIC: 193.

M.H. 02-18-93



0515 2042 1956

9613492.5151

000181
EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

B07K09MS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A302041-03B

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 30218B08

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. ____ Date Analyzed: 02/18/93

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

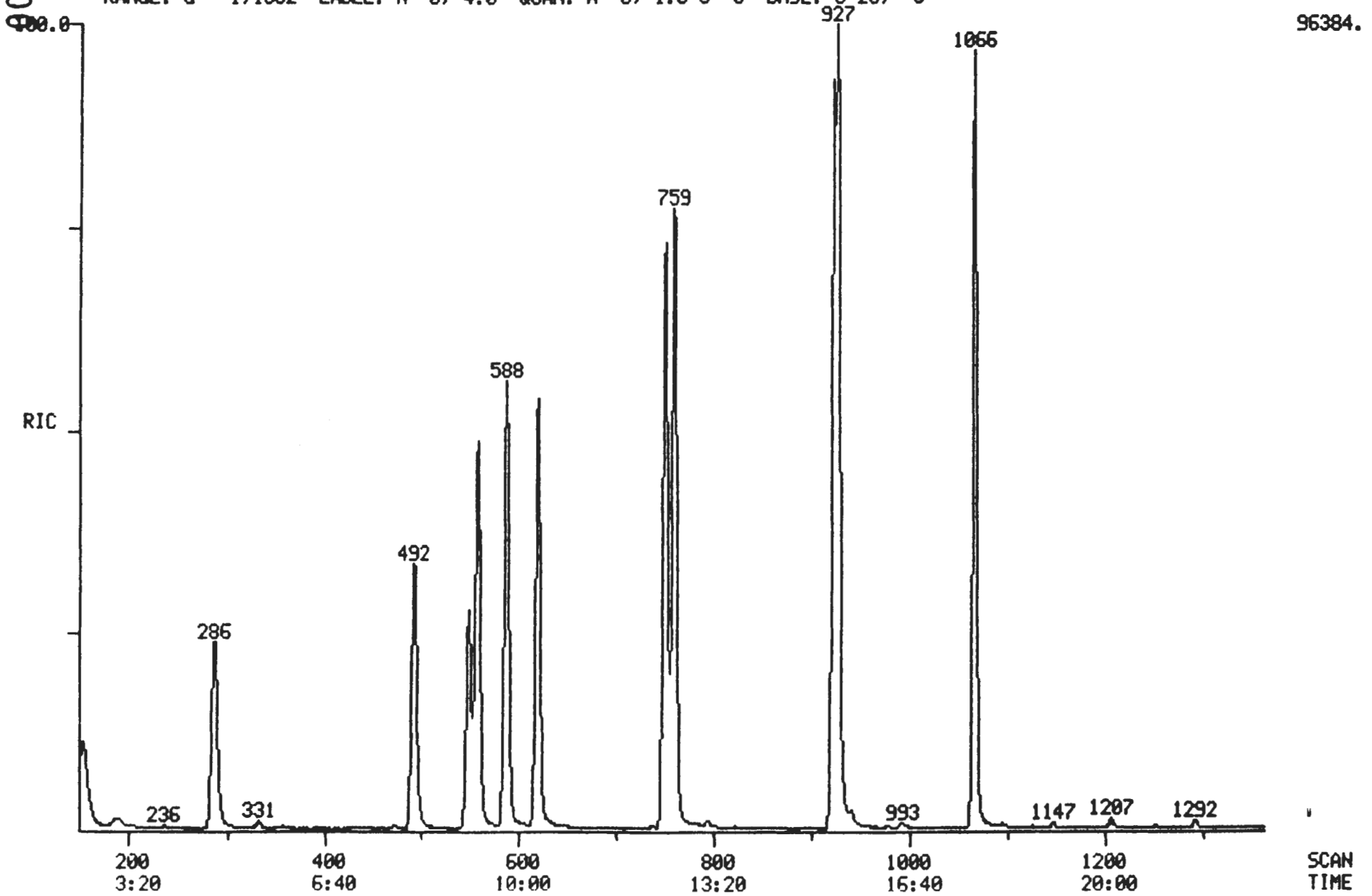
Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

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	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	45	
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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	43	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	48	
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	50	
108-90-7	Chlorobenzene	48	
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

000182

RIC
02/18/93 11:47:00
SAMPLE: CLP,02041,,B07K09MS,L,W,A302041-03B,VOA,MS
CONDS.: CAP/.53,30218B01,3BF0218,30118B03,,
RANGE: G 1,1362 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30218B08 #1
CALI: 30218B08 #3
SCANS 150 TO 1362



96130492.5152

9613492.5153

Quantitation Report File: 30218B08

000183

Data: 30218B08.TI
02/18/93 11:47:00
Sample: CLP,02041,,B07K09MS,L,W,A302041-03B,VOA,MS
Conds.: CAP/.53,30218B01,3BF0218,30118B03,,
Formula: 5ML Instrument: BULL Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	CI01	BROMOCHLOROMETHANE	*INTERNAL STANDARD*
2	CI10	1,4-DIFLUOROBENZENE	*INTERNAL STANDARD*
3	CI20	D5-CHLOROBENZENE	*INTERNAL STANDARD*
4	CS15	D4-1,2-DICHLOROETHANE	*SURROGATE*
5	CS05	D8-TOLUENE	*SURROGATE*
6	CS10	BROMOFLUOROBENZENE	*SURROGATE*
7	C045	1,1-DICHLOROETHENE	
8	C030	METHYLENE CHLORIDE	
9	C165	BENZENE	
10	C150	TRICHLOROETHENE	
11	C230	TOLUENE	
12	C235	CHLOROBENZENE	

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	128	492	8:12	1	1.000	A BB	23341.	50.000	NG/ML	9.20
2	114	587	9:47	2	1.000	A BB	117030.	50.000	NG/ML	9.20
3	117	923	15:23	3	1.000	A BB	117108.	50.000	NG/ML	9.20
4	65	549	9:09	1	1.116	A BB	48783.	55.488	NG/ML	10.21
5	98	751	12:31	3	0.814	A BB	129123.	53.080	NG/ML	9.77
6	95	1066	17:46	3	1.155	A BB	98435.	48.742	NG/ML	8.97
7	96	286	4:46	1	0.581	A BB	29777.	44.783	NG/ML	8.24
8	84	332	5:32	1	0.675	A BB	1186.	1.670	NG/ML	0.31
9	78	558	9:18	2	0.951	A BB	117953.	48.135	NG/ML	8.86
10	130	620	10:20	2	1.056	A BB	46032.	42.897	NG/ML	7.89
11	91	759	12:39	3	0.822	A BB	147378.	50.425	NG/ML	9.28
12	112	927	15:27	3	1.004	A BB	116145.	48.218	NG/ML	8.87

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	8:02	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	9:37	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	15:12	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	8:59	1.02	1.119	1.00	55.49	50.00	2.090	1.883 ✓	1.11
5	12:20	1.01	0.811	1.00	53.08	50.00	1.103	1.039 ✓	1.06
6	17:35	1.01	1.157	1.00	48.74	50.00	0.841	0.862 ✓	0.97
7	4:37	1.03	0.574	1.01	44.78	50.00	1.276	1.424	0.90
8	5:24	1.03	1.000	0.67	1.67	50.00	0.051	1.522	0.03
9	9:07	1.02	0.948	1.00	48.14	50.00	1.008	1.047	0.96
10	10:09	1.02	1.055	1.00	42.90	50.00	0.393	0.458	0.86
11	12:29	1.01	0.821	1.00	50.43	50.00	1.258	1.248	1.01
12	15:17	1.01	1.004	1.00	48.22	50.00	0.992	1.028	0.96

Quantitation Report File: 30218B08

Data: 30218B08.TI
02/18/93 11:47:00
Sample: CLP,02041,,B07K09MS,L,W,A302041-03B,VOA,MS
Conds.: CAP/.53,30218B01,3BF0218,30118B03,,
Formula: 5ML Instrument: BULL Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	CI01	BROMOCHLOROMETHANE	*INTERNAL STANDARD*
2	CI10	1,4-DIFLUOROBENZENE	*INTERNAL STANDARD*
3	CI20	D5-CHLOROBENZENE	*INTERNAL STANDARD*
4	CS15	D4-1,2-DICHLOROETHANE	*SURROGATE*
5	CS05	D8-TOLUENE	*SURROGATE*
6	CS10	BROMOFLUOROBENZENE	*SURROGATE*
7	C010	CHLOROMETHANE	
8	C020	VINYL CHLORIDE	
9	C015	BROMOMETHANE	
10	C025	CHLOROETHANE	
11	C035	ACETONE	
12	C045	1,1-DICHLOROETHENE	
13	C040	CARBON DISULFIDE	
14	C030	METHYLENE CHLORIDE	
15	C055	TRANS-1,2-DICHLOROETHENE	
16	C050	1,1-DICHLOROETHANE	
17	C125	VINYL ACETATE	
18	C110	2-BUTANONE	
19	C053	CIS-1,2-DICHLOROETHENE	
20	C060	CHLOROFORM	
21	C115	1,1,1-TRICHLOROETHANE	
22	C120	CARBON TETRACHLORIDE	
23	C165	BENZENE	
24	C065	1,2-DICHLOROETHANE	
25	C150	TRICHLOROETHENE	
26	C140	1,2-DICHLOROPROPANE	
27	C130	BROMODICHLOROMETHANE	
28	C205	4-METHYL-2-PENTANONE	
29	C143	CIS-1,3-DICHLOROPROPENE	
30	C230	TOLUENE	
31	C172	TRANS-1,3-DICHLOROPROPENE	
32	C160	1,1,2-TRICHLOROETHANE	
33	C210	2-HEXANONE	
34	C220	TETRACHLOROETHENE	
35	C155	DIBROMOCHLOROMETHANE	
36	C235	CHLOROBENZENE	
37	C240	ETHYLBENZENE	
38	C250	M,P-XYLENES	
39	C251	O-XYLENE	
40	C245	STYRENE	
41	C180	BROMOFORM	
42	C225	1,1,2,2-TETRACHLOROETHANE	
43	C175	2-CHLOROETHYL VINYL ETHER	

9613492.5155

000185

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	128	492	8:12	1	1.000	A BB	23341.	50.000	NG/ML	9.08
2	114	587	9:47	2	1.000	A BB	117030.	50.000	NG/ML	9.08
3	117	923	15:23	3	1.000	A BB	117108.	50.000	NG/ML	9.08
4	65	549	9:09	1	1.116	A BB	48783.	55.488	NG/ML	10.07
5	98	751	12:31	3	0.814	A BB	129123.	53.080	NG/ML	9.64
6	95	1066	17:46	3	1.155	A BB	98435.	48.742	NG/ML	8.85
7	NOT FOUND									
8	NOT FOUND									
9	NOT FOUND									
10	NOT FOUND									
~~11~~	~~43~~	~~282~~	~~4:42~~	~~1~~	~~0.573~~	~~A BB~~	~~537.~~	~~5.022~~	~~NG/ML~~	~~0.91~~
12	96	286	4:46	1	0.581	A BB	29777.	44.783	NG/ML	8.13
13	NOT FOUND									
14	84	332	5:32	1	0.675	A BB	1186.	1.670	NG/ML	0.30
15	NOT FOUND									
16	NOT FOUND									
17	NOT FOUND									
18	NOT FOUND									
19	NOT FOUND									
~~20~~	~~83~~	~~474~~	~~7:54~~	~~1~~	~~0.963~~	~~A BB~~	~~1293.~~	~~0.725~~	~~NG/ML~~	~~0.13~~
21	NOT FOUND									
22	NOT FOUND									
23	78	558	9:18	2	0.951	A BB	117953.	48.135	NG/ML	8.74
~~24~~	~~62~~	~~558~~	~~9:18~~	~~1~~	~~1.134~~	~~A BB~~	~~1019.~~	~~0.907~~	~~NG/ML~~	~~0.16~~
25	130	620	10:20	2	1.056	A BB	46032.	42.897	NG/ML	7.79
26	NOT FOUND									
27	NOT FOUND									
28	NOT FOUND									
29	NOT FOUND									
30	91	759	12:39	3	0.822	A BB	147378.	50.425	NG/ML	9.15
31	NOT FOUND									
32	NOT FOUND									
33	NOT FOUND									
34	NOT FOUND									
35	NOT FOUND									
36	112	927	15:27	3	1.004	A BB	116145.	48.218	NG/ML	8.75
37	NOT FOUND									
~~38~~	~~106~~	~~941~~	~~15:41~~	~~3~~	~~1.020~~	~~A BB~~	~~774.~~	~~0.535~~	~~NG/ML~~	~~0.10~~
39	NOT FOUND									
40	NOT FOUND									
41	NOT FOUND									
42	NOT FOUND									
43	NOT FOUND									

JC 3-9-93

WA 3/10/9

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	8:02	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	9:37	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	15:12	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	8:59	1.02	1.119	1.00	55.49	50.00	2.090	1.883	1.11
5	12:20	1.01	0.811	1.00	53.08	50.00	1.103	1.039	1.06
6	17:35	1.01	1.157	1.00	48.74	50.00	0.841	0.862	0.97
7	2:53		0.356						
8	2:58		0.368						
9	3:27		0.428						
10	3:32		0.439						
11	4:35	1.03	1.000	0.57	5.02	50.00	0.023	0.229	0.10

9613492.5156

000186

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
12	4:37	1.03	0.574	1.01	44.78	50.00	1.276	1.424	0.90
13	5:23		1.000						
14	5:24	1.03	1.000	0.67	1.67	50.00	0.051	1.522	0.03
15	5:45		0.715						
16	6:27		0.805						
17	6:29		0.672						
18	7:14		0.902						
19	7:28		0.929						
20	7:43	1.02	0.963	1.00	0.72	50.00	0.055	3.821	0.01
21	8:21		0.868						
22	8:46		0.912						
23	9:07	1.02	0.948	1.00	48.14	50.00	1.008	1.047	0.96
24	9:09	1.02	1.139	1.00	0.91	50.00	0.044	2.408	0.02
25	10:09	1.02	1.055	1.00	42.90	50.00	0.393	0.458	0.86
26	10:31		1.094						
27	10:57		1.139						
28	11:35		1.000						
29	11:57		1.241						
30	12:29	1.01	0.821	1.00	50.43	50.00	1.258	1.248	1.01
31	12:54		1.241						
32	13:11		1.369						
33	13:13		0.870						
34	13:39		0.898						
35	14:09		1.468						
36	15:17	1.01	1.004	1.00	48.22	50.00	0.992	1.028	0.96
37	15:22		1.011						
38	15:30	1.01	1.020	1.00	0.54	100.00	0.003	0.617	0.01
39	16:21		1.076						
40	16:28		1.000						
41	17:09		1.782						
42	17:29		1.150						
43	11:33		1.000						

9613492.5157

000187

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07K11MS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-01B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30218R10

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. 9 Date Analyzed: 02/18/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

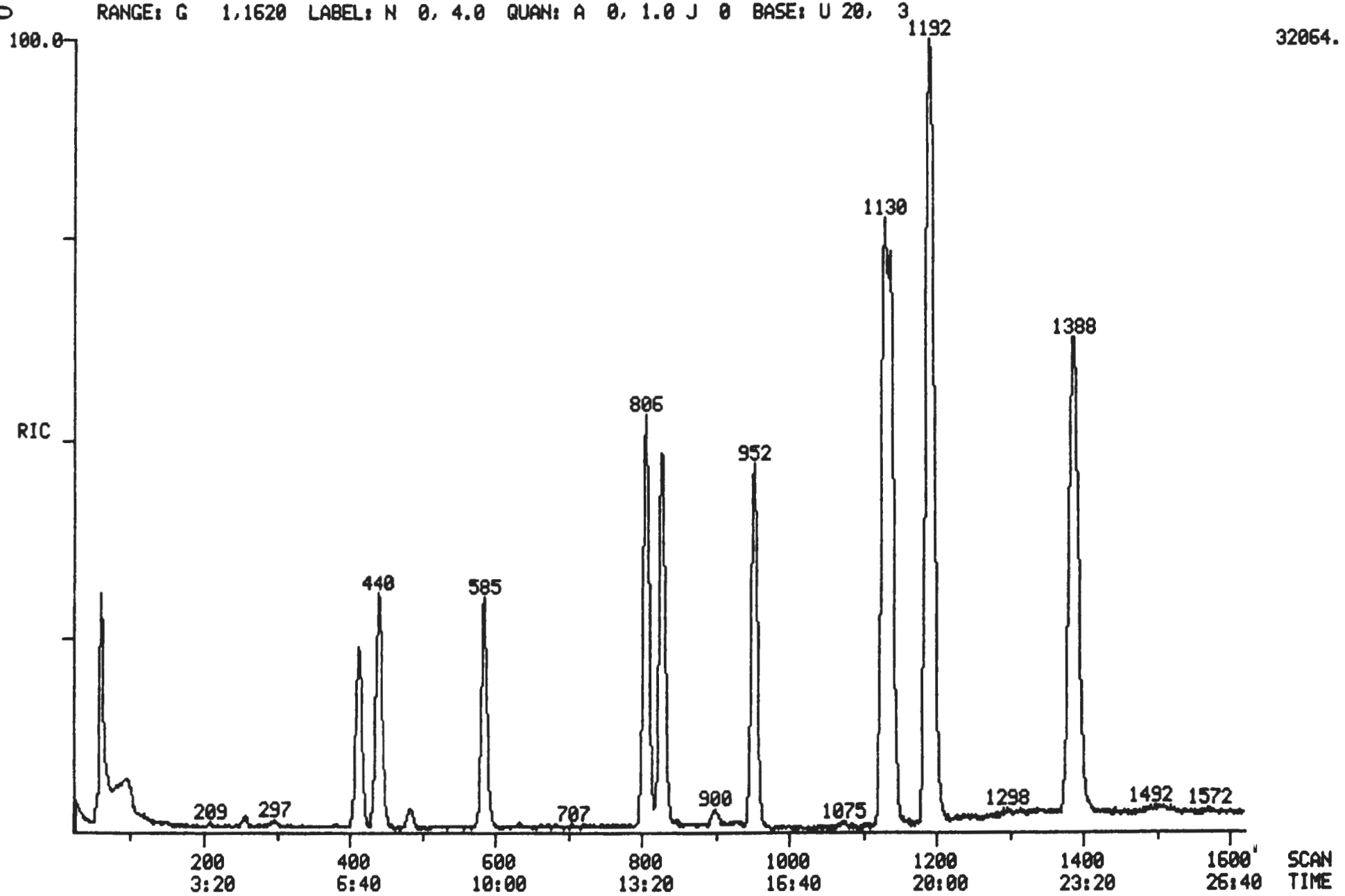
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	9	BJ
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	54	
75-34-3	1,1-Dichloroethane	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	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	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	61	
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	62	
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	62	
108-90-7	Chlorobenzene	58	
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

000188

RIC
02/18/93 15:26:00
SAMPLE: CLP,02041,,B07K11MS,L,S,A302041-01B,VOA/H,MS,
CONDS.: PACK/2,30218R01,38FB0218,30218R03,
RANGE: G 1,1620 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30218R10 #1
CALI: 30218R10 #7

SCANS 25 TO 1620



0013*26H019

9613492.5159

000189

Quantitation Report File: 30218R10

Data: 30218R10.TI
02/18/93 15:26:00
Sample: CLP,02041,,B07K11MS,L,S,A302041-01B,VOA/H,MS,
Conds.: PACK/2,30218R01,3BFB0218,30218R03,
Formula: Instrument: 4500 Weight: 5.000
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C035	ACETONE
8	C045	1,1-DICHLOROETHENE
9	C150	TRICHLOROETHENE
10	C165	BENZENE
11	C230	TOLUENE
12	C235	CHLOROBENZENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	441	7:21	1	1.000	A BB	13842.	50.000 PPB	8.37
2	114	952	15:52	2	1.000	A BB	54499.	50.000 PPB	8.37
3	117	1189	19:49	3	1.000	A BB	61841.	50.000 PPB	8.37
4	65	585	9:45	1	1.327	A BB	24197.	54.654 PPB	9.15
5	98	1129	18:49	3	0.950	A BB	70321.	59.951 PPB	10.03
6	95	1387	23:07	3	1.167	A BB	48417.	56.484 PPB	9.45
7	43	297	4:57	1	0.673	A BB	1984.	7.826 PPB	1.31
8	96	413	6:53	1	0.937	A BB	15329.	49.150 PPB	8.23
9	130	806	13:26	2	0.847	A BB	27933.	55.427 PPB	9.28
10	78	827	13:47	2	0.869	A BB	58158.	56.764 PPB	9.50
11	91	1138	18:58	3	0.957	A BB	69034.	54.665 PPB	9.15
12	112	1194	19:54	3	1.004	A BB	60470.	52.506 PPB	8.79

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:16	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:41	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:37	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:38	1.01	1.326	1.00	54.65	50.00	1.748	1.599	1.09
5	18:36	1.01	0.948	1.00	59.95	50.00	1.137	0.948	1.20
6	22:55	1.01	1.168	1.00	56.48	50.00	0.783	0.693	1.13
7	5:03	0.98	0.695	0.97	7.83	50.00	0.143	0.916	0.16
8	6:47	1.01	0.933	1.00	49.15	50.00	1.107	1.127	0.98
9	13:16	1.01	0.846	1.00	55.43	50.00	0.513	0.462	1.11
10	13:38	1.01	0.869	1.00	56.76	50.00	1.067	0.940	1.14
11	18:46	1.01	0.957	1.00	54.66	50.00	1.116	1.021	1.09
12	19:43	1.01	1.005	1.00	52.51	50.00	0.978	0.931	1.05

Quantitation Report File: 30218R10

Data: 30218R10.TI
02/18/93 15:26:00
Sample: CLP,02041,,B07K11MS,L,S,A302041-01B,VOA/H,MS,
Conds.: PACK/2,30218R01,3BFB0218,30218R03,
Formula: Instrument: 4500 Weight: 5.000
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C040	CARBON DISULFIDE
14	C045	1,1-DICHLOROETHENE
15	C050	1,1-DICHLOROETHANE
16	C053	1,2-DICHLOROETHENE(TOTAL)
17	C060	CHLOROFORM
18	C110	2-BUTANONE
19	C065	1,2-DICHLOROETHANE
20	C115	1,1,1-TRICHLOROETHANE
21	C120	CARBON TETRACHLORIDE
22	C125	VINYL ACETATE
23	C130	BROMODICHLOROMETHANE
24	C140	1,2-DICHLOROPROPANE
25	C143	CIS-1,3-DICHLOROPROPENE
26	C150	TRICHLOROETHENE
27	C155	DIBROMOCHLOROMETHANE
28	C165	BENZENE
29	C160	1,1,2-TRICHLOROETHANE
30	C172	TRANS-1,3-DICHLOROPROPENE
31	C175	2-CHLOROETHOXY ETHENE
32	C180	BROMOFORM
33	C205	4-METHYL-2-PENTANONE
34	C210	2-HEXANONE
35	C225	1,1,2,2-TETRACHLOROETHANE
36	C220	TETRACHLOROETHENE
37	C230	TOLUENE
38	C235	CHLOROBENZENE
39	C240	ETHYL BENZENE
40	C245	STYRENE
41	C255	M-XYLENE
42	C250	O,P-XYLENE

9613492.5161

000191

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	441	7:21	1	1.000	A BB	13842.	50.000 PPB	8.19
2	114	952	15:52	2	1.000	A BB	54499.	50.000 PPB	8.19
3	117	1189	19:49	3	1.000	A BB	61841.	50.000 PPB	8.19
4	65	585	9:45	1	1.327	A BB	24197.	54.654 PPB	8.95
5	98	1129	18:49	3	0.950	A BB	70321.	59.951 PPB	9.82
6	95	1387	23:07	3	1.167	A BB	48417.	56.484 PPB	9.25
7	NOT FOUND								
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
~~11~~	~~84~~	~~256~~	~~4:16~~	~~1~~	~~0.580~~	~~A BB~~	~~822.~~	~~2.066 PPB~~	~~0.34~~
12	43	297	4:57	1	0.673	A BB	1984.	7.826 PPB	1.28
13	NOT FOUND								
14	96	413	6:53	1	0.937	A BB	15329.	49.150 PPB	8.05
15	NOT FOUND								
16	NOT FOUND								
17	NOT FOUND								
~~18~~	~~43~~	~~586~~	~~9:46~~	~~1~~	~~1.329~~	~~A BB~~	~~5905.~~	~~11.049 PPB~~	~~1.81~~
19	NOT FOUND								
20	NOT FOUND								
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	130	806	13:26	2	0.847	A BB	27933.	55.427 PPB	9.08
27	NOT FOUND								
28	78	827	13:47	2	0.869	A BB	58158.	56.764 PPB	9.30
29	NOT FOUND								
30	NOT FOUND								
31	NOT FOUND								
32	NOT FOUND								
33	NOT FOUND								
34	NOT FOUND								
35	NOT FOUND								
36	NOT FOUND								
37	91	1138	18:58	3	0.957	A BB	69034.	54.665 PPB	8.95
38	112	1194	19:54	3	1.004	A BB	60470.	52.506 PPB	8.60
39	NOT FOUND								
40	NOT FOUND								
41	NOT FOUND								
42	NOT FOUND								

NJC 02/19/93

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:16	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:41	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:37	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:38	1.01	1.326	1.00	54.65	50.00	1.748	1.599	1.09
5	18:36	1.01	0.948	1.00	59.95	50.00	1.137	0.948	1.20
6	22:55	1.01	1.168	1.00	56.48	50.00	0.783	0.693	1.13
7	0:51		0.117						
8	1:28		0.202						
9	1:53		0.259						
10	2:36		0.358						
11	4:14	1.01	0.583	1.00	2.07	50.00	0.059	1.437	0.04
12	5:03	0.98	0.695	0.97	7.83	50.00	0.143	0.916	0.16

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
13	5:32		0.761						
14	6:47	1.01	0.933	1.00	49.15	50.00	1.107	1.127	0.98
15	7:55		1.089						
16	8:36		1.183						
17	9:07		1.255						
18	9:39	1.01	1.328	1.00	11.05	50.00	0.427	1.931	0.22
19	9:43		1.337						
20	10:42		0.682						
21	11:01		0.702						
22	11:14		0.716						
23	11:34		0.738						
24	12:35		0.802						
25	12:49		0.817						
26	13:16	1.01	0.846	1.00	55.43	50.00	0.513	0.462	1.11
27	13:49		0.881						
28	13:38	1.01	0.869	1.00	56.76	50.00	1.067	0.940	1.14
29	13:53		0.885						
30	13:51		0.883						
31	14:41		0.936						
32	15:58		1.018						
33	16:14		0.828						
34	17:29		0.891						
35	17:47		0.907						
36	17:47		0.907						
37	18:46	1.01	0.957	1.00	54.66	50.00	1.116	1.021	1.09
38	19:43	1.01	1.005	1.00	52.51	50.00	0.978	0.931	1.05
39	21:10		1.079						
40	23:48		1.213						
41	23:58		1.222						
42	24:38		1.256						

9613492.5163

000193

EPA SAMPLE NO.

B07K09MSD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A302041-03C

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 30218B09

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. ____ Date Analyzed: 02/18/93

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

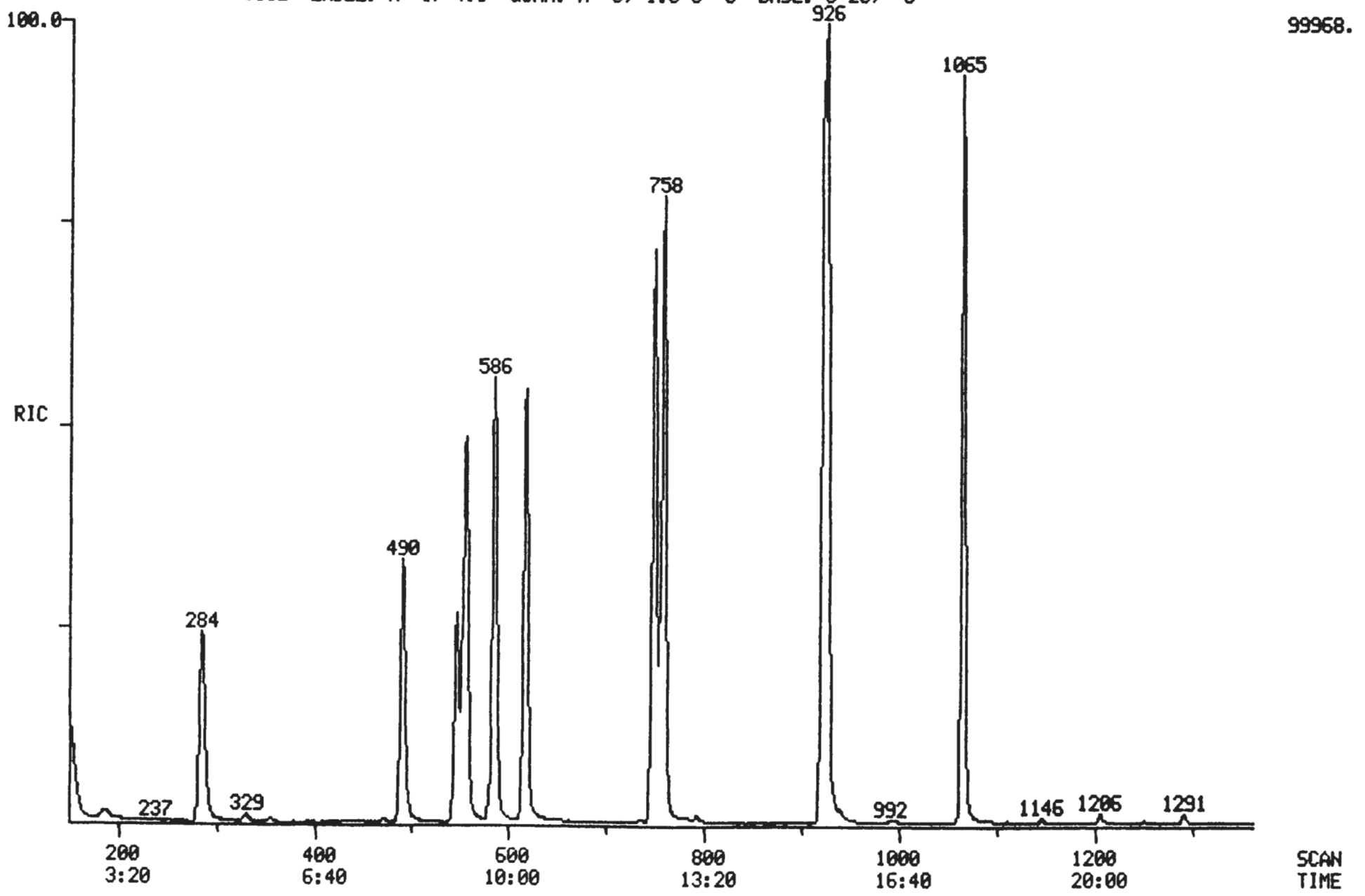
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	45	
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	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	43	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	49	
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	51	
108-90-7	Chlorobenzene	48	
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

000194

RIC
02/18/93 12:17:00
SAMPLE: CLP,02041,,B07K09MSD,L,W,A302041-03C,VOA,MSD
CONDS.: CAP/.53,30218B01,3BF0218,30218B03
RANGE: G 1,1362 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 30218B09 #1
CALI: 30218B09 #3

SCANS 150 TO 1362



96173492.5164

9613492.5165

Quantitation Report File: 30218B09

000195

Data: 30218B09.TI
02/18/93 12:17:00
Sample: CLP,02041,,B07K09MSD,L,W,A302041-03C,VOA,MSD
Conds.: CAP/.53,30218B01,3BF0218,30218B03
Formula: 5ML Instrument: BULL Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	CI01	BROMOCHLOROMETHANE	*INTERNAL STANDARD*
2	CI10	1,4-DIFLUOROBENZENE	*INTERNAL STANDARD*
3	CI20	D5-CHLOROBENZENE	*INTERNAL STANDARD*
4	CS15	D4-1,2-DICHLOROETHANE	*SURROGATE*
5	CS05	D8-TOLUENE	*SURROGATE*
6	CS10	BROMOFLUOROBENZENE	*SURROGATE*
7	C045	1,1-DICHLOROETHENE	
8	C030	METHYLENE CHLORIDE	
9	C165	BENZENE	
10	C150	TRICHLOROETHENE	
11	C230	TOLUENE	
12	C235	CHLOROBENZENE	

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	490	8:10	1	1.000	A BB	23954.	50.000 NG/ML	9.23
2	114	585	9:45	2	1.000	A BB	121517.	50.000 NG/ML	9.23
3	117	922	15:22	3	1.000	A BB	120629.	50.000 NG/ML	9.23
4	65	547	9:07	1	1.116	A BB	48654.	53.925 NG/ML	9.95
5	98	749	12:29	3	0.812	A BB	131557.	52.502 NG/ML	9.69
6	95	1065	17:45	3	1.155	A BB	98147.	47.181 NG/ML	8.71
7	96	284	4:44	1	0.580	A BB	30661.	44.932 NG/ML	8.29
8	84	329	5:29	1	0.671	A BB	1287.	1.766 NG/ML	0.33
9	78	556	9:16	2	0.950	A BB	124125.	48.783 NG/ML	9.01
10	130	618	10:18	2	1.056	A BB	48050.	43.124 NG/ML	7.96
11	91	758	12:38	3	0.822	A BB	153689.	51.050 NG/ML	9.42
12	112	926	15:26	3	1.004	A BB	120212.	48.449 NG/ML	8.94

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	8:02	1.02	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	9:37	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	15:12	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	8:59	1.01	1.119	1.00	53.92	50.00	2.031	1.883	1.08
5	12:20	1.01	0.811	1.00	52.50	50.00	1.091	1.039	1.05
6	17:35	1.01	1.157	1.00	47.18	50.00	0.814	0.862	0.94
7	4:37	1.03	0.574	1.01	44.93	50.00	1.280	1.424	0.90
8	5:24	1.02	1.000	0.67	1.77	50.00	0.054	1.522	0.04
9	9:07	1.02	0.948	1.00	48.78	50.00	1.021	1.047	0.98
10	10:09	1.01	1.055	1.00	43.12	50.00	0.395	0.458	0.86
11	12:29	1.01	0.821	1.00	51.05	50.00	1.274	1.248	1.02
12	15:17	1.01	1.004	1.00	48.45	50.00	0.997	1.028	0.97

Quantitation Report File: 30218B09

Data: 30218B09.TI
02/18/93 12:17:00
Sample: CLP,02041,,B07K09MSD,L,W,A302041-03C,VOA,MSD
Conds.: CAP/.53,30218B01,3BF0218,30218B03
Formula: 5ML Instrument: BULL Weight: 0.000
Submitted by: TMA-ARLI Analyst: LS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	CI01	BROMOCHLOROMETHANE	*INTERNAL STANDARD*
2	CI10	1,4-DIFLUOROBENZENE	*INTERNAL STANDARD*
3	CI20	D5-CHLOROBENZENE	*INTERNAL STANDARD*
4	CS15	D4-1,2-DICHLOROETHANE	*SURROGATE*
5	CS05	D8-TOLUENE	*SURROGATE*
6	CS10	BROMOFLUOROBENZENE	*SURROGATE*
7	C010	CHLOROMETHANE	
8	C020	VINYL CHLORIDE	
9	C015	BROMOMETHANE	
10	C025	CHLOROETHANE	
11	C035	ACETONE	
12	C045	1,1-DICHLOROETHENE	
13	C040	CARBON DISULFIDE	
14	C030	METHYLENE CHLORIDE	
15	C055	TRANS-1,2-DICHLOROETHENE	
16	C050	1,1-DICHLOROETHANE	
17	C125	VINYL ACETATE	
18	C110	2-BUTANONE	
19	C053	CIS-1,2-DICHLOROETHENE	
20	C060	CHLOROFORM	
21	C115	1,1,1-TRICHLOROETHANE	
22	C120	CARBON TETRACHLORIDE	
23	C165	BENZENE	
24	C065	1,2-DICHLOROETHANE	
25	C150	TRICHLOROETHENE	
26	C140	1,2-DICHLOROPROPANE	
27	C130	BROMODICHLOROMETHANE	
28	C205	4-METHYL-2-PENTANONE	
29	C143	CIS-1,3-DICHLOROPROPENE	
30	C230	TOLUENE	
31	C172	TRANS-1,3-DICHLOROPROPENE	
32	C160	1,1,2-TRICHLOROETHANE	
33	C210	2-HEXANONE	
34	C220	TETRACHLOROETHENE	
35	C155	DIBROMOCHLOROMETHANE	
36	C235	CHLOROBENZENE	
37	C240	ETHYLBENZENE	
38	C250	M,P-XYLENES	
39	C251	O-XYLENE	
40	C245	STYRENE	
41	C180	BROMOFORM	
42	C225	1,1,2,2-TETRACHLOROETHANE	
43	C175	2-CHLOROETHYL VINYL ETHER	

9613492.5167

000197

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	128	490	8:10	1	1.000	A BB	23954.	50.000	NG/ML	9.09
2	114	585	9:45	2	1.000	A BB	121517.	50.000	NG/ML	9.09
3	117	922	15:22	3	1.000	A BB	120629.	50.000	NG/ML	9.09
4	65	547	9:07	1	1.116	A BB	48654.	53.925	NG/ML ✓	9.80
5	98	749	12:29	3	0.812	A BB	131557.	52.502	NG/ML ✓	9.54
6	95	1065	17:45	3	1.155	A BB	98147.	47.181	NG/ML ✓	8.58
7	NOT FOUND									
8	NOT FOUND									
9	NOT FOUND									
10	NOT FOUND									
~~11~~	~~43~~	~~280~~	~~4:40~~	~~1~~	~~0.571~~	~~A BB~~	~~712.~~	~~6.485~~	~~NG/ML~~	~~1.18~~
12	96	284	4:44	1	0.580	A BB	30661.	44.932	NG/ML	8.17
13	NOT FOUND									
14	84	329	5:29	1	0.671	A BB	1287.	1.766	NG/ML	0.32
15	NOT FOUND									
16	NOT FOUND									
17	NOT FOUND									
18	NOT FOUND									
19	NOT FOUND									
~~20~~	~~83~~	~~472~~	~~7:52~~	~~1~~	~~0.963~~	~~A BB~~	~~1332.~~	~~0.728~~	~~NG/ML~~	~~0.13~~
21	NOT FOUND									
22	NOT FOUND									
23	78	556	9:16	2	0.950	A BB	124125.	48.783	NG/ML	8.87
~~24~~	~~62~~	~~556~~	~~9:16~~	~~1~~	~~1.135~~	~~A BB~~	~~1070.~~	~~0.928~~	~~NG/ML~~	~~0.17~~
25	130	618	10:18	2	1.056	A BB	48050.	43.124	NG/ML	7.84
26	NOT FOUND									
27	NOT FOUND									
28	NOT FOUND									
29	NOT FOUND									
30	91	758	12:38	3	0.822	A BB	153689.	51.050	NG/ML	9.28
31	NOT FOUND									
32	NOT FOUND									
33	NOT FOUND									
34	NOT FOUND									
35	NOT FOUND									
36	112	926	15:26	3	1.004	A BB	120212.	48.449	NG/ML	8.81
37	NOT FOUND									
38	NOT FOUND									
39	NOT FOUND									
40	NOT FOUND									
41	NOT FOUND									
42	NOT FOUND									
43	NOT FOUND									

JC 3.4.93

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)		Ratio
1	8:02	1.02	1.000	1.00	50.00	50.00	1.000	1.000		1.00
2	9:37	1.01	1.000	1.00	50.00	50.00	1.000	1.000		1.00
3	15:12	1.01	1.000	1.00	50.00	50.00	1.000	1.000		1.00
4	8:59	1.01	1.119	1.00	53.92	50.00	2.031	1.883	✓	1.08
5	12:20	1.01	0.811	1.00	52.50	50.00	1.091	1.039	✓	1.05
6	17:35	1.01	1.157	1.00	47.18	50.00	0.814	0.862	✓	0.94
7	2:53		0.356							
8	2:58		0.368							
9	3:27		0.428							
10	3:32		0.439							
11	4:35	1.02	1.000	0.57	6.49	50.00	0.030	0.229		0.13

LOA 3/10/93

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
12	4:37	1.03	0.574	1.01	44.93	50.00	1.280	1.424	0.90
13	5:23		1.000						
14	5:24	1.02	1.000	0.67	1.77	50.00	0.054	1.522	0.04
15	5:45		0.715						
16	6:27		0.805						
17	6:29		0.672						
18	7:14		0.902						
19	7:28		0.929						
20	7:43	1.02	0.963	1.00	0.73	50.00	0.056	3.821	0.01
21	8:21		0.868						
22	8:46		0.912						
23	9:07	1.02	0.948	1.00	48.78	50.00	1.021	1.047	0.98
24	9:09	1.01	1.139	1.00	0.93	50.00	0.045	2.408	0.02
25	10:09	1.01	1.055	1.00	43.12	50.00	0.395	0.458	0.86
26	10:31		1.094						
27	10:57		1.139						
28	11:35		1.000						
29	11:57		1.241						
30	12:29	1.01	0.821	1.00	51.05	50.00	1.274	1.248	1.02
31	12:54		1.241						
32	13:11		1.369						
33	13:13		0.870						
34	13:39		0.898						
35	14:09		1.468						
36	15:17	1.01	1.004	1.00	48.45	50.00	0.997	1.028	0.97
37	15:22		1.011						
38	15:30		1.020						
39	16:21		1.076						
40	16:28		1.000						
41	17:09		1.782						
42	17:29		1.150						
43	11:33		1.000						

9613492.5169

000199

EPA SAMPLE NO.

B07K11MSD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 02041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A302041-01C

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30218R11

Level: (low/med) LOW Date Received: 02/16/93

% Moisture: not dec. 9 Date Analyzed: 02/18/93

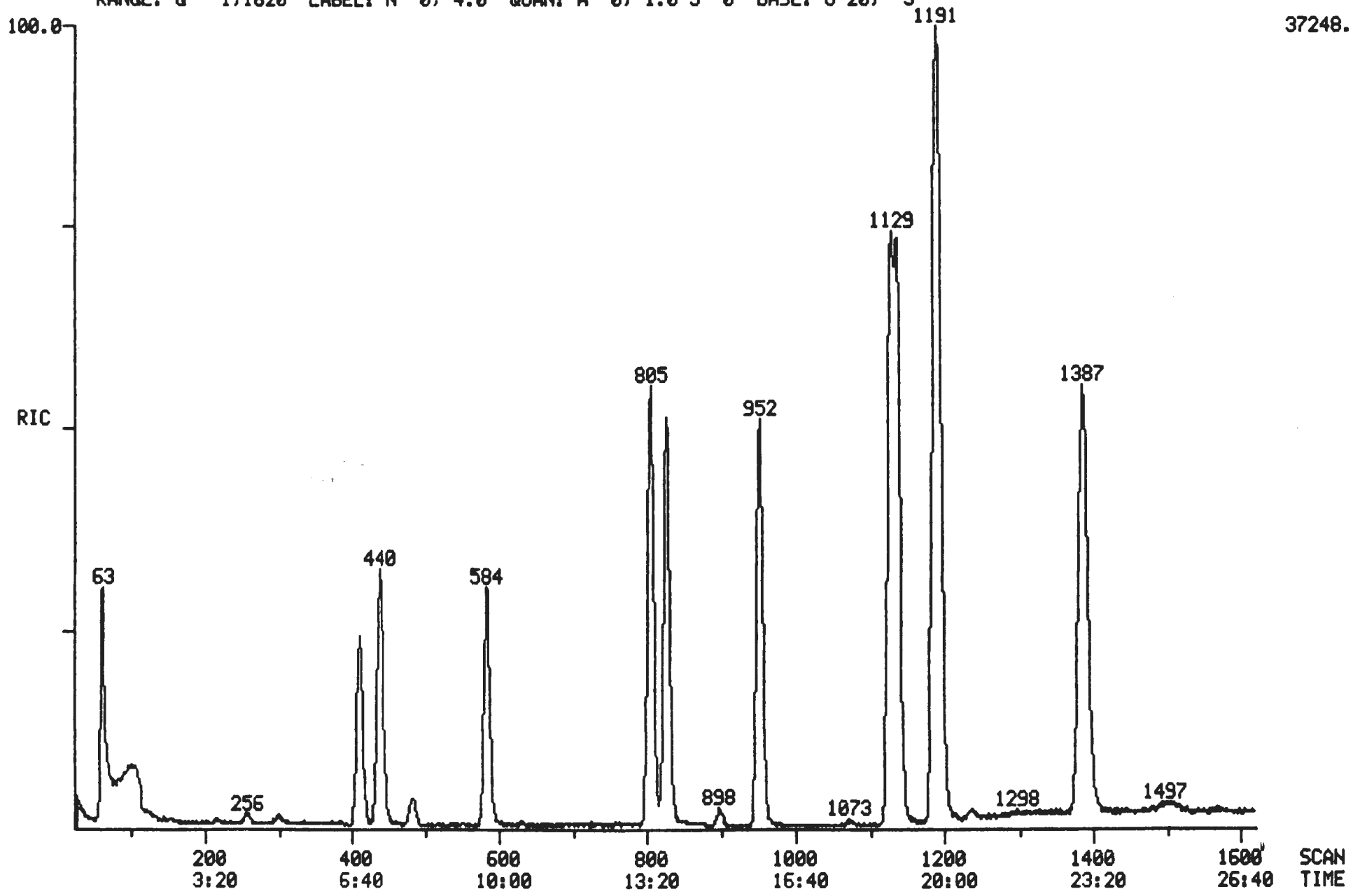
GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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	B
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	54	
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	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	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	58	
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	60	
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	65	
108-90-7	Chlorobenzene	58	
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

000200

RIC DATA: 30218R11 #1 SCANS 25 TO 1620
02/18/93 16:02:00 CALI: 30218R11 #7
SAMPLE: CLP,02041,,B07K11MSD,L,S,A302041-01C,VOA/H,MSD,
CONDS.: PACK/2,30218R01,3BFB0218,30218R03,
RANGE: G 1,1620 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



02/15/93 17:20

Quantitation Report File: 30218R11

Data: 30218R11.TI
02/18/93 16:02:00
Sample: CLP,02041,,B07K11MSD,L,S,A302041-01C,VOA/H,MSD,
Conds.: PACK/2,30218R01,3BFB0218,30218R03,
Formula: Instrument: 4500 Weight: 5.000
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C035	ACETONE
8	C045	1,1-DICHLOROETHENE
9	C150	TRICHLOROETHENE
10	C165	BENZENE
11	C230	TOLUENE
12	C235	CHLOROBENZENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	440	7:20	1	1.000	A BB	16399.	50.000 PPB	8.56
2	114	952	15:52	2	1.000	A BB	69230.	50.000 PPB	8.56
3	117	1188	19:48	3	1.000	A BB	72715.	50.000 PPB	8.56
4	65	584	9:44	1	1.327	A BB	26206.	49.963 PPB	8.55
5	98	1128	18:48	3	0.949	A BB	78487.	56.906 PPB	9.74
6	95	1386	23:06	3	1.167	A BB	53155.	52.738 PPB	9.03
7	43	299	4:59	1	0.680	A BB	2990.	9.955 PPB	1.70
8	96	411	6:51	1	0.934	A BB	18168.	49.170 PPB	8.42
9	130	805	13:25	2	0.846	A BB	33567.	52.434 PPB	8.98
10	78	827	13:47	2	0.869	A BB	71137.	54.659 PPB	9.36
11	91	1137	18:57	3	0.957	A BB	81662.	54.994 PPB	9.42
12	112	1194	19:54	3	1.005	A BB	72062.	53.214 PPB	9.11

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:16	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:41	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:37	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:38	1.01	1.326	1.00	49.96	50.00	1.598	1.599	1.00
5	18:36	1.01	0.948	1.00	56.91	50.00	1.079	0.948	1.14
6	22:55	1.01	1.168	1.00	52.74	50.00	0.731	0.693	1.05
7	5:03	0.99	0.695	0.98	9.96	50.00	0.182	0.916	0.20
8	6:47	1.01	0.933	1.00	49.17	50.00	1.108	1.127	0.98
9	13:16	1.01	0.846	1.00	52.43	50.00	0.485	0.462	1.05
10	13:38	1.01	0.869	1.00	54.66	50.00	1.028	0.940	1.09
11	18:46	1.01	0.957	1.00	54.99	50.00	1.123	1.021	1.10
12	19:43	1.01	1.005	1.00	53.21	50.00	0.991	0.931	1.06

Quantitation Report File: 30218R11

Data: 30218R11.TI
02/18/93 16:02:00
Sample: CLP,02041,,B07K11MSD,L,S,A302041-01C,VOA/H,MSD,
Conds.: PACK/2,30218R01,3BFB0218,30218R03,
Formula: Instrument: 4500 Weight: 5.000
Submitted by: Analyst: KC Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
1	CI01	BROMOCHLOROMETHANE(I.S)
2	CI10	1,4-DIFLUORBENZENE(I.S)
3	CI20	CHLOROBENZENE D-5(I.S)
4	CS15	D4-1,2-DICHLOROETHANE(SURR)
5	CS05	D8-TOLUENE(SURR)
6	CS10	BROMOFLUOROBENZENE(SURR)
7	C010	CHLOROMETHANE
8	C015	BROMOMETHANE
9	C020	VINYL CHLORIDE
10	C025	CHLOROETHANE
11	C030	METHYLENE CHLORIDE
12	C035	ACETONE
13	C040	CARBON DISULFIDE
14	C045	1,1-DICHLOROETHENE
15	C050	1,1-DICHLOROETHANE
16	C053	1,2-DICHLOROETHENE(TOTAL)
17	C060	CHLOROFORM
18	C110	2-BUTANONE
19	C065	1,2-DICHLOROETHANE
20	C115	1,1,1-TRICHLOROETHANE
21	C120	CARBON TETRACHLORIDE
22	C125	VINYL ACETATE
23	C130	BROMODICHLOROMETHANE
24	C140	1,2-DICHLOROPROPANE
25	C143	CIS-1,3-DICHLOROPROPENE
26	C150	TRICHLOROETHENE
27	C155	DIBROMOCHLOROMETHANE
28	C165	BENZENE
29	C160	1,1,2-TRICHLOROETHANE
30	C172	TRANS-1,3-DICHLOROPROPENE
31	C175	2-CHLOROETHOXY ETHENE
32	C180	BROMOFORM
33	C205	4-METHYL-2-PENTANONE
34	C210	2-HEXANONE
35	C225	1,1,2,2-TETRACHLOROETHANE
36	C220	TETRACHLOROETHENE
37	C230	TOLUENE
38	C235	CHLOROBENZENE
39	C240	ETHYL BENZENE
40	C245	STYRENE
41	C255	M-XYLENE
42	C250	O,P-XYLENE

9613492.5173

000203

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	440	7:20	1	1.000	A BB	16399.	50.000 PPB	8.33
2	114	952	15:52	2	1.000	A BB	69230.	50.000 PPB	8.33
3	117	1188	19:48	3	1.000	A BB	72715.	50.000 PPB	8.33
4	65	584	9:44	1	1.327	A BB	26206.	49.963 PPB	8.32
5	98	1128	18:48	3	0.949	A BB	78487.	56.906 PPB	9.48
6	95	1386	23:06	3	1.167	A BB	53155.	52.738 PPB	8.78
7	NOT FOUND								
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
~~11~~	~~84~~	~~256~~	~~4:16~~	~~1~~	~~0.582~~	~~A BB~~	~~706.~~	~~1.498 PPB~~	~~0.25~~
12	43	299	4:59	1	0.680	A BB	2990.	9.955 PPB	1.66
13	NOT FOUND								
14	96	411	6:51	1	0.934	A BB	18168.	49.170 PPB	8.19
15	NOT FOUND								
16	NOT FOUND								
17	NOT FOUND								
~~18~~	~~43~~	~~584~~	~~9:44~~	~~1~~	~~1.327~~	~~A BB~~	~~9317.~~	~~14.714 PPB~~	~~2.45~~
19	NOT FOUND								
20	NOT FOUND								
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	130	805	13:25	2	0.846	A BB	33567.	52.434 PPB	8.73
27	NOT FOUND								
28	78	827	13:47	2	0.869	A BB	71137.	54.659 PPB	9.10
29	NOT FOUND								
30	NOT FOUND								
31	NOT FOUND								
32	NOT FOUND								
33	NOT FOUND								
34	NOT FOUND								
35	NOT FOUND								
36	NOT FOUND								
37	91	1137	18:57	3	0.957	A BB	81662.	54.994 PPB	9.16
38	112	1194	19:54	3	1.005	A BB	72062.	53.214 PPB	8.86
39	NOT FOUND								
40	NOT FOUND								
41	NOT FOUND								
42	NOT FOUND								

VC 02/19/93

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:16	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	15:41	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	19:37	1.01	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	9:38	1.01	1.326	1.00	49.96	50.00	1.598	1.599	1.00
5	18:36	1.01	0.948	1.00	56.91	50.00	1.079	0.948	1.14
6	22:55	1.01	1.168	1.00	52.74	50.00	0.731	0.693	1.05
7	0:51		0.117						
8	1:28		0.202						
9	1:53		0.259						
10	2:36		0.358						
11	4:14	1.01	0.583	1.00	1.50	50.00	0.043	1.437	0.03
12	5:03	0.99	0.695	0.98	9.96	50.00	0.182	0.916	0.20

9613492.5174

000204

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
13	5:32		0.761						
14	6:47	1.01	0.933	1.00	49.17	50.00	1.108	1.127	0.98
15	7:55		1.089						
16	8:36		1.183						
17	9:07		1.255						
18	9:39	1.01	1.328	1.00	14.71	50.00	0.568	1.931	0.29
19	9:43		1.337						
20	10:42		0.682						
21	11:01		0.702						
22	11:14		0.716						
23	11:34		0.738						
24	12:35		0.802						
25	12:49		0.817						
26	13:16	1.01	0.846	1.00	52.43	50.00	0.485	0.462	1.05
27	13:49		0.881						
28	13:38	1.01	0.869	1.00	54.66	50.00	1.028	0.940	1.09
29	13:53		0.885						
30	13:51		0.883						
31	14:41		0.936						
32	15:58		1.018						
33	16:14		0.828						
34	17:29		0.891						
35	17:47		0.907						
36	17:47		0.907						
37	18:46	1.01	0.957	1.00	54.99	50.00	1.123	1.021	1.10
38	19:43	1.01	1.005	1.00	53.21	50.00	0.991	0.931	1.06
39	21:10		1.079						
40	23:48		1.213						
41	23:58		1.222						
42	24:38		1.256						