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3/3

Analytical and Supporting Laboratory

Quality Control Data For

DOE - Hanford North Slope Site H-06-L

LEVEL IV Deliverable for Samples

EA11-1-07 (ESE# CDMHNSS*21)
WA04-4-08 (ESE# CDMHNSS*29)
WSV2-1-01 (ESE# CDMHNSS*30)
EA01-4-14 (ESE# CDMHNSS*36)

VOLUME 3

Prepared by: Environmental Science & Engineering, Inc.
May 1994

9513355.2371

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Semivolatile Organic Compounds
Sample EA01-4-14 (ESE# CDMHNSS*36)

9513355.2376

SDG NARRATIVE

SDG No. 49285

GC/MS Semivolatiles Narrative

1. The matrix spike/matrix spike duplicate recoveries were above the upper limit for phenol, 4-chloror-3-methylphenol, 4-nitrophenol, 2,4-dinitrotoluene, pentachlorophenol, and/or 2-chlorophenol. These recoveries are good for this method. Following the CLP 3/90 SOW matrix spike recoveries are only advisory and their failure does not indicate a QC problem.

2. The initial calibration had a percent RSD greater than the required 20.5% for 4-chloro-3-methylphenol, hexachlorobenzene and pentachlorophenol. Following the 3/90 SOW up to four failures for the initial calibration controls are allowed.

3. The continuing calibration, file nvo501527.d, had a percent difference of 34.8%, greater than the required 25%, for hexachlorobenzene, a percent difference of 39.3%, greater than the required 25%, for pentachlorophenol, an RF of 1.158, less than the required 1.300, for acenaphthylene and an RF of 0.691, less than the required 0.700, for benzo(a)pyrene . Following the 3/90 SOW up to four failures for continuing calibration controls are allowed.

AT 5/23/94

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SEMIVOLATILES DATA

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QC SUMMARY

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2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

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	SBLKS1	120	90	113	95	86	85	90	96	0
02	A0104014	100	101	117	92	86	100	85	95	0
03	A0104014MS	94	91	118	90	81	100	82	88	0
04	A0104014MSD	103	103	128	95	87	106	89	95	0
05										
06										
07										
08										
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		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

3D
SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Matrix Spike - EPA Sample No.: A0104014 Level(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Phenol	2600	0	2600	100*	26- 90
2-Chlorophenol	2600	0	2400	92	25-102
1,4-Dichlorobenzene	1800	0	1500	83	28-104
N-Nitroso-di-n-prop.(1)	1800	0	1500	83	41-126
1,2,4-Trichlorobenzene	1800	0	1600	89	38-107
4-Chloro-3-methylphenol	2600	0	2900	112*	26-103
Acenaphthene	1800	0	1600	89	31-137
4-Nitrophenol	2600	0	2800	108	11-114
2,4-Dinitrotoluene	1800	0	1900	106*	28- 89
Pentachlorophenol	2600	0	3900	150*	17-109
Pyrene	1800	0	2100	117	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	2600	2800	108*	8	35	26- 90
2-Chlorophenol	2600	2600	100	8	50	25-102
1,4-Dichlorobenzene	1800	1600	89	7	27	28-104
N-Nitroso-di-n-prop.(1)	1800	1700	94	12	38	41-126
1,2,4-Trichlorobenzene	1800	1800	100	12	23	38-107
4-Chloro-3-methylphenol	2600	2900	112*	0	33	26-103
Acenaphthene	1800	1800	100	12	19	31-137
4-Nitrophenol	2600	3400	131*	19	50	11-114
2,4-Dinitrotoluene	1800	2200	122*	14	47	28- 89
Pentachlorophenol	2600	4800	185*	21	47	17-109
Pyrene	1800	2300	128	9	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: 9 out of 22 outside limits

COMMENTS: _____

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLKS1

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Lab File ID: NVO501528.D Lab Sample ID: SBLKS1

Instrument ID: NVO5 Date Extracted: 05/14/94

Matrix: (soil/water) SOIL Date Analyzed: 05/16/94

Level: (low/med) LOW Time Analyzed: 1444

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	A0104014	CDMHNSS*36	NVO501529.D	05/16/94
02	A0104014MS	CDMHNSS*36MS	NVO501530.D	05/16/94
03	A0104014MSD	CDMHNSS*36MSD	NVO501531.D	05/16/94
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COMMENTS:

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Lab File ID: NVO501526.D DFTPP Injection Date: 05/16/94

Instrument ID: NVO5 DFTPP Injection Time: 1326

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	55.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	64.9
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	25.0 - 75.0% of mass 198	49.0
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	6.9
275	10.0 - 30.0% of mass 198	21.9
365	Greater than 0.75% of mass 198	2.60
441	Present, but less than mass 443	10.6
442	40.0 - 110.0% of mass 198	71.6
443	15.0 - 24.0% of mass 442	13.6 (19.0)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	SSTD20	SSTD20	NVO501521.D	05/16/94	0856
02	SSTD50	SSTD50	NVO501522.D	05/16/94	0932
03	SSTD80	SSTD80	NVO501523.D	05/16/94	1009
04	SSTD120	SSTD120	NVO501524.D	05/16/94	1045
05	SSTD160	SSTD160	NVO501525.D	05/16/94	1122
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5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Lab File ID: NVO501526.D DFTPP Injection Date: 05/16/94

Instrument ID: NVO5 DFTPP Injection Time: 1326

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	55.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	64.9
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	25.0 - 75.0% of mass 198	49.0
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	6.9
275	10.0 - 30.0% of mass 198	21.9
365	Greater than 0.75% of mass 198	2.60
441	Present, but less than mass 443	10.6
442	40.0 - 110.0% of mass 198	71.6
443	15.0 - 24.0% of mass 442	13.6 (19.0)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	SSTD50	SSTD50	NVO501527.D	05/16/94	1349
02	SBLKS1	SBLKS1	NVO501528.D	05/16/94	1444
03	AO104014	CDMHNSS*36	NVO501529.D	05/16/94	1515
04	AO104014MS	CDMHNSS*36MS	NVO501530.D	05/16/94	1552
05	AO104014MSD	CDMHNSS*36MSD	NVO501531.D	05/16/94	1629
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8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Lab File ID (Standard): NVO501527.D Date Analyzed: 05/16/94

Instrument ID: NVO5 Time Analyzed: 1349

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	210017	5.43	663443	7.53	312900	11.01
	UPPER LIMIT	420034	5.93	1326886	8.03	625800	11.51
	LOWER LIMIT	105008	4.93	331722	7.03	156450	10.51
	EPA SAMPLE No.						
01	SBLKS1	198562	5.44	577811	7.54	314352	11.00
02	A0104014	227275	5.44	723512	7.54	387072	11.00
03	A0104014MS	223320	5.44	729822	7.53	382159	11.00
04	A0104014MSD	231876	5.44	749272	7.53	394489	11.00
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22							

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

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

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

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Lab File ID (Standard): NV0501527.D Date Analyzed: 05/16/94

Instrument ID: NV05 Time Analyzed: 1349

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	536257	14.36	541808	20.62	660654	23.75
	UPPER LIMIT	1072514	14.86	1083616	21.12	1321308	24.25
	LOWER LIMIT	268128	13.86	270904	20.12	330327	23.25
	EPA SAMPLE No.						
01	SBLKS1	538107	14.36	550394	20.62	702142	23.75
02	A0104014	665941	14.36	628600	20.61	800711	23.75
03	A0104014MS	634174	14.35	505561	20.61	635195	23.74
04	A0104014MSD	647191	14.35	534994	20.61	671039	23.74
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22							

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

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

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

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SAMPLE DATA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A0104014

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*36

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NVO501529.D

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: 5 decanted: (Y/N) N Date Extracted: 05/14/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 05/16/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	350	U
111-44-4	Bis(2-Chloroethyl)ether	350	U
95-57-8	2-Chlorophenol	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-di-n-propylamine	350	U
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethyphenol	350	U
111-91-1	Bis(2-Chloroethoxy)methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	840	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	840	U
131-11-3	Dimethyl phthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	840	U
83-32-9	Acenaphthene	350	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A0104014

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*36

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NV0501529.D

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: 5 decanted: (Y/N) N Date Extracted: 05/14/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 05/16/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	840	U
100-02-7	4-Nitrophenol	840	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethyl phthalate	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-01-6	4-Nitroaniline	840	U
534-52-1	4,6-Dinitro-2-methylphenol	840	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	840	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-butylphthalate	350	U
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)phthalate	93	JB
117-84-0	Di-n-octylphthalate	350	U
205-99-2	Benzo(b)fluoranthene	350	U
207-08-9	Benzo(k)fluoranthene	350	U
50-32-8	Benzo(a)pyrene	350	U
193-39-5	Indeno(1,2,3-cd)pyrene	350	U
53-70-3	Dibenzo(a,h)anthracene	350	U
191-24-2	Benzo(g,h,i)perylene	350	U

(1) - Cannot be separated from Diphenylamine

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

A0104014

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*36

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NV0501529.D

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: 5 decanted: (Y/N) N Date Extracted: 05/14/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/16/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.4

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown Aldol Condensate	2.866	120	JAB
2.	Unknown Aldol Condensate	3.721	1500	JAB
3.	Unknown Aldol Condensate	4.350	100	JAB
4. 575439	Naphthalene, 1,6-dimethyl-	10.293	90	NJ
5. 630-03-5	Nonacosane	23.611	130	NJ
6. 630-04-6	Hentriacontane	24.920	94	NJ
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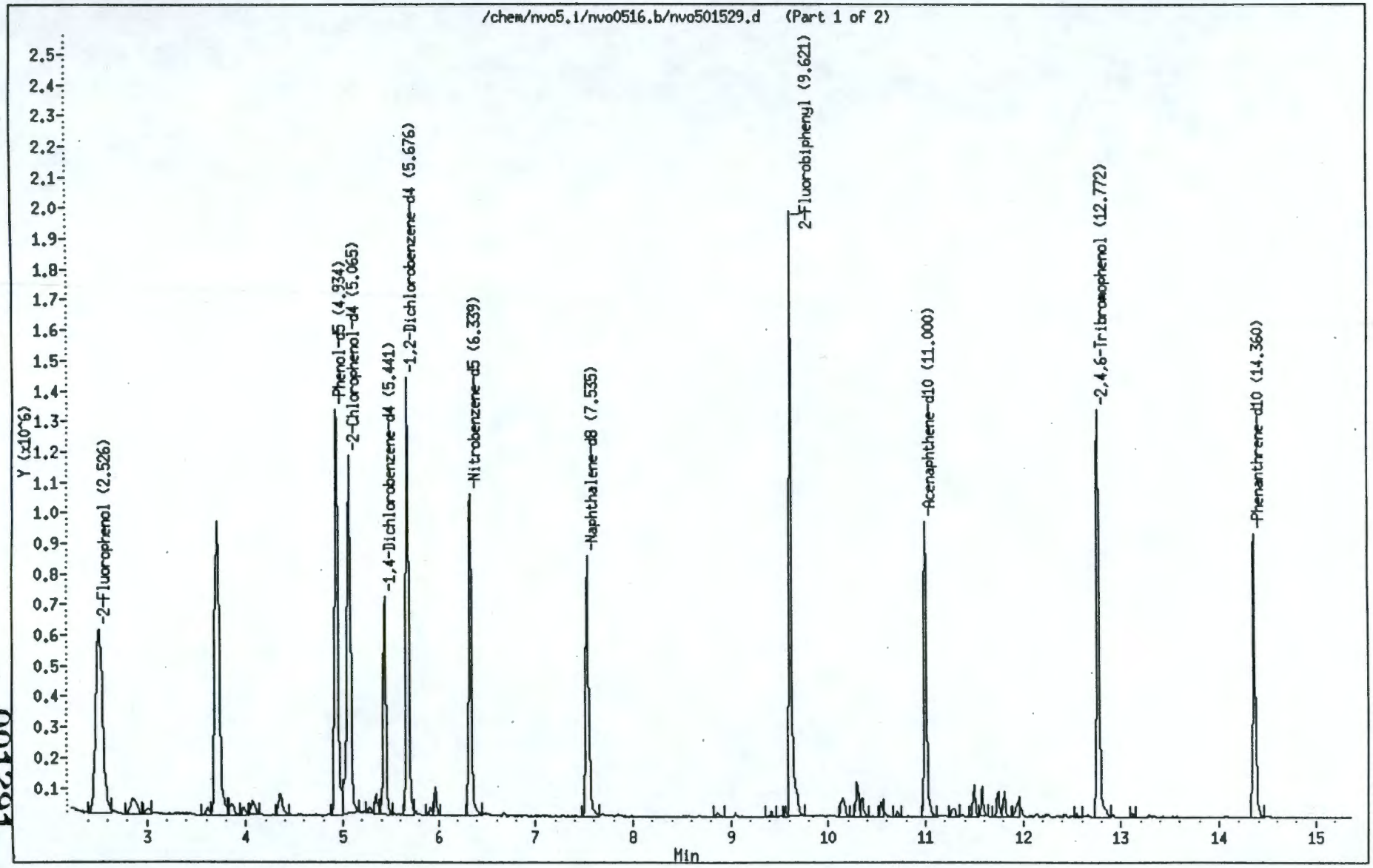
Data File: /chem/nvo5.i/nvo0516.b/nvo501529.d
Date : 16-MAY-1994 15:15
Client ID: A0104014
Sample Info: CDMHNSS*36
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



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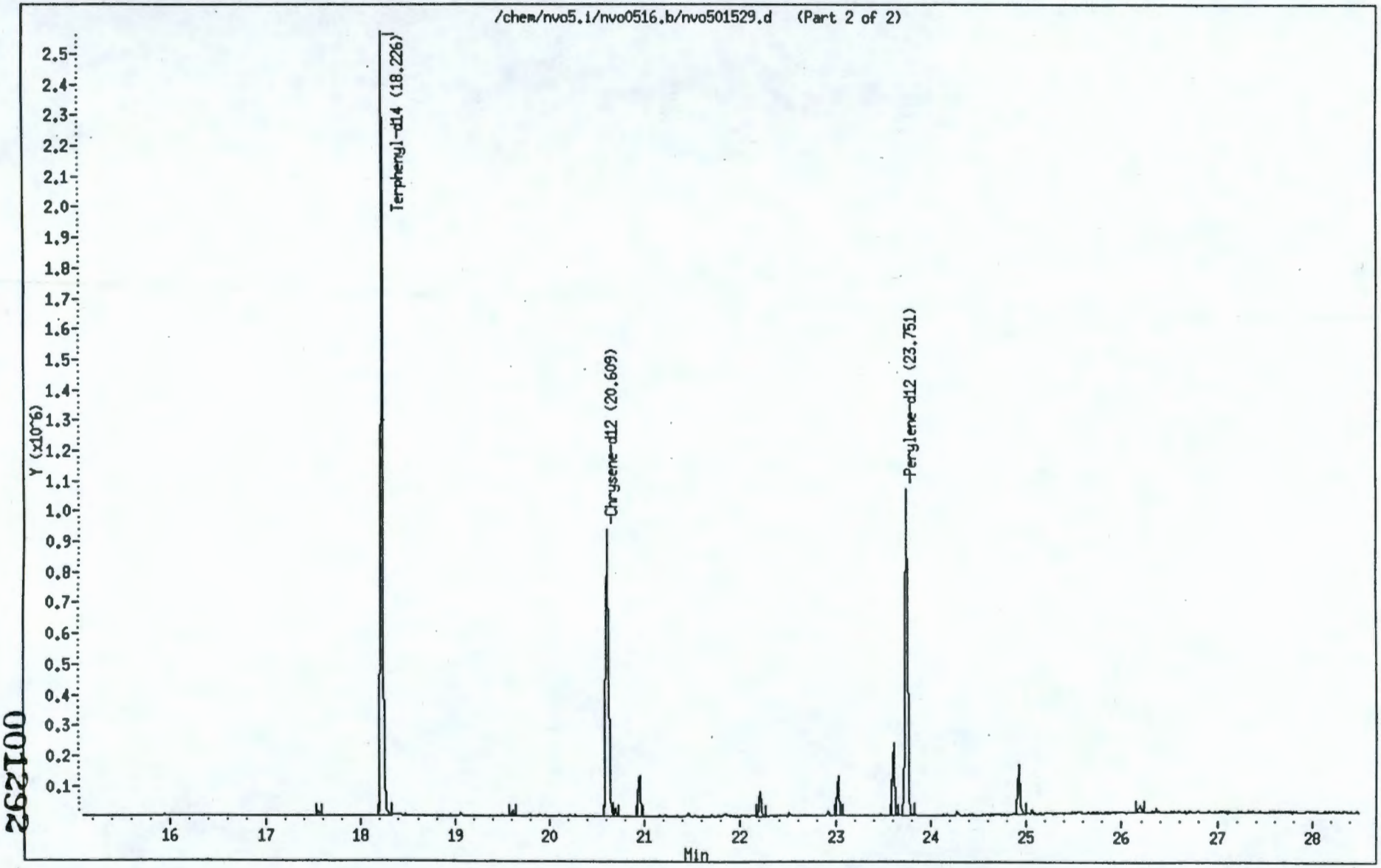
95135355.2391

Data File: /chem/nvo5.i/nvo0516.b/nvo501529.d
Date : 16-MAY-1994 15:15
Client ID: A0104014
Sample Info: CDMHNSS×36
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



001292

95133355.239

Data File: /chem/nvo5.i/nvo0516.b/nvo501529.d
Report Date: 19-May-1994 14:05

Environmental Science and Engineering

Semivolatile CLP 3/90 SOW

Data file : /chem/nvo5.i/nvo0516.b/nvo501529.d
Lab Smp Id: CDMHNSS*36 Client Smp ID: A0104014
Inj Date : 16-MAY-1994 15:15 Autotune Date: 08-Feb-94 09:58
Operator : WAV/AT Inst ID: nvo5.i
Smp Info : CDMHNSS*36
Misc Info : CDM Hanford N.Slope - Soil
Comment :
Method : /chem/nvo5.i/nvo0516.b/clp390epc.m
Meth Date : 19-May-1994 11:06 Quant Type: ISTD
Cal Date : 16-MAY-94 13:49 Cal File: nvo501527.d
Als bottle: 2
Dil Factor: 1.000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug/Kg)
* 1 1,4-Dichlorobenzene-d4	152.00	5.441	5.431	(1.000)	227275	40	
$ 2 2-Fluorophenol	112.00	2.526	2.446	(0.464)	808069	130	2300
$ 3 Phenol-d5	99.00	4.934	4.925	(0.907)	896608	140	2400
$ 6 2-Chlorophenol-d4	132.00	5.065	5.056	(0.931)	671922	130	2200
$ 10 1,2-Dichlorobenzene-d4	152.00	5.676	5.676	(1.043)	380637	95	1700
* 17 Naphthalene-d8	136.00	7.535	7.534	(1.000)	723512	40	
$ 18 Nitrobenzene-d5	82.00	6.339	6.339	(0.841)	627013	100	1800
* 31 Acenaphthene-d10	164.00	11.000	11.008	(1.000)	387072	40	
$ 35 2-Fluorobiphenyl	172.00	9.621	9.620	(0.875)	1140629	100	1800
$ 51 2,4,6-Tribromophenol	330.00	12.772	12.771	(1.161)	325838	150	2600
* 52 Phenanthrene-d10	188.00	14.360	14.359	(1.000)	665941	40	
* 63 Chrysene-d12	240.00	20.609	20.617	(1.000)	628600	40	
$ 65 Terphenyl-d14	244.00	18.226	18.226	(0.884)	1491788	120	2100
70 bis(2-Ethylhexyl)phthalate	149.00	20.949	20.948	(1.016)	66830	5	93(a)
* 71 Perylene-d12	264.00	23.751	23.750	(1.000)	800711	40	

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: /chem/nvo5.i/nvo0516.b/nvo501529.d

Date : 16-MAY-1994 15:15

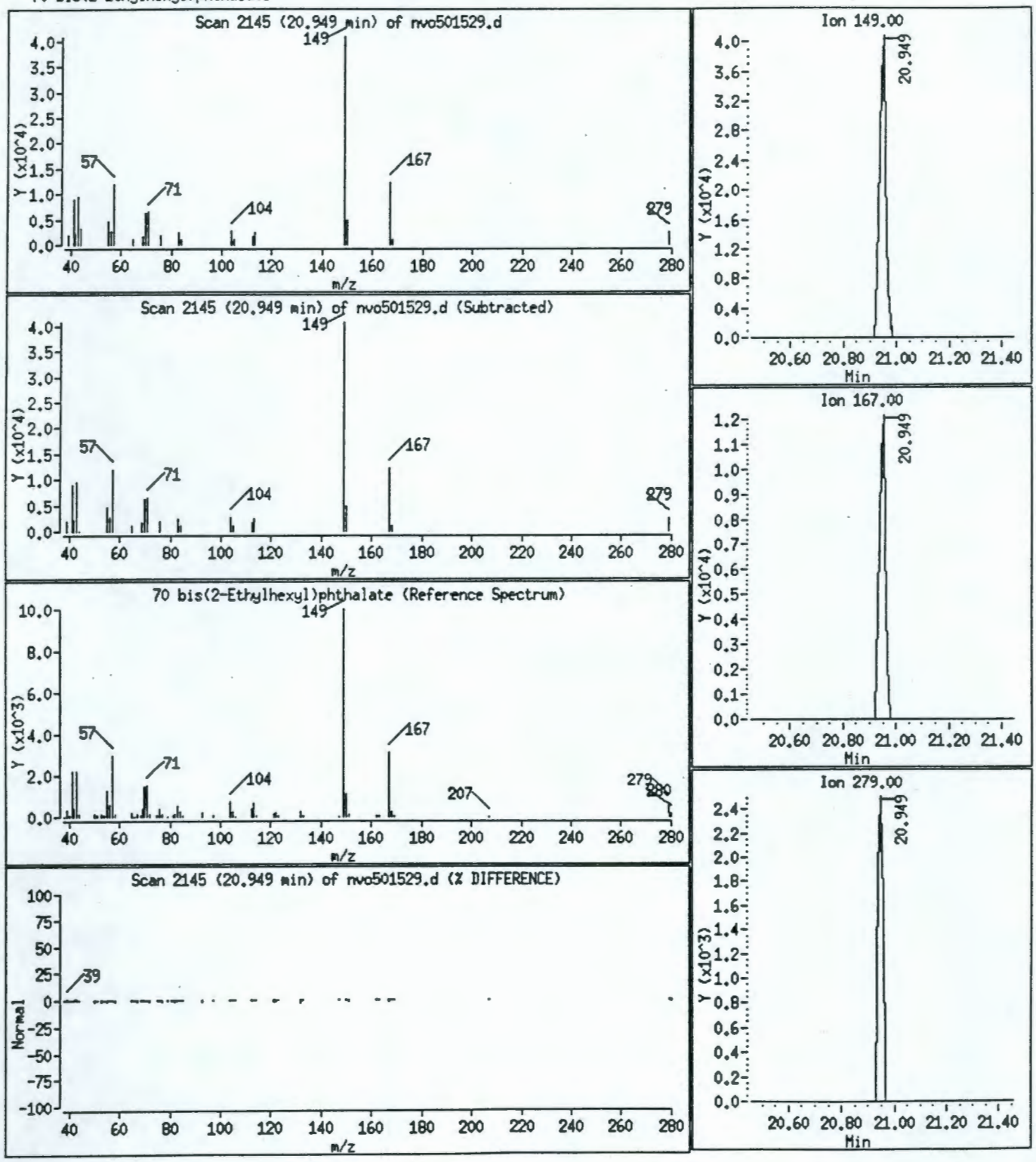
Client ID: A0104014 Instrument: nvo5.i

Sample Info: CDMHNSS*36

Volume Injected (uL): 2.0 Operator: WAV/AT

Column phase: DB-5MS Column diameter: 0.25

70 bis(2-Ethylhexyl)phthalate



Data File: /chem/nvo5.i/nvo0516.b/nvo501529.d
Report Date: 21-May-1994 11:28

Environmental Science and Engineering

Unknown Compounds Quantitation Report

Data file : /chem/nvo5.i/nvo0516.b/nvo501529.d
Lab Smp Id: CDMHNSS*36 Client Smp ID: A0104014
Inj Date : 16-MAY-1994 15:15 Autotune Date: 08-Feb-94 09:58:2
Operator : WAV/AT Inst ID: nvo5.i
Smp Info : CDMHNSS*36
Misc Info : CDM Hanford N.Slope - Soil
Comment :
Method : /chem/nvo5.i/nvo0516.b/clp390epc.m
Meth Date : 20-May-1994 14:06 user2
Cal Date : 16-MAY-94 13:49 Cal File: nvo501527.d
Als bottle: 2
Dil Factor: 1.000 Target Version: 3.10
Integrator: HP RTE Compound Sublist: all.sub
Sample Matrix: SOIL
Quantitative Mode : Use RF of Nearest Std

ISTD	RT	AREA	AMOUNT
* 1 1,4-Dichlorobenzene-d4	5.441	1487601	40.000
* 31 Acenaphthene-d10	11.000	1749710	40.000
* 71 Perylene-d12	23.751	2041166	40.000

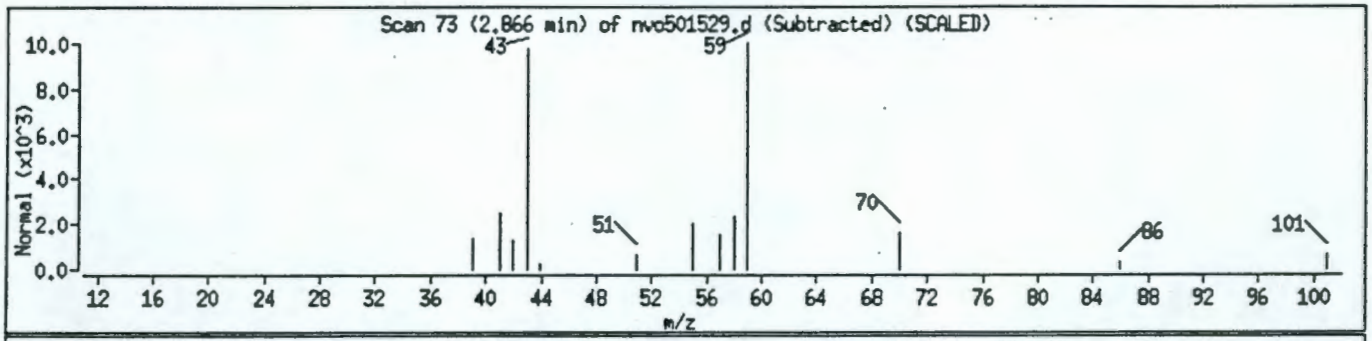
		CONCENTRATIONS			QUANT		
RT	AREA	ON-COL(ng)	FINAL(ug/Kg)	QUAL	LIBRARY	LIB ENTRY	CPND #
Unknown Aldol Condensate					CAS #:		
2.866	245518	7	120	39	WILEY.1	114944	1
Unknown Aldol Condensate					CAS #:		
3.721	3205437	86	1500	25	WILEY.1	116738	1
Unknown Aldol Condensate					CAS #:		
4.350	221744	6	100	0		0	1
Naphthalene, 1,6-dimethyl-					CAS #: 575439		
10.293	224137	5	90	94	WILEY.1	16360	31
Nonacosane					CAS #: 630-03-5		
23.611	369279	7	130	91	WILEY.1	129560	71

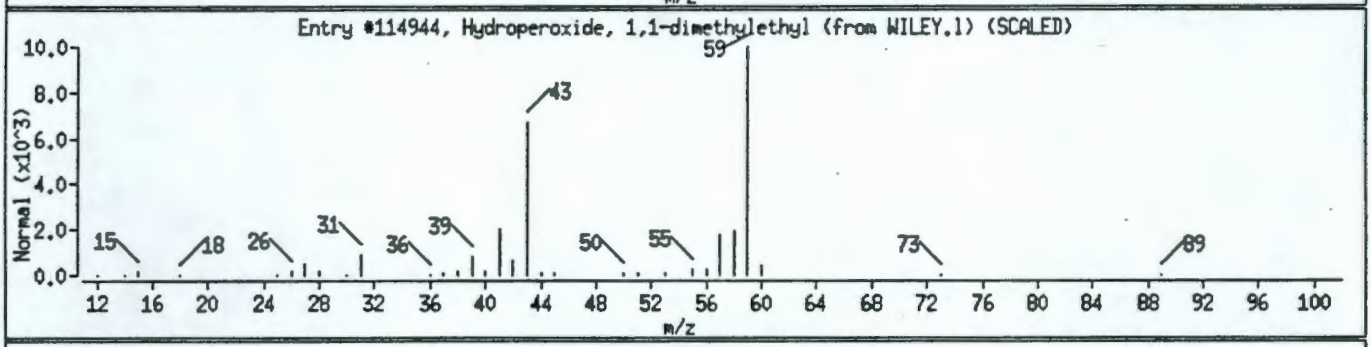
Data File: /chem/nvo5.i/nvo0516.b/nvo501529.d
Report Date: 21-May-1994 11:28

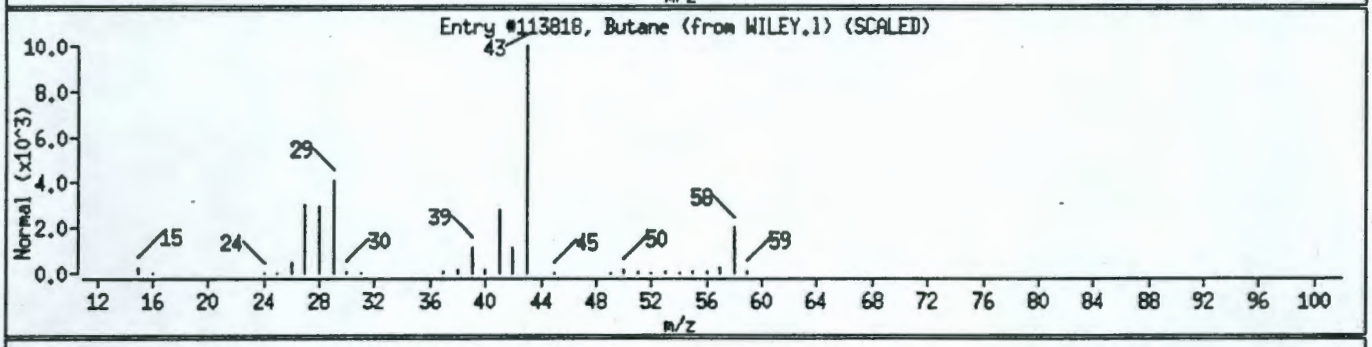
RT	AREA	CONCENTRATIONS ON-COL(ng)	FINAL(ug/Kg)	QUAL	QUANT LIBRARY	LIB ENTRY	CPND #
Hentriacontane					CAS #: 630-04-6		
24.920	273122	5	94	91	WILEY.1	130188	71

Data File: /chem/nvo5.i/nvo0516.b/nvo501529.d
Date : 16-MAY-1994 15:15
Client ID: A0104014 Instrument: nvo5.i
Sample Info: CDMHNSS*36
Volume Injected (uL): 2.0 Operator: WAV/AT
Column phase: DB-5MS Column diameter: 0.25

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Hydroperoxide, 1,1-dimethylethyl	75-91-2	WILEY.1	114944	39	C4H10O2	90
Butane	106-97-8	WILEY.1	113818	10	C4H10	58







Data File: /chem/nvo5.i/nvo0516.b/nvo501529.d

Date : 16-MAY-1994 15:15

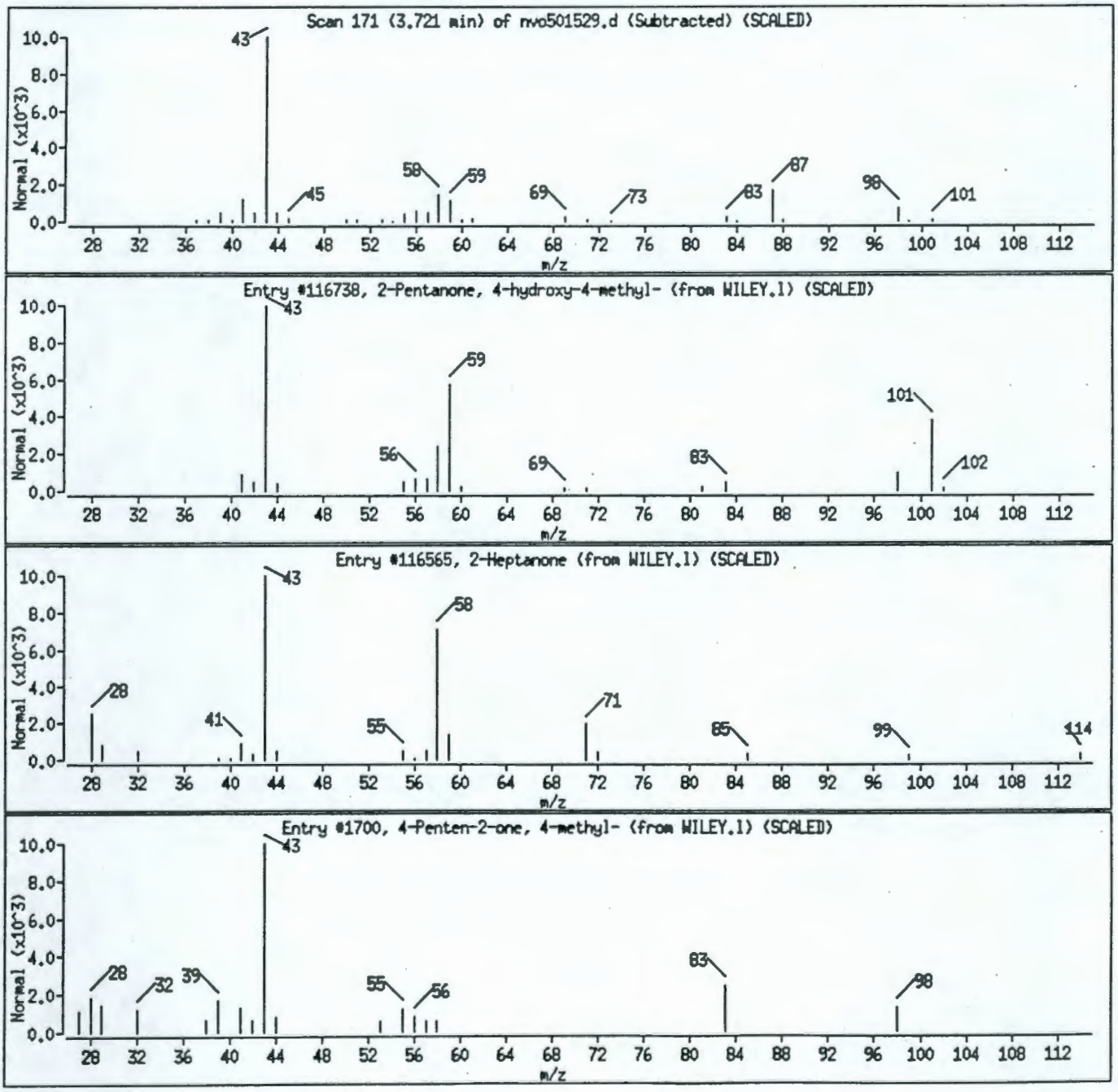
Client ID: A0104014 Instrument: nvo5.i

Sample Info: CDMHNSS*36

Volume Injected (uL): 2.0 Operator: WAV/AT

Column phase: DB-5MS Column diameter: 0.25

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
2-Pentanone, 4-hydroxy-4-methyl-	123-42-2	WILEY.l	116738	25	C6H12O2	116
2-Heptanone	110-43-0	WILEY.l	116565	25	C7H14O	114
4-Penten-2-one, 4-methyl-	3744-02-3	WILEY.l	1700	16	C6H10O	98



9513355.2399

Data File: /chem/nvo5.i/nvo0516.b/nvo501529.d

Date : 16-MAY-1994 15:15

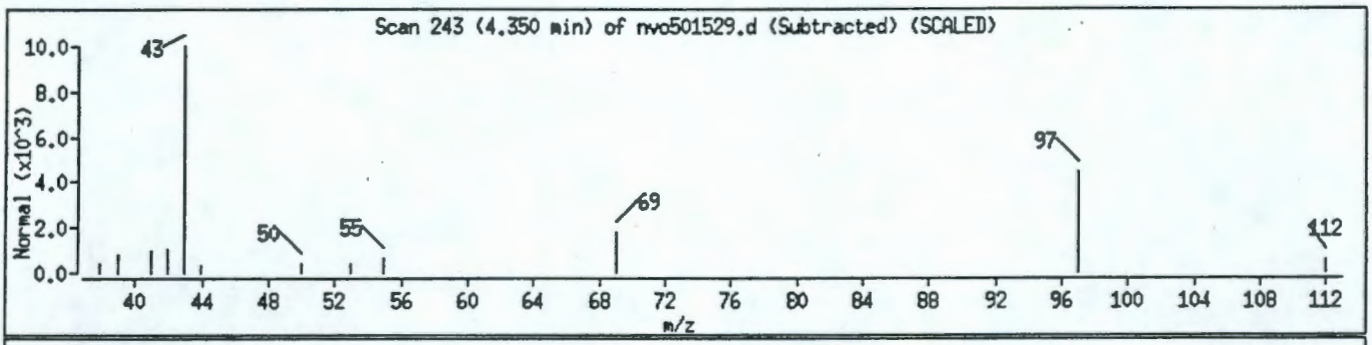
Client ID: A0104014 Instrument: nvo5.i

Sample Info: CDMHNSS*36

Volume Injected (uL): 2.0 Operator: WAV/AT

Column phase: DB-5MS Column diameter: 0.25

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Unknown			0	0		0



001299

9513355.2401

Data File: /chem/nvo5.i/nvo0516.b/nvo501529.d

Date : 16-MAY-1994 15:15

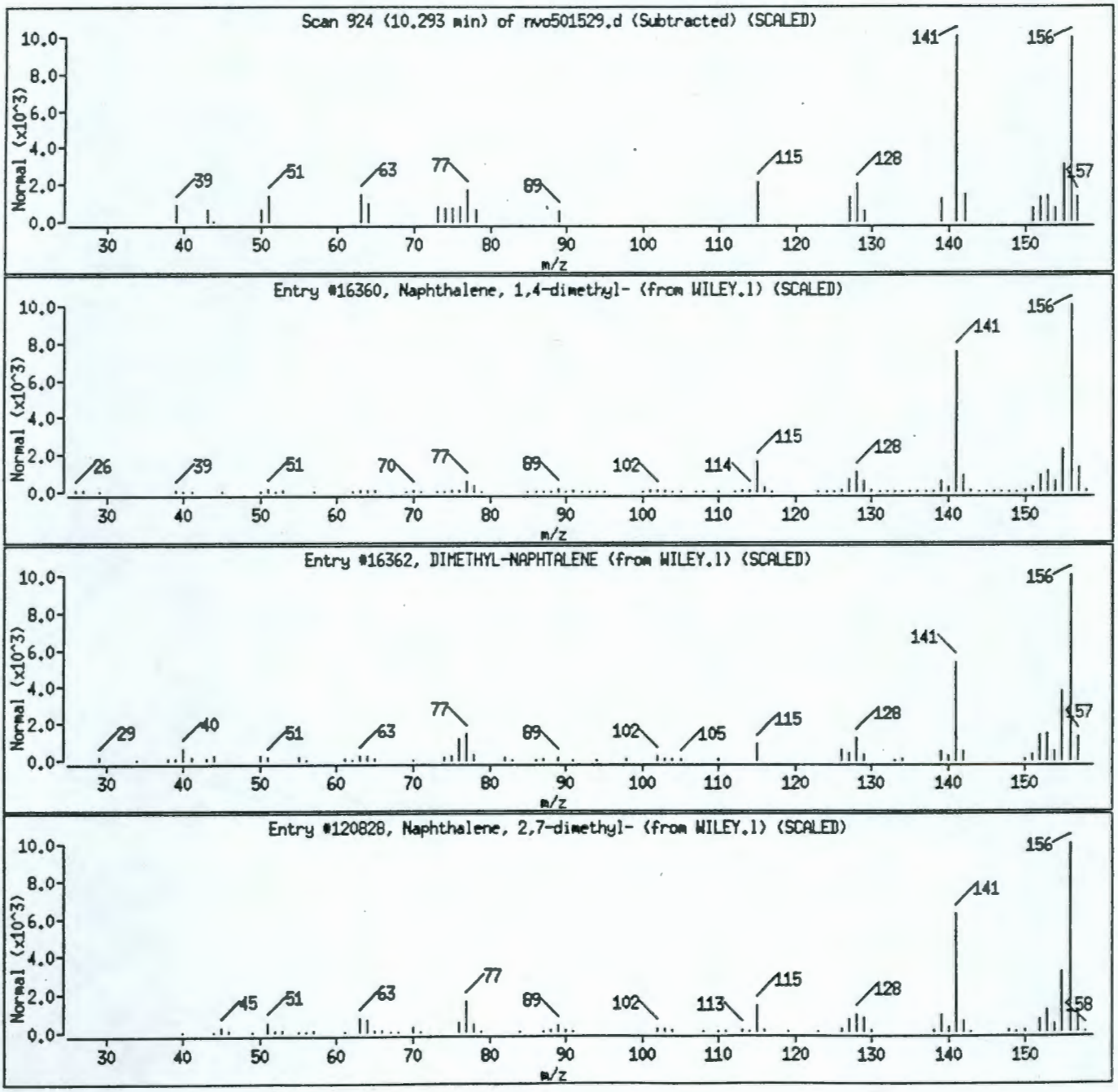
Client ID: A0104014 Instrument: nvo5.i

Sample Info: CDMHNSS*36

Volume Injected (uL): 2.0 Operator: WAY/AT

Column phase: DB-5MS Column diameter: 0.25

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Naphthalene, 1,4-dimethyl-	571-58-4	WILEY.l	16360	94	C12H12	156
DIMETHYL-NAPHTALENE	0-00-0	WILEY.l	16362	94	C12H12	156
Naphthalene, 2,7-dimethyl-	582-16-1	WILEY.l	120828	94	C12H12	156



001300

9513355.2401

Data File: /chem/nvo5.i/nvo0516.b/nvo501529.d

Date : 16-MAY-1994 15:15

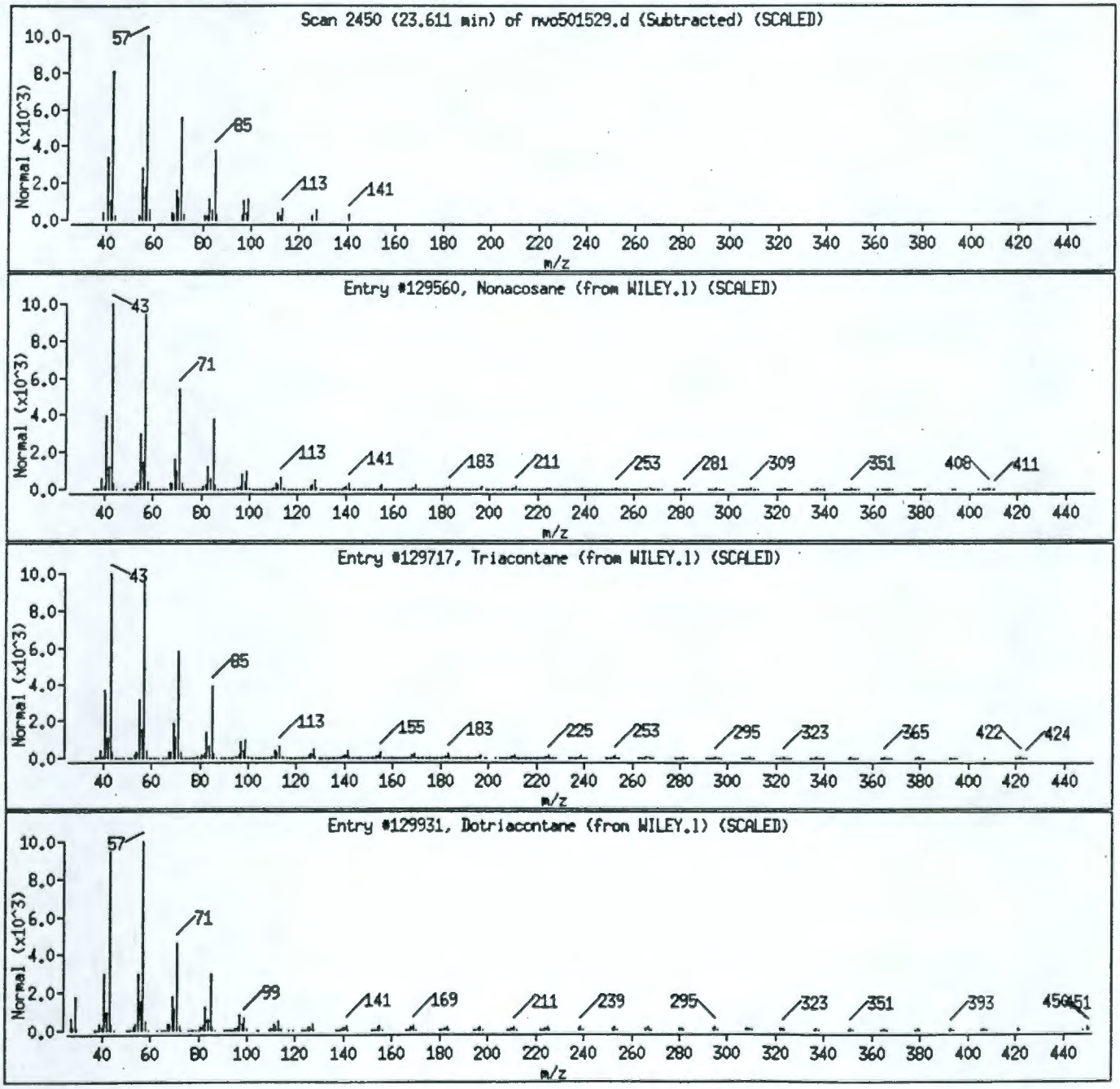
Client ID: A0104014 Instrument: nvo5.i

Sample Info: CDMHNSS×36

Volume Injected (uL): 2.0 Operator: WAV/AT

Column phase: DB-5MS Column diameter: 0.25

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Nonacosane	630-03-5	WILEY.l	129560	91	C29H60	408
Triacontane	638-68-6	WILEY.l	129717	91	C30H62	422
Dotriacontane	544-85-4	WILEY.l	129931	91	C32H66	451



Data File: /chem/nvo5.i/nvo0516.b/nvo501529.d

Date : 16-MAY-1994 15:15

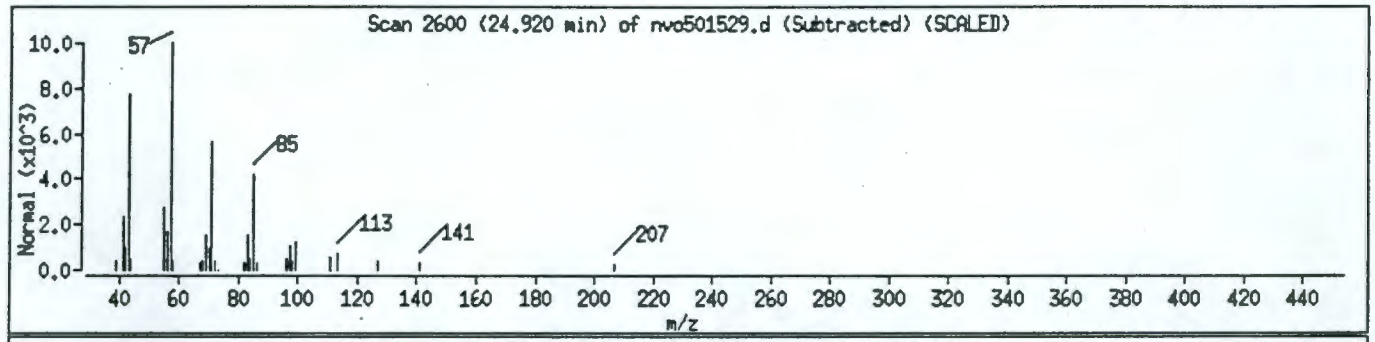
Client ID: A0104014 Instrument: nvo5.i

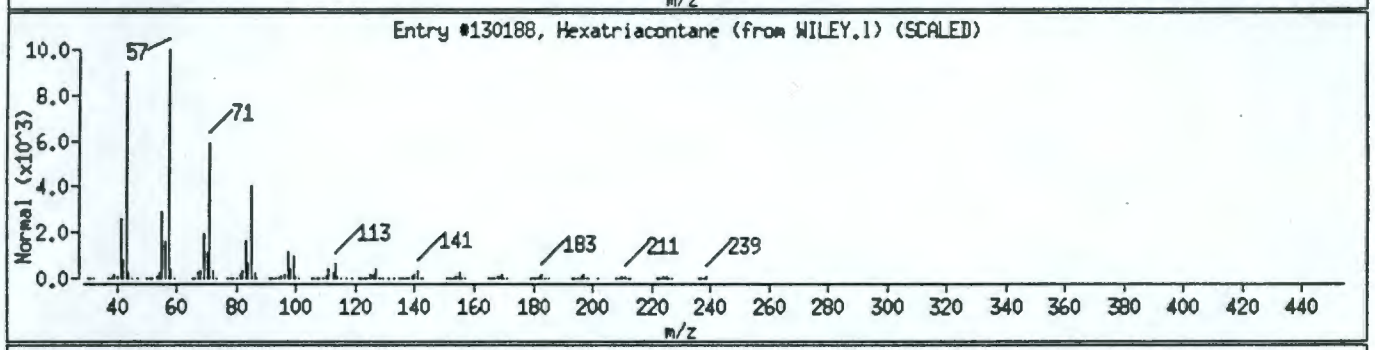
Sample Info: CDMHNSS*36

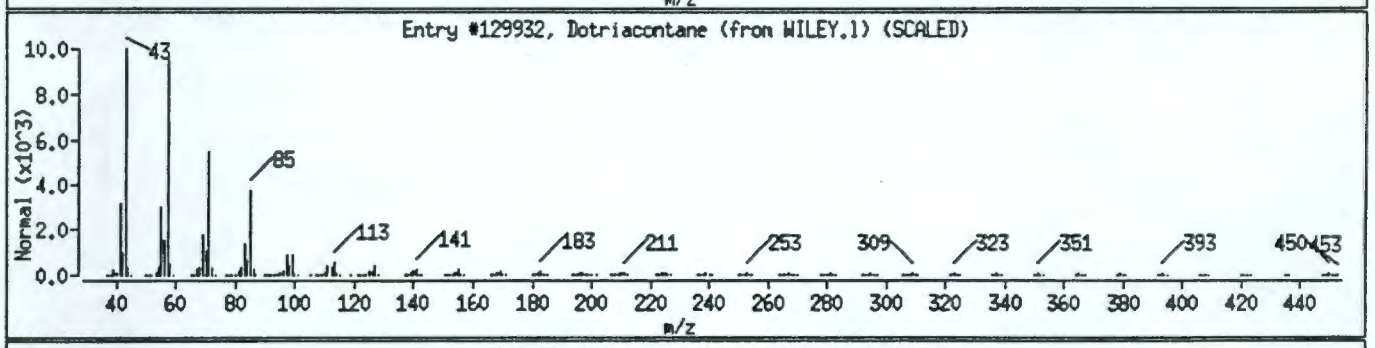
Volume Injected (uL): 2.0 Operator: WAV/AT

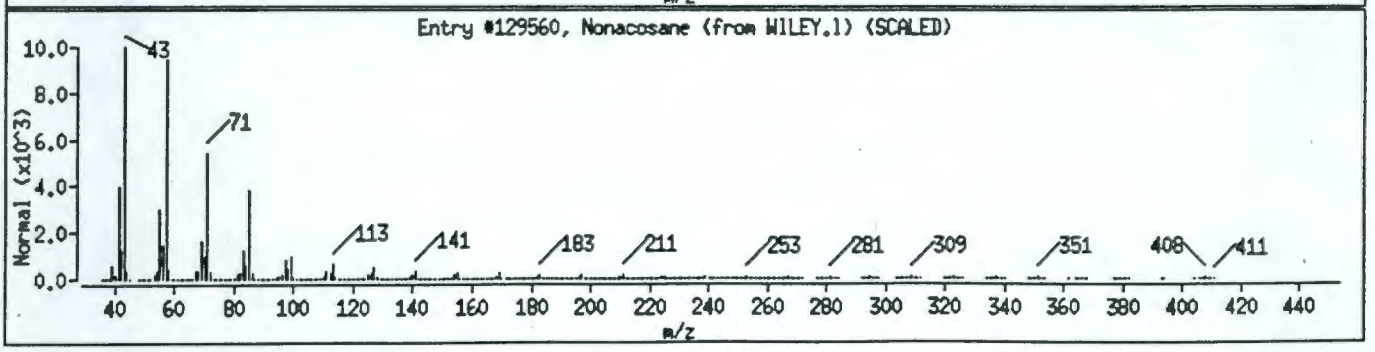
Column phase: DB-5MS Column diameter: 0.25

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Hexatriacontane	630-06-8	WILEY.1	130188	91	C36H74	507
Dotriacontane	544-85-4	WILEY.1	129932	91	C32H66	451
Nonacosane	630-03-5	WILEY.1	129560	91	C29H60	408









9513355.2903

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A0104014MS

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*36MS

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NV0501530.D

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: 5 decanted: (Y/N) N Date Extracted: 05/14/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 05/16/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	2600	
111-44-4	Bis(2-Chloroethyl)ether	350	U
95-57-8	2-Chlorophenol	2400	
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	1500	
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-di-n-propylamine	1500	
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethyphenol	350	U
111-91-1	Bis(2-Chloroethoxy)methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	1600	
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-methylphenol	2900	E
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	840	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	840	U
131-11-3	Dimethyl phthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	840	U
83-32-9	Acenaphthene	1600	

9513355.2404

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A0104014MS

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*36MS

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NV0501530.D

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: 5 decanted: (Y/N) N Date Extracted:05/14/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 05/16/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.4

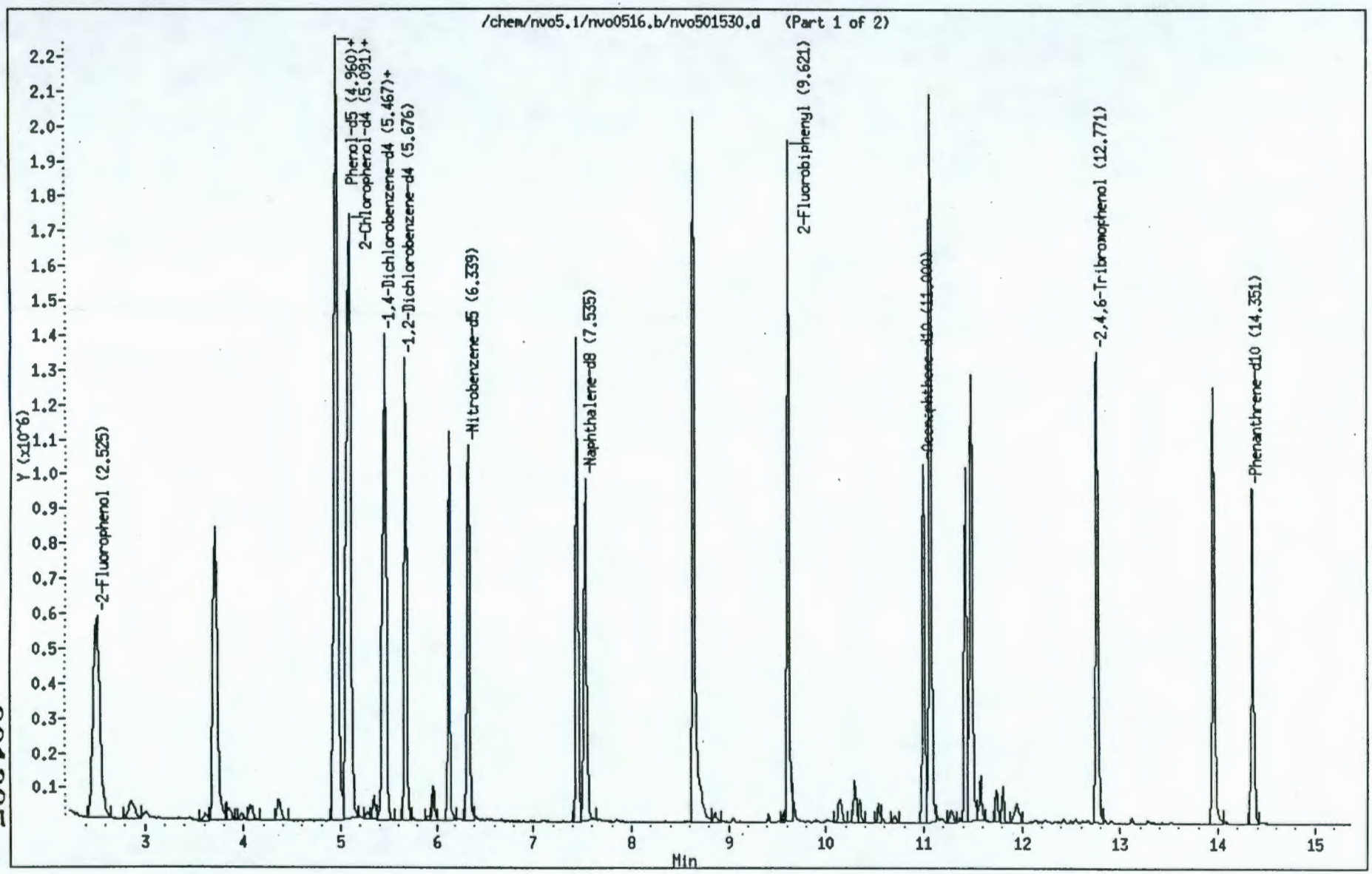
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	840	U
100-02-7	4-Nitrophenol	2800	E
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	1900	
84-66-2	Diethyl phthalate	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-01-6	4-Nitroaniline	840	U
534-52-1	4,6-Dinitro-2-methylphenol	840	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	3900	E
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-butylphthalate	350	U
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	2100	
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)phthalate	67	JB
117-84-0	Di-n-octylphthalate	350	U
205-99-2	Benzo(b)fluoranthene	350	U
207-08-9	Benzo(k)fluoranthene	350	U
50-32-8	Benzo(a)pyrene	350	U
193-39-5	Indeno(1,2,3-cd)pyrene	350	U
53-70-3	Dibenzo(a,h)anthracene	350	U
191-24-2	Benzo(g,h,i)perylene	350	U

(1) - Cannot be separated from Diphenylamine

Data File: /chem/nvo5.i/nvo0516.b/nvo501530.d
Date : 16-MAY-1994 15:52
Client ID: A0104014MS
Sample Info: CDMHNSS×36MS
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



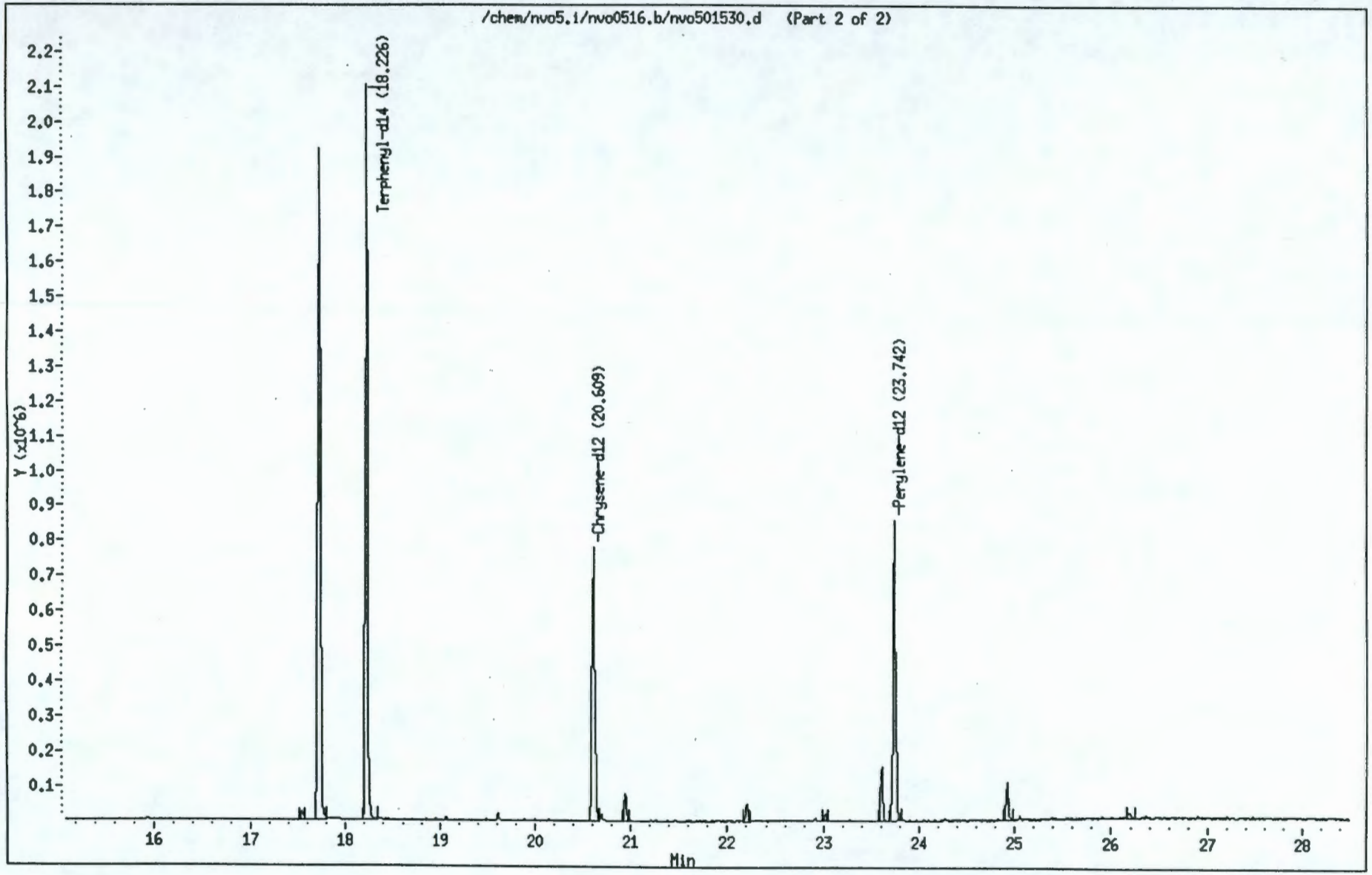
001305

95133355.2405

Data File: /chem/nvo5.i/nvo0516.b/nvo501530.d
Date : 16-MAY-1994 15:52
Client ID: A0104014MS
Sample Info: CDMHNSS*36MS
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



001306

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9513355.2407

Data File: /chem/nvo5.i/nvo0516.b/nvo501530.d
Report Date: 19-May-1994 14:06

Environmental Science and Engineering

Semivolatile CLP 3/90 SOW

Data file : /chem/nvo5.i/nvo0516.b/nvo501530.d
Lab Smp Id: CDMHNSS*36MS
Client Smp ID: A0104014MS
Inj Date : 16-MAY-1994 15:52
Autotune Date: 08-Feb-94 09:58
Operator : WAV/AT
Inst ID: nvo5.i
Smp Info : CDMHNSS*36MS
Misc Info : CDM Hanford N.Slope - Soil
Comment :
Method : /chem/nvo5.i/nvo0516.b/clp390epc.m
Meth Date : 19-May-1994 11:06
Quant Type: ISTD
Cal Date : 16-MAY-94 13:49
Cal File: nvo501527.d
Als bottle: 3
QC Sample: MS
Dil Factor: 1.000
Integrator: HP RTE
Compound Sublist: all.sub
Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug/Kg)
* 1 1,4-Dichlorobenzene-d4	152.00	5.440	5.431	(1.000)	223320	40	
$ 2 2-Fluorophenol	112.00	2.525	2.446	(0.464)	745254	120	2100
$ 3 Phenol-d5	99.00	4.943	4.925	(0.909)	856559	130	2400
4 Phenol	94.00	4.969	4.942	(0.913)	1081059	150	2600(R)
$ 6 2-Chlorophenol-d4	132.00	5.065	5.056	(0.931)	637757	120	2200
7 2-Chlorophenol	128.00	5.100	5.082	(0.937)	799639	130	2400
9 1,4-Dichlorobenzene	146.00	5.467	5.457	(1.005)	576933	86	1500
$ 10 1,2-Dichlorobenzene-d4	152.00	5.676	5.676	(1.043)	346586	88	1600
15 N-Nitroso-di-n-propylamine	70.00	6.130	6.129	(1.127)	380626	86	1500
* 17 Naphthalene-d8	136.00	7.535	7.534	(1.000)	729822	40	
$ 18 Nitrobenzene-d5	82.00	6.339	6.339	(0.841)	593414	94	1600
25 1,2,4-Trichlorobenzene	180.00	7.448	7.447	(0.988)	453959	91	1600
29 4-Chloro-3-methylphenol	107.00	8.643	8.643	(1.147)	730113	160	2900(AR)
* 31 Acenaphthene-d10	164.00	11.000	11.008	(1.000)	382159	40	
$ 35 2-Fluorobiphenyl	172.00	9.621	9.620	(0.875)	1015566	91	1600
42 Acenaphthene	153.00	11.070	11.078	(1.006)	891100	94	1600
44 4-Nitrophenol	109.00	11.427	11.436	(1.039)	241805	160	2800(A)
46 2,4-Dinitrotoluene	165.00	11.488	11.488	(1.044)	361291	110	1900(R)
$ 51 2,4,6-Tribromophenol	330.00	12.771	12.771	(1.161)	320242	150	2600
* 52 Phenanthrene-d10	188.00	14.351	14.359	(1.000)	634174	40	
57 Pentachlorophenol	266.00	13.958	13.967	(0.973)	284367	220	3900(AR)
* 63 Chrysene-d12	240.00	20.609	20.617	(1.000)	505561	40	
64 Pyrene	202.00	17.729	17.728	(0.860)	1559387	120	2100
$ 65 Terphenyl-d14	244.00	18.226	18.226	(0.884)	1207051	120	2100
70 bis(2-Ethylhexyl)phthalate	149.00	20.940	20.948	(1.016)	38660	4	67(a)
* 71 Perylene-d12	264.00	23.742	23.750	(1.000)	635195	40	

Data File: /chem/nvo5.i/nvo0516.b/nvo501530.d
Report Date: 19-May-1994 14:06

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
R - Spike/Surrogate failed recovery limits.

9513395.2409

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A0104014MSD

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*36MS

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NV0501531.D

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: 5 decanted: (Y/N) N Date Extracted: 05/14/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 05/16/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	2800	
111-44-4	Bis(2-Chloroethyl)ether	350	U
95-57-8	2-Chlorophenol	2600	
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	1600	
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-di-n-propylamine	1700	
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethyphenol	350	U
111-91-1	Bis(2-Chloroethoxy)methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	1800	
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-methylphenol	2900	E
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	840	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	840	U
131-11-3	Dimethyl phthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	840	U
83-32-9	Acenaphthene	1800	

9513355.2410

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A0104014MSD

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*36MS

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NVO501531.D

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: 5 decanted: (Y/N) N Date Extracted: 05/14/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 05/16/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.4

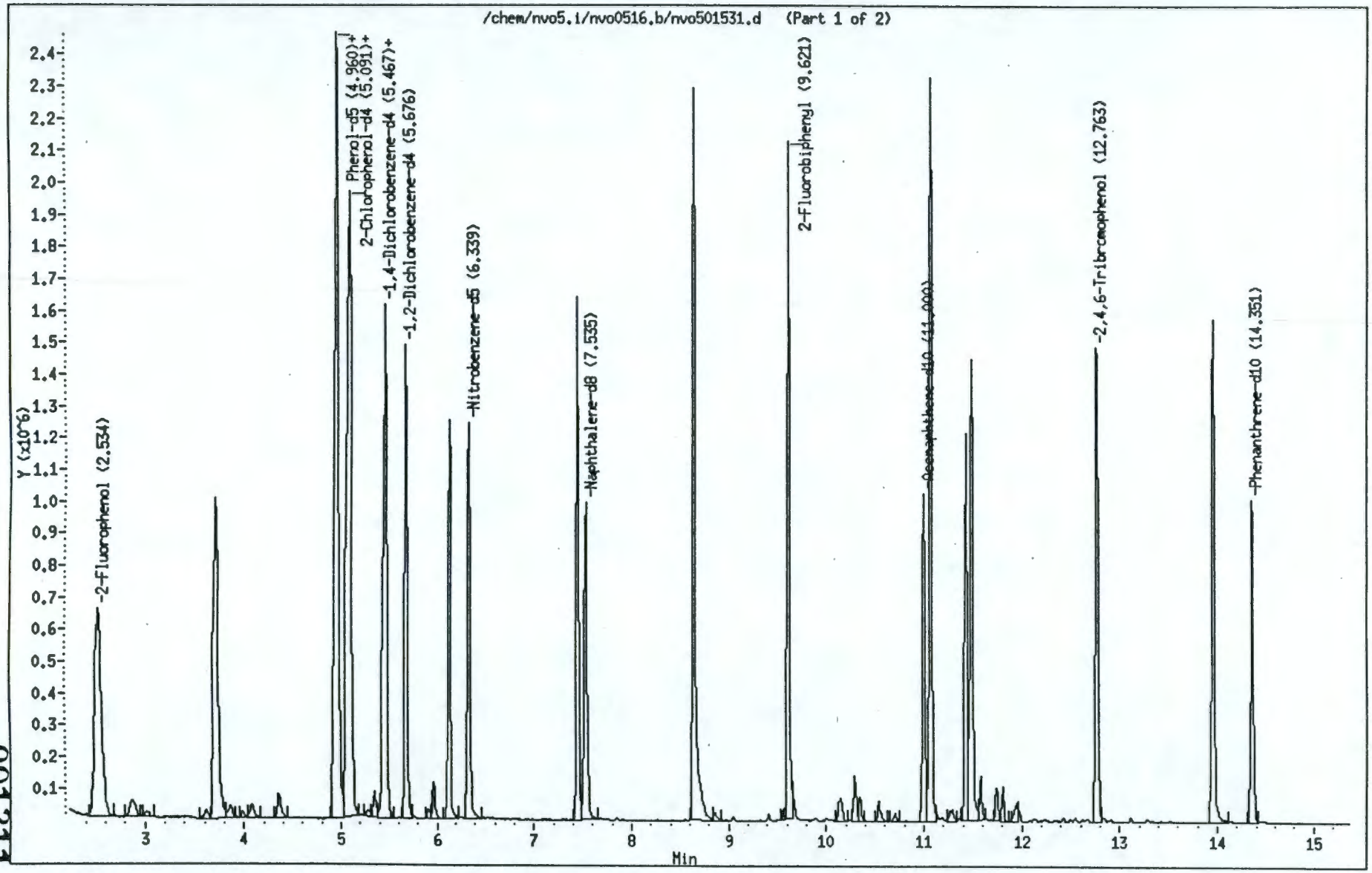
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	840	U
100-02-7	4-Nitrophenol	3400	E
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	2200	
84-66-2	Diethyl phthalate	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-01-6	4-Nitroaniline	840	U
534-52-1	4,6-Dinitro-2-methylphenol	840	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	4800	E
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-butylphthalate	350	U
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	2300	
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)phthalate	170	JB
117-84-0	Di-n-octylphthalate	350	U
205-99-2	Benzo(b)fluoranthene	350	U
207-08-9	Benzo(k)fluoranthene	350	U
50-32-8	Benzo(a)pyrene	350	U
193-39-5	Indeno(1,2,3-cd)pyrene	350	U
53-70-3	Dibenzo(a,h)anthracene	350	U
191-24-2	Benzo(g,h,i)perylene	350	U

(1) - Cannot be separated from Diphenylamine

Data File: /chem/nvo5.i/nvo0516.b/nvo501531.d
Date : 16-MAY-1994 16:29
Client ID: A0104014MSD
Sample Info: CDMHNSS*36MSD
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



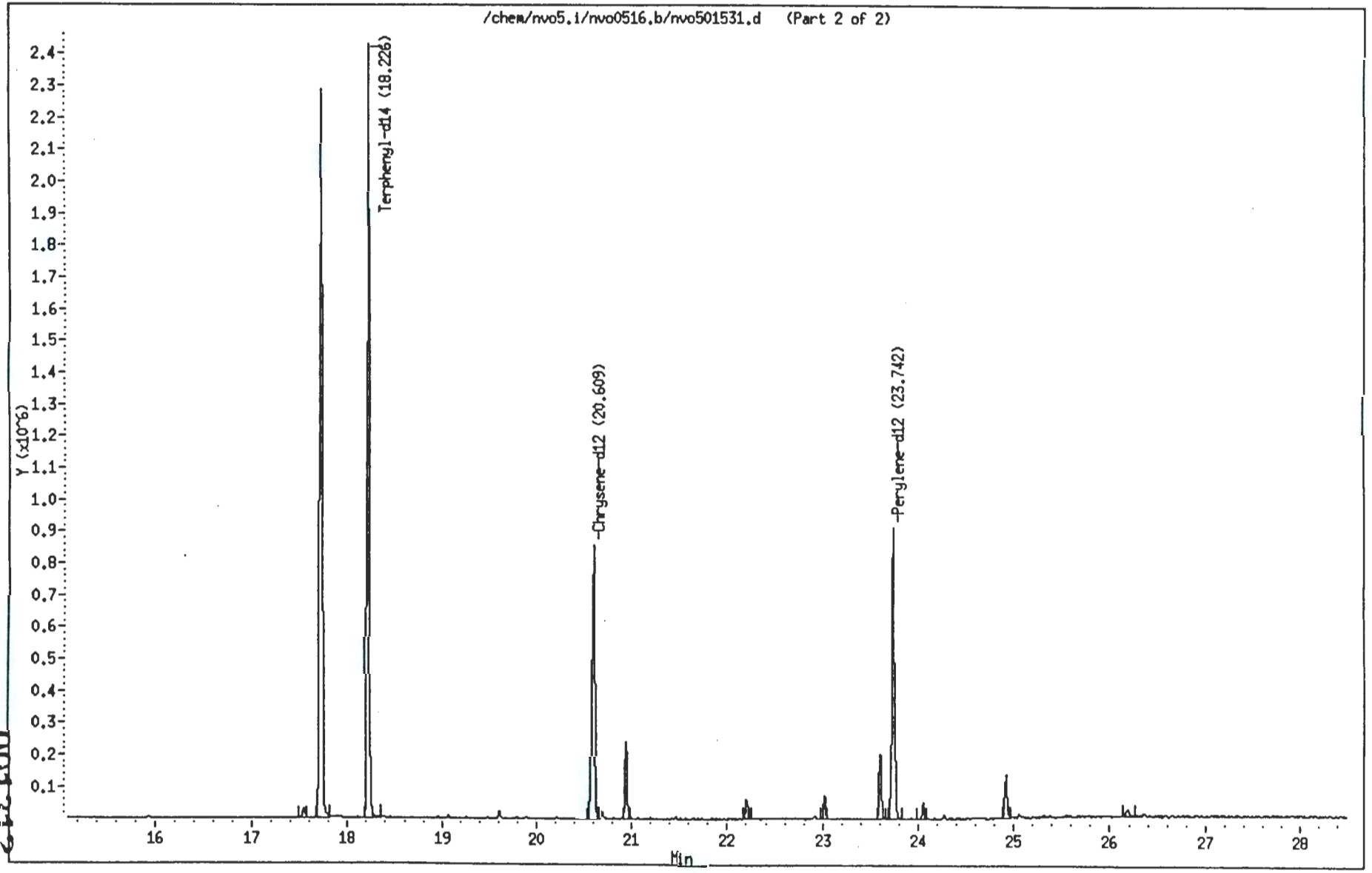
001311

9513355.2411

Data File: /chem/nvo5.i/nvo0516.b/nvo501531.d
Date : 16-MAY-1994 16:29
Client ID: A0104014MSD
Sample Info: CDMHNSS*36MSD
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



Data File: /chem/nvo5.i/nvo0516.b/nvo501531.d
Report Date: 19-May-1994 14:06

Environmental Science and Engineering

Semivolatile CLP 3/90 SOW

Data file : /chem/nvo5.i/nvo0516.b/nvo501531.d
Lab Smp Id: CDMHNSS*36MSD Client Smp ID: A0104014MSD
Inj Date : 16-MAY-1994 16:29 Autotune Date: 08-Feb-94 09:58
Operator : WAV/AT Inst ID: nvo5.i
Smp Info : CDMHNSS*36MSD
Misc Info : CDM Hanford N.Slope - Soil
Comment :
Method : /chem/nvo5.i/nvo0516.b/clp390epc.m
Meth Date : 19-May-1994 11:06 Quant Type: ISTD
Cal Date : 16-MAY-94 13:49 Cal File: nvo501527.d
Als bottle: 4 QC Sample: MSD
Dil Factor: 1.000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 3.10

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug/Kg)
* 1	1,4-Dichlorobenzene-d4	152.00	5.440	5.431	(1.000)	231876	40	
$ 2	2-Fluorophenol	112.00	2.534	2.446	(0.466)	831580	130	2300
$ 3	Phenol-d5	99.00	4.943	4.925	(0.909)	946008	140	2500
4	Phenol	94.00	4.969	4.942	(0.913)	1214181	160	2800(R)
$ 6	2-Chlorophenol-d4	132.00	5.074	5.056	(0.933)	713877	130	2300
7	2-Chlorophenol	128.00	5.100	5.082	(0.937)	914530	150	2600
9	1,4-Dichlorobenzene	146.00	5.467	5.457	(1.005)	645002	92	1600
$ 10	1,2-Dichlorobenzene-d4	152.00	5.676	5.676	(1.043)	386937	95	1700
15	N-Nitroso-di-n-propylamine	70.00	6.130	6.129	(1.127)	435786	95	1700
* 17	Naphthalene-d8	136.00	7.535	7.534	(1.000)	749272	40	
$ 18	Nitrobenzene-d5	82.00	6.339	6.339	(0.841)	667991	100	1800
25	1,2,4-Trichlorobenzene	180.00	7.448	7.447	(0.988)	527296	100	1800
29	4-Chloro-3-methylphenol	107.00	8.643	8.643	(1.147)	755511	160	2900(AR)
* 31	Acenaphthene-d10	164.00	11.000	11.008	(1.000)	394489	40	
$ 35	2-Fluorobiphenyl	172.00	9.621	9.620	(0.875)	1185241	100	1800
42	Acenaphthene	153.00	11.070	11.078	(1.006)	983456	100	1800
44	4-Nitrophenol	109.00	11.427	11.436	(1.039)	304594	200	3400(AR)
46	2,4-Dinitrotoluene	165.00	11.488	11.488	(1.044)	419322	120	2200(R)
$ 51	2,4,6-Tribromophenol	330.00	12.771	12.771	(1.161)	350828	160	2800
* 52	Phenanthrene-d10	188.00	14.351	14.359	(1.000)	647191	40	
57	Pentachlorophenol	266.00	13.958	13.967	(0.973)	357352	270	4800(AR)
* 63	Chrysene-d12	240.00	20.609	20.617	(1.000)	534994	40	
64	Pyrene	202.00	17.729	17.728	(0.860)	1808929	130	2300
$ 65	Terphenyl-d14	244.00	18.226	18.226	(0.884)	1383185	130	2200
70	bis(2-Ethylhexyl)phthalate	149.00	20.940	20.948	(1.016)	104780	10	170(a)
* 71	Perylene-d12	264.00	23.742	23.750	(1.000)	671039	40	

Data File: /chem/nvo5.i/nvo0516.b/nvo501531.d
Report Date: 19-May-1994 14:06

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
R - Spike/Surrogate failed recovery limits.

9513355.2405

STANDARDS DATA

6B
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Instrument ID: NV05 Calibration Date(s): 05/16/94

Calibration Times: 0856 1122

LAB FILE ID: RRF20 =NV0501521.D RRF50 =NV0501522.D
RRF80 =NV0501523.D RRF120=NV0501524.D RRF160=NV0501525.D

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Phenol *	1.368	1.242	1.711	1.599	1.706	1.525	13.8*
Bis(2-Chloroethyl)ether *	1.187	1.077	1.484	1.362	1.446	1.311	13.2*
2-Chlorophenol *	1.112	1.045	1.443	1.348	1.420	1.274	14.4*
1,3-Dichlorobenzene *	1.223	1.156	1.598	1.517	1.496	1.398	14.0*
1,4-Dichlorobenzene *	1.225	1.198	1.632	1.539	1.529	1.425	14.0*
1,2-Dichlorobenzene *	1.135	1.083	1.497	1.397	1.421	1.307	14.1*
2-Methylphenol *	0.903	0.905	1.200	1.099	1.269	1.075	15.6*
2,2'-oxybis(1-Chloropropane)	1.252	1.177	1.557	1.566	1.599	1.430	13.9
4-Methylphenol *	0.964	0.911	1.246	1.192	1.325	1.128	16.0*
N-Nitroso-di-n-propylamine *	0.785	0.762	1.040	0.982	1.094	0.933	16.2*
Hexachloroethane *	0.516	0.491	0.672	0.626	0.623	0.586	13.3*
Nitrobenzene *	0.348	0.342	0.452	0.417	0.422	0.396	12.2*
Isophorone *	0.589	0.581	0.781	0.730	0.773	0.691	14.3*
2-Nitrophenol *	0.192	0.205	0.279	0.264	0.279	0.244	17.2*
2,4-Dimethyphenol *	0.283	0.300	0.398	0.378	0.393	0.350	15.6*
Bis(2-Chloroethoxy)methane *	0.319	0.328	0.446	0.414	0.431	0.388	15.4*
2,4-Dichlorophenol *	0.225	0.233	0.322	0.306	0.331	0.283	17.8*
1,2,4-Trichlorobenzene *	0.291	0.285	0.373	0.353	0.356	0.332	12.2*
Naphthalene *	0.883	0.827	1.121	1.049	1.063	0.989	12.8*
4-Chloroaniline	0.280	0.293	0.389	0.372	0.389	0.345	15.6
Hexachlorobutadiene	0.182	0.177	0.238	0.222	0.222	0.208	13.0
4-Chloro-3-methylphenol *	0.205	0.254	0.332	0.331	0.355	0.296	21.4*<-
2-Methylnaphthalene *	0.521	0.525	0.739	0.688	0.725	0.640	16.9*
Hexachlorocyclopentadiene	0.061	0.082	0.130	0.124	0.144	0.108	32.4
2,4,6-Trichlorophenol *	0.294	0.323	0.434	0.409	0.439	0.380	17.6*
2,4,5-Trichlorophenol *	0.421	0.410	0.546	0.512	0.540	0.486	13.4*
2-Chloronaphthalene *	0.940	0.927	1.259	1.206	1.219	1.110	14.6*
2-Nitroaniline	0.322	0.344	0.454	0.444	0.468	0.406	16.8
Dimethyl phthalate	1.160	1.202	1.538	1.450	1.502	1.370	12.9
Acenaphthylene *	1.134	1.140	1.518	1.404	1.434	1.326	13.4*
2,6-Dinitrotoluene *	0.249	0.277	0.365	0.355	0.372	0.324	17.5*
3-Nitroaniline	0.260	0.305	0.371	0.382	0.398	0.343	17.0
Acenaphthene *	0.985	0.983	1.285	1.188	1.207	1.130	12.2*
2,4-Dinitrophenol	0.110	0.173	0.252	0.273	0.328	0.227	37.8
4-Nitrophenol	0.129	0.147	0.208	0.228	0.259	0.194	28.1
Dibenzofuran *	1.495	1.489	1.940	1.811	1.871	1.721	12.4*
2,4-Dinitrotoluene *	0.308	0.349	0.437	0.444	0.470	0.402	17.3*

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

9513355.2417

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Instrument ID: NV05 Calibration Date(s): 05/16/94

Calibration Times: 0856 1122

LAB FILE ID: RRF20 =NV0501521.D RRF50 =NV0501522.D
RRF80 =NV0501523.D RRF120=NV0501524.D RRF160=NV0501525.D

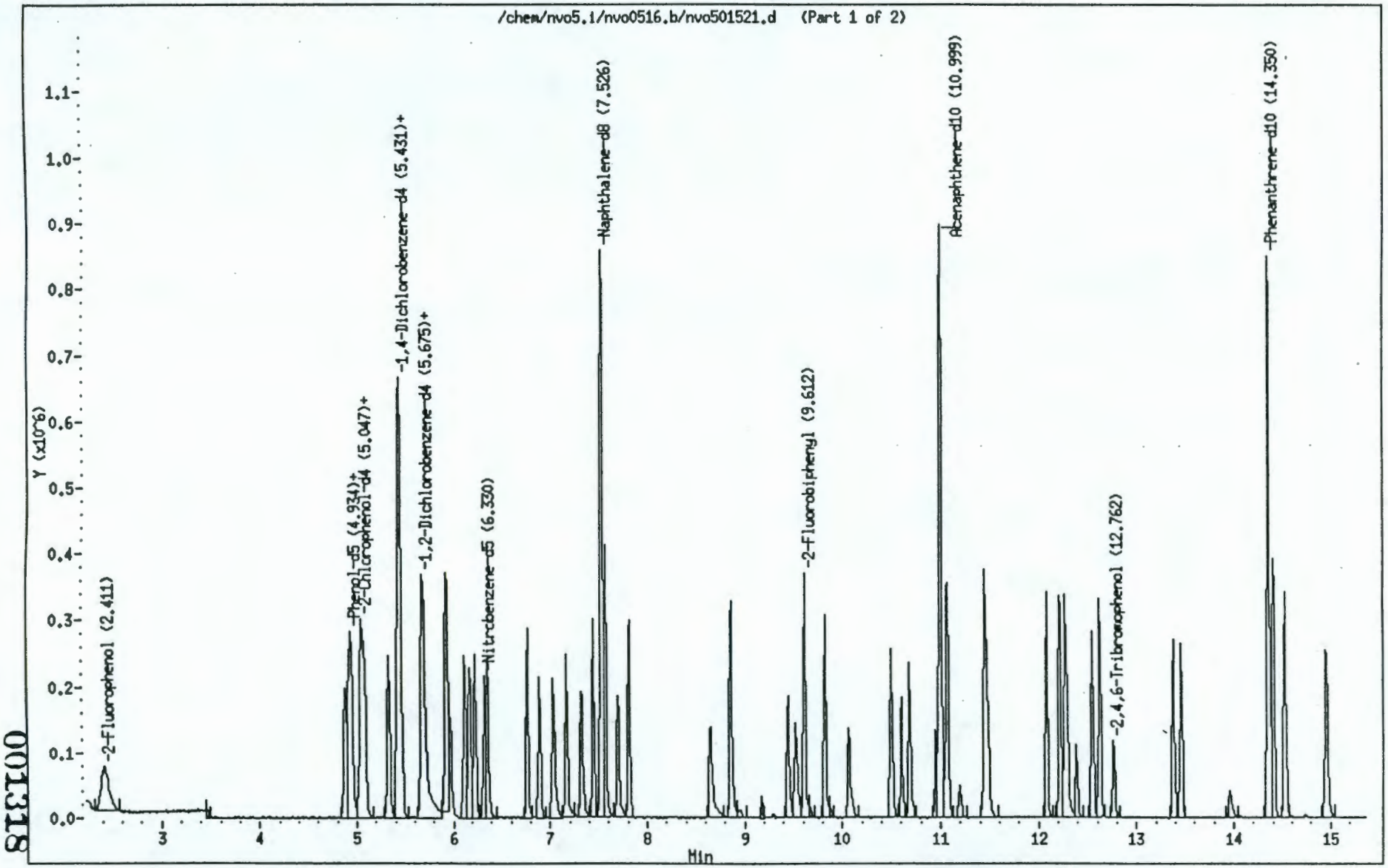
COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Diethyl phthalate	1.181	1.252	1.562	1.542	1.583	1.424	13.5
4-Chlorophenyl-phenylether *	0.548	0.556	0.716	0.689	0.715	0.645	13.2*
Fluorene *	1.097	1.099	1.425	1.361	1.395	1.275	12.8*
4-Nitroaniline	0.279	0.315	0.379	0.413	0.433	0.364	17.9
4,6-Dinitro-2-methylphenol	0.104	0.143	0.203	0.199	0.226	0.175	28.6
N-Nitrosodiphenylamine (1)	0.447	0.453	0.620	0.542	0.550	0.522	13.9
4-Bromophenyl-phenylether *	0.197	0.196	0.268	0.235	0.244	0.228	13.7*
Hexachlorobenzene *	0.168	0.119	0.304	0.283	0.296	0.234	36.3*<-
Pentachlorophenol *	0.000	0.089	0.135	0.137	0.169	0.133	24.8*<-
Phenanthrene *	0.979	0.969	1.284	1.164	1.172	1.114	12.2*
Anthracene *	0.908	0.911	1.212	1.109	1.131	1.054	13.0*
Carbazole	0.867	0.900	1.143	1.087	1.084	1.016	12.2
Di-n-butylphthalate	1.217	1.319	1.710	1.594	1.617	1.491	14.2
Fluoranthene *	0.989	1.007	1.300	1.262	1.255	1.163	13.0*
Pyrene *	0.935	1.034	1.401	1.227	1.304	1.180	16.3*
Butylbenzylphthalate	0.522	0.576	0.767	0.697	0.717	0.656	15.6
3,3'-Dichlorobenzidine	0.303	0.307	0.395	0.354	0.356	0.343	11.3
Benzo(a)anthracene *	0.913	0.933	1.228	1.137	1.172	1.077	13.4*
Chrysene *	0.873	0.872	1.146	1.040	1.030	0.992	11.9*
bis(2-Ethylhexyl)phthalate	0.756	0.813	1.074	0.971	0.992	0.921	14.3
Di-n-octylphthalate	1.105	1.105	1.576	1.540	1.455	1.356	17.2
Benzo(b)fluoranthene *	0.762	0.747	1.046	0.995	1.000	0.910	15.7*
Benzo(k)fluoranthene *	0.836	0.793	1.112	1.035	0.977	0.951	14.1*
Benzo(a)pyrene *	0.712	0.687	0.957	0.896	0.893	0.829	14.6*
Indeno(1,2,3-cd)pyrene *	0.576	0.570	0.830	0.733	0.831	0.708	18.2*
Dibenzo(a,h)anthracene *	0.606	0.589	0.866	0.729	0.820	0.722	17.2*
Benzo(g,h,i)perylene *	0.638	0.610	0.906	0.764	0.837	0.751	16.8*
Nitrobenzene-d5 *	0.344	0.336	0.456	0.426	0.437	0.400	13.9*
2-Fluorobiphenyl *	1.132	1.179	1.645	1.490	1.513	1.392	16.1*
Terphenyl-d14 *	0.761	0.817	1.083	0.977	1.030	0.933	14.8*
Phenol-d5 *	1.190	1.136	1.575	1.476	1.582	1.392	15.4*
2-Fluorophenol *	1.136	1.115	1.506	1.411	1.421	1.318	13.6*
2,4,6-Tribromophenol	0.187	0.223	0.280	0.292	0.315	0.259	20.4
2-Chlorophenol-d4 *	0.978	0.893	1.219	1.153	1.217	1.092	13.6*
1,2-Dichlorobenzene-d4 *	0.723	0.692	0.935	0.892	0.913	0.831	13.8*

(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.

Data File: /chem/nvo5.i/nvo0516.b/nvo501521.d
Date : 16-MAY-94 08:56
Client ID: SSTD20
Sample Info: SSTD20 20ng on col
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



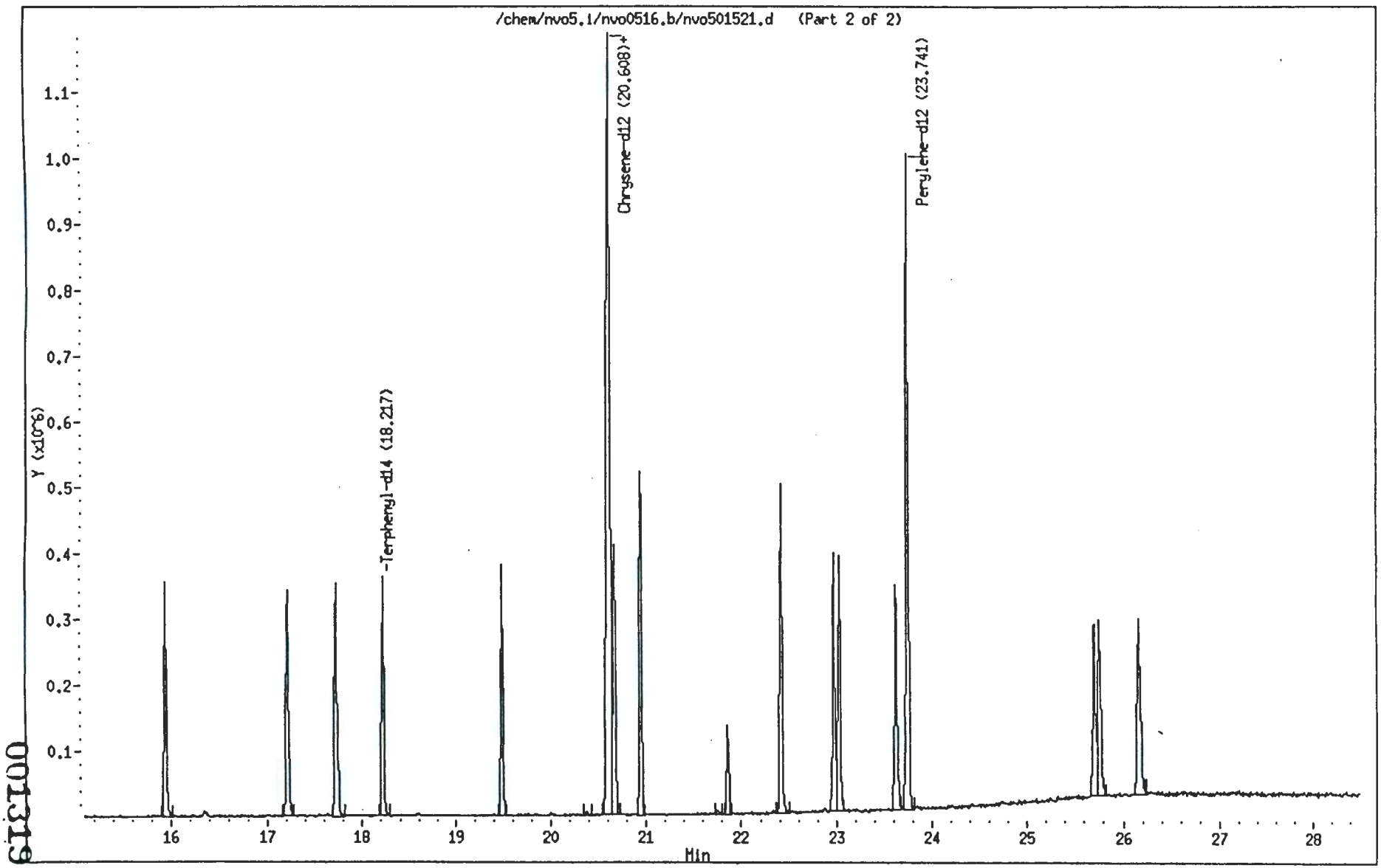
001318

9513355.2418

Data File: /chem/nvo5.i/nvo0516.b/nvo501521.d
Date : 16-MAY-94 08:56
Client ID: SSTD20
Sample Info: SSTD20 20ng on col
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



001319

Data File: /chem/nvo5.i/nvo0516.b/nvo501521.d
Report Date: 19-May-1994 10:50

Environmental Science and Engineering

Semivolatile CLP 3/90 SOW

Data file : /chem/nvo5.i/nvo0516.b/nvo501521.d
Lab Smp Id: SSTD20 — Client Smp ID: SSTD20
Inj Date : 16-MAY-1994 08:56 — Autotune Date: 08-Feb-94 09:58
Operator : WAV/AT — Inst ID: nvo5.i
Smp Info : SSTD20 20ng on col
Misc Info : 10ug/ml CLP STD 1000-1-1
Comment :
Method : /chem/nvo5.i/nvo0516.b/clp390epc.m
Meth Date : 19-May-1994 10:50 user2 — Quant Type: ISTD
Cal Date : 16-MAY-1994 08:56 — Cal File: nvo501521.d
Als bottle: 2 — Calibration Sample, Level: 1
Dil Factor: 1.000
Integrator: HP RTE — Compound Sublist: all.sub
Target Version: 3.10

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS CAL-AMT (ng)	ON-COL (ng)
*	1 1,4-Dichlorobenzene-d4	152.00	5.431	5.431	(1.000)	215156	40	
$	2 2-Fluorophenol	112.00	2.429	2.429	(0.447)	122218	20	20
$	3 Phenol-d5	99.00	4.916	4.916	(0.905)	128022	20	20
	4 Phenol	94.00	4.942	4.942	(0.910)	147134	20	20
	5 Bis(2-Chloroethyl)ether	93.00	5.038	5.038	(0.928)	127733	20	20
$	6 2-Chlorophenol-d4	132.00	5.047	5.047	(0.929)	105175	20	20
	7 2-Chlorophenol	128.00	5.073	5.073	(0.934)	119620	20	20
	8 1,3-Dichlorobenzene	146.00	5.326	5.326	(0.981)	131522	20	20
	9 1,4-Dichlorobenzene	146.00	5.457	5.457	(1.005)	131827	20	20
$	10 1,2-Dichlorobenzene-d4	152.00	5.667	5.667	(1.043)	77777	20	20
	11 1,2-Dichlorobenzene	146.00	5.693	5.693	(1.048)	122139	20	20
	12 2-Methylphenol	108.00	5.920	5.920	(1.090)	97136	20	20
	13 4-Methylphenol	108.00	6.173	6.173	(1.137)	103720	20	20
	14 2,2'-oxybis(1-Chloropropane)	45.00	5.929	5.929	(1.092)	134679	20	20
	15 N-Nitroso-di-n-propylamine	70.00	6.121	6.121	(1.127)	84434	20	20
	16 Hexachloroethane	117.00	6.225	6.225	(1.146)	55530	20	20
*	17 Naphthalene-d8	136.00	7.526	7.526	(1.000)	686730	40	
$	18 Nitrobenzene-d5	82.00	6.330	6.330	(0.841)	118093	20	20
	19 Nitrobenzene	77.00	6.356	6.356	(0.845)	119564	20	20
	20 Isophorone	82.00	6.766	6.766	(0.899)	202377	20	20
	21 2-Nitrophenol	139.00	6.889	6.889	(0.915)	66043	20	20
	22 2,4-Dimethyphenol	107.00	7.028	7.028	(0.934)	97081	20	20
	23 Bis(2-Chloroethoxy)methane	93.00	7.168	7.168	(0.952)	109551	20	20
	24 2,4-Dichlorophenol	162.00	7.325	7.325	(0.973)	77214	20	20
	25 1,2,4-Trichlorobenzene	180.00	7.438	7.438	(0.988)	100065	20	20
	26 Naphthalene	128.00	7.569	7.569	(1.006)	303353	20	20
	27 4-Chloroaniline	127.00	7.691	7.691	(1.022)	96038	20	20
	28 Hexachlorobutadiene	225.00	7.814	7.814	(1.038)	62474	20	20
	29 4-Chloro-3-methylphenol	107.00	8.652	8.652	(1.150)	70369	20	20

Data File: /chem/nvo5.i/nvo0516.b/nvo501521.d
Report Date: 19-May-1994 10:50

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS CAL-AMT (ng)	CONCENTRATIONS ON-COL (ng)
30 2-Methylnaphthalene	142.00	8.861	8.861	(1.177)	179023	20	20
* 31 Acenaphthene-d10	164.00	10.999	10.999	(1.000)	344507	40	
32 Hexachlorocyclopentadiene	237.00	9.175	9.175	(0.834)	10524	20	20
33 2,4,6-Trichlorophenol	196.00	9.446	9.446	(0.859)	50727	20	20
34 2,4,5-Trichlorophenol	196.00	9.524	9.524	(0.866)	72542	20	20(a)
$ 35 2-Fluorobiphenyl	172.00	9.612	9.612	(0.874)	194981	20	20
36 2-Chloronaphthalene	162.00	9.821	9.821	(0.893)	161959	20	20
37 2-Nitroaniline	65.00	10.065	10.065	(0.915)	55415	20	20(a)
38 Dimethyl phthalate	163.00	10.502	10.502	(0.955)	199814	20	20
39 Acenaphthylene	152.00	10.685	10.685	(0.971)	195408	20	20
40 2,6-Dinitrotoluene	165.00	10.606	10.606	(0.964)	42851	20	20
41 3-Nitroaniline	138.00	10.947	10.947	(0.995)	44829	20	20(a)
42 Acenaphthene	153.00	11.069	11.069	(1.006)	169707	20	20
43 2,4-Dinitrophenol	184.00	11.200	11.200	(1.018)	18950	20	20(a)
44 4-Nitrophenol	109.00	11.436	11.436	(1.040)	22248	20	20(a)
45 Dibenzofuran	168.00	11.453	11.453	(1.041)	257522	20	20
46 2,4-Dinitrotoluene	165.00	11.479	11.479	(1.044)	52993	20	20
47 Diethyl phthalate	149.00	12.081	12.081	(1.098)	203385	20	20
48 4-Chlorophenyl-phenylether	204.00	12.273	12.273	(1.116)	94451	20	20
49 Fluorene	166.00	12.212	12.212	(1.110)	188962	20	20
50 4-Nitroaniline	138.00	12.300	12.300	(1.118)	48008	20	20(a)
$ 51 2,4,6-Tribromophenol	330.00	12.771	12.771	(1.161)	32252	20	20
* 52 Phenanthrene-d10	188.00	14.350	14.350	(1.000)	571604	40	
53 4,6-Dinitro-2-methylphenol	198.00	12.387	12.387	(0.863)	29681	20	20(a)
54 N-Nitrosodiphenylamine	169.00	12.553	12.553	(0.875)	127736	20	20
55 4-Bromophenyl-phenylether	248.00	13.382	13.382	(0.932)	56255	20	20
56 Hexachlorobenzene	284.00	13.460	13.460	(0.938)	47953	20	20
57 Pentachlorophenol	266.00	13.958	13.958	(0.973)	18061	20	(a)
58 Phenanthrene	178.00	14.403	14.403	(1.004)	279842	20	20
59 Anthracene	178.00	14.525	14.525	(1.012)	259615	20	20
60 Carbazole	167.00	14.961	14.961	(1.043)	247810	20	20
61 Di-n-butylphthalate	149.00	15.939	15.939	(1.111)	347710	20	20
62 Fluoranthene	202.00	17.204	17.204	(1.199)	282795	20	20
* 63 Chrysene-d12	240.00	20.608	20.608	(1.000)	609873	40	
64 Pyrene	202.00	17.719	17.719	(0.860)	284985	20	20
$ 65 Terphenyl-d14	244.00	18.217	18.217	(0.884)	231970	20	20
66 Butylbenzylphthalate	149.00	19.491	19.491	(0.946)	159175	20	20
67 3,3'-Dichlorobenzidine	252.00	20.625	20.625	(1.001)	92268	20	20
68 Benzo(a)anthracene	228.00	20.591	20.591	(0.999)	278508	20	20
69 Chrysene	228.00	20.669	20.669	(1.003)	266134	20	20
70 bis(2-Ethylhexyl)phthalate	149.00	20.940	20.940	(1.016)	230652	20	20
* 71 Perylene-d12	264.00	23.741	23.741	(1.000)	713397	40	
72 Di-n-octylphthalate	149.00	22.415	22.415	(0.944)	394113	20	20
73 Benzo(b)fluoranthene	252.00	22.973	22.973	(0.968)	271755	20	20
74 Benzo(k)fluoranthene	252.00	23.034	23.034	(0.970)	298113	20	20
75 Benzo(a)pyrene	252.00	23.619	23.619	(0.995)	253849	20	20
76 Indeno(1,2,3-cd)pyrene	276.00	25.705	25.705	(1.083)	205615	20	20
77 Dibenzo(a,h)anthracene	278.00	25.757	25.757	(1.085)	216160	20	20
78 Benzo(g,h,i)perylene	276.00	26.167	26.167	(1.102)	227627	20	20

Data File: /chem/nvo5.i/nvo0516.b/nvo501521.d
Report Date: 19-May-1994 10:50

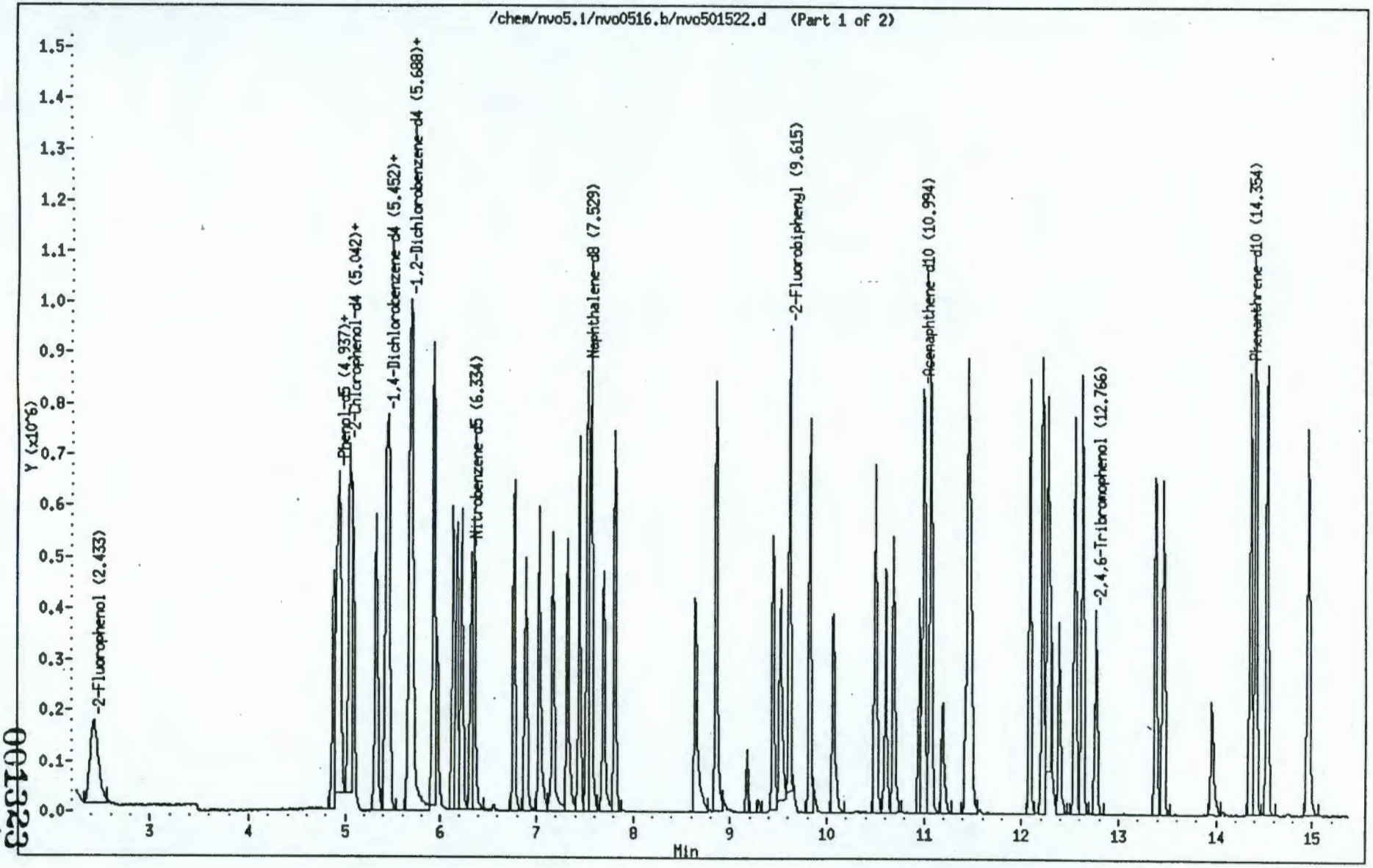
QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: /chem/nvo5.1/nvo0516.b/nvo501522.d
Date : 16-MAY-94 09:32
Client ID: SSTD50
Sample Info: SSTD50 50ng on col
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.1

Operator: WAV/AT
Column diameter: 0.25



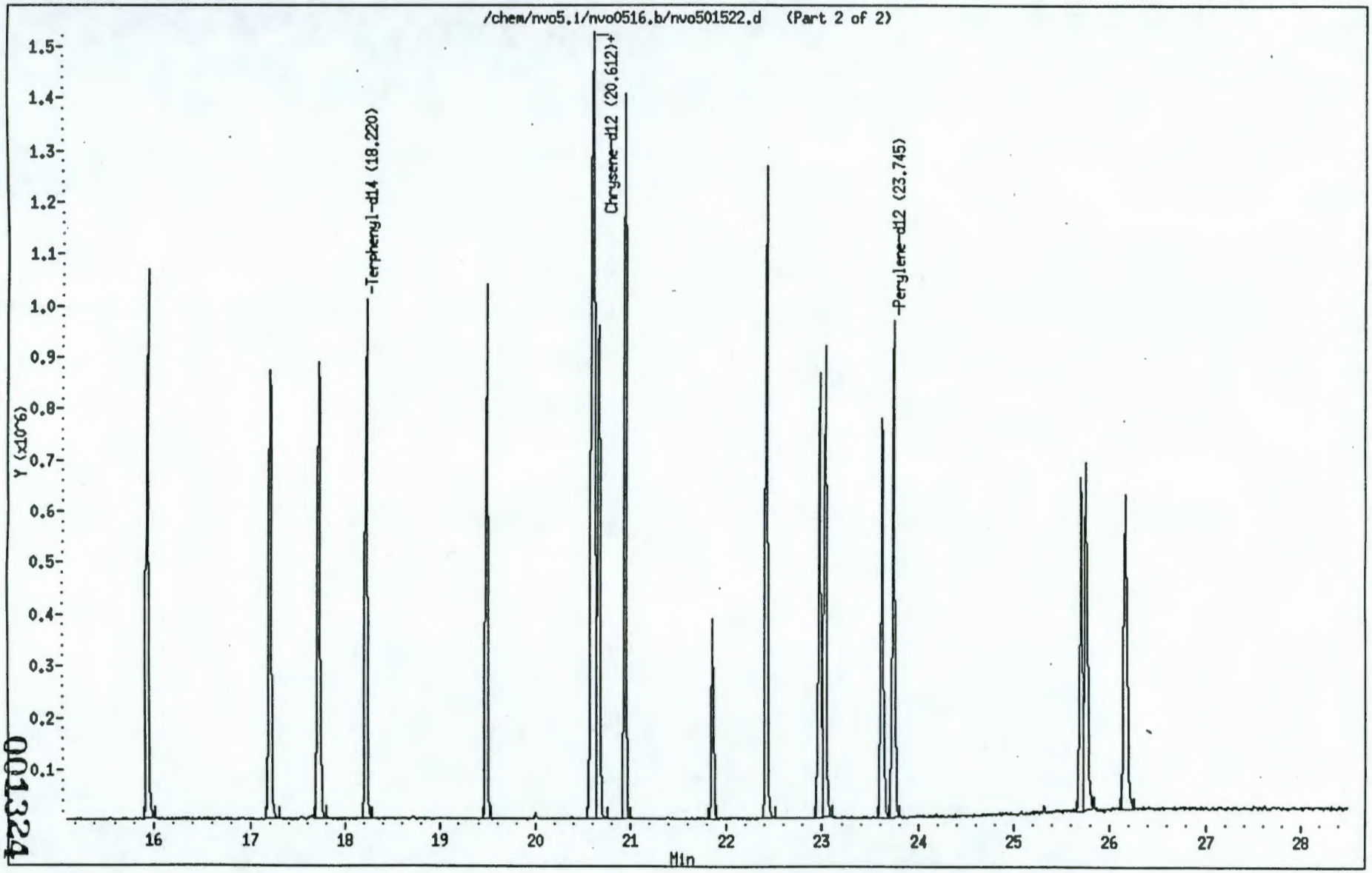
001323

95133355.2423

Data File: /chem/nvo5.i/nvo0516.b/nvo501522.d
Date : 16-MAY-94 09:32
Client ID: SSTD50
Sample Info: SSTD50 50ng on col
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



001324

9513355.2421

Data File: /chem/nvo5.i/nvo0516.b/nvo501522.d
Report Date: 19-May-1994 10:50

Environmental Science and Engineering

Semivolatile CLP 3/90 SOW

Data file : /chem/nvo5.i/nvo0516.b/nvo501522.d
Lab Smp Id: SSTD50 Client Smp ID: SSTD50
Inj Date : 16-MAY-94 09:32 Autotune Date: 08-Feb-94 09:58
Operator : WAV/AT Inst ID: nvo5.i
Smp Info : SSTD50 50ng on col
Misc Info : 25ug/ml CLP STD 1000-2-1
Comment :
Method : /chem/nvo5.i/nvo0516.b/clp390epc.m
Meth Date : 19-May-1994 10:50 user2 Quant Type: ISTD
Cal Date : 16-MAY-94 09:32 Cal File: nvo501522.d
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 3.10

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS CAL-AMT (ng)	CONCENTRATIONS ON-COL (ng)
* 1	1,4-Dichlorobenzene-d4	152.00	5.426	5.426	(1.000)	211822	40	
$ 2	2-Fluorophenol	112.00	2.433	2.433	(0.448)	295142	50	50
$ 3	Phenol-d5	99.00	4.920	4.920	(0.907)	300730	50	49
4	Phenol	94.00	4.946	4.946	(0.912)	328971	50	48
5	Bis(2-Chloroethyl)ether	93.00	5.042	5.042	(0.929)	285131	50	48
$ 6	2-Chlorophenol-d4	132.00	5.051	5.051	(0.931)	236317	50	48
7	2-Chlorophenol	128.00	5.077	5.077	(0.936)	276724	50	48
8	1,3-Dichlorobenzene	146.00	5.321	5.321	(0.981)	305960	50	48
9	1,4-Dichlorobenzene	146.00	5.452	5.452	(1.005)	317102	50	49
$ 10	1,2-Dichlorobenzene-d4	152.00	5.670	5.670	(1.045)	183103	50	49
11	1,2-Dichlorobenzene	146.00	5.688	5.688	(1.048)	286761	50	49
12	2-Methylphenol	108.00	5.923	5.923	(1.092)	239508	50	50
13	4-Methylphenol	108.00	6.177	6.177	(1.138)	241194	50	48
14	2,2'-oxybis(1-Chloropropane)	45.00	5.923	5.923	(1.092)	311610	50	48
15	N-Nitroso-di-n-propylamine	70.00	6.124	6.124	(1.129)	201890	50	49
16	Hexachloroethane	117.00	6.229	6.229	(1.148)	130056	50	49
* 17	Naphthalene-d8	136.00	7.529	7.529	(1.000)	661510	40	
$ 18	Nitrobenzene-d5	82.00	6.334	6.334	(0.841)	278113	50	49
19	Nitrobenzene	77.00	6.360	6.360	(0.845)	283028	50	50
20	Isophorone	82.00	6.770	6.770	(0.899)	480049	50	50
21	2-Nitrophenol	139.00	6.892	6.892	(0.915)	169185	50	52
22	2,4-Dimethyphenol	107.00	7.023	7.023	(0.933)	248064	50	51
23	Bis(2-Chloroethoxy)methane	93.00	7.163	7.163	(0.951)	271531	50	51
24	2,4-Dichlorophenol	162.00	7.320	7.320	(0.972)	192732	50	51
25	1,2,4-Trichlorobenzene	180.00	7.442	7.442	(0.988)	235781	50	49
26	Naphthalene	128.00	7.564	7.564	(1.005)	683680	50	48
27	4-Chloroaniline	127.00	7.695	7.695	(1.022)	242608	50	51
28	Hexachlorobutadiene	225.00	7.809	7.809	(1.037)	146483	50	49
29	4-Chloro-3-methylphenol	107.00	8.638	8.638	(1.147)	210315	50	55

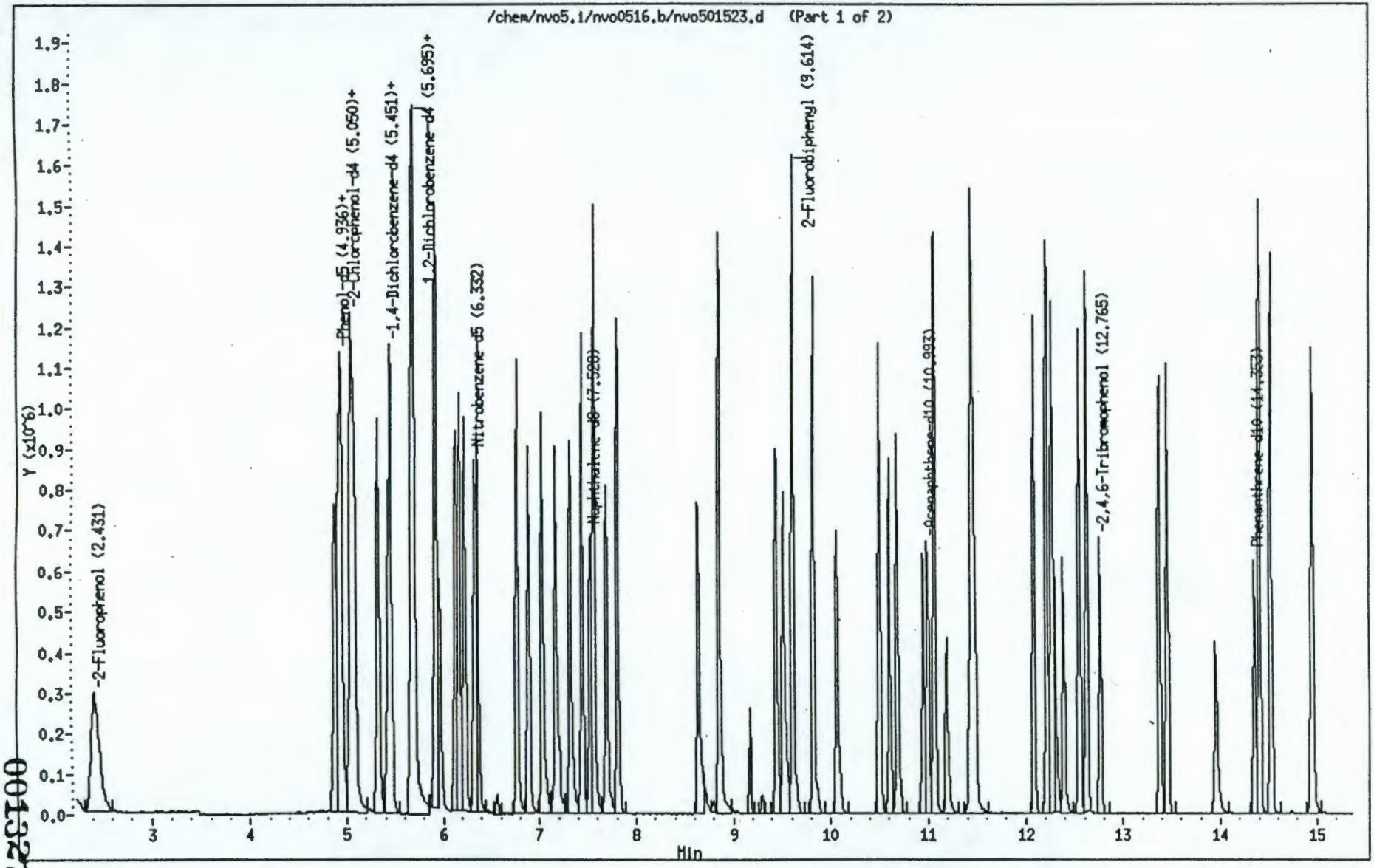
Data File: /chem/nvo5.i/nvo0516.b/nvo501522.d
Report Date: 19-May-1994 10:50

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS CAL-AMT (ng)	CONCENTRATIONS ON-COL (ng)
	30 2-Methylnaphthalene	142.00	8.856	8.856	(1.176)	434329	50	50
*	31 Acenaphthene-d10	164.00	10.994	10.994	(1.000)	329610	40	
	32 Hexachlorocyclopentadiene	237.00	9.179	9.179	(0.835)	33751	50	57
	33 2,4,6-Trichlorophenol	196.00	9.441	9.441	(0.859)	133069	50	52
	34 2,4,5-Trichlorophenol	196.00	9.519	9.519	(0.866)	169090	50	49
$	35 2-Fluorobiphenyl	172.00	9.615	9.615	(0.875)	485822	50	51
	36 2-Chloronaphthalene	162.00	9.825	9.825	(0.894)	381837	50	50
	37 2-Nitroaniline	65.00	10.060	10.060	(0.915)	141616	50	52
	38 Dimethyl phthalate	163.00	10.497	10.497	(0.955)	495193	50	51
	39 Acenaphthylene	152.00	10.689	10.689	(0.972)	469777	50	50
	40 2,6-Dinitrotoluene	165.00	10.610	10.610	(0.965)	114074	50	53
	41 3-Nitroaniline	138.00	10.950	10.950	(0.996)	125797	50	54
	42 Acenaphthene	153.00	11.064	11.064	(1.006)	404964	50	50
	43 2,4-Dinitrophenol	184.00	11.195	11.195	(1.018)	71156	50	61
	44 4-Nitrophenol	109.00	11.430	11.430	(1.040)	60703	50	53
	45 Dibenzofuran	168.00	11.457	11.457	(1.042)	613325	50	50
	46 2,4-Dinitrotoluene	165.00	11.483	11.483	(1.044)	143912	50	53
	47 Diethyl phthalate	149.00	12.085	12.085	(1.099)	515737	50	51
	48 4-Chlorophenyl-phenylether	204.00	12.268	12.268	(1.116)	228950	50	50
	49 Fluorene	166.00	12.216	12.216	(1.111)	452800	50	50
	50 4-Nitroaniline	138.00	12.303	12.303	(1.119)	129986	50	53
$	51 2,4,6-Tribromophenol	330.00	12.766	12.766	(1.161)	91750	50	54
*	52 Phenanthrene-d10	188.00	14.354	14.354	(1.000)	564454	40	
	53 4,6-Dinitro-2-methylphenol	198.00	12.390	12.390	(0.863)	100892	50	58
	54 N-Nitrosodiphenylamine	169.00	12.548	12.548	(0.874)	319791	50	50
	55 4-Bromophenyl-phenylether	248.00	13.385	13.385	(0.932)	138083	50	50
	56 Hexachlorobenzene	284.00	13.464	13.464	(0.938)	83803	50	41
	57 Pentachlorophenol	266.00	13.953	13.953	(0.972)	62971	50	50
	58 Phenanthrene	178.00	14.407	14.407	(1.004)	683646	50	50
	59 Anthracene	178.00	14.529	14.529	(1.012)	642744	50	50
	60 Carbazole	167.00	14.956	14.956	(1.042)	634966	50	51
	61 Di-n-butylphthalate	149.00	15.943	15.943	(1.111)	930683	50	52
	62 Fluoranthene	202.00	17.199	17.199	(1.198)	710452	50	50
*	63 Chrysene-d12	240.00	20.612	20.612	(1.000)	571586	40	
	64 Pyrene	202.00	17.714	17.714	(0.859)	738913	50	52
$	65 Terphenyl-d14	244.00	18.220	18.220	(0.884)	583801	50	52
	66 Butylbenzylphthalate	149.00	19.486	19.486	(0.945)	411673	50	52
	67 3,3'-Dichlorobenzidine	252.00	20.620	20.620	(1.000)	219320	50	50
	68 Benzo(a)anthracene	228.00	20.594	20.594	(0.999)	666508	50	50
	69 Chrysene	228.00	20.673	20.673	(1.003)	622758	50	50
	70 bis(2-Ethylhexyl)phthalate	149.00	20.943	20.943	(1.016)	581084	50	52
*	71 Perylene-d12	264.00	23.745	23.745	(1.000)	697885	40	
	72 Di-n-octylphthalate	149.00	22.418	22.418	(0.944)	964274	50	50
	73 Benzo(b)fluoranthene	252.00	22.977	22.977	(0.968)	651961	50	50
	74 Benzo(k)fluoranthene	252.00	23.038	23.038	(0.970)	691801	50	49
	75 Benzo(a)pyrene	252.00	23.623	23.623	(0.995)	598936	50	49
	76 Indeno(1,2,3-cd)pyrene	276.00	25.700	25.700	(1.082)	497636	50	50
	77 Dibenzo(a,h)anthracene	278.00	25.761	25.761	(1.085)	513739	50	49
	78 Benzo(g,h,i)perylene	276.00	26.162	26.162	(1.102)	532368	50	49

Data File: /chem/nvo5.i/nvo0516.b/nvo501523.d
Date : 16-MAY-94 10:09
Client ID: SSTD80
Sample Info: SSTD80 80ng on col
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



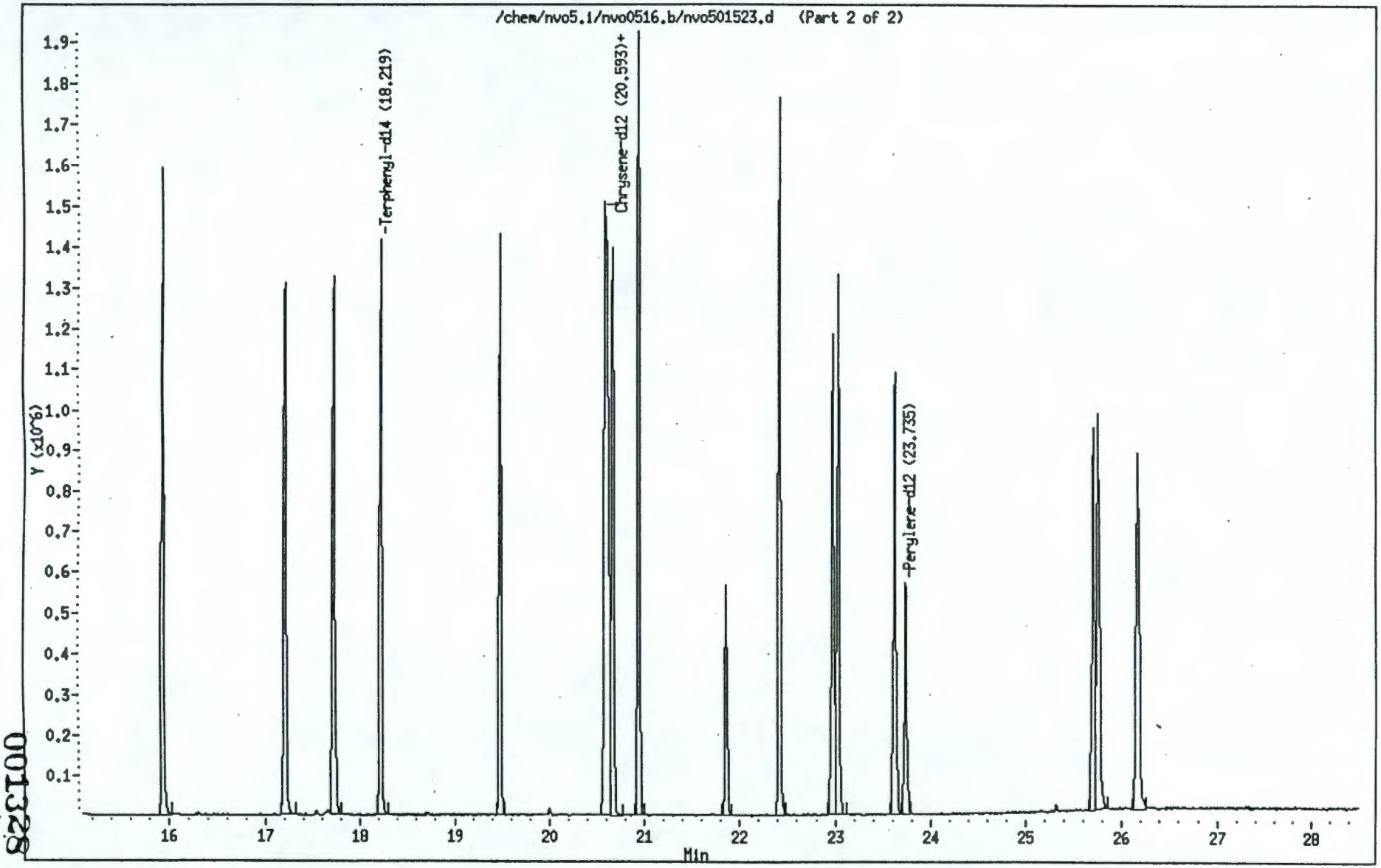
00132?

9513355.2427

Data File: /chem/nvo5.i/nvo0516.b/nvo501523.d
Date : 16-MAY-94 10:09
Client ID: SSTD80
Sample Info: SSTD80 80ng on col
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



001328

9513355.2421

9513355.2929

Data File: /chem/nvo5.i/nvo0516.b/nvo501523.d
Report Date: 19-May-1994 10:50

Environmental Science and Engineering

Semivolatile CLP 3/90 SOW

Data file : /chem/nvo5.i/nvo0516.b/nvo501523.d
Lab Smp Id: SSTD80 Client Smp ID: SSTD80
Inj Date : 16-MAY-94 10:09 Autotune Date: 08-Feb-94 09:58
Operator : WAV/AT Inst ID: nvo5.i
Smp Info : SSTD80 80ng on col
Misc Info : 40ug/ml CLP STD 1000-1-2
Comment :
Method : /chem/nvo5.i/nvo0516.b/clp390epc.m
Meth Date : 19-May-1994 10:50 user2 Quant Type: ISTD
Cal Date : 16-MAY-94 09:32 Cal File: nvo501522.d
Als bottle: 4 Calibration Sample, Level: 3
Dil Factor: 1.000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS CAL-AMT (ng)	CONCENTRATIONS ON-COL (ng)
* 1 1,4-Dichlorobenzene-d4	152.00	5.425	5.425	(1.000)	161222	40	
$ 2 2-Fluorophenol	112.00	2.431	2.431	(0.448)	485578	80	96
$ 3 Phenol-d5	99.00	4.919	4.919	(0.907)	507859	80	97
4 Phenol	94.00	4.945	4.945	(0.912)	551688	80	95
5 Bis(2-Chloroethyl)ether	93.00	5.041	5.041	(0.929)	478613	80	95
$ 6 2-Chlorophenol-d4	132.00	5.050	5.050	(0.931)	393152	80	95
7 2-Chlorophenol	128.00	5.084	5.084	(0.937)	465337	80	96
8 1,3-Dichlorobenzene	146.00	5.329	5.329	(0.982)	515300	80	96
9 1,4-Dichlorobenzene	146.00	5.460	5.460	(1.006)	526191	80	96
$ 10 1,2-Dichlorobenzene-d4	152.00	5.669	5.669	(1.045)	301406	80	95
11 1,2-Dichlorobenzene	146.00	5.695	5.695	(1.050)	482664	80	97
12 2-Methylphenol	108.00	5.922	5.922	(1.092)	386820	80	96
13 4-Methylphenol	108.00	6.175	6.175	(1.138)	401802	80	96
14 2,2'-oxybis(1-Chloropropane)	45.00	5.931	5.931	(1.093)	502170	80	94
15 N-Nitroso-di-n-propylamine	70.00	6.132	6.132	(1.130)	335424	80	96
16 Hexachloroethane	117.00	6.228	6.228	(1.148)	216565	80	96
* 17 Naphthalene-d8	136.00	7.528	7.528	(1.000)	512810	40	
$ 18 Nitrobenzene-d5	82.00	6.332	6.332	(0.841)	468085	80	96
19 Nitrobenzene	77.00	6.359	6.359	(0.845)	463591	80	95
20 Isophorone	82.00	6.769	6.769	(0.899)	801303	80	96
21 2-Nitrophenol	139.00	6.891	6.891	(0.915)	285754	80	99
22 2,4-Dimethyphenol	107.00	7.031	7.031	(0.934)	408039	80	97
23 Bis(2-Chloroethoxy)methane	93.00	7.170	7.170	(0.952)	457759	80	98
24 2,4-Dichlorophenol	162.00	7.319	7.319	(0.972)	330200	80	99
25 1,2,4-Trichlorobenzene	180.00	7.441	7.441	(0.988)	383026	80	94
26 Naphthalene	128.00	7.563	7.563	(1.005)	1149689	80	95
27 4-Chloroaniline	127.00	7.694	7.694	(1.022)	399364	80	97
28 Hexachlorobutadiene	225.00	7.807	7.807	(1.037)	243704	80	96
29 4-Chloro-3-methylphenol	107.00	8.637	8.637	(1.147)	340789	80	100

Data File: /chem/nvo5.i/nvo0516.b/nvo501523.d
Report Date: 19-May-1994 10:50

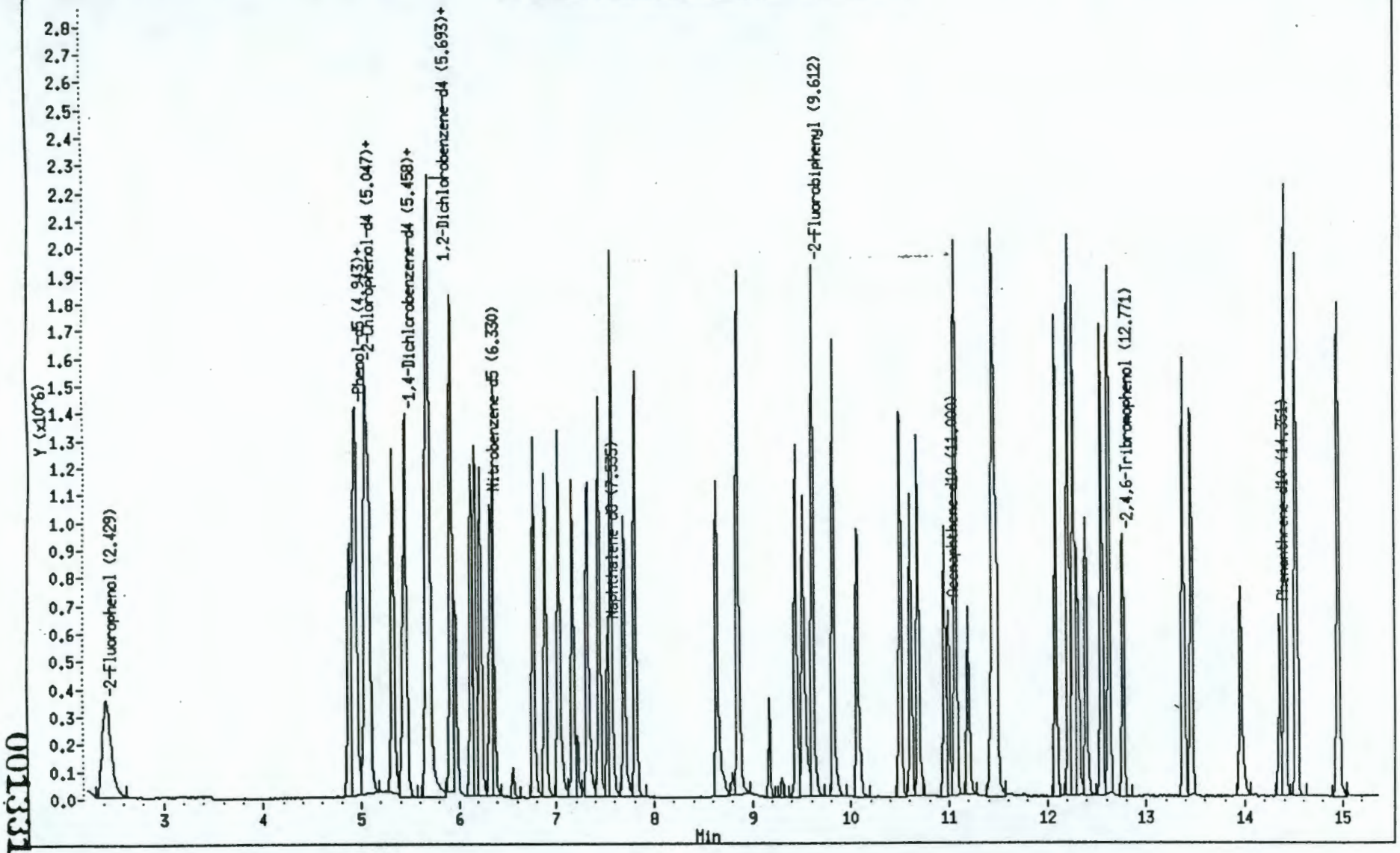
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS CAL-AMT (ng)	CONCENTRATIONS ON-COL (ng)
	30 2-Methylnaphthalene	142.00	8.855	8.855	(1.176)	757877	80	99
*	31 Acenaphthene-d10	164.00	10.993	10.993	(1.000)	255772	40	
	32 Hexachlorocyclopentadiene	237.00	9.178	9.178	(0.835)	66668	80	110
	33 2,4,6-Trichlorophenol	196.00	9.448	9.448	(0.859)	222106	80	99
	34 2,4,5-Trichlorophenol	196.00	9.518	9.518	(0.866)	279238	80	95
$	35 2-Fluorobiphenyl	172.00	9.614	9.614	(0.875)	841236	80	100
	36 2-Chloronaphthalene	162.00	9.823	9.823	(0.894)	643860	80	97
	37 2-Nitroaniline	65.00	10.068	10.068	(0.916)	232286	80	97
	38 Dimethyl phthalate	163.00	10.504	10.504	(0.956)	786768	80	95
	39 Acenaphthylene	152.00	10.687	10.687	(0.972)	776757	80	96
	40 2,6-Dinitrotoluene	165.00	10.609	10.609	(0.965)	186891	80	98
	41 3-Nitroaniline	138.00	10.958	10.958	(0.997)	189619	80	95
	42 Acenaphthene	153.00	11.071	11.071	(1.007)	657359	80	95
	43 2,4-Dinitrophenol	184.00	11.194	11.194	(1.018)	128849	80	110
	44 4-Nitrophenol	109.00	11.429	11.429	(1.040)	106374	80	100
	45 Dibenzofuran	168.00	11.455	11.455	(1.042)	992641	80	94
	46 2,4-Dinitrotoluene	165.00	11.482	11.482	(1.044)	223765	80	96
	47 Diethyl phthalate	149.00	12.093	12.093	(1.100)	798981	80	94
	48 4-Chlorophenyl-phenylether	204.00	12.276	12.276	(1.117)	366466	80	94
	49 Fluorene	166.00	12.215	12.215	(1.111)	728777	80	94
	50 4-Nitroaniline	138.00	12.311	12.311	(1.120)	193748	80	93
$	51 2,4,6-Tribromophenol	330.00	12.765	12.765	(1.161)	143197	80	97
*	52 Phenanthrene-d10	188.00	14.353	14.353	(1.000)	399997	40	
	53 4,6-Dinitro-2-methylphenol	198.00	12.389	12.389	(0.863)	162011	80	110
	54 N-Nitrosodiphenylamine	169.00	12.555	12.555	(0.875)	495805	80	98
	55 4-Bromophenyl-phenylether	248.00	13.384	13.384	(0.932)	214036	80	97
	56 Hexachlorobenzene	284.00	13.463	13.463	(0.938)	242935	80	120
	57 Pentachlorophenol	266.00	13.952	13.952	(0.972)	108258	80	96
	58 Phenanthrene	178.00	14.405	14.405	(1.004)	1027149	80	95
	59 Anthracene	178.00	14.528	14.528	(1.012)	969444	80	96
	60 Carbazole	167.00	14.955	14.955	(1.042)	914422	80	94
	61 Di-n-butylphthalate	149.00	15.941	15.941	(1.111)	1368320	80	97
	62 Fluoranthene	202.00	17.207	17.207	(1.199)	1040339	80	95
*	63 Chrysene-d12	240.00	20.611	20.611	(1.000)	377343	40	
	64 Pyrene	202.00	17.722	17.722	(0.860)	1057428	80	100
$	65 Terphenyl-d14	244.00	18.219	18.219	(0.884)	817232	80	98
	66 Butylbenzylphthalate	149.00	19.485	19.485	(0.945)	578961	80	99
	67 3,3'-Dichlorobenzidine	252.00	20.619	20.619	(1.000)	298353	80	94
	68 Benzo(a)anthracene	228.00	20.593	20.593	(0.999)	927014	80	96
	69 Chrysene	228.00	20.672	20.672	(1.003)	864878	80	95
	70 bis(2-Ethylhexyl)phthalate	149.00	20.942	20.942	(1.016)	810682	80	98
*	71 Perylene-d12	264.00	23.744	23.744	(1.000)	420905	40	
	72 Di-n-octylphthalate	149.00	22.417	22.417	(0.944)	1326799	80	100
	73 Benzo(b)fluoranthene	252.00	22.976	22.976	(0.968)	880174	80	98
	74 Benzo(k)fluoranthene	252.00	23.037	23.037	(0.970)	936167	80	97
	75 Benzo(a)pyrene	252.00	23.630	23.630	(0.995)	805658	80	98
	76 Indeno(1,2,3-cd)pyrene	276.00	25.707	25.707	(1.083)	698328	80	100
	77 Dibenzo(a,h)anthracene	278.00	25.760	25.760	(1.085)	729247	80	100
	78 Benzo(g,h,i)perylene	276.00	26.170	26.170	(1.102)	762537	80	100

Data File: /chem/nvo5.i/nvo0516.b/nvo501524.d
Date : 16-MAY-94 10:45
Client ID: SSTD120
Sample Info: SSTD120 120ng on col
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25

/chem/nvo5.i/nvo0516.b/nvo501524.d (Part 1 of 2)



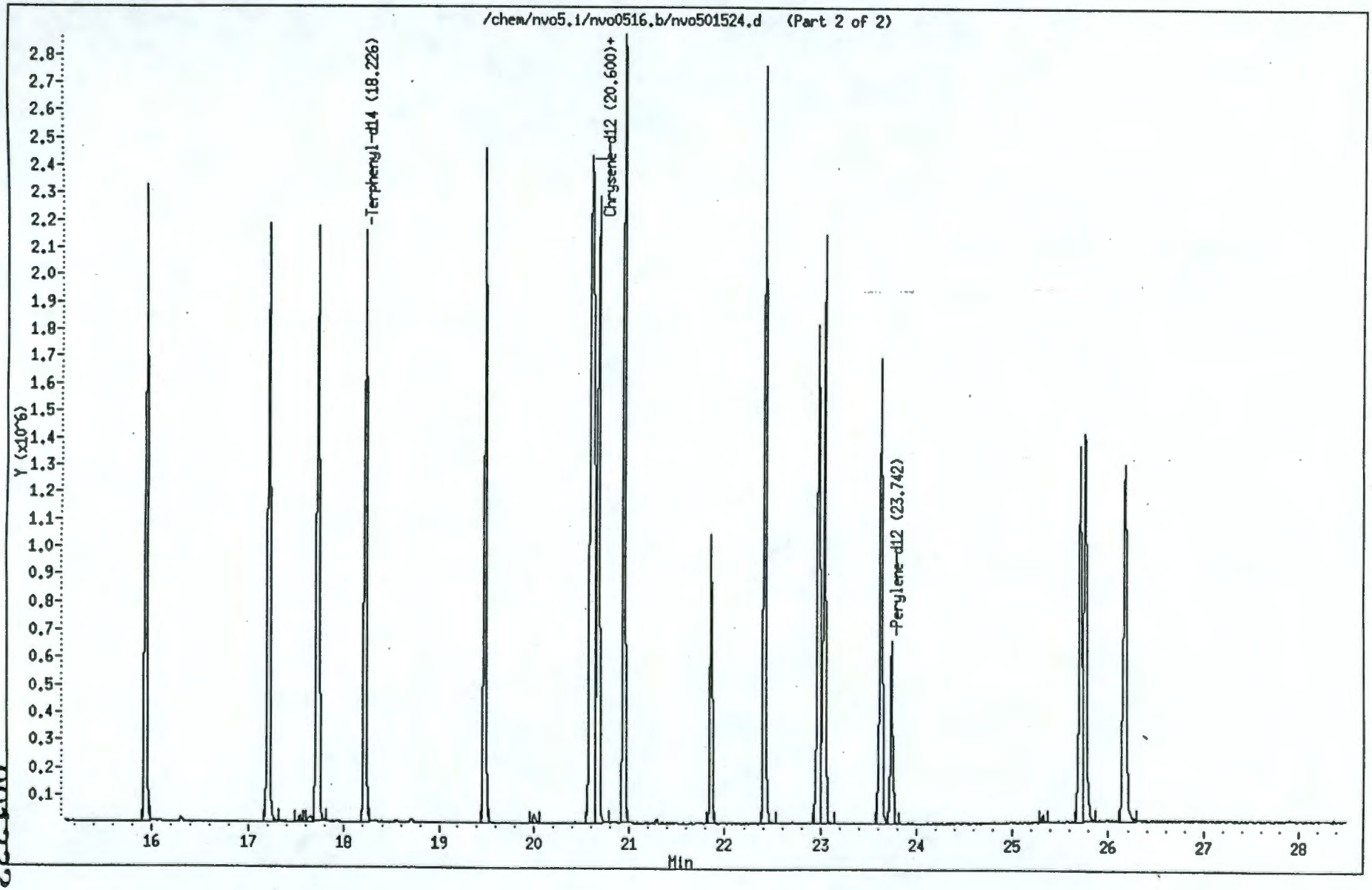
001331

9513355.2431

Data File: /chem/nvo5.i/nvo0516.b/nvo501524.d
Date : 16-MAY-94 10:45
Client ID: SSTD120
Sample Info: SSTD120 120ng on col
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



001332

9513355.2437

Data File: /chem/nvo5.i/nvo0516.b/nvo501524.d
Report Date: 19-May-1994 10:50

Environmental Science and Engineering

Semivolatile CLP 3/90 SOW

Data file : /chem/nvo5.i/nvo0516.b/nvo501524.d
Lab Smp Id: SSTD120 Client Smp ID: SSTD120
Inj Date : 16-MAY-94 10:45 Autotune Date: 08-Feb-94 09:58
Operator : WAV/AT Inst ID: nvo5.i
Smp Info : SSTD120 120ng on col
Misc Info : 60ug/ml CLP STD 1000-1-3
Comment :
Method : /chem/nvo5.i/nvo0516.b/clp390epc.m
Meth Date : 19-May-1994 10:50 user2 Quant Type: ISTD
Cal Date : 16-MAY-94 09:32 Cal File: nvo501522.d
Als bottle: 5 Calibration Sample, Level: 4
Dil Factor: 1.000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 3.10

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS CAL-AMT (ng)	ON-COL (ng)
*	1 1,4-Dichlorobenzene-d4	152.00	5.431	5.431	(1.000)	143552	40	
$	2 2-Fluorophenol	112.00	2.438	2.438	(0.449)	607516	120	130
$	3 Phenol-d5	99.00	4.925	4.925	(0.907)	635803	120	130
	4 Phenol	94.00	4.951	4.951	(0.912)	688786	120	130
	5 Bis(2-Chloroethyl)ether	93.00	5.039	5.039	(0.928)	586684	120	130
$	6 2-Chlorophenol-d4	132.00	5.056	5.056	(0.931)	496707	120	130
	7 2-Chlorophenol	128.00	5.082	5.082	(0.936)	580626	120	130
	8 1,3-Dichlorobenzene	146.00	5.327	5.327	(0.981)	653260	120	130
	9 1,4-Dichlorobenzene	146.00	5.458	5.458	(1.005)	662851	120	130
$	10 1,2-Dichlorobenzene-d4	152.00	5.667	5.667	(1.043)	384204	120	130
	11 1,2-Dichlorobenzene	146.00	5.693	5.693	(1.048)	601477	120	130
	12 2-Methylphenol	108.00	5.920	5.920	(1.090)	473274	120	130
	13 4-Methylphenol	108.00	6.173	6.173	(1.137)	513517	120	130
	14 2,2'-oxybis(1-Chloropropane)	45.00	5.929	5.929	(1.092)	674583	120	140
	15 N-Nitroso-di-n-propylamine	70.00	6.130	6.130	(1.129)	423034	120	130
	16 Hexachloroethane	117.00	6.226	6.226	(1.146)	269407	120	130
*	17 Naphthalene-d8	136.00	7.535	7.535	(1.000)	464385	40	
$	18 Nitrobenzene-d5	82.00	6.330	6.330	(0.840)	593591	120	130
	19 Nitrobenzene	77.00	6.365	6.365	(0.845)	580752	120	130
	20 Isophorone	82.00	6.775	6.775	(0.899)	1017216	120	130
	21 2-Nitrophenol	139.00	6.889	6.889	(0.914)	367713	120	130
	22 2,4-Dimethyphenol	107.00	7.029	7.029	(0.933)	526374	120	130
	23 Bis(2-Chloroethoxy)methane	93.00	7.168	7.168	(0.951)	576760	120	130
	24 2,4-Dichlorophenol	162.00	7.325	7.325	(0.972)	425969	120	140
	25 1,2,4-Trichlorobenzene	180.00	7.447	7.447	(0.988)	492122	120	130
	26 Naphthalene	128.00	7.570	7.570	(1.005)	1461526	120	130
	27 4-Chloroaniline	127.00	7.692	7.692	(1.021)	518272	120	130
	28 Hexachlorobutadiene	225.00	7.814	7.814	(1.037)	309447	120	130
	29 4-Chloro-3-methylphenol	107.00	8.643	8.643	(1.147)	461000	120	140

Data File: /chem/nvo5.i/nvo0516.b/nvo501524.d
Report Date: 19-May-1994 10:50

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS CAL-AMT (ng)	CONCENTRATIONS ON-COL (ng)
	30 2-Methylnaphthalene	142.00	8.861	8.861	(1.176)	958019	120	130
*	31 Acenaphthene-d10	164.00	11.000	11.000	(1.000)	242433	40	
	32 Hexachlorocyclopentadiene	237.00	9.175	9.175	(0.834)	90469	120	150
	33 2,4,6-Trichlorophenol	196.00	9.446	9.446	(0.859)	297693	120	130
	34 2,4,5-Trichlorophenol	196.00	9.516	9.516	(0.865)	372099	120	130
$	35 2-Fluorobiphenyl	172.00	9.621	9.621	(0.875)	1083632	120	130
	36 2-Chloronaphthalene	162.00	9.821	9.821	(0.893)	876951	120	130
	37 2-Nitroaniline	65.00	10.066	10.066	(0.915)	322992	120	140
	38 Dimethyl phthalate	163.00	10.511	10.511	(0.956)	1054836	120	130
	39 Acenaphthylene	152.00	10.685	10.685	(0.971)	1021306	120	130
	40 2,6-Dinitrotoluene	165.00	10.616	10.616	(0.965)	257990	120	140
	41 3-Nitroaniline	138.00	10.956	10.956	(0.996)	277873	120	140
	42 Acenaphthene	153.00	11.069	11.069	(1.006)	863840	120	130
	43 2,4-Dinitrophenol	184.00	11.192	11.192	(1.017)	198510	120	160(A)
	44 4-Nitrophenol	109.00	11.436	11.436	(1.040)	166050	120	150
	45 Dibenzofuran	168.00	11.453	11.453	(1.041)	1317089	120	130
	46 2,4-Dinitrotoluene	165.00	11.488	11.488	(1.044)	322633	120	140
	47 Diethyl phthalate	149.00	12.090	12.090	(1.099)	1121740	120	130
	48 4-Chlorophenyl-phenylether	204.00	12.274	12.274	(1.116)	501213	120	130
	49 Fluorene	166.00	12.221	12.221	(1.111)	989555	120	130
	50 4-Nitroaniline	138.00	12.317	12.317	(1.120)	300654	120	140
$	51 2,4,6-Tribromophenol	330.00	12.771	12.771	(1.161)	212470	120	140
*	52 Phenanthrene-d10	188.00	14.351	14.351	(1.000)	429427	40	
	53 4,6-Dinitro-2-methylphenol	198.00	12.396	12.396	(0.864)	256293	120	150
	54 N-Nitrosodiphenylamine	169.00	12.553	12.553	(0.875)	698322	120	130
	55 4-Bromophenyl-phenylether	248.00	13.382	13.382	(0.932)	302609	120	120
	56 Hexachlorobenzene	284.00	13.469	13.469	(0.939)	365100	120	160
	57 Pentachlorophenol	266.00	13.958	13.958	(0.973)	176874	120	140
	58 Phenanthrene	178.00	14.412	14.412	(1.004)	1499470	120	130
	59 Anthracene	178.00	14.525	14.525	(1.012)	1428698	120	130
	60 Carbazole	167.00	14.962	14.962	(1.043)	1400627	120	130
	61 Di-n-butylphthalate	149.00	15.948	15.948	(1.111)	2053341	120	130
	62 Fluoranthene	202.00	17.205	17.205	(1.199)	1626041	120	130
*	63 Chrysene-d12	240.00	20.617	20.617	(1.000)	456510	40	
	64 Pyrene	202.00	17.720	17.720	(0.859)	1679913	120	130
$	65 Terphenyl-d14	244.00	18.226	18.226	(0.884)	1337630	120	130
	66 Butylbenzylphthalate	149.00	19.491	19.491	(0.945)	954643	120	130
	67 3,3'-Dichlorobenzidine	252.00	20.626	20.626	(1.000)	484964	120	120
	68 Benzo(a)anthracene	228.00	20.600	20.600	(0.999)	1557509	120	130
	69 Chrysene	228.00	20.678	20.678	(1.003)	1424453	120	130
	70 bis(2-Ethylhexyl)phthalate	149.00	20.949	20.949	(1.016)	1330218	120	130
*	71 Perylene-d12	264.00	23.742	23.742	(1.000)	473311	40	
	72 Di-n-octylphthalate	149.00	22.424	22.424	(0.944)	2186296	120	140
	73 Benzo(b)fluoranthene	252.00	22.982	22.982	(0.968)	1412676	120	130
	74 Benzo(k)fluoranthene	252.00	23.043	23.043	(0.971)	1469970	120	130
	75 Benzo(a)pyrene	252.00	23.637	23.637	(0.996)	1272788	120	130
	76 Indeno(1,2,3-cd)pyrene	276.00	25.714	25.714	(1.083)	1041081	120	130
	77 Dibenzo(a,h)anthracene	278.00	25.766	25.766	(1.085)	1034679	120	120
	78 Benzo(g,h,i)perylene	276.00	26.176	26.176	(1.103)	1084570	120	120

Data File: /chem/nvo5.i/nvo0516.b/nvo501524.d
Report Date: 19-May-1994 10:50

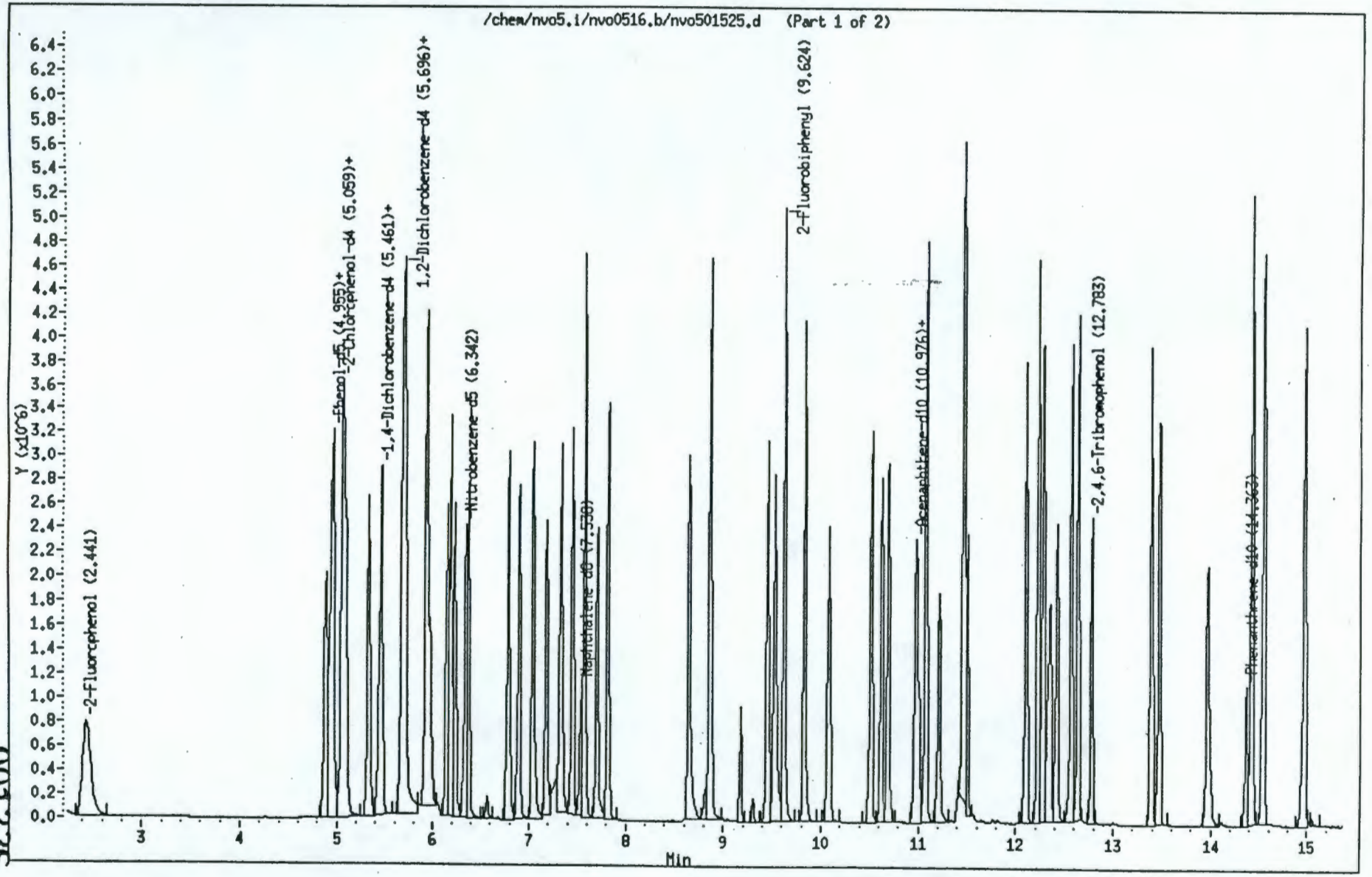
QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: /chem/nvo5.i/nvo0516.b/nvo501525.d
Date : 16-MAY-94 11:22
Client ID: SSTD160
Sample Info: SSTD160 160ng on col
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



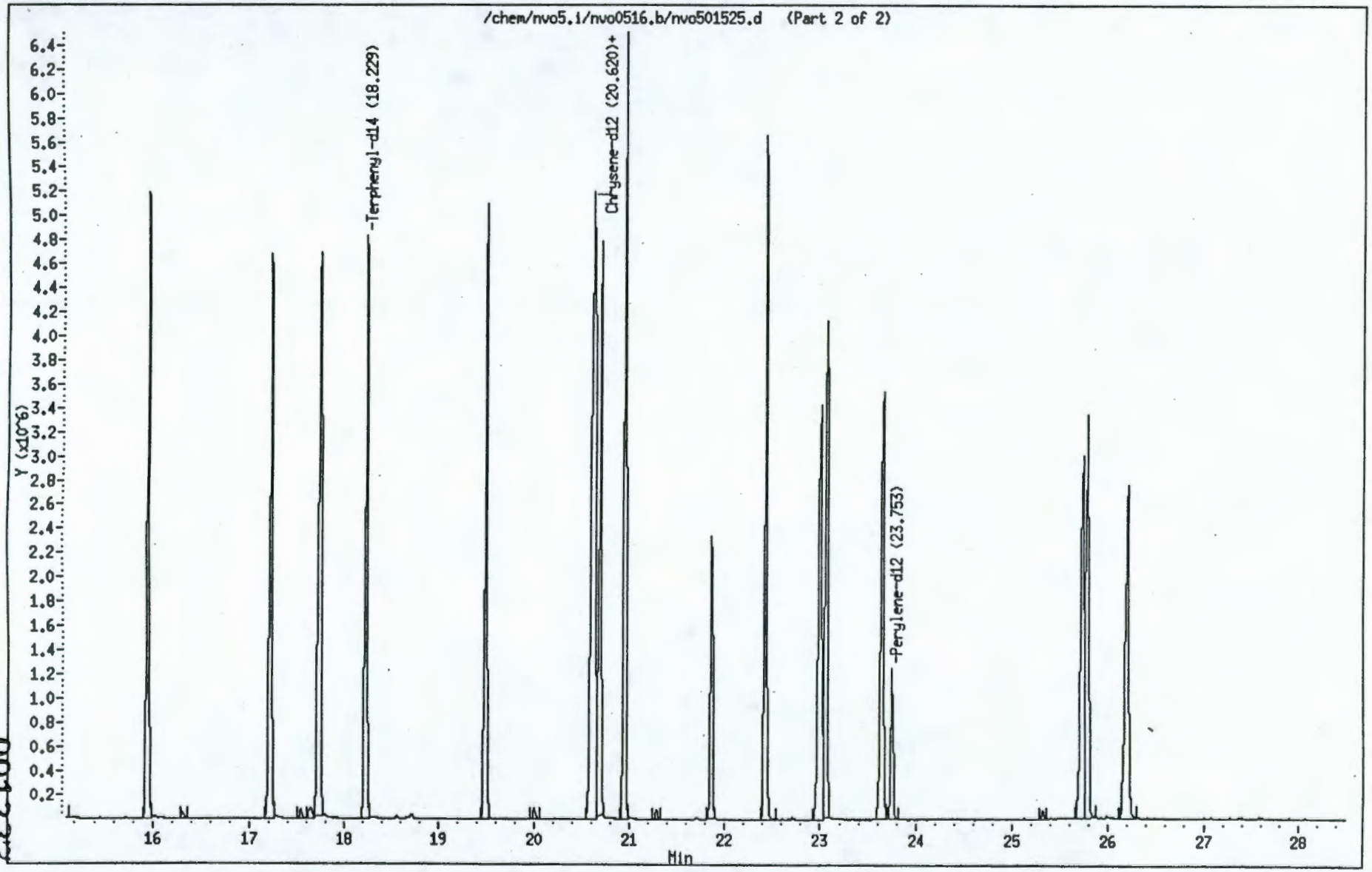
001336

9513355.2436

Data File: /chem/nvo5.i/nvo0516.b/nvo501525.d
Date : 16-MAY-94 11:22
Client ID: SSTD160
Sample Info: SSTD160 160ng on col
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



9513355.2437

0013337

9513555.2456

Data File: /chem/nvo5.i/nvo0516.b/nvo501525.d
Report Date: 19-May-1994 10:50

Environmental Science and Engineering

Semivolatile CLP 3/90 SOW

Data file : /chem/nvo5.i/nvo0516.b/nvo501525.d
Lab Smp Id: SSTD160 Client Smp ID: SSTD160
Inj Date : 16-MAY-1994 11:22 Autotune Date: 08-Feb-94 09:58
Operator : WAV/AT Inst ID: nvo5.i
Smp Info : SSTD160 160ng on col
Misc Info : 80ug/ml CLP STD 1000-1-4
Comment :
Method : /chem/nvo5.i/nvo0516.b/clp390epc.m
Meth Date : 19-May-1994 10:50 user2 Quant Type: ISTD
Cal Date : 16-MAY-94 09:32 Cal File: nvo501522.d
Als bottle: 6 Calibration Sample, Level: 5
Dil Factor: 1.000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 3.10

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS CAL-AMT (ng)	ON-COL (ng)
*	1 1,4-Dichlorobenzene-d4	152.00	5.435	5.435	(1.000)	229159	40	
$	2 2-Fluorophenol	112.00	2.441	2.441	(0.449)	1302908	160	170(A)
$	3 Phenol-d5	99.00	4.937	4.937	(0.908)	1450101	160	180(A)
	4 Phenol	94.00	4.963	4.963	(0.913)	1563741	160	180(A)
	5 Bis(2-Chloroethyl)ether	93.00	5.059	5.059	(0.931)	1325050	160	180(A)
$	6 2-Chlorophenol-d4	132.00	5.059	5.059	(0.931)	1115356	160	180(A)
	7 2-Chlorophenol	128.00	5.094	5.094	(0.937)	1301763	160	180(A)
	8 1,3-Dichlorobenzene	146.00	5.330	5.330	(0.981)	1370957	160	170(A)
	9 1,4-Dichlorobenzene	146.00	5.461	5.461	(1.005)	1401901	160	170(A)
$	10 1,2-Dichlorobenzene-d4	152.00	5.670	5.670	(1.043)	836771	160	180(A)
	11 1,2-Dichlorobenzene	146.00	5.696	5.696	(1.048)	1302387	160	170(A)
	12 2-Methylphenol	108.00	5.932	5.932	(1.092)	1163151	160	190(A)
	13 4-Methylphenol	108.00	6.185	6.185	(1.138)	1214304	160	190(A)
	14 2,2'-oxybis(1-Chloropropane)	45.00	5.932	5.932	(1.092)	1465787	160	180(A)
	15 N-Nitroso-di-n-propylamine	70.00	6.150	6.150	(1.132)	1002993	160	190(A)
	16 Hexachloroethane	117.00	6.229	6.229	(1.146)	571300	160	170(A)
*	17 Naphthalene-d8	136.00	7.538	7.538	(1.000)	794040	40	
$	18 Nitrobenzene-d5	82.00	6.342	6.342	(0.841)	1388532	160	170(A)
	19 Nitrobenzene	77.00	6.377	6.377	(0.846)	1339342	160	170(A)
	20 Isophorone	82.00	6.787	6.787	(0.900)	2454346	160	180(A)
	21 2-Nitrophenol	139.00	6.901	6.901	(0.915)	886969	160	180(A)
	22 2,4-Dimethyphenol	107.00	7.040	7.040	(0.934)	1249104	160	180(A)
	23 Bis(2-Chloroethoxy)methane	93.00	7.180	7.180	(0.953)	1369464	160	180(A)
	24 2,4-Dichlorophenol	162.00	7.328	7.328	(0.972)	1050059	160	190(A)
	25 1,2,4-Trichlorobenzene	180.00	7.451	7.451	(0.988)	1130546	160	170(A)
	26 Naphthalene	128.00	7.573	7.573	(1.005)	3374947	160	170(A)
	27 4-Chloroaniline	127.00	7.704	7.704	(1.022)	1234101	160	180(A)
	28 Hexachlorobutadiene	225.00	7.817	7.817	(1.037)	706276	160	170(A)
	29 4-Chloro-3-methylphenol	107.00	8.646	8.646	(1.147)	1127687	160	190(A)

Data File: /chem/nvo5.i/nvo0516.b/nvo501525.d
Report Date: 19-May-1994 10:50

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS CAL-AMT (ng)	CONCENTRATIONS ON-COL (ng)
	30 2-Methylnaphthalene	142.00	8.864	8.864	(1.176)	2303890	160	180(A)
*	31 Acenaphthene-d10	164.00	11.003	11.003	(1.000)	430724	40	
	32 Hexachlorocyclopentadiene	237.00	9.179	9.179	(0.834)	247754	160	210(A)
	33 2,4,6-Trichlorophenol	196.00	9.449	9.449	(0.859)	755650	160	180(A)
	34 2,4,5-Trichlorophenol	196.00	9.528	9.528	(0.866)	930709	160	180(A)
$	35 2-Fluorobiphenyl	172.00	9.624	9.624	(0.875)	2607282	160	170(A)
	36 2-Chloronaphthalene	162.00	9.833	9.833	(0.894)	2099974	160	180(A)
	37 2-Nitroaniline	65.00	10.086	10.086	(0.917)	805514	160	180(A)
	38 Dimethyl phthalate	163.00	10.523	10.523	(0.956)	2587866	160	180(A)
	39 Acenaphthylene	152.00	10.697	10.697	(0.972)	2471491	160	170(A)
	40 2,6-Dinitrotoluene	165.00	10.627	10.627	(0.966)	640620	160	180(A)
	41 3-Nitroaniline	138.00	10.976	10.976	(0.998)	686253	160	180(A)
	42 Acenaphthene	153.00	11.081	11.081	(1.007)	2079842	160	170(A)
	43 2,4-Dinitrophenol	184.00	11.212	11.212	(1.019)	564650	160	230(A)
	44 4-Nitrophenol	109.00	11.456	11.456	(1.041)	445564	160	210(A)
	45 Dibenzofuran	168.00	11.465	11.465	(1.042)	3224331	160	170(A)
	46 2,4-Dinitrotoluene	165.00	11.500	11.500	(1.045)	810084	160	190(A)
	47 Diethyl phthalate	149.00	12.111	12.111	(1.101)	2726621	160	180(A)
	48 4-Chlorophenyl-phenylether	204.00	12.286	12.286	(1.117)	1231152	160	180(A)
	49 Fluorene	166.00	12.233	12.233	(1.112)	2402661	160	170(A)
	50 4-Nitroaniline	138.00	12.355	12.355	(1.123)	745214	160	190(A)
$	51 2,4,6-Tribromophenol	330.00	12.783	12.783	(1.162)	542932	160	190(A)
*	52 Phenanthrene-d10	188.00	14.363	14.363	(1.000)	773111	40	
	53 4,6-Dinitro-2-methylphenol	198.00	12.425	12.425	(0.865)	698801	160	210(A)
	54 N-Nitrosodiphenylamine	169.00	12.574	12.574	(0.875)	1700004	160	170(A)
	55 4-Bromophenyl-phenylether	248.00	13.394	13.394	(0.933)	754996	160	170(A)
	56 Hexachlorobenzene	284.00	13.481	13.481	(0.939)	915332	160	200(A)
	57 Pentachlorophenol	266.00	13.970	13.970	(0.973)	523133	160	200(A)
	58 Phenanthrene	178.00	14.424	14.424	(1.004)	3623227	160	170(A)
	59 Anthracene	178.00	14.546	14.546	(1.013)	3496846	160	170(A)
	60 Carbazole	167.00	14.974	14.974	(1.043)	3352528	160	170(A)
	61 Di-n-butylphthalate	149.00	15.960	15.960	(1.111)	4999550	160	170(A)
	62 Fluoranthene	202.00	17.225	17.225	(1.199)	3881480	160	170(A)
*	63 Chrysene-d12	240.00	20.629	20.629	(1.000)	751686	40	
	64 Pyrene	202.00	17.740	17.740	(0.860)	3920042	160	180(A)
$	65 Terphenyl-d14	244.00	18.238	18.238	(0.884)	3096062	160	180(A)
	66 Butylbenzylphthalate	149.00	19.503	19.503	(0.945)	2154379	160	170(A)
	67 3,3'-Dichlorobenzidine	252.00	20.638	20.638	(1.000)	1071552	160	170(A)
	68 Benzo(a)anthracene	228.00	20.611	20.611	(0.999)	3524150	160	170(A)
	69 Chrysene	228.00	20.699	20.699	(1.003)	3095454	160	170(A)
	70 bis(2-Ethylhexyl)phthalate	149.00	20.952	20.952	(1.016)	2983218	160	170(A)
*	71 Perylene-d12	264.00	23.753	23.753	(1.000)	815870	40	
	72 Di-n-octylphthalate	149.00	22.427	22.427	(0.944)	4747203	160	170(A)
	73 Benzo(b)fluoranthene	252.00	23.003	23.003	(0.968)	3264624	160	180(A)
	74 Benzo(k)fluoranthene	252.00	23.064	23.064	(0.971)	3188093	160	160(A)
	75 Benzo(a)pyrene	252.00	23.657	23.657	(0.996)	2913405	160	170(A)
	76 Indeno(1,2,3-cd)pyrene	276.00	25.734	25.734	(1.083)	2712555	160	190(A)
	77 Dibenzo(a,h)anthracene	278.00	25.787	25.787	(1.086)	2675140	160	180(A)
	78 Benzo(g,h,i)perylene	276.00	26.206	26.206	(1.103)	2732078	160	180(A)

Data File: /chem/nvo5.i/nvo0516.b/nvo501525.d
Report Date: 19-May-1994 10:50

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Instrument ID: NV05 Calibration Date: 05/16/94 Time: 1349

Lab File ID: NV0501527.D Init. Calibration Date(s): 05/16/94

Init. Calibration Times: 0856 1122

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D	
Phenol	1.525	1.311	0.800	14.0	25.0	
Bis(2-Chloroethyl)ether	1.311	1.145	0.700	12.7	25.0	
2-Chlorophenol	1.274	1.068	0.800	16.1	25.0	
1,3-Dichlorobenzene	1.398	1.180	0.600	15.6	25.0	
1,4-Dichlorobenzene	1.425	1.204	0.500	15.5	25.0	
1,2-Dichlorobenzene	1.307	1.089	0.400	16.7	25.0	
2-Methylphenol	1.075	0.885	0.700	17.6	25.0	
2,2'-oxybis(1-Chloropropane)	1.430	1.270		11.2		
4-Methylphenol	1.128	0.967	0.600	14.3	25.0	
N-Nitroso-di-n-propylamine	0.933	0.791	0.500	15.2	25.0	
Hexachloroethane	0.586	0.496	0.300	15.3	25.0	
Nitrobenzene	0.396	0.357	0.200	10.0	25.0	
Isophorone	0.691	0.595	0.400	13.9	25.0	
2-Nitrophenol	0.244	0.196	0.100	19.6	25.0	
2,4-Dimethyphenol	0.350	0.290	0.200	17.2	25.0	
Bis(2-Chloroethoxy)methane	0.388	0.330	0.300	14.8	25.0	
2,4-Dichlorophenol	0.283	0.230	0.200	18.9	25.0	
1,2,4-Trichlorobenzene	0.332	0.274	0.200	17.5	25.0	
Naphthalene	0.989	0.839	0.700	15.1	25.0	
4-Chloroaniline	0.345	0.301		12.6		
Hexachlorobutadiene	0.208	0.169		18.7		
4-Chloro-3-methylphenol	0.296	0.243	0.200	17.7	25.0	
2-Methylnaphthalene	0.640	0.503	0.400	21.3	25.0	
Hexachlorocyclopentadiene	0.108	0.090		17.2		
2,4,6-Trichlorophenol	0.380	0.324	0.200	14.6	25.0	
2,4,5-Trichlorophenol	0.486	0.432	0.200	11.1	25.0	
2-Chloronaphthalene	1.110	0.925	0.800	16.7	25.0	
2-Nitroaniline	0.406	0.358		11.8		
Dimethyl phthalate	1.370	1.188		13.3		
Acenaphthylene	1.326	1.158	1.300	12.7	25.0	<-
2,6-Dinitrotoluene	0.324	0.280	0.200	13.5	25.0	
3-Nitroaniline	0.343	0.304		11.5		
Acenaphthene	1.130	0.994	0.800	12.0	25.0	
2,4-Dinitrophenol	0.227	0.161		29.0		
4-Nitrophenol	0.194	0.158		18.7		
Dibenzofuran	1.721	1.483	0.800	13.8	25.0	
2,4-Dinitrotoluene	0.402	0.342	0.200	14.8	25.0	

All other compounds must meet a minimum RRF of 0.010.

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Instrument ID: NV05 Calibration Date: 05/16/94 Time: 1349

Lab File ID: NV0501527.D Init. Calibration Date(s): 05/16/94

Init. Calibration Times: 0856 1122

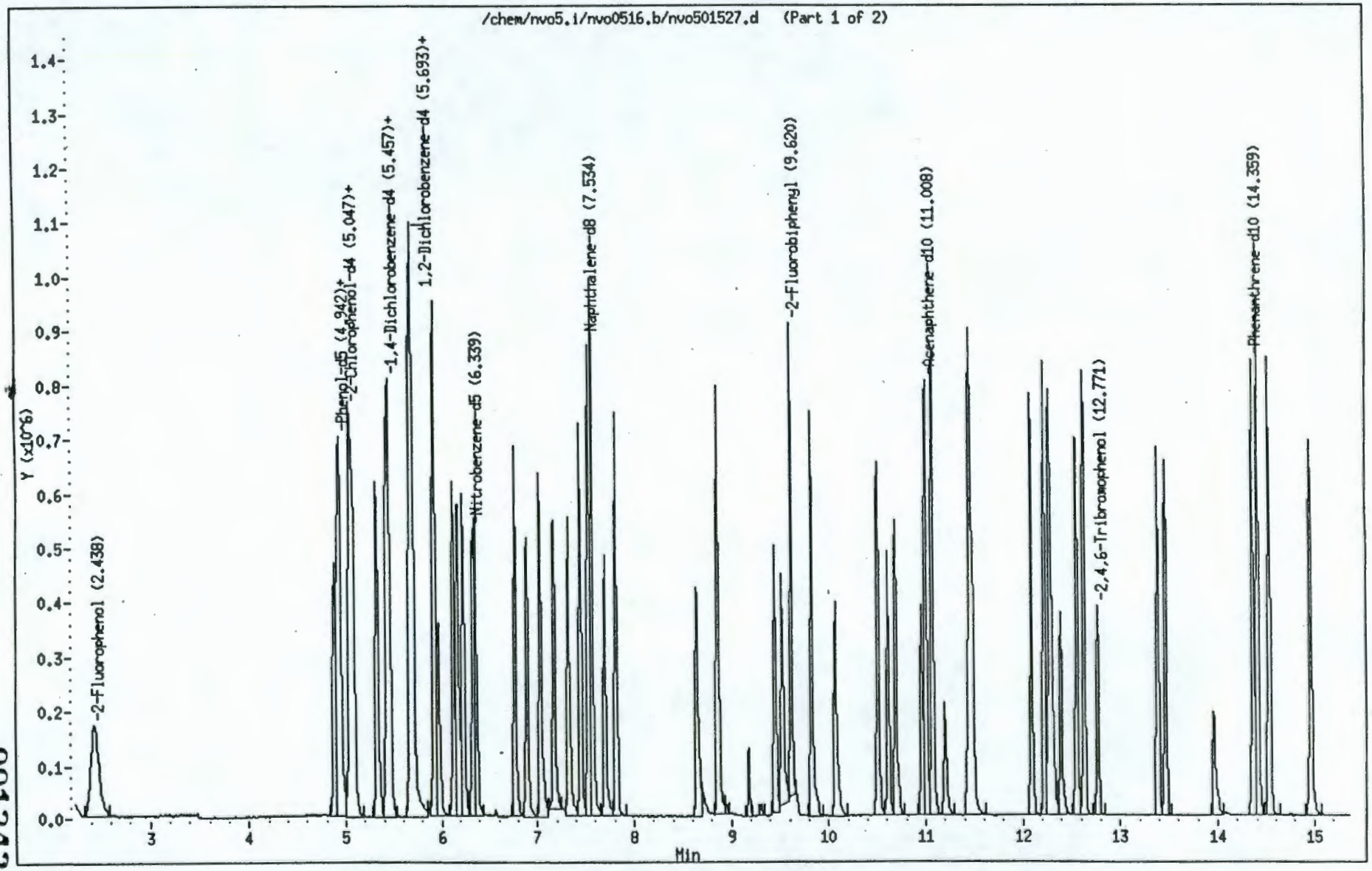
COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D	
Diethyl phthalate	1.424	1.273		10.6		
4-Chlorophenyl-phenylether	0.645	0.551	0.400	14.5	25.0	
Fluorene	1.275	1.115	0.900	12.6	25.0	
4-Nitroaniline	0.364	0.319		12.3		
4,6-Dinitro-2-methylphenol	0.175	0.143		18.0		
N-Nitrosodiphenylamine (1)	0.522	0.449		14.1		
4-Bromophenyl-phenylether	0.228	0.198	0.100	13.2	25.0	
Hexachlorobenzene	0.234	0.153	0.100	34.8	25.0	<-
Pentachlorophenol	0.133	0.081	0.050	39.3	25.0	<-
Phenanthrene	1.114	0.967	0.700	13.1	25.0	
Anthracene	1.054	0.909	0.700	13.8	25.0	
Carbazole	1.016	0.884		13.0		
Di-n-butylphthalate	1.491	1.316		11.7		
Fluoranthene	1.163	1.002	0.600	13.8	25.0	
Pyrene	1.180	1.027	0.600	13.0	25.0	
Butylbenzylphthalate	0.656	0.581		11.4		
3,3'-Dichlorobenzidine	0.343	0.314		8.6		
Benzo(a)anthracene	1.077	0.936	0.800	13.0	25.0	
Chrysene	0.992	0.878	0.700	11.5	25.0	
bis(2-Ethylhexyl)phthalate	0.921	0.804		12.8		
Di-n-octylphthalate	1.356	1.127		16.9		
Benzo(b)fluoranthene	0.910	0.758	0.700	16.7	25.0	
Benzo(k)fluoranthene	0.951	0.812	0.700	14.6	25.0	
Benzo(a)pyrene	0.829	0.691	0.700	16.6	25.0	<-
Indeno(1,2,3-cd)pyrene	0.708	0.604	0.500	14.7	25.0	
Dibenzo(a,h)anthracene	0.722	0.599	0.400	17.1	25.0	
Benzo(g,h,i)perylene	0.751	0.632	0.500	15.9	25.0	
Nitrobenzene-d5	0.400	0.347	0.200	13.3	25.0	
2-Fluorobiphenyl	1.392	1.162	0.700	16.5	25.0	
Terphenyl-d14	0.933	0.811	0.500	13.1	25.0	
Phenol-d5	1.392	1.141	0.800	18.0	25.0	
2-Fluorophenol	1.318	1.100	0.600	16.5	25.0	
2,4,6-Tribromophenol	0.259	0.223		14.0		
2-Chlorophenol-d4	1.092	0.925	0.800	15.3	25.0	
1,2-Dichlorobenzene-d4	0.831	0.703	0.400	15.4	25.0	

(1) Cannot be separated from Diphenylamine
All other compounds must meet a minimum RRF of 0.010.

Data File: /chem/nvo5.i/nvo0516.b/nvo501527.d
Date : 16-MAY-94 13:49
Client ID: SSTD50
Sample Info: SSTD50 50ng on col
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



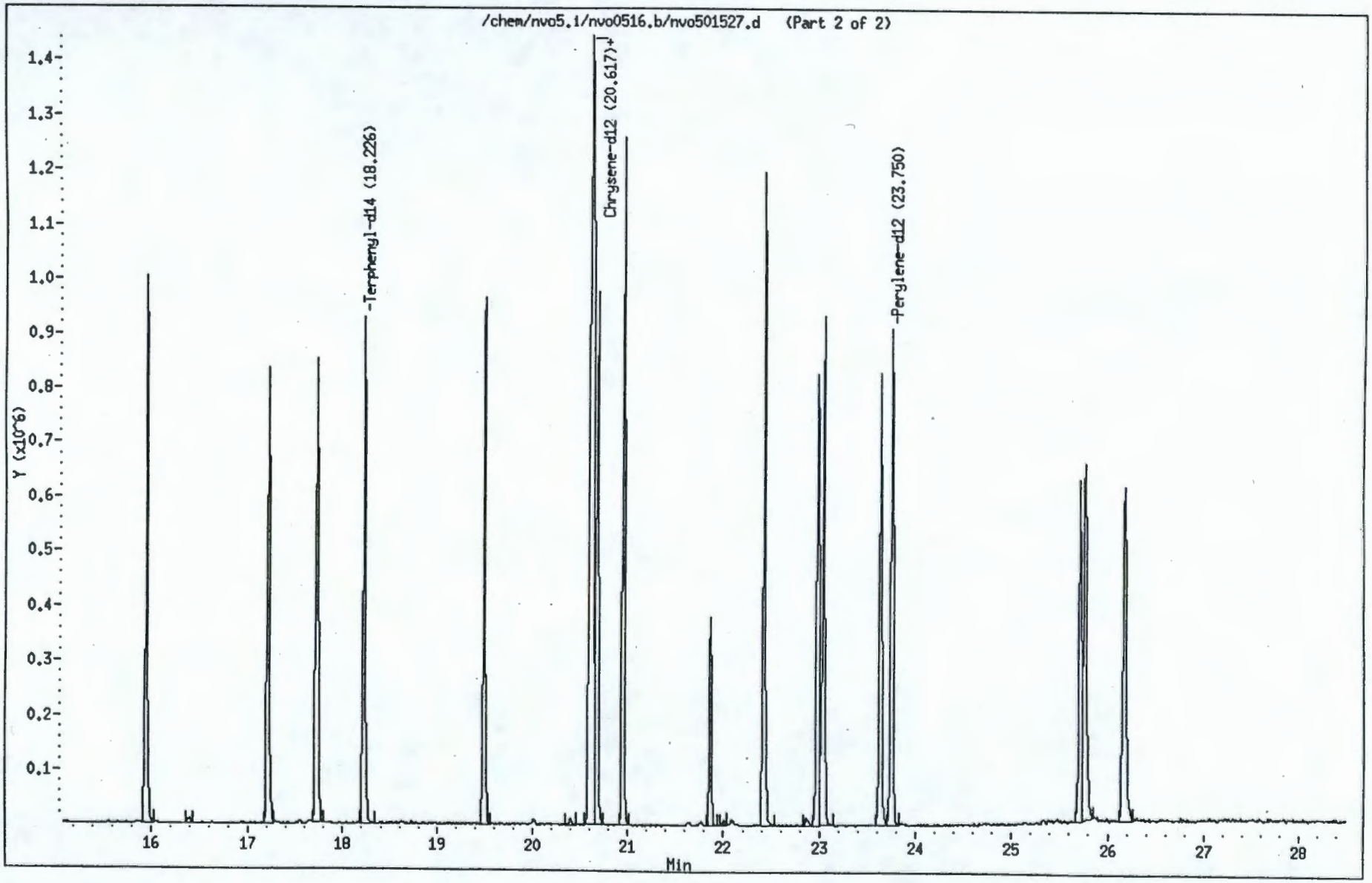
001343

9513355.2443

Data File: /chem/nvo5.i/nvo0516.b/nvo501527.d
Date : 16-MAY-94 13:49
Client ID: SSTD50
Sample Info: SSTD50 50ng on col
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



001344

9513355.2441

Data File: /chem/nvo5.i/nvo0516.b/nvo501527.d
Report Date: 19-May-1994 11:13

Environmental Science and Engineering

Semivolatile CLP 3/90 SOW

Data file : /chem/nvo5.i/nvo0516.b/nvo501527.d
Lab Smp Id: SSTD50 — Client Smp ID: SSTD50
Inj Date : 16-MAY-94 13:49 — Autotune Date: 08-Feb-94 09:58
Operator : WAV/AT — Inst ID: nvo5.i
Smp Info : SSTD50 50ng on col
Misc Info : 25ug/ml CLP STD 1000-2-1
Comment :
Method : /chem/nvo5.i/nvo0516.b/clp390epc.m
Meth Date : 19-May-1994 11:06 — Quant Type: ISTD
Cal Date : 16-MAY-94 13:49 — Cal File: nvo501527.d
Als bottle: 2 — Continuing Calibration Sample
Dil Factor: 1.000
Integrator: HP RTE — Compound Sublist: all.sub
Target Version: 3.10

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS CAL-AMT (ng)	CONCENTRATIONS ON-COL (ng)
*	1 1,4-Dichlorobenzene-d4	152.00	5.431	5.431	(1.000)	210017	40	
$	2 2-Fluorophenol	112.00	2.446	2.446	(0.450)	288708	50	42
$	3 Phenol-d5	99.00	4.925	4.925	(0.907)	299461	50	41
	4 Phenol	94.00	4.942	4.942	(0.910)	344214	50	43
	5 Bis(2-Chloroethyl)ether	93.00	5.047	5.047	(0.929)	300476	50	44
$	6 2-Chlorophenol-d4	132.00	5.056	5.056	(0.931)	242870	50	42
	7 2-Chlorophenol	128.00	5.082	5.082	(0.936)	280431	50	42
	8 1,3-Dichlorobenzene	146.00	5.326	5.326	(0.981)	309856	50	42
	9 1,4-Dichlorobenzene	146.00	5.457	5.457	(1.005)	316094	50	42
$	10 1,2-Dichlorobenzene-d4	152.00	5.676	5.676	(1.045)	184514	50	42
	11 1,2-Dichlorobenzene	146.00	5.693	5.693	(1.048)	285876	50	42
	12 2-Methylphenol	108.00	5.929	5.929	(1.092)	232423	50	41
	13 4-Methylphenol	108.00	6.182	6.182	(1.138)	253843	50	43
	14 2,2'-oxybis(1-Chloropropane)	45.00	5.929	5.929	(1.092)	333281	50	44
	15 N-Nitroso-di-n-propylamine	70.00	6.129	6.129	(1.129)	207744	50	42
	16 Hexachloroethane	117.00	6.234	6.234	(1.148)	130276	50	42
*	17 Naphthalene-d8	136.00	7.534	7.534	(1.000)	663443	40	
$	18 Nitrobenzene-d5	82.00	6.339	6.339	(0.841)	287470	50	43
	19 Nitrobenzene	77.00	6.365	6.365	(0.845)	295651	50	45
	20 Isophorone	82.00	6.775	6.775	(0.899)	493359	50	43
	21 2-Nitrophenol	139.00	6.897	6.897	(0.915)	162615	50	40
	22 2,4-Dimethyphenol	107.00	7.028	7.028	(0.933)	240707	50	41
	23 Bis(2-Chloroethoxy)methane	93.00	7.177	7.177	(0.953)	273946	50	42
	24 2,4-Dichlorophenol	162.00	7.325	7.325	(0.972)	190515	50	40
	25 1,2,4-Trichlorobenzene	180.00	7.447	7.447	(0.988)	226913	50	41
	26 Naphthalene	128.00	7.569	7.569	(1.005)	695996	50	42
	27 4-Chloroaniline	127.00	7.700	7.700	(1.022)	249817	50	44
	28 Hexachlorobutadiene	225.00	7.814	7.814	(1.037)	140330	50	41
	29 4-Chloro-3-methylphenol	107.00	8.643	8.643	(1.147)	201673	50	41(M)

Data File: /chem/nvo5.i/nvo0516.b/nvo501527.d
Report Date: 19-May-1994 11:13

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS CAL-AMT (ng)	CONCENTRATIONS ON-COL (ng)
	30 2-Methylnaphthalene	142.00	8.861	8.861	(1.176)	417451	50	39
*	31 Acenaphthene-d10	164.00	11.008	11.008	(1.000)	312900	40	
	32 Hexachlorocyclopentadiene	237.00	9.184	9.184	(0.834)	35056	50	41
	33 2,4,6-Trichlorophenol	196.00	9.454	9.454	(0.859)	126830	50	43
	34 2,4,5-Trichlorophenol	196.00	9.524	9.524	(0.865)	168861	50	44
$	35 2-Fluorobiphenyl	172.00	9.620	9.620	(0.874)	454412	50	42
	36 2-Chloronaphthalene	162.00	9.830	9.830	(0.893)	361848	50	42
	37 2-Nitroaniline	65.00	10.074	10.074	(0.915)	140098	50	44
	38 Dimethyl phthalate	163.00	10.510	10.510	(0.955)	464832	50	43
	39 Acenaphthylene	152.00	10.694	10.694	(0.971)	452924	50	44
	40 2,6-Dinitrotoluene	165.00	10.615	10.615	(0.964)	109413	50	43
	41 3-Nitroaniline	138.00	10.956	10.956	(0.995)	118791	50	44
	42 Acenaphthene	153.00	11.078	11.078	(1.006)	388620	50	44
	43 2,4-Dinitrophenol	184.00	11.200	11.200	(1.017)	63057	50	36
	44 4-Nitrophenol	109.00	11.436	11.436	(1.039)	61811	50	41
	45 Dibenzofuran	168.00	11.462	11.462	(1.041)	580125	50	43
	46 2,4-Dinitrotoluene	165.00	11.488	11.488	(1.044)	133808	50	42
	47 Diethyl phthalate	149.00	12.090	12.090	(1.098)	497886	50	45
	48 4-Chlorophenyl-phenylether	204.00	12.282	12.282	(1.116)	215600	50	43
	49 Fluorene	166.00	12.221	12.221	(1.110)	436076	50	44
	50 4-Nitroaniline	138.00	12.308	12.308	(1.118)	124719	50	44
$	51 2,4,6-Tribromophenol	330.00	12.771	12.771	(1.160)	87310	50	43
*	52 Phenanthrene-d10	188.00	14.359	14.359	(1.000)	536257	40	
	53 4,6-Dinitro-2-methylphenol	198.00	12.396	12.396	(0.863)	96145	50	41
	54 N-Nitrosodiphenylamine	169.00	12.561	12.561	(0.875)	300652	50	43
	55 4-Bromophenyl-phenylether	248.00	13.391	13.391	(0.933)	132519	50	43
	56 Hexachlorobenzene	284.00	13.469	13.469	(0.938)	102271	50	33
	57 Pentachlorophenol	266.00	13.967	13.967	(0.973)	54024	50	30
	58 Phenanthrene	178.00	14.412	14.412	(1.004)	648513	50	43
	59 Anthracene	178.00	14.534	14.534	(1.012)	609272	50	43
	60 Carbazole	167.00	14.961	14.961	(1.042)	592854	50	44
	61 Di-n-butylphthalate	149.00	15.948	15.948	(1.111)	882420	50	44
	62 Fluoranthene	202.00	17.213	17.213	(1.199)	671911	50	43
*	63 Chrysene-d12	240.00	20.617	20.617	(1.000)	541808	40	
	64 Pyrene	202.00	17.728	17.728	(0.860)	695296	50	43
$	65 Terphenyl-d14	244.00	18.226	18.226	(0.884)	549271	50	43
	66 Butylbenzylphthalate	149.00	19.500	19.500	(0.946)	393358	50	44
	67 3,3'-Dichlorobenzidine	252.00	20.634	20.634	(1.001)	212476	50	46
	68 Benzo(a)anthracene	228.00	20.599	20.599	(0.999)	634132	50	43
	69 Chrysene	228.00	20.678	20.678	(1.003)	594763	50	44
	70 bis(2-Ethylhexyl)phthalate	149.00	20.948	20.948	(1.016)	544194	50	44
*	71 Perylene-d12	264.00	23.750	23.750	(1.000)	660654	40	
	72 Di-n-octylphthalate	149.00	22.423	22.423	(0.944)	930820	50	42
	73 Benzo(b)fluoranthene	252.00	22.982	22.982	(0.968)	625880	50	42(H)
	74 Benzo(k)fluoranthene	252.00	23.043	23.043	(0.970)	670564	50	43
	75 Benzo(a)pyrene	252.00	23.636	23.636	(0.995)	570964	50	42
	76 Indeno(1,2,3-cd)pyrene	276.00	25.714	25.714	(1.083)	498806	50	43
	77 Dibenzo(a,h)anthracene	278.00	25.766	25.766	(1.085)	494512	50	41
	78 Benzo(g,h,i)perylene	276.00	26.176	26.176	(1.102)	521899	50	42

Data File: /chem/nvo5.i/nvo0516.b/nvo501527.d
Report Date: 19-May-1994 11:13

QC Flag Legend

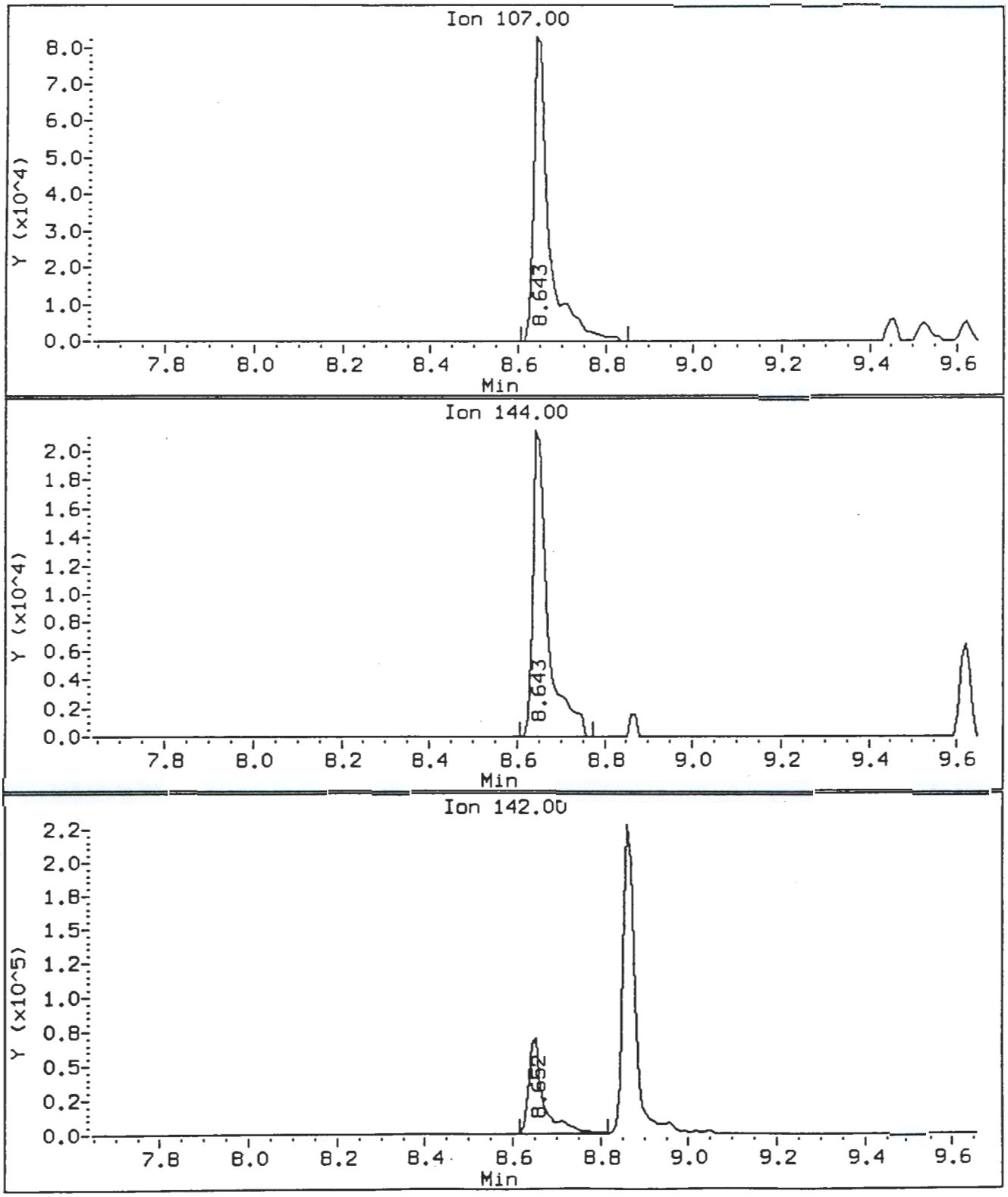
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

9513355.2448

Data File: /chem/nvo5.i/nvo0516.b/nvo501527.d
Injection Date: 16-MAY-94 13:49
Instrument: nvo5.i
Client Sample ID: SSTD50

Compound: 4-Chloro-3-methylphenol
CAS Number: 59-50-7
Concentration: 41.148

MANUAL INTEGRATION
5/19/94
AT



9513355.2449

RAW QC DATA

Data File: /chem/nvo5.i/nvo0516.b/nvo501520.d

Date : 16-MAY-94 08:32

Client ID: DFTPP

Instrument: nvo5.i

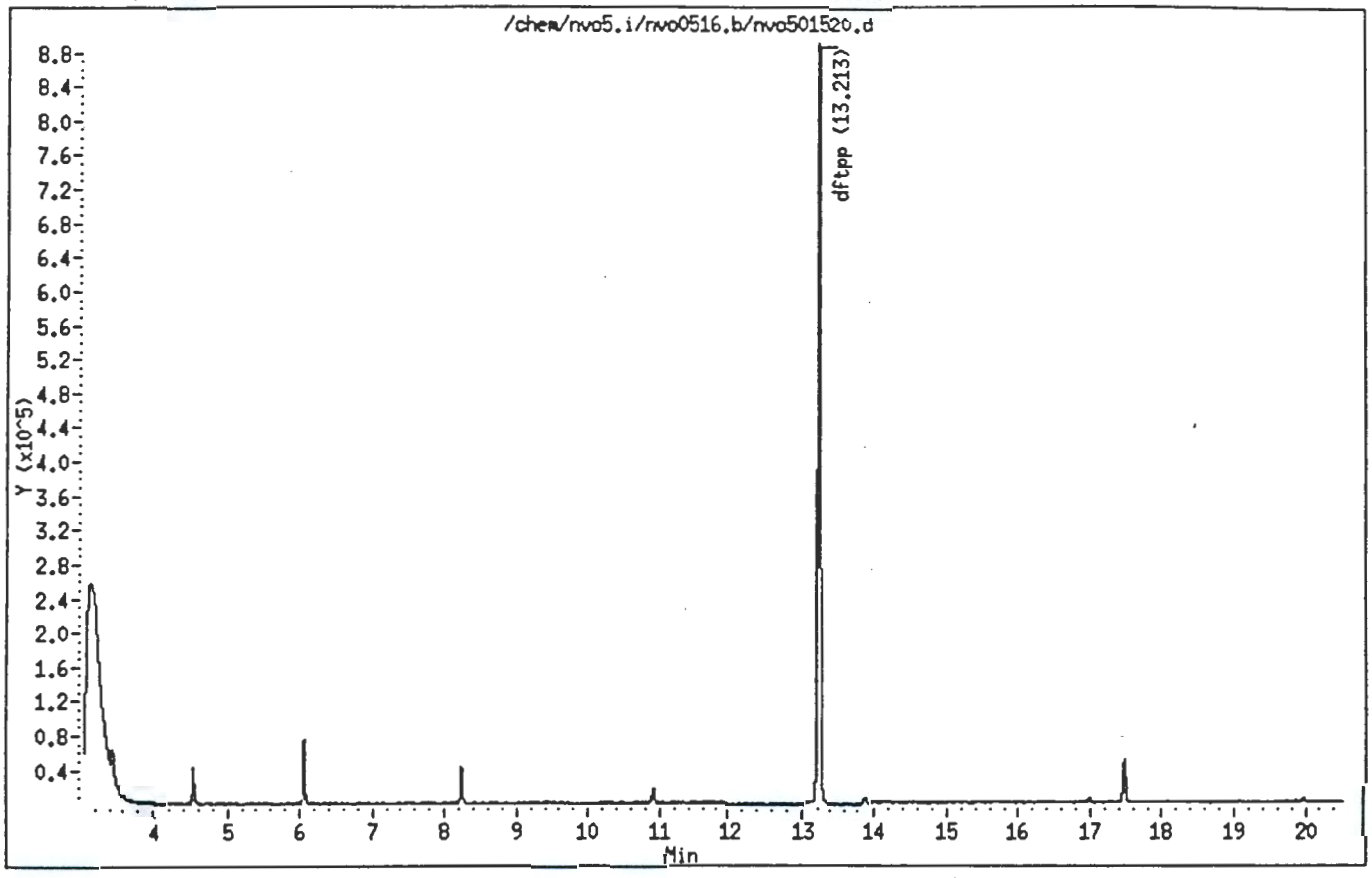
Sample Info: DFTPP

Volume Injected (uL): 1.0

Operator: WAV/AT

Column phase: DB-5

Column diameter: 0.25



9513355.2451

Data File: /chem/nvo5.i/nvo0516.b/nvo501520.d

Date : 16-MAY-94 08:32

Client ID: DFTPP

Instrument: nvo5.i

Sample Info: DFTPP

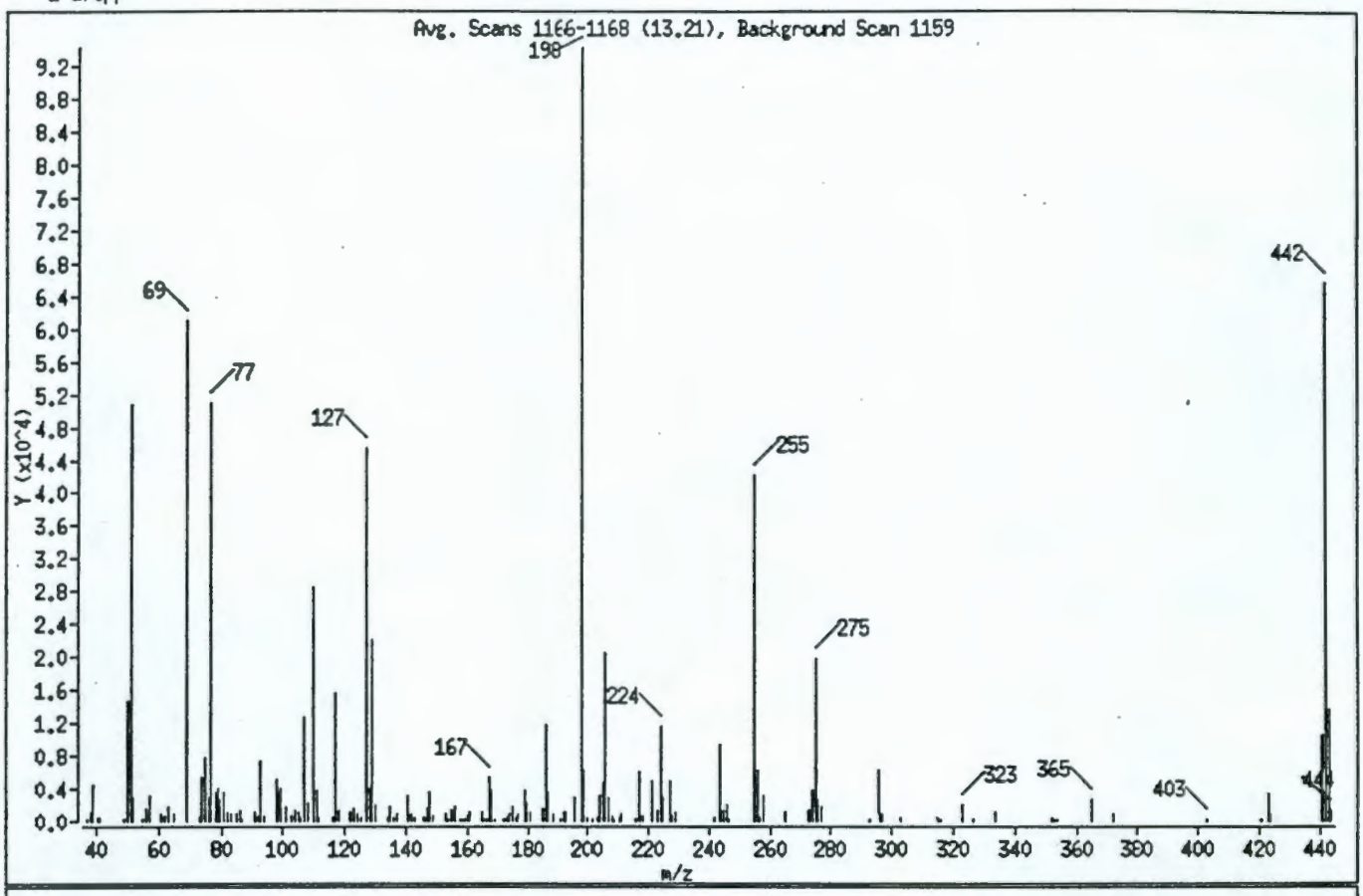
Volume Injected (uL): 1.0

Operator: WAY/AT

Column phase: DB-5

Column diameter: 0.25

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	30.00 - 80.00% of mass 198	53.92
68	Less than 2.00% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	64.86
70	Less than 2.00% of mass 69	0.00 (0.00)
127	25.00 - 75.00% of mass 198	48.18
197	Less than 1.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.58
275	10.00 - 30.00% of mass 198	21.07
365	Greater than 0.75% of mass 198	2.86
441	Present, but less than mass 443	11.19
442	40.00 - 110.00% of mass 198	69.61
443	15.00 - 24.00% of mass 442	14.31 (20.56)

Data File: /chem/nvo5.i/nvo0516.b/nvo501520.d

Date : 16-MAY-94 08:32

Client ID: DFTPP

Instrument: nvo5.i

Sample Info: DFTPP

Volume Injected (uL): 1.0

Operator: WAV/AT

Column phase: DB-5

Column diameter: 0.25

Data File: nvo501520.d

Spectrum : Avg. Scans 1166-1168 (13.21), Background Scan 1159

Largest m/z: 197.90

Number of peaks: 159

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.80	177	105.00	1140	167.90	3709	227.80	690
37.90	1051	105.90	453	168.90	212	228.90	1045
39.00	4495	106.95	12633	171.75	182	241.95	554
39.90	353	107.95	2145	172.95	545	243.90	9360
40.90	365	109.95	28616	173.95	918	244.90	1368
48.95	317	110.95	3852	174.95	1793	245.80	1905
49.95	14704	111.85	520	175.95	395	246.80	171
50.90	50816	115.90	427	176.85	925	254.95	42048
51.90	2878	116.90	15553	178.95	3733	255.85	6171
54.90	168	117.90	1230	179.90	2327	256.95	357
55.90	1603	121.90	1157	180.90	1184	257.85	3044
56.90	3157	122.90	1522	184.90	1655	264.80	1058
60.95	808	123.85	848	186.00	11813	272.85	1447
61.95	728	124.95	456	187.00	3517	273.95	3682
62.95	1838	126.95	45408	188.85	786	274.95	19856
64.95	835	127.95	3929	190.95	194	275.90	2580
68.90	61120	128.95	22016	191.95	1206	276.90	1796
73.00	431	129.85	1965	192.95	1178	292.90	196
73.90	5274	133.80	409	195.90	2975	295.90	6269
74.85	7861	134.90	1727	197.90	94248	297.00	879
75.95	2987	136.00	503	198.90	6204	302.85	403
76.95	50952	136.90	953	199.90	388	314.90	461
78.05	3654	140.85	3123	201.40	185	315.85	188
78.95	4072	141.95	803	203.10	442	322.85	1946
79.85	2743	142.75	469	203.85	3089	326.80	206
80.95	3476	145.85	384	204.85	4717	333.85	1133
81.95	1022	146.95	1469	205.95	20528	351.95	417
82.90	867	147.90	3545	206.95	2810	352.85	177
85.00	872	148.80	678	207.85	761	353.85	189
85.90	1339	152.90	843	208.85	172	364.85	2695
86.90	196	153.80	200	210.35	432	371.90	883
90.85	1167	154.90	1261	211.05	895	402.95	183
92.05	716	155.85	1890	215.80	221	420.80	167
92.85	7288	157.85	171	216.90	6052	422.90	3425
93.85	568	158.95	167	217.90	563	423.90	794

Data File: /chem/nvo5.i/nvo0516.b/nvo501520.d

Date : 16-MAY-94 08:32

Client ID: DFTPP

Instrument: nvo5.i

Sample Info: DFTPP

Volume Injected (uL): 1.0

Operator: WAV/AT

Column phase: DB-5

Column diameter: 0.25

Data File: nvo501520.d

Spectrum : Avg. Scans 1166-1168 (13.21), Background Scan 1159

Largest m/z: 197.90

Number of peaks: 159

m/z	Y	m/z	Y	m/z	Y	m/z	Y
97.95	5050	159.95	772	220.95	4846	441.00	10542
98.90	4087	160.85	1191	222.85	1278	441.90	65608
100.90	1890	164.90	1074	223.95	11551	443.00	13489
102.90	620	166.00	306	224.95	3006	443.95	1275
104.00	1415	167.00	5298	226.85	4841		

9513355.2451

Data File: /chem/nvo5.i/nvo0516.b/nvo501526.d

Date : 16-MAY-94 13:26

Client ID: DFTPP

Instrument: nvo5.i

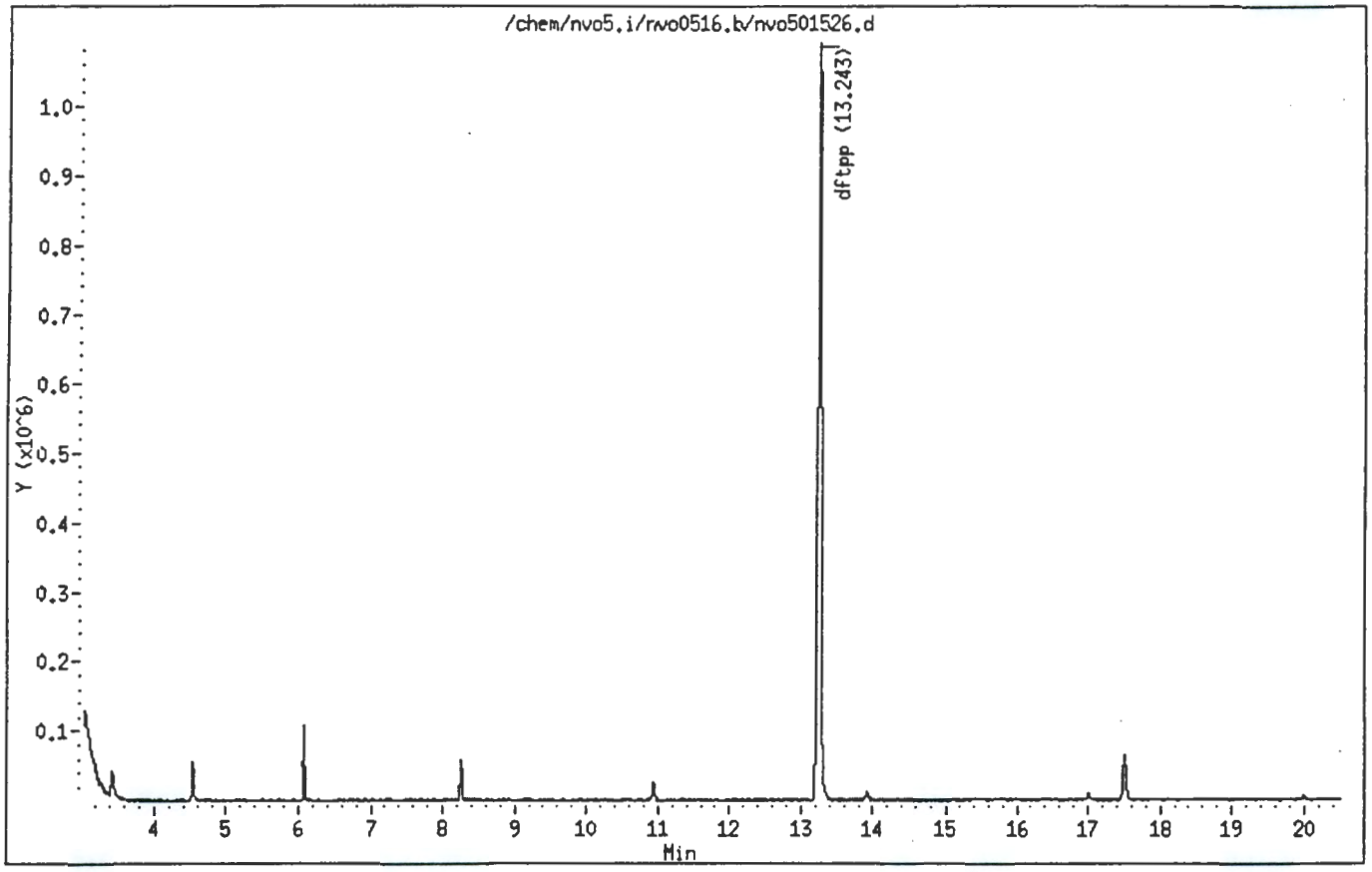
Sample Info: DFTPP

Volume Injected (uL): 1.0

Operator: WAV/AT

Column phase: DB-5

Column diameter: 0.25



Data File: /chem/nvo5.i/nvo0516.b/nvo501526.d

Date : 16-MAY-94 13:26

Client ID: DFTPP

Instrument: nvo5.i

Sample Info: DFTPP

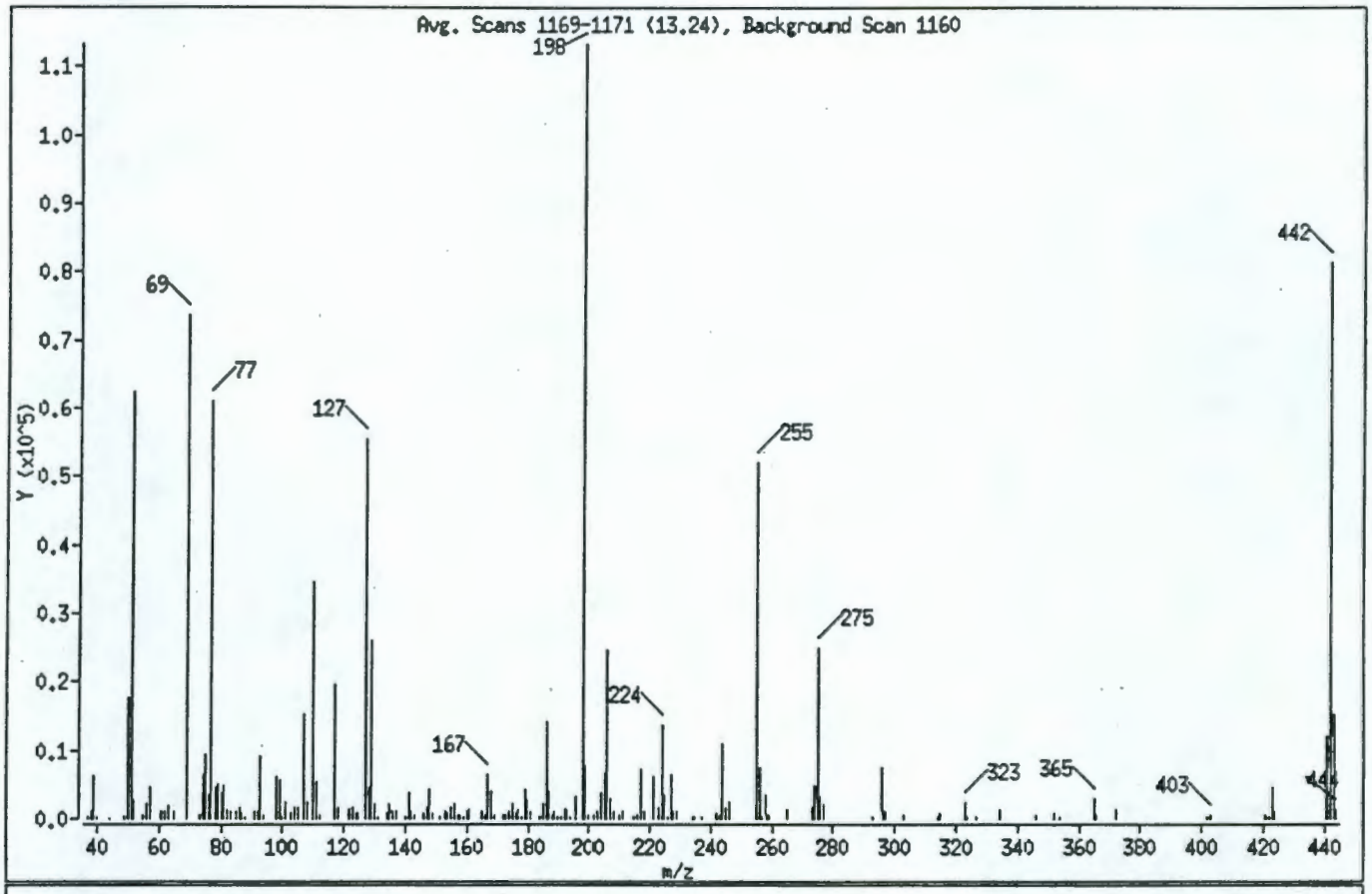
Volume Injected (uL): 1.0

Operator: WAV/AT

Column phase: DB-5

Column diameter: 0.25

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	30.00 - 80.00% of mass 198	55.07
68	Less than 2.00% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	64.90
70	Less than 2.00% of mass 69	0.00 (0.00)
127	25.00 - 75.00% of mass 198	48.97
197	Less than 1.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.86
275	10.00 - 30.00% of mass 198	21.92
365	Greater than 0.75% of mass 198	2.60
441	Present, but less than mass 443	10.65
442	40.00 - 110.00% of mass 198	71.57
443	15.00 - 24.00% of mass 442	13.59 (18.99)

Data File: /chem/nvo5.i/nvo0516.b/nvo501526.d

Date : 16-MAY-94 13:26

Client ID: DFTPP

Instrument: nvo5.i

Sample Info: DFTPP

Volume Injected (uL): 1.0

Operator: WAV/AT

Column phase: DB-5

Column diameter: 0.25

Data File: nvo501526.d

Spectrum : Avg. Scans 1169-1171 (13.24), Background Scan 1160

Largest m/z: 197.90

Number of peaks: 177

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.80	382	109.95	34576	175.95	842	241.85	801
38.00	1193	110.95	5291	176.95	1276	242.95	566
39.00	6223	111.95	585	177.95	183	243.90	10893
40.00	209	116.90	19576	178.95	4321	244.90	1487
43.95	39	117.90	1546	179.90	2778	245.90	2329
48.95	258	121.90	1284	180.90	1169	254.95	52016
49.95	17672	122.90	1739	183.90	188	255.95	7436
50.90	62416	123.85	871	184.90	2204	256.85	354
51.90	2808	124.85	740	186.00	14095	257.85	3428
54.90	408	126.95	55504	186.90	4011	258.95	418
55.90	2185	128.05	4659	187.85	603	264.90	1395
56.90	4449	128.95	26112	188.85	942	272.95	1615
60.85	1001	129.95	2226	189.85	182	273.95	4712
61.85	959	130.85	369	190.75	364	274.95	24848
62.95	1959	133.90	822	191.95	1357	275.90	3310
64.95	1047	134.90	2119	192.95	1416	276.90	2036
68.90	73560	135.90	987	193.95	344	292.80	210
73.00	540	136.90	1122	195.90	3297	295.90	7449
74.00	6423	140.05	212	197.90	113344	296.90	1042
74.85	9306	140.95	3671	198.90	7776	302.85	653
76.05	3359	141.95	974	199.90	563	314.00	171
76.95	60968	142.85	535	201.30	541	314.90	825
77.95	4480	145.75	848	203.00	1204	322.95	2371
78.95	5133	146.95	1612	203.95	3732	323.80	202
79.95	3635	147.90	4224	204.95	6792	326.80	205
80.95	4721	148.90	872	205.95	24568	333.95	1468
81.95	1237	151.10	167	206.95	3024	345.80	454
82.90	1075	152.90	1027	207.95	987	351.95	678
84.90	1096	153.90	712	210.15	460	353.85	395
85.90	1645	154.90	1673	210.95	990	364.85	2943
86.90	754	155.95	2239	214.90	177	365.75	418
87.90	173	156.95	475	216.00	465	371.90	1291
90.95	1171	157.75	448	216.90	7184	401.85	178
91.95	1200	158.85	212	217.90	1155	402.95	441
92.85	9103	159.95	1065	220.95	6183	420.80	577

Data File: /chem/nvo5.i/nvo0516.b/nvo501526.d

Date : 16-MAY-94 13:26

Client ID: DFTPP

Instrument: nvo5.i

Sample Info: DFTPP

Volume Injected (uL): 1.0

Operator: WAV/AT

Column phase: DB-5

Column diameter: 0.25

Data File: nvo501526.d

Spectrum : Avg. Scans 1169-1171 (13.24), Background Scan 1160

Largest m/z: 197.90

Number of peaks: 177

m/z	Y	m/z	Y	m/z	Y	m/z	Y
93.95	439	160.85	1280	222.85	1706	421.90	382
97.95	6169	164.90	1147	223.95	13745	422.90	4518
98.90	5632	165.90	571	224.95	3526	423.90	1009
99.90	342	166.90	6557	226.05	167	441.00	12066
100.90	2285	167.90	4032	226.85	6511	442.00	81120
102.90	901	169.00	414	227.80	959	442.90	15404
103.90	1711	171.85	552	228.90	1124	443.95	1315
104.90	1554	172.85	648	233.90	225		
106.90	15322	173.95	1084	234.90	199		
107.95	2387	174.95	2012	236.95	205		

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKS1

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Matrix: (soil/water) SOIL Lab Sample ID: SBLKS1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NV0501528.D

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

% Moisture: 0 decanted: (Y/N) N Date Extracted: 05/14/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 05/16/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

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-Dimethyphenol	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	800	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	800	U
131-11-3	Dimethyl phthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U
99-09-2	3-Nitroaniline	800	U
83-32-9	Acenaphthene	330	U

9513355.2450

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKS1

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Matrix: (soil/water) SOIL Lab Sample ID: SBLKS1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NV0501528.D

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

% Moisture: 0 decanted: (Y/N) N Date Extracted:05/14/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 05/16/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	800	U
100-02-7	4-Nitrophenol	800	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethyl phthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	800	U
534-52-1	4,6-Dinitro-2-methylphenol	800	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	800	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	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	130	J
117-84-0	Di-n-octylphthalate	330	U
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene	330	U
53-70-3	Dibenzo(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

(1) - Cannot be separated from Diphenylamine

9513355.2461

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLKS1

Lab Name: ESE Contract: NA

Lab Code: ESE Case No.: NA SAS No.: NA SDG No.: 49285

Matrix: (soil/water) SOIL Lab Sample ID: SBLKS1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NV0501528.D

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

% Moisture: 0 decanted: (Y/N) N Date Extracted:05/14/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/16/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

Number TICs found: 4

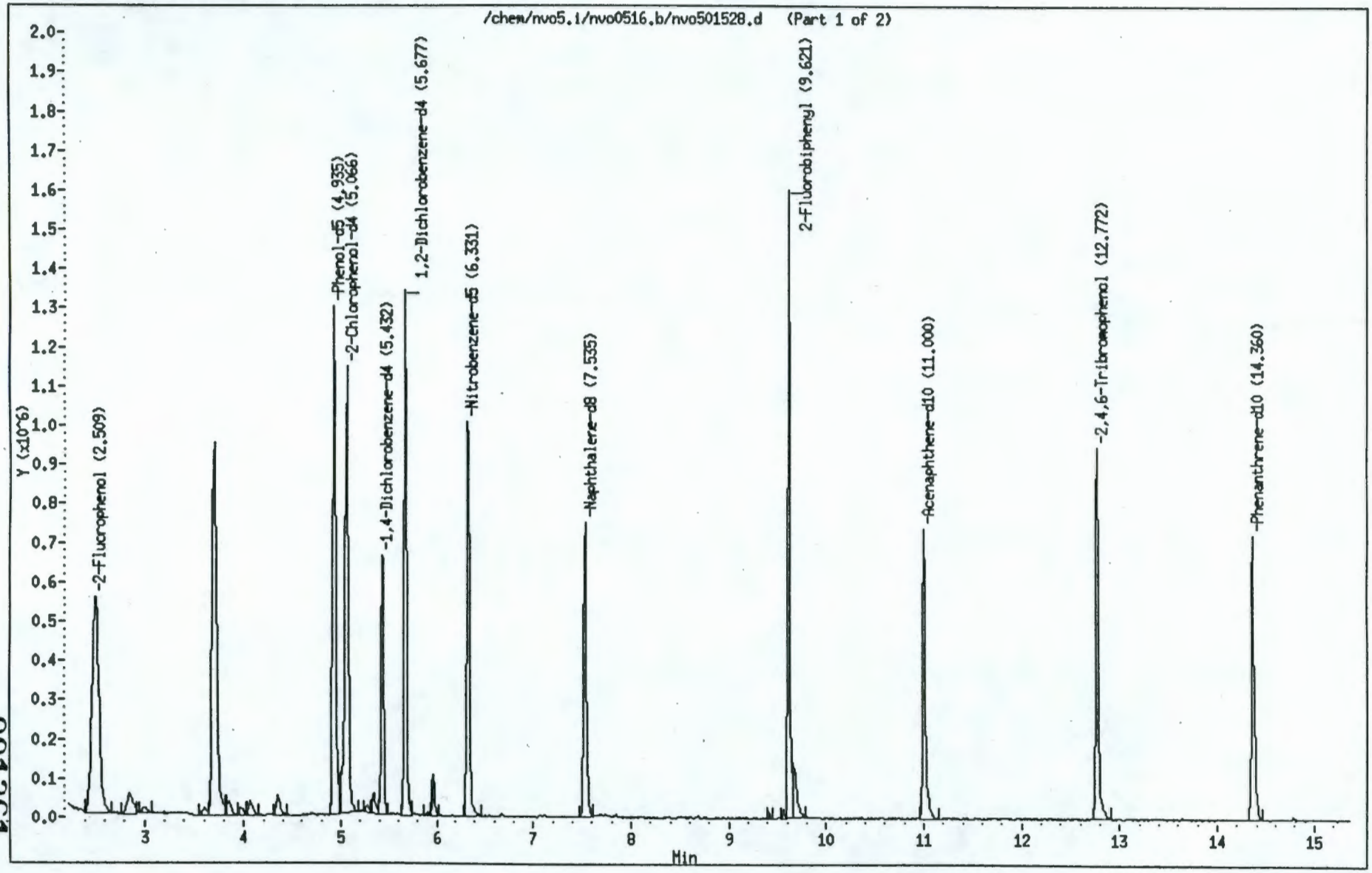
CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown Aldol Condensate	2.858	120	JA
2.	Unknown Aldol Condensate	3.713	1600	JA
3.	Unknown Aldol Condensate	4.350	70	JA
4.	Unknown	9.674	190	J
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Data File: /chem/nvo5.i/nvo0516.b/nvo501528.d
Date : 16-MAY-1994 14:44
Client ID: SBLKS1
Sample Info: SBLKS1
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



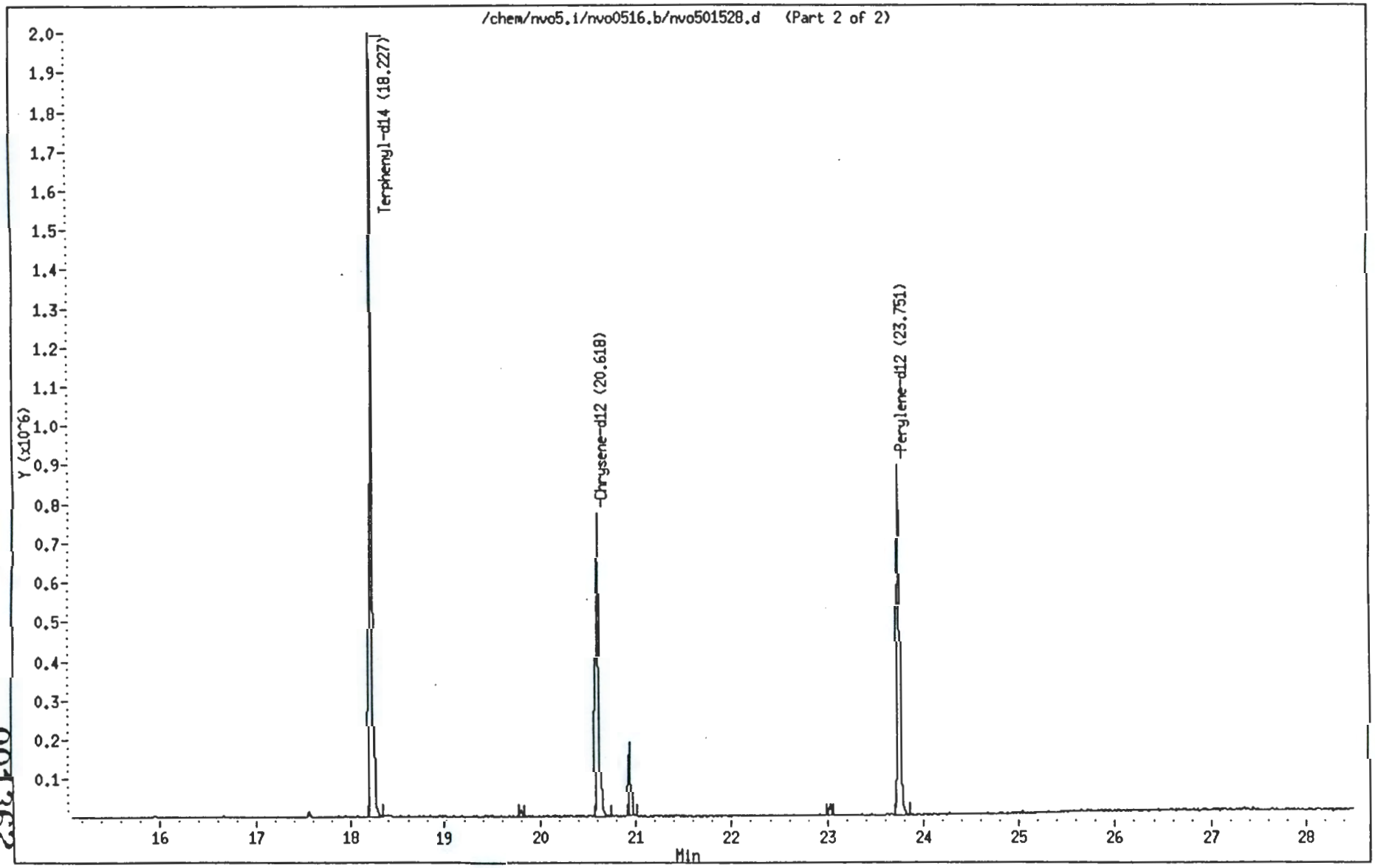
001361

95133552461

Data File: /chem/nvo5.i/nvo0516.b/nvo501528.d
Date : 16-MAY-1994 14:44
Client ID: SBLKS1
Sample Info: SBLKS1
Volume Injected (uL): 2.0
Column phase: DB-5MS

Instrument: nvo5.i

Operator: WAV/AT
Column diameter: 0.25



001362

061355.2462

Data File: /chem/nvo5.i/nvo0516.b/nvo501528.d
Report Date: 19-May-1994 14:05

Environmental Science and Engineering

Semivolatile CLP 3/90 SOW

Data file : /chem/nvo5.i/nvo0516.b/nvo501528.d
Lab Smp Id: SBLKS1 — Client Smp ID: SBLKS1
Inj Date : 16-MAY-1994 14:44 — Autotune Date: 08-Feb-94 09:58
Operator : WAV/AT — Inst ID: nvo5.i
Smp Info : SBLKS1
Misc Info : CDM Hanford N.Slope - Soil
Comment :
Method : /chem/nvo5.i/nvo0516.b/clp390epc.m
Meth Date : 19-May-1994 11:06 — Quant Type: ISTD
Cal Date : 16-MAY-94 13:49 — Cal File: nvo501527.d
Als bottle: 1 — QC Sample: BLANK
Dil Factor: 1.000
Integrator: HP RTE — Compound Sublist: all.sub
Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug/Kg)
* 1 1,4-Dichlorobenzene-d4	152.00	5.441	5.431	(1.000)	198562	40	
$ 2 2-Fluorophenol	112.00	2.509	2.446	(0.461)	706725	130	2200
$ 3 Phenol-d5	99.00	4.935	4.925	(0.907)	805563	140	2400
$ 6 2-Chlorophenol-d4	132.00	5.066	5.056	(0.931)	618379	130	2200
$ 10 1,2-Dichlorobenzene-d4	152.00	5.677	5.676	(1.043)	334819	96	1600
* 17 Naphthalene-d8	136.00	7.535	7.534	(1.000)	577811	40	
$ 18 Nitrobenzene-d5	82.00	6.331	6.339	(0.840)	600985	120	2000(R)
* 31 Acenaphthene-d10	164.00	11.000	11.008	(1.000)	314352	40	
$ 35 2-Fluorobiphenyl	172.00	9.621	9.620	(0.875)	819482	90	1500
$ 51 2,4,6-Tribromophenol	330.00	12.772	12.771	(1.161)	224774	130	2100
* 52 Phenanthrene-d10	188.00	14.360	14.359	(1.000)	538107	40	
* 63 Chrysene-d12	240.00	20.618	20.617	(1.000)	550394	40	
$ 65 Terphenyl-d14	244.00	18.227	18.226	(0.884)	1259084	110	1900
70 bis(2-Ethylhexyl)phthalate	149.00	20.950	20.948	(1.016)	86146	8	130(a)
* 71 Perylene-d12	264.00	23.751	23.750	(1.000)	702142	40	

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
R - Spike/Surrogate failed recovery limits.

Data File: /chem/nvo5.i/nvo0516.b/nvo501528.d

Date : 16-MAY-1994 14:44

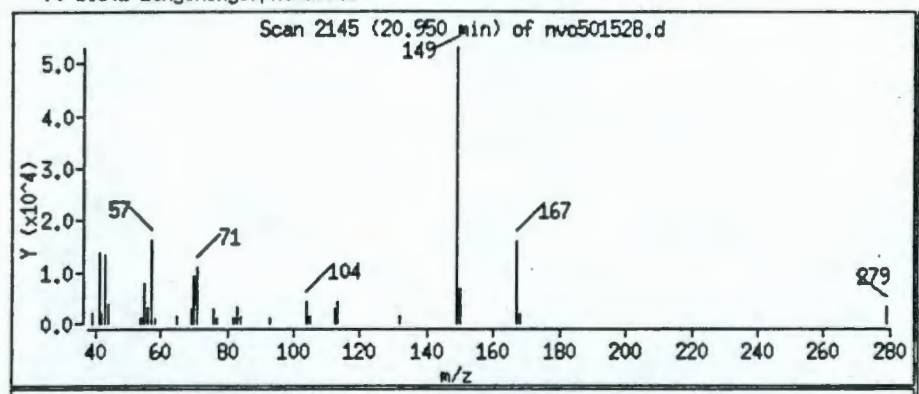
Client ID: SBLKS1 Instrument: nvo5.i

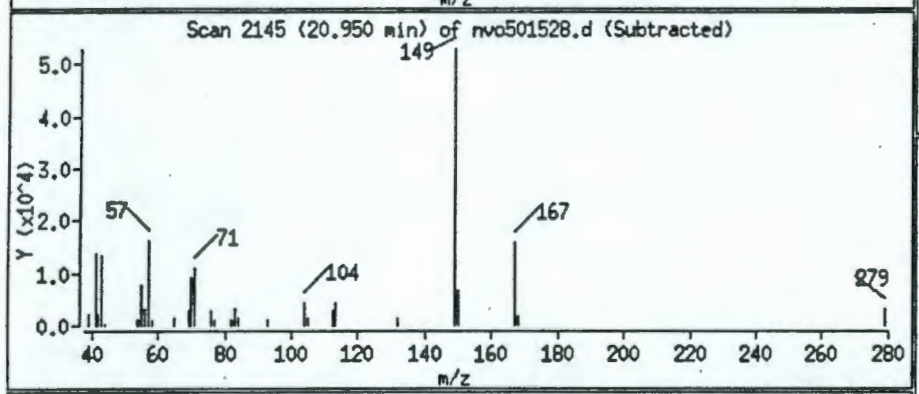
Sample Info: SBLKS1

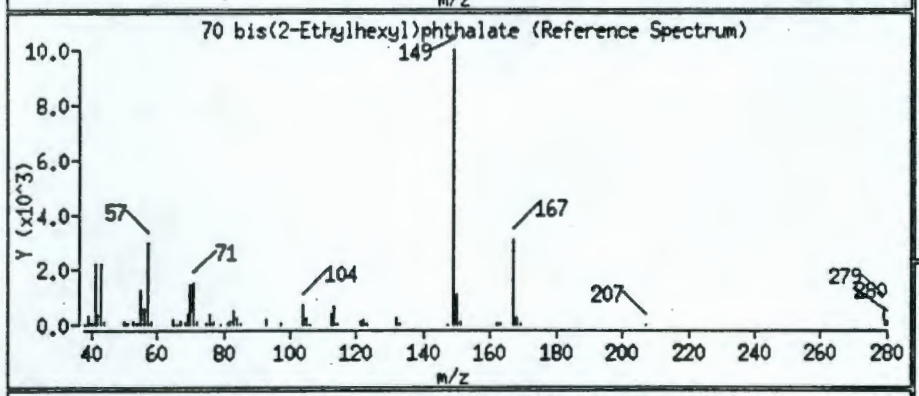
Volume Injected (uL): 2.0 Operator: WAV/AT

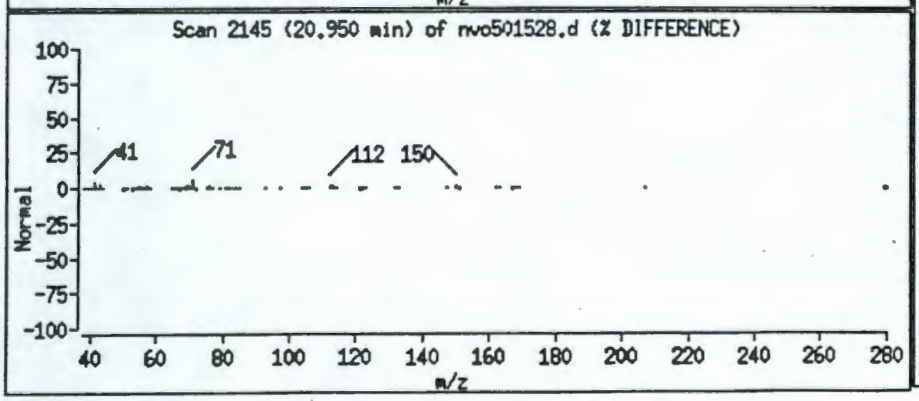
Column phase: DB-5MS Column diameter: 0.25

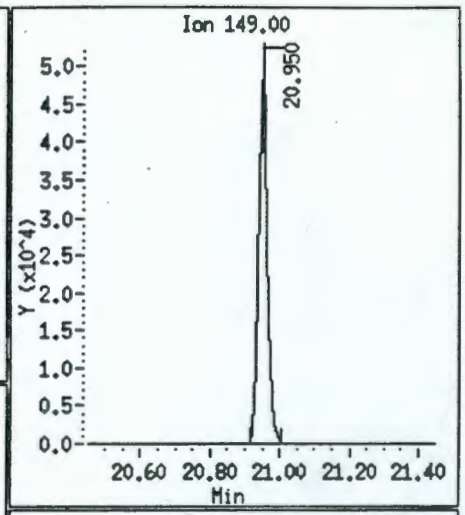
70 bis(2-Ethylhexyl)phthalate

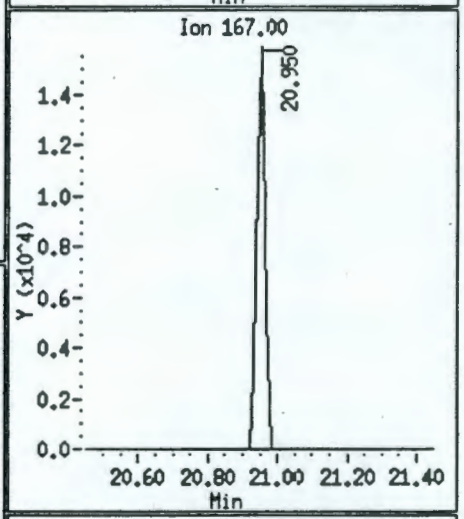


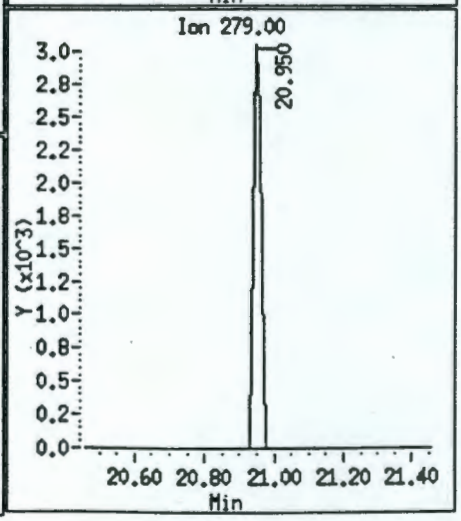












9513355.2465

Data File: /chem/nvo5.i/nvo0516.b/nvo501528.d
Report Date: 21-May-1994 11:16

Environmental Science and Engineering

Unknown Compounds Quantitation Report

Data file : /chem/nvo5.i/nvo0516.b/nvo501528.d
Lab Smp Id: SBLKS1 Client Smp ID: SBLKS1
Inj Date : 16-MAY-1994 14:44 Autotune Date: 08-Feb-94 09:58:2
Operator : WAV/AT Inst ID: nvo5.i
Smp Info : SBLKS1
Misc Info : CDM Hanford N.Slope - Soil
Comment :
Method : /chem/nvo5.i/nvo0516.b/clp390epc.m
Meth Date : 20-May-1994 14:06 user2
Cal Date : 16-MAY-94 13:49 Cal File: nvo501527.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.000 Target Version: 3.10
Integrator: HP RTE Compound Sublist: all.sub
Sample Matrix: SOIL
Quantitative Mode : Use RF of Nearest Std

ISTD	RT	AREA	AMOUNT
* 1 1,4-Dichlorobenzene-d4	5.441	1336665	40.000
* 31 Acenaphthene-d10	11.000	1407228	40.000

		CONCENTRATIONS			QUANT		
RT	AREA	ON-COL(ng)	FINAL(ug/Kg)	QUAL	LIBRARY	LIB ENTRY	CPND #
Unknown Aldol Condensate					CAS #:		
2.858	245748	7	120	39	WILEY.1	114944	1
Unknown Aldol Condensate					CAS #:		
3.713	3177627	95	1600	37	WILEY.1	2284	1
Unknown Aldol Condensate					CAS #:		
4.350	141393	4	70	0		0	1
Unknown					CAS #:		
9.674	406475	12	190	87	WILEY.1	22935	31

Data File: /chem/nvo5.i/nvo0516.b/nvo501528.d

Date : 16-MAY-1994 14:44

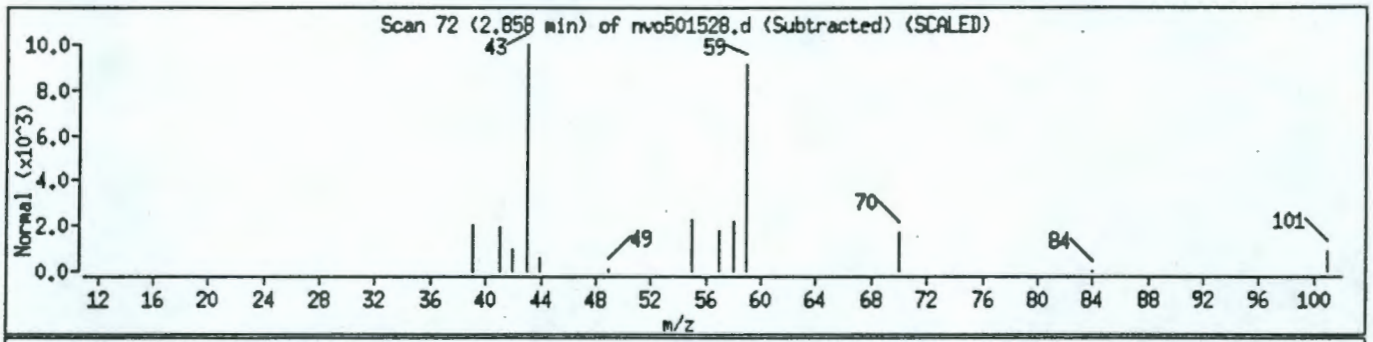
Client ID: SBLKS1 | Instrument: nvo5.i

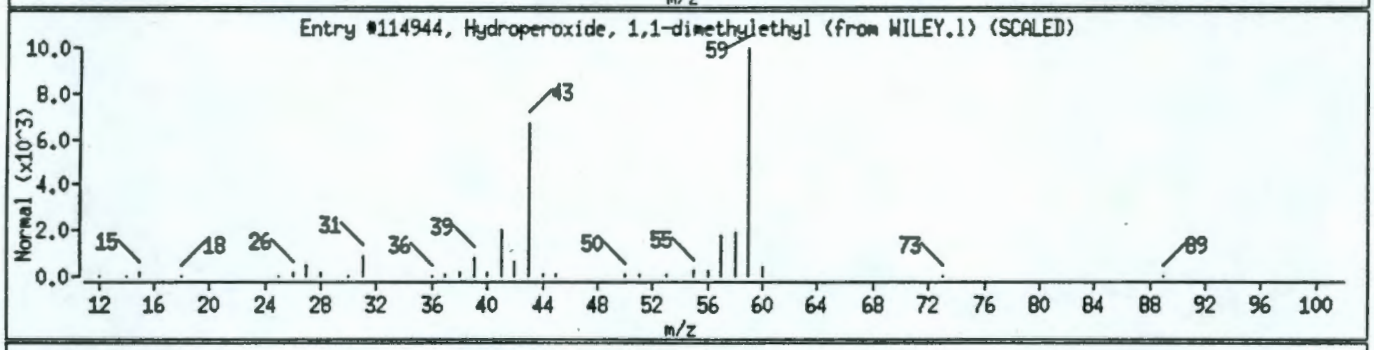
Sample Info: SBLKS1

Volume Injected (uL): 2.0 | Operator: WAV/AT

Column phase: DB-5MS | Column diameter: 0.25

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Hydroperoxide, 1,1-dimethylethyl	75-91-2	WILEY.l	114944	39	C4H10O2	90





9513355.2467

Data File: /chem/nvo5.i/nvo0516.b/nvo501528.d

Date : 16-MAY-1994 14:44

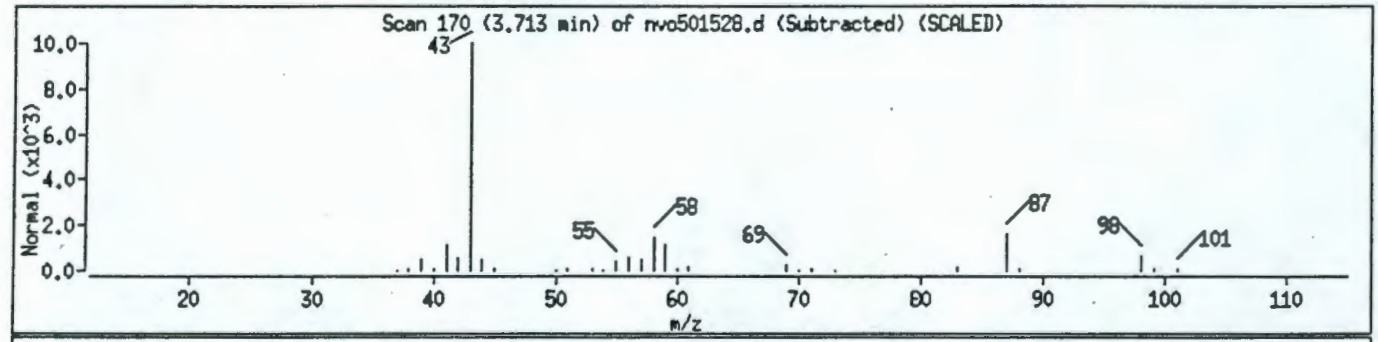
Client ID: SBLKS1 | Instrument: nvo5.i

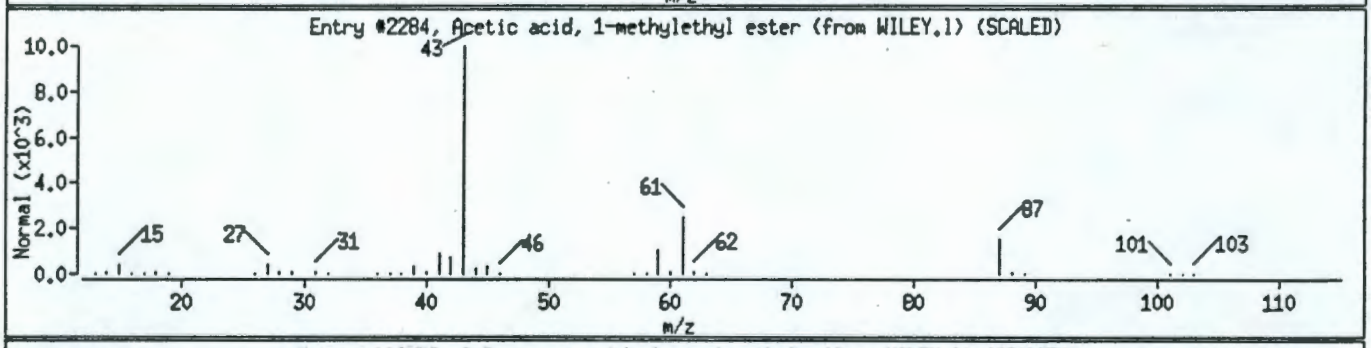
Sample Info: SBLKS1

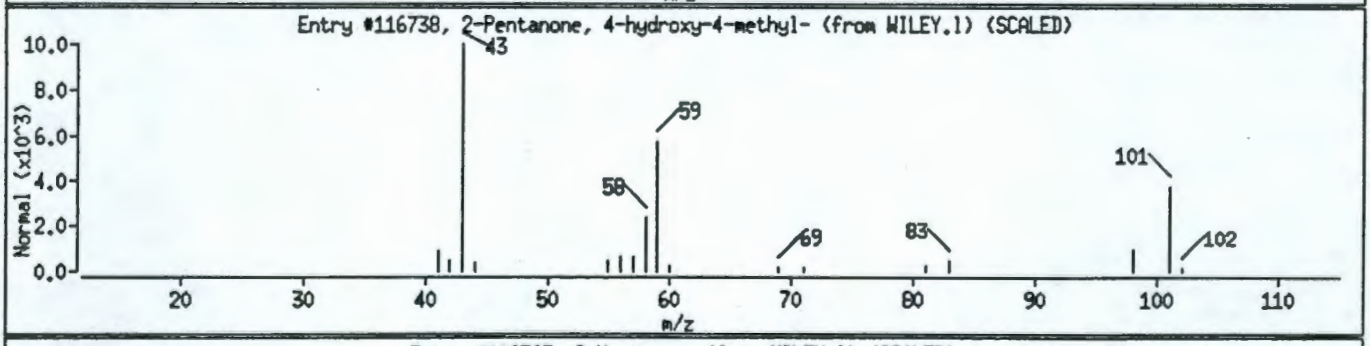
Volume Injected (uL): 2.0 | Operator: WAV/AT

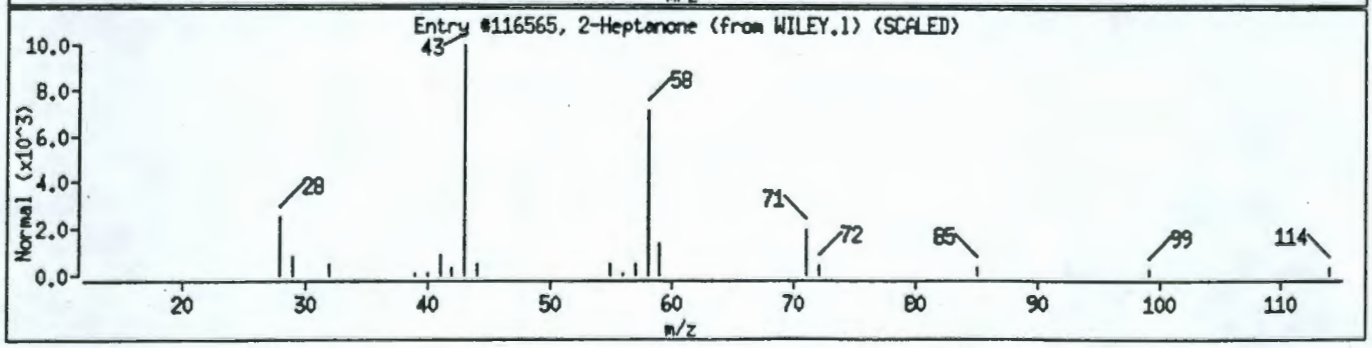
Column phase: DB-5MS | Column diameter: 0.25

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Acetic acid, 1-methylethyl ester	108-21-4	WILEY.1	2284	37	C5H10O2	102
2-Pentanone, 4-hydroxy-4-methyl-	123-42-2	WILEY.1	116738	25	C6H12O2	116
2-Heptanone	110-43-0	WILEY.1	116565	25	C7H14O	114









9513355.2468

Data File: /chem/nvo5.i/nvo0516.b/nvo501528.d

Date : 16-MAY-1994 14:44

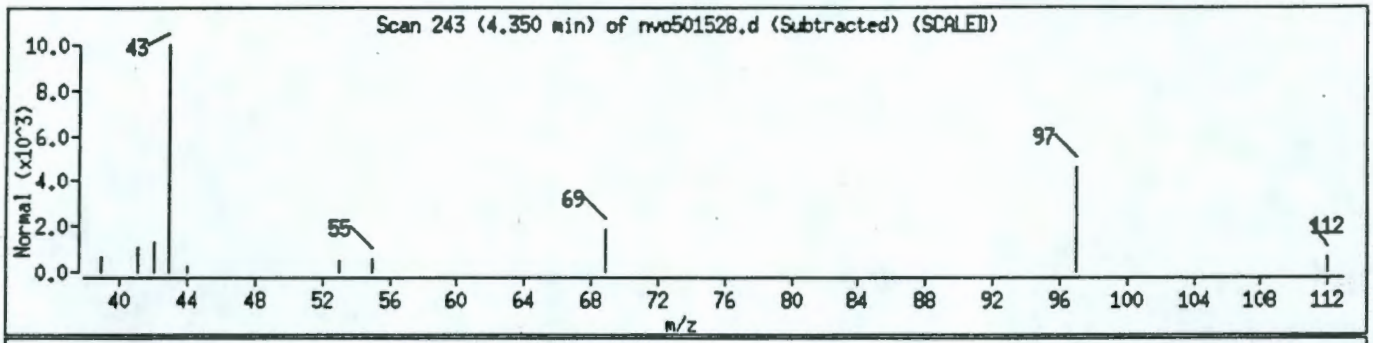
Client ID: SBLKS1 Instrument: nvo5.i

Sample Info: SBLKS1

Volume Injected (uL): 2.0 Operator: WAV/AT

Column phase: DB-5MS Column diameter: 0.25

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Unknown			0	0		0



001368

Data File: /chem/nvo5.i/nvo0516.b/nvo501528.d

Date : 16-MAY-1994 14:44

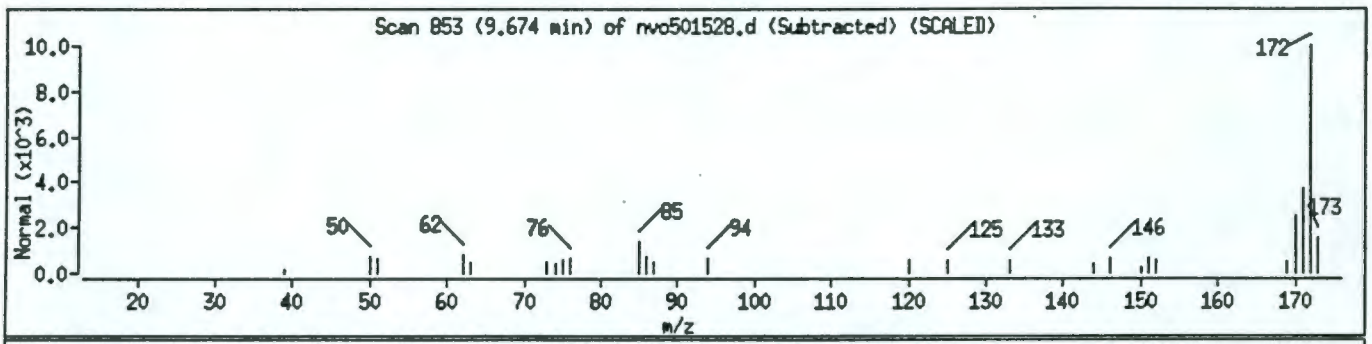
Client ID: SBLKS1 Instrument: nvo5.i

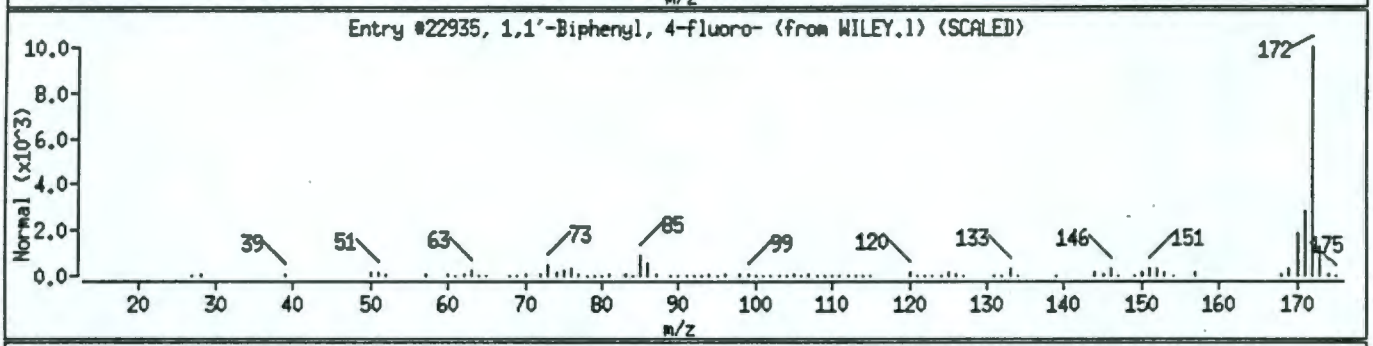
Sample Info: SBLKS1

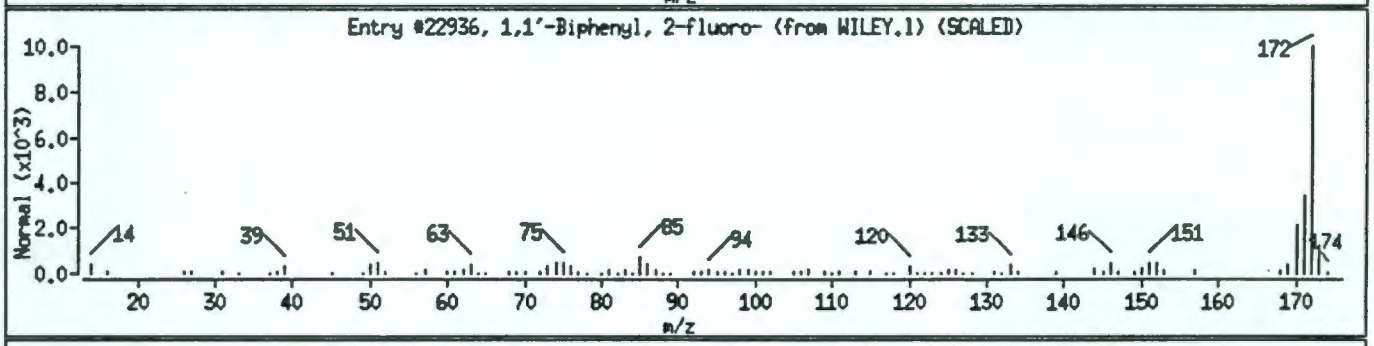
Volume Injected (uL): 2.0 Operator: WAY/AT

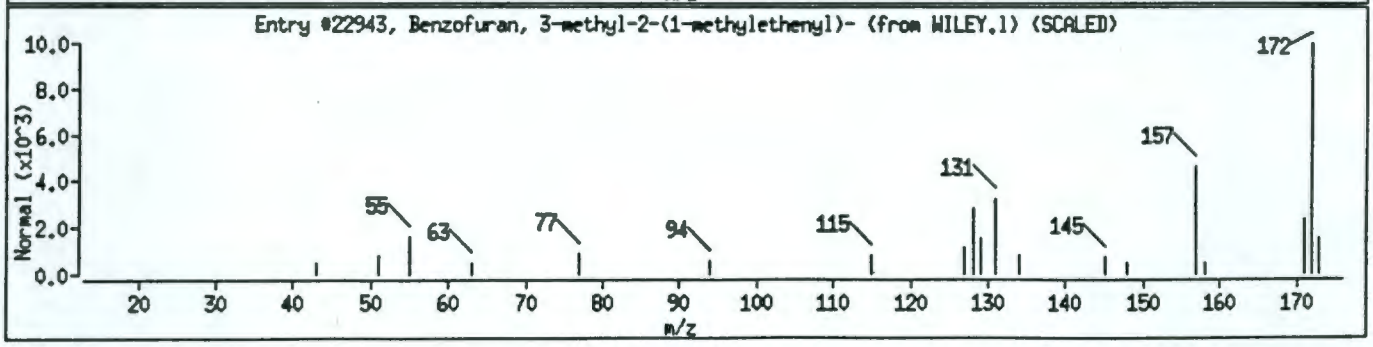
Column phase: DB-5MS Column diameter: 0.25

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
1,1'-Biphenyl, 4-fluoro-	324-74-3	WILEY.1	22935	87	C12H9F	172
1,1'-Biphenyl, 2-fluoro-	321-60-8	WILEY.1	22936	87	C12H9F	172
Benzofuran, 3-methyl-2-(1-methylethenyl)	23911-58-2	WILEY.1	22943	47	C12H12O	172









9513355.2470

OTHER RELEVANT DOCUMENTS

ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

CHROMATOGRAPHIC ANALYSIS LOG

Date: 5/14/94
Analyst: FF (2790)
Project:
Case No.:
Instrument ID:
Data System ID:
Analysis Type:

COLUMN
Length:
OD:
ID:
Phase:
Thickness:
Support:
Loading:
Oven Temp. Initial: °C for Min.
Rate A: Final Temp A °C for Min.
Rate B: Final B °C for Min.

INJECTOR
Type:
Temp °C:
Volume:
Carrier Gas:
Type:
Flow Rate:

DETECTOR
Type:
Attn.:
Range:
Temp °C:
Make-up:

Comments: See Below for SPK chk data

WIFF 5/14/94

Run No.	Sample No.	Run No.	Sample No.	Run No.	Sample No.
1	GPC chk		~~temp = 0.5~~		Sensitivity = 0.5
2	SPK chk		range = 0.5		
3	mech		temp = 19.2 °C		
4	BLK				d: 30
5	WIFF (MS) *36		CDMHNSS		c: 19
6	5/14/94 MSD *36 MS				w: .11
7	36 MSD		↓ after Comp #1		
8	end std				d = 24
	X				c = 2.6
					w = .10
			GPC chk = 1.0 ml 3/90		
			Sow GPC chk 891.25		
			in 10 ml mech FF		
			2/25/94		
			SPK chk / End		std:
			0.5 ml 3/90		CLP Surrogate
	(WAV 150/100)		1005-7-1	+	0.5 ml (3/90
			CLP matrix		636-100-1
			WAV	in	10 ml mech)
			chart speed		= 10 cm/hr
				97A	B.Ch
			mech/104		B 4/201

FORM 67303

9513355.2472

Environmental Science & Engineering, Inc.

GC/MS INSTRUMENT LOGSHEET

INSTRUMENT ID NV05

DATE 5/16/94 PROJECT NAME CDM Hanford N. Slope CLP 3/90 SOW

OPERATOR WAV/AT CAL FILE clp390rpc. 5/16/94

MASS RANGE 35-500 A/D 2^2 METH FILE clp390rpc.

THRESHOLD 1000 E. M. 1776 ID FILE ↓

SCAN DELAY 2.2min SURR — DATE UPLOADED

PURGE DELAY 1.0min INT STD CLP MIX Protocol Lot 09309298 UPLOAD NAME ATHAN 3

INJ VOL 2.0µL SPK CONC 20µg/mL DATE SIGN

GC PROG 50°C x 7min, 50°C → 120°C @ 20°C/min, 120°C → 320°C @ 10°C/min, t_f = 3min COL DB5 MS 0.25 mm id.

FRN	SAMPLE ID	EXT DATE	WT/ VOL	DIL FACT	COMMENTS	TAPE DATE
nv0501526	DFTPP					
1527	SSTD50 50ng on col			1.00	25µg/mL CLPSTD 1000-2-1	
1528	SBLKS1	5-14-94	30gm	1.00		
1529	CDMHNSS * 36	↓	↓	↓		
1530	↓ * 36MS					
1531	↓ * 36MSD					

AT 5/18/94

Read and Understood by

SIGNED 5/18/94 DATE SIGNED 5/20/94 DATE PAGE 1 OF 1

~~000055~~

BOOK NO: 0616 001372

ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

ORGANIC LABORATORY/EXTRACTION LOG SHEET

081

BOOK NO: B0442

PROJECT: CDM - Hanford N - Slope
PROJECT NO.: 19440226 0201
CASE NO.: NA
EXTRACTOR(S): NT (2540)
CLEAN-UP: GPC
DATE: 5/14/94
TIME: 3p
EXTRACTION METHOD: 3/90 BNA SOILS
SAMPLE FRACTION: SS
CHECKED BY:
BALANCE USED: #23

SAMPLE NO.	VOLUME-ml MASS-gr.	INITIAL/ FINAL pH	TYPE/DATE OF CLEAN-UP	FINAL VOL. SOLVENT	SURRO-GATE ADDED Y/N	COMMENTS
CDM14NSS-36	30.0g	8.4/	GPC	1.0ml MeCl2	Y	0.5ml 3/90 CLP surrogate 100/ml Acid/BN
36MS						WAV 5/2/94 exp 5/2/95 lot dell.
36MSD						0.5ml 3/90 CLP mixture 100/ml Acid/BN
BCIC						676-100-1 WAV 3/9/94 exp 3/9/95 to
						36MS, 36MSD.
						Note - surrogate bottle is 1005-3-1
						Spiked: NO Wit:
						Acetone lot BH095
						MeCl2 lot BH201

CHAIN-OF-CUSTODY RECORD

FORM 87262

9513355.2473

001373

Notebook No. 985

PROJECT CDM Hanford N-slope 3/90 BNA 1001

Continued From Page

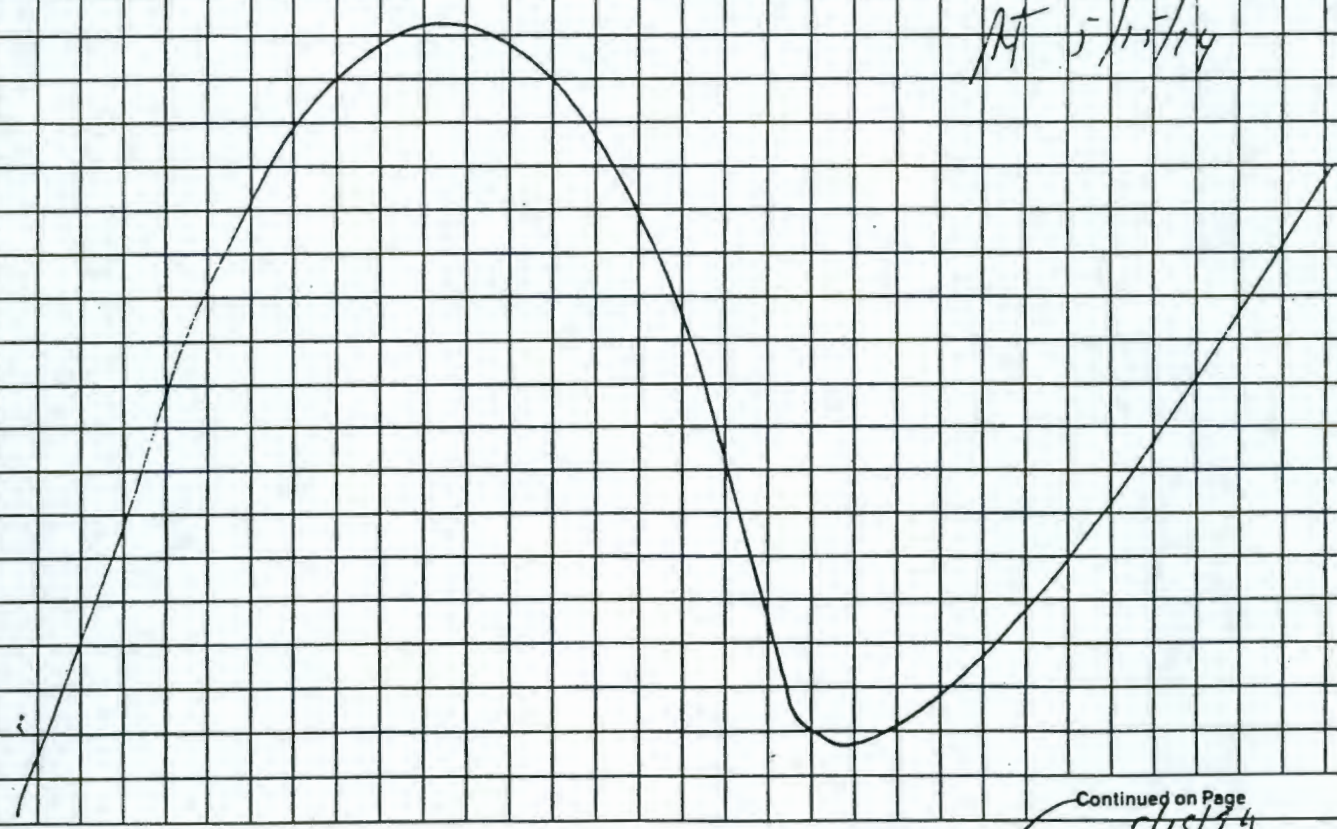
CDM/MNS - 36, JOM, fwd, BLC -

1) Weighed out 30.0g sample into Teflon beakers. Used boiled and peroxided Nanopure to dry (BLC 2/21/94) - ~~SAH~~ MT 5/14/94 BLC
2) Weighed out 50.0g sample into beaker added 50ml HNO3 stored for the Tributyl pH.
3) Added 150ml 50/50 HNO3/Acetone to Teflon beakers from step 1. Sonicated for 15 minutes using probe. Centrifuged at 1K RPM for 5 minutes, poured extracts off into labeled Nanopure ali KDs.
4) Repeated step 3 two more times with 100ml 50/50 HNO3/Acetone
5) Bone samples to 8 10ml at 75°C MT 5/14/94

to GPC 100 2-4 5/14/94

conc to 10ml HCl, freeze to 0.5ml in vials EM 5/15/94

MT 5/15/94



Continued on Page

Read and Understood By

MT 5/14/94 Signed Date

001374

Signed 5/15/94 Date

5/15/94

WI FF 5/15/94

SAMPLES CDMHNSS-36

3/90 CLP BNA SONICATIONS
EXTRACTION SOLVENT: 50/50 $MeCl_2$/ACETONE

1) Decant aqueous layer from sample, discard stones, sticks, leaves: weigh up 30.0g soil into Teflon beaker, AT 5/14/94
2) Add 60.0g baked Na_2SO_4 (granular or powdered) to dry
3) Method blank is 30.0g of Na_2SO_4
4) Weigh 50.0g sample into 250ml beaker, add 50ml HPLC H_2O to all, stir for 1 hour, check and tabulate pH.
5) Tune sonicator.
6) Add 100ml of 50/50 MeCl/Acetone, spike samples
7) Sonicate for 1.5 minutes with 3/4 inch horn at 50% duty cycle and output control at 10.
Centrifuge at 1000 RPM for 5 minutes, decant extract into KD-receiver through funnels packed with MeCl cleaned glasswool and baked sodium sulfate
8) Repeat steps (7) two more times
9) Pipette out 5.0ml into receiver, conc. to <1ml, quantitatively transfer to autosampler vial, top to 1.0ml with MeCl, to GCMS labelled SCREEN, make up screen folder and include screen check sheet screen not applicable AJ 5/14/94
10) Conc. remaining samples to 10mls with snyder attachment at 60-80 °C
11) If screen ok'd by analyst, combine with extract, file screen check sheet
12) Conc. to 1ml with microsnyder attachment, take to 10.0ml with MeCl in GCT. AJ 5/14/94
13) Load on GPC, check if gpc check peaks shifted <5% from previous run AJ 5/14/94
14) Conc extracts off GPC to 10ml using KD-receivers, make copies of GPC chart and include with logsheets AJ 5/15/94
15) Conc to <1ml using microsnyders
14) Quantitatively transfer to autosampler vials marked at 0.5ml, blow down extract volume to 0.5ml under N_2, to GCMS

QC Required: MS
MSD
BLANK

Chain of Custody	to FF AT 5/14/94	to 16028 5/14/94	to GCMS 5/15/94
fwd GCMS 5/16/94 AT			

Standards were prepared at 4 levels by dilution of the CLP 3/90 SOW stock standard (676-97-1) with methylene chloride using 5 mL volumetric flasks.

1000-1-1 10 µg/mL

$$\frac{(0.25\,mL)(200\,\mu g/mL)}{5\,mL} = 10\,\mu g/mL$$

1000-1-2 40 µg/mL

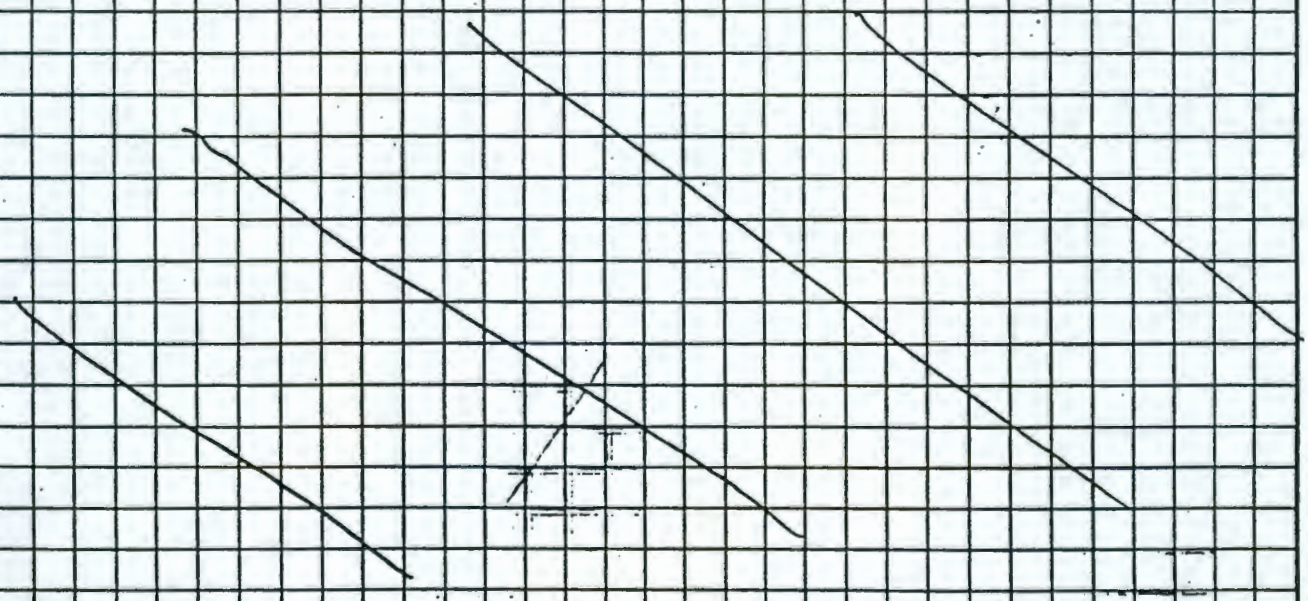
$$\frac{(1.0\,mL)(200\,\mu g/mL)}{5\,mL} = 40\,\mu g/mL$$

1000-1-3 60 µg/mL

$$\frac{(1.5\,mL)(200\,\mu g/mL)}{5\,mL} = 60\,\mu g/mL$$

1000-1-4 80 µg/mL

$$\frac{(2.0\,mL)(200\,\mu g/mL)}{5\,mL} = 80\,\mu g/mL$$



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Read and Understood By

Signed Date 2/13/94 Signed Date 2/13/94

9513355.2472

Notebook No. 1000

PROJECT CLP 3/90 SOW Daily Calibration Standard

Continued From Page —

1000-2-1

4 daily calibration standards were prepared by pipeting 1.25 mL of the 200 µg/mL stock standard (676-94-1) into a 10 mL volumetric flask and diluting to the mark with methylene chloride.

$$\frac{(1.25\,mL)(200\,\mu g/mL)}{10\,mL} = 25\,\mu g/mL$$

Continued on Page

Read and Understood By

Signed — Date: 2/13/94 — Signed — Date: 2/23/94

676-97-1

The indicated volume of each of the following Protocol standards was pipetted into a 20 ml volumetric flask and diluted to the mark with water.

Expires 1/10/94

$$\frac{(2\ ml)(2000\ mg/ml)}{20\ ml} = 200\ mg/l$$

Standard	Conc	Volume	Lot
BIG-BM-2000	2000 mg/l	2 ml	0930604A
HI CAL-ACIDS	↓	↓	0520612B
BSE-GV-X			0530623B
LLP40-SA5			0530917A
LLP40-SB5	100 mg/l	4 ml	0530628B

Continued on Page

Read and Understood By

Signed 1/10/94 Date

Signed 1/11/94 Date

9513355.2470

Notebook No. 1005

PROJECT CLP 3/90 SOW Surrogate Spiking Solution

Continued From Page -

1005-3-1

The CLP 3/90 SOW Surrogate Spiking Solution was prepared by pipeting 7.5 ml of the Protocol Acid Surrogate Solution and 10 ml of the Protocol B/N Surrogate Solution listed below into a 100 ml flask and diluted to the mark with MeOH.

Acid Conc

$\frac{(7.5\ ml)(2000\ mg/ml)}{100\ ml} = 150\ mg/ml$

B/N Conc

$\frac{(10\ ml)(1000\ mg/ml)}{100\ ml} = 100\ mg/ml$

Protocol analytical supplies, inc.

CAT# CLP90-SA5
LOT# 0930727B
DATE OPENED
CLP ACID SURROGATE
FOR RESEARCH USE ONLY

Contains 5 ml @ 2000 ug/ml of the following in Methanol [67-56-1]:
2-Chlorophenol-d4
2-Fluorophenol
Phenol-d5
2,4,6-Tribromophenol

195 Lehigh Avenue, Lakewood, NJ 08701 908-901-8600

CONTAINS MATERIALS KNOWN OR SUSPECTED TO CAUSE CANCER
DANGER-FLAMMABLE

Protocol analytical supplies, inc.

CAT# CLP90-SB5
LOT# 0940204D
DATE OPENED
B/N SURROGATE (3/90)
FOR RESEARCH USE ONLY

Contains 5 ml @ 1000 ug/ml of the following in Methylene Chloride [75-09-2]:

1,2-Dichlorobenzene-d4	2199-69-1
2-Fluorobiphenyl	321-60-8
Nitrobenzene-d5	4165-60-0
Terphenyl-d14	1718-51-0

448 Lincoln Blvd., Middlesex, NJ 08846

CONTAINS MATERIALS KNOWN OR SUSPECTED TO CAUSE CANCER
DANGER-FLAMMABLE

Continued on Page

Signed: William G. Van Ginkel Date: 5/1/94

Read and Understood By Signed: [illegible] Date: 5/5/94

001379

9513355.2480

100

PROJECT: CLP 3/ND SOW Matrix Spiking Solution

Notebook No.

Continued From Page —

CDS-100-1

The CLP 3/ND matrix spiking solution was prepared by pipetting 3.75 ml of the Protocol CLP Acid Spike Solution and 5 ml of the CLP B/N Spike solution into a 50 ml volumetric flask and diluting to the mark with MeOH

Acid Conc

(3.75 ml)(2000 mg/ml) / 50 ml = 150 mg/ml

B/N Conc

(5.0 ml)(2000 mg/ml) / 50 ml = 200

Protocol analytical supplies, inc.

CAT# CLPS-MSA5
LOT# 0930915A
DATE OPENED
CLP ACID SPIKE
FOR RESEARCH USE ONLY

Contains 2000 ug/ml of the following in Methylene Chloride|75-09-2|:

4-Chloro-3-Methylphenol	59-50-7
2-Chlorophenol	95-57-8
4-Nitrophenol	100-02-7
Pentachlorophenol	87-86-5
Phenol	108-95-2

448 Lincoln Blvd., Middlesex, NJ 08846

CONTAINS MATERIALS KNOWN OR SUSPECTED TO CAUSE CANCER DANGER-FLAMMABLE

Protocol analytical supplies, inc.

CAT# CLPS-MSB5
LOT# 0930520F
DATE OPENED
CLP B/N SPIKE
FOR RESEARCH USE ONL

Contains 1000 ug/ml of the following in Methylene Chloride|75-09-2|:

Acenaphthene	83-32-9
1,4-Dichlorobenzene	106-46-7
2,4-Dinitrotoluene	121-14-2
N-Nitroso-Di-n-Propylamine	621-64-7
Pyrene	129-00-0
1,2,4-Trichlorobenzene	120-82-1

32 Briar Circle, Greenbrook, NJ 08812 201-968-152

CONTAINS MATERIALS KNOWN C SUSPECTED TO CAUSE CANCER DANGER-FLAMMABLE

Continued on Page

Read and Understood By

William C. [illegible] 3/5/94

[illegible] 3/24/9

9513355.2481

METALS
Sample EA11-1-07 (ESE# CDMHNSS*21)

9513355.2482

INORGANIC ANALYSIS DATA REPORT

FOR

C.D.M. - Hanford N. Slope

SAMPLE DELIVERY GROUP G48756

9513355.248.1

1. COVER PAGE AND CASE NARRATIVE

ENVIROFORMS/INORGANIC CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

SOW No.: 3/90

Sample No.	Lab Sample ID.
EA1110S2	SPM2*CDMHNSS*22
EA1110	CDMHNSS*22
EA1110S	SPM1*CDMHNSS*22
EA1117	CDMHNSS*21

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 the above listed data package is in compliance with the terms and conditions of the C.D.M. contract, both technically and for completeness, for other than the conditions described here in. Release of the data contained in the hardcopy data packages and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager by his designee, as verified by the following signature.

Signature: Name: Edward Mansfield

Date: 5/25/94 Title: Laboratory Project Manager

CASE NARRATIVE

GENERAL

A total of 2 soil samples are reported under this sample delivery group (SDG) number G48756. Samples CDMHNSS*21,22 were received 05/03/94. All samples were received in good condition, unless otherwise stated in this package. All analyses were performed within required holding times. The Sample No. were generated from site I.D.'s adjusted to a maximum of 6 characters to meet the requirements of the forms program.

ANALYSIS SUMMARY

Analytical methods as stated in the SW846 were employed to generate the enclosed data package. Since these samples were analyzed by SW846 methods, some CLP specific Q.C. are not present. This package contains data for two soil samples plus appropriate Q.C. Arsenic and Selenium were analyzed by GFAA. Mercury was analyzed by cold vapor using a bubbler aeration system. Barium, Cadmium, Chromium, Lead, and Silver were analyzed using a simultaneous ICAP system.

QUALITY CONTROL ANALYSIS SUMMARY

The Pre-Digested Sample Spike One recoveries for Arsenic,Selenium,and Mercury were outside control limits. The Pre-Digested Sample Spike Two recoveries for Arsenic and Mercury were outside control limits. The Duplicate Sample was not performed, but the Pre-Digested Sample Spikes were prepared in duplicate. Due to the Serial Dilution failure for Arsenic, the concentrations reported for Arsenic on samples CDMHNSS*21,22 were determined by Method of Standard Additions. The above items were flagged on the appropriate Form 1. All other QC analyses were in control.

9513355.2486

2. **DATA SUMMARY** (Form 1)

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

EA1117

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

Matrix (soil/water): SOIL Lab Sample ID: CDMHNSS*21

Level (low/med): LOW Date Received: 05/03/94

% Solids: 96.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	7.7		NSN	F
7440-39-3	Barium	120			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	0.52	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	19.1			P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	10.3	U		P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.10	U	NN	CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.26	U	N	F
7440-22-4	Silver	0.52	U		P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

9513355.2488

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

EA1110

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

Matrix (soil/water): SOIL Lab Sample ID: CDMHNSS*22

Level (low/med): LOW Date Received: 05/03/94

% Solids: 91.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	8.1		NS✓	F
7440-39-3	Barium	119			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	0.55	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	15.4			P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	11.2			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.12		N✓	CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.51	B	N	F
7440-22-4	Silver	0.55	U		P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

9513355.2489

3. QC SUMMARY (FORM 2-14)

ENVIROFORMS/INORGANIC CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

Initial Calibration Source: SPEX 19&7

Continuing Calibration Source: ESE

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									
Antimony									
Arsenic	50.0	48.50	97.0						F
Barium	1000.0	1007.36	100.7	1000.0	987.50	98.8			P
Beryllium									
Cadmium	1000.0	1003.34	100.3	1000.0	985.81	98.6			P
Calcium									
Chromium	1000.0	1005.21	100.5	1000.0	987.39	98.7			P
Cobalt									
Copper									
Iron									
Lead	1000.0	1020.50	102.0	1000.0	1000.24	100.0			P
Magnesium									
Manganese									
Mercury	5.0	4.88	97.6						CV
Nickel									
Potassium									
Selenium	25.0	23.60	94.4						F
Silver	1000.0	1032.57	103.3				996.19	99.6	P
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

(1) Control Limits : Mercury 80-120; Other Metals 90-110; Cyanide 85-115

ENVIROFORMS/INORGANIC CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

Initial Calibration Source: SPEX 19&7

Continuing Calibration Source: ESE

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									
Antimony									
Arsenic				50.0	48.60	97.2	48.90	97.8	F
Barium				500.0	502.90	100.6			P
Beryllium									
Cadmium				500.0	506.14	101.2			P
Calcium									
Chromium				500.0	506.19	101.2			P
Cobalt									
Copper									
Iron									
Lead				500.0	518.11	103.6			P
Magnesium									
Manganese									
Mercury				5.0	4.67	93.4			CV
Nickel									
Potassium									
Selenium				50.0	47.30	94.6			F
Silver				500.0	515.34	103.1			P
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

(1) Control Limits : Mercury 80-120; Other Metals 90-110; Cyanide 85-115

ENVIROFORMS/INORGANIC CLP

3
BLANKS

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): 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											
Antimony											
Arsenic			2.5	U	2.5	U			0.250	U	F
Barium			20.0	U					1.999	U	P
Beryllium											
Cadmium			5.0	U					0.500	U	P
Calcium											
Chromium			10.0	U					0.999	U	P
Cobalt											
Copper											
Iron											
Lead			100.0	U					9.993	U	P
Magnesium											
Manganese											
Mercury			0.2	U					0.099	U	CV
Nickel											
Potassium											
Selenium			2.5	U					0.250	U	F
Silver			5.0	U					0.500	U	P
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

ENVIROFORMS/INORGANIC CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

ICP ID Number: JA61 ICS Source: PERKIN-ELMER

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum								
Antimony								
Arsenic								
Barium		500	4	506.4	101.3	5	504.4	100.9
Beryllium								
Cadmium		1000	-3	967.2	96.7	-4	993.1	99.3
Calcium								
Chromium		500	5	478.6	95.7	7	480.0	96.0
Cobalt								
Copper								
Iron								
Lead		1000	14	942.0	94.2	9	957.4	95.7
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver		1000	-5	1008.0	100.8	-8	1016.0	101.6
Sodium								
Thallium								
Vanadium								
Zinc								

9513355.2494

ENVIROFORMS/INORGANIC CLP

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

EA1110S

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

Matrix (soil/water): SOIL Level (low/med): LOW
% Solids for Sample: 91.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic	75-125	9.6990		8.1182		4.35	36.3	N	F
Barium	75-125	328.3532		119.2790		219.10	95.4		P
Beryllium									NR
Cadmium	75-125	5.3526		0.5467	U	5.48	97.7		P
Calcium									NR
Chromium	75-125	36.2908		15.3693		21.91	95.5		P
Cobalt									NR
Copper									NR
Iron									NR
Lead	75-125	63.3683		11.1869		54.78	95.3		P
Magnesium									NR
Manganese									NR
Mercury	75-125	1.7680		0.1247		2.71	60.6	N	CV
Nickel									NR
Potassium									NR
Selenium	75-125	1.2518		0.5141	B	1.09	67.7	N	F
Silver	75-125	5.2650		0.5467	U	5.48	96.1		P
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

ENVIROFORMS/INORGANIC CLP

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

EA11105 2

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

Matrix (soil/water): Level (low/med):
% Solids for Sample:

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									NR
Antimony									NR
Arsenic	75-125	9.3200		8.1200		4.37	27.5	N	F
Barium	75-125	333.0000		119.0000		219.00	97.7		P
Beryllium									NR
Cadmium	75-125	5.3200		0.0000		5.48	97.1		P
Calcium									NR
Chromium	75-125	37.2000		15.4000		21.90	99.5		P
Cobalt									NR
Copper									NR
Iron									NR
Lead	75-125	62.9000		11.2000		54.80	94.3		P
Magnesium									NR
Manganese									NR
Mercury	75-125	1.7200		0.1240		2.56	62.3	N	CV
Nickel									NR
Potassium									NR
Selenium	75-125	1.4800		0.5140		1.09	88.6		F
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

ENVIROFORMS/INORGANIC CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

EA1110A

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

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

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)		Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium		1596.58		1090.87		500.0	101.1		P
Beryllium									NR
Cadmium		498.12		5.00	U	500.0	99.6		P
Calcium									NR
Chromium		637.92		140.56		500.0	99.5		P
Cobalt									NR
Copper									NR
Iron									NR
Lead		599.08		102.31		500.0	99.4		P
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver		512.44		5.00	U	500.0	102.5		P
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

ENVIROFORMS/INORGANIC CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

Solid LCS Source: E.R.A.214

Aqueous LCS Source: ESE

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic				4.0	3.8				95.0
Barium				200.0	195.3				97.6
Beryllium									
Cadmium				5.0	5.1				102.0
Calcium									
Chromium				20.0	19.8				99.0
Cobalt									
Copper									
Iron									
Lead				50.0	49.9				99.8
Magnesium									
Manganese									
Mercury				2.5	2.1				84.0
Nickel									
Potassium									
Selenium				1.0	1.1				110.0
Silver				5.0	5.1				102.0
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

ENVIROFORMS/INORGANIC CLP

8

STANDARD ADDITION RESULTS

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

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
EA1110	As	0.165	20.00	0.258	40.00	0.338	60.00	0.435	37.1	0.9994	
EA1117	As	0.168	20.00	0.262	40.00	0.347	60.00	0.442	37.2	0.9998	

FORM VIII - IN

ENVIROFORMS/INORGANIC CLP

9

ICP SERIAL DILUTIONS

SAMPLE NO.

EA1110L

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

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

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum							
Antimony							
Arsenic							F
Barium	1090.87		1072.45		1.7		P
Beryllium							
Cadmium	5.00	U	25.00	U			P
Calcium							
Chromium	140.56		151.30		7.6		P
Cobalt							
Copper							
Iron							
Lead	102.31		500.00	U	100.0		P
Magnesium							
Manganese							
Mercury							
Nickel							
Potassium							
Selenium							
Silver	5.00	U	25.00	U			P
Sodium							
Thallium							
Vanadium							
Zinc							

FORM IX - IN

ENVIROFORMS/INORGANIC CLP

10

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

ICP ID Number: JA61 Date: 04/18/94

Flame AA ID Number:

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Barium	493.40		200.0	20.0	P
Cadmium	228.80		5.0	5.0	P
Chromium	267.70		10.0	10.0	P
Lead	220.30		3.0	100.0	P
Silver	328.00		10.0	5.0	P

Comments:

ENVIROFORMS/INORGANIC CLP

10

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

ICP ID Number: Date: 04/18/94

Flame AA ID Number:

Furnace AA ID Number: PE5100

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Arsenic	193.70	BZ	10.0	2.5	F
Selenium	196.00	BZ	5.0	2.5	F

Comments:

ENVIROFORMS/INORGANIC CLP

10

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

ICP ID Number: Date: 02/15/94

Flame AA ID Number: BK400

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Mercury	253.70		0.2	0.2	CV

Comments:

ENVIROFORMS/INORGANIC CLP

11A
ICP INTERELEMENT CORRECTION FACTORS (Annually)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

ICP ID Number: JA61 Date: 01/19/94

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	MN
Aluminum	308.20					
Antimony	206.80					
Arsenic	193.60	0.0091340		0.0003720		
Barium	493.40					
Beryllium	313.00					
Cadmium	228.80					
Calcium	317.90					-0.0018800
Chromium	267.70					
Cobalt	228.60			0.0000710		
Copper	324.70					
Iron	259.90					
Lead	220.30	0.0020210				-0.0022420
Magnesium	279.00			0.0002940		-0.0052840
Manganese	257.60	0.0000240	0.0000150	0.0000580	0.0000380	
Mercury						
Nickel	231.60					
Potassium	766.40					
Selenium	196.00	0.0038590		0.0023470	0.0006650	0.0023000
Silver	328.00					0.0001790
Sodium	589.00					
Thallium	190.80	-0.0001690		0.0004090	0.0003700	-0.0108300
Vanadium	292.40			0.0001780		
Zinc	213.80			0.0000850	0.0000400	
Cyanide						

Comments:

ENVIROFORMS/INORGANIC CLP

11B

ICP INTERELEMENT CORRECTION FACTORS (Annually)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

ICP ID Number: JA61 Date: 01/19/94

Analyte	Wave-length (nm)	Interelement Correction Factors for: BA	BE	CD	CO	CR
Aluminum	308.20				-0.0145850	
Antimony	206.80				-0.0035060	0.0117370
Arsenic	193.60					
Barium	493.40					
Beryllium	313.00					
Cadmium	228.80		0.0042080			
Calcium	317.90					
Chromium	267.70		0.0002570			
Cobalt	228.60	0.0008820		0.0006270		0.0003870
Copper	324.70					
Iron	259.90		0.0007080			
Lead	220.30					
Magnesium	279.00				-0.0017760	-0.0012550
Manganese	257.60		0.0001130			
Mercury						
Nickel	231.60				0.0006390	
Potassium	766.40					
Selenium	196.00		0.0020100		0.0030620	0.0015230
Silver	328.00					
Sodium	589.00					
Thallium	190.80					
Vanadium	292.40					0.0003190
Zinc	213.80					
Cyanide						

Comments:

ENVIROFORMS/INORGANIC CLP

11B

ICP INTERELEMENT CORRECTION FACTORS (Annually)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

ICP ID Number: JA61 Date: 01/19/94

Analyte	Wave-length (nm)	Interelement Correction Factors for: CU	MO	NI	PB	V
Aluminum	308.20		0.0135050			0.0041440
Antimony	206.80		0.0059640	-0.0081770		-0.0033430
Arsenic	193.60		0.0015360			0.0102360
Barium	493.40					
Beryllium	313.00					0.0042470
Cadmium	228.80			-0.0002510		
Calcium	317.90					
Chromium	267.70		-0.0029540			0.0006160
Cobalt	228.60			0.0004180		
Copper	324.70		0.0007150			
Iron	259.90					
Lead	220.30		0.0016320			-0.0010490
Magnesium	279.00		-0.0110400	-0.0015080		
Manganese	257.60			0.0001570		
Mercury						
Nickel	231.60		-0.0004060			
Potassium	766.40					
Selenium	196.00		0.0024970	0.0015040		0.0020000
Silver	328.00					-0.0014600
Sodium	589.00					
Thallium	190.80					
Vanadium	292.40		0.0011430			
Zinc	213.80	0.0027620	-0.0004980	0.0032420		
Cyanide						

Comments:

ENVIROFORMS/INORGANIC CLP

11B
ICP INTERELEMENT CORRECTION FACTORS (Annually)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

ICP ID Number: JA61 Date: 01/19/94

Analyte	Wave-length (nm)	Interelement Correction Factors for: AS	SN	TI	TL	ZN
Aluminum	308.20					
Antimony	206.80		0.0048600	0.0017150		
Arsenic	193.60					
Barium	493.40					
Beryllium	313.00					
Cadmium	228.80	0.0087800				
Calcium	317.90			-0.0012870		
Chromium	267.70			0.0001450		
Cobalt	228.60			0.0015940		
Copper	324.70			0.0003030		
Iron	259.90					
Lead	220.30					
Magnesium	279.00					
Manganese	257.60					
Mercury						
Nickel	231.60				0.0002880	
Potassium	766.40					
Selenium	196.00			0.0012360		0.0016530
Silver	328.00			-0.0002010		
Sodium	589.00					
Thallium	190.80					
Vanadium	292.40			0.0005860		
Zinc	213.80					
Cyanide						

Comments:

ENVIROFORMS/INORGANIC CLP

12
ICP LINEAR RANGES (QUARTERLY)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

ICP ID Number: JA61 Date: 04/18/94

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Aluminum	5.00	1000000.0	P
Antimony	5.00	100000.0	P
Arsenic	5.00	100000.0	P
Barium	5.00	100000.0	P
Beryllium	5.00	100000.0	P
Cadmium	5.00	100000.0	P
Calcium	5.00	1000000.0	P
Chromium	5.00	100000.0	P
Cobalt	5.00	100000.0	P
Copper	5.00	100000.0	P
Iron	5.00	1000000.0	P
Lead	5.00	100000.0	P
Magnesium	5.00	1000000.0	P
Manganese	5.00	100000.0	P
Nickel	5.00	100000.0	P
Potassium	5.00	1000000.0	P
Selenium	5.00	100000.0	P
Silver	5.00	100000.0	P
Sodium	5.00	500000.0	P
Thallium	5.00	100000.0	P
Vanadium	5.00	100000.0	P
Zinc	5.00	100000.0	P

Comments:

ENVIROFORMS/INORGANIC CLP

13
Preparation Log

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

Method: P

Sample No.	Preparation Date	Weight (gram)	Volume (ml)
EA1110	05/03/94	1.00	100
EA1110S	05/03/94	1.00	100
EA1110S2	05/03/94	1.00	100
EA1117	05/03/94	1.01	100
LCSS	05/03/94	1.00	100
PBS	05/03/94	1.00	100

FORM XIII - IN

ENVIROFORMS/INORGANIC CLP

13
Preparation Log

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

Method: F

Sample No.	Preparation Date	Weight (gram)	Volume (ml)
EA1110	05/03/94	1.00	100
EA1110S	05/03/94	1.01	100
EA1110S2	05/03/94	1.00	100
EA1117	05/03/94	1.01	100
LCSS	05/03/94	1.00	100
PBS	05/03/94	1.00	100

FORM XIII - IN

ENVIROFORMS/INORGANIC CLP

13
Preparation Log

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48756

Method: CV

Sample No.	Preparation Date	Weight (gram)	Volume (ml)
EA1110	05/03/94	0.22	100
EA1110S	05/03/94	0.20	100
EA1110S2	05/03/94	0.21	100
EA1117	05/03/94	0.21	100
LCSS	05/03/94	0.20	100
PBS	05/03/94	0.20	100

FORM XIII - IN

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14
ANALYSIS RUN LOG

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL
Lab Code: ESE Case No.: SAS No.: SDG No.: G48756
Instrument ID Number: JA61 Method: P
Start Date: 05/04/94 End Date: 05/04/94

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
CCVII	1.00	1005					X		X		X				X							X					
CCVIV	1.00	1007					X		X		X				X							X					
ICV	1.00	1010					X		X		X				X							X					
ICV	1.00	1013					X		X		X				X							X					
ICSAI	1.00	1015					X		X		X				X							X					
ICSABI	1.00	1017					X		X		X				X							X					
	1.00	1028					X		X		X				X							X					
PBS	1.00	1030					X		X		X				X							X					
LCSS	1.00	1034					X		X		X				X							X					
EA1117	1.00	1037					X		X		X				X							X					
EA1110	1.00	1039					X		X		X				X							X					
EA1110L	5.00	1045					X		X		X				X							X					
EA1110A	2.00	1047					X		X		X				X							X					
EA1110S	1.00	1049					X		X		X				X							X					
EA1110S2	1.00	1052					X		X		X				X							X					
ICSAF	1.00	1054					X		X		X				X							X					
ICSABF	1.00	1056					X		X		X				X							X					
CCV1	1.00	1058					X		X		X				X							X					
CCB1	1.00	1101					X		X		X				X							X					

FORM XIV - IN

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL
Lab Code: ESE Case No.: SAS No.: SDG No.: G48756
Instrument ID Number: PE5100 Method: F
Start Date: 05/03/94 End Date: 05/03/94

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
BLANK	1.00	1846				X																					
STD 1	1.00	1851				X																					
STD 2	1.00	1856				X																					
STD 3	1.00	1901				X																					
STD 4	1.00	1906				X																					
STD 5	1.00	1911				X																					
STD 6	1.00	1916				X																					
ICV	1.00	1928				X																					
	1.00	1934				X																					
PBS	1.00	1938				X																					
LCSS	1.00	1943				X																					
EA1117	1.00	1948				X																					
EA1110	1.00	1953				X																					
EA1110S	1.00	1957				X																					
EA1110S2	1.00	2002				X																					
EA1110L	5.00	2007				X																					
CCV1	1.00	2012				X																					
CCB1	1.00	2016				X																					
EA11170	1.00	2021				X																					
EA11171	1.00	2024				X																					
EA11172	1.00	2026				X																					
EA11173	1.00	2028				X																					
EA11170	2.00	2050				X																					
EA11171	1.00	2053				X																					
EA11172	1.00	2055				X																					
EA11173	1.00	2057				X																					
EA11100	2.00	2100				X																					
EA11101	1.00	2102				X																					
EA11102	1.00	2105				X																					
EA11103	1.00	2107				X																					
CCV2	1.00	2109				X																					
CCB2	1.00	2112				X																					

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14
ANALYSIS RUN LOG

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL
Lab Code: ESE Case No.: SAS No.: SDG No.: G48756
Instrument ID Number: PE5100 Method: F
Start Date: 05/03/94 End Date: 05/03/94

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
CCV2	1.00	2115				X																					
CCB2	1.00	2120				X																					

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL
Lab Code: ESE Case No.: SAS No.: SDG No.: G48756
Instrument ID Number: PE5100 Method: F
Start Date: 05/03/94 End Date: 05/03/94

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
BLANK	1.00	1957																			X						
STD 1	1.00	2004																			X						
STD 2	1.00	2010																			X						
STD 3	1.00	2015																			X						
STD 4	1.00	2021																			X						
STD 5	1.00	2027																			X						
STD 6	1.00	2033																			X						
STD 2	1.00	2040																			X						
ICV	1.00	2050																			X						
	1.00	2058																			X						
PBS	1.00	2103																			X						
LCSS	1.00	2109																			X						
EA1117	1.00	2114																			X						
EA1110	1.00	2119																			X						
EA1110S	1.00	2125																			X						
EA1110S2	1.00	2145																			X						
EA1110A	2.00	2152	93.6																		X						
CCV1	1.00	2205																			X						
CCB1	1.00	2211																			X						

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL
Lab Code: ESE Case No.: SAS No.: SDG No.: G48756
Instrument ID Number: BK400 Method: CV
Start Date: 05/03/94 End Date: 05/03/94

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
BLANK	1.00	0152																X									
STD 1	1.00	0152																X									
STD 2	1.00	0153																X									
STD 3	1.00	0153																X									
STD 4	1.00	0154																X									
STD 5	1.00	0154																X									
STD 6	1.00	0155																X									
STD 7	1.00	0155																X									
	1.00	0156																X									
STD 3	1.00	0156																X									
ICV	1.00	0157																X									
PBS	1.00	0157																X									
LCSS	1.00	0158																X									
EA1117	1.00	0158																X									
EA1110	1.00	0159																X									
EA1110S	1.00	0159																X									
EA1110S2	1.00	0200																X									
CCV1	1.00	0200																X									
CCB1	1.00	0201																X									

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4. INSTRUMENT RAW DATA

9513355.2517

ICAP Metals

9513355.2510

BK# 2 PG# 000080

(2)

JA 61 ICAP

Instrument Log

Analyst: Gary Price

Date: 5/4/94

PROFILING	Initial	Final
Time		
Temp.	76°F	
Humidity	72%	
Entr. Slit	740	
Ele. Cd		

Argon Tank Level —

Argon Regulator (psi) ~80

Element File Used EJE

File Name 54GLP

Method No. 6010

OPTIMIZATION

Cu/Mn 1359/1058 = 1.284

Coolant flow (LPM) 15.0

Coolant mass flow 15.0

Nebulizer flow (LPM) 0.75

Nebulizer mass flow 0.56

Forward power 1.1 Kw

Reflected power ~4w

Peristaltic pump 850

Viewing height 15.5 mm above coil

Y tongue 1 mm above torch

Maintenance/Comments:

Samples Analyzed:

COMHNSS 21, 22

Read & Understood By: Elizabeth A. Key 5-4-94

001418

9513355.2519

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5/4/94
GCP JA61
COMMNSS 21, 22
G48756

Method: ESE Standard: STD1-Blank

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Avge	.0018	.0407	-.0035	.0013	.0000	.0012	-.0011
SDev	.0002	.0019	.0039	.0005	.0001	.0000	.0001
%RSD	11.11	4.726	113.1	34.64	173.2	.0000	10.19
#1	.0018	.0410	-.0030	.0008	.0001	.0012	-.0010
#2	.0020	.0424	.0002	.0016	.0000	.0012	-.0012
#3	.0016	.0386	-.0076	.0016	.0000	.0012	-.0012

Elem	Ca	Cd2288	Co2286	Cr2677	Cu3247	Fe	Fe
Avge	.0047	.0001	.0002	.0009	.0035	.0009	.0027
SDev	.0015	.0001	.0003	.0002	.0006	.0011	.0005
%RSD	31.15	86.60	173.2	26.65	17.63	118.0	18.41
#1	.0042	.0002	.0006	.0010	.0040	.0002	.0022
#2	.0064	.0002	.0000	.0006	.0036	.0022	.0032
#3	.0036	.0000	.0000	.0010	.0028	.0004	.0028

Elem	K_7664	Mg2790	Mn2576	Mo2020	Na5889	Ni2316	Pb2203
Avge	.0145	.0005	.0096	.0007	.0643	.0006	.0021
SDev	.0032	.0003	.0000	.0002	.0032	.0009	.0008
%RSD	22.25	57.28	.0000	34.64	5.002	164.0	36.64
#1	.0164	.0006	.0096	.0004	.0606	.0016	.0026
#2	.0164	.0008	.0096	.0008	.0666	-.0002	.0012
#3	.0108	.0002	.0096	.0008	.0656	.0003	.0024

Elem	Sb2068	Se1960	Si2881	Sn1899	Ti3349	Tl1908	V_2924
Avge	.0005	.1497	.0181	.0158	.0005	-.0031	-.0019
SDev	.0010	.0017	.0003	.0005	.0001	.0029	.0001
%RSD	211.4	1.152	1.685	3.349	21.65	93.01	6.186
#1	.0000	.1494	.0178	.0160	.0006	-.0004	-.0018
#2	-.0002	.1516	.0184	.0162	.0006	-.0028	-.0020
#3	.0016	.1482	.0182	.0152	.0004	-.0062	-.0018

Elem	Zn2138
Avge	.0014
SDev	.0002
%RSD	14.29
#1	.0016
#2	.0014
#3	.0012

Method: ESE Standard: STD2

Elem	As1936	Ba4934	Be3130	Cd2288	Co2286	Cr2677	Cu3247
Avge	.2278	.3441	.3593	.2393	.3276	.5402	.4962
SDev	.0031	.0011	.0008	.0010	.0009	.0023	.0009
%RSD	1.352	.3197	.2318	.4207	.2798	.4205	.1757
#1	.2286	.3441	.3590	.2382	.3268	.5418	.4958
#2	.2304	.3452	.3602	.2394	.3286	.5412	.4972
#3	.2244	.3430	.3586	.2402	.3274	.5376	.4956

Elem	Mn2576	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Avge	.4331	.2499	.1794	.1128	.3425	.0864	.3825
SDev	.0006	.0046	.0022	.0013	.0014	.0003	.0012
%RSD	.1411	1.843	1.226	1.107	.4225	.4009	.3195
#1	.4330	.2510	.1794	.1118	.3408	.0862	.3828
#2	.4338	.2538	.1772	.1142	.3434	.0868	.3836
#3	.4326	.2448	.1816	.1124	.3432	.0862	.3812

Elem	Zn2138
Avge	.5332
SDev	.0021
%RSD	.3970
#1	.5356
#2	.5316
#3	.5324

Method: ESE Standard: STD3

Elem	Al3082	Ca	Ca	Fe	Fe	K_7664	Mg2790
Avge	3.530	.7763	5.908	.3777	3.654	1.559	.6151
SDev	.007	.0035	.027	.0021	.019	.007	.0003
%RSD	.1847	.4479	.4634	.5661	.5174	.4726	.0497
#1	3.536	.7790	5.938	.3802	3.667	1.566	.6150
#2	3.531	.7776	5.901	.3764	3.663	1.557	.6154
#3	3.523	.7724	5.885	.3766	3.632	1.552	.6148

Elem	Na5889
Avge	3.133
SDev	.009
%RSD	.2954
#1	3.138
#2	3.139
#3	3.123

Method: ESE Standard: STD4

Elem	Ag3280
Avge	.4745
SDev	.0053
%RSD	1.120
#1	.4750
#2	.4690
#3	.4796

Method: ESE Standard: STD5

Elem	B_2496	Mo2020	Si2881	Sn1899	Ti3349
Avge	.1213	.2167	.2237	.1762	.4059

SDev	.0006	.0001	.0019	.0028	.0005
%RSD	.4758	.0533	.8590	1.577	.1240
#1	.1220	.2168	.2234	.1744	.4058
#2	.1210	.2168	.2258	.1794	.4064
#3	.1210	.2166	.2220	.1748	.4054

Method: ESE Slope = Conc(SIR)/IR

Element	Wavelen	High std	Low std	Slope	Y-intercept	Date Standardized
Ag3280	328.068	STD4	STD1-Blank	2.11536	-.003808	05/04/94 10:03:08
Al3082	308.215	STD3	STD1-Blank	2.86588	-.116546	05/04/94 10:03:08
As1936	193.696	STD2	STD1-Blank	4.32401	.014990	05/04/94 10:03:08
B_2496	249.678	STD5	STD1-Blank	8.32500	-.011100	05/04/94 10:03:08
Ba4934	493.409	STD2	STD1-Blank	2.90641	-.000097	05/04/94 10:03:08
Be3130	313.042	STD2	STD1-Blank	2.79278	-.003351	05/04/94 10:03:08
Ca	317.933	STD3	STD1-Blank	1.69403	-.008018	05/04/94 10:03:08
Ca	307.603	STD3	STD1-Blank	12.8623	.014577	05/04/94 10:03:08
Cd2288	228.802	STD2	STD1-Blank	4.18177	-.000558	05/04/94 10:03:08
Co2286	228.616	STD2	STD1-Blank	3.05437	-.000611	05/04/94 10:03:08
Cr2677	267.716	STD2	STD1-Blank	1.85414	-.001607	05/04/94 10:03:08
Cu3247	324.754	STD2	STD1-Blank	2.02950	-.007036	05/04/94 10:03:08
Fe	259.940	STD3	STD1-Blank	2.73868	-.007486	05/04/94 10:03:08
Fe	271.441	STD3	STD1-Blank	26.5393	-.024770	05/04/94 10:03:08
K_7664	766.491	STD3	STD1-Blank	64.7668	-.941278	05/04/94 10:03:08
Mg2790	279.079	STD3	STD1-Blank	16.2725	-.008679	05/04/94 10:03:08
Mn2576	257.610	STD2	STD1-Blank	2.36109	-.022666	05/04/94 10:03:08
Mo2020	202.030	STD5	STD1-Blank	4.62820	-.003085	05/04/94 10:03:08
Na5889	588.995	STD3	STD1-Blank	3.25839	-.209406	05/04/94 10:03:08
Ni2316	231.604	STD2	STD1-Blank	4.01123	-.002273	05/04/94 10:03:08
Pb2203	220.353	STD2	STD1-Blank	5.63910	-.011654	05/04/94 10:03:08
Sb2068	206.838	STD2	STD1-Blank	8.90208	-.004154	05/04/94 10:03:08
Se1960	196.026	STD2	STD1-Blank	5.18852	-.776894	05/04/94 10:03:08
Si2881	288.158	STD5	STD1-Blank	4.86381	-.088197	05/04/94 10:03:08
Sn1899	189.989	STD5	STD1-Blank	6.14090	-.097026	05/04/94 10:03:08
Ti3349	334.941	STD5	STD1-Blank	2.46711	-.001316	05/04/94 10:03:08
Tl1908	190.864	STD2	STD1-Blank	11.1690	.034996	05/04/94 10:03:08
V_2924	292.402	STD2	STD1-Blank	2.60146	.004856	05/04/94 10:03:08
Zn2138	213.856	STD2	STD1-Blank	1.88041	-.002633	05/04/94 10:03:08

Method: ESE Slope = IR/Conc(SIR)

Element	Wavelen	High std	Low std	Slope	BEC	Date Standardized
Ag3280	328.068	STD4	STD1-Blank	.472733	.003808	05/04/94 10:03:08
Al3082	308.215	STD3	STD1-Blank	.348933	.116546	05/04/94 10:03:08
As1936	193.696	STD2	STD1-Blank	.231267	.014990	05/04/94 10:03:08
B_2496	249.678	STD5	STD1-Blank	.120120	.011100	05/04/94 10:03:08
Ba4934	493.409	STD2	STD1-Blank	.344067	.000097	05/04/94 10:03:08
Be3130	313.042	STD2	STD1-Blank	.358067	.003351	05/04/94 10:03:08
Ca	317.933	STD3	STD1-Blank	.590307	.008018	05/04/94 10:03:08
Ca	307.603	STD3	STD1-Blank	.077747	.014577	05/04/94 10:03:08
Cd2288	228.802	STD2	STD1-Blank	.239133	.000558	05/04/94 10:03:08
Co2286	228.616	STD2	STD1-Blank	.327400	.000611	05/04/94 10:03:08

9513355.2523

Element	Wavelen	High std	Low std	Slope	BEC	Date Standardized
Cr2677	267.716	STD2	STD1-Blank	.539333	.001607	05/04/94 10:03:08
Cu3247	324.754	STD2	STD1-Blank	.492733	.007036	05/04/94 10:03:08
Fe	259.940	STD3	STD1-Blank	.365140	.007486	05/04/94 10:03:08
Fe	271.441	STD3	STD1-Blank	.037680	.024770	05/04/94 10:03:08
K_7664	766.491	STD3	STD1-Blank	.015440	.941278	05/04/94 10:03:08
Mg2790	279.079	STD3	STD1-Blank	.061453	.008679	05/04/94 10:03:08
Mn2576	257.610	STD2	STD1-Blank	.423533	.022666	05/04/94 10:03:08
Mo2020	202.030	STD5	STD1-Blank	.216067	.003085	05/04/94 10:03:08
Na5889	588.995	STD3	STD1-Blank	.306900	.209406	05/04/94 10:03:08
Ni2316	231.604	STD2	STD1-Blank	.249300	.002273	05/04/94 10:03:08
Pb2203	220.353	STD2	STD1-Blank	.177333	.011654	05/04/94 10:03:08
Sb2068	206.838	STD2	STD1-Blank	.112333	.004154	05/04/94 10:03:08
Se1960	196.026	STD2	STD1-Blank	.192733	.776894	05/04/94 10:03:08
Si2881	288.158	STD5	STD1-Blank	.205600	.088197	05/04/94 10:03:08
Sn1899	189.989	STD5	STD1-Blank	.162843	.097026	05/04/94 10:03:08
Ti3349	334.941	STD5	STD1-Blank	.405333	.001316	05/04/94 10:03:08
Tl1908	190.864	STD2	STD1-Blank	.089533	.034996	05/04/94 10:03:08
V_2924	292.402	STD2	STD1-Blank	.384400	.004856	05/04/94 10:03:08
Zn2138	213:856	STD2	STD1-Blank	.531800	.002633	05/04/94 10:03:08

Method: ESE Sample Name: CCV*STD2*1 Operator: SLP
Run Time: 05/04/94 10:05:29
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0006	-.0048	.9784	-.0046	.9875	.9737	-.0042
SDev	.0002	.0030	.0170	.0025	.0049	.0043	.0014
%RSD	42.74	63.29	1.737	55.21	.5003	.4439	32.12
#1	-.0004	-.0025	.9882	-.0024	.9826	.9688	-.0028
#2	-.0008	-.0037	.9588	-.0074	.9924	.9772	-.0055
#3	-.0004	-.0082	.9882	-.0040	.9875	.9749	-.0045

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9858	.9865	.9874	.9908	.0011	.0345	.0119
SDev	.0139	.0023	.0071	.0031	.0011	.3517	.0050
%RSD	1.408	.2330	.7189	.3075	96.33	1018.	42.25
#1	.9746	.9849	.9799	.9878	.0011	.4059	.0107
#2	.9815	.9855	.9884	.9939	.0022	-.0086	.0075
#3	1.001	.9891	.9940	.9907	.0000	-.2936	.0174

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9860	.0001	.0050	.9959	1.000	.9968	.9647
SDev	.0045	.0016	.0049	.0098	.017	.0084	.0133
%RSD	.4525	1766.	98.48	.9872	1.698	.8445	1.375
#1	.9810	-.0008	-.0002	.9860	.9807	.9873	.9734
#2	.9876	-.0008	.0056	.9960	1.009	1.003	.9713
#3	.9895	.0020	.0096	1.006	1.011	.9998	.9494

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138

Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0133	-.0033	.0006	.9742	.9870	.9858
SDev	.0015	.0007	.0008	.0148	.0043	.0075
%RSD	10.98	21.64	135.2	1.522	.4386	.7623
#1	-.0117	-.0037	.0014	.9905	.9822	.9772
#2	-.0146	-.0024	.0004	.9705	.9884	.9891
#3	-.0136	-.0037	-.0001	.9616	.9905	.9910

Method: ESE Sample Name: CCV*STD4*1 Operator: GLF
Run Time: 05/04/94 10:07:47
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9962	.0025	.0089	-.0044	-.0003	.0002	-.0020
SDev	.0047	.0098	.0128	.0029	.0004	.0003	.0017
%RSD	.4770	390.4	144.2	64.94	152.8	175.0	85.58
#1	.9921	.0079	.0175	-.0011	.0002	.0005	-.0016
#2	.9951	.0084	-.0059	-.0061	-.0007	-.0000	-.0040
#3	1.001	-.0088	.0151	-.0061	-.0004	.0000	-.0006

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0008	.0004	.0015	-.0009	.0002	.1770	.0011
SDev	.0011	.0013	.0013	.0004	.0029	.3110	.0117
%RSD	139.6	314.5	87.90	42.96	1588.	175.7	1087.
#1	.0001	.0018	.0014	-.0005	.0024	-.1382	.0108
#2	.0020	-.0006	.0028	-.0009	.0013	.1857	.0043
#3	.0002	-.0000	.0002	-.0014	-.0031	.4836	-.0119

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	-.0015	.0083	.0036	.0083	.0024	-.0045
SDev	.0000	.0011	.0091	.0030	.0013	.0020	.0084
%RSD	.1664	69.70	110.5	83.95	15.68	84.16	185.9
#1	.0005	-.0022	.0174	.0049	.0098	.0012	.0003
#2	.0005	-.0022	.0083	.0001	.0075	.0047	-.0142
#3	.0005	-.0003	-.0009	.0057	.0075	.0012	.0004

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0104	-.0004	.0005	.0216	.0014	.0026
SDev	.0094	.0014	.0003	.0426	.0021	.0011
%RSD	90.60	352.1	57.72	197.3	151.5	42.97
#1	.0003	.0012	.0007	.0439	.0033	.0037
#2	-.0143	-.0012	.0007	-.0275	.0017	.0026
#3	-.0172	-.0012	.0002	.0484	-.0009	.0015

Method: ESE Sample Name: ICV*ICAP19*1 Operator: GLP
Run Time: 05/04/94 10:10:48
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0009	.0088	1.016	.0077	.0009	.9769	1.047
SDev	.0026	.0106	.012	.0026	.0004	.0021	.005
%RSD	286.1	119.9	1.141	33.03	50.92	.2154	.4540
#1	-.0015	-.0032	1.019	.0055	.0005	.9754	1.042
#2	.0019	.0128	1.026	.0105	.0014	.9760	1.051
#3	-.0032	.0168	1.003	.0072	.0008	.9793	1.049

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.003	.9859	1.005	.9968	1.047	.2763	1.013
SDev	.008	.0027	.004	.0029	.004	.0721	.012
%RSD	.8095	.2690	.3780	.2856	.3662	26.10	1.223
#1	1.002	.9841	1.001	.9941	1.045	.2634	1.005
#2	.9960	.9847	1.007	.9965	1.044	.2116	1.008
#3	1.012	.9889	1.008	.9998	1.051	.3541	1.028

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9911	1.022	.0365	1.008	1.021	1.025	.9849
SDev	.0031	.005	.0134	.005	.007	.007	.0136
%RSD	.3098	.4535	36.70	.4661	.7171	.6998	1.378
#1	.9880	1.017	.0376	1.003	1.013	1.017	.9726
#2	.9913	1.022	.0493	1.010	1.021	1.026	.9995
#3	.9941	1.027	.0226	1.012	1.028	1.031	.9828

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0607	.0012	1.010	1.018	1.006	1.007
SDev	.0031	.0014	.003	.018	.003	.001
%RSD	5.173	119.7	.2506	1.788	.2843	.1120
#1	.0585	.0003	1.008	1.005	1.006	1.006
#2	.0594	.0028	1.009	1.039	1.004	1.007
#3	.0643	.0004	1.013	1.010	1.009	1.008

Method: ESE Sample Name: ICV*ICAP7*1 Operator: GLP
Run Time: 05/04/94 10:13:12
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.033	1.012	.0092	1.003	1.007	.0002	.0084
SDev	.004	.006	.0090	.011	.003	.0003	.0014
%RSD	.3414	.6236	97.36	1.089	.3466	168.8	16.39
#1	1.037	1.017	.0121	.9929	1.008	-.0000	.0069

#2	1.031	1.005	.0165	1.001	1.004	.0006	.0086
#3	1.030	1.014	-.0008	1.015	1.011	.0000	.0096

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0006	.0003	.0012	.0005	.0221	9.996	-.0087
SDev	.0017	.0012	.0002	.0006	.0031	.164	.0065
%RSD	267.8	368.6	17.46	114.5	13.80	1.641	74.94
#1	.0010	.0016	.0014	.0011	.0226	10.17	-.0152
#2	-.0024	-.0009	.0014	.0007	.0248	9.849	-.0022
#3	-.0006	.0003	.0010	-.0001	.0188	9.965	-.0087

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	-.0000	1.033	.0004	.0038	-.0042	-.0087
SDev	.0000	.0011	.009	.0006	.0013	.0030	.0065
%RSD	1.268	223500.	.8941	156.4	33.83	72.65	74.22
#1	-.0000	.0006	1.037	.0005	.0046	-.0077	-.0140
#2	-.0000	.0006	1.041	.0009	.0023	-.0025	-.0108
#3	-.0000	-.0012	1.023	-.0003	.0046	-.0024	-.0015

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5512	.0033	.0005	.0180	-.0004	.0060
SDev	.0006	.0105	.0003	.0208	.0023	.0004
%RSD	.1030	314.7	57.78	115.1	644.8	6.213
#1	.5519	-.0065	.0002	.0039	.0007	.0064
#2	.5509	.0144	.0007	.0084	.0012	.0060
#3	.5509	.0021	.0007	.0419	-.0030	.0056

Method: ESE Sample Name: ICS*A*1 Operator: GLF
Run Time: 05/04/94 10:15:33
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0045	518.5	.1712	-.0027	.0045	.0006	485.7
SDev	.0016	2.6	.0175	.0084	.0002	.0006	2.0
%RSD	35.46	.5099	10.20	310.4	3.765	100.3	.4042
#1	-.0063	520.6	.1831	-.0105	.0046	.0006	486.6
#2	-.0034	515.6	.1511	-.0039	.0046	.0011	483.4
#3	-.0038	519.4	.1793	.0063	.0043	.0000	487.0

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0028	-.0041	.0055	.0013	185.2	-.4275	511.6
SDev	.0021	.0010	.0004	.0005	.8	.1940	2.2
%RSD	77.27	23.81	6.844	34.88	.4159	45.39	.4251
#1	-.0037	-.0039	.0055	.0011	185.2	-.6434	513.4
#2	-.0043	-.0033	.0051	.0019	184.4	-.2677	509.2

#3	-.0003	-.0052	.0058	.0011	185.9	-.3713	512.1

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0073	.0074	.2090	-.0067	.0136	.0044	.1567
SDev	.0003	.0011	.0121	.0075	.0121	.0094	.0431
%RSD	3.573	14.32	5.776	111.8	88.39	215.2	27.50
#1	.0070	.0080	.1966	-.0135	.0031	.0008	.1132
#2	.0074	.0062	.2096	.0013	.0111	-.0027	.1994
#3	.0075	.0080	.2207	-.0079	.0268	.0151	.1576

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0052	.0374	.0066	.1115	.0003	.0150
SDev	.0037	.0082	.0000	.0450	.0011	.0015
%RSD	71.11	21.90	.0015	40.39	324.2	10.09
#1	-.0026	.0358	.0066	.1633	.0015	.0165
#2	-.0094	.0462	.0066	.0816	-.0004	.0149
#3	-.0036	.0301	.0066	.0895	-.0002	.0135

Method: ESE Sample Name: ICS*AB*1 Operator: GLP
Run Time: 05/04/94 10:17:51
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.008	524.9	.2054	.0073	.5064	.4928	489.9
SDev	.003	1.7	.0570	.0071	.0022	.0017	1.4
%RSD	.2937	.3301	27.73	97.45	.4346	.3404	.2837
#1	1.010	526.2	.2180	-.0009	.5079	.4945	490.0
#2	1.009	525.5	.2550	.0123	.5074	.4928	491.2
#3	1.005	522.9	.1432	.0105	.5039	.4911	488.5

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9672	.4477	.4786	.5025	186.2	-.6779	518.4
SDev	.0075	.0013	.0023	.0023	1.1	.3479	1.9
%RSD	.7777	.2821	.4738	.4587	.6058	51.32	.3658
#1	.9618	.4464	.4797	.5032	187.4	-.9283	519.4
#2	.9641	.4489	.4801	.5044	186.2	-.2807	519.6
#3	.9758	.4477	.4760	.4999	185.1	-.8247	516.2

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4725	.0130	.2585	.9294	.9421	-.0075	.1228
SDev	.0014	.0040	.0081	.0044	.0205	.0251	.0278
%RSD	.3066	31.10	3.149	.4744	2.178	334.4	22.63
#1	.4733	.0148	.2611	.9268	.9295	.0080	.0933
#2	.4733	.0157	.2650	.9268	.9657	.0060	.1266
#3	.4708	.0083	.2494	.9345	.9309	-.0365	.1485

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0084	.0261	.0058	.0804	.4838	.9848
SDev	.0154	.0217	.0006	.0669	.0009	.0041
%RSD	184.7	83.31	9.829	83.22	.1828	.4180
#1	.0025	.0055	.0055	.0455	.4838	.9837
#2	.0259	.0488	.0065	.1575	.4830	.9894
#3	-.0033	.0240	.0055	.0381	.4847	.9814

Method: ESE Sample Name: MB*REAGENTS*1 Operator: GLP
Run Time: 05/04/94 10:28:12
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0016	.0012	.0129	.0067	-.0000	-.0000	-.0055
SDev	.0009	.0042	.0155	.0039	.0006	.0000	.0007
%RSD	56.65	365.4	119.8	57.68	12e9	15.74	12.75
#1	.0025	.0044	-.0050	.0089	.0005	-.0000	-.0053
#2	.0009	-.0036	.0219	.0089	-.0007	-.0000	-.0050
#3	.0013	.0027	.0219	.0022	.0002	-.0000	-.0063

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0014	.0027	-.0023	.0060	.1598	.0043
SDev	.0004	.0018	.0012	.0005	.0003	.0849	.0032
%RSD	346.9	124.0	43.90	20.39	5.249	53.17	74.67
#1	-.0005	.0024	.0036	-.0026	.0062	.2375	.0044
#2	.0001	.0024	.0032	-.0026	.0062	.0691	.0011
#3	.0001	-.0006	.0014	-.0018	.0057	.1727	.0076

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	.0003	.0802	-.0001	.0075	.0088	.0013
SDev	.0000	.0005	.0079	.0017	.0019	.0057	.0147
%RSD	.0797	172.7	9.801	1271.	25.89	64.72	1094.
#1	.0005	.0006	.0884	-.0015	.0086	.0154	-.0153
#2	.0005	.0006	.0728	-.0007	.0053	.0064	.0128
#3	.0005	-.0003	.0793	.0017	.0086	.0047	.0065

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0448	.0094	.0005	-.0089	.0019	.0011
SDev	.0011	.0038	.0003	.0305	.0003	.0008
%RSD	2.507	39.87	57.86	341.3	15.74	65.83
#1	.0441	.0061	.0002	.0261	.0017	.0011
#2	.0441	.0135	.0007	-.0298	.0023	.0004
#3	.0461	.0086	.0007	-.0231	.0017	.0019

Method: ESE Sample Name: MB*QC*1 Operator: GLP
Run Time: 05/04/94 10:30:39
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	.3598	.0104	.0689	.0026	.0002	1.271
SDev	.0006	.0038	.0093	.0033	.0002	.0003	.001
%RSD	229.9	1.047	89.52	4.839	6.415	182.2	.0705
#1	-.0004	.3558	.0064	.0656	.0025	-.0000	1.271
#2	.0004	.3633	.0038	.0689	.0028	-.0000	1.270
#3	.0008	.3603	.0210	.0722	.0025	.0005	1.272

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0016	.0038	.0012	.6460	.2202	.6541
SDev	.0015	.0007	.0004	.0002	.0016	.1768	.0124
%RSD	777.0	45.02	11.48	19.04	.2544	80.30	1.891
#1	.0011	.0012	.0036	.0011	.6476	.3800	.6487
#2	.0011	.0024	.0036	.0011	.6443	.0302	.6454
#3	-.0016	.0012	.0043	.0015	.6460	.2504	.6683

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0323	-.0003	2.501	.0047	-.0036	.0029	-.0038
SDev	.0003	.0040	.007	.0038	.0128	.0071	.0230
%RSD	.8413	1337.	.2762	81.18	357.8	245.9	610.3
#1	.0320	-.0022	2.494	.0017	.0069	-.0042	-.0176
#2	.0325	-.0031	2.502	.0033	-.0179	.0100	-.0166
#3	.0325	.0043	2.507	.0090	.0002	.0029	.0228

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.011	.0126	.0066	.0237	.0027	.0043
SDev	.015	.0019	.0000	.0097	.0009	.0008
%RSD	1.471	14.86	.0018	41.01	33.76	18.08
#1	.9945	.0147	.0066	.0304	.0021	.0040
#2	1.014	.0110	.0066	.0126	.0021	.0036
#3	1.024	.0122	.0066	.0282	.0037	.0051

Method: ESE Sample Name: SP*QC*1 Operator: GLP
Run Time: 05/04/94 10:34:48
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0513	2.511	1.960	1.088	1.954	.0501	10.26
SDev	.0006	.006	.009	.007	.006	.0006	.02
%RSD	1.260	.2421	.4525	.6181	.2924	1.282	.1769

#1	.0506	2.506	1.970	1.082	1.957	.0504	10.24
#2	.0519	2.509	1.954	1.095	1.947	.0493	10.27
#3	.0515	2.518	1.956	1.087	1.957	.0504	10.28

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0511	.4784	.1981	.2429	1.667	10.14	10.14
SDev	.0013	.0021	.0012	.0011	.007	.19	.02
%RSD	2.451	.4416	.6025	.4419	.4187	1.862	.1700
#1	.0513	.4772	.1990	.2421	1.671	10.06	10.14
#2	.0498	.4772	.1967	.2425	1.659	10.00	10.12
#3	.0523	.4808	.1986	.2441	1.670	10.35	10.15

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5350	.4956	12.84	.4992	.4993	.4985	1.961
SDev	.0012	.0009	.02	.0022	.0069	.0084	.002
%RSD	.2221	.1864	.1263	.4436	1.382	1.689	.0817
#1	.5338	.4956	12.82	.5013	.5008	.5051	1.959
#2	.5352	.4946	12.84	.4993	.5053	.4891	1.962
#3	.5361	.4965	12.86	.4969	.4917	.5015	1.961

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.505	.9822	.5055	1.888	.4889	.4963
SDev	.008	.0057	.0006	.054	.0020	.0010
%RSD	.5566	.5770	.1126	2.841	.4026	.1996
#1	1.506	.9757	.5059	1.842	.4875	.4974
#2	1.512	.9855	.5049	1.947	.4880	.4955
#3	1.496	.9855	.5059	1.875	.4911	.4959

Method: ESE Sample Name: CDMHNSS*21 Operator: GLP
Run Time: 05/04/94 10:37:47
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0024	119.6	.1655	.0972	1.163	.0046	141.7
SDev	.0004	.5	.0076	.0025	.007	.0000	.5
%RSD	17.16	.4477	4.597	2.562	.5765	.0346	.3699
#1	-.0020	119.0	.1722	.0994	1.155	.0046	141.2
#2	-.0024	120.1	.1572	.0979	1.168	.0046	142.3
#3	-.0029	119.8	.1672	.0945	1.166	.0046	141.6

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	.0819	.1854	.1763	194.9	19.34	72.67
SDev	.0013	.0004	.0002	.0008	.7	.29	.21
%RSD	351.5	.4887	.1131	.4525	.3814	1.493	.2943

#1	.0006	.0822	.1852	.1755	194.1	19.19	72.43
#2	.0016	.0820	.1855	.1771	195.5	19.67	72.81
#3	-.0010	.0814	.1856	.1763	195.2	19.15	72.78

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.866	.0107	7.593	.1718	.0837	.0078	.0635
SDev	.014	.0011	.017	.0021	.0131	.0074	.0081
%RSD	.3744	10.05	.2212	1.238	15.63	95.59	12.83
#1	3.851	.0100	7.575	.1710	.0972	.0138	.0725
#2	3.879	.0100	7.596	.1701	.0828	.0100	.0616
#3	3.869	.0119	7.608	.1742	.0710	-.0005	.0565

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	15.41	.0182	9.652	.0560	.3664	.4861
SDev	.10	.0114	.046	.0370	.0004	.0035
%RSD	.6802	62.23	.4771	66.12	.1020	.7142
#1	15.29	.0092	9.603	.0219	.3668	.4822
#2	15.44	.0310	9.694	.0954	.3665	.4838
#3	15.50	.0146	9.659	.0507	.3660	.4874

Method: ESE Sample Name: CDMHNSS*22 Operator: SLP
Run Time: 05/04/94 10:39:56
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0011	104.1	.1678	.0799	1.091	.0043	129.1
SDev	.0004	.3	.0163	.0034	.003	.0000	.1
%RSD	40.09	.2469	9.732	4.196	.2874	.1968	.0803
#1	-.0006	104.1	.1493	.0832	1.089	.0043	129.2
#2	-.0011	103.9	.1739	.0765	1.090	.0043	129.0
#3	-.0015	104.4	.1801	.0800	1.094	.0043	129.2

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0008	.0713	.1406	.1538	172.1	20.24	66.03
SDev	.0018	.0020	.0004	.0006	.6	.17	.25
%RSD	228.7	2.861	.2653	.3991	.3723	.8641	.3718
#1	-.0001	.0727	.1402	.1536	172.0	20.24	66.04
#2	-.0028	.0721	.1406	.1532	171.5	20.07	65.79
#3	.0005	.0689	.1409	.1545	172.8	20.42	66.28

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.444	.0125	7.717	.1363	.1023	.0014	.0771
SDev	.005	.0028	.012	.0010	.0128	.0054	.0105
%RSD	.1385	22.69	.1578	.7381	12.50	394.1	13.63
#1	3.442	.0100	7.715	.1352	.1155	-.0034	.0869

#2	3.441	.0156	7.706	.1365	.0900	.0003	.0786
#3	3.449	.0119	7.730	.1372	.1014	.0073	.0660

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	16.26	.0196	8.187	.0665	.3089	.4368
SDev	.03	.0103	.024	.0478	.0020	.0013
%RSD	.2084	52.37	.2956	71.84	.6409	.2980
#1	16.26	.0311	8.186	.0688	.3112	.4381
#2	16.23	.0112	8.164	.0176	.3077	.4356
#3	16.30	.0166	8.212	.1132	.3079	.4365

Method: ESE Sample Name: SD*CDMHNSS*22 Operator: SLP
Run Time: 05/04/94 10:45:19
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0015	20.32	.0306	.0132	.2145	.0009	25.85
SDev	.0029	.07	.0225	.0029	.0009	.0000	.10
%RSD	187.1	.3569	73.41	22.00	.4356	1.487	.3701
#1	.0007	20.38	.0493	.0165	.2156	.0008	25.96
#2	-.0006	20.34	.0368	.0115	.2138	.0008	25.82
#3	-.0048	20.24	.0057	.0115	.2141	.0009	25.78

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	.0143	.0303	.0287	35.12	3.942	13.01
SDev	.0016	.0006	.0011	.0006	.10	.149	.04
%RSD	266.6	4.387	3.534	2.158	.2930	3.789	.3003
#1	.0024	.0136	.0315	.0286	35.24	3.994	13.05
#2	-.0000	.0143	.0296	.0282	35.04	3.774	13.01
#3	-.0006	.0149	.0296	.0294	35.09	4.059	12.98

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.6922	.0013	1.494	.0294	.0217	.0033	.0166
SDev	.0026	.0005	.006	.0049	.0064	.0027	.0078
%RSD	.3786	42.58	.3910	16.61	29.51	82.78	47.35
#1	.6950	.0016	1.497	.0262	.0148	.0056	.0122
#2	.6917	.0006	1.497	.0270	.0228	.0039	.0119
#3	.6898	.0016	1.487	.0350	.0275	.0003	.0256

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.241	.0031	1.617	.0327	.0615	.0890
SDev	.027	.0096	.007	.0331	.0030	.0009
%RSD	.8205	307.2	.4318	101.3	4.876	1.072
#1	3.270	-.0029	1.625	.0692	.0632	.0899
#2	3.233	-.0019	1.614	.0044	.0632	.0892

#3	3.219	.0141	1.613	.0245	.0580	.0880

Method: ESE Sample Name: SPX*CDMHNSS*22 Operator: SLP
Run Time: 05/04/94 10:47:38
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.2562	55.03	.4221	.2901	.7983	.2498	68.52
SDev	.0015	.13	.0342	.0053	.0013	.0006	.21
%RSD	.5726	.2442	8.113	1.837	.1587	.2557	.3038
#1	.2554	55.14	.4484	.2840	.7977	.2502	68.70
#2	.2554	54.88	.4344	.2922	.7974	.2491	68.29
#3	.2579	55.07	.3833	.2939	.7997	.2502	68.56

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.2491	.2778	.3190	.3231	91.62	12.69	35.98
SDev	.0010	.0009	.0015	.0007	.20	.38	.12
%RSD	.4232	.3258	.4669	.2162	.2131	3.034	.3354
#1	.2491	.2786	.3205	.3235	91.82	12.41	36.09
#2	.2501	.2768	.3175	.3223	91.43	12.52	35.85
#3	.2480	.2780	.3190	.3235	91.60	13.13	35.98

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.010	.2574	6.385	.3134	.2995	.2668	.3900
SDev	.007	.0032	.011	.0012	.0060	.0101	.0137
%RSD	.3281	1.245	.1727	.3901	1.995	3.804	3.518
#1	2.017	.2593	6.382	.3120	.3054	.2555	.3970
#2	2.003	.2537	6.397	.3136	.2934	.2751	.3742
#3	2.011	.2593	6.376	.3144	.2998	.2698	.3989

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	8.279	.2552	4.409	.4136	.4035	.4702
SDev	.036	.0119	.009	.0113	.0016	.0038
%RSD	.4338	4.657	.2127	2.725	.3870	.8046
#1	8.285	.2524	4.418	.4017	.4038	.4726
#2	8.240	.2682	4.399	.4152	.4018	.4658
#3	8.311	.2449	4.408	.4241	.4049	.4722

Method: ESE Sample Name: SPM1*CDMHNSS*22 Operator: SLP
Run Time: 05/04/94 10:49:52
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0481	106.1	2.037	1.053	2.997	.0534	135.9

SDev	.0017	.8	.042	.020	.029	.0006	.7
%RSD	3.538	.7529	2.059	1.918	.9806	1.190	.5160
#1	.0483	105.4	2.017	1.034	2.973	.0530	135.2
#2	.0496	106.0	2.009	1.050	2.988	.0530	135.9
#3	.0462	107.0	2.085	1.074	3.030	.0541	136.6

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0489	.5305	.3313	.3968	180.8	30.33	78.09
SDev	.0025	.0038	.0017	.0037	.9	.48	.50
%RSD	5.153	.7098	.5013	.9226	.5232	1.582	.6361
#1	.0460	.5266	.3296	.3934	179.9	29.86	77.58
#2	.0502	.5308	.3314	.3962	180.7	30.30	78.11
#3	.0504	.5342	.3329	.4007	181.8	30.82	78.57

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.097	.4839	17.66	.5994	.5784	.3637	2.032
SDev	.025	.0005	.13	.0038	.0059	.0010	.029
%RSD	.6145	.1113	.7333	.6340	1.027	.2856	1.445
#1	4.074	.4836	17.56	.5955	.5737	.3632	1.999
#2	4.092	.4836	17.63	.5995	.5851	.3649	2.044
#3	4.124	.4845	17.81	.6031	.5765	.3631	2.054

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	27.06	.9581	8.925	1.881	.8005	.9188
SDev	.14	.0085	.074	.046	.0040	.0044
%RSD	.5217	.8853	.8270	2.420	.5065	.4761
#1	26.91	.9627	8.860	1.862	.7958	.9170
#2	27.07	.9632	8.909	1.848	.8024	.9157
#3	27.19	.9483	9.005	1.933	.8032	.9238

Method: ESE Sample Name: SFM2*CDMHNSS*22 Operator: GLF
Run Time: 05/04/94 10:52:10
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0462	111.1	2.041	1.071	3.039	.0530	141.6
SDev	.0022	.1	.025	.007	.008	.0000	.3
%RSD	4.759	.1348	1.241	.6283	.2530	.0080	.2207
#1	.0475	111.1	2.041	1.071	3.042	.0530	141.4
#2	.0475	110.9	2.015	1.064	3.030	.0530	141.4
#3	.0436	111.2	2.066	1.077	3.045	.0530	141.9

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0486	.5304	.3396	.3999	184.1	31.08	79.84
SDev	.0026	.0025	.0017	.0018	.5	.36	.16

%RSD	5.335	.4696	.5004	.4408	.2886	1.151	.2058
#1	.0499	.5324	.3399	.3991	184.1	30.99	79.81
#2	.0502	.5276	.3377	.3987	183.6	31.47	79.70
#3	.0456	.5311	.3410	.4019	184.7	30.77	80.02

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.282	.4821	17.99	.6010	.5746	.3603	2.027
SDev	.010	.0014	.03	.0028	.0116	.0027	.023
%RSD	.2315	.2931	.1849	.4729	2.023	.7583	1.147
#1	4.277	.4808	18.00	.6035	.5730	.3633	2.045
#2	4.276	.4818	17.95	.5979	.5869	.3597	2.035
#3	4.294	.4836	18.01	.6015	.5638	.3579	2.001

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	25.60	.9407	8.851	1.856	.8008	.9200
SDev	.03	.0107	.019	.012	.0010	.0008
%RSD	.1250	1.138	.2186	.6619	.1247	.0881
#1	25.58	.9444	8.849	1.854	.8013	.9205
#2	25.58	.9491	8.833	1.845	.8014	.9191
#3	25.63	.9287	8.872	1.869	.7996	.9205

Method: ESE Sample Name: ICS*A*2 Operator: GLP
Run Time: 05/04/94 10:54:14
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0080	522.4	.2687	.0066	.0050	.0006	488.1
SDev	.0063	1.7	.2558	.0033	.0008	.0000	2.3
%RSD	78.68	.3230	95.18	50.85	16.65	3.459	.4749
#1	-.0034	521.2	.0499	.0092	.0060	.0005	485.7
#2	-.0055	524.3	.2063	.0028	.0046	.0005	490.4
#3	L-.0152	521.6	.5499	.0077	.0046	.0006	488.1

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0041	-.0024	.0073	.0005	183.9	-.4663	515.9
SDev	.0037	.0004	.0015	.0002	1.2	.0955	2.1
%RSD	89.94	17.56	20.59	44.03	.6274	20.48	.4035
#1	-.0026	-.0019	.0058	.0007	182.6	-.3584	514.2
#2	-.0014	-.0027	.0073	.0003	184.9	-.5397	518.2
#3	-.0083	-.0027	.0088	.0007	184.2	-.5009	515.3

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0088	.0114	.1886	-.0006	.0086	-.0111	.1660
SDev	.0010	.0037	.0245	.0052	.0038	.0113	.0040
%RSD	11.98	32.84	12.98	899.2	43.94	102.5	2.441

#1	.0099	.0080	.2103	-.0027	.0043	-.0242	.1671
#2	.0086	.0108	.1933	-.0043	.0111	-.0045	.1693
#3	.0079	.0154	.1621	.0053	.0104	-.0046	.1615

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0143	.0415	.0086	.1572	-.0003	.0169
SDev	.0098	.0181	.0026	.0143	.0046	.0008
%RSD	68.50	43.60	29.99	9.104	1398.	4.973
#1	.0237	.0555	.0115	.1463	.0025	.0170
#2	.0149	.0211	.0071	.1734	.0021	.0177
#3	.0042	.0478	.0071	.1519	-.0056	.0160

Method: ESE Sample Name: ICS*AB*2 Operator: GLP
Run Time: 05/04/94 10:56:25
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.016	526.4	.3178	-.0028	.5044	.4930	490.9
SDev	.006	1.8	.2240	.0073	.0019	.0017	1.2
%RSD	.5461	.3475	70.47	264.3	.3837	.3451	.2464
#1	1.021	528.3	.1714	-.0078	.5056	.4945	492.0
#2	1.017	524.6	.2064	-.0062	.5021	.4912	489.6
#3	1.010	526.3	.5756	.0056	.5053	.4934	491.0

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9931	.4514	.4800	.5017	185.4	-.3843	520.3
SDev	.0059	.0006	.0035	.0017	.5	.0721	1.4
%RSD	.5969	.1410	.7294	.3367	.2565	18.77	.2723
#1	.9982	.4507	.4760	.5036	185.5	-.3066	521.7
#2	.9946	.4520	.4812	.5003	184.9	-.3972	518.8
#3	.9866	.4513	.4827	.5011	185.8	-.4491	520.4

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4730	.0114	.2539	.9284	.9574	-.0015	.1295
SDev	.0011	.0019	.0028	.0174	.0157	.0198	.0059
%RSD	.2237	16.69	1.119	1.869	1.636	1330.	4.582
#1	.4742	.0129	.2507	.9220	.9461	.0008	.1268
#2	.4721	.0120	.2559	.9152	.9753	-.0224	.1254
#3	.4728	.0093	.2552	.9480	.9507	.0171	.1363

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0096	.0080	.0060	.1756	.4826	.9923
SDev	.0083	.0072	.0005	.0351	.0013	.0010
%RSD	85.81	90.20	8.286	19.97	.2682	.1054

#1	.0191	.0159	.0060	.1351	.4831	.9935
#2	.0035	.0062	.0065	.1939	.4811	.9915
#3	.0064	.0019	.0055	.1977	.4836	.9920

Method: ESE Sample Name: CCV*QC*1 Operator: GLP
Run Time: 05/04/94 10:58:50
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5153	5.145	.7065	.5128	.5029	.5067	5.136
SDev	.0016	.058	.0053	.0039	.0009	.0000	.046
%RSD	.3111	1.136	.7523	.7501	.1858	.0009	.9041
#1	.5160	5.212	.7110	.5106	.5036	.5067	5.189
#2	.5165	5.119	.7006	.5106	.5018	.5067	5.117
#3	.5135	5.103	.7077	.5172	.5033	.5067	5.101

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5061	.5022	.5062	.5006	5.187	5.220	5.138
SDev	.0037	.0006	.0012	.0007	.024	.133	.025
%RSD	.7285	.1207	.2347	.1401	.4616	2.547	.4841
#1	.5036	.5028	.5048	.5010	5.214	5.367	5.165
#2	.5104	.5022	.5071	.4998	5.180	5.186	5.116
#3	.5045	.5016	.5067	.5010	5.168	5.108	5.133

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5016	.5144	5.015	.5011	.5181	.5163	.7189
SDev	.0005	.0019	.017	.0086	.0142	.0035	.0132
%RSD	.0944	.3747	.3339	1.721	2.744	.6814	1.841
#1	.5016	.5160	5.006	.5084	.5161	.5128	.7217
#2	.5011	.5122	5.035	.5032	.5050	.5199	.7045
#3	.5021	.5150	5.005	.4916	.5332	.5162	.7306

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0114	.5022	.5083	.6881	.5020	.5018
SDev	.0026	.0074	.0008	.0269	.0011	.0005
%RSD	22.64	1.478	.1682	3.913	.2151	.0921
#1	.0143	.4944	.5087	.7163	.5029	.5015
#2	.0104	.5030	.5073	.6627	.5024	.5015
#3	.0094	.5091	.5087	.6851	.5008	.5023

Method: ESE Sample Name: CCB*QC*1 Operator: GLP
Run Time: 05/04/94 11:01:12
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca

Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	.0010	.0089	-.0017	-.0003	-.0000	-.0002
SDev	.0017	.0059	.0045	.0010	.0002	.0000	.0016
%RSD	606.9	608.1	50.84	58.18	57.74	1080.	686.1
#1	.0013	.0044	.0115	-.0011	-.0001	-.0000	.0001
#2	.0013	.0044	.0037	-.0011	-.0004	-.0000	.0011
#3	-.0017	-.0058	.0116	-.0028	-.0004	.0000	-.0019

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	-.0000	.0006	-.0018	.0086	-.0691	-.0065
SDev	.0005	.0006	.0020	.0000	.0019	.0665	.0114
%RSD	106.7	110700.	319.5	.1345	22.42	96.22	175.1
#1	.0002	.0006	.0028	-.0018	.0106	-.1252	.0043
#2	.0011	-.0006	-.0009	-.0018	.0084	-.0864	-.0184
#3	.0002	-.0000	-.0001	-.0018	.0068	.0043	-.0055

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	-.0012	.0063	.0011	.0034	-.0012	.0076
SDev	.0003	.0033	.0028	.0015	.0043	.0063	.0068
%RSD	173.8	270.6	45.09	142.3	126.3	536.9	89.43
#1	-.0000	-.0003	.0083	.0021	-.0015	-.0077	.0148
#2	.0000	.0015	.0076	-.0007	.0064	.0047	.0014
#3	.0005	-.0049	.0030	.0017	.0053	-.0005	.0066

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0055	-.0021	-.0005	.0134	.0002	.0006
SDev	.0034	.0046	.0003	.0313	.0019	.0004
%RSD	61.92	226.0	57.82	233.5	1080.	70.31
#1	.0091	.0012	-.0008	-.0119	.0007	.0004
#2	.0023	-.0000	-.0003	.0037	.0017	.0011
#3	.0052	-.0074	-.0003	.0484	-.0019	.0004

9513355.2530

GFAA Metals - Arsenic

9513355.2540

(2)

ELEMENT: As METHOD # ASM 3233-011 BK# 18 PG# ~~84A~~ 85A MSS 5/3/94

ANALYST: M. Sexler EMP. # 3377 DATE: 5/3/94

SAMPLES ANALYZED:

CDMHXSS # 21,22

BATCH #

G48747
MSS
5/3/94

INSTRUMENT PARAMETERS:

Inst. model	5100C
Wavelength	193.7
Bandwidth	.7
EDL/HCL#	2838
Energy/Watts	51
Power Supply	NO #
HGA model	600
Tube type	Pyro Forced Platform
Sample aliq.	20 ul
Modifier	500 PPm Pd (NO3)2
Modifier aliq.	5 ul
Zeeman type	Longitudinal

STANDARDS:

1000 ppm stock

Manufacturer	Fisher
Lot number	925266-24
Date received	7/93
Date expires	7/94

Working Standards

Date prep'ed:	5/3/94
10 mg/L std.	~~4/4/94~~ 5/3/94
100 ug/L std.	5/3/94
10 ug/L std.	5/3/94

CALIBRATION CURVE:

	conc.	abs.
Blank	0.0	.003
Std.1	2.5	.013
Std.2	5.0	.026
Std.3	10.0	.053
Std.4	25.0	.139
Std.5	50.0	.255
Std.6	100.0	.491
Std.7		
Std.8		
c.c:	.99971 (nonlinear)	
Det. L.	2.5 PPb	

HGA KEYBOARD ENTRIES:

STEP	1	2	3	4	5
Temp(C)	140	1100	2200	2650	
Ramp (sec)	5	10	0	1	
Hold (sec)	50	20	4	5	
Read Step			*		
Gas (ml/min)	300	300	20	300	

PREVENTATIVE MAINTENANCE/COMMENTS: 5/3/94 MSS

changes made to the runlog reflect changes made in the raw data

READ AND UNDERSTOOD BY: Jeri D. Rapino 5/3/94

~~000055~~

001440

9513355.2541

Analyst:M SEIGLER DATE:05-03-94 ELEMENT:As BOOK: 18 Pg:~~84~~B 85 MS 5/3/94

Print #	Sample I. D.	Peak Area	Conc. (ppb)	Target (ppb)	Comments
1	Calib. Blank	0.0027	---		
2	Standard 1	0.0132	---		
3	Standard 2	0.0257	4.9		
4	Standard 3	0.0523	10.7		
5	Standard 4	0.1390	26.9		
6	Standard 5	0.2544	43.4		
7	Standard 6	0.4906	94.6		CC = .99971 (Nonlinear)
8	ICV*PE-PURE*1	0.2493	48.5	50	97.0%REC
9	MB*REAGENT *1	-0.0036	-0.7		
10	MB*QC*1	-0.0017	-0.3		
11	SP*QC*1	0.1959	37.8	40	94.5%REC
12	CDMHNSS*21	0.2976	58.3		
13	CDMHNSS*22	0.2953	57.8		
14	SPM1*CDMHNSS*22	0.4450	89.1	40	78.3%REC 89.1 - 57.8 = 31.3
15	SPM2*CDMHNSS*22	0.4268	85.2	40	68.5%REC 85.2 - 57.8 = 27.4
16	SD*CDMHNSS*22 1:5	0.0704	13.4		13.4 x 5 = 67 ÷ 57.8 = 115.9% rec
17	CCV*QC*1	0.2497	48.6	50	97.2%REC
18	CCB*QC*1	-0.0026	-0.5		
19	SA0*CDMHNSS*21	0.2992	58.6		
20	SA1*CDMHNSS*21	0.3790	75.1	20	above high std
21	SA2*CDMHNSS*21	0.4373	87.4	40	rerun with 1:2 dilution
22	SA3*CDMHNSS*21 MS 5/3/94	0.5283	107.1	60	
23	SA0*CDMHNSS*21 1:2	0.1681	32.3		
24	SA1*CDMHNSS*21	0.2622	51.1	20	CC = .9998
25	SA2*CDMHNSS*21	0.3473	68.5	40	[X] = 37.17 x 2 = 74.34
26	SA3*CDMHNSS*21	0.4423	88.5	60	
27	SA0*CDMHNSS*22	0.1649	31.7		
28	SA1*CDMHNSS*22	0.2577	50.2	20	CC = .9994
29	SA2*CDMHNSS*22	0.3380	66.6	40	[X] = 37.10 x 2 = 74.20
30	SA3*CDMHNSS*22	0.4349	86.9	60	
31	CCV*QC*2	0.2586	50.4	50	100.8%REC Single lower
32	CCB*QC*2	-0.0016	-0.3		data not used
33	CCV*QC*2	0.2514	48.9	50	97.8%REC
34	CCB*QC*2	-0.0022	-0.4		

(3)

Element File: AS_FURN.GEL Element: As Wavelength: 193.7
Date: 05/03/94 Time: 18:48 Slit: 0.70 L
Data File: A:TL_5_3.DAT ID/Wt File: SE.IDW Lamp Current: 6
Technique: HGA Calib. Type: Nonlinear Energy: 51
Remark 1: CDMHNSS*21-22
Remark 2: Analyzed by MARSHALL SEIGLER
Remark 3: MAY 3, 1994 Data on MSS2
Remark 4: 5100-C POWER SUPPLY- NO# SINGLE
Remark 5: Lamp No. 2838 (EDL) Modifier: 500 PPM Pd(NO3)2

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As ID: Calib. Blank Seq. No.: 00001 A/S Pos.: 36 Date: 05/03/94

Replicate 1 Time: 18:48
Peak Area (A-s): 0.004 Peak Height (A): 0.011
Background Pk Area (A-s): 0.001 Background Pk Height (A): 0.007
Blank Corrected Pk Area (A-s): 0.004

Replicate 2 Time: 18:51
Peak Area (A-s): 0.002 Peak Height (A): 0.008
Background Pk Area (A-s): 0.001 Background Pk Height (A): 0.007
Blank Corrected Pk Area (A-s): 0.002

Mean Pk Area (A-s): 0.003 SD: 0.0011 RSD(%): 40.87

Auto-zero performed.

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As ID: Standard 1 Seq. No.: 00002 A/S Pos.: 1 Date: 05/03/94

Replicate 1 Time: 18:53
Peak Area (A-s): 0.016 Peak Height (A): 0.039
Background Pk Area (A-s): 0.000 Background Pk Height (A): 0.007
Blank Corrected Pk Area (A-s): 0.013

Replicate 2 Time: 18:56
Peak Area (A-s): 0.016 Peak Height (A): 0.044
Background Pk Area (A-s): 0.001 Background Pk Height (A): 0.009
Blank Corrected Pk Area (A-s): 0.013

Mean Pk Area (A-s): 0.013 SD: 0.0003 RSD(%): 2.37

Standard number 1 applied. [2.5]
Correlation coefficient: 1.00000 Slope: 0.0053

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As ID: Standard 2 Seq. No.: 00003 A/S Pos.: 1 Date: 05/03/94

Replicate 1 Time: 18:58
Peak Area (A-s): 0.030 Peak Height (A): 0.072
Background Pk Area (A-s): 0.002 Background Pk Height (A): 0.008
Blank Corrected Pk Area (A-s): 0.028
Concentration (ug/L): 5.3

Replicate 2 Time: 19:01
Peak Area (A-s): 0.027 Peak Height (A): 0.069
Background Pk Area (A-s): 0.002 Background Pk Height (A): 0.009
Blank Corrected Pk Area (A-s): 0.024
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Concentration (ug/L): 4.5

Mean Conc (ug/L): 4.9 SD: 0.53 RSD(%): 10.78

Standard number 2 applied. [5.0]
Correlation coefficient: 1.00000 Slope: 0.0054

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As ID: Standard 3 Seq. No.: 00004 A/S Pos.: 1 Date: 05/03/94

Replicate 1 Time: 19:03
Peak Area (A-s): 0.056 Peak Height (A): 0.129
Background Pk Area (A-s): 0.003 Background Pk Height (A): 0.014
Blank Corrected Pk Area (A-s): 0.054
Concentration (ug/L): 11.0

Replicate 2 Time: 19:06
Peak Area (A-s): 0.054 Peak Height (A): 0.125
Background Pk Area (A-s): 0.004 Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): 0.051
Concentration (ug/L): 10.4

Mean Conc (ug/L): 10.7 SD: 0.43 RSD(%): 4.02

S-shaped calibration curve detected. 2-coef. equation used.
Standard number 3 applied. [10.0]
Correlation coefficient: 0.99989 Slope: 0.0052

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As ID: Standard 4 Seq. No.: 00005 A/S Pos.: 2 Date: 05/03/94

Replicate 1 Time: 19:08
Peak Area (A-s): 0.133 Peak Height (A): 0.340
Background Pk Area (A-s): 0.007 Background Pk Height (A): 0.021
Blank Corrected Pk Area (A-s): 0.130
Concentration (ug/L): 25.2

Replicate 2 Time: 19:11
Peak Area (A-s): 0.151 Peak Height (A): 0.379
Background Pk Area (A-s): 0.010 Background Pk Height (A): 0.022
Blank Corrected Pk Area (A-s): 0.148
Concentration (ug/L): 28.7

Mean Conc (ug/L): 26.9 SD: 2.47 RSD(%): 9.18

S-shaped calibration curve detected. 2-coef. equation used.
Standard number 4 applied. [25.0]
Correlation coefficient: 0.99995 Slope: 0.0051

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As ID: Standard 5 Seq. No.: 00006 A/S Pos.: 2 Date: 05/03/94

Replicate 1 Time: 19:13
Peak Area (A-s): 0.254 Peak Height (A): 0.624
Background Pk Area (A-s): 0.015 Background Pk Height (A): 0.032
Blank Corrected Pk Area (A-s): 0.251
Concentration (ug/L): 42.8

Replicate 2 Time: 19:16
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Peak Area (A-s): 0.261 Peak Height (A): 0.647
Background Pk Area (A-s): 0.017 Background Pk Height (A): 0.038
Blank Corrected Pk Area (A-s): 0.258
Concentration (ug/L): 43.9

Mean Conc (ug/L): 43.4 SD: 0.74 RSD(%): 1.72

S-shaped calibration curve detected. 2-coef. equation used.
Standard number 5 applied. [50.0]
Correlation coefficient: 0.99869 Slope: 0.0053

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Replicate 1 Time: 19:30
Peak Area (A-s): 0.258 Peak Height (A): 0.588
Background Pk Area (A-s): 0.016 Background Pk Height (A): 0.033
Blank Corrected Pk Area (A-s): 0.255
Concentration (ug/L): 49.6

Replicate 2 Time: 19:33
Peak Area (A-s): 0.247 Peak Height (A): 0.604
Background Pk Area (A-s): 0.018 Background Pk Height (A): 0.036
Blank Corrected Pk Area (A-s): 0.244
Concentration (ug/L): 47.4

Mean Conc (ug/L): 48.5 SD: 1.57 RSD(%): 3.23

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As ID: MB*REAGENT *1 Seq. No.: 00009 A/S Pos.: 4 Date: 05/03/94

Replicate 1 Time: 19:36
Peak Area (A-s): -0.003 Peak Height (A): 0.008
Background Pk Area (A-s): 0.003 Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): -0.006
Concentration (ug/L): -1.1

Replicate 2 Time: 19:38
Peak Area (A-s): 0.001 Peak Height (A): 0.012
Background Pk Area (A-s): -0.001 Background Pk Height (A): 0.007
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L): -0.3

Mean Conc (ug/L): -0.7 SD: 0.59 RSD(%): 88.16

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As ID: MB*QC*1 Seq. No.: 00010 A/S Pos.: 5 Date: 05/03/94

Replicate 1 Time: 19:40
Peak Area (A-s): 0.001 Peak Height (A): 0.009
Background Pk Area (A-s): 0.007 Background Pk Height (A): 0.014
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.3

Replicate 2 Time: 19:43
Peak Area (A-s): 0.001 Peak Height (A): 0.008
Background Pk Area (A-s): 0.007 Background Pk Height (A): 0.012
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.3

Mean Conc (ug/L): -0.3 SD: 0.04 RSD(%): 11.77

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As ID: SP*QC*1 Seq. No.: 00011 A/S Pos.: 6 Date: 05/03/94

Replicate 1 Time: 19:45
Peak Area (A-s): 0.196 Peak Height (A): 0.461
Background Pk Area (A-s): 0.017 Background Pk Height (A): 0.027
Blank Corrected Pk Area (A-s): 0.194
Concentration (ug/L): 37.4

Replicate 2 Time: 19:48
Peak Area (A-s): 0.201 Peak Height (A): 0.531
~~~~~~

Background Pk Area (A-s): 0.018 Background Pk Height (A): 0.031
Blank Corrected Pk Area (A-s): 0.198
Concentration (ug/L): 38.3

Mean Conc (ug/L): 37.8 SD: 0.64 RSD(%): 1.68

~~~~~~

As ID: CDMHNSS*21 Seq. No.: 00012 A/S Pos.: 7 Date: 05/03/94

Replicate 1 Time: 19:50
Peak Area (A-s): 0.302 Peak Height (A): 0.627
Background Pk Area (A-s): 1.610 Background Pk Height (A): 1.872
Blank Corrected Pk Area (A-s): 0.299
Concentration (ug/L): 58.5

Replicate 2 Time: 19:52
Peak Area (A-s): 0.299 Peak Height (A): 0.659
Background Pk Area (A-s): 1.653 Background Pk Height (A): 1.998
Blank Corrected Pk Area (A-s): 0.296
Concentration (ug/L): 58.0

Mean Conc (ug/L): 58.3 SD: 0.34 RSD(%): 0.59

~~~~~~

As ID: CDMHNSS*22 Seq. No.: 00013 A/S Pos.: 8 Date: 05/03/94

Replicate 1 Time: 19:55
Peak Area (A-s): 0.301 Peak Height (A): 0.631
Background Pk Area (A-s): 1.658 Background Pk Height (A): 1.839
Blank Corrected Pk Area (A-s): 0.298
Concentration (ug/L): 58.4

Replicate 2 Time: 19:57
Peak Area (A-s): 0.295 Peak Height (A): 0.641
Background Pk Area (A-s): 1.614 Background Pk Height (A): 1.853
Blank Corrected Pk Area (A-s): 0.293
Concentration (ug/L): 57.3

Mean Conc (ug/L): 57.8 SD: 0.74 RSD(%): 1.29

~~~~~~

As ID: SPM1*CDMHNSS*22 Seq. No.: 00014 A/S Pos.: 9 Date: 05/03/94

Replicate 1 Time: 20:00
Peak Area (A-s): 0.448 Peak Height (A): 0.924
Background Pk Area (A-s): 1.600 Background Pk Height (A): 1.925
Blank Corrected Pk Area (A-s): 0.445
Concentration (ug/L): 89.1

Replicate 2 Time: 20:02
Peak Area (A-s): 0.448 Peak Height (A): 0.915
Background Pk Area (A-s): 1.602 Background Pk Height (A): 1.910
Blank Corrected Pk Area (A-s): 0.445
Concentration (ug/L): 89.1

Mean Conc (ug/L): 89.1 SD: 0.03 RSD(%): 0.03
~~~~~~

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As ID: SPM2*CDMHNSS*22 Seq. No.: 00015 A/S Pos.: 10 Date: 05/03/94

Replicate 1 Time: 20:04
Peak Area (A-s): 0.425 Peak Height (A): 0.912
Background Pk Area (A-s): 1.654 Background Pk Height (A): 1.982
Blank Corrected Pk Area (A-s): 0.423
Concentration (ug/L): 84.3

Replicate 2 Time: 20:07
Peak Area (A-s): 0.434 Peak Height (A): 0.912
Background Pk Area (A-s): 1.679 Background Pk Height (A): 1.941
Blank Corrected Pk Area (A-s): 0.431
Concentration (ug/L): 86.1

Mean Conc (ug/L): 85.2 SD: 1.27 RSD(%): 1.50

~~~~~~

As ID: SD*CDMHNSS*22 (1:5) Seq. No.: 00016 A/S Pos.: 11 Date: 05/03/94

Replicate 1 Time: 20:09
Peak Area (A-s): 0.074 Peak Height (A): 0.165
Background Pk Area (A-s): 0.342 Background Pk Height (A): 0.241
Blank Corrected Pk Area (A-s): 0.071
Concentration (ug/L): 13.5

Replicate 2 Time: 20:11
Peak Area (A-s): 0.072 Peak Height (A): 0.165
Background Pk Area (A-s): 0.334 Background Pk Height (A): 0.237
Blank Corrected Pk Area (A-s): 0.069
Concentration (ug/L): 13.2

Mean Conc (ug/L): 13.4 SD: 0.25 RSD(%): 1.85

~~~~~~

As ID: CCV*QC*1 Seq. No.: 00017 A/S Pos.: 12 Date: 05/03/94

Replicate 1 Time: 20:14
Peak Area (A-s): 0.249 Peak Height (A): 0.591
Background Pk Area (A-s): 0.015 Background Pk Height (A): 0.034
Blank Corrected Pk Area (A-s): 0.247
Concentration (ug/L): 48.0

Replicate 2 Time: 20:16
Peak Area (A-s): 0.255 Peak Height (A): 0.601
Background Pk Area (A-s): 0.012 Background Pk Height (A): 0.034
Blank Corrected Pk Area (A-s): 0.253
Concentration (ug/L): 49.2

Mean Conc (ug/L): 48.6 SD: 0.86 RSD(%): 1.76

~~~~~~

As ID: CCB*QC*1 Seq. No.: 00018 A/S Pos.: 13 Date: 05/03/94

Replicate 1 Time: 20:19
Peak Area (A-s): 0.002 Peak Height (A): 0.009
Background Pk Area (A-s): 0.000 Background Pk Height (A): 0.007
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L): -0.1

Replicate 2 Time: 20:21
Peak Area (A-s): -0.002 Peak Height (A): 0.009
Background Pk Area (A-s): 0.006 Background Pk Height (A): 0.012
Blank Corrected Pk Area (A-s): -0.005
Concentration (ug/L): -0.8

Mean Conc (ug/L): -0.5 SD: 0.49 RSD(%): 99.69

~~~~~~

0 WI MSS 5/3/94
As ID: SA1*CDMHNSS*21 Seq. No.: 00019 A/S Pos.: 14 Date: 05/03/94

Replicate 1 Time: 20:24
Peak Area (A-s): 0.302 Peak Height (A): 0.616
Background Pk Area (A-s): 1.605 Background Pk Height (A): 1.920
Blank Corrected Pk Area (A-s): 0.299
Concentration (ug/L): 58.6

~~~~~~

1 WI MSS 5/3/94
As ID: SA2*CDMHNSS*21 Seq. No.: 00020 A/S Pos.: 15 Date: 05/03/94

Replicate 1 Time: 20:26
Peak Area (A-s): 0.382 Peak Height (A): 0.787
Background Pk Area (A-s): 1.636 Background Pk Height (A): 1.923
Blank Corrected Pk Area (A-s): 0.379
Concentration (ug/L): 75.1

~~~~~~

2 WI MSS 5/3/94
As ID: SA3*CDMHNSS*21 Seq. No.: 00021 A/S Pos.: 16 Date: 05/03/94

Replicate 1 Time: 20:28
Peak Area (A-s): 0.440 Peak Height (A): 0.913
Background Pk Area (A-s): 1.559 Background Pk Height (A): 1.757
Blank Corrected Pk Area (A-s): 0.437
Concentration (ug/L): 87.4

~~~~~~

3 WI MSS 5/3/94
As ID: SAØ*CDMHNSS*221 Seq. No.: 00022 A/S Pos.: 17 Date: 05/03/94

Replicate 1 Time: 20:31
Peak Area (A-s): 0.531 Peak Height (A): 1.065
Background Pk Area (A-s): 1.639 Background Pk Height (A): 1.859
Blank Corrected Pk Area (A-s): 0.528
Concentration (ug/L): 107.1

~~~~~~

MSS 5/3/94
As ID: SA0*CDMHNSS*21 1:2 Seq. No.: 00023 A/S Pos.: 14 Date: 05/03/94

Replicate 1 Time: 20:52
Peak Area (A-s): 0.171 Peak Height (A): 0.376
Background Pk Area (A-s): 0.813 Background Pk Height (A): 0.876
Blank Corrected Pk Area (A-s): 0.168
Concentration (ug/L): 32.3

~~~~~~

MSS 5/3/94
As ID: SA1*CDMHNSS*21 1:2 Seq. No.: 00024 A/S Pos.: 15 Date: 05/03/94

001448

Replicate 1 Time: 20:55
Peak Area (A-s): 0.265 Peak Height (A): 0.555

Background Pk Area (A-s): 0.855 Background Pk Height (A): 0.844

Blank Corrected Pk Area (A-s): 0.262
Concentration (ug/L): 51.1

~~~~~~ mss 5/3/94

As ID: SA2*CDMHNSS*21 1:2 Seq. No.: 00025 A/S Pos.: 16 Date: 05/03/94

Replicate 1 Time: 20:57
Peak Area (A-s): 0.350 Peak Height (A): 0.742
Background Pk Area (A-s): 0.854 Background Pk Height (A): 0.831
Blank Corrected Pk Area (A-s): 0.347
Concentration (ug/L): 68.5

~~~~~~ mss 5/3/94

As ID: SA3*CDMHNSS*21 1:2 Seq. No.: 00026 A/S Pos.: 17 Date: 05/03/94

Replicate 1 Time: 21:00
Peak Area (A-s): 0.445 Peak Height (A): 0.933
Background Pk Area (A-s): 0.854 Background Pk Height (A): 0.846
Blank Corrected Pk Area (A-s): 0.442
Concentration (ug/L): 88.5

~~~~~~ mss 5/3/94

As ID: SA0*CDMHNSS*22 1:2 Seq. No.: 00027 A/S Pos.: 18 Date: 05/03/94

Replicate 1 Time: 21:02
Peak Area (A-s): 0.168 Peak Height (A): 0.356
Background Pk Area (A-s): 0.832 Background Pk Height (A): 0.770
Blank Corrected Pk Area (A-s): 0.165
Concentration (ug/L): 31.7

~~~~~~ mss 5/3/94

As ID: SA1*CDMHNSS*22 1:2 Seq. No.: 00028 A/S Pos.: 19 Date: 05/03/94

Replicate 1 Time: 21:04
Peak Area (A-s): 0.260 Peak Height (A): 0.543
Background Pk Area (A-s): 0.828 Background Pk Height (A): 0.748
Blank Corrected Pk Area (A-s): 0.258
Concentration (ug/L): 50.2

~~~~~~ mss 5/3/94

As ID: SA2*CDMHNSS*22 1:2 Seq. No.: 00029 A/S Pos.: 20 Date: 05/03/94

Replicate 1 Time: 21:07
Peak Area (A-s): 0.341 Peak Height (A): 0.733
Background Pk Area (A-s): 0.810 Background Pk Height (A): 0.757
Blank Corrected Pk Area (A-s): 0.338
Concentration (ug/L): 66.6

~~~~~~ mss 5/3/94

As ID: SA3*CDMHNSS*22 1:2 Seq. No.: 00030 A/S Pos.: 21 Date: 05/03/94

Replicate 1 Time: 21:09
Peak Area (A-s): 0.438 Peak Height (A): 0.916
Background Pk Area (A-s): 0.845 Background Pk Height (A): 0.762
Blank Corrected Pk Area (A-s): 0.435
Concentration (ug/L): 86.9

~~~~~~

As   ID: CCV*QC*2   Seq. No.: 00031   A/S Pos.: 22   Date: 05/03/94

Replicate 1   Time: 21:12
Peak Area (A-s): 0.261   Peak Height (A): 0.598
Background Pk Area (A-s): 0.012   Background Pk Height (A): 0.033
Blank Corrected Pk Area (A-s): 0.259
Concentration (ug/L): 50.4

~~~~~~

As   ID: CCB*QC*2   Seq. No.: 00032   A/S Pos.: 23   Date: 05/03/94

Replicate 1   Time: 21:14
Peak Area (A-s): 0.001   Peak Height (A): 0.010
Background Pk Area (A-s): 0.000   Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.3

~~~~~~

As   ID: CCV*QC*2   Seq. No.: 00033   A/S Pos.: 22   Date: 05/03/94

Replicate 1   Time: 21:17
Peak Area (A-s): 0.260   Peak Height (A): 0.583
Background Pk Area (A-s): 0.014   Background Pk Height (A): 0.032
Blank Corrected Pk Area (A-s): 0.257
Concentration (ug/L): 50.1

Replicate 2   Time: 21:19
Peak Area (A-s): 0.249   Peak Height (A): 0.591
Background Pk Area (A-s): 0.011   Background Pk Height (A): 0.035
Blank Corrected Pk Area (A-s): 0.246
Concentration (ug/L): 47.8

Mean Conc (ug/L): 48.9   SD: 1.61   RSD(%): 3.29

~~~~~~

As   ID: CCB*QC*2   Seq. No.: 00034   A/S Pos.: 23   Date: 05/03/94

Replicate 1   Time: 21:22
Peak Area (A-s): -0.000   Peak Height (A): 0.010
Background Pk Area (A-s): 0.001   Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): -0.003
Concentration (ug/L): -0.6

Replicate 2   Time: 21:24
Peak Area (A-s): 0.001   Peak Height (A): 0.007
Background Pk Area (A-s): 0.001   Background Pk Height (A): 0.007
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L): -0.3

Mean Conc (ug/L): -0.4   SD: 0.21   RSD(%): 50.26

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GFAA Metals - Selenium

9513355.2552

(2)

ELEMENT: Se METHOD # AS1113233-013 BK# 6 PG# 95A
ANALYST: J.Ropero EMP. # 3354 DATE: 5/3/93

SAMPLES ANALYZED: **BATCH #**

CDMHNSS# 21,22 G48748

5/3/94
JPR

INSTRUMENT PARAMETERS:

Inst. model	4100ZL-A
Wavelength	196.0
Bandwidth	2.0 Dom
EDL/HCL#	402
Energy/Watts	55
Power Supply	Sys II - A
HGA model	~~TRANSVERSE~~ 410021
Tube type	TRANSVERSE
Sample aliq.	20 µL
Modifier	500 ppm Pd(NO3)2
Modifier aliq.	5 µL
Zeeman type	TRANSVERSE

WI 5/3/94 JPR

STANDARDS:

1000 ppm stock

Manufacturer	Baker
Lot number	F17647
Date received	4/93
Date expires	5/94

Working Standards

Date prep'ed:	5/3/94
10 mg/L std.	~~4/1/93~~
100 ug/L std.	5/3/94
10 ug/L std.	5/3/94
—	—

WI 5/3/94 JPR

CALIBRATION CURVE:

	conc.	abs.
Blank	0.0	0.000
Std.1	2.5	0.005
Std.2	5.0	0.012
Std.3	25.0	0.046
Std.4	50.0	0.098
Std.5	75.0	0.136
Std.6	100.0	0.188
Std.7		
Std.8		

c.c.: 0.998160 Linear
Det. L. 2.5 µg/L

HGA KEYBOARD ENTRIES:

STEP	1	2	3	4	5
Temp(C)	130	300	1900	2500	
Ramp (sec)	5	5	0	1	
Hold (sec)	50	15	6	3	
Read Step			*		
Gas (ml/min)	250	250	0	250	

PREVENTATIVE MAINTENANCE/COMMENTS:

READ AND UNDERSTOOD BY: [illegible] 5/4/94

~~0000955~~

001452

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1208

Analyst: J. Proper Date: 5/2/94 Element Se Inst 4100ZL-A Book: 6 Pg: 95B

Print #	Sample I. D.	Peak Area	Conc. (ppb)	Target (ppb)	Comments
1	Calib. Blank	0.0004	0.2		
2	Standard 1	0.0051	2.4		
3	Standard 2	0.0122	5.9		erratic burns. See #8
4	Standard 3	0.0461	19.4		
5	Standard 4	0.0988	52.6		
6	Standard 5	0.1362	69.6		
7	Standard 6	0.1806	96.6		CC=0.99800 (Linear)
8	Standard 2	0.0126	6.9		
9	ICV*PEPURE*1	0.0433	23.6	25	94.4% Rec
10	MB*REAGENT*1	0.0033	1.8		
11	MB*QC*1	0.0009	0.5		
12	SP*QC*1	0.0204	11.1	10	111% Rec
13	CDMHNSS*21	0.0042	2.3		
14	CDMHNSS*22	0.0087	4.7		
15	SPM1*CDMHNSS*22	0.0211	11.5	10	68% Rec 11.5-4.7=6.8
16	SPM2*CDMHNSS*22	0.0247	13.5	10	88% Rec 13.5-4.7=8.8
17	SPX*CDMHNSS*22	0.0902	49.1	100	93.5% Rec (49.1x2)-4.7=93.5
18	CCV*QC*1	0.0868	47.3	50	94.6% Rec
19	CCB*QC*1	0.0022	1.2		

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001453

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(3)

Element File: SE_FURN.GEL Element: Se Wavelength: 196.0
Date: 05/03/94 Time: 20:01 Slit: 2.00 L
Data File: A:SE_5_3.DAT ID/Wt File: PB.IDW Lamp Current: 0
Technique: HGA Calib. Type: Linear Energy: 55
Remark 1: CDMHNSS*21,22
Remark 2: Analyzed by JERI ROPERO
Remark 3: MAY 3, 1994 Data on JDR1
Remark 4: 4100ZL-A
Remark 5: Lamp No. 402 (EDL-SYS II) Modifier: 500 ppm Pd(NO3)2

Se ID: Calib. Blank Seq. No.: 00001 A/S Pos.: 36 Date: 05/03/94

Replicate 1 Time: 20:01
Peak Area (A-s): 0.002 Peak Height (A): 0.012
Background Pk Area (A-s): 0.070 Background Pk Height (A): 0.031
Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L): 1.3

Replicate 2 Time: 20:04
Peak Area (A-s): -0.003 Peak Height (A): 0.011
Background Pk Area (A-s): 0.082 Background Pk Height (A): 0.035
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -1.0

Mean Conc (ug/L): 0.2 SD: 1.61 RSD(%): 986.64

Auto-zero performed.

Se ID: Standard 1 Seq. No.: 00002 A/S Pos.: 1 Date: 05/03/94

Replicate 1 Time: 20:07
Peak Area (A-s): 0.005 Peak Height (A): 0.012
Background Pk Area (A-s): 0.076 Background Pk Height (A): 0.036
Blank Corrected Pk Area (A-s): 0.005
Concentration (ug/L): 2.4

Replicate 2 Time: 20:10
Peak Area (A-s): 0.005 Peak Height (A): 0.014
Background Pk Area (A-s): 0.078 Background Pk Height (A): 0.029
Blank Corrected Pk Area (A-s): 0.005
Concentration (ug/L): 2.3

Mean Conc (ug/L): 2.4 SD: 0.08 RSD(%): 3.32

Standard number 1 applied. [2.5]
Correlation coefficient: 1.00000 Slope: 0.0021

Se ID: Standard 2 Seq. No.: 00003 A/S Pos.: 1 Date: 05/03/94

Replicate 1 Time: 20:12
Peak Area (A-s): 0.007 Peak Height (A): 0.012
Background Pk Area (A-s): 0.086 Background Pk Height (A): 0.036
Blank Corrected Pk Area (A-s): 0.008
Concentration (ug/L): 3.8

Replicate 2 Time: 20:15
Peak Area (A-s): 0.016 Peak Height (A): 0.014
Background Pk Area (A-s): 0.082 Background Pk Height (A): 0.036
Blank Corrected Pk Area (A-s): 0.017
Concentration (ug/L): 8.1

Mean Conc (ug/L): 5.9 SD: 3.03 RSD(%): 50.97

Standard number 2 applied. [5.0]
Correlation coefficient: 0.97859 Slope: 0.0024

Se ID: Standard 3 Seq. No.: 00004 A/S Pos.: 2 Date: 05/03/94

Replicate 1 Time: 20:18
Peak Area (A-s): 0.047 Peak Height (A): 0.039
Background Pk Area (A-s): 0.086 Background Pk Height (A): 0.032
Blank Corrected Pk Area (A-s): 0.047
Concentration (ug/L): 19.8

Replicate 2 Time: 20:21
Peak Area (A-s): 0.045 Peak Height (A): 0.045
Background Pk Area (A-s): 0.086 Background Pk Height (A): 0.035
Blank Corrected Pk Area (A-s): 0.045
Concentration (ug/L): 19.0

Mean Conc (ug/L): 19.4 SD: 0.59 RSD(%): 3.07

Standard number 3 applied. [25.0]
Correlation coefficient: 0.99584 Slope: 0.0019

Se ID: Standard 4 Seq. No.: 00005 A/S Pos.: 2 Date: 05/03/94

Replicate 1 Time: 20:24
Peak Area (A-s): 0.096 Peak Height (A): 0.087
Background Pk Area (A-s): 0.088 Background Pk Height (A): 0.042
Blank Corrected Pk Area (A-s): 0.097
Concentration (ug/L): 51.5

Replicate 2 Time: 20:27
Peak Area (A-s): 0.101 Peak Height (A): 0.076
Background Pk Area (A-s): 0.096 Background Pk Height (A): 0.042
Blank Corrected Pk Area (A-s): 0.101
Concentration (ug/L): 53.8

Mean Conc (ug/L): 52.6 SD: 1.64 RSD(%): 3.11

Standard number 4 applied. [50.0]
Correlation coefficient: 0.99868 Slope: 0.0020

Se ID: Standard 5 Seq. No.: 00006 A/S Pos.: 2 Date: 05/03/94

Replicate 1 Time: 20:30
Peak Area (A-s): 0.135 Peak Height (A): 0.131
Background Pk Area (A-s): 0.086 Background Pk Height (A): 0.045
Blank Corrected Pk Area (A-s): 0.136
Concentration (ug/L): 69.3

Replicate 2 Time: 20:32
Peak Area (A-s): 0.136 Peak Height (A): 0.124
Background Pk Area (A-s): 0.088 Background Pk Height (A): 0.044
Blank Corrected Pk Area (A-s): 0.137
Concentration (ug/L): 69.9

Mean Conc (ug/L): 69.6 SD: 0.43 RSD(%): 0.62

Standard number 5 applied. [75.0]
Correlation coefficient: 0.99798 Slope: 0.0019

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Se ID: Standard 6 Seq. No.: 00007 A/S Pos.: 2 Date: 05/03/94

Replicate 1 Time: 20:35
Peak Area (A-s): 0.182 Peak Height (A): 0.109
Background Pk Area (A-s): 0.129 Background Pk Height (A): 0.059
Blank Corrected Pk Area (A-s): 0.183
Concentration (ug/L): 97.8

Replicate 2 Time: 20:38
Peak Area (A-s): 0.178 Peak Height (A): 0.150
Background Pk Area (A-s): 0.105 Background Pk Height (A): 0.051
Blank Corrected Pk Area (A-s): 0.178
Concentration (ug/L): 95.4

Mean Conc (ug/L): 96.6 SD: 1.71 RSD(%): 1.77

Standard number 6 applied. [100.0]
Correlation coefficient: 0.99865 Slope: 0.0018

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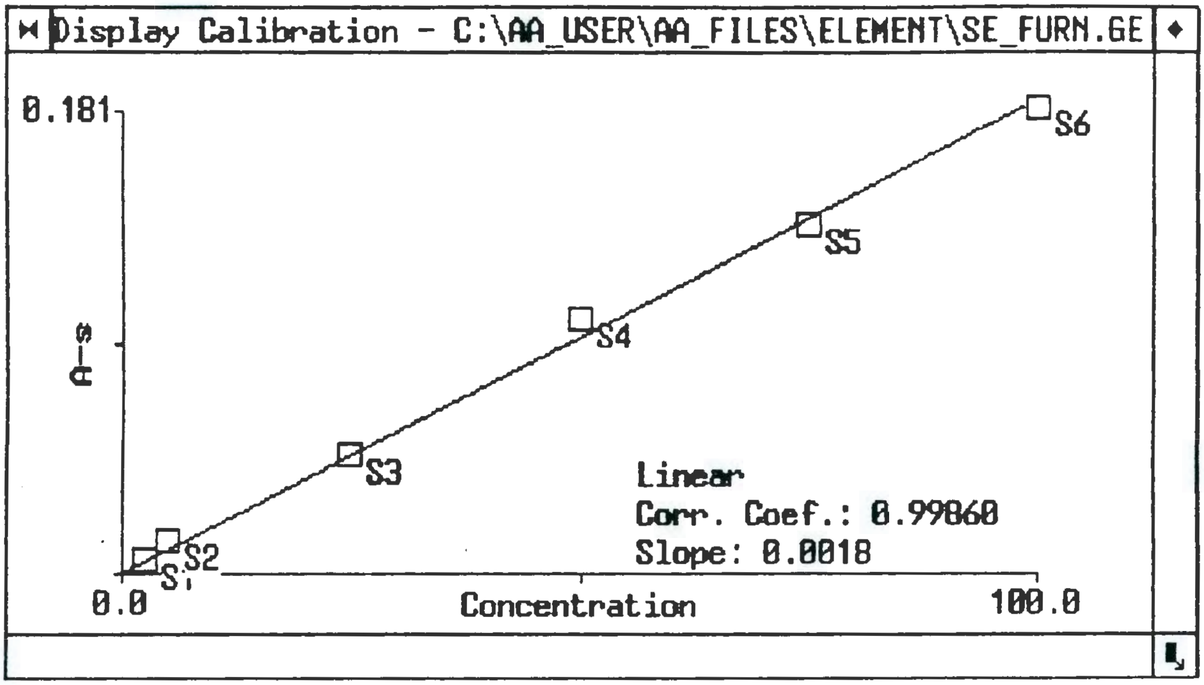
Se ID: Standard 2 Seq. No.: 00008 A/S Pos.: 1 Date: 05/03/94

Replicate 1 Time: 20:42
Peak Area (A-s): 0.014 Peak Height (A): 0.014
Background Pk Area (A-s): 0.074 Background Pk Height (A): 0.034
Blank Corrected Pk Area (A-s): 0.014
Concentration (ug/L): 7.8

Replicate 2 Time: 20:45
Peak Area (A-s): 0.011 Peak Height (A): 0.012
Background Pk Area (A-s): 0.078 Background Pk Height (A): 0.034
Blank Corrected Pk Area (A-s): 0.011
Concentration (ug/L): 6.0

Mean Conc (ug/L): 6.9 SD: 1.32 RSD(%): 19.22

Standard number 2 applied. [5.0]
Correlation coefficient: 0.99860 Slope: 0.0018



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Se ID: ICV*PEPURE*1 Seq. No.: 00009 A/S Pos.: 3 Date: 05/03/94

Replicate 1 Time: 20:52
Peak Area (A-s): 0.043 Peak Height (A): 0.040
Background Pk Area (A-s): 0.085 Background Pk Height (A): 0.035
Blank Corrected Pk Area (A-s): 0.044
Concentration (ug/L): 23.8

Replicate 2 Time: 20:55
Peak Area (A-s): 0.043 Peak Height (A): 0.040
Background Pk Area (A-s): 0.081 Background Pk Height (A): 0.033
Blank Corrected Pk Area (A-s): 0.043
Concentration (ug/L): 23.4

Mean Conc (ug/L): 23.6 SD: 0.28 RSD(%): 1.20

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Se ID: MB*REAGENT*1 Seq. No.: 00010 A/S Pos.: 4 Date: 05/03/94

Replicate 1 Time: 21:00
Peak Area (A-s): 0.004 Peak Height (A): 0.009
Background Pk Area (A-s): 0.079 Background Pk Height (A): 0.038
Blank Corrected Pk Area (A-s): 0.004
Concentration (ug/L): 2.2

Replicate 2 Time: 21:03
Peak Area (A-s): 0.002 Peak Height (A): 0.009
Background Pk Area (A-s): 0.083 Background Pk Height (A): 0.039
Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L): 1.4

Mean Conc (ug/L): 1.8 SD: 0.51 RSD(%): 28.08

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Se ID: MB*QC*1 Seq. No.: 00011 A/S Pos.: 5 Date: 05/03/94

Replicate 1 Time: 21:06
Peak Area (A-s): 0.003 Peak Height (A): 0.012
Background Pk Area (A-s): 0.079 Background Pk Height (A): 0.032
Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L): 1.6

Replicate 2 Time: 21:08
Peak Area (A-s): -0.002 Peak Height (A): 0.008
Background Pk Area (A-s): 0.090 Background Pk Height (A): 0.034
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L): -0.7

Mean Conc (ug/L): 0.5 SD: 1.64 RSD(%): 343.71

~~~~~~

Se ID: SP*QC*1 Seq. No.: 00012 A/S Pos.: 6 Date: 05/03/94

Replicate 1 Time: 21:11
Peak Area (A-s): 0.020 Peak Height (A): 0.019
Background Pk Area (A-s): 0.090 Background Pk Height (A): 0.035
Blank Corrected Pk Area (A-s): 0.020
Concentration (ug/L): 11.0

Replicate 2 Time: 21:14
Peak Area (A-s): 0.020 Peak Height (A): 0.019
Background Pk Area (A-s): 0.085 Background Pk Height (A): 0.034
Blank Corrected Pk Area (A-s): 0.021
Concentration (ug/L): 11.2

Mean Conc (ug/L): 11.1 SD: 0.18 RSD(%): 1.60

~~~~~~

Se ID: CDMHNSS*21 Seq. No.: 00013 A/S Pos.: 7 Date: 05/03/94

Replicate 1 Time: 21:17
Peak Area (A-s): 0.003 Peak Height (A): 0.009
Background Pk Area (A-s): 0.256 Background Pk Height (A): 0.178
Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L): 1.8

Replicate 2 Time: 21:19
Peak Area (A-s): 0.005 Peak Height (A): 0.013
Background Pk Area (A-s): 0.249 Background Pk Height (A): 0.182
Blank Corrected Pk Area (A-s): 0.005
Concentration (ug/L): 2.8

Mean Conc (ug/L): 2.3 SD: 0.66 RSD(%): 28.78

~~~~~~

Se ID: CDMHNSS*22 Seq. No.: 00014 A/S Pos.: 8 Date: 05/03/94

Replicate 1 Time: 21:22
Peak Area (A-s): 0.007 Peak Height (A): 0.014
Background Pk Area (A-s): 0.276 Background Pk Height (A): 0.176
Blank Corrected Pk Area (A-s): 0.008
Concentration (ug/L): 4.1

Replicate 2 — Time: 21:25
Peak Area (A-s): 0.009 — Peak Height (A): 0.015
Background Pk Area (A-s): 0.282 — Background Pk Height (A): 0.178
Blank Corrected Pk Area (A-s): 0.010
Concentration (ug/L): 5.3

Mean Conc (ug/L): 4.7 SD: 0.82 RSD(%): 17.42

~~~~~~

Se ID: SPM1*CDMHNSS*22 Seq. No.: 00015 A/S Pos.: 9 Date: 05/03/94

Replicate 1 — Time: 21:27
Peak Area (A-s): 0.022 — Peak Height (A): 0.016
Background Pk Area (A-s): 0.271 — Background Pk Height (A): 0.185
Blank Corrected Pk Area (A-s): 0.022
Concentration (ug/L): 12.1

Replicate 2 — Time: 21:30
Peak Area (A-s): 0.020 — Peak Height (A): 0.015
Background Pk Area (A-s): 0.279 — Background Pk Height (A): 0.190
Blank Corrected Pk Area (A-s): 0.020
Concentration (ug/L): 10.9

Mean Conc (ug/L): 11.5 SD: 0.81 RSD(%): 7.02

~~~~~~

Se ID: SPM2*CDMHNSS*22 Seq. No.: 00016 A/S Pos.: 10 Date: 05/03/94

Replicate 1 — Time: 21:48
Peak Area (A-s): 0.022 — Peak Height (A): 0.016
Background Pk Area (A-s): 0.262 — Background Pk Height (A): 0.190
Blank Corrected Pk Area (A-s): 0.023
Concentration (ug/L): 12.3

Replicate 2 — Time: 21:50
Peak Area (A-s): 0.027 — Peak Height (A): 0.016
Background Pk Area (A-s): 0.270 — Background Pk Height (A): 0.192
Blank Corrected Pk Area (A-s): 0.027
Concentration (ug/L): 14.7

Mean Conc (ug/L): 13.5 SD: 1.71 RSD(%): 12.72

~~~~~~

Se ID: SPX*CDMHNSS*22 Seq. No.: 00017 A/S Pos.: 11 Date: 05/03/94

Replicate 1 — Time: 21:55
Peak Area (A-s): 0.089 — Peak Height (A): 0.064
Background Pk Area (A-s): 0.171 — Background Pk Height (A): 0.111
Blank Corrected Pk Area (A-s): 0.089
Concentration (ug/L): 48.5

Replicate 2 — Time: 21:58
Peak Area (A-s): 0.091 — Peak Height (A): 0.065
Background Pk Area (A-s): 0.176 — Background Pk Height (A): 0.115
Blank Corrected Pk Area (A-s): 0.091
Concentration (ug/L): 49.7

Mean Conc (ug/L): 49.1 SD: 0.84 RSD(%): 1.71
~~~~~~

~~~~~~

Se ID: CCV*QC*1 Seq. No.: 00018 A/S Pos.: 12 Date: 05/03/94

Replicate 1 Time: 22:08
Peak Area (A-s): 0.086 Peak Height (A): 0.079
Background Pk Area (A-s): 0.048 Background Pk Height (A): 0.020
Blank Corrected Pk Area (A-s): 0.086
Concentration (ug/L): 46.9

Replicate 2 Time: 22:11
Peak Area (A-s): 0.087 Peak Height (A): 0.083
Background Pk Area (A-s): 0.072 Background Pk Height (A): 0.030
Blank Corrected Pk Area (A-s): 0.087
Concentration (ug/L): 47.6

Mean Conc (ug/L): 47.3 SD: 0.48 RSD(%): 1.02

~~~~~~

Se ID: CCB*QC*1 Seq. No.: 00019 A/S Pos.: 13 Date: 05/03/94

Replicate 1 Time: 22:13
Peak Area (A-s): 0.001 Peak Height (A): 0.010
Background Pk Area (A-s): 0.066 Background Pk Height (A): 0.026
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L): 0.6

Replicate 2 Time: 22:16
Peak Area (A-s): 0.003 Peak Height (A): 0.011
Background Pk Area (A-s): 0.064 Background Pk Height (A): 0.028
Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L): 1.8

Mean Conc (ug/L): 1.2 SD: 0.87 RSD(%): 73.28

9513355.2561

Mercury

9513355.2562

(2)

MERCURY SAMPLE RUN LOG

BK#: 30 PG#: 31

METHOD: ASM3233-042 MATRIX: SOILS QC TYPE: FDER

ANALYST: CHRIS HORRELL EMP.# 3249 DATE: 05/03/94

SAMPLES ANALYZED: BATCH #, DATE, INITIALS

CDMHNSS*21,22 G48770
CAH
5/4/94

INSTRUMENT PARAMETERS:

Inst. model: BUCK-400
Wavelength: 253.7

CALIBRATION CURVE:

C.C.: 0.9974
Det.Limit: 0.2
Calib. type: QUAD

STANDARDS:

	Std.#1	Std.#2
10 ppm stock		
Manufacturer:	HI PURITY	HI PURITY
Lot No.:	490126	390524
Exp.date:	8/94	8/94
Working Stds. made:	5/3/94	5/3/94
100 OR 80 ug/l std.	100	

COMMENTS:

PRINT #'S 11-45 ARE FOR BATCH G48352 SEE pp 27-28

Peak No.	Sample	I.D.	Peak Ht.	Conc. ug/l	Target	Comments
1		0.0 ppb	0.25			
2		0.2	2.0			
3		0.5	3.5			
4		1.0	10.5			
5		2.0	18.5			
6		5.0	35.5			
7		7.0	55.75			
8		10.0	72.0			
9	WRONG SAMPLE					
10		1.0	7.5			
11-45	SEE pp 27-28	USED FOR BATCH G48352				
46	1:52 am	ICV*1	38.0	4.88	5.0	97.6 %
47		MB	1.0	0.0		
48		SP	33.0	4.20	5.0	84.0 %
49	CDMHNSS*21		1.5	0.185		

READ AND UNDERSTOOD BY: Mike Mancuso DATE: 5/5/94

001462

9513355.2561

MERCURY SAMPLE RUN LOG

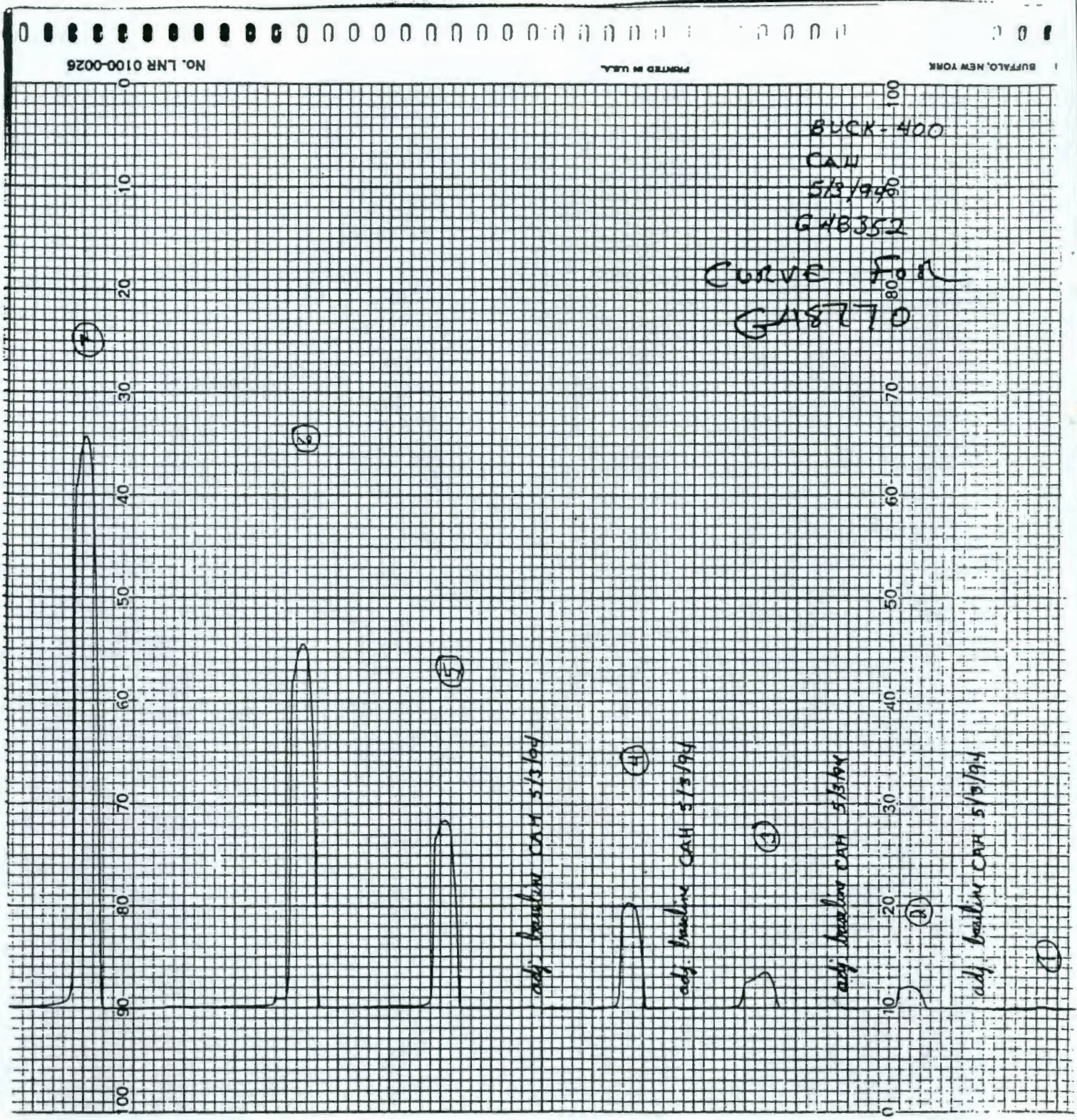
BK#: 30 PG#: 32

Peak No.	Sample	I.D.	Peak Ht.	Conc. ug/l	Target	Comments
50	CDMHNSS*22		2.0	0.240		
51	SPM1*CDMHNSS*22		26.0	3.26	5.0	60.4 %
52	SPM2*CDMHNSS*22		26.75	3.36	5.0	62.4 %
53	2:00	CCV*1	~~37.5~~ 36.5 mm	4.67	5.0	93.4%
54		CCB*1	1.0	0.125		

READ AND UNDERSTOOD BY: Mike Manale DATE: 5/5/94

9513355.2564

3



001464

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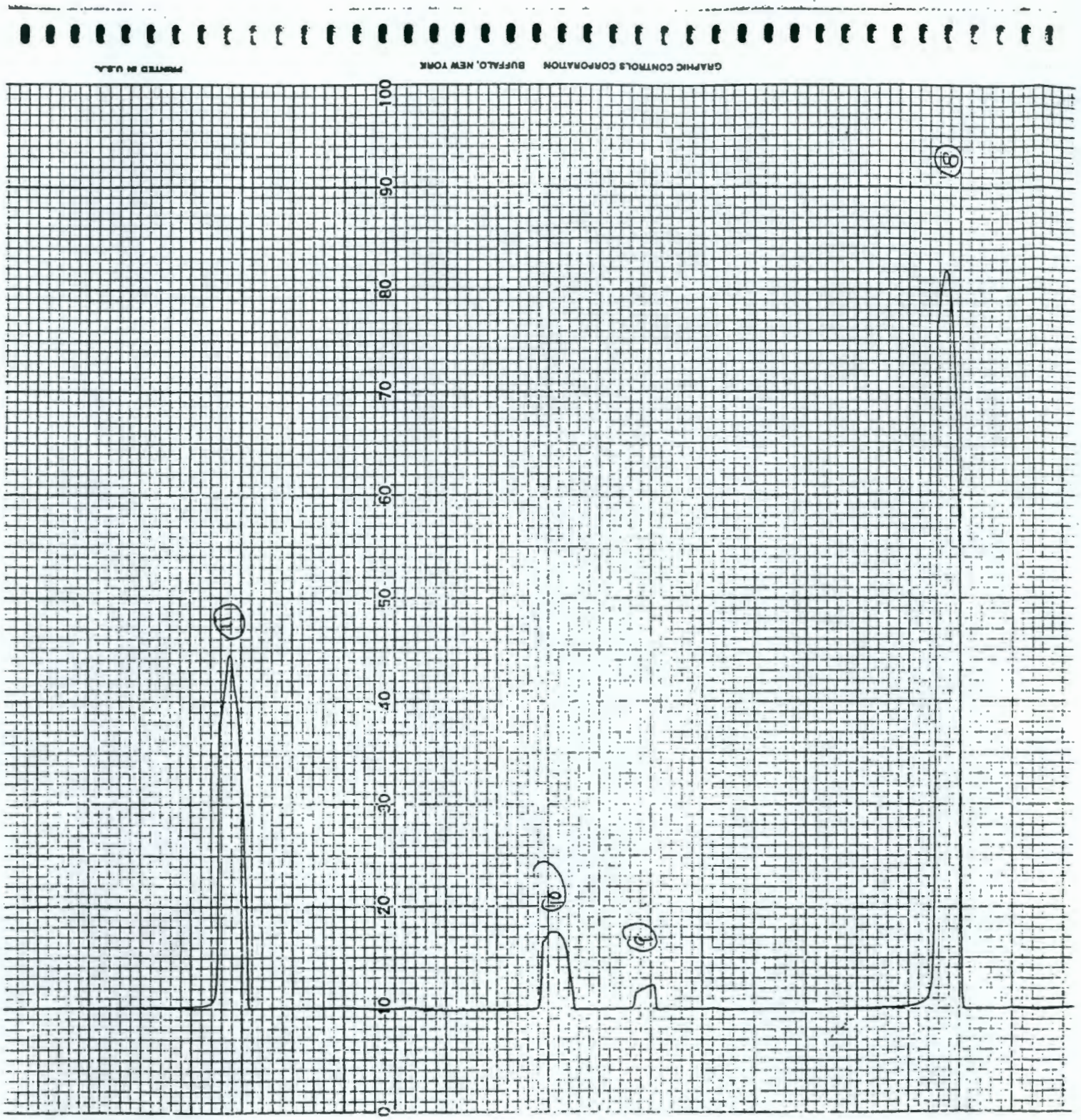

001465

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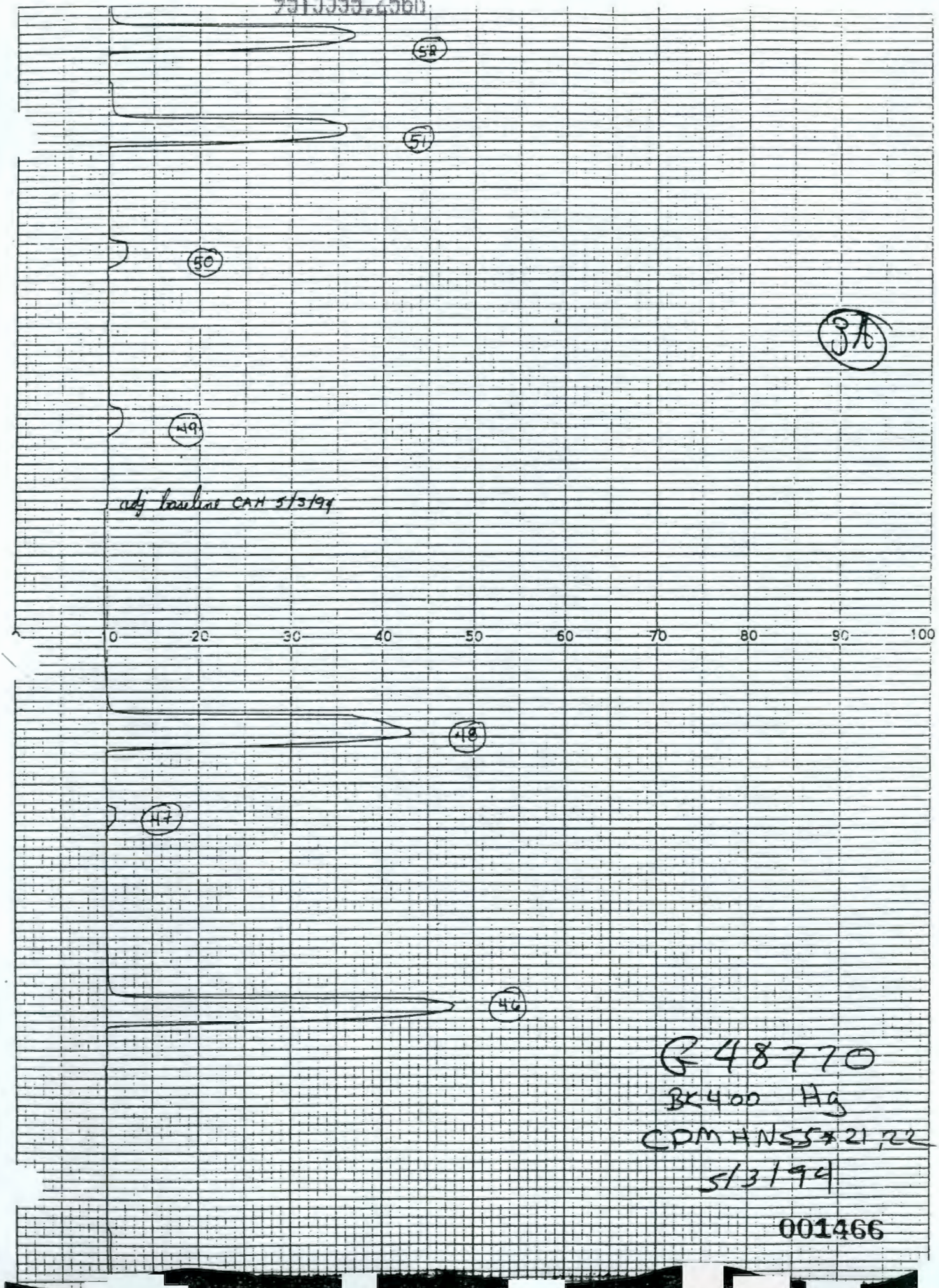

G48770
BK400 Hg
CDMHN55*21,22
5/3/94

001466

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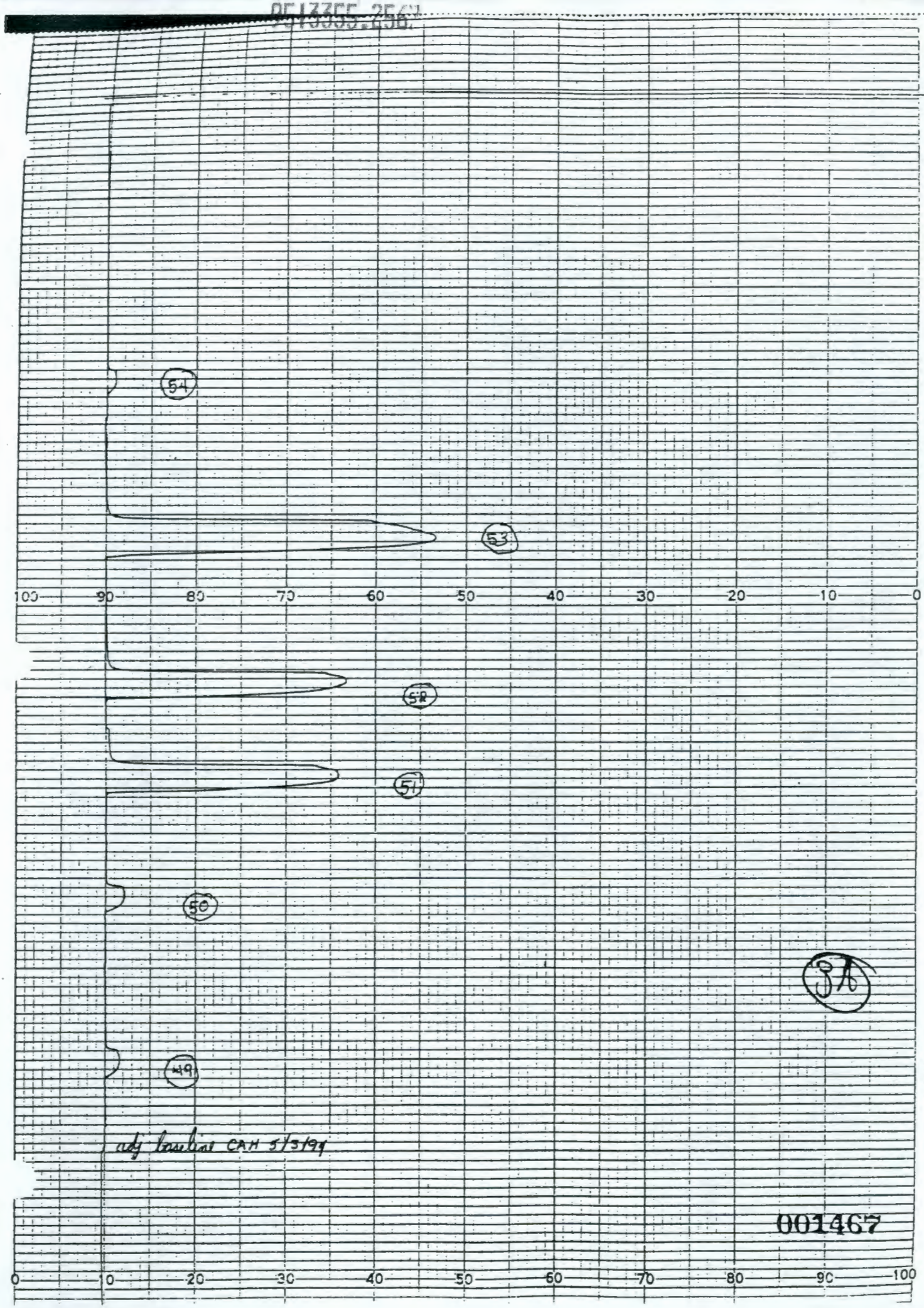

GRAPHIC CONTROLS CORPORATION BUFFALO
No. LNR 0100-0026
PRINTED IN U.S.A.
001467

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5. SAMPLE PREP LOGSHEETS

9513355.2569

ICAP Metals

9513355.2571

(4)

ATOMIC SPECTROSCOPY SAMPLE PREP

000036

Book No. 23 Pg. No.

Matrix SOILS Method/QC Type ICAP/PDER

SOP No. ASM3233-C04 Lot No.(s) NA

Spike Solutions Used	Prep Date	Prep'd by	Exp. Date
1. ICAP/CLP spike soln.	4-25-94	DDZ	5-27-94
2.			

Final Vol. (mL) 100mL Pipets Used 10mL Class "A" volumetric

Balance No. 13 Hood No. 5 Hotplate No. 2

Sample No.	Weight (g)/ Init.Vol.(mL)	Spike Information
RB	—	
MB	1.0007	
SP	1.0006	10.0 mL #1
CDMHNSS*21	1.0069	
22	1.0039	
SPM1*22	1.0020	10.0 mL #1
SPM2*22	1.0024	10.0 mL #1

DRodriguez 5/2/94
Signed Date

Read & Understood By 5/3/94
Date

001470

PROJECT ICAP CLP / FDEQ/USAEC MATRIX

Continued From Page —

ELEMENT	STOCK CONC. (ppm)	MFR	LOT#	EXP	MLS USED	FINAL CONC. (ppm)
Al	10,000	H	390505	7-94	2.0	20.0
Sb	1,000	S	3-86SB	2-95	5.0	5.0
As		S	3-105AS	1-95	20.0	20.0
Ba		S	3-107BA	4-95	20.0	20.0
Be		H	390223	9-94	0.5	0.5
B		H	390812	10-94	10.0	10.0
Cd		H	390818	10-94	0.5	0.5
Ca	10,000	S	H-12CA	12-94	10.0	100.0
Cr	1,000	S	3-124CR	2-95	2.0	2.0
Co		S	3-114CO	10-94	5.0	5.0
Cu		H	390813	10-94	2.5	2.5
Fe	10,000	H	490222	4-95	1.0	10.0
Pb	1,000	S	3-106PB	10-94	5.0	5.0
Li		S	2-252LI	10-94	5.0	5.0
Mg	10,000	S	G-245MG	1-95	10.0	100.0
Mn	1,000	S	3-112MN	2-95	5.0	5.0
Mo		H	390706	10-94	5.0	5.0
Ni		S	2-266NI	10-94	5.0	5.0
K	10,000	S	H-274K	2-95	10.0	100.0
Se	1,000	S	3-70SE	12-94	20.0	20.0
Ag		H	390511	9-94	0.5	0.5
Na	10,000	S	G-164NA	3-95	10.0	100.0
Sr	1,000	H	390520	10-94	5.0	5.0
Tl		S	3-21TL	2-95	20.0	20.0
Sn		H	390526	10-94	10.0	10.0
Ti		S	3-38TL	2-95	5.0	5.0
V		H	390719	10-94	5.0	5.0
Zn		S	3-50ZN	10-94	5.0	5.0

MFR: H = High Purity S = SPEX

FINAL VOLUME = 1000 mls 20% HCL

EPPENDORF # 120565 AND VARIOUS SIZE - CLASS 'A' VOLUMETRICS

Continued on Page

Read and Understood By

Signed 4-25-94 Date

Signed 4-25-94 Date

PROJECT ICP Stds 2-5

Notebook No. 1

Continued From Page —

Std 2

Element	Lot #	Exp. Date
As	3-105AS	1/95
Se	3-70SE	12/94
Tl	3-21TL	2/95
Sb	3-86SB	2/95
Ba	3-107BA	10/94
* Be	390223	10/94
* Cd	390818	10/94
Co	3-114CO	10/94
Cr	3-124CR	2/95
* Cu	390813	10/94
Pb	3-106PB	10/94
Mn	3-112MN	2/95
Ni	2-266NI	10/94
* V	390719	10/94
Zn	3-50ZN	10/94

Std 3

Element	Lot #	Exp. Date
* Al	390505	7/94
Ca	H-12CA	12/94
* Fe	490222	4/95
Mg	G-245MG	1/95
K	H-274K	2/95
Na	G-64NA	3/95

Std 4

Element	Lot #	Exp. Date
* Ag	390511	9/94

Std 5

Element	Lot #	Exp. Date
* B	390812	10/94
La	3-71LA	10/94
Li	2-252LI	10/94
* Mo	390706	10/94
* P	390319	10/94
Si	3-11SI	10/94
* Sr	390520	10/94
Ti	3-38TI	2/95
* Sn	390526	10/94

Final Volume = 1000 ml (5% conc. HNO_3; 5% conc. HCl)

Stds 2,4,5 - Used 1.0 ml of 1000 ppm Stock solution. (Final conc = 1 ppm)

Std 3 - Used 1.0 ml of 10,000 ppm stock solution; except K - used 10 mls. (Final conc = 10 ppm; K = 100 ppm)

Standards marked (*) are High Purity.
All other standards are SPEX.

Pipet used - Biohit 1000 #1

Continued on Page —

Read and Understood By

Elizabeth A. Long — Signed — 4-8-94 — Date

Kent Brakefield — Signed — 4-8-94 — Date

Notebook No. 1

PROJECT ICP CCV Soln.

Continued From Page —

Element	Lot *	Expiration Date	(ppm) Stock conc.	(ml) Volume Used	(ppm) Final conc.
As	3-105AS	1/95	1000	1.4	0.7
Se	3-705E	12/94			
Tl	3-21TL	2/95			
Sb	3-86SB	2/95		1.0	0.5
Ba	3-107BA	10/94			
* Be	390223	10/94			
* Cd	390818	10/94			
Co	3-114CO	10/94			
Cr	3-124CR	2/95			
* Cu	390813	10/94			
Pb	3-106PB	10/94			
Mn	3-112MN	2/95			
Ni	2-266NI	10/94			
* V	390719	10/94			
Zn	3-502N	10/94			
* Ag	390511	9/94			
* B	390812	10/94			
* Mo	390706	10/94			
* Sr	390520	10/94			
* Sn	390526	10/94			
Ti	3-38TI	2/95			
* Al	390505	7/94	10,000		5.0
Ca	H-12CA	12/94			
* Fe	490222	4/95			
Mg	G-245MG	1/95			
K	H-274K	2/95			
Na	G-64NA	3/95			

Final Volume = 2000 ml (5% conc. HNO_3; 5% conc. HCl)
Pipet Used - Biohit 1000 #1

Standards marked (*) are High Purity.
All other standards are SPEX.

Continued on Page —

Read and Understood By

Kent Brakefield — Signed — 4-8-94 Date

Elizabeth A. Hey — Signed — 4-8-94 Date

PROJECT ICP ICV 19 + 7

Notebook No. 1

Continued From Page —

ICV 19

5 ml of SPEX QC19
CAS # 7697-37-2
Lot # 5-181AS
Expires: 8-15-94

ICV 7

5 ml of SPEX QC7
CAS # 7697-37-2
Lot # 5-129AS
Expires: 8-15-94

Final Volume = 500 ml (5% conc HNO_3; 5% conc. HCl)

Used Class "A" Volumetric pipets.

Reminder:

Date	Initials
3-21-94	GLP
4/22/94	GLP

Continued on Page —

Read and Understood By

Signed 2-18-94 Date

Signed 2-18-94. Date

ICP ICS A + AB Solns.

ICS A Soln.

50 ml of PE PURE #7697-37-2
Lot # 6-21 AS
Expires: 12-31-94

ICS AB Soln.

50 ml of PE PURE #7697-37-2
Lot # 6-21 AS
Expires: 12-31-94

5 ml of PEPURE #7697-37-2
Lot # 5-81 AS
Expires: 9-30-94

Final Volume = 500 ml (6% conc HCl)

Used class "A" volumetric pipets.

Remade:

Date	Initials
3-21-94	GLP
4-22-94	GLP

Continued on Page —

Read and Understood By

2-18-94 Date

Signed

2-18-94 Date

9513355.2576

GFAA Metals - Arsenic

9513355.2577

(4)

ATOMIC SPECTROSCOPY SAMPLE PREP

000034

Book No. 23 Pg. No.

Matrix SOILS Method/QC Type GFAA/PDEB

SOP No. ASM3233-003 Lot No.(s) NA

Spike Solutions Used	Prep Date	Prep'd by	Exp. Date
1. ASM3233-007 Spike "A"	4-25-94	DDZ	5-27-94
2.			

Final Vol. (mL) 100 mL Pipets Used BIOHIT 1000 #2

Balance No. 13 Hood No. 5 Hotplate No. 2

Sample No.	Weight (g)/ Init.Vol.(mL)	Spike Information
RB	—	
MB	1.0005	
SP	1.0008	1.0 mL #1
CDMHNSS#21	1.0072	
22	1.0035	
SPM1#22	1.0084	1.0 mL #1
SPM2#22	1.0040	1.0 mL #1

D Rodriguez 5/3/94
Signed Date

Read & Understood By 5/3/94
Date

001477

Notebook No. 11

PROJECT ASM3233-007 Soln A

Continued From Page —

ELEMENT	STOCK CONC	MLS USED	FINAL CONC	TARGET	LOT#	EXP	MFG
As	1,000	4.0	4000	40	3-105As	1-95	SPEX
Cr		2.0	2000	20	3-124Cr	4-95	SPEX
Pb		2.0	2000	20	3-106Pb	10-94	SPEX
Mo		2.0	2000	20	390706	10-94	High Purity
Se		1.0	1000	10	3-70Se	12-94	SPEX
Tl		5.0	5000	50	3-21Tl	2-95	SPEX
V		2.0	2000	20	390719	10-94	High Purity

EPPENDORFF # 1205.65
CLASS 'A' VOLUMETRICS 2, 4, 5 mls
FINAL VOLUME IS 1000 mls
1% HNO_3

Continued on Page —

Read and Understood By

Signed 4-25-94 Date

Signed 4-25-94 Date

PROJECT ICV-PE-PURE

Notebook No. 1

Continued From Page —

IW 4/29/94

Transferred 0.5 ml of PE-PURE STOCK SOLN ~~Lot~~ (Lot #15-6905, CAS #7697-37-2, Rec 7/28/93, EXP 9/30/94) to a 1000 ml volumetric flask. ADDED 50.0 ml CONC HNO_3 and brought to volume with DI water.

ELEMENT	(PPm) STOCK SOLN CONC	(PPb) ICV SOLN CONC
Hg	5	2.5
Cd	25	12.5
Se	25	12.5
As	100	50
Be		
Cr		
Co		
Cu		
Fe		
Pb		
Mn		
Ni		
Zn		
V	250	125
Al	500	250

SOLN is 5% HNO_3

IW 4/29/94

STORED AT ROOM ~~TEMP~~ TEMP

SOLN EXP 10/27/94

Continued on Page —

Read and Understood By

Signed — Date 4/29/94 — Signed — Date 4/29/94

1000 ppm Stock Solns

Element	Manufacturer	Lot #	Date Rec'd	Date Exp.
As	Fisher	925266-24	7/93	7/94
Se	SPEX	3-70SE	1-14-94	12-31-94
Pb	Mallinckrodt	H544KLBY-P	11/93	2/95
Tl	Mallinckrodt	H594KJSC-P	4/93	10/94

10 ppm Solution: Transferred 2.0 mls of each stock solution to a 200 ml volumetric flask containing DI and 10 mls conc. HNO_3, and brought it up to volume with DI water.

Solution Prepared 6/14/94

Working Standards (Preferred fresh daily)

100 ppb: transferred 2 mls of the 10 ppm solution to a 200 ml volumetric flask containing 10 ml conc. HNO_3 and brought it up to volume with D.I. water.

10 ppb: Transferred 10 mls of the 100 ppb solution to a 100 ml volumetric flask containing 5 ml conc. HNO_3 and brought it up to volume with D.I.

50 ppb: Transferred 0.5 mls of the 10 ppm solution to a 100 ml volumetric flask containing 5 ml conc. HNO_3 and brought it up to volume with D.I.

All Standards are 5% HNO_3

Working Standards made Daily

Date Initials

Continued on Page

Read and Understood By

Signed 5-3-94 Date Signed 5-3-94 Date

PROJECT CLP - 5.0 ppm Spike Solution - As, Se, Pb, Tl

Continued From Page —

1000 ppm stock solution:

element	manufacturer	lot No.	Date Recieved	Date expires
As	Fisher	925266-24	7/28/93	7/94
Se	Baker	F17647	4/6/93	5/94
Pb	Mallinckrodt	H544K184-P	11/93	2/95
Tl	Mallinckrodt	H584K556-P	4/2/93	10/94

Transferred 1.0 ml of each of the above stock solutions to a 200 ml volumetric flask containing 10.0 ml conc HNO_3, 4.0 ml H_2O_2 and DI water. Then the solution was brought to volume with DI water. LMS 4/28/94

Note: Solution is 5% conc. HNO_3 and 2% H_2O_2.

expires: 5/31/94

Continued on Page —

Read and Understood By

Lisa Savage — Signed — 4-28-94 — Date

Signed — 4/29/94 — Date

9513355.2582

GFAA Metals - Selenium

9513355.2583

(4)

ATOMIC SPECTROSCOPY SAMPLE PREP

000034

Book No. 23 Pg. No.

Matrix SOILS Method/QC Type GFAA/PDEB

SOP No. ASM3233-003 Lot No.(s) NA

Spike Solutions Used	Prep Date	Prep'd by	Exp. Date
1. ASM3233-007 Spike "A"	4-25-94	DDZ	5-27-94
2.			

Final Vol. (mL) 100 mL Pipets Used BIOHIT 1000 #2

Balance No. 13 Hood No. 5 Hotplate No. 2

Sample No.	Weight (g)/ Init.Vol.(mL)	Spike Information
RB	—	
MB	1.0005	
SP	1.0008	1.0 mL #1
CDMHNSS#21	1.0072	
22	1.0035	
SPM1#22	1.0084	1.0 mL #1
SPM2#22	1.0040	1.0 mL #1

D Rodriguez 5/3/94 Signed Date

C. Hill 5/3/94 Read & Understood By Date

001483

Notebook No. 11

PROJECT ASM3233-007 Soln A

Continued From Page —

Element	Stock conc	mls used	Final conc	Target	Lot#	Exp	Mfg
As	1,000	4.0	4000	40	3-105As	1-95	SPEX
Cr		2.0	2000	20	3-124Cr	4-95	SPEX
Pb		2.0	2000	20	3-106Pb	10-94	SPEX
Mo		2.0	2000	20	390706	10-94	High Purity
Se		1.0	1000	10	3-70Se	12-94	SPEX
Tl		5.0	5000	50	3-21Tl	2-95	SPEX
V		2.0	2000	20	390719	10-94	High Purity

Eppendorf # 1205165
Class 'A' volumetrics 2, 4, 5 mls
Final volume is 1000 mls
1% HNO_3

Continued on Page —

Read and Understood By

Signed 4-25-94 Date

Signed 4-25-94 Date

PROJECT 10 ppm As, Se, Tl, Pb Soln and working stds.

Continued From Page

1000 ppm stock soln's

element	manufacturer	lot #	DATE Rec'd	DATE Exp.
As	Fisher	925266-24	7/93	7/94
Se	Spex	3-70SE	1-14-94	12-31-94
Pb	Mallinckrodt	H544KL84-P	"/93	2/95
Tl	Mallinckrodt	H584K156-P	4/93	10/94

10 ppm solution: transferred 2.0 mls of each stock solution to a 200 ml volumetric flask containing DI and 10 mls conc. HNO_3, and brought it up to volume with DI water.
Solution expires 6/4/94

Working standards (Prepared fresh daily)

100 ppb: transferred 2 mls of the 10 ppm solution to a 200 ml volumetric flask containing 10 ml conc. HNO_3 and brought it up to volume with D.I. water.

10 ppb: transferred 10 mls of the 100 ppb solution to a 100 ml volumetric flask containing 5 ml conc. HNO_3 and brought it up to volume with D.I.

50 ppb: transferred 0.5 mls of the 10 ppm solution to a 100 ml volumetric flask containing 5 ml conc. HNO_3 and brought it up to volume with D.I.

All standards are 5% HNO_3

working standards made Daily

Date Initials

Continued on Page

Read and Understood By

Signed 5-3-94 Date Signed 5-3-94 Date

PROJECT Se, Cd 25 ppb ICV Solution

Notebook No. 1

Continued From Page —

Stock: PE - Pure lot # 5-227 AS Rec'd 12-03-93 Exp. 1-12-95

Transfer 10 ml of above Stock Solution into a Class A 1000 ml volumetric Containing 50 ml Conc. HNO3 and D.I. Water brought to volume with D.I. Water

Biohit 1000 used to transfer 10 ml aliquot.

Element	Stock Solu. Conc. (ppm)	ICV Solu. Conc (ppb)
Cd	25	25
Se	25	25
As	100	100
Be		
Cr		
Co		
Cu		
Fe		
Pb		
Mn		
Ni		
Zn		
V	250	250
Al	500	500
Hg	5.0	5.0

Solution expires 7-5-94

Continued on Page —

Read and Understood By

Signed	Date	Signed	Date
[illegible]	1-5-94	Jerid Rogers	1/5/94

9513355.258

The SPX was prepared by adding one part high standard to one part sample. A dilution factor of 2 is entered in the data batch and the target will equal the high standard concentration.

9513355.2580

Mercury

9513355.2589

(4)

ATOMIC SPECTROSCOPY SAMPLE PREP

MERCURY Book No.: 13 Pg.No.: 10

Matrix: SOILS
SOP No.: ASM3233-042

Method/QC Type: CVAA/FDER
Lot No.(s): NA

	Spike Solutions Used	Prep Date	Prep'd by	Exp. Date
1.	ICV-PE PURE 5 ppb	5/3/94	CAH	11/3/94
2.	100 ppb Hg STD	5/3/94	CAH	5/4/94

Final Vol.(ml): 100

Pipets Used: BIOHIT 1000

Balance No.: 13 ~~Hood No.:~~ NA Hotplate No.: NA

SAMPLE NO.	WEIGHT(g) OR Init.Vol.(ml)	SPIKE INFO./COMMENT
ICV*1	---	100 mL #1
MB	0.2014	
SP	0.2007	5.0 mL #2
CDMHNSS*21	0.2051	
CDMHNSS*22	0.2157	
SPM1*CDMHNSS*22	0.2024	5.0 mL #2
SPM2*CDMHNSS*22	0.2144	5.0 mL #2

Signed 5/3/94 Date

Read and Understood By 5/5/94 Date

001489

9513355.2591

Notebook No. 11

PROJECT 5.0 µg/L Hg PE PURE ICV SOL'N.

Continued From Page —

NEAT SOLN:

PE PURE LOT # 5-227AS REC'D 12/03/93 EXP: 1/12/95

TRANSFER 1.0 mL OF 5 µg/mL Hg NEAT SOL'N INTO 1000 mL VOLUMETRIC FLASK. ADD 10 mL CONC. HCl, DILUTE TO VOLUME W/ DI H_2O.

SOL'N GOOD FOR SIX MONTHS

FINAL CONC. = 5.0 µg/L (50 ppb)

USE BIOHIT 1000 PIPET #1

REMADE:

DATE	INITIALS
4-21-94	MSS
4-27-94	BC
5-3-94	CAH

Continued on Page —

Read and Understood By

Signed	Date	Signed	Date
[illegible]	4/15/94	[illegible]	4-15-94

PROJECT 100 PPB Hg Soln

Notebook No. 8

Continued From Page —

#1 High Purity Lot # ~~29403~~ 390524 -2 AWN 3/22/94 Rec'd 2-16-94 EXP 8/94

Transfer 1 ml of standard 10 ppm stock into 100 ml volumetric flask, added 1 ml conc HNO_3 and brought to volume with DI

#2 High Purity Lot # 490126 Rec'd 2-16-94 EXP 8/94

Same as above

Final volume = 100 ml, 1% HNO_3

Standard Record Daily

AWN	3/22/94	KSB	4-20-94
KSB	3/23/94	AWN	4-20-94
CAH	3/24/94	MSS	4-21-94
BC	3/25/94	BC	4-22-94
DVW	3-28-94	KNG	4-25-94
LMS	3-29-94	CAH	4/25/94
DDZ	3-30-94	LMS	4/26/94
CAH	3/31/94	BC	4-27-94
AWN	4/1/94	AWN	4/27/94
~~KNG~~	~~4/2/94~~	KSB	5-2-94
KNG	4-4-94	MSS	4/29/94
CAH	4/4/94	CAH	5-3-94
MSS	4/5/94	BC	5-4-94
LMS	4/6/94		
KSB	4/8/94		
AWN	4/11/94		
BC	4-12-94		
MSS	4-13-94		
KNG	4-14-94		
CAH	4/15/94		
LMS	4/18/94		
AWN	4/19/94		

Continued on Page —

Read and Understood By

Signed 3/22/94 Date

Signed 3-22-94 Date

9513355.2592

METALS

Samples WA04-4-08 (ESE# CDMHNSS*29)
WSV2-1-01 (ESE# CDMHNSS*30)

9513355.2593

INORGANIC ANALYSIS DATA REPORT
FOR
C.D.M. - Hanford N. Slope
SAMPLE DELIVERY GROUP G48889

9513355.2594

1. COVER PAGE AND CASE NARRATIVE

ENVIROFORMS/INORGANIC CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

SOW No.: 3/90

Sample No.	Lab Sample ID.
WA4320S	SPM2*CDMHNSS*28
EC1100	CDMHNSS*32
WA4320	CDMHNSS*28
WA4320S	SPM1CDMHNSS*28
WA4408	CDMHNSS*29
WC2100	CDMHNSS*33
WC2100S	SPM1*CDMHNSS*33
WG3102	CDMHNSS*31
WV2101	CDMHNSS*30
WC2100S	SPM2*CDMHNSS*33

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 the above listed data package is in compliance with the terms and conditions of the C.D.M. contract, both technically and for completeness, for other than the conditions described here in. Release of the data contained in the hardcopy data packages and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager by his designee, as verified by the following signature.

Signature: Name: Edward Mansfield

Date: 5/25/94 Title: Laboratory Project Manager

CASE NARRATIVE

GENERAL

A total of 6 soil samples are reported under this sample delivery group (SDG) number G48889. Samples CDMHNSS*28-33 were received 05/06/94. All samples were received in good condition, unless otherwise stated in this package. All analyses were performed within required holding times. The Sample No. were generated from site I.D.'s adjusted to a maximum of 6 characters to meet the requirements of the forms program.

ANALYSIS SUMMARY

Analytical methods as stated in the SW-846 were employed to generate the enclosed data package. Since these samples were analyzed by SW846 methods, some CLP specific Q.C. are not present. This package contains data for six soil samples plus appropriate Q.C. Arsenic and Selenium were analyzed by GFAA. Mercury was analyzed by cold vapor using a bubbler aeration system. Barium, Cadmium, Chromium, Lead, and Silver were analyzed using a simultaneous ICAP system.

QUALITY CONTROL ANALYSIS SUMMARY

The Pre-Digested Sample Spike recoveries for Chromium,and Selenium were outside control limits. The Duplicate Sample was not performed, but the Pre-Digested Sample Spikes were prepared in duplicate. The above items were flagged on the appropriate Form 1. All other QC analyses were in control.

9513355.2597

2. DATA SUMMARY (Form 1)

9513355.2590

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

EC1100

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Matrix (soil/water): SOIL Lab Sample ID: CDMHNSS*32

Level (low/med): LOW Date Received: 05/06/94

% Solids: 97.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	3.6			F
7440-39-3	Barium	142			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.6			P
7440-70-2	Calcium				
7440-47-3	Chromium	9.4		N	P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	1140			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.26	U	N	F
7440-22-4	Silver	0.51	U		P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

WA4320

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Matrix (soil/water): SOIL Lab Sample ID: CDMHNSS*28

Level (low/med): LOW Date Received: 05/06/94

% Solids: 97.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	1.4			F
7440-39-3	Barium	79.9			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	0.49	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	10.3		N	P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	9.8	U		P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.25	U	N	F
7440-22-4	Silver	0.49	U		P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

WA4408

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Matrix (soil/water): SOIL Lab Sample ID: CDMHNSS*29

Level (low/med): LOW Date Received: 05/06/94

% Solids: 95.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	4.0			F
7440-39-3	Barium	109			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	0.51	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	10.2		N	P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	10.2	U		P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.24	U	N	F
7440-22-4	Silver	0.51	U		P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

WC2100

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Matrix (soil/water): SOIL Lab Sample ID: CDMHNSS*33

Level (low/med): LOW Date Received: 05/06/94

% Solids: 97.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	1.8			F
7440-39-3	Barium	171			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.8			P
7440-70-2	Calcium				
7440-47-3	Chromium	56.4		N	P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	1810			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.09	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.26	U	N	F
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

WG3102

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Matrix (soil/water): SOIL Lab Sample ID: CDMHNSS*31

Level (low/med): LOW Date Received: 05/06/94

% Solids: 93.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	3.1			F
7440-39-3	Barium	133			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	0.51	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	7.7		N	P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	10.2	U		P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.09	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.26	U	N	F
7440-22-4	Silver	0.51	U		P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

WV2101

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Matrix (soil/water): SOIL Lab Sample ID: CDMHNSS*30

Level (low/med): LOW Date Received: 05/06/94

% Solids: 97.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	1.6			F
7440-39-3	Barium	87.9			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	0.49	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	6.4		N	P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	9.8	U		P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.25	U	N	F
7440-22-4	Silver	0.49	U		P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

9513355.2604

3. QC SUMMARY (FORM 2-14)

ENVIROFORMS/INORGANIC CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Initial Calibration Source: SPEX 19&7

Continuing Calibration Source: ESE

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									
Antimony									
Arsenic	50.0	46.70	93.4						F
Barium	1000.0	1026.12	102.6	1000.0	1027.91	102.8			P
Beryllium									
Cadmium	1000.0	1007.72	100.8	1000.0	1001.87	100.2			P
Calcium									
Chromium	1000.0	1040.16	104.0	1000.0	1026.01	102.6			P
Cobalt									
Copper									
Iron									
Lead	1000.0	1010.68	101.1	1000.0	1012.62	101.3			P
Magnesium									
Manganese									
Mercury	5.0	4.50	90.0						CV
Nickel									
Potassium									
Selenium	50.0	46.60	93.2						F
Silver	1000.0	1024.66	102.5				1003.50	100.4	P
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

(1) Control Limits : Mercury 80-120; Other Metals 90-110; Cyanide 85-115

ENVIROFORMS/INORGANIC CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Initial Calibration Source: SPEX 19&7

Continuing Calibration Source: ESE

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									
Antimony									
Arsenic				50.0	50.20	100.4	48.10	96.2	F
Barium				500.0	498.63	99.7	499.68	99.9	P
Beryllium									
Cadmium				500.0	515.53	103.1	513.07	102.6	P
Calcium									
Chromium				500.0	503.07	100.6	503.33	100.7	P
Cobalt									
Copper									
Iron									
Lead				500.0	521.34	104.3	513.57	102.7	P
Magnesium									
Manganese									
Mercury				5.0	5.00	100.0	5.00	100.0	CV
Nickel									
Potassium									
Selenium				50.0	47.60	95.2	49.60	99.2	F
Silver				500.0	506.28	101.3	503.51	100.7	P
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

(1) Control Limits : Mercury 80-120; Other Metals 90-110; Cyanide 85-115

ENVIROFORMS/INORGANIC CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

AA CRDL Standard Source: ESE

ICP CRDL Standard Source: ESE

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Found Found	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								

ENVIROFORMS/INORGANIC CLP

3
BLANKS

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): 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											
Antimony											
Arsenic			2.5	U	2.5	U			0.247	U	F
Barium			20.0	U	20.0	U			1.926	U	P
Beryllium											
Cadmium			5.0	U	5.0	U			0.482	U	P
Calcium											
Chromium			10.0	U	10.0	U			0.963	U	P
Cobalt											
Copper											
Iron											
Lead			100.0	U	100.0	U			9.630	U	P
Magnesium											
Manganese											
Mercury			0.2	U	0.2	U			0.098	U	CV
Nickel											
Potassium											
Selenium			2.5	U	2.5	U			0.247	U	F
Silver			5.0	U	5.0	U			0.482	U	P
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

ENVIROFORMS/INORGANIC CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

ICP ID Number: JA61 ICS Source: PERKIN-ELMER

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum								
Antimony								
Arsenic								
Barium		500	4	504.7	100.9	491		
Beryllium								
Cadmium		1000	-1	969.2	96.9	992		
Calcium								
Chromium		500	5	479.7	95.9	470		
Cobalt								
Copper								
Iron								
Lead		1000	20	962.5	96.2	990		
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver		1000	-5	994.9	99.5	987		
Sodium								
Thallium								
Vanadium								
Zinc								

ENVIROFORMS/INORGANIC CLP

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

WC2100S

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Matrix (soil/water): SOIL Level (low/med): LOW
% Solids for Sample: 97.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic	75-125	5.1102		1.8158		3.92	84.0		F
Barium	75-125	337.9590		170.7477		202.15	82.7		P
Beryllium									NR
Cadmium	75-125	6.5142		1.7661		5.05	94.0		P
Calcium									NR
Chromium	75-125	68.6573		56.4022		20.21	60.6	N	P
Cobalt									NR
Copper									NR
Iron									NR
Lead		1651.4123		1811.7184		50.54	-317.2		P
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium	75-125	0.3825	B	0.2550	U	0.98	39.0	N	F
Silver	75-125	4.4624		0.5043	U	5.05	88.4		P
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

ENVIROFORMS/INORGANIC CLP

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

WA4320S

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Matrix (soil/water): SOIL Level (low/med): LOW
% Solids for Sample: 97.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	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	75-125	2.2673		0.0966	U	2.46	92.2		CV
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

ENVIROFORMS/INORGANIC CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

WC2100A

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

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

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)		Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium		2230.04		1692.85		500.0	107.4		P
Beryllium									NR
Cadmium		532.68		17.51		500.0	103.0		P
Calcium									NR
Chromium		1084.34		559.19		500.0	105.0		P
Cobalt									NR
Copper									NR
Iron									NR
Lead		18894.32		17961.98		500.0	186.5		P
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver		514.66		5.00	U	500.0	102.9		P
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

ENVIROFORMS/INORGANIC CLP

6
DUPLICATES

SAMPLE NO.

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

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

% Solids for Sample: % 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								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
Cyanide								

ENVIROFORMS/INORGANIC CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Solid LCS Source: E.R.A.214

Aqueous LCS Source: ESE

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic				4.0	3.5		3.5	4.9	87.5
Barium				194.0	196.3				101.2
Beryllium									
Cadmium				4.9	5.1				104.1
Calcium									
Chromium				19.4	19.3				99.5
Cobalt									
Copper									
Iron									
Lead				48.6	47.4				97.5
Magnesium									
Manganese									
Mercury				2.4	2.5				104.2
Nickel									
Potassium									
Selenium				1.0	1.0				100.0
Silver				4.9	4.8				98.0
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

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8

STANDARD ADDITION RESULTS

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

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

FORM VIII - IN

ENVIROFORMS/INORGANIC CLP

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ICP SERIAL DILUTIONS

SAMPLE NO.

WC2100L

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

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

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum							
Antimony							
Arsenic							
Barium	1692.85		1665.25		1.6		P
Beryllium							
Cadmium	17.51		25.00	U	100.0		P
Calcium							
Chromium	559.19		568.05		1.6		P
Cobalt							
Copper							
Iron							
Lead	17961.98		17973.90		0.1		P
Magnesium							
Manganese							
Mercury							
Nickel							
Potassium							
Selenium							
Silver	5.00	U	25.00	U			P
Sodium							
Thallium							
Vanadium							
Zinc							

FORM IX - IN

ENVIROFORMS/INORGANIC CLP

10
INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

ICP ID Number: JA61 Date: 04/18/94

Flame AA ID Number:

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Barium	493.40		200.0	20.0	P
Cadmium	228.80		5.0	5.0	P
Chromium	267.70		10.0	10.0	P
Lead	220.30		3.0	100.0	P
Silver	328.00		10.0	5.0	P

Comments:

ENVIROFORMS/INORGANIC CLP

10
INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

ICP ID Number: Date: 04/18/94

Flame AA ID Number:

Furnace AA ID Number: PE5100

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Arsenic	193.70	BZ	10.0	2.5	F
Selenium	196.00	BZ	5.0	2.5	F

Comments:

ENVIROFORMS/INORGANIC CLP

10

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

ICP ID Number: Date: 02/15/94

Flame AA ID Number: BK400

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Mercury	253.70		0.2	0.2	CV

Comments:

ENVIROFORMS/INORGANIC CLP

11A
ICP INTERELEMENT CORRECTION FACTORS (Annually)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

ICP ID Number: JA61 Date: 01/19/94

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	MN
Aluminum	308.20					
Antimony	206.80					
Arsenic	193.60	0.0091340		0.0003720		
Barium	493.40					
Beryllium	313.00					
Cadmium	228.80					
Calcium	317.90					-0.0018800
Chromium	267.70					
Cobalt	228.60			0.0000710		
Copper	324.70					
Iron	259.90					
Lead	220.30	0.0020210				-0.0022420
Magnesium	279.00			0.0002940		-0.0052840
Manganese	257.60	0.0000240	0.0000150	0.0000580	0.0000380	
Mercury						
Nickel	231.60					
Potassium	766.40					
Selenium	196.00	0.0038590		0.0023470	0.0006650	0.0023000
Silver	328.00					0.0001790
Sodium	589.00					
Thallium	190.80	-0.0001690		0.0004090	0.0003700	-0.0108300
Vanadium	292.40			0.0001780		
Zinc	213.80			0.0000850	0.0000400	
Cyanide						

Comments:

ENVIROFORMS/INORGANIC CLP

11B
ICP INTERELEMENT CORRECTION FACTORS (Annually)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

ICP ID Number: JA61 Date: 01/19/94

Analyte	Wave-length (nm)	Interelement Correction Factors for: BA	BE	CD	CO	CR
Aluminum	308.20				-0.0145850	
Antimony	206.80				-0.0035060	0.0117370
Arsenic	193.60					
Barium	493.40					
Beryllium	313.00					
Cadmium	228.80		0.0042080			
Calcium	317.90					
Chromium	267.70		0.0002570			
Cobalt	228.60	0.0008820		0.0006270		0.0003870
Copper	324.70					
Iron	259.90		0.0007080			
Lead	220.30					
Magnesium	279.00				-0.0017760	-0.0012550
Manganese	257.60		0.0001130			
Mercury						
Nickel	231.60				0.0006390	
Potassium	766.40					
Selenium	196.00		0.0020100		0.0030620	0.0015230
Silver	328.00					
Sodium	589.00					
Thallium	190.80					
Vanadium	292.40					0.0003190
Zinc	213.80					
Cyanide						

Comments:

ENVIROFORMS/INORGANIC CLP

11B
ICP INTERELEMENT CORRECTION FACTORS (Annually)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

ICP ID Number: JA61 Date: 01/19/94

Analyte	Wave-length (nm)	Interelement Correction Factors for: CU	MO	NI	PB	V
Aluminum	308.20		0.0135050			0.0041440
Antimony	206.80		0.0059640	-0.0081770		-0.0033430
Arsenic	193.60		0.0015360			0.0102360
Barium	493.40					
Beryllium	313.00					0.0042470
Cadmium	228.80			-0.0002510		
Calcium	317.90					
Chromium	267.70		-0.0029540			0.0006160
Cobalt	228.60			0.0004180		
Copper	324.70		0.0007150			
Iron	259.90					
Lead	220.30		0.0016320			-0.0010490
Magnesium	279.00		-0.0110400	-0.0015080		
Manganese	257.60			0.0001570		
Mercury						
Nickel	231.60		-0.0004060			
Potassium	766.40					
Selenium	196.00		0.0024970	0.0015040		0.0020000
Silver	328.00					-0.0014600
Sodium	589.00					
Thallium	190.80					
Vanadium	292.40		0.0011430			
Zinc	213.80	0.0027620	-0.0004980	0.0032420		
Cyanide						

Comments:

ENVIROFORMS/INORGANIC CLP

11B
ICP INTERELEMENT CORRECTION FACTORS (Annually)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

ICP ID Number: JA61 Date: 01/19/94

Analyte	Wave-length (nm)	Interelement Correction Factors for: AS	SN	TI	TL	ZN
Aluminum	308.20					
Antimony	206.80		0.0048600	0.0017150		
Arsenic	193.60					
Barium	493.40					
Beryllium	313.00					
Cadmium	228.80	0.0087800				
Calcium	317.90			-0.0012870		
Chromium	267.70			0.0001450		
Cobalt	228.60			0.0015940		
Copper	324.70			0.0003030		
Iron	259.90					
Lead	220.30					
Magnesium	279.00					
Manganese	257.60					
Mercury						
Nickel	231.60				0.0002880	
Potassium	766.40					
Selenium	196.00			0.0012360		0.0016530
Silver	328.00			-0.0002010		
Sodium	589.00					
Thallium	190.80					
Vanadium	292.40			0.0005860		
Zinc	213.80					
Cyanide						

Comments:

ENVIROFORMS/INORGANIC CLP

12
ICP LINEAR RANGES (QUARTERLY)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

ICP ID Number: JA61 Date: 04/18/94

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Aluminum	5.00	1000000.0	P
Antimony	5.00	100000.0	P
Arsenic	5.00	100000.0	P
Barium	5.00	100000.0	P
Beryllium	5.00	100000.0	P
Cadmium	5.00	100000.0	P
Calcium	5.00	1000000.0	P
Chromium	5.00	100000.0	P
Cobalt	5.00	100000.0	P
Copper	5.00	100000.0	P
Iron	5.00	1000000.0	P
Lead	5.00	100000.0	P
Magnesium	5.00	1000000.0	P
Manganese	5.00	100000.0	P
Nickel	5.00	100000.0	P
Potassium	5.00	1000000.0	P
Selenium	5.00	100000.0	P
Silver	5.00	100000.0	P
Sodium	5.00	500000.0	P
Thallium	5.00	100000.0	P
Vanadium	5.00	100000.0	P
Zinc	5.00	100000.0	P

Comments:

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13
Preparation Log

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Method: P

Sample No.	Preparation Date	Weight (gram)	Volume (ml)
EC1100	05/09/94	1.01	100
LCSS	05/09/94	1.03	100
PBS	05/09/94	1.04	100
WA4320	05/09/94	1.05	100
WA4408	05/09/94	1.03	100
WC2100	05/09/94	1.01	100
WC2100S	05/09/94	1.01	100
WC2100S2	05/09/94	1.03	100
WG3102	05/09/94	1.04	100
WV2101	05/09/94	1.04	100

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13
Preparation Log

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Method: F

Sample No.	Preparation Date	Weight (gram)	Volume (ml)
EC1100	05/09/94	1.00	100
LCSS	05/09/94	1.01	100
PBS	05/09/94	1.01	100
WA4320	05/09/94	1.01	100
WA4408	05/09/94	1.09	100
WC2100	05/09/94	1.00	100
WC2100S	05/09/94	1.04	100
WC2100S2	05/09/94	1.03	100
WG3102	05/09/94	1.01	100
WV2101	05/09/94	1.01	100

FORM XIII - IN

ENVIROFORMS/INORGANIC CLP

13
Preparation Log

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G48889

Method: CV

Sample No.	Preparation Date	Weight (gram)	Volume (ml)
ENC110	05/09/94	0.21	100
LCSS	05/09/94	0.21	100
PBS	05/09/94	0.20	100
WA4320	05/09/94	0.21	100
WA4320S	05/09/94	0.21	100
WA4320S2	05/09/94	0.21	100
WA4408	05/09/94	0.21	100
WC2100	05/09/94	0.22	100
WG3102	05/09/94	0.23	100
WV2101	05/09/94	0.21	100

FORM XIII - IN

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14
ANALYSIS RUN LOG

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL
Lab Code: ESE Case No.: SAS No.: SDG No.: G48889
Instrument ID Number: JA61 Method: P
Start Date: 05/09/94 End Date: 05/09/94

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
CCVII	1.00	1352					X		X		X				X							X					
CCVIV	1.00	1354					X		X		X				X							X					
ICV	1.00	1356					X		X		X				X							X					
ICV	1.00	1359					X		X		X				X							X					
ICSAI	1.00	1401					X		X		X				X							X					
ICSABI	1.00	1403					X		X		X				X							X					
	1.00	1408					X		X		X				X							X					
PBS	1.00	1412					X		X		X				X							X					
LCSS	1.00	1414					X		X		X				X							X					
WA4320	1.00	1417					X		X		X				X							X					
WA4408	1.00	1420					X		X		X				X							X					
WV2101	1.00	1422					X		X		X				X							X					
WG3102	1.00	1424					X		X		X				X							X					
EC1100	1.00	1428					X		X		X				X							X					
WC2100	1.00	1431					X		X		X				X							X					
WC2100L	5.00	1433					X		X		X				X							X					
CCV1	1.00	1437					X		X		X				X							X					
CCB1	1.00	1447					X		X		X				X							X					
WC2100A	2.00	1450					X		X		X				X							X					
WC2100S	1.00	1500					X		X		X				X							X					
WC2100S2	1.00	1504					X		X		X				X							X					
ICSAF	1.00	1510					X		X		X				X							X					
ICSAF	1.00	1513					X		X		X				X							X					
CCV2	1.00	1516					X		X		X				X							X					
CCB2	1.00	1519					X		X		X				X							X					

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ANALYSIS RUN LOG

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL
Lab Code: ESE Case No.: SAS No.: SDG No.: G48889
Instrument ID Number: PE5100 Method: F
Start Date: 05/09/94 End Date: 05/09/94

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
BLANK	1.00	1439				X																					
STD 1	1.00	1444				X																					
STD 2	1.00	1450				X																					
STD 3	1.00	1456				X																					
STD 4	1.00	1501				X																					
STD 5	1.00	1507				X																					
STD 6	1.00	1513				X																					
STD 4	1.00	1537				X																					
STD 5	1.00	1543				X																					
ICV	1.00	1636				X																					
	1.00	1645				X																					
PBS	1.00	1651				X																					
LCSS	1.00	1656				X																					
WA4320	1.00	1705				X																					
WA4408	1.00	1710				X																					
WV2101	1.00	1716				X																					
WG3102	1.00	1721				X																					
EC1100	1.00	1727				X																					
CCV1	1.00	1733				X																					
CCB1	1.00	1738				X																					
WC2100	1.00	1758				X																					
WC2100S	1.00	1803				X																					
WC2100S2	1.00	1809				X																					
WC2100A	2.00	1815	95.9			X																					
WC2100S2	1.00	1821				X																					
CCV2	1.00	1831				X																					
CCB2	1.00	1836				X																					

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL
Lab Code: ESE Case No.: SAS No.: SDG No.: G48889
Instrument ID Number: PE5100 Method: F
Start Date: 05/09/94 End Date: 05/09/94

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
BLANK	1.00	0828																			X						
BLANK	1.00	0835																			X						
STD 1	1.00	0841																			X						
STD 2	1.00	0847																			X						
STD 3	1.00	0852																			X						
STD 4	1.00	0858																			X						
STD 5	1.00	0904																			X						
STD 6	1.00	0909																			X						
STD 4	1.00	0937																			X						
ICV	1.00	0946																			X						
	1.00	0957																			X						
PBS	1.00	1002																			X						
LCSS	1.00	1007																			X						
WA4320	1.00	1013																			X						
WA4408	1.00	1019																			X						
WV2101	1.00	1024																			X						
WG3102	1.00	1030																			X						
EC1100	1.00	1035																			X						
CCV1	1.00	1041																			X						
CCB1	1.00	1046																			X						
WC2100	1.00	1055																			X						
WC2100S	1.00	1101																			X						
WC2100S2	1.00	1106																			X						
WC2100S	1.00	1112																			X						
WC2100A	2.00	1117	86.2																		X						
WC2100A	2.00	1125																			X						
CCV2	1.00	1131																			X						
CCB2	1.00	1136																			X						

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL
Lab Code: ESE Case No.: SAS No.: SDG No.: G48889
Instrument ID Number: BK400 Method: CV
Start Date: 05/09/94 End Date: 05/10/94

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
BLANK	1.00	2336																X									
STD 1	1.00	2337																X									
STD 2	1.00	2338																X									
STD 3	1.00	2339																X									
STD 4	1.00	2341																X									
STD 5	1.00	2342																X									
STD 6	1.00	2343																X									
STD 7	1.00	2344																X									
ICV	1.00	0002																X									
	1.00	0004																X									
PBS	1.00	0005																X									
LCSS	1.00	0006																X									
WA4320	1.00	0007																X									
WA4320S	1.00	0009																X									
WA4320S2	1.00	0010																X									
WA4408	1.00	0011																X									
WV2101	1.00	0012																X									
WG3102	1.00	0013																X									
ENC1100	1.00	0015																X									
CCV1	1.00	0016																X									
CCB1	1.00	0017																X									
WC2100	1.00	0018																X									
CCV2	1.00	0020																X									
CCB2	1.00	0021																X									

9513355.2632

4. INSTRUMENT RAW DATA

9513355.2633

ICAP Metals

(2)

BK# 2 PG# 000083

JA 61 ICAP

Instrument Log

Analyst: Gary L Price Date: 5/9/94

PROFILING	Initial	Final
Time	—	
Temp	76°F	
Humidity	70%	
Entr. Slit	737	
Ele. Cd		

Argon Tank Level —

Argon Regulator (psi) ~80

Element File Used ESE

File Name 596LP

Method No. SW6010

OPTIMIZATION	
Cu/Mn 13601/063 =	1.2794
Coolant flow (LPM)	15.0
Coolant mass flow	15.0
Nebulizer flow (LPM)	0.75
Nebulizer mass flow	0.55
Forward power	1.1 kw
Reflected power	~3 w
Peristaltic pump	850
Viewing height	15.5 mm above coil
Y tongue	1 mm above torch

Maintenance/Comments:

Samples Analyzed:

CDMHNSS * 28-33

Read & Understood By: Elizabeth A. Cruz 5-9-94

9513355.2635

(3)

5/9/94

GCP JSCI

COMLHN SS * 28-33

G48889

Method: ESE Standard: STD1-Blank

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Avge	.0023	.0368	-.0043	.0006	.0000	.0015	-.0021
SDev	.0002	.0019	.0005	.0002	.0000	.0001	.0006
%RSD	9.897	5.241	11.62	33.33	.0000	7.873	27.94
#1	.0022	.0346	-.0044	.0008	.0000	.0014	-.0024
#2	.0026	.0376	-.0038	.0004	.0000	.0014	-.0024
#3	.0022	.0382	-.0048	.0006	.0000	.0016	-.0014

Elem	Ca	Cd2288	Co2286	Cr2677	Cu3247	Fe	Fe
Avge	.0063	.0000	.0005	.0015	.0024	.0017	.0019
SDev	.0009	.0002	.0005	.0008	.0002	.0006	.0003
%RSD	14.24	.0000	98.97	51.63	8.333	38.57	16.37
#1	.0054	-.0002	.0002	.0018	.0022	.0012	.0018
#2	.0072	.0002	.0002	.0006	.0026	.0024	.0022
#3	.0064	.0000	.0010	.0020	.0024	.0014	.0016

Elem	K_7664	Mg2790	Mn2576	Mo2020	Na5889	Ni2316	Pb2203
Avge	.0149	.0001	.0102	.0004	.0707	.0001	.0034
SDev	.0033	.0006	.0000	.0002	.0014	.0007	.0021
%RSD	22.02	433.0	.0000	50.00	2.008	532.1	61.13
#1	.0112	.0008	.0102	.0004	.0694	-.0005	.0022
#2	.0162	-.0002	.0102	.0002	.0704	.0009	.0058
#3	.0174	-.0002	.0102	.0006	.0722	.0000	.0022

Elem	Sb2068	Se1960	Si2881	Sn1899	Ti3349	Tl1908	V_2924
Avge	-.0001	.1555	.0161	.0157	.0004	-.0043	-.0014
SDev	.0009	.0004	.0005	.0012	.0000	.0003	.0003
%RSD	1353.	.2677	2.863	7.480	.0000	7.050	24.74
#1	.0008	.1554	.0164	.0152	.0004	-.0044	-.0012
#2	-.0010	.1560	.0156	.0148	.0004	-.0040	-.0018
#3	.0000	.1552	.0164	.0170	.0004	-.0046	-.0012

Elem	Zn2138
Avge	.0017
SDev	.0005
%RSD	30.20
#1	.0016
#2	.0012
#3	.0022

Method: ESE Standard: STD2

Elem	As1936	Ba4934	Be3130	Cd2288	Co2286	Cr2677	Cu3247
Avge	.2160	.3165	.3340	.2315	.3109	.5119	.4622
SDev	.0021	.0024	.0021	.0016	.0024	.0033	.0035
%RSD	.9799	.7540	.6252	.7037	.7860	.6495	.7582
#1	.2184	.3172	.3350	.2326	.3104	.5114	.4620
#2	.2144	.3184	.3354	.2322	.3136	.5154	.4658
#3	.2152	.3138	.3316	.2296	.3088	.5088	.4588

Elem	Mn2576	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Avge	.4111	.2367	.1759	.1078	.3375	.0814	.3592
SDev	.0031	.0017	.0027	.0004	.0016	.0030	.0025
%RSD	.7574	.7185	1.552	.3711	.4827	3.718	.6977
#1	.4114	.2368	.1772	.1074	.3382	.0804	.3590
#2	.4140	.2384	.1778	.1082	.3386	.0848	.3618
#3	.4078	.2350	.1728	.1078	.3356	.0790	.3568

Elem	Zn2138
Avge	.5174
SDev	.0033
%RSD	.6433
#1	.5188
#2	.5198
#3	.5136

Method: ESE Standard: STD3

Elem	Al3082	Ca	Ca	Fe	Fe	K_7664	Mg2790
Avge	3.337	.7428	5.780	.3585	3.489	1.627	.5830
SDev	.005	.0029	.015	.0007	.001	.001	.0016
%RSD	.1604	.3961	.2534	.1959	.0326	.0376	.2714
#1	3.333	.7406	5.764	.3578	3.488	1.626	.5844
#2	3.336	.7444	5.783	.3592	3.489	1.627	.5838
#3	3.343	.7464	5.792	.3584	3.490	1.627	.5868

Elem	Na5889
Avge	2.931
SDev	.002
%RSD	.0769
#1	2.930
#2	2.930
#3	2.934

Method: ESE Standard: STD4

Elem	Ag3280
Avge	.4590
SDev	.0022
%RSD	.4910
#1	.4564
#2	.4602
#3	.4604

Method: ESE Standard: STD5

Elem	B_2496	Mo2020	Si2881	Sn1899	Ti3349
Avge	.1136	.2066	.2158	.1747	.3872

SDev	.0019	.0027	.0014	.0017	.0065
%RSD	1.679	1.331	.6683	.9531	1.665
#1	.1116	.2036	.2154	.1742	.3798
#2	.1138	.2072	.2146	.1734	.3902
#3	.1154	.2090	.2174	.1766	.3916

Method: ESE Slope = Conc(SIR)/IR

Element	Wavelen	High std	Low std	Slope	Y-intercept	Date Standardized
Ag3280	328.068	STD4	STD1-Blank	2.18978	-.005109	05/09/94 01:49:08
Al3082	308.215	STD3	STD1-Blank	3.03024	-.111513	05/09/94 01:49:08
As1936	193.696	STD2	STD1-Blank	4.53858	.019667	05/09/94 01:49:08
B_2496	249.678	STD5	STD1-Blank	8.84071	-.005304	05/09/94 01:49:08
Ba4934	493.409	STD2	STD1-Blank	3.15989	.000000	05/09/94 01:49:08
Be3130	313.042	STD2	STD1-Blank	3.00722	-.004411	05/09/94 01:49:08
Ca	317.933	STD3	STD1-Blank	1.73214	-.010970	05/09/94 01:49:08
Ca	307.603	STD3	STD1-Blank	13.4072	.027708	05/09/94 01:49:08
Cd2288	228.802	STD2	STD1-Blank	4.32028	.000000	05/09/94 01:49:08
Co2286	228.616	STD2	STD1-Blank	3.22096	-.001503	05/09/94 01:49:08
Cr2677	267.716	STD2	STD1-Blank	1.95925	-.002874	05/09/94 01:49:08
Cu3247	324.754	STD2	STD1-Blank	2.17486	-.005220	05/09/94 01:49:08
Fe	259.940	STD3	STD1-Blank	2.86763	-.005353	05/09/94 01:49:08
Fe	271.441	STD3	STD1-Blank	28.0269	-.046712	05/09/94 01:49:08
K_7664	766.491	STD3	STD1-Blank	62.0450	-.926539	05/09/94 01:49:08
Mg2790	279.079	STD3	STD1-Blank	17.0979	-.002280	05/09/94 01:49:08
Mn2576	257.610	STD2	STD1-Blank	2.49460	-.025445	05/09/94 01:49:08
Mo2080	202.030	STD5	STD1-Blank	4.84966	-.001940	05/09/94 01:49:08
Na5889	588.995	STD3	STD1-Blank	3.49610	-.247057	05/09/94 01:49:08
Ni2316	231.604	STD2	STD1-Blank	4.22654	-.000564	05/09/94 01:49:08
Pb2203	220.353	STD2	STD1-Blank	5.79598	-.019706	05/09/94 01:49:08
Sb2068	206.838	STD2	STD1-Blank	9.27070	.000618	05/09/94 01:49:08
Se1960	196.026	STD2	STD1-Blank	5.49652	-.854892	05/09/94 01:49:08
Si2881	288.158	STD5	STD1-Blank	5.00835	-.080801	05/09/94 01:49:08
Sn1899	189.989	STD5	STD1-Blank	6.19237	-.097014	05/09/94 01:49:08
Ti3349	334.941	STD5	STD1-Blank	2.58532	-.001034	05/09/94 01:49:08
Tl1908	190.864	STD2	STD1-Blank	11.6641	.050544	05/09/94 01:49:08
V_2924	292.402	STD2	STD1-Blank	2.77316	.003882	05/09/94 01:49:08
Zn2138	213.856	STD2	STD1-Blank	1.93899	-.003232	05/09/94 01:49:08

Method: ESE Slope = IR/Conc(SIR)

Element	Wavelen	High std	Low std	Slope	BEC	Date Standardized
Ag3280	328.068	STD4	STD1-Blank	.456667	.005109	05/09/94 01:49:08
Al3082	308.215	STD3	STD1-Blank	.330007	.111513	05/09/94 01:49:08
As1936	193.696	STD2	STD1-Blank	.220333	.019667	05/09/94 01:49:08
B_2496	249.678	STD5	STD1-Blank	.113113	.005304	05/09/94 01:49:08
Ba4934	493.409	STD2	STD1-Blank	.316467	.000000	05/09/94 01:49:08
Be3130	313.042	STD2	STD1-Blank	.332533	.004411	05/09/94 01:49:08
Ca	317.933	STD3	STD1-Blank	.577320	.010970	05/09/94 01:49:08
Ca	307.603	STD3	STD1-Blank	.074587	.027708	05/09/94 01:49:08
Cd2288	228.802	STD2	STD1-Blank	.231467	.000000	05/09/94 01:49:08
Co2286	228.616	STD2	STD1-Blank	.310467	.001503	05/09/94 01:49:08

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Element	Wavelen	High std	Low std	Slope	BEC	Date Standardized
Cr2677	267.716	STD2	STD1-Blank	.510400	.002874	05/09/94 01:49:08
Cu3247	324.754	STD2	STD1-Blank	.459800	.005220	05/09/94 01:49:08
Fe	259.940	STD3	STD1-Blank	.348720	.005353	05/09/94 01:49:08
Fe	271.441	STD3	STD1-Blank	.035680	.046712	05/09/94 01:49:08
K_7664	766.491	STD3	STD1-Blank	.016117	.926539	05/09/94 01:49:08
Mg2790	279.079	STD3	STD1-Blank	.058487	.002280	05/09/94 01:49:08
Mn2576	257.610	STD2	STD1-Blank	.400867	.025445	05/09/94 01:49:08
Mo2020	202.030	STD5	STD1-Blank	.206200	.001940	05/09/94 01:49:08
Na5889	588.995	STD3	STD1-Blank	.286033	.247057	05/09/94 01:49:08
Ni2316	231.604	STD2	STD1-Blank	.236600	.000564	05/09/94 01:49:08
Pb2203	220.353	STD2	STD1-Blank	.172533	.019706	05/09/94 01:49:08
Sb2068	206.838	STD2	STD1-Blank	.107867	.000618	05/09/94 01:49:08
Se1960	196.026	STD2	STD1-Blank	.181933	.854892	05/09/94 01:49:09
Si2881	288.158	STD5	STD1-Blank	.199667	.080801	05/09/94 01:49:08
Sn1899	189.989	STD5	STD1-Blank	.161489	.097014	05/09/94 01:49:08
Ti3349	334.941	STD5	STD1-Blank	.386800	.001034	05/09/94 01:49:08
Tl1908	190.864	STD2	STD1-Blank	.085733	.050544	05/09/94 01:49:08
V_2924	292.402	STD2	STD1-Blank	.360600	.003882	05/09/94 01:49:08
Zn2138	213.856	STD2	STD1-Blank	.515733	.003232	05/09/94 01:49:08

Method: ESE Sample Name: CCV*STD2*1 Operator: GLP
Run Time: 05/09/94 13:52:05
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0010	.0067	1.022	-.0002	1.028	1.027	-.0022
SDev	.0002	.0018	.015	.0037	.007	.008	.0020
%RSD	23.81	27.29	1.438	1828.	.6389	.7745	90.63
#1	-.0007	.0046	1.005	-.0032	1.020	1.018	-.0007
#2	-.0012	.0077	1.028	-.0014	1.032	1.032	-.0045
#3	-.0012	.0077	1.032	.0039	1.032	1.032	-.0014

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.002	1.026	1.026	1.024	.0008	.1365	.0101
SDev	.002	.006	.005	.006	.0006	.2836	.0142
%RSD	.1686	.6277	.4868	.6287	72.10	207.8	141.0
#1	1.001	1.019	1.021	1.017	.0014	.4633	.0146
#2	1.001	1.031	1.027	1.028	.0008	-.0083	.0215
#3	1.004	1.029	1.030	1.027	.0002	-.0455	-.0058

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.024	.0017	.0035	1.022	1.013	1.031	1.023
SDev	.008	.0011	.0015	.011	.005	.008	.008
%RSD	.7593	65.61	41.63	1.047	.4615	.7846	.7687
#1	1.015	.0023	.0040	1.014	1.015	1.022	1.016
#2	1.028	.0023	.0047	1.018	1.007	1.037	1.020
#3	1.028	.0004	.0019	1.034	1.015	1.035	1.031

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138

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Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0050	.0016	1.026	1.024	1.015
SDev	.0071	.0082	.0003	.050	.007	.005
%RSD	22690.	165.6	18.42	4.883	.7271	.4925
#1	-.0070	-.0041	.0018	.9923	1.016	1.009
#2	.0071	.0120	.0013	1.083	1.030	1.018
#3	.0001	.0070	.0018	1.002	1.027	1.018

Method: ESE Sample Name: CCV*STD4*1 Operator: SLP
Run Time: 05/09/94 13:54:37
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.004	.0049	.0102	.0047	.0001	-.0000	-.0044
SDev	.003	.0047	.0172	.0027	.0002	.0003	.0017
%RSD	.3055	97.59	167.6	57.31	173.2	19e6	39.49
#1	1.000	.0018	.0296	.0071	.0000	.0004	-.0027
#2	1.007	.0103	.0041	.0053	.0003	-.0002	-.0061
#3	1.004	.0024	-.0030	.0018	.0000	-.0002	-.0044

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0011	.0002	.0010	.0004	.0023	.1737	.0023
SDev	.0006	.0004	.0014	.0016	.0007	.3424	.0086
%RSD	52.04	176.7	129.8	359.7	28.86	197.1	378.3
#1	.0006	.0004	.0018	.0017	.0027	.5625	.0114
#2	.0017	.0004	.0018	-.0013	.0027	-.0927	-.0057
#3	.0009	-.0002	-.0005	.0009	.0015	.0414	.0012

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	-.0013	.0012	.0059	-.0008	.0075	-.0044
SDev	.0000	.0020	.0070	.0003	.0037	.0011	.0116
%RSD	25.18	157.2	600.0	4.151	477.1	14.47	262.5
#1	-.0000	-.0019	.0082	.0058	-.0023	.0081	-.0063
#2	-.0000	-.0029	-.0058	.0058	.0035	.0081	.0080
#3	-.0000	.0010	.0012	.0062	-.0035	.0062	-.0150

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0050	-.0004	.0005	.0101	.0000	.0019
SDev	.0057	.0077	.0005	.0071	.0010	.0004
%RSD	113.8	1899.	100.1	70.47	226400.	23.13
#1	-.0067	-.0091	.0010	.0179	.0006	.0022
#2	.0013	.0058	-.0000	.0039	.0006	.0014
#3	-.0097	.0021	.0005	.0086	-.0011	.0022

Method: ESE Sample Name: ICV*ICAP19*1 Operator: GLP
Run Time: 05/09/94 13:56:54
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0015	.0147	1.044	.0075	.0000	1.033	1.074
SDev	.0007	.0038	.022	.0027	.0000	.003	.004
%RSD	44.54	25.58	2.070	35.93	.0000	.2653	.4125
#1	-.0014	.0189	1.063	.0052	.0000	1.032	1.073
#2	-.0009	.0135	1.021	.0069	.0000	1.036	1.079
#3	-.0023	.0117	1.048	.0105	.0000	1.030	1.070

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.008	1.025	1.040	1.024	1.081	.1117	1.024
SDev	.009	.004	.002	.003	.004	.1971	.012
%RSD	.8606	.3447	.2150	.2782	.4141	176.5	1.201
#1	1.004	1.022	1.038	1.022	1.079	-.0083	1.014
#2	1.018	1.029	1.043	1.027	1.086	.3392	1.021
#3	1.002	1.025	1.040	1.024	1.078	.0041	1.038

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.029	1.043	.0177	1.031	1.011	1.037	1.022
SDev	.002	.004	.0152	.018	.007	.012	.015
%RSD	.2289	.3783	85.79	1.752	.6917	1.160	1.497
#1	1.028	1.041	.0005	1.023	1.003	1.025	1.040
#2	1.031	1.048	.0291	1.051	1.017	1.038	1.014
#3	1.027	1.041	.0235	1.018	1.011	1.049	1.012

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0659	-.0035	1.034	1.042	1.046	1.037
SDev	.0035	.0045	.003	.012	.004	.002
%RSD	5.372	127.1	.2784	1.106	.3718	.1503
#1	.0663	-.0073	1.033	1.050	1.045	1.035
#2	.0693	.0015	1.037	1.048	1.050	1.037
#3	.0623	-.0048	1.031	1.029	1.042	1.038

Method: ESE Sample Name: ICV*ICAP7*1 Operator: GLP
Run Time: 05/09/94 13:59:19
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.025	1.033	.0139	.9966	1.026	.0000	.0075
SDev	.005	.002	.0010	.0089	.005	.0003	.0017
%RSD	.5010	.1794	7.492	.8930	.4487	5553.	23.23
#1	1.027	1.033	.0151	1.006	1.027	-.0002	.0091

#2	1.028	1.031	.0133	.9955	1.030	-.0002	.0057
#3	1.019	1.035	.0133	.9884	1.021	.0004	.0077

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0006	.0017	.0014	.0224	10.41	.0137
SDev	.0009	.0015	.0016	.0007	.0009	.18	.0086
%RSD	774.2	250.4	95.96	45.76	3.918	1.769	63.02
#1	-.0001	.0015	.0022	.0022	.0222	10.37	.0217
#2	-.0010	-.0011	-.0001	.0009	.0233	10.25	.0046
#3	.0008	.0015	.0030	.0013	.0216	10.61	.0148

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	-.0000	1.044	-.0003	-.0019	.0173	-.0088
SDev	.0000	.0019	.007	.0013	.0137	.0074	.0167
%RSD	.8252	143300.	.6990	450.5	734.1	43.10	190.5
#1	-.0000	.0019	1.049	-.0006	.0097	.0098	-.0287
#2	-.0000	.0000	1.048	.0011	-.0169	.0173	-.0058
#3	-.0000	-.0019	1.036	-.0014	.0016	.0247	.0063

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5539	.0050	.0007	.0118	-.0015	.0052
SDev	.0006	.0052	.0003	.0215	.0006	.0010
%RSD	.1040	102.9	43.31	182.3	43.04	18.93
#1	.5542	.0067	.0010	-.0006	-.0011	.0041
#2	.5532	.0091	.0005	.0367	-.0011	.0053
#3	.5542	-.0008	.0005	-.0006	-.0022	.0061

Method: ESE Sample Name: ICS*A*1 Operator: SLP
Run Time: 05/09/94 14:01:37
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0045	517.7	.2028	.0030	.0040	-.0006	487.6
SDev	.0007	1.1	.0269	.0081	.0005	.0003	.5
%RSD	14.79	.2058	13.26	274.9	12.06	58.09	.1046
#1	-.0047	518.3	.1831	.0119	.0044	-.0002	488.2
#2	-.0038	518.4	.1919	.0012	.0035	-.0008	487.3
#3	-.0051	516.5	.2335	-.0042	.0041	-.0008	487.3

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0013	-.0046	.0049	.0032	186.5	-.3888	511.4
SDev	.0007	.0010	.0002	.0011	.4	.2303	.9
%RSD	49.12	21.20	4.366	34.34	.2114	59.22	.1690
#1	-.0006	-.0038	.0046	.0043	186.9	-.3681	511.8
#2	-.0015	-.0057	.0050	.0022	186.5	-.6287	512.0

#3	-.0019	-.0044	.0050	.0030	186.1	-.1696	510.4

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0078	.0090	.1962	-.0007	.0202	-.0002	.2085
SDev	.0001	.0058	.0121	.0049	.0161	.0151	.0250
%RSD	1.063	64.53	6.181	662.3	79.91	6161.	11.99
#1	.0077	.0145	.2067	-.0052	.0385	.0022	.1807
#2	.0077	.0097	.1990	-.0014	.0139	-.0164	.2293
#3	.0079	.0029	.1830	.0045	.0081	.0134	.2155

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0010	.0213	.0048	.1392	.0001	.0168
SDev	.0055	.0186	.0003	.0611	.0006	.0004
%RSD	550.3	87.16	6.187	43.89	854.8	2.649
#1	.0013	.0034	.0047	.1452	-.0006	.0167
#2	-.0047	.0405	.0047	.0753	.0006	.0164
#3	.0063	.0201	.0052	.1971	.0001	.0172

Method: ESE Sample Name: ICS*AB*1 Operator: CLP
Run Time: 05/09/94 14:03:53
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9949	520.8	.1199	-.0025	.5047	.4957	487.9
SDev	.0055	2.1	.0191	.0037	.0016	.0027	2.4
%RSD	.5518	.4121	15.95	144.1	.3151	.5540	.5017
#1	.9897	518.6	.1119	.0003	.5031	.4927	485.2
#2	1.001	522.9	.1418	-.0013	.5062	.4981	490.0
#3	.9945	520.9	.1061	-.0067	.5050	.4963	488.6

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9692	.4527	.4797	.5006	186.0	-.4467	514.1
SDev	.0067	.0007	.0012	.0034	.6	.1179	2.2
%RSD	.6919	.1493	.2512	.6898	.3255	26.40	.4369
#1	.9641	.4534	.4795	.4967	185.4	-.5667	511.6
#2	.9768	.4527	.4811	.5033	186.6	-.3309	516.0
#3	.9668	.4521	.4787	.5020	186.0	-.4426	514.6

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4749	.0096	.2641	.9204	.9625	-.0037	.2066
SDev	.0016	.0039	.0039	.0169	.0124	.0285	.0233
%RSD	.3346	40.60	1.474	1.841	1.288	767.1	11.28
#1	.4731	.0119	.2634	.9010	.9506	-.0112	.2243
#2	.4762	.0119	.2683	.9273	.9753	.0278	.2153
#3	.4754	.0051	.2606	.9328	.9615	-.0278	.1802

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0025	.0223	.0037	.1425	.4849	.9967
SDev	.0080	.0145	.0003	.0418	.0025	.0057
%RSD	317.4	64.81	8.140	29.31	.5093	.5732
#1	-.0035	.0082	.0035	.1813	.4821	.9902
#2	-.0005	.0216	.0040	.0983	.4863	.9987
#3	.0115	.0371	.0035	.1477	.4864	1.001

Method: ESE Sample Name: MB*REAGENTS*1 Operator: CLP
Run Time: 05/09/94 14:08:57
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0007	.0069	.0269	.0018	.0002	-.0002	-.0133
SDev	.0008	.0041	.0103	.0018	.0002	.0006	.0035
%RSD	103.8	59.17	38.50	100.0	86.60	302.4	26.39
#1	-.0012	.0048	.0342	-.0000	.0003	-.0005	-.0151
#2	-.0012	.0042	.0314	.0018	.0003	.0004	-.0155
#3	.0001	.0116	.0150	.0035	.0000	-.0002	-.0092

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0015	-.0004	-.0007	-.0009	.0103	-.0455	-.0000
SDev	.0008	.0020	.0008	.0012	.0009	.1555	.0154
%RSD	52.79	454.2	124.3	132.4	8.489	341.7	248200.
#1	.0015	-.0022	-.0009	-.0013	.0113	-.2068	.0011
#2	.0023	-.0009	-.0013	-.0017	.0101	-.0331	-.0159
#3	.0007	.0017	.0003	.0004	.0096	.1034	.0148

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	-.0006	.0287	.0037	-.0046	.0050	.0073
SDev	.0000	.0015	.0039	.0048	.0051	.0059	.0055
%RSD	27.37	231.3	13.43	130.5	108.7	118.3	75.81
#1	-.0000	-.0019	.0305	.0062	-.0070	.0007	.0014
#2	-.0000	.0010	.0242	.0066	.0011	.0025	.0080
#3	-.0000	-.0010	.0312	-.0018	-.0081	.0117	.0124

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0120	-.0025	.0007	.0334	-.0006	.0008
SDev	.0050	.0047	.0003	.0115	.0006	.0004
%RSD	41.94	189.9	43.26	34.40	99.50	57.04
#1	.0174	-.0078	.0005	.0412	-.0011	.0010
#2	.0114	.0008	.0005	.0202	-.0000	.0010
#3	.0073	-.0004	.0010	.0389	-.0006	.0003

Method: ESE Sample Name: MB*QC*1 Operator: GLP
Run Time: 05/09/94 14:12:00
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	.1471	.0263	.0390	.0032	-.0002	.3626
SDev	.0007	.0059	.0078	.0035	.0000	.0000	.0025
%RSD	153.8	4.016	29.53	9.077	.0000	3.941	.6910
#1	.0006	.1485	.0345	.0390	.0032	-.0002	.3643
#2	.0010	.1406	.0254	.0354	.0032	-.0002	.3639
#3	-.0003	.1522	.0190	.0425	.0032	-.0002	.3598

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0007	.0019	.0010	.0025	.6142	.2440	.1288
SDev	.0009	.0004	.0008	.0007	.0014	.2329	.0162
%RSD	137.8	19.77	75.00	26.92	.2350	95.44	12.55
#1	-.0003	.0017	.0010	.0030	.6158	.1158	.1345
#2	.0015	.0017	.0003	.0026	.6141	.1034	.1105
#3	.0007	.0023	.0018	.0017	.6129	.5129	.1413

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0254	-.0003	2.133	-.0007	-.0025	.0069	.0054
SDev	.0005	.0015	.016	.0011	.0095	.0028	.0066
%RSD	1.968	435.9	.7273	150.1	375.7	41.73	122.3
#1	.0249	.0010	2.119	.0003	-.0130	.0061	.0046
#2	.0259	-.0000	2.131	-.0018	.0056	.0043	-.0008
#3	.0254	-.0020	2.150	-.0006	-.0002	.0098	.0123

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.2992	.0053	.0036	.0210	.0016	.0873
SDev	.0162	.0019	.0000	.0164	.0019	.0014
%RSD	5.417	35.40	.0058	78.08	123.8	1.555
#1	.2898	.0058	.0036	.0039	.0004	.0886
#2	.3179	.0033	.0036	.0366	.0038	.0859
#3	.2898	.0070	.0036	.0225	.0004	.0874

Method: ESE Sample Name: SP*QC*1 Operator: GLP
Run Time: 05/09/94 14:14:35
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0489	2.184	2.030	1.046	2.020	.0532	10.39
SDev	.0007	.014	.010	.007	.013	.0003	.04
%RSD	1.363	.6510	.4836	.6837	.6298	.6388	.4034

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#1	.0482	2.196	2.038	1.054	2.034	.0536	10.44
#2	.0491	2.187	2.034	1.042	2.015	.0530	10.39
#3	.0495	2.168	2.019	1.042	2.010	.0530	10.35

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0528	.4964	.1983	.2512	1.584	10.16	10.24
SDev	.0008	.0032	.0014	.0018	.012	.17	.02
%RSD	1.491	.6379	.6964	.6989	.7584	1.658	.2343
#1	.0536	.4979	.1997	.2522	1.598	10.01	10.27
#2	.0528	.4986	.1969	.2522	1.582	10.34	10.23
#3	.0520	.4928	.1985	.2492	1.574	10.14	10.22

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5324	.5079	12.24	.5062	.4876	.5133	2.011
SDev	.0030	.0035	.08	.0057	.0094	.0064	.004
%RSD	.5645	.6873	.6347	1.126	1.927	1.250	.2218
#1	.5356	.5118	12.33	.5004	.4775	.5200	2.016
#2	.5321	.5070	12.18	.5118	.4891	.5073	2.010
#3	.5296	.5050	12.21	.5064	.4961	.5126	2.008

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.3866	.9703	.5072	2.006	.5037	.5097
SDev	.0032	.0165	.0029	.026	.0019	.0024
%RSD	.8299	1.698	.5676	1.307	.3855	.4783
#1	.3843	.9662	.5103	1.977	.5057	.5105
#2	.3903	.9563	.5067	2.028	.5018	.5070
#3	.3853	.9884	.5046	2.012	.5035	.5116

Method: ESE Sample Name: CDMHNSS*28 Operator: GLP
Run Time: 05/09/94 14:17:53
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0008	56.02	.0742	.0494	.8154	.0021	32.76
SDev	.0013	.41	.0124	.0027	.0071	.0006	.18
%RSD	148.7	.7285	16.72	5.572	.8738	28.60	.5407
#1	-.0016	56.44	.0723	.0518	.8222	.0021	32.96
#2	-.0016	56.00	.0874	.0464	.8159	.0015	32.68
#3	.0006	55.62	.0628	.0499	.8080	.0027	32.64

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0020	.0569	.1051	.1491	104.1	14.55	39.24
SDev	.0008	.0015	.0012	.0004	.8	.09	.27
%RSD	37.93	2.575	1.139	.2854	.7822	.5971	.6962

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#1	.0020	.0576	.1037	.1495	105.0	14.45	39.53
#2	.0028	.0552	.1061	.1487	103.9	14.59	39.20
#3	.0012	.0579	.1053	.1491	103.4	14.61	38.98

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.392	.0066	4.291	.1410	.0602	.0032	.0639
SDev	.010	.0022	.052	.0033	.0168	.0112	.0223
%RSD	.7383	33.84	1.220	2.336	27.90	348.1	35.00
#1	1.403	.0079	4.341	.1448	.0571	.0044	.0614
#2	1.391	.0040	4.297	.1389	.0451	-.0085	.0429
#3	1.383	.0079	4.236	.1393	.0783	.0138	.0874

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	7.917	.0200	4.558	.0219	.1629	.2914
SDev	.034	.0040	.040	.0249	.0008	.0022
%RSD	.4243	19.72	.8670	113.9	.5205	.7488
#1	7.952	.0188	4.601	.0504	.1633	.2939
#2	7.916	.0244	4.548	.0041	.1635	.2898
#3	7.885	.0168	4.524	.0112	.1619	.2906

Method: ESE Sample Name: CDMHNSS*29 Operator: GLP
Run Time: 05/09/94 14:20:24
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0018	63.53	.0960	.0409	1.071	.0031	144.2
SDev	.0009	.03	.0229	.0037	.001	.0000	.1
%RSD	47.83	.0508	23.86	9.006	.0681	.2190	.0898
#1	-.0027	63.57	.0932	.0398	1.071	.0031	144.2
#2	-.0018	63.51	.1202	.0380	1.071	.0031	144.0
#3	-.0010	63.52	.0747	.0451	1.070	.0031	144.3

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0007	.0671	.1001	.1472	122.7	16.66	54.96
SDev	.0008	.0010	.0004	.0003	.3	.20	.08
%RSD	121.0	1.479	.4448	.1692	.2179	1.226	.1514
#1	.0001	.0660	.1006	.1470	122.9	16.55	54.95
#2	.0016	.0673	.0998	.1474	122.4	16.53	54.89
#3	.0003	.0679	.0998	.1474	122.7	16.89	55.05

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.095	.0076	5.438	.1205	.0935	.0084	.0692
SDev	.002	.0024	.021	.0028	.0093	.0103	.0039
%RSD	.0489	32.35	.3819	2.287	9.970	123.1	5.615
#1	3.094	.0050	5.422	.1177	.0841	.0194	.0648

#2	3.093	.0098	5.461	.1207	.0935	-.0009	.0707
#3	3.096	.0079	5.431	.1232	.1028	.0066	.0721

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	8.798	.0119	4.501	.0608	.2051	.3615
SDev	.015	.0114	.004	.0277	.0016	.0018
%RSD	.1710	96.11	.0956	45.45	.7891	.4920
#1	8.813	.0214	4.500	.0778	.2067	.3636
#2	8.783	.0152	4.498	.0757	.2035	.3605
#3	8.797	-.0008	4.506	.0289	.2051	.3605

Method: ESE Sample Name: CDMHNSS*30 Operator: GLP
Run Time: 05/09/94 14:22:28
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0008	55.97	.0700	.0583	.8934	.0019	39.88
SDev	.0000	.13	.0090	.0018	.0023	.0000	.06
%RSD	.5158	.2298	12.86	3.070	.2559	.1841	.1509
#1	-.0008	56.06	.0725	.0601	.8949	.0019	39.95
#2	-.0008	55.83	.0774	.0565	.8908	.0019	39.85
#3	-.0008	56.04	.0600	.0583	.8946	.0018	39.85

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0015	.0641	.0654	.1014	131.0	17.93	36.35
SDev	.0010	.0023	.0014	.0004	.2	.08	.08
%RSD	71.45	3.585	2.111	.4321	.1820	.4503	.2115
#1	.0020	.0639	.0640	.1010	131.2	17.94	36.42
#2	.0003	.0665	.0667	.1018	130.8	17.85	36.27
#3	.0021	.0619	.0656	.1014	131.2	18.01	36.34

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.391	.0065	3.368	.0855	.0518	.0006	.0676
SDev	.003	.0011	.006	.0043	.0065	.0075	.0141
%RSD	.0810	17.16	.1872	5.064	12.59	1344.	20.92
#1	3.394	.0059	3.374	.0805	.0590	-.0062	.0691
#2	3.391	.0078	3.362	.0873	.0502	-.0007	.0810
#3	3.388	.0059	3.369	.0886	.0463	.0086	.0528

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	7.821	.0055	5.574	.0437	.2250	.3088
SDev	.029	.0100	.014	.0491	.0008	.0029
%RSD	.3718	183.5	.2479	112.3	.3566	.9514
#1	7.849	-.0060	5.584	.0903	.2252	.3057
#2	7.791	.0098	5.558	-.0075	.2241	.3115

#3	7.822	.0125	5.581	.0483	.2257	.3091

Method: ESE Sample Name: CDMHNSS*31 Operator: GLP
Run Time: 05/09/94 14:24:41
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0016	71.91	.0874	.0656	1.305	.0028	127.1
SDev	.0009	.07	.0208	.0106	.003	.0000	.1
%RSD	56.68	.1028	23.83	16.21	.2679	.2132	.0588
#1	-.0009	71.92	.0984	.0545	1.305	.0028	127.1
#2	-.0026	71.98	.0634	.0757	1.308	.0028	127.1
#3	-.0013	71.83	.1004	.0667	1.301	.0028	127.0

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0764	.0749	.1540	172.3	14.95	49.72
SDev	.0002	.0014	.0010	.0013	.5	.14	.05
%RSD	92.81	1.783	1.314	.8653	.2996	.9618	.1052
#1	.0001	.0748	.0750	.1526	172.7	14.93	49.69
#2	.0004	.0774	.0739	.1543	172.6	14.82	49.78
#3	.0001	.0769	.0758	.1552	171.8	15.11	49.68

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.303	.0075	3.919	.1016	.0750	.0011	.0855
SDev	.006	.0015	.003	.0040	.0095	.0083	.0141
%RSD	.1348	19.61	.0675	3.972	12.63	731.6	16.48
#1	4.302	.0078	3.916	.0995	.0804	.0091	.0934
#2	4.309	.0088	3.921	.0991	.0641	.0017	.0692
#3	4.298	.0059	3.920	.1063	.0806	-.0074	.0938

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	8.032	.0105	7.545	.0990	.2878	.3631
SDev	.017	.0096	.015	.0313	.0014	.0015
%RSD	.2110	91.74	.1940	31.60	.4859	.4269
#1	8.051	.0209	7.553	.0856	.2865	.3649
#2	8.028	.0085	7.554	.1347	.2893	.3622
#3	8.018	.0020	7.528	.0766	.2878	.3623

Method: ESE Sample Name: CDMHNSS*32 Operator: GLP
Run Time: 05/09/94 14:28:13
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0025	60.71	.1048	.0508	1.398	.0029	213.3

9513355.2650

SDev	.0018	.14	.0347	.0031	.002	.0003	.4
%RSD	71.25	.2383	33.13	6.048	.1711	11.88	.2074
#1	-.0015	60.54	.0926	.0544	1.396	.0031	213.0
#2	-.0015	60.81	.1440	.0490	1.400	.0031	213.1
#3	-.0045	60.77	.0778	.0491	1.400	.0025	213.8

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0153	.1076	.0928	.2797	127.4	15.25	53.45
SDev	.0011	.0006	.0014	.0005	.3	.25	.13
%RSD	7.064	.6084	1.531	.1803	.2580	1.630	.2433
#1	.0157	.1083	.0924	.2794	127.5	15.49	53.32
#2	.0161	.1076	.0944	.2794	127.0	15.27	53.46
#3	.0141	.1070	.0916	.2803	127.6	14.99	53.58

Elem	Mn2576	Mo2020	Na5899	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.615	.0072	6.190	.1080	11.21	.0010	.0557
SDev	.009	.0037	.030	.0127	.04	.0036	.0092
%RSD	.2406	50.60	.4912	11.76	.3385	350.9	16.50
#1	3.608	.0056	6.166	.1177	11.20	.0012	.0471
#2	3.613	.0114	6.224	.0936	11.18	.0045	.0547
#3	3.625	.0046	6.179	.1126	11.25	-.0026	.0654

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	10.78	.0192	6.697	.0467	.2156	23.82
SDev	.03	.0070	.011	.0284	.0009	.06
%RSD	.3087	36.73	.1713	60.79	.4128	.2367
#1	10.74	.0129	6.686	.0606	.2157	23.76
#2	10.80	.0268	6.709	.0655	.2163	23.83
#3	10.80	.0179	6.695	.0141	.2146	23.88

Method: ESE Sample Name: CDMHNSS*33 Operator: GLF
Run Time: 05/09/94 14:31:08
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0026	40.57	.0806	.0668	1.693	.0009	81.89
SDev	.0007	.03	.0179	.0041	.002	.0000	.18
%RSD	25.91	.0823	22.20	6.110	.1311	.5915	.2195
#1	-.0027	40.59	.1011	.0644	1.691	.0009	81.92
#2	-.0019	40.58	.0682	.0645	1.693	.0009	82.05
#3	-.0032	40.53	.0724	.0715	1.695	.0009	81.69

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0175	.1089	.5592	.1082	121.9	12.89	29.66
SDev	.0014	.0020	.0028	.0011	.4	.37	.04

%RSD	8.250	1.802	.5071	1.062	.2891	2.844	.1326
#1	.0182	.1108	.5610	.1086	121.5	12.91	29.66
#2	.0185	.1069	.5606	.1091	122.2	13.24	29.70
#3	.0159	.1089	.5559	.1069	122.0	12.51	29.62

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.150	.0092	3.521	.0888	17.96	9.012	.0170
SDev	.007	.0011	.011	.0038	.03	.075	.0083
%RSD	.2188	11.99	.3196	4.311	.1789	.8278	49.13
#1	3.146	.0086	3.512	.0851	17.94	8.984	.0131
#2	3.158	.0105	3.518	.0885	18.00	9.097	.0113
#3	3.146	.0086	3.534	.0928	17.94	8.956	.0266

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	8.136	.0052	4.673	.0159	.1697	39.54
SDev	.018	.0083	.003	.0597	.0012	.07
%RSD	.2261	158.2	.0725	375.0	.7249	.1829
#1	8.123	.0147	4.673	.0775	.1690	39.48
#2	8.157	.0011	4.677	.0120	.1711	39.62
#3	8.128	-.0002	4.670	-.0417	.1689	39.52

Method: ESE Sample Name: SD*CDMHNSS*33 Operator: SLP
Run Time: 05/09/94 14:33:45
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	7.951	.0300	.0152	.3331	.0003	16.34
SDev	.0009	.040	.0103	.0044	.0023	.0000	.09
%RSD	325.9	.5080	34.21	29.32	.6842	.9270	.5207
#1	.0003	7.955	.0408	.0105	.3324	.0003	16.30
#2	.0011	7.909	.0204	.0157	.3312	.0003	16.28
#3	-.0006	7.990	.0287	.0193	.3356	.0003	16.44

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0035	.0220	.1136	.0219	24.75	2.722	5.862
SDev	.0012	.0017	.0016	.0004	.12	.174	.016
%RSD	35.28	7.809	1.394	1.993	.4775	6.383	.2670
#1	.0049	.0233	.1153	.0219	24.79	2.598	5.859
#2	.0024	.0226	.1134	.0223	24.62	2.647	5.848
#3	.0032	.0200	.1122	.0215	24.85	2.920	5.879

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.6289	.0015	.7111	.0222	3.595	1.782	.0180
SDev	.0033	.0000	.0091	.0008	.030	.006	.0077
%RSD	.5269	.3025	1.283	3.792	.8439	.3599	42.51

#1	.6280	.0015	.7102	.0222	3.590	1.778	.0227
#2	.6260	.0015	.7025	.0231	3.567	1.778	.0222
#3	.6325	.0015	.7207	.0214	3.627	1.789	.0092

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.612	.0061	.9234	.0480	.0338	8.025
SDev	.014	.0075	.0054	.0072	.0006	.018
%RSD	.8540	121.8	.5899	14.90	1.659	.2298
#1	1.615	-.0017	.9229	.0417	.0344	8.026
#2	1.597	.0131	.9183	.0558	.0339	8.006
#3	1.624	.0070	.9291	.0464	.0333	8.043

Method: ESE Sample Name: CCV*QC*1 Operator: GLP
Run Time: 05/09/94 14:37:52
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5063	5.060	.7244	.5049	.4986	.5043	5.019
SDev	.0012	.030	.0120	.0062	.0019	.0019	.012
%RSD	.2288	.5898	1.650	1.232	.3855	.3827	.2313
#1	.5054	5.088	.7377	.5114	.5008	.5065	5.030
#2	.5058	5.064	.7208	.5043	.4974	.5029	5.007
#3	.5076	5.029	.7147	.4990	.4977	.5035	5.022

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5155	.4984	.5031	.4967	5.034	5.150	5.081
SDev	.0027	.0023	.0022	.0023	.030	.379	.017
%RSD	.5205	.4532	.4291	.4549	.5941	7.366	.3365
#1	.5148	.4986	.5052	.4993	5.067	4.757	5.099
#2	.5133	.4961	.5009	.4954	5.009	5.514	5.081
#3	.5185	.5006	.5032	.4954	5.025	5.179	5.064

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4988	.5066	5.041	.5018	.5213	.5114	.7038
SDev	.0021	.0006	.035	.0010	.0075	.0113	.0136
%RSD	.4159	.1106	.6969	.1937	1.433	2.203	1.931
#1	.5011	.5070	5.081	.5012	.5244	.5188	.7120
#2	.4971	.5060	5.017	.5012	.5128	.4984	.6881
#3	.4981	.5070	5.024	.5029	.5268	.5170	.7113

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0123	.5000	.4980	.7208	.5002	.5097
SDev	.0047	.0031	.0017	.0190	.0008	.0043
%RSD	38.51	.6255	.3337	2.637	.1679	.8332

#1	.0106	.5029	.4999	.7294	.5011	.5145
#2	.0086	.5004	.4973	.6990	.4995	.5083
#3	.0176	.4967	.4968	.7340	.5000	.5063

Method: ESE Sample Name: CCB*QC*1 Operator: GLP
Run Time: 05/09/94 14:47:49
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0012	.0081	.0178	.0012	.0000	-.0004	-.0007
SDev	.0003	.0072	.0146	.0027	.0006	.0003	.0030
%RSD	21.68	89.82	82.04	227.6	.0000	86.10	431.7
#1	.0010	.0085	.0332	.0018	.0006	-.0002	.0025
#2	.0010	.0006	.0042	.0035	.0000	-.0002	-.0013
#3	.0015	.0151	.0159	-.0018	-.0006	-.0008	-.0033

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0013	-.0000	-.0007	.0065	.1406	.0114
SDev	.0009	.0004	.0023	.0005	.0014	.3441	.0059
%RSD	611.4	28.79	139900.	69.47	22.20	244.7	51.79
#1	.0006	-.0015	-.0013	-.0004	.0067	.5377	.0080
#2	-.0009	-.0009	-.0013	-.0004	.0078	-.0703	.0182
#3	.0007	-.0015	.0026	-.0013	.0050	-.0455	.0080

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	-.0003	.0191	.0028	.0116	.0068	-.0015
SDev	.0000	.0024	.0051	.0034	.0103	.0134	.0131
%RSD	48.12	763.3	26.47	119.1	89.85	196.5	860.5
#1	-.0000	.0000	.0249	.0003	.0081	-.0086	.0091
#2	-.0000	-.0029	.0158	.0066	.0035	.0137	-.0162
#3	-.0000	.0019	.0165	.0016	.0232	.0154	.0025

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0084	-.0016	.0007	.0148	.0011	.0009
SDev	.0035	.0021	.0003	.0115	.0006	.0002
%RSD	41.50	130.5	43.35	77.90	49.77	24.32
#1	.0104	-.0004	.0010	.0225	.0011	.0010
#2	.0104	-.0041	.0005	.0202	.0006	.0010
#3	.0044	-.0004	.0005	.0016	.0017	.0006

Method: ESE Sample Name: SPX*CDMHNSS*33 Operator: GLP
Run Time: 05/09/94 14:50:24
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca

Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.2573	23.09	.4219	.2925	1.115	.2594	44.21
SDev	.0005	.07	.0079	.0064	.005	.0010	.11
%RSD	.1963	.3200	1.882	2.187	.4254	.3996	.2412
#1	.2579	23.05	.4154	.2854	1.112	.2588	44.11
#2	.2570	23.05	.4307	.2978	1.112	.2588	44.19
#3	.2570	23.18	.4195	.2943	1.120	.2606	44.32

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.2663	.3089	.5422	.3073	64.37	8.997	17.62
SDev	.0013	.0027	.0029	.0003	.27	.127	.06
%RSD	.4932	.8624	.5329	.0825	.4242	1.409	.3609
#1	.2652	.3059	.5400	.3074	64.13	8.852	17.55
#2	.2660	.3110	.5454	.3074	64.32	9.089	17.62
#3	.2678	.3097	.5411	.3070	64.67	9.050	17.68

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.863	.2622	4.393	.2914	9.447	4.843	.3700
SDev	.005	.0015	.024	.0032	.015	.021	.0137
%RSD	.2706	.5661	.5403	1.096	.1621	.4283	3.702
#1	1.858	.2635	4.372	.2892	9.434	4.835	.3547
#2	1.862	.2625	4.389	.2900	9.443	4.827	.3739
#3	1.868	.2606	4.419	.2951	9.464	4.866	.3813

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2139
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.104	.2617	2.626	.4034	.3411	20.63
SDev	.016	.0119	.011	.0286	.0014	.04
%RSD	.3948	4.542	.4097	7.094	.3979	.2033
#1	4.094	.2530	2.620	.3708	.3410	20.59
#2	4.094	.2753	2.619	.4244	.3398	20.63
#3	4.122	.2569	2.638	.4150	.3425	20.67

Method: ESE Sample Name: SPM1*CDMHNSS*33 Operator: GLP
Run Time: 05/09/94 15:00:07
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0442	38.01	1.942	.9795	3.344	.0489	81.47
SDev	.0013	.04	.015	.0150	.011	.0006	.17
%RSD	2.870	.1102	.7499	1.537	.3309	1.234	.2079
#1	.0434	37.96	1.933	.9790	3.356	.0483	81.28
#2	.0456	38.03	1.936	.9648	3.337	.0489	81.52
#3	.0434	38.03	1.959	.9949	3.338	.0495	81.60

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Avge	.0645	.5447	.6793	.3242	109.7	21.03	35.80
SDev	.0013	.0025	.0021	.0007	.1	.10	.11
%RSD	2.001	.4517	.3060	.2060	.0490	.4806	.3026
#1	.0631	.5429	.6809	.3236	109.7	20.91	35.75
#2	.0657	.5475	.6769	.3249	109.6	21.10	35.73
#3	.0646	.5436	.6801	.3241	109.7	21.07	35.92

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.256	.4729	12.58	.5237	16.34	8.505	1.893
SDev	.007	.0024	.04	.0039	.09	.034	.016
%RSD	.2008	.5119	.2835	.7402	.5753	.4044	.8326
#1	3.255	.4726	12.61	.5245	16.24	8.481	1.867
#2	3.250	.4706	12.54	.5271	16.34	8.489	1.895
#3	3.263	.4755	12.58	.5195	16.43	8.544	1.898

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	7.218	.9160	4.606	1.796	.6084	35.78
SDev	.040	.0081	.008	.044	.0023	.13
%RSD	.5523	.8858	.1796	2.469	.3817	.3600
#1	7.185	.9071	4.614	1.840	.6076	35.65
#2	7.206	.9229	4.598	1.751	.6110	35.77
#3	7.262	.9181	4.606	1.798	.6065	35.91

Method: ESE Sample Name: SPM2*CDMHNSS*33 Operator: GLP
Run Time: 05/09/94 15:04:36
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0471	37.72	2.036	1.044	3.444	.0518	81.19
SDev	.0011	.21	.014	.004	.030	.0006	.43
%RSD	2.317	.5475	.6827	.3469	.8651	1.135	.5293
#1	.0470	37.79	2.041	1.048	3.458	.0524	81.18
#2	.0461	37.88	2.047	1.044	3.465	.0518	81.63
#3	.0483	37.49	2.021	1.041	3.410	.0513	80.77

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0686	.5734	.6854	.3381	109.0	21.74	36.08
SDev	.0019	.0040	.0050	.0028	1.0	.20	.19
%RSD	2.800	.6960	.7358	.8228	.8873	.9104	.5165
#1	.0674	.5764	.6817	.3393	109.4	21.57	36.08
#2	.0708	.5750	.6911	.3401	109.7	21.96	36.26
#3	.0676	.5689	.6833	.3349	107.9	21.68	35.89

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.250	.5005	13.16	.5572	16.22	8.419	2.023

SDev	.024	.0050	.08	.0125	.09	.051	.015
%RSD	.7328	.9915	.5890	2.251	.5641	.6001	.7240
#1	3.253	.5018	13.22	.5710	16.18	8.433	2.032
#2	3.272	.5047	13.18	.5541	16.32	8.461	2.032
#3	3.225	.4950	13.07	.5465	16.16	8.363	2.006

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	7.142	.9765	4.589	1.932	.6362	35.42
SDev	.054	.0279	.037	.005	.0051	.17
%RSD	.7494	2.861	.7966	.2733	.8071	.4803
#1	7.110	.9577	4.602	1.938	.6370	35.35
#2	7.204	1.009	4.615	1.928	.6409	35.62
#3	7.111	.9633	4.546	1.929	.6307	35.30

Method: ESE Sample Name: ICS*A*2 Operator: GLP
Run Time: 05/09/94 15:10:25
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0051	509.1	.1905	.0010	.0038	-.0002	474.9
SDev	.0008	1.2	.0483	.0045	.0003	.0000	1.3
%RSD	14.87	.2337	25.35	460.2	8.333	1.681	.2685
#1	-.0055	507.8	.2423	.0003	.0035	-.0002	473.5
#2	-.0042	510.2	.1467	.0057	.0038	-.0002	475.3
#3	-.0055	509.1	.1826	-.0031	.0041	-.0002	476.0

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0033	-.0015	.0056	.0033	179.7	-.1200	502.6
SDev	.0038	.0023	.0010	.0003	.4	.1103	1.6
%RSD	118.1	147.9	17.33	7.506	.2325	91.95	.3141
#1	-.0071	.0006	.0046	.0035	179.2	-.0827	500.9
#2	.0006	-.0039	.0066	.0030	179.9	-.2440	503.8
#3	-.0032	-.0014	.0058	.0035	179.9	-.0331	503.3

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0081	.0110	.1937	.0018	.0655	-.0077	.2537
SDev	.0003	.0024	.0073	.0071	.0169	.0039	.0118
%RSD	3.317	22.15	3.758	396.6	25.82	50.47	4.635
#1	.0081	.0136	.1879	.0002	.0515	-.0090	.2489
#2	.0078	.0087	.1914	.0095	.0843	-.0033	.2671
#3	.0083	.0107	.2018	-.0044	.0608	-.0107	.2451

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0037	.0288	.0047	.1741	.0004	.0262
SDev	.0175	.0151	.0005	.0664	.0008	.0053

%RSD	476.9	52.42	11.12	38.12	224.6	20.18
#1	.0214	.0408	.0052	.2020	-.0003	.0320
#2	-.0137	.0338	.0041	.2220	.0012	.0248
#3	.0033	.0119	.0047	.0984	.0001	.0217

Method: ESE Sample Name: ICS*AB*2 Operator: GLP
Run Time: 05/09/94 15:13:28
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9873	515.3	.1476	-.0073	.4912	.4833	478.2
SDev	.0062	2.9	.0475	.0048	.0035	.0037	2.9
%RSD	.6233	.5638	32.18	66.37	.7174	.7585	.6161
#1	.9932	518.4	.1689	-.0036	.4952	.4873	481.2
#2	.9809	512.6	.1807	-.0128	.4885	.4801	475.3
#3	.9879	514.9	.0932	-.0055	.4898	.4825	478.0

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9915	.4445	.4697	.4917	181.0	-.4302	509.2
SDev	.0041	.0029	.0027	.0031	1.3	.1197	3.1
%RSD	.4146	.6508	.5859	.6393	.7035	27.82	.6138
#1	.9939	.4478	.4725	.4937	182.3	-.4798	512.7
#2	.9939	.4429	.4670	.4880	179.7	-.2937	506.9
#3	.9868	.4428	.4697	.4932	181.1	-.5170	507.9

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4675	.0147	.2641	.8935	.9898	.0116	.2628
SDev	.0029	.0042	.0046	.0037	.0359	.0367	.0040
%RSD	.6226	28.62	1.736	.4194	3.631	317.3	1.530
#1	.4708	.0177	.2683	.8922	1.031	-.0132	.2626
#2	.4655	.0099	.2592	.8977	.9649	.0537	.2670
#3	.4662	.0167	.2648	.8905	.9735	-.0058	.2589

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0072	.0171	.0056	.1391	.4766	.9901
SDev	.0119	.0076	.0022	.0881	.0025	.0063
%RSD	165.2	44.74	40.51	63.32	.5160	.6329
#1	-.0126	.0259	.0066	.0375	.4793	.9971
#2	-.0156	.0119	.0030	.1936	.4759	.9848
#3	.0064	.0135	.0071	.1861	.4745	.9885

Method: ESE Sample Name: CCV*QC*2 Operator: GLP
Run Time: 05/09/94 15:16:34
Comment:

Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5035	5.085	.7063	.4990	.4997	.5075	4.973
SDev	.0046	.011	.0108	.0047	.0017	.0021	.019
%RSD	.9065	.2106	1.532	.9395	.3483	.4131	.3744
#1	.4984	5.073	.6962	.4955	.4980	.5053	4.952
#2	.5050	5.092	.7177	.4973	.4996	.5077	4.980
#3	.5072	5.090	.7050	.5043	.5015	.5095	4.988

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5131	.5014	.5033	.4996	5.111	5.199	5.081
SDev	.0009	.0030	.0035	.0024	.016	.294	.007
%RSD	.1794	.5916	.6985	.4790	.3142	5.660	.1340
#1	.5126	.4980	.4993	.4971	5.092	5.526	5.088
#2	.5141	.5031	.5052	.4997	5.118	5.117	5.075
#3	.5125	.5031	.5056	.5019	5.122	4.955	5.081

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5001	.5066	5.074	.4967	.5136	.5255	.7105
SDev	.0026	.0030	.026	.0055	.0029	.0103	.0169
%RSD	.5276	.5842	.5059	1.108	.5703	1.953	2.385
#1	.4971	.5041	5.045	.4949	.5163	.5188	.7187
#2	.5011	.5060	5.085	.5029	.5105	.5374	.6910
#3	.5021	.5099	5.092	.4924	.5140	.5205	.7218

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0136	.5046	.4993	.7146	.5026	.5045
SDev	.0030	.0083	.0029	.0391	.0042	.0016
%RSD	22.03	1.641	.5764	5.477	.8267	.3097
#1	.0136	.4992	.4962	.6943	.4978	.5028
#2	.0167	.5004	.4999	.7597	.5050	.5047
#3	.0107	.5141	.5019	.6897	.5050	.5059

Method: ESE Sample Name: CCB*QC*2 Operator: GLP
Run Time: 05/09/94 15:19:22
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	.0032	.0196	.0035	.0000	-.0008	-.0030
SDev	.0010	.0070	.0081	.0047	.0000	.0000	.0028
%RSD	230.6	216.1	41.43	132.3	.0000	.2921	94.49
#1	-.0007	-.0036	.0288	-.0000	.0000	-.0008	-.0061
#2	.0010	.0030	.0169	.0018	.0000	-.0008	-.0006
#3	.0010	.0103	.0132	.0088	.0000	-.0008	-.0023

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	-.0004	-.0005	.0004	.0149	.0745	.0000
SDev	.0005	.0013	.0010	.0004	.0012	.0502	.0143
%RSD	114.3	308.8	198.8	99.96	8.006	67.36	614100.
#1	.0006	-.0015	-.0017	.0000	.0159	.1282	-.0160
#2	-.0001	.0011	.0003	.0004	.0153	.0290	.0046
#3	.0008	-.0009	-.0001	.0009	.0136	.0662	.0114

Elem	Mn2576	Mo2020	Na5989	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	.0000	.0042	.0053	-.0008	.0056	.0007
SDev	.0000	.0010	.0127	.0018	.0052	.0119	.0089
%RSD	55.69	12500.	302.9	34.46	669.4	211.8	1318.
#1	-.0000	-.0010	-.0100	.0041	-.0058	.0007	.0102
#2	-.0000	.0010	.0145	.0045	-.0012	-.0031	-.0074
#3	-.0000	.0000	.0082	.0075	.0046	.0193	-.0008

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0077	-.0054	.0009	.0334	.0006	.0017
SDev	.0076	.0045	.0003	.0054	.0006	.0006
%RSD	99.62	83.43	34.60	16.10	100.4	35.39
#1	-.0007	-.0091	.0005	.0272	-.0000	.0018
#2	.0094	-.0004	.0010	.0365	.0006	.0010
#3	.0144	-.0066	.0010	.0365	.0011	.0022

9513355.2661

GFAA Metals - Arsenic

9513355.2661

6

ELEMENT: As METHOD # ASM3233-011 BK# 40 PG# 76A

ANALYST: Lisa Swayne EMP. # 2705 DATE: 5/9/94

SAMPLES ANALYZED:

CTDMHKOSS* 28-33

BATCH #

G48918

~~FDER~~ ums 5/10/94 WI

ums

5/10/94

INSTRUMENT PARAMETERS:

Inst. model	5100-A
Wavelength	1937
Bandwidth	0.7600
EDL/HCL#	5316 Sys II
Energy/Watts	53
Power Supply	Sys I - B
HGA model	600 -
Tube type	pyrolytic platform
Sample aliq.	20ul
Modifier	500ppm Pd(NO3)2
Modifier aliq.	5ul
Zeeman type	longitudinal

STANDARDS:

1000 ppm stock

Manufacturer	Fisher
Lot number	925266-24
Date received	7/93
Date expires	7/94

Working Standards

Date prep'ed:	
10 mg/L std.	5/3/94
100 ug/L std.	5/9/94
10 ug/L std.	5/9/94
50ug/L Std	5/9/94

CALIBRATION CURVE:

	conc.	abs.
Blank	0.0	0.002
Std.1	2.5	0.013
Std.2	5.0	0.025
Std.3	10.0	0.054
Std.4	25.0	0.117
Std.5	50.0	0.231
Std.6	100.0	0.485
Std.7		
Std.8		

c.c.: 0.99963 (non linear)

Det. L. 2.5ppb

HGA KEYBOARD ENTRIES:

STEP	1	2	3	4	5
Temp(C)	140	1300	20	2300	2650
Ramp (sec)	10	10	5	0	1
Hold (sec)	50	20	15	5	5
Read Step				1	
Gas (ml/min)	300	300	300	20	300

PREVENTATIVE MAINTENANCE/COMMENTS:

- Changes made to Runlog Reflect the Changes made to the Raw Data.

ums

5/10/94

READ AND UNDERSTOOD BY: [signature] 5/10/94

Analyst: Lisa Sunyer Date: 5/9/94 Element As Inst. 5100-A Book: 40 Pg: 76B

Print #	Sample I. D.	Peak Area	Conc. (ppb)	Target (ppb)	Comments
1	Calib. Blank	-0.0009	-0.2		
2	Standard 1	0.0109	2		
3	Standard 2	0.0229	5.2		
4	Standard 3	0.0520	10.2		
5	Standard 4	0.2428	---		reading high Pen
6	Standard 5	0.2349	24.7		See #8-9
7	Standard 6	0.4821	27.4		
8	Standard 4	0.1140	17.6		
9	Standard 5	0.2287	48.1		cc=0.99963 (non linear)
10	ICV*SPEX*1	0.2201	46.7	50.0	93.4% rec
11	MB*REAGENT*1	0.0025	0.5		
12	MB*QC*1	0.0008	0.2		
13	SP*QC*1	0.1664	35.4	40.0	88.5% rec
14	CDMHNSS*28	0.0658	14.1		
15	CDMHNSS*29	0.1954	41.5		
16	CDMHNSS*30	0.0759	16.2		
17	CDMHNSS*31	0.1369	29.2		
18	CDMHNSS*32	0.1681	35.7		
19	CCV*QC*1	0.2367	50.2	50.0	100.4% rec
20	CCB*QC*1	-0.0009	-0.2		
21	CDMHNSS*33	0.0833	17.8		
22	SPM1*CDMHNSS*33	0.2458	52.1	40.0	52.1-17.8=34.3 85.7% rec
23	SPM2*CDMHNSS*33	0.2147	45.6	40.0	45.6-17.8=27.8 69.5% rec
24	SPX*CDMHNSS*33	0.2694	57	100.0	57x2=114-17.8=96.2% rec
25	SPM2*CDMHNSS*33	0.2041	43.3	40.0	Pen failure initiation only. Data not used.
26	CCV*QC*2	0.2266	48.1	50.0	96.2% rec
27	CCB*QC*2	0.0014	0.3		

9513355.2661

(3)

Element File: AS_FURN.GEL Element: As Wavelength: 193.7
Date: 05/09/94 Time: 14:39 Slit: 0.70 L
Data File: A:AS_5_9.DAT ID/Wt File: SE.IDW Lamp Current: 0
Technique: HGA Calib. Type: Nonlinear Energy: 53
Remark 1: CDMHNSS*28-33
Remark 2: Analyzed by LISA SWAYZE
Remark 3: MAY 9, 1994 Data on LMS 4
Remark 4: 5100-A
Remark 5: Lamp No. 536 (EDL-SYS II) Modifier - 500PPM PD(NO3)2

As ID: Calib. Blank Seq. No.: 00001 A/S Pos.: 36 Date: 05/09/94

Replicate 1 Time: 14:41
Peak Area (A-s): 0.003 Peak Height (A): 0.014
Background Pk Area (A-s): 0.025 Background Pk Height (A): 0.022
Blank Corrected Pk Area (A-s): 0.000
Concentration (ug/L): 0.1

Replicate 2 Time: 14:44
Peak Area (A-s): 0.001 Peak Height (A): 0.011
Background Pk Area (A-s): 0.026 Background Pk Height (A): 0.020
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.4

Mean Conc (ug/L): -0.2 SD: 0.31 RSD(%): 183.20

Auto-zero performed.

As ID: Standard 1 Seq. No.: 00002 A/S Pos.: 1 Date: 05/09/94

Replicate 1 Time: 14:47
Peak Area (A-s): 0.013 Peak Height (A): 0.025
Background Pk Area (A-s): 0.023 Background Pk Height (A): 0.022
Blank Corrected Pk Area (A-s): 0.011
Concentration (ug/L): 1.9

Replicate 2 Time: 14:50
Peak Area (A-s): 0.013 Peak Height (A): 0.031
Background Pk Area (A-s): 0.022 Background Pk Height (A): 0.022
Blank Corrected Pk Area (A-s): 0.011
Concentration (ug/L): 2.1

Mean Conc (ug/L): 2.0 SD: 0.08 RSD(%): 4.04

Standard number 1 applied. [2.5]
Correlation coefficient: 1.00000 Slope: 0.0044

As ID: Standard 2 Seq. No.: 00003 A/S Pos.: 2 Date: 05/09/94

Replicate 1 Time: 14:53
Peak Area (A-s): 0.028 Peak Height (A): 0.063
Background Pk Area (A-s): 0.026 Background Pk Height (A): 0.023
Blank Corrected Pk Area (A-s): 0.026
Concentration (ug/L): 5.9

Replicate 2 Time: 14:55
Peak Area (A-s): 0.022 Peak Height (A): 0.050
Background Pk Area (A-s): 0.026 Background Pk Height (A): 0.021
Blank Corrected Pk Area (A-s): 0.020
Concentration (ug/L): 4.6

Mean Conc (ug/L): 5.2 SD: 0.90 RSD(%): 17.17

Standard number 2 applied. [5.0]
Correlation coefficient: 1.00000 Slope: 0.0042

As ID: Standard 3 Seq. No.: 00004 A/S Pos.: 37 Date: 05/09/94

Replicate 1 Time: 14:58
Peak Area (A-s): 0.054 Peak Height (A): 0.105
Background Pk Area (A-s): 0.026 Background Pk Height (A): 0.024
Blank Corrected Pk Area (A-s): 0.052
Concentration (ug/L): 10.2

Replicate 2 Time: 15:01
Peak Area (A-s): 0.054 Peak Height (A): 0.103
Background Pk Area (A-s): 0.028 Background Pk Height (A): 0.026
Blank Corrected Pk Area (A-s): 0.052
Concentration (ug/L): 10.2

Mean Conc (ug/L): 10.2 SD: 0.03 RSD(%): 0.26

Standard number 3 applied. [10.0]
Correlation coefficient: 1.00000 Slope: 0.0042

As ID: Standard 4 Seq. No.: 00005 A/S Pos.: 38 Date: 05/09/94

Sample abs. is in the rollover region of the calib. curve.
Replicate 1 Time: 15:04
Peak Area (A-s): 0.243 Peak Height (A): 0.448
Background Pk Area (A-s): 0.040 Background Pk Height (A): 0.044
Blank Corrected Pk Area (A-s): 0.241
Concentration (ug/L): ----------

Sample abs. is in the rollover region of the calib. curve.
Replicate 2 Time: 15:07
Peak Area (A-s): 0.247 Peak Height (A): 0.394
Background Pk Area (A-s): 0.041 Background Pk Height (A): 0.045
Blank Corrected Pk Area (A-s): 0.245
Concentration (ug/L): ----------

Sample abs. is in the rollover region of the calib. curve.
Mean Conc (ug/L): ---- SD: ---- RSD(%): ----

Standard number 4 applied. [25.0]
Correlation coefficient: 1.00000 Slope: 0.0041

As ID: Standard 5 Seq. No.: 00006 A/S Pos.: 39 Date: 05/09/94

Replicate 1 Time: 15:10
Peak Area (A-s): 0.239 Peak Height (A): 0.412

Background Pk Area (A-s): 0.037 Background Pk Height (A): 0.042
Blank Corrected Pk Area (A-s): 0.237
Concentration (ug/L): 24.8

Replicate 2 Time: 15:13
Peak Area (A-s): 0.235 Peak Height (A): 0.447
Background Pk Area (A-s): 0.038 Background Pk Height (A): 0.043
Blank Corrected Pk Area (A-s): 0.233
Concentration (ug/L): 24.7

Mean Conc (ug/L): 24.7 SD: 0.11 RSD(%): 0.43

Standard abs. & conc. values are not in the same order.

As ID: Standard 6 Seq. No.: 00007 A/S Pos.: 40 Date: 05/09/94

Replicate 1 Time: 15:16
Peak Area (A-s): 0.487 Peak Height (A): 0.782
Background Pk Area (A-s): 0.058 Background Pk Height (A): 0.068
Blank Corrected Pk Area (A-s): 0.485
Concentration (ug/L): 27.4

Replicate 2 Time: 15:18
Peak Area (A-s): 0.482 Peak Height (A): 0.717
Background Pk Area (A-s): 0.054 Background Pk Height (A): 0.064
Blank Corrected Pk Area (A-s): 0.480
Concentration (ug/L): 27.4

Mean Conc (ug/L): 27.4 SD: 0.02 RSD(%): 0.08

S-shaped calibration curve detected. 2-coef. equation used.
Standard number 6 applied. [100.0]
Correlation coefficient: 0.94827 Slope: 0.0066

As ID: Standard 4 Seq. No.: 00008 A/S Pos.: 38 Date: 05/09/94

Replicate 1 Time: 15:40
Peak Area (A-s): 0.117 Peak Height (A): 0.239
Background Pk Area (A-s): 0.031 Background Pk Height (A): 0.028
Blank Corrected Pk Area (A-s): 0.115
Concentration (ug/L): 17.7

Replicate 2 Time: 15:42
Peak Area (A-s): 0.116 Peak Height (A): 0.234
Background Pk Area (A-s): 0.031 Background Pk Height (A): 0.030
Blank Corrected Pk Area (A-s): 0.113
Concentration (ug/L): 17.5

Mean Conc (ug/L): 17.6 SD: 0.12 RSD(%): 0.69

S-shaped calibration curve detected. 2-coef. equation used.
Standard number 4 applied. [25.0]
Correlation coefficient: 0.99986 Slope: 0.0047

As ID: Standard 5 Seq. No.: 00009 A/S Pos.: 39 Date: 05/09/94

Replicate 1 Time: 15:45

9513355.2666

Peak Area (A-s): 0.231
Background Pk Area (A-s): 0.041
Blank Corrected Pk Area (A-s): 0.229
Concentration (ug/L): 48.1

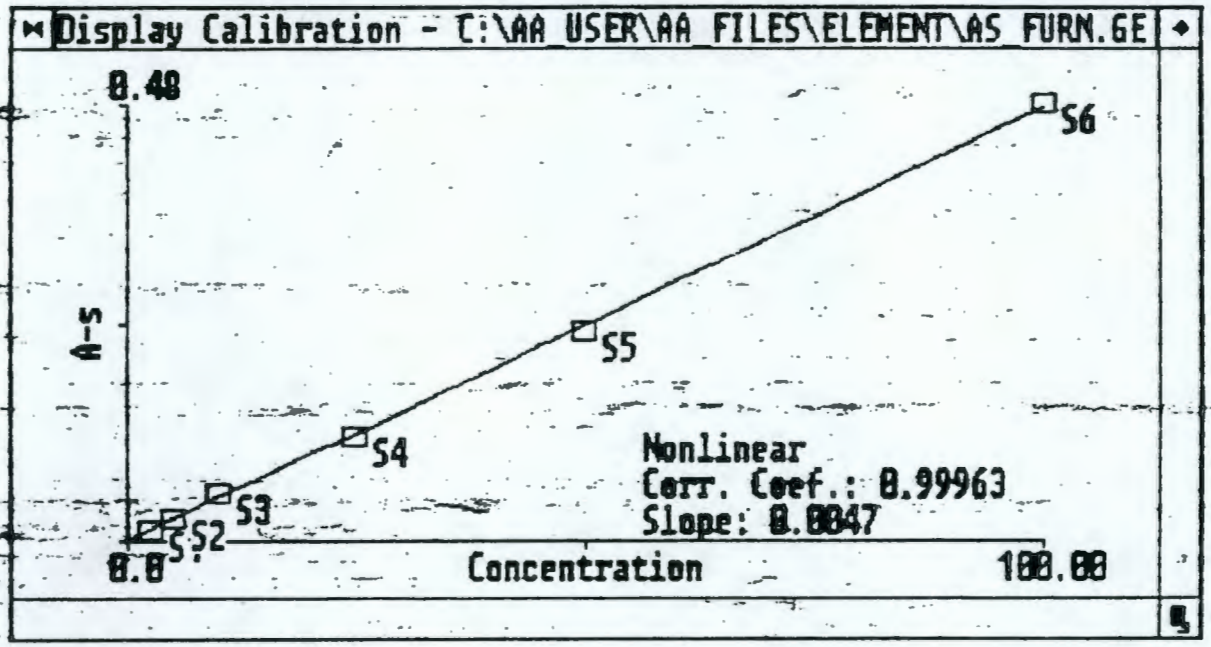
Peak Height (A): 0.386
Background Pk Height (A): 0.043

Replicate 2
Peak Area (A-s): 0.231
Background Pk Area (A-s): 0.039
Blank Corrected Pk Area (A-s): 0.229
Concentration (ug/L): 48.2

Time: 15:48
Peak Height (A): 0.410
Background Pk Height (A): 0.044

Mean Conc (ug/L): 48.1 SD: 0.04 RSD(%): 0.09

S-shaped calibration curve detected. 2-coef. equation used.
Standard number 5 applied. [50.0]
Correlation coefficient: 0.99963 Slope: 0.0047



As ID: ICV*SPEX*1 Seq. No.: 00010 A/S Pos.: 3 Date: 05/09/94

Replicate 1
Peak Area (A-s): 0.223
Background Pk Area (A-s): 0.039
Blank Corrected Pk Area (A-s): 0.221
Concentration (ug/L): 46.8

Time: 16:38
Peak Height (A): 0.451
Background Pk Height (A): 0.041

Replicate 2
Peak Area (A-s): 0.222
Background Pk Area (A-s): 0.039
Blank Corrected Pk Area (A-s): 0.220
Concentration (ug/L): 46.6

Time: 16:41
Peak Height (A): 0.319
Background Pk Height (A): 0.034

Mean Conc (ug/L): 46.7 SD: 0.14 RSD(%): 0.30

As ID: MB*REAGENT*1 Seq. No.: 00011 A/S Pos.: 4 Date: 05/09/94

Replicate 1 Time: 16:48
Peak Area (A-s): 0.005 Peak Height (A): 0.012
Background Pk Area (A-s): 0.026 Background Pk Height (A): 0.022
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L): 0.5

Replicate 2 Time: 16:50
Peak Area (A-s): 0.005 Peak Height (A): 0.011
Background Pk Area (A-s): 0.025 Background Pk Height (A): 0.018
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L): 0.5

Mean Conc (ug/L): 0.5 SD: 0.01 RSD(%): 0.96

As ID: MB*QC*1 Seq. No.: 00012 A/S Pos.: 5 Date: 05/09/94

Replicate 1 Time: 16:53
Peak Area (A-s): 0.004 Peak Height (A): 0.009
Background Pk Area (A-s): 0.026 Background Pk Height (A): 0.021
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L): 0.4

Replicate 2 Time: 16:56
Peak Area (A-s): 0.002 Peak Height (A): 0.011
Background Pk Area (A-s): 0.028 Background Pk Height (A): 0.025
Blank Corrected Pk Area (A-s): -0.000
Concentration (ug/L): -0.1

Mean Conc (ug/L): 0.2 SD: 0.37 RSD(%): 229.63

As ID: SP*QC*1 Seq. No.: 00013 A/S Pos.: 6 Date: 05/09/94

Replicate 1 Time: 16:59
Peak Area (A-s): 0.163 Peak Height (A): 0.286
Background Pk Area (A-s): 0.032 Background Pk Height (A): 0.036
Blank Corrected Pk Area (A-s): 0.161
Concentration (ug/L): 34.2

Replicate 2 Time: 17:02
Peak Area (A-s): 0.175 Peak Height (A): 0.281
Background Pk Area (A-s): 0.037 Background Pk Height (A): 0.037
Blank Corrected Pk Area (A-s): 0.172
Concentration (ug/L): 36.6

Mean Conc (ug/L): 35.4 SD: 1.75 RSD(%): 4.94

As ID: CDMHNSS*28 Seq. No.: 00014 A/S Pos.: 7 Date: 05/09/94

Replicate 1 Time: 17:07
Peak Area (A-s): 0.070 Peak Height (A): 0.122
Background Pk Area (A-s): 0.664 Background Pk Height (A): 0.371
Blank Corrected Pk Area (A-s): 0.068
Concentration (ug/L): 14.6

Replicate 2 Time: 17:10
Peak Area (A-s): 0.066 Peak Height (A): 0.130
Background Pk Area (A-s): 0.699 Background Pk Height (A): 0.395
Blank Corrected Pk Area (A-s): 0.064
Concentration (ug/L): 13.6

Mean Conc (ug/L): 14.1 SD: 0.69 RSD(%): 4.91

As ID: CDMHNSS*29 Seq. No.: 00015 A/S Pos.: 8 Date: 05/09/94

Replicate 1 Time: 17:13
Peak Area (A-s): 0.196 Peak Height (A): 0.391
Background Pk Area (A-s): 0.858 Background Pk Height (A): 0.470
Blank Corrected Pk Area (A-s): 0.194
Concentration (ug/L): 41.2

Replicate 2 Time: 17:16
Peak Area (A-s): 0.199 Peak Height (A): 0.394
Background Pk Area (A-s): 0.895 Background Pk Height (A): 0.491
Blank Corrected Pk Area (A-s): 0.197
Concentration (ug/L): 41.8

Mean Conc (ug/L): 41.5 SD: 0.37 RSD(%): 0.90

As ID: CDMHNSS*30 Seq. No.: 00016 A/S Pos.: 9 Date: 05/09/94

Replicate 1 Time: 17:18
Peak Area (A-s): 0.078 Peak Height (A): 0.130
Background Pk Area (A-s): 0.794 Background Pk Height (A): 0.444
Blank Corrected Pk Area (A-s): 0.075
Concentration (ug/L): 16.1

Replicate 2 Time: 17:21
Peak Area (A-s): 0.079 Peak Height (A): 0.144
Background Pk Area (A-s): 0.793 Background Pk Height (A): 0.446
Blank Corrected Pk Area (A-s): 0.076
Concentration (ug/L): 16.3

Mean Conc (ug/L): 16.2 SD: 0.13 RSD(%): 0.81

As ID: CDMHNSS*31 Seq. No.: 00017 A/S Pos.: 10 Date: 05/09/94

Replicate 1 Time: 17:24
Peak Area (A-s): 0.142 Peak Height (A): 0.230
Background Pk Area (A-s): 1.049 Background Pk Height (A): 0.627
Blank Corrected Pk Area (A-s): 0.140
Concentration (ug/L): 29.8

Replicate 2 Time: 17:27
Peak Area (A-s): 0.136 Peak Height (A): 0.212
Background Pk Area (A-s): 1.054 Background Pk Height (A): 0.631
Blank Corrected Pk Area (A-s): 0.134
Concentration (ug/L): 28.5

Mean Conc (ug/L): 29.2 SD: 0.97 RSD(%): 3.33

As ID: CDMHNSS*32 Seq. No.: 00018 A/S Pos.: 11 Date: 05/09/94

Replicate 1 Time: 17:30
Peak Area (A-s): 0.171 Peak Height (A): 0.325
Background Pk Area (A-s): 0.915 Background Pk Height (A): 0.474
Blank Corrected Pk Area (A-s): 0.169
Concentration (ug/L): 35.9

Replicate 2 Time: 17:33
Peak Area (A-s): 0.170 Peak Height (A): 0.321
Background Pk Area (A-s): 0.902 Background Pk Height (A): 0.456
Blank Corrected Pk Area (A-s): 0.167
Concentration (ug/L): 35.6

Mean Conc (ug/L): 35.7 SD: 0.22 RSD(%): 0.63

As ID: CCV*QC*1 Seq. No.: 00019 A/S Pos.: 12 Date: 05/09/94

Replicate 1 Time: 17:35
Peak Area (A-s): 0.243 Peak Height (A): 0.481
Background Pk Area (A-s): 0.115 Background Pk Height (A): 0.103
Blank Corrected Pk Area (A-s): 0.241
Concentration (ug/L): 51.0

Replicate 2 Time: 17:38
Peak Area (A-s): 0.235 Peak Height (A): 0.481
Background Pk Area (A-s): 0.043 Background Pk Height (A): 0.050
Blank Corrected Pk Area (A-s): 0.233
Concentration (ug/L): 49.3

Mean Conc (ug/L): 50.2 SD: 1.20 RSD(%): 2.39

As ID: CCB*QC*1 Seq. No.: 00020 A/S Pos.: 13 Date: 05/09/94

Replicate 1 Time: 17:41
Peak Area (A-s): 0.000 Peak Height (A): 0.011
Background Pk Area (A-s): 0.024 Background Pk Height (A): 0.021
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.4

Replicate 2 Time: 17:44
Peak Area (A-s): 0.002 Peak Height (A): 0.011
Background Pk Area (A-s): 0.020 Background Pk Height (A): 0.022
Blank Corrected Pk Area (A-s): -0.000
Concentration (ug/L): -0.0

Mean Conc (ug/L): -0.2 SD: 0.26 RSD(%): 135.09

As ID: CDMHNSS*33 Seq. No.: 00021 A/S Pos.: 14 Date: 05/09/94

Replicate 1 Time: 18:00
Peak Area (A-s): 0.087 Peak Height (A): 0.138
Background Pk Area (A-s): 0.623 Background Pk Height (A): 0.365
Blank Corrected Pk Area (A-s): 0.084
Concentration (ug/L): 18.0

Replicate 2 Time: 18:03
Peak Area (A-s): 0.084 Peak Height (A): 0.131
Background Pk Area (A-s): 0.658 Background Pk Height (A): 0.368
Blank Corrected Pk Area (A-s): 0.082
Concentration (ug/L): 17.5

Mean Conc (ug/L): 17.8 SD: 0.34 RSD(%): 1.91

As ID: SPM1*CDMHNSS*33 Seq. No.: 00022 A/S Pos.: 15 Date: 05/09/94

Replicate 1 Time: 18:06
Peak Area (A-s): 0.244 Peak Height (A): 0.406
Background Pk Area (A-s): 0.720 Background Pk Height (A): 0.394
Blank Corrected Pk Area (A-s): 0.242
Concentration (ug/L): 51.3

Replicate 2 Time: 18:09
Peak Area (A-s): 0.252 Peak Height (A): 0.399
Background Pk Area (A-s): 0.715 Background Pk Height (A): 0.380
Blank Corrected Pk Area (A-s): 0.250
Concentration (ug/L): 52.9

Mean Conc (ug/L): 52.1 SD: 1.18 RSD(%): 2.27

As ID: SPM2*CDMHNSS*33 Seq. No.: 00023 A/S Pos.: 16 Date: 05/09/94

Replicate 1 Time: 18:12
Peak Area (A-s): 0.215 Peak Height (A): 0.325
Background Pk Area (A-s): 0.655 Background Pk Height (A): 0.361
Blank Corrected Pk Area (A-s): 0.213
Concentration (ug/L): 45.1

Replicate 2 Time: 18:15
Peak Area (A-s): 0.219 Peak Height (A): 0.306
Background Pk Area (A-s): 0.633 Background Pk Height (A): 0.327
Blank Corrected Pk Area (A-s): 0.217
Concentration (ug/L): 46.0

Mean Conc (ug/L): 45.6 SD: 0.59 RSD(%): 1.29

As ID: SPX*CDMHNSS*33 Seq. No.: 00024 A/S Pos.: 17 Date: 05/09/94

Replicate 1 Time: 18:18
Peak Area (A-s): 0.277 Peak Height (A): 0.260
Background Pk Area (A-s): 0.375 Background Pk Height (A): 0.241
Blank Corrected Pk Area (A-s): 0.275
Concentration (ug/L): 58.2

Replicate 2 Time: 18:21
Peak Area (A-s): 0.266 Peak Height (A): 0.267
Background Pk Area (A-s): 0.367 Background Pk Height (A): 0.241
Blank Corrected Pk Area (A-s): 0.264
Concentration (ug/L): 55.9

Mean Conc (ug/L): 57.0 SD: 1.58 RSD(%): 2.77

As ID: SPM2*CDMHNSS*33 Seq. No.: 00025 A/S Pos.: 16 Date: 05/09/94

Replicate 1 Time: 18:24
Peak Area (A-s): 0.204 Peak Height (A): 0.294
Background Pk Area (A-s): 0.601 Background Pk Height (A): 0.324
Blank Corrected Pk Area (A-s): 0.202
Concentration (ug/L): 42.8

Replicate 2 Time: 18:27
Peak Area (A-s): 0.209 Peak Height (A): 0.289
Background Pk Area (A-s): 0.601 Background Pk Height (A): 0.330
Blank Corrected Pk Area (A-s): 0.206
Concentration (ug/L): 43.8

Mean Conc (ug/L): 43.3 SD: 0.72 RSD(%): 1.66

As ID: CCV*QC*2 Seq. No.: 00026 A/S Pos.: 18 Date: 05/09/94

Replicate 1 Time: 18:33
Peak Area (A-s): 0.229 Peak Height (A): 0.397
Background Pk Area (A-s): 0.055 Background Pk Height (A): 0.052
Blank Corrected Pk Area (A-s): 0.226
Concentration (ug/L): 48.0

Replicate 2 Time: 18:36
Peak Area (A-s): 0.229 Peak Height (A): 0.309
Background Pk Area (A-s): 0.033 Background Pk Height (A): 0.036
Blank Corrected Pk Area (A-s): 0.227
Concentration (ug/L): 48.1

Mean Conc (ug/L): 48.1 SD: 0.06 RSD(%): 0.12

As ID: CCB*QC*2 Seq. No.: 00027 A/S Pos.: 19 Date: 05/09/94

Replicate 1 Time: 18:39
Peak Area (A-s): 0.003 Peak Height (A): 0.012
Background Pk Area (A-s): 0.021 Background Pk Height (A): 0.021
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L): 0.2

Replicate 2 Time: 18:42
Peak Area (A-s): 0.004 Peak Height (A): 0.010
Background Pk Area (A-s): 0.020 Background Pk Height (A): 0.017
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L): 0.4

Mean Conc (ug/L): 0.3 SD: 0.12 RSD(%): 38.17

95153555.2672

GFAA Metals - Selenium

9513355.2673

(2)

ELEMENT: Se METHOD #~~Asm3233~~-013 BK# 18 PG# 91A

ANALYST: Lisa Sawyer EMP. # 2705 DATE: 5/9/94

SAMPLES ANALYZED:

CDM HNSS# 28-33

BATCH #

G48873
LMS
5/9/94

INSTRUMENT PARAMETERS:

Inst. model	8100-C
Wavelength	196.0
Bandwidth	2.0000
EDL/HCL#	1056
Energy/Watts	60
Power Supply	no* Single
HGA model	1000
Tube type	pyrolytic platform
Sample aliq.	20 ul
Modifier	500 ppm Pd(NO3)2
Modifier aliq.	5 ul
Zeeman type	longitudinal

STANDARDS:

1000 ppm stock	SPEX LMS 5/9/94
Manufacturer	~~Mallinckrodt~~
Lot number	3705E
Date received	1-14-94
Date expires	12-31-94

Working Standards

Date prep'ed:	
10 mg/L std.	5/3/94
100 ug/L std.	5/9/94
10 ug/L std.	5/9/94
~~50 ug/L Std~~	5/9/94

CALIBRATION CURVE:

	conc.	abs.
Blank	0.0	0.003
Std.1	2.5	0.013
Std.2	5.0	0.027
Std.3	10.0	0.048
Std.4	25.0	0.114
Std.5	50.0	0.211
Std.6	100.0	0.413
Std.7	/	
Std.8	/	
c.c.:	0.99963 (linear)	
Det. L.	2.5ppb	

HGA KEYBOARD ENTRIES:

STEP	1	2	3	4	5
Temp(C)	140	1100	20	2100	2600
Ramp (sec)	5	5	1	0	1
Hold (sec)	50	40	5	5	5
Read Step				*	
Gas (ml/min)	300	300	300	0	300

PREVENTATIVE MAINTENANCE/COMMENTS:

changes made to Runlog Reflect the Changes made to the Raw Data.

LMS
5/9/94

READ AND UNDERSTOOD BY: Marlene Banner 5/9/94

~~000091~~

001573

9513355.2674

Analyst: Lisa Swayne Date: 5/9/94 Element Se Inst 5100-C Book: 18 Pg: 91B

Print #	Sample I. D.	Peak Area	Conc. (ppb)	Target (ppb)	Comments
1	Calib. Blank	0.0021	0.5		establishing Baseline
2	Calib. Blank	-0.0003	-0.1		
3	Standard 1	0.0102	2.5		
4	Standard 2	0.0234	5.7		
5	Standard 3	0.0453	9.9		
6	Standard 4	0.1199	26.4		Reading high Recen. Sa. # 9
7	Standard 5	0.2076	43.7		
8	Standard 6	0.4099	95.2		
9	Standard 4	0.1106	26.9		CC=0.99963 (linear)
10	ICV*SPEX*1	0.1926	46.6	50.0	93.2% Recov
11	MB*REAGENT*1	-0.0003	-0.1		
12	MB*QC*1	-0.0017	-0.4		
13	SP*QC*1	0.0418	10.1	10.0	101% Recov
14	CDMHNSS*28	-0.0005	-0.1		
15	CDMHNSS*29	-0.0023	-0.5		
16	CDMHNSS*30	-0.0011	-0.3		
17	CDMHNSS*31	-0.0004	-0.1		
18	CDMHNSS*32	-0.0009	-0.2		
19	CCV*QC*1	0.1964	47.6	50.0	95.2% Recov
20	CCB*QC*1	0.0011	0.3		
21	CDMHNSS*33	0.0000	0		
22	SPM1*CDMHNSS*33	0.0149	3.6	10.0	High RSD Recov Sa. # 24
23	SPM2*CDMHNSS*33	0.0175	4.2	10.0	42% Recov
24	SPM1*CDMHNSS*33	0.0160	3.9	10.0	39% Recov
25	SPX*CDMHNSS*33	0.1740	42.1	100.0	pour up flush and Recov.
26	SPX*CDMHNSS*33	0.1779	43.1	100.0	43.1 x 2 = 86.2% Recov
27	CCV*QC*2	0.2048	49.6	50.0	99.2% Recov
28	CCB*QC*2	0.0020	0.5		

9513355.2675

Element File: SE_FURN.GEL Element: Se (3) Wavelength: 196.0
Date: 05/09/94 Time: 08:28 Slit: 2.00 L
Data File: A:TL_5_6.DATE ID/Wt File: TL_6_9.IDW Lamp Current: 6
Technique: HGA Calib. Type: Linear Energy: 60
Remark 1: CDMHNSS*28-33
Remark 2: Analyzed by LISA SWAYZE
Remark 3: MAY 9, 1994 Data on LMS 1B
Remark 4: 5100-C 6.0 WATTS
Remark 5: Lamp# 656 (EDL) Modifier: 500 ppm Pd(NO3)2

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Se ID: Calib. Blank Seq. No.: 00001 A/S Pos.: 36 Date: 05/09/94

Replicate 1 Time: 08:31
Peak Area (A-s): 0.005 Peak Height (A): 0.006
Background Pk Area (A-s): 0.009 Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): 0.004
Concentration (ug/L): 0.9

Replicate 2 Time: 08:34
Peak Area (A-s): 0.002 Peak Height (A): 0.005
Background Pk Area (A-s): 0.009 Background Pk Height (A): 0.005
Blank Corrected Pk Area (A-s): 0.000
Concentration (ug/L): 0.1

Mean Conc (ug/L): 0.5 SD: 0.60 RSD(%): 115.26

Auto-zero performed.

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Se ID: Calib. Blank Seq. No.: 00002 A/S Pos.: 36 Date: 05/09/94

Replicate 1 Time: 08:38
Peak Area (A-s): 0.002 Peak Height (A): 0.006
Background Pk Area (A-s): 0.006 Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L): -0.3

Replicate 2 Time: 08:41
Peak Area (A-s): 0.004 Peak Height (A): 0.006
Background Pk Area (A-s): 0.005 Background Pk Height (A): 0.005
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L): 0.2

Mean Conc (ug/L): -0.1 SD: 0.37 RSD(%): 540.13

Auto-zero performed.

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Se ID: Standard 1 Seq. No.: 00003 A/S Pos.: 1 Date: 05/09/94

Replicate 1 Time: 08:43
Peak Area (A-s): 0.013 Peak Height (A): 0.023
Background Pk Area (A-s): 0.011 Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): 0.010
Concentration (ug/L): 2.5

Replicate 2 Time: 08:46
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Peak Area (A-s): 0.013 Peak Height (A): 0.019
Background Pk Area (A-s): 0.009 Background Pk Height (A): 0.007
Blank Corrected Pk Area (A-s): 0.010
Concentration (ug/L): 2.6

Mean Conc (ug/L): 2.5 SD: 0.06 RSD(%): 2.20

Standard number 1 applied. [2.5]
Correlation coefficient: 1.00000 Slope: 0.0041

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Se ID: Standard 2 Seq. No.: 00004 A/S Pos.: 1 Date: 05/09/94

Replicate 1 Time: 08:49
Peak Area (A-s): 0.026 Peak Height (A): 0.038
Background Pk Area (A-s): 0.011 Background Pk Height (A): 0.012
Blank Corrected Pk Area (A-s): 0.023
Concentration (ug/L): 5.7

Replicate 2 Time: 08:52
Peak Area (A-s): 0.027 Peak Height (A): 0.039
Background Pk Area (A-s): 0.012 Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): 0.024
Concentration (ug/L): 5.8

Mean Conc (ug/L): 5.7 SD: 0.10 RSD(%): 1.78

Standard number 2 applied. [5.0]
Correlation coefficient: 0.98645 Slope: 0.0046

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Se ID: Standard 3 Seq. No.: 00005 A/S Pos.: 1 Date: 05/09/94

Replicate 1 Time: 08:55
Peak Area (A-s): 0.046 Peak Height (A): 0.068
Background Pk Area (A-s): 0.016 Background Pk Height (A): 0.018
Blank Corrected Pk Area (A-s): 0.043
Concentration (ug/L): 9.5

Replicate 2 Time: 08:58
Peak Area (A-s): 0.050 Peak Height (A): 0.071
Background Pk Area (A-s): 0.017 Background Pk Height (A): 0.019
Blank Corrected Pk Area (A-s): 0.047
Concentration (ug/L): 10.3

Mean Conc (ug/L): 9.9 SD: 0.57 RSD(%): 5.75

Standard number 3 applied. [10.0]
Correlation coefficient: 0.99852 Slope: 0.0045

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Se ID: Standard 4 Seq. No.: 00006 A/S Pos.: 2 Date: 05/09/94

Replicate 1 Time: 09:01
Peak Area (A-s): 0.124 Peak Height (A): 0.177
Background Pk Area (A-s): 0.032 Background Pk Height (A): 0.045
Blank Corrected Pk Area (A-s): 0.121
Concentration (ug/L): 26.7
~~~~~~

Replicate 2 Time: 09:03
Peak Area (A-s): 0.121 Peak Height (A): 0.185
Background Pk Area (A-s): 0.033 Background Pk Height (A): 0.043
Blank Corrected Pk Area (A-s): 0.118
Concentration (ug/L): 26.1

Mean Conc (ug/L): 26.4 SD: 0.46 RSD(%): 1.73

Standard number 4 applied. [25.0]
Correlation coefficient: 0.99934 Slope: 0.0048

~~~~~~

Se ID: Standard 5 Seq. No.: 00007 A/S Pos.: 2 Date: 05/09/94

Replicate 1 Time: 09:06
Peak Area (A-s): 0.211 Peak Height (A): 0.319
Background Pk Area (A-s): 0.054 Background Pk Height (A): 0.076
Blank Corrected Pk Area (A-s): 0.208
Concentration (ug/L): 43.8

Replicate 2 Time: 09:09
Peak Area (A-s): 0.210 Peak Height (A): 0.316
Background Pk Area (A-s): 0.054 Background Pk Height (A): 0.073
Blank Corrected Pk Area (A-s): 0.207
Concentration (ug/L): 43.6

Mean Conc (ug/L): 43.7 SD: 0.13 RSD(%): 0.30

Standard number 5 applied. [50.0]
Correlation coefficient: 0.99619 Slope: 0.0043

~~~~~~

Se ID: Standard 6 Seq. No.: 00008 A/S Pos.: 2 Date: 05/09/94

Replicate 1 Time: 09:12
Peak Area (A-s): 0.425 Peak Height (A): 0.613
Background Pk Area (A-s): 0.108 Background Pk Height (A): 0.155
Blank Corrected Pk Area (A-s): 0.422
Concentration (ug/L): 97.9

Replicate 2 Time: 09:15
Peak Area (A-s): 0.401 Peak Height (A): 0.587
Background Pk Area (A-s): 0.102 Background Pk Height (A): 0.151
Blank Corrected Pk Area (A-s): 0.398
Concentration (ug/L): 92.5

Mean Conc (ug/L): 95.2 SD: 3.83 RSD(%): 4.02

Standard number 6 applied. [100.0]
Correlation coefficient: 0.99874 Slope: 0.0042

~~~~~~

Se ID: Standard 4 Seq. No.: 00009 A/S Pos.: 2 Date: 05/09/94

Replicate 1 Time: 09:39
Peak Area (A-s): 0.116 Peak Height (A): 0.175
Background Pk Area (A-s): 0.034 Background Pk Height (A): 0.045
Blank Corrected Pk Area (A-s): 0.113
Concentration (ug/L): 27.4
~~~~~~

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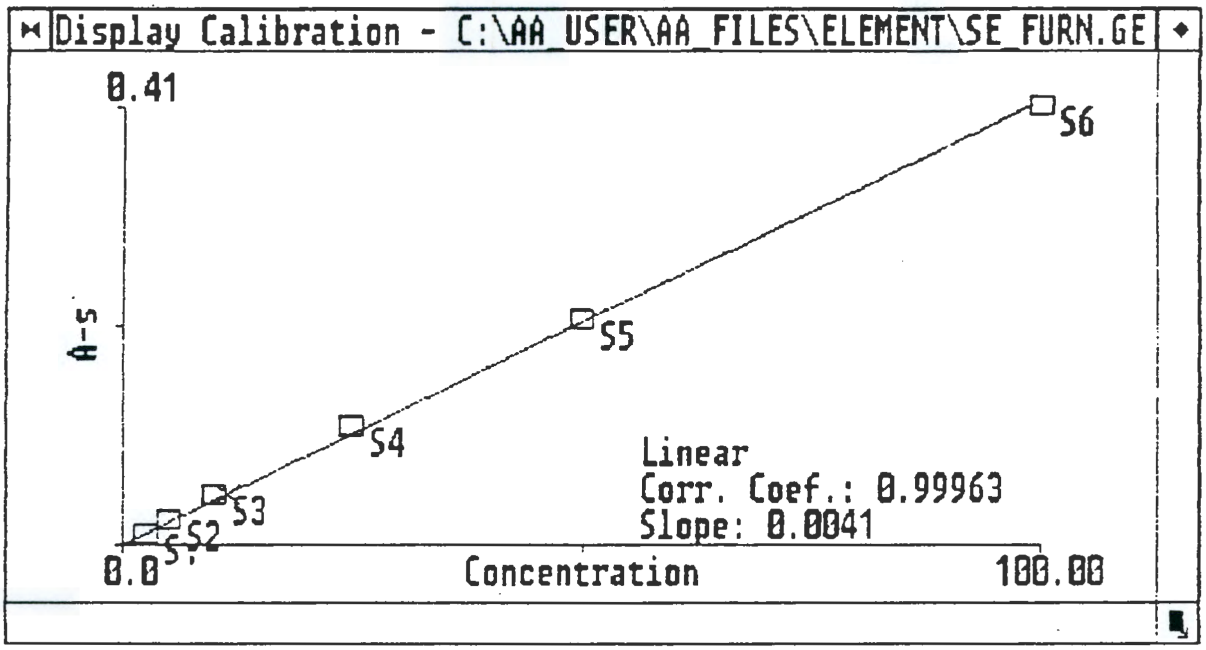
Replicate 2 Time: 09:42
Peak Area (A-s): 0.112 Peak Height (A): 0.167
Background Pk Area (A-s): 0.033 Background Pk Height (A): 0.041
Blank Corrected Pk Area (A-s): 0.109
Concentration (ug/L): 26.4

Mean Conc (ug/L): 26.9 SD: 0.68 RSD(%): 2.54

Standard number 4 applied. [25.0]
Correlation coefficient: 0.99963 Slope: 0.0041



~~~~~~

Se ID: ICV*SPEX*1 Seq. No.: 00010 A/S Pos.: 3 Date: 05/09/94

Replicate 1 Time: 09:48
Peak Area (A-s): 0.186 Peak Height (A): 0.307
Background Pk Area (A-s): 0.050 Background Pk Height (A): 0.075
Blank Corrected Pk Area (A-s): 0.183
Concentration (ug/L): 44.3

Replicate 2 Time: 09:51
Peak Area (A-s): 0.205 Peak Height (A): 0.278
Background Pk Area (A-s): 0.056 Background Pk Height (A): 0.068
Blank Corrected Pk Area (A-s): 0.202
Concentration (ug/L): 48.9

Mean Conc (ug/L): 46.6 SD: 3.24 RSD(%): 6.95

~~~~~~

Se ID: MB*REAGENT*1 Seq. No.: 00011 A/S Pos.: 4 Date: 05/09/94

Replicate 1 Time: 09:59
Peak Area (A-s): 0.003 Peak Height (A): 0.006
Background Pk Area (A-s): 0.010 Background Pk Height (A): 0.007
Blank Corrected Pk Area (A-s): -0.000

Concentration (ug/L): -0.0

Replicate 2 Time: 10:02
Peak Area (A-s): 0.002 Peak Height (A): 0.005
Background Pk Area (A-s): 0.009 Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): -0.000
Concentration (ug/L): -0.1

Mean Conc (ug/L): -0.1 SD: 0.07 RSD(%): 103.60

~~~~~~

Se ID: MB*QC*1 Seq. No.: 00012 A/S Pos.: 5 Date: 05/09/94

Replicate 1 Time: 10:05
Peak Area (A-s): 0.001 Peak Height (A): 0.006
Background Pk Area (A-s): 0.009 Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.5

Replicate 2 Time: 10:07
Peak Area (A-s): 0.001 Peak Height (A): 0.005
Background Pk Area (A-s): 0.008 Background Pk Height (A): 0.005
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.4

Mean Conc (ug/L): -0.4 SD: 0.05 RSD(%): 12.86

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Se ID: SP*QC*1 Seq. No.: 00013 A/S Pos.: 6 Date: 05/09/94

Replicate 1 Time: 10:10
Peak Area (A-s): 0.045 Peak Height (A): 0.062
Background Pk Area (A-s): 0.018 Background Pk Height (A): 0.017
Blank Corrected Pk Area (A-s): 0.042
Concentration (ug/L): 10.1

Replicate 2 Time: 10:13
Peak Area (A-s): 0.045 Peak Height (A): 0.067
Background Pk Area (A-s): 0.016 Background Pk Height (A): 0.017
Blank Corrected Pk Area (A-s): 0.042
Concentration (ug/L): 10.1

Mean Conc (ug/L): 10.1 SD: 0.01 RSD(%): 0.10

~~~~~~

Se ID: CDMHNSS*28 Seq. No.: 00014 A/S Pos.: 7 Date: 05/09/94

Replicate 1 Time: 10:16
Peak Area (A-s): 0.004 Peak Height (A): 0.006
Background Pk Area (A-s): 0.116 Background Pk Height (A): 0.091
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L): 0.2

Replicate 2 Time: 10:18
Peak Area (A-s): 0.001 Peak Height (A): 0.004
Background Pk Area (A-s): 0.112 Background Pk Height (A): 0.082
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.4
~~~~~~

Mean Conc (ug/L): -0.1 SD: 0.43 RSD(%): 342.53

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Se ID: CDMHNSS*29 Seq. No.: 00015 A/S Pos.: 8 Date: 05/09/94

Replicate 1 Time: 10:21
Peak Area (A-s): 0.001 Peak Height (A): 0.005
Background Pk Area (A-s): 0.148 Background Pk Height (A): 0.106
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.4

Replicate 2 Time: 10:24
Peak Area (A-s): 0.000 Peak Height (A): 0.005
Background Pk Area (A-s): 0.151 Background Pk Height (A): 0.110
Blank Corrected Pk Area (A-s): -0.003
Concentration (ug/L): -0.7

Mean Conc (ug/L): -0.5 SD: 0.20 RSD(%): 37.27

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Se ID: CDMHNSS*30 Seq. No.: 00016 A/S Pos.: 9 Date: 05/09/94

Replicate 1 Time: 10:27
Peak Area (A-s): 0.001 Peak Height (A): 0.005
Background Pk Area (A-s): 0.116 Background Pk Height (A): 0.083
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.4

Replicate 2 Time: 10:29
Peak Area (A-s): 0.003 Peak Height (A): 0.006
Background Pk Area (A-s): 0.126 Background Pk Height (A): 0.086
Blank Corrected Pk Area (A-s): -0.000
Concentration (ug/L): -0.1

Mean Conc (ug/L): -0.3 SD: 0.21 RSD(%): 80.94

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Se ID: CDMHNSS*31 Seq. No.: 00017 A/S Pos.: 10 Date: 05/09/94

Replicate 1 Time: 10:32
Peak Area (A-s): 0.005 Peak Height (A): 0.007
Background Pk Area (A-s): 0.162 Background Pk Height (A): 0.112
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L): 0.4

Replicate 2 Time: 10:35
Peak Area (A-s): 0.001 Peak Height (A): 0.005
Background Pk Area (A-s): 0.156 Background Pk Height (A): 0.106
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.6

Mean Conc (ug/L): -0.1 SD: 0.69 RSD(%): 652.05

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Se ID: CDMHNSS*32 Seq. No.: 00018 A/S Pos.: 11 Date: 05/09/94

Replicate 1 Time: 10:38
Peak Area (A-s): 0.002 Peak Height (A): 0.006
Background Pk Area (A-s): 0.151 Background Pk Height (A): 0.091

Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L): -0.2

Replicate 2 | Time: 10:40
Peak Area (A-s): 0.002 | Peak Height (A): 0.006
Background Pk Area (A-s): 0.153 | Background Pk Height (A): 0.094
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L): -0.2

Mean Conc (ug/L): -0.2 SD: 0.01 RSD(%): 3.01

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Se ID: CCV*QC*1 Seq. No.: 00019 A/S Pos.: 12 Date: 05/09/94

Replicate 1 | Time: 10:43
Peak Area (A-s): 0.203 | Peak Height (A): 0.322
Background Pk Area (A-s): 0.053 | Background Pk Height (A): 0.079
Blank Corrected Pk Area (A-s): 0.200
Concentration (ug/L): 48.4

Replicate 2 | Time: 10:46
Peak Area (A-s): 0.196 | Peak Height (A): 0.293
Background Pk Area (A-s): 0.054 | Background Pk Height (A): 0.073
Blank Corrected Pk Area (A-s): 0.193
Concentration (ug/L): 46.7

Mean Conc (ug/L): 47.6 SD: 1.27 RSD(%): 2.66

~~~~~~

Se ID: CCB*QC*1 Seq. No.: 00020 A/S Pos.: 13 Date: 05/09/94

Replicate 1 | Time: 10:49
Peak Area (A-s): 0.005 | Peak Height (A): 0.006
Background Pk Area (A-s): 0.003 | Background Pk Height (A): 0.004
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L): 0.5

Replicate 2 | Time: 10:51
Peak Area (A-s): 0.003 | Peak Height (A): 0.006
Background Pk Area (A-s): 0.006 | Background Pk Height (A): 0.005
Blank Corrected Pk Area (A-s): 0.000
Concentration (ug/L): 0.1

Mean Conc (ug/L): 0.3 SD: 0.29 RSD(%): 105.65

~~~~~~

Se ID: CDMHNSS*33 Seq. No.: 00021 A/S Pos.: 14 Date: 05/09/94

Replicate 1 | Time: 10:58
Peak Area (A-s): 0.002 | Peak Height (A): 0.006
Background Pk Area (A-s): 0.101 | Background Pk Height (A): 0.063
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L): -0.3

Replicate 2 | Time: 11:01
Peak Area (A-s): 0.004 | Peak Height (A): 0.006
Background Pk Area (A-s): 0.098 | Background Pk Height (A): 0.058
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L): 0.4
~~~~~~

Mean Conc (ug/L): 0.0 SD: 0.49 RSD(%): 8079.87

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Se ID: SPM1*CDMHNSS*33 Seq. No.: 00022 A/S Pos.: 15 Date: 05/09/94

Replicate 1 Time: 11:03
Peak Area (A-s): 0.015 Peak Height (A): 0.025
Background Pk Area (A-s): 0.124 Background Pk Height (A): 0.074
Blank Corrected Pk Area (A-s): 0.012
Concentration (ug/L): 2.8

Replicate 2 Time: 11:06
Peak Area (A-s): 0.021 Peak Height (A): 0.027
Background Pk Area (A-s): 0.109 Background Pk Height (A): 0.065
Blank Corrected Pk Area (A-s): 0.018
Concentration (ug/L): 4.4

Mean Conc (ug/L): 3.6 SD: 1.10 RSD(%): 30.45

~~~~~~

Se ID: SPM2*CDMHNSS*33 Seq. No.: 00023 A/S Pos.: 16 Date: 05/09/94

Replicate 1 Time: 11:09
Peak Area (A-s): 0.019 Peak Height (A): 0.029
Background Pk Area (A-s): 0.100 Background Pk Height (A): 0.056
Blank Corrected Pk Area (A-s): 0.016
Concentration (ug/L): 3.9

Replicate 2 Time: 11:12
Peak Area (A-s): 0.022 Peak Height (A): 0.028
Background Pk Area (A-s): 0.113 Background Pk Height (A): 0.071
Blank Corrected Pk Area (A-s): 0.019
Concentration (ug/L): 4.6

Mean Conc (ug/L): 4.2 SD: 0.47 RSD(%): 11.00

~~~~~~

Se ID: SPM1*CDMHNSS*33 Seq. No.: 00024 A/S Pos.: 15 Date: 05/09/94

Replicate 1 Time: 11:14
Peak Area (A-s): 0.018 Peak Height (A): 0.027
Background Pk Area (A-s): 0.120 Background Pk Height (A): 0.070
Blank Corrected Pk Area (A-s): 0.015
Concentration (ug/L): 3.6

Replicate 2 Time: 11:17
Peak Area (A-s): 0.020 Peak Height (A): 0.024
Background Pk Area (A-s): 0.117 Background Pk Height (A): 0.068
Blank Corrected Pk Area (A-s): 0.017
Concentration (ug/L): 4.1

Mean Conc (ug/L): 3.9 SD: 0.38 RSD(%): 9.95

~~~~~~

Se ID: SPX*CDMHNSS*33 Seq. No.: 00025 A/S Pos.: 17 Date: 05/09/94

Replicate 1 Time: 11:20
Peak Area (A-s): 0.176 Peak Height (A): 0.299
Background Pk Area (A-s): 0.080 Background Pk Height (A): 0.080

Blank Corrected Pk Area (A-s): 0.173
Concentration (ug/L): 42.0

Replicate 2 — Time: 11:23
Peak Area (A-s): 0.178 — Peak Height (A): 0.295
Background Pk Area (A-s): 0.081 — Background Pk Height (A): 0.078
Blank Corrected Pk Area (A-s): 0.175
Concentration (ug/L): 42.3

Mean Conc (ug/L): 42.1 SD: 0.20 RSD(%): 0.48

~~~~~~

Se ID: SPX*CDMHNSS*33 Seq. No.: 00026 A/S Pos.: 17 Date: 05/09/94

Replicate 1 — Time: 11:28
Peak Area (A-s): 0.180 — Peak Height (A): 0.295
Background Pk Area (A-s): 0.076 — Background Pk Height (A): 0.076
Blank Corrected Pk Area (A-s): 0.177
Concentration (ug/L): 42.9

Replicate 2 — Time: 11:30
Peak Area (A-s): 0.182 — Peak Height (A): 0.297
Background Pk Area (A-s): 0.081 — Background Pk Height (A): 0.077
Blank Corrected Pk Area (A-s): 0.179
Concentration (ug/L): 43.2

Mean Conc (ug/L): 43.1 SD: 0.24 RSD(%): 0.57

~~~~~~

Se ID: CCV*QC*2 Seq. No.: 00027 A/S Pos.: 18 Date: 05/09/94

Replicate 1 — Time: 11:33
Peak Area (A-s): 0.204 — Peak Height (A): 0.286
Background Pk Area (A-s): 0.053 — Background Pk Height (A): 0.071
Blank Corrected Pk Area (A-s): 0.201
Concentration (ug/L): 48.7

Replicate 2 — Time: 11:36
Peak Area (A-s): 0.211 — Peak Height (A): 0.291
Background Pk Area (A-s): 0.056 — Background Pk Height (A): 0.071
Blank Corrected Pk Area (A-s): 0.208
Concentration (ug/L): 50.4

Mean Conc (ug/L): 49.6 SD: 1.22 RSD(%): 2.46

~~~~~~

Se ID: CCB*QC*2 Seq. No.: 00028 A/S Pos.: 19 Date: 05/09/94

Replicate 1 — Time: 11:39
Peak Area (A-s): 0.006 — Peak Height (A): 0.005
Background Pk Area (A-s): 0.003 — Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L): 0.8

Replicate 2 — Time: 11:41
Peak Area (A-s): 0.004 — Peak Height (A): 0.005
Background Pk Area (A-s): 0.004 — Background Pk Height (A): 0.004
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L): 0.2
~~~~~~

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Mean Conc (ug/L): 0.5 SD: 0.42 RSD(%): 87.18

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Mercury

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(2)

MERCURY SAMPLE RUN LOG

BK#: 30 PG#: 43

METHOD: ASM3233-042 MATRIX: SED QC TYPE: FDER

ANALYST: CHRIS HORRELL EMP.# 3249 DATE: 5/9/94

SAMPLES ANALYZED: BATCH #, DATE, INITIALS

CDMHNSS*28-33 G48905 '5/9/94 CAH

INSTRUMENT PARAMETERS:

Inst. model: BUCK 400
Wavelength: 253.7

CALIBRATION CURVE:

C.C.: 0.9998
Det.Limit: 0.2 ppb
Calib. type: QUAD

STANDARDS:

	Std.#1	Std.#2
10 ppm stock Manufacturer:	HI PURITY	HI PURITY
Lot No.:	490126	390524
Exp.date:	8/94	8/94
Working Stds. made:	5/9/94	5/9/94
100 OR 80 ug/l std.	100	

COMMENTS:

Peak No.	Sample I.D.	Peak Ht.	Conc. ug/l	Target	Comments
1	0.0 ppb	0.5			
2	0.2	2.0			
3	0.5	4.75			
4	1.0	8.75			
5	2.0	16.25			
6	5.0	40.75			
7	7.0	52.75			
8	10.0	73.25			
	#'S 9-27 BATCH G48600 SEE pp 41-42				
28	ICV*1	35.75	4.5	5.0	90.0 %
29	RB	0.25	0		
30	MB	0.25	0		
31	SP	40.0	5.1	5.0	102 %
32	CDMHNSS*28	0.25	0		
33	SPM1*CDMHNSS*28	36.5	4.6	5.0	92.0 %

READ AND UNDERSTOOD BY: [signature] *DATE:* 5/9/94

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MERCURY SAMPLE RUN LOG

BK#: 30 PG#: 44

Peak No.	Sample I.D.	Peak Ht.	Conc. ug/l	Target	Comments
34	SPM2*CDMHNSS*28	37.0	4.6	5.0	92.0 %
35	CDMHNSS*29	0.5	0.02		
36	CDMHNSS*30	0.25	0		
37	CDMHNSS*31	0.25	0		
38	CDMHNSS*32	0.5	0.02		
39	12:16 CCV*1	39.5	5.0	5.0	100 %
40	CCB*1	0.25	0		
41	CDMHNSS*33	0.5	0.02		
42	12:20 CCV*2	39.5	5.0	5.0	100 %
43	CCB*2	0.0	0		

READ AND UNDERSTOOD BY: [signature]

DATE: 5/9/94

9513555.2681

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NO. LNR 0100-0026

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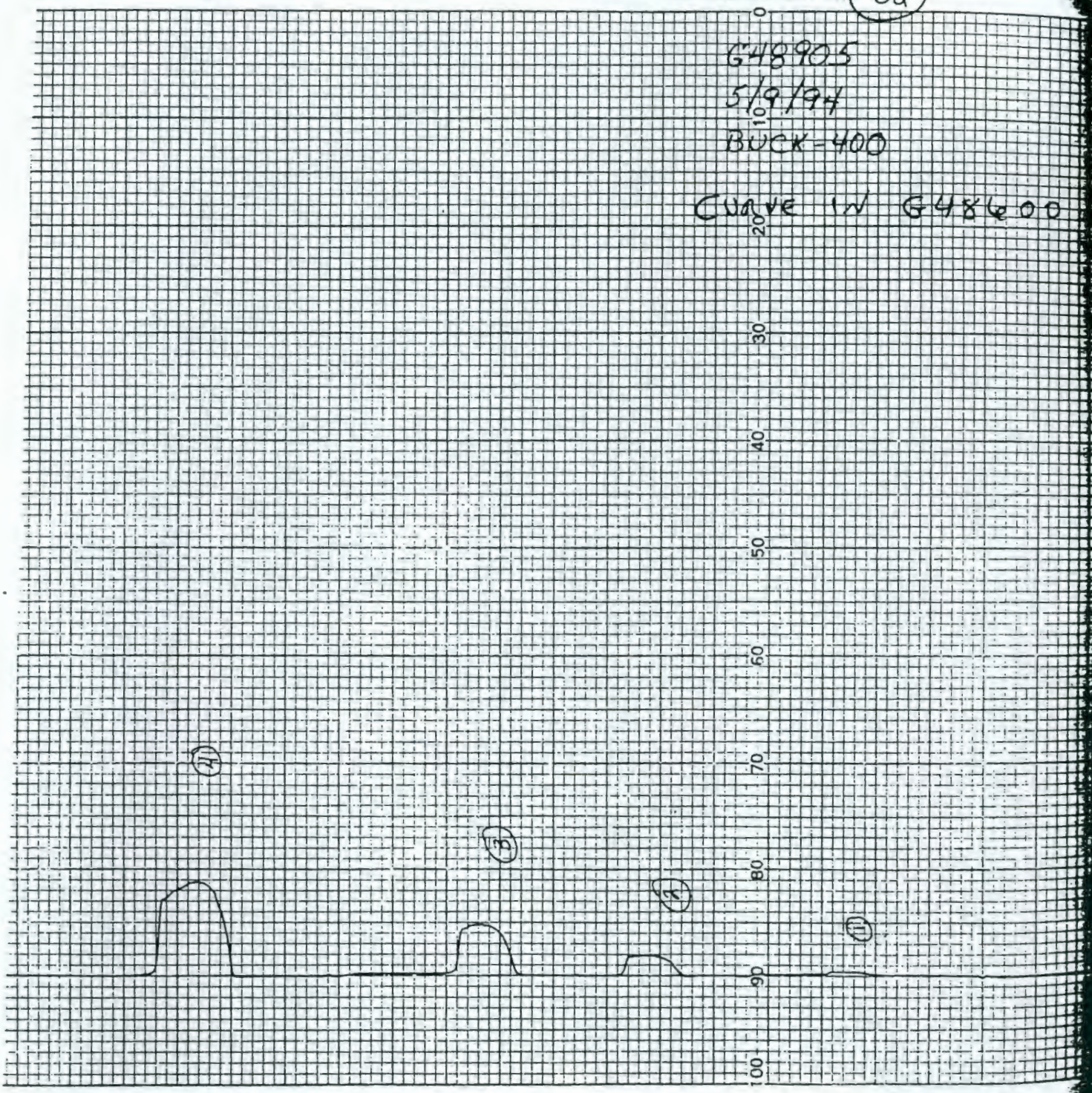

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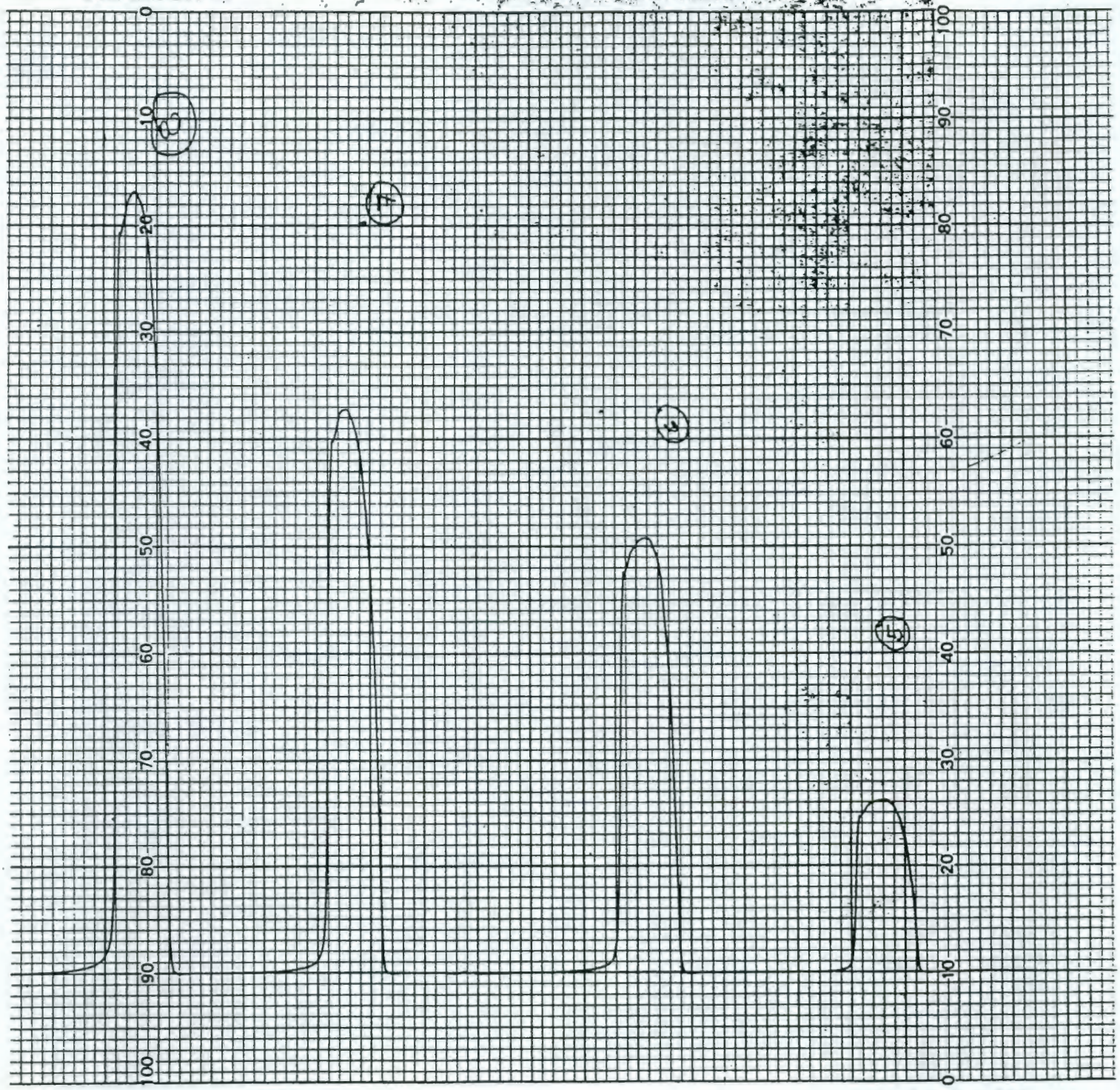

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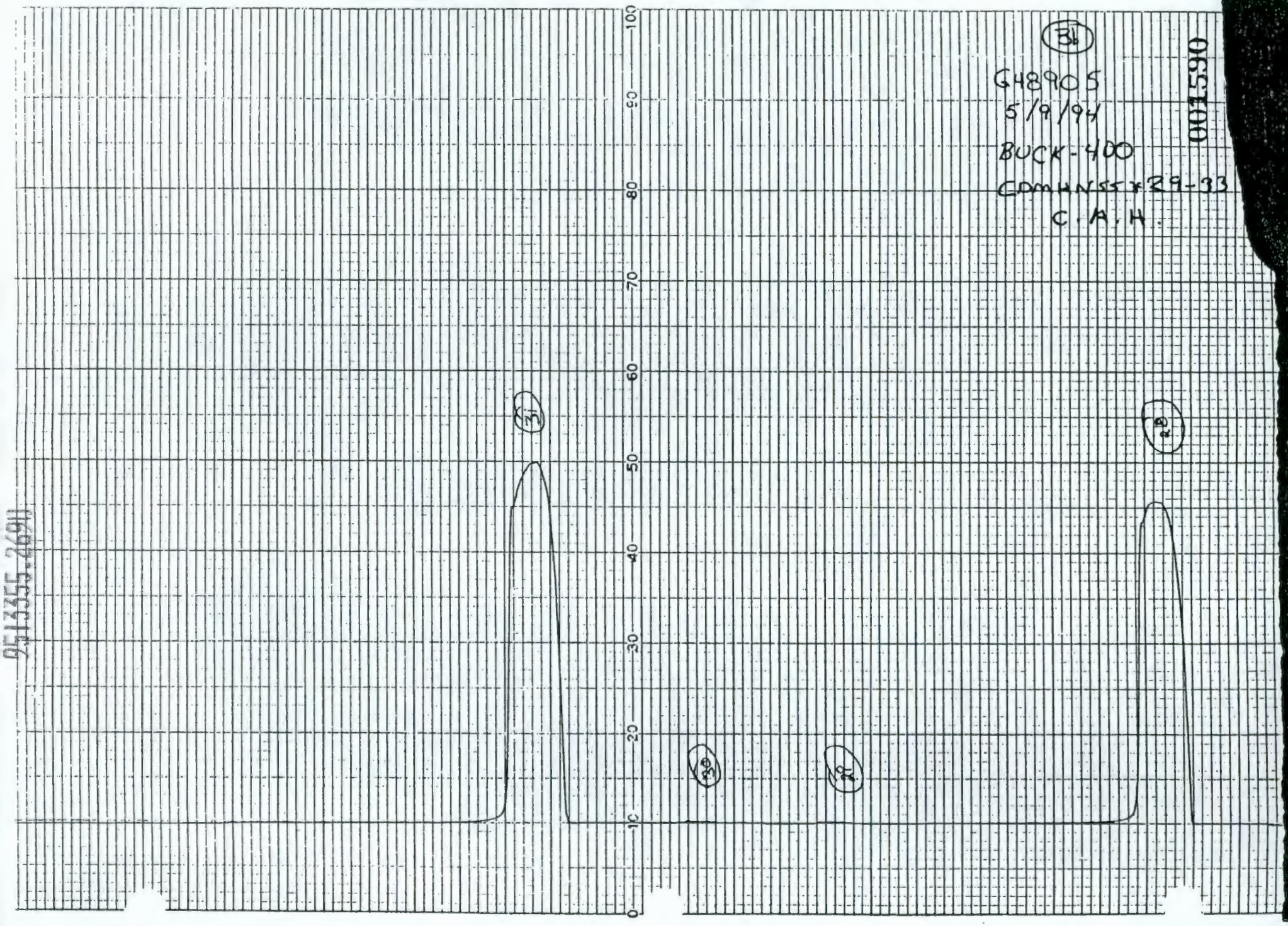

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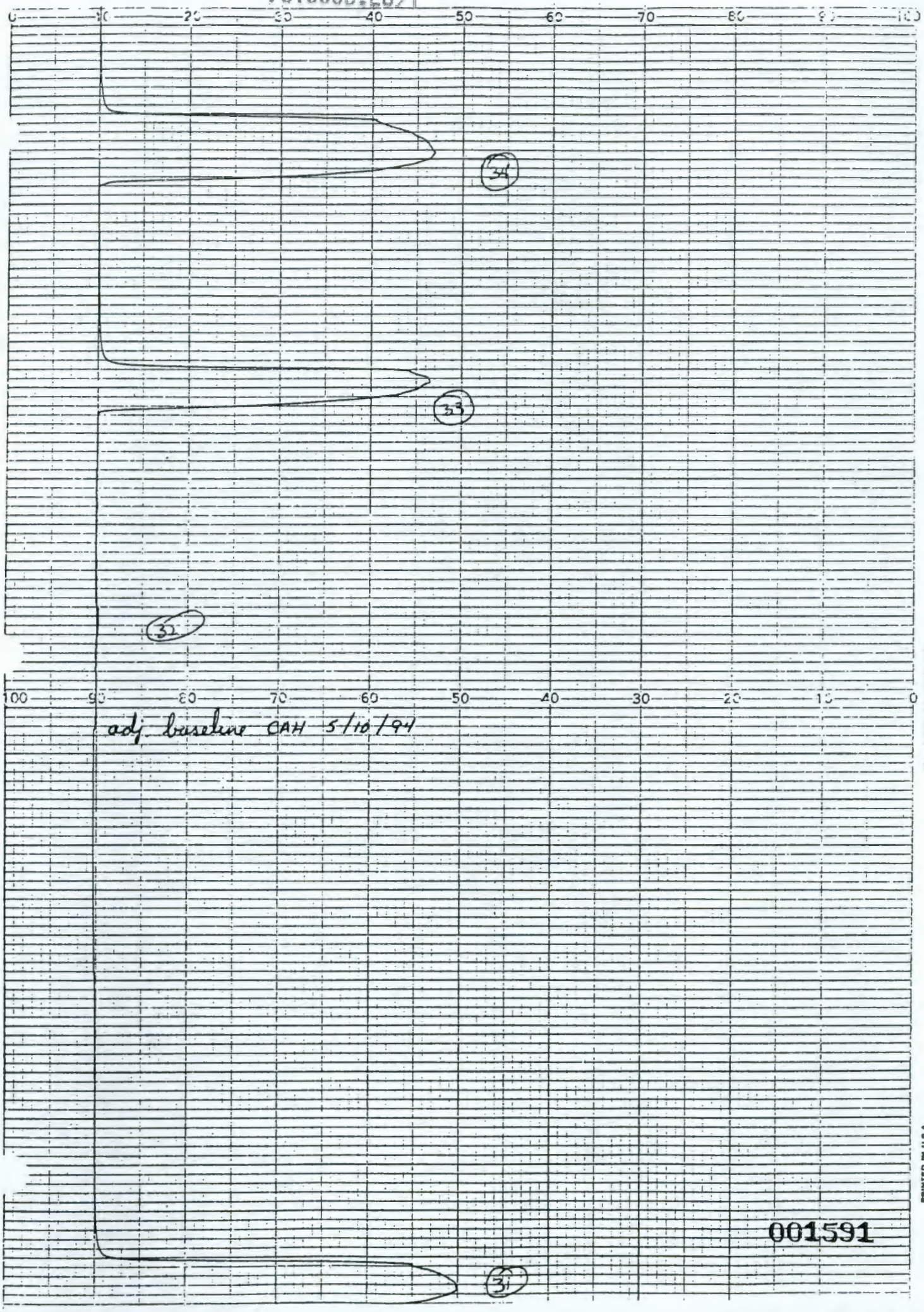

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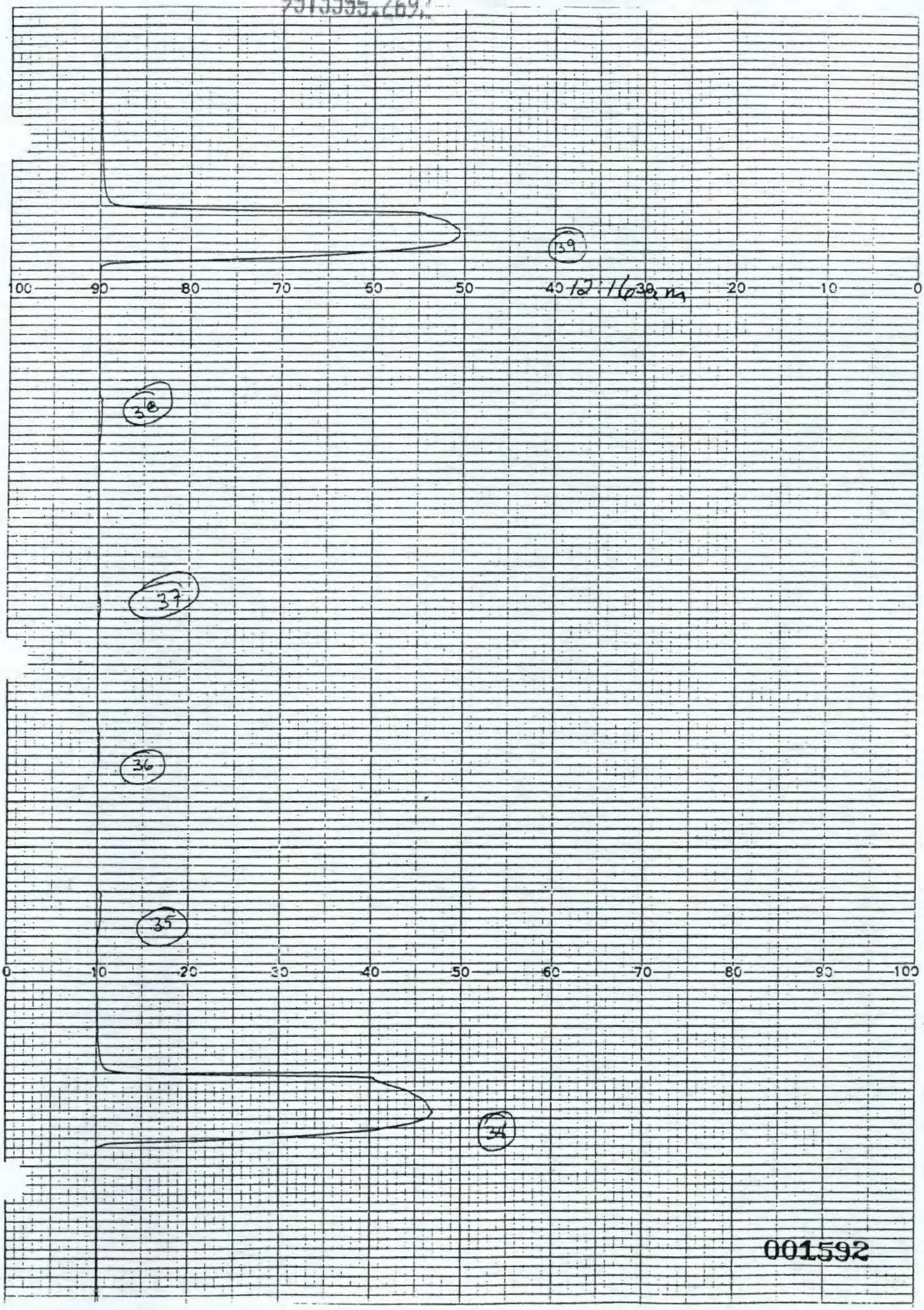

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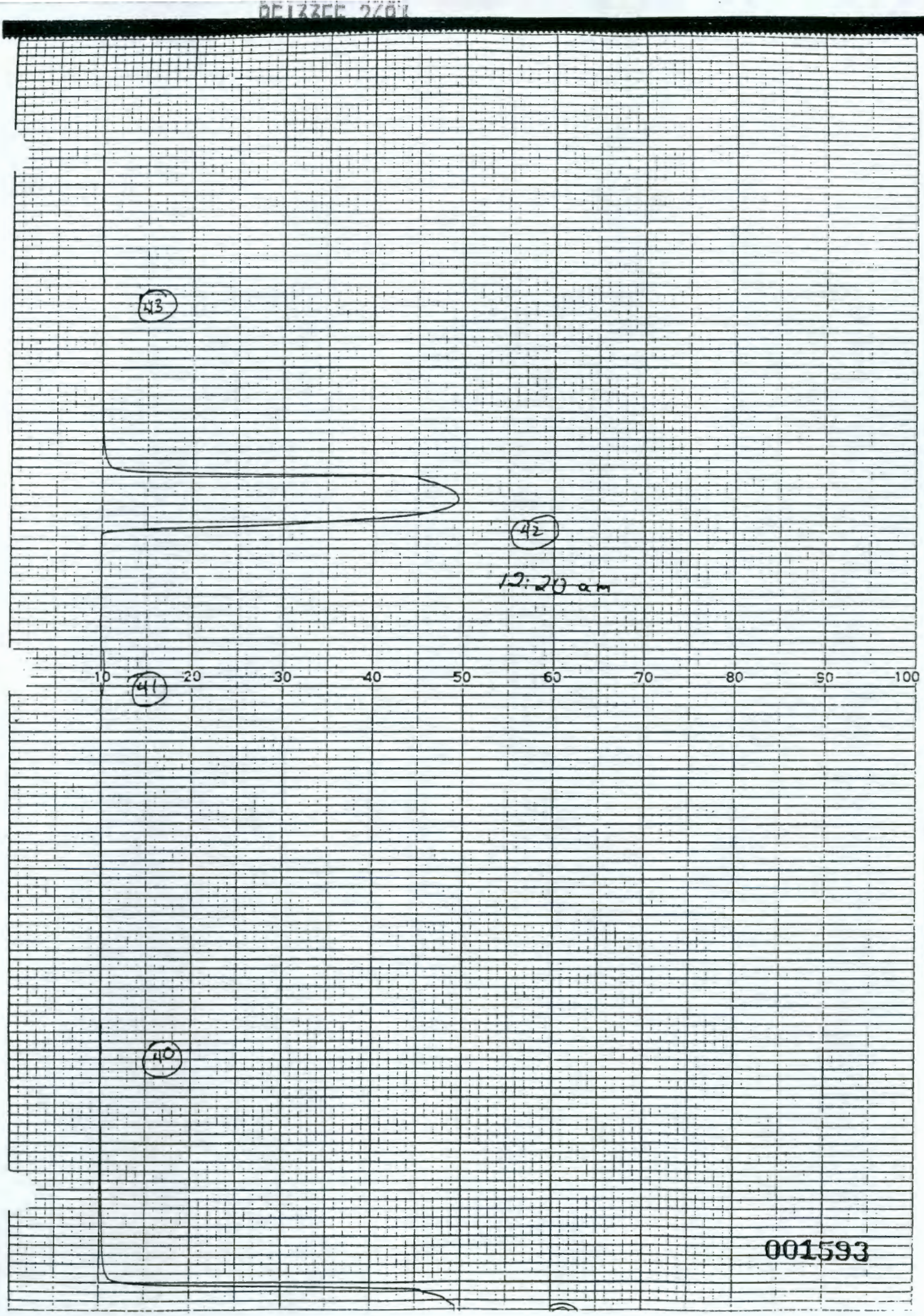

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5. SAMPLE PREP LOGSHEETS

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ICAP Metals

(4)

ATOMIC SPECTROSCOPY SAMPLE PREP

000046

Book No. 23 Pg. No.

Matrix SOILS Method/QC Type ICAP/ FDER

SOP No. ASM 3233-004 Lot No.(s) NA

Spike Solutions Used	Prep Date	Prep'd by	Exp. Date
1. ICAP/CLP spk soln	4-25-94	DDC	5-27-94
2.			

Final Vol. (mL) 100 Pipets Used 10ml CLASS "A" VOL. PIPET

Balance No. 13 Hood No. 5 Hotplate No. 1

Sample No.	Weight (g) / Init.Vol.(mL)	Spike Information
RE BLANK	—	
MB	1.0784	
SPI	1.0290	10ml #1
CDMHWSS* 28	1.0473	
29	1.0317	
30	1.0416	
31	1.0420	
32	1.0087	
33	1.0127	
33spm1	1.0106	10ml #1
33spm2	1.0255	10ml #1

Signed 5-9-94 Date Read & Understood By 5/9/94 Date

ROJECT ICAP CLP / FDEQE / USAEC MATRIX

Continued From Page —

ELEMENT	STOCK CONC. (ppm)	MFR	LOT#	EXP	MLS USED	FINAL CONC. (ppm)
Al	10,000	H	390505	7-94	2.0	20.0
Sb	1,000	S	3-86SB	2-95	5.0	5.0
As		S	3-105AS	1-95	20.0	20.0
Ba		S	3-107BA	4-95	20.0	20.0
Be		H	390223	9-94	0.5	0.5
B		H	390812	10-94	10.0	10.0
Cd		H	390818	10-94	0.5	0.5
Ca	10,000	S	H-12CA	12-94	10.0	100.0
Cr	1,000	S	3-124CR	2-95	2.0	2.0
Co		S	3-114CO	10-94	5.0	5.0
Cu		H	390813	10-94	2.5	2.5
Fe	10,000	H	490222	4-95	1.0	10.0
Pb	1,000	S	3-106PB	10-94	5.0	5.0
Li		S	2-252LI	10-94	5.0	5.0
Mg	10,000	S	G-245MG	1-95	10.0	100.0
Mn	1,000	S	3-112MN	2-95	5.0	5.0
Mo		H	390706	10-94	5.0	5.0
Ni		S	2-266NI	10-94	5.0	5.0
K	10,000	S	H-274K	2-95	10.0	100.0
Se	1,000	S	3-70SE	12-94	20.0	20.0
Ag		H	390511	9-94	0.5	0.5
Na	10,000	S	G-164NA	3-95	10.0	100.0
Sr	1,000	H	390520	10-94	5.0	5.0
Tl		S	3-21TL	2-95	20.0	20.0
Sn		H	390526	10-94	10.0	10.0
Ti		S	3-38TL	2-95	5.0	5.0
V		H	390719	10-94	5.0	5.0
Zn		S	3-50ZN	10-94	5.0	5.0

MFR: H = High Purity S = SPEX

FINAL VOLUME = 1000 mls 20% HCL

EPPENDORF # 120565 AND NATIONS SIZE, CLASS 'A' VOLUMETRICS

Continued on Page

Read and Understood By

Signed 4-25-94 Date

Signed 4-25-94 Date

001597

PROJECT ICP Stds 2-5

Continued From Page —

Std 2

Element	Lot #	Exp. Date
As	3-105AS	1/95
Se	3-70SE	12/94
Tl	3-21TL	2/95
Sb	3-86SB	2/95
Ba	3-107BA	10/94
* Be	390223	10/94
* Cd	390818	10/94
Co	3-114CO	10/94
Cr	3-124CR	2/95
* Cu	390813	10/94
Pb	3-106PB	11/94
Mn	3-112MN	2/95
Ni	2-266NI	10/94
* V	390719	10/94
Zn	3-50ZN	10/94

Std 3

Element	Lot #	Exp. Date
* Al	390505	7/94
Ca	H-12CA	12/94
* Fe	490222	4/95
Mg	G-245MG	1/95
K	H-274K	2/95
Na	G-64NA	3/95

Std 4

Element	Lot #	Exp. Date
* Ag	390511	9/94

Std 5

Element	Lot #	Exp. Date
* B	390812	10/94
La	3-71LA	10/94
Li	2-252LI	10/94
* Mo	390706	10/94
* P	390319	10/94
Si	3-115SI	10/94
* Sr	390520	10/94
Ti	3-38TI	2/95
* Sn	390526	10/94

Final Volume = 1000 ml (5% conc. HNO_3; 5% conc. HCl)

Stds 2,4,5 - Used 1.0 ml of 1000 ppm Stock solution. (Final conc = 1 ppm)

Std 3 - Used 1.0 ml of 10,000 ppm stock solution; except K - used 10 mls. (Final conc = 10 ppm; K = 100 ppm)

Standards marked (*) are High Purity.
All other standards are SPEX.

Pipet used - Biohit 1000 #1

Continued on Page —

Read and Understood By

Elizabeth R. Hay — Signed — 4-8-94 — Date

Kent Bakefield — Signed — 4-8-94 — Date

Notebook No. 1

PROJECT ICP CCV Soln.

Continued From Page —

Element	Lot #	Expiration Date	(ppm) Stock conc.	(ml) Volume Used	(ppm) Final conc.
As	3-105AS	1/95	1000	1.4	0.7
Se	3-705E	12/94	↓	↓	↓
Tl	3-21TL	2/95	↓	↓	↓
Sb	3-86SB	2/95	↓	1.0	0.5
Ba	3-107BA	10/94	↓	↓	↓
* Be	390223	10/94	↓	↓	↓
* Cd	390818	10/94	↓	↓	↓
Co	3-114CO	10/94	↓	↓	↓
Cr	3-124CR	2/95	↓	↓	↓
* Cu	390813	10/94	↓	↓	↓
Pb	3-106PB	10/94	↓	↓	↓
Mn	3-112MN	2/95	↓	↓	↓
Ni	2-266NI	10/94	↓	↓	↓
* V	390719	10/94	↓	↓	↓
Zn	3-502N	10/94	↓	↓	↓
* Ag	390511	9/94	↓	↓	↓
* B	390812	10/94	↓	↓	↓
* Mo	390706	10/94	↓	↓	↓
* Sr	390520	10/94	↓	↓	↓
* Sn	390526	10/94	↓	↓	↓
Ti	3-38TI	2/95	↓	↓	↓
* Al	390505	7/94	10,000	↓	5.0
Ca	H-12CA	12/94	↓	↓	↓
* Fe	490222	4/95	↓	↓	↓
Mg	G-245MG	1/95	↓	↓	↓
K	H-274K	2/95	↓	↓	↓
Na	G-64NA	3/95	↓	↓	↓

Final Volume = 2000 ml (5% conc. HNO_3; 5% conc. HCl)
Pipet Used - Biohit 1000 #1

Standards marked (*) are High Purity.
All other standards are SPEX.

Continued on Page —

Read and Understood By

Kent Brakefield — Signed — 4-8-94 — Date

Elizabeth A. Berg — Signed — 4-8-94 — Date

PROJECT ICP ICV 19 + 7

Continued From Page —

ICV 19

5 ml of SPEX QC19
CAS # 7697-37-2
Lot # 5-181AS
Expires: 8-15-94

ICV 7

5 ml of SPEX QC7
CAS # 7697-37-2
Lot # 5-129AS
Expires: 8-15-94

Final Volume = 500 ml (5% conc HNO_3, 5% conc. HCl)

Used Class "A" Volumetric pipets.

Reminder:

Date	Initials
3-21-94	GLA
4/22/94	GCP

Continued on Page —

Read and Understood By

Signed 2-18-94 Date

Signed 2-18-94 Date

ICP ICS A + AB Solns.

ICS A Soln.

50 ml of PE PURE #7697-37-2
Lot # 6-21 AS
Expires: 12-31-94

ICS AB Soln.

50 ml of PE PURE #7697-37-2
Lot # 6-21 AS
Expires: 12-31-94

5 ml of PEPURE #7697-37-2
Lot # 5-81 AS
Expires: 9-30-94

Final Volume = 500 ml (6% conc HCl)

Used class "A" volumetric pipets.

Remade:

Date	Initials
3-21-94	GLP
4-22-94	GLP

Continued on Page —

Read and Understood By

Signed 2-18-94 Date

Signed 2-18-94 Date

9513355.2702

GFAA Metals - Arsenic

9513355.2703

(4)

ATOMIC SPECTROSCOPY SAMPLE PREP

000048

Book No. 23 Pg. No.

Matrix SOILS Method/QC Type GFAA/FDER

SOP No. ASM3233-003 Lot No.(s) NA

Spike Solutions Used	Prep Date	Prep'd by	Exp. Date
1. ASM3233-007 SOLN "A"	4-25-94	DDZ	5-27-94
2.			

Final Vol. (mL) 100 Pipets Used BIOHIT 1000 # 2

Balance No. 13 Hood No. 5 Hotplate No. 1

Sample No.	Weight (g) / Init.Vol.(mL)	Spike Information
RE BLANK	—	
MB	1.0106	
Spl	1.0069	1ml #1
CDMHWSS# 28	1.0084	
29	1.0898	
30	1.0104	
31	1.0114	
32	1.0025	
33	1.0013	
33spm1	1.0414	1ml #1
33spm2	1.0297	1ml #1

David V. [illegible] 5-9-94 [illegible] 5/9/94

Signed Date Read & Understood By Date

001603

Element	Stock conc	mls used	Final conc.	Target	Lot#	Exp	Mfg
As	1,000	4.0	4000	40	3-105As	1-95	SPEX
Cr		2.0	2000	20	3-124Cr	4-95	SPEX
Pb		2.0	2000	20	3-106Pb	10-94	SPEX
Mo		2.0	2000	20	3907016	10-94	High Purity
Se		1.0	1000	10	3-70Se	12-94	SPEX
Tl		5.0	5000	50	3-21Tl	2-95	SPEX
V		2.0	2000	20	390719	10-94	High Purity

Eppendorf # 120565
Class 'A' volumetrics 2, 4, 5 mls
Final volume is 1000 mls
1% HNO_3

Continued on Page —

Read and Understood By

Signed 4-25-94 Date

Signed 4-25-94 Date

PROJECT 10 PPm As, Se, Tl, Pb SOLN and working STDS.

Continued From Page

1000 PPm STOCK SOLN'S

element	manufacturer	Lot #	DATE REC'd	DATE EXP.
As	Fisher	925266-24	7/93	7/94
Se	SPex	3-70SE	1-14-94	12-31-94
Pb	mallinckrodt	H544KL84-P	11/93	2/95
Tl	mallinckrodt	H584KJ5G-P	4/93	10/94

10 PPm solution: transferred 2.0 mls of each stock solution to a 200 ml volumetric flask containing DI and 10 mls conc. HNO_3, and brought it up to volume with DI water.
Solution expires 6/4/94

Working standards (Prepared fresh daily)

100 PPb: transferred 2 mls of the 10 PPm solution to a 200 ml volumetric flask containing 10 ml conc. HNO_3 and brought it up to volume with D.I. water.

10 PPb: Transferred 10 mls of the 100 PPb solution to a 100 ml volumetric flask containing 5 ml conc. HNO_3 and brought it up to volume with D.I.

50 PPb: Transferred 0.5 mls of the 10 ppm solution to a 100 ml volumetric flask containing 5 ml conc. HNO_3 and brought it up to volume with D.I.

All standards are 5% HNO_3

Working standards made Daily

Date	Initials
5/4/94	CAW
5/5/94	JOP
5/9/94	VMS

Continued on Page

Read and Understood By

Signed 5-3-94 Date Signed 5-3-94 Date

[redacted]

PROJECT ICV - SPEX primarily for CLP

Notebook No. 1

Continued From Page

STOCK SOLN: SPEX (100 PPM) LOT 5-181 As
Rec 8/93 EXP 8/94

Transferred 0.25 ml of Stock Soln into a 500 ml CLASS A VOLUMETRIC Flask containing 25 ml Conc HNO_3 and 10 ml H_2O_2 and DI water. The solution was then brought to volume with DI water

ELEMENT	STOCK CONC (PPM)	(PPb) ICV SOLN CONC
Sb	100	50
As		
Be		
Cd		
Ca		
Cr		
Co		
Cu		
Fe		
Pb		
Mg		
Mn		
Mo		
Ni		
Se		
Tl		
Ti		
V		
Zn		

PIPETS USED: BOHIT 1000 #2

SOL EXP 10-18-94

Continued on Page

Read and Understood By

Signed 4-18-94 Date Signed 4/18/94 Date

The SPX was prepared by adding one part high standard to one part sample. A dilution factor of 2 is entered in the data batch and the target will equal the high standard concentration.

9513355.2708

GFAA Metals - Selenium

9513355.2709

(4)

ATOMIC SPECTROSCOPY SAMPLE PREP

000048

Book No. 23 Pg. No.

Matrix SOILS Method/QC Type GFAA/FDER

SOP No. ASM3233-003 Lot No.(s) NA

Spike Solutions Used	Prep Date	Prep'd by	Exp. Date
1. ASM3233-007 SOLN "A"	4-25-94	DDZ	5-27-94
2.			

Final Vol. (mL) 100 Pipets Used BIOHIT 1000 # 2

Balance No. 13 Hood No. 5 Hotplate No. 1

Sample No.	Weight (g) / Init.Vol.(mL)	Spike Information
RE BLANK	—	
MB	1.0106	
Spl	1.0069	1ml #1
CDMHNSS* 28	1.0084	
29	1.0898	
30	1.0104	
31	1.0114	
32	1.0025	
33	1.0013	
33spm1	1.0414	1ml #1
33spm2	1.0297	1ml #1

David V. [illegible] 5-9-94 [illegible] 5/9/94

Signed Date Read & Understood By Date

001609

Notebook No. 11

PROJECT ASM3233-007 Soln A

Continued From Page —

Element	Stock conc	mls used	Final conc.	Target	Lot#	Exp	Mfg
As	1,000	4.0	4000	40	3-105As	1-95	SPEX
Cr		2.0	2000	20	3-124Cr	4-95	SPEX
Pb		2.0	2000	20	3-106Pb	10-94	SPEX
Mo		2.0	2000	20	390706	10-94	High Purity
Se		1.0	1000	10	3-70Se	12-94	SPEX
Tl		5.0	5000	50	3-21Tl	2-95	SPEX
V		2.0	2000	20	390719	10-94	High Purity

Eppendorf # 1205165
Class 'A' volumetrics 2, 4, 5 mls
Final volume is 1000 mls
1% HNO_3

Continued on Page —

Read and Understood By

Signed 4-25-94 Date

Signed 4-25-94 Date

PROJECT 10 PPm As, Se, Tl, Pb SOLN and working STDS.

Continued From Page

1000 PPm STOCK SOLN'S

element	manufacturer	Lot #	DATE REC'd	DATE EXP.
As	Fisher	925266-24	7/93	7/94
Se	SPex	3-70SE	1-14-94	12-31-94
Pb	Mallinckrodt	A544KLBY-P	11/93	2/95
Tl	Mallinckrodt	H584KJSG-P	4/93	10/94

10 PPm SOLUTION: TRANSFERRED 20 mls of each stock solution to a 200 ml volumetric flask containing DI and 10 mls conc. HNO_3, and brought it up to volume with DI water.
Solution expires 6/4/94

Working Standards (Prepared fresh daily)

100 PPb: transferred 2 mls of the 10 PPm solution to a 200 ml volumetric flask containing 10 ml conc. HNO_3 and brought it up to volume with D.I. water.

10 PPb: Transferred 10 mls of the 100PPb solution to a 100 ml volumetric flask containing 5 ml conc. HNO_3 and brought it up to volume with D.I.

50 PPb: Transferred 0.5 mls of the 10ppm solution to a 100 ml volumetric flask containing 5 ml conc. HNO_3 and brought it up to volume with D.I.

All Standards are 5% HNO_3

Working Standards made Daily

Date	Initials
5/4/94	CAH
5/5/94	DOP
5/9/94	MMS

Continued on Page

Read and Understood By

Signed 5-3-94 Date Signed 5-3-94 Date

PROJECT ICV - SPEX primarily for CLP

Notebook No. 1

Continued From Page

STOCK SOLN: SPEX (100 PPM) LOT 5-181A
Rec 8/93 EXP 8/94

Transferred 0.25 ml of Stock Soln into a 500 ml CLASS A VOLUMETRIC Flask containing 25 ml Conc HNO_3 and 10 ml H_2O_2 and DI water. The solution was then brought to volume with DI water

ELEMENT	STOCK CONC (PPM)	(PPb) ICV SOLN CONC
Sb	100	50
As		
Be		
Cd		
Ca		
Cr		
Co		
Cu		
Fe		
Pb		
Mg		
Mn		
Mo		
Ni		
Se		
Tl		
Ti		
V		
Zn		

PIPETS USED: BOHIT 1000 #2

SOL EXP 10-18-94

Continued on Page

Read and Understood By

Signed 4-18-94 Date Signed 4/18/94 Date

The SPX was prepared by adding one part high standard to one part sample. A dilution factor of 2 is entered in the data batch and the target will equal the high standard concentration.

9513355.2714

Mercury

9513355.2715

(4)

ATOMIC SPECTROSCOPY SAMPLE PREP

MERCURY

Book No.: 13 Pg.No.: 19

Matrix: SOILS
SOP No.: ASM3233-042

Method/QC Type: CVAA/FDER
Lot No.(s): NA

	Spike Solutions Used	Prep Date	Prep'd by	Exp. Date
1.	5.0 ppb ICV SOL'N	5/9/94	CAH	11/9/94
2.	100 ppb Hg STD	5/9/94	CAH	5/10/94

Final Vol.(ml): 100

Pipets Used: BIOHIT 1000 #2

Balance No.: 7 Hood No.: NA Hotplate No.: NA

SAMPLE NO.	WEIGHT(g) OR Init.Vol.(ml)	SPIKE INFO./COMMENT
ICV #1	---	100 mL #1
REAGENT BLANK	---	
MB	0.2041	ERA BLANK BMD-58 LOT 58001
SP	0.2064	5.0 mL #2
CDMHNSS*28	0.2126	
SPM1*CDMHNSS*28	0.2083	5.0 mL ~~#1~~ #2 WI CAH 5/9/94
SPM2*CDMHNSS*28	0.2129	5.0 mL #2
CDMHNSS*29	0.2125	
CDMHNSS*30	0.2145	
CDMHNSS*31	0.2284	
CDMHNSS*32	0.2067	
CDMHNSS*33	0.2199	

Signed 5/9/94 Date

Read and Understood By 5/9/94 Date

001615

Notebook No. 11

PROJECT 5.0 µg/L Hg PE PURE ICV SOL'N.

Continued From Page —

NEAT SOLN:

PE PURE LOT # 5-227AS REC'D 12/08/93 EXP: 1/12/95

TRANSFER 1.0 mL OF 5 µg/mL Hg NEAT SOL'N INTO 1000 mL VOLUMETRIC FLASK. ADD 10 mL CONC. HCl, DILUTE TO VOLUME c̄ DI H_2O.

SOL'N GOOD FOR SIX MONTHS

FINAL CONC. = 5.0 µg/L (50 ppb)

USE BIOHIT 1000 PIPET # 1

REMADE:

DATE	INITIALS
4-21-94	MSS
4-27-94	BC
5-3-94	CAH
5-9-94	CAH

Continued on Page —

Read and Understood By

Signed	Date	Signed	Date
[illegible]	4/15/94	[illegible]	4-15-94

PROJECT 100 PPB Hg Soln

Notebook No. 8

Continued From Page —

#1 High Purity Lot # ~~294463~~ 390524 -I AWN 3/22/94 Rec'd 2-16-94 EXP 8/94

Transfer 1 ml of standard 10 ppm stock into 100 ml volumetric flask, added 1 ml conc HNO_3 and brought to volume with DI

#2 High Purity Lot # 490126 Rec'd 2-16-94 EXP 8/94

Same as above

Final volume = 100 ml, 1% HNO_3

Standard Reread Daily

AWN	3/22/94	KSB	4-20-94
KSB	3/23/94	AWN	4-20-94
CAH	3/24/94	MSS	4-21-94
BC	3/25/94	BC	4-22-94
DVW	3-28-94	KNG	4-25-94
UMS	3-29-94	CAH	4/25/94
DDZ	3-30-94	UMS	4/26/94
CAH	3/31/94	BC	4-27-94
AWN	4/1/94	AWN	4/27/94
~~KNG~~	~~4/2/94~~ KNG 4-4-94	KSB	5-2-94
KNG	4-4-94	MSS	4/29/94
CAH	4/4/94	CAH	5-3-94
MSS	4/5/94	BC	5-4-94
UMS	4/6/94	MSS	5-4-94
KSB	4/8/94	MSS	5-5-94
AWN	4/11/94	KNG	5-6-94
BC	4-12-94	CAH	5/9/94
MSS	4-13-94		
KNG	4-14-94		
CAH	4/15/94		
UMS	4/18/94		
AWN	4/19/94		

Continued on Page —

Read and Understood By

Signed	Date	Signed	Date
[signature]	3/22/94	[signature]	3-22-94

METALS
Sample EA01-4-14 (ESE# CDMHNSS*36)

9513355.2719

INORGANIC ANALYSIS DATA REPORT
FOR
C.D.M. - Hanford N. Slope
SAMPLE DELIVERY GROUP G49175

9513355.2720

1. COVER PAGE AND CASE NARRATIVE

ENVIROFORMS/INORGANIC CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

SOW No.: 3/90

Sample No.	Lab Sample ID.
EA1205S	SPM2*CDMHNSS*34
EA1205	CDMHNSS*34
EA1205S	SPM1CDMHNSS*34
EA1305	CDMHNSS*35
EA1414	CDMHNSS*36
EA1414S	SPM1*CDMHNSS*36
EA1512	CDMHNSS*37
EA1610	CDMHNSS*38
EA1414S	SPM2*CDMHNSS*36

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 the above listed data package is in compliance with the terms and conditions of the C.D.M. contract, both technically and for completeness, for other than the conditions described here in. Release of the data contained in the hardcopy data packages and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager by his designee, as verified by the following signature.

Signature: Name: Edward Mansfield

Date: 5/25/94 Title: Laboratory Project Manager

CASE NARRATIVE

GENERAL

A total of 5 soil samples are reported under this sample delivery group (SDG) number G49175. Samples CDMHNSS*34,35 were received 05/13/94. Samples CDMHNSS*36-38 were received 05/14/94. All samples were received in good condition, unless otherwise stated in this package. All analyses were performed within required holding times. The Sample No. were generated from site I.D.'s adjusted to a maximum of 6 characters to meet the requirements of the forms program.

ANALYSIS SUMMARY

Analytical methods as stated in the SW-846 were employed to generate the enclosed data package. Since these samples were analyzed by SW846 methods, some CLP specific Q.C. are not present. This package contains data for five soil samples plus appropriate Q.C. Arsenic and Selenium were analyzed by GFAA. Mercury was analyzed by cold vapor using a bubbler aeration system. Barium, Cadmium, Chromium, Lead, and Silver were analyzed using a simultaneous ICAP system.

QUALITY CONTROL ANALYSIS SUMMARY

The Pre-Digested Sample Spike recovery for Selenium was outside control limits. The Duplicate Sample was not performed, but the Pre-Digested Sample Spikes were prepared in duplicate. The above items were flagged on the appropriate Form 1. All other QC analyses were in control.

9513355.2725

2. DATA SUMMARY (Form 1)

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

EA1205

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

Matrix (soil/water): SOIL Lab Sample ID: CDMHNSS*34

Level (low/med): LOW Date Received: 05/13/94

% Solids: 95.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	5.4			F
7440-39-3	Barium	125			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	0.51	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	14.9			P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	24.5			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.25	U	N	F
7440-22-4	Silver	0.51	U		P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

EA1305

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

Matrix (soil/water): SOIL Lab Sample ID: CDMHNSS*35

Level (low/med): LOW Date Received: 05/13/94

% Solids: 95.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	5.5			F
7440-39-3	Barium	107			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	0.51	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	16.0			P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	23.6			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.09	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.34	B	N	F
7440-22-4	Silver	0.51	U		P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

EA1414

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

Matrix (soil/water): SOIL Lab Sample ID: CDMHNSS*36

Level (low/med): LOW Date Received: 05/14/94

% Solids: 94.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	8.0			F
7440-39-3	Barium	151			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	0.52	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	20.3			P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	13.9			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.26	U	N	F
7440-22-4	Silver	0.52	U		P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

EA1512

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

Matrix (soil/water): SOIL Lab Sample ID: CDMHNSS*37

Level (low/med): LOW Date Received: 05/14/94

% Solids: 95.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	7.8			F
7440-39-3	Barium	139			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	0.51	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	21.3			P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	12.1			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.26	U	N	F
7440-22-4	Silver	0.51	U		P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

EA1610

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

Matrix (soil/water): SOIL Lab Sample ID: CDMHNSS*38

Level (low/med): LOW Date Received: 05/14/94

% Solids: 95.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	7.4			F
7440-39-3	Barium	131			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	0.51	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	17.0			P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	10.6			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.09	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.25	U	N	F
7440-22-4	Silver	0.51	U		P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

9513355.2729

3. QC SUMMARY (FORM 2-14)

ENVIROFORMS/INORGANIC CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

Initial Calibration Source: SPEX 19&7

Continuing Calibration Source: ESE

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									
Antimony									
Arsenic	50.0	45.30	90.6						F
Barium	1000.0	996.00	99.6	1000.0	1004.38	100.4			P
Beryllium									
Cadmium	1000.0	975.43	97.5	1000.0	1001.58	100.2			P
Calcium									
Chromium	1000.0	998.31	99.8	1000.0	1003.24	100.3			P
Cobalt									
Copper									
Iron									
Lead	1000.0	991.27	99.1	1000.0	1008.67	100.9			P
Magnesium									
Manganese									
Mercury	5.0	4.84	96.8						CV
Nickel									
Potassium									
Selenium	50.0	45.80	91.6						F
Silver	1000.0	1007.84	100.8				1005.27	100.5	P
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

(1) Control Limits : Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

ENVIROFORMS/INORGANIC CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

Initial Calibration Source: SPEX 19&7

Continuing Calibration Source: ESE

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									
Antimony									
Arsenic				50.0	48.40	96.8	47.50	95.0	F
Barium				500.0	516.07	103.2	507.79	101.6	P
Beryllium									
Cadmium				500.0	527.30	105.5	501.18	100.2	P
Calcium									
Chromium				500.0	521.91	104.4	502.98	100.6	P
Cobalt									
Copper									
Iron									
Lead				500.0	527.14	105.4	502.76	100.6	P
Magnesium									
Manganese									
Mercury				5.0	4.84	96.8			CV
Nickel									
Potassium									
Selenium				50.0	47.70	95.4	46.30	92.6	F
Silver				500.0	530.51	106.1	508.99	101.8	P
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

(1) Control Limits : Mercury 80-120; Other Metals 90-110; Cyanide 85-115

ENVIROFORMS/INORGANIC CLP

3
BLANKS

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): 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											
Antimony											
Arsenic			2.5	U	2.5	U			0.249	U	F
Barium			20.0	U	20.0	U			1.989	U	P
Beryllium											
Cadmium			5.0	U	5.0	U			0.497	U	P
Calcium											
Chromium			10.0	U	10.0	U			0.994	U	P
Cobalt											
Copper											
Iron											
Lead			100.0	U	100.0	U			9.943	U	P
Magnesium											
Manganese											
Mercury			0.2	U					0.090	U	CV
Nickel											
Potassium											
Selenium			2.5	U	2.5	U			0.249	U	F
Silver			5.0	U	5.0	U			0.497	U	P
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

ENVIROFORMS/INORGANIC CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

ICP ID Number: JA61 ICS Source: PERKIN-ELMER

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum								
Antimony								
Arsenic								
Barium		500	4	491.3	98.3	4	499.8	100.0
Beryllium								
Cadmium		1000	-2	955.3	95.5	-1	991.3	99.1
Calcium								
Chromium		500	5	463.2	92.6	6	475.4	95.1
Cobalt								
Copper								
Iron								
Lead		1000	-28	910.2	91.0	5	932.8	93.3
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver		1000	-4	976.4	97.6	-4	1000.8	100.1
Sodium								
Thallium								
Vanadium								
Zinc								

FORM IV - IN

9513355.2734

ENVIROFORMS/INORGANIC CLP

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

EA1414S

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

Matrix (soil/water): SOIL Level (low/med): LOW
% Solids for Sample: 94.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic	75-125	12.0533		7.9702		4.12	99.1		F
Barium	75-125	350.3739		151.0407		205.72	96.9		P
Beryllium									NR
Cadmium	75-125	4.9084		0.5165	U	5.14	95.5		P
Calcium									NR
Chromium	75-125	39.8147		20.3195		20.57	94.8		P
Cobalt									NR
Copper									NR
Iron									NR
Lead	75-125	59.0020		13.9484		51.43	87.6		P
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium	75-125	0.5563		0.2581	U	1.03	54.0	N	F
Silver	75-125	4.5937		0.5165	U	5.14	89.4		P
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

ENVIROFORMS/INORGANIC CLP

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

EA1205S

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

Matrix (soil/water): SOIL Level (low/med): LOW
% Solids for Sample: 95.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	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	75-125	2.2167		0.0969	U	2.31	96.0		CV
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

ENVIROFORMS/INORGANIC CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

EA1414A

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

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

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)		Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium		1992.98		1462.28		500.0	106.1		P
Beryllium									NR
Cadmium		479.44		5.00	U	500.0	95.9		P
Calcium									NR
Chromium		688.22		196.72		500.0	98.3		P
Cobalt									NR
Copper									NR
Iron									NR
Lead		622.50		135.04		500.0	97.5		P
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver		493.62		5.00	U	500.0	98.7		P
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

FORM V (PART 2) - IN

ENVIROFORMS/INORGANIC CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

Solid LCS Source: E.R.A.214

Aqueous LCS Source: ESE

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic				4.0	3.8				95.0
Barium				199.0	188.7				94.8
Beryllium									
Cadmium				5.0	4.6				92.0
Calcium									
Chromium				19.9	18.7				94.0
Cobalt									
Copper									
Iron									
Lead				49.8	46.2				92.8
Magnesium									
Manganese									
Mercury				2.0	2.0				100.0
Nickel									
Potassium									
Selenium				1.0	0.9				90.0
Silver				5.0	4.7				94.0
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

FORM VII - IN

ENVIROFORMS/INORGANIC CLP

9

ICP SERIAL DILUTIONS

SAMPLE NO.

EA1414L

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

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

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum							
Antimony							
Arsenic							
Barium	1462.28		1513.35		3.5		P
Beryllium							
Cadmium	5.00	U	25.00	U			P
Calcium							
Chromium	196.72		212.55		8.0		P
Cobalt							
Copper							
Iron							
Lead	135.04		500.00	U	100.0		P
Magnesium							
Manganese							
Mercury							
Nickel							
Potassium							
Selenium							
Silver	5.00	U	25.00	U			P
Sodium							
Thallium							
Vanadium							
Zinc							

FORM IX - IN

ENVIROFORMS/INORGANIC CLP

10
INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

ICP ID Number: JA61 Date: 04/18/94

Flame AA ID Number:

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Barium	493.40		200.0	20.0	P
Cadmium	228.80		5.0	5.0	P
Chromium	267.70		10.0	10.0	P
Lead	220.30		3.0	100.0	P
Silver	328.00		10.0	5.0	P

Comments:

ENVIROFORMS/INORGANIC CLP

10

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

ICP ID Number: Date: 02/15/94

Flame AA ID Number: BK400

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Mercury	253.70		0.2	0.2	CV

Comments:

ENVIROFORMS/INORGANIC CLP

10

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

ICP ID Number: Date: 04/18/94

Flame AA ID Number:

Furnace AA ID Number: PE5100

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Arsenic	193.70	BZ	10.0	2.5	F
Selenium	196.00	BZ	5.0	2.5	F

Comments:

ENVIROFORMS/INORGANIC CLP

11A
ICP INTERELEMENT CORRECTION FACTORS (Annually)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

ICP ID Number: JA61 Date: 01/19/94

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	MN
Aluminum	308.20					
Antimony	206.80					
Arsenic	193.60	0.0091340		0.0003720		
Barium	493.40					
Beryllium	313.00					
Cadmium	228.80					
Calcium	317.90					-0.0018800
Chromium	267.70					
Cobalt	228.60			0.0000710		
Copper	324.70					
Iron	259.90					
Lead	220.30	0.0020210				-0.0022420
Magnesium	279.00			0.0002940		-0.0052840
Manganese	257.60	0.0000240	0.0000150	0.0000580	0.0000380	
Mercury						
Nickel	231.60					
Potassium	766.40					
Selenium	196.00	0.0038590		0.0023470	0.0006650	0.0023000
Silver	328.00					0.0001790
Sodium	589.00					
Thallium	190.80	-0.0001690		0.0004090	0.0003700	-0.0108300
Vanadium	292.40			0.0001780		
Zinc	213.80			0.0000850	0.0000400	
Cyanide						

Comments:

ENVIROFORMS/INORGANIC CLP

11B
ICP INTERELEMENT CORRECTION FACTORS (Annually)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

ICP ID Number: JA61 Date: 01/19/94

Analyte	Wave-length (nm)	Interelement Correction Factors for: BA	BE	CD	CO	CR
Aluminum	308.20				-0.0145850	
Antimony	206.80				-0.0035060	0.0117370
Arsenic	193.60					
Barium	493.40					
Beryllium	313.00					
Cadmium	228.80		0.0042080			
Calcium	317.90					
Chromium	267.70		0.0002570			
Cobalt	228.60	0.0008820		0.0006270		0.0003870
Copper	324.70					
Iron	259.90		0.0007080			
Lead	220.30					
Magnesium	279.00				-0.0017760	-0.0012550
Manganese	257.60		0.0001130			
Mercury						
Nickel	231.60				0.0006390	
Potassium	766.40					
Selenium	196.00		0.0020100		0.0030620	0.0015230
Silver	328.00					
Sodium	589.00					
Thallium	190.80					
Vanadium	292.40					0.0003190
Zinc	213.80					
Cyanide						

Comments:

ENVIROFORMS/INORGANIC CLP

11B
ICP INTERELEMENT CORRECTION FACTORS (Annually)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

ICP ID Number: JA61 Date: 01/19/94

Analyte	Wave-length (nm)	Interelement Correction Factors for: CU	MO	NI	PB	V
Aluminum	308.20		0.0135050			0.0041440
Antimony	206.80		0.0059640	-0.0081770		-0.0033430
Arsenic	193.60		0.0015360			0.0102360
Barium	493.40					
Beryllium	313.00					0.0042470
Cadmium	228.80			-0.0002510		
Calcium	317.90					
Chromium	267.70		-0.0029540			0.0006160
Cobalt	228.60			0.0004180		
Copper	324.70		0.0007150			
Iron	259.90					
Lead	220.30		0.0016320			-0.0010490
Magnesium	279.00		-0.0110400	-0.0015080		
Manganese	257.60			0.0001570		
Mercury						
Nickel	231.60		-0.0004060			
Potassium	766.40					
Selenium	196.00		0.0024970	0.0015040		0.0020000
Silver	328.00					-0.0014600
Sodium	589.00					
Thallium	190.80					
Vanadium	292.40		0.0011430			
Zinc	213.80	0.0027620	-0.0004980	0.0032420		
Cyanide						

Comments:

ENVIROFORMS/INORGANIC CLP

11B
ICP INTERELEMENT CORRECTION FACTORS (Annually)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

ICP ID Number: JA61 Date: 01/19/94

Analyte	Wave-length (nm)	Interelement Correction Factors for: AS	SN	TI	TL	ZN
Aluminum	308.20					
Antimony	206.80		0.0048600	0.0017150		
Arsenic	193.60					
Barium	493.40					
Beryllium	313.00					
Cadmium	228.80	0.0087800				
Calcium	317.90			-0.0012870		
Chromium	267.70			0.0001450		
Cobalt	228.60			0.0015940		
Copper	324.70			0.0003030		
Iron	259.90					
Lead	220.30					
Magnesium	279.00					
Manganese	257.60					
Mercury						
Nickel	231.60				0.0002880	
Potassium	766.40					
Selenium	196.00			0.0012360		0.0016530
Silver	328.00			-0.0002010		
Sodium	589.00					
Thallium	190.80					
Vanadium	292.40			0.0005860		
Zinc	213.80					
Cyanide						

Comments:

ENVIROFORMS/INORGANIC CLP

12

ICP LINEAR RANGES (QUARTERLY)

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

ICP ID Number: JA61 Date: 04/18/94

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Aluminum	5.00	1000000.0	P
Antimony	5.00	100000.0	P
Arsenic	5.00	100000.0	P
Barium	5.00	100000.0	P
Beryllium	5.00	100000.0	P
Cadmium	5.00	100000.0	P
Calcium	5.00	1000000.0	P
Chromium	5.00	100000.0	P
Cobalt	5.00	100000.0	P
Copper	5.00	100000.0	P
Iron	5.00	1000000.0	P
Lead	5.00	100000.0	P
Magnesium	5.00	1000000.0	P
Manganese	5.00	100000.0	P
Nickel	5.00	100000.0	P
Potassium	5.00	1000000.0	P
Selenium	5.00	100000.0	P
Silver	5.00	100000.0	P
Sodium	5.00	500000.0	P
Thallium	5.00	100000.0	P
Vanadium	5.00	100000.0	P
Zinc	5.00	100000.0	P

Comments:

ENVIROFORMS/INORGANIC CLP

13
Preparation Log

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

Method: P

Sample No.	Preparation Date	Weight (gram)	Volume (ml)
EA1205	05/14/94	1.03	100
EA1305	05/14/94	1.02	100
EA1414	05/14/94	1.02	100
EA1414S	05/14/94	1.03	100
EA1414S2	05/14/94	1.02	100
EA1512	05/14/94	1.02	100
EA1610	05/14/94	1.03	100
LCSS	05/14/94	1.00	100
PBS	05/14/94	1.01	100

FORM XIII - IN

ENVIROFORMS/INORGANIC CLP

13

Preparation Log

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

Method: F

Sample No.	Preparation Date	Weight (gram)	Volume (ml)
EA1205	05/14/94	1.03	100
EA1305	05/14/94	1.01	100
EA1414	05/14/94	1.02	100
EA1414S	05/14/94	1.03	100
EA1414S2	05/14/94	1.03	100
EA1512	05/14/94	1.02	100
EA1610	05/14/94	1.03	100
LCSS	05/14/94	1.00	100
PBS	05/14/94	1.00	100

FORM XIII - IN

ENVIROFORMS/INORGANIC CLP

13
Preparation Log

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL

Lab Code: ESE Case No.: SAS No.: SDG No.: G49175

Method: CV

Sample No.	Preparation Date	Weight (gram)	Volume (ml)
EA1205	05/16/94	0.22	100
EA1205S	05/16/94	0.23	100
EA1205S2	05/16/94	0.20	100
EA1305	05/16/94	0.23	100
EA1414	05/16/94	0.20	100
EA1512	05/16/94	0.20	100
EA1610	05/16/94	0.24	100
LCSS	05/16/94	0.25	100
PBS	05/16/94	0.22	100

FORM XIII - IN

9513355.2750

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL
Lab Code: ESE Case No.: SAS No.: SDG No.: G49175
Instrument ID Number: JA61 Method: P
Start Date: 05/16/94 End Date: 05/16/94

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
CCVII	1.00	1302					X		X		X				X							X					
CCVIV	1.00	1305					X		X		X				X							X					
ICV	1.00	1311					X		X		X				X							X					
ICV	1.00	1313					X		X		X				X							X					
ICSAI	1.00	1316					X		X		X				X							X					
ICSABI	1.00	1318					X		X		X				X							X					
	1.00	1322					X		X		X				X							X					
PBS	1.00	1325					X		X		X				X							X					
LCSS	1.00	1327					X		X		X				X							X					
EA1205	1.00	1330					X		X		X				X							X					
EA1305	1.00	1332					X		X		X				X							X					
EA1414	1.00	1334					X		X		X				X							X					
EA1414L	5.00	1338					X		X		X				X							X					
EA1414A	1.00	1341					X		X		X				X							X					
EA1414S	1.00	1344					X		X		X				X							X					
EA1414S2	1.00	1346					X		X		X				X							X					
CCV1	1.00	1349					X		X		X				X							X					
CCB1	1.00	1352					X		X		X				X							X					
EA1512	1.00	1356					X		X		X				X							X					
EA1610	1.00	1358					X		X		X				X							X					
ICSAF	1.00	1400					X		X		X				X							X					
ICSABF	1.00	1402					X		X		X				X							X					
CCV2	1.00	1408					X		X		X				X							X					
CCB2	1.00	1412					X		X		X				X							X					

FORM XIV - IN 3/90

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL
Lab Code: ESE Case No.: SAS No.: SDG No.: G49175
Instrument ID Number: PE5100 Method: F
Start Date: 05/16/94 End Date: 05/16/94

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
BLANK	1.00	0841				X																					
BLANK	1.00	0847				X																					
STD 1	1.00	0852				X																					
STD 2	1.00	0857				X																					
STD 3	1.00	0902				X																					
STD 4	1.00	0907				X																					
STD 5	1.00	0912				X																					
STD 6	1.00	0917				X																					
ICV	1.00	0937				X																					
ICV	1.00	0942				X																					
	1.00	0956				X																					
PBS	1.00	1001				X																					
LCSS	1.00	1005				X																					
EA1205	1.00	1019				X																					
EA1305	1.00	1024				X																					
EA1414	1.00	1029				X																					
EA1414S	1.00	1034				X																					
EA1414S2	1.00	1038				X																					
CCV1	1.00	1043				X																					
CCB1	1.00	1048				X																					
EA1512	1.00	1055				X																					
EA1610	1.00	1059				X																					
EA1414	2.00	1118				X																					
EA1414S	2.00	1123				X																					
EA1414S2	2.00	1127				X																					
EA1512L	5.00	1132				X																					
CCV2	1.00	1146				X																					
CCB2	1.00	1151				X																					

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL
Lab Code: ESE Case No.: SAS No.: SDG No.: G49175
Instrument ID Number: PE5100 Method: F
Start Date: 05/16/94 End Date: 05/16/94

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
BLANK	1.00	0939																			X						
BLANK	1.00	0945																			X						
STD 1	1.00	0951																			X						
STD 2	1.00	0956																			X						
STD 3	1.00	1002																			X						
STD 4	1.00	1007																			X						
STD 5	1.00	1013																			X						
ICV	1.00	1040																			X						
	1.00	1046																			X						
PBS	1.00	1051																			X						
LCSS	1.00	1057																			X						
EA1205	1.00	1104																			X						
EA1305	1.00	1109																			X						
EA1414	1.00	1114																			X						
EA1414S	1.00	1120																			X						
EA1414S2	1.00	1125																			X						
CCV1	1.00	1131																			X						
CCB1	1.00	1136																			X						
EA1512	1.00	1146																			X						
EA1610	1.00	1151																			X						
	1.00	1158																			X						
EA1205A	1.00	1205	90.8																		X						
CCV2	1.00	1221																			X						
CCB2	1.00	1227																			X						

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: E.S.E. (GAINESVILLE LAB) Contract: CDM-HANNSL
Lab Code: ESE Case No.: SAS No.: SDG No.: G49175
Instrument ID Number: BK400 Method: CV
Start Date: 05/16/94 End Date: 05/16/94

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
BLANK	1.00	1407																X									
STD 1	1.00	1408																X									
STD 2	1.00	1409																X									
STD 3	1.00	1410																X									
STD 4	1.00	1411																X									
STD 5	1.00	1412																X									
STD 6	1.00	1413																X									
STD 7	1.00	1414																X									
ICV	1.00	1510																X									
	1.00	1511																X									
PBS	1.00	1512																X									
LCSS	1.00	1513																X									
EA1205	1.00	1514																X									
EA1205S	1.00	1515																X									
EA1205S2	1.00	1516																X									
EA1305	1.00	1517																X									
EA1414	1.00	1518																X									
EA1512	1.00	1519																X									
EA1610	1.00	1520																X									
CCV1	1.00	1521																X									
CCB1	1.00	1522																X									

9513355.2751

4. INSTRUMENT RAW DATA

9513355.2755

ICAP Metals

9513355.2756

(2)

BK# 2 PG# 000087

JA 61 ICAP

Instrument Log

Analyst: Elizabeth A. Keay
Gary L Pride

Date: 5-16-94

PROFILING	Initial	Final
Time	—	
Temp	76°F	
Humidity	72%	
Entr. Slit	735	
Ele. Cd		
Argon Tank Level	—	
Argon Regulator (psi)	~80	

Element File Used ESE

File Name 516BC / 516KSD

Method No. SW6010

OPTIMIZATION	
Cu/Mn 1392 / 1086 =	1.28
Coolant flow (LPM)	15.0
Coolant mass flow	15.0
Nebulizer flow (LPM)	0.75
Nebulizer mass flow	0.55
Forward power	1.1 KW
Reflected power	~3W
Peristaltic pump	850
Viewing height	15.5 mm above coil
Y tongue	1 mm above torch

Maintenance/Comments:

Samples Analyzed:

CDMHNSW#13 / CDMHNSS # 34-38

Read & Understood By: [signature] 5/16/94

001656

9513355.2757

(3)

JA61
5-16-94
GP
G49175

COMHNS S*34-38

Method: ESE Standard: STD1-Blank

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Avge	.0018	.0391	-.0040	.0017	-.0000	.0014	-.0018
SDev	.0007	.0014	.0017	.0004	.0001	.0002	.0011
%RSD	40.06	3.596	42.72	24.02	173.2	14.29	61.86
#1	.0010	.0404	-.0058	.0016	-.0001	.0012	-.0008
#2	.0024	.0392	-.0038	.0022	.0000	.0014	-.0016
#3	.0020	.0376	-.0024	.0014	.0000	.0016	-.0030

Elem	Ca	Cd2288	Co2286	Cr2677	Cu3247	Fe	Fe
Avge	.0019	.0001	.0004	.0011	.0025	.0013	.0019
SDev	.0020	.0002	.0003	.0002	.0004	.0009	.0004
%RSD	105.7	173.2	86.60	21.65	16.88	71.20	21.53
#1	-.0004	.0000	.0002	.0008	.0020	.0004	.0016
#2	.0028	.0004	.0002	.0012	.0028	.0022	.0018
#3	.0032	.0000	.0008	.0012	.0026	.0012	.0024

Elem	K_7664	Mg2790	Mn2576	Mo2020	Na5889	Ni2316	Pb2203
Avge	.0159	.0001	.0100	.0008	.0706	-.0002	.0018
SDev	.0080	.0011	.0002	.0005	.0043	.0008	.0017
%RSD	50.40	826.1	2.000	66.14	6.029	481.2	94.93
#1	.0072	.0002	.0098	.0002	.0660	-.0010	.0002
#2	.0230	-.0010	.0100	.0010	.0744	.0006	.0016
#3	.0176	.0012	.0102	.0012	.0714	-.0001	.0036

Elem	Sb2068	Se1960	Si2881	Sn1899	Ti3349	Tl1908	V_2924
Avge	.0001	.1487	.0182	.0148	.0005	-.0019	-.0015
SDev	.0002	.0022	.0005	.0008	.0005	.0008	.0006
%RSD	173.2	1.451	2.907	5.405	94.37	44.61	37.65
#1	.0000	.1462	.0188	.0148	.0000	-.0012	-.0022
#2	.0004	.1496	.0180	.0140	.0010	-.0028	-.0012
#3	.0000	.1502	.0178	.0156	.0006	-.0016	-.0012

Elem	Zn2138
Avge	.0011
SDev	.0002
%RSD	21.65
#1	.0008
#2	.0012
#3	.0012

Method: ESE Standard: STD2

Elem	As1936	Ba4934	Be3130	Cd2288	Co2286	Cr2677	Cu3247
Avge	.2297	.3420	.3615	.2652	.3325	.5514	.4993
SDev	.0043	.0017	.0017	.0018	.0024	.0039	.0018
%RSD	1.860	.4982	.4706	.6912	.7227	.6996	.3634
#1	.2248	.3410	.3608	.2656	.3300	.5486	.4986
#2	.2322	.3411	.3602	.2632	.3326	.5498	.4980
#3	.2322	.3440	.3634	.2668	.3348	.5558	.5014

Elem	Mn2576	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Avge	.4414	.2537	.1876	.1135	.3489	.0837	.3879
SDev	.0019	.0020	.0016	.0012	.0037	.0033	.0020
%RSD	.4322	.7895	.8726	1.033	1.064	3.945	.5267
#1	.4402	.2518	.1858	.1148	.3524	.0800	.3870
#2	.4404	.2536	.1890	.1130	.3450	.0846	.3864
#3	.4436	.2558	.1880	.1126	.3492	.0864	.3902

Elem	Zn2138
Avge	.5405
SDev	.0019
%RSD	.3555
#1	.5402
#2	.5388
#3	.5426

Method: ESE Standard: STD3

Elem	Al3082	Ca	Ca	Fe	Fe	K_7664	Mg2790
Avge	3.564	.8107	6.128	.3813	3.654	1.901	.6195
SDev	.013	.0035	.029	.0029	.018	.014	.0039
%RSD	.3672	.4332	.4699	.7572	.4871	.7173	.6312
#1	3.549	.8074	6.102	.3796	3.641	1.888	.6152
#2	3.572	.8104	6.122	.3796	3.648	1.898	.6206
#3	3.570	.8144	6.159	.3846	3.675	1.915	.6228

Elem	Na5889
Avge	3.071
SDev	.008
%RSD	.2498
#1	3.064
#2	3.069
#3	3.079

Method: ESE Standard: STD4

Elem	Ag3280
Avge	.4949
SDev	.0018
%RSD	.3667
#1	.4928
#2	.4962
#3	.4956

Method: ESE Standard: STD5

Elem	B_2496	Mo2020	Si2881	Sn1899	Ti3349
Avge	.1235	.2181	.2349	.1755	.4189

SDev	.0006	.0003	.0011	.0011	.0005
%RSD	.5207	.1401	.4690	.6278	.1202
#1	.1230	.2182	.2360	.1760	.4188
#2	.1232	.2178	.2348	.1762	.4184
#3	.1242	.2184	.2338	.1742	.4194

Method: ESE Slope = Conc(SIR)/IR

Element	Wavelen	High std	Low std	Slope	Y-intercept	Date Standardized
Ag3280	328.068	STD4	STD1-Blank	2.02812	-.003651	05/16/94 12:59:56
Al3082	308.215	STD3	STD1-Blank	2.83720	-.110840	05/16/94 12:59:56
As1936	193.696	STD2	STD1-Blank	4.27838	.017114	05/16/94 12:59:56
B_2496	249.678	STD5	STD1-Blank	8.20646	-.014225	05/16/94 12:59:56
Ba4934	493.409	STD2	STD1-Blank	2.92341	.000097	05/16/94 12:59:56
Be3130	313.042	STD2	STD1-Blank	2.77726	-.003888	05/16/94 12:59:56
Ca	317.933	STD3	STD1-Blank	1.63244	-.003047	05/16/94 12:59:56
Ca	307.603	STD3	STD1-Blank	12.3072	.022153	05/16/94 12:59:56
Cd2288	228.802	STD2	STD1-Blank	3.77264	-.000503	05/16/94 12:59:56
Co2286	228.616	STD2	STD1-Blank	3.01144	-.001205	05/16/94 12:59:56
Cr2677	267.716	STD2	STD1-Blank	1.81708	-.001938	05/16/94 12:59:56
Cu3247	324.754	STD2	STD1-Blank	2.01261	-.004964	05/16/94 12:59:56
Fe	259.940	STD3	STD1-Blank	2.73788	-.005293	05/16/94 12:59:56
Fe	271.441	STD3	STD1-Blank	26.3158	-.033333	05/16/94 12:59:56
K_7664	766.491	STD3	STD1-Blank	53.0598	-.845419	05/16/94 12:59:56
Mg2790	279.079	STD3	STD1-Blank	16.1447	-.002153	05/16/94 12:59:56
Mn2576	257.610	STD2	STD1-Blank	2.31803	-.023180	05/16/94 12:59:56
Mo2020	202.030	STD5	STD1-Blank	4.60123	-.003681	05/16/94 12:59:56
Na5889	588.995	STD3	STD1-Blank	3.33333	-.235333	05/16/94 12:59:56
Ni2316	231.604	STD2	STD1-Blank	3.93856	.000656	05/16/94 12:59:56
Pb2203	220.353	STD2	STD1-Blank	5.38213	-.009688	05/16/94 12:59:56
Sb2068	206.838	STD2	STD1-Blank	8.82353	-.001176	05/16/94 12:59:56
Se1960	196.026	STD2	STD1-Blank	4.99500	-.742591	05/16/94 12:59:56
Si2881	288.158	STD5	STD1-Blank	4.61538	-.084000	05/16/94 12:59:56
Sn1899	189.989	STD5	STD1-Blank	6.13071	-.090734	05/16/94 12:59:56
Ti3349	334.941	STD5	STD1-Blank	2.39044	-.001275	05/16/94 12:59:56
Tl1908	190.864	STD2	STD1-Blank	11.6913	.021824	05/16/94 12:59:56
V_2924	292.402	STD2	STD1-Blank	2.56805	.003938	05/16/94 12:59:56
Zn2138	213.856	STD2	STD1-Blank	1.85368	-.001977	05/16/94 12:59:56

Method: ESE Slope = IR/Conc(SIR)

Element	Wavelen	High std	Low std	Slope	BEC	Date Standardized
Ag3280	328.068	STD4	STD1-Blank	.493067	.003651	05/16/94 12:59:56
Al3082	308.215	STD3	STD1-Blank	.352460	.110840	05/16/94 12:59:56
As1936	193.696	STD2	STD1-Blank	.233733	.017114	05/16/94 12:59:56
B_2496	249.678	STD5	STD1-Blank	.121855	.014225	05/16/94 12:59:56
Ba4934	493.409	STD2	STD1-Blank	.342067	.000097	05/16/94 12:59:56
Be3130	313.042	STD2	STD1-Blank	.360067	.003888	05/16/94 12:59:56
Ca	317.933	STD3	STD1-Blank	.612580	.003047	05/16/94 12:59:56
Ca	307.603	STD3	STD1-Blank	.081253	.022153	05/16/94 12:59:56
Cd2288	228.802	STD2	STD1-Blank	.265067	.000503	05/16/94 12:59:56
Co2286	228.616	STD2	STD1-Blank	.332067	.001205	05/16/94 12:59:56

Element	Wavelen	High std	Low std	Slope	BEC	Date Standardized
Cr2677	267.716	STD2	STD1-Blank	.550333	.001938	05/16/94 12:59:56
Cu3247	324.754	STD2	STD1-Blank	.496867	.004964	05/16/94 12:59:56
Fe	259.940	STD3	STD1-Blank	.365247	.005293	05/16/94 12:59:56
Fe	271.441	STD3	STD1-Blank	.038000	.033333	05/16/94 12:59:56
K_7664	766.491	STD3	STD1-Blank	.018847	.845419	05/16/94 12:59:56
Mg2790	279.079	STD3	STD1-Blank	.061940	.002153	05/16/94 12:59:56
Mn2576	257.610	STD2	STD1-Blank	.431400	.023180	05/16/94 12:59:56
Mo2020	202.030	STD5	STD1-Blank	.217333	.003681	05/16/94 12:59:56
Na5889	588.995	STD3	STD1-Blank	.300000	.235333	05/16/94 12:59:56
Ni2316	231.604	STD2	STD1-Blank	.253900	.000656	05/16/94 12:59:56
Pb2203	220.353	STD2	STD1-Blank	.185800	.009688	05/16/94 12:59:56
Sb2068	206.838	STD2	STD1-Blank	.113333	.001176	05/16/94 12:59:56
Se1960	196.026	STD2	STD1-Blank	.200200	.742591	05/16/94 12:59:56
Si2881	288.158	STD5	STD1-Blank	.216667	.084000	05/16/94 12:59:56
Sn1899	189.989	STD5	STD1-Blank	.163113	.090734	05/16/94 12:59:56
Ti3349	334.941	STD5	STD1-Blank	.418333	.001275	05/16/94 12:59:56
Tl1908	190.864	STD2	STD1-Blank	.085533	.021824	05/16/94 12:59:56
V_2924	292.402	STD2	STD1-Blank	.389400	.003938	05/16/94 12:59:56
Zn2138	213.856	STD2	STD1-Blank	.539467	.001977	05/16/94 12:59:56

Method: ESE Sample Name: CCV*STD2*1 Operator: KSB
Run Time: 05/16/94 13:02:19
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0011	.0048	1.005	-.0001	1.004	.9996	.0061
SDev	.0008	.0038	.011	.0053	.006	.0038	.0024
%RSD	73.44	78.55	1.121	6789.	.6258	.3779	38.41
#1	.0005	.0029	1.003	-.0023	1.011	1.004	.0034
#2	.0009	.0091	1.017	-.0039	1.003	.9983	.0073
#3	.0021	.0023	.9951	.0059	.9990	.9967	.0077

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.002	1.001	1.003	1.004	.0009	.1875	.0088
SDev	.005	.002	.003	.005	.0013	.0585	.0098
%RSD	.4849	.1513	.2542	.4645	135.5	31.17	112.4
#1	1.002	1.002	1.006	1.009	-.0005	.1203	.0109
#2	1.006	.9993	1.001	1.005	.0017	.2264	-.0020
#3	.9964	1.000	1.003	.9993	.0017	.2158	.0174

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.004	-.0011	-.0018	1.002	1.009	1.013	.9769
SDev	.004	.0005	.0073	.006	.010	.016	.0125
%RSD	.3485	48.17	411.4	.5966	1.028	1.548	1.277
#1	1.008	-.0014	-.0100	.9966	.9969	1.026	.9766
#2	1.004	-.0005	.0007	1.008	1.016	1.019	.9896
#3	1.001	-.0014	.0040	1.001	1.013	.9956	.9646

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138

Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0087	.0049	.0007	1.021	1.003	.9957
SDev	.0084	.0044	.0003	.016	.001	.0034
%RSD	96.03	90.04	40.17	1.605	.0887	.3462
#1	.0075	.0000	.0004	1.005	1.004	.9997
#2	.0010	.0086	.0008	1.019	1.002	.9941
#3	.0176	.0061	.0008	1.038	1.002	.9934

Method: ESE Sample Name: CCV*STD4*1 Operator: KSB
Run Time: 05/16/94 13:05:56
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.005	-.0024	-.0020	-.0071	.0001	.0004	.0059
SDev	.003	.0186	.0184	.0009	.0000	.0003	.0023
%RSD	.2563	765.8	937.5	13.30	.0000	84.93	39.42
#1	1.007	.0021	-.0231	-.0077	.0001	.0006	.0054
#2	1.007	.0135	.0102	-.0077	.0001	.0006	.0084
#3	1.002	-.0229	.0071	-.0060	.0001	.0000	.0038

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0002	.0002	-.0001	.0003	-.0011	.2122	.0064
SDev	.0016	.0003	.0004	.0011	.0008	.2788	.0104
%RSD	678.9	176.0	286.3	395.0	76.36	131.4	160.9
#1	.0004	-.0000	.0002	-.0001	-.0020	.0566	.0140
#2	.0009	-.0000	-.0001	.0015	-.0004	.5341	-.0054
#3	-.0021	.0006	-.0005	-.0005	-.0009	.0460	.0108

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	-.0018	-.0044	.0038	.0101	-.0029	.0256
SDev	.0000	.0009	.0057	.0031	.0131	.0110	.0095
%RSD	.1497	50.10	127.6	82.22	130.5	381.6	37.04
#1	.0005	-.0028	-.0067	.0026	.0129	.0006	.0166
#2	.0005	-.0018	.0020	.0074	.0215	.0060	.0356
#3	.0005	-.0009	-.0087	.0014	-.0043	-.0152	.0247

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0061	-.0024	.0002	-.0016	-.0012	.0011
SDev	.0109	.0049	.0005	.0130	.0009	.0006
%RSD	178.0	200.2	299.9	836.2	74.34	50.62
#1	.0129	.0025	.0002	.0008	-.0017	.0006
#2	.0120	-.0024	.0006	-.0156	-.0002	.0017
#3	-.0065	-.0074	-.0003	.0101	-.0017	.0010

Method: ESE Sample Name: ICV*ICAP19*1 Operator: KSB
Run Time: 05/16/94 13:11:27
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0009	.0135	1.013	.0022	.0010	.9826	1.039
SDev	.0008	.0044	.007	.0000	.0003	.0098	.004
%RSD	88.94	32.59	.7309	1.395	30.00	.9953	.3892
#1	.0007	.0158	1.017	.0022	.0013	.9939	1.042
#2	.0003	.0163	1.004	.0021	.0007	.9778	1.034
#3	.0019	.0084	1.017	.0021	.0010	.9762	1.040

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9754	.9843	.9983	.9870	1.036	.0672	1.001
SDev	.0064	.0071	.0092	.0094	.008	.3290	.011
%RSD	.6582	.7228	.9168	.9549	.7321	489.5	1.049
#1	.9811	.9925	1.009	.9979	1.045	-.3042	1.013
#2	.9685	.9805	.9925	.9810	1.030	.1839	.9966
#3	.9767	.9799	.9936	.9822	1.034	.3219	.9934

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9866	1.002	.0200	1.002	.9913	1.000	.9512
SDev	.0048	.006	.0011	.003	.0054	.008	.0092
%RSD	.4861	.6255	5.774	.2980	.5473	.8030	.9670
#1	.9922	1.009	.0207	1.004	.9920	1.009	.9427
#2	.9839	.9998	.0207	1.003	.9855	.9986	.9500
#3	.9839	.9970	.0187	.9982	.9963	.9932	.9610

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0675	.0108	.9938	.9803	.9995	.9913
SDev	.0025	.0056	.0079	.0152	.0088	.0035
%RSD	3.705	52.06	.7917	1.548	.8830	.3504
#1	.0703	.0076	1.003	.9647	1.009	.9952
#2	.0665	.0074	.9895	.9810	.9966	.9901
#3	.0656	.0172	.9891	.9951	.9925	.9886

Method: ESE Sample Name: ICV*ICAP7*1 Operator: KSB
Run Time: 05/16/94 13:13:51
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.008	1.005	.0214	.9618	.9960	.0006	.0126
SDev	.009	.010	.0050	.0050	.0110	.0000	.0040
%RSD	.8607	.9866	23.56	.5204	1.105	1.387	31.78
#1	1.017	1.014	.0184	.9673	1.009	.0006	.0081

#2	1.006	1.005	.0185	.9574	.9905	.0005	.0156
#3	1.000	.9946	.0272	.9607	.9888	.0006	.0143

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	.0005	.0028	.0023	.0235	9.929	.0108
SDev	.0011	.0009	.0024	.0014	.0021	.188	.0180
%RSD	192.9	176.5	85.67	63.60	8.805	1.889	167.1
#1	-.0007	-.0003	.0006	.0007	.0221	9.713	-.0086
#2	.0009	.0015	.0053	.0035	.0259	10.02	.0269
#3	.0015	.0003	.0024	.0027	.0226	10.05	.0140

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	.0003	1.028	.0014	.0050	-.0006	.0068
SDev	.0000	.0023	.006	.0031	.0086	.0089	.0069
%RSD	.2115	753.7	.5541	212.8	172.5	1415.	101.8
#1	.0004	.0000	1.034	.0034	-.0040	.0077	.0107
#2	.0004	.0028	1.027	.0030	.0133	-.0101	.0107
#3	.0004	-.0018	1.023	-.0021	.0057	.0005	-.0012

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5305	.0050	-.0002	-.0084	.0010	.0067
SDev	.0075	.0039	.0007	.0142	.0018	.0002
%RSD	1.406	79.48	455.7	169.1	176.1	3.207
#1	.5391	.0033	-.0008	.0009	.0009	.0069
#2	.5262	.0021	.0006	-.0248	.0029	.0065
#3	.5261	.0095	-.0003	-.0014	-.0007	.0065

Method: ESE Sample Name: ICS*A*1 Operator: KSB
Run Time: 05/16/94 13:16:46
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0039	511.7	-.0029	-.0096	.0040	.0000	471.5
SDev	.0012	2.2	.0333	.0019	.0002	.0000	1.8
%RSD	31.62	.4221	1164.	20.21	4.225	184.8	.3817
#1	-.0037	509.8	-.0130	-.0086	.0039	.0000	470.2
#2	-.0028	514.0	.0344	-.0085	.0039	-.0000	473.6
#3	-.0053	511.1	-.0299	-.0119	.0042	.0000	470.7

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0022	-.0052	.0046	.0025	183.8	-.5129	503.9
SDev	.0007	.0006	.0006	.0008	.6	.1929	1.9
%RSD	31.17	11.13	13.88	32.98	.3217	37.60	.3762
#1	-.0019	-.0058	.0043	.0035	183.6	-.3573	503.0
#2	-.0030	-.0046	.0054	.0023	184.4	-.7287	506.1

#3	-.0018	-.0051	.0043	.0019	183.3	-.4528	502.6

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0071	.0071	.1973	.0023	-.0276	.0139	-.0036
SDev	.0003	.0042	.0071	.0063	.0152	.0204	.0086
%RSD	4.971	60.10	3.575	269.6	55.23	146.8	238.2
#1	.0069	.0046	.1920	.0057	-.0254	.0004	.0063
#2	.0075	.0120	.2053	-.0049	-.0136	.0374	-.0077
#3	.0069	.0046	.1947	.0061	-.0438	.0039	-.0095

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0022	.0251	.0029	.1771	-.0004	.0157
SDev	.0067	.0040	.0003	.0205	.0007	.0010
%RSD	309.6	15.75	9.624	11.58	184.8	6.205
#1	.0055	.0270	.0030	.1764	-.0005	.0158
#2	-.0065	.0206	.0030	.1570	.0004	.0167
#3	-.0055	.0278	.0025	.1930	-.0010	.0147

Method: ESE Sample Name: ICS*AB*1 Operator: KSB
Run Time: 05/16/94 13:18:55
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9764	513.8	.0217	-.0027	.4913	.4779	472.6
SDev	.0051	1.9	.0363	.0086	.0022	.0028	2.8
%RSD	.5199	.3645	167.0	324.0	.4386	.5794	.5870
#1	.9741	511.7	-.0014	.0022	.4889	.4751	470.6
#2	.9729	514.4	.0636	-.0126	.4921	.4779	471.5
#3	.9822	515.3	.0031	.0024	.4930	.4807	475.8

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9553	.4394	.4632	.4868	183.6	-.4917	506.9
SDev	.0071	.0038	.0068	.0022	1.1	.3810	2.1
%RSD	.7440	.8620	1.471	.4552	.5943	77.50	.4160
#1	.9507	.4378	.4578	.4845	183.0	-.0601	505.1
#2	.9517	.4366	.4610	.4869	182.9	-.7817	506.5
#3	.9635	.4437	.4709	.4889	184.8	-.6332	509.2

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4609	.0116	.2556	.9092	.9102	-.0027	-.0290
SDev	.0025	.0021	.0148	.0074	.0173	.0166	.0117
%RSD	.5415	18.32	5.788	.8120	1.904	604.4	40.46
#1	.4591	.0104	.2513	.9007	.9039	.0160	-.0346
#2	.4599	.0104	.2433	.9133	.8968	-.0156	-.0368
#3	.4638	.0141	.2720	.9137	.9298	-.0086	-.0155

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0055	.0260	.0027	.1813	.4683	.9625
SDev	.0046	.0169	.0003	.0363	.0039	.0046
%RSD	82.79	65.00	10.12	20.02	.8408	.4766
#1	.0077	.0448	.0029	.1437	.4684	.9580
#2	.0003	.0119	.0029	.2162	.4643	.9623
#3	.0086	.0213	.0024	.1842	.4722	.9672

Method: ESE Sample Name: MB*REAGENTS*1 Operator: KSB
Run Time: 05/16/94 13:22:54
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0014	.0327	.0122	.0033	.0002	-.0006	.0201
SDev	.0019	.0171	.0080	.0019	.0004	.0000	.0120
%RSD	141.7	52.13	65.44	57.50	229.1	1.184	59.34
#1	.0020	.0514	.0149	.0055	-.0002	-.0006	.0338
#2	-.0008	.0288	.0186	.0022	.0001	-.0006	.0146
#3	.0028	.0180	.0032	.0022	.0007	-.0006	.0120

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	.0012	.0015	.0003	.0336	.1663	.0248
SDev	.0011	.0006	.0022	.0011	.0052	.3011	.0067
%RSD	267.7	50.29	153.0	395.9	15.55	181.1	27.23
#1	.0001	.0006	-.0005	.0007	.0396	.1097	.0301
#2	.0016	.0018	.0010	-.0009	.0308	-.1026	.0172
#3	-.0005	.0012	.0039	.0011	.0303	.4917	.0269

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	-.0006	.0260	.0083	.0082	.0112	-.0022
SDev	.0005	.0019	.0059	.0015	.0043	.0047	.0151
%RSD	8886.	318.5	22.79	18.02	53.00	42.03	674.9
#1	-.0000	.0009	.0307	.0089	.0107	.0094	.0043
#2	-.0005	-.0027	.0193	.0093	.0032	.0165	-.0195
#3	.0005	.0000	.0280	.0066	.0107	.0076	.0085

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.2443	.0110	.0005	-.0063	.0015	.0011
SDev	.0063	.0012	.0003	.0200	.0016	.0002
%RSD	2.572	11.17	57.76	319.5	102.0	19.79
#1	.2492	.0110	.0006	.0148	.0029	.0010
#2	.2465	.0098	.0002	-.0250	-.0002	.0013
#3	.2372	.0123	.0006	-.0086	.0019	.0010

Method: ESE Sample Name: MB*QC*1 Operator: KSB
Run Time: 05/16/94 13:25:10
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	.5466	.0023	.0138	.0023	-.0000	.1223
SDev	.0036	.0034	.0071	.0029	.0003	.0000	.0028
%RSD	1315.	.6297	306.0	20.68	14.43	131.5	2.303
#1	.0012	.5502	.0103	.0154	.0021	-.0000	.1253
#2	.0032	.5434	.0000	.0154	.0027	-.0000	.1217
#3	-.0037	.5463	-.0034	.0105	.0021	.0000	.1198

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0008	.0009	.0027	.0020	.7385	.4881	.1484
SDev	.0004	.0013	.0012	.0008	.0092	.3680	.0194
%RSD	51.52	133.8	44.15	41.57	1.246	75.38	13.10
#1	-.0006	.0023	.0035	.0027	.7465	.5978	.1689
#2	-.0005	.0005	.0032	.0023	.7285	.7888	.1302
#3	-.0012	-.0001	.0013	.0011	.7405	.0778	.1463

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0237	.0000	.1864	.0028	.0070	.0076	.0017
SDev	.0003	.0033	.0141	.0039	.0063	.0133	.0082
%RSD	1.125	102600.	7.580	142.6	90.66	174.7	493.0
#1	.0240	.0009	.1887	-.0017	.0044	.0093	-.0054
#2	.0236	.0028	.1993	.0042	.0141	.0200	.0107
#3	.0236	-.0037	.1713	.0058	.0023	-.0065	-.0003

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.034	.0056	.0064	-.0203	.0016	.0052
SDev	.007	.0019	.0000	.0223	.0021	.0006
%RSD	.7217	33.53	.0049	110.0	131.5	10.94
#1	1.042	.0035	.0064	-.0437	.0028	.0054
#2	1.027	.0060	.0064	-.0179	.0028	.0057
#3	1.033	.0072	.0064	.0008	-.0008	.0046

Method: ESE Sample Name: SP*QC*1 Operator: KSB
Run Time: 05/16/94 13:27:25
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0475	2.398	1.811	1.004	1.693	.0473	9.813
SDev	.0016	.004	.024	.003	.003	.0003	.045
%RSD	3.459	.1774	1.349	.3404	.1415	.6974	.4580

#1	.0457	2.398	1.783	1.001	1.890	.0475	9.765
#2	.0477	2.402	1.825	1.007	1.894	.0469	9.854
#3	.0490	2.394	1.824	1.006	1.896	.0474	9.820

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0463	.4595	.1875	.2312	1.625	9.721	9.616
SDev	.0024	.0024	.0020	.0016	.006	.307	.045
%RSD	5.101	.5280	1.064	.6963	.3409	3.153	.4699
#1	.0455	.4573	.1852	.2296	1.622	9.533	9.565
#2	.0490	.4621	.1888	.2328	1.631	10.07	9.636
#3	.0444	.4591	.1884	.2312	1.622	9.554	9.648

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4843	.4712	13.06	.4648	.4632	.4756	1.777
SDev	.0021	.0028	.01	.0046	.0149	.0127	.017
%RSD	.4416	.5979	.0897	.9785	3.228	2.661	.9308
#1	.4819	.4736	13.05	.4663	.4535	.4615	1.760
#2	.4856	.4718	13.06	.4683	.4804	.4791	1.792
#3	.4856	.4681	13.07	.4596	.4557	.4861	1.780

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.142	.9066	.4760	1.874	.4688	.4525
SDev	.013	.0112	.0026	.026	.0026	.0024
%RSD	1.124	1.231	.5531	1.375	.5511	.5338
#1	1.127	.8939	.4729	1.847	.4660	.4521
#2	1.150	.9148	.4777	1.875	.4712	.4551
#3	1.149	.9111	.4772	1.899	.4691	.4503

Method: ESE Sample Name: CDMHN55*34 Operator: KSB
Run Time: 05/16/94 13:30:16
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0019	104.3	.0733	.0892	1.225	.0035	121.1
SDev	.0012	.4	.0077	.0009	.008	.0000	.4
%RSD	64.07	.4292	10.57	.9958	.6242	.2718	.3276
#1	-.0006	104.2	.0713	.0886	1.224	.0035	120.9
#2	-.0022	104.8	.0667	.0887	1.233	.0035	121.6
#3	-.0030	103.9	.0818	.0902	1.218	.0035	120.8

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0794	.1462	.1880	224.4	20.37	60.56
SDev	.0024	.0003	.0006	.0010	.7	.44	.25
%RSD	3601.	.3090	.3835	.5277	.2947	2.174	.4199

#1	.0020	.0796	.1467	.1879	224.2	19.90	60.54
#2	.0005	.0794	.1456	.1891	225.1	20.42	60.83
#3	-.0026	.0791	.1464	.1871	223.9	20.78	60.32

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.749	.0084	7.022	.1306	.2401	.0098	.0148
SDev	.018	.0040	.028	.0062	.0062	.0162	.0194
%RSD	.4747	47.95	.3990	4.742	2.574	165.9	131.5
#1	3.748	.0111	7.015	.1251	.2400	.0004	.0029
#2	3.767	.0102	7.053	.1373	.2464	.0285	.0372
#3	3.731	.0038	6.999	.1294	.2341	.0005	.0042

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.421	.0339	13.07	.0251	.4783	.6325
SDev	.014	.0051	.06	.0408	.0022	.0010
%RSD	.5958	14.93	.4702	162.7	.4714	.1602
#1	2.406	.0281	13.06	.0594	.4797	.6332
#2	2.435	.0375	13.13	.0359	.4795	.6331
#3	2.423	.0360	13.01	-.0201	.4757	.6314

Method: ESE Sample Name: CDMHNSS*35 Operator: KSB
Run Time: 05/16/94 13:32:20
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0014	116.5	.1042	.0975	1.046	.0037	116.1
SDev	.0023	1.4	.0150	.0066	.015	.0003	1.2
%RSD	169.0	1.187	14.42	6.771	1.409	7.988	1.062
#1	.0013	114.9	.0875	.0972	1.029	.0034	114.7
#2	-.0031	117.4	.1082	.0911	1.055	.0039	116.7
#3	-.0023	117.2	.1167	.1043	1.053	.0039	117.0

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0007	.0784	.1560	.2149	229.8	22.05	61.07
SDev	.0010	.0005	.0016	.0026	2.1	.37	.70
%RSD	142.5	.6732	1.053	1.206	.9349	1.657	1.144
#1	.0018	.0779	.1542	.2121	227.3	22.17	60.27
#2	.0002	.0783	.1574	.2153	230.7	21.64	61.53
#3	.0001	.0789	.1563	.2173	231.3	22.34	61.42

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.886	.0068	7.265	.1312	.2302	.0113	-.0086
SDev	.044	.0019	.071	.0063	.0121	.0101	.0231
%RSD	1.126	28.01	.9812	4.825	5.276	89.17	270.0
#1	3.835	.0047	7.183	.1286	.2349	.0040	-.0025

#2	3.907	.0075	7.309	.1384	.2164	.0070	-.0342
#3	3.915	.0084	7.303	.1266	.2392	.0228	.0109

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.665	.0293	14.29	.0543	.5216	.6046
SDev	.028	.0189	.17	.0207	.0057	.0064
%RSD	1.058	64.35	1.201	38.07	1.102	1.058
#1	2.632	.0115	14.10	.0330	.5150	.5976
#2	2.678	.0274	14.41	.0557	.5250	.6061
#3	2.684	.0491	14.38	.0743	.5249	.6102

Method: ESE Sample Name: CDMHNSS*36 Operator: KSB
Run Time: 05/16/94 13:34:40
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0027	165.2	.1593	.0904	1.462	.0060	153.2
SDev	.0029	1.2	.0663	.0118	.012	.0003	1.4
%RSD	106.6	.7204	41.66	13.03	.7897	4.893	.9439
#1	-.0006	165.7	.1238	.1030	1.466	.0062	153.7
#2	-.0014	166.0	.1182	.0885	1.471	.0062	154.4
#3	-.0060	163.8	.2358	.0797	1.449	.0057	151.6

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0008	.0886	.1967	.2205	233.0	27.49	88.71
SDev	.0007	.0030	.0048	.0024	2.1	.07	.67
%RSD	97.52	3.417	2.457	1.097	.9074	.2511	.7553
#1	.0015	.0883	.1992	.2217	233.3	27.56	89.06
#2	.0001	.0916	.1999	.2221	234.9	27.49	89.13
#3	.0006	.0857	.1912	.2177	230.7	27.42	87.94

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.780	.0127	9.184	.1739	.1350	.0067	.0117
SDev	.039	.0037	.056	.0010	.0150	.0263	.0079
%RSD	.8227	29.20	.6145	.5924	11.08	390.2	67.54
#1	4.794	.0149	9.219	.1731	.1502	.0342	.0165
#2	4.810	.0149	9.215	.1751	.1346	.0043	.0026
#3	4.735	.0084	9.119	.1735	.1203	-.0183	.0160

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.324	.0372	10.38	.0498	.3751	.5810
SDev	.015	.0169	.09	.0427	.0066	.0040
%RSD	.6632	45.52	.8781	85.70	1.750	.6852
#1	2.336	.0559	10.41	.0388	.3774	.5822
#2	2.329	.0230	10.44	.0968	.3802	.5843

#3	2.306	.0325	10.27	.0136	.3677	.5766

Method: ESE Sample Name: SD*CDMHNSS*36 Operator: KSB
Run Time: 05/16/94 13:38:44
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0010	34.16	.0377	.0177	.3027	.0013	32.89
SDev	.0013	.51	.0090	.0026	.0045	.0000	.50
%RSD	132.3	1.484	23.83	14.54	1.499	.5754	1.521
#1	-.0025	34.66	.0464	.0183	.3071	.0013	33.28
#2	-.0000	34.17	.0381	.0199	.3030	.0013	33.06
#3	-.0004	33.64	.0285	.0149	.2980	.0013	32.33

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0010	.0197	.0425	.0451	50.82	5.621	18.57
SDev	.0004	.0022	.0029	.0018	.70	.576	.28
%RSD	45.80	11.11	6.902	4.075	1.379	10.25	1.504
#1	.0006	.0178	.0420	.0455	51.48	5.267	18.81
#2	.0015	.0221	.0457	.0467	50.90	6.286	18.63
#3	.0008	.0193	.0399	.0431	50.09	5.310	18.26

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.026	-.0003	1.868	.0409	.0292	.0035	.0250
SDev	.014	.0005	.019	.0054	.0152	.0075	.0074
%RSD	1.360	201.1	1.009	13.14	52.27	215.5	29.46
#1	1.038	-.0009	1.879	.0361	.0272	-.0049	.0257
#2	1.029	.0000	1.879	.0467	.0453	.0059	.0321
#3	1.010	.0000	1.847	.0400	.0150	.0094	.0174

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4937	.0095	2.172	.0110	.0789	.1264
SDev	.0083	.0058	.033	.0116	.0018	.0023
%RSD	1.688	61.03	1.521	105.2	2.287	1.849
#1	.4944	.0159	2.204	.0226	.0782	.1288
#2	.5018	.0046	2.174	-.0007	.0809	.1263
#3	.4851	.0080	2.138	.0112	.0775	.1242

Method: ESE Sample Name: SPX*CDMHNSS*36 Operator: KSB
Run Time: 05/16/94 13:41:48
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.2468	86.54	.4090	.2814	.9965	.2498	82.02

SDev	.0020	.78	.0096	.0052	.0083	.0019	.70
%RSD	.8143	.9019	2.350	1.852	.8362	.7660	.8497
#1	.2459	86.08	.4091	.2791	.9929	.2487	81.57
#2	.2455	86.11	.3994	.2874	.9905	.2487	81.68
#3	.2491	87.44	.4186	.2777	1.006	.2520	82.83

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.2397	.2852	.3441	.3566	124.8	16.27	47.89
SDev	.0016	.0025	.0015	.0049	1.0	.28	.39
%RSD	.6652	.8711	.4273	1.368	.7893	1.737	.8047
#1	.2397	.2840	.3425	.3534	124.2	16.20	47.65
#2	.2413	.2834	.3454	.3542	124.3	16.03	47.69
#3	.2381	.2880	.3444	.3623	125.9	16.58	48.34

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.720	.2501	7.186	.3243	.3113	.2547	.3425
SDev	.021	.0045	.015	.0069	.0021	.0097	.0155
%RSD	.7645	1.812	.2134	2.142	.6669	3.821	4.529
#1	2.708	.2470	7.186	.3234	.3096	.2435	.3526
#2	2.709	.2480	7.171	.3317	.3106	.2613	.3503
#3	2.744	.2553	7.202	.3179	.3136	.2592	.3247

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.208	.2526	5.570	.4173	.4386	.5408
SDev	.034	.0136	.044	.0452	.0026	.0068
%RSD	2.815	5.378	.7834	10.83	.5980	1.253
#1	1.192	.2651	5.543	.3878	.4368	.5408
#2	1.185	.2381	5.546	.3948	.4373	.5341
#3	1.247	.2546	5.620	.4693	.4416	.5476

Method: ESE Sample Name: SPM1*CDMHNS5*36 Operator: KSB
Run Time: 05/16/94 13:44:22
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0447	178.4	1.918	1.007	3.406	.0527	164.6
SDev	.0011	.3	.040	.015	.007	.0003	.6
%RSD	2.414	.1449	2.077	1.450	.2004	.6109	.3623
#1	.0443	178.4	1.885	1.012	3.414	.0530	164.6
#2	.0438	178.1	1.907	.9905	3.400	.0525	164.0
#3	.0459	178.7	1.962	1.018	3.405	.0525	165.2

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0477	.5324	.3871	.4611	240.4	37.97	101.5
SDev	.0006	.0036	.0035	.0008	.1	.12	.2

%RSD	1.253	.6789	.9019	.1802	.0398	.3223	.1518
#1	.0477	.5288	.3839	.4618	240.5	38.10	101.4
#2	.0483	.5324	.3865	.4602	240.3	37.86	101.4
#3	.0471	.5360	.3908	.4614	240.3	37.96	101.7

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.921	.4695	18.98	.6250	.5736	.4392	1.771
SDev	.018	.0027	.05	.0036	.0081	.0134	.035
%RSD	.2975	.5660	.2460	.5754	1.409	3.058	1.962
#1	5.922	.4710	19.00	.6219	.5829	.4362	1.793
#2	5.903	.4664	18.93	.6242	.5694	.4275	1.731
#3	5.938	.4710	19.01	.6289	.5685	.4539	1.789

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.472	.8981	11.38	1.880	.8528	1.041
SDev	.015	.0039	.02	.040	.0033	.004
%RSD	.4447	.4287	.1605	2.123	.3904	.3380
#1	3.469	.8982	11.38	1.851	.8526	1.041
#2	3.458	.8942	11.36	1.865	.8496	1.038
#3	3.488	.9019	11.39	1.926	.8562	1.045

Method: ESE Sample Name: SPM2*~~CFMHNSS~~*36 COMHNSS WI 5-16-94 GW Operator: KSB
Run Time: 05/16/94 13:46:30
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0438	162.5	1.896	.9883	3.305	.0522	161.2
SDev	.0014	1.1	.009	.0138	.028	.0006	.8
%RSD	3.184	.6583	.4765	1.393	.8402	1.218	.5064
#1	.0446	162.6	1.890	.9992	3.305	.0526	161.3
#2	.0446	161.4	1.906	.9728	3.278	.0515	160.4
#3	.0421	163.6	1.892	.9929	3.333	.0526	162.0

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0474	.5272	.3738	.4526	231.3	35.56	98.87
SDev	.0018	.0013	.0029	.0040	1.7	.28	.64
%RSD	3.824	.2406	.7881	.8850	.7270	.7912	.6502
#1	.0484	.5274	.3743	.4540	230.6	35.55	98.84
#2	.0453	.5258	.3706	.4480	230.0	35.29	98.25
#3	.0484	.5283	.3764	.4556	233.2	35.85	99.53

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.192	.4636	18.54	.6077	.5670	.4207	1.760
SDev	.027	.0072	.13	.0032	.0169	.0113	.025
%RSD	.5240	1.550	.6960	.5318	2.981	2.680	1.398

#1	5.191	.4673	18.57	.6112	.5719	.4077	1.738
#2	5.165	.4553	18.40	.6069	.5482	.4275	1.787
#3	5.219	.4682	18.65	.6049	.5809	.4270	1.754

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	6.707	.8969	10.46	1.895	.8252	1.026
SDev	.037	.0182	.07	.027	.0026	.004
%RSD	.5588	2.025	.7049	1.417	.3187	.4175
#1	6.710	.9101	10.47	1.871	.8236	1.025
#2	6.668	.8762	10.39	1.890	.8238	1.022
#3	6.743	.9045	10.53	1.924	.8282	1.030

Method: ESE Sample Name: CCV*QC*1 Operator: KSB
Run Time: 05/16/94 13:49:42
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5305	5.343	.7304	.5154	.5161	.5221	5.370
SDev	.0066	.100	.0200	.0126	.0061	.0072	.103
%RSD	1.630	1.878	2.742	2.440	1.190	1.376	1.915
#1	.5382	5.423	.7535	.5264	.5187	.5266	5.467
#2	.5321	5.375	.7190	.5162	.5205	.5260	5.381
#3	.5212	5.231	.7187	.5017	.5091	.5139	5.262

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5273	.5166	.5219	.5171	5.325	5.363	5.336
SDev	.0093	.0082	.0080	.0068	.116	.235	.091
%RSD	1.763	1.581	1.537	1.311	2.175	4.376	1.698
#1	.5362	.5258	.5301	.5218	5.418	5.628	5.425
#2	.5281	.5137	.5217	.5202	5.363	5.182	5.338
#3	.5176	.5102	.5140	.5093	5.195	5.278	5.244

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5213	.5219	5.236	.5200	.5271	.5333	.7330
SDev	.0078	.0106	.070	.0106	.0175	.0200	.0157
%RSD	1.491	2.031	1.339	2.048	3.330	3.745	2.135
#1	.5281	.5326	5.291	.5320	.5471	.5497	.7485
#2	.5230	.5215	5.259	.5159	.5203	.5392	.7331
#3	.5128	.5114	5.157	.5119	.5141	.5111	.7173

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0274	.5263	.5184	.7234	.5178	.5219
SDev	.0080	.0144	.0079	.0200	.0089	.0085
%RSD	29.14	2.742	1.521	2.759	1.726	1.622

#1	.0321	.5428	.5250	.7047	.5253	.5304
#2	.0182	.5206	.5207	.7210	.5201	.5219
#3	.0319	.5156	.5097	.7444	.5079	.5135

Method: ESE Sample Name: CCB*QC*1 Operator: KSB
Run Time: 05/16/94 13:52:40
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0009	.0080	.0236	.0005	.0003	.0004	.0069
SDev	.0018	.0017	.0005	.0016	.0003	.0003	.0015
%RSD	193.2	21.65	2.145	300.5	115.5	87.97	21.99
#1	.0008	.0095	.0230	.0005	.0001	.0006	.0077
#2	-.0008	.0083	.0239	-.0011	.0007	.0006	.0077
#3	.0028	.0061	.0239	.0022	.0001	-.0000	.0051

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0018	.0004	.0005	.0091	.2618	.0118
SDev	.0008	.0016	.0017	.0008	.0028	.3240	.0093
%RSD	1226.	88.37	478.5	155.7	30.79	123.8	78.49
#1	.0001	.0012	-.0016	.0003	.0122	-.0707	.0172
#2	-.0007	.0006	.0010	.0015	.0068	.5766	.0011
#3	.0008	.0036	.0017	-.0001	.0084	.2794	.0172

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	-.0009	.0124	.0016	.0072	.0006	.0259
SDev	.0000	.0028	.0033	.0037	.0006	.0071	.0057
%RSD	.0768	301.1	26.43	236.2	8.651	1221.	21.93
#1	.0005	-.0037	.0140	.0003	.0064	-.0065	.0276
#2	.0005	.0018	.0147	.0058	.0075	.0006	.0196
#3	.0005	-.0009	.0087	-.0013	.0075	.0076	.0306

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0111	.0065	.0005	-.0101	.0005	.0017
SDev	.0055	.0058	.0003	.0094	.0011	.0004
%RSD	50.00	88.61	57.81	93.22	209.0	21.05
#1	.0055	.0110	.0006	.0008	.0009	.0014
#2	.0111	.0086	.0006	-.0156	-.0007	.0021
#3	.0166	-.0000	.0002	-.0156	.0014	.0017

Method: ESE Sample Name: CDMHNSS*37 Operator: KSB
Run Time: 05/16/94 13:56:09
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca

Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0022	149.3	.1483	.0725	1.358	.0055	142.6
SDev	.0011	.8	.0265	.0026	.006	.0006	1.2
%RSD	49.75	.5410	17.89	3.631	.4369	9.972	.8726
#1	-.0018	148.9	.1391	.0747	1.359	.0050	141.8
#2	-.0034	148.8	.1277	.0696	1.352	.0055	141.9
#3	-.0014	150.2	.1783	.0731	1.363	.0061	144.0

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0008	.0920	.2075	.2174	229.1	24.99	83.86
SDev	.0016	.0013	.0038	.0013	1.2	.39	.47
%RSD	184.7	1.367	1.840	.5892	.5451	1.541	.5658
#1	-.0008	.0912	.2039	.2169	229.5	24.93	83.57
#2	.0023	.0914	.2071	.2165	227.7	24.63	83.59
#3	.0011	.0935	.2115	.2189	230.1	25.40	84.40

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.401	.0115	9.593	.1878	.1184	.0151	.0063
SDev	.028	.0028	.037	.0060	.0204	.0091	.0106
%RSD	.6367	24.37	.3826	3.200	17.28	60.00	166.6
#1	4.388	.0122	9.603	.1944	.1044	.0099	.0061
#2	4.382	.0140	9.553	.1826	.1089	.0098	-.0041
#3	4.433	.0085	9.624	.1865	.1418	.0256	.0170

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.409	.0280	10.37	.0698	.3980	.5566
SDev	.023	.0028	.05	.0232	.0029	.0064
%RSD	.9427	9.959	.4967	33.25	.7263	1.156
#1	2.397	.0269	10.36	.0913	.3986	.5517
#2	2.394	.0312	10.32	.0452	.3949	.5541
#3	2.435	.0260	10.42	.0728	.4006	.5639

Method: ESE Sample Name: CDMHNSS*38 Operator: KSB
Run Time: 05/16/94 13:58:13
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0030	123.3	.1115	.0679	1.287	.0048	155.0
SDev	.0032	.2	.0259	.0050	.003	.0003	.6
%RSD	104.1	.1223	23.27	7.421	.2428	6.364	.3859
#1	-.0021	123.4	.0914	.0733	1.290	.0046	154.6
#2	-.0005	123.4	.1408	.0670	1.288	.0052	155.7
#3	-.0066	123.1	.1023	.0634	1.284	.0047	154.8

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Avge	.0011	.0836	.1676	.1906	205.8	21.59	76.64
SDev	.0029	.0003	.0018	.0023	1.1	.35	.13
%RSD	257.9	.3030	1.073	1.196	.5426	1.624	.1684
#1	-.0012	.0838	.1664	.1913	205.6	21.82	76.58
#2	.0044	.0837	.1696	.1925	207.0	21.76	76.79
#3	.0002	.0833	.1667	.1881	204.8	21.19	76.55

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.705	.0112	9.413	.1512	.1040	.0147	.0298
SDev	.011	.0037	.051	.0061	.0086	.0107	.0093
%RSD	.3086	32.99	.5459	4.048	8.295	73.14	31.34
#1	3.698	.0112	9.465	.1487	.0977	.0093	.0401
#2	3.716	.0149	9.410	.1581	.1138	.0270	.0273
#3	3.698	.0075	9.363	.1467	.1003	.0077	.0219

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.586	.0326	8.546	.0614	.3456	.4929
SDev	.009	.0088	.023	.0532	.0039	.0050
%RSD	.3323	26.94	.2710	86.61	1.131	1.017
#1	2.579	.0417	8.553	.1106	.3459	.4900
#2	2.595	.0320	8.564	.0049	.3493	.4987
#3	2.583	.0242	8.520	.0688	.3415	.4901

Method: ESE Sample Name: ICS*A*2 Operator: KSB
Run Time: 05/16/94 14:00:39
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0039	530.4	.1333	-.0060	.0044	-.0002	487.0
SDev	.0019	2.5	.0386	.0035	.0004	.0003	1.4
%RSD	47.90	.4649	28.98	58.64	10.18	165.4	.2924
#1	-.0028	533.2	.0897	-.0031	.0048	-.0006	488.6
#2	-.0028	528.6	.1471	-.0049	.0045	-.0000	486.3
#3	-.0061	529.4	.1631	-.0099	.0039	-.0000	486.0

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0011	-.0038	.0058	.0028	186.8	-.3750	522.4
SDev	.0007	.0009	.0011	.0002	.9	.1887	2.8
%RSD	66.16	22.76	19.13	8.168	.4841	50.34	.5438
#1	-.0012	-.0031	.0068	.0031	187.8	-.2405	525.7
#2	-.0017	-.0036	.0061	.0027	186.5	-.2936	520.7
#3	-.0003	-.0047	.0046	.0027	186.1	-.5907	520.8

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0084	.0120	.1991	.0039	.0048	.0021	.0077

SDev	.0006	.0040	.0039	.0057	.0112	.0110	.0107
%RSD	6.573	33.53	1.962	147.0	234.9	516.7	138.5
#1	.0087	.0166	.2007	.0058	.0176	.0145	-.0045
#2	.0086	.0101	.2020	-.0025	-.0009	-.0014	.0125
#3	.0077	.0092	.1947	.0085	-.0024	-.0067	.0152

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0049	.0201	.0081	.1566	.0027	.0183
SDev	.0103	.0091	.0012	.0420	.0018	.0022
%RSD	208.4	45.17	14.80	26.79	67.67	12.03
#1	.0166	.0212	.0092	.1165	.0039	.0204
#2	-.0027	.0106	.0083	.1532	.0036	.0186
#3	.0009	.0287	.0069	.2002	.0006	.0160

Method: ESE Sample Name: ICS*AB*2 Operator: KSB
Run Time: 05/16/94 14:02:47
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.001	525.5	.0755	-.0038	.4998	.4875	482.1
SDev	.003	1.5	.0790	.0033	.0024	.0019	1.2
%RSD	.3303	.2835	104.6	56.50	.4728	.3993	.2502
#1	1.005	526.0	.0585	-.0025	.4994	.4873	481.9
#2	.9984	523.9	.0064	-.0091	.4977	.4857	481.0
#3	.9993	526.7	.1617	-.0058	.5023	.4895	483.5

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9913	.4479	.4754	.4998	184.4	-.5766	518.2
SDev	.0096	.0031	.0033	.0011	.1	.4474	1.2
%RSD	.9729	.6971	.7009	.2117	.0523	77.59	.2250
#1	1.002	.4497	.4730	.4994	184.5	-.0601	518.5
#2	.9876	.4443	.4741	.4990	184.3	-.8242	517.0
#3	.9841	.4497	.4792	.5010	184.4	-.8454	519.3

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4698	.0119	.2722	.9208	.9328	.0049	-.0101
SDev	.0013	.0122	.0067	.0140	.0114	.0418	.0135
%RSD	.2802	101.7	2.465	1.522	1.227	844.3	133.5
#1	.4701	.0012	.2660	.9074	.9406	.0496	-.0026
#2	.4683	.0095	.2793	.9354	.9197	-.0332	-.0020
#3	.4709	.0251	.2713	.9196	.9382	-.0016	-.0258

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0013	.0194	.0035	.1197	.4784	.9897
SDev	.0160	.0138	.0028	.0165	.0013	.0033

%RSD	1242.	70.78	78.02	13.78	.2804	.3322
#1	.0198	.0299	.0067	.1033	.4794	.9915
#2	-.0080	.0245	.0019	.1363	.4769	.9859
#3	-.0079	.0039	.0019	.1195	.4789	.9918

Method: ESE Sample Name: CCV*QC*2 Operator: KSB
Run Time: 05/16/94 14:08:33
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5090	5.116	.7007	.4968	.5078	.5093	5.078
SDev	.0039	.020	.0140	.0033	.0006	.0023	.044
%RSD	.7609	.3939	1.995	.6582	.1196	.4523	.8583
#1	.5045	5.101	.6875	.4968	.5073	.5067	5.028
#2	.5110	5.108	.6993	.4935	.5076	.5100	5.093
#3	.5114	5.139	.7153	.5001	.5085	.5111	5.111

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5012	.4980	.5030	.5049	5.201	5.228	5.102
SDev	.0048	.0009	.0043	.0024	.024	.123	.017
%RSD	.9632	.1828	.8466	.4846	.4597	2.344	.3349
#1	.4968	.4970	.4998	.5021	5.173	5.299	5.096
#2	.5004	.4982	.5078	.5065	5.213	5.299	5.121
#3	.5063	.4988	.5013	.5061	5.216	5.087	5.089

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4999	.5083	5.078	.5079	.5028	.4988	.6920
SDev	.0030	.0014	.010	.0009	.0108	.0093	.0050
%RSD	.6077	.2763	.1975	.1793	2.140	1.870	.7294
#1	.4966	.5068	5.077	.5084	.4906	.4953	.6861
#2	.5003	.5087	5.089	.5068	.5067	.4917	.6949
#3	.5026	.5096	5.069	.5084	.5110	.5094	.6948

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0147	.5143	.5015	.6749	.5012	.4972
SDev	.0035	.0065	.0025	.0317	.0031	.0041
%RSD	23.70	1.264	.5043	4.700	.6134	.8189
#1	.0171	.5118	.4987	.7045	.4981	.4931
#2	.0107	.5094	.5025	.6788	.5043	.4972
#3	.0162	.5217	.5035	.6414	.5012	.5013

Method: ESE Sample Name: CCB*QC*2 Operator: KSB
Run Time: 05/16/94 14:12:36
Comment:

Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0012	.0067	-.0015	-.0049	.0004	-.0000	.0021
SDev	.0022	.0050	.0136	.0053	.0000	.0000	.0042
%RSD	176.3	75.94	907.7	107.2	.0000	134.9	201.2
#1	.0004	.0010	-.0171	-.0109	.0004	.0000	.0041
#2	.0037	.0083	.0050	-.0027	.0004	-.0000	.0048
#3	-.0004	.0106	.0076	-.0011	.0004	-.0000	-.0027

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0010	.0002	.0008	.0000	.0066	.0531	-.0065
SDev	.0008	.0021	.0023	.0005	.0018	.3032	.0104
%RSD	73.88	1068.	275.4	26420.	26.79	571.4	160.2
#1	.0011	-.0000	-.0005	.0003	.0073	.0778	-.0183
#2	.0002	.0024	.0035	.0003	.0076	.3431	.0011
#3	.0017	-.0018	-.0005	-.0005	.0046	-.2618	-.0022

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	-.0025	.0098	.0024	-.0025	.0047	.0093
SDev	.0003	.0028	.0115	.0025	.0197	.0054	.0060
%RSD	86.72	114.6	117.6	105.8	784.3	113.7	64.65
#1	-.0000	-.0018	-.0027	.0038	.0129	-.0011	.0086
#2	.0005	-.0000	.0200	-.0005	.0043	.0094	.0156
#3	.0005	-.0055	.0120	.0038	-.0248	.0059	.0036

Elem	Si2881	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0080	.0041	-.0000	-.0070	.0014	.0010
SDev	.0077	.0007	.0007	.0089	.0019	.0004
%RSD	96.77	17.05	325800.	126.3	134.9	38.57
#1	-.0009	.0037	.0002	.0031	-.0002	.0010
#2	.0129	.0037	.0006	-.0132	.0034	.0014
#3	.0120	.0049	-.0008	-.0109	.0009	.0006

9513355.2781

GFAA Metals - Arsenic

9513355.2782

(2)

ELEMENT: As METHOD # ASM3233-011 BK# 18 PG# 105A

ANALYST: Lisa Scayre EMP. # 2705 DATE: 5/16/94

SAMPLES ANALYZED: **BATCH #**

group 1 – CDMHWSS# 34,35-38 G49191 LMS 5/16/94

group 2 – CDMHWSW # 13 G49193

INSTRUMENT PARAMETERS:

Inst. model	5100-C
Wavelength	193.7
Bandwidth	0.7/0.0
EDL/HCL#	2838
Energy/Watts	52
Power Supply	no* Single
HGA model	1100
Tube type	pyrowalplatter
Sample aliq.	20 µl
Modifier	500ppm Pd(NO3)2
Modifier aliq.	5 µl
Zeeman type	longitudinal

STANDARDS:

1000 ppm stock	
Manufacturer	Fisher
Lot number	925216-24
Date received	7/93
Date expires	7/94
Working Standards	
Date prep'ed:	
10 mg/L std.	5/3/94
100 ug/L std.	5/16/94
10 ug/L std.	5/16/94
50ug/L std	5/16/94

CALIBRATION CURVE:

	conc.	abs.
Blank	0.0	0.001
Std.1	2.5	0.019
Std.2	5.0	0.033
Std.3	10.0	0.057
Std.4	25.0	0.141
Std.5	50.0	0.255
Std.6	100.0	0.459
Std.7		
Std.8		
c.c:	0.9999 (Quadratic)	
Det. L.	2.5ppb	

HGA KEYBOARD ENTRIES:

STEP	1	2	3	4	5
Temp(C)	140	1100	2200	2650	
Ramp (sec)	5	10	0	1	
Hold (sec)	50	20	4	5	
Read Step			*		
Gas (ml/min)	300	300	20	300	

PREVENTATIVE MAINTENANCE/COMMENTS:

– Changes made to Runlog Reflect the Changes made to the Raw Data.

– Printer #'s 1–29 containing original curve and CDMHWSS # 34, 35-38 are in Batch # G49191 (group 1)

– Printer #'s 30–54 containing CDMHWSW # 13 are in Batch # G49193 (group 2)

Printer # 52 was skipped by printer.

LMS 5/17/94

READ AND UNDERSTOOD BY: [signature] 5-17-94

~~000105~~

001682

9513355.2783

Analyst: Lisa Sweazea Date: 5/16/94 Element As Inst. 5100-C Book: 18 Pg: 105B

Print #	Sample I. D.	Peak Area	Conc. (ppb)	Target (ppb)	Comments
1	Calib. Blank	0.0026	0.4		establishing Baseline
3	Calib. Blank	-0.0027	-0.4		
4	Standard 1	0.0184	3		
5	Standard 2	0.0325	4.4		
6	Standard 3	0.0564	11.2		
7	Standard 4	0.1403	31.5		
8	Standard 5	0.2543	64.5		
9	Standard 6	0.4581	100.2		cc = 0.99991 (non linear)
10	ICV*PE-PURE*1	0.2301	44.9	50.0	ICV failed pour up fresh & Rerun Seq #11
11	ICV*PE-PURE*1	0.2321	45.3	50.0	90.6% rec
12	MB*REAGENT*1	-0.0019	-0.3		
13	MB*QC*1	0.0022	0.3		
14	SP*QC*1	0.1993	37.9	40.0	94.7% rec
15	CDMHNSS*34	0.2660	53.2		
16	CDMHNSS*35	0.2684	53.7		
17	CDMHNSS*36	0.3944	84.1		abs. greater than high Std.
18	SPM1*CDMHNSS*36	0.5155	114.6	40.0	Resume and Dilute See
19	SPM2*CDMHNSS*36	0.5216	116.1	40.0	# 24-26.
20	CCV*QC*1	0.2455	48.4	50.0	96.8% rec
21	CCB*QC*1	-0.0005	-0.1		
22	CDMHNSS*37	0.3588	75.3		
23	CDMHNSS*38	0.3483	72.8		
24	CDMHNSS*36 1:2	0.2023	38.6		38.6x2 = 77.2
25	SPM1*CDMHNSS*36 1:2	0.2887	58.5	40.0	58.5x2 = 117-77.2 = 39.8 99.5% rec
26	SPM2*CDMHNSS*36 1:2	0.2876	58.2	40.0	58.2x2 = 116.4-77.2 = 39.2 98% rec
27	SD*CDMHNSS*37 1:5	0.0866	14.5		14.5x5 = 72.5 ÷ 75.3 = 96.3% rec
28	CCV*QC*2	0.2414	47.5	50.0	95% rec
29	CCB*QC*2	-0.0013	-0.2		
30	MB*QC*2	-0.0007	-0.1		
31	SP*QC*2	0.1701	31.5	40.0	78.7% rec
32	CDMHNSW*13	-0.0011	-0.2		Sample composition
33	SPM1*CDMHNSW*13	0.0008	0.1	40.0	empty pour up and
34	SPM2*CDMHNSW*13	-0.0019	-0.3	40.0	Rerun Seq # 35-37.
35	CDMHNSW*13	0.0067	1		
36	SPM1*CDMHNSW*13	0.1144	19.9	40.0	49.7% rec
37	SPM2*CDMHNSW*13	0.1133	19.7	40.0	49.2% rec
38	SPX*CDMHNSW*13	0.1834	34.4	100.0	34.4x2 = 68.8% rec MSA Required
39	CCV*QC*3	0.2256	43.9	50.0	ccv failed pour up fresh
40	CCB*QC*3	-0.0017	-0.2		and Rerun Seq # 41-43
41	CCV*QC*3	0.2366	46.3	50.0	92.6% rec
42	CCB*QC*3	-0.0009	-0.1		
43	SA0*CDMHNSW*13	0.0107	1.5		
44	SA1*CDMHNSW*13	0.0651	10.5	20.0	cc = 0.9955
45	SA2*CDMHNSW*13	0.1345	24	40.0	r > 3.9
46	SA3*CDMHNSW*13	0.1760	32.8	60.0	
47	SA0*CDMHNSW*13	0.0071	1		Rerun By mistake
48	SA1*CDMHNSW*13	0.0652	10.5	20.0	Data not used.

group 1

group 2

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Analyst: Lisa Seay Date: 5/16/94 Element As Inst 5100-C Book: 18 Pg: 105C

Print #	Sample I. D.	Peak Area	Conc. (ppb)	Target (ppb)	Comments
49	SA2*CDMHNSW*13	0.1276	22.6	40.0	Reran By mistake Data
50	SA3*CDMHNSW*13	0.1771	33	60.0	not used.
51	CCV*QC*4	0.2183	42.2	50.0	CCV failed low - up fresh and
53	CCV*QC*4	0.2384	46.8	50.0	Reran Sa #53 93.6% rec.
54	CCB*QC*4	-0.0038	-0.5		

group 2

001684

3

Element File: AS_FURN.GEL Element: As Wavelength: 193.7
Date: 05/16/94 Time: 08:40 Slit: 0.70 L
Data File: A:AS_5_16.DAT ID/Wt File: 2AS_8_4.IDW Lamp Current: 6
Technique: HGA Calib. Type: Nonlinear Energy: 52
Remark 1: CDMHNSS*34,35-38 CDMHNSW*13
Remark 2: Analyzed by LISA SWAYZE
Remark 3: May 16, 1994 Data on LMS 1A
Remark 4: 5100-C POWER SUPPLY- NO# SINGLE
Remark 5: Lamp No. 2838 (EDL) Modifier: 500 PPM Pd(NO3)2

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As ID: Calib. Blank Seq. No.: 00001 A/S Pos.: 36 Date: 05/16/94

Replicate 1 Time: 08:44
Peak Area (A-s): 0.002 Peak Height (A): 0.012
Background Pk Area (A-s): 0.011 Background Pk Height (A): 0.013
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L): 0.3

Replicate 2 Time: 08:45
Peak Area (A-s): 0.004 Peak Height (A): 0.009
Background Pk Area (A-s): 0.010 Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L): 0.5
~~~~~~

Mean Conc (ug/L): 0.4 SD: 0.15 RSD(%): 36.57

Auto-zero performed.

~~~~~~

As ID: Calib. Blank Seq. No.: 00003 A/S Pos.: 36 Date: 05/16/94

Replicate 1 Time: 08:49
Peak Area (A-s): 0.002 Peak Height (A): 0.008
Background Pk Area (A-s): 0.010 Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L): -0.2

Replicate 2 Time: 08:52
Peak Area (A-s): -0.001 Peak Height (A): 0.007
Background Pk Area (A-s): 0.011 Background Pk Height (A): 0.013
Blank Corrected Pk Area (A-s): -0.004
Concentration (ug/L): -0.6

Mean Conc (ug/L): -0.4 SD: 0.30 RSD(%): 69.63

Auto-zero performed.

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As ID: Standard 1 Seq. No.: 00004 A/S Pos.: 1 Date: 05/16/94

Replicate 1 Time: 08:54
Peak Area (A-s): 0.020 Peak Height (A): 0.033
Background Pk Area (A-s): 0.017 Background Pk Height (A): 0.014
Blank Corrected Pk Area (A-s): 0.020
Concentration (ug/L): 3.2

Replicate 2 Time: 08:57
Peak Area (A-s): 0.017 Peak Height (A): 0.038
Background Pk Area (A-s): 0.018 Background Pk Height (A): 0.015
Blank Corrected Pk Area (A-s): 0.017
Concentration (ug/L): 2.8

Mean Conc (ug/L): 3.0 SD: 0.32 RSD(%): 10.83

Standard number 1 applied. [2.5]
Correlation coefficient: 1.00000 Slope: 0.0074

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As ID: Standard 2 Seq. No.: 00005 A/S Pos.: 1 Date: 05/16/94

Replicate 1 Time: 08:59
Peak Area (A-s): 0.030 Peak Height (A): 0.060
Background Pk Area (A-s): 0.020 Background Pk Height (A): 0.016
Blank Corrected Pk Area (A-s): 0.030
Concentration (ug/L): 4.0

Replicate 2 Time: 09:02
Peak Area (A-s): 0.036 Peak Height (A): 0.068
Background Pk Area (A-s): 0.018 Background Pk Height (A): 0.015
Blank Corrected Pk Area (A-s): 0.035
Concentration (ug/L): 4.8

Mean Conc (ug/L): 4.4 SD: 0.54 RSD(%): 12.26
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Standard number 2 applied. [5.0]
Correlation coefficient: 1.00000 Slope: 0.0085

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As ID: Standard 3 Seq. No.: 00006 A/S Pos.: 1 Date: 05/16/94

Replicate 1 Time: 09:04
Peak Area (A-s): 0.055 Peak Height (A): 0.133
Background Pk Area (A-s): 0.014 Background Pk Height (A): 0.015
Blank Corrected Pk Area (A-s): 0.055
Concentration (ug/L): 10.6

Replicate 2 Time: 09:07
Peak Area (A-s): 0.058 Peak Height (A): 0.126
Background Pk Area (A-s): 0.013 Background Pk Height (A): 0.015
Blank Corrected Pk Area (A-s): 0.058
Concentration (ug/L): 11.7

Mean Conc (ug/L): 11.2 SD: 0.74 RSD(%): 6.60

Standard number 3 applied. [10.0]
Correlation coefficient: 1.00000 Slope: 0.0094

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As ID: Standard 4 Seq. No.: 00007 A/S Pos.: 2 Date: 05/16/94

Replicate 1 Time: 09:09
Peak Area (A-s): 0.136 Peak Height (A): 0.250
Background Pk Area (A-s): 0.028 Background Pk Height (A): 0.026
Blank Corrected Pk Area (A-s): 0.136
Concentration (ug/L): 30.2

Replicate 2 Time: 09:12
Peak Area (A-s): 0.145 Peak Height (A): 0.295
Background Pk Area (A-s): 0.026 Background Pk Height (A): 0.027
Blank Corrected Pk Area (A-s): 0.145
Concentration (ug/L): 32.8

Mean Conc (ug/L): 31.5 SD: 1.86 RSD(%): 5.89

S-shaped calibration curve detected. 2-coef. equation used.
Standard number 4 applied. [25.0]
Correlation coefficient: 0.99514 Slope: 0.0071

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As ID: Standard 5 Seq. No.: 00008 A/S Pos.: 2 Date: 05/16/94

Replicate 1 Time: 09:14
Peak Area (A-s): 0.246 Peak Height (A): 0.397
Background Pk Area (A-s): 0.068 Background Pk Height (A): 0.128
Blank Corrected Pk Area (A-s): 0.246
Concentration (ug/L): 60.8

Replicate 2 Time: 09:17
Peak Area (A-s): 0.263 Peak Height (A): 0.526
Background Pk Area (A-s): 0.030 Background Pk Height (A): 0.037
Blank Corrected Pk Area (A-s): 0.263
Concentration (ug/L): 68.3
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Mean Conc (ug/L): 64.5 SD: 5.31 RSD(%): 8.23

Standard number 5 applied. [50.0]
Correlation coefficient: 0.99957 Slope: 0.0071

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Peak Area (A-s): 0.233
Peak Height (A): 0.432
Background Pk Area (A-s): 0.027
Background Pk Height (A): 0.033
Blank Corrected Pk Area (A-s): 0.232
Concentration (ug/L): 45.3

Mean Conc (ug/L): 44.9 SD: 0.68 RSD(%): 1.51

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As ID: ICV*PE-PURE*1 Seq. No.: 00011 A/S Pos.: 3 Date: 05/16/94

Replicate 1
Time: 09:44
Peak Area (A-s): 0.231
Peak Height (A): 0.391
Background Pk Area (A-s): 0.025
Background Pk Height (A): 0.030
Blank Corrected Pk Area (A-s): 0.230
Concentration (ug/L): 44.9

Replicate 2
Time: 09:46
Peak Area (A-s): 0.234
Peak Height (A): 0.431
Background Pk Area (A-s): 0.024
Background Pk Height (A): 0.032
Blank Corrected Pk Area (A-s): 0.234
Concentration (ug/L): 45.7

Mean Conc (ug/L): 45.3 SD: 0.56 RSD(%): 1.23

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As ID: MB*REAGENT*1 Seq. No.: 00012 A/S Pos.: 4 Date: 05/16/94

Replicate 1
Time: 09:58
Peak Area (A-s): -0.002
Peak Height (A): 0.008
Background Pk Area (A-s): 0.011
Background Pk Height (A): 0.012
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.3

Replicate 2
Time: 10:00
Peak Area (A-s): -0.001
Peak Height (A): 0.007
Background Pk Area (A-s): 0.012
Background Pk Height (A): 0.012
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.2

Mean Conc (ug/L): -0.3 SD: 0.06 RSD(%): 23.68

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As ID: MB*QC*1 Seq. No.: 00013 A/S Pos.: 5 Date: 05/16/94

Replicate 1
Time: 10:03
Peak Area (A-s): 0.002
Peak Height (A): 0.011
Background Pk Area (A-s): 0.019
Background Pk Height (A): 0.017
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L): 0.3

Replicate 2
Time: 10:05
Peak Area (A-s): 0.003
Peak Height (A): 0.011
Background Pk Area (A-s): 0.019
Background Pk Height (A): 0.016
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L): 0.3

Mean Conc (ug/L): 0.3 SD: 0.02 RSD(%): 6.84
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As ID: SP*QC*1 Seq. No.: 00014 A/S Pos.: 5 Date: 05/16/94

Replicate 1 Time: 10:08
Peak Area (A-s): 0.201 Peak Height (A): 0.410
Background Pk Area (A-s): 0.035 Background Pk Height (A): 0.035
Blank Corrected Pk Area (A-s): 0.201
Concentration (ug/L): 38.3

Replicate 2 Time: 10:10
Peak Area (A-s): 0.198 Peak Height (A): 0.405
Background Pk Area (A-s): 0.031 Background Pk Height (A): 0.035
Blank Corrected Pk Area (A-s): 0.198
Concentration (ug/L): 37.5

Mean Conc (ug/L): 37.9 SD: 0.56 RSD(%): 1.47

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As ID: CDMHNSS*34 Seq. No.: 00015 A/S Pos.: 7 Date: 05/16/94

Replicate 1 Time: 10:22
Peak Area (A-s): 0.272 Peak Height (A): 0.404
Background Pk Area (A-s): 0.885 Background Pk Height (A): 0.518
Blank Corrected Pk Area (A-s): 0.271
Concentration (ug/L): 54.4

Replicate 2 Time: 10:24
Peak Area (A-s): 0.261 Peak Height (A): 0.374
Background Pk Area (A-s): 0.782 Background Pk Height (A): 0.411
Blank Corrected Pk Area (A-s): 0.261
Concentration (ug/L): 52.0

Mean Conc (ug/L): 53.2 SD: 1.70 RSD(%): 3.20

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As ID: CDMHNSS*35 Seq. No.: 00016 A/S Pos.: 8 Date: 05/16/94

Replicate 1 Time: 10:26
Peak Area (A-s): 0.274 Peak Height (A): 0.415
Background Pk Area (A-s): 1.006 Background Pk Height (A): 0.606
Blank Corrected Pk Area (A-s): 0.273
Concentration (ug/L): 54.9

Replicate 2 Time: 10:29
Peak Area (A-s): 0.264 Peak Height (A): 0.393
Background Pk Area (A-s): 0.997 Background Pk Height (A): 0.591
Blank Corrected Pk Area (A-s): 0.263
Concentration (ug/L): 52.5

Mean Conc (ug/L): 53.7 SD: 1.68 RSD(%): 3.12

~~~~~~

As ID: CDMHNSS*36 Seq. No.: 00017 A/S Pos.: 9 Date: 05/16/94

Replicate 1 Time: 10:31
Peak Area (A-s): 0.391 Peak Height (A): 0.611
Background Pk Area (A-s): 1.598 Background Pk Height (A): 1.202
Blank Corrected Pk Area (A-s): 0.390
Concentration (ug/L): 83.1

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Replicate 2 Time: 10:33
Peak Area (A-s): 0.399 Peak Height (A): 0.619
Background Pk Area (A-s): 1.630 Background Pk Height (A): 1.167
Blank Corrected Pk Area (A-s): 0.399
Concentration (ug/L): 85.1

Mean Conc (ug/L): 84.1 SD: 1.47 RSD(%): 1.74

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As ID: SPM1*CDMHNSS*36 Seq. No.: 00018 A/S Pos.: 10 Date: 05/16/94

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 10:36
Peak Area (A-s): 0.520 Peak Height (A): 0.865
Background Pk Area (A-s): 1.843 Background Pk Height (A): 1.412
Blank Corrected Pk Area (A-s): 0.519
Concentration (ug/L): 115.6

Sample abs. is greater than that of the largest standard.
Replicate 2 Time: 10:38
Peak Area (A-s): 0.512 Peak Height (A): 0.823
Background Pk Area (A-s): 1.672 Background Pk Height (A): 1.229
Blank Corrected Pk Area (A-s): 0.512
Concentration (ug/L): 113.6

Sample abs. is greater than that of the largest standard.
Mean Conc (ug/L): 114.6 SD: 1.38 RSD(%): 1.20

~~~~~~

As ID: SPM2*CDMHNSS*36 Seq. No.: 00019 A/S Pos.: 11 Date: 05/16/94

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 10:41
Peak Area (A-s): 0.522 Peak Height (A): 0.803
Background Pk Area (A-s): 1.423 Background Pk Height (A): 1.000
Blank Corrected Pk Area (A-s): 0.522
Concentration (ug/L): 116.2

Sample abs. is greater than that of the largest standard.
Replicate 2 Time: 10:43
Peak Area (A-s): 0.522 Peak Height (A): 0.820
Background Pk Area (A-s): 1.440 Background Pk Height (A): 1.018
Blank Corrected Pk Area (A-s): 0.521
Concentration (ug/L): 116.1

Sample abs. is greater than that of the largest standard.
Mean Conc (ug/L): 116.1 SD: 0.06 RSD(%): 0.05

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As ID: CCV*QC*1 Seq. No.: 00020 A/S Pos.: 12 Date: 05/16/94

Replicate 1 Time: 10:45
Peak Area (A-s): 0.249 Peak Height (A): 0.334
Background Pk Area (A-s): 0.026 Background Pk Height (A): 0.027
Blank Corrected Pk Area (A-s): 0.249
Concentration (ug/L): 49.2

Replicate 2 Time: 10:48
Peak Area (A-s): 0.242 Peak Height (A): 0.340
~~~~~~

Background Pk Area (A-s): 0.027   Background Pk Height (A): 0.028
Blank Corrected Pk Area (A-s): 0.242
Concentration (ug/L): 47.6

Mean Conc (ug/L): 48.4   SD: 1.13   RSD(%): 2.34

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As ID: CCB*QC*1   Seq. No.: 00021   A/S Pos.: 13   Date: 05/16/94

Replicate 1   Time: 10:50
Peak Area (A-s): 0.001   Peak Height (A): 0.009
Background Pk Area (A-s): 0.011   Background Pk Height (A): 0.013
Blank Corrected Pk Area (A-s): 0.000
Concentration (ug/L): 0.1

Replicate 2   Time: 10:52
Peak Area (A-s): -0.001   Peak Height (A): 0.009
Background Pk Area (A-s): 0.014   Background Pk Height (A): 0.012
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L): -0.2

Mean Conc (ug/L): -0.1   SD: 0.17   RSD(%): 275.56

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As ID: CDMHNSS*37   Seq. No.: 00022   A/S Pos.: 14   Date: 05/16/94

Replicate 1   Time: 10:57
Peak Area (A-s): 0.355   Peak Height (A): 0.570
Background Pk Area (A-s): 1.594   Background Pk Height (A): 1.168
Blank Corrected Pk Area (A-s): 0.355
Concentration (ug/L): 74.3

Replicate 2   Time: 10:59
Peak Area (A-s): 0.363   Peak Height (A): 0.576
Background Pk Area (A-s): 1.626   Background Pk Height (A): 1.166
Blank Corrected Pk Area (A-s): 0.363
Concentration (ug/L): 76.4

Mean Conc (ug/L): 75.3   SD: 1.42   RSD(%): 1.89

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As ID: CDMHNSS*38   Seq. No.: 00023   A/S Pos.: 15   Date: 05/16/94

Replicate 1   Time: 11:02
Peak Area (A-s): 0.354   Peak Height (A): 0.567
Background Pk Area (A-s): 1.263   Background Pk Height (A): 0.833
Blank Corrected Pk Area (A-s): 0.354
Concentration (ug/L): 74.1

Replicate 2   Time: 11:04
Peak Area (A-s): 0.343   Peak Height (A): 0.557
Background Pk Area (A-s): 1.265   Background Pk Height (A): 0.844
Blank Corrected Pk Area (A-s): 0.343
Concentration (ug/L): 71.5

Mean Conc (ug/L): 72.8   SD: 1.90   RSD(%): 2.61
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As ID: CDMHNSS*36 1:2 Seq. No.: 00024 A/S Pos.: 9 Date: 05/16/94

Replicate 1 Time: 11:20
Peak Area (A-s): 0.204 Peak Height (A): 0.291
Background Pk Area (A-s): 0.612 Background Pk Height (A): 0.294
Blank Corrected Pk Area (A-s): 0.204
Concentration (ug/L): 38.9

Replicate 2 Time: 11:22
Peak Area (A-s): 0.201 Peak Height (A): 0.288
Background Pk Area (A-s): 0.630 Background Pk Height (A): 0.296
Blank Corrected Pk Area (A-s): 0.201
Concentration (ug/L): 38.3

Mean Conc (ug/L): 38.6 SD: 0.44 RSD(%): 1.14

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As ID: SPM1*CDMHNSS*36 1:2 Seq. No.: 00025 A/S Pos.: 10 Date: 05/16/94

Replicate 1 Time: 11:25
Peak Area (A-s): 0.284 Peak Height (A): 0.436
Background Pk Area (A-s): 0.725 Background Pk Height (A): 0.353
Blank Corrected Pk Area (A-s): 0.284
Concentration (ug/L): 57.4

Replicate 2 Time: 11:27
Peak Area (A-s): 0.294 Peak Height (A): 0.429
Background Pk Area (A-s): 0.707 Background Pk Height (A): 0.346
Blank Corrected Pk Area (A-s): 0.293
Concentration (ug/L): 59.6

Mean Conc (ug/L): 58.5 SD: 1.60 RSD(%): 2.73

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As ID: SPM2*CDMHNSS*36 1:2 Seq. No.: 00026 A/S Pos.: 11 Date: 05/16/94

Replicate 1 Time: 11:30
Peak Area (A-s): 0.290 Peak Height (A): 0.386
Background Pk Area (A-s): 0.563 Background Pk Height (A): 0.260
Blank Corrected Pk Area (A-s): 0.290
Concentration (ug/L): 58.7

Replicate 2 Time: 11:32
Peak Area (A-s): 0.286 Peak Height (A): 0.400
Background Pk Area (A-s): 0.602 Background Pk Height (A): 0.278
Blank Corrected Pk Area (A-s): 0.286
Concentration (ug/L): 57.8

Mean Conc (ug/L): 58.2 SD: 0.65 RSD(%): 1.12

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As ID: SD*CDMHNSS*37 1:5 Seq. No.: 00027 A/S Pos.: 16 Date: 05/16/94

Replicate 1 Time: 11:34
Peak Area (A-s): 0.093 Peak Height (A): 0.097
Background Pk Area (A-s): 0.272 Background Pk Height (A): 0.147
Blank Corrected Pk Area (A-s): 0.093
Concentration (ug/L): 15.7

Replicate 2 | Time: 11:37
Peak Area (A-s): 0.081 | Peak Height (A): 0.082
Background Pk Area (A-s): 0.252 | Background Pk Height (A): 0.138
Blank Corrected Pk Area (A-s): 0.080
Concentration (ug/L): 13.3

Mean Conc (ug/L): 14.5 SD: 1.68 RSD(%): 11.57

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As ID: CCV*QC*2 Seq. No.: 00028 A/S Pos.: 17 Date: 05/16/94

Replicate 1 | Time: 11:49
Peak Area (A-s): 0.245 | Peak Height (A): 0.310
Background Pk Area (A-s): 0.024 | Background Pk Height (A): 0.027
Blank Corrected Pk Area (A-s): 0.244
Concentration (ug/L): 48.1

Replicate 2 | Time: 11:51
Peak Area (A-s): 0.239 | Peak Height (A): 0.307
Background Pk Area (A-s): 0.025 | Background Pk Height (A): 0.024
Blank Corrected Pk Area (A-s): 0.239
Concentration (ug/L): 46.8

Mean Conc (ug/L): 47.5 SD: 0.94 RSD(%): 1.97

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As ID: CCB*QC*2 Seq. No.: 00029 A/S Pos.: 18 Date: 05/16/94

Replicate 1 | Time: 11:53
Peak Area (A-s): -0.005 | Peak Height (A): 0.007
Background Pk Area (A-s): 0.013 | Background Pk Height (A): 0.013
Blank Corrected Pk Area (A-s): -0.005
Concentration (ug/L): -0.7

Replicate 2 | Time: 11:56
Peak Area (A-s): 0.003 | Peak Height (A): 0.011
Background Pk Area (A-s): 0.009 | Background Pk Height (A): 0.012
Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L): 0.4

Mean Conc (ug/L): -0.2 SD: 0.80 RSD(%): 460.32

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GFAA Metals - Selenium

9513355.2796

(2)

ELEMENT: Se METHOD # ASm3233-013 BK# 40 PG# 84A

ANALYST: Lisa Swayne EMP. # 2705 DATE: 5/16/94

SAMPLES ANALYZED: BATCH #

group1 – CDMHNSS# 34,35-38 — G49179

group2 – CDMHNSW# 13 — G49189

LMS 5/16/94

INSTRUMENT PARAMETERS:

Inst. model	5100-A
Wavelength	196.0
Bandwidth	2.0 low
EDL/HCL#	333 Sys II
Energy/Watts	35
Power Supply	System II-B
HGA model	1600
Tube type	pyro w/ platform
Sample aliq.	20 ul
Modifier	500 ppm Pd(NO3)2
Modifier aliq.	5 ul
Zeeman type	longitudinal

STANDARDS:

1000 ppm stock

Manufacturer	SPEX
Lot number	3-705E
Date received	1/94
Date expires	12/94

Working Standards

Date prep'ed:	
10 mg/L std.	5/13/94
100 ug/L std.	5/16/94
10 ug/L std.	5/16/94
50 ug/L Std.	5/16/94

CALIBRATION CURVE:

	conc.	abs.
Blank	0.0	10.003
Std.1	2.5	10.015
Std.2	10.0	10.047
Std.3	25.0	10.103
Std.4	50.0	10.193
Std.5	100.0	10.383
Std.6	/	
Std.7	/	
Std.8	/	
c.c:	0.999697 (linear)	
Det. L	2.5 ppb	

HGA KEYBOARD ENTRIES:

STEP	1	2	3	4	5
Temp(C)	150	1100	20	2200	2600
Ramp (sec)	5	5	1	0	1
Hold (sec)	55	35	5	5	5
Read Step				*	
Gas (ml/min)	300	300	300	0	300

PREVENTATIVE MAINTENANCE/COMMENTS:

Printer #'s 1-24 containing Original Curve and CDMHNSS# 34,35-38 are in Batch# G49179. (group1)

Printer #'s 25-44 ~~[illegible]~~ containing CDMHNSW# 13 are in Batch#. G49189 (group2) LMS 5/16/94 WI

LMS 5/16/94

READ AND UNDERSTOOD BY: Lisa Swayne 5/16/94

000054

001696

9513355.2797

Analyst: Lisa Swayne Date: 5/16/94 Element Se Inst 5100-A Book: 40 Pg: 84B

Print #	Sample I. D.	Peak Area	Conc. (ppb)	Target (ppb)	Comments
1	Calib. Blank	-0.0010	-0.3		establishing Baseline?
2	Calib. Blank	0.0002	0.1		
3	Standard 1	0.0121	3.3		
4	Standard 2	0.0439	9		
5	Standard 3	0.0997	22.5		
6	Standard 4	0.1902	46.9		
7	Standard 5	0.3804	98.5		cc = 0.99967 (linear)
8	ICV*SPEX*1	0.1747	45.8	50.0	91.6% rec
9	MB*REAGENT*1	0.0035	0.9		
10	MB*QC*1	-0.0003	-0.1		
11	SP*QC*1	0.0364	9.5	10.0	95% rec
12	CDMHNSS*34	-0.0011	-0.3		
13	CDMHNSS*35	0.0125	3.3		
14	CDMHNSS*36	0.0010	0.3		
15	SPM1*CDMHNSS*3	0.0208	5.4	10.0	54% rec
16	SPM2*CDMHNSS*3	0.0189	4.9	10.0	49% rec
17	CCV*QC*1	0.1820	47.7	50.0	95.4% rec
18	CCB*QC*1	-0.0005	-0.1		
19	CDMHNSS*37	-0.0006	-0.1		
20	CDMHNSS*38	0.0015	0.4		
21	CDMHNSS*35	0.0130	3.4		Run for Verification only Data not used
22	SPX*CDMHNSS*34	0.1735	45.4	100.0	45.4 x 2 = 90.8% rec
23	CCV*QC*2	0.1767	46.3	50.0	92.6% rec
24	CCB*QC*2	0.0001	0		
25	MB*QC*2	-0.0015	-0.4		
26	SP*QC*2	0.0319	8.4	10.0	84% rec
27	CDMHNSW*13	0.0030	0.8		
28	SPM1*CDMHNSW*13	0.0136	3.6	10.0	36% rec
29	SPM2*CDMHNSW*13	0.0138	3.6	10.0	36% rec
30	SPX*CDMHNSW*13	0.1326	34.7	100.0	34.7 x 2 = 69.4% rec MSA Required
31	CCV*QC*3	0.1821	47.7	50.0	95.4% rec See #33-36
32	CCB*QC*3	0.0004	0.1		
33	SA0*CDMHNSW*13	0.0006	0.2		
34	SA1*CDMHNSW*13	0.0339	8.9	20.0	
35	SA2*CDMHNSW*13	0.0595	15.6	40.0	cc = 0.9952
36	SA3*CDMHNSW*13	0.1009	26.4	60.0	x = 0.0
37	CCV*QC*4	0.1794	47	50.0	
38	CCB*QC*4	0.0008	0.2		
39	SA0*CDMHNSW*13	0.0000	0		Run But not needed data not used
40	SA1*CDMHNSW*13	0.0256	6.7	20.0	
41	SA2*CDMHNSW*13	0.0655	17.1	40.0	
42	SA3*CDMHNSW*13	0.0935	24.5	60.0	
43	CCV*QC*5	0.1825	47.8	50.0	95.6% rec
44	CCB*QC*5	-0.0001	0		

group 1

group 2

Lines Straight

001697

9513355.2790

(3)

Element File: SE_FURN.GEL Element: Se Wavelength: 196.0
Date: 05/16/94 Time: 09:39 Slit: 2.00 L
Data File: A:SE_5_16.DAT ID/Wt File: SE_9_8.IDW Lamp Current: 0
Technique: HGA Calib. Type: Linear Energy: 55
Remark 1: CDMHNSS*34,35-38 CDMHNSW*13
Remark 2: Analyzed by LISA SWAYZE
Remark 3: May 16, 1994 Data on LMS 5
Remark 4: 5100-A POWER SUPPLY- SYS II #2-B
Remark 5: Lamp# 333 (EDL-SYS II) Modifier: 500 ppm Pd(NO3)2

Se ID: Calib. Blank Seq. No.: 00001 A/S Pos.: 36 Date: 05/16/94

Replicate 1 Time: 09:42
Peak Area (A-s): 0.003 Peak Height (A): 0.010
Background Pk Area (A-s): 0.011 Background Pk Height (A): 0.013
Blank Corrected Pk Area (A-s): -0.000
Concentration (ug/L): -0.1

Replicate 2 Time: 09:45
Peak Area (A-s): 0.002 Peak Height (A): 0.009
Background Pk Area (A-s): 0.009 Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.5

Mean Conc (ug/L): -0.3 SD: 0.31 RSD(%): 112.11

Auto-zero performed.

Se ID: Calib. Blank Seq. No.: 00002 A/S Pos.: 36 Date: 05/16/94

Replicate 1 Time: 09:48
Peak Area (A-s): 0.001 Peak Height (A): 0.010
Background Pk Area (A-s): 0.009 Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.4

Replicate 2 Time: 09:51
Peak Area (A-s): 0.004 Peak Height (A): 0.012
Background Pk Area (A-s): 0.010 Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L): 0.5

Mean Conc (ug/L): 0.1 SD: 0.65 RSD(%): 1149.33

Auto-zero performed.

Se ID: Standard 1 Seq. No.: 00003 A/S Pos.: 1 Date: 05/16/94

Replicate 1 Time: 09:53
Peak Area (A-s): 0.013 Peak Height (A): 0.021
Background Pk Area (A-s): 0.013 Background Pk Height (A): 0.013
Blank Corrected Pk Area (A-s): 0.011
Concentration (ug/L): 2.8

Replicate 2 Time: 09:56
Peak Area (A-s): 0.016 Peak Height (A): 0.022
Background Pk Area (A-s): 0.012 Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): 0.014
Concentration (ug/L): 3.7

Mean Conc (ug/L): 3.3 SD: 0.60 RSD(%): 18.40

Standard number 1 applied. [2.5]
Correlation coefficient: 1.00000 Slope: 0.0049

Se ID: Standard 2 Seq. No.: 00004 A/S Pos.: 2 Date: 05/16/94

Replicate 1 Time: 09:59
Peak Area (A-s): 0.044 Peak Height (A): 0.069
Background Pk Area (A-s): 0.023 Background Pk Height (A): 0.021
Blank Corrected Pk Area (A-s): 0.041
Concentration (ug/L): 8.5

Replicate 2 Time: 10:02
Peak Area (A-s): 0.049 Peak Height (A): 0.073
Background Pk Area (A-s): 0.019 Background Pk Height (A): 0.020
Blank Corrected Pk Area (A-s): 0.047
Concentration (ug/L): 9.6

Mean Conc (ug/L): 9.0 SD: 0.76 RSD(%): 8.45

Standard number 2 applied. [10.0]

Correlation coefficient: 0.99884 Slope: 0.0044

Se ID: Standard 3 Seq. No.: 00005 A/S Pos.: 3 Date: 05/16/94

Replicate 1 Time: 10:04
Peak Area (A-s): 0.103 Peak Height (A): 0.140
Background Pk Area (A-s): 0.032 Background Pk Height (A): 0.035
Blank Corrected Pk Area (A-s): 0.100
Concentration (ug/L): 22.7

Replicate 2 Time: 10:07
Peak Area (A-s): 0.102 Peak Height (A): 0.147
Background Pk Area (A-s): 0.038 Background Pk Height (A): 0.041
Blank Corrected Pk Area (A-s): 0.099
Concentration (ug/L): 22.4

Mean Conc (ug/L): 22.5 SD: 0.22 RSD(%): 0.96

Standard number 3 applied. [25.0]
Correlation coefficient: 0.99788 Slope: 0.0041

Se ID: Standard 4 Seq. No.: 00006 A/S Pos.: 4 Date: 05/16/94

Replicate 1 Time: 10:10
Peak Area (A-s): 0.195 Peak Height (A): 0.280
Background Pk Area (A-s): 0.056 Background Pk Height (A): 0.069
Blank Corrected Pk Area (A-s): 0.192
Concentration (ug/L): 47.4

Replicate 2 Time: 10:13
Peak Area (A-s): 0.191 Peak Height (A): 0.267
Background Pk Area (A-s): 0.054 Background Pk Height (A): 0.065
Blank Corrected Pk Area (A-s): 0.188
Concentration (ug/L): 46.4

Mean Conc (ug/L): 46.9 SD: 0.69 RSD(%): 1.46

Standard number 4 applied. [50.0]
Correlation coefficient: 0.99866 Slope: 0.0039

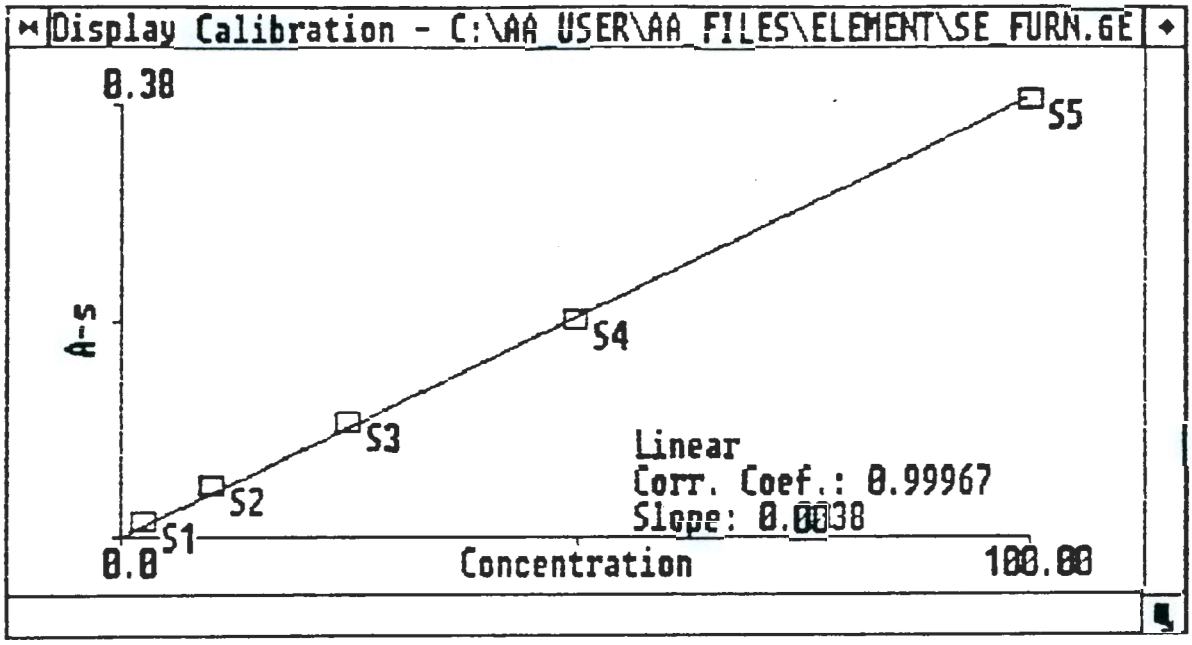
Se ID: Standard 5 Seq. No.: 00007 A/S Pos.: 5 Date: 05/16/94

Replicate 1 Time: 10:15
Peak Area (A-s): 0.382 Peak Height (A): 0.509
Background Pk Area (A-s): 0.106 Background Pk Height (A): 0.132
Blank Corrected Pk Area (A-s): 0.380
Concentration (ug/L): 98.3

Replicate 2 Time: 10:18
Peak Area (A-s): 0.384 Peak Height (A): 0.520
Background Pk Area (A-s): 0.108 Background Pk Height (A): 0.133
Blank Corrected Pk Area (A-s): 0.381
Concentration (ug/L): 98.6

Mean Conc (ug/L): 98.5 SD: 0.26 RSD(%): 0.26

Standard number 5 applied. [100.0]
Correlation coefficient: 0.99967 Slope: 0.0038



Se ID: ICV*SPEX*1 Seq. No.: 00008 A/S Pos.: 6 Date: 05/16/94

Replicate 1 Time: 10:43
Peak Area (A-s): 0.179 Peak Height (A): 0.265
Background Pk Area (A-s): 0.056 Background Pk Height (A): 0.070
Blank Corrected Pk Area (A-s): 0.176
Concentration (ug/L): 46.2

Replicate 2 Time: 10:46
Peak Area (A-s): 0.176 Peak Height (A): 0.250
Background Pk Area (A-s): 0.054 Background Pk Height (A): 0.065
Blank Corrected Pk Area (A-s): 0.173
Concentration (ug/L): 45.3

Mean Conc (ug/L): 45.8 SD: 0.63 RSD(%): 1.37

Se ID: MB*REAGENT*1 Seq. No.: 00009 A/S Pos.: 7 Date: 05/16/94

Replicate 1 Time: 10:48
Peak Area (A-s): 0.007 Peak Height (A): 0.010
Background Pk Area (A-s): 0.009 Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): 0.004
Concentration (ug/L): 1.1

Replicate 2 Time: 10:51
Peak Area (A-s): 0.006 Peak Height (A): 0.008
Background Pk Area (A-s): 0.009 Background Pk Height (A): 0.009
Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L): 0.7

Mean Conc (ug/L): 0.9 SD: 0.26 RSD(%): 28.53

Se ID: MB*QC*1 Seq. No.: 00010 A/S Pos.: 8 Date: 05/16/94

Replicate 1 Time: 10:54
Peak Area (A-s): 0.003 Peak Height (A): 0.009
Background Pk Area (A-s): 0.013 Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): 0.000
Concentration (ug/L): 0.1

Replicate 2 Time: 10:57
Peak Area (A-s): 0.002 Peak Height (A): 0.009
Background Pk Area (A-s): 0.010 Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L): -0.2

Mean Conc (ug/L): -0.1 SD: 0.18 RSD(%): 250.74

Se ID: SP*QC*1 Seq. No.: 00011 A/S Pos.: 9 Date: 05/16/94

Replicate 1 Time: 10:59
Peak Area (A-s): 0.040 Peak Height (A): 0.063
Background Pk Area (A-s): 0.022 Background Pk Height (A): 0.018
Blank Corrected Pk Area (A-s): 0.037
Concentration (ug/L): 9.7

Replicate 2 Time: 11:02
Peak Area (A-s): 0.039 Peak Height (A): 0.061
Background Pk Area (A-s): 0.024 Background Pk Height (A): 0.019
Blank Corrected Pk Area (A-s): 0.036
Concentration (ug/L): 9.4

Mean Conc (ug/L): 9.5 SD: 0.19 RSD(%): 1.98

Se ID: CDMHNSS*34 Seq. No.: 00012 A/S Pos.: 7 Date: 05/16/94

Replicate 1 Time: 11:06
Peak Area (A-s): 0.003 Peak Height (A): 0.011
Background Pk Area (A-s): 0.262 Background Pk Height (A): 0.159
Blank Corrected Pk Area (A-s): 0.000
Concentration (ug/L): 0.0

Replicate 2 Time: 11:09
Peak Area (A-s): 0.000 Peak Height (A): 0.010
Background Pk Area (A-s): 0.276 Background Pk Height (A): 0.155
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.6

Mean Conc (ug/L): -0.3 SD: 0.44 RSD(%): 152.94

Se ID: CDMHNSS*35 Seq. No.: 00013 A/S Pos.: 8 Date: 05/16/94

Replicate 1 Time: 11:11
Peak Area (A-s): 0.015 Peak Height (A): 0.022
Background Pk Area (A-s): 0.366 Background Pk Height (A): 0.211

Blank Corrected Pk Area (A-s): 0.012
Concentration (ug/L): 3.2

Replicate 2 Time: 11:14
Peak Area (A-s): 0.016 Peak Height (A): 0.024
Background Pk Area (A-s): 0.387 Background Pk Height (A): 0.240
Blank Corrected Pk Area (A-s): 0.013
Concentration (ug/L): 3.4

Mean Conc (ug/L): 3.3 SD: 0.11 RSD(%): 3.35

Se ID: CDMHNSS*36 Seq. No.: 00014 A/S Pos.: 9 Date: 05/16/94

Replicate 1 Time: 11:17
Peak Area (A-s): 0.005 Peak Height (A): 0.018
Background Pk Area (A-s): 0.496 Background Pk Height (A): 0.416
Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L): 0.7

Replicate 2 Time: 11:20
Peak Area (A-s): 0.002 Peak Height (A): 0.013
Background Pk Area (A-s): 0.518 Background Pk Height (A): 0.391
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L): -0.2

Mean Conc (ug/L): 0.3 SD: 0.59 RSD(%): 226.32

Se ID: SPM1*CDMHNSS*36 Seq. No.: 00015 A/S Pos.: 10 Date: 05/16/94

Replicate 1 Time: 11:23
Peak Area (A-s): 0.023 Peak Height (A): 0.046
Background Pk Area (A-s): 0.548 Background Pk Height (A): 0.432
Blank Corrected Pk Area (A-s): 0.021
Concentration (ug/L): 5.4

Replicate 2 Time: 11:25
Peak Area (A-s): 0.024 Peak Height (A): 0.040
Background Pk Area (A-s): 0.550 Background Pk Height (A): 0.410
Blank Corrected Pk Area (A-s): 0.021
Concentration (ug/L): 5.5

Mean Conc (ug/L): 5.4 SD: 0.10 RSD(%): 1.87

Se ID: SPM2*CDMHNSS*36 Seq. No.: 00016 A/S Pos.: 11 Date: 05/16/94

Replicate 1 Time: 11:28
Peak Area (A-s): 0.020 Peak Height (A): 0.036
Background Pk Area (A-s): 0.492 Background Pk Height (A): 0.334
Blank Corrected Pk Area (A-s): 0.017
Concentration (ug/L): 4.6

Replicate 2 Time: 11:31
Peak Area (A-s): 0.023 Peak Height (A): 0.043
Background Pk Area (A-s): 0.483 Background Pk Height (A): 0.352
Blank Corrected Pk Area (A-s): 0.020
Concentration (ug/L): 5.3

Mean Conc (ug/L): 4.9 SD: 0.51 RSD(%): 10.42

Se ID: CCV*QC*1 Seq. No.: 00017 A/S Pos.: 12 Date: 05/16/94

Replicate 1 Time: 11:34
Peak Area (A-s): 0.178 Peak Height (A): 0.271
Background Pk Area (A-s): 0.103 Background Pk Height (A): 0.129
Blank Corrected Pk Area (A-s): 0.175
Concentration (ug/L): 45.8

Replicate 2 Time: 11:36
Peak Area (A-s): 0.192 Peak Height (A): 0.325
Background Pk Area (A-s): 0.060 Background Pk Height (A): 0.086
Blank Corrected Pk Area (A-s): 0.189
Concentration (ug/L): 49.5

Mean Conc (ug/L): 47.7 SD: 2.59 RSD(%): 5.44

Se ID: CCB*QC*1 Seq. No.: 00018 A/S Pos.: 13 Date: 05/16/94

Replicate 1 Time: 11:39
Peak Area (A-s): 0.001 Peak Height (A): 0.009
Background Pk Area (A-s): 0.009 Background Pk Height (A): 0.009
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.4

Replicate 2 Time: 11:42
Peak Area (A-s): 0.004 Peak Height (A): 0.012
Background Pk Area (A-s): 0.010 Background Pk Height (A): 0.009
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L): 0.2

Mean Conc (ug/L): -0.1 SD: 0.46 RSD(%): 373.76

Se ID: CDMHNSS*37 Seq. No.: 00019 A/S Pos.: 14 Date: 05/16/94

Replicate 1 Time: 11:48
Peak Area (A-s): 0.001 Peak Height (A): 0.011
Background Pk Area (A-s): 0.459 Background Pk Height (A): 0.372
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.6

Replicate 2 Time: 11:51
Peak Area (A-s): 0.004 Peak Height (A): 0.015
Background Pk Area (A-s): 0.550 Background Pk Height (A): 0.365
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L): 0.3

Mean Conc (ug/L): -0.1 SD: 0.59 RSD(%): 399.78

Se ID: CDMHNSS*38 Seq. No.: 00020 A/S Pos.: 15 Date: 05/16/94

Replicate 1 Time: 11:54
Peak Area (A-s): 0.006 Peak Height (A): 0.015
Background Pk Area (A-s): 0.430 Background Pk Height (A): 0.301

Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L): 0.7

Replicate 2 Time: 11:56
Peak Area (A-s): 0.003 Peak Height (A): 0.014
Background Pk Area (A-s): 0.425 Background Pk Height (A): 0.284
Blank Corrected Pk Area (A-s): 0.000
Concentration (ug/L): 0.1

Mean Conc (ug/L): 0.4 SD: 0.49 RSD(%): 123.00

Se ID: CDMHNSS*35 Seq. No.: 00021 A/S Pos.: 8 Date: 05/16/94

Replicate 1 Time: 12:00
Peak Area (A-s): 0.016 Peak Height (A): 0.029
Background Pk Area (A-s): 0.372 Background Pk Height (A): 0.242
Blank Corrected Pk Area (A-s): 0.013
Concentration (ug/L): 3.4

Replicate 2 Time: 12:03
Peak Area (A-s): 0.016 Peak Height (A): 0.030
Background Pk Area (A-s): 0.363 Background Pk Height (A): 0.236
Blank Corrected Pk Area (A-s): 0.013
Concentration (ug/L): 3.4

Mean Conc (ug/L): 3.4 SD: 0.04 RSD(%): 1.24

Se ID: SPX*CDMHNSS*34 Seq. No.: 00022 A/S Pos.: 16 Date: 05/16/94

Replicate 1 Time: 12:07
Peak Area (A-s): 0.177 Peak Height (A): 0.258
Background Pk Area (A-s): 0.094 Background Pk Height (A): 0.124
Blank Corrected Pk Area (A-s): 0.174
Concentration (ug/L): 45.6

Replicate 2 Time: 12:10
Peak Area (A-s): 0.176 Peak Height (A): 0.258
Background Pk Area (A-s): 0.058 Background Pk Height (A): 0.070
Blank Corrected Pk Area (A-s): 0.173
Concentration (ug/L): 45.3

Mean Conc (ug/L): 45.4 SD: 0.25 RSD(%): 0.55

Se ID: CCV*QC*2 Seq. No.: 00023 A/S Pos.: 17 Date: 05/16/94

Replicate 1 Time: 12:24
Peak Area (A-s): 0.182 Peak Height (A): 0.256
Background Pk Area (A-s): 0.058 Background Pk Height (A): 0.066
Blank Corrected Pk Area (A-s): 0.179
Concentration (ug/L): 46.8

Replicate 2 Time: 12:27
Peak Area (A-s): 0.177 Peak Height (A): 0.256
Background Pk Area (A-s): 0.056 Background Pk Height (A): 0.064
Blank Corrected Pk Area (A-s): 0.175
Concentration (ug/L): 45.7

Mean Conc (ug/L): 46.3 SD: 0.80 RSD(%): 1.74

Se ID: CCB*QC*2 Seq. No.: 00024 A/S Pos.: 18 Date: 05/16/94

Replicate 1 Time: 12:29
Peak Area (A-s): 0.001 Peak Height (A): 0.008
Background Pk Area (A-s): 0.013 Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.5

Replicate 2 Time: 12:32
Peak Area (A-s): 0.005 Peak Height (A): 0.013
Background Pk Area (A-s): 0.010 Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L): 0.6

Mean Conc (ug/L): 0.0 SD: 0.76 RSD(%): 3086.02

95133555.2807

Mercury

001707

9513355.2801B

(2)

MERCURY SAMPLE RUN LOG

BK#: 30 PG#: 59

METHOD: ASM3233-042 MATRIX: SOILS QC TYPE: FDER

ANALYST: KEITH GEISZLER EMP.# 3370 DATE: 05-16-94

SAMPLES ANALYZED: BATCH #, DATE, INITIALS

CDMHNSS*34-38 G49180 05-16-94 KNG

INSTRUMENT PARAMETERS:

Inst. model: BUCK 400
Wavelength: 253.7

CALIBRATION CURVE:

C.C.: 0.9999
Det.Limit: 0.2
Calib. type: QUAD

STANDARDS:

	Std.#1	Std.#2
10 ppm stock Manufacturer:	HI-PURITY	HI-PURITY
Lot No.:	390524	490126
Exp.date:	08/94	08/94
Working Stds. made:	05-16-94	05-16-94
100 OR 80 ug/l std.	100PPB	

COMMENTS:

PRINT #'S 1-8 CURVE FROM G49178 BK.30 PG 63
PRINT #'S 9-62 DATA FROM G49178 BK.30 PG.63

Peak No.	Sample I.D.	Peak Ht.	Conc. ug/l	Target	Comments
1	0.0PPB	0.25			
2	0.2PPB	2.25			
3	0.5PPB	4.75			
4	1.0PPB	9.5			
5	2.0PPB	18.5			
6	5.0PPB	41.5			
7	7.0PPB	56.25			
8	10.0PPB	73.75			CC.= .9999 QUAD
9-62	DATA FOR G49178				
63	ICV*PE-PURE*1	40.75	4.84	5.0	96.8% REC
64	REAGENT BLANK	0.5	0.05		
65	MB*1	0.5	0.05		
66	SP*1	41.0	4.87	5.0	97.4% REC
67	CDMHNSS*34	0.75	0.07		
68	SPM1*CDMHNSS*34	40.5	4.80	5.0	96% REC

READ AND UNDERSTOOD BY: Lisa Swayze *DATE:* 5/17/94

9513355.2809

MERCURY SAMPLE RUN LOG

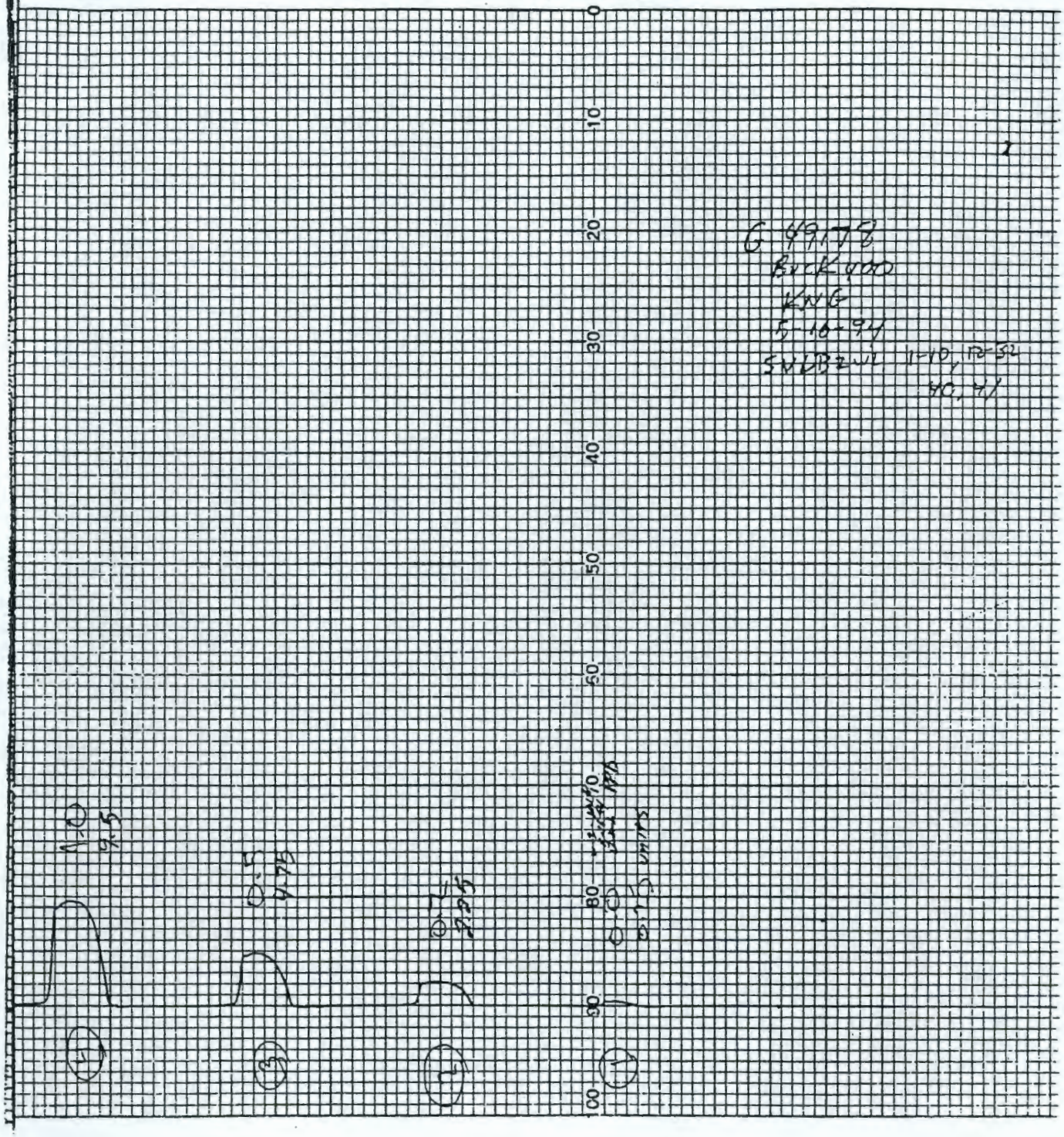
BK#: 30 PG#: 60

Peak No.	Sample I.D.	Peak Ht.	Conc. ug/l	Target	Comments
69	SPM2*CDMHNSS*34	41.0	4.87	5.0	97.4% REC
70	CDMHNSS*35	0.75	0.07		
71	CDMHNSS*36	0.5	0.05		
72	CDMHNSS*37	0.75	0.07		
73	CDMHNSS*38	0.5	0.05		
74	CCV*QC*1	40.75	4.84	5.0	96.8% REC
75	CCB*QC*1	0.25	0.02		

READ AND UNDERSTOOD BY: Lisa Savage

DATE: 5/17/94

9513355.2810



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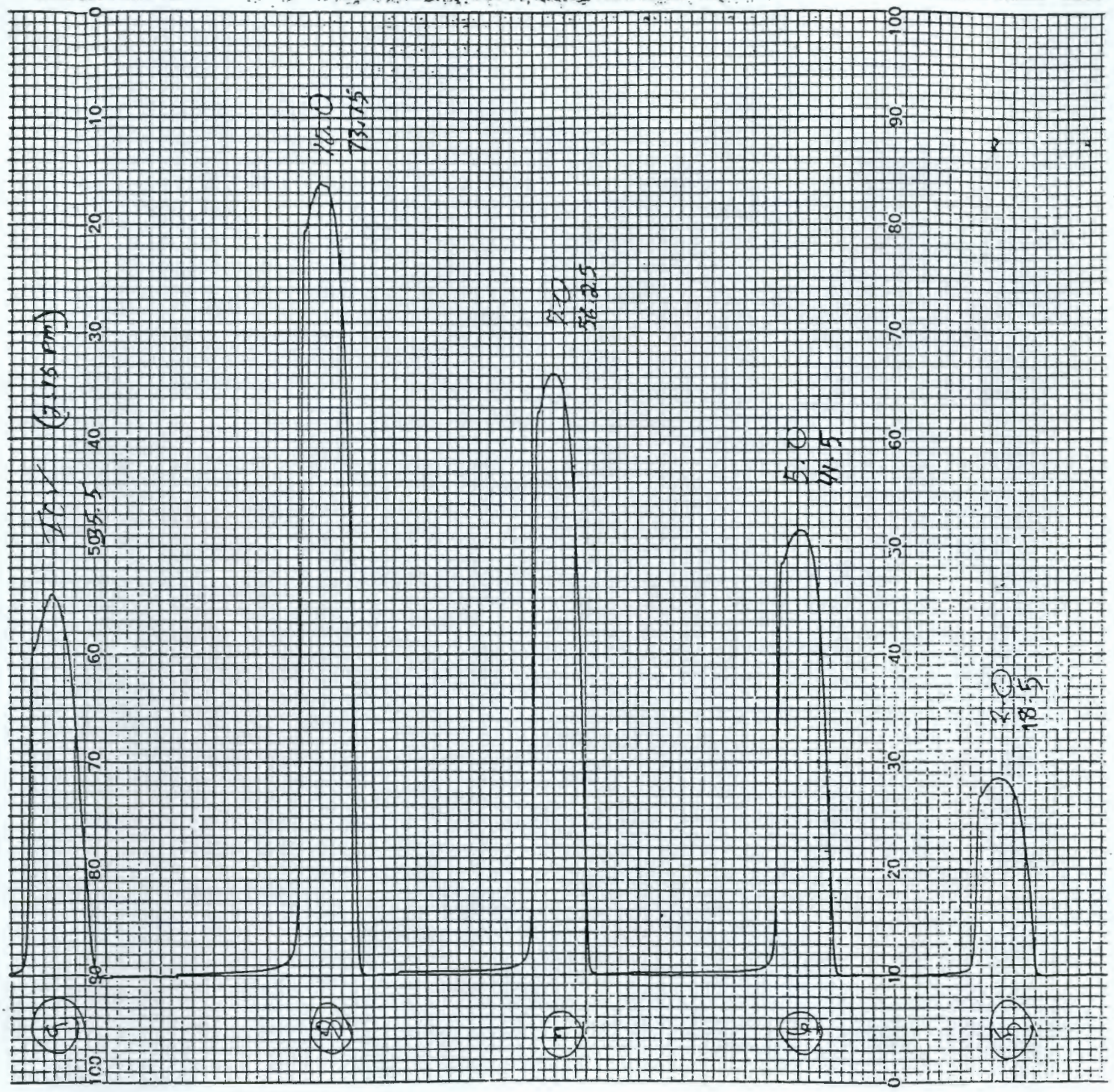

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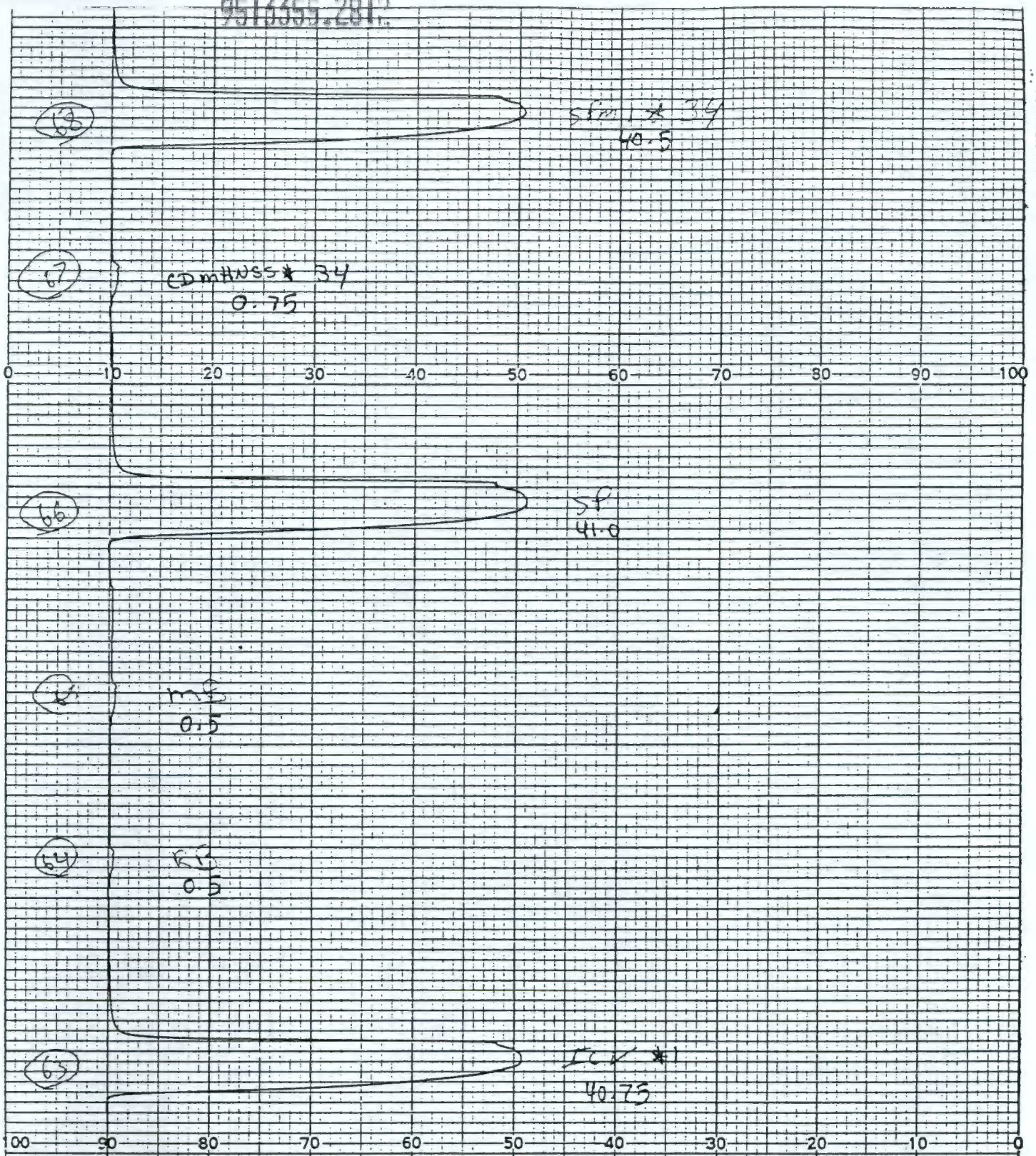

CDmHNSS * 34-35
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5-16-94
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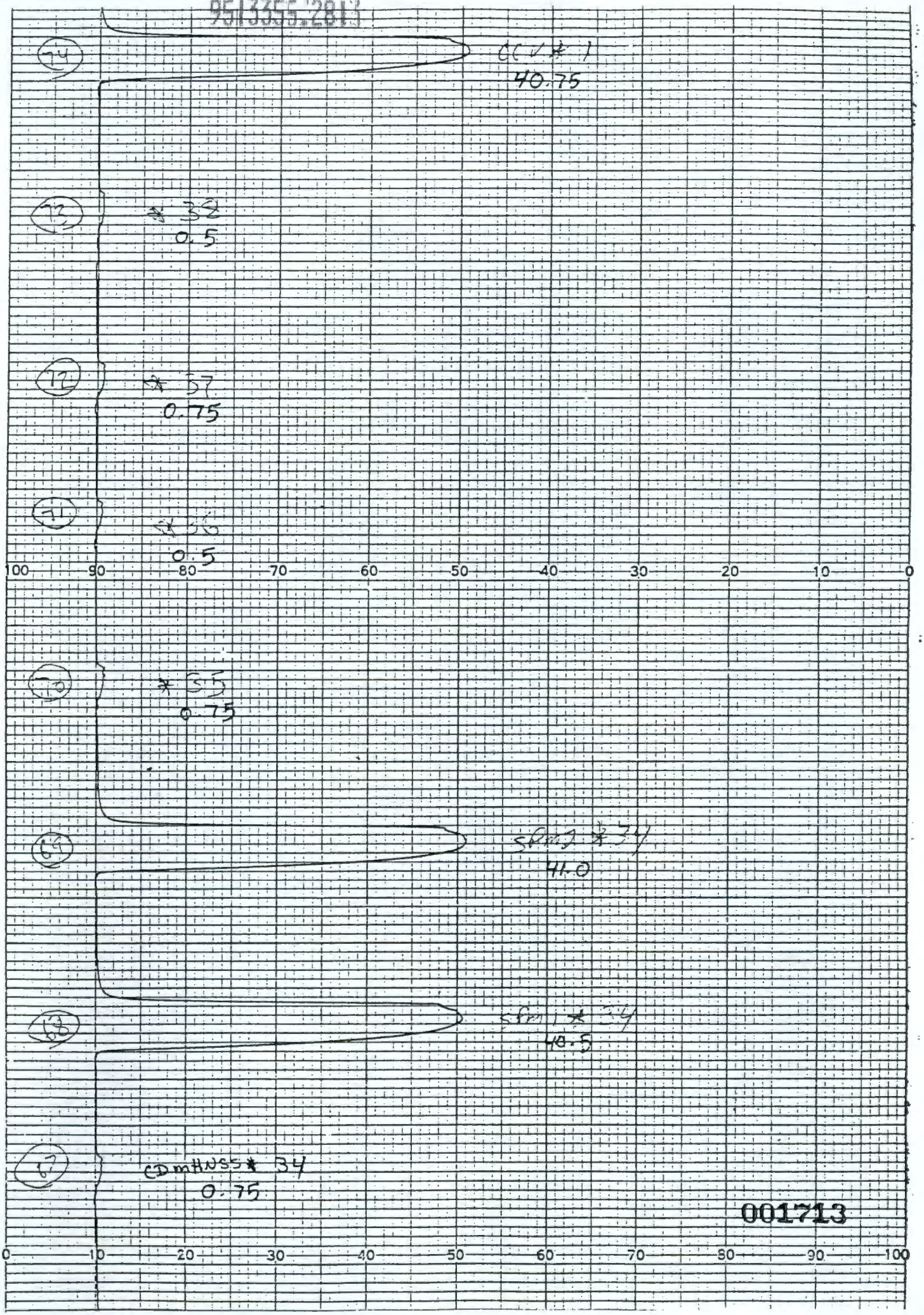
(3)

001712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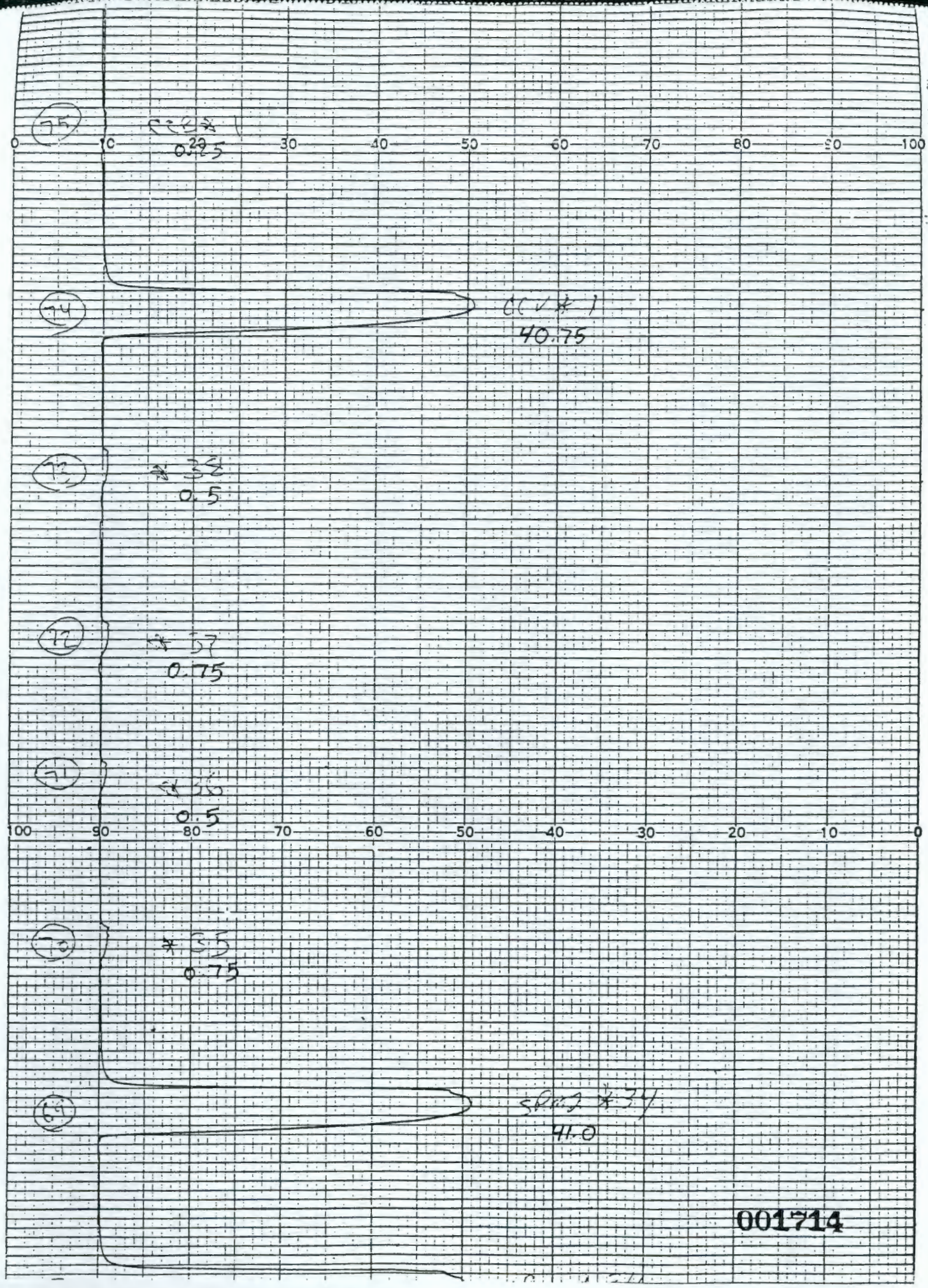
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71
56
0.5
100 90 80 70 60 50 40 30 20 10 0
70
55
0.75
69
SPW # 34
41.0

9513355.2815

5. SAMPLE PREP LOGSHEETS

95133552816

ICAP Metals

ATOMIC SPECTROSCOPY SAMPLE PREP

000072

Book No. 23 Pg. No.

Matrix Soils

Method/QC Type ICAP / FDEST

SOP No. ASM3233-004

Lot No.(s) N/A

Spike Solutions Used	Prep Date	Prep'd by	Exp. Date
1. ICAP/CLP SPK. SOLN.	4-25-94	DDZ	5-27-94
2.			

Final Vol. (mL) 100

Pipets Used 10.0 ml class 'A' volumetric

Balance No. 13

Hood No. 5

Hotplate No. 2

Sample No.	Weight (g)/ Init.Vol.(mL)	Spike Information
RB	—	REAGENTS ONLY
MB	1.0057	BLANK SAND
SP	1.0035	10.0 mls #1
CDMHNSS* 34	1.0262	
35	1.0168	
36	1.0234	
SPM1* 36	1.0277	10.0 mls #1
SPM2* 36	1.0243	10.0 mls #1
37	1.0249	
38	1.0281	

Signed 5-14-94 Date

Read & Understood By 5-14-94 Date

PROJECT ICAP CLP / FDER / USAEC MATRIX

Continued From Page —

ELEMENT	STOCK CONC. (ppm)	MFR	LOT #	EXP	MLS USED	FINAL CONC. (ppm)
Al	10,000	H	390505	7-94	2.0	20.0
Sb	1,000	S	3-865B	2-95	5.0	5.0
As		S	3-105As	1-95	20.0	20.0
Ba		S	3-107Ba	4-95	20.0	20.0
Be		H	390223	9-94	0.5	0.5
B		H	390812	10-94	10.0	10.0
Cd		H	390818	10-94	0.5	0.5
Ca	10,000	S	H-12Ca	12-94	10.0	100.0
Cr	1,000	S	3-124Cr	2-95	2.0	2.0
Co		S	3-114Co	10-94	5.0	5.0
Cu		H	390813	10-94	2.5	2.5
Fe	10,000	H	490222	4-95	1.0	10.0
Pb	1,000	S	3-106Pb	10-94	5.0	5.0
Li		S	2-252Li	10-94	5.0	5.0
Mg	10,000	S	G-245Mg	1-95	10.0	100.0
Mn	1,000	S	3-112Mn	2-95	5.0	5.0
Mo		H	390706	10-94	5.0	5.0
Ni		S	2-266Ni	10-94	5.0	5.0
K	10,000	S	H-274K	2-95	10.0	100.0
Se	1,000	S	3-70Se	12-94	20.0	20.0
Ag		H	390511	9-94	0.5	0.5
Na	10,000	S	G-164Na	3-95	10.0	100.0
Sr	1,000	H	390520	10-94	5.0	5.0
Tl		S	3-21Tl	2-95	20.0	20.0
Sn		H	390526	10-94	10.0	10.0
Ti		S	3-38Ti	2-95	5.0	5.0
V		H	390719	10-94	5.0	5.0
Zn		S	3-50Zn	10-94	5.0	5.0

MFR: H = High Purity S = SPEX

FINAL VOLUME = 1000 mls 20% HCL

EPPENDORF # 12051.5 AND VARIOUS SIZE CLASS 'A' VOLUMETRICS

Continued on Page

Read and Understood By

Signed 4-25-94 Date

Signed 4-25-94 Date

ICAP - CCV SOLUTION

Notebook: 2 Page: 2

Element	Manufacturer	Lot No.	Exp. Date	Stock Conc. (ppm)	Volume Used (mL)	Final Conc. (ppm)
As	SPEX	3-105AS	01/95	1000	1.4	0.7
Se	SPEX	3-70SE	12/94	1000	1.4	0.7
Tl	SPEX	3-21TL	02/95	1000	1.4	0.7
Sb	SPEX	3-86SB	02/95	1000	1.0	0.5
Ba	SPEX	3-107BA	04/95	1000	1.0	0.5
Be	High Purity	390223	09/94	1000	1.0	0.5
Cd	High Purity	390818	10/94	1000	1.0	0.5
Co	SPEX	3-100CO	03/95	1000	1.0	0.5
Cr	SPEX	3-124CR	02/95	1000	1.0	0.5
Cu	High Purity	390813	10/94	1000	1.0	0.5
Pb	SPEX	3-106PB	10/94	1000	1.0	0.5
Mn	SPEX	3-112MN	02/95	1000	1.0	0.5
Ni	SPEX	2-266NI	10/94	1000	1.0	0.5
V	High Purity	390719	10/94	1000	1.0	0.5
Zn	SPEX	3-50ZN	10/94	1000	1.0	0.5
Ag	High Purity	390511	09/94	1000	1.0	0.5
B	High Purity	390812	10/94	1000	1.0	0.5
Mo	High Purity	390706	10/94	1000	1.0	0.5
Sr	High Purity	390520	10/94	1000	1.0	0.5
Sn	High Purity	390526	10/94	1000	1.0	0.5
Ti	SPEX	3-38TI	02/95	1000	1.0	0.5
Al	High Purity	390505	07/94	10000	1.0	5.0
Ca	SPEX	H-12CA	12/94	10000	1.0	5.0
Fe	High Purity	490222	04/95	10000	1.0	5.0
Mg	SPEX	G-245MG	01/95	10000	1.0	5.0
K	SPEX	H-274K	02/95	10000	1.0	5.0
Na	SPEX	G-64NA	03/95	10000	1.0	5.0
Li	SPEX	2-252LI	10/94	1000	1.0	5.0

ICAP - CCV solution made to a final acid concentration of 5% (v/v) HCl and 5% (v/v) HNO_3, and to a final volume of 2000 mL.

This solution expires: 06/11/94 (Good for 33 days).

Stored at room temperature.

Prepared by: Date: Read and understood by: Date:

5/10/94 5/10/94

CCVSOLN.ICP

ICAP - CALIBRATION STANDARDS

Notebook: 2 Page: 1

Standard 2

Element	Manufacturer	Lot No.	Exp. Date	Stock Conc. (ppm)	Volume Used (mL)	Final Conc. (ppm)
As	SPEX	3-105AS	01/95	1000	1.0	1.0
Se	SPEX	3-70SE	12/94	1000	1.0	1.0
Tl	SPEX	3-21TL	02/95	1000	1.0	1.0
Sb	SPEX	3-86SB	02/95	1000	1.0	1.0
Ba	SPEX	3-107BA	04/95	1000	1.0	1.0
Be	High Purity	390223	09/94	1000	1.0	1.0
Cd	High Purity	390818	10/94	1000	1.0	1.0
Co	SPEX	3-100CO	03/95	1000	1.0	1.0
Cr	SPEX	3-124CR	02/95	1000	1.0	1.0
Cu	High Purity	390813	10/94	1000	1.0	1.0
Pb	SPEX	3-106PB	10/94	1000	1.0	1.0
Mn	SPEX	3-112MN	02/95	1000	1.0	1.0
Ni	SPEX	2-266NI	10/94	1000	1.0	1.0
V	High Purity	390719	10/94	1000	1.0	1.0
Zn	SPEX	3-50ZN	10/94	1000	1.0	1.0

Standard 3

Al	High Purity	390505	07/94	10000	1.0	10.0
Ca	SPEX	H-12CA	12/94	10000	1.0	10.0
Fe	High Purity	490222	04/95	10000	1.0	10.0
Mg	SPEX	G-245MG	01/95	10000	1.0	10.0
K	SPEX	H-274K	02/95	10000	10.0	100.0
Na	SPEX	G-64NA	03/95	10000	1.0	10.0

Standard 4

Ag	High Purity	390511	09/94	1000	1.0	1.0

Standard 5

B	High Purity	390812	10/94	1000	1.0	1.0
La	SPEX	3-71LA	10/94	1000	1.0	1.0
Li	SPEX	2-252LI	10/94	1000	1.0	1.0
Mo	High Purity	390706	10/94	1000	1.0	1.0
P	High Purity	390819	10/94	1000	1.0	1.0
Si	SPEX	3-11SI	10/94	1000	1.0	1.0
Sr	High Purity	390520	10/94	1000	1.0	1.0
Sn	High Purity	390526	10/94	1000	1.0	1.0
Ti	SPEX	3-38TI	02/95	1000	1.0	1.0

Standards made to a final acid concentration of 5% (v/v) HCl and 5% (v/v) HNO_3, and to a final volume of 1000 mL.

This solution expires: 06/11/94 (Good for 33 days).
Stored at room temperature.

Prepared by: [signature] Date: 5/10/94

Read and understood by: [signature] Date: 5-10-94

ICAPSTDS.ICP

Notebook No. 1

PROJECT ICP ICV 19 + 7

Continued From Page —

ICV 19

5 ml of SPEX QC19
CAS # 7697-37-2
Lot # 5-181AS
Expires: 8-15-94

ICV 7

5 ml of SPEX QC7
CAS # 7697-37-2
Lot # 5-129AS
Expires: 8-15-94

Final Volume = 500 ml (5% conc HNO_3, 5% conc. HCl)

Used Class "A" Volumetric pipets

Remade:

Date	Initials
3-21-94	GLP
4/22/94	GCP

Continued on Page —

Read and Understood By

Signed	Date	Signed	Date
[signature]	2-18-94	[signature]	2-18-94

PROJECT ICP ICS A + AB Solns.

Continued From Page —

ICS A Soln.

50 ml of PE PURE #7697-37-2
Lot # 6-21 AS
Expires: 12-31-94

ICS AB Soln.

50 ml of PE PURE #7697-37-2
Lot # 6-21 AS
Expires: 12-31-94

5 ml of PEPURE #7697-37-2
Lot # 5-81 AS
Expires: 9-30-94

Final Volume = 500 ml (6% conc HCl)

Used class "A" volumetric pipets.

Remarks:

Date	Initials
3-21-94	GLP
4-22-94	GLP

Continued on Page —

Read and Understood By

Signed	Date	Signed	Date
[signature]	2-18-94	[signature]	2-18-94

9513355.2823

GFAA Metals - Arsenic

9513355.2824

(4)

ATOMIC SPECTROSCOPY SAMPLE PREP

000074

Book No. 23 Pg. No.

Matrix ~~ASM3233-003~~ Soils Method/QC Type GFAA / FDGFT

SOP No. ASM3233-003 Lot No.(s) N/A

Spike Solutions Used	Prep Date	Prep'd by	Exp. Date
1. ASM3233-007 Soln. A	4-24-94	DJZ	5-27-94
2.			

Final Vol. (mL) 100 Pipets Used EPPEN # 120565

Balance No. 13 Hood No. 5 Hotplate No. 2

Sample No.	Weight (g)/ Init.Vol.(mL)	Spike Information
RB	—	REAGENTS ONLY
MB	1.0025	BLANK SAND
SP	1.0039	1.0 ml #1
CDMHN55 * 34	1.0260	
35	1.0127	
36	1.0239	
SPM1 * 36	1.0261	1.0 ml #1
SPM2 * 36	1.0260	1.0 ml #1
37	1.0215	
38	1.0259	

Signed 5-14-94 Date

David V. Nichols 5-14-94 Read & Understood By Date

001724

Notebook No. 11

PROJECT ASM3233-007 Soln A

Continued From Page —

Element	Stock conc	mls used	Final conc.	Target	Lot#	Exp	MFG
As	1,000	4.0	4000	40	3-105As	1-95	SPEX
Cr		2.0	2000	20	3-124Cr	4-95	SPEX
Pb		2.0	2000	20	3-106Pb	10-94	SPEX
Mo		2.0	2000	20	3907106	10-94	High Purity
Se		1.0	1000	10	3-70Se	12-94	SPEX
Tl		5.0	5000	50	3-21Tl	2-95	SPEX
V		2.0	2000	20	3907119	10-94	High Purity

Eppendorf # 1205165
Class 'A' volumetrics 2, 4, 5 mls
Final volume is 1000 mls
1% HNO_3

Continued on Page —

Read and Understood By

Signed 4-25-94 Date

Signed 001725 4-25-94 Date

PROJECT 10 PPm As, Se, Tl, Pb SOLN and working STDS.

Continued From Page

1000 PPm STOCK SOLN'S

element	manufacturer	Lot #	DATE REC'd	DATE EXP.
As	Fisher	925266-24	7/93	7/94 ?
Se	SPex	3-705E	1-14-94	12-31-94
Pb	mallinckrodt	H544KLBY-P	11/93	2/95
Tl	mallinckrodt	H584KJSG-P	4/93	10/94

10 PPm SOLUTION: transferred 2.0 mls of each stock solution to a 200 ml volumetric flask containing DI and 10 mls conc. HNO_3, and brought it up to volume with DI water.
Solution expires 6/4/94

Working Standards (Prepared fresh daily)

100 PPb: transferred 2 mls of the 10 PPm solution to a 200 ml volumetric flask containing 10 ml conc. HNO_3 and brought it up to volume with D.I. water.

10 PPb: transferred 10 mls of the 100 PPb solution to a 100 ml volumetric flask containing 5 ml conc. HNO_3 and brought it up to volume with D.I.

50 PPb: transferred 0.5 mls of the 10 ppm solution to a 100 ml volumetric flask containing 5 ml conc. HNO_3 and brought it up to volume with D.I.

All standards are 5% HNO_3

Working standards made Daily

Date	Initials
5/4/94	CAH
5/5/94	JOR
5/9/94	VMS
5/10/94	CAH
5/11/94	KNG
5/12/94	KNG
5/13/94	JOR
5/16/94	VMS

Continued on Page

Read and Understood By

Signed 5-3-94 Date Signed 5-3-94 Date

PROJECT ICV PE-PURE

Notebook No. 1

Continued From Page —

ICV 4/29/94

Transferred 0.5 ml of PE-PURE STOCK SOLN ~~LOT~~ (Lot #15-6905, CAS #7697-37-2, Rec 7/29/93, Exp 9/30/94) to a 1000 ml volumetric flask. ADDED 50.0 ml CONC HNO_3 and brought to volume with DI water.

ELEMENT	(PPm) STOCK SOLN CONC	(PPb) ICV SOLN CONC
Hg	5	2.5
Cd	25	12.5
Se	25	12.5
As	100	50
Be		
Cr		
Co		
Cu		
Fe		
Pb		
Mn		
Ni		
Zn		
V	250	125
Al	500	250

SOLN IS 5% HNO_3

STORED AT ROOM ~~TEMP~~ TEMP

ICV 4/29/94

SOLN EXP 10/27/94

Continued on Page —

Read and Understood By

Signed 4/29/94 Date

Signed 4/29/94 Date

9513355.2828

GFAA Metals - Selenium

9513355.2829

(4)

ATOMIC SPECTROSCOPY SAMPLE PREP

000674

Book No. 23 Pg. No.

Matrix ~~ASM3233-003~~ Soils Method/QC Type GFAA / FDGOT

SOP No. ASM3233-003 Lot No.(s) N/A

Spike Solutions Used	Prep Date	Prep'd by	Exp. Date
1. ASM3233-007 Soln. A	4-24-94	DJZ	5-27-94
2.			

Final Vol. (mL) 100 Pipets Used EPPEND # 120565

Balance No. 13 Hood No. 5 Hotplate No. 2

Sample No.	Weight (g)/ Init.Vol.(mL)	Spike Information
RB	—	REAGENTS ONLY
MB	1.0025	BLANK SAND
SP	1.0039	1.0 ml #1
CDMHNSS*34	1.0360	
35	1.0127	
36	1.0239	
SPM1*36	1.0261	1.0 ml #1
SPM2*36	1.0260	1.0 ml #1
37	1.0215	
38	1.0259	

Signed 5-14-94 Date

David V. Nichols Read & Understood By 5-14-94 Date

001729

Element	Stock Conc	mls used	Final Conc.	Target	Lot#	Exp	Mfg
As	1,000	4.0	4000	40	3-105As	1-95	SPEX
Cr		2.0	2000	20	3-124Cr	4-95	SPEX
Pb		2.0	2000	20	3-106Pb	10-94	SPEX
Mo		2.0	2000	20	3907016	10-94	High Purity
Se		1.0	1000	10	3-70Se	12-94	SPEX
Tl		5.0	5000	50	3-21Tl	2-95	SPEX
V		2.0	2000	20	3907119	10-94	High Purity

Eppendorf # 1205165
Class 'A' volumetrics 2, 4, 5 mls
Final volume is 1000 mls
1% HNO_3

Continued on Page —

Read and Understood By

Signed	Date	Signed	Date
[signature]	4-25-94	[signature]	4-25-94

PROJECT ICV - SPEX primarily for CLP

Notebook No. 1

Continued From Page

STOCK SOLN: SPEX (100 PPM) LOT 5-181A
Rec 8/93 EXP 8/94

Transferred 0.25 ml of Stock Soln into a 500 ml CLASS A VOLUMETRIC Flask containing 25 ml Conc HNO_3 and 10 ml H_2O_2 and DI water. The solution was then brought to volume with DI water

ELEMENT	STOCK CONC (PPM)	ICV SOLN CONC (PPb)
Sb	100	50
As		
Be		
Cd		
Ca		
Cr		
Co		
Cu		
Fe		
Pb		
MgB		
Mn		
Mo		
Ni		
Se		
Tl		
Ti		
V		
Zn		

PIPETS USED: BIOHIT 1000 #2

SOL EXP 10-18-94

Continued on Page

Read and Understood By

Signed 4-18-94 Date Signed 4/18/94 Date

PROJECT 10 PPm As, Se, Tl, Pb SOLN and working STDs.

Continued From Page

1000 PPm STOCK SOLN'S

element	manufacturer	Lot #	DATE REC'd	DATE EXP.
As	Fisher	925266-24	7/93	7/94
Se	SPEX	3-70SE	1-14-94	12-31-94
Pb	Mallinckrodt	H544KLBY-P	11/93	2/95
Tl	Mallinckrodt	H584KJSG-P	4/93	10/94

10 PPm SOLUTION: TRANSFERRED 2.0 mls of each stock solution to a 200 ml volumetric flask containing DI and 10 mls conc. HNO_3, and brought it up to volume with DI water.
SOLUTION EXPIRES 6/4/94

Working Standards (Prepared fresh daily)

100 PPb: transferred 2 mls of the 10 PPm solution to a 200 ml volumetric flask containing 10 ml conc. HNO_3 and brought it up to volume with D.I. water.

10 PPb: Transferred 10 mls of the 100 PPb solution to a 100 ml volumetric flask containing 5 ml conc. HNO_3 and brought it up to volume with D.I.

50 PPb: Transferred 0.5 mls of the 10 ppm solution to a 100 ml volumetric flask containing 5 ml conc. HNO_3 and brought it up to volume with D.I.

All standards are 5% HNO_3

Working Standards made Daily

Date	Initials
5/4/94	CAH
5/5/94	JOR
5/9/94	VMS
5/10/94	CAH
5/11/94	KNG
5/12/94	KNG
5/13/94	JOR
5/16/94	VMS

Continued on Page

Signed [illegible] Date 5-3-94

Read and Understood By

Signed [illegible] Date 5-3-94

The SPX was prepared by adding one part high standard to one part sample. A dilution factor of 2 is entered in the data batch and the target will equal the high standard concentration.

9513355.2834

Mercury

9513355.2835

(4)

ATOMIC SPECTROSCOPY SAMPLE PREP

MERCURY Book No.: 13 Pg.No.: 31

Matrix: soils
SOP No.: asm3233-042

Method/QC Type: CVAA\FDER
Lot No.(s): na

	Spike Solutions Used	Prep Date	Prep'd by	Exp. Date
1.	icv*pe-pure Hg soln	05-09-94	CAH	06-09-94
2.	100 PPB Hg SOLN.	05-16-94	KNG	05-17-94

Final Vol.(ml): 100ML

Pipets Used: CLASS A VOLUMETRICS

Balance No.: 13 Hood No.: NA Hotplate No.: NA

SAMPLE NO.	WEIGHT(g) OR Init.Vol.(ml)	SPIKE INFO./COMMENT
ICV*1	100ML	100ml #1
REAGENT BLANK	100ML	
MB*1	0.2213g	
SP*1	0.2478g	5.0ml #2
CDMHNSS*34	0.2160g	
SPM1*CDMHNSS*34	0.2265g	5.0ml #2
SPM2*CDMHNSS*34	0.2027g	5.0ml #2
CDMHNSS*35	0.2295g	
CDMHNSS*36	0.2017g	
CDMHNSS*37	0.2042g	
CDMHNSS*38	0.2420g	

Signed Date 5-16-94

Read and Understood By Date 5/17/94

001735

[redacted]

PROJECT 100 PPB Hg Soln

Notebook No. 8

Continued From Page —

#1 High Purity Lot # ~~29463~~ 370534 -I AWN 3/22/94 Rec'd 2-16-94 EXP 8/94

Transfer 1 ml of standard 10 ppm stock into 100 ml volumetric flask, added 1 ml conc HNO_3 and brought to volume with DI

#2 High Purity Lot # 490126 Rec'd 2-16-94 EXP 8/94

Same as above

Final volume = 100 ml, 1% HNO_3

Standard Reread Daily

AWN	3/22/94	KSB	4-20-94
KSB	3/23/94	AWN	4-20-94
CAH	3/24/94	MSS	4-21-94
BC	3/25/94	BC	4-22-94
DVW	3-28-94	KNG	4-25-94
LMS	3-29-94	CAH	4/25/94
DDZ	3-30-94	LMS	4/26/94
CAH	3/31/94	BC	4-27-94
AWN	4/1/94	AWN	4/27/94
~~KNG~~	~~4/2/94~~ KNG 4-4-94	KSB	5-2-94
KNG	4-4-94	MSS	4/29/94
CAH	4/4/94	CAH	5-3-94
MSS	4/5/94	BC	5-4-94
LMS	4/6/94	MSS	5-4-94
KSB	4/8/94	MSS	5-5-94
AWN	4/11/94	KNG	5-6-94
BC	4-12-94	CAH	5/9/94
MSS	4-13-94	BC	5-10-94
KNG	4-14-94	MSS	5-11-94
CAH	4/15/94	LMS	5/12/94
LMS	4/18/94	CAH	5/12/94
AWN	4/19/94	KSB	5/13/94

KNG 5-16-94

Continued on Page —

Read and Understood By

Signed 3/22/94 Date

Signed 3-22-94 Date

9513355.2837

Notebook No. 11

PROJECT 5.0 µg/L Hg PE PURE ICV SOL'N

Continued From Page —

NEAT SOLN:

PE PURE LOT # 5-227AS REC'D 12/03/93 EXP: 1/12/95

TRANSFER 1.0 mL OF 5 µg/mL Hg NEAT SOL'N INTO 1000 mL VOLUMETRIC FLASK, ADD 10 mL CONC. HCl, DILUTE TO VOLUME C̄ DI H_2O.

SOL'N GOOD FOR SIX MONTHS

FINAL CONC. = 5.0 µg/L (50 ppb)

USE BIOHIT 1000 PIPET #1

REMADE:

DATE	INITIALS
4-21-94	MSS
4-27-94	BC
5-3-94	CAH
5-4-94	CAH

Continued on Page —

Read and Understood By

Signed: [illegible] Date: 4/15/94

Signed: [illegible] Date: 4-15-94

9513355.2830

Total Recoverable
Petroleum Hydrocarbons
Sample EA11-1-07 (ESE# CDMHNSS*21)

COVER PAGE

Lab Name: ESE Project No.: 1944022G SDG No: G48781

Client ID	Laboratory ID	Matrix	Analysis	Date Collected	Date Received	Date Analyzed
ICB1	ICB*QC*1	S	TRPH	00/00/00	00/00/00	05/05/94
ICV1	ICV*QC*1	S	TRPH	00/00/00	00/00/00	05/05/94
PBLK1	MB*5/3/94*1	S	TRPH	00/00/00	00/00/00	05/05/94
SP1	SP1*5/3/94*1	S	TRPH	00/00/00	00/00/00	05/05/94
SP2	SP2*5/3/94*1	S	TRPH	00/00/00	00/00/00	05/05/94
EA11-1-07	CDMHNSS*21	S	TRPH	04/29/94	05/03/94	05/05/94
EA11-1-07MS	SPM1*CDMHNSS	S	TRPH	04/29/94	05/03/94	05/05/94
EA11-1-07MSD	SPM2*CDMHNSS	S	TRPH	04/29/94	05/03/94	05/05/94
EA01-1-10	CDMHNSS*22	S	TRPH	05/02/94	05/03/94	05/05/94
EA01-1-10D	RP*CDMHNSS*2	S	TRPH	05/02/94	05/03/94	05/05/94
PBLK2	MB*5/4/94*1	S	TRPH	00/00/00	00/00/00	05/05/94
SP3	SP1*5/4/94*1	S	TRPH	00/00/00	00/00/00	05/05/94
SP4	SP2*5/4/94*1	S	TRPH	00/00/00	00/00/00	05/05/94
OCS1-1-00	CDMHNSS*23	S	TRPH	05/03/94	05/04/94	05/05/94
OCS1-1-00D	RP*CDMHNSS*2	S	TRPH	05/03/94	05/04/94	05/05/94
OCS1-1-00MS	SPM1*CDMHNSS	S	TRPH	05/03/94	05/04/94	05/05/94
OCS1-1-00MSD	SPM2*CDMHNSS	S	TRPH	05/03/94	05/04/94	05/05/94
CCB1	CCB*QC*1	S	TRPH	00/00/00	00/00/00	05/05/94
CCV1	CCV*QC*1	S	TRPH	00/00/00	00/00/00	05/05/94
CCB2	CCB*QC*2	S	TRPH	00/00/00	00/00/00	05/05/94
CCV2	CCV*QC*2	S	TRPH	00/00/00	00/00/00	05/05/94

Comments:

9513355.2840

Quality Control Data

001740

ESE METHOD BLANK SUMMARY

Client ID

PBLK1

Lab Name: ESE Project No: 1944022G SDG No.: G48781

Lab Sample ID: MB*5/3/94*1 Lab File ID:

Matrix:(soil/water) SOIL Instrument ID:

Date Analyzed : 05/05/94

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

CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
EA11-1-07	CDMHNSS*21	05/05/94
EA11-1-07MS	SPM1*CDMHNSS*21	05/05/94
EA11-1-07MSD	SPM2*CDMHNSS*21	05/05/94
EA01-1-10	CDMHNSS*22	05/05/94
OCS1-1-00	CDMHNSS*23	05/05/94
OCS1-1-00MS	SPM1*CDMHNSS*23	05/05/94
OCS1-1-00MSD	SPM2*CDMHNSS*23	05/05/94

COMMENTS:

FORM IV ESE

ANALYSIS DATA SHEET

Client ID

PBLK1

Lab Name: ESE Project No.: 1944022G SDG No.: G48781

Matrix: (soil/water) SOIL Lab Sample ID: MB*5/3/94*1

Sample wt/vol: 20. Lab File ID:

%Moisture: pH: Dilution Factor: 1.00

Date Analyzed: 05/05/94 Date Received: 00/00/00

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	500.	
	%T OF SAMPLE ()	450.	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.0	
	HYDROCARBONS,PETROL (MG/KG-DR	8.36	U

FORM I ESE

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client ID

EA11-1-07MS

Lab Name: ESE Project No.: 1944022G SDG No.: G48781

COMPOUND	SPIKE ADDED	SAMPLE CONCENTRATION	MS CONCENTRATION	MS % REC #	QC LIMITS REC.
HYDROCARBONS,PETROL	441	43.2	308	69.8	67-135

COMPOUND	SPIKE ADDED	MSD CONCENTRATION	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HYDROCARBONS,PETROL	441	320	72.6	3.9	34	67-135

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

* Values outside of QC limits

COMMENT:

FORM III ESE

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client ID

OCS1-1-00MS

Lab Name: ESE Project No.: 1944022G SDG No.: G48781

COMPOUND	SPIKE ADDED	SAMPLE CONCENTRATION	MS CONCENTRATION	MS % REC #	QC LIMITS REC.
HYDROCARBONS, PETROL	449	0.	382	85.1	67-135

COMPOUND	SPIKE ADDED	MSD CONCENTRATION	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HYDROCARBONS, PETROL	449	382	85.1	0.0	34	67-135

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

* Values outside of QC limits

COMMENT:

FORM III ESE

Client ID

REFERENCE STANDARD

SP1

Lab Name: ESE

SDG No: G48781

Lab Sample ID: SP1*5/3/94*1

Date Analyzed: 05/05/94

Standard Source:

Instrument ID:

Analyte	True	Found	C	%Recv	Limits
HYDROCARBONS,PETROL	425.	401.		94.4	67-135

Comments:

FORM V ESE

Client ID

REFERENCE STANDARD

SP2

Lab Name: ESE

SDG No: G48781

Lab Sample ID: SP2*5/3/94*1

Date Analyzed: 05/05/94

Standard Source:

Instrument ID:

Analyte	True	Found	C	%Recv	Limits
HYDROCARBONS,PETROL	425.	387.		91.1	67-135

Comments:

9513355.2847

Client ID

REFERENCE STANDARD

SP3

Lab Name: ESE

SDG No: G48781

Lab Sample ID: SP1*5/4/94*1

Date Analyzed: 05/05/94

Standard Source:

Instrument ID:

Analyte	True	Found	C	%Recv	Limits
HYDROCARBONS,PETROL	425.	401.		94.4	67-135

Comments:

FORM V ESE

Client ID

REFERENCE STANDARD

SP4

Lab Name: ESE

SDG No: G48781

Lab Sample ID: SP2*5/4/94*1

Date Analyzed: 05/05/94

Standard Source:

Instrument ID:

Analyte	True	Found	C	%Recv	Limits
HYDROCARBONS,PETROL	425.	387.		91.1	67-135

Comments:

FORM V ESE

REPLICATES

EA01-1-10D

Lab Name: ESE Project No: 1944022G SDG No: G48781

Lab Sample ID: RP*CDMHNSS*2 2 Date Analyzed: 05/05/94

%Moisture for Sample: 8.9 %Moisture for Duplicate: 8.9

Analyte	Sample	C	Replicate	C	RPD	Q	Limit
	90.		500.		455.6		
	74.0		406.		448.6		
D-ABS	0.4665		0.4665		0.0		
TRPH	4920.		4920.		0.0		

Comments:

FORM IX ESE

CALIBRATION CURVES

Lab Name: ESE

SDG #: G48781

Analyte: HYDROCARBONS,PETROL

Instrument ID:

Curve #	Analysis Date	Concentration	Response	Retention Time (min)	Correlation Coeff. (r)
1	05/05/94	0.0000 1.672 3.344 8.360 16.72 33.44 83.60	90. 86. 83. 75. 64. 43. 16.		.9996

Control Limits: r = 0.995

Comments:

95133555.2851

Analytical Data

Client ID

ANALYSIS DATA SHEET

EA11-1-07

Lab Name: ESE Project No.: 1944022G SDG No.: G48781

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*21

Sample wt/vol: 20. Lab File ID:

%Moisture: 3.8 pH: Dilution Factor: 1.00

Date Analyzed: 05/05/94 Date Received: 05/03/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	75.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.4116	
	HYDROCARBONS,PETROL (MG/KG-DR	43.2	

FORM I ESE

Client ID

ANALYSIS DATA SHEET

EA01-1-10

Lab Name: ESE Project No.: 1944022G SDG No.: G48781

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*22

Sample wt/vol: 20. Lab File ID:

%Moisture: 8.9 pH: Dilution Factor: 1.00

Date Analyzed: 05/05/94 Date Received: 05/03/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	74.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.4665	
	HYDROCARBONS,PETROL (MG/KG-DR	4920.	D

FORM I ESE

Client ID

ANALYSIS DATA SHEET

EA01-1-10

Lab Name: ESE Project No.: 1944022G SDG No.: G48781

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*22

Sample wt/vol: 20. Lab File ID:

%Moisture: 8.9 pH: Dilution Factor: 100.0

Date Analyzed: 05/05/94 Date Received: 05/03/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	74.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.4665	
	HYDROCARBONS,PETROL (MG/KG-DR	4920.	D

FORM I ESE

Client ID

ANALYSIS DATA SHEET

EA01-1-10D

Lab Name: ESE Project No.: 1944022G SDG No.: G48781

Matrix: (soil/water) SOIL Lab Sample ID: RP*CDMHNSS*22

Sample wt/vol: 20. Lab File ID:

%Moisture: 8.9 pH: Dilution Factor: 1.00

Date Analyzed: 05/05/94 Date Received: 05/03/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	500.	
	%T OF SAMPLE ()	406.	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.4665	
	HYDROCARBONS,PETROL (MG/KG-DR	4920.	D

FORM I ESE

Client ID

CALIBRATION BLANKS

ICB1

Lab Name: ESE Project No.: 1944022G SDG No: G48781

Lab Sample ID: ICB*QC*1 Instrument ID:

Analyte	Conc	C	CRDL
D-ABS	90	U	1.672
TRPH	90.0		
	0.0		
	0.0		

FORM VII ESE

Client ID

CCB1

CALIBRATION BLANKS

Lab Name: ESE Project No.: 1944022G SDG No: G48781

Lab Sample ID: CCB*QC*1 Instrument ID:

Analyte	Conc	C	CRDL
D-ABS	90	U	1.672
TRPH	90.0		
	0.0		
	0.0		

FORM VII ESE

Client ID

CCB2

CALIBRATION BLANKS

Lab Name: ESE Project No.: 1944022G SDG No: G48781

Lab Sample ID: CCB*QC*2 Instrument ID:

Analyte	Conc	C	CRDL
D-ABS	90	U	1.672
TRPH	90.0		
	0.0		
	0.0		

FORM VII ESE

9513355.2859

Client ID

ICV1

CALIBRATION VERIFICATION

Lab Name: ESE Project No: 1944022G SDG No: G48781

Lab Sample ID: ICV*QC*1 Date Analyzed: 05/05/94

Instrument ID:

Analyte	True	Found	C	%Diff	Limit
TRPH	33.4	33.0		1.2	

Comments:

FORM VIII ESE

Client ID

CCV1

CALIBRATION VERIFICATION

Lab Name: ESE Project No: 1944022G SDG No: G48781

Lab Sample ID: CCV*QC*1 Date Analyzed: 05/05/94

Instrument ID:

Analyte	True	Found	C	%Diff	Limit
TRPH	16.7	16.7		0.0	

Comments:

FORM VIII ESE

9513355.2861

Client ID

CALIBRATION VERIFICATION

CCV2

Lab Name: ESE Project No: 1944022G SDG No: G48781

Lab Sample ID: CCV*QC*2 Date Analyzed: 05/05/94

Instrument ID:

Analyte	True	Found	C	%Diff	Limit
TRPH	16.7	16.0		4.2	

Comments:

FORM VIII ESE

9513355.2862

Raw Data

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
Water Extraction TRPH / Oil & Grease

Analyst: 3291 Date: 5/3/94 Storet: 98233 + A150N Batch: 648781

Date Read on Spectrophotometer: 5/3/94

Sample	Sample Weight	Extraction Volume	Dilution	Response	△A = standard A - baseline A
Baseline					
CDMHNSS#21	20 g	100 mL	1X		
22			100X		
21 SPM			1X		
21 SPM2					
SPK1					
SPK2			25		
BLK					
CDMHNSS#22RP			100X		

Calculations: -A Standard curve is generated by plotting concentration vs △ A.
-Sample concentrations are obtained by comparing the sample △ A to the standard curve.
-Concentration is multiplied by $\frac{\text{Extract Volume}}{\text{Sample Volume}}$ and then corrected for dilution factors.

A = log (100/Response)

(EXTRTRPH 11/91)

BOOK NO: B-0517

001763

~~000070~~

95133555.2861

... Fluid Recording Infrared Spectrophotometer Serial #: 125440

[redacted]

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
Water Extraction TRPH / Oil & Grease

Analyst: 3291 Date: 5/4/94 Storet: 98233&A150W Batch: 648781

Date Read on Spectrophotometer: 5/5/94

Sample	Sample Weight	Extraction Volume	Dilution	Response	△A = standard A - baseline A
Baseline					
CDM1+NSS+23	20g	100mL	1X		
23RP					
23SPM					
23SPM					
SPK1					
SPK2					
MB					

(EXTRTRPH 11/91)

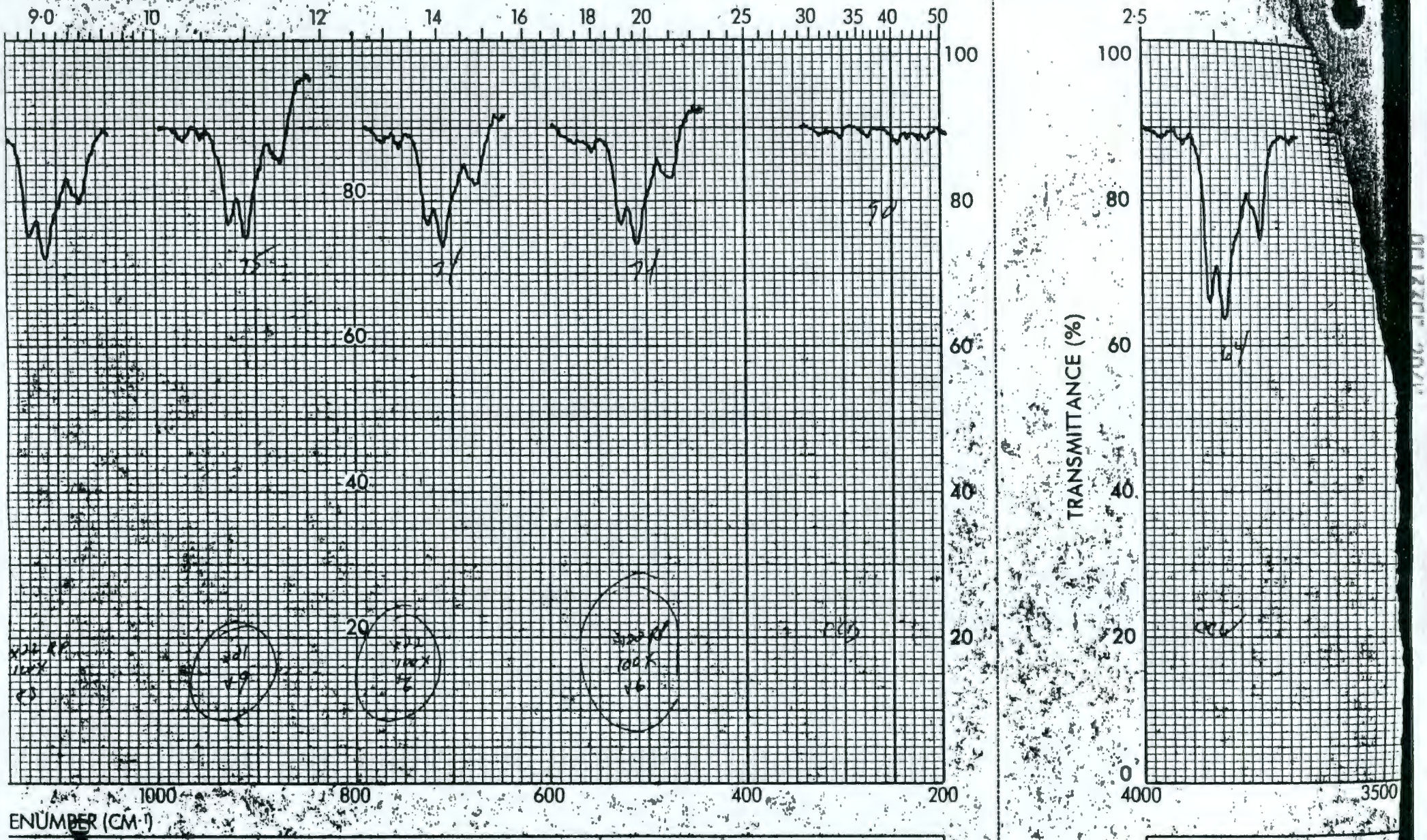
Calculations: -A Standard curve is generated by plotting concentration vs △ A.
-Sample concentrations are obtained by comparing the sample △ A to the standard curve.
-Concentration is multiplied by $\frac{\text{Extract Volume}}{\text{Sample Volume}}$ and then corrected for dilution factors.

A = log (100/Response)

BOOK NO: 13-0517 # 000072

001764

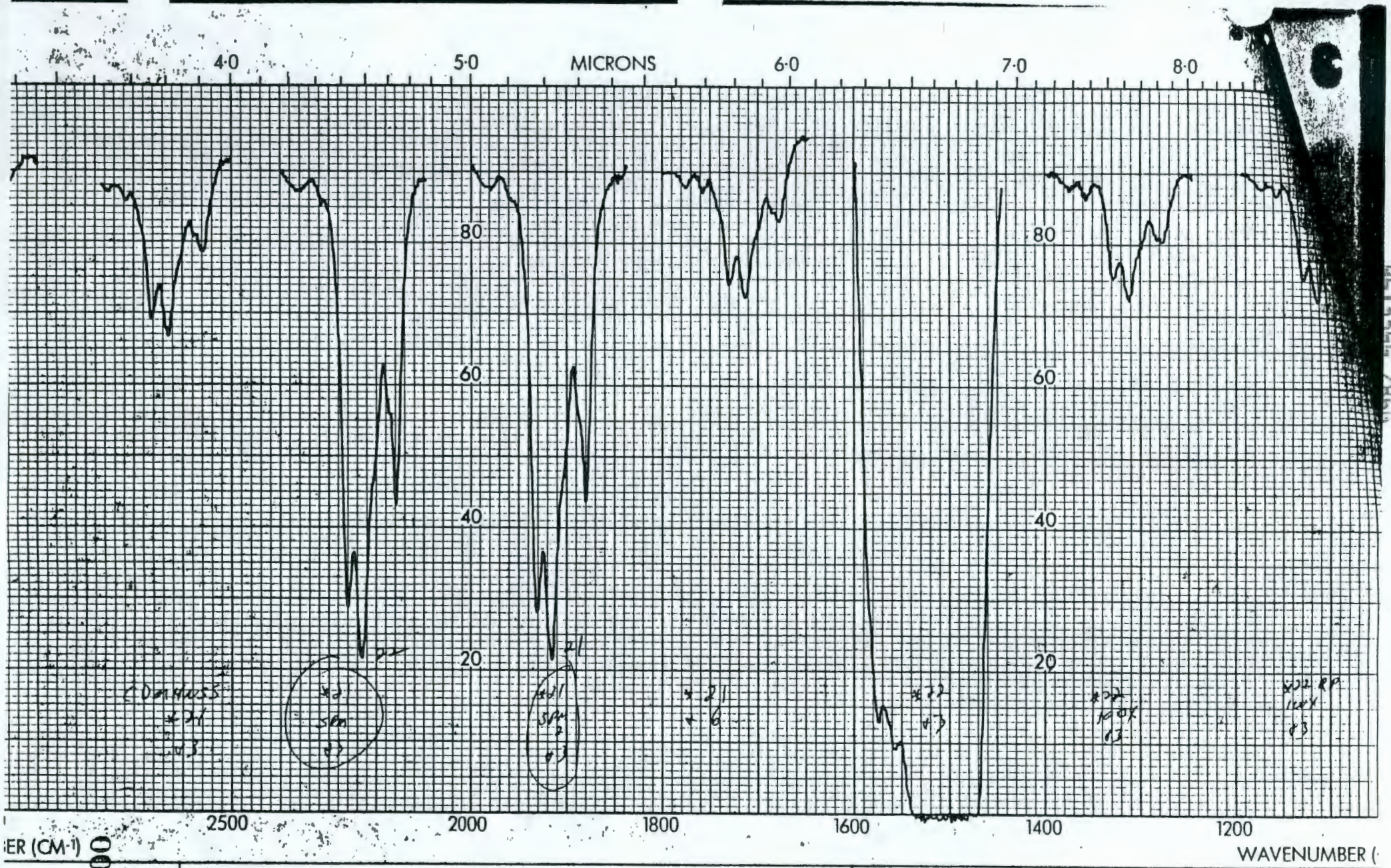
95133555.2864



017765	SCAN MODE ____ SLIT ____ TIME CONSTANT ____	OPERATOR ____ DATE ____
	GRAPHIC CONTROLS CORPORATION BUFFALO NEW YORK No. PR 5100-4367	REF No. ____

SAMPLE

ORIGIN



001766

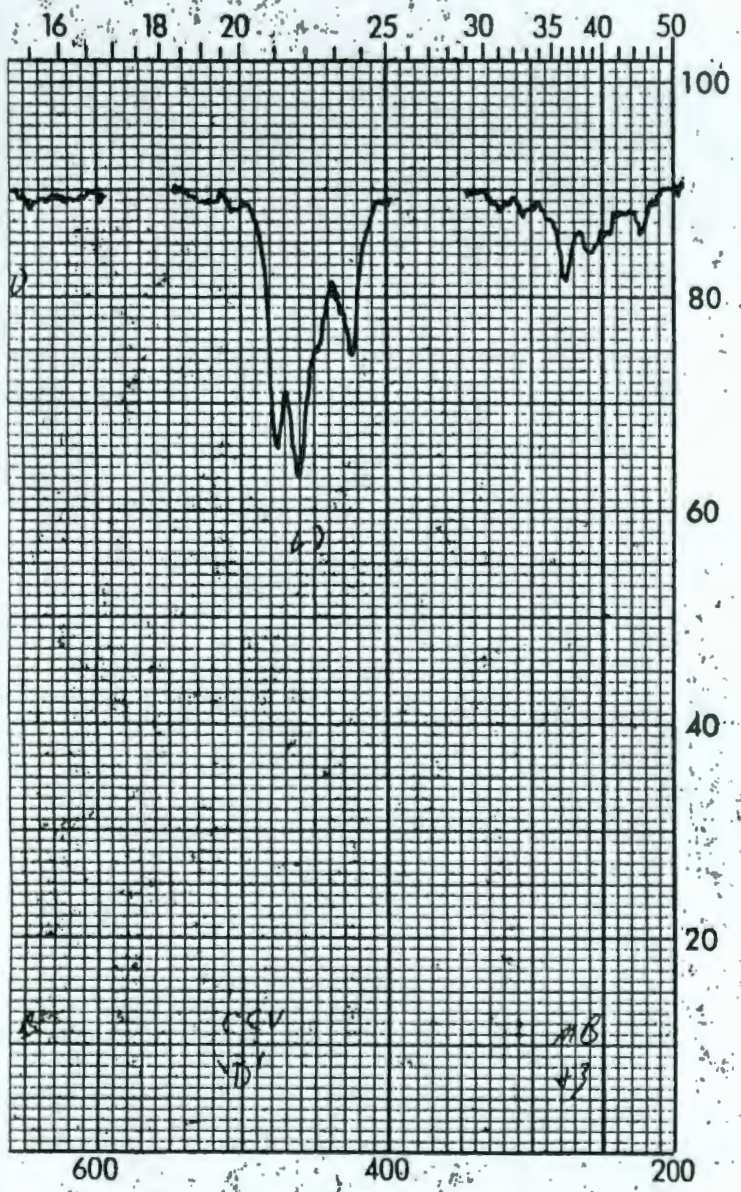
SOLVENT

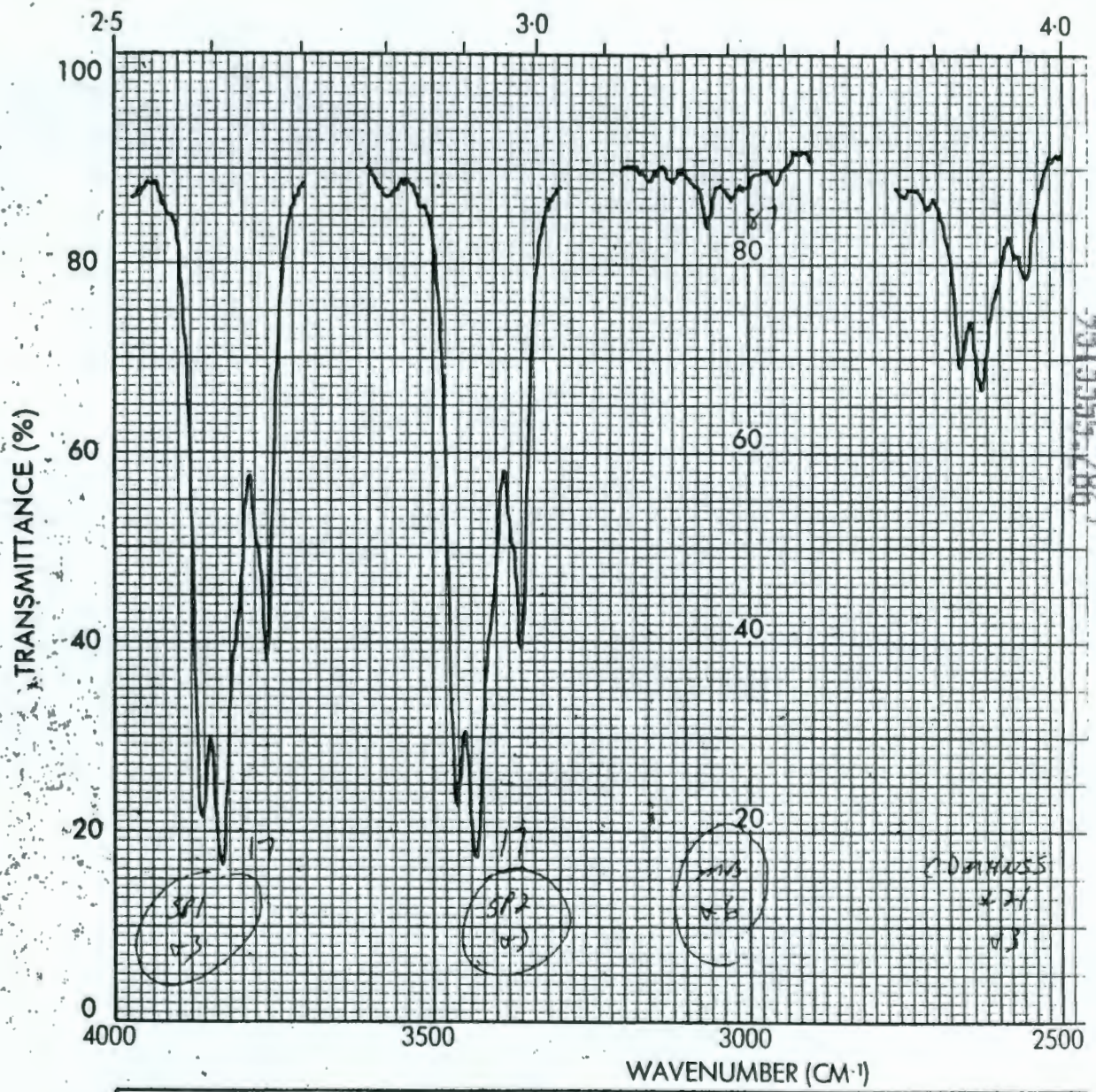
CONCENTRATION

CELL PATH

REFERENCE

REMARKS





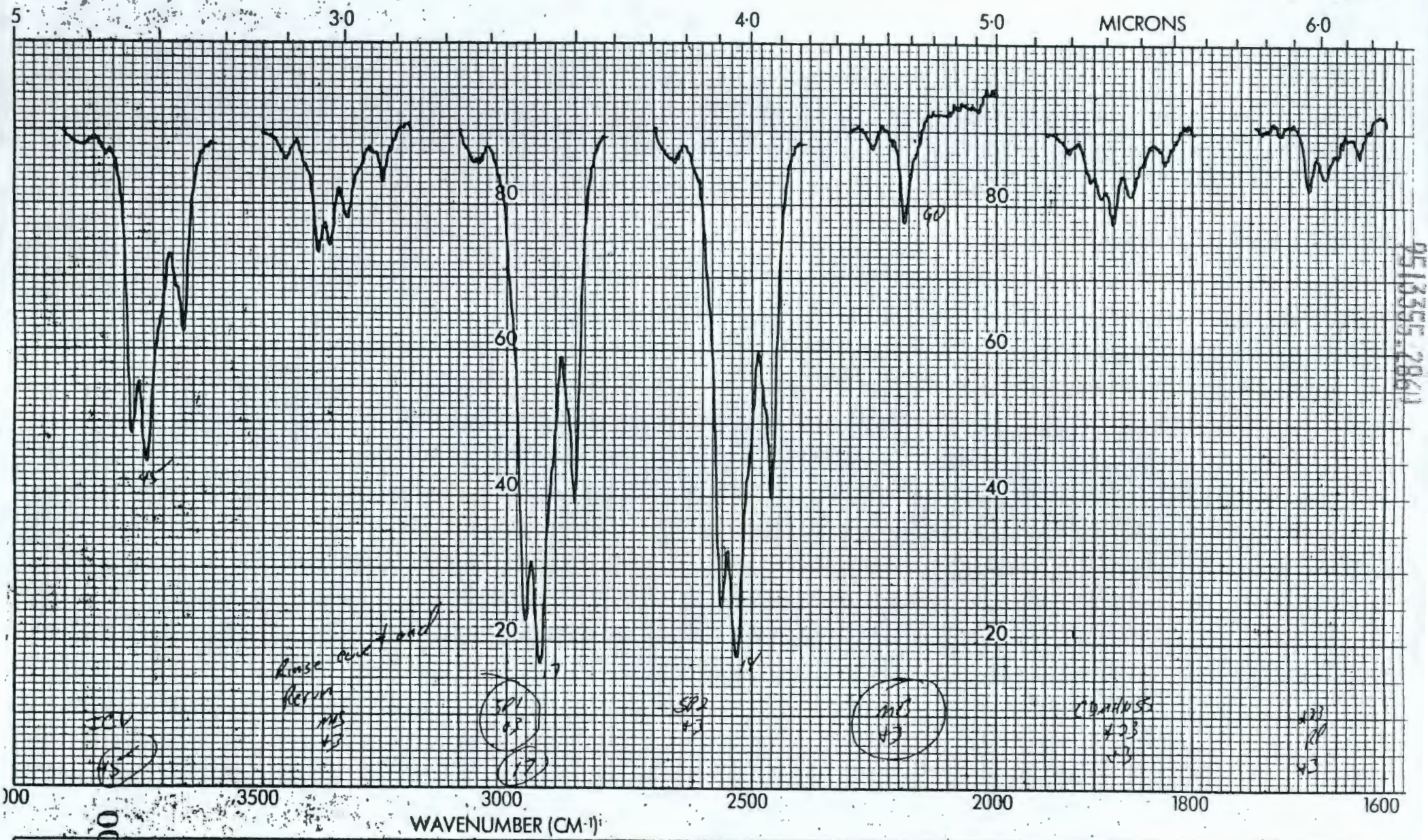
OPERATOR	
DATE	
REF No.	

SAMPLE	SOLVEN
	CONCI
	CELL PA
ORIGIN	REFERE

00176762

	REMARKS	SCAN MODE SLIT TIME CONSTANT	OPERATOR DATE
		GRAPHIC CONTROLS CORPORATION BUFFALO NEW YORK No. PR 5100-4367	REF No.

00176768



SAMPLE

ORIGIN

SOLVENT

CONCENTRATION

CELL PATH

REFERENCE

RE

001769

SCAN MODE

SLIT TIME CONSTANT

GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
No. PR 5100-4367

OPERATOR

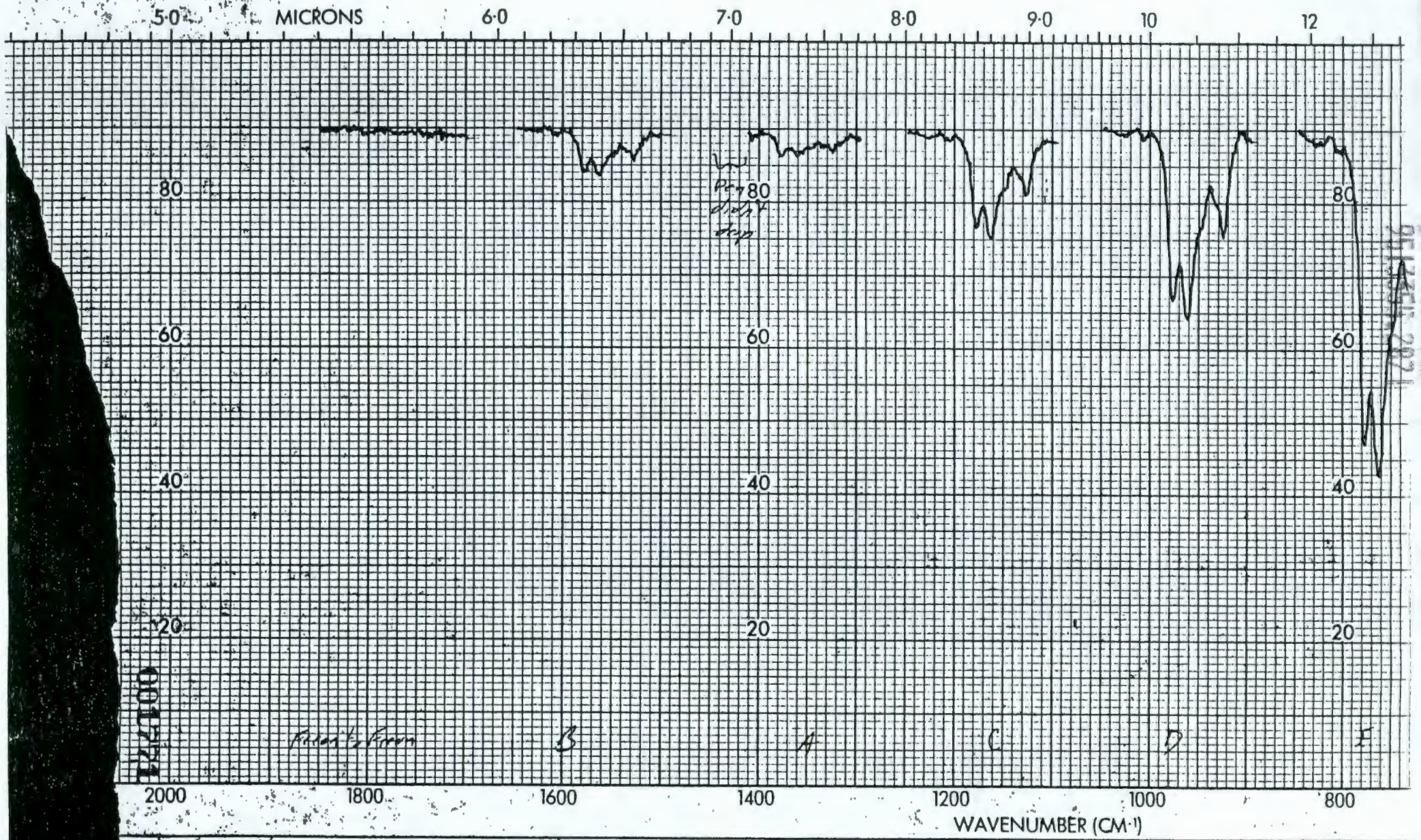
DATE

REF No.

SAMPLE

ORIGIN

001770



K. Allen G48781
5/5/91
TRPH

REMARKS

SCAN MODE
SLIT TIME CO

GRAPHIC CONTROL
BUFFALO
No. PR 51

9513355.2872

Other Relevant Documents

ESE. ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. | **ORGANIC LABORATORY/EXTRACTION LOG SHEET**

PROJECT: CDM-HANFORD N SLOPE
PROJECT NO.: 19440223 0201
EXTRACTOR(S): DLC (3291)
DATE: 5-03-94

CASE NO.: NA
CLEAN-UP: NA
TIME: 9:00AM

EXTRACTION METHOD: 418.1 TRPH Soil
SAMPLE FRACTION: SS
CHECKED BY: NM
BALANCE USED: #23

BOOK NO: B-1430 075

SAMPLE NO.	VOLUME-ml MASS-gr.	INITIAL/ FINAL pH	TYPE/DATE OF CLEAN-UP	FINAL VOL. SOLVENT	SURRO-GATE ADDED Y/N	COMMENTS
CDMHWSS#21	20gr	NA	NA	100ml Freon	N	1.0 ml to 21 MS/MSD Spiked Control Stock
22						Conc. 0.849g/100ml 1.0 ml in 20gr Soil
21 MS						418.1 TRPH Soil Spike for
21 MSD						
Spk 1						Spiked by DLC Witnessed by: NM
Spk 2						
BLK						
22 Dup						
						Freon Lot # G35299

CHAIN-OF-CUSTODY RECORD

FORM 87282

001773

9513355.2873

PROJECT C.Dm HANFORD N Slope

Notebook No. 1007

Continued From Page

1944 0223 0201 DLC

418.1 TRPH Soil SS

Samples CDMHNSS*

1) Weighed up 20 gr sample with Na_2SO_4 for DC and added Na_2SO_4 to dry sample weighed out into 150ml beaker
2) Soaked in MSMSD Sol
3) Added 30 ml freon and sonicated for 3 min as sample let settle
4) Poured three wetted filter funnel into 100 ml volumetric flask
5) Repeat steps 3 & 4 two more times
6) Bring to volume with 100 ml volumetric with freon in 100ml volumetrics
7) To Water Quality DLC 5-03-94 3:30pm.

WDL 5-03-94 PWDL 5-03-94

Continued on Page

Read and Understood By

Signed: [illegible] Date: 5-03-94

Signed: [illegible] Date: 5/3/94

ECOLOGY AND ENVIRONMENT, INC. — ORGANIC LABORATORY EXTRACTION LOG SHEET

PROJECT: COM - HANFORD N. SLOPE
PROJECT NO.: 19440226-0201 CASE NO.: NA
EXTRACTOR(S): BMD CLEAN-UP: NA
DATE: 3/4/94 TIME: 1PM

EXTRACTION METHOD: 418.1 TRPH Soil
SAMPLE FRACTION: SS
CHECKED BY: CAT
BALANCE USED: #26

BOOK NO: 0432

SAMPLE NO.	VOLUME-ml MASS-gr.	INITIAL/ FINAL pH	TYPE/DATE OF CLEAN-UP	FINAL VOL. SOLVENT	SURRO-GATE ADDED Y/N	COMMENTS
COMHN35*23	20.0g.	NA	NA	100ml. Freon	N	1.0ml. 418.1 TRPH Spike #0 23MS, 23MSD,
23 DUP						SPK-1, SPK-2: 0.849g/100ml. Control Stock
23 MS						
23MSD						Spiked: BMD , Mix: CAT
SPK-1						
SPK-2						Freon Lot # 635299
BLK						

CHAIN-OF-CUSTODY RECORD

001775

9513355.2871

PROJECT COM- HANFORD N. SLOPE

Notebook No. 982

Continued From Page

Proj. # 1944226-0201 Method: 418.1 TRPH Soil
Extractor: BMD Fraction: 35
Samples: COMHN35 * 23, 23 DUP, 23 MS, 23 MSD, SPK1, SPK2, BLK.
1- Weighed 20.0g. soil into 150ml. beakers. Used baked Na_2SO_4 for DC.
2- Added 20g. baked Na_2SO_4 to dry and spiked.
3- Added 50.0ml. Freon and sonicated for 3 min.
4- Let settle and decanted through funnels with silicone treated phase separator filters into 100ml. volumetrics.
5- Repeated steps 3+4 twice more times and brought to volume.
BMD 5/4/94

Continued on Page

Read and Understood By

B. Duchnie 5-4-94 Joana Crenshaw 5-4-94
Signed Date Signed Date

Oil and Grease And Petroleum Hydrocarbon, Total Recoverable Extraction for Water

Standard Method 16th Edition Method 503C and 503E
EPA Method 418.1

Date Read on IR Spectrophotometer : 5/5/94 Analyst : K. Allen

Storet : 5V233* AHSON Batch # : 648781

Date Stock Standard Was Made : 4/19/94

Standard Curve (mg/L)	Response	A = log (100 / Response)	Δ A = standard A - baseline A
Baseline	89/90		
A 1.672	86		
B 3.344	83		
C 8.360	75		
D 16.72	64		
E 33.44	43		
F 83.6	16		

Q.C. Data	G Volume of Spike	H Conc. of Spiking Std. (units!)
SP1		
SP2		
SPM		

Target = $\frac{G \times H}{\text{Vol. Sample X (\%M)}}$

Instrument : Perkin Elmer 1420 Ratio Recording Infrared Spectrophotometer Serial #: 129448

000069

BOOK NO. B-0517

001777

95133555.2871

9513355.2870

Total Recoverable
Petroleum Hydrocarbons
Samples WA04-4-08 (ESE# CDMHNSS*29)
WSV2-1-01 (ESE# CDMHNSS*30)

COVER PAGE

Lab Name: ESE Project No.: 1944022G SDG No: G48928

Client ID	Laboratory ID	Matrix	Analysis	Date Collected	Date Received	Date Analyzed
PBLK1	MB*QC*1	S	TRPH	00/00/00	00/00/00	05/09/94
SP1	SP1*QC*1	S	TRPH	00/00/00	00/00/00	05/09/94
WA04-3-20	CDMHNSS*28	S	TRPH	05/04/94	05/06/94	05/09/94
WA04-4-08	CDMHNSS*29	S	TRPH	05/04/94	05/06/94	05/09/94
WSV2-1-01	CDMHNSS*30	S	TRPH	05/04/94	05/06/94	05/09/94
WBG3-1-02	CDMHNSS*31	S	TRPH	05/04/94	05/06/94	05/09/94
EWC1-1-00	CDMHNSS*32	S	TRPH	05/05/94	05/06/94	05/09/94
WWC2-1-00	CDMHNSS*33	S	TRPH	05/05/94	05/06/94	05/09/94
WBG3-1-02D	RP*CDMHNSS*3	S	TRPH	05/04/94	05/06/94	05/09/94
WA04-3-20MS	SPM1*CDMHNSS	S	TRPH	05/04/94	05/06/94	05/09/94
WA04-3-20MSD	SPM2*CDMHNSS	S	TRPH	05/04/94	05/06/94	05/09/94
ICB1	ICB*QC*1	S	TRPH	00/00/00	00/00/00	05/09/94
ICV1	ICV*QC*1	S	TRPH	00/00/00	00/00/00	05/09/94
CCB1	CCB*QC*1	S	TRPH	00/00/00	00/00/00	05/09/94
CCV1	CCV*QC*1	S	TRPH	00/00/00	00/00/00	05/09/94

Comments:

9513356.2880

Quality Control Data

Client ID

PBLK1

ESE METHOD BLANK SUMMARY

Lab Name: ESE Project No: 1944022G SDG No.: G48928

Lab Sample ID: MB*QC*1 Lab File ID:

Matrix:(soil/water) SOIL Instrument ID:

Date Analyzed : 05/09/94

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

CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
WA04-3-20	CDMHNSS*28	05/09/94
WA04-4-08	CDMHNSS*29	05/09/94
WSV2-1-01	CDMHNSS*30	05/09/94
WBG3-1-02	CDMHNSS*31	05/09/94
EWC1-1-00	CDMHNSS*32	05/09/94
WWC2-1-00	CDMHNSS*33	05/09/94
WA04-3-20MS	SPM1*CDMHNSS*28	05/09/94
WA04-3-20MSD	SPM2*CDMHNSS*28	05/09/94

COMMENTS:

FORM IV ESE

9513355.2882

Client ID

ANALYSIS DATA SHEET

PBLK1

Lab Name: ESE Project No.: 1944022G SDG No.: G48928

Matrix: (soil/water) SOIL Lab Sample ID: MB*QC*1

Sample wt/vol: 20.0. Lab File ID:

%Moisture: .005 pH: Dilution Factor: 1.00

Date Analyzed: 05/09/94 Date Received: 00/00/00

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	500.	
	%T OF SAMPLE ()	450.	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.0	
	HYDROCARBONS,PETROL (MG/KG-DR	8.36	U

FORM I ESE

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client ID

WA04-3-20MS

Lab Name: ESE Project No.: 1944022G SDG No.: G48928

COMPOUND	SPIKE ADDED	SAMPLE CONCENTRATION	MS CONCENTRATION	MS % REC #	QC LIMITS REC.
HYDROCARBONS,PETROL	436	0.	336	77.1	67-135

COMPOUND	SPIKE ADDED	MSD CONCENTRATION	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HYDROCARBONS,PETROL	436	336	77.1	0.0	34	67-135

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

* Values outside of QC limits

COMMENT:

FORM III ESE

9513356.2884

Client ID

REFERENCE STANDARD

SP1

Lab Name: ESE

SDG No: G48928

Lab Sample ID: SP1*QC*1

Date Analyzed: 05/09/94

Standard Source:

Instrument ID:

Analyte	True	Found	C	%Recv	Limits
HYDROCARBONS,PETROL	425.	374.		88.0	67-135

Comments:

FORM V ESE

Client ID

CALIBRATION BLANKS

ICB1

Lab Name: ESE Project No.: 1944022G SDG No: G48928

Lab Sample ID: ICB*QC*1 Instrument ID:

Analyte	Conc	C	CRDL
D-ABS	90	U	1.672
TRPH	90.0		
	0.0		
	0.177		

FORM VII ESE

Client ID

CCB1

CALIBRATION BLANKS

Lab Name: ESE Project No.: 1944022G SDG No: G48928

Lab Sample ID: CCB*QC*1 Instrument ID:

Analyte	Conc	C	CRDL
D-ABS	90	U	1.672
TRPH	90.0		
	0.0		
	0.177		

FORM VII ESE

9513555.2887

Client ID

ICV1

CALIBRATION VERIFICATION

Lab Name: ESE Project No: 1944022G SDG No: G48928

Lab Sample ID: ICV*QC*1 Date Analyzed: 05/09/94

Instrument ID:

Analyte	True	Found	C	%Diff	Limit
TRPH	34.0	33.4		1.8	

Comments:

FORM VIII ESE

9513356.2880

Client ID

CALIBRATION VERIFICATION

CCV1

Lab Name: ESE Project No: 1944022G SDG No: G48928

Lab Sample ID: CCV*QC*1 Date Analyzed: 05/09/94

Instrument ID:

Analyte	True	Found	C	%Diff	Limit
TRPH	33.4	36.8		10.2	

Comments:

FORM VIII ESE

REPLICATES

WBG3-1-02D

Lab Name: ESE Project No: 1944022G SDG No: G48928

Lab Sample ID: RP*CDMHNSS*3 Date Analyzed: 05/09/94

%Moisture for Sample: 6.1 %Moisture for Duplicate: 6.1

Analyte	Sample	C	Replicate	C	RPD	Q	Limit
	90.		500.		455.6		
	90.0		479.		432.2		
D-ABS	0.0		0.0				
TRPH	8.90	U	8.90	U			

Comments:

FORM IX ESE

CALIBRATION CURVES

Lab Name: ESE

SDG #: G48928

Analyte: HYDROCARBONS,PETROL

Instrument ID:

Curve #	Analysis Date	Concentration	Response	Retention Time (min)	Correlation Coeff. (r)
1	05/09/94	0.00	90.		.9994
		1.672	88.		
		3.344	85.		
		8.360	77.		
		16.72	65.		
		33.44	44.		
		83.60	17.		

Control Limits: r = 0.995

Comments:

9513355.2891

Analytical Data

Client ID

WA04-3-20

ANALYSIS DATA SHEET

Lab Name: ESE Project No.: 1944022G SDG No.: G48928

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*28

Sample wt/vol: 20.0. Lab File ID:

%Moisture: 2.6 pH: Dilution Factor: 1.00

Date Analyzed: 05/09/94 Date Received: 05/06/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	90.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.0	
	HYDROCARBONS,PETROL (MG/KG-DR	8.58	U

FORM I ESE

9513355.2894

Client ID

ANALYSIS DATA SHEET

WA04-4-08

Lab Name: ESE Project No.: 1944022G SDG No.: G48928

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*29

Sample wt/vol: 20.0. Lab File ID:

%Moisture: 4.9 pH: Dilution Factor: 1.00

Date Analyzed: 05/09/94 Date Received: 05/06/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	66.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.7082	
	HYDROCARBONS,PETROL (MG/KG-DR	82.0	

FORM I ESE

Client ID

ANALYSIS DATA SHEET

WSV2-1-01

Lab Name: ESE Project No.: 1944022G SDG No.: G48928

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*30

Sample wt/vol: 20.0. Lab File ID:

%Moisture: 2.4 pH: Dilution Factor: 1.00

Date Analyzed: 05/09/94 Date Received: 05/06/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	89.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.0251	
	HYDROCARBONS,PETROL (MG/KG-DR	8.57	U

FORM I ESE

9513355.2895

Client ID

ANALYSIS DATA SHEET

WBG3-1-02

Lab Name: ESE Project No.: 1944022G SDG No.: G48928

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*31

Sample wt/vol: 20.0. Lab File ID:

%Moisture: 6.1 pH: Dilution Factor: 1.00

Date Analyzed: 05/09/94 Date Received: 05/06/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	90.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.0	
	HYDROCARBONS,PETROL (MG/KG-DR	8.90	U

FORM I ESE

Client ID

ANALYSIS DATA SHEET

EWC1-1-00

Lab Name: ESE Project No.: 1944022G SDG No.: G48928

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*32

Sample wt/vol: 20.0. Lab File ID:

%Moisture: 2.3 pH: Dilution Factor: 1.00

Date Analyzed: 05/09/94 Date Received: 05/06/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	33.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	2.230	
	HYDROCARBONS,PETROL (MG/KG-DR	255.	

FORM I ESE

Client ID

ANALYSIS DATA SHEET

WWC2-1-00

Lab Name: ESE Project No.: 1944022G SDG No.: G48928

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*33

Sample wt/vol: 20.0. Lab File ID:

%Moisture: 2.1 pH: Dilution Factor: 1.00

Date Analyzed: 05/09/94 Date Received: 05/06/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	72.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.4949	
	HYDROCARBONS,PETROL (MG/KG-DR	57.2	

FORM I ESE

Client ID

ANALYSIS DATA SHEET

WBG3-1-02D

Lab Name: ESE Project No.: 1944022G SDG No.: G48928

Matrix: (soil/water) SOIL Lab Sample ID: RP*CDMHNSS*31

Sample wt/vol: 20.0. Lab File ID:

%Moisture: 6.1 pH: Dilution Factor: 1.00

Date Analyzed: 05/09/94 Date Received: 05/06/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	500.	
	%T OF SAMPLE ()	479.	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.0	
	HYDROCARBONS,PETROL (MG/KG-DR	8.90	U

FORM I ESE

9513355.2899

Raw Data

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

SOIL **Extraction TRPH / Oil & Grease** original strip chart in Batch G48922

Analyst: Eric Anderson Extraction Date: 05/06/94 Storet: 98233* AISON Batch: G48928

Extractor: DLC (3291) Date Read on Spectrophotometer: 05/09/94

Sample	Sample Weight	Extraction Volume	Dilution	Response	△A = standard A - baseline A
Baseline				90	
MB	20 g	100 ml	1X	90	
SP1				20	
SP2				20	
CDMHNS5 *28				90	
*29				66	
*30				89	
*31				90	
*32				33	
*33				72	
*31 RP				90	
Spm1 *28				24	
Spm2 *28				24	
ICB	NA	NA	NA	90	
ICV				46	
CCB #3				90	
CCV #3				43	

(EXTRTRPH 11/91)

Calculations: -A Standard curve is generated by plotting concentration vs △ A.
-Sample concentrations are obtained by comparing the sample △ A to the standard curve.
-Concentration is multiplied by $\frac{\text{Extract Volume}}{\text{Sample Volume}}$ and then corrected for dilution factors.

A = log (100/Response)

9513355.29011

NOTES FOR TRPH CALCULATION PROGRAM

1) Storet 95129*0 is for the baseline reponse for the run.

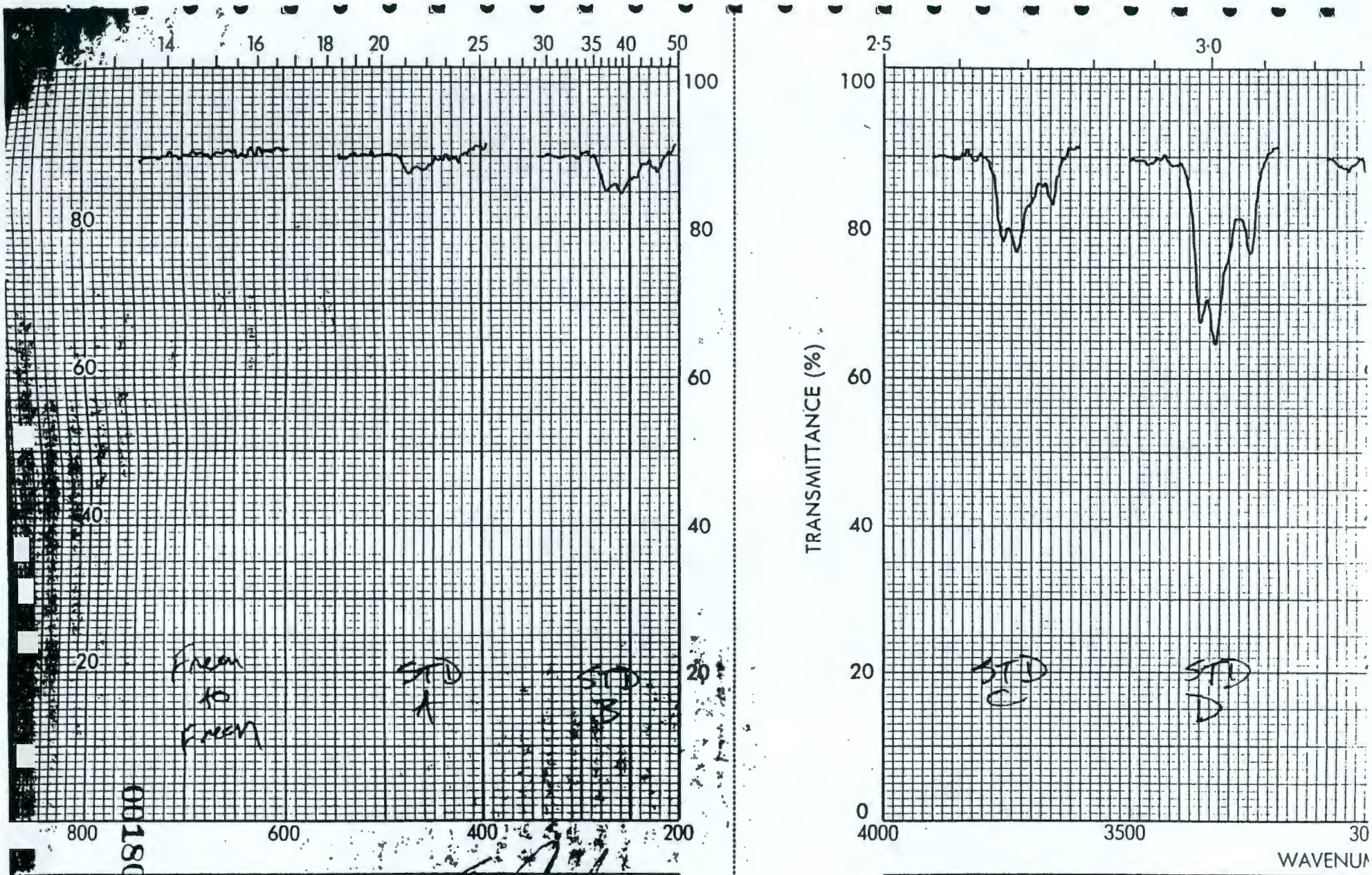
2) Storet 95130*0 is for the sample response.

3) Storet 95167*0 is for the raw input of delta absorbance and is produced by the calculation program. It appears as a raw value on the Parameter Specific Raw Data page. The value shown under delta absorbance on the Sample Results page reflects sample weight/volume, extract volume and percent moisture.

4) Storet 98233*I is for the calculation based on raw input only. The value shown in this storet on the Sample Results page reflects the calculated TRPH taking into account sample weight/volume, extract volume and percent moisture.

5) The numbers shown corresponding to Conc' on the Quality Control Summary page are meaningless and are base on % transmittance plugged into the equation which is concentration vs. response.

6) Any dilutions should be entered into the TRPH storet only.



001802

N MODE

TIME CONSTANT

GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
No. PR 5100-4367

OPERATOR

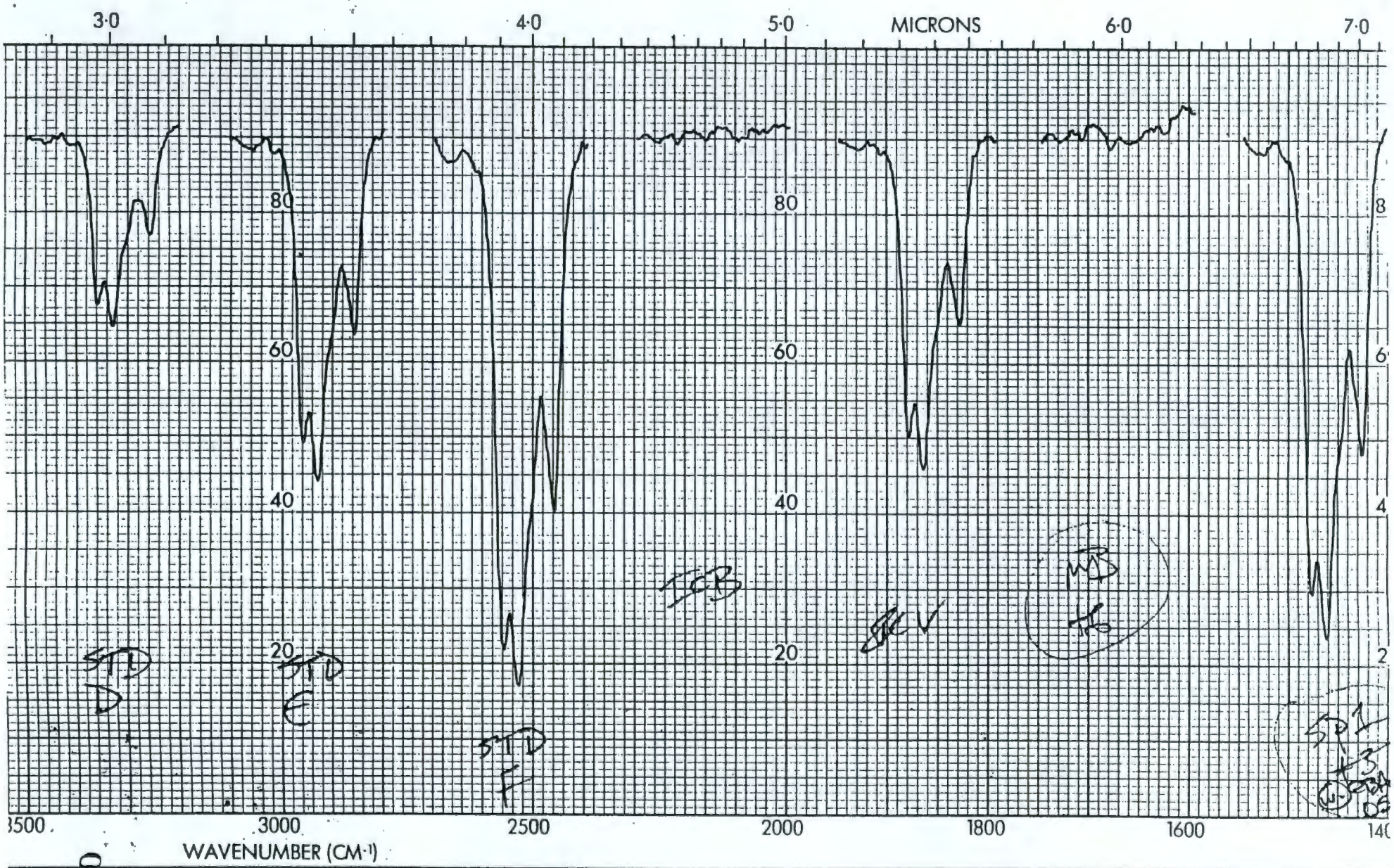
DATE 05/09/94 1430hrs

REF No. UKDHS SOIL

SAMPLE Original Strip Chart in Batch 648922

ORIGIN

9513355.2901



SOLVENT

CONCENTRATION

CELL PATH

REFERENCE

REMARKS

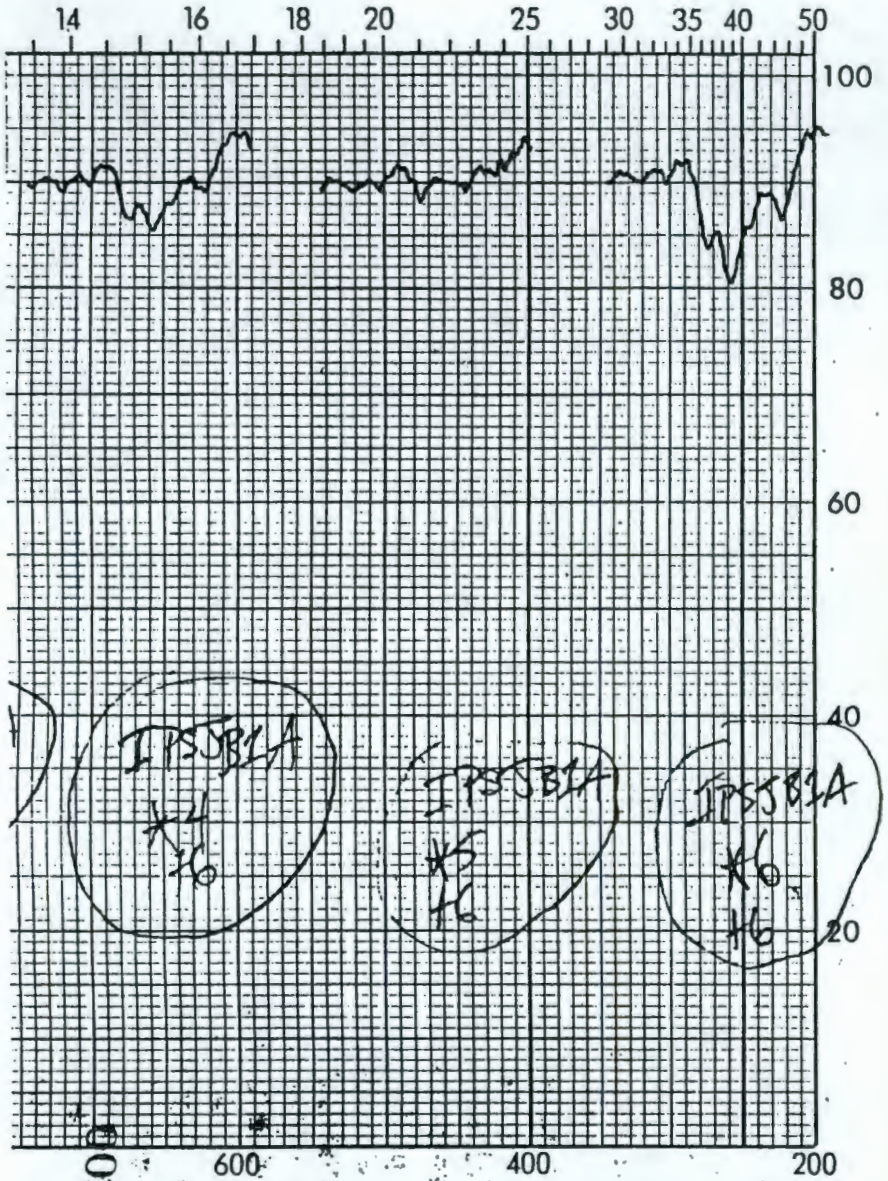
001803

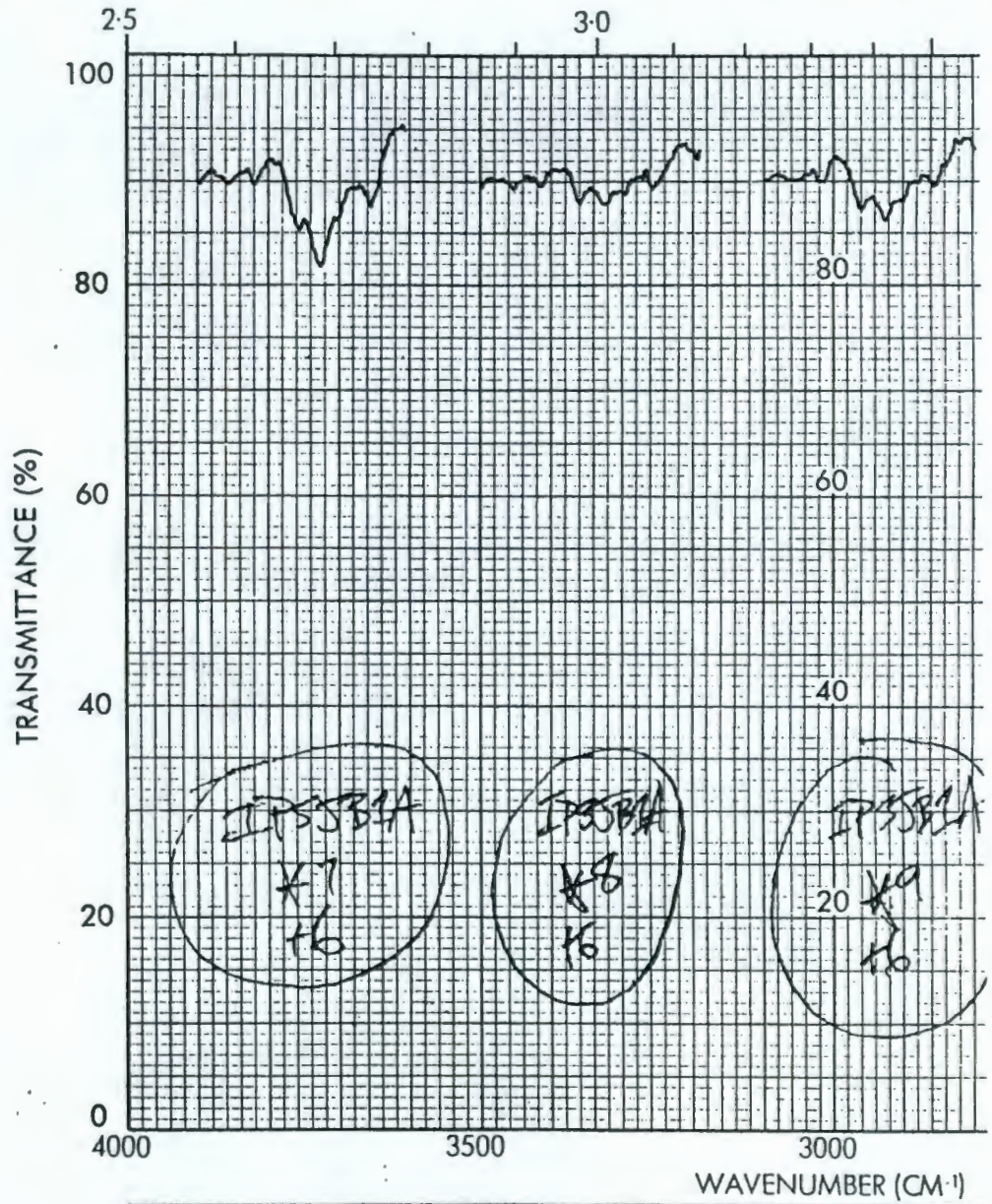
95133554.2901

	REMARKS	SCAN MODE	OPERATOR
		SLIT TIME CONSTANT	DATE
		GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK No. PR 5100-4367	REF No.

001804

95133556.2904





CONSTANT

OPERATOR

DATE

REF No.

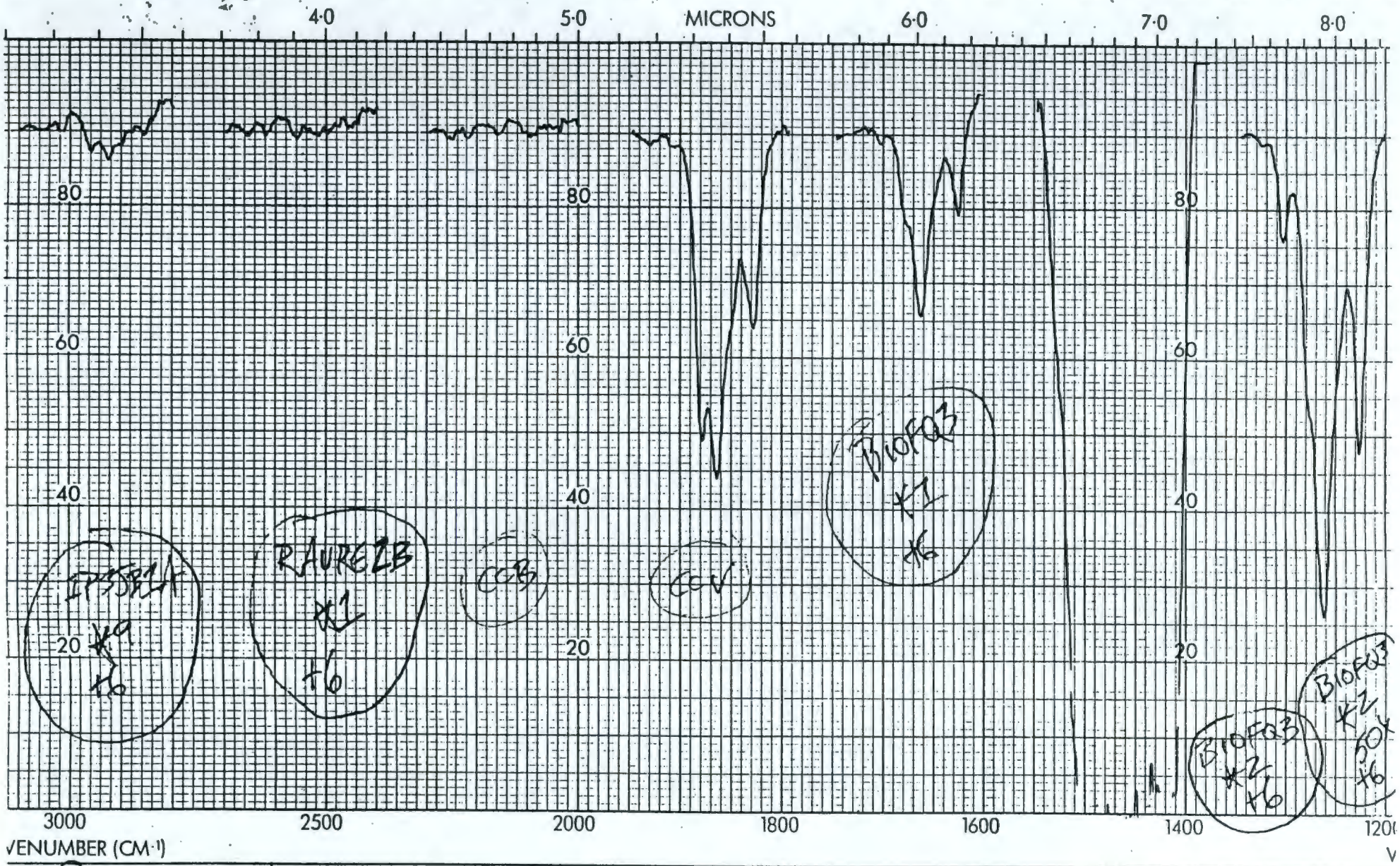
SAMPLE

ORIGIN

001805

NTROL CORPORATION
FALO, NEW YORK
PR5100-4367

9513355.2901



SOLVENT

CONCENTRATION

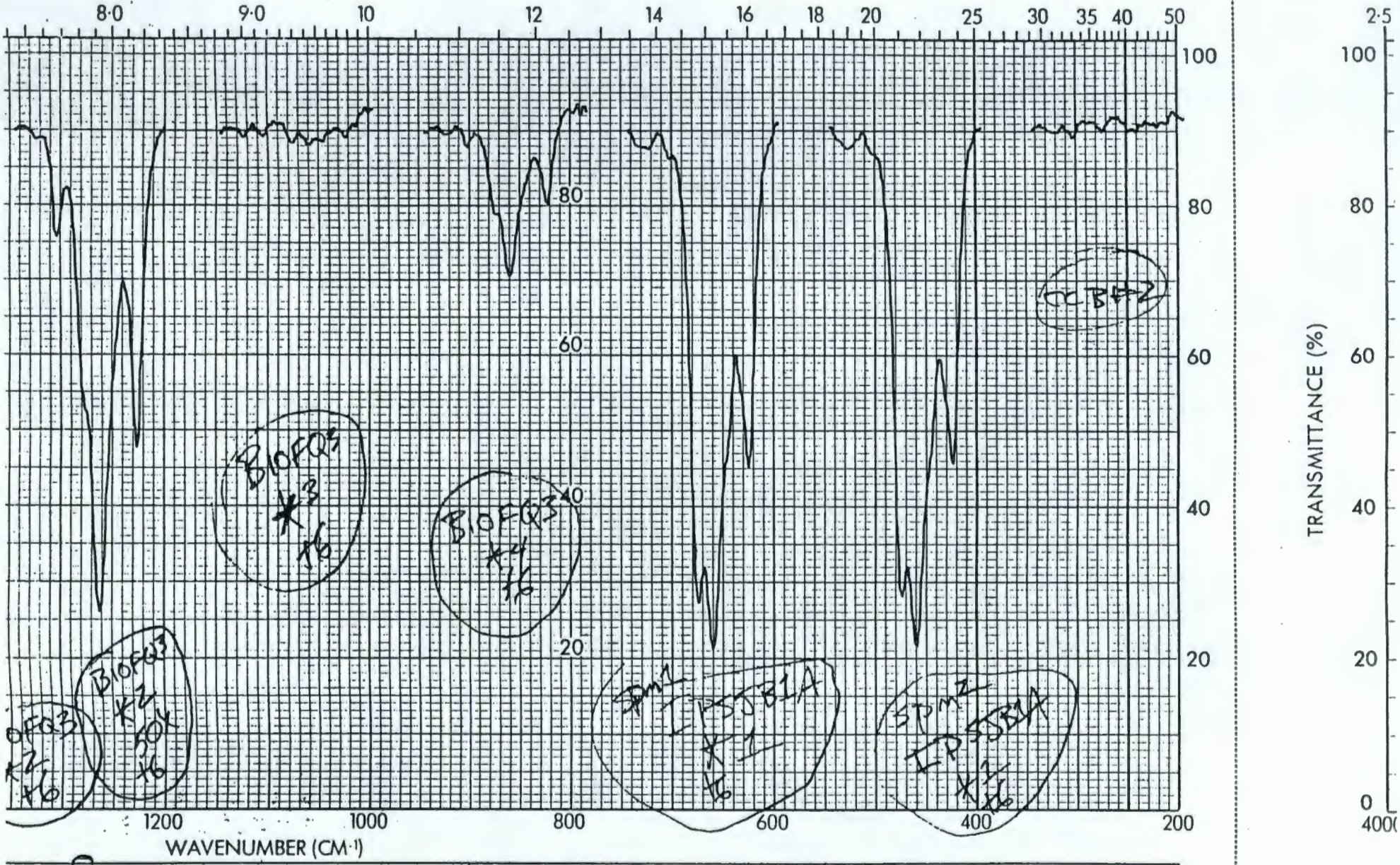
CELL PATH

REFERENCE

REMARKS

001806

95135E.290

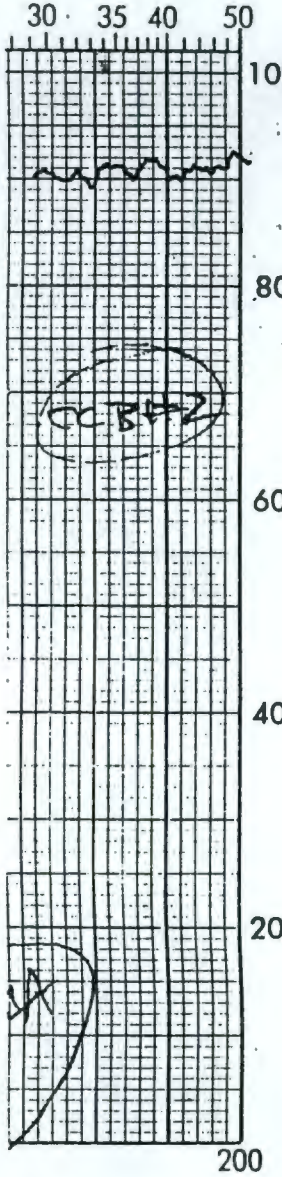


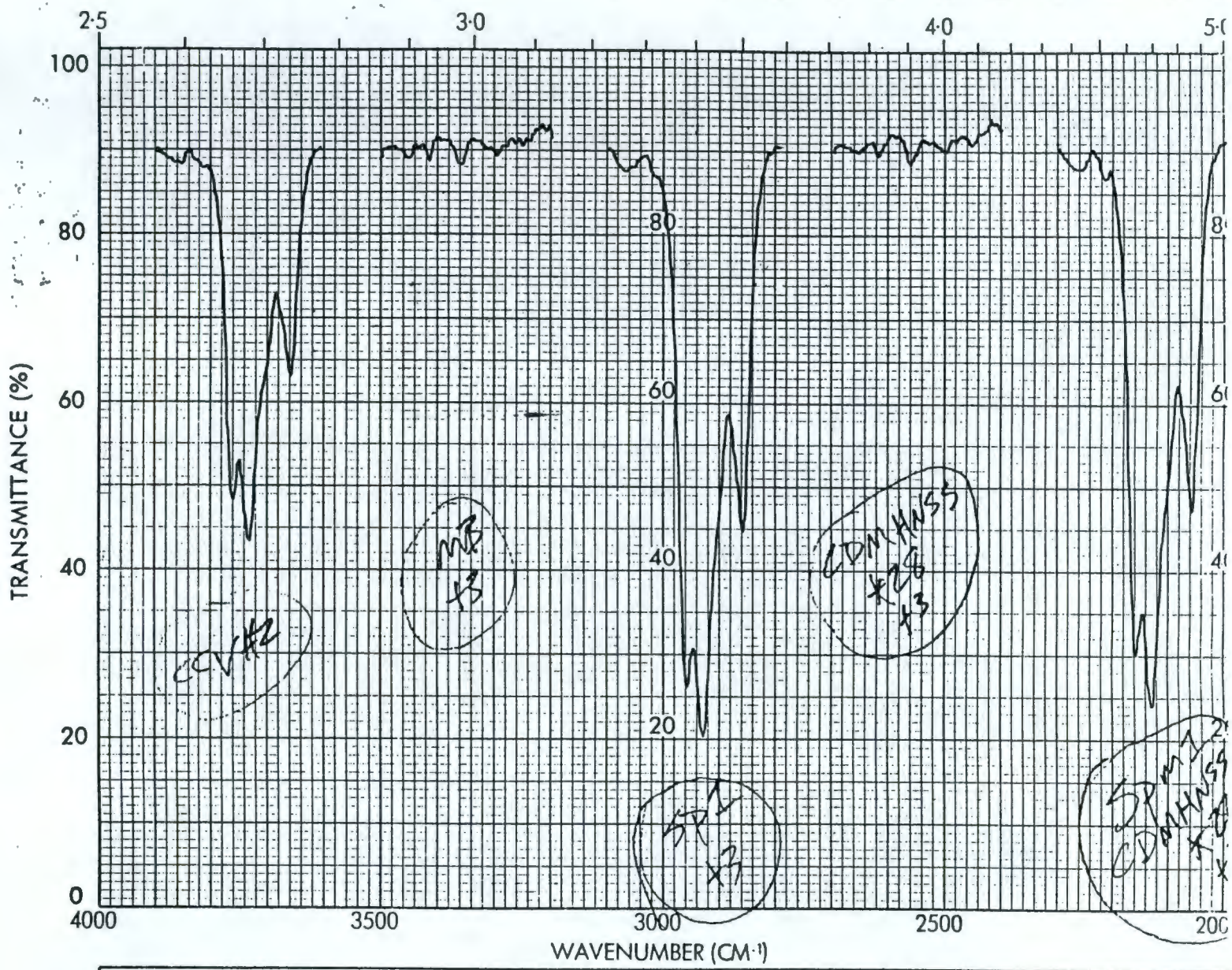
SCAN MODE
SLIT TIME CONSTANT
OPERATOR
DATE
REF No.

GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
No. PR 5100-4367

001807

9513356.290

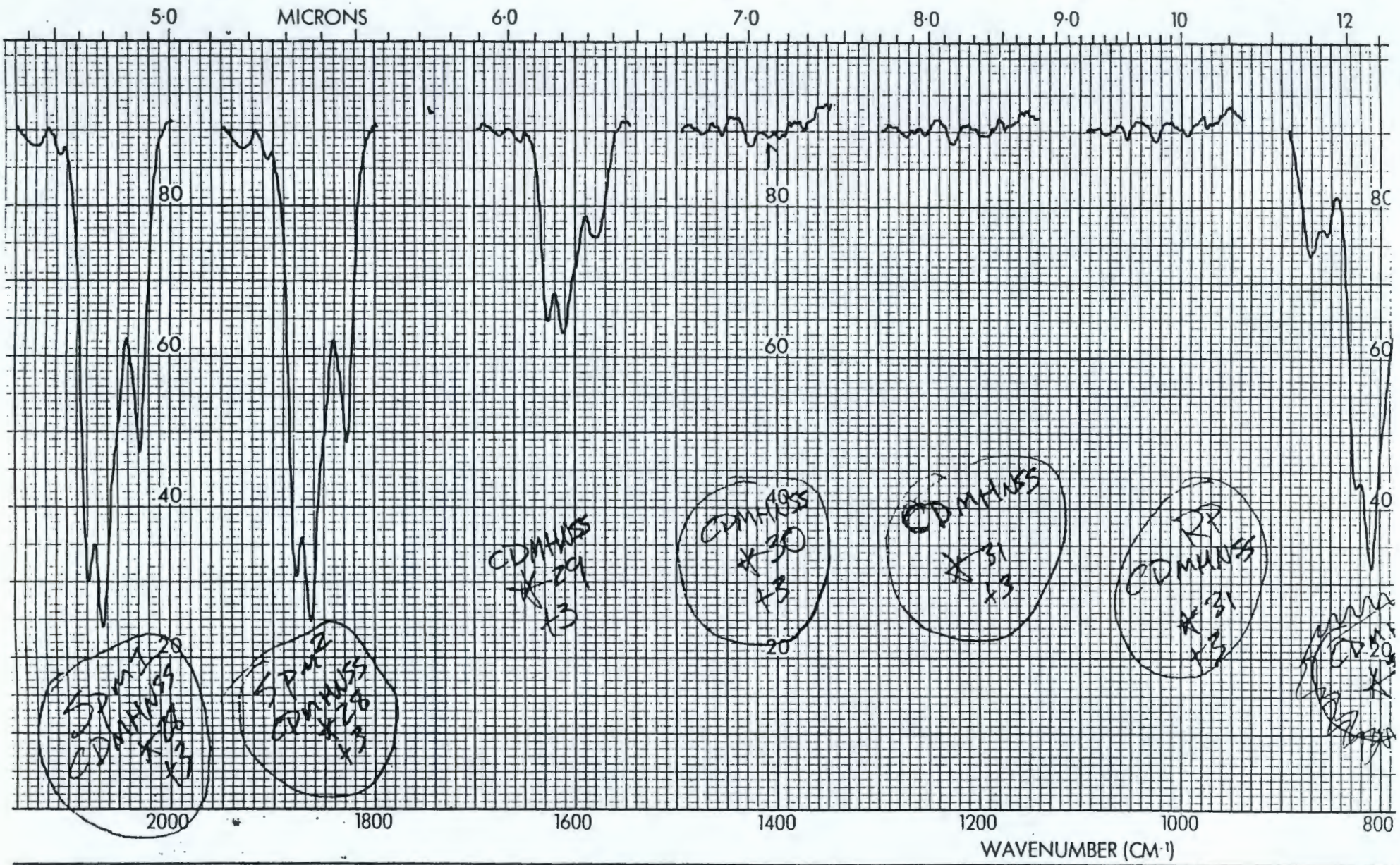




SAMPLE	SOLVENT
	CONCENTRATION
	CELL PATH
ORIGIN	REFERENCE

001808

9513355.2901



ON

REMARKS

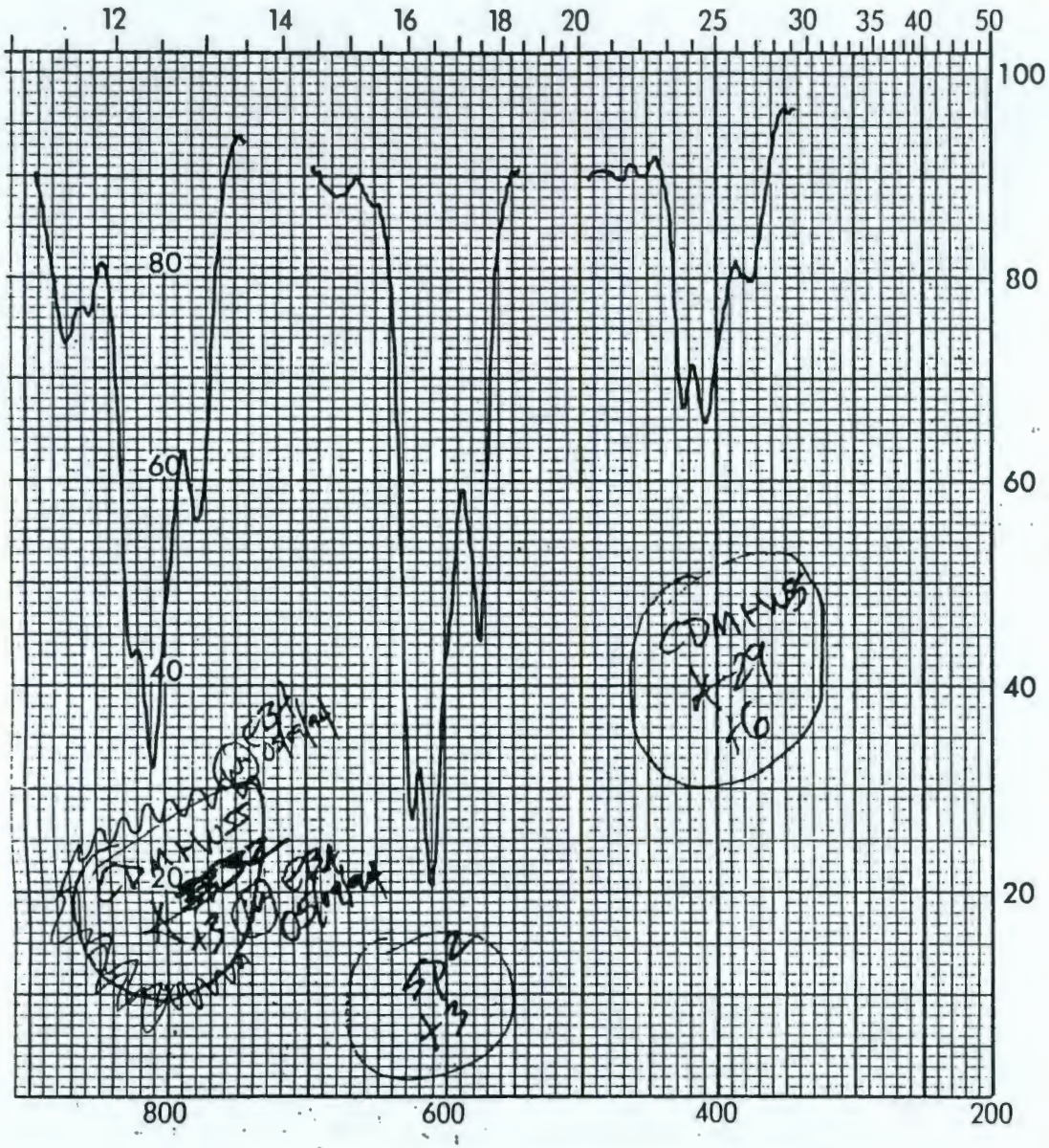
SCAN MODE

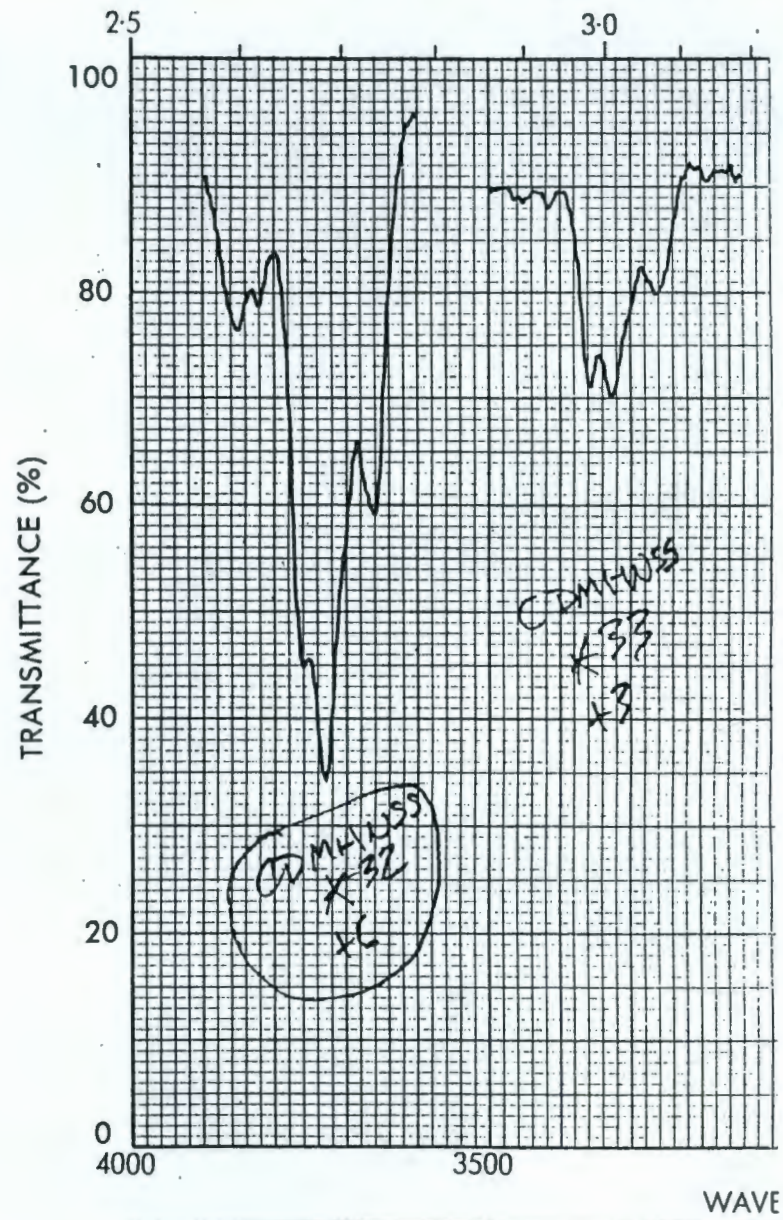
SLIT TIM

GRAPH

001809

9513355.2900





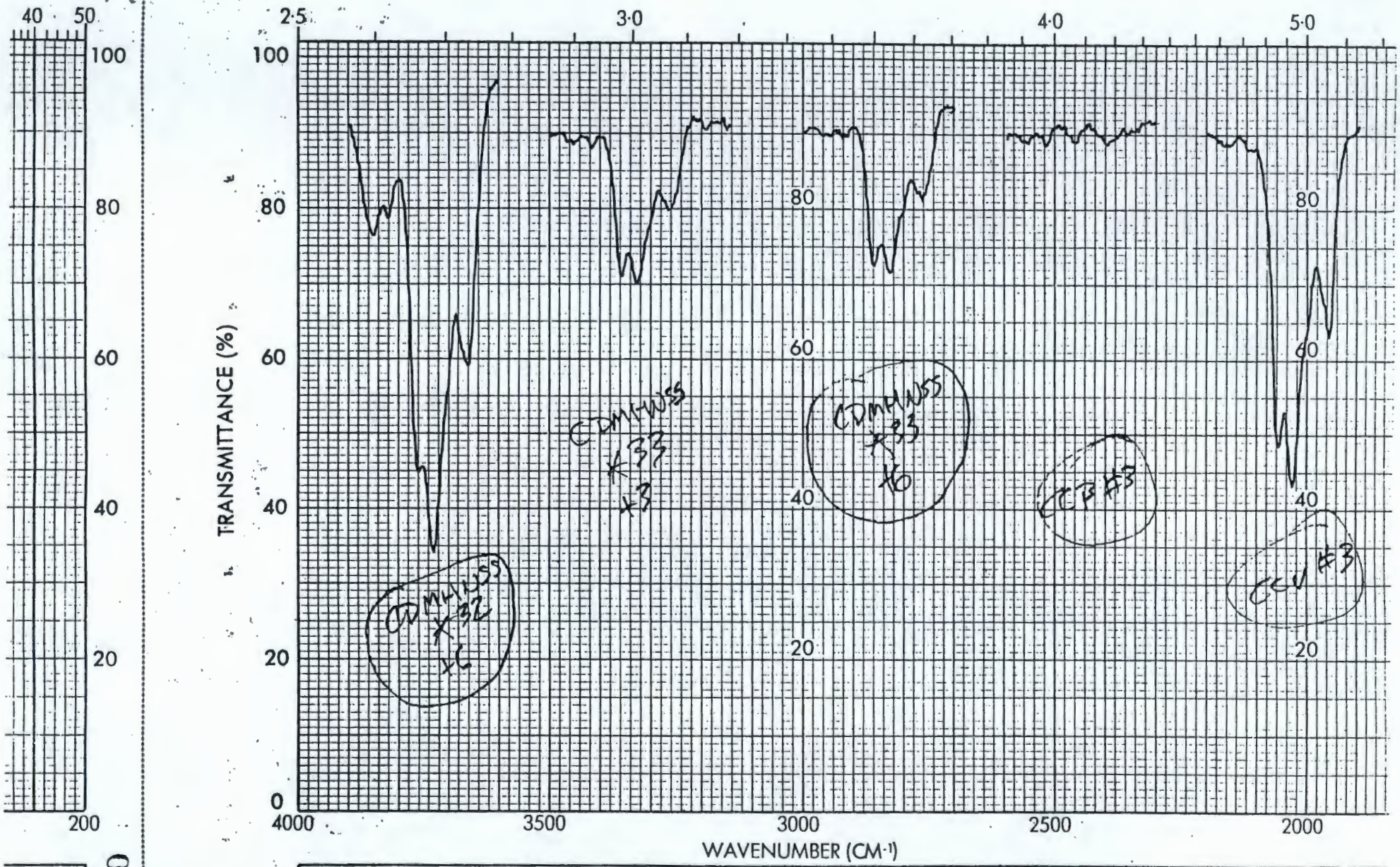
SCAN MODE _____	OPERATOR _____
SLIT ____ TIME CONSTANT _____	DATE _____
GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK No. PR 5100-4367	REF No. _____

SAMPLE

ORIGIN _____

001810

9513355.2910



SAMPLE

ORIGIN

SOLVENT

CONCENTRATION

CELL PATH

REFERENCE

001811

95133555.291

9513356.2912

Other Relevant Documents

ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

ORGANIC LABORATORY/EXTRACTION LOG SHEET

BOOK NO: B-C-43c 079

PROJECT: CDM-HANFORD N SLOPE
PROJECT NO.: F144D226 0201
CASE NO.: NA
EXTRACTOR(S): DLC (3291)/CDG
CLEAN-UP: NA
DATE: 5-06-94
TIME: 12:00pm
EXTRACTION METHOD: 418.1 TRPH
SAMPLE FRACTION: SS
CHECKED BY: BMD
BALANCE USED: #26

SAMPLE NO.	VOLUME-ml MASS-gr.	INITIAL/ FINAL pH	TYPE/DATE OF CLEAN-UP	FINAL VOL. SOLVENT	SURRO-GATE ADDED Y/N	COMMENTS
CDMHNSS#28	20gr	NA	NA	100ml Freon	NA	1.0ml to ms/msD Spk1, Spk2
29						418.1 TRPH Soil Spike for Control
30						Stock Conc 0.849g/100ml 1.0ml in
31						20gr Soil KKA 5/5/94 Exp 5/5/96
32						
33						Spiked by: DLC
31Dup						Witnessed by: BMD
28ms						
28msD						
Spk1						
Spk2						
BLK						
						Freon Lot #G35299

CHAIN-OF-CUSTODY RECORD

FORM 87282

001813

9513355.2913

9513356.2914

[redacted]

PROJECT CDM HANFORD N SLOPE 418.1 TRPH

Notebook No. 1007

Continued From Page

1944 0206 0201 418.1 TRPH
DLC/CDC SS

Samples + CDM HNSSX 28-31, MS/MSD Spk 1
Spk 2 BLK, DUP

1) Weighed out 20gr sample using baked Na_2SO_4 to dry and for QC
2) Soaked
3) Added 30 ml Freon let sonicate for 30 min 3 times each
4) Pour up into 100 ml volumetric flask ea time you sonicate
5) Bring to volume with Freon
6) Taken to Water Quality DLC 5-06-94

Continued on Page

Read and Understood By

Signed: [illegible] Date: 5-06-94 Signed: N. Mack Date: 5/6/94

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

Oil and Grease And Total Recoverable Petroleum Hydrocarbon, Soxhlet Extractions for Soils

Standard Method 16th Edition Method 503C and 503E
EPA Method 418.1 (Using Soxhlet Extraction)

Date Read on IR Spectrophotometer: 05/09/94 Analyst: Erin Arch

Storet: 98233*A150N Batch #: G48928

Date Stock Standard Was Made: 04/19/94

Standard Curve (mg/L)	Response	△A = standard A - baseline A
Baseline	90	
A 1.672	88	
B 3.344	85	
C 8.360	77	
D 16.72	65	
E 33.44	44	
F 83.60	17	

(OILGREAS 11/91)

QC Data	G Volume of Spike	H Conc. of Spiking Std. (units!)
SP1	~~2.0 ml~~ 1.0 ml	0.8494g/100 ml
~~SP2~~ SPM1	↓	↓
SPM2		

T = 84.94

Target = $\frac{G \times H}{\text{Vol. Sample x (\%M)}}$

A = log (100/Response)

Instrument: Perkin Elmer 1420 Ratio Recording Infrared Spectrophotometer Serial #: 129448

000147

BOOK NO: B0474

001815

95133555.2916

Preparation date of Reference oil: 01/12/94

Preparation procedure of Reference Oil:

The following were added together in a freon rinsed 100ml amber bottle:

15.0 ml n-Hexadecane Lot# 02828LW (Aldrich) recieved: 02/05/91 Opened: 01/18/93

15.0 ml 2,2,4-Trimethylpentane Lot# 0910KJ (Aldrich) recieved: 02/05/91 opened: 01/18/92

10.0 ml Chlorobenzene Lot# 03608PW (Aldrich) recieved: 02/05/91 opened: 01/18/92

A stock solution was made from the aforementioned reference oil by pipetting 1.0 ml of reference oil into a tared volumetric flask and recording the weight of the reference oil then bringing the flask to volume with freon.

The following concentration resulted [0.8555g / 100ml]

Standards A thru F are prepared from the stock solution that in turn is prepared from the reference oil.

Continued on Page

Read and Understood By

Signed 01/12/94 Date

Signed 1/18/94 Date

The following stock solution was prepared using 1.0 ml of Reference oil (page 75 prepd 01/12/94 (BA)) pipetted into a tared 100 ml volumetric flask and the weight of the Reference oil recorded. The weight of 1.0 ml of reference oil was 0.8360 g. The 100 ml volumetric flask was then brought to volume using freon. The following concentration resulted;

0.8360 g / 100 ml

Preparation of Standard F: 2.0 mls of stock standard 0.8360 g/100 ml were pipetted into a clean 200 ml volumetric flask and the flask then brought to volume using freon.

$$\frac{0.8360\,g}{100\,ml} \times \frac{1000\,ml}{L} = \frac{8.360\,g}{L} \times \frac{1000\,mg}{g} = \frac{8360\,mg}{L} / 200\,ml = \boxed{\text{Conc. STD F } 83.60\,mg/L}$$

Standards A thru E were prepared using the designated volumes of standard F

STANDARD	Volume of STD F in Mls	Concentration of STD (mg/L)
A	1.0	1.672
B	2.0	3.344
C	5.0	8.360
D	10.0	16.72
E	20.0	33.44

W.BA
~~offset target~~

Continued on Page

Signed Date 04/19/94 Read and Understood By Signed Date 4/20/94

[redacted]

Date Prepared: 04/20/94 by EBA

Name of Control Ref. Oil: 04/19/94 CR

Preparation of Control Reference oil and Control Stock Solution procedure was as follows;

15.0 ml Hexadecane, Lot # 06911 PY (Aldrich)
Recieved: 04/17/92 Opened 04/20/92 RCK

15.0 ml 2,2,4 - Trimethylpentane (Iso-octane) Lot # 54292/1
Janssen Chimica, Recieved 04/17/92 opened 04/20/92 RCK

10.0 ml Chlorobenzene, Lot # 20922/6
Janssen Chimica, Recieved 04/17/92 opened 04/20/92

This solution is prepared and kept in an amber bottle with a teflon lined cap.

The following stock standard was prepared using 1.0 ml of the above mentioned reference oil pipetted into a tared 100 ml volumetric flask and the weight of the 1.0 ml of reference oil recorded.

Name of Control Ref. Stock: 04/19/94 CS

1.0 ml of Control Reference oil weighed 0.8494 g.

Target for 2.0 mls of stock in 200 ml 67.952 mg/L

Concentration of Control Reference Stock: 0.8494 g / 100 ml

Preparation of Control Standard F; 2.0 mls of stock 04/19/94 CS (Control Ref. Oil) were pipetted into a freon rinsed 200 ml volumetric flask and brought to volume using freon.

$$\frac{0.8494\,g}{100\,ml} \times \frac{1000\,ml}{L} = \frac{8.494\,g}{L} \times \frac{1000\,mg}{g} = \frac{8494\,g}{L}$$

Conc. of STD F (CONTROL) mg/L = $\frac{8494\,mg}{L}$ / 200 ml = 84.94 mg/L

Control Standard E was prepared using 20 mls of Control standard F pipetted into a 50 ml volumetric flask and then brought to volume using freon. Conc. of Control Standard E: 33.976 mg/L

Continued on Page

Read and Understood By

Eric Anderson 04/19/94
Signed Date

Signed Date 4/20/94

9513395.2910

Total Recoverable
Petroleum Hydrocarbons
Sample EA01-4-14 (ESE# CDMHNSS*36)

COVER PAGE

Lab Name: ESE Project No.: 1944022G SDG No: G49238

Client ID	Laboratory ID	Matrix	Analysis	Date Collected	Date Received	Date Analyzed
PBLK1	MB*QC*1	S	TRPH	00/00/00	00/00/00	05/16/94
SP1	SP1*QC*1	S	TRPH	00/00/00	00/00/00	05/16/94
SP2	SP2*QC*1	S	TRPH	00/00/00	00/00/00	05/16/94
EA01-2-05	CDMHNSS*34	S	TRPH	05/11/94	05/13/94	05/16/94
EA01-2-05D	RP*CDMHNSS*3	S	TRPH	05/11/94	05/13/94	05/16/94
EA01-3-05	CDMHNSS*35	S	TRPH	05/11/94	05/13/94	05/16/94
EA01-3-05MS	SPM1*CDMHNSS	S	TRPH	05/11/94	05/13/94	05/16/94
EA01-3-05MSD	SPM2*CDMHNSS	S	TRPH	05/11/94	05/13/94	05/16/94
ICB1	ICB*QC*1	S	TRPH	00/00/00	00/00/00	05/16/94
ICV1	ICV*QC*1	S	TRPH	00/00/00	00/00/00	05/16/94
CCB1	CCB*QC*1	S	TRPH	00/00/00	00/00/00	05/16/94
CCV1	CCV*QC*1	S	TRPH	00/00/00	00/00/00	05/16/94
PBLK2	MB*QC*2	S	TRPH	00/00/00	00/00/00	05/16/94
SP3	SP1*QC*2	S	TRPH	00/00/00	00/00/00	05/16/94
SP4	SP2*QC*2	S	TRPH	00/00/00	00/00/00	05/16/94
EA01-4-14	CDMHNSS*36	S	TRPH	05/13/94	05/14/94	05/16/94
EA01-5-12	CDMHNSS*37	S	TRPH	05/13/94	05/14/94	05/16/94
EA01-5-12D	RP*CDMHNSS*3	S	TRPH	05/13/94	05/14/94	05/16/94
EA01-6-10	CDMHNSS*38	S	TRPH	05/13/94	05/14/94	05/16/94
EA01-6-10MS	SPM1*CDMHNSS	S	TRPH	05/13/94	05/14/94	05/16/94
EA01-6-10MSD	SPM2*CDMHNSS	S	TRPH	05/13/94	05/14/94	05/16/94
CCB2	CCB*QC*2	S	TRPH	00/00/00	00/00/00	05/16/94
CCV2	CCV*QC*2	S	TRPH	00/00/00	00/00/00	05/16/94

Comments:

9513356.2921

Quality Control Data

001821

Client ID

PBLK1

ESE METHOD BLANK SUMMARY

Lab Name: ESE Project No: 1944022G SDG No.: G49238

Lab Sample ID: MB*QC*1 Lab File ID:

Matrix:(soil/water) SOIL Instrument ID:

Date Analyzed : 05/16/94

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

CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
EA01-2-05	CDMHNSS*34	05/16/94
EA01-3-05	CDMHNSS*35	05/16/94
EA01-3-05MS	SPM1*CDMHNSS*35	05/16/94
EA01-3-05MSD	SPM2*CDMHNSS*35	05/16/94
EA01-4-14	CDMHNSS*36	05/16/94
EA01-5-12	CDMHNSS*37	05/16/94
EA01-6-10	CDMHNSS*38	05/16/94
EA01-6-10MS	SPM1*CDMHNSS*38	05/16/94
EA01-6-10MSD	SPM2*CDMHNSS*38	05/16/94

COMMENTS:

FORM IV ESE

Client ID

ANALYSIS DATA SHEET

PBLK1

Lab Name: ESE Project No.: 1944022G SDG No.: G49238

Matrix: (soil/water) SOIL Lab Sample ID: MB*QC*1

Sample wt/vol: 20. Lab File ID:

%Moisture: pH: Dilution Factor: 1.00

Date Analyzed: 05/16/94 Date Received: 00/00/00

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	500.	
	%T OF SAMPLE ()	450.	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.0	
	HYDROCARBONS,PETROL (MG/KG-DR	8.36	U

FORM I ESE

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client ID

EA01-3-05MS

Lab Name: ESE Project No.: 1944022G SDG No.: G49238

COMPOUND	SPIKE ADDED	SAMPLE CONCENTRATION	MS CONCENTRATION	MS % REC #	QC LIMITS REC.
HYDROCARBONS,PETROL	443	428	602	135.9 *	67-135

COMPOUND	SPIKE ADDED	MSD CONCENTRATION	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HYDROCARBONS,PETROL	443	357	80.6	51.1 *	34	67-135

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

* Values outside of QC limits

COMMENT:

FORM III ESE

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client ID

EA01-6-10MS

Lab Name: ESE Project No.: 1944022G SDG No.: G49238

COMPOUND	SPIKE ADDED	SAMPLE CONCENTRATION	MS CONCENTRATION	MS % REC #	QC LIMITS REC.
HYDROCARBONS,PETROL	496	0.	360	72.6	67-135

COMPOUND	SPIKE ADDED	MSD CONCENTRATION	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HYDROCARBONS,PETROL	444	349	78.6	7.9	34	67-135

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

* Values outside of QC limits

COMMENT:

FORM III ESE

Client ID

REFERENCE STANDARD

SP1

Lab Name: ESE

SDG No: G49238

Lab Sample ID: SP1*QC*1

Date Analyzed: 05/16/94

Standard Source:

Instrument ID:

Analyte	True	Found	C	%Recv	Limits
HYDROCARBONS,PETROL	425.	347.		81.6	67-135

Comments:

FORM V ESE

Client ID

REFERENCE STANDARD

SP2

Lab Name: ESE

SDG No: G49238

Lab Sample ID: SP2*QC*1

Date Analyzed: 05/16/94

Standard Source:

Instrument ID:

Analyte	True	Found	C	%Recv	Limits
HYDROCARBONS,PETROL	425.	347.		81.6	67-135

Comments:

FORM V ESE

9513356.2920

Client ID

REFERENCE STANDARD

SP3

Lab Name: ESE

SDG No: G49238

Lab Sample ID: SP1*QC*2

Date Analyzed: 05/16/94

Standard Source:

Instrument ID:

Analyte	True	Found	C	%Recv	Limits
HYDROCARBONS,PETROL	425.	370.		87.1	67-135

Comments:

FORM V ESE

9513355.2929

Client ID

REFERENCE STANDARD

SP4

Lab Name: ESE

SDG No: G49238

Lab Sample ID: SP2*QC*2

Date Analyzed: 05/16/94

Standard Source:

Instrument ID:

Analyte	True	Found	C	%Recv	Limits
HYDROCARBONS,PETROL	425.	358.		84.2	67-135

Comments:

FORM V ESE

REPLICATES

EA01-2-05D

Lab Name: ESE Project No: 1944022G SDG No: G49238

Lab Sample ID: RP*CDMHNSS*3 Date Analyzed: 05/16/94

%Moisture for Sample: 4.4 %Moisture for Duplicate: 4.4

Analyte	Sample	C	Replicate	C	RPD	Q	Limit
	90.		500.		455.6		
	86.0		450.		423.3		
D-ABS	0.1030		0.1030		0.0		
TRPH	437.		437.		0.0		

Comments:

FORM IX ESE

REPLICATES

EA01-2-05D

Lab Name: ESE Project No: 1944022G SDG No: G49238

Lab Sample ID: RP*CDMHNSS*3 Date Analyzed: 05/16/94

%Moisture for Sample: 4.4 %Moisture for Duplicate: 4.4

Analyte	Sample	C	Replicate	C	RPD	Q	Limit
	90.		500.		455.6		
	86.0		450.		423.3		
D-ABS	0.1030		0.1030		0.0		
TRPH	437.		437.		0.0		

Comments:

FORM IX ESE

REPLICATES

EA01-5-12D

Lab Name: ESE Project No: 1944022G SDG No: G49238

Lab Sample ID: RP*CDMHNSS*3 Date Analyzed: 05/16/94

%Moisture for Sample: 4.9 %Moisture for Duplicate: 4.9

Analyte	Sample	C	Replicate	C	RPD	Q	Limit
	90.		500.		455.6		
	90.0		473.		425.6		
D-ABS	0.0		0.0				
TRPH	8.79	U	8.79	U			

Comments:

FORM IX ESE

Client ID

CALIBRATION BLANKS

ICB1

Lab Name: ESE Project No.: 1944022G SDG No: G49238

Lab Sample ID: ICB*QC*1 Instrument ID:

Analyte	Conc	C	CRDL
D-ABS	90	U	1.672
TRPH	90.0		
	0.0		
	0.389		

FORM VII ESE

Client ID

CALIBRATION BLANKS

CCB1

Lab Name: ESE Project No.: 1944022G SDG No: G49238

Lab Sample ID: CCB*QC*1 Instrument ID:

Analyte	Conc	C	CRDL
D-ABS	90	U	1.672
TRPH	90.0		
	0.0		
	0.389		

FORM VII ESE

Client ID

CCB2

CALIBRATION BLANKS

Lab Name: ESE Project No.: 1944022G SDG No: G49238

Lab Sample ID: CCB*QC*2 Instrument ID:

Analyte	Conc	C	CRDL
D-ABS	90	U	1.672
TRPH	90.0		
	0.0		
	0.389		

FORM VII ESE

Client ID

CALIBRATION VERIFICATION

ICV1

Lab Name: ESE Project No: 1944022G SDG No: G49238

Lab Sample ID: ICV*QC*1 Date Analyzed: 05/16/94

Instrument ID:

Analyte	True	Found	C	%Diff	Limit
TRPH	33.7	33.2		1.5	

Comments:

FORM VIII ESE

Client ID

CCV1

CALIBRATION VERIFICATION

Lab Name: ESE Project No: 1944022G SDG No: G49238

Lab Sample ID: CCV*QC*1 Date Analyzed: 05/16/94

Instrument ID:

Analyte	True	Found	C	%Diff	Limit
TRPH	33.4	40.0		19.8	

Comments:

FORM VIII ESE

9513555.2958

Client ID

CCV2

CALIBRATION VERIFICATION

Lab Name: ESE Project No: 1944022G SDG No: G49238

Lab Sample ID: CCV*QC*2 Date Analyzed: 05/16/94

Instrument ID:

Analyte	True	Found	C	%Diff	Limit
TRPH	33.4	40.0		19.8	

Comments:

FORM VIII ESE

95133355.2939

Analytical Data

Client ID

ANALYSIS DATA SHEET

EA01-2-05

Lab Name: ESE Project No.: 1944022G SDG No.: G49238

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*34

Sample wt/vol: 20. Lab File ID:

%Moisture: 4.4 pH: Dilution Factor: 1.00

Date Analyzed: 05/16/94 Date Received: 05/13/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	86.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.1030	
	HYDROCARBONS,PETROL (MG/KG-DR	437.	D

FORM I ESE

Client ID

ANALYSIS DATA SHEET

EA01-2-05

Lab Name: ESE Project No.: 1944022G SDG No.: G49238

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*34

Sample wt/vol: 20. Lab File ID:

%Moisture: 4.4 pH: Dilution Factor: 32.0

Date Analyzed: 05/16/94 Date Received: 05/13/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	86.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.1030	
	HYDROCARBONS,PETROL (MG/KG-DR	437.	D

FORM I ESE

Client ID

ANALYSIS DATA SHEET

EA01-2-05D

Lab Name: ESE Project No.: 1944022G SDG No.: G49238

Matrix: (soil/water) SOIL Lab Sample ID: RP*CDMHNSS*34

Sample wt/vol: 20. Lab File ID:

%Moisture: 4.4 pH: Dilution Factor: 1.00

Date Analyzed: 05/16/94 Date Received: 05/13/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	500.	
	%T OF SAMPLE ()	450.	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.1030	
	HYDROCARBONS,PETROL (MG/KG-DR	437.	D

FORM I ESE

ANALYSIS DATA SHEET

Client ID

EA01-3-05

Lab Name: ESE Project No.: 1944022G SDG No.: G49238

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*35

Sample wt/vol: 20. Lab File ID:

%Moisture: 4.2 pH: Dilution Factor: 1.00

Date Analyzed: 05/16/94 Date Received: 05/13/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	87.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.0767	
	HYDROCARBONS,PETROL (MG/KG-DR	428.	D

FORM I ESE

Client ID

ANALYSIS DATA SHEET

EA01-3-05

Lab Name: ESE Project No.: 1944022G SDG No.: G49238

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*35

Sample wt/vol: 20. Lab File ID:

%Moisture: 4.2 pH: Dilution Factor: 40.0

Date Analyzed: 05/16/94 Date Received: 05/13/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	87.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.0767	
	HYDROCARBONS,PETROL (MG/KG-DR	428.	D

FORM I ESE

Client ID

ANALYSIS DATA SHEET

EA01-4-14

Lab Name: ESE Project No.: 1944022G SDG No.: G49238

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*36

Sample wt/vol: 20. Lab File ID:

%Moisture: 5.4 pH: Dilution Factor: 1.00

Date Analyzed: 05/16/94 Date Received: 05/14/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	90.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.0	
	HYDROCARBONS,PETROL (MG/KG-DR	8.84	U

FORM I ESE

Client ID

ANALYSIS DATA SHEET

EA01-5-12

Lab Name: ESE Project No.: 1944022G SDG No.: G49238

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*37

Sample wt/vol: 20. Lab File ID:

%Moisture: 4.9 pH: Dilution Factor: 1.00

Date Analyzed: 05/16/94 Date Received: 05/14/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	90.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.0	
	HYDROCARBONS,PETROL (MG/KG-DR	8.79	U

FORM I ESE

9513355.2947

Client ID

ANALYSIS DATA SHEET

EA01-5-12D

Lab Name: ESE Project No.: 1944022G SDG No.: G49238

Matrix: (soil/water) SOIL Lab Sample ID: RP*CDMHNSS*37

Sample wt/vol: 20. Lab File ID:

%Moisture: 4.9 pH: Dilution Factor: 1.00

Date Analyzed: 05/16/94 Date Received: 05/14/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	500.	
	%T OF SAMPLE ()	473.	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.0	
	HYDROCARBONS,PETROL (MG/KG-DR	8.79	U

FORM I ESE

Client ID

ANALYSIS DATA SHEET

EA01-6-10

Lab Name: ESE Project No.: 1944022G SDG No.: G49238

Matrix: (soil/water) SOIL Lab Sample ID: CDMHNSS*38

Sample wt/vol: 20. Lab File ID:

%Moisture: 4.4 pH: Dilution Factor: 1.00

Date Analyzed: 05/16/94 Date Received: 05/14/94

CAS NO.	COMPOUND		Q
	%T OF BASELINE ()	90.	
	%T OF SAMPLE ()	90.0	
60145-23-5	DELTA ABSORBANCE (ABSORBANCE)	0.0	
	HYDROCARBONS,PETROL (MG/KG-DR	8.74	U

FORM I ESE

9513355.2949

Raw Data

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
Water Extraction TRPH / Oil & Grease

Analyst: 3291 Date: 5/11/94 Storet: ~~5/16/94~~ 98033 HAISON Batch: G49938

Date Read on Spectrophotometer: 5/16/94

Sample	Sample Weight	Extraction Volume	Dilution	Response	△A = standard A - baseline A
Baseline					
MB	20g	100mls	17	90	
SP1				22	
SP2				22	
CDM HUSS #34			32X	86	
34 MS			32X	86	
35			40X	82	
35 SPm				82	
35 SPm				84	
ICB	NA	NA	17	90	
ICV				46	
CCB				90	
CCV				40	
MB	20g	100mls		90	
SP1				20	
SP2				21	
CDM HUSS #36	20g	100mls		90	
37				90	
37 MS				90	
38				90	
38 SPm				22	

(EXTR TRPH 11/91) 5/14/94

Calculations: -A Standard curve is generated by plotting concentration vs △ A.
-Sample concentrations are obtained by comparing the sample △ A to the standard curve.
-Concentration is multiplied by $\frac{\text{Extract Volume}}{\text{Sample Volume}}$ and then corrected for dilution factors.

A = log (100/Response)

cont. pg 84

BOOK NO: B-0517

001850

000082

95 1365 2991

Instrument : Perkin Elmer 1420 Ratio Recording Infrared Spectrophotometer Serial #: [illegible]

Cont. from pg 82

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
Water Extraction TRPH / Oil & Grease

Analyst: _____ Date: _____ Storet: _____ Batch: _____

Date Read on Spectrophotometer: _____

Sample	Sample Weight	Extraction Volume	Dilution	Response	△A = standard A - baseline A
Baseline					
COMHNSS#38&#39	20g	100mL	1X	22	
CCB	NA	NA	↓	50	
CCV	↓	↓	↓	39.40	

Calculations: -A Standard curve is generated by plotting concentration vs △ A.
-Sample concentrations are obtained by comparing the sample △ A to the standard curve.
-Concentration is multiplied by $\frac{\text{Extract Volume}}{\text{Sample Volume}}$ and then corrected for dilution factors.

A = log (100/Response)

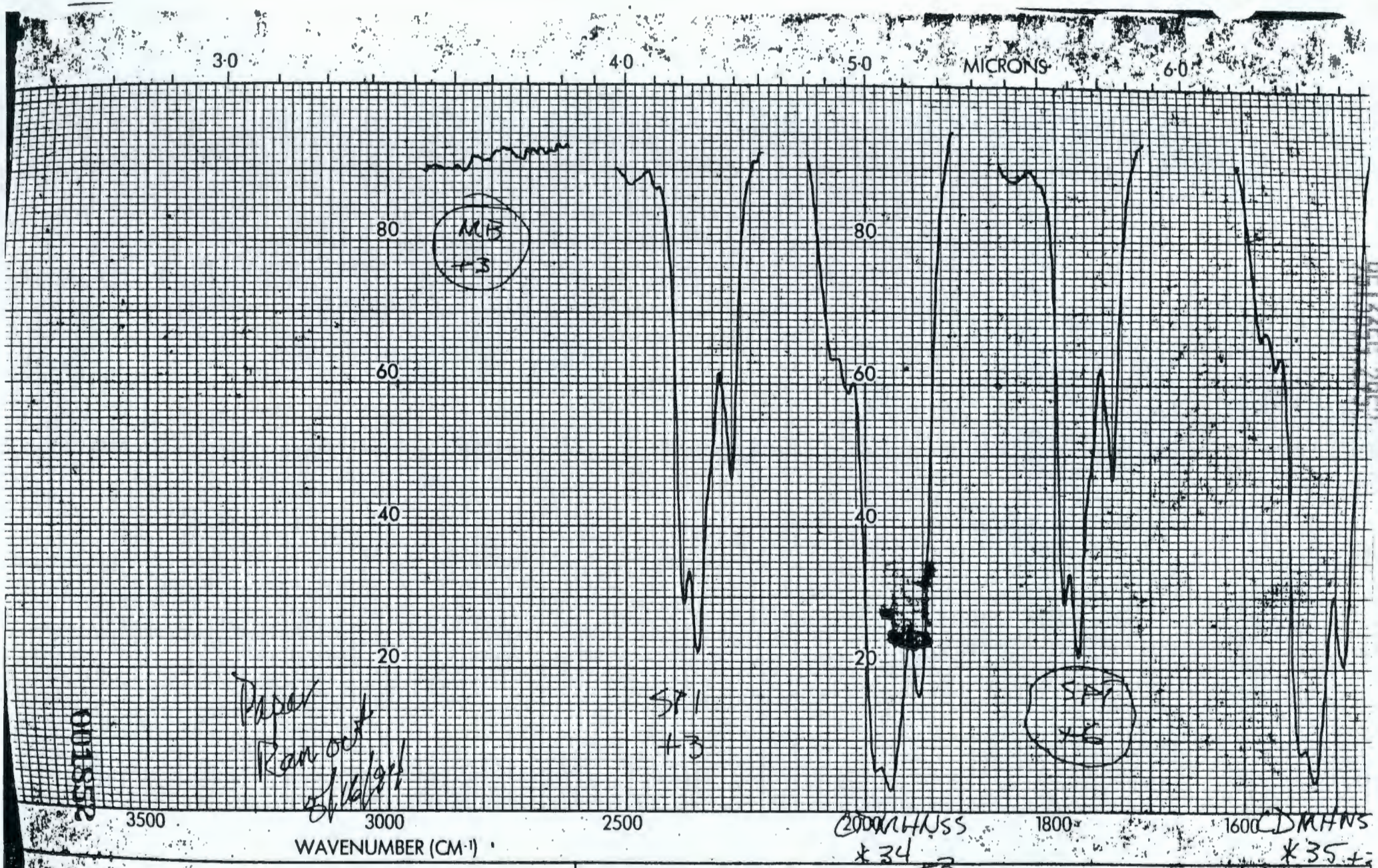
BOOK NO: B-0517

(EXTRTRPH 11/91)

001851

0000084

9613556.2951



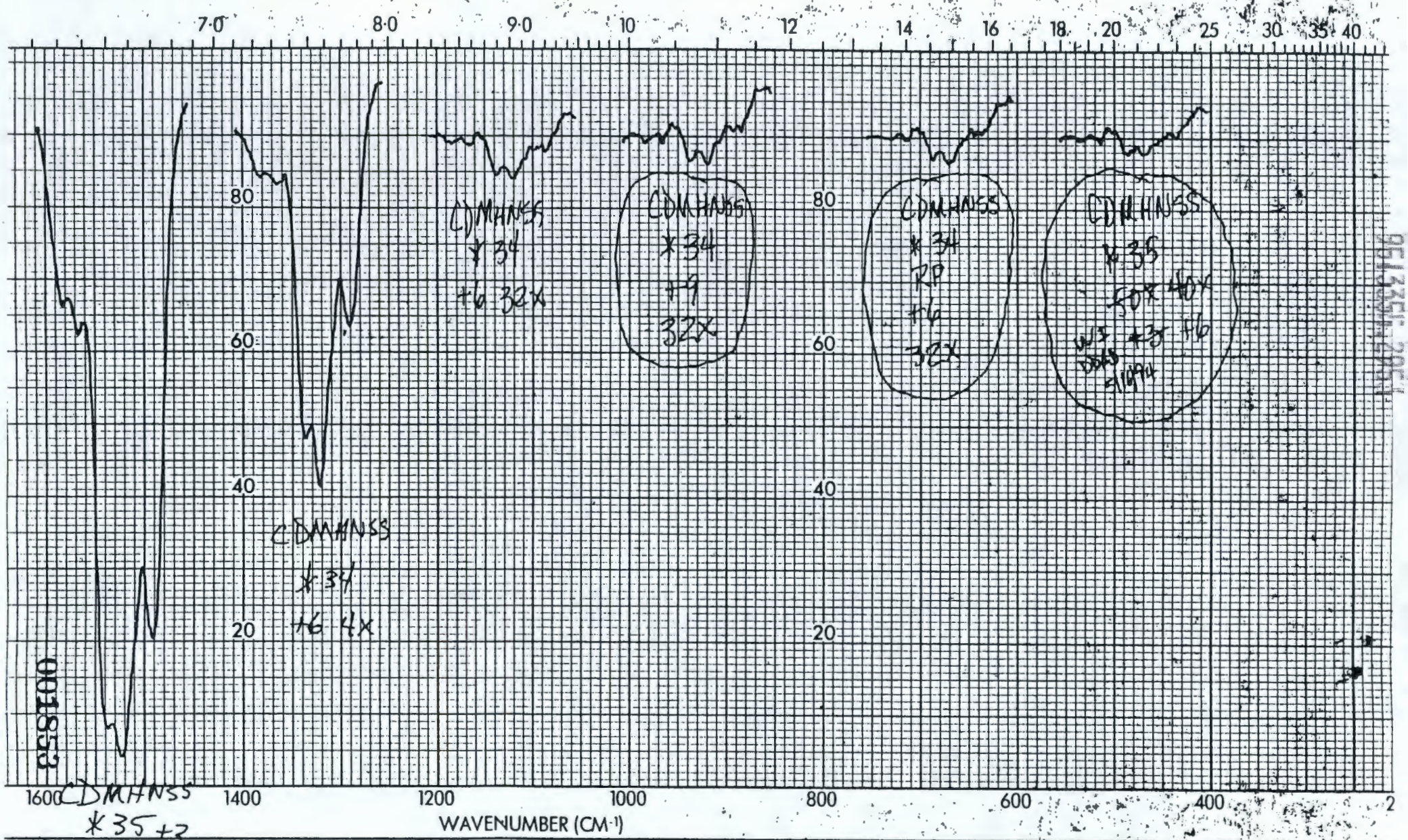
SOLVENT

CONCENTRATION

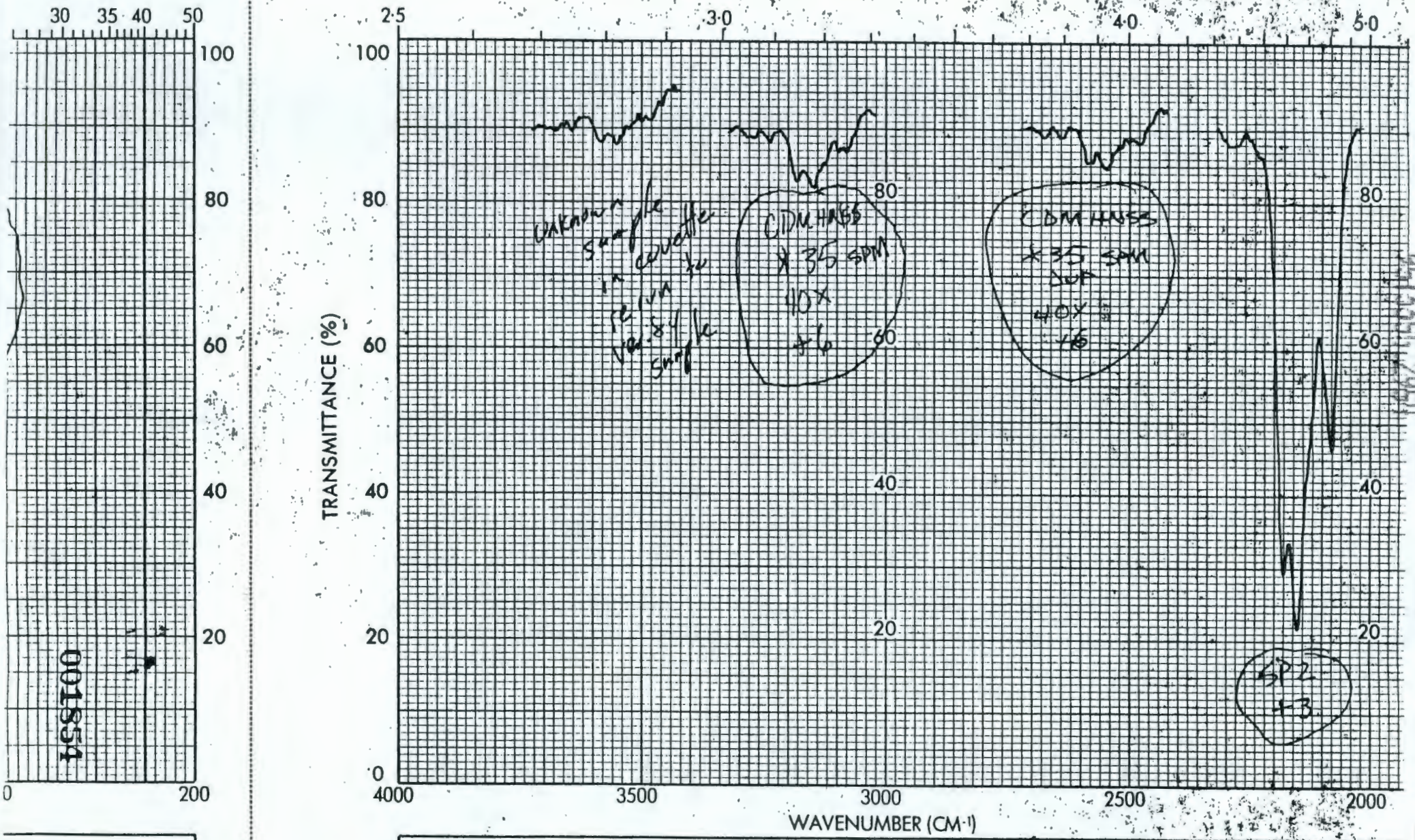
CELL PATH

REFERENCE

REMARKS



REMARKS	SCAN MODE ____ SLIT ____ TIME CONSTANT ____	OPERATOR ____ DATE ____
	GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK No. PR 5100-4367	REF No. ____



SAMPLE

ORIGIN

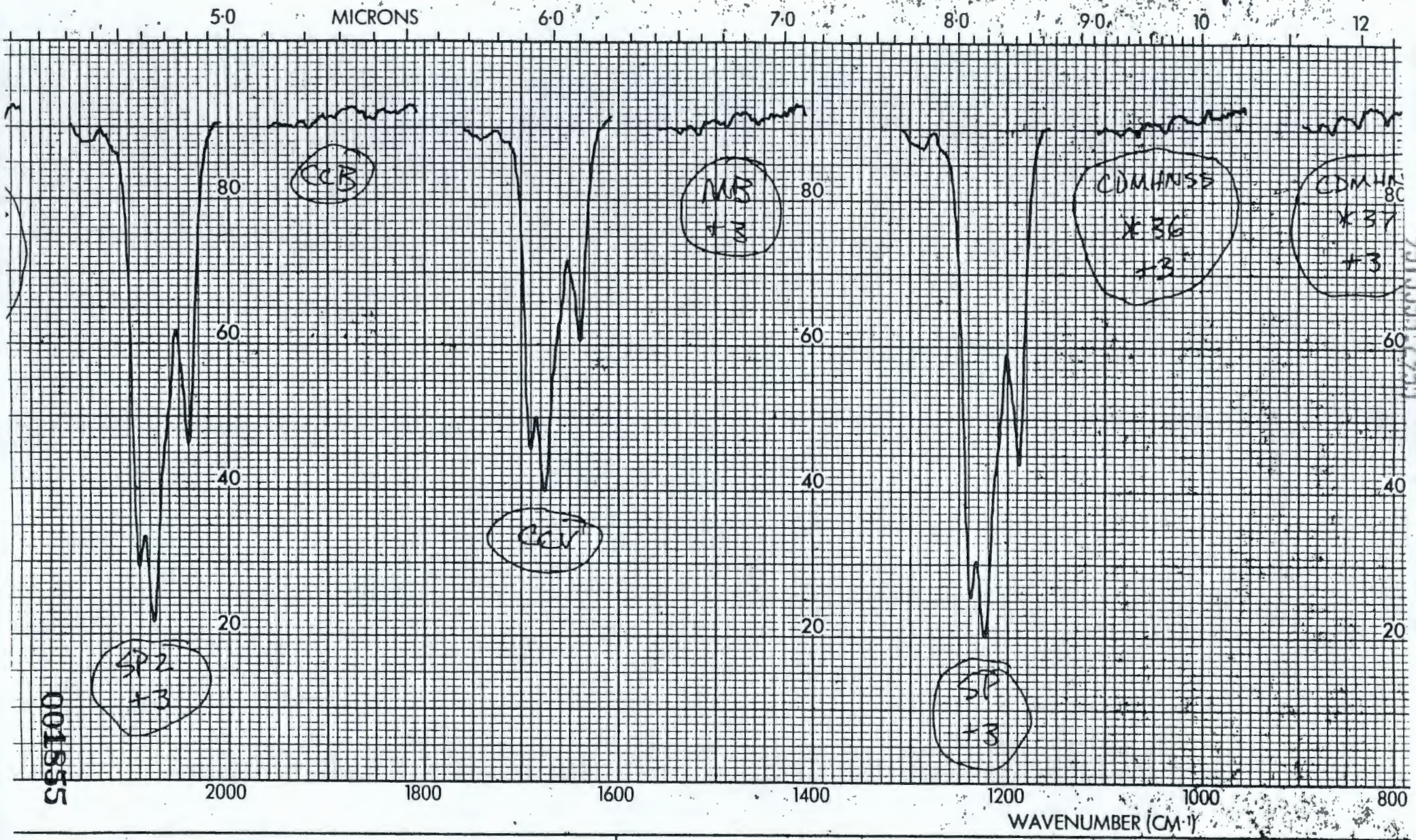
SOLVENT

CONCENTRATION

CELL PATH

REFERENCE

001551



T_____

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H_____

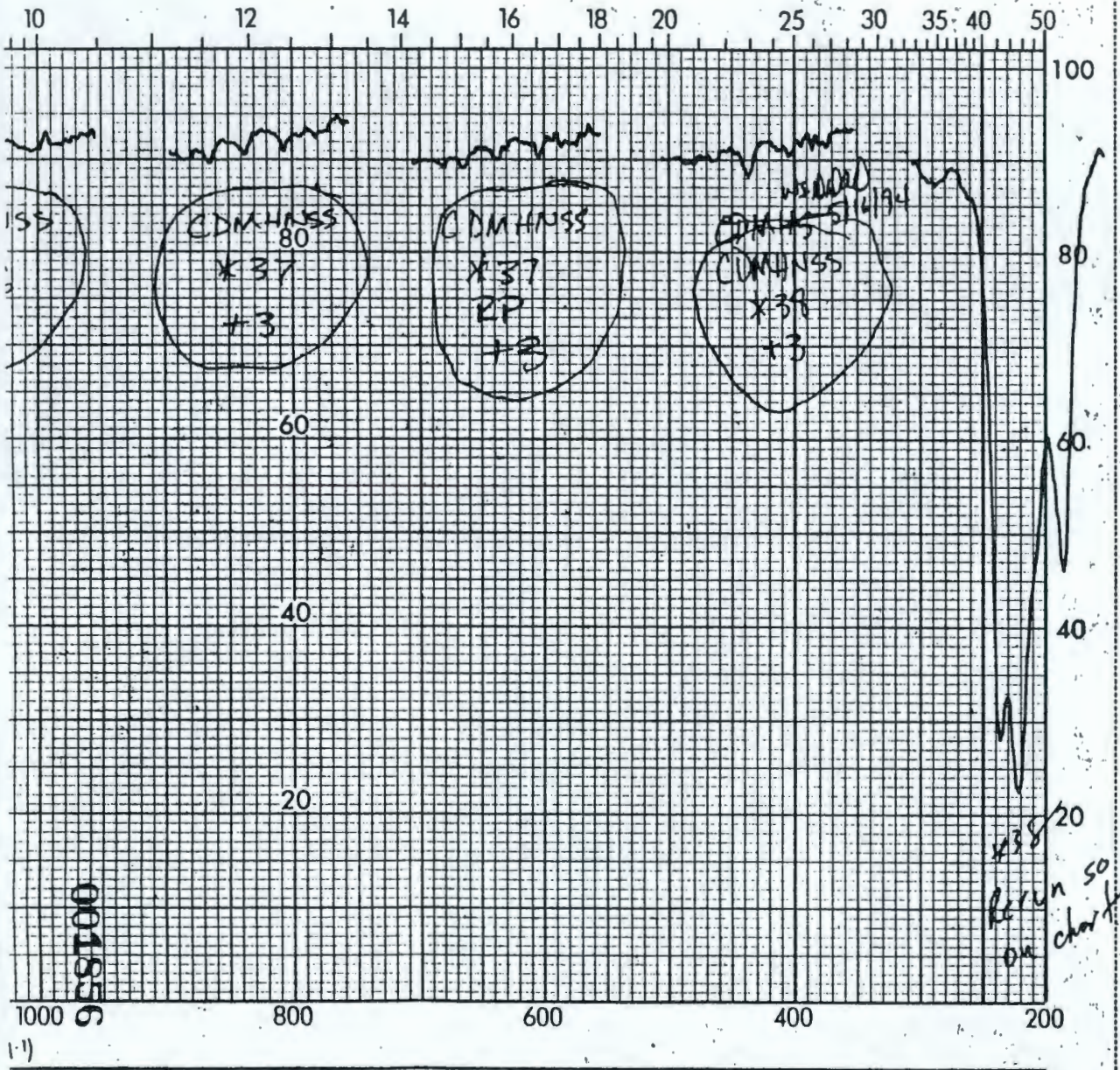
CE_____

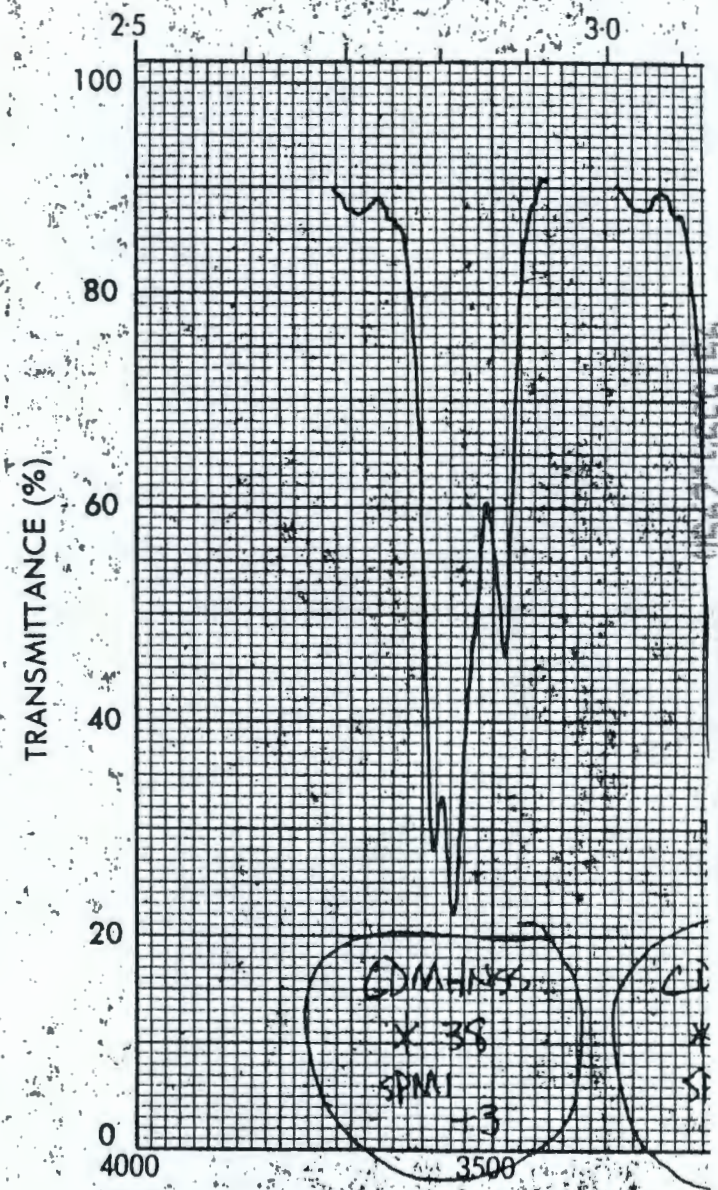
REMARKS

SCAN MODE

SLIT_____ TIM

GRAPH

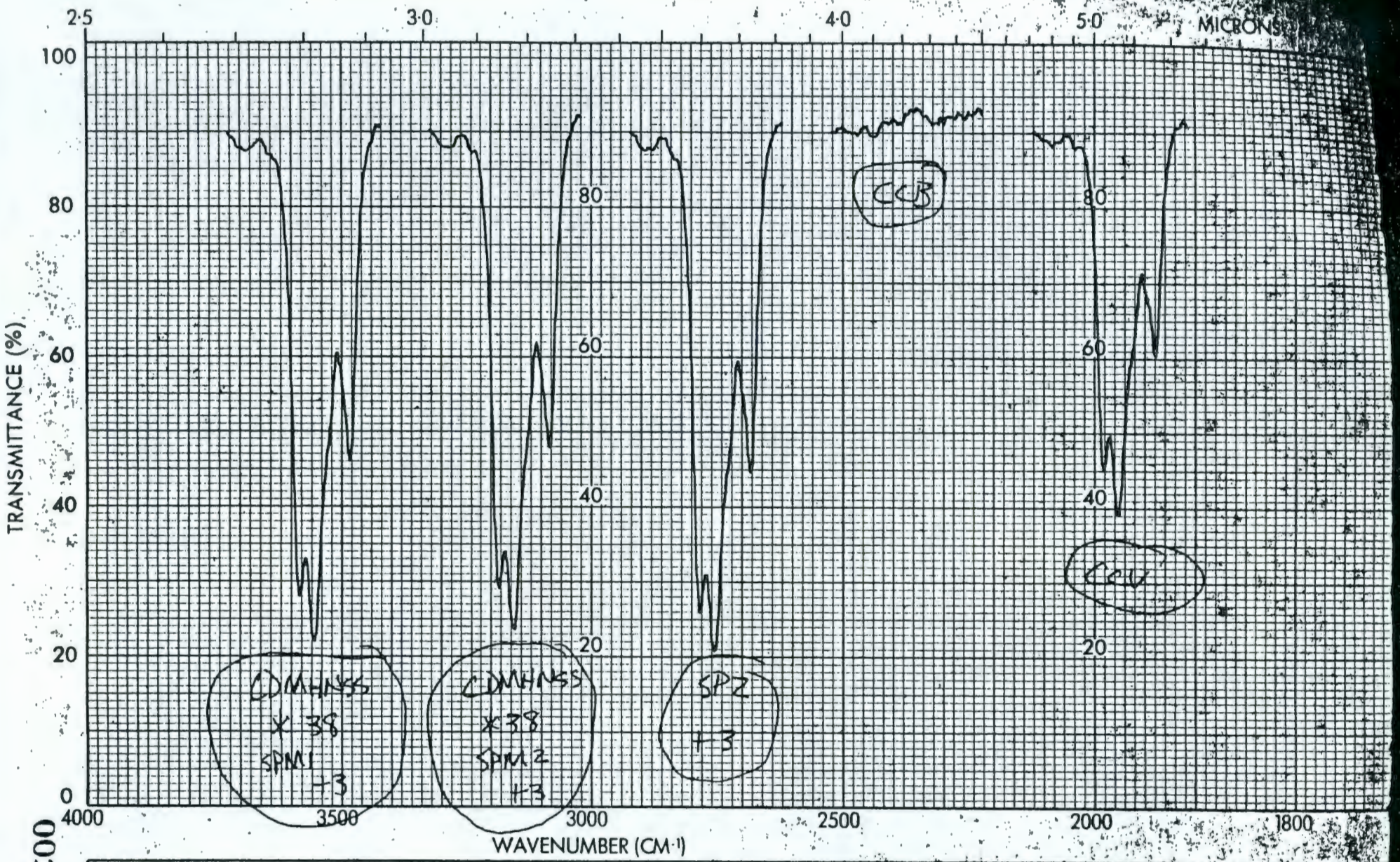




SCAN MODE_____	OPERATOR_____
SLIT_____ TIME CONSTANT_____	DATE_____
GRAPHIC CONTROLS CORPORATION BUFFALO NEW YORK No. PR 5100-4367	REF No._____

SAMPLE

ORIGIN_____



SAMPLE

ORIGIN

SOLVENT

CONCENTRATION

CELL PATH

REFERENCE

001857

9513356.2958

Other Relevant Documents

ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

ORGANIC LABORATORY/EXTRACTION LOG SHEET

PROJECT: CDM-HANFORD N SLOPE
PROJECT NO.: 194062G 0201
CASE NO.: NA
EXTRACTOR(S): DLC (3291)
CLEAN-UP: NA
DATE: 5-11-94
TIME: 8:00AM

EXTRACTION METHOD: 418.1 TRPH
SAMPLE FRACTION: SS
CHECKED BY: BMD
BALANCE USED: # 5

BOOK NO: B0430

SAMPLE NO.	VOLUME-ml MASS-gr.	INITIAL/ FINAL pH	TYPE/DATE OF CLEAN-UP	FINAL VOL. SOLVENT	SURRO-GATE ADDED Y/N	COMMENTS
CDMHNSS#34	20gr	5-11-94 NA	NA	100ml freon	No	1.0ml to ms/msD, Spiked-1/Spk2
35						Spike for Control Stock Conc. 0.849g/100ml
34 Dup						1.0ml in 20gm Soil Exp 5/5/96
35 ms						KKA 5/5/94 418.1 TRPH Soil
35 msD						
Spk-1						Witnessed by: BMD
Spk-2						Spiked by: [illegible]
BLK						
						Freon Lot # BH485

CHAIN-OF-CUSTODY RECORD

FORM 87282

001859

9513355.2950

9513353.2961

[redacted] [redacted] [redacted]

PROJECT CDM-HANFORD N SLOPE

Notebook No. 1007

Continued From Page

1 9 4 4 0 2 2 6 0 2 0 1 4181 TRPH

D L C SS

Samples CDMHNSJ # 35, 34, DUP MS/MSD Spk-1, Spk-2

1) Weighed up 20 grams of sample using baked Na2SO4 to dry using Na2SO4 for DIC
2) Spiked
3) Added 30ml of Freon and sonicated for 3mins. ea 3 x's each time drain into 100ml volumetric flask
4) After the third sonication and rinsed funnels with little little with Freon
5) Bring to volume which is 100ml Freon

To HQ DLC

Continued on Page

Read and Understood By

Signed 5.13.94 Date Signed 5-13-94 Date

030

ESE. ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

ORGANIC LABORATORY/EXTRACTION LOG SHEET

BOOK NO: 80442

PROJECT: CDM- Hanford N- slope
PROJECT NO.: 19440224 0201
CASE NO.: NA
EXTRACTOR(S): AT (2540)
CLEAN-UP: NA
DATE: 5/14/94
TIME: 3pm
EXTRACTION METHOD: 418.1
SAMPLE FRACTION: SS
CHECKED BY:
BALANCE USED: #23

SAMPLE NO.	VOLUME-ml MASS-gr.	INITIAL/ FINAL pH	TYPE/DATE OF CLEAN-UP	FINAL VOL. SOLVENT	SURRO-GATE ADDED Y/N	COMMENTS
COMHNSS-36	20.0g	NA	NA	100ml freon	N	1.0ml of 418.1 TRPH std control
37						Stock conc = 849g/ml KKA 5/5/94
38						to 38MS, 38MSD, SPIK1, SPIK2
37MD						Spiked: AA Wt:
38MS						
38MSD						
SPIK1						
SPIK2						
BLC						

CHAIN-OF-CUSTODY RECORD

FORM 87262

001861

9513356.2961

PROJECT COM- Hanford N-slope 418.1 soils:

Notebook No. 985

Continued From Page

COMVHNSS - 36-38, 37D, 38MS/MSD, SP1C, SP1C2, BCK

1) Weighed out 20.0g sample into beakers. Used baked Na_2SO_4 for SP1C, BCK. Added 20g baked Na_2SO_4 (DLC 4/26/94) to all.
2) Added 30ml freon (BH485) to all. Sonicated using probe for 3 min. Let samples settle for 1 minute.
3) Filtered extract through silicone treated Whatman phase separator (3593) into clean 100ml volumetric flasks.
4) Repeated steps ②, ③ two more times.
5) Topped volumetric flasks to 100ml with freon AT 5/14/94

Continued on Page

Signed	Date	Read and Understood By Signed	Date
AT	5/14/94		5/14/94

Oil and Grease And Petroleum Hydrocarbon, Total Recoverable Extraction for Water

Standard Method 16th Edition Method 503C and 503E
EPA Method 418.1

Date Read on IR Spectrophotometer : 5/16/94 Analyst : D. Duncan

Storet : 98233 & AISON Batch # : G 94238

Date Stock Standard Was Made : 4/19/94

Standard Curve (mg/L)	Response	A = log (100 / Response)	Δ A = standard A - baseline A
Baseline	90		
A 1.672	89		
B 3.344	86		
C 8.360	78		
D 16.72	65		
E 33.44	42		
F 83.60	17		

Q.C. Data	Volume of Spike G	Conc. of Spiking Std. (units) H
SP1	1.0 ml	0.849 g/100 ml
SP2	↓	↓
SPM	↓	↓

Target = $\frac{G \times H}{\text{Vol. Sample X (\%M)}}$

T = 84.9

Instrument : Perkin Elmer 1420 Ratio Recording Infrared Spectrophotometer Serial #: 129448

000081

BOOK NO. B-057

001863

9513355.2961

PROJECT Preperation of Control Reference Oil and Control Stock

Notebook No. 00834

Continued From Page

Date Prepared: 04/20/94 by KBA

Name of Control Ref. Oil: 04/19/94 CR

Preparation of Control Reference Oil and Control Stock Solution procedure was as follows;

15.0 ml Hexadecane, Lot # 06911 PY (Aldrich)
Recieved: 04/17/92 Opened 04/20/92 RCK

15.0 ml 2,2,4 - Trimethylpentane (Iso-octane) Lot # 54292/1
Janssen Chimica, Recieved 04/17/92 opened 04/20/92 RCK

10.0 ml Chlorobenzene, Lot # 20922/6
Janssen Chimica, Recieved 04/17/92 opened 04/20/92

This solution is prepared and kept in an amber bottle with a teflon lined cap.

The following stock standard was prepared using 1.0 ml of the above mentioned reference oil, pipetted into a tared 100 ml volumetric flask and the weight of the 1.0 ml of reference oil recorded.

Name of Control Ref. Stock: 04/19/94 CS

1.0 ml of Control Reference Oil weighed 0.8494 g.

Target for 20 mls of stock in 200 ml 67.952 mg/L

Concentration of Control Reference Stock: 0.8494 g / 100 ml

Preparation of Control Standard F; 2.0 mls of stock 04/19/94 CS (Control) was pipetted into a freon rinsed 200 ml volumetric flask and brought to volume using freon.

$$\frac{0.8494\,g}{100\,ml} \times \frac{1000\,ml}{L} = \frac{8.494\,g}{L} \times \frac{1000\,mg}{g} = \frac{8494\,g}{L}$$

Conc. of STD F (Control) mg/L = 8494 mg / L / 200 ml = 84.94 mg/L

Control Standard E was prepared using 20 mls of Control standard F pipetted into a 50 ml volumetric flask and then brought to volume using freon. Conc. of Control Standard E: 33.976 mg/L

Continued on Page

Read and Understood By

Eric Anderson 04/19/94
Signed Date

Signed Date 4/20/94

The following stock solution was prepared using 1.0 ml of Reference oil (page 75 prepd 01/12/94 (BA)) pipetted into a tared 100 ml volumetric flask and the weight of the Reference oil recorded. The weight of 1.0 ml of reference oil was 0.8360g. The 100ml volumetric flask was then brought to volume using freon. The following concentration resulted;

0.8360g/100ml

Preparation of Standard F: 20 mls of stock standard 0.8360g/100ml were pipetted into a clean 200 ml volumetric flask and the flask then brought to volume using freon.

$$\frac{0.8360g}{100ml} \times \frac{1000ml}{L} = \frac{8.360g}{L} \times \frac{1000mg}{g} = \frac{8360mg}{L}/200ml = \boxed{\text{Conc. STD F } 83.60mg/L}$$

Standards A thru E were prepared using the designated volumes of standard F

STANDARD	Volume of STD F in Mls	Concentration of STD (mg/L)
A	1.0	1.672
B	2.0	3.344
C	5.0	8.360
D	10.0	16.72
E	20.0	33.44

W. BA
~~Calculated target~~

Continued on Page

Read and Understood By

Signed 04/19/94 Date Signed 4/20/94 Date

9513355.2966

Chain-of-Custody Forms

F6260

CHAIN OF CUSTODY RECORD

CDM Federal Programs Corporation

SAMPLE INV 4/19/94 — COC #

PROJECT NAME Hanford North Slope Site H-06-L

PROJECT NUMBER 6110-001

~~Field Log~~ Book Reference No. 1

SITE #	SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION FIELD ID#	SAMPLE TYPE	ANALYSES 8260	8080	8270	6010/7000	418.1(w)	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS
1	94H06L	(w)-A20-01-	004	4/19/94	1325	~~H-06-L(w)~~ A20	Soil	X					2x125ml	5	Grab
	94H06L	(w)-A20-01-	004	4/19/94	1325	H-06-L(w) A20	Soil		X	X			1x250ml	5	Composite
	94H06L	(w)-A20-01-	004	4/19/94	1325	H-06-L(w) A20	Soil				X	X	1x250ml	5	Composite
2	94H06L	(w)-A20-02-	006	4/19/94	1410	H-06-L(w) A20	Soil	X					2x125ml	5	Grab
	94H06L	(w)-A20-02	006	4/19/94	1410	H-06-L(w) A20	Soil		X	X			1x250ml	5	Composite
	94H06L	(w)-A20-02	006	4/19/94	1410	H-06-L(w) A20	Soil				X	X	1x250ml	5	Composite
3	94H06L	(w)-A19-01	008	4/19/94	1648	H-06-L(w) A19	Soil	X					2x125ml	5	Grab
	94H06L	(w)-A19-01	008	4/19/94	1648	H-06-L(w) A19	Soil		X	X			1x250ml	5	Composite
	94H06L	(w)-A19-01	008	4/19/94	1648	H-06-L(w) A19	Soil				X	X	1x250ml	5	Composite
4	94H06L	(w)-A19-02	007	4/20/94	0840	H-06-L(w) A19	Soil	X					2x125ml	8	Grab
	94H06L	(w)-A19-02	007	4/20/94	0840	H-06-L(w) A19	Soil		X	X			1x250ml	8	Composite
	94H06L	(w)-A19-02	007	4/20/94	0840	H-06-L(w) A19	Soil				X	X	1x250ml	8	Composite

ESE SAMPLE RECEIVING

LDD: 4/23/94

Field Group/#s: C D M H N S S

Storet List: CDMHNSS.1

Custody Seal(s) Intact?: Y N N.A

Cooler Temp. (C): 6°C

Data Audited

SAMPLED BY (SIGN): Jane H. Moore

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① Jane H. Moore	②	③	④	⑤
DATE/TIME (4/22/94 1146)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN) N.A.	RECEIVED BY (SIGN)
①	②	③	④	⑤
DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Fed Ex Airbill # 928999223	Jane H. Moore	Michael Jost	4/21/94 1120

COC #001

LEGEND: Original: Return to Sample Traffic Control Center — Copies: Ship with Samples

001867

9513353.2967

F6260

CHAIN OF CUSTODY RECORD

CH2M Federal Programs Corporation

Sample Item 4/20/94

PROJECT NAME Hanford North Slope Site H-06-L PROJECT NUMBER 6110-001

Field Log Book Reference No. 1

SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES 8260	8080	8270	6010/7000	418.1 (w)	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS ESE #
94H06L	(w)-A19-03	005	4/20/94	1345	H-06-L(w) A19	soil	X					2x125ml		Grab
94H06L	(w)-A19-03	005	4/20/94	1345	H-06-L(w) A19	soil		X	X			1x250ml		Composite *5
94H06L	(w)-A19-03	005	4/20/94	1345	H-06-L(w) A19	soil				X	X	1x250ml		Composite
94H06L	(w)-A19-04	005	4/20/94	1415	H-06-L(w) A19	soil	X					2x125ml		Grab
94H06L	(w)-A19-04	005	4/20/94	1415	H-06-L(w) A19	soil		X	X			1x250ml		Composite *6
94H06L	(w)-A19-04	005	4/20/94	1415	H-06-L(w) A19	soil				X	X	1x250ml		Composite

ESE SAMPLE RECEIVING

LOG: 4/26/94

Field Group/#: CDMHN85

Sheet List: CDMHN85.1

Custody Seal(s) Intact?: Y N N.A.

Cooler Temp. (°C): 5

Preservation Audited? Y N N.A.

SAMPLED BY (SIGN) James H. Moore

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore	②	③	④	⑤
DATE/TIME (4/21/94 1000)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)
① [illegible]	②	③	④	⑤
DATE/TIME (4/22/94 1110)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Federal Express Airbill # 928999211 0			(/)

COC #002

Copies: Ship with Samples

LEGEND: Original: Return to Sample Traffic Control Center

001868

9513355.2968

F6260

CHAIN OF CUSTODY RECORD

CDM Federal Programs Corporation

SAMPLE LOG JHm 4/25/94

PROJECT NAME Hanford North Slope Site H-06-L PROJECT NUMBER 6110-001

~~Field Log~~ Book Reference No. 1

SAMPLE NUMBER			DATE 4/22/94	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES 8260	8080	8270	6010/7000	418.1(w)	8240 (WSU)	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS
94H06L	(w)-A07-01	-001	~~1545~~	1545	H06L(w) A07	Soil		X					2x125 ml	17	Grab EPA Level IV
94H06L	(w)-A07-01	-001	4/22/94	1545	H06L(w) A07	Soil			X	X			1x250ml	17	Comp EPA Level IV
94H06L	(w)-A07-01	-001	4/22/94	1545	H06L(w) A07	Soil					X	X	1x250ml	17	Comp EPA Level IV
94H06L	(w)-A07-02	-005	4/23/94	1000	H06L(w) A07	Soil		X					2x125 ml	19	Grab
94H06L	(w)-A07-02	-005	4/23/94	1000	H06L(w) A07	Soil			X	X			1x125ml	19	Comp
94H06L	(w)-A07-02	-005	4/23/94	1000	(H06L(w) A07	Soil					X	X	1x125ml	19	Comp
94H06L	(w)-A05-01	-004	4/23/94	1600	H06L(w) A05	Soil		X					2x250ml	21	Grab
94H06L	(w)-A05-01	-004	4/23/94	1600	H06L(w) A05	Soil			X	X			1x125ml	21	Comp
94H06L	(w)-A05-01	-004	4/23/94	1600	H06L(w) A05	Soil					X	X	1x125ml	21	Comp
94H06L	(w)-A05-01	TB1	4/25/94	0815	H06L(w) A05							X	3x40ml	23	Trip Blank #2
~~94H06L~~	~~(w)-A05-01~~	~~TB1~~	~~4/25/94~~	~~0815~~	~~JHm 4/25/94~~										

10 11 12

ESE SAMPLE RECEIVING

LDD: 1/28/94

Field Group #: CDMHNSS/CDMHNSW

Storet List: CDMHNSS.1/CDMHNSW.01

Cooler Temp: 4

Preservation Audited? Y

Custody Seal(s) Intact?: (Y) N N.A.

SAMPLED BY (SIGN) James H. Moore

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore	②	③	④	⑤ (N.A.)
DATE/TIME (4/25/94 1200)	DATE/TIME (/)	DATE/TIME (	DATE/TIME (	DATE/TIME (/)
RECEIVED BY (SIGN)	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**
①	②	③	④	⑤
DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Federal Express (Airbill #9289992176)	James H. Moore	Michael Foster	4/26/94 1100

COC #003

LEGEND: Original: Return to Sample Traffic Control Center 2a Copies: Ship with Samples

001869

9513356.2960

F6260

CHAIN OF CUSTODY RECORD

CDM Federal Programs Corporation

PROJECT NAME Hanford North Slope Site H-06-L

PROJECT NUMBER 6110-001

SAMPLE JHM (4/22/94)

~~Field~~ Log Book Reference No. 1

SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES 8260	8080	8270	6010/7000	418.1 W	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS
94H06L	(w)-A17-01	003	4/21/94	1545	H-06-L(w) A17	Soil	X					2x125ml	13	Grab } 7
94H06L	(w)-A17-01	003	4/21/94	1545	H-06-L(w) A17	Soil		X	X			1x250ml	13	Composite } 7
94H06L	(w)-A17-01	003	4/21/94	1545	H-06-L(w) A17	Soil				X	X	1x250ml	13	Composite } 7
94H06L	(w)-A16-01	002	4/22/94	0930	H-06-L(w) A16	Soil	X					2x125ml	15	Grab } 8
94H06L	(w)-A16-01	002	4/22/94	0930	H-06-L(w) A16	Soil		X	X			1x250ml	15	Comp } 8
94H06L	(w)-A16-01	002	4/22/94	0930	H-06-L(w) A16	Soil				X	X	1x250ml	15	Comp } 8
94H06L	(w)-A-16-02	003	4/22/94	1005	H-06-L(w) A16	Soil	X					2x125ml	16	Grab } 9
94H06L	(w)-A16-02	003	4/22/94	1005	H-06-L(w) A16	Soil		X	X			1x250ml	16	Comp. } 9
94H06L	(w)-A16-02	003	4/22/94	1005	H-06-L(w) A16	Soil				X	X	1x250ml	16	Comp } 9

~~ESE SAMPLE RECEIVING~~

LDD: 4/26/94

Field Group/#: CDM HNSS

Storet List: CDMHNSS.1

Custody Seal(s) Intact?: Y N N.A.

Cooler Temp. (°C): 6

SAMPLED BY (SIGN) James H. Moore

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore	②	③	④	⑤
DATE/TIME (4/22/94)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**
① [illegible]	②	③	④	⑤
DATE/TIME (4/23/94 1200 PM)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Federal Express (Airbill #9289992165)	James H. Moore		(/)

COC #004

LEGEND: Original: Return to Sample Traffic Control Center — Copies: Ship with Samples

001870

9513355.2971

F6260

CHAIN OF CUSTODY RECORD

CDM Federal Programs Corporation

Sample Site 4/25/94

PROJECT NAME Hanford North Slope Site H-06L PROJECT NUMBER 6110-001

~~Field~~ Log Book Reference No. 1

SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES 8260	8080	8270	6010/7000	418.1 (TPH)	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS
94H06L	(w)-A05-01-	EB1	4/23/94	1515	H06L(w)	Water	X					3x40ml	21	Equipment Blank
94H06L	(w)-A05-01-	EB1	4/23/94	1515	H06L(w)	Water		X				2x1L	21	" "
94H06L	(w)-A05-01	EB1	4/23/94	1515	H06L(w)	water			X			2x1L	21	" "
94H06L	(w)-A05-01	EB1	4/23/94	1515	H06L(w)	water				X		1x1L	21	" "
94H06L	(w)-A05-01	EB1	4/23/94	1515	H06L(w)	water					X	2x1L	21	" "
														MSx2
														ECx2
														Ox2
														N

+ 1

ESE SAMPLE RECEIVING

DD: 4/28/94

Field Group/#: CDMHNSW * 1

Storet list: CDMHNSW.1

Custody Seal(s) Intact?: (Y) N N.A.

Cooler Temp. (C): 4

Preservation Audited? (Y) N N.A.

SAMPLED BY (SIGN) James H. Moore

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore	②	③	④	⑤
DATE/TIME (4/25/94 1260)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)
①	②	③	④	⑤
DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Federal Express (Airbill #9289992154)	James H. Moore	[illegible]	(4/26/94 1100)

COC# 006

LEGEND: Original: Return to Sample Traffic Control Center

Copies: Ship with Samples

001871

9513355.2971

F6260

CHAIN OF CUSTODY RECORD

CDM Federal Programs Corporation

PROJECT NAME Hanford North Slope Site H-06-L

PROJECT NUMBER 6110-001

~~Field Log~~ Sample log Book Reference No. 1 (Sample log start 4/25/94)

SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES 8260	8080	8270	6010/7000	418.1 (w)	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS
94H06L	(w)-A05-02-	003	4/25/94	0900	H06L(w) A05	Soil	X					2x125ml	24	grab
94H06L	(w)-A05-02-	003	4/25/94	0900	H06L(w) A05	Soil		X	X			1x250ml	24	comp *13
94H06L	(w)-A05-02-	003	4/25/94	0900	H06L(w) A05	Soil				X	X	1x250ml	24	comp
94H06L	(w)-A05-03-	004	4/25/94	0910	H06L(w) A05	Soil	X					2x125ml	24	grab
94H06L	(w)-A05-03-	004	4/25/94	0910	H06L(w) A05	Soil		X	X			1x250ml	24	comp. *14
94H06L	(w)-A05-03	004	4/25/94	0910	H06L(w) A05	Soil				X	X	1x250ml	24	comp.
94H06L	(w)-A04-01	005	4/25/94	1315	H06L(w) A04	Soil	X					2x125ml	25	grab
94H06L	(w)-A04-01	005	4/25/94	1315	H06L(w) A04	Soil		X	X			1x250ml	25	comp *15
94H06L	(w)-A04-01	005	4/25/94	1315	H06L(w) A04	Soil				X	X	1x250ml	25	comp
94H06L	(w)-A04-02	012	4/25/94	1400	H06L(w) A04	Soil	X					2x125ml	25	grab
94H06L	(w)-A04-02	012	4/25/94	1400	H06L(w) A04	Soil		X	X			1x250ml	25	comp *16
94H06L	(w)-A04-02	012	4/25/94	1400	H06L(w) A04	Soil				X	X	1x250ml	25	comp

ESE SAMPLE RECEIVING
LDD: 4/29/94
Field Group/s: CDMHNSS
Storet List: CDMHNSS.1
Custody Seal Intact: Y
Cooler Temp. (C): 4
Preservation Noted: Y

SAMPLED BY (SIGN) James H. Moore

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore	②	③	④	⑤
DATE/TIME (4/26/94 1230)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**
① [illegible]	②	③	④	⑤
DATE/TIME (4/27/94 1110)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Federal Exp. Airbill # 9289992250	James H. Moore		(/)

(COC #007)

LEGEND: Original: Return to Sample Traffic Control Center Copies: Ship with Samples

001872

9513355.2977

F6260

CHAIN OF CUSTODY RECORD

CDM Federal Programs Corporation

PROJECT NAME Hanford North Slope (Site H06L) PROJECT NUMBER 6110-001

Sample John 4/26/94

~~Field~~ Log Book Reference No. 1

	SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES: 8260	8080	8270	6010/7000	418.1(W)	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS
	94H06L	(E)-A14-01-	001	4/27/94	1150	H06L(E)-A14	Soil	X					2x125ml	31	grab
17	94H06L	(E)-A14-01-	001	4/27/94	1150	H06L(E)-A14	Soil		X	X			1x250ml	31	comp #17
	94H06L	(E)-A14-01-	001	4/27/94	1150	H06L(E)-A14	Soil				X	X	1x250ml	31	comp
	94H06L	(E)-A14-02-	001	4/27/94	1210	H06L(E)-A14	Soil	X					2x125ml	31	grab
18	94H06L	(E)-A14-02-	001	4/27/94	1210	H06L(E)-A14	Soil		X	X			1x250ml	31	comp #18
	94H06L	(E)-A14-02-	001	4/27/94	1210	H06L(E)-A14	Soil				X	X	1x250ml	31	comp
	94H06L	(E)-A12-01-	010	4/27/94	1400	H06L(E)-A12	Soil	X					2x125ml	32	grab
19	94H06L	(E)-A12-01-	010	4/27/94	1400	H06L(E)-A12	Soil		X	X			1x250ml	32	1 John 4/27/94 comp comp #19
	94H06L	(E)-A12-01	010	4/27/94	1400	H06L(E)-A12	Soil				X	X	1x250ml	32	comp
	94H06L	(E)-A12-02	012	4/27/94	1510	H06L(E)-A12	Soil	X					2x125ml	33	grab
20	94H06L	(E)-A12-02	012	4/27/94	1510	H06L(E)-A12	Soil		X	X			1x250ml	33	comp #20
	94H06L	(E)-A12-02	012	4/27/94	1510	H06L(E)-A12	Soil				X	X	1x250ml	33	comp

ESD SAMPLE RECEIVING
DDD: 4/ 5/1/94
Field Group/#: CDMHNSS

SAMPLED BY (SIGN): James H. Moore

Storet List: CDMHNSS.1

Custody Seal(s) Intact?: Y N N.A.

Cooler Temp (°C): 4

Preservative Added: Y N

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore	②	③	④	⑤
DATE/TIME (4/29/94 1200)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)
①	②	③	④	⑤
DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Federal Express (Airbill # ~~9289992224~~ 9289992224) John 4/28/94	James H. Moore	[illegible]	(4/29/94 1100)

(COC # 008)

Copies: Ship with Samples

LEGEND: Original: Return to Sample Traffic Control Center

001873

9513355.2973

F6260

CHAIN OF CUSTODY RECORD

CDM Federal Programs Corporation

PROJECT NAME Hanford North Slope (Site H06L) PROJECT NUMBER 6110-001

~~Field~~ Log Book Reference No. 1 (SAMPLE LOG BOOK Slim 5/2/94)

SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES: 8260	8080	8270	6010/7000	418.1 (w)	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS
94H06L	(E)-A11-01	-007	4/29/94	822	H06L(E) A11	Soil	X					2x125ml	39	grab - EPA Level IV
94H06L	(E)-A11-01	-007	4/29/94	822	H06L(E) A11	Soil		X	X			1x250ml	39	comp - EPA Level IV
94H06L	(E)-A11-01	-007	4/29/94	822	H06L(E) A11	Soil				X	X	1x250ml	39	comp EPA Level IV
94H06L	(E)-A01-01	-010	5/2/94	1115	H06L(E) A01	Soil	X					2x125ml	42	grab
94H06L	(E)-A01-01	-010	5/2/94	1115	H06L(E) A01	Soil		X	X			1x250ml	42	comp
94H06L	(E)-A01-01	-010	5/2/94	1115	H06L(E) A01	Soil				X	X	1x250ml	42	comp

ESE SAMPLE RECEIVING
LOG: 5/5/94
Field Group/#: CDMHNSS
Storet List: CDMHNSS01
Custody Seal(s) Intact?: (Y) N N.A.
Cooler Temp. (°C): 5
Preservation Audited? Y N (N.A)

SAMPLED BY (SIGN) Jane H. Moore

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore	②	③	④	⑤
DATE/TIME (5/2/94 / 1230)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)
①	②	③	④	⑤
DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Federal Express (Airbill #9289992213)		Michael Gook	(5/3/94 / 1115)

(COC # 010)

LEGEND: Original: Return to Sample Traffic Control Center

Copies: Ship with Samples

001874

9513356.2971

F6260

CHAIN OF CUSTODY RECORD

CDM Federal Programs Corporation

PROJECT NAME Hanford North Slope (Site H06L) PROJECT NUMBER 6110-001

JM 5/2/94 ~~Field Log Book~~ SAMPLE LOG BOOK Reference No. 1

SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES 8260	8080	8270	6010/7000	418.1 (W)	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS
94H06L	(0)-CS1-01-	000	5/3/94	0815	94H06L (0) CS1	Soil	X					2x125ml	45	grab
23 94H06L	(0)-CS1-01-	000	5/3/94	0815	94H06L (0) CS1	Soil		X	X			1x250ml	45	composite *23
94H06L	(0)-CS1-01-	000	5/3/94	0815	94H06L (0) CS1	Soil				X	X	1x250ml	45	composite

ESE SAMPLE RECEIVING

LDD: 5/6/94

Field Group/#: CDMHNSS

Storet List: CDMHNSS.1

Custody Seal(s) Intact?: (Y) N N.A

Cooler Temp. (C): 5

Preservation Audited? Y N (N.A.)

SAMPLED BY (SIGN) James H. Moore

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore	②	③	④	⑤
DATE/TIME (5/3/94 1200)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)
①	②	③	④	⑤
DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Federal Express (Airbill # 9501619315)	James H. Moore	[illegible signature]	(5/4/94 1040)

COC #011

Copies: Ship with Samples

LEGEND: Original: Return to Sample Traffic Control Center

001874a

9513355.2977

F6260

CHAIN OF CUSTODY RECORD

CDM Federal Programs Corporation

PROJECT NAME Hanford North Slope (Site H06L) PROJECT NUMBER 6110-001

~~Field~~ Log Book Reference No. 1

	SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES 8260	8270	8080	6010/7000	418.1(W)	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS ESE#
	94H06L	(E)-BG1-01-	002	5/3/94	1130	H06L(E) BG1	Soil	X					2x125ml	46	grab
24	94H06L	(E)-BG1-01-	002	5/3/94	1130	H06L(E) BG1	Soil		X	X			1x250ml	46	comp X24
	94H06L	(E)-BG1-01-	002	5/3/94	1130	H06L(E) BG1	Soil				X	X	1x250ml	46	comp
	94H06L	(E)-SV1-01-	001	5/3/94	1235	H06L(E) SV1	Soil	X					2x125ml	47	grab
25	94H06L	(E)-SV1-01-	001	5/3/94	1235	H06L(E) SV1	Soil		X	X			1x250ml	47	comp X25
	94H06L	(E)-SV1-01-	001	5/3/94	1235	H06L(E) SV1	Soil				X	X	1x250ml	47	comp
	94H06L	(W)-BG2-01-	002	5/3/94	1500	H06L(W) BG2	Soil	X					2x125ml	47	grab
26	94H06L	(W)-BG2-01	002	5/3/94	1500	H06L(W) BG2	Soil		X	X			1x250ml	47	comp X26
	94H06L	(W)-BG2-01	002	5/3/94	1500	H06L(W) BG2	Soil				X	X	1x250ml	47	comp
	94H06L	(W)-BG2-02	002	5/3/94	1525	H06L(W) BG2	Soil	X					2x125ml	47	grab
27	94H06L	(W)-BG2-02	002	5/3/94	1525	H06L(W) BG2	Soil		X	X			1x250ml	47	comp X27
	94H06L	(W)-BG2-02	002	5/3/94	1525	H06L(W) BG2	Soil				X	X	1x250ml	47	comp

ESE SAMPLE RECEIVING
LDD: 5/7/94
Field Group/#: CDMHNSS
Storet List: CDMHNSS.1
Custody Seal(s) Intact?: Y N N/A
Cooler Temp. (°C): 4 °C
Preservation Acceptable? Y N N/A

SAMPLED BY (SIGN): James H. Moore

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore	②	③	④	⑤
DATE/TIME (5/4/94 1200)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)
①	②	③	④	⑤
DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Federal Express (Airbill # 9501619326)	James H. Moore	[illegible]	(5/5/94 1045)

COC #012

LEGEND: Original: Return to Sample Traffic Control Center
Copies: Ship with Samples

001875

9513355.2970

F6260

CHAIN OF CUSTODY RECORD

CDM Federal Programs Corporation

PROJECT NAME Hanford North Slope (Site H-06-L) PROJECT NUMBER 6110-001

Sample Jthm 5/4/94
~~Field~~ Log Book Reference No. 1

	SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES 8260	8270	8290	8310	6010/7000	418.1	8260 (water)	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS
	94H06L	(w)-A04-03	-020	[redacted]	[redacted]	[redacted]	[redacted]			X					2x125ml	50	grab
28	94H06L	(w)-A04-03	-020	[redacted]	[redacted]	[redacted]	[redacted]				X	X			1x250ml	50	comp } *28
	94H06L	(w)-A04-03	-020	5/4/94	0825	H06L(w)-A04	[redacted]						X	X	1x250ml	50	comp
	94H06L	(w)-A04-04	-008	5/4/94	1050	H06L(w)-A04	Soil			X					2x125ml	51	grab Level IV
29	94H06L	(w)-A04-04	-008	5/4/94	1050	H06L(w)-A04	Soil				X	X			1x250ml	51	comp Level IV } *29
	94H06L	(w)-A04-04	-008	5/4/94	1050	H06L(w)-A04	Soil						X	X	1x250ml	51	comp Level IV
	94H06L	(W)-SV2-01	-001	5/4/94	1305	H06L(w)-SV2	Soil			X					2x125ml	52	grab Level IV
30	94H06L	(W)-SV2-01	-001	5/4/94	1305	H06L(w)-SV2	Soil				X	X			1x250ml	52	comp Level IV } *30
	94H06L	(W)-SV2-01	-001	5/4/94	1305	H06L(w)-SV2	Soil						X	X	1x250ml	52	comp Level IV
	94H06L	(W)-BG3-01	-002	[redacted]	[redacted]	[redacted]	Soil			X					2x125ml	52	grab
31	94H06L	(W)-BG3-01	-002	5/4/94	1430	H06L(W)-BG3	[redacted]				X	X			1x250ml	52	comp } *31
	94H06L	(W)-BG3-01	-002	5/4/94	1430	H06L(W)-BG3	Soil						X	X	1x250ml	52	comp
4	94H06L	(W)-BG3-01	-TB2	5/4/94	1530	H06L(W) BG3	Water							X	3x40ml	53	Trip Blank *4 CDMHNSW

ESE SAMPLE RECEIVING

LDD: 5/10/94

Field Group/#: CDMHNSS / CDMHNSW *4

Storet List: CDMHNSS: 2, 9830 / CDMHNSW

SAMPLED BY (SIGN) James H. Moore

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore	②	③	④	⑤
DATE/TIME (5/5/94 330)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**
①	②	③	④	⑤
DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

Custody Seal(s) Intact? Y N N.A.

Cooler Temp. (°C): 2

Preservation Audited? Y N N.A.

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Jthm 5/5/94 Federal Exp. (Airbill #9501619326) 9501619352	James H. Moore	Cooler #1059	5/6/94 1170 COC #013

LEGEND: Original: Return to Sample Traffic Control Center Copies: Ship with Samples

001876

9513355.2977

F6260

CHAIN OF CUSTODY RECORD

CDM Federal Programs Corporation

SAMPLE JHM 5/5/94

PROJECT NAME Hanford North Slope (Site H06L)

PROJECT NUMBER 6110-001

~~Field~~ Log Book Reference No. 1

SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES: 8260	8270	8080	6010/7000	418.1 W	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS
94H06L	(E)-WC1-01	-000	5/5/94	1035	H06L(E) WC1	Soil	X					2x125ml	56	grab (waste char)
94H06L	(E)-WC1-01	-000	5/5/94	1035	H06L(E) WC1	Soil		X	X			1x250ml	56	comp (waste char) *32
94H06L	(E)-WC1-01	-000	5/5/94	1035	H06L(E) WC1	Soil				X	X	1x250ml	56	comp (waste char)
94H06L	(W)-WC2-01	-000	5/5/94	1220	H06L(W) WC2	Soil	X					2x125ml	56	grab (waste char)
94H06L	(W)-WC2-01	-000	5/5/94	1220	H06L(W) WC2	Soil		X	X			1x250ml	56	~~grab~~ comp (waste char) *33
94H06L	(W)-WC2-01	-000	5/5/94	1220	H06L(W) WC2	Soil				X	X	1x250ml	56	comp (waste char)

Copies: Ship with Samples (32) (33)

ESF SAMPLE RECEIVING

LDD: 5/10/94

Field Group/#: CDMHNSS

Storet List: CDMHNSS.1

Custody Seal(s) Intact?: Y N N.A.

Cooler Temp. (C): 2

Preservation Audited? Y N N.A.

SAMPLED BY (SIGN) James H. Moore

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore	②	③	④	⑤
DATE/TIME (5/5/94 1330)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**
①	②	③	④	⑤
DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Federal Express (Airbill # 9501619330)	James H. Moore	[illegible signature] Cooler #1102	(5/6/94 1120)

(COC# 015)

LEGEND: Original: Return to Sample Traffic Control Center

001877

9513355.2971

CHAIN OF CUSTODY RECORD

CDM Federal Programs Corporation

Sample Jtm 5/9/94

~~Field~~ Log Book Reference No. 1

PROJECT NAME Hanford North Slope (Site H-06-L) PROJECT NUMBER 6110-001

W #11 SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES 8260	8080	8270	6010/7000	418.1	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS
94H06L	(w)-SV2-01	-EB2	5/9/94	0835	H06L(w)	Water	X					3x40ml	60	Equip. Rinsate
94H06L	(w)-SV2-01	-EB2	5/9/94	0835	H06L(w)	Water		X				2x1L	60	" "
94H06L	(w)-SV2-01	-EB2	5/9/94	0835	H06L(w)	Water			X			2x1L	60	" "
94H06L	(w)-SV2-01	-EB2	5/9/94	0835	H06L(w)	Water				X		1x1L	60	" "
94H06L	(w)-SV2-01	-EB2	5/9/94	0835	H06L(w)	Water					X	2x1L	60	" "

ESE SAMPLE RECEIVING

LDD: 5/12/94

Field Group/#: CDMHNSW #11

Storet List: CDMHNSW.3 5/10/94

Custody Seal(s) Intact?: (Y) N N.A.

Cooler Temp. (°C): 3

Preservation Audited? (Y) N N.A.

Contents: MS x 2, MSD x 2, 0x2, N

SAMPLED BY (SIGN) James H. Moore

WITH JIM MOORE 5/10/94 10:30 AM YOAS NOT ANALYZED PER PHONE CALL 5/10

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore	②	③	④	⑤
DATE/TIME (5/9/94 1200)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**
①	②	③	④	⑤
DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Federal Express (Airbill ~~#9284992154~~ Jtm 5/9/94 # 9501619400)	James H. Moore	[signature]	(5/10/94 1040)

(COC #016)

Copies: Ship with Samples

LEGEND: Original: Return to Sample Traffic Control Center

001878

9513355.2971

F6260

CHAIN OF CUSTODY RECORD

CDM Federal Programs Corporation

SAMPLE JHM 5/9/94

PROJECT NAME Hanford North Slope (H-06-L)

PROJECT NUMBER 6110-001

~~Field~~ Log Book Reference No. 1

SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES 8260	8080	8270	6010/7000	418.1	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS
94H06L (E)-A01-02-005	5/11/94	1254	H-06-L (E)	Soil	X					2x125ml	65	grab
94H06L (E)-A01-02-005	5/11/94	1254	H-06-L (E)	Soil		X	X			1x250ml	65	comp } *34
94H06L (E)-A01-02-005	5/11/94	1254	H-06-L (E)	Soil				X	X	1x250ml	65	comp
94H06L (E)-A01-03-005	5/11/94	1330	H-06-L (E)	Soil	X					2x125ml	65	grab
94H06L (E)-A01-03-005	5/11/94	1330	H-06-L (E)	Soil		X	X			1x250ml	65	comp } *35
94H06L (E)-A01-03-005	5/11/94	1330	H-06-L (E)	Soil				X	X	1x250ml	65	comp

Copies: 34, 35

ESE SAMPLE RECEIVING

LDD: 5/17/94

~~Field Group/#:~~ CDMHNSS

~~Sforet List:~~ CDMHNSS.1

Custody Seal(s) Intact? (Y) N N.A.

Cooler Temp. (°C): 4

Preservation Audited? Y N (N.A.)

SAMPLED BY (SIGN) James H. Moore

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore	②	③	④	⑤
DATE/TIME (5/12/94 1200)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**
①	②	③	④	⑤
DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Federal Express (Air bill # 9501619363)	James H. Moore	[illegible]	(5/13/94 1040)

(COC #017)

LEGEND: Original: Return to Sample Traffic Control Center

001879

9513355.2981

F62

CHAIN OF CUSTODY RECORD

CDM Federal Programs Corporation

Sample JHM 5/12/94

PROJECT NAME Hanford North Slope (H-06-L)

PROJECT NUMBER 6110-001

~~Field~~ Log Book Reference No. 1

SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES 8260	8270	8080	6010/7000	418.1 W	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS
94H06L	(E)-A01-04	-014	5/13/94	0840	H06L(E)	Soil	X					2x125ml	72	grab Level III
94H06L	(E)-A01-04	-014	5/13/94	0840	H06L(E)	Soil		X	X			1x250ml	72	comp Level III
94H06L	(E)-A01-04	-014	5/13/94	0840	H06L(E)	Soil				X	X	1x250ml	72	comp Level III
94H06L	(E)-A01-05	-012	5/13/94	0900	H06L(E)	Soil	X					2x125ml	72	grab
94H06L	(E)-A01-05	-012	5/13/94	0900	H06L(E)	Soil		X	X			1x250ml	72	comp
94H06L	(E)-A01-05	-012	5/13/94	0900	H06L(E)	Soil				X	X	1x250ml	72	comp
94H06L	(E)-A01-06	-010	5/13/94	1055	H06L(E)	Soil	X					2x125ml	73	grab
94H06L	(E)-A01-06	-010	5/13/94	1055	H06L(E)	Soil		X	X			1x250ml	73	comp
94H06L	(E)-A01-06	-010	5/13/94	1055	H06L(E)	Soil				X	X	1x250ml	73	comp

Copies: Ship with Samples 36 37 38

ESE SAMPLE RECEIVING

LDD 5/13/94

Field Group/#: CDMHN55

Sample List: CDMHN55.1 FOR 37, 38, CDMHN55.2 FOR 36

Custody Seal(s) Intact?: Y N N.A.

Cooler Temp. (C): 2°

SAMPLED BY (SIGN) James H. Moore

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore DATE/TIME (5/13/94, 300)	② DATE/TIME (/)	③ DATE/TIME (/)	④ DATE/TIME (/)	⑤ DATE/TIME (/)
RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)
① DATE/TIME (/)	② DATE/TIME (/)	③ DATE/TIME (/)	④ DATE/TIME (/)	⑤ DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Federal Express (Airbill# 9501619385)	James H. Moore	[illegible]	(5/14/94 1130)

LEGEND: Original: Return to Sample Traffic Control Center

001880

9513351.2981

1 copy to [illegible]

CHAIN OF CUSTODY RECORD — CDM Federal Programs Corporation

Sample Jitm 5/12/94

PROJECT NAME Hanford North Slope (H-06-L) PROJECT NUMBER 6110-001

~~Field~~ Log Book Reference No. 1

SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES 8270	8080	6010/7000	418.1 W	NUMBER OF CONTAINERS	LOG. BOOK PG. NO.	REMARKS
94H06L	(E)-WW1-01	-000	5/13/94	1215	H06L (E&W)	Water	X				2x1L	74	Decon Wastewater
94H06L	(E)-WW1-01	-000	5/13/94	1215	H06L (E&W)	Water		X			2x1L	74	" "
94H06L	(E)-WW1-01	-000	5/13/94	1215	H06L (E&W)	Water			X		1x1L	74	" "
94H06L	(E)-WW1-01	-000	5/13/94	1215	H06L (E&W)	Water				X	2x1L	74	" "

ESE SAMPLE RECEIVING
LOD: 5/14/94
Field Group#: CDMHNSW#13
Storet List: CDMHNSW#1
Custody Seal(s) Intact?: (Y) N N.A.
Cooler Temp. (C): 4°
Preservation Audited? (Y) N N.A.

SAMPLED BY (SIGN) James H. Moore

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① James H. Moore	②	③	④	⑤
DATE/TIME (5/13/94 300)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)
①	②	③	④	⑤
DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
Federal Express (Airbill # 9501619396)	James H. Moore	[illegible]	(5/14/94 1130)

COC # [illegible]

Copies: Ship with Samples

LEGEND: Original: Return to Sample Traffic Control Center

001881

9513351.2981