START

LOGBOOK NUMBER	DATE OF ISSUE
EFL-1095	8-6-93

PROJECT NUMBER AND TITLE (INDICATE SUBJECT CONTENT)

300 Area Solvent Evaporator
RCRA Closure Project

ASSIGNED TO / PAYROLL NO.	DATE ASSIGNED / ORG. CODE	SIGNATURE & DATE
V.G. Lucas 55152	8-6-93 81353	V.G. Lucas 8-6-93

APPROVED FOR PUBLIC RELEASE
T. Berkland 6/5/95

JUN 1995

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3 dc 2/9/94

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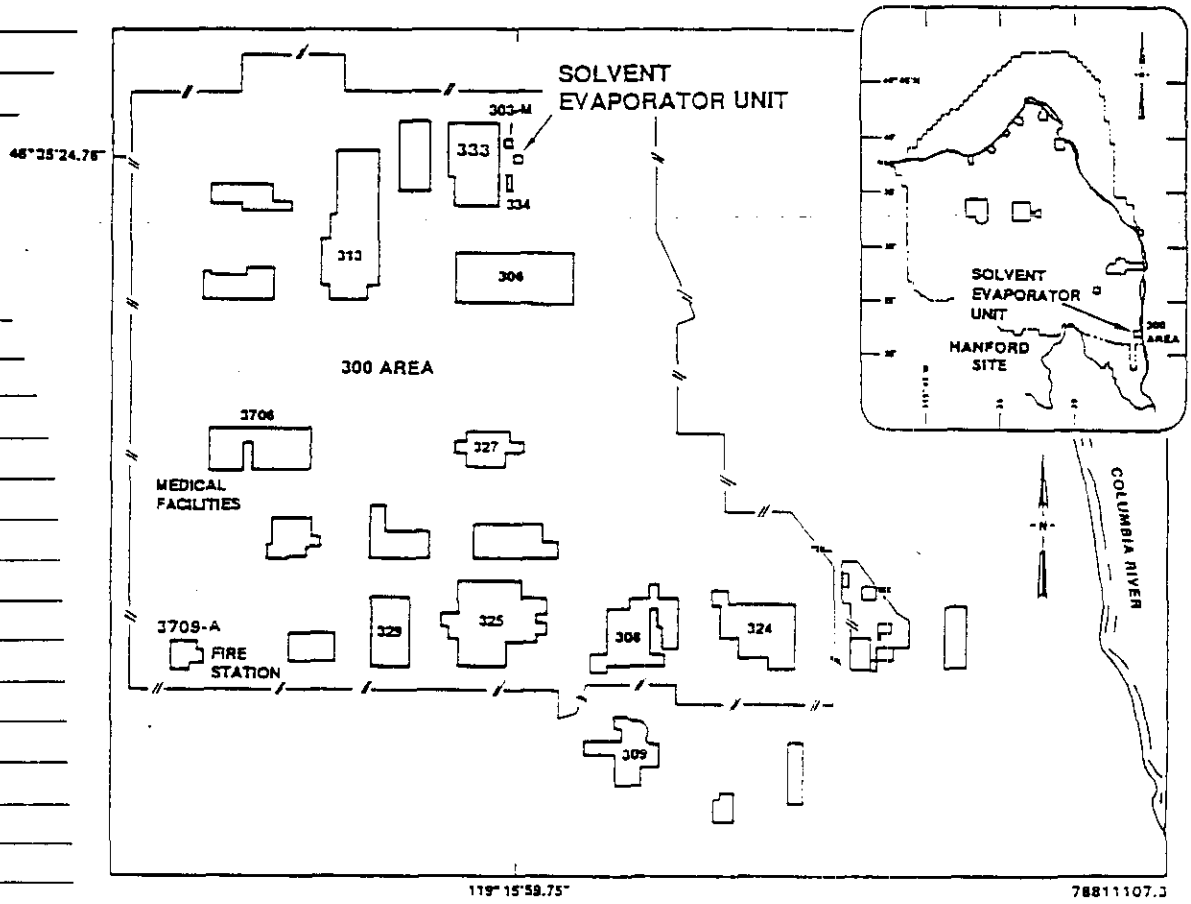
300 Area Solvent Evaporator RCRA Closure Project
8-10-93 Weather - Warm, clear

Name	Position	Company	Payroll #
Jonathan G. Lucas	Field Team Leader	WHC	55152
Michael S Jones	HPT	WHC	68469
Sharon Steele	Sampler	WHC	64432
Duane Jacques	Field Screening	WHC	57172
DAVID BYERS	QCA AUDITOR	WHC	60861
Kirk Weingardt	ECA observer	WHC	85251

All personnel involved with sampling read the applicable safety documentation

300 AREA SOLVENT EVAPORATOR UNIT



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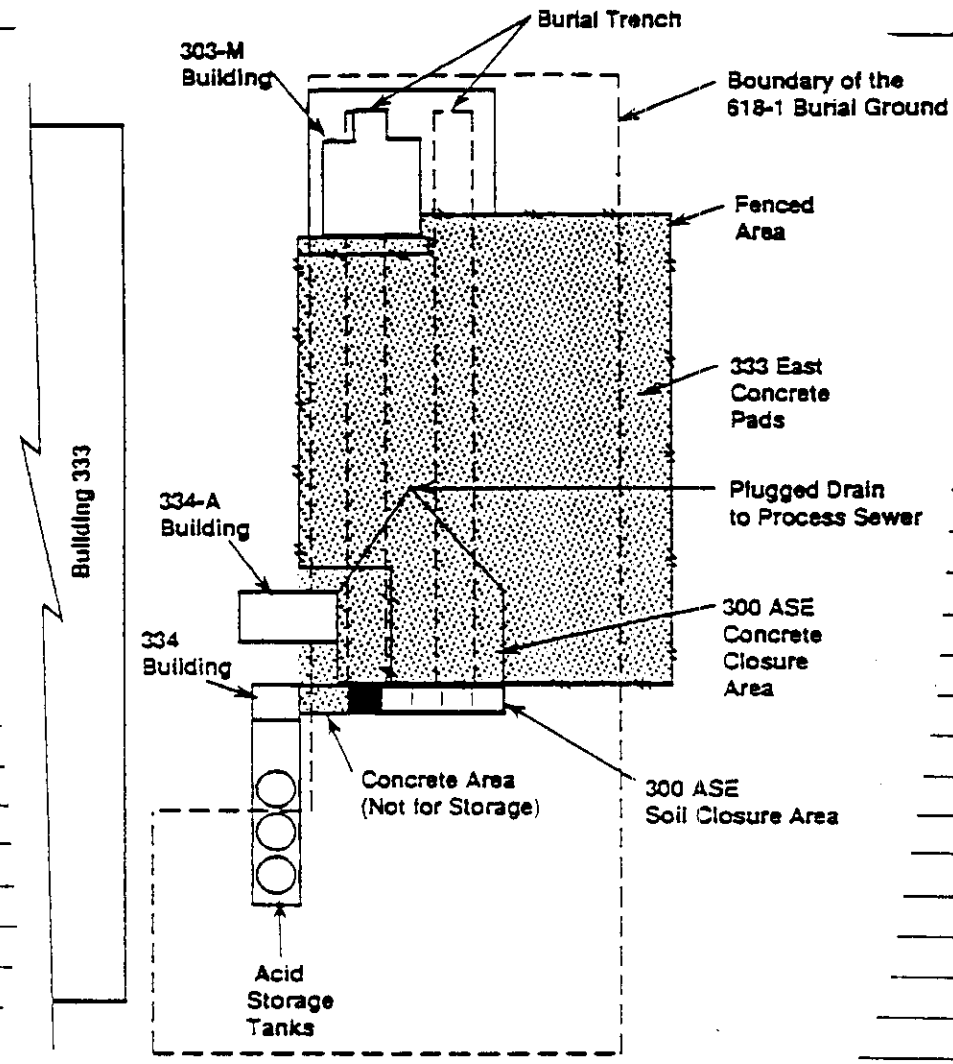

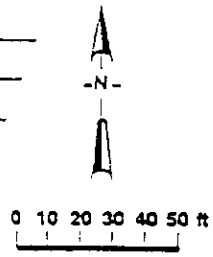

Last Location of 300 ASE and Spill Site

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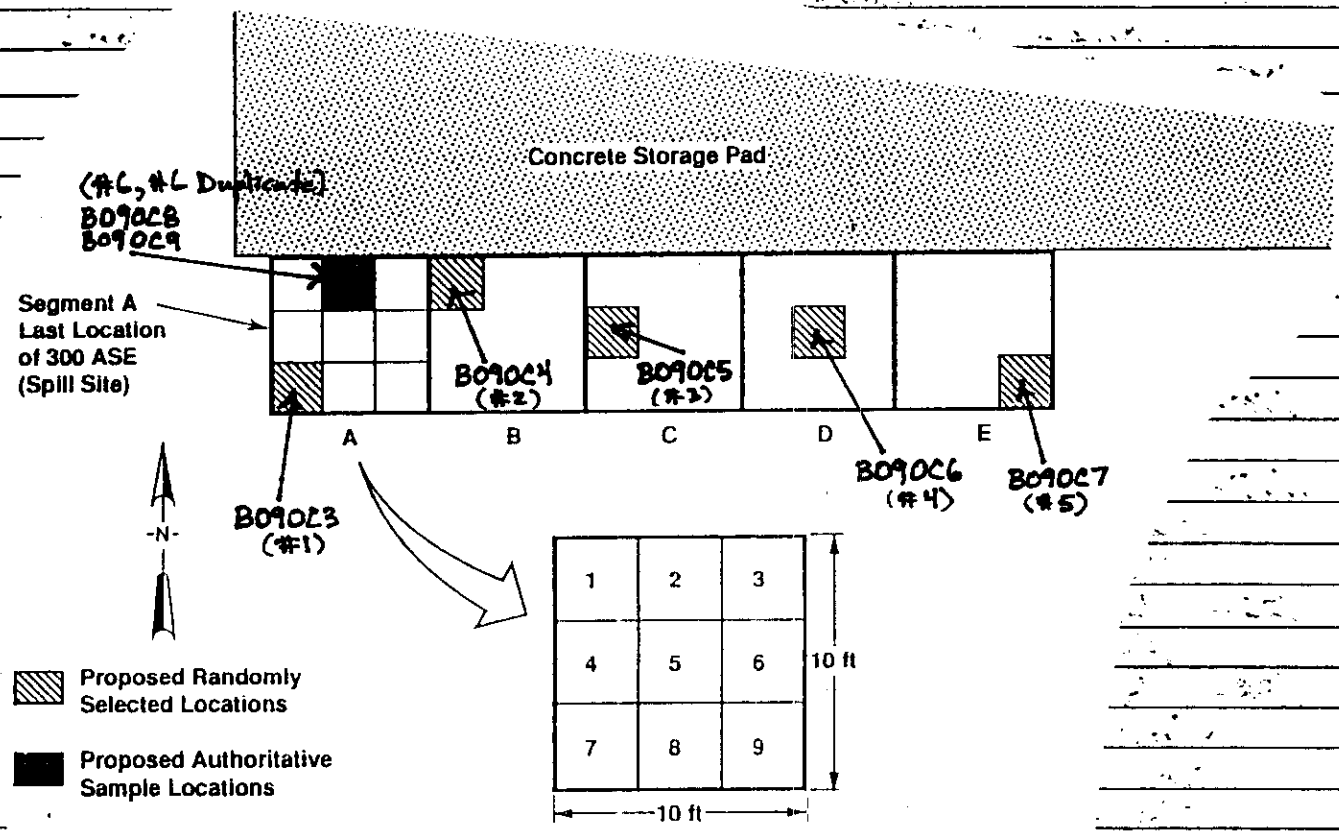
RCRA Closure Project



Radiological Background - ~ 80 cpm

Soil Closure Area and Sampling Sites.

0700 - Sand matrix trip blank B090D0 was prepared and placed in a 250 ml glass septum sample container. (as 8-11-93) VOA (volatile organic analysis)

0945 - Sand matrix equipment blank B090D2 was collected and placed in VOA 250 ml glass septum sample container.

1035 - Collected soil from location B090C7 for volatile organic analysis on a portable gas chromatograph using aqueous headspace extraction. This method is a VOA field analysis.

1042 - Collected volatile organic analysis soil sample B090C7 for off-site analysis. Soil collected from ~6" to ~12". Soil - brown sand. OVM (organic vapor monitor) - < detectable, radiological - < detectable (α, β, γ) Continued on page 4

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1049- Collected remaining sample bottles for soil sample B090C7. Collection method - ~~trowel~~ 8-15-93 JS, spoon, bowl.

1053- Collected soil for VOA field analysis from location B090C6.

1100- Collected VOA bottle for soil sample B090C6. Soil collected from -6" to -9". Soil - moist brown sand. OVM - < detectable. Radiological - α, β, γ < detectable. Collection method - spoon, bowl

1105- Collected remaining bottles for soil sample B090C6.

1110- Collected soil for VOA field analysis from soil sample location B090C5.

1117- Collected VOA bottle for soil sample B090C5. Soil collected from -6" to -12". Soil - dry gray sand/cobble. OVM - < ~~dect~~ 8-15-93 JS detectable. Radiological - < det. α, β, γ

1126- Collected remaining bottles for soil sample B090C5. Collection method - spoon, bowl.

1138- Collected VOA bottle for soil sample B090C4. Just prior to this bottle, a bottle was collected for VOA field analysis from this location. Soil - moist sand/cobble. A 1" grayish layer was encountered at the -6.5" depth. OVM - < detectable. Radiological - < detectable α, β, γ.

8-15-93 JS Collection method - spoon, bowl 1140- Collected soil for VOA field analysis from 1" gray layer at B090C4. Also soil collected to perform pH in field. 1145- Collected remaining bottles for B090C4.

1153- Collected soil for VOA field analysis from location B090C3.

1159- Collected VOA bottle for soil sample B090C3. Soil collected from: -6" to -10". Collection method - spoon & bowl. Soil - brown fine sand/cobble. OVM - < detectable. Radiological - < detectable α, β, γ.

1208- Collected remaining bottles for soil sample B090C3.

1220- Collected soil for VOA field analysis from location B090C8/B090C9.

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1229 - Collected VOA bottle for soil samples B090C8 & B090C9. Soil collected from -6" to -12". Soil - fine sand/cobble. Gray layer (-7.5" to -8") / 1/8" red/purple layer / brown fine sand below. OVM - < detectable. Radiological - < detectable α, β, γ. Collection method - spoon & bowl.
1239 - Collected remaining bottles for soil samples B090C8 & B090C9.
1308 - Collected field blank B090D1 next to soil sample site B090C3. Matrix - sand. Collection - method - spoon

At soil sample sites B090C3, B090C4, and B090C8 a soil sample was collected at each of these to perform an Immunoassay polyaromatic hydrocarbon field analysis.

The pH of the gray layer at B090C4 was performed in field with a result of 7.5.

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Volatile Organic Analysis - Field Analysis Notes

8/10/93 300 Area Solvent Evaporator
Characterization Sampling

0850 Calibrated #1 OVM 580B (Serial Number 580B-33538-245) which has a 10.6 eV lamp. Calibrated to 101 ppm isobutylene in air. Reading: 100.0

0855 Checked calibration using 9.51 ppm isobutylene in air check standard. Reading: 10.2/10.2/10.2/10.2 (0.6 ppm flash) Instrument calibration within acceptable limits (± 1 ppm)

1035 Collected Sample SE-5. Fine sand moist

1058 Collected Sample SE-4, moist, fine sand

1110 Collected Sample SE-3, grayer sand, appears to have salt deposit, drier

1115 Collected Sample SE-2, moist, brown sand w/ small rocks

1140 Collected Sample SE-2a drier gray sand, salt deposit?

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Volatile Organic Analysis - Field Analysis Notes

8-10-93 DDJ

300 Area Solvent Evaporator Samples

1153 Collected sample SE-1. dark, moist sand, w/ small cobble.

1220 Collected sample SE-6. gray salt layer, damp, some yellow deposit

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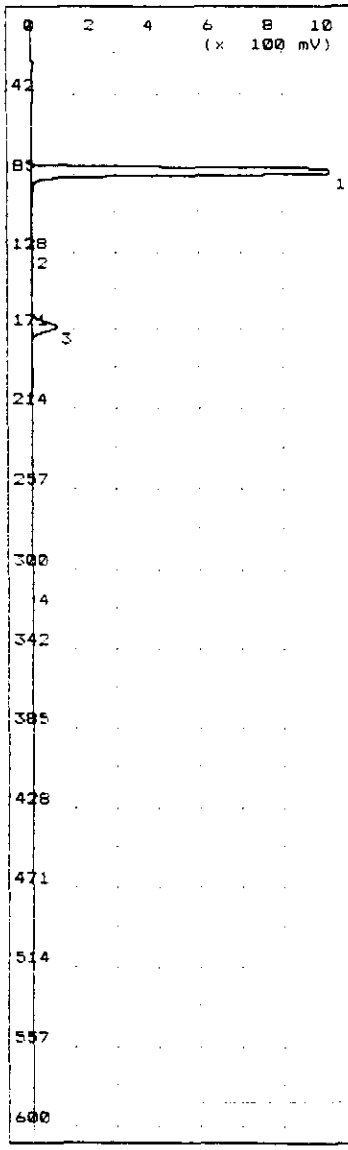
VOA Field Analysis Results

Analysis #120 105+ GC Function Calibrant Report SOLVCAL .GC1



Time Printed:	Aug 10, 93 15:55
Sample Time:	Aug 10, 93 13:41

Method

Slope Up	0.500	mV/Sec
Slope Down	1.500	mV/Sec
Min Area	0.000	mVSec
Min Height	0.000	mV
Analysis Delay	23.0	sec
Window Percent	8.00	%
Det Flow	8	ml/min
B/F Flow	8	ml/min
Aux Flow	0	ml/min
Oven Temp	40	C
Amb Temp	0	C
Max Gain	100	
Analysis Time	600.0	sec

Peak Report

Pk	Compound Name	Area/Conc	R.T.
1	Benzene	485.1 ppb	81.4
2	MIBK (Hexone)	4.095 ppb	124.4
3	Toluene	51.99 ppb	167.2
4	Unknown	3.522 mVS	310.4

Notes

Site: 300 Area Solvent Evap.
Sample Number: Cal standard
Sample time: 1340
Note: T= 0.052 ppm

Library: Master
Delivery: 250 uL injection
Container: 40-mL VOA
Method: Aqueous Headspace
Column: CPSil5CB - 10m x 0.53mm
Carrier: Ultra Zero Air
Analyst: IDJ

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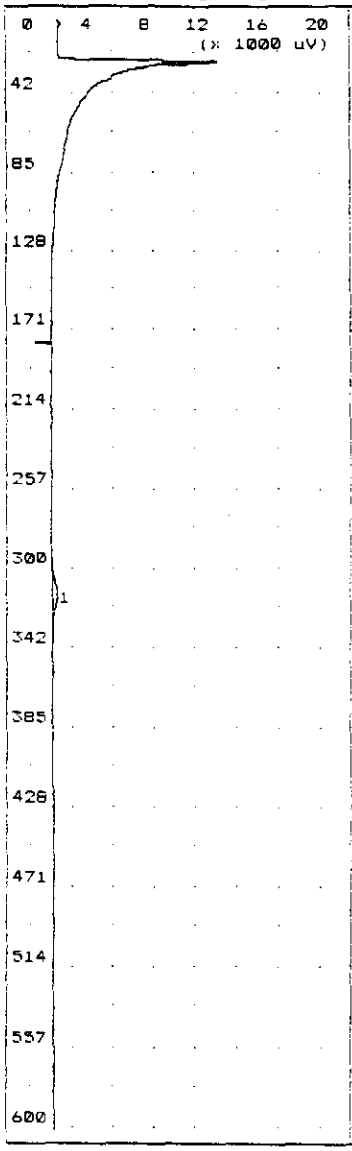
300 Area Solvent Evaporator
RCRA Closure Project

VOA Field Analysis Results

Analysis #119 10S+ GC Function Analysis Report SOLVBLNK.GC1



Time Printed:	Aug 10, 93 15:48
Sample Time:	Aug 10, 93 13:15

Method

Slope Up	0.500	mV/Sec
Slope Down	1.500	mV/Sec
Min Area	0.000	mVSec
Min Height	0.000	mV
Analysis Delay	23.0	sec
Window Percent	8.00	%
Det Flow	8	ml/min
B/F Flow	8	ml/min
Aux Flow	0	ml/min
Oven Temp	40	C
Amb Temp	0	C
Max Gain	100	
Analysis Time	600.0	sec

Peak Report

Pk	Compound Name	Area/Conc	R.T.
1	Unknown	7.105 mVS	311.4

Notes

Site: 300 Area Solvent Evap.
Sample Number: Method Blank
Sample Time: 1315
Notes: Backflush peak @ 61 sec

Library: Master
Delivery: 250 uL injection
Container: 40-mL VOA
Method: Aqueous Headspace
Column: CPSil5CB - 10m x 0.53mm
Carrier: Ultra Zero Air
Analyst: IDJ

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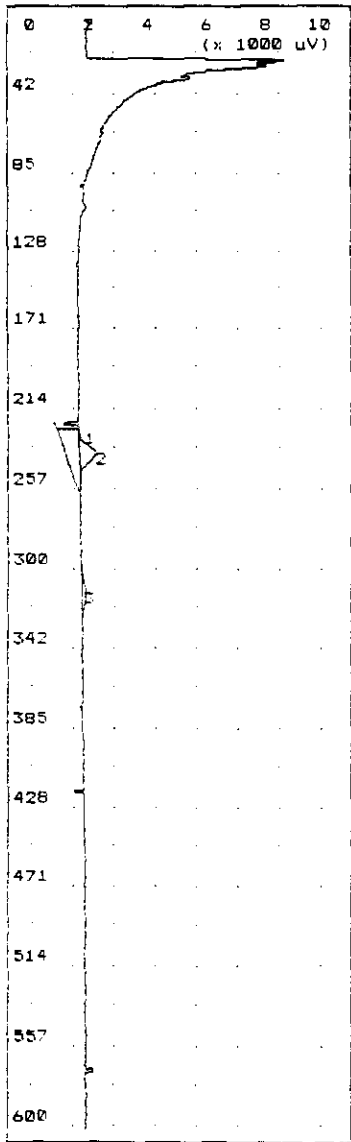
VOA Field Analysis Results

Analysis #123 105+ GC Function Analysis Report SOLEVP1 .GC1



Time Printed: Aug 10, 93 16:01
Sample Time: Aug 10, 93 14:16

Method

Slope Up	0.500	mV/Sec
Slope Down	1.500	mV/Sec
Min Area	0.000	mVSec
Min Height	0.000	mV
Analysis Delay	23.0	sec
Window Percent	8.00	%
Det Flow	8	ml/min
B/F Flow	8	ml/min
Aux Flow	0	ml/min
Oven Temp	40	C
Amb Temp	0	C
Max Gain	100	
Analysis Time	600.0	sec

Peak Report

Pk	Compound Name	Area/Conc		R.T.
1	Unknown	1.986	mVS	220.8
2	PCE	0.200	ppb	236.2
3	Unknown	3.025	mVS	310.1

Notes

Site: 300 Area Solvent Evap.
Sample Number: SE-1 (B090C3)
Sample time: 1153
Note: PCE soil concentration = 1.6 ppb wet (µg/g)

Library: Master
Delivery: 250 uL injection
Container: 40-mL VOA
Method: Aqueous Headspace
Column: CPSil5CB - 10m x 0.53mm
Carrier: Ultra Zero Air
Analyst: IDJ

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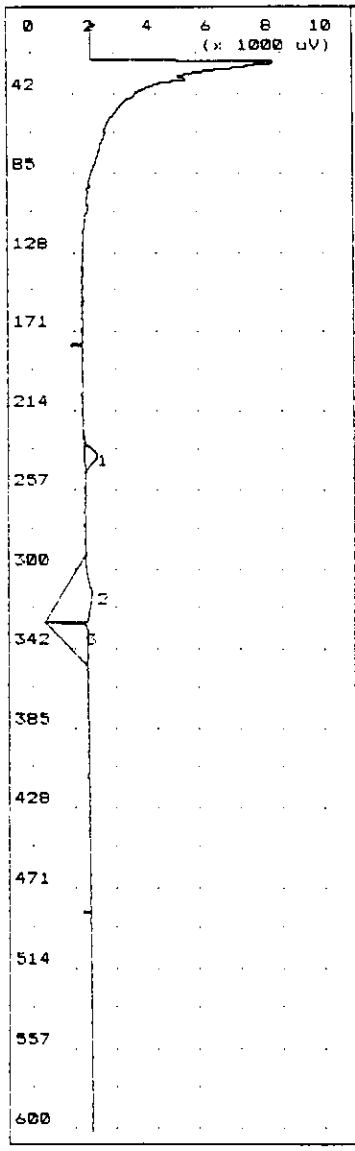
300 Area Solvent Evaporator
RCRA Closure Project

VOA Field Analysis Results

Analysis #125 105+ GC Function Analysis Report SOLEVP2 .GC1



Time Printed:	Aug 10, 93 16:05
Sample Time:	Aug 10, 93 14:41

Method

Slope Up	0.500	mV/Sec
Slope Down	1.500	mV/Sec
Min Area	0.000	mVSec
Min Height	0.000	mV
Analysis Delay	23.0	sec
Window Percent	8.00	%
Det Flow	8	ml/min
B/F Flow	8	ml/min
Aux Flow	0	ml/min
Oven Temp	40	C
Amb Temp	0	C
Max Gain	100	
Analysis Time	600.0	sec

Peak Report

Pk	Compound Name	Area/Conc	R.T.
1	PCE	0.151 ppb	236.4
2	Unknown	28.55 mVS	313.0
3	Ethylbenzene	1.166 ppb	330.1

miss id, not a quantifiable peak.

Notes

Site: 300 Area Solvent Evap.
Sample Number: SE-2 (B090C4)
Sample time: 1130
Note: PCE soil concentration = 1.2 ppb-wt (ug/g)
Library: Master
Delivery: 250 uL injection
Container: 40-mL VOA
Method: Aqueous Headspace
Column: CPSil5CB - 10m x 0.53mm
Carrier: Ultra Zero Air
Analyst: IDJ

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300 Area Solvent Evaporator
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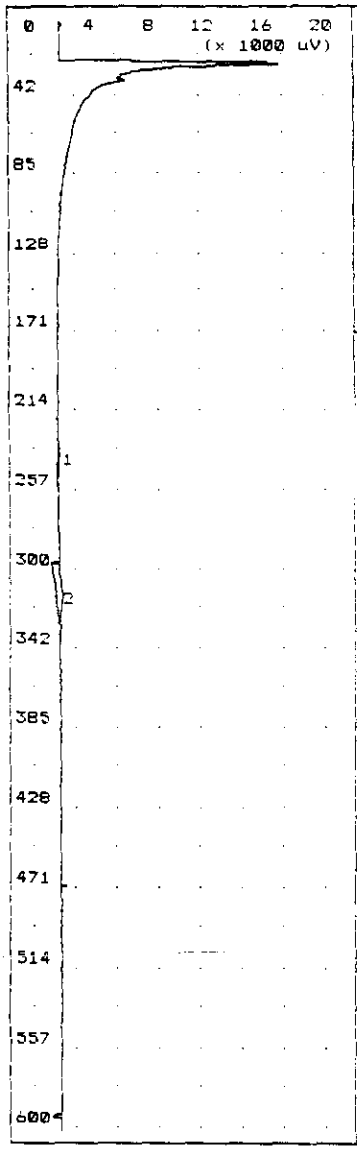
VOA Field Analysis Results

Analysis #126 105+ GC Function Analysis Report SOLEVP2A.GC1



Time Printed:	Aug 10, 93 16:12
Sample Time:	Aug 10, 93 14:52

Method

Slope Up	0.500	mV/Sec
Slope Down	1.500	mV/Sec
Min Area	0.000	mVSec
Min Height	0.000	mV
Analysis Delay	23.0	sec
Window Percent	8.00	%
Det Flow	8	ml/min
B/F Flow	8	ml/min
Aux Flow	0	ml/min
Oven Temp	40	C
Amb Temp	0	C
Max Gain	100	
Analysis Time	600.0	sec

Peak Report

Pk	Compound Name	Area/Conc	R.T.
1	PCE	0.040 ppb	235.4
2	Unknown	13.99 mVS	311.7

Notes

Site: 300 Area Solvent Evap.
Sample Number: SE-2a (B09064)
Sample time: 1140
Note: Resampled grayish deposits
TCE conc. = 0.32 ppb (ug/g)
Library: Master
Delivery: 250 uL injection
Container: 40-mL VOA
Method: Aqueous Headspace
Column: CPSil5CB - 10m x 0.53mm
Carrier: Ultra Zero Air
Analyst: IDJ

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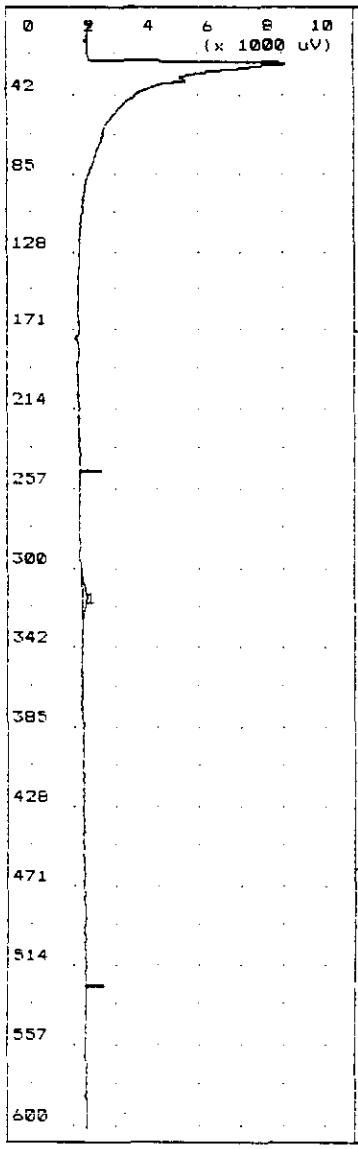
VOA Field Analysis Results

Analysis #124 10S+ GC Function Analysis Report SOLEVP3 .GC1



Time Printed: Aug 10, 93 16:08
Sample Time: Aug 10, 93 14:29

Method

Slope Up	2.000	mV/Sec
Slope Down	6.000	mV/Sec
Min Area	0.000	mVSec
Min Height	0.000	mV
Analysis Delay	23.0	sec
Window Percent	8.00	%
Det Flow	8	ml/min
B/F Flow	8	ml/min
Aux Flow	0	ml/min
Oven Temp	40	C
Amb Temp	0	C
Max Gain	100	
Analysis Time	600.0	sec

Peak Report

Pk	Compound Name	Area/Conc	R.T.
1	Unknown	2.562 mVS	312.2

Notes

Site: 300 Area Solvent Evap.
Sample Number: SE-3 (B09025)
Sample time: 1110
Note:

Library: Master
Delivery: 250 uL injection
Container: 40-mL VOA
Method: Aqueous Headspace
Column: CPSil13CB - 10m x 0.53mm
Carrier: Ultra Zero Air
Analyst: IDJ

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300 Area Solvent Evaporator
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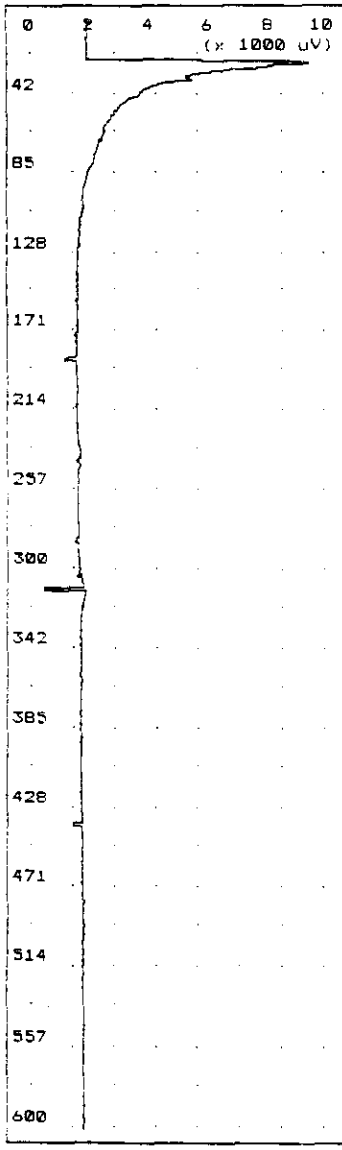
VOA Field Analysis Results

Analysis #122 105+ GC Function Analysis Report SOLEVP4 .GC1



Time Printed:	Aug 10, 93 15:58	
Sample Time:	Aug 10, 93 14:04	

Method

Slope Up	4.500	mV/Sec
Slope Down	13.50	mV/Sec
Min Area	0.000	mVSec
Min Height	0.000	mV
Analysis Delay	23.0	sec
Window Percent	8.00	%
Det Flow	8	ml/min
B/F Flow	8	ml/min
Aux Flow	0	ml/min
Oven Temp	40	C
Amb Temp	0	C
Max Gain	100	
Analysis Time	600.0	sec

Peak Report

Pk	Compound Name	Area/Conc	R.T.

Notes

Site: 300 Area Solvent Evap.
Sample Number: SE-4 (B090C6)
Sample time: 1053
Note:

Library: Master
Delivery: 250 uL injection
Container: 40-mL VOA
Method: Aqueous Headspace
Column: CPSil5CB - 10m x 0.53mm
Carrier: Ultra Zero Air
Analyst: IDJ

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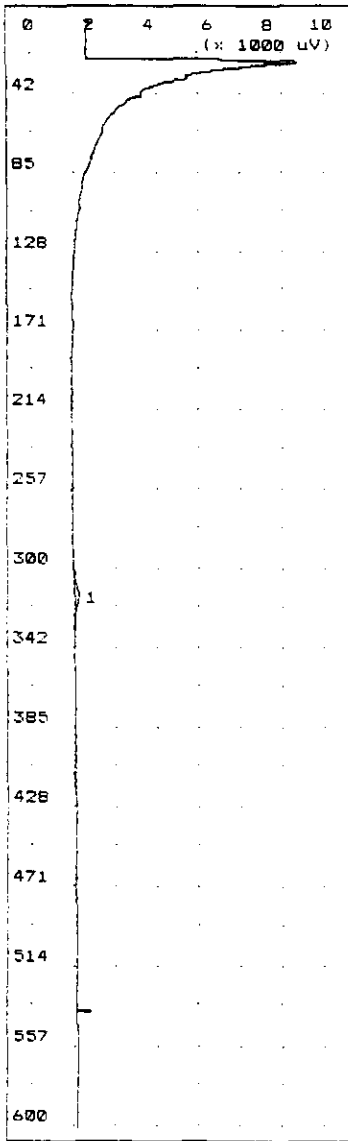
RCRA Closure Project

VOA Field Analysis Results

Analysis #121 10S+ GC Function Analysis Report SOLEVP5 .GC1



Time Printed: Aug 10. 93 15:51
Sample Time: Aug 10. 93 13:53

Method

Slope Up	0.500	mV/Sec
Slope Down	1.500	mV/Sec
Min Area	0.000	mVSec
Min Height	0.000	mV
Analysis Delay	23.0	sec
Window Percent	8.00	%
Det Flow	8	ml/min
B/F Flow	8	ml/min
Aux Flow	0	ml/min
Oven Temp	40	C
Amb Temp	0	C
Max Gain	100	
Analysis Time	600.0	sec

Peak Report

Pk	Compound Name	Area/Conc	R.T.
1	Unknown	2.566 mVS	312.2

Notes

Site: 300 Area Solvent Evap.
Sample Number: SE-5 (B090C7)
Sample time: 1035
Note:

Library: Master
Delivery: 250 uL injection
Container: 40-mL VOA
Method: Aqueous Headspace
Column: CPSil5CB - 10m x 0.53mm
Carrier: Ultra Zero Air
Analyst: IDJ

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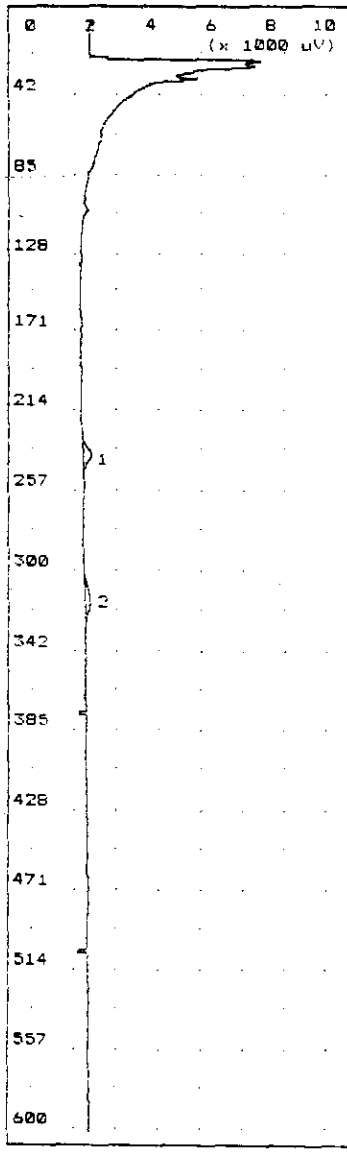
VOA Field Analysis Results

Analysis #127 10S+ GC Function Analysis Report SOLEVP6 .GC1



Time Printed:	Aug 10, 93 16:15
Sample Time:	Aug 10, 93 15:04

Method

Slope Up	1.000	mV/Sec
Slope Down	3.000	mV/Sec
Min Area	0.000	mVSec
Min Height	0.000	mV
Analysis Delay	22.0	sec
Window Percent	8.00	%
Det Flow	8	ml/min
B/F Flow	8	ml/min
Aux Flow	0	ml/min
Oven Temp	40	C
Amb Temp	0	C
Max Gain	100	
Analysis Time	600.0	sec

Peak Report

Pk	Compound Name	Area/Conc	R.T.
1	PCE	0.101 ppb	234.4
2	Unknown	3.174 mVS	311.2

PCE concentration in soil = 0.8 ppb-wt (ug/g)

Notes

Site: 300 Area Solvent Evap.
Sample Number: SE-6 (B090C8) (B090C9)
Sample time: 1220
Note: Gray salt layer, slight yellow deposit.
Library: Master
Delivery: 250 uL injection
Container: 40-mL VOA
Method: Aqueous Headspace
Column: CPSil5CB - 10m x 0.53mm
Carrier: Ultra Zero Air
Analyst: IDJ

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8-10-93 300 Area Solvent Evaporator
RCRA Closure Project

Poly Aromatic Hydrocarbon (PAH) Field Analysis Results

EnSys Immunoassay Test
Data Sheet

Project 300 Area Solvent Evap. RCRA Clean Closure Site 300 Area Solvent Evaporator

EnSys Lot Number	Sample	Time coll	Time extr	Soil Description	Test	Stds OD_{rel} S1:S2 S2:S1	use:	Samples Level OD_{rel}	Samples Level OD_{rel}	Samples Level OD_{rel}	Comments
377	B090C8	1239 8/10/93	0930 8/11/93	Brown, fine sand w/ small cobble	PAH	-0.08 0.11	S1	1 ppm 0.41	10 ppm 0.41		B090C8 <1 ppm PAH
377	B090C4	1144 8-10-93	8-11-93	brn/gry fine sand, small cobble	PAH	-0.07 0.13	S1	1 ppm 0.56	10 ppm 0.48		<1 ppm PAH
377	B090C3	1208 8-10-93	1100 8-11-93	brown fine sand, some small cobble	PAH	0.12 -0.10	S2	1 ppm 0.26	10 ppm 0.59		<1 ppm PAH

Notes:

Samples Collected By: S. Steel / Jon Lucas Date: 8-10-93

Samples Analyzed By: Jon Lucas & John McGuire Date: 8-11-93

Note: Only three sample sites had a PAH test performed on them, because Sampling Mobil Laboratories delivered the test kits to the site after we had completed sampling three of the sites. I was not expecting any kits for the job.

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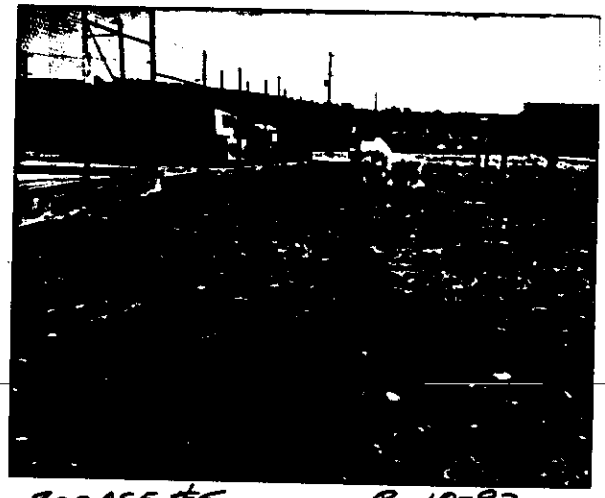
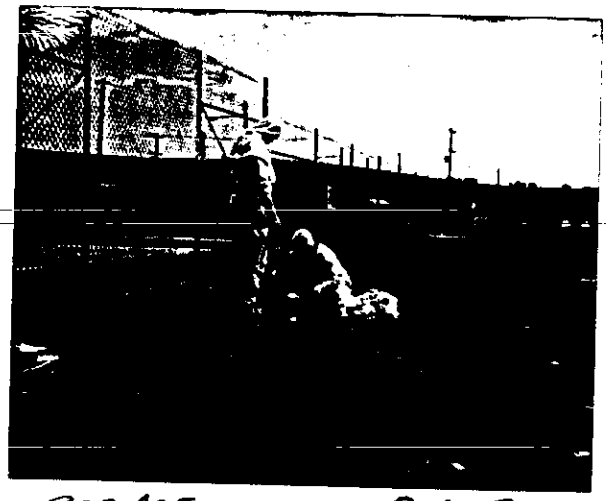


300 ASE #5 Soil Sample Collection 8-10-93 1035

300 ASE Soil Sampling 8-10-93 1109



300 ASE Soil Sampling 8-10-93 1125

300 ASE Soil Sampling 8-10-93

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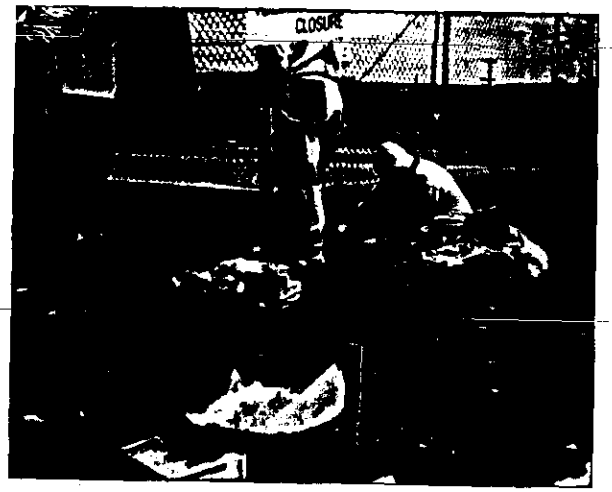
300 Area Solvent Evaporator
RCRA Closure Project



300 ASE Soil Sampling 8-10-93

300 ASE Soil Sampling 8-10-93 1157

300ASE Soil Sampling 8-10-93 1229
Site #6

300 ASE Soil Sampling 8-10-93
Site #6

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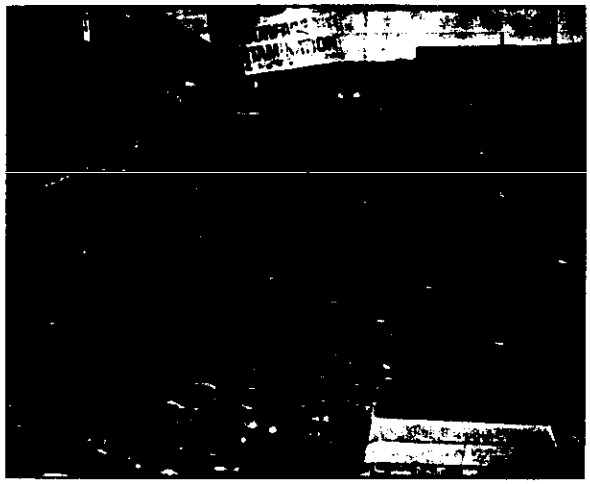
10 8-16-93

8-16-93 300 Area Solvent Evaporator RCRA Closure Project



300 ASE Soil Sampling Site 8-10-93 1255

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300 Area Solvent Evaporator
RCRA Closure Project

Sample Analysis Requirements

OFFICE OF SAMPLE MANAGEMENT
FIELD SAMPLING REQUIREMENTS

Requirements are for TMA

93-222
SAF Number

REV 0 07/16/93

PARAMETER/ ANALYSIS	ANALYTICAL METHODS	CONTAINER[1]/ VOLUME	PRESERVATION	HOLDING TIME
1. VOA	8240	Gs 250 mL	None	14 Days
2. Non-Halogenated VOA	8015 (Petroleum Naptha)	Gs 250 mL	None	14 Days
3. ICP Metals - Barium - Beryllium - Cadmium - Copper - Silver - Zirconium Lead	6010 7421	P 250 mL	None	6 Months
4. Anions - IC - Bromide	EPA 300.0	G[3] 125 mL	None	28 Days
5. Total Uranium	EA-01C	G/P 10 g	None	6 Months
6. Total Activity	LA-528-111 LA-548-121	G or P small vial (at least 1g)	None	ASAP

[1] Container Types:

P	=	Plastic (Polyethylene)	Pw	=	Plastic (Polyethylene)/wide mouth jar
G	=	Glass	PP	=	Polypropylene
Gs	=	Glass w/septum cap	aG	=	Amber Glass
GW_o	=	Glass/wide mouth jar	T	=	Fluorocarbon Resins
Gs_o	=	Glass w/septum cap -- No head space in container			

[2] 14 Days for Extraction, 40 Days for Analysis

[3] Glass container unless sample is highly acidic

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8-10-93 300 Area Solvent Evaporator
RCRA Closure Project

Sample Bottle Lot Numbers

B090C3	B090C4	B090C5	B090C6
F3030040	F3030040	F3030040	F3030040
F3030040	F3030040	F3030040	F3030040
L/22191020	L/22191020	L/22191020	L/22191020
G1031020	G1031020	G1031020	G1031020
X0106013	X0106013	1064041	1364021

B090C7	B090C8	B090C9	B090D0
F3030040	F3030040	F3030040	F3030040
F3030040	F3030040	F3030040	
L/22191020	L/22191020	L/22191020	
G1031020	G1031020	G1031020	
X0106013	X0106013	X0106013	

B090D1	B090D2
F3030040	F3030040

Jonathan G. Lucas
Jonathan G. Lucas 8-16-93

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