SNL 2003

Department of Energy
National Nuclear Security Administration
Sandia Site Office
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

AUG 0 5 2003

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. John E. Kieling, Program Manager
New Mexico Environment Department
Hazardous Waste Bureau
Permits Management Program
2905 Rodeo Park Road, Building E
Santa Fe, NM 87505

Dear Mr. Kieling:

On behalf of the Department of Energy (DOE) and Sandia Corporation, DOE is submitting the Temporary Unit (TU) Operations Closure Certification that documents closure activities for the soil stabilization unit at the Corrective Action Management Unit (CAMU). The TU is authorized under the Hazardous and Solid Waste Amendments Module of the Resource Conservation and Recovery Act Permit for Sandia National Laboratories/ New Mexico (EPA ID No. NM5890110518). Submittal of the closure certification satisfies the requirements of Section 7.0 of Appendix E, Class II Permit Modification Request for Temporary Unit Treatment Operations at the Corrective Action Management Unit, Technical Area III, May 2002.

The TU was included in the February 2002 Part B submittal for SNL/NM. The permit application for this unit was provided in the following document (see Volume III, Part 5 of the Part B submittal):

> Class II Permit Modification Request for Temporary Unit Treatment Operations at the Corrective Action Management Unit, Technical Area III, January 2002

Because TU operations at the CAMU are now complete and the unit has been closed in accordance with permit conditions, we are requesting that the TU be withdrawn from the SNL/NM Part B submittal.

If you have any questions regarding this submittal, please contact Joe Estrada of my staff at (505) 845-5326.

Sincerely,

Karen L. Boardman

Karen L. Boardman
Manager

Enclosure

SNL 1143

cc w/ enclosure:
W. Moats, NMED-HWB (via Certified Mail)
L. King, USEPA, Region VI (via Certified Mail)
K. Thomas, USEPA, Region VI (via Certified Mail)
M. Gardipe, NNSA/SC/ERD
Michelle Reynolds, SSO Legal
R. Kennett, NMED-OB

cc w/o enclosures:
S. Martin, NMED-HWB, Santa Fe
C. Voorhees, NMED-OB, Santa Fe
F. Nimick, SNL, MS 1087
CAMU Site Operational Record, Attn: M. Shain, SNL, MS 1151

CERTIFICATION STATEMENT FOR APPROVAL AND FINAL RELEASE OF DOCUMENTS

Document title: CAMU Temporary Unit Operations Closure Certification, July 2003

Document author: Saul Alanis, Dept. 6134

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to ensure 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 possibility of fine or imprisonment for knowing violations.

Signature: _____ 7/23/03

Peter B. Davies
Director
Geoscience & Environment Center
Division 6100
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185
Operator

Date

and

Signature: _____ 8.5.03

Karen L. Boardman
Manager
U.S. Department of Energy
National Nuclear Security Administration
Sandia Site Office
Owner and Co-Operator

Date

July 2003

Closure Certification of Temporary Unit Treatment Operations at the Corrective Action Management Unit, Technical Area III

Approval Recommended By:

Michael J. Irwin, CAMU Task Leader SNL/NM (6134)	Date
Craig J. Wood, CAMU Operations Coordinator SNL/NM (3128)	Date
Philip Cavendor, CAMU URS Project Manager URS Group, Inc.	Date

Approved By:

David R. Miller, Department Manager SNL/NM (6134)	Date

SNL1143

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Acronyms and Abbreviations

CAMU	Corrective Action Management Unit
CFR	Code of Federal Regulations
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
mg/L	Milligrams per liter
NA	Not applicable
NMED	New Mexico Environment Department
PPE	Personal protective equipment
POTW	Publicly owned treatment works
PSI	Pounds-per-square-inch
RCRA	Resource Conservation and Recovery Act
SNL/NM	Sandia National Laboratories/New Mexico
ST	Stabilization Treatment
TU	Temporary unit
TSCA	Toxic Substance Control Act
URS	URS Group, Inc. (formally known as Radian International LLC.)
VOCs	Volatile organic compounds

Closure Certification of Temporary Unit Treatment Operations at the Corrective Action Management Unit, Technical Area III

1. Stabilization Process Description

A soil Stabilization Treatment (ST) Unit was used at Sandia National Laboratories/New Mexico (SNL/NM) to treat soil generated during environmental remediation activities. A total of 25,590 cubic yards of soil contaminated with RCRA-regulated levels of metals were stabilized using the ST unit before being placed into the Corrective Action Management Unit (CAMU) containment cell. A portion of the metals-contaminated soil also contained PCBs at concentrations greater than or equal to 50 parts per million (ppm). However, the ST process was not considered a treatment for PCB-contaminated soils and the PCBs present in the waste stream essentially passed through the ST system during stabilization of the metals-contaminated soil. PCBs were managed at the CAMU under the guidelines of the "Risk-Based Approval Request 40 CFR 761.61 (c) Risk-Based Method for Management of PCB Material" (SNL/NM, October 2001).

As described in the *Class II Permit Modification Request for Temporary Unit Treatment Operations at the Corrective Action Management Unit, Technical Area III Revision 2* (SNL/NM May 2002), the ST unit was used to mix contaminated soil and Portland cement and ferrous sulfate. The metals-contaminated soil was solidified by mixing the soil and additives in a soil stabilization plant (pug mill). Contaminated soils were loaded into the pug mill using a front end loader. The mixture of cement, ferrous sulfate, and water were metered using calibrated vane feeders and liquid delivery hoses by electronic controls on the pug mill unit. The stabilized material exited the pug mill via a conveyer belt directly into the bed of a dump truck. A composite sample from each day's production of stabilized material was collected from the material exiting the belt while the loaded dump truck transported the stabilized soils to the containment cell for placement.

This document details the procedures used to decontaminate the ST unit and the results of those decontamination activities. During the ST unit decontamination process, no variations from the decontamination plan were observed. No releases of RCRA or TSCA regulated materials occurred during the decontamination of the ST unit. This document describes the processes followed to meet both RCRA and TSCA closure requirements. This document, and all supporting documentation will be maintained in the CAMU Operating Record, or submitted to the SNL/NM Integrated Safety and Security Records Center.

2. Hazard Survey

Once all metals contaminated soil was processed through the ST unit, interim closure activities were initiated. The first phase of interim closure consisted of a hazard survey of the treatment unit and CAMU treatment area. The purpose of the survey was to identify potential contamination concerns that may present hazards to workers during the interim closure activities and to specify any control measures necessary to reduce worker risk. This survey provided the information necessary to identify worker qualification, personal protective equipment (PPE), safety awareness, work permits, exposure control programs, and emergency coordination. Upon completion, the certifying engineer reviewed the hazard survey. The completed survey is presented in Appendix A of this document.

3. Decontamination and Sample Collection Process

Following the completion and evaluation of the hazard survey, gross decontamination of the stabilization unit was performed on the CAMU treatment pad. Initially, approximately 140 cubic yards of no-treat soil were processed through the unit to scour the unit components and remove areas of visual contamination. While no-treat soils were being processed through the unit, the ST unit mix tank was filled with potable water system and allowed to flow throughout the various pipes, pumps, and components on the ST unit. Areas of visible contamination identified during the hazard survey were scrubbed using metal brushes until all visible contamination was removed from the unit following procedures outlined in the hazard survey. The gross decontamination process removed potential contamination from the unit before wet decontamination begun. A checklist detailing the decontamination steps is included as Appendix B.

Before the ST unit was placed on the CAMU equipment decontamination pad, the decontamination pad was cleaned using a 2600 pounds per square inch (psi) heated power washer supplied with potable water mixed with Alcojet™. All water and sediment collected in the decontamination pad catchments basin was removed. Prior to the first wash down of the ST unit, a sample of the unused wash water was collected to provide a baseline for RCRA decontamination verification. The unused wash water was analyzed for the RCRA-regulated hazardous constituents in the wastes that were treated using the TU treatment operations. Photographs of the prepared decontamination pad are included in Appendix C.

Following the gross decontamination process and cleaning of the decontamination pad, the stabilization unit was transported to the CAMU equipment decontamination pad. The ST unit was positioned on the decontamination pad and subjected to pressure washing using a heated 2600-psi power washer supplied with potable water mixed with Alcojet™. The ST unit was washed until all visible contamination had been removed. To verify RCRA decontamination of the ST unit, samples of the water used to wash the unit were collected and analyzed. The certifying engineer was informed of the decontamination progress and reviewed the results once decontamination was completed. The unit was allowed to air dry, and a visual inspection was completed to confirm the decontamination process. The photographs of the ST unit decontamination are included in Appendix C.

To meet TSCA decontamination requirements, the ST unit was wipe sampled for PCBs after it was dry. Two solvent saturated wipes were required from the ST unit, with each swipe covering approximately 100 cm^2. Four wipes were collected from the unit, each from areas covering approximately 100 cm^2 and analyzed using EPA methods 3580 and 8082. No PCBs above TSCA release levels were detected in the analysis of the wipes. The photographs of the PCB wipe sample collection are included in Appendix C.

The ST unit was also wipe-sampled for Alpha/Beta-Gamma Activity. A total of 52 wipe samples were collected from the ST unit. No radiological activity was detected on the unit.

4. Decontamination Sample Analysis Results

Sampling and analysis of wash water samples was used to monitor the decontamination of the TU treatment operations' components and other structures and equipment to verify the absence of RCRA/TSCA-regulated hazardous wastes or constituents. The analytical results from the decontamination of the ST unit were compared to the RCRA and TSCA limits allowed for

release. The RCRA criteria for release of the ST unit is outlined in Tables E-5-1 and E-5-2 of Appendix E of the *CLASS II PERMIT MODIFICATION REQUEST FOR TEMPORARY UNIT TREATMENT OPERATIONS AT THE CORRECTIVE ACTION MANAGEMENT UNIT, TECHNICAL AREA III REVISION 2 (SNL/N, May 2002 (Here after referred to as the TU permit).* The TSCA criteria for release of the ST unit is outlined in section 5.2.4 of the *Risk Based Approval Request 40 CFR 761.61 (c) Risk Based Method for Management of PCB Materials* (SNL/NM October 2001).

As described in the TU permit, successful decontamination of the ST unit structural components, equipment, and verification of clean closure was achieved when:

1. RCRA-regulated hazardous constituents are not detected in the used wash water; or

2. RCRA-regulated hazardous constituent concentrations in used wash water samples are equal to or less than the background concentrations, as determined by concentrations in samples of unused wash water, at the 0.95 confidence level.

Although RCRA and TSCA regulated contaminants were detected in the decontamination samples, all of the analytes specified in the above listed documents were below analyte levels established by the ST unit decontamination background sample analysis.

The analytical data for the ST unit are included in Appendix D.

5. Treatment Derived Wastes

Treatment-derived wastes generated included: (1) used PPE (e.g., Tyvek™, gloves, rags, etc.); (2) used reagent bags and other trash; (3) used lubricating and hydraulic oils; and (4) over-sized material. Over-sized materials were decontaminated using high-pressure sprays to remove attached soil particles. Solid wastes and used oils will be taken off site for disposal.

6. Certification Statement.

I, Donald T. Lopez, a Registered Professional Engineer, registered in the State of New Mexico, do herby certify that, in my best professional opinion, the decontamination activities conducted for the closure of Temporary Unit Treatment Operations at the SNL/NM CAMU were conducted in accordance with applicable provisions of the permit.

Respectfully,

URS Group, Inc

DONALD T. LOPEZ
NEW MEXICO
5122
REGISTERED PROFESSIONAL ENGINEER

Donald T. Lopez

Signature

Donald T. Lopez

Name of Registered Engineer

May 19, 2003

Date

5122

Registration Number

7. References

1. SNL 1997a, *Final Class III Permit Modification Request for the Management of Hazardous Remediation Waste in the Corrective Action Management Unit, Technical Area III*, Sandia National Laboratories/New Mexico Environmental Restoration Project, 1997 and as revised

2. SNL June 2000, *CAMU Sample Frequency for the Storm Water Retention Ponds, Decontamination Waters & Leachate Collection Tank*, Revision 01, June 30, 2000.

3. SNL/NM May 2002, *Class II Permit Modification Request for Temporary Unit Treatment Operations at the Corrective Action Management Unit*, Technical Area III Revision 2

Hazard Survey of Stabilization Unit

Stabilization Unit Component	Contamination Type	Decontamination Method	Tools Required	Special Precautions	PPE Required
Soil Feed Hopper	No visual contamination evident. Hopper was maintained clean during daily operations by the scouring action of soil undergoing treatment and a daily wash down.	Soil feed hopper was subjected to high pressure wash (>2500 psi) using surfactant until all visible material is removed.	>2500 psi pressure washer with Alcojet.	Hopper can only be accessed form elevated platform.	• CAMU modified Level D. • Face shield.
Soil Feed Belt	No visual contamination evident. Belt was maintained clean during daily operations by the scouring action of soil undergoing treatment and a daily wash down.	Soil feed belt was subjected to high pressure wash (>2500 psi) using surfactant until all visible material is removed.	>2500 psi pressure washer with Alcojet.	Belt can only be accessed form elevated platform.	• CAMU modified Level D. • Face shield.
Mixing Paddles and Chamber	Mixing paddles are contaminated with cement/soil deposits.	• Wet down contaminated area with water from hand sprayer. • Use a stiff wire brush to scrub contaminated areas. • Once all contamination has been removed, mixing paddles and chamber was subjected to high pressure wash (>2500 psi) using surfactant until all visible material is removed.	• Garden sprayer. • Wire brush. • >2500 psi pressure washer with Alcojet.	Contaminated areas were kept wet while scrubbing to control dust.	• CAMU modified Level D. • Face shield.
Treated Soil Output Belt	No visual contamination evident. Belt was maintained clean during daily operations by the scouring action of soil undergoing treatment and a daily wash down.	Soil output belt was subjected to high pressure wash (>2500 psi) using surfactant until all visible material is removed.	>2500 psi pressure washer with Alcojet.	Overhead hazards.	• CAMU modified Level D. • Face shield.
Exterior of Unit	Skin of treatment unit shows cement splatter contaminated with cement/soil deposits.	• Wet down contaminated area with water from hand sprayer. • Used a stiff wire brush to scrub contaminated areas. • Once all contamination was removed, mixing paddles and chamber was subjected to high pressure wash (>2500 psi) using surfactant until all visible material is removed.	• Garden sprayer. • Wire brush. • >2500 psi pressure washer with Alcojet.	Contaminated areas were kept wet while scrubbing to control dust.	• CAMU modified Level D. • Face shield.

Hazard Survey of Stabilization Unit

Stabilization Unit Component	Contamination Type	Decontamination Method	Tools Required	Special Precautions	PPE Required
Ancillary Equipment	Ancillary equipment (pumps, pipes, tanks) of treatment unit show cement splatter contaminated with cement/soil deposits.	• Wet down contaminated area with water from hand sprayer. • Used a stiff wire brush to scrub contaminated areas. • Once all contamination was removed, mixing paddles and chamber was subjected to high pressure wash (>2500 psi) using surfactant until all visible material is removed.	• Garden sprayer. • Wire brush. • >2500 psi pressure washer with Alcojet.	Contaminated areas were kept wet while scrubbing to control dust.	• CAMU modified Level D. • Face shield.

Stabilization Treatment Unit Decontamination Checklist

This checklist outlines the procedures detailed in Appendix E of the Interim Closure Plan for the Temporary Unit Treatment Operations at the Corrective Action Management Unit, Technical Area III (SNL/NM, May 2002). This checklist is intended to document the required decontamination procedures necessary to close the Temporary Unit (TU) Treatment Operations at the Corrective Action Management Unit (CAMU) prior to release from Sandia National Laboratories/New Mexico (SNL/NM).

The TU treatment operations used at the CAMU will be clean closed in accordance with Resource Conservation and Recovery Act (RCRA) and the Toxic Substance Control Act (TSCA) requirements by removal of any RCRA/TSCA-regulated hazardous waste residues; decontamination of any containment and treatment components that come in contact with RCRA/TSCA-regulated hazardous waste during treatment operations; and removal and/or decontamination of any soils, structures, or equipment at the SNL/NM facility that are contaminated with RCRA/TSCA-regulated hazardous waste as a result of TU treatment operations.

1. Verify Daily Wash Down of the TU was Performed During Treatment Operations.

   Comments/Observations Daily washdowns were performed at the end of each day's treatment

   Waste Management Coordinator Signature Saul Alair

2. Perform Hazard Survey

   Comments/Observations See attached survey and photos

   Waste Management Coordinator Signature Saul Alair

   Date 1/12/03 Time 1000

3. Begin Removal of Hazardous Waste Residues from the TU.

   Comments/Observations All material was removed using washing, scrapping, or similar means.

   Waste Management Coordinator Signature Saul Alair

   Date 1/22/03 Time 1510

4. Decontamination of the TU.

4.1 Prepare Decontamination Pad. Wash decontamination pad with high pressure/low volume **Hot** water and nonphosphate detergent solution.

Comments/Observations Decontamination pad washed with Alcojet and 2600 psi hot power washer. All water and sediment were removed from sump.

Waste Management Coordinator Signature Saul Alain

Date 1/23/03 Time 1300

4.2 Wash TU with high pressure/low volume **Hot** water and nonphosphate detergent solution.

Comments/Observations Unit was washed with Alcojet and 2600 psi hot power washer.

Waste Management Coordinator Signature Saul Alain

Date 1/23/03 Time 1420

5. Collect Decontamination Verification Samples.

Comments/Observations Samples were collected from ST unit wash down water. Samples submitted for VOC, SVOC, and metals analysis. Unit was air-dried, then swiped for PCBs.

Waste Management Coordinator Signature Saul Alain

Date 1/23/03 Time 1500

Sandia CAMU Soil Stabilization Unit Hazard Survey

- Date: 01/13/03
- Location: CAMU treatment pad
- Photographer: Saul Alanis
- Comments: View of components underneath ST unit feed belt. Cement soil and splatter were removed.

- Date: 01/13/03
- Location: CAMU treatment pad
- Photographer: Saul Alanis
- Comments: View of components underneath ST unit feed belt. Railing shows soil/cement buildup.

- Date: 01/13/03
- Location: CAMU treatment pad
- Photographer: Saul Alanis
- Comments: View of components underneath ST unit feed belt. Pump shows cement/soil splatter.

Sandia CAMU Soil Stabilization Unit Hazard Survey

- Date: 01/13/03
- Location: CAMU treatment pad
- Photographer: Saul Alanis
- Comments: View of components underneath ST unit feed belt. Pumps show cement splatter.

- Date: 01/13/03
- Location: CAMU treatment pad
- Photographer: Saul Alanis
- Comments: View of components underneath ST unit feed belt. Platform shows cement splatter.

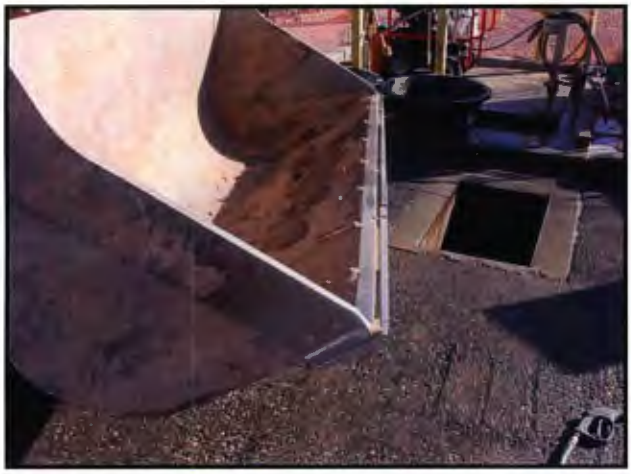
- Date: 01/13/03
- Location: CAMU treatment pad
- Photographer: Saul Alanis
- Comments: View of components underneath ST unit feed belt. Corners accumulated soil/cement.

Sandia CAMU Soil Stabilization Unit Hazard Survey

- Date: 01/13/03
- Location: CAMU treatment pad
- Photographer: Saul Alanis
- Comments: View of components underneath ST unit feed belt. Railing shows cement soil buildup.

Sandia CAMU Stabilization Unit Decontamination Photo-log

- Date: 01/23/03
- Location: CAMU equipment decontamination pad
- Photographer: Saul Alanis
- Comments: View of decontamination pad after pressure wash.



- Date: 01/23/03
- Location: CAMU equipment decontamination pad
- Photographer: Saul Alanis
- Comments: Removal of sediment from decontamination pad sump.

- Date: 01/23/03
- Location: CAMU equipment decontamination pad
- Photographer: Saul Alanis
- Comments: Movement of ST unit onto CAMU equipment decontamination pad.

Sandia CAMU Stabilization Unit Decontamination Photo-log

- Date: 01/23/03
- Location: CAMU equipment decontamination pad
- Photographer: Saul Alanis
- Comments: View of decontamination pad after pressure wash.

- Date: 01/23/03
- Location: CAMU equipment decontamination pad
- Photographer: Saul Alanis
- Comments: Close-up of asphalt on equipment decontamination pad.

- Date: 01/23/03
- Location: CAMU equipment decontamination pad
- Photographer: Saul Alanis
- Comments: Removal of sediment from equipment decontamination pad sump.

Sandia CAMU Stabilization Unit Decontamination Photo-log

- Date: 01/23/03
- Location: CAMU equipment decontamination pad
- Photographer: Saul Alanis
- Comments: Pressure washing ST unit.

- Date: 01/23/03
- Location: CAMU equipment decontamination pad
- Photographer: Saul Alanis
- Comments: Pressure washing ST unit.

- Date: 01/23/03
- Location: CAMU equipment decontamination pad
- Photographer: Saul Alanis
- Comments: Pressure washing ST unit.

Sandia CAMU Stabilization Unit Decontamination Photo-log

- Date: 01/23/03
- Location: CAMU equipment decontamination pad
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- Comments: Pressure washing ST unit.

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- Location: CAMU equipment decontamination pad
- Photographer: Saul Alanis
- Comments: Pressure washing ST unit.

- Date: 01/23/03
- Location: CAMU equipment decontamination pad
- Photographer: Saul Alanis
- Comments: Pressure washing ST unit.

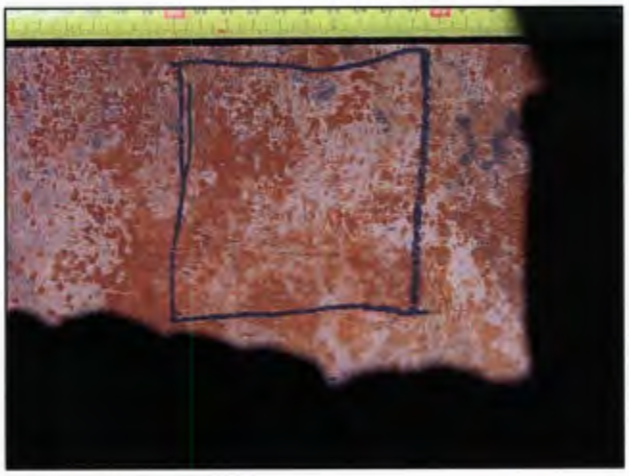
Sandia CAMU Stabilization Unit Decontamination Photo-log

- Date: 01/23/03
- Location: CAMU equipment decontamination pad
- Photographer: Saul Alanis
- Comments: View of ST unit after decontamination.

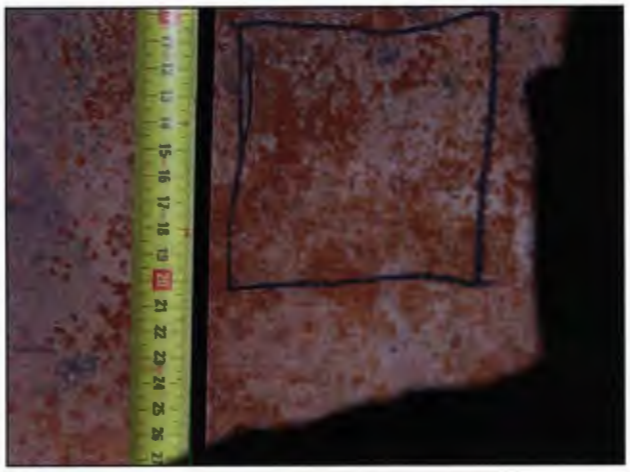
- Date: 01/23/03
- Location: CAMU equipment decontamination pad
- Photographer: Saul Alanis
- Comments: View of ST unit after decontamination.

- Date: 01/23/03
- Location: CAMU equipment decontamination pad
- Photographer: Saul Alanis
- Comments: View of ST unit after decontamination.

Sandia CAMU Stabilization Unit PCB Swipe Collection Log



- Date: 01/24/03
- Location: CAMU Equipment staging area
- Photographer: Saul Alanis
- Comments: 100 cm^2 sample area for swipe. Inside soil feed hopper on ST unit.



- Date: 01/24/03
- Location: CAMU Equipment staging area
- Photographer: Saul Alanis
- Comments: 100 cm^2 sample area for swipe. Inside soil feed hopper on ST unit.

- Date: 01/24/03
- Location: CAMU Equipment staging area
- Photographer: Saul Alanis
- Comments: 100 cm^2 sample area for swipe. Inside soil feed hopper on ST unit.

Sandia CAMU Stabilization Unit PCB Swipe Collection Log

- Date: 01/24/03
- Location: CAMU Equipment staging area
- Photographer: Saul Alanis
- Comments: Collection of 100 cm^2 swipe sample. Inside soil feed hopper on ST unit.

- Date: 01/24/03
- Location: CAMU Equipment staging area
- Photographer: Saul Alanis
- Comments: View of mixing paddle inside cement mixing chamber.

- Date: 01/24/03
- Location: CAMU Equipment staging area
- Photographer: Saul Alanis
- Comments: View of mixing paddle inside cement mixing chamber.

Sandia CAMU Stabilization Unit PCB Swipe Collection Log

- Date: 01/24/03
- Location: CAMU Equipment staging area
- Photographer: Saul Alanis
- Comments: Collection of swipe sample from mixing paddle inside cement mixing chamber.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756
P.O. Box 5800
Albuquerque, New Mexico 87185--0854
Contact: Pamela M. Puissant
Project: CAMU Project

Report Date: February 3, 2003

Client Sample ID: 060148-001
Sample ID: 74130001
Matrix: SWIPE
Collect Date: 24-JAN-03 14:00
Receive Date: 29-JAN-03
Collector: Client

Project: SNLSCAMU
Client ID: SNLS002

Client Desc.: CAMU-ST-01

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB Federal											
PCB Filters(8082A/3550B)											
Aroclor-1016	U	ND	0.030	0.100	ug/sample	1	GH1	01/30/03	1051	230589	1
Aroclor-1221	U	ND	0.0846	0.100	ug/sample	1					
Aroclor-1232	U	ND	0.050	0.100	ug/sample	1					
Aroclor-1242		0.316	0.050	0.100	ug/sample	1					
roclor-1248	U	ND	0.030	0.100	ug/sample	1					
.roclor-1254	U	ND	0.015	0.100	ug/sample	1					
Aroclor-1260	U	ND	0.030	0.100	ug/sample	1					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3550B	TO-4 (3550B) PCB Prep Filter Federal	GRB2	01/29/03	2237	230588

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8082	
2	SW846 8082	

Surrogate recovery	Test	Recovery%	Acceptable Limits
4cmx	PCB Filters(8082A/3550B)	84%	(31%-120%)
Decachlorobiphenyl	PCB Filters(8082A/3550B)	89%	(34%-115%)

Notes:
The Qualifiers in this report are defined as follows :

* Recovery or %RPD not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.
** Indicates analyte is a surrogate compound.
B The analyte was found in the blank above the effective MDL.
H Holding time was exceeded
J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
P The response between the confirmation column and the primary column is >40%D
YY The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the .ctive MDL. For radiochemical analytes the result is less than the Decision Level
.. Presumptive evidence that the analyte is not present. Please see narrative for further information.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756
P.O. Box 5800
Albuquerque, New Mexico 87185--0854
Contact: Pamela M. Puissant
Project: CAMU Project

Report Date: February 3, 2003

Client Sample ID: 060148-001
Sample ID: 74130001

Project: SNLSCAMU
Client ID: SNLS002

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

X Presumptive evidence that the analyte is not present. Please see narrative for further infromation.
X Uncertain identification for gamma spectroscopy.

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Edith Kent.

Edith Kent
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756
P.O. Box 5800
Albuquerque, New Mexico 87185--0854
Contact: Pamela M. Puissant
Project: CAMU Project

Report Date: February 3, 2003

Client Sample ID: 060148-002
Sample ID: 74130002
Matrix: SWIPE
Collect Date: 24-JAN-03 14:10
Receive Date: 29-JAN-03
Collector: Client

Project: SNLSCAMU
Client ID: SNLS002

Client Desc.: CAMU-ST-02

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB Federal											
PCB Filters(8082A/3550B)											
Aroclor-1016	U	ND	0.030	0.100	ug/sample	1	GH1	01/30/03	1105	230589	1
Aroclor-1221	U	ND	0.0846	0.100	ug/sample	1					
Aroclor-1232	U	ND	0.050	0.100	ug/sample	1					
Aroclor-1242	U	ND	0.050	0.100	ug/sample	1					
Aroclor-1248	U	ND	0.030	0.100	ug/sample	1					
Aroclor-1254	U	ND	0.015	0.100	ug/sample	1					
Aroclor-1260	U	ND	0.030	0.100	ug/sample	1					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3550B	TO-4 (3550B) PCB Prep Filter Federal	GRB2	01/29/03	2237	230588

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8082	
2	SW846 8082	

Surrogate recovery	Test	Recovery%	Acceptable Limits
4cmx	PCB Filters(8082A/3550B)	83%	(31%-120%)
Decachlorobiphenyl	PCB Filters(8082A/3550B)	88%	(34%-115%)

Notes:
The Qualifiers in this report are defined as follows :

" Recovery or %RPD not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.
** Indicates analyte is a surrogate compound.
B The analyte was found in the blank above the effective MDL.
H Holding time was exceeded
J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
P The response between the confirmation column and the primary column is >40%D
U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level
X Presumptive evidence that the analyte is not present. Please see narrative for further information.
-- Presumptive evidence that the analyte is not present. Please see narrative for further infromation.

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Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756
P.O. Box 5800
Albuquerque, New Mexico 87185--0854
Contact: Pamela M. Puissant
Project: CAMU Project

Report Date: February 3, 2003

Client Sample ID: 060148-002
Sample ID: 74130002

Project: SNLSCAMU
Client ID: SNLS002

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

X Uncertain identification for gamma spectroscopy.

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Edith Kent.

Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

QC Summary

Report Date: February 3, 2003

Client : Sandia National Laboratories
MS-0756
P.O. Box 5800
Albuquerque, New Mexico
Contact: Pamela M. Puissant

Workorder: 74130

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-PCB Federal										
Batch 230589										
QC1200372679 LCS										
Aroclor-1016	1.00			1.06	ug/sample		106	(39%-119%)	GHJ	01/30/03 10:25
Aroclor-1260	1.00			0.991	ug/sample		99	(48%-116%)		
**4cmx	0.200			0.170	ug/sample		85	(31%-120%)		
**Decachlorobiphenyl	0.200			0.174	ug/sample		87	(34%-115%)		
QC1200372680 LCSD										
Aroclor-1016	1.00			1.09	ug/sample	3	109	(0%-20%)		01/30/03 10:38
Aroclor-1260	1.00			1.02	ug/sample	3	102	(0%-20%)		
**4cmx	0.200			0.175	ug/sample		87	(31%-120%)		
**Decachlorobiphenyl	0.200			0.181	ug/sample		91	(34%-115%)		
QC1200372678 MB										
Aroclor-1016			U	ND	ug/sample					01/30/03 10:12
Aroclor-1221			U	ND	ug/sample					
Aroclor-1232			U	ND	ug/sample					
Aroclor-1242			U	ND	ug/sample					
Aroclor-1248			U	ND	ug/sample					
Aroclor-1254			U	ND	ug/sample					
Aroclor-1260			U	ND	ug/sample					
**4cmx	0.200			0.169	ug/sample		85	(31%-120%)		
**Decachlorobiphenyl	0.200			0.176	ug/sample		88	(34%-115%)		

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- * Recovery or %RPD not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where tl
- ** Indicates analyte is a surrogate compound.
- B The analyte was found in the blank above the effective MDL.
- H Holding time was exceeded
- J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
- P The response between the confirmation column and the primary column is >40%D
- U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. I
- X Presumptive evidence that the analyte is not present. Please see narrative for further information.
- X Presumptive evidence that the analyte is not present. Please see narrative for further infromation.
- X Uncertain identification for gamma spectroscopy.

QC Summary

Workorder: 74130

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

rnal Lab

ch No. N/A

SMO Use

AR/COC 606114

t. No./Mail Stop:	6133 1151	Date Samples Shipped:	1/28/03	Project/Task No.: 7237.01.07.02	☐ Waste Characterization
ect/Task Manager:	Mike Irwin	Carrier/Waybill No.	18276	SMO Authorization: K Nuttey	-Send preliminary/copy report to:
ject Name:	CAMU waste treatment	Lab Contact:	Edie Kent	Contract #: po-21671	
ord Center Code.	ER/107 CAMU	Lab Destination:	GEL		☐ Released by COC No.:
book Ref. No.:	na	SMO Contact/Phone:	Wendy Palencia 844-3199		☑ Validation Required
vice Order No.	CF08-03	Send Report to SMO:	Jennifer Conn		Bill To: Sandia National Labs (Accounts Payable)
cation	Tech Area III				P.O. Box 5800 MS 0154
lding	Room na				Albuquerque, NM 87185-0154 74130

Reference LOV(available at SMO)

mple No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preservative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
61046-001	CAMU-ST-Decon	na	na	01/24/03 1435	DCW	P	500mL	HNO3 4 deg. C	G	Sample	SW846 TCLP Metals	
61047-002	CAMU-BS-Metals	na	na	01/24/03 1445	W	P	500mL	HNO3 4 deg. C	G	Sample	SW846 TCLP Metals	
61048-001	CAMU-ST-01	na	na	01/24/03 1400	WP	G	250mL	Hex	S/W	Sample	PCB 3580 and 8082	001
61048-002	CAMU-ST-02	na	na	01/24/03 1410	WP	G	250mL	Hex	S/W	Sample	PCB 3580 and 8082	002
61046-002	CAMU-ST-Decon	na	na	01/27/03 1308	DCW	G	4x40mL	HCl	G	Sample	8260 VOC	
61047-001	CAMU-BS-VOC	na	na	01/27/03 1318	W	G	4x40mL	HCl	G	Sample	8260 VOC	
61046-003	CAMU-ST-Decon	na	na	01/27/03 1305	DCW	G	1L	4°C	G	Sample	8270 SVOC	
61047-003	CAMU-BS-SVOC	na	na	01/27/03 1315	W	G	1L	4°C	G	Sample	8270 SVOC	
61049-001	CAMU-TB	N/A	N/A	01/24/03 1400	DIW	G	3x40ml	4°C (HCL)	G	TB	(8260) VOC	

MMA	☐ Yes ☑ No Ref. No.	Sample Tracking Smo Use	Special Instructions/QC Requirements
mple Disposal	☐ Return to Client ☑ Disposal by lab	Date Entered(mm/dd/yy)	EDD ☑ Yes ☐ No
rnaround Time	☐ 7 Day ☐ 15 Day ☐ 30 Day	Entered by:	Level D Package ☐ Yes ☑ No
turn Samples By:	3-Day ☑ Negotiated TAT	QC inits.	*Send report to:

Abnormal Conditions on Receipt

Lab Use 2°C

	Name	Signature	Init	Company/Organization/Phone/Cellular
mple	Tammy Deal		TD	URS/6134/845-8017
eam	Saul Alonis		SA	URS/6134/845-8017
embers				

*Please list as separate report.

Relinquished by	Org. 6134	Date 01/27/03	Time 1520	4.Relinquished by	Org.	Date	Time
Received by	Org. 6132	Date 1/27/03	Time 1520	4. Received by	Org.	Date	Time
Relinquished by	Org. 6132	Date 1/28/03	Time 1000	5.Relinquished by	Org.	Date	Time
Received by	Org.	Date 1/29/03	Time 0730	5. Received by	Org.	Date	Time
Relinquished by	Org.	Date	Time	6.Relinquished by	Org.	Date	Time
Received by	Org.	Date	Time	6. Received by	Org.	Date	Time

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756
P.O. Box 5800
Albuquerque, New Mexico 87185--0854
Contact: Pamela M. Puissant
Project: CAMU Project

Report Date: February 4, 2003

Client Sample ID:	061194-001	Project:	SNLSCAMU
Sample ID:	74256001	Client ID:	SNLS002
Matrix:	SWIPE		
Collect Date:	29-JAN-03 11:10	Client Desc.:	CAMU-ST-03
Receive Date:	31-JAN-03		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Semi-Volatiles-PCB Federal										
PCB Filters(8082A/3550B)										
Aroclor-1016	U	ND	0.030	0.100	ug/sample	1	AEL1 02/03/03	1330	230998	1
Aroclor-1221	U	ND	0.0846	0.100	ug/sample	1				
Aroclor-1232	U	ND	0.050	0.100	ug/sample	1				
Aroclor-1242	U	ND	0.050	0.100	ug/sample	1				
Aroclor-1248	U	ND	0.030	0.100	ug/sample	1				
Aroclor-1254	U	ND	0.015	0.100	ug/sample	1				
Aroclor-1260	U	ND	0.030	0.100	ug/sample	1				

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3550B	TO-4 (3550B) PCB Prep Filter Federal	GRB2	01/31/03	2237	230997

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8082	
2	SW846 8082	

Surrogate recovery	Test	Recovery%	Acceptable Limits
4cmx	PCB Filters(8082A/3550B)	90%	(31%-120%)
Decachlorobiphenyl	PCB Filters(8082A/3550B)	92%	(34%-115%)

Notes:
The Qualifiers in this report are defined as follows :

* Recovery or %RPD not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.
** Indicates analyte is a surrogate compound.
B The analyte was found in the blank above the effective MDL.
H Holding time was exceeded
J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
P The response between the confirmation column and the primary column is >40%D
U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level
X Presumptive evidence that the analyte is not present. Please see narrative for further information.

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756
P.O. Box 5800
Albuquerque, New Mexico 87185--0854
Contact: Pamela M. Puissant
Project: CAMU Project

Report Date: February 4, 2003

Client Sample ID: 061194-001
Sample ID: 74256001

Project: SNLSCAMU
Client ID: SNLS002

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

X Presumptive evidence that the analyte is not present. Please see narrative for further infromation.
X Uncertain identification for gamma spectroscopy.

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Edith Kent.

Edith Kent
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756
P.O. Box 5800
Albuquerque, New Mexico 87185--0854
Contact: Pamela M. Puissant
Project: CAMU Project

Report Date: February 4, 2003

Client Sample ID:	061194-002	Project:	SNLSCAMU
Sample ID:	74256002	Client ID:	SNLS002
Matrix:	SWIPE		
Collect Date:	29-JAN-03 11:14	Client Desc.:	CAMU-ST-04
Receive Date:	31-JAN-03		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Semi-Volatiles-PCB Federal										
PCB Filters(8082A/3550B)										
Aroclor-1016	U	ND	0.030	0.100	ug/sample	1	AEL1 02/03/03	1342	230998	1
Aroclor-1221	U	ND	0.0846	0.100	ug/sample	1				
Aroclor-1232	U	ND	0.050	0.100	ug/sample	1				
Aroclor-1242	U	ND	0.050	0.100	ug/sample	1				
Aroclor-1248	U	ND	0.030	0.100	ug/sample	1				
Aroclor-1254	U	ND	0.015	0.100	ug/sample	1				
Aroclor-1260	U	ND	0.030	0.100	ug/sample	1				

e following Prep Methods were performed

..ethod	Description	Analyst	Date	Time	Prep Batch
SW846 3550B	TO-4 (3550B) PCB Prep Filter Federal	GRB2	01/31/03	2237	230997

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8082	
2	SW846 8082	

Surrogate recovery	Test	Recovery%	Acceptable Limits
4cmx	PCB Filters(8082A/3550B)	94%	(31%-120%)
Decachlorobiphenyl	PCB Filters(8082A/3550B)	99%	(34%-115%)

Notes:
The Qualifiers in this report are defined as follows :

* Recovery or %RPD not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.
** Indicates analyte is a surrogate compound.
B The analyte was found in the blank above the effective MDL.
H Holding time was exceeded
J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
P The response between the confirmation column and the primary column is >40%D
U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level
X Presumptive evidence that the analyte is not present. Please see narrative for further information.
X Presumptive evidence that the analyte is not present. Please see narrative for further infromation.

GENERAL ENGINEERING LABORATORIES, LLC
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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756
P.O. Box 5800
Albuquerque, New Mexico 87185--0854
Contact: Pamela M. Puissant
Project: CAMU Project

Report Date: February 4, 2003

Client Sample ID: 061194-002
Sample ID: 74256002

Project: SNLSCAMU
Client ID: SNLS002

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

X Uncertain identification for gamma spectroscopy.

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Edith Kent.

Edith Kent
eviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

QC Summary

Report Date: February 4, 2003

Client : Sandia National Laboratories
MS-0756
P.O. Box 5800
Albuquerque, New Mexico

Contact: Pamela M. Puissant

Workorder: 74256

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-PCB Federal											
Batch 230998											
QC1200373712 LCS											
Aroclor-1016	1.00			1.22	ug/sample		122*	(39%-119%)	AEL1	02/03/03	13:07
Aroclor-1260	1.00			1.03	ug/sample		103	(48%-116%)			
**4cmx	0.200			0.207	ug/sample		103	(31%-120%)			
**Decachlorobiphenyl	0.200			0.197	ug/sample		98	(34%-115%)			
QC1200373713 LCSD											
Aroclor-1016	1.00			1.16	ug/sample	5	116	(0%-20%)		02/03/03	13:18
Aroclor-1260	1.00			1.00	ug/sample	3	100	(0%-20%)			
**4cmx	0.200			0.191	ug/sample		95	(31%-120%)			
**Decachlorobiphenyl	0.200			0.183	ug/sample		91	(34%-115%)			
QC1200373711 MB											
Aroclor-1016			U	ND	ug/sample					02/03/03	12:55
Aroclor-1221			U	ND	ug/sample						
Aroclor-1232			U	ND	ug/sample						
Aroclor-1242			U	ND	ug/sample						
roclor-1248			U	ND	ug/sample						
roclor-1254			U	ND	ug/sample						
Aroclor-1260			U	ND	ug/sample						
**4cmx	0.200			0.196	ug/sample		98	(31%-120%)			
**Decachlorobiphenyl	0.200			0.190	ug/sample		95	(34%-115%)			

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- * Recovery or %RPD not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where tl
- ** Indicates analyte is a surrogate compound.
- B The analyte was found in the blank above the effective MDL.
- H Holding time was exceeded
- J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
- P The response between the confirmation column and the primary column is >40%D
- U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. I
- X Presumptive evidence that the analyte is not present. Please see narrative for further information.
- X Presumptive evidence that the analyte is not present. Please see narrative for further infromation.
- X Uncertain identification for gamma spectroscopy.

QC Summary

Workorder: 74256

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Page _1_ of _1_

Batch No. N/A

SMO Use

AR/COC 606117

Dept. No./Mail Stop:	6133 1151	Date Samples Shipped:	1-30-03	Project/Task No.:	723701.07.02
Project/Task Manager:	Michel J. Irwin	Carrier/Waybill No.	18354	SMO Authorization:	
Project Name:	CAMU waste treatment	Lab Contact:	Edie Kent	Contract #:	po-21671
Record Center Code:	ER/107 CAMU	Lab Destination:	GEL	As per phone conv. with L. Hanna	
Logbook Ref. No.:	na	SMO Contact/Phone:	Wendy Palencia 844-3199		
Service Order No.	CF08-03	Send Report to SMO:	Jennifer Conn		
Location	Tech Area III				
Building	Room na				

☐ **Waste Characterization**
-Send preliminary/copy report to:

☐ **Released by COC No.:**

☑ **Validation Required**

Bill To: Sandia National Labs (Accounts Payable)
P.O. Box 5800 MS 0154
Albuquerque, NM 87185-0154

74256%

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
061194-001	CAMU-ST-03	na	na	01-29-03/11:10	WP	AG	250 ml	Hex	S/W	Sample	PCB 3580 and 8082	001
061194-002	CAMU-ST-04	na	na	01-29-03/11:14	WP	AG	250 ml	Hex	S/W	Sample	PCB 3580 and 8082	002

RMMA ☐ Yes ☑ No Ref. No. ER-107

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☐ 30 Day

Return Samples By: 3-Day ☑ **Negotiated TAT**

Sample Tracking Smo Use
Date Entered(mm/dd/yy)
Entered by:
QC inits.

Special Instructions/QC Requirements
EDD ☑ Yes ☐ No
Level D Package ☐ Yes ☑ No

*Send report to:

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use
2°C

Sample Team Members

Name	Signature	Init	Company/Organization/Phone/Cellular
Saul Alanis	Saul Alanis	SA	URS/6134/505-845-8017
Tammy Deel		TD	URS/6134/505-845-8017

1.Relinquished by	Org. 6134	Date 01-30-03	Time 0840	4.Relinquished by	Org.	Date	Time
1. Received by	Org. 6173	Date 01-30-03	Time 0840	4. Received by	Org.	Date	Time
2.Relinquished by	Org.	Date	Time	5.Relinquished by	Org.	Date	Time
2. Received by	Org.	Date 1-31-03	Time 0715	5. Received by	Org.	Date	Time
3.Relinquished by	Org.	Date	Time	6.Relinquished by	Org.	Date	Time
3. Received by	Org.	Date	Time	6. Received by	Org.	Date	Time

Hall Environmental Analysis Laboratory

COVER LETTER

February 18, 2003

Jerry May
URS
One Park Square
6501 Americas Parkway NE Suite 900
Albuquerque, NM 87110
TEL: (505) 855-7500
FAX (505) 855-7555

RE: CAMU Order No.: 0302038

Dear Jerry May:

Hall Environmental Analysis Laboratory received 3 samples on 2/6/2003 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

Hall Environmental Analysis Laboratory

Date: *18-Feb-03*

CLIENT: URS
Lab Order: 0302038
Project: CAMU
Lab ID: 0302038-01

Client Sample ID: CAMU-ST-DECON-01A
Collection Date: 2/6/2003 2:21:00 PM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **BDH**
Tetrahydrofuran	ND	5.0		µg/L	1	2/7/2003
Acetone	ND	25		µg/L	1	2/7/2003
mp-Xylenes	ND	1.0		µg/L	1	2/7/2003
Toluene	1.7	1.0		µg/L	1	2/7/2003
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/7/2003
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/7/2003
Methylene Chloride	ND	3.0		µg/L	1	2/7/2003
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/7/2003
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/7/2003
Surr: 1,2-Dichloroethane-d4	93.5	74.6-123		%REC	1	2/7/2003
Surr: 4-Bromofluorobenzene	98.4	85.6-117		%REC	1	2/7/2003
Surr: Dibromofluoromethane	97.9	78.6-115		%REC	1	2/7/2003
Surr: Toluene-d8	102	84.2-115		%REC	1	2/7/2003
EPA METHOD 7470: MERCURY						Analyst: **MAP**
Mercury	ND	0.20		mg/L	1	2/14/2003
EPA METHOD 6010C: TOTAL METALS						Analyst: **NMO**
Arsenic	ND	5.0		mg/L	1	2/13/2003 9:21:59 AM
Barium	ND	100		mg/L	1	2/13/2003 9:21:59 AM
Cadmium	ND	1.0		mg/L	1	2/13/2003 9:21:59 AM
Chromium	ND	5.0		mg/L	1	2/13/2003 9:21:59 AM
Lead	ND	5.0		mg/L	1	2/13/2003 9:21:59 AM
Selenium	ND	1.0		mg/L	1	2/13/2003 9:21:59 AM
Silver	ND	5.0		mg/L	1	2/13/2003 10:24:08 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *18-Feb-03*

CLIENT: URS
Lab Order: 0302038
Project: CAMU
Lab ID: 0302038-02

Client Sample ID: CAMU-DECON PAD
Collection Date: 2/6/2003 2:25:00 PM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **BDH**
Tetrahydrofuran	ND	5.0		µg/L	1	2/7/2003
Acetone	ND	25		µg/L	1	2/7/2003
mp-Xylenes	ND	1.0		µg/L	1	2/7/2003
Toluene	1.1	1.0		µg/L	1	2/7/2003
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/7/2003
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/7/2003
Methylene Chloride	ND	3.0		µg/L	1	2/7/2003
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/7/2003
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/7/2003
Surr: 1,2-Dichloroethane-d4	87.1	74.6-123		%REC	1	2/7/2003
Surr: 4-Bromofluorobenzene	101	85.6-117		%REC	1	2/7/2003
Surr: Dibromofluoromethane	92.9	78.6-115		%REC	1	2/7/2003
Surr: Toluene-d8	101	84.2-115		%REC	1	2/7/2003
EPA METHOD 7470: MERCURY						Analyst: **MAP**
Mercury	ND	0.20		mg/L	1	2/14/2003
EPA METHOD 6010C: TOTAL METALS						Analyst: **NMO**
Arsenic	ND	5.0		mg/L	1	2/13/2003 9:34:07 AM
Barium	ND	100		mg/L	1	2/13/2003 9:34:07 AM
Cadmium	ND	1.0		mg/L	1	2/13/2003 9:34:07 AM
Chromium	ND	5.0		mg/L	1	2/13/2003 9:34:07 AM
Lead	ND	5.0		mg/L	1	2/13/2003 9:34:07 AM
Selenium	ND	1.0		mg/L	1	2/13/2003 9:34:07 AM
Silver	ND	5.0		mg/L	1	2/13/2003 10:26:08 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *18-Feb-03*

CLIENT: URS
Lab Order: 0302038
Project: CAMU
Lab ID: 0302038-03

Client Sample ID: TRIP BLANK
Collection Date:
Matrix: TRIP BLANK

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **BDH**
Tetrahydrofuran	ND	5.0		µg/L	1	2/7/2003
Acetone	ND	25		µg/L	1	2/7/2003
mp-Xylenes	ND	1.0		µg/L	1	2/7/2003
Toluene	ND	1.0		µg/L	1	2/7/2003
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/7/2003
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/7/2003
Methylene Chloride	ND	3.0		µg/L	1	2/7/2003
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/7/2003
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/7/2003
Surr: 1,2-Dichloroethane-d4	97.3	74.6-123		%REC	1	2/7/2003
Surr: 4-Bromofluorobenzene	104	85.6-117		%REC	1	2/7/2003
Surr: Dibromofluoromethane	101	78.6-115		%REC	1	2/7/2003
Surr: Toluene-d8	99.9	84.2-115		%REC	1	2/7/2003

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

SEVERN TRENT STL

ANALYTICAL REPORT

PROJECT NO. SNL-CAMU

Sandia National Laboratories

Lot #: F3B100109

Nancy McDuffie

Hall Environmental
4901 Hawkins NE
Suite D
Albuquerque, NM 87109

SEVERN TRENT LABORATORIES, INC.

Mark J. Loeb
Project Manager

February 17, 2003

Severn Trent Laboratories, Inc.
STL St. Louis • 13715 Rider Trail North, Earth City, MO 63045
Tel 314 298 8566 Fax 314 298 8757 • *www.stl-inc.com*

A part of Severn Trent plc

Case Narrative
LOT NUMBER: **F3B100109**

This report contains the analytical results for the two samples received under chain of custody by STL St. Louis on February 10, 2003. These samples are associated with your Sandia National Laboratories project.

All applicable quality control procedures met method-specified acceptance criteria except as noted on the following page.

This report is incomplete without the case narrative. All results are based upon sample as received, wet weight, unless noted otherwise.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

No observations or nonconformances were noted for the analyses included in this report.

METHODS SUMMARY

F3B100109

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

HALL ENVIRONMENTAL

Client Sample ID: CAMU-ST-DECON-01A

GC/MS Semivolatiles

Lot-Sample #...: F3B100109-001 **Work Order #...:** FHC0N1AA **Matrix.....:** WATER
Date Sampled...: 02/06/03 14:21 **Date Received..:** 02/10/03
Prep Date.....: 02/12/03 **Analysis Date..:** 02/15/03
Prep Batch #...: 3043299 **Analysis Time..:** 00:54
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acetophenone	**5.3 J**	**10**	**ug/L**
Aniline	**20**	**10**	**ug/L**
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
bis(2-Ethylhexyl) phthalate	**13**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
1,3-Dinitrobenzene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L
o-Toluidine	**15 J**	**20**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	52	(10 - 115)
Phenol-d5	58	(10 - 115)
Nitrobenzene-d5	75	(13 - 115)
2-Fluorobiphenyl	66	(14 - 115)
2,4,6-Tribromophenol	77	(10 - 119)
Terphenyl-d14	19	(10 - 122)

NOTE(S):

J Estimated result. Result is less than RL.

HALL ENVIRONMENTAL

Client Sample ID: CAMU-DECON PAD

GC/MS Semivolatiles

Lot-Sample #...: F3B100109-002 **Work Order #...:** FHC0Q1AA **Matrix.....:** WATER
Date Sampled...: 02/06/03 14:25 **Date Received..:** 02/10/03
Prep Date.....: 02/12/03 **Analysis Date..:** 02/15/03
Prep Batch #...: 3043299 **Analysis Time..:** 01:28
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acetophenone	**6.1 J**	**10**	**ug/L**
Aniline	**64**	**10**	**ug/L**
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
bis(2-Ethylhexyl) phthalate	**17**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
1,3-Dinitrobenzene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L
o-Toluidine	**26**	**20**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	51	(10 - 115)
Phenol-d5	69	(10 - 115)
Nitrobenzene-d5	86	(13 - 115)
2-Fluorobiphenyl	84	(14 - 115)
2,4,6-Tribromophenol	77	(10 - 119)
Terphenyl-d14	26	(10 - 122)

NOTE(S):

J Estimated result. Result is less than RL.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F3B100109 **Work Order #...:** FHGRX1AA **Matrix.....:** WATER
MB Lot-Sample #: F3B120000-299

Prep Date.....: 02/12/03 **Analysis Time..:** 23:08
Analysis Date..: 02/14/03 **Prep Batch #...:** 3043299
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acetophenone	ND	10	ug/L	SW846 8270C
Aniline	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
bis(2-Ethylhexyl) phthalate	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
1,3-Dinitrobenzene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
›-Toluidine	ND	20	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Phenol	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	29	(10 - 115)
Phenol-d5	36	(10 - 115)
Nitrobenzene-d5	52	(13 - 115)
2-Fluorobiphenyl	56	(14 - 115)
2,4,6-Tribromophenol	41	(10 - 119)
Terphenyl-d14	77	(10 - 122)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3B100109 Work Order #...: FHGRX1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: F3B120000-299 FHGRX1AD-LCSD
Prep Date.....: 02/12/03 Analysis Date..: 02/14/03
Prep Batch #...: 3043299 Analysis Time..: 23:43
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
bis(2-Chloroethyl)-ether	72	(25 - 115)			SW846 8270C
	76	(25 - 115)	5.4	(0-20)	SW846 8270C
2-Chlorophenol	57	(10 - 115)			SW846 8270C
	61	(10 - 115)	6.2	(0-20)	SW846 8270C
2-Methylphenol	60	(26 - 115)			SW846 8270C
	66	(26 - 115)	9.4	(0-20)	SW846 8270C
2,2'-oxybis(1-Chloropropan	73	(30 - 115)			SW846 8270C
	78	(30 - 115)	6.9	(0-20)	SW846 8270C
4-Methylphenol	66	(25 - 115)			SW846 8270C
	71	(25 - 115)	8.2	(0-20)	SW846 8270C
N-Nitrosodi-n-propyl-amine	85	(32 - 115)			SW846 8270C
	90	(32 - 115)	6.1	(0-20)	SW846 8270C
Hexachloroethane	61	(18 - 115)			SW846 8270C
	67	(18 - 115)	9.2	(0-20)	SW846 8270C
Nitrobenzene	79	(30 - 115)			SW846 8270C
	83	(30 - 115)	5.0	(0-20)	SW846 8270C
Isophorone	89	(22 - 115)			SW846 8270C
	93	(22 - 115)	4.4	(0-20)	SW846 8270C
2-Nitrophenol	60	(10 - 115)			SW846 8270C
	63	(10 - 115)	5.6	(0-20)	SW846 8270C
2,4-Dimethylphenol	68	(16 - 115)			SW846 8270C
	73	(16 - 115)	6.5	(0-20)	SW846 8270C
bis(2-Chloroethoxy) methane	80	(31 - 115)			SW846 8270C
	83	(31 - 115)	3.9	(0-20)	SW846 8270C
2,4-Dichlorophenol	62	(10 - 115)			SW846 8270C
	66	(10 - 115)	5.5	(0-20)	SW846 8270C
1,2,4-Trichloro-benzene	73	(24 - 115)			SW846 8270C
	76	(24 - 115)	3.7	(0-20)	SW846 8270C
4-Chloroaniline	51	(26 - 115)			SW846 8270C
	54	(26 - 115)	5.0	(0-20)	SW846 8270C
Hexachlorobutadiene	69	(19 - 115)			SW846 8270C
	73	(19 - 115)	6.4	(0-20)	SW846 8270C

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3B100109 **Work Order #...:** FHGRX1AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: F3B120000-299 FHGRX1AD-LCSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
4-Chloro-3-methylphenol	73	(31 - 115)			SW846 8270C
	80	(31 - 115)	8.5	(0-20)	SW846 8270C
Hexachlorocyclopenta-diene	47	(10 - 115)			SW846 8270C
	50	(10 - 115)	5.1	(0-20)	SW846 8270C
2,4,6-Trichloro-phenol	59	(10 - 115)			SW846 8270C
	61	(10 - 115)	2.2	(0-20)	SW846 8270C
2,4,5-Trichloro-phenol	64	(10 - 115)			SW846 8270C
	67	(10 - 115)	5.1	(0-20)	SW846 8270C
2-Nitroaniline	53	(44 - 115)			SW846 8270C
	57	(44 - 115)	7.5	(0-20)	SW846 8270C
Dimethyl phthalate	89	(50 - 115)			SW846 8270C
	94	(50 - 115)	5.0	(0-20)	SW846 8270C
Acenaphthylene	82	(34 - 117)			SW846 8270C
	86	(34 - 117)	4.2	(0-20)	SW846 8270C
2,6-Dinitrotoluene	92	(50 - 115)			SW846 8270C
	95	(50 - 115)	3.0	(0-20)	SW846 8270C
3-Nitroaniline	53	(49 - 115)			SW846 8270C
	56	(49 - 115)	5.0	(0-20)	SW846 8270C
2,4-Dinitrophenol	60	(10 - 123)			SW846 8270C
	55	(10 - 123)	7.6	(0-20)	SW846 8270C
4-Nitrophenol	54	(10 - 116)			SW846 8270C
	58	(10 - 116)	7.0	(0-20)	SW846 8270C
2,4-Dinitrotoluene	98	(51 - 124)			SW846 8270C
	102	(51 - 124)	3.8	(0-20)	SW846 8270C
Diethyl phthalate	94	(55 - 115)			SW846 8270C
	99	(55 - 115)	4.9	(0-20)	SW846 8270C
4-Chlorophenyl phenyl ether	87	(45 - 115)			SW846 8270C
	90	(45 - 115)	3.2	(0-20)	SW846 8270C
4-Nitroaniline	56	(49 - 115)			SW846 8270C
	56	(49 - 115)	1.6	(0-20)	SW846 8270C
4,6-Dinitro-2-methylphenol	62	(10 - 127)			SW846 8270C
	60	(10 - 127)	3.5	(0-20)	SW846 8270C

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3B100109 Work Order #...: FHGRX1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: F3B120000-299 FHGRX1AD-LCSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
N-Nitrosodiphenylamine	92	(46 - 115)			SW846 8270C
	94	(46 - 115)	2.2	(0-20)	SW846 8270C
4-Bromophenyl phenyl ether	88	(47 - 115)			SW846 8270C
	90	(47 - 115)	2.2	(0-20)	SW846 8270C
Hexachlorobenzene	93	(50 - 115)			SW846 8270C
	95	(50 - 115)	1.6	(0-20)	SW846 8270C
Pentachlorophenol	63	(10 - 120)			SW846 8270C
	60	(10 - 120)	5.8	(0-20)	SW846 8270C
Carbazole	56	(53 - 115)			SW846 8270C
	57	(53 - 115)	2.9	(0-20)	SW846 8270C
Di-n-butyl phthalate	92	(53 - 115)			SW846 8270C
	94	(53 - 115)	2.3	(0-20)	SW846 8270C
Butyl benzyl phthalate	97	(52 - 115)			SW846 8270C
	98	(52 - 115)	0.79	(0-20)	SW846 8270C
3,3'-Dichlorobenzidine	85	(27 - 115)			SW846 8270C
	83	(27 - 115)	1.7	(0-20)	SW846 8270C
Di-n-octyl phthalate	84	(48 - 115)			SW846 8270C
	87	(48 - 115)	3.6	(0-20)	SW846 8270C
Benzo(a)pyrene	89	(47 - 115)			SW846 8270C
	91	(47 - 115)	2.0	(0-20)	SW846 8270C
Indeno(1,2,3-cd)pyrene	104	(32 - 144)			SW846 8270C
	122	(32 - 144)	16	(0-20)	SW846 8270C
Dibenz(a,h)anthracene	113	(24 - 150)			SW846 8270C
	124	(24 - 150)	9.3	(0-20)	SW846 8270C
Benzo(ghi)perylene	87	(30 - 144)			SW846 8270C
	112 p	(30 - 144)	25	(0-20)	SW846 8270C
Phenol	53	(10 - 115)			SW846 8270C
	59	(10 - 115)	11	(0-20)	SW846 8270C
Naphthalene	76	(28 - 115)			SW846 8270C
	79	(28 - 115)	2.8	(0-20)	SW846 8270C
2-Methylnaphthalene	50	(30 - 115)			SW846 8270C
	52	(30 - 115)	5.2	(0-20)	SW846 8270C
Acenaphthene	84	(33 - 115)			SW846 8270C
	88	(33 - 115)	4.1	(0-20)	SW846 8270C
Dibenzofuran	52	(40 - 115)			SW846 8270C
	55	(40 - 115)	5.3	(0-20)	SW846 8270C
Fluorene	87	(44 - 115)			SW846 8270C
	90	(44 - 115)	3.2	(0-20)	SW846 8270C
Phenanthrene	91	(52 - 115)			SW846 8270C
	92	(52 - 115)	1.4	(0-20)	SW846 8270C

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3B100109 **Work Order #...:** FHGRX1AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: F3B120000-299 FHGRX1AD-LCSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Anthracene	**87**	**(46 - 115)**			**SW846 8270C**
	90	**(46 - 115)**	**3.5**	**(0-20)**	**SW846 8270C**
Fluoranthene	**92**	**(52 - 115)**			**SW846 8270C**
	94	**(52 - 115)**	**2.4**	**(0-20)**	**SW846 8270C**
Pyrene	**88**	**(48 - 115)**			**SW846 8270C**
	90	**(48 - 115)**	**1.5**	**(0-20)**	**SW846 8270C**
Benzo(a)anthracene	**95**	**(52 - 115)**			**SW846 8270C**
	95	**(52 - 115)**	**0.25**	**(0-20)**	**SW846 8270C**
Chrysene	**95**	**(36 - 150)**			**SW846 8270C**
	96	**(36 - 150)**	**1.4**	**(0-20)**	**SW846 8270C**
bis(2-Ethylhexyl) phthalate	**96**	**(51 - 115)**			**SW846 8270C**
	97	**(51 - 115)**	**1.8**	**(0-20)**	**SW846 8270C**
Benzo(b)fluoranthene	**92**	**(47 - 115)**			**SW846 8270C**
	95	**(47 - 115)**	**2.5**	**(0-20)**	**SW846 8270C**
Benzo(k)fluoranthene	**101**	**(52 - 116)**			**SW846 8270C**
	103	**(52 - 116)**	**1.5**	**(0-20)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	52	(10 - 115)
	56	(10 - 115)
Phenol-d5	55	(10 - 115)
	63	(10 - 115)
Nitrobenzene-d5	79	(20 - 115)
	84	(20 - 115)
2-Fluorobiphenyl	86	(24 - 120)
	90	(24 - 120)
2,4,6-Tribromophenol	77	(10 - 124)
	78	(10 - 124)
Terphenyl-d14	78	(30 - 117)
	81	(30 - 117)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

Hall Environmental Analysis Laboratory

Date: *18-Feb-03*

CLIENT: URS
Work Order: 0302038
Project: CAMU

QC SUMMARY REPORT

Method Blank

Sample ID **5ml rb** Batch ID: **R7261** Test Code: **SW8260B** Units: **µg/L** Analysis Date **2/7/2003** Prep Date

Client ID: Run ID: **THOR_030207A** SeqNo: **165519**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	1.0									
1,2-Dibromo-3-chloropropane	ND	2.0									
1,2-Dichlorobenzene	ND	1.0									
Methylene Chloride	ND	3.0									
1,2,4-Trichlorobenzene	ND	1.0									
1,1,1-Trichloroethane	ND	1.0									
Xylenes, Total	ND	1.0									
Surr: 1,2-Dichloroethane-d4	8.804	0	10	0	88.0	74.6	123	0			
Surr: 4-Bromofluorobenzene	10.14	0	10	0	101	85.6	117	0			
Surr: Dibromofluoromethane	9.922	0	10	0	99.2	78.6	115	0			
Surr: Toluene-d8	9.992	0	10	0	99.9	84.2	115	0			

Sample ID **MB-3130** Batch ID: **3130** Test Code: **SW7470** Units: **mg/L** Analysis Date **2/14/2003** Prep Date **2/14/2003**

Client ID: Run ID: **MI-LA254_030214A** SeqNo: **167123**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.00020									

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: URS
Work Order: 0302038
Project: CAMU

QC SUMMARY REPORT

Method Blank

Sample ID **MB-3120** Batch ID: **3120** Test Code: **SW6010A** Units: **mg/L** Analysis Date **2/13/2003 8:59:16 AM** Prep Date **2/12/2003**

Client ID: Run ID: **ICP_030213A** SeqNo: **166919**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.020									
Barium	ND	0.0020									
Cadmium	ND	0.0020									
Chromium	ND	0.0060									
Lead	ND	0.0050									
Selenium	ND	0.020									
Silver	ND	0.0050									

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory

Date: *18-Feb-03*

CLIENT: URS
Work Order: 0302038
Project: CAMU

QC SUMMARY REPORT

Sample Duplicate

Sample ID **0302038-01C** Batch ID: **3130** Test Code: **SW7470** Units: **mg/L** Analysis Date **2/14/2003** Prep Date **2/14/2003**
Client ID: **CAMU-ST-DECON** Run ID: **MI-LA254_030214A** SeqNo: **167127**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00615	0.20	0	0	0	0	0	0.006675	0	20	J

Sample ID **0302038-01C DUP** Batch ID: **3120** Test Code: **SW6010A** Units: **mg/L** Analysis Date **2/13/2003 9:25:16 AM** Prep Date **2/12/2003**
Client ID: **CAMU-ST-DECON** Run ID: **ICP_030213A** SeqNo: **166926**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0	0	0	0	0	0	0	30	
Barium	ND	100	0	0	0	0	0	0.1608	0	30	
Cadmium	ND	1.0	0	0	0	0	0	0	0	30	
Chromium	ND	5.0	0	0	0	0	0	0	0	30	
Lead	ND	5.0	0	0	0	0	0	0	0	30	
Selenium	ND	1.0	0	0	0	0	0	0	0	30	

Sample ID **0302038-01C DUP** Batch ID: **3120** Test Code: **SW6010A** Units: **mg/L** Analysis Date **2/13/2003 10:27:20 AM** Prep Date **2/12/2003**
Client ID: **CAMU-ST-DECON** Run ID: **ICP_030213C** SeqNo: **166960**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	5.0	0	0	0	0	0	0			

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *18-Feb-03*

CLIENT: URS
Work Order: 0302038
Project: CAMU

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID **100ng lcs** Batch ID: **R7261** Test Code: **SW8260B** Units: **µg/L** Analysis Date **2/7/2003** Prep Date
Client ID: Run ID: **THOR_030207A** SeqNo: **165520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	19.22	1.0	20	0	96.1	87.7	122	0			

Sample ID **524 std** Batch ID: **R7261** Test Code: **SW8260B** Units: **µg/L** Analysis Date **2/7/2003** Prep Date
Client ID: Run ID: **THOR_030207A** SeqNo: **165538**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Butanone	94.65	10	100	0	94.6	72	123	0			
Carbon disulfide	93.24	50	100	0	93.2	79	122	0			

Sample ID **LCS-3130** Batch ID: **3130** Test Code: **SW7470** Units: **mg/L** Analysis Date **2/14/2003** Prep Date **2/14/2003**
Client ID: Run ID: **MI-LA254_030214A** SeqNo: **167124**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00477	0.00020	0.005	0	95.4	80	120	0			

Sample ID **LCSD-3130** Batch ID: **3130** Test Code: **SW7470** Units: **mg/L** Analysis Date **2/14/2003** Prep Date **2/14/2003**
Client ID: Run ID: **MI-LA254_030214A** SeqNo: **167125**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00492	0.00020	0.005	0	98.4	80	120	0			

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: URS
Work Order: 0302038
Project: CAMU

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID **LCS-3120** Batch ID: **3120** Test Code: **SW6010A** Units: **mg/L** Analysis Date **2/13/2003 9:02:40 AM** Prep Date **2/12/2003**

Client ID: Run ID: **ICP_030213A** SeqNo: **166920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.003	0.020	1	0	100	70	130	0			
Barium	0.8786	0.0020	1	0	87.9	70	130	0			
Cadmium	0.9773	0.0020	1	0	97.7	70	130	0			
Chromium	1.016	0.0060	1	0	102	70	130	0			
Lead	0.9781	0.0050	1	0	97.8	70	130	0			
Selenium	0.9822	0.020	1	0	98.2	70	130	0			

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

ient Name **URS** Date and Time Receive

Work Order Number **0302038** Received by AMF

Checklist completed by A Gonzales 2/7/03
Signature Date

Matrix: Carrier name: Client drop-off

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☒

Container/Temp Blank temperature? **19°** *4° C ± 2 Acceptable*

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: URS Corp.

Address: 6501 Americas PKWY
Suite 900
Albuquerque, NM 87110

Phone #: 845-8017

Fax #: 844-8501

Project Name: SNL · CAMU

Project #: 655196

Project Manager: Jerry May

Sampler: Saul Alanis

Samples Cold?: 10° ☑ Yes ☐ No

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HCl	Preservative: HNO_3	HEAL No. 0302038	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA) See list +	8270 (Semi-VOA) See list	TCLP Metals see list ~~3016/6010~~		Air Bubbles or Headspace (Y or N)
2/6/03	1421	Water	CAMU-ST-Decon-01A	3/40mL	X			1													X				N
"	1425	↑	CAMU-Decon Pad	3/40mL	X			2													X				N
"	1430		CAMU-ST-Decon-01A	1/1L	—	—	—	1														X			
"	1435	↓	CAMU-ST-Decon-01A	1/500mL			X	1															X		
"	1440	Water	CAMU-Decon Pad	1/500mL			X	2															X		
"	1432	Water	CAMU-Decon Pad	1/1L	—	—	—	2														X			
			TB					3																	

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
2/6/03	1653	Saul Alanis	[signature]	2/6/03 5:00
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks: *Please verify list of analytes for Reporting
* 7-day TAT required
* May contain

Survey Number: S63737

RADIOLOGICAL SURVEY FORM

Page: 1 of 10

Location: CAMU	Requester/Org.:Alanis, Saul/6134	Date: 01/24/03	Time: 0900
Purpose: Release	Request #: N/A	RWP#: N/A	

Instrument and Probe Type and Serial Number		Surveyor(s) Printed Name(s)	Surveyor(s) Signature/Date
E-600 / SHP380AB	1523/0702	KIARA ASHFORD	1/29/2003
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

#	Item Description/Location	BETA-GAMMA ACTIVITY Counting Data Attached: ☒ YES ☐NO % Eff.: [e] N/A Radionuclide: N/A				ALPHA ACTIVITY Counting Data Attached: ☒ YES ☐NO % Eff.: [e] N/A Radionuclide: N/A				RADIATION SURVEY Background: N/A mrem/hr Radiation Type: Gamma	
		cpm	Bkg. cpm	dpm[a, b] / 100cm2	T/R/F[c]	cpm	Bkg. cpm	dpm[a, b] / 100cm2	T/R/F[c]	mrem/hr	Distance from Source[d]
1-52	Concrete Stabilizer	< 400	400	N.D.	T	<5	5	N.D.	T	N/A	N/A

[a] ND = No detectable activity above background [b] If other than 100 cm², indicate area or record as 'dpm/probe' or 'dpm/LAW' (large area wipe). [c] T/R/F = Total/Removable/Fixed [d] OC or CT = On Contact [e] %Eff-Removable/Direct

Remarks Release of the above listed equipment from the CAMU.

Reviewed by: Date: 1-30-03

```
*****************************************************************************
* Sandia Radiation Protection Sample Diagnostics Program            1-28-2003 *
*****************************************************************************
LSC Windows Analysis Program - Version 1.3     Procedure RPSD-09-03

Client           : K. ASHFORD
Organization     : 3128
Building         :
Room             :
Other Info       : ER74 CONFIRMATORY 1/27/03 1600

Analyst          : RTPREST
Batch Number     : 33004516
LSC System ID    : UNIT05 S/N-405921
Protocol Number  : 13
Protocol Name    : H3AB -- SWIPE
No. of Samples   : 52
Collection Date  : 01/27/2003
Count Date       : 28-Jan-03
Count Time (min) : 5.00
Background cpm   : 2.24E+01
Background tSIE  : 4.14E+02
Background Eff   : 3.81E-01
Sample Aliquot   : 1.00E+00 Each

Efficiency = 9.76E-01 - Exp(-3.54E-04*tSIE^1.21E+00)
H-3   MDA  = 2.75E+01 dpm/Each
H-3   CL   = 1.30E+01 dpm/Each
```

Reviewed by RTPreston 1/28/03

Lab ID	Client ID	Aliquot Each	cpm	tSIE	Eff	H-3 Activity dpm/Each	2s Error	Flag
001	1	1.00E+00	1.80E+01	411	0.379	-1.16E+01	1.65E+01	
002	2	1.00E+00	2.48E+01	408	0.375	6.39E+00	1.78E+01	
003	3	1.00E+00	2.32E+01	419	0.386	2.07E+00	1.63E+01	
004	4	1.00E+00	1.80E+01	351	0.322	-1.36E+01	1.92E+01	
005	5	1.00E+00	2.28E+01	420	0.387	1.03E+00	1.60E+01	
006	6	1.00E+00	2.32E+01	400	0.368	2.17E+00	1.70E+01	

33004516 / 02

Lab ID	Client ID	Aliquot Each	cpm	tSIE	Eff	H-3 Activity dpm/Each	2s Error	Flag
007	7	1.00E+00	2.22E+01	446	0.410	-4.88E-01	1.50E+01	
008	8	1.00E+00	1.84E+01	343	0.314	-1.27E+01	2.05E+01	
009	9	1.00E+00	1.68E+01	422	0.388	-1.44E+01	1.61E+01	
010	10	1.00E+00	1.70E+01	434	0.399	-1.35E+01	1.57E+01	
011	11	1.00E+00	1.68E+01	416	0.383	-1.46E+01	1.64E+01	
012	12	1.00E+00	2.72E+01	456	0.418	1.15E+01	1.66E+01	
013	13	1.00E+00	2.14E+01	455	0.418	-2.39E+00	1.51E+01	
014	14	1.00E+00	1.68E+01	405	0.373	-1.50E+01	1.69E+01	
015	15	1.00E+00	1.50E+01	364	0.334	-2.21E+01	1.92E+01	
016	16	1.00E+00	1.84E+01	421	0.387	-1.03E+01	1.61E+01	
017	17	1.00E+00	1.96E+01	443	0.407	-6.88E+00	1.52E+01	
018	18	1.00E+00	2.06E+01	450	0.413	-4.36E+00	1.49E+01	
019	19	1.00E+00	2.00E+01	364	0.335	-7.16E+00	1.86E+01	
020	20	1.00E+00	1.70E+01	456	0.418	-1.29E+01	1.50E+01	
021	21	1.00E+00	1.90E+01	440	0.404	-8.41E+00	1.53E+01	
022	22	1.00E+00	2.30E+01	389	0.358	1.68E+00	1.76E+01	
023	23	1.00E+00	2.04E+01	366	0.337	-5.94E+00	1.85E+01	
024	24	1.00E+00	1.86E+01	398	0.367	-1.04E+01	1.69E+01	
025	25	1.00E+00	1.94E+01	417	0.384	-7.81E+00	1.61E+01	
026	26	1.00E+00	1.90E+01	374	0.345	-9.86E+00	1.80E+01	
027	27	1.00E+00	1.50E+01	337	0.309	-2.40E+01	2.14E+01	
028	28	1.00E+00	2.00E+01	374	0.344	-6.97E+00	1.80E+01	
029	29	1.00E+00	1.82E+01	378	0.348	-1.21E+01	1.79E+01	
030	30	1.00E+00	2.00E+01	429	0.395	-6.08E+00	1.57E+01	
031	31	1.00E+00	1.94E+01	418	0.385	-7.79E+00	1.61E+01	
032	32	1.00E+00	1.74E+01	412	0.379	-1.32E+01	1.65E+01	
033	33	1.00E+00	2.20E+01	375	0.345	-1.16E+00	1.78E+01	
034	34	1.00E+00	2.42E+01	425	0.391	4.60E+00	1.64E+01	
035	35	1.00E+00	1.90E+01	394	0.363	-9.36E+00	1.71E+01	
036	36	1.00E+00	1.80E+01	417	0.384	-1.15E+01	1.62E+01	
037	37	1.00E+00	1.80E+01	381	0.351	-1.25E+01	1.78E+01	
038	38	1.00E+00	1.80E+01	407	0.375	-1.17E+01	1.66E+01	
039	39	1.00E+00	1.90E+01	316	0.289	-1.18E+01	2.15E+01	

33004516 / 03

Lab ID	Client ID	Aliquot Each	cpm	tSIE	Eff	H-3 Activity dpm/Each	2s Error	Flag
040	40	1.00E+00	1.46E+01	402	0.371	-2.10E+01	1.70E+01	
041	41	1.00E+00	2.14E+01	401	0.369	-2.71E+00	1.67E+01	
042	42	1.00E+00	1.84E+01	346	0.318	-1.26E+01	1.99E+01	
043	43	1.00E+00	2.32E+01	322	0.294	2.72E+00	2.16E+01	
044	44	1.00E+00	2.26E+01	420	0.387	5.17E-01	1.59E+01	
045	45	1.00E+00	1.68E+01	427	0.393	-1.43E+01	1.59E+01	
046*	46	1.00E+00	1.92E+01	291	0.264	-1.21E+01	2.71E+01	
047	47	1.00E+00	1.74E+01	435	0.400	-1.25E+01	1.57E+01	
048	48	1.00E+00	1.80E+01	456	0.419	-1.05E+01	1.49E+01	
049	49	1.00E+00	2.16E+01	394	0.363	-2.20E+00	1.69E+01	
050	50	1.00E+00	1.78E+01	435	0.400	-1.15E+01	1.56E+01	
051	51	1.00E+00	2.22E+01	453	0.416	-4.81E-01	1.47E+01	
052	52	1.00E+00	1.80E+01	322	0.294	-1.49E+01	2.17E+01	

```
*****************************************************************************
* Sandia Radiation Protection Sample Diagnostics Program            1-28-2003 *
*****************************************************************************
LSC Windows Analysis Program - Version1.3     Procedure RPSD-09-03

Client           : K. ASHFORD
Organization     : 3128
Building         :
Room             :
Other Info       : ER74 CONFIRMATORY 1/27/03 1600

Analyst          : RTPREST
Batch Number     : 33004516
LSC System ID    : UNIT05 S/N-405921
Protocol Number  : 13
Protocol Name    : H3AB -- SWIPE
No. of Samples   : 52
Collection Date  : 01/27/2003
Count Date       : 28-Jan-03
Count Time (min) : 5.00
Background cpm   : 7.20E+00
Background tSIE  : 4.14E+02
Background Eff   : 9.88E-01
Sample Aliquot   : 1.00E+00 Each

Efficiency = 9.88E-01 - Exp(-1.48E-02*tSIE^1.04E+00)
Alpha MDA  = 6.27E+00 dpm/Each
Alpha CL   = 2.83E+00 dpm/Each
```

Lab ID	Client ID	Aliquot Each	cpm	tSIE	Eff	Alpha Activity dpm/Each	2s Error	Flag
001	1	1.00E+00	8.20E+00	411	0.988	1.01E+00	3.62E+00	
002	2	1.00E+00	5.80E+00	408	0.988	-1.42E+00	3.35E+00	
003	3	1.00E+00	5.20E+00	419	0.988	-2.03E+00	3.32E+00	
004	4	1.00E+00	5.80E+00	351	0.987	-1.42E+00	3.36E+00	
005	5	1.00E+00	7.80E+00	420	0.988	6.08E-01	3.55E+00	
006	6	1.00E+00	5.00E+00	400	0.987	-2.23E+00	3.30E+00	

33004516 / 02

Lab ID	Client ID	Aliquot Each	cpm	tSIE	Eff	Alpha Activity dpm/Each	2s Error	Flag
007	7	1.00E+00	5.80E+00	446	0.988	-1.42E+00	3.35E+00	
008	8	1.00E+00	4.00E+00	343	0.986	-3.24E+00	3.24E+00	
009	9	1.00E+00	8.80E+00	422	0.988	1.62E+00	3.72E+00	
010	10	1.00E+00	7.00E+00	434	0.988	-2.02E-01	3.43E+00	
011	11	1.00E+00	5.20E+00	416	0.988	-2.03E+00	3.32E+00	
012	12	1.00E+00	5.20E+00	456	0.988	-2.02E+00	3.32E+00	
013	13	1.00E+00	6.80E+00	455	0.988	-4.05E-01	3.41E+00	
014	14	1.00E+00	5.60E+00	405	0.988	-1.62E+00	3.34E+00	
015	15	1.00E+00	4.80E+00	364	0.987	-2.43E+00	3.29E+00	
016	16	1.00E+00	6.20E+00	421	0.988	-1.01E+00	3.38E+00	
017	17	1.00E+00	6.40E+00	443	0.988	-8.10E-01	3.39E+00	
018	18	1.00E+00	5.40E+00	450	0.988	-1.82E+00	3.33E+00	
019	19	1.00E+00	7.20E+00	364	0.987	0.00E+00	3.44E+00	
020	20	1.00E+00	8.00E+00	456	0.988	8.10E-01	3.58E+00	
021	21	1.00E+00	7.20E+00	440	0.988	0.00E+00	3.44E+00	
022	22	1.00E+00	5.20E+00	389	0.987	-2.03E+00	3.32E+00	
023	23	1.00E+00	8.20E+00	366	0.987	1.01E+00	3.62E+00	
024	24	1.00E+00	5.20E+00	398	0.987	-2.03E+00	3.32E+00	
025	25	1.00E+00	5.80E+00	417	0.988	-1.42E+00	3.35E+00	
026	26	1.00E+00	6.40E+00	374	0.987	-8.10E-01	3.39E+00	
027	27	1.00E+00	4.40E+00	337	0.986	-2.84E+00	3.27E+00	
028	28	1.00E+00	6.80E+00	374	0.987	-4.05E-01	3.42E+00	
029	29	1.00E+00	4.40E+00	378	0.987	-2.84E+00	3.26E+00	
030	30	1.00E+00	6.20E+00	429	0.988	-1.01E+00	3.38E+00	
031	31	1.00E+00	6.00E+00	418	0.988	-1.22E+00	3.37E+00	
032	32	1.00E+00	6.60E+00	412	0.988	-6.08E-01	3.40E+00	
033	33	1.00E+00	4.40E+00	375	0.987	-2.84E+00	3.26E+00	
034	34	1.00E+00	6.20E+00	425	0.988	-1.01E+00	3.38E+00	
035	35	1.00E+00	5.00E+00	394	0.987	-2.23E+00	3.30E+00	
036	36	1.00E+00	3.40E+00	417	0.988	-3.85E+00	3.19E+00	
037	37	1.00E+00	5.80E+00	381	0.987	-1.42E+00	3.36E+00	
038	38	1.00E+00	4.00E+00	407	0.988	-3.24E+00	3.24E+00	
039	39	1.00E+00	4.80E+00	316	0.985	-2.44E+00	3.30E+00	

33004516 / 03

Lab ID	Client ID	Aliquot Each	cpm	tSIE	Eff	Alpha Activity dpm/Each	2s Error	Flag
040	40	1.00E+00	5.00E+00	402	0.987	-2.23E+00	3.30E+00	
041	41	1.00E+00	6.40E+00	401	0.987	-8.10E-01	3.39E+00	
042	42	1.00E+00	5.60E+00	346	0.986	-1.62E+00	3.35E+00	
043	43	1.00E+00	5.20E+00	322	0.986	-2.03E+00	3.32E+00	
044	44	1.00E+00	5.20E+00	420	0.988	-2.03E+00	3.32E+00	
045	45	1.00E+00	6.20E+00	427	0.988	-1.01E+00	3.38E+00	
046*	46	1.00E+00	5.60E+00	291	0.984	-1.63E+00	3.36E+00	
047	47	1.00E+00	6.40E+00	435	0.988	-8.10E-01	3.39E+00	
048	48	1.00E+00	6.00E+00	456	0.988	-1.21E+00	3.37E+00	
049	49	1.00E+00	5.60E+00	394	0.987	-1.62E+00	3.34E+00	
050	50	1.00E+00	5.00E+00	435	0.988	-2.23E+00	3.30E+00	
051	51	1.00E+00	6.20E+00	453	0.988	-1.01E+00	3.38E+00	
052	52	1.00E+00	6.00E+00	322	0.986	-1.22E+00	3.37E+00	

```
*****************************************************************************
* Sandia Radiation Protection Sample Diagnostics Program            1-28-2003 *
*****************************************************************************
LSC Windows Analysis Program - Version1.3     Procedure RPSD-09-03

Client           : K. ASHFORD
Organization     : 3128
Building         :
Room             :
Other Info       : ER74 CONFIRMATORY 1/27/03 1600

Analyst          : RTPREST
Batch Number     : 33004516
LSC System ID    : UNIT05 S/N-405921
Protocol Number  : 13
Protocol Name    : H3AB -- SWIPE
No. of Samples   : 52
Collection Date  : 01/27/2003
Count Date       : 28-Jan-03
Count Time (min) : 5.00
Background cpm   : 3.78E+01
Background tSIE  : 4.14E+02
Background Eff   : 9.32E-01
Sample Aliquot   : 1.00E+00 Each

Efficiency = 9.33E-01 - Exp(-3.21E-02*tSIE^8.96E-01)
Beta  MDA  = 1.44E+01 dpm/Each
Beta  CL   = 6.87E+00 dpm/Each
```

Lab ID	Client ID	Aliquot Each	cpm	tSIE	Eff	Beta Activity dpm/Each	2s Error	Flag
001	1	1.00E+00	4.50E+01	411	0.932	7.72E+00	9.42E+00	@CL
002	2	1.00E+00	4.04E+01	408	0.932	2.79E+00	8.73E+00	
003	3	1.00E+00	4.22E+01	419	0.932	4.72E+00	9.00E+00	
004	4	1.00E+00	3.32E+01	351	0.931	-4.94E+00	8.54E+00	
005	5	1.00E+00	3.92E+01	420	0.932	1.50E+00	8.55E+00	
006	6	1.00E+00	3.58E+01	400	0.932	-2.15E+00	8.43E+00	

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Lab ID	Client ID	Aliquot Each	cpm	tSIE	Eff	Beta Activity dpm/Each	2s Error	Flag
007	7	1.00E+00	4.08E+01	446	0.932	3.22E+00	8.79E+00	
008	8	1.00E+00	4.08E+01	343	0.931	3.22E+00	8.81E+00	
009	9	1.00E+00	3.80E+01	422	0.932	2.15E-01	8.37E+00	
010	10	1.00E+00	4.46E+01	434	0.932	7.29E+00	9.36E+00	@CL
011	11	1.00E+00	3.90E+01	416	0.932	1.29E+00	8.52E+00	
012	12	1.00E+00	4.02E+01	456	0.933	2.57E+00	8.70E+00	
013	13	1.00E+00	3.38E+01	455	0.933	-4.29E+00	8.50E+00	
014	14	1.00E+00	4.42E+01	405	0.932	6.87E+00	9.30E+00	
015	15	1.00E+00	4.32E+01	364	0.931	5.80E+00	9.16E+00	
016	16	1.00E+00	3.76E+01	421	0.932	-2.15E-01	8.35E+00	
017	17	1.00E+00	4.36E+01	443	0.932	6.22E+00	9.21E+00	
018	18	1.00E+00	4.04E+01	450	0.933	2.79E+00	8.73E+00	
019	19	1.00E+00	3.82E+01	364	0.931	4.30E-01	8.41E+00	
020	20	1.00E+00	4.32E+01	456	0.933	5.79E+00	9.15E+00	
021	21	1.00E+00	3.76E+01	440	0.932	-2.14E-01	8.35E+00	
022	22	1.00E+00	4.14E+01	389	0.932	3.86E+00	8.89E+00	
023	23	1.00E+00	3.52E+01	366	0.931	-2.79E+00	8.46E+00	
024	24	1.00E+00	4.06E+01	398	0.932	3.00E+00	8.77E+00	
025	25	1.00E+00	3.96E+01	417	0.932	1.93E+00	8.61E+00	
026	26	1.00E+00	3.68E+01	374	0.931	-1.07E+00	8.39E+00	
027	27	1.00E+00	4.14E+01	337	0.930	3.87E+00	8.90E+00	
028	28	1.00E+00	3.66E+01	374	0.931	-1.29E+00	8.40E+00	
029	29	1.00E+00	4.20E+01	378	0.932	4.51E+00	8.98E+00	
030	30	1.00E+00	3.92E+01	429	0.932	1.50E+00	8.55E+00	
031	31	1.00E+00	3.46E+01	418	0.932	-3.43E+00	8.47E+00	
032	32	1.00E+00	4.00E+01	412	0.932	2.36E+00	8.67E+00	
033	33	1.00E+00	3.94E+01	375	0.931	1.72E+00	8.59E+00	
034	34	1.00E+00	4.20E+01	425	0.932	4.50E+00	8.97E+00	
035	35	1.00E+00	3.88E+01	394	0.932	1.07E+00	8.50E+00	
036	36	1.00E+00	3.58E+01	417	0.932	-2.15E+00	8.42E+00	
037	37	1.00E+00	3.98E+01	381	0.932	2.15E+00	8.65E+00	
038	38	1.00E+00	4.48E+01	407	0.932	7.51E+00	9.39E+00	@CL
039	39	1.00E+00	3.98E+01	316	0.929	2.15E+00	8.67E+00	

33004516 / 03

Lab ID	Client ID	Aliquot Each	cpm	tSIE	Eff	Beta Activity dpm/Each	2s Error	Flag
040	40	1.00E+00	4.00E+01	402	0.932	2.36E+00	8.67E+00	
041	41	1.00E+00	3.84E+01	401	0.932	6.44E-01	8.43E+00	
042	42	1.00E+00	4.40E+01	346	0.931	6.66E+00	9.28E+00	
043	43	1.00E+00	4.06E+01	322	0.930	3.01E+00	8.79E+00	
044	44	1.00E+00	3.28E+01	420	0.932	-5.36E+00	8.54E+00	
045	45	1.00E+00	3.74E+01	427	0.932	-4.29E-01	8.36E+00	
046*	46	1.00E+00	3.78E+01	291	0.927	0.00E+00	8.39E+00	
047	47	1.00E+00	3.78E+01	435	0.932	0.00E+00	8.34E+00	
048	48	1.00E+00	3.94E+01	456	0.933	1.72E+00	8.58E+00	
049	49	1.00E+00	4.12E+01	394	0.932	3.65E+00	8.85E+00	
050	50	1.00E+00	4.16E+01	435	0.932	4.08E+00	8.91E+00	
051	51	1.00E+00	4.16E+01	453	0.933	4.07E+00	8.91E+00	
052	52	1.00E+00	3.94E+01	322	0.930	1.72E+00	8.61E+00	