Department of Energy
Field Office, Albuquerque
Los Alamos Area Office
Los Alamos, New Mexico 87544

APR 2 2 1993

APR 2 2 1993

Barbara Hoditschek
Permit Program Manager
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
1190 St. Francis Drive, P. O. Box 26110
Santa Fe, NM 87502

Dear Ms. Hoditschek:

Enclosed please find two copies of an amended closure report which contains the final closure documentation to support the clean closure of surface impoundment Technical Area 35 TSL-125. Staff from your office found previously submitted closure documentation by the Los Alamos National Laboratory (LANL) insufficient to demonstrate clean closure equivalency and requested that supplemental sampling be performed to support LANL's conclusions. On December 1, 1992, members of your office and LANL staff split samples from Ten Site Canyon (immediately south of the surface impoundment). This sampling effort took place to determine if past surface impoundment operations had released Resource Conservation and Recovery Act (RCRA) hazardous constituents to the canyon area and, if so, were those contaminants present above health-based action levels. Within this report, we believe that you will find the necessary documentation to support our conclusion that the former location of this unit and surrounding area poses no threat to human health or environment. We also believe that this closure demonstrates all requirements necessary for clean closure equivalency.

All supporting documentation pertaining to this closure is currently on file with LANL's Environmental Restoration Program Office.

Should you have any questions, feel free to contact Steve Slaten of my staff at 665-5050.

Sincerely,

Joseph C. Vozella

Joseph C. Vozella, Acting Chief
Environment, Safety and Health
Branch

LESH:3SS-019

Enclosure (2)

cc:
See page 2

5108

cc w/enclosure:
RPF, LANL, MS-M707

cc w/o enclosure:
A. Tiedman, ADO, LANL, MS-A120
J. Shipley, EE-AETO, LANL, MS-F641
T. Gunderson, EM-DO, LANL, MS-J591
K. Hargis, EM-8, LANL, MS-K490
J. White, EM-8, LANL, MS-K490
R. Vocke, EM-13, LANL, MS-M992
P. Aamodt, EM-13, LANL, MS-M992
D. McInroy, EM-13, LANL, MS-M992
EM-13 File (EM-13:93-368)
K. Bitner, ERPO, AL

TA 35

CLOSURE CERTIFICATION REPORT

Amended April 22,1993

TA-35 TSL-125 SURFACE IMPOUNDMENT

Los Alamos National Laboratory
Los Alamos, New Mexico

TABLE OF CONTENTS

INTRODUCTION

ENCLOSURE 1 – Sampling Plan for Ten Site Canyon

ENCLOSURE 2 – Closure Certifications

ENCLOSURE 3 – QA/QC Statement

ENCLOSURE 4 – Map of Sample Locations

ENCLOSURE 5 – Chain-Of Custody/Request For Analysis Forms

ENCLOSURE 6 – Laboratory Reports

ENCLOSURE 7 – Derivation of Interim Guidance Level for 1,2,4-Trimethylbenzene in Soil

INTRODUCTION

On July 7, 1992, the New Mexico Environment Department (NMED) issued a letter to Los Alamos National Laboratory (LANL) disapproving the closure plan for TA-35 TSL-125 surface impoundment and denying clean-closure certification for the unit. Part of the reason for this denial was that LANL had failed to establish that releases from the unit that could potentially impact the surrounding soils or surface water were below health-based risk levels. LANL amended the original closure plan to include characterization in Ten Site Canyon, which was the receiving area for any releases from the surface impoundment. LANL received notice that the closure plan would satisfy NMED's concerns with releases from the unit and the area was sampled on December 1, 1992. Members of NMED's Hazardous and Radioactive Materials Bureau were present during the sampling event and split samples with LANL personnel. This amended closure report documents the sampling activities which took place in accordance with an approved sampling plan. As can be seen in the sampling plan (Enclosure 1) eight sample locations were identified jointly by LANL and NMED staff. These sample locations were selected as the most likely areas to receive contamination resulting from releases from the unit.

Samples were analyzed for hazardous substance list (HSL) total heavy metals (Ag, As, Ba, Be, Cd, Hg, Ni, Pb, Sb, and Se), volatile organic compounds (VOC), semivolatile organic compounds (SVOC), polychlorinated biphenyl compounds (PCBs) and total petroleum hydrocarbons (TPHs). Analytical results from this sampling activity revealed no hazardous constituents detected above health-based action levels, background concentrations, or NMED approved clean-up levels. A break-down of contaminants of concern that were detected are as follows:

Beryllium was detected above action levels at all sample locations including upstream from the surface impoundment. The levels that were detected ranged from 1.8 - 3.4 ppm. These levels are consistent (please see Enclosure 6 of the original closure report) with background ranges of beryllium found in soils at Los Alamos. It also should be noted that the original closure report provided process knowledge which supported LANL's position that there was no beryllium use or disposal associated with this surface impoundment.

Bis-2-ethylhexylphthalate, a SVOC, was detected in six of the samples taken. Concentrations ranged from 0.47 to 14.7 ppm. These values, however, are below the EPA action level of 50 ppm. It should be noted that this constituent was also detected upstream from the surface impoundment.

1,2,4-trimethylbenzene, a VOC, was detected in one sample at a concentration of 6.5 ppb. There is no EPA action level for this compound. For this exercise, using information available to LANL's statisticians at the time this report was generated, a calculation was made determining that a conservative interim guidance action level for this constituent would be 700 ppm. Enclosure 7 explains how this action level was derived.

PCBs were detected in five samples, with concentrations ranging from 0.11 to 0.58 ppm. These levels are well below the TSCA clean-up levels of 10 ppm. Conversations with Marc Sides of your bureau also supported this conclusion, stating that to achieve clean closure status for this unit, contamination must not exceed 10 ppm of PCBs.

TPH was also detected in all samples, but NMED and LANL has agreed that this substance is not regulated under RCRA.

Based on the results of the analysis, the TA-35 TSL-125 surface impoundment has met all applicable regulatory requirements and associated U.S. EPA guidance for clean closure.

ENCLOSURE 1:

SAMPLING PLAN

Los Alamos

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

memorandum

TO: Larry Maassen, EM-13, MS M992 DATE: June 12, 1992

THRU: Ron Conrad, EM-8, MS K490 MAIL STOP/TELEPHONE: K490/7-0815

FROM: Phil Fresquez, EM-8 SYMBOL: EM-8:92-1589

SUBJECT: **FINAL CLOSURE SAMPLING BELOW FORMER WASTE OIL SURFACE IMPOUNDMENT TSL-125 LOCATED AT TA-35: REVISION II**

On March 9, 1992, the New Mexico Environment Department (NMED) submitted to the Department of Energy (DOE) a Notice of Deficiency regarding the TA-35 Building 125 Surface Impoundment Closure Plan (NM0890010515). As part of a clean closure demonstration, a request was made to show that releases from surface impoundment TSL-125 to the surrounding area (or to surface waters) were below health based levels. The purpose of this memorandum, therefore, is to describe a sampling and analyses plan for the characterization of an area down gradient from surface impoundment TSL-125.

Six sampling points were located down an erosion channel from TSL-125 to a drainage channel in Ten Site Canyon with NMED personnel on April 16, 1992 (Figure 1). The sampling points were located approximately 17, 44, 69, 89, 103 (left fork) and 116 feet from the southern edge of the surface impoundment rim. Two additional sampling points were located in the drainage channel approximately 63 feet up gradient and 68 feet down gradient from sampling point #6. All soil samples will be collected and processed according to the protocol described in SW-846. Los Alamos National Laboratory Environmental Restoration Standard Operating Procedure's (LANL-ER-SOP) that will be followed during this sampling operation will include: 01.01 General Instructions for Field Investigations, 01.02 Sample Containers and Preservation, 01.03 Handling, Packaging, and Shipping of Samples, 01.05 Field Quality Control Samples, and 06.09 Spade and Scoop Method for Collection of Soil Samples. Sampling team members from EM-8 will include myself (Project manager), Richard Romero (sampler and safety and health officer) and Consuelo Montoya (QA/QC specialist). Level D Personal Protection Equipment will be worn.

All soil samples will be split with NMED personnel. At each sampling point a soil surface sample will be collected with a

Teflon scoop, placed into a stainless steel bowl, mixed, placed into the appropriate containers, labeled, sealed with chain-of-custody tape, bagged into Ziploc plastic containers, and transported back to TA-59 in a locked ice chest at 4°C. One replicate soil sample (collected at sample location #2), one trip blank, one field blank and one equipment blank will also be collected.

Samples will be screened by EM-8 for gross alpha, beta and gamma radioactivity before they are submitted with chain-of-custody documentation to the Environmental Chemistry Group (EM-9) for analysis. Samples will be analyzed in accordance to EM-9's Quality Assurance for Health and Environmental Chemistry (LANL report LA-11637-MS). The chemical constituents of concern, the EPA methodology, and the sample containers they will be placed in are as follows:

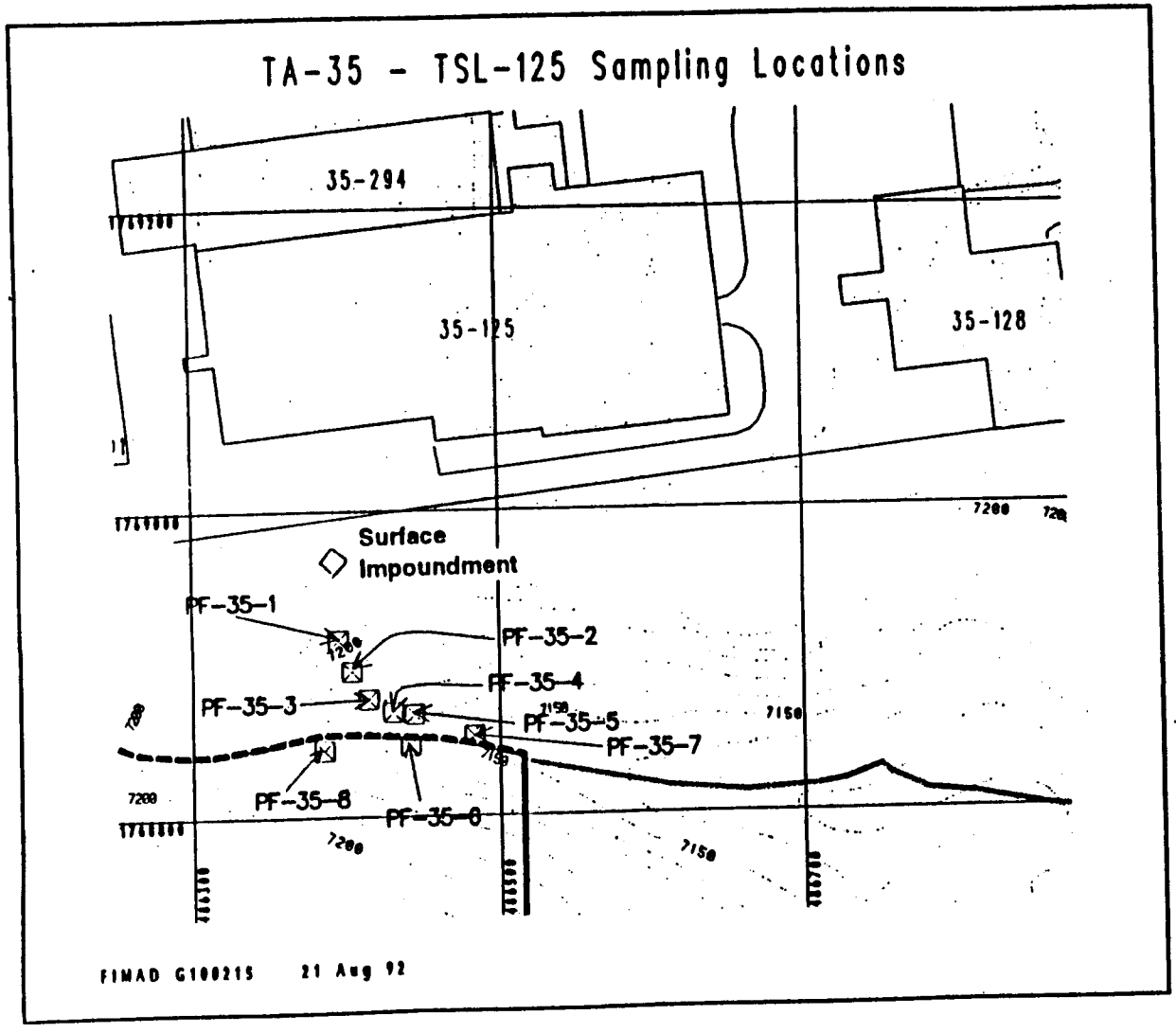
Hazardous Substance List (HSL) total heavy metals (Ag, As, Ba, Be, Cd, Cr, Hg, Ni, Pb, Sb, and Se), EPA method 3050, 500-mL Nalgene bottle;

Volatile Organic Compounds (VOC), EPA method 8260, two 40-mL glass vials;

Semi-volatile Organic Compounds (SVOC), EPA method 8270 (and gel permeation chromatography [size exclusion analysis] will be used to separate hydrocarbon oils from SVOC's), and Polychlorinated biphenyl compounds (PCB), EPA method 8080, 250-mL wide mouth glass jar with a Teflon lined lid; and

Total Petroleum Hydrocarbons (TPH's), EPA method 418.1, 40-mL amber glass vial.

All sample locations will be surveyed (by the New Mexico State Plane coordinate system) for future reference. Similarly, all records associated with this sampling effort will be filed to the ER records processing facility at the conclusion of the study. These records will include (1) the approved sampling plan (along with review comments), (2) chain-of-custody forms, (3) raw data, and (4) a report summarizing sampling activities.



LEGEND

- Boundary, OU
- Boundary, TA
- Contours, 10 foot
- Fence, Security
- Roads, Paved
- Sampling Location

NORTH, NM State Plane NAD27

Grid provides NMSP coordinates

Grid Interval, in feet: 200

0 125 250 ft

NOTICE: Information on this map is provisional and has not been checked for accuracy.

Figure ENC 1-1

ENCLOSURE 2:

CLOSURE CERTIFICATIONS

CERTIFICATION

I certify under penalty of law that the additional sampling conducted as part of an Amendment to the Closure Plan for the Surface Impoundment TA-35 TSL-125 has been performed in accordance with the specifications in the approved sampling plan. This activity was performed under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possiblility of fine and imprisonment for knowing violation.

Thomas Gunderson, Division Leader
Environmental Management Division
Los Alamos National Laboratory
Operator

4/21/93
Date Signed

Joseph Vozella, Acting Chief
Environment, Safety, andHealth Branch
Los Alamos Area Office
U.S. Department of Energy
Albuquerque Operations
Owner

4/22/93
Date Signed

INTERNATIONAL TECHNOLOGY CORPORATION

Certification of Accuracy
TA-35 TSL-125 Surface Impoundment
Los Alamos National Laboratory

This certification of accuracy was prepared in accordance with generally accepted professional engineering principles and practice. These services have been performed with the care and skill ordinarily exercised by members of the profession practicing under similar conditions at the same time, and in the same or similar locality. We make no other warranty either expressed or implied. The finding and certification are based on (1) reviewing the New Mexico Environment Department (NMED) approved closure plan dated July 1991, (2) reviewing the NMED approved sampling and analysis plan amendment of September 4, 1992, (3) a site visit on April 19, 1993, (4) a review of a memorandum from Phil Fresquez to Dave McInroy, entitled "Results of the Final Closure Sampling Below Former Waste Oil Surface Impoundment TSL-125 Located at TA-35, dated March 5, 1993" and (5) a review of the analytical results from sampling activities conducted on December 1, 1992. With the signature and seal below, I certify that, except for the attached variances, the sampling and analysis data accurately document that additional sampling and analysis were conducted substantially in accordance with the NMED approved sampling plan dated September 4, 1992, pursuant to the requirements of 40 CFR Part 264.115 for an independent professional engineering certification.

Respectfully,
IT Corporation

P. Scott Den-Baars
NEW MEXICO
10653
REGISTERED PROFESSIONAL ENGINEER

P. Scott Den-Baars, P.E.
New Mexico Registered Professional Engineer No. 10653
Expires: December 31, 1993

Date: April 21, 1993

Attachment: Variances

Regional Office
557 Oppenheimer Road, Suite 200 • Los Alamos, New Mexico 87544 • 505-662-1200

IT Corporation is a wholly owned subsidiary of International Technology Corporation

VARIANCES

The following variances were identified during review of the documentation regarding the TA-35 TSL-125 surface impoundment.

- An equipment blank was called for but no documentation was found to indicate that an equipment blank was collected and analyzed. The equipment blank was to be collected if equipment was decontaminated during the sampling activities. However, disposable equipment was used during sampling. Therefore, an equipment blank was not required.

- Radiation screening was not performed on the replicate sample from sample location #2. However, radiation screening was performed on the initial sample from this location and the results were negative. Since the samples were obtained from surface soils at the same location, the screening results from the initial sample can be used for the replicate sample.

ENCLOSURE 3

QA/QC STATEMENT

STATEMENT OF ADEQUACY OF THE SAMPLING AND ANALYSES

Based on my oversight of the sampling event in Ten Site Canyon associated with the Technical Area (TA) 35 TSL-125 Surface Impoundment Closure, I believe that the quality of the performance on all key activities pertaining to this closure were done in such a manner to ensure that a clean closure of this unit has been achieved. I have reviewed all analytical and QA/QC reports and have determined that the data is accurate and adequate. All procedures described in the approved sampling were followed with minor exceptions, which would in no way jeopardize the integrity of the exercise. Those minor exceptions have been noted in the independent professional engineer's (PE) Certification Statement.

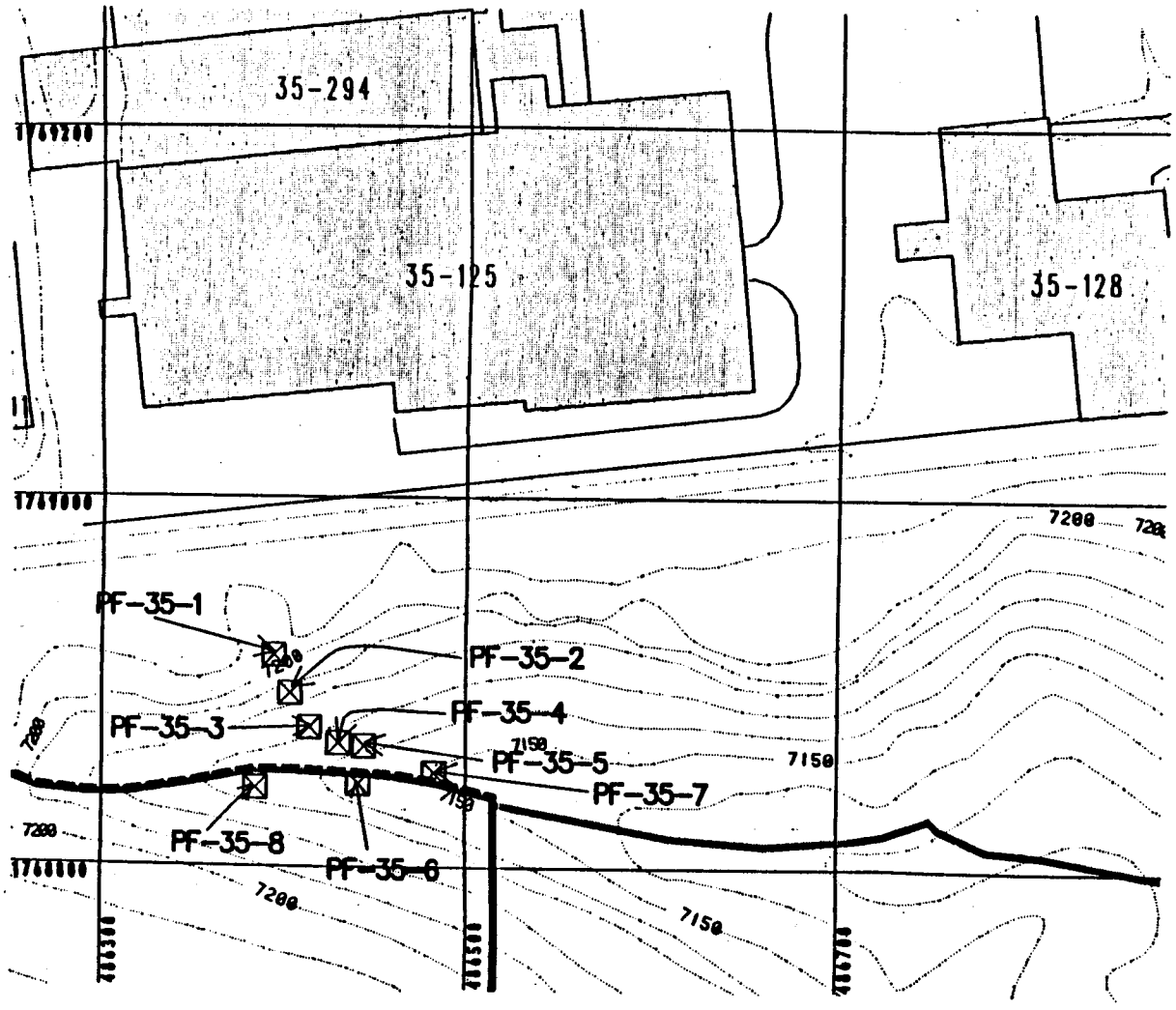
David J. McInroy
Environmental Restoration Program
Los Alamos National Laboratory

April 20, 1993
Date Signed

ENCLOSURE 4

MAP OF SAMPLE LOCATIONS

TA-35 - TSL-125 Sampling Locations



FIMAD G100215 21 Aug 92

LEGEND

- Boundary, OU
- Boundary, TA
- Contours, 10 foot
- Fence, Security
- Roads, Paved
- Sampling Location

NORTH, NM State Plane NAD27

Grid provides NMSP coordinates

Grid interval, in feet: 200

0 125 250 ft

NOTICE: Information on this map is provisional and has not been checked for accuracy.

ENCLOSURE 5

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS FORMS

Los Alamos National Laboratory Environmental Restoration
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Date: 12/1/92 | Control No. 01215

Technical Area TA-35 | Send Lab Report to: Phil Fresquez | MS K490

Operable Unit Closure | Site Work Plan EM-9:92-1589

OU Contact David McInroy | Date Samples Shipped _____ | Laboratory Contact _____

Contact Phone No. 667-0819 | Lab Destination EM-9/_____ | Date Lab Report Required _____

Field Unique Sample #/ID (Write in Sample ID Number in space below.)	Date & Time Collected	GRAB	COMP	Sample Container Volume/mat'l	Matrix (Liquid, Soil, Core, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	ANALYSIS REQUESTED METHOD	REMARKS (Condition of receipt, etc.)
AAA 0999	12/1/92 1:20	X		500 ml poly	Soil		HSL(Ag,As,Ba,	3050	PF-35-(1048) 1
		"			"			"	" " "
		"			"		Be,Cd,Cr,Hg Ni,Pb,Sb,Se)	"	" " "
AAA 0999	12/1/92 1:20	X		500 ml Jar	"	4°C	SVOC/PCB's	8270/8080	" " "
AAA 0999	12/1/92 1:20	X		2-40ml Vials	"	"	VOC	8260	" " "
AAA 0999	12/1/92 1:20	X		1-40ml Vials	"	"	TPH's	418.1	" " "

Relinquished by: (Signature): Affiliation:	Date: 12/2/92	Relinquished by: (Signature): Affiliation:	Date:	Relinquished by: (Signature): Affiliation:	Date:
Received by: (Signature): Affiliation: ENV-9	Time: 9:45	Received by: (Signature): Affiliation:	Time:	Received by: (Signature): Affiliation:	Time:

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)
Radiological ____ Highly Toxic ____ Flammable ____ Skin Irritant X Non-hazard ____ Other ____

SAMPLE DISPOSAL:
Return to client ____ Disposal by Lab X Archive ____ (Indicate number of months): ____

COMMENTS: _____

SAMPLING TEAM (Print Names and Initial): Richard Romero R.R. John Salazar JS Phil Fresquez PF

WHITE - To accompany samples | YELLOW - To Record Processing Facility | PINK - FTL Copy | SOP 1.04, R0

Los Alamos National Laboratory Environmental Restoration
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Date: 12/7/92 Control No. 01216

Technical Area TA-35 Send Lab Report to: Phil Fresquez MS K490

Operable Unit Closure Site Work Plan TEM-8:92-1589

OU Contact David McInroy Date Samples Shipped _____ Laboratory Contact _____

Contact Phone No. 667-0819 Lab Destination EM-9/_____ Date Lab Report Required _____

Field Unique Sample #/ID (Write in Sample ID Number in space below.)	Date & Time Collected	GRAB	COMP	Sample Container Volume/mat'l	Matrix (Liquid, Soil, Core, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	ANALYSIS REQUESTED METHOD	REMARKS (Condition of receipt, etc.)
AAA 1000	12/1/92 1:30	X		500 ml poly	Soil		HSL(Ag,As,Ba,	3050	PF-35-(1049)2
		"			"		Be,Cd,Cr,Hg	"	" " "
		"			"		Ni,Pb,Sb,Se)	"	" " "
AAA 1000	12/1/92 1:30	X		500 ml Jar	"	4°C	SVOC/PCB's	8270/8080	" " "
AAA 1000	12/1/92 1:30	X		2-40ml Vials	"	"	VOC	8260	" " "
AAA 1000	12/1/92 1:30	X		1-40ml Vials	"	"	TPH's	418.1	" " "

Relinquished by: (Signature): Affiliation:	Date: 12/4/92	Relinquished by: (Signature): Affiliation:	Date:	Relinquished by: (Signature): Affiliation:	Date:
Received by: (Signature): Affiliation: EOD 9	Time: 9:45	Received by: (Signature): Affiliation:	Time:	Received by: (Signature): Affiliation:	Time:

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)
Radiological X ____ Highly Toxic ____ Flammable ____ Skin Irritant ____ Non-hazard ____ Other ____

SAMPLE DISPOSAL:
Return to client ____ Disposal by Lab X ____ Archive ____ (Indicate number of months): ____

COMMENTS: _____

SAMPLING TEAM (Print Names and Initial): Phil Fresquez PF John Salazar JS Richard Romero R.R.

WHITE - To accompany samples YELLOW - To Record Processing Facility PINK - FTL Copy SOP 1.04, R0

Los Alamos National Laboratory Environmental Restoration
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Date: 12/1/92 Control No. 01217

Technical Area TA-35 Send Lab Report to: Phil Fresquez MS K490

Operable Unit Closure Site Work Plan EM-8:92-1589

OU Contact David McInroy Date Samples Shipped _____ Laboratory Contact _____

Contact Phone No. 667-0819 Lab Destination EM-9/_____ Date Lab Report Required _____

Field Unique Sample #/ID (Write in Sample ID Number in space below.)	Date & Time Collected	GRAB	COMP	Sample Container Volume/mat'l	Matrix (Liquid, Soil, Core, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	ANALYSIS REQUESTED METHOD	REMARKS (Condition of receipt, etc.)
AAA 1001	12/1/92 1:30	X		500 ml poly	Soil		HSL(Ag,As,Ba,	3050	PF-35-(1049)2 Rep
		"			"		Be,Cd,Cr,Hg	"	" " "
		"			"		Ni,Pb,Sb,Se)	"	" " "
AAA 1001	12/1/92 1:30	X		500 ml Jar	"	4°C	SVOC/PCB's	8270/8080	" " "
AAA 1001	12/1/92 1:30	X		2-40ml Vials	"	"	VOC	8260	" " "
AAA 1001	12/1/92 1:30	X		1-40ml Vials	"	"	TPH's	418.1	" " "

Relinquished by: (Signature): Affiliation:	Date: 12/2/92	Relinquished by: (Signature): Affiliation:	Date:	Relinquished by: (Signature): Affiliation:	Date:
Received by: (Signature): Affiliation:	Time: 9:45	Received by: (Signature): Affiliation:	Time:	Received by: (Signature): Affiliation:	Time:

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)
Radiological ____ Highly Toxic ____ Flammable ____ Skin Irritant ____ Non-hazard X Other ____

SAMPLE DISPOSAL:
Return to client ____ Disposal by Lab X Archive ____ (Indicate number of months): ____

COMMENTS: Rep of CTC 1216 / FIMAD # 1049

SAMPLING TEAM (Print Names and Initial): Phil Fresquez John Salazar Richard Romero R.R.

WHITE - To accompany samples YELLOW - To Record Processing Facility PINK - FTL Copy SOP 1.04, R0

Los Alamos National Laboratory Environmental Restoration
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Date: 12/1/92 | Control No. 01218

Technical Area TA-35 | Send Lab Report to: Phil Fresquez | MS K490

Operable Unit closure | Site Work Plan EM-9: 92-1589

OU Contact David McInroy | Date Samples Shipped _____ | Laboratory Contact _____

Contact Phone No. 667-0819 | Lab Destination EM-9/_____ | Date Lab Report Required _____

Field Unique Sample #/ID (Write in Sample ID Number in space below.)	Date & Time Collected	GRAB	COMP	Sample Container Volume/mat'l	Matrix (Liquid, Soil, Core, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	ANALYSIS REQUESTED METHOD	REMARKS (Condition of receipt, etc.)
AAA 1002	12/1/92 1:55	X		500 ml poly	Soil		HSL(Ag,As,Ba,	3050	PF-35-(050) 3
		"			"		Be,Cd,Cr,Hg	"	" " "
		"			"		Ni,Pb,Sb,Se)	"	" " "
AAA 1002	12/1/92 1:55	X		500 ml Jar	"	4°C	SVOC/PCB's	8270/8080	" " "
AAA 1002	12/1/92 1:55	X		2-40ml Vials	"	"	VOC	8260	" " "
AAA 1002	12/1/92 1:55	X		1-40ml Vials	"	"	TPH's	418.1	" " "

Relinquished by: (Signature): Affiliation:	Date: 12/2/92	Relinquished by: (Signature): Affiliation:	Date:	Relinquished by: (Signature): Affiliation:	Date:
Received by: (Signature): Affiliation: EM-9	Time: 9:45	Received by: (Signature): Affiliation:	Time:	Received by: (Signature): Affiliation:	Time:

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)
Radiological ____ Highly Toxic ____ Flammable ____ Skin Irritant ____ Non-hazard X Other ____

SAMPLE DISPOSAL:
Return to client ____ Disposal by Lab X Archive ____ (Indicate number of months): ____

COMMENTS: _____

SAMPLING TEAM (Print Names and Initial): John Salazar JS. Phil Fresquez pf Richard Romero rr

WHITE - To accompany samples | YELLOW - To Record Processing Facility | PINK - FTL Copy | SOP 1.04, R0

Los Alamos National Laboratory Environmental Restoration
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Date: 12/1/92 | Control No. 01219

Technical Area TA-35 | Send Lab Report to: Phil Fresquez | MS K490

Operable Unit Closure | Site Work Plan EM-9!92 — 1589

OU Contact David McInroy | Date Samples Shipped _____ | Laboratory Contact _____

Contact Phone No. 667-0819 | Lab Destination EM-9/_____ | Date Lab Report Required _____

Field Unique Sample #/ID (Write In Sample ID Number in space below.)	Date & Time Collected	GRAB	COMP	Sample Container Volume/mat'l	Matrix (Liquid, Soil, Core, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	ANALYSIS REQUESTED METHOD	REMARKS (Condition of receipt, etc.)
AAA 1003		X		500 ml poly	Soil		HSL(Ag,As,Ba,	3050	PF-35-(1051)4
		"			"		Be,Cd,Cr,Hg	"	" " "
		"			"		Ni,Pb,Sb,Se)	"	" " "
AAA 1003		X		500 ml Jar	"	4°C	SVOC/PCB's	8270/8080	" " "
AAA 1003		X		2-40ml Vials	"	"	VOC	8260	" " "
AAA 1003		X		1-40ml Vials	"	"	TPH's	418.1	" " "

Relinquished by: (Signature): Affiliation:	Date: 12/02/92	Relinquished by: (Signature): Affiliation:	Date:	Relinquished by: (Signature): Affiliation:	Date:
Received by: (Signature): Affiliation:	Time: 9:50	Received by: (Signature): Affiliation:	Time:	Received by: (Signature): Affiliation:	Time:

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)
Radiological ____ Highly Toxic ____ Flammable ____ Skin Irritant ____ Non-hazard X Other ____

SAMPLE DISPOSAL:
Return to client ____ Disposal by Lab X Archive ____ (Indicate number of months): ____

COMMENTS: _____

SAMPLING TEAM (Print Names and Initial): John Salazar Phil Fresquez

WHITE - To accompany samples | YELLOW - To Record Processing Facility | PINK - FTL Copy

SOP 1.04 R0

Los Alamos National Laboratory Environmental Restoration
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Date: 12/1/92 | Control No. 01220

Technical Area TA-35 | Send Lab Report to: Phil Fresquez | MS K490

Operable Unit Closure | Site Work Plan EM-9.92-1589

OU Contact David McInroy | Date Samples Shipped | Laboratory Contact

Contact Phone No. 667-0819 | Lab Destination EM-9/ | Date Lab Report Required

Field Unique Sample #/ID (Write in Sample ID Number in space below.)	Date & Time Collected	GRAB	COMP	Sample Container Volume/mat'l	Matrix (Liquid, Soil, Core, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	ANALYSIS REQUESTED METHOD	REMARKS (Condition of receipt, etc.)
AAA 1004	12/1/92 1:52	X		500 ml poly	Soil		HSL(Ag,As,Ba,	3050	PF-35-(1052) 5
		"			"		~~Be,Cd,Cr,Hg~~	"	" " "
		"			"		Ni,Pb,Sb,Se)	"	" " "
AAA 1004	12/1/92 1:52	X		500 ml Jar	"	4°C	SVOC/PCB's	8270/8080	" " "
AAA 1004	12/1/92 1:52	X		2-40ml Vials	"	"	VOC	8260	" " "
AAA 1004	12/1/92 1:52	X		1-40ml Vials	"	"	TPH's	418.1	" " "

Relinquished by: (Signature): Affiliation:	Date: 12/2/92	Relinquished by: (Signature): Affiliation:	Date:	Relinquished by: (Signature): Affiliation:	Date:
Received by: (Signature): Affiliation: EM 9	Time: 9:50	Received by: (Signature): Affiliation:	Time:	Received by: (Signature): Affiliation:	Time:

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)
Radiological ____ Highly Toxic ____ Flammable ____ Skin Irritant ____ Non-hazard X Other ____

SAMPLE DISPOSAL:
Return to client ____ Disposal by Lab X Archive ____ (Indicate number of months): ____

COMMENTS:

SAMPLING TEAM (Print Names and Initial): John Salazar JS Phil Fresquez PF Richard Romer RR

WHITE - To accompany samples | YELLOW - To Record Processing Facility | PINK - FTL Copy | SOP 1.04, R0

Los Alamos National Laboratory Environmental Restoration
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Date: 12/1/92 Control No. 01221

Technical Area TA-35 Send Lab Report to: Phil Fresquez MS K490

Operable Unit Closure Site Work Plan EM-8; 92-1589

OU Contact David McInroy Date Samples Shipped _____ Laboratory Contact _____

Contact Phone No. 667-0819 Lab Destination EM-9/_____ Date Lab Report Required _____

Field Unique Sample #/ID (Write in Sample ID Number in space below.)	Date & Time Collected	GRAB	COMP	Sample Container Volume/mat'l	Matrix (Liquid, Soil, Core, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	ANALYSIS REQUESTED METHOD	REMARKS (Condition of receipt, etc.)
AAA 1025	12/1/92 2:10	X		500 ml poly	Soil		HSL(Ag,As,Ba,	3050	PF-35-(1053) 6
		"			"		Be,Cd,Cr,Hg	"	" " "
		"			"		Ni,Pb,Sb,Se)	"	" " "
AAA 1025	12/1/92 2:10	X		500 ml Jar	"	4°C	SVOC/PCB's	8270/8080	" " "
AAA 1025	12/1/92 2:10	X		2-40ml Vials	"	"	VOC	8260	" " "
AAA 1025	12/1/92 2:10	X		1-40ml Vials	"	"	TPH's	418.1	" " "

Relinquished by: (Signature): Affiliation:	Date: 12/2/92	Relinquished by: (Signature): Affiliation:	Date:	Relinquished by: (Signature): Affiliation:	Date:
Received by: (Signature): Shell, Diana Affiliation: EM-7	Time: 9:50	Received by: (Signature): Affiliation:	Time:	Received by: (Signature): Affiliation:	Time:

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)
Radiological ____ Highly Toxic ____ Flammable ____ Skin Irritant ____ Non-hazard X Other ____

SAMPLE DISPOSAL:
Return to client ____ Disposal by Lab X Archive ____ (Indicate number of months): ____

COMMENTS: _____

SAMPLING TEAM (Print Names and Initial): John Salazar JS. Phil Fresquez PF Richard Romero R.R.

WHITE - To accompany samples YELLOW - To Record Processing Facility PINK - FTL Copy SOP 1.04, R0

Los Alamos National Laboratory Environmental Restoration
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Date: 12/1/92 Control No. 01222

Technical Area TA-35 Send Lab Report to: Phil Fresquez MS K490

Operable Unit Closure Site Work Plan EM-8:92-1589

OU Contact David McInroy Date Samples Shipped _____ Laboratory Contact _____

Contact Phone No. 667-0819 Lab Destination EM-9/_____ Date Lab Report Required _____

Field Unique Sample #/ID (Write in Sample ID Number in space below.)	Date & Time Collected	GRAB	COMP	Sample Container Volume/mat'l	Matrix (Liquid, Soil, Core, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	ANALYSIS REQUESTED METHOD	REMARKS (Condition of receipt, etc.)
AAA 1006	12/01/92	X		500 ml poly	Soil		HSL(Ag,As,Ba,	3050	PF-35-(1054)7
		"			"		Be,Cd,Cr,Hg	"	" " "
		"			"		Ni,Pb,Sb,Se)	"	" " "
AAA 1006	12/01/92	X		500 ml Jar	"	4°C	SVOC/PCB's	8270/8080	" " "
AAA 1006	12/01/92	X		2-40ml Vials	"	"	VOC	8260	" " "
AAA 1006	12/01/92	X		1-40ml Vials	"	"	TPH's	418.1	" " "

Relinquished by: (Signature): Affiliation:	Date: 12/2/92	Relinquished by: (Signature): Affiliation:	Date:	Relinquished by: (Signature): Affiliation:	Date:
Received by: (Signature): Affiliation:	Time: 9:50	Received by: (Signature): Affiliation:	Time:	Received by: (Signature): Affiliation:	Time:

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)
Radiological ____ Highly Toxic ____ Flammable ____ Skin Irritant ____ Non-hazard X Other ____

SAMPLE DISPOSAL:
Return to client ____ Disposal by Lab X Archive ____ (Indicate number of months): ____

COMMENTS: _____

SAMPLING TEAM (Print Names and Initial): Richard Ramalier Phil Fresquez John Salazar

WHITE - To accompany samples YELLOW - To Record Processing Facility PINK - FTL Copy SOP 1.04/R0

Los Alamos National Laboratory Environmental Restoration
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Date: 12/1/92 | Control No. 01223

Technical Area TA-35 | Send Lab Report to: Phil Fresquez | MS K490

Operable Unit Closure | Site Work Plan EM-9:92-1589

OU Contact David McInroy | Date Samples Shipped _____ | Laboratory Contact _____

Contact Phone No. 667-0819 | Lab Destination EM-9/_____ | Date Lab Report Required _____

Field Unique Sample #/ID (Write In Sample ID Number in space below.)	Date & Time Collected	GRAB	COMP	Sample Container Volume/material	Matrix (Liquid, Soil, Core, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	ANALYSIS REQUESTED METHOD	REMARKS (Condition of receipt, etc.)
AAA 1007	12/1/92 2:42	X		500 ml poly	Soil		HSL(Ag,As,Ba,	3050	PF-35-(1055) 8
		"			"		Be,Cd,Cr,Hg	"	" " "
		"			"		Ni,Pb,Sb,Se)	"	" " "
AAA 1007	12/1/92 2:42	X		500 ml Jar	"	4°C	SVOC/PCB's	8270/8080	" " "
AAA 1007	12/1/92 2:42	X		2-40ml Vials	"	"	VOC	8260	" " "
AAA 1007	12/1/92 2:42	X		1-40ml Vials	"	"	TPH's	418.1	" " "

Relinquished by: (Signature): Affiliation:	Date: 12/2/92	Relinquished by: (Signature): Affiliation:	Date:	Relinquished by: (Signature): Affiliation:	Date:
Received by: (Signature): Shelly Serna Affiliation: EM-9	Time: 9:50	Received by: (Signature): Affiliation:	Time:	Received by: (Signature): Affiliation:	Time:

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)
Radiological ____ Highly Toxic ____ Flammable ____ Skin Irritant ____ Non-hazard X Other ____

SAMPLE DISPOSAL:
Return to client ____ Disposed by Lab X Archive ____ (Indicate number of months): ____

COMMENTS: _____

SAMPLING TEAM (Print Names and Initial): John Salazar J.S. Phil Fresquez PF Richard Romero RR.

WHITE - To accompany samples | YELLOW - To Record Processing Facility | PINK - FTL Copy | SOP 1.04, R0

Los Alamos National Laboratory Environmental Restoration
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Date: 12/01/92 Control No. 01224

Technical Area 35 Send Lab Report to: P. Fresquez MS K490

Operable Unit Closure Site Work Plan EM-8: 92 — 1589

OU Contact D. McInroy Date Samples Shipped _____ Laboratory Contact _____

Contact Phone No. 7-0315 Lab Destination EM-9/_____ Date Lab Report Required _____

Field Unique Sample #/ID (Write in Sample ID Number in space below.)	Date & Time Collected	GRAB	COMP	Sample Container Volume/mat'l	Matrix (Liquid, Soil, Core, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	ANALYSIS REQUESTED METHOD	REMARKS (Condition of receipt, etc.)
~~PF-35-TB~~									
12/1/92						4°C	12/1/92		
AAA 1009	12/1/92 1:00	✓		40mL	Liquid	~~[illegible]~~	VOC		PF-35-TB
									trip blank
AAA 1010	12/1/92 1:00	✓		40mL	Liquid	4°C	VOC		PF-35-FB
									Field Blank

Relinquished by: (Signature): Affiliation:	Date: 12/4/92	Relinquished by: (Signature): Affiliation:	Date:	Relinquished by: (Signature): Affiliation:	Date:
Received by: (Signature): Affiliation: EM 9	Time: 9:50	Received by: (Signature): Affiliation:	Time:	Received by: (Signature): Affiliation:	Time:

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

Radiological ____ Highly Toxic ____ Flammable ____ Skin Irritant ____ Non-hazard ____ Other ____

SAMPLE DISPOSAL:

Return to client ____ Disposal by Lab ____ Archive ____ (Indicate number of months): ____

COMMENTS: _____

SAMPLING TEAM (Print Names and Initial): John Salazar Phil Fresquez Richard Romero

WHITE - To accompany samples YELLOW - To Record Processing Facility PINK - FTL Copy

SOP 1.04, R0

ENCLOSURE 6

LABORATORY REPORTS

SAMPLE NUMBER CROSSWALK

Sample Location	FIMAD Number	Control Number	Master Log Number	Lab Sample Number
PF-35-1	1048	01215	AAA0999	92.33183
PF-35-2	1049	01216	AAA1000	92.33184
PF-35-2 (replicate)	1049	01217	AAA1001	92.33185
PF-35-3	1050	01218	AAA1002	92.33186
PF-35-4	1051	01219	AAA1003	92.33187
PF-35-5	1052	01220	AAA1004	92.33188
PF-35-6	1053	01221	AAA1005	92.33189
PF-35-7	1054	01222	AAA1006	92.33190
PF-35-8	1055	01223	AAA1007	92.33191
PF-35-TB	----	01224	AAA1009	-----
PF-35-FB	----	01224	AAA1010	-----

VOLATILE ORGANIC ANALYSES

To: Philips R. Fresquez
From: Don E. Dale, EM-9 Organic Analysis Section

Through: Chris Leibman, EM-9 Organic Analysis Section Leader

Date: December 21, 1992

Subject: Analytical Results, Request Sheet #13905

On December 4, the following samples were received from the EM-9 Sample Receiving Section for volatile analysis:

92.33183	92.33184	92.33185
92.33186	92.33187	92.33188
92.33189	92.33190	92.33191
92.33192	92.33193	92.33194_qc

These samples were analyzed using EPA method 8260, SW846. A J & W 75 meter db624 capillary GC column was used. Approximately 5.0 grams of each soil sample was purged and analyzed by GCMS. **Analytical holding times were met.**

Summary of Results:

SAMPLE #	**Target Compounds**	**Concentration (ng/ml)**
92.33183	**ND**	
92.33184	**ND**	
92.33185	**1,2,4-Trimethylbenzene**	**6.5**
92.33186	**ND**	
92.33187	**ND**	
92.33188	**ND**	
92.33189	**ND**	
92.33190	**ND**	
92.33191	**ND**	
92.33192	**ND**	
92.33193	**ND**	
92.33194	**QC**	

Please refer to the attached report for details.

QA/QC Results:

Internal Standard responses were out for several samples. Duplicates of these samples were analyzed with similar results.

Surrogate Recoveries: Several were above control limits. Most of these samples were re-analyzed with similar results. Matrix effect is likely to be the contributing factor which effected internal standards recoveries which in turn resulted in the surrogate recoveries being out of control.

Matrix Spike Recoveries: Were in control limits for the matrix spike. The matrix spike duplicate was out of control for one compoound, 1,1-Dichloroethene. This is most likely due to a low recovery of that compound ran in the daily standard.

A blind QA/QC sample was analyzed with these samples and the results are attached.

1/28/93

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
SURROGATE RECOVERIES FOR VOLATILES
SOIL

REQUEST #: 13905

NUMBER OF SAMPLES: 17
MATRIX s
ANALYST: DED
Date: 01/28/93

SURROGATE RECOVERIES

SURROGATE
RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	d4-1,2-dichloro-ethene	toluene-(d8)	4-bromo-fluoro-benzene
1	B92.33196	BLANK	101	100	97
2	B92.33195	BLANK	102	100	99
3	B92.35309	BLANK	99	99	79
4	S92.33183	SAMPLE	95	95	124 *
5	S92.33184	SAMPLE	101	76 *	110
	S92.33185	SAMPLE	102	73 *	155 *
	S92.33186	SAMPLE	96	80 *	167 *
8	S92.33187	SAMPLE	117	80 *	133 *
9	S92.33188	SAMPLE	110	97	115
10	S92.33189	SAMPLE	115	99	115
11	S92.33190	SAMPLE	116	96	122 *
12	S92.33191	SAMPLE	116	99	102
13	S92.33192	SAMPLE	103	99	99
14	S92.33193	SAMPLE	103	99	100
15	S92.33194	SAMPLE	103	101	96
16	M92.33191	MATRIX SPIK	98	100	99
17	D92.33191	MATRIX SP-D	97	100	104
18					
19					
20					
21					
22					

Average % Surrogate Recovery...	104	90	119
Defined Lower QC Limits (%)....	70	81	74
Defined Upper QC Limits (%)....	121	117	121
Observed Lower QC Limits (%)...	95	73	79
Observed Upper QC Limits (%)...	117	100	167

f % Surrogate Recovery is Followed by a "*", it is out of QC Limits.

Reviewed By: 1/28/93

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
MATRIX SPIKE RECOVERIES FOR VOLATILES

			DRY WT/VOL (G or ML)	DILUTION FACTOR	AMOUNT SPIKED	LOQ (UG/KG OR UG/
REQUEST #:	13905					
NUMBER OF SAMPLES:	17					
SPIKE ID: (STARTS M OR E)	M92.33191	SPIKE	4.96	1	50	5
SPIKE DUP ID: (STARTS D OR F)	D92.33191	SPIKE-DUP	5.2	1	48	5
RAW DATA WITH:	---					
ANALYST:	DED					

	SPIKE REC.	SPIKE-DUP REC.	SPIKE % REC.	SPIKE-DUP % REC.	RPD	LOW. REC. LIM.	UPP. REC. LIM.	RPD LIM.
1,1-Dichlorethene	49	90	97%	187%*	63%*	59	172	22
Benzene	51	51	101%	106%	5%	66	142	21
Trichlorethene	46	47	91%	98%	7%	62	137	24
Toluene	49	52	97%	108%	11%	59	139	21
Chlorobenzene	47	51	93%	106%	13%	60	133	21

7/28/93

"*" If % Matrix Recovery is Followed by a "*", it is out of QC Limits.

·wed By:

********** EM-9 ANALYTICAL REPORT **********

EPA VOLATILES Prepared by: LAK on 28-Jan-1993

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: DON DALE PROGRAM CODE: M99B NOTEBOOK: PAGE:

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.33183 Date Collected: 12/01/92 Date Received: 12/02/92 Date Extracted: 12/06/92 Date Analyzed: 12/06/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA0999	92.33183	67641	< 20.		UG/KG	1/28/93		Acetone
AAA0999	92.33183	71432	< 5.		UG/KG	1/28/93		Benzene
AAA0999	92.33183	108861	< 5.		UG/KG	1/28/93		Bromobenzene
AAA0999	92.33183	74975	< 5.		UG/KG	1/28/93		Bromochloromethane
AAA0999	92.33183	75274	< 5.		UG/KG	1/28/93		Bromodichloromethane
AAA0999	92.33183	75252	< 5.		UG/KG	1/28/93		Bromoform
AAA0999	92.33183	74839	< 10.		UG/KG	1/28/93		Bromomethane
AAA0999	92.33183	78933	< 20.		UG/KG	1/28/93		2-Butanone
AAA0999	92.33183	104518	< 5.		UG/KG	1/28/93		n-Butylbenzene
AAA0999	92.33183	135988	< 5.		UG/KG	1/28/93		sec-Butylbenzene
AAA0999	92.33183	98066	< 5.		UG/KG	1/28/93		tert-Butylbenzene
AAA0999	92.33183	75150	< 5.		UG/KG	1/28/93		Carbon disulfide
AAA0999	92.33183	56235	< 5.		UG/KG	1/28/93		Carbon tetrachloride
AAA0999	92.33183	108907	< 5.		UG/KG	1/28/93		Chlorobenzene
AAA0999	92.33183	124481	< 5.		UG/KG	1/28/93		Chlorodibromomethane
AAA0999	92.33183	75003	< 10.		UG/KG	1/28/93		Chloroethane
AAA0999	92.33183	67663	< 5.		UG/KG	1/28/93		Chloroform
AAA0999	92.33183	74873	< 10.		UG/KG	1/28/93		Chloromethane
AAA0999	92.33183	95498	< 5.		UG/KG	1/28/93		o-Chlorotoluene
AAA0999	92.33183	106434	< 5.		UG/KG	1/28/93		p-Chlorotoluene
AAA0999	92.33183	96128	< 10.		UG/KG	1/28/93		1,2-Dibromo-3-chloropropane
AAA0999	92.33183	74953	< 5.		UG/KG	1/28/93		Dibromomethane
AAA0999	92.33183	95501	< 5.		UG/KG	1/28/93		o-Dichlorobenzene (1,2)
AAA0999	92.33183	541731	< 5.		UG/KG	1/28/93		m-Dichlorobenzene (1,3)
AAA0999	92.33183	106467	< 5.		UG/KG	1/28/93		p-Dichlorobenzene (1,4)
AAA0999	2.33183	75718	< 10.		UG/KG	1/		Dichlorodifluoromethane

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA0999	92.33183	75343	< 5.		UG/KG	1/28/93		1,1-Dichloroethane
AAA0999	92.33183	107062	< 5.		UG/KG	1/28/93		1,2-Dichloroethane
AAA0999	92.33183	75354	< 5.		UG/KG	1/28/93		1,1-Dichloroethene
AAA0999	92.33183	156605	< 5.		UG/KG	1/28/93		trans-1,2-Dichloroethene
AAA0999	92.33183	156592	< 5.		UG/KG	1/28/93		cis-1,2-Dichloroethylene
AAA0999	92.33183	78875	< 5.		UG/KG	1/28/93		1,2-Dichloropropane
AAA0999	92.33183	142289	< 5.		UG/KG	1/28/93		1,3-Dichloropropane
AAA0999	92.33183	594207	< 5.		UG/KG	1/28/93		2,2-Dichloropropane
AAA0999	92.33183	563586	< 5.		UG/KG	1/28/93		1,1-Dichloropropene
AAA0999	92.33183	10061015	< 5.		UG/KG	1/28/93		cis-1,3-Dichloropropene
AAA0999	92.33183	10061026	< 5.		UG/KG	1/28/93		trans-1,3-Dichloropropene
AAA0999	92.33183	100414	< 5.		UG/KG	1/28/93		Ethylbenzene
AAA0999	92.33183	106934	< 5.		UG/KG	1/28/93		Ethylene dibromide
AAA0999	92.33183	591786	< 20.		UG/KG	1/28/93		2-Hexanone
AAA0999	92.33183	98828	< 5.		UG/KG	1/28/93		Isopropylbenzene
AAA0999	92.33183	99876	< 5.		UG/KG	1/28/93		4-Isopropyltoluene
AAA0999	92.33183	74884	< 5.		UG/KG	1/28/93		Methyl iodide
AAA0999	92.33183	108101	< 20.		UG/KG	1/28/93		4-Methyl-2-pentanone
AAA0999	92.33183	75092	< 5.		UG/KG	1/28/93		Methylene chloride
AAA0999	92.33183	103651	< 5.		UG/KG	1/28/93		Propylbenzene
AAA0999	92.33183	100425	< 5.		UG/KG	1/28/93		Styrene
AAA0999	92.33183	630206	< 5.		UG/KG	1/28/93		1,1,1,2-Tetrachloroethane
AAA0999	92.33183	79345	< 5.		UG/KG	1/28/93		1,1,2,2-Tetrachloroethane
AAA0999	92.33183	127184	< 5.		UG/KG	1/28/93		Tetrachloroethylene
AAA0999	92.33183	108883	< 5.		UG/KG	1/28/93		Toluene
AAA0999	92.33183	76131	< 5.		UG/KG	1/28/93		1,1,2-Trichloro-1,2,2-trifluoroethane
AAA0999	92.33183	71556	< 5.		UG/KG	1/28/93		1,1,1-Trichloroethane
AAA0999	92.33183	79005	< 5.		UG/KG	1/28/93		1,1,2-Trichloroethane
AAA0999	92.33183	79016	< 5.		UG/KG	1/28/93		Trichloroethene
AAA0999	92.33183	75694	< 5.		UG/KG	1/28/93		Trichlorofluoromethane
AAA0999	92.33183	96184	< 5.		UG/KG	1/28/93		1,2,3-Trichloropropane
AAA0999	92.33183	95636	< 5.		UG/KG	1/28/93		1,2,4-Trimethylbenzene
AAA0999	92.33183	108678	< 5.		UG/KG	1/28/93		1,3,5-Trimethylbenzene
AAA0999	92.33183	108054	< 10.		UG/KG	1/28/93		Vinyl acetate
AAA0999	92.33183	75014	< 10.		UG/KG	1/28/93		Vinyl chloride
AAA0999	2.33183	1330207	< 5.		UG/KG	1/		Mixed-Xylenes (o ± m ± p)

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1000	92.33184	87865	< 2700.		UG/KG	1/27/93		Pentachlorophenol
AAA1000	92.33184	85018	< 2700.		UG/KG	1/27/93		Phenanthrene
AAA1000	92.33184	108952	< 2700.		UG/KG	1/27/93		Phenol
AAA1000	92.33184	129000	< 2700.		UG/KG	1/27/93		Pyrene
AAA1000	92.33184	120821	< 2700.		UG/KG	1/27/93		1,2,4-Trichlorobenzene
AAA1000	92.33184	95954	< 2700.		UG/KG	1/27/93		2,4,5-Trichlorophenol
AAA1000	92.33184	88062	< 2700.		UG/KG	1/27/93		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.33184

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 27-Jan-1993

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M99B NOTEBOOK: R7336 PAGE: 223

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCMS ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.33185 Date Collected: 12/01/92 Date Received: 12/02/92 Date Extracted: 12/07/92 Date Analyzed: 12/23/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1001	92.33185	83329	< 2600.		UG/KG	1/27/93		Acenaphthene
AAA1001	92.33185	208968	< 2600.		UG/KG	1/27/93		Acenaphthylene
AAA1001	92.33185	62533	< 2600.		UG/KG	1/27/93		Aniline
AAA1001	92.33185	120127	< 2600.		UG/KG	1/27/93		Anthracene
AAA1001	92.33185	103333	< 2600.		UG/KG	1/27/93		Azobenzene
AAA1001	92.33185	92875	< 2600.		UG/KG	1/27/93		m-Benzidine
AAA1001	92.33185	56553	< 2600.		UG/KG	1/27/93		Benzo[a]anthracene
AAA1001	92.33185	50328	< 2600.		UG/KG	1/27/93		Benzo[a]pyrene
AAA1001	92.33185	205992	< 2600.		UG/KG	1/27/93		Benzo[b]fluoranthene
AAA1001	92.33185	191242	< 2600.		UG/KG	1/27/93		Benzo[g,h,i]perylene
AAA1001	92.33185	207089	< 2600.		UG/KG	1/27/93		Benzo[k]fluoranthene
AAA1001	92.33185	65850	< 2600.		UG/KG	1/27/93		Benzoic acid
AAA1001	92.33185	100516	< 2600.		UG/KG	1/27/93		Benzyl alcohol
AAA1001	92.33185	111911	< 2600.		UG/KG	1/27/93		Bis(2-chloroethoxy)methane
AAA1001	92.33185	111444	< 2600.		UG/KG	1/27/93		Bis(2-chloroethyl)ether
AAA1001	92.33185	108601	< 2600.		UG/KG	1/27/93		Bis(2-chloroisopropyl)ether
AAA1001	92.33185	117817	14500.	4350.	UG/KG	1/27/93		Bis(2-ethylhexyl)phthalate
AAA1001	92.33185	101553	< 2600.		UG/KG	1/27/93		4-Bromophenylphenyl ether
AAA1001	92.33185	85687	< 2600.		UG/KG	1/27/93		Butyl benzyl phthalate
AAA1001	92.33185	59507	< 2600.		UG/KG	1/27/93		4-Chloro-3-methylphenol
AAA1001	92.33185	106478	< 2600.		UG/KG	1/27/93		4-Chloroaniline
AAA1001	92.33185	91587	< 2600.		UG/KG	1/27/93		2-Chloronaphthalene
AAA1001	92.33185	95578	< 2600.		UG/KG	1/27/93		o-Chlorophenol
AAA1001	92.33185	7005723	< 2600.		UG/KG	1/27/93		4-Chlorophenylphenyl ether
AAA1001	92.33185	218019	< 2600.		UG/KG	1/27/93		Chrysene
AAA1001	2.33185	84742	< 2600.		UG/KG	1'		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1001	92.33185	117840	< 2600.		UG/KG	1/27/93		Di-n-octyl phthalate
AAA1001	92.33185	53703	< 2600.		UG/KG	1/27/93		Dibenzo[a,h]anthracene
AAA1001	92.33185	132649	< 2600.		UG/KG	1/27/93		Dibenzofuran
AAA1001	92.33185	95501	< 2600.		UG/KG	1/27/93		o-Dichlorobenzene (1,2)
AAA1001	92.33185	541731	< 2600.		UG/KG	1/27/93		m-Dichlorobenzene (1,3)
AAA1001	92.33185	106467	< 2600.		UG/KG	1/27/93		p-Dichlorobenzene (1,4)
AAA1001	92.33185	91941	< 2600.		UG/KG	1/27/93		3,3'-Dichlorobenzidine
AAA1001	92.33185	120832	< 2600.		UG/KG	1/27/93		2,4-Dichlorophenol
AAA1001	92.33185	84662	< 2600.		UG/KG	1/27/93		Diethyl phthalate
AAA1001	92.33185	131113	< 2600.		UG/KG	1/27/93		Dimethyl phthalate
AAA1001	92.33185	105679	< 2600.		UG/KG	1/27/93		2,4-Dimethylphenol
AAA1001	92.33185	51285	< 2600.		UG/KG	1/27/93		2,4-Dinitrophenol
AAA1001	92.33185	121142	< 2600.		UG/KG	1/27/93		2,4-Dinitrotoluene
AAA1001	92.33185	606202	< 2600.		UG/KG	1/27/93		2,6-Dinitrotoluene
AAA1001	92.33185	206440	< 2600.		UG/KG	1/27/93		Fluoranthene
AAA1001	92.33185	86737	< 2600.		UG/KG	1/27/93		Fluorene
AAA1001	92.33185	118741	< 2600.		UG/KG	1/27/93		Hexachlorobenzene
AAA1001	92.33185	87683	< 2600.		UG/KG	1/27/93		Hexachlorobutadiene
AAA1001	92.33185	77474	< 2600.		UG/KG	1/27/93		Hexachlorocyclopentadiene
AAA1001	92.33185	67721	< 2600.		UG/KG	1/27/93		Hexachloroethane
AAA1001	92.33185	193395	< 2600.		UG/KG	1/27/93		Indeno[1,2,3-cd]pyrene
AAA1001	92.33185	78591	< 2600.		UG/KG	1/27/93		Isophorone
AAA1001	92.33185	534521	< 2600.		UG/KG	1/27/93		2-Methyl-4,6-dinitrophenol
AAA1001	92.33185	91576	< 2600.		UG/KG	1/27/93		2-Methylnaphthalene
AAA1001	92.33185	95487	< 2600.		UG/KG	1/27/93		2-Methylphenol
AAA1001	92.33185	106445	< 2600.		UG/KG	1/27/93		4-Methylphenol
AAA1001	92.33185	91203	< 2600.		UG/KG	1/27/93		Naphthalene
AAA1001	92.33185	88744	< 2600.		UG/KG	1/27/93		2-Nitroaniline
AAA1001	92.33185	99092	< 2600.		UG/KG	1/27/93		3-Nitroaniline
AAA1001	92.33185	100016	< 2600.		UG/KG	1/27/93		4-Nitroaniline
AAA1001	92.33185	98953	< 2600.		UG/KG	1/27/93		Nitrobenzene
AAA1001	92.33185	88755	< 2600.		UG/KG	1/27/93		2-Nitrophenol
AAA1001	92.33185	100027	< 2600.		UG/KG	1/27/93		4-Nitrophenol
AAA1001	92.33185	621647	< 2600.		UG/KG	1/27/93		N-Nitrosodi-n-propylamine
AAA1001	92.33185	62759	< 2600.		UG/KG	1/27/93		N-Nitrosodimethylamine
AAA1001	2.33185	86306	< 2600.		UG/KG	1/		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1001	92.33185	87865	< 2600.		UG/KG	1/27/93		Pentachlorophenol
AAA1001	92.33185	85018	< 2600.		UG/KG	1/27/93		Phenanthrene
AAA1001	92.33185	108952	< 2600.		UG/KG	1/27/93		Phenol
AAA1001	92.33185	129000	< 2600.		UG/KG	1/27/93		Pyrene
AAA1001	92.33185	120821	< 2600.		UG/KG	1/27/93		1,2,4-Trichlorobenzene
AAA1001	92.33185	95954	< 2600.		UG/KG	1/27/93		2,4,5-Trichlorophenol
AAA1001	92.33185	88062	< 2600.		UG/KG	1/27/93		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.33185

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 27-Jan-1993

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M99B NOTEBOOK: R7336 PAGE: 223

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCMS ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.33186 Date Collected: 12/01/92 Date Received: 12/02/92 Date Extracted: 12/07/92 Date Analyzed: 1/06/93

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1002	92.33186	83329	< 2600.		UG/KG	1/27/93		Acenaphthene
AAA1002	92.33186	208968	< 2600.		UG/KG	1/27/93		Acenaphthylene
AAA1002	92.33186	62533	< 2600.		UG/KG	1/27/93		Aniline
AAA1002	92.33186	120127	< 2600.		UG/KG	1/27/93		Anthracene
AAA1002	92.33186	103333	< 2600.		UG/KG	1/27/93		Azobenzene
AAA1002	92.33186	92875	< 2600.		UG/KG	1/27/93		m-Benzidine
AAA1002	92.33186	56553	< 2600.		UG/KG	1/27/93		Benzo[a]anthracene
AAA1002	92.33186	50328	< 2600.		UG/KG	1/27/93		Benzo[a]pyrene
AAA1002	92.33186	205992	< 2600.		UG/KG	1/27/93		Benzo[b]fluoranthene
AAA1002	92.33186	191242	< 2600.		UG/KG	1/27/93		Benzo[g,h,i]perylene
AAA1002	92.33186	207089	< 2600.		UG/KG	1/27/93		Benzo[k]fluoranthene
AAA1002	92.33186	65850	< 2600.		UG/KG	1/27/93		Benzoic acid
AAA1002	92.33186	100516	< 2600.		UG/KG	1/27/93		Benzyl alcohol
AAA1002	92.33186	111911	< 2600.		UG/KG	1/27/93		Bis(2-chloroethoxy)methane
AAA1002	92.33186	111444	< 2600.		UG/KG	1/27/93		Bis(2-chloroethyl)ether
AAA1002	92.33186	108601	< 2600.		UG/KG	1/27/93		Bis(2-chloroisopropyl)ether
AAA1002	92.33186	117817	14700.	4410.	UG/KG	1/27/93		Bis(2-ethylhexyl)phthalate
AAA1002	92.33186	101553	< 2600.		UG/KG	1/27/93		4-Bromophenylphenyl ether
AAA1002	92.33186	85687	< 2600.		UG/KG	1/27/93		Butyl benzyl phthalate
AAA1002	92.33186	59507	< 2600.		UG/KG	1/27/93		4-Chloro-3-methylphenol
AAA1002	92.33186	106478	< 2600.		UG/KG	1/27/93		4-Chloroaniline
AAA1002	92.33186	91587	< 2600.		UG/KG	1/27/93		2-Chloronaphthalene
AAA1002	92.33186	95578	< 2600.		UG/KG	1/27/93		o-Chlorophenol
AAA1002	92.33186	7005723	< 2600.		UG/KG	1/27/93		4-Chlorophenylphenyl ether
AAA1002	92.33186	218019	< 2600.		UG/KG	1/27/93		Chrysene
AAA1002	92.33186	84742	< 2600.		UG/KG	1/[illegible]		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1002	92.33186	117840	< 2600.		UG/KG	1/27/93		Di-n-octyl phthalate
AAA1002	92.33186	53703	< 2600.		UG/KG	1/27/93		Dibenzo[a,h]anthracene
AAA1002	92.33186	132649	< 2600.		UG/KG	1/27/93		Dibenzofuran
AAA1002	92.33186	95501	< 2600.		UG/KG	1/27/93		o-Dichlorobenzene (1,2)
AAA1002	92.33186	541731	< 2600.		UG/KG	1/27/93		m-Dichlorobenzene (1,3)
AAA1002	92.33186	106467	< 2600.		UG/KG	1/27/93		p-Dichlorobenzene (1,4)
AAA1002	92.33186	91941	< 2600.		UG/KG	1/27/93		3,3'-Dichlorobenzidine
AAA1002	92.33186	120832	< 2600.		UG/KG	1/27/93		2,4-Dichlorophenol
AAA1002	92.33186	84662	< 2600.		UG/KG	1/27/93		Diethyl phthalate
AAA1002	92.33186	131113	< 2600.		UG/KG	1/27/93		Dimethyl phthalate
AAA1002	92.33186	105679	< 2600.		UG/KG	1/27/93		2,4-Dimethylphenol
AAA1002	92.33186	51285	< 2600.		UG/KG	1/27/93		2,4-Dinitrophenol
AAA1002	92.33186	121142	< 2600.		UG/KG	1/27/93		2,4-Dinitrotoluene
AAA1002	92.33186	606202	< 2600.		UG/KG	1/27/93		2,6-Dinitrotoluene
AAA1002	92.33186	206440	< 2600.		UG/KG	1/27/93		Fluoranthene
AAA1002	92.33186	86737	< 2600.		UG/KG	1/27/93		Fluorene
AAA1002	92.33186	118741	< 2600.		UG/KG	1/27/93		Hexachlorobenzene
AAA1002	92.33186	87683	< 2600.		UG/KG	1/27/93		Hexachlorobutadiene
AAA1002	92.33186	77474	< 2600.		UG/KG	1/27/93		Hexachlorocyclopentadiene
AAA1002	92.33186	67721	< 2600.		UG/KG	1/27/93		Hexachloroethane
AAA1002	92.33186	193395	< 2600.		UG/KG	1/27/93		Indeno[1,2,3-cd]pyrene
AAA1002	92.33186	78591	< 2600.		UG/KG	1/27/93		Isophorone
AAA1002	92.33186	534521	< 2600.		UG/KG	1/27/93		2-Methyl-4,6-dinitrophenol
AAA1002	92.33186	91576	< 2600.		UG/KG	1/27/93		2-Methylnaphthalene
AAA1002	92.33186	95487	< 2600.		UG/KG	1/27/93		2-Methylphenol
AAA1002	92.33186	106445	< 2600.		UG/KG	1/27/93		4-Methylphenol
AAA1002	92.33186	91203	< 2600.		UG/KG	1/27/93		Naphthalene
AAA1002	92.33186	88744	< 2600.		UG/KG	1/27/93		2-Nitroaniline
AAA1002	92.33186	99092	< 2600.		UG/KG	1/27/93		3-Nitroaniline
AAA1002	92.33186	100016	< 2600.		UG/KG	1/27/93		4-Nitroaniline
AAA1002	92.33186	98953	< 2600.		UG/KG	1/27/93		Nitrobenzene
AAA1002	92.33186	88755	< 2600.		UG/KG	1/27/93		2-Nitrophenol
AAA1002	92.33186	100027	< 2600.		UG/KG	1/27/93		4-Nitrophenol
AAA1002	92.33186	621647	< 2600.		UG/KG	1/27/93		N-Nitrosodi-n-propylamine
AAA1002	92.33186	62759	< 2600.		UG/KG	1/27/93		N-Nitrosodimethylamine
AAA1002	[illegible].33186	86306	< 2600.		UG/KG	1/[illegible]		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1002	92.33186	87865	< 2600.		UG/KG	1/27/93		Pentachlorophenol
AAA1002	92.33186	85018	< 2600.		UG/KG	1/27/93		Phenanthrene
AAA1002	92.33186	108952	< 2600.		UG/KG	1/27/93		Phenol
AAA1002	92.33186	129000	< 2600.		UG/KG	1/27/93		Pyrene
AAA1002	92.33186	120821	< 2600.		UG/KG	1/27/93		1,2,4-Trichlorobenzene
AAA1002	92.33186	95954	< 2600.		UG/KG	1/27/93		2,4,5-Trichlorophenol
AAA1002	92.33186	88062	< 2600.		UG/KG	1/27/93		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.33186

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 27-Jan-1993

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M99B NOTEBOOK: R7336 PAGE: 223

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCMS ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.33187 Date Collected: 12/01/92 Date Received: 12/02/92 Date Extracted: 12/07/92 Date Analyzed: 1/06/93

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1003	92.33187	83329	< 1300.		UG/KG	1/27/93		Acenaphthene
AAA1003	92.33187	208968	< 1300.		UG/KG	1/27/93		Acenaphthylene
AAA1003	92.33187	62533	< 1300.		UG/KG	1/27/93		Aniline
AAA1003	92.33187	120127	< 1300.		UG/KG	1/27/93		Anthracene
AAA1003	92.33187	103333	< 1300.		UG/KG	1/27/93		Azobenzene
AAA1003	92.33187	92875	< 1300.		UG/KG	1/27/93		m-Benzidine
AAA1003	92.33187	56553	< 1300.		UG/KG	1/27/93		Benzo[a]anthracene
AAA1003	92.33187	50328	< 1300.		UG/KG	1/27/93		Benzo[a]pyrene
AAA1003	92.33187	205992	< 1300.		UG/KG	1/27/93		Benzo[b]fluoranthene
AAA1003	92.33187	191242	< 1300.		UG/KG	1/27/93		Benzo[g,h,i]perylene
AAA1003	92.33187	207089	< 1300.		UG/KG	1/27/93		Benzo[k]fluoranthene
AAA1003	92.33187	65850	< 1300.		UG/KG	1/27/93		Benzoic acid
AAA1003	92.33187	100516	< 1300.		UG/KG	1/27/93		Benzyl alcohol
AAA1003	92.33187	111911	< 1300.		UG/KG	1/27/93		Bis(2-chloroethoxy)methane
AAA1003	92.33187	111444	< 1300.		UG/KG	1/27/93		Bis(2-chloroethyl)ether
AAA1003	92.33187	108601	< 1300.		UG/KG	1/27/93		Bis(2-chloroisopropyl)ether
AAA1003	92.33187	117817	9100.	2730.	UG/KG	1/27/93		Bis(2-ethylhexyl)phthalate
AAA1003	92.33187	101553	< 1300.		UG/KG	1/27/93		4-Bromophenylphenyl ether
AAA1003	92.33187	85687	< 1300.		UG/KG	1/27/93		Butyl benzyl phthalate
AAA1003	92.33187	59507	< 1300.		UG/KG	1/27/93		4-Chloro-3-methylphenol
AAA1003	92.33187	106478	< 1300.		UG/KG	1/27/93		4-Chloroaniline
AAA1003	92.33187	91587	< 1300.		UG/KG	1/27/93		2-Chloronaphthalene
AAA1003	92.33187	95578	< 1300.		UG/KG	1/27/93		o-Chlorophenol
AAA1003	92.33187	7005723	< 1300.		UG/KG	1/27/93		4-Chlorophenylphenyl ether
AAA1003	92.33187	218019	< 1300.		UG/KG	1/27/93		Chrysene
AAA1003	2.33187	84742	< 1300.		UG/KG	1/		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1003	92.33187	117840	< 1300.		UG/KG	1/27/93		Di-n-octyl phthalate
AAA1003	92.33187	53703	< 1300.		UG/KG	1/27/93		Dibenzo[a,h]anthracene
AAA1003	92.33187	132649	< 1300.		UG/KG	1/27/93		Dibenzofuran
AAA1003	92.33187	95501	< 1300.		UG/KG	1/27/93		o-Dichlorobenzene (1,2)
AAA1003	92.33187	541731	< 1300.		UG/KG	1/27/93		m-Dichlorobenzene (1,3)
AAA1003	92.33187	106467	< 1300.		UG/KG	1/27/93		p-Dichlorobenzene (1,4)
AAA1003	92.33187	91941	< 1300.		UG/KG	1/27/93		3,3'-Dichlorobenzidine
AAA1003	92.33187	120832	< 1300.		UG/KG	1/27/93		2,4-Dichlorophenol
AAA1003	92.33187	84662	< 1300.		UG/KG	1/27/93		Diethyl phthalate
AAA1003	92.33187	131113	< 1300.		UG/KG	1/27/93		Dimethyl phthalate
AAA1003	92.33187	105679	< 1300.		UG/KG	1/27/93		2,4-Dimethylphenol
AAA1003	92.33187	51285	< 1300.		UG/KG	1/27/93		2,4-Dinitrophenol
AAA1003	92.33187	121142	< 1300.		UG/KG	1/27/93		2,4-Dinitrotoluene
AAA1003	92.33187	606202	< 1300.		UG/KG	1/27/93		2,6-Dinitrotoluene
AAA1003	92.33187	206440	< 1300.		UG/KG	1/27/93		Fluoranthene
AAA1003	92.33187	86737	< 1300.		UG/KG	1/27/93		Fluorene
AAA1003	92.33187	118741	< 1300.		UG/KG	1/27/93		Hexachlorobenzene
AAA1003	92.33187	87683	< 1300.		UG/KG	1/27/93		Hexachlorobutadiene
AAA1003	92.33187	77474	< 1300.		UG/KG	1/27/93		Hexachlorocyclopentadiene
AAA1003	92.33187	67721	< 1300.		UG/KG	1/27/93		Hexachloroethane
AAA1003	92.33187	193395	< 1300.		UG/KG	1/27/93		Indeno[1,2,3-cd]pyrene
AAA1003	92.33187	78591	< 1300.		UG/KG	1/27/93		Isophorone
AAA1003	92.33187	534521	< 1300.		UG/KG	1/27/93		2-Methyl-4,6-dinitrophenol
AAA1003	92.33187	91576	< 1300.		UG/KG	1/27/93		2-Methylnaphthalene
AAA1003	92.33187	95487	< 1300.		UG/KG	1/27/93		2-Methylphenol
AAA1003	92.33187	106445	< 1300.		UG/KG	1/27/93		4-Methylphenol
AAA1003	92.33187	91203	< 1300.		UG/KG	1/27/93		Naphthalene
AAA1003	92.33187	88744	< 1300.		UG/KG	1/27/93		2-Nitroaniline
AAA1003	92.33187	99092	< 1300.		UG/KG	1/27/93		3-Nitroaniline
AAA1003	92.33187	100016	< 1300.		UG/KG	1/27/93		4-Nitroaniline
AAA1003	92.33187	98953	< 1300.		UG/KG	1/27/93		Nitrobenzene
AAA1003	92.33187	88755	< 1300.		UG/KG	1/27/93		2-Nitrophenol
AAA1003	92.33187	100027	< 1300.		UG/KG	1/27/93		4-Nitrophenol
AAA1003	92.33187	621647	< 1300.		UG/KG	1/27/93		N-Nitrosodi-n-propylamine
AAA1003	92.33187	62759	< 1300.		UG/KG	1/27/93		N-Nitrosodimethylamine
AAA1003	2.33187	86306	< 1300.		UG/KG	1/		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1003	92.33187	87865	< 1300.		UG/KG	1/27/93		Pentachlorophenol
AAA1003	92.33187	85018	< 1300.		UG/KG	1/27/93		Phenanthrene
AAA1003	92.33187	108952	< 1300.		UG/KG	1/27/93		Phenol
AAA1003	92.33187	129000	< 1300.		UG/KG	1/27/93		Pyrene
AAA1003	92.33187	120821	< 1300.		UG/KG	1/27/93		1,2,4-Trichlorobenzene
AAA1003	92.33187	95954	< 1300.		UG/KG	1/27/93		2,4,5-Trichlorophenol
AAA1003	92.33187	88062	< 1300.		UG/KG	1/27/93		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.33187

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 27-Jan-1993

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M99B NOTEBOOK: R7336 PAGE: 223

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCMS ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.33188 Date Collected: 12/01/92 Date Received: 12/02/92 Date Extracted: 12/07/92 Date Analyzed: 12/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1004	92.33188	83329	< 330.		UG/KG	1/27/93		Acenaphthene
AAA1004	92.33188	208968	< 330.		UG/KG	1/27/93		Acenaphthylene
AAA1004	92.33188	62533	< 330.		UG/KG	1/27/93		Aniline
AAA1004	92.33188	120127	< 330.		UG/KG	1/27/93		Anthracene
AAA1004	92.33188	103333	< 330.		UG/KG	1/27/93		Azobenzene
AAA1004	92.33188	92875	< 330.		UG/KG	1/27/93		m-Benzidine
AAA1004	92.33188	56553	< 330.		UG/KG	1/27/93		Benzo[a]anthracene
AAA1004	92.33188	50328	< 330.		UG/KG	1/27/93		Benzo[a]pyrene
AAA1004	92.33188	205992	< 330.		UG/KG	1/27/93		Benzo[b]fluoranthene
AAA1004	92.33188	191242	< 330.		UG/KG	1/27/93		Benzo[g,h,i]perylene
AAA1004	92.33188	207089	< 330.		UG/KG	1/27/93		Benzo[k]fluoranthene
AAA1004	92.33188	65850	< 330.		UG/KG	1/27/93		Benzoic acid
AAA1004	92.33188	100516	< 330.		UG/KG	1/27/93		Benzyl alcohol
AAA1004	92.33188	111911	< 330.		UG/KG	1/27/93		Bis(2-chloroethoxy)methane
AAA1004	92.33188	111444	< 330.		UG/KG	1/27/93		Bis(2-chloroethyl)ether
AAA1004	92.33188	108601	< 330.		UG/KG	1/27/93		Bis(2-chloroisopropyl)ether
AAA1004	92.33188	117817	< 330.		UG/KG	1/27/93		Bis(2-ethylhexyl)phthalate
AAA1004	92.33188	101553	< 330.		UG/KG	1/27/93		4-Bromophenylphenyl ether
AAA1004	92.33188	85687	< 330.		UG/KG	1/27/93		Butyl benzyl phthalate
AAA1004	92.33188	59507	< 330.		UG/KG	1/27/93		4-Chloro-3-methylphenol
AAA1004	92.33188	106478	< 330.		UG/KG	1/27/93		4-Chloroaniline
AAA1004	92.33188	91587	< 330.		UG/KG	1/27/93		2-Chloronaphthalene
AAA1004	92.33188	95578	< 330.		UG/KG	1/27/93		o-Chlorophenol
AAA1004	92.33188	7005723	< 330.		UG/KG	1/27/93		4-Chlorophenylphenyl ether
AAA1004	92.33188	218019	< 330.		UG/KG	1/27/93		Chrysene
AAA1004	2.33188	84742	< 330.		UG/KG	1/		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1004	92.33188	117840	< 330.		UG/KG	1/27/93		Di-n-octyl phthalate
AAA1004	92.33188	53703	< 330.		UG/KG	1/27/93		Dibenzo[a,h]anthracene
AAA1004	92.33188	132649	< 330.		UG/KG	1/27/93		Dibenzofuran
AAA1004	92.33188	95501	< 330.		UG/KG	1/27/93		o-Dichlorobenzene (1,2)
AAA1004	92.33188	541731	< 330.		UG/KG	1/27/93		m-Dichlorobenzene (1,3)
AAA1004	92.33188	106467	< 330.		UG/KG	1/27/93		p-Dichlorobenzene (1,4)
AAA1004	92.33188	91941	< 330.		UG/KG	1/27/93		3,3'-Dichlorobenzidine
AAA1004	92.33188	120832	< 330.		UG/KG	1/27/93		2,4-Dichlorophenol
AAA1004	92.33188	84662	< 330.		UG/KG	1/27/93		Diethyl phthalate
AAA1004	92.33188	131113	< 330.		UG/KG	1/27/93		Dimethyl phthalate
AAA1004	92.33188	105679	< 330.		UG/KG	1/27/93		2,4-Dimethylphenol
AAA1004	92.33188	51285	< 330.		UG/KG	1/27/93		2,4-Dinitrophenol
AAA1004	92.33188	121142	< 330.		UG/KG	1/27/93		2,4-Dinitrotoluene
AAA1004	92.33188	606202	< 330.		UG/KG	1/27/93		2,6-Dinitrotoluene
AAA1004	92.33188	206440	< 330.		UG/KG	1/27/93		Fluoranthene
AAA1004	92.33188	86737	< 330.		UG/KG	1/27/93		Fluorene
AAA1004	92.33188	118741	< 330.		UG/KG	1/27/93		Hexachlorobenzene
AAA1004	92.33188	87683	< 330.		UG/KG	1/27/93		Hexachlorobutadiene
AAA1004	92.33188	77474	< 330.		UG/KG	1/27/93		Hexachlorocyclopentadiene
AAA1004	92.33188	67721	< 330.		UG/KG	1/27/93		Hexachloroethane
AAA1004	92.33188	193395	< 330.		UG/KG	1/27/93		Indeno[1,2,3-cd]pyrene
AAA1004	92.33188	78591	< 330.		UG/KG	1/27/93		Isophorone
AAA1004	92.33188	534521	< 330.		UG/KG	1/27/93		2-Methyl-4,6-dinitrophenol
AAA1004	92.33188	91576	< 330.		UG/KG	1/27/93		2-Methylnaphthalene
AAA1004	92.33188	95487	< 330.		UG/KG	1/27/93		2-Methylphenol
AAA1004	92.33188	106445	< 330.		UG/KG	1/27/93		4-Methylphenol
AAA1004	92.33188	91203	< 330.		UG/KG	1/27/93		Naphthalene
AAA1004	92.33188	88744	< 330.		UG/KG	1/27/93		2-Nitroaniline
AAA1004	92.33188	99092	< 330.		UG/KG	1/27/93		3-Nitroaniline
AAA1004	92.33188	100016	< 330.		UG/KG	1/27/93		4-Nitroaniline
AAA1004	92.33188	98953	< 330.		UG/KG	1/27/93		Nitrobenzene
AAA1004	92.33188	88755	< 330.		UG/KG	1/27/93		2-Nitrophenol
AAA1004	92.33188	100027	< 330.		UG/KG	1/27/93		4-Nitrophenol
AAA1004	92.33188	621647	< 330.		UG/KG	1/27/93		N-Nitrosodi-n-propylamine
AAA1004	92.33188	62759	< 330.		UG/KG	1/27/93		N-Nitrosodimethylamine
AAA1004	?.33188	86306	< 330.		UG/KG	1/[illegible]		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1004	92.33188	87865	< 330.		UG/KG	1/27/93		Pentachlorophenol
AAA1004	92.33188	85018	< 330.		UG/KG	1/27/93		Phenanthrene
AAA1004	92.33188	108952	< 330.		UG/KG	1/27/93		Phenol
AAA1004	92.33188	129000	< 330.		UG/KG	1/27/93		Pyrene
AAA1004	92.33188	120821	< 330.		UG/KG	1/27/93		1,2,4-Trichlorobenzene
AAA1004	92.33188	95954	< 330.		UG/KG	1/27/93		2,4,5-Trichlorophenol
AAA1004	92.33188	88062	< 330.		UG/KG	1/27/93		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.33188

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 27-Jan-1993

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M99B NOTEBOOK: R7336 PAGE: 223

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCMS ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.33189 Date Collected: 12/01/92 Date Received: 12/02/92 Date Extracted: 12/07/92 Date Analyzed: 1/06/93

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1005	92.33189	83329	< 1300.		UG/KG	1/27/93		Acenaphthene
AAA1005	92.33189	208968	< 1300.		UG/KG	1/27/93		Acenaphthylene
AAA1005	92.33189	62533	< 1300.		UG/KG	1/27/93		Aniline
AAA1005	92.33189	120127	< 1300.		UG/KG	1/27/93		Anthracene
AAA1005	92.33189	103333	< 1300.		UG/KG	1/27/93		Azobenzene
AAA1005	92.33189	92875	< 1300.		UG/KG	1/27/93		m-Benzidine
AAA1005	92.33189	56553	< 1300.		UG/KG	1/27/93		Benzo[a]anthracene
AAA1005	92.33189	50328	< 1300.		UG/KG	1/27/93		Benzo[a]pyrene
AAA1005	92.33189	205992	< 1300.		UG/KG	1/27/93		Benzo[b]fluoranthene
AAA1005	92.33189	191242	< 1300.		UG/KG	1/27/93		Benzo[g,h,i]perylene
AAA1005	92.33189	207089	< 1300.		UG/KG	1/27/93		Benzo[k]fluoranthene
AAA1005	92.33189	65850	< 1300.		UG/KG	1/27/93		Benzoic acid
AAA1005	92.33189	100516	< 1300.		UG/KG	1/27/93		Benzyl alcohol
AAA1005	92.33189	111911	< 1300.		UG/KG	1/27/93		Bis(2-chloroethoxy)methane
AAA1005	92.33189	111444	< 1300.		UG/KG	1/27/93		Bis(2-chloroethyl)ether
AAA1005	92.33189	108601	< 1300.		UG/KG	1/27/93		Bis(2-chloroisopropyl)ether
AAA1005	92.33189	117817	< 1300.		UG/KG	1/27/93		Bis(2-ethylhexyl)phthalate
AAA1005	92.33189	101553	< 1300.		UG/KG	1/27/93		4-Bromophenylphenyl ether
AAA1005	92.33189	85687	< 1300.		UG/KG	1/27/93		Butyl benzyl phthalate
AAA1005	92.33189	59507	< 1300.		UG/KG	1/27/93		4-Chloro-3-methylphenol
AAA1005	92.33189	106478	< 1300.		UG/KG	1/27/93		4-Chloroaniline
AAA1005	92.33189	91587	< 1300.		UG/KG	1/27/93		2-Chloronaphthalene
AAA1005	92.33189	95578	< 1300.		UG/KG	1/27/93		o-Chlorophenol
AAA1005	92.33189	7005723	< 1300.		UG/KG	1/27/93		4-Chlorophenylphenyl ether
AAA1005	92.33189	218019	< 1300.		UG/KG	1/27/93		Chrysene
AAA1005	?.33189	84742	< 1300.		UG/KG	1/[illegible]		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1005	92.33189	117840	< 1300.		UG/KG	1/27/93		Di-n-octyl phthalate
AAA1005	92.33189	53703	< 1300.		UG/KG	1/27/93		Dibenzo[a,h]anthracene
AAA1005	92.33189	132649	< 1300.		UG/KG	1/27/93		Dibenzofuran
AAA1005	92.33189	95501	< 1300.		UG/KG	1/27/93		o-Dichlorobenzene (1,2)
AAA1005	92.33189	541731	< 1300.		UG/KG	1/27/93		m-Dichlorobenzene (1,3)
AAA1005	92.33189	106467	< 1300.		UG/KG	1/27/93		p-Dichlorobenzene (1,4)
AAA1005	92.33189	91941	< 1300.		UG/KG	1/27/93		3,3'-Dichlorobenzidine
AAA1005	92.33189	120832	< 1300.		UG/KG	1/27/93		2,4-Dichlorophenol
AAA1005	92.33189	84662	< 1300.		UG/KG	1/27/93		Diethyl phthalate
AAA1005	92.33189	131113	< 1300.		UG/KG	1/27/93		Dimethyl phthalate
AAA1005	92.33189	105679	< 1300.		UG/KG	1/27/93		2,4-Dimethylphenol
AAA1005	92.33189	51285	< 1300.		UG/KG	1/27/93		2,4-Dinitrophenol
AAA1005	92.33189	121142	< 1300.		UG/KG	1/27/93		2,4-Dinitrotoluene
AAA1005	92.33189	606202	< 1300.		UG/KG	1/27/93		2,6-Dinitrotoluene
AAA1005	92.33189	206440	< 1300.		UG/KG	1/27/93		Fluoranthene
AAA1005	92.33189	86737	< 1300.		UG/KG	1/27/93		Fluorene
AAA1005	92.33189	118741	< 1300.		UG/KG	1/27/93		Hexachlorobenzene
AAA1005	92.33189	87683	< 1300.		UG/KG	1/27/93		Hexachlorobutadiene
AAA1005	92.33189	77474	< 1300.		UG/KG	1/27/93		Hexachlorocyclopentadiene
AAA1005	92.33189	67721	< 1300.		UG/KG	1/27/93		Hexachloroethane
AAA1005	92.33189	193395	< 1300.		UG/KG	1/27/93		Indeno[1,2,3-cd]pyrene
AAA1005	92.33189	78591	< 1300.		UG/KG	1/27/93		Isophorone
AAA1005	92.33189	534521	< 1300.		UG/KG	1/27/93		2-Methyl-4,6-dinitrophenol
AAA1005	92.33189	91576	< 1300.		UG/KG	1/27/93		2-Methylnaphthalene
AAA1005	92.33189	95487	< 1300.		UG/KG	1/27/93		2-Methylphenol
AAA1005	92.33189	106445	< 1300.		UG/KG	1/27/93		4-Methylphenol
AAA1005	92.33189	91203	< 1300.		UG/KG	1/27/93		Naphthalene
AAA1005	92.33189	88744	< 1300.		UG/KG	1/27/93		2-Nitroaniline
AAA1005	92.33189	99092	< 1300.		UG/KG	1/27/93		3-Nitroaniline
AAA1005	92.33189	100016	< 1300.		UG/KG	1/27/93		4-Nitroaniline
AAA1005	92.33189	98953	< 1300.		UG/KG	1/27/93		Nitrobenzene
AAA1005	92.33189	88755	< 1300.		UG/KG	1/27/93		2-Nitrophenol
AAA1005	92.33189	100027	< 1300.		UG/KG	1/27/93		4-Nitrophenol
AAA1005	92.33189	621647	< 1300.		UG/KG	1/27/93		N-Nitrosodi-n-propylamine
AAA1005	92.33189	62759	< 1300.		UG/KG	1/27/93		N-Nitrosodimethylamine
AAA1005	?.33189	86306	< 1300.		UG/KG	1/[illegible]		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1005	92.33189	87865	< 1300.		UG/KG	1/27/93		Pentachlorophenol
AAA1005	92.33189	85018	< 1300.		UG/KG	1/27/93		Phenanthrene
AAA1005	92.33189	108952	< 1300.		UG/KG	1/27/93		Phenol
AAA1005	92.33189	129000	< 1300.		UG/KG	1/27/93		Pyrene
AAA1005	92.33189	120821	< 1300.		UG/KG	1/27/93		1,2,4-Trichlorobenzene
AAA1005	92.33189	95954	< 1300.		UG/KG	1/27/93		2,4,5-Trichlorophenol
AAA1005	92.33189	88062	< 1300.		UG/KG	1/27/93		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.33189

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 27-Jan-1993

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M99B NOTEBOOK: R7336 PAGE: 223

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCMS ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.33190 Date Collected: 12/01/92 Date Received: 12/02/92 Date Extracted: 12/07/92 Date Analyzed: 12/11/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1006	92.33190	83329	< 330.		UG/KG	1/27/93		Acenaphthene
AAA1006	92.33190	208968	< 330.		UG/KG	1/27/93		Acenaphthylene
AAA1006	92.33190	62533	< 330.		UG/KG	1/27/93		Aniline
AAA1006	92.33190	120127	< 330.		UG/KG	1/27/93		Anthracene
AAA1006	92.33190	103333	< 330.		UG/KG	1/27/93		Azobenzene
AAA1006	92.33190	92875	< 330.		UG/KG	1/27/93		m-Benzidine
AAA1006	92.33190	56553	< 330.		UG/KG	1/27/93		Benzo[a]anthracene
AAA1006	92.33190	50328	< 330.		UG/KG	1/27/93		Benzo[a]pyrene
AAA1006	92.33190	205992	< 330.		UG/KG	1/27/93		Benzo[b]fluoranthene
AAA1006	92.33190	191242	< 330.		UG/KG	1/27/93		Benzo[g,h,i]perylene
AAA1006	92.33190	207089	< 330.		UG/KG	1/27/93		Benzo[k]fluoranthene
AAA1006	92.33190	65850	< 330.		UG/KG	1/27/93		Benzoic acid
AAA1006	92.33190	100516	< 330.		UG/KG	1/27/93		Benzyl alcohol
AAA1006	92.33190	111911	< 330.		UG/KG	1/27/93		Bis(2-chloroethoxy)methane
AAA1006	92.33190	111444	< 330.		UG/KG	1/27/93		Bis(2-chloroethyl)ether
AAA1006	92.33190	108601	< 330.		UG/KG	1/27/93		Bis(2-chloroisopropyl)ether
AAA1006	92.33190	117817	620.	186.	UG/KG	1/27/93		Bis(2-ethylhexyl)phthalate
AAA1006	92.33190	101553	< 330.		UG/KG	1/27/93		4-Bromophenylphenyl ether
AAA1006	92.33190	85687	< 330.		UG/KG	1/27/93		Butyl benzyl phthalate
AAA1006	92.33190	59507	< 330.		UG/KG	1/27/93		4-Chloro-3-methylphenol
AAA1006	92.33190	106478	< 330.		UG/KG	1/27/93		4-Chloroaniline
AAA1006	92.33190	91587	< 330.		UG/KG	1/27/93		2-Chloronaphthalene
AAA1006	92.33190	95578	< 330.		UG/KG	1/27/93		o-Chlorophenol
AAA1006	92.33190	7005723	< 330.		UG/KG	1/27/93		4-Chlorophenylphenyl ether
AAA1006	92.33190	218019	< 330.		UG/KG	1/27/93		Chrysene
AAA1006	?.33190	84742	< 330.		UG/KG	1/		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1006	92.33190	117840	< 330.		UG/KG	1/27/93		Di-n-octyl phthalate
AAA1006	92.33190	53703	< 330.		UG/KG	1/27/93		Dibenzo[a,h]anthracene
AAA1006	92.33190	132649	< 330.		UG/KG	1/27/93		Dibenzofuran
AAA1006	92.33190	95501	< 330.		UG/KG	1/27/93		o-Dichlorobenzene (1,2)
AAA1006	92.33190	541731	< 330.		UG/KG	1/27/93		m-Dichlorobenzene (1,3)
AAA1006	92.33190	106467	< 330.		UG/KG	1/27/93		p-Dichlorobenzene (1,4)
AAA1006	92.33190	91941	< 330.		UG/KG	1/27/93		3,3'-Dichlorobenzidine
AAA1006	92.33190	120832	< 330.		UG/KG	1/27/93		2,4-Dichlorophenol
AAA1006	92.33190	84662	< 330.		UG/KG	1/27/93		Diethyl phthalate
AAA1006	92.33190	131113	< 330.		UG/KG	1/27/93		Dimethyl phthalate
AAA1006	92.33190	105679	< 330.		UG/KG	1/27/93		2,4-Dimethylphenol
AAA1006	92.33190	51285	< 330.		UG/KG	1/27/93		2,4-Dinitrophenol
AAA1006	92.33190	121142	< 330.		UG/KG	1/27/93		2,4-Dinitrotoluene
AAA1006	92.33190	606202	< 330.		UG/KG	1/27/93		2,6-Dinitrotoluene
AAA1006	92.33190	206440	< 330.		UG/KG	1/27/93		Fluoranthene
AAA1006	92.33190	86737	< 330.		UG/KG	1/27/93		Fluorene
AAA1006	92.33190	118741	< 330.		UG/KG	1/27/93		Hexachlorobenzene
AAA1006	92.33190	87683	< 330.		UG/KG	1/27/93		Hexachlorobutadiene
AAA1006	92.33190	77474	< 330.		UG/KG	1/27/93		Hexachlorocyclopentadiene
AAA1006	92.33190	67721	< 330.		UG/KG	1/27/93		Hexachloroethane
AAA1006	92.33190	193395	< 330.		UG/KG	1/27/93		Indeno[1,2,3-cd]pyrene
AAA1006	92.33190	78591	< 330.		UG/KG	1/27/93		Isophorone
AAA1006	92.33190	534521	< 330.		UG/KG	1/27/93		2-Methyl-4,6-dinitrophenol
AAA1006	92.33190	91576	< 330.		UG/KG	1/27/93		2-Methylnaphthalene
AAA1006	92.33190	95487	< 330.		UG/KG	1/27/93		2-Methylphenol
AAA1006	92.33190	106445	< 330.		UG/KG	1/27/93		4-Methylphenol
AAA1006	92.33190	91203	< 330.		UG/KG	1/27/93		Naphthalene
AAA1006	92.33190	88744	< 330.		UG/KG	1/27/93		2-Nitroaniline
AAA1006	92.33190	99092	< 330.		UG/KG	1/27/93		3-Nitroaniline
AAA1006	92.33190	100016	< 330.		UG/KG	1/27/93		4-Nitroaniline
AAA1006	92.33190	98953	< 330.		UG/KG	1/27/93		Nitrobenzene
AAA1006	92.33190	88755	< 330.		UG/KG	1/27/93		2-Nitrophenol
AAA1006	92.33190	100027	< 330.		UG/KG	1/27/93		4-Nitrophenol
AAA1006	92.33190	621647	< 330.		UG/KG	1/27/93		N-Nitrosodi-n-propylamine
AAA1006	92.33190	62759	< 330.		UG/KG	1/27/93		N-Nitrosodimethylamine
AAA1006	?.33190	86306	< 330.		UG/KG	1/		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1006	92.33190	87865	< 330.		UG/KG	1/27/93		Pentachlorophenol
AAA1006	92.33190	85018	< 330.		UG/KG	1/27/93		Phenanthrene
AAA1006	92.33190	108952	< 330.		UG/KG	1/27/93		Phenol
AAA1006	92.33190	129000	< 330.		UG/KG	1/27/93		Pyrene
AAA1006	92.33190	120821	< 330.		UG/KG	1/27/93		1,2,4-Trichlorobenzene
AAA1006	92.33190	95954	< 330.		UG/KG	1/27/93		2,4,5-Trichlorophenol
AAA1006	92.33190	88062	< 330.		UG/KG	1/27/93		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.33190

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 27-Jan-1993

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M99B NOTEBOOK: R7336 PAGE: 223

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCMS ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.33191 Date Collected: 12/01/92 Date Received: 12/02/92 Date Extracted: 12/07/92 Date Analyzed: 1/06/93

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1007	92.33191	83329	< 1300.		UG/KG	1/27/93		Acenaphthene
AAA1007	92.33191	208968	< 1300.		UG/KG	1/27/93		Acenaphthylene
AAA1007	92.33191	62533	< 1300.		UG/KG	1/27/93		Aniline
AAA1007	92.33191	120127	< 1300.		UG/KG	1/27/93		Anthracene
AAA1007	92.33191	103333	< 1300.		UG/KG	1/27/93		Azobenzene
AAA1007	92.33191	92875	< 1300.		UG/KG	1/27/93		m-Benzidine
AAA1007	92.33191	56553	< 1300.		UG/KG	1/27/93		Benzo[a]anthracene
AAA1007	92.33191	50328	< 1300.		UG/KG	1/27/93		Benzo[a]pyrene
AAA1007	92.33191	205992	< 1300.		UG/KG	1/27/93		Benzo[b]fluoranthene
AAA1007	92.33191	191242	< 1300.		UG/KG	1/27/93		Benzo[g,h,i]perylene
AAA1007	92.33191	207089	< 1300.		UG/KG	1/27/93		Benzo[k]fluoranthene
AAA1007	92.33191	65850	< 1300.		UG/KG	1/27/93		Benzoic acid
AAA1007	92.33191	100516	< 1300.		UG/KG	1/27/93		Benzyl alcohol
AAA1007	92.33191	111911	< 1300.		UG/KG	1/27/93		Bis(2-chloroethoxy)methane
AAA1007	92.33191	111444	< 1300.		UG/KG	1/27/93		Bis(2-chloroethyl)ether
AAA1007	92.33191	108601	< 1300.		UG/KG	1/27/93		Bis(2-chloroisopropyl)ether
AAA1007	92.33191	117817	< 1300.		UG/KG	1/27/93		Bis(2-ethylhexyl)phthalate
AAA1007	92.33191	101553	< 1300.		UG/KG	1/27/93		4-Bromophenylphenyl ether
AAA1007	92.33191	85687	< 1300.		UG/KG	1/27/93		Butyl benzyl phthalate
AAA1007	92.33191	59507	< 1300.		UG/KG	1/27/93		4-Chloro-3-methylphenol
AAA1007	92.33191	106478	< 1300.		UG/KG	1/27/93		4-Chloroaniline
AAA1007	92.33191	91587	< 1300.		UG/KG	1/27/93		2-Chloronaphthalene
AAA1007	92.33191	95578	< 1300.		UG/KG	1/27/93		o-Chlorophenol
AAA1007	92.33191	7005723	< 1300.		UG/KG	1/27/93		4-Chlorophenylphenyl ether
AAA1007	92.33191	218019	< 1300.		UG/KG	1/27/93		Chrysene
AAA1007	?.33191	84742	< 1300.		UG/KG	1/		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1007	92.33191	117840	< 1300.		UG/KG	1/27/93		Di-n-octyl phthalate
AAA1007	92.33191	53703	< 1300.		UG/KG	1/27/93		Dibenzo[a,h]anthracene
AAA1007	92.33191	132649	< 1300.		UG/KG	1/27/93		Dibenzofuran
AAA1007	92.33191	95501	< 1300.		UG/KG	1/27/93		o-Dichlorobenzene (1,2)
AAA1007	92.33191	541731	< 1300.		UG/KG	1/27/93		m-Dichlorobenzene (1,3)
AAA1007	92.33191	106467	< 1300.		UG/KG	1/27/93		p-Dichlorobenzene (1,4)
AAA1007	92.33191	91941	< 1300.		UG/KG	1/27/93		3,3'-Dichlorobenzidine
AAA1007	92.33191	120832	< 1300.		UG/KG	1/27/93		2,4-Dichlorophenol
AAA1007	92.33191	84662	< 1300.		UG/KG	1/27/93		Diethyl phthalate
AAA1007	92.33191	131113	< 1300.		UG/KG	1/27/93		Dimethyl phthalate
AAA1007	92.33191	105679	< 1300.		UG/KG	1/27/93		2,4-Dimethylphenol
AAA1007	92.33191	51285	< 1300.		UG/KG	1/27/93		2,4-Dinitrophenol
AAA1007	92.33191	121142	< 1300.		UG/KG	1/27/93		2,4-Dinitrotoluene
AAA1007	92.33191	606202	< 1300.		UG/KG	1/27/93		2,6-Dinitrotoluene
AAA1007	92.33191	206440	< 1300.		UG/KG	1/27/93		Fluoranthene
AAA1007	92.33191	86737	< 1300.		UG/KG	1/27/93		Fluorene
AAA1007	92.33191	118741	< 1300.		UG/KG	1/27/93		Hexachlorobenzene
AAA1007	92.33191	87683	< 1300.		UG/KG	1/27/93		Hexachlorobutadiene
AAA1007	92.33191	77474	< 1300.		UG/KG	1/27/93		Hexachlorocyclopentadiene
AAA1007	92.33191	67721	< 1300.		UG/KG	1/27/93		Hexachloroethane
AAA1007	92.33191	193395	< 1300.		UG/KG	1/27/93		Indeno[1,2,3-cd]pyrene
AAA1007	92.33191	78591	< 1300.		UG/KG	1/27/93		Isophorone
AAA1007	92.33191	534521	< 1300.		UG/KG	1/27/93		2-Methyl-4,6-dinitrophenol
AAA1007	92.33191	91576	< 1300.		UG/KG	1/27/93		2-Methylnaphthalene
AAA1007	92.33191	95487	< 1300.		UG/KG	1/27/93		2-Methylphenol
AAA1007	92.33191	106445	< 1300.		UG/KG	1/27/93		4-Methylphenol
AAA1007	92.33191	91203	< 1300.		UG/KG	1/27/93		Naphthalene
AAA1007	92.33191	88744	< 1300.		UG/KG	1/27/93		2-Nitroaniline
AAA1007	92.33191	99092	< 1300.		UG/KG	1/27/93		3-Nitroaniline
AAA1007	92.33191	100016	< 1300.		UG/KG	1/27/93		4-Nitroaniline
AAA1007	92.33191	98953	< 1300.		UG/KG	1/27/93		Nitrobenzene
AAA1007	92.33191	88755	< 1300.		UG/KG	1/27/93		2-Nitrophenol
AAA1007	92.33191	100027	< 1300.		UG/KG	1/27/93		4-Nitrophenol
AAA1007	92.33191	621647	< 1300.		UG/KG	1/27/93		N-Nitrosodi-n-propylamine
AAA1007	92.33191	62759	< 1300.		UG/KG	1/27/93		N-Nitrosodimethylamine
AAA1007	[illegible].33191	86306	< 1300.		UG/KG	1/[illegible]		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1007	92.33191	87865	< 1300.		UG/KG	1/27/93		Pentachlorophenol
AAA1007	92.33191	85018	< 1300.		UG/KG	1/27/93		Phenanthrene
AAA1007	92.33191	108952	< 1300.		UG/KG	1/27/93		Phenol
AAA1007	92.33191	129000	< 1300.		UG/KG	1/27/93		Pyrene
AAA1007	92.33191	120821	< 1300.		UG/KG	1/27/93		1,2,4-Trichlorobenzene
AAA1007	92.33191	95954	< 1300.		UG/KG	1/27/93		2,4,5-Trichlorophenol
AAA1007	92.33191	88062	< 1300.		UG/KG	1/27/93		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.33191

none

********** EM-9 QUALITY ASSURANCE REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 27-Jan-1993

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M99B NOTEBOOK: R7336 PAGE: 223

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCMS ANALYTICAL PROCEDURE: EPA SW-846 3RD

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

___/ Only qualitative data requested

____ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within EM-9

********** EM-9 QUALITY ASSURANCE REPORT **********

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results, Sample # 92.33198 Date Collected: 12/02/92 Date Received: 12/02/92 Date Extracted: 12/07/92 Date Analyzed: 12/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.33198	83329	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Acenaphthene
00.20227	92.33198	208968	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Acenaphthylene
00.20227	92.33198	62533	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Aniline
00.20227	92.33198	120127	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Anthracene
00.20227	92.33198	103333	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Azobenzene
00.20227	92.33198	92875	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	m-Benzidine
00.20227	92.33198	56553	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Benzo[a]anthracene
00.20227	92.33198	50328	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Benzo[a]pyrene
00.20227	92.33198	205992	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Benzo[b]fluoranthene
00.20227	92.33198	191242	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Benzo[g,h,i]perylene
00.20227	92.33198	207089	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Benzo[k]fluoranthene
00.20227	92.33198	65850	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Benzoic acid
00.20227	92.33198	100516	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Benzyl alcohol
00.20227	92.33198	111911	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Bis(2-chloroethoxy)methane
00.20227	92.33198	111444	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Bis(2-chloroethyl)ether
00.20227	92.33198	108601	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Bis(2-chloroisopropyl)ether
00.20227	92.33198	117817	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
00.20227	92.33198	101553	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	4-Bromophenylphenyl ether
00.20227	92.33198	85687	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Butyl benzyl phthalate
00.20227	92.33198	59507	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	4-Chloro-3-methylphenol
00.20227	92.33198	106478	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	4-Chloroaniline

********** EM-9 QUALITY ASSURANCE REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.33198	91587	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	2-Chloronaphthalene
00.20227	92.33198	95578	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	o-Chlorophenol
00.20227	92.33198	7005723	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	4-Chlorophenylphenyl ether
00.20227	92.33198	218019	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Chrysene
00.20227	92.33198	84742	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Di-n-butyl phthalate
00.20227	92.33198	117840	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Di-n-octyl phthalate
00.20227	92.33198	53703	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Dibenzo[a,h]anthracene
00.20227	92.33198	132649	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Dibenzofuran
00.20227	92.33198	95501	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20227	92.33198	541731	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20227	92.33198	106467	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20227	92.33198	91941	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	3,3'-Dichlorobenzidine
00.20227	92.33198	120832	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	2,4-Dichlorophenol
00.20227	92.33198	84662	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Diethyl phthalate
00.20227	92.33198	131113	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Dimethyl phthalate
00.20227	92.33198	105679	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	2,4-Dimethylphenol
00.20227	92.33198	51285	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	2,4-Dinitrophenol
00.20227	92.33198	121142	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	2,4-Dinitrotoluene
00.20227	92.33198	606202	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	2,6-Dinitrotoluene
00.20227	92.33198	206440	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Fluoranthene
00.20227	92.33198	86737	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Fluorene
00.20227	92.33198	118741	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Hexachlorobenzene
00.20227	92.33198	87683	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Hexachlorobutadiene
00.20227	92.33198	77474	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Hexachlorocyclopentadiene
00.20227	92.33198	67721	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Hexachloroethane
00.20227	92.33198	193395	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
00.20227	92.33198	78591	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Isophorone
00.20227	92.33198	534521	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
00.20227	92.33198	91576	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	2-Methylnaphthalene
00.20227	92.33198	95487	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	2-Methylphenol
00.20227	92.33198	106445	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	4-Methylphenol
00.20227	92.33198	91203	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Naphthalene
00.20227	92.33198	88744	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	2-Nitroaniline
00.20227	92.33198	99092	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	3-Nitroaniline
00.20227	92.33198	100016	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	4-Nitroaniline
00.20227	92.33198	98953	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Nitrobenzene

********** EM-9 QUALITY ASSURANCE REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.33198	88755	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	2-Nitrophenol
00.20227	92.33198	100027	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	4-Nitrophenol
00.20227	92.33198	621647	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	N-Nitrosodi-n-propylamine
00.20227	92.33198	62759	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	N-Nitrosodimethylamine
00.20227	92.33198	86306	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	N-Nitrosodiphenylamine
00.20227	92.33198	87865	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Pentachlorophenol
00.20227	92.33198	85018	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Phenanthrene
00.20227	92.33198	108952	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Phenol
00.20227	92.33198	129000	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	Pyrene
00.20227	92.33198	120821	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	1,2,4-Trichlorobenzene
00.20227	92.33198	95954	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	2,4,5-Trichlorophenol
00.20227	92.33198	88062	< 330.		UG/KG	0.0		1/27/93	UNDER CONTROL	2,4,6-Trichlorophenol

Blank Spike Results: none

Blank Spike Duplicate Results: none

********** EM-9 QUALITY ASSURANCE REPORT **********

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

Blind QC Results, Sample # 92.31104 Date Collected: 12/02/92 Date Received: 12/02/92 Date Extracted: 12/07/92 Date Analyzed: 12/10/92

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
92.31104	83329	1.1	0.33	MG/KG	1.3	0.1	12/15/92	UNDER CONTROL	Acenaphthene
92.31104	208968	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Acenaphthylene
92.31104	62533	< 0.33		MG/KG	1.5	0.2	12/15/92	OUT OF CONTROL	Aniline
92.31104	120127	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Anthracene
92.31104	103333	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Azobenzene
92.31104	92875	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	m-Benzidine
92.31104	56553	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Benzo[a]anthracene
92.31104	50328	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Benzo[a]pyrene
92.31104	205992	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Benzo[b]fluoranthene
92.31104	191242	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Benzo[g,h,i]perylene
92.31104	207089	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Benzo[k]fluoranthene
92.31104	65850	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Benzoic acid
92.31104	100516	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Benzyl alcohol
92.31104	111911	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Bis(2-chloroethoxy)methane
92.31104	111444	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Bis(2-chloroethyl)ether
92.31104	108601	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Bis(2-chloroisopropyl)ether
92.31104	117817	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
92.31104	101553	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	4-Bromophenylphenyl ether
92.31104	85687	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Butyl benzyl phthalate
92.31104	59507	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	4-Chloro-3-methylphenol
92.31104	106478	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	4-Chloroaniline
92.31104	91587	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	2-Chloronaphthalene
92.31104	95578	1.1	0.33	MG/KG	1.4	0.1	12/15/92	UNDER CONTROL	o-Chlorophenol
92.31104	7005723	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	4-Chlorophenylphenyl ether
92.31104	218019	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Chrysene
92.31104	42	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Di-n-butyl phthalate

92.31104	117840	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Di-n-octyl phthalate
92.31104	53703	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Dibenzo[a,h]anthracene
92.31104	132649	1.	0.3	MG/KG	1.2	0.1	12/15/92	UNDER CONTROL	Dibenzofuran
92.31104	95501	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	o-Dichlorobenzene (1,2)
92.31104	541731	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	m-Dichlorobenzene (1,3)
92.31104	106467	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	p-Dichlorobenzene (1,4)
92.31104	91941	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	3,3'-Dichlorobenzidine
92.31104	120832	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	2,4-Dichlorophenol
92.31104	84662	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Diethyl phthalate
92.31104	131113	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Dimethyl phthalate
92.31104	105679	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	2,4-Dimethylphenol
92.31104	51285	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	2,4-Dinitrophenol
92.31104	121142	1.1	0.33	MG/KG	1.8	0.2	12/15/92	UNDER CONTROL	2,4-Dinitrotoluene
92.31104	606202	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	2,6-Dinitrotoluene
92.31104	206440	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Fluoranthene
92.31104	86737	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Fluorene
92.31104	118741	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Hexachlorobenzene
92.31104	87683	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Hexachlorobutadiene
92.31104	77474	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Hexachlorocyclopentadiene
92.31104	67721	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Hexachloroethane
92.31104	193395	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
92.31104	78591	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Isophorone
92.31104	534521	0.66	0.198	MG/KG	1.3	0.1	12/15/92	WARNING 2-3 SIG	2-Methyl-4,6-dinitrophenol
92.31104	91576	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	2-Methylnaphthalene
92.31104	95487	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	2-Methylphenol
92.31104	106445	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	4-Methylphenol
92.31104	91203	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Naphthalene
92.31104	88744	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	2-Nitroaniline
92.31104	99092	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	3-Nitroaniline
92.31104	100016	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	4-Nitroaniline
92.31104	98953	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Nitrobenzene
92.31104	88755	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	2-Nitrophenol
92.31104	100027	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	4-Nitrophenol
92.31104	621647	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	N-Nitrosodi-n-propylamine
92.31104	62759	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	N-Nitrosodimethylamine
92.31104	86306	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	N-Nitrosodiphenylamine
92.31104	87865	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Pentachlorophenol
92.31104	85018	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Phenanthrene
92.31104	108952	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Phenol
92.31104	129000	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	Pyrene
92.31104	120821	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	1,2,4-Trichlorobenzene
92.31104	95954	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	2,4,5-Trichlorophenol
92.31104	88062	< 0.33		MG/KG	0.0		12/15/92	UNDER CONTROL	2,4,6-Trichlorophenol

Blind QC Results, Sample # 92.33197 Date Collected: 12/02/92 Date Received: 12/02/92 Date Extracted: 12/07/92 Date Analyzed: 12/11/92

92.33197	83329	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Acenaphthene
92.33197	208968	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Acenaphthylene
92.33197	62533	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Aniline
92.33197	120127	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Anthracene
92.33197	103333	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Azobenzene
92.33197	92875	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	m-Benzidine
92.33197	56553	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Benzo[a]anthracene
92.33197	50328	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Benzo[a]pyrene
92.33197	205992	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Benzo[b]fluoranthene
92.33197	191242	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Benzo[g,h,i]perylene
92.33197	207089	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Benzo[k]fluoranthene
92.33197	65850	< 0.33		MG/KG	0.98	0.05	1/27/93	UNDER CONTROL	Benzoic acid
92.33197	100516	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Benzyl alcohol
92.33197	111911	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Bis(2-chloroethoxy)methane
92.33197	111444	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Bis(2-chloroethyl)ether
92.33197	108601	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Bis(2-chloroisopropyl)ether
92.33197	117817	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
92.33197	101553	0.73	0.219	MG/KG	1.02	0.05	1/27/93	UNDER CONTROL	4-Bromophenylphenyl ether
92.33197	85687	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Butyl benzyl phthalate
92.33197	59507	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	4-Chloro-3-methylphenol
92.33197	106478	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	4-Chloroaniline
92.33197	91587	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	2-Chloronaphthalene
92.33197	95578	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	o-Chlorophenol
92.33197	7005723	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	4-Chlorophenylphenyl ether
92.33197	218019	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Chrysene
92.33197	84742	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Di-n-butyl phthalate
92.33197	117840	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Di-n-octyl phthalate
92.33197	53703	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Dibenzo[a,h]anthracene
92.33197	132649	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Dibenzofuran
92.33197	95501	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	o-Dichlorobenzene (1,2)
92.33197	541731	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	m-Dichlorobenzene (1,3)
92.33197	106467	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	p-Dichlorobenzene (1,4)
92.33197	91941	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	3,3'-Dichlorobenzidine
92.33197	120832	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	2,4-Dichlorophenol
92.33197	84662	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Diethyl phthalate
92.33197	131113	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Dimethyl phthalate
92.33197	105679	0.45	0.135	MG/KG	0.96	0.05	1/27/93	OUT OF CONTROL	2,4-Dimethylphenol
92.33197	51285	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	2,4-Dinitrophenol
92.33197	121142	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	2,4-Dinitrotoluene
92.33197	606202	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	2,6-Dinitrotoluene
92.33197	206440	0.91	0.273	MG/KG	1.22	0.06	1/27/93	UNDER CONTROL	Fluoranthene
92.33197	86737	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Fluorene
92.33197	8741	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Hexachlorobenzene

92.33197	87683	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Hexachlorobutadiene
92.33197	77474	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Hexachlorocyclopentadiene
92.33197	67721	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Hexachloroethane
92.33197	193395	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
92.33197	78591	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Isophorone
92.33197	534521	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
92.33197	91576	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	2-Methylnaphthalene
92.33197	95487	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	2-Methylphenol
92.33197	106445	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	4-Methylphenol
92.33197	91203	0.64	0.192	MG/KG	1.05	0.05	1/27/93	WARNING 2-3 SIG	Naphthalene
92.33197	88744	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	2-Nitroaniline
92.33197	99092	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	3-Nitroaniline
92.33197	100016	0.36	0.108	MG/KG	1.	0.05	1/27/93	OUT OF CONTROL	4-Nitroaniline
92.33197	98953	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Nitrobenzene
92.33197	88755	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	2-Nitrophenol
92.33197	100027	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	4-Nitrophenol
92.33197	621647	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	N-Nitrosodi-n-propylamine
92.33197	62759	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	N-Nitrosodimethylamine
92.33197	86306	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	N-Nitrosodiphenylamine
92.33197	87865	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Pentachlorophenol
92.33197	85018	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Phenanthrene
92.33197	108952	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Phenol
92.33197	129000	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	Pyrene
92.33197	120821	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	1,2,4-Trichlorobenzene
92.33197	95954	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	2,4,5-Trichlorophenol
92.33197	88062	< 0.33		MG/KG	0.0		1/27/93	UNDER CONTROL	2,4,6-Trichlorophenol

********** EM-9 QUALITY ASSURANCE REPORT **********

SURROGATE RESULTS FOR EPA SEMIVOLATILES

Surrogate 1 = 2-Fluorophenol (CAS # = 367124)
Surrogate 2 = Phenol-d5 (CAS # = 4165622)
Surrogate 3 = Nitrobenzene-d5 (CAS # = 4165600)
Surrogate 4 = 2-Fluorobiphenyl (CAS # = 321608)
Surrogate 5 = 2,4,6-Tribromophenol (CAS # = 118796)
Surrogate 6 = p-Terphenyl-d14 (CAS # =)

SAMPLE NUMBER	UNITS	Surrogate 1	Surrogate 2	Surrogate 3	Surrogate 4	Surrogate 5	Surrogate 6	COMPLETION DATE
92.31085	%	49.54	62.81	59.64	70.64	86.94	91.36	27-Jan-1993
92.31085	%	62.5	68.21	63.46	69.88	84.58	82.78	27-Jan-1993
92.31104	%	55.48	58.63	60.12	66.62	82.41	71.2	15-Dec-1992
92.33183	%	68.38	76.38	70.	83.	90.14	82.	27-Jan-1993
92.33184	%	22.08	18.16	42.4	235.36		143.04	27-Jan-1993
92.33185	%	43.84	80.96	62.88	37.76		140.48	27-Jan-1993
92.33186	%	44.16	16.32	52.16	77.44	83.6		27-Jan-1993
92.33187	%	32.72	6.84	49.92	75.6	25.84		27-Jan-1993
92.33188	%	50.34	61.05	52.12	65.08	79.07	78.5	27-Jan-1993
92.33189	%	19.6	28.28	30.08	43.36	48.56	78.32	27-Jan-1993
92.33190	%	65.22	80.49	72.08	88.32	136.59	69.08	27-Jan-1993
92.33191	%	13.08	26.52	41.2	56.4	24.8	80.56	27-Jan-1993
92.33197	%	60.01	73.06	64.16	72.9	76.58	83.34	27-Jan-1993
92.33198	%	48.63	55.25	52.46	57.48	60.45	78.12	27-Jan-1993
EPA Limits:								
Water	%	21 - 100	10 - 94	35 - 114	43 - 116	10 - 123	33 - 141	
Soil	%	25 - 121	24 - 113	23 - 120	30 - 115	19 - 122	18 - 137	

********** EM-9 QUALITY ASSURANCE REPORT **********

REPORT NUMBER: 16902

Analyst	Reviewer	Section Leader	QA Officer
1/27/93	1/27/93	2/3/93	2/4/93
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

PCB ANALYSES

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAK on 28-Jan-1993

POLYCHLORINATED BIPHENYLS

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: JEFFREY ROBERTS PROGRAM CODE: M99B NOTEBOOK: EM90001 PAGE: 071

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE:

SUMMARY of TOTAL PCB's for customer samples on this report

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA0999	92.33183	1336363	< 0.06		UG/G	1/06/93		Mixed-Aroclor
AAA1000	92.33184	1336363	0.11	0.05	UG/G	1/06/93		Mixed-Aroclor
AAA1001	92.33185	1336363	0.12	0.05	UG/G	1/06/93		Mixed-Aroclor
AAA1002	92.33186	1336363	0.24	0.12	UG/G	1/06/93		Mixed-Aroclor
AAA1003	92.33187	1336363	0.15	0.07	UG/G	1/06/93		Mixed-Aroclor
AAA1004	92.33188	1336363	< 0.06		UG/G	1/06/93		Mixed-Aroclor
AAA1005	92.33189	1336363	< 0.06		UG/G	1/06/93		Mixed-Aroclor
AAA1006	92.33190	1336363	0.58	0.3	UG/G	1/06/93		Mixed-Aroclor
AAA1007	92.33191	1336363	< 0.06		UG/G	1/06/93		Mixed-Aroclor

DETAILED PCB DATA for customer samples on this report

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA0999	92.33183	1336363	< 0.06		UG/G	1/06/93		Mixed-Aroclor
AAA0999	92.33183	53469219	< 0.06		UG/G	1/06/93		Aroclor 1242
AAA0999	92.33183	11097691	< 0.06		UG/G	1/06/93		Aroclor 1254
AAA0999	92.33183	11096825	< 0.06		UG/G	1/06/93		Aroclor 1260
AAA1000	92.33184	1336363	0.11	0.05	UG/G	1/06/93		Mixed-Aroclor
AAA1000	92.33184	53469219	0.11	0.05	UG/G	1/06/93		Aroclor 1242

AAA1	92.33184	11097691	< 0.06		UG/G	1/06/93	Aroclor 1254
AAA1000	92.33184	11096825	< 0.06		UG/G	1/06/93	Aroclor 1260
AAA1001	92.33185	1336363	0.12	0.05	UG/G	1/06/93	Mixed-Aroclor
AAA1001	92.33185	53469219	0.12	0.05	UG/G	1/06/93	Aroclor 1242
AAA1001	92.33185	11097691	< 0.06		UG/G	1/06/93	Aroclor 1254
AAA1001	92.33185	11096825	< 0.06		UG/G	1/06/93	Aroclor 1260
AAA1002	92.33186	1336363	0.24	0.12	UG/G	1/06/93	Mixed-Aroclor
AAA1002	92.33186	53469219	0.24	0.12	UG/G	1/06/93	Aroclor 1242
AAA1002	92.33186	11097691	< 0.06		UG/G	1/06/93	Aroclor 1254
AAA1002	92.33186	11096825	< 0.06		UG/G	1/06/93	Aroclor 1260
AAA1003	92.33187	1336363	0.15	0.07	UG/G	1/06/93	Mixed-Aroclor
AAA1003	92.33187	53469219	0.15	0.07	UG/G	1/06/93	Aroclor 1242
AAA1003	92.33187	11097691	< 0.06		UG/G	1/06/93	Aroclor 1254
AAA1003	92.33187	11096825	< 0.06		UG/G	1/06/93	Aroclor 1260
AAA1004	92.33188	1336363	< 0.06		UG/G	1/06/93	Mixed-Aroclor
AAA1004	92.33188	53469219	< 0.06		UG/G	1/06/93	Aroclor 1242
AAA1004	92.33188	11097691	< 0.06		UG/G	1/06/93	Aroclor 1254
AAA1004	92.33188	11096825	< 0.06		UG/G	1/06/93	Aroclor 1260
AAA1005	92.33189	1336363	< 0.06		UG/G	1/06/93	Mixed-Aroclor
AAA1005	92.33189	53469219	< 0.06		UG/G	1/06/93	Aroclor 1242
AAA1005	92.33189	11097691	< 0.06		UG/G	1/06/93	Aroclor 1254
AAA1005	92.33189	11096825	< 0.06		UG/G	1/06/93	Aroclor 1260
AAA1006	92.33190	1336363	0.58	0.3	UG/G	1/06/93	Mixed-Aroclor
AAA1006	92.33190	53469219	< 0.06		UG/G	1/06/93	Aroclor 1242
AAA1006	92.33190	11097691	< 0.06		UG/G	1/06/93	Aroclor 1254
AAA1006	92.33190	11096825	0.58	0.3	UG/G	1/06/93	Aroclor 1260
AAA1007	92.33191	1336363	< 0.06		UG/G	1/06/93	Mixed-Aroclor
AAA1007	92.33191	53469219	< 0.06		UG/G	1/06/93	Aroclor 1242
AAA1007	92.33191	11097691	< 0.06		UG/G	1/06/93	Aroclor 1254
AAA1007	92.33191	11096825	< 0.06		UG/G	1/06/93	Aroclor 1260

********** EM-9 QUALITY ASSURANCE REPORT **********

POLYCHLORINATED BIPHENYLS Prepared by: LAK on 28-Jan-1993

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: JEFFREY ROBERTS PROGRAM CODE: M99B NOTEBOOK: EM90001 PAGE: 071

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE:

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within EM-9

********** EM-9 QUALITY ASSURANCE REPORT **********

********** EM-9 QUALITY ASSURANCE REPORT **********

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
92.33199	1336363	38.	17.	UG/G	25.	2.	1/06/93	UNDER CONTROL	Mixed-Aroclor
92.33199	53469219	< 6.25		UG/G	0.0		1/06/93	UNDER CONTROL	Aroclor 1242
92.33199	11097691	38.	17.	UG/G	25.	2.	1/06/93	UNDER CONTROL	Aroclor 1254
92.33199	11096825	< 6.25		UG/G	0.0		1/06/93	UNDER CONTROL	Aroclor 1260

REPORT NUMBER: 16918

Analyst	Reviewer	Section Leader	QA Officer
Diane Z. Noveroske	Laura Kelly	[illegible]	mag
1/29/93	1/28/93	2/3/93	2/4/93
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

HSL METALS ANALYSES

********** EM-9 ANALYTICAL REPORT **********

Prepared by: BHEMBERGER on 25-Feb-1993

ANALYSIS: AG REQUEST NUMBER: 13904 MATRIX: SS ANALYST: BARBARA HEMBERGER PROGRAM CODE: M99B

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: FAA ANALYTICAL PROCEDURE: 272.1 NOTEBOOK: R7719 PAGE:

CUSTOMER SAMPLES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AAA0999	92.33183	2.2	1.	UG/G	2/25/93	
AAA1000	92.33184	< 1.		UG/G	2/25/93	
AAA1001	92.33185	< 1.		UG/G	2/25/93	
AAA1002	92.33186	< 1.		UG/G	2/25/93	
AAA1003	92.33187	< 1.		UG/G	2/25/93	
AAA1004	92.33188	< 1.		UG/G	2/25/93	
AAA1005	92.33189	< 1.		UG/G	2/25/93	
AAA1006	92.33190	< 1.		UG/G	2/25/93	
AAA1007	92.33191	< 1.		UG/G	2/25/93	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AAA1007	92.33191	1.7	1.	UG/G	2/25/93	

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER SAMPLE MATRIX SPIKES :

CUSTOMER NUMBER	SAMPLE NUMBER	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
AAA1007	92.33191	100.	91.	UG/L	2/25/93	

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: BHEMBERGER on 25-Feb-1993

REQUEST NUMBER: 13904 MATRIX: SS ANALYST: BARBARA HEMBERGER PROGRAM CODE: M99B

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.24370	464.	46.	UG/L	481.	21.	2/25/93	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.33201	543.	54.	UG/L	562.	24.	2/25/93	UNDER CONTROL

REPORT NUMBER: 17390

Analyst	Reviewer	Section Leader	QA Officer
2/26/93	2/26/93	2/26/93	3/1/93
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

REPORT NUMBER: 17149

********** EM-9 ANALYTICAL REPORT **********

Prepared by: CB on 10-Feb-1993

REQUEST NUMBER: 13904 MATRIX: SS ANALYST: JANET MORGAN PROGRAM CODE: M99B

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: ICPES ANALYTICAL PROCEDURE: 6010 NOTEBOOK: 10523 PAGE: 91

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AAA0999	92.33183	BA	143.	29.	UG/G	2/09/93	
AAA0999	92.33183	BE	3.4	0.7	UG/G	2/09/93	
AAA0999	92.33183	CD	< 0.8		UG/G	2/09/93	
AAA0999	92.33183	CR	3.9	0.8	UG/G	2/09/93	
AAA0999	92.33183	NI	3.9	0.8	UG/G	2/09/93	
AAA0999	92.33183	PB	34.	7.	UG/G	2/09/93	
AAA0999	92.33183	SB	< 10.		UG/G	2/09/93	
AAA1000	92.33184	BA	153.	31.	UG/G	2/09/93	
AAA1000	92.33184	BE	2.9	0.6	UG/G	2/09/93	
AAA1000	92.33184	CD	< 0.7		UG/G	2/09/93	
AAA1000	92.33184	CR	3.	0.6	UG/G	2/09/93	
AAA1000	92.33184	NI	1.9	1.7	UG/G	2/09/93	
AAA1000	92.33184	PB	29.	6.	UG/G	2/09/93	
AAA1000	92.33184	SB	< 10.		UG/G	2/09/93	
AAA1001	92.33185	BA	170.	34.	UG/G	2/09/93	
AAA1001	92.33185	BE	2.8	0.6	UG/G	2/09/93	
AAA1001	92.33185	CD	< 0.6		UG/G	2/09/93	
AAA1001	92.33185	CR	3.5	0.7	UG/G	2/09/93	
AAA1001	92.33185	NI	2.7	1.8	UG/G	2/09/93	
AAA1001	92.33185	PB	29.	6.	UG/G	2/09/93	
AAA1001	92.33185	SB	< 10.		UG/G	2/09/93	
AAA1002	92.33186	BA	146.	29.	UG/G	2/09/93	
AAA1002	92.33186	BE	2.8	1.	UG/G	2/09/93	
AAA1002	92.33186	CD	< 0.6		UG/G	2/09/93	
AAA1002	92.33186	CR	3.5	0.7	UG/G	2/09/93	
AAA1002	92.33186	NI	2.3	1.8	UG/G	2/09/93	
AAA1002	92.33186	PB	30.	6.	UG/G	2/09/93	
AAA1002	92.33186	SB	< 10.		UG/G	2/09/93	
AAA1003	92.33187	BA	197.	39.	UG/G	2/09/93	
AAA1003	92.33187	BE	2.6	0.5	UG/G	2/09/93	
AAA1003	92.33187	CD	< 0.6		UG/G	2/09/93	
AAA1003	92.33187	CR	4.7	0.9	UG/G	2/09/93	
AAA1003	92.33187	NI	3.	2.	UG/G	2/09/93	
AAA1003	92.33187	PB	30.	6.	UG/G	2/09/93	
AAA1003	92.33187	SB	< 10.		UG/G	2/09/93	
AAA1004	92.33188	BA	211.	42.	UG/G	2/09/93	
AAA1004	92.33188	BE	2.8	0.6	UG/G	2/09/93	

AAA1004	92.33188	CD	< 0.6		UG/G	2/09/93
AAA1004	92.33188	CR	7.1	1.4	UG/G	2/09/93
AAA1004	92.33188	NI	5.2	1.	UG/G	2/09/93
AAA1004	92.33188	PB	35.	7.	UG/G	2/09/93
AAA1004	92.33188	SB	< 10.		UG/G	2/09/93
AAA1005	92.33189	BA	249.	50.	UG/G	2/09/93
AAA1005	92.33189	BE	2.5	0.5	UG/G	2/09/93
AAA1005	92.33189	CD	< 0.6		UG/G	2/09/93
AAA1005	92.33189	CR	8.6	1.7	UG/G	2/09/93
AAA1005	92.33189	NI	6.4	1.3	UG/G	2/09/93
AAA1005	92.33189	PB	36.	7.	UG/G	2/09/93
AAA1005	92.33189	SB	< 10.		UG/G	2/09/93
AAA1006	92.33190	BA	325.	65.	UG/G	2/09/93
AAA1006	92.33190	BE	2.6	0.5	UG/G	2/09/93
AAA1006	92.33190	CD	< 0.6		UG/G	2/09/93
AAA1006	92.33190	CR	19.	4.	UG/G	2/09/93
AAA1006	92.33190	NI	11.	2.	UG/G	2/09/93
AAA1006	92.33190	PB	34.	7.	UG/G	2/09/93
AAA1006	92.33190	SB	< 10.		UG/G	2/09/93
AAA1007	92.33191	BA	306.	61.	UG/G	2/09/93
AAA1007	92.33191	BE	1.8	0.4	UG/G	2/09/93
AAA1007	92.33191	CD	< 0.6		UG/G	2/09/93
AAA1007	92.33191	CR	8.2	1.6	UG/G	2/09/93
AAA1007	92.33191	NI	5.6	1.1	UG/G	2/09/93
AAA1007	92.33191	PB	24.	5.	UG/G	2/09/93
AAA1007	92.33191	SB	< 10.		UG/G	2/09/93

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AAA1003	92.33187	BA	200.	40.	UG/G	2/09/93	
AAA1003	92.33187	BE	2.5	0.5	UG/G	2/09/93	
AAA1003	92.33187	CD	< 0.6		UG/G	2/09/93	
AAA1003	92.33187	CR	4.1	0.8	UG/G	2/09/93	
AAA1003	92.33187	NI	2.9	2.	UG/G	2/09/93	
AAA1003	92.33187	PB	28.	6.	UG/G	2/09/93	
AAA1003	92.33187	SB	< 10.		UG/G	2/09/93	

****

REPORT NUMBER: 17149 (continued)

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: CB on 10-Feb-1993

REQUEST NUMBER: 13904 MATRIX: SS ANALYST: JANET MORGAN PROGRAM CODE: M99B

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

NOTEBOOK: 10523 PAGE: 91

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.00594	BA	711.	71.	UG/G	879.	47.	2/09/93	UNDER CONTROL
00.00594	BE	2.	0.5	UG/G	1.98	0.29	2/09/93	UNDER CONTROL
00.00594	CD	< 600.		NG/G	130.	40.	2/09/93	UNDER CONTROL
00.00594	CR	149.	15.	UG/G	160.	15.	2/09/93	UNDER CONTROL
00.00594	NI	82.	16.	UG/G	94.	7.	2/09/93	UNDER CONTROL
00.00594	PB	27.	5.	UG/G	21.	4.	2/09/93	UNDER CONTROL
00.00594	SB	< 10000.		NG/G	297.	25.	2/09/93	UNDER CONTROL
00.00598	CD	< 600.		NG/G	120.	30.	2/09/93	UNDER CONTROL
00.00598	PB	17.3	3.5	UG/G	14.	3.	2/09/93	UNDER CONTROL
00.00598	SB	< 10000.		NG/G	323.	6.	2/09/93	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.33204	BA	3.	1.	MG/L	3.	0.1	2/09/93	UNDER CONTROL
92.33204	BE	300.	100.	UG/L	350.	15.	2/09/93	UNDER CONTROL
92.33204	CD	1000.	100.	UG/L	996.	43.	2/09/93	UNDER CONTROL
92.33204	CR	< 10.		UG/L	0.0		2/09/93	UNDER CONTROL
92.33204	NI	7.6	1.5	MG/L	7.5	0.3	2/09/93	UNDER CONTROL
92.33204	PB	25.	5.	MG/L	25.2	1.1	2/09/93	UNDER CONTROL
92.33204	SB	16.	3.	MG/L	14.9	0.6	2/09/93	UNDER CONTROL

ORT NUMBER: 17149 PEC Analyst BKQ Reviewer CJa Section Leader mag QA Officer

2/11/93	2/11/93	2/19/93	2/19/93
Date	Date	Date	Date

Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

REPORT NUMBER: 17080

********** EM-9 ANALYTICAL REPORT **********

Prepared by: H. PATTERSON on 6-Feb-1993

REQUEST NUMBER: 13904 MATRIX: SS ANALYST: BARBARA HEMBERGER PROGRAM CODE: M99B

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: ETVAA ANALYTICAL PROCEDURE: 270.2 NOTEBOOK: Y004330 PAGE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT EAA: AL.
AAA0999	92.33183	AS	0.78	0.2	UG/G	2/06/93	< 80 ppm
AAA0999	92.33183	SE	< 0.2		UG/G	2/06/93	none
AAA1000	92.33184	AS	0.57	0.2	UG/G	2/06/93	
AAA1000	92.33184	SE	< 0.2		UG/G	2/06/93	
AAA1001	92.33185	AS	0.75	0.2	UG/G	2/06/93	
AAA1001	92.33185	SE	< 0.2		UG/G	2/06/93	
AAA1002	92.33186	AS	0.58	0.2	UG/G	2/06/93	
AAA1002	92.33186	SE	< 0.2		UG/G	2/06/93	
AAA1003	92.33187	AS	0.63	0.2	UG/G	2/06/93	
AAA1003	92.33187	SE	< 0.2		UG/G	2/06/93	
AAA1004	92.33188	AS	0.76	0.2	UG/G	2/06/93	
AAA1004	92.33188	SE	< 0.2		UG/G	2/06/93	
AAA1005	92.33189	AS	0.87	0.2	UG/G	2/06/93	
AAA1005	92.33189	SE	< 0.2		UG/G	2/06/93	
AAA1006	92.33190	AS	1.56	0.31	UG/G	2/06/93	
AAA1006	92.33190	SE	< 0.2		UG/G	2/06/93	
AAA1007	92.33191	AS	1.57	0.31	UG/G	2/06/93	
AAA1007	92.33191	SE	< 0.2		UG/G	2/06/93	

MATRIX SPIKES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
AAA1007	92.33191	AS	100.	83.	UG/G	2/06/93	
AAA1007	92.33191	SE	100.	88.	UG/G	2/06/93	

****

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: H. PATTERSON on 6-Feb-1993

REQUEST NUMBER: 13904 MATRIX: SS ANALYST: BARBARA HEMBERGER PROGRAM CODE: M99B

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

NOTEBOOK: Y004330 PAGE:

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.26379	AS	74.28	14.8	UG/L	70.	3.	2/06/93	UNDER CONTROL
00.26379	SE	53.04	10.6	UG/L	50.	2.	2/06/93	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.33202	AS	50.07	10.	UG/L	48.	2.1	2/06/93	UNDER CONTROL
92.33202	SE	56.52	11.3	UG/L	50.	2.2	2/06/93	UNDER CONTROL

REPORT NUMBER: 17080

Analyst	Reviewer	Section Leader	QA Officer
2/6/93	2/8/93	2/9/93	2/9/93
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

********** EM-9 ANALYTICAL REPORT **********

Prepared by: J. HANMER on 15-Jan-1993

ANALYSIS: HG REQUEST NUMBER: 13904 MATRIX: SS ANALYST: JOYCE HANMER PROGRAM CODE: M99B

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: CVAA ANALYTICAL PROCEDURE: 245.2 NOTEBOOK: Y04110 PAGE: 243

CUSTOMER SAMPLES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AAA0999	92.33183	< 20.		NG/G	1/15/93	
AAA1000	92.33184	< 20.		NG/G	1/15/93	
AAA1001	92.33185	20.	0.2	NG/G	1/15/93	
AAA1002	92.33186	< 20.		NG/G	1/15/93	
AAA1003	92.33187	< 20.		NG/G	1/15/93	
AAA1004	92.33188	22.	2.2	NG/G	1/15/93	
AAA1005	92.33189	86.	8.6	NG/G	1/15/93	
AAA1006	92.33190	< 20.		NG/G	1/15/93	
AAA1007	92.33191	< 20.		NG/G	1/15/93	

< 20ppm (ug/g)

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AAA1007	92.33191	< 20.		NG/G	1/15/93	

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER SAMPLE MATRIX SPIKES :

CUSTOMER NUMBER	SAMPLE NUMBER	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
AAA1007	92.33191	2.	1.2	NG/G	1/15/93	

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: J. HANMER on 15-Jan-1993

REQUEST NUMBER: 13904 MATRIX: SS ANALYST: JOYCE HANMER PROGRAM CODE: M99B

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.23653	4.3	0.4	UG/L	4.	0.2	1/15/93	UNDER CONTROL
00.24494	7.1	0.7	UG/L	7.	0.41	1/15/93	UNDER CONTROL
00.24494	7.2	0.7	UG/L	7.	0.41	1/15/93	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.33203	3.7	0.4	UG/L	3.5	0.21	1/15/93	UNDER CONTROL

REPORT NUMBER: 16763	J Hanmer	[illegible]	[illegible]	mag
	Analyst	Reviewer	Section Leader	QA Officer
	1/15/93	1/15/93	1/19/93	1/19/93
	Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

TPH ANALYSES

To : Philip R. Fresquez, EM-8, MS K490

Thru : Chris Leibman, Section Leader, Organic Analysis

From : Stuart Nielsen

Date : 6 January 1993

Subject: Results for Analytical Request Number 13905

Samples 92.33183 through 92.33191 received under request number 13905 were soil samples. The request was for the determination of Total Recoverable Petroleum Hydrocarbons.

The determinations were carried out using EM-9 Procedure IH274 which is based on EPA Method 418.1. The results are given in the attached tables.

These data are recorded in notebook S025145 on pages 132 through 143. If you have any questions concerning these results please contact me (5-7422) or Chris (5-6789).

Analytial Results for Request 13905

	Sample Number	Total Recoverable Petroleum Hydrocarbons ug/g		
1	92.33183	3026	±	605
2	92.33184	20196	±	4039
	92.33185	30888	±	6178
3	92.33186	12918	±	2584
4	92.33187	8227	±	1645
5	92.33188	7.80	±	1.56
6	92.33189	62.4	±	12.5
7	92.33190	641	±	128
8	92.33191	227	±	45

MDL = 4

********** EM-9 ANALYTICAL REPORT **********

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: STUART NIELSEN PROGRAM CODE: M99B NOTEBOOK: S025145 PAGE: 132

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: IR ANALYTICAL PROCEDURE: EM-9 IH274

Customer Sample Results, Sample # 92.33183 Date Collected: Date Received: Date Extracted: Date Analyzed:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA0999	92.33183	177	3026.	605.	UG/G	1/06/93		Petroleum Hydrocarbons, Total Recoverable

********** EM-9 ANALYTICAL REPORT **********

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: STUART NIELSEN PROGRAM CODE: M99B NOTEBOOK: S025145 PAGE: 132

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: IR ANALYTICAL PROCEDURE: EM-9 IH274

Customer Sample Results, Sample # 92.33184 Date Collected: Date Received: Date Extracted: Date Analyzed:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1000	92.33184	177	20200.	4040.	UG/G	1/06/93		Petroleum Hydrocarbons, Total Recoverable

********** EM-9 ANALYTICAL REPORT **********

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: STUART NIELSEN PROGRAM CODE: M99B NOTEBOOK: S025145 PAGE: 132

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: IR ANALYTICAL PROCEDURE: EM-9 IH274

Customer Sample Results, Sample # 92.33185 Date Collected: Date Received: Date Extracted: Date Analyzed:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1001	92.33185	177	30900.	6200.	UG/G	1/06/93		Petroleum Hydrocarbons, Total Recoverable

********** EM-9 ANALYTICAL REPORT **********

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: STUART NIELSEN PROGRAM CODE: M99B NOTEBOOK: S025145 PAGE: 132

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: IR ANALYTICAL PROCEDURE: EM-9 IH274

Customer Sample Results, Sample # 92.33186 Date Collected: Date Received: Date Extracted: Date Analyzed:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1002	92.33186	177	12900.	2600.	UG/G	1/06/93		Petroleum Hydrocarbons, Total Recoverable

********** EM-9 ANALYTICAL REPORT **********

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: STUART NIELSEN PROGRAM CODE: M99B NOTEBOOK: S025145 PAGE: 132

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: IR ANALYTICAL PROCEDURE: EM-9 IH274

Customer Sample Results, Sample # 92.33187 Date Collected: Date Received: Date Extracted: Date Analyzed:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1003	92.33187	177	8230.	1640.	UG/G	1/06/93		Petroleum Hydrocarbons, Total Recoverable

********** EM-9 ANALYTICAL REPORT **********

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: STUART NIELSEN PROGRAM CODE: M99B NOTEBOOK: S025145 PAGE: 132

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: IR ANALYTICAL PROCEDURE: EM-9 IH274

Customer Sample Results, Sample # 92.33188 Date Collected: Date Received: Date Extracted: Date Analyzed:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1004	92.33188	177	7.8	1.56	UG/G	1/06/93		Petroleum Hydrocarbons, Total Recoverable

********** EM-9 ANALYTICAL REPORT **********

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: STUART NIELSEN PROGRAM CODE: M99B NOTEBOOK: S025145 PAGE: 132

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: IR ANALYTICAL PROCEDURE: EM-9 IH274

Customer Sample Results, Sample # 92.33189 Date Collected: Date Received: Date Extracted: Date Analyzed:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1005	92.33189	177	62.4	12.5	UG/G	1/06/93		Petroleum Hydrocarbons, Total Recoverable

********** EM-9 ANALYTICAL REPORT **********

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: STUART NIELSEN PROGRAM CODE: M99B NOTEBOOK: S025145 PAGE: 132

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: IR ANALYTICAL PROCEDURE: EM-9 IH274

Customer Sample Results, Sample # 92.33190 Date Collected: Date Received: Date Extracted: Date Analyzed:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1006	92.33190	177	641.	128.	UG/G	1/06/93		Petroleum Hydrocarbons, Total Recoverable

********** EM-9 ANALYTICAL REPORT **********

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: STUART NIELSEN PROGRAM CODE: M99B NOTEBOOK: S025145 PAGE: 132

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: IR ANALYTICAL PROCEDURE: EM-9 IH274

Customer Sample Results, Sample # 92.33191 Date Collected: Date Received: Date Extracted: Date Analyzed:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1007	92.33191	177	227.	45.	UG/G	1/06/93		Petroleum Hydrocarbons, Total Recoverable

********** EM-9 QUALITY ASSURANCE REPORT **********

REQUEST NUMBER: 13905 MATRIX: SS ANALYST: STUART NIELSEN PROGRAM CODE: M99B NOTEBOOK: S025145 PAGE: 132

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: IR ANALYTICAL PROCEDURE: EM-9 IH274

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

X No QC samples for this constituent and matrix type available within EM-9

********** EM-9 QUALITY ASSURANCE REPORT **********

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results

none

********** EM-9 QUALITY ASSURANCE REPORT **********

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

There were no blind Quality Control materials run with the samples reported above for one of the following reasons:

___ Only qualitative data requested

___ Only Open (non-blind) QC samples run with this sample batch.

___ No QC samples run with this sample batch.

X No QC samples for this constituent and matrix type available within EM-9

REPORT NUMBER: 16592				
	Analyst	Reviewer	Section Leader FOR C.L.	QA Officer
	1/6/93	1/8/93	1-13-93	1/13/93
	Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

ENCLOSURE 7

DERIVATION OF INTERIM GUIDANCE LEVEL FOR 1,2,4-TRIMETHYLBENZENE

ARGONNE NATIONAL LABORATORY
9700 SOUTH CASS AVENUE, ARGONNE, ILLINOIS 60439

TELEPHONE 708/252-6487
FAX NUMBER 708/252-4336

April 21, 1993

Elizabeth Kelly
ER Assessments Technical Team
Los Alamos National Laboratory
MS-M994
Los Alamos, NM 87544

SUBJECT: **Derivation of Interim Guidance Level for 1,2,4-Trimethylbenzene in Soil**

Dear Elizabeth:

Per your request, I have been working on deriving an interim guidance level for use in evaluating reported levels of 1,2,4-trimethylbenzene in soil. I understand that this level will be used to evaluate 1,2,4-trimethylbenzene detected in surface soils around a surface impoundment.

An "official" screening action level for 1,2,4-trimethylbenzene cannot be calculated at this time. Data for this substance were not available from the EPA's Integrated Risk Information System (IRIS; EPA 1992b) as of 10/1/92, and it was not on the list of substances under review at that time. The EPA's Health Effects Assessment Summary Tables (HEAST), Annual FY 1992 (EPA 1992a) lists trimethylbenzene data as "inadequate for quantitative risk assessment"; the FY 1993 version of HEAST has not yet been released.

The ER program's Installation Work Plan (LANL 1992) states that "toxicology studies must be scientifically valid and must be conducted in accordance with the good-laboratory-practice standards set forth in 40 CFR 272. Because the verification of these requirements is labor-intensive, screening action levels will be based, when possible, on toxicity values available from ...IRIS or HEAST. ... When IRIS or HEAST do not provide toxicity values for a constituent, other toxicological data may be used."

In order to determine a soil screening action level for a systemic (i.e., non-carcinogenic) substance, a valid chronic oral or inhalation reference dose (RfD) is needed. This RfD is generally obtained from chronic (2 year) animal studies, although sometimes data from subchronic (usually 90 day) studies are used. If no chronic or subchronic data exist, the data are deemed inadequate for quantitative risk assessment. However, methods for using more widely available acute toxicity data to estimate chronic oral RfDs have been suggested (Layton et al. 1987; Venman and Flaga 1985). For substances with both chronic oral RfD data and oral LD_{50} data (dose lethal to 50 percent of the tested animals) available, the suggested method compares these data and allows derivation a conservative value that can be used to convert oral LD_{50} data to estimated RfD values. Layton et al. (1987) suggest multiplying oral LD_{50} values (expressed in mg/kg of body weight) by a factor in the range of 5×10^{-6} to 1×10^{-5} day^{-1} to convert to estimated oral RfD values. This estimation method is likely to give a value below the "true" RfD 95 percent of the time it is employed (Layton et al. 1987). However, this method has not been acknowledged or approved in EPA risk assessment guidance released to date.

Even acute toxicity data for 1,2,4-trimethylbenzene are scarce. A common source for summaries of toxicity data was consulted (Lewis 1992). No information on carcinogenicity or mutagenicity was provided; since these data are generally given if in existence, 1,2,4-trimethylbenzene will not be considered a carcinogen in this assessment. Lewis (1992) cited an oral LD_{50} value for rats of

8,970 mg/kg for mixed isomers of trimethyl benzene. An LD_{LO} value for rats of 1,752 mg/kg by the intraperitoneal route was cited specific to the 1,2,4-trimethylbenzene isomer. (LD_{LO} values are defined as the lowest dose which causes lethality in any test animal).

An oral RfD for 1,2,4-trimethylbenzene in soils was estimated using the LD_{LO} value for intraperitoneal administration. Use of this value probably results in a conservative (i.e., low) estimate of the RfD, because intraperitoneal administration very likely results in higher absorbed dose than ingestion. Therefore, intraperitoneal toxicity would occur at a lower dose. Additionally, levels inducing death in any test animal (LD_{LO} levels) are by definition lower than level inducing 50% mortality (LD_{50} values), so using an LD_{LO} value also results in a lower estimated RfD value. Use of the intraperitoneal LD_{LO} value in estimating the RfD is also preferable because it is specific to the isomer of interest.

As an additional conservative assumption, the low end of the range of multiplying factors suggested by Layton et al. (i.e., 5×10^{-6}) was used to convert the LD_{LO} to an estimated RfD value of 0.0088. Assumptions given in Appendix A to the Proposed Subpart S to RCRA (EPA 1990) were used to derive an interim guidance value based on the estimated RfD. Proposed Subpart S suggests assuming an incidental soil ingestion rate of 200 mg/day by a 16 kg child to calculate soil guidance levels. Using these assumptions results an interim guidance value of 700 mg/kg 1,2,4-trimethylbenzene in soil (see the attached Table).

Volatilization of 1,2,4-trimethylbenzene from soil is not likely to be a significant environmental pathway, because this substance has a low vapor pressure as compared with atmospheric pressure (e.g., vapor pressure of 1,2,4-trimethylbenzene at 25°C is 302 Pa, as compared with an atmospheric pressure of 101,325 Pa). Therefore, inhalation of this substance from the soil medium need not be considered in deriving the interim guidance level.

It must be emphasized that the interim guidance value is based on somewhat speculative, although conservative, extrapolations from acute exposure to chronic exposure situations. Ideally, a soil screening action level would be based on an RfD derived from chronic or subchronic studies in humans or animals. However, based on the available toxicity data, the interim guidance value is probably a conservative estimate of the actual screening action level that would be calculated if RfD data were available (i.e., a screening action level based on actual RfD data is likely to be higher than 700 mg/kg).

Please contact me if you have any questions regarding the derivation of this interim guidance value for 1,2,4-trimethylbenzene.

Sincerely,

Heidi M Hartmann

Heidi M. Hartmann
Environmental Assessment and
Information Sciences Division

HH:lmg

Attachment

cc: A. Dorries, LANL

J. Ditmars, ANL
J. Butler, ANL
E. Faillace, ANL

.·im Guidance Level for 1,2,4-Trimethyl Benzene in Soil

	CAS #	Acute Toxicity Data (mg/kg)	Chronic Oral RfD (mg/kg-d)	Possible Interim Guidance Level (mg/kg)
1,2,4-Trimethyl-benzene	95-63-6	8970	4.5E-02	3,588
		1752	8.8E-03	701

*Method to calculate interim guidance level from acute toxicity data obtained from Layton et al., 1987, Regulatory Toxicology & Pharmacology 7, 96-112.
States that oral LD50 data should be multiplied by factor in range of 5 x 10-6 to 1 x 10-5 to estimate RfD value. Chose low end of range to be more conservative.
Acute Toxicity Data from SAX's Dangerous Properties of Industrial Materials, 8th ed., 1992 (Lewis, RJ ed)
Value of 8970 mg is oral rat LD50 for mixed isomers of trimethylbenzene.
Value of 1752 is intraperitoneal rat LDLO for 1,2,4-TMB isomer.
Use ipr LDLO because it is for the correct isomer, although it requires route-to-route extrapolation.
There is no data regarding carcinogenicity for 1,2,4-trimethylbenzene.

Equation used to calculate Interim Guidance Level for Soil:

For systemic toxicant:

IGL = ((THI x eRfD x BW x CF)/(I x A), where:

IGL = interim guidance level (mg/kg).
THI = target hazard index; 1
eRfD = estimated chronic reference dose (mg/kg/day);
estimated from acute toxicity data.
= body weight; 16 kg for child
CF = conversion factor; 1,000,000 mg/kg
I = intake assumption; 200 mg/day (child)
A = absorption factor; 1

DATE: 4-21-93 FILE: C:\123R3\DOC\LANL\IGL-TMB.WK3

References

Layton, D.W., B.J. Mallon, D.H. Rosenblatt and M.J. Small, 1987. Deriving Allowable Daily Intakes for Systematic Toxicants Lacking Chronic Toxicity Data. Regulatory Toxicology and Pharmacology 7:96-112.

Lewis, R.J., Sr., 1989. Dangerous Properties of Industrial Materials, Eight Edition. Van Nostrand Reinhold, New York.

Los Alamos National Laboratory (LANL), 1992. Installation Work Plan for Environmental Restoration, Revision 2, Los Alamos National Laboratory Report LA-UR-92-3795, Los Alamos, New Mexico, November.

U.S. Environmental Protection Agency, 1990. "Corrective Action for Solid Waste Management Units (SWMUs) at Hazardous Waste Management Facilities," proposed rule, Title 40 Parts 264, 265, 270, and 271, Federal Register, Vol. 55, p. 30798, July 27.

U.S. Environmental Protection Agency, 1992a. Health Effects Assessment Summary Tables, Annual FY 1992, OERR 9200.6-303 (92-1), Office of Research and Development, Office of Emergency and Remedial Response, Washington, D.C., March.

U.S. Environmental Protection Agency, 1992b. Integrated Risk Information System (IRIS), Office of Research and Development, Office of Emergency and Remedial Response (database accessed October 1, 1992.

Venman, B.C. and C. Flaga, 1985. Development of an acceptable factor to estimate chronic end points from acute toxicity data. Toxicol. Ind. Health 1:261-269.