LK 7545 1A

004802

LOCKHEED MARTIN

# Lockheed Analytical Services

SEP 1996
RECEIVED
Data
Log In

Ms. Joan Kessner
Bechtel Hanford, Inc.
3350 George Washington Way
MISN B1-35
Richland, WA 99352

OCT 1997
RECEIVED

ANALYTICAL DATA REPORT

FOR

METALS, CHLORIDE, FLUORIDE, NITRATE, NITRITE, PHOSPHATE, SULFATE, IGNITABILITY, pH, CYANIDE, VOLATILE AND SEMIVOLATILE ORGANICS

| | |
|---|---|
| LOG-IN NUMBER: | L7545 |
| QUOTATION NUMBER: | Q400000-B |
| SAF: | B96-141 |
| DOCUMENT FILE NUMBER: | 0730596B |
| BHI DOCUMENT FILE NO.: | 395 |
| SDG NUMBER: | LK7545 |

# Sample Disposition Record

Control #: B96-0131
Revision #: 0
Date Initiated: 09/10/96

**Section 1 - BACKGROUND**
SAF #: B96-143
OU: N/A
Project ID: 100N 90-Day Pad
Task ID: 1
Sampling Event: 109N Unknown Wastes --Unknown Solids
Laboratory: Lockheed
Project Coordinator: C. C. Koerner
Task Manager: D. W. Eckert

**Section 2 - SAMPLE INFORMATION**
Number of Samples: 2
ID Numbers: B0HXX7, B0HXX8
Matrix: Other Solid -- Various Unknown Solids
Collection Date: 07/23/96

**Section 3 - ISSUE**
Class: Lab Direction
NCR Number: N/A
Type: Temperature Excursion
Description: Sample coolers were received at Lockheed at a temperature of 19 degrees C or above.

N/A
NCR Validation (Print/Sign) Date

**Section 4 - DISPOSITION**
Type: Use As Is
Description: Lockheed is directed to continue with the analyses as requested on the Chain of Custody and the Field Sampling Requirements. The analyses include VOA and Semi-VOA.

C. C. Koerner/ 9-10-96
Project Coordinator (Print/Sign) Date

D. W. Eckert/ 9/16/96
Task Manager (Print/Sign) Date

N/A
QA (Print/Sign) Date

**Section 5 - INSPECTION (Issue Class: Nonconformance Only)**
Inspection Number: N/A
Inspection Results: N/A

N/A
Inspector (Print/Sign) Date

*Lockheed Analytical Services*

BECHTEL HANFORD

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Sample Login No. L7545


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This report contains a total of 100 pages.

Lockheed Environmental Systems & Technologies Co.
Lockheed Analytical Services
975 Kelly Johnson Drive Las Vegas, Nevada 89119-3705
Telephone 702-361-0220 800-582-7605 Facsimile 702-361-8146

LOCKHEED MARTIN

September 27, 1996

Ms. Joan Kessner
Bechtel Hanford, Inc.
3350 George Washington Way
MISN B1-35
Richland, WA 99352

SEP 1996
RECEIVED
Data
Log In

| | | |
|---|---|---|
| RE: | Log-in No.: | L7545 |
| | Quotation No.: | Q400000-B |
| | SAF: | B96-141 |
| | Document File No.: | 0730596B |
| | BHI Document File No.: | 395 |
| | SDG No.: | LK7545 |

The attached data report contains the analytical results of samples that were submitted to Lockheed Analytical Services on 30 July 1996. The temperature of the cooler upon receipt was 26°C. Sample containers received all coincided with the chain-of-custody documentation. All sample containers were received intact. Samples were received in time to meet the analytical holding time requirements.

The case narratives included in the following attachments provide a detailed description of all events that occurred during sample preparation, analysis, and data review specific to the samples and analytical methods requested.

A list of data qualifiers, chain-of-custody forms, sample receiving checklist, and log-in report are also enclosed representing the samples received within this group.

If you have any questions concerning the analysis or the data please call Mary K. Wolf (702) 361-3955, ext. 311. If you are unable to contact the Client Services Representative, please call Mary B. Ford, Client Services Manager, at extension 326.

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Sincerely,

Mary K Wolf

Mary K. Wolf
Client Services Representative

cc: Client Services
Document Control

A2LA, ISO/IEC Guide 25, Section 13.2: The following results relate only to those samples tested. This report shall not be reproduced except in full, without the written approval of LAS.

# CASE NARRATIVE
## INORGANIC NON METALS ANALYSES

The routine calibration and quality control analyses performed for this batch include as applicable: initial and continuing calibration verification, initial and continuing calibration blanks, method blank(s), laboratory control sample(s), matrix spike (predigestion) sample(s), duplicate sample(s).

**Preparation and Analysis Requirements**

- Two solid waste samples were received for LK7545 and analyzed in batches 730 bh and 730 bh2 for selected analytes to be analyzed in client-specified order as requested on the chain of custody. Quality control analysis was performed on the following samples:

| Client ID | LAL # | | Method |
|---|---|---|---|
| BOHXX7 | L7545-4 | DUP, MS | 300.0 Chloride, Fluoride, Nitrate-Nitrogen, Nitrite Nitrogen, Orthophosphate and Sulfate |
| | L7545-7 | DUP, MS | 335.2 Total Cyanide |
| | L7545-8 | DUP, MS | 9030 Sulfide |
| | L7545-3 | DUP | 9045 pH |
| | L7545-2 | N/A | 1010 Ignitability |
| BOHXX8 | L7545-9 | N/A | 1010 Ignitability |

**Holding Time Requirements**

- The samples were received and analyzed within method-specific holding time except for the following:

  For Method 300.0 Chloride, Fluoride, Nitrate-Nitrogen, Nitrite-Nitrogen, Orthophosphate and Sulfate and Method 9030 Sulfide, due to the client-specified sequence of analyses, these samples were analyzed outside of the method-specific holding time and the associated samples are flagged with an "H".

  For Method 1010 Ignitability, Method 335.2 Total Cyanide and Method 9045 pH, the samples were received and analyzed outside of the method-specific holding time and the associated samples are flagged with an "H".

**Method Blanks**

- The concentration levels of all the requested analytes in the method blank were below the reporting detection limits.

**Internal Quality Control**

- All Internal Quality Control were within acceptance limits with the following exceptions:

  For Method 300.0 Nitrite, the matrix spike recovery exceeded the 75-125% acceptance limit. However, the LCS recovery was within criteria (96.0%) indicating the system was under control. The associated samples are flagged with an "N".

  For Method 9030 Sulfide, the matrix spike recovery exceeded the 75-125% acceptance limit. However, the LCS recovery was within criteria (93.3%) indicating the system was under control. The associated samples are flagged with an "N".

**Samples**

- Samples are reported on an "as received" basis.

Kay McCann
**Prepared By**

September 18, 1996
**Date**

# CASE NARRATIVE
## INORGANIC METALS ANALYSES

The routine calibration and quality control analyses performed for this batch include as applicable: instrument tune (ICP/MS only), initial and continuing calibration verification, initial and continuing calibration blanks, method blank(s), laboratory control sample(s), ICP interference check samples (ICP only), serial dilutions, analytical (post-digestion) spike samples, matrix spike (predigestion) sample(s), and duplicate sample(s).

**Preparation and Analysis Requirements**

All samples were received on July 30, 1996. The samples were logged in as L7544 and were prepared and analyzed in batch 730 bh2 for TCLP metals. The samples were analyzed by Method 6010A ICP Trace and Method 7470 Mercury.

**Holding Time Requirements**

- All samples were analyzed within the method-specific holding times.

**Method Blanks**

- The concentration levels of all the requested analytes in the method blank were below the reporting detection limits.

**Internal Quality Control**

- All Internal Quality Control were within acceptance limits.

Shellee McGrath
**Prepared By**

September 27, 1996
**Date**

# CASE NARRATIVE
# ORGANIC ANALYSES

**Analytical Method 8240 Volatiles**

The associated samples were analyzed in two analytical batches. All instrument tunes, initial and continuing calibrations met criteria. All internal standard area counts and retention times were within QC limits for all samples.

*Analytical Batch 080496-8260-C1*

**Note:** This analytical batch only contains the spiked results of the matrix spike (39737MS) and matrix spike duplicate (39737MSD). Sample B0HXS8 (L7544-40) was the native sample used for the MS and MSD analyzed in this analytical batch.

The samples were analyzed within holding time on August 4, 1996. Surrogate recoveries were within QC limits for the 39737MS and 39737MSD. Compound recoveries were within QC limits in the 39737MS, 39737MSD, and laboratory control sample (39737LCS). The relative percent differences (RPDs) between the MS and MSD recoveries were within QC limits.

*Analytical Batch 080596-8260-C1*

**Note:** The 39769LCS-1 spiking solution contained many target compounds in addition to the five (5) required spiked compounds.

The samples were analyzed within holding time on August 5, 1996. Target compounds Trichlorofluoromethane, Acetone, 2-Butanone, and Tetrachloroethene were detected in the method blank (39769MB-1). All associated samples with detected target compounds as in the method blank were flagged with the "B" qualifier. Surrogate recoveries were within QC limits except for Toluene-d8 and Bromofluorobenzene in sample B0HXX7 (L7545-5). This sample was diluted and reanalyzed in analytical batch 080696-8260-E1. Only analysis results from this analytical batch (080596-8260-C1) were reported in this data package. Compound recoveries were within QC limits in the 39769LCS-1. The associated 39737MS and 39737MSD were analyzed in analytical batch 080496-8260-C1.

**Analytical Method 8270 Semivolatiles**

*Analytical Batch 081996-8270-A*

**Note:** Due to insufficient sample volume, a 39790LCS and laboratory control sample duplicate (39790LCSDUP) were extracted and analyzed in place of a MS and MSD.

The samples were extracted within the holding time on August 5, 1996 and analyzed within the required holding time on August 19, 1996. All instrument tunes, initial and continuing calibrations met criteria. Target compounds were not detected in the method blank (39790MB). Surrogate recoveries were within QC limits for all samples. Compound recoveries were within QC limits in the 39790LCS and 39790LCSDUP. The RPDs between the LCS and LCSDUP recoveries were within QC limits. All internal standard area counts and retention times were within QC limits except for Perylene-d12 in sample B0HXX7 (L7545-6). This sample was reanalyzed in this analytical batch. All analyses results were reported in this data package.

Lydia M. Coleman
Prepared By

September 10, 1996
Date

Revised

LOCKHEED ANALYTICAL SERVICES
LOGIN CHAIN OF CUSTODY REPORT (ln01)
Aug 02 1996, 02:28 pm

Login Number: L7545
Account: 596 Bechtel Hanford, Inc. * Richland, WA
Project: BECHTEL-HANFORD Bechtel Hanford Project

| Laboratory Sample Number | Client Sample Number | Collect Date | Receive Date | PR | Due Date |
|---|---|---|---|---|---|
| L7545-1 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 | | | | | |
| Location: 156TMP-2 | | | | | |
| SolidWaste 8 S SCREENING | | | | | |
| L7545-2 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 | | | | | |
| Location: 156CART-8 | | | | | |
| SolidWaste 8 S 1010 IGNITABILITY | Hold:30-JUL-96 | | | | |
| SolidWaste 8 S 9045 PH | Hold:30-JUL-96 | | | | |
| L7545-3 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 "TCLP=M" | | | | | |
| Location: 156CART-8 | | | | | |
| SolidWaste 8 S 1311 TCLP REG. EXTR. | Hold:06-AUG-96 | | | | |
| * TCLP Extr 13 S 6010A ICP TRACE | Hold:19-JAN-97 | | | | |
| TCLP Extr 13 S 7470 MERCURY | Hold:20-AUG-96 | | | | |
| L7545-4 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 | | | | | |
| Location: 156CART-8 | | | | | |
| SolidWaste 8 S 300.0 CHLORIDE | Hold:20-AUG-96 | | | | |
| SolidWaste 8 S 300.0 FLUORIDE | Hold:20-AUG-96 | | | | |
| SolidWaste 8 S 300.0 NITRATE | Hold:25-JUL-96 | | | | |
| SolidWaste 8 S 300.0 NITRITE | | | | | |
| SolidWaste 8 S 300.0 PHOSPHATE | Hold:25-JUL-96 | | | | |
| SolidWaste 8 S 300.0 SULFATE | Hold:20-AUG-96 | | | | |
| L7545-5 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 | | | | | |
| * Location: 156CART-8 | | | | | |
| SolidWaste 8 S 8240 VOLATILES | Hold:06-AUG-96 | | | | |
| L7545-6 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 | | | | | |
| * Location: 156CART-8 | | | | | |
| SolidWaste 8 S 8270 SEMI-VOLATILES | Hold:06-AUG-96 | | | | |
| L7545-7 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 | | | | | |
| Location: 156CART-8 | | | | | |
| SolidWaste 8 S 335.2 CYANIDE TOTAL | Hold:06-AUG-96 | | | | |



0730596 B

0012

LOCKHEED ANALYTICAL SERVICES
LOGIN CHAIN OF CUSTODY REPORT (ln01)
Aug 02 1996, 02:28 pm

Login Number: L7545
Account: 596 Bechtel Hanford, Inc. * Richland, WA
Project: BECHTEL-HANFORD Bechtel Hanford Project

| Laboratory Sample Number | Client Sample Number | Collect Date | Receive Date | PR | Due Date |
|---|---|---|---|---|---|
| L7545-8 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 | | | | | |
| Location: 156CART-8 | | | | | |
| SolidWaste 8 S 9030 SULFIDE | | Hold:30-JUL-96 | | | |
| L7545-9 | B0HXX8 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 "LIMITED SAMPLE VOLUME" PRIORITIZE ANALYTE LIST | | | | | |
| Location: 156RAD1-03 | | | | | |
| SolidWaste 8 S 1010 IGNITABILITY | | Hold:30-JUL-96 | | | |
| SolidWaste 8 S 1311 TCLP REG. EXTR. | | Hold:06-AUG-96 | | | |
| SolidWaste 8 S 300.0 CHLORIDE | | Hold:20-AUG-96 | | | |
| SolidWaste 8 S 300.0 FLUORIDE | | Hold:20-AUG-96 | | | |
| SolidWaste 8 S 300.0 NITRATE | | Hold:25-JUL-96 | | | |
| SolidWaste 8 S 300.0 NITRITE | | | | | |
| SolidWaste 8 S 300.0 PHOSPHATE | | Hold:25-JUL-96 | | | |
| SolidWaste 8 S 300.0 SULFATE | | Hold:20-AUG-96 | | | |
| SolidWaste 8 S 335.2 CYANIDE TOTAL | | Hold:06-AUG-96 | | | |
| TCLP Extr 13 S 6010A ICP TRACE | | Hold:19-JAN-97 | | | |
| TCLP Extr 13 S 7470 MERCURY | | Hold:20-AUG-96 | | | |
| SolidWaste 8 S 8240 VOLATILES | | Hold:06-AUG-96 | | | |
| SolidWaste 8 S 8270 SEMI-VOLATILES | | Hold:06-AUG-96 | | | |
| SolidWaste 8 S 9030 SULFIDE | | Hold:30-JUL-96 | | | |
| SolidWaste 8 S 9045 PH | | Hold:30-JUL-96 | | | |
| SolidWaste 8 S SCREENING | | | | | |
| L7545-10 | REPORT TYPE | 31-JUL-96 | 30-JUL-96 | | 14-AUG-9 |
| Location: | | | | | |
| Water 1 S EDD - DISK DEL. | | | | | |
| Water 1 S GC2 | | | | | |
| Water 1 S GCMS2 | | | | | |
| Water 1 S INORG TYPE 2 RPT + | | | | | |

* changed to ICP Trace

* Analysis added per client request.



Signature: [signature] 0013

Date: 08-02-96

0730596 B

LOCKHEED ANALYTICAL SERVICES
LOGIN CHAIN OF CUSTODY REPORT (ln01)
Jul 31 1996, 04:40 pm

Login Number: L7545
Account: 596 Bechtel Hanford, Inc. * Richland, WA
Project: BECHTEL-HANFORD Bechtel Hanford Project

| Laboratory Sample Number | Client Sample Number | Collect Date | Receive Date | PR | Due Date |
|---|---|---|---|---|---|
| L7545-1 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 | | | | | |
| Location: 156TMP-2 | | | | | |
| SolidWaste 8 S SCREENING | | | | | |
| L7545-2 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 | | | | | |
| Location: 157 | | | | | |
| SolidWaste 8 S 1010 IGNITABILITY | Hold:30-JUL-96 | | | | |
| SolidWaste 8 S 9045 PH | Hold:30-JUL-96 | | | | |
| L7545-3 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 "TCLP=M" | | | | | |
| Location: 157 | | | | | |
| SolidWaste 8 S 1311 TCLP REG. EXTR. | Hold:06-AUG-96 | | | | |
| TCLP Extr 13 S 6010A ICP METALS | Hold:19-JAN-97 | | | | |
| TCLP Extr 13 S 7470 MERCURY | Hold:20-AUG-96 | | | | |
| L7545-4 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 | | | | | |
| Location: 157 | | | | | |
| SolidWaste 8 S 300.0 CHLORIDE | Hold:20-AUG-96 | | | | |
| SolidWaste 8 S 300.0 FLUORIDE | Hold:20-AUG-96 | | | | |
| SolidWaste 8 S 300.0 NITRATE | Hold:25-JUL-96 | | | | |
| SolidWaste 8 S 300.0 NITRITE | | | | | |
| SolidWaste 8 S 300.0 PHOSPHATE | Hold:25-JUL-96 | | | | |
| SolidWaste 8 S 300.0 SULFATE | Hold:20-AUG-96 | | | | |
| L7545-5 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 | | | | | |
| Location: 157 | | | | | |
| SolidWaste 8 S 8240 VOLATILES | Hold:06-AUG-96 | | | | |
| L7545-6 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 | | | | | |
| Location: 157 | | | | | |
| SolidWaste 8 S 8270 SEMI-VOLATILES | Hold:06-AUG-96 | | | | |
| L7545-7 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 | | | | | |
| Location: 157 | | | | | |
| SolidWaste 8 S 335.2 CYANIDE TOTAL | Hold:06-AUG-96 | | | | |



0730596B

LOCKHEED ANALYTICAL SERVICES
LOGIN CHAIN OF CUSTODY REPORT (ln01)
Jul 31 1996, 04:40 pm

Login Number: L7545
Account: 596 Bechtel Hanford, Inc. * Richland, WA
Project: BECHTEL-HANFORD Bechtel Hanford Project

| Laboratory Sample Number | Client Sample Number | Collect Date | Receive Date | PR | Due Date |
|---|---|---|---|---|---|
| L7545-8 | B0HXX7 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 | | | | | |
| Location: 157 | | | | | |
| SolidWaste 8 S 9030 SULFIDE | | Hold:30-JUL-96 | | | |
| L7545-9 | B0HXX8 | 23-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| TEMP 26 "LIMITED SAMPLE VOLUME" | | PRIORITIZE ANALYTE LIST | | | |
| Location: 157 | | | | | |
| SolidWaste 8 S 1010 IGNITABILITY | | Hold:30-JUL-96 | | | |
| SolidWaste 8 S 1311 TCLP REG. EXTR. | | Hold:06-AUG-96 | | | |
| SolidWaste 8 S 300.0 CHLORIDE | | Hold:20-AUG-96 | | | |
| SolidWaste 8 S 300.0 FLUORIDE | | Hold:20-AUG-96 | | | |
| SolidWaste 8 S 300.0 NITRATE | | Hold:25-JUL-96 | | | |
| SolidWaste 8 S 300.0 NITRITE | | | | | |
| SolidWaste 8 S 300.0 PHOSPHATE | | Hold:25-JUL-96 | | | |
| SolidWaste 8 S 300.0 SULFATE | | Hold:20-AUG-96 | | | |
| SolidWaste 8 S 335.2 CYANIDE TOTAL | | Hold:06-AUG-96 | | | |
| TCLP Extr 13 S 6010A ICP METALS | | Hold:19-JAN-97 | | | |
| TCLP Extr 13 S 7470 MERCURY | | Hold:20-AUG-96 | | | |
| SolidWaste 8 S 8240 VOLATILES | | Hold:06-AUG-96 | | | |
| SolidWaste 8 S 8270 SEMI-VOLATILES | | Hold:06-AUG-96 | | | |
| SolidWaste 8 S 9030 SULFIDE | | Hold:30-JUL-96 | | | |
| SolidWaste 8 S 9045 PH | | Hold:30-JUL-96 | | | |
| SolidWaste 8 S SCREENING | | | | | |
| L7545-10 | REPORT TYPE | 31-JUL-96 | 30-JUL-96 | | 14-AUG-96 |
| Location: | | | | | |
| Water 1 S EDD - DISK DEL. | | | | | |
| Water 1 S GC2 | | | | | |
| Water 1 S GCMS2 | | | | | |
| Water 1 S INORG TYPE 2 RPT + | | | | | |



Signature: Paula Vaus 0015
Date: 7-31-96
0730596B

Lockheed Analytical Laboratory
SAMPLE SUMMARY REPORT (su02)
Bechtel Hanford, Inc. * Richland, WA

| Client Sample Number* | LAL Sample Number | SDG Number* | Matrix | Method* |
|---|---|---|---|---|
| B0HXX7 | L7545-1 | | SolidWaste | SCREENING |
| | L7545-2 | | SolidWaste | 1010 IGNITABILI |
| | L7545-2 | | SolidWaste | 9045 PH |
| | L7545-3 | | SolidWaste | 1311 TCLP REG. |
| | L7545-3 | | TCLP Extr | 6010A ICP METAL |
| | L7545-3 | | TCLP Extr | 7470 MERCURY |
| | L7545-4 | | SolidWaste | 300.0 CHLORIDE |
| | L7545-4 | | SolidWaste | 300.0 FLUORIDE |
| | L7545-4 | | SolidWaste | 300.0 NITRATE |
| | L7545-4 | | SolidWaste | 300.0 NITRITE |
| | L7545-4 | | SolidWaste | 300.0 PHOSPHATE |
| | L7545-4 | | SolidWaste | 300.0 SULFATE |
| | L7545-5 | | SolidWaste | 8240 VOLATILES |
| | L7545-6 | | SolidWaste | 8270 SEMI-VOLAT |
| | L7545-7 | | SolidWaste | 335.2 CYANIDE T |
| | L7545-8 | | SolidWaste | 9030 SULFIDE |
| B0HXX8 | L7545-9 | | SolidWaste | 1010 IGNITABILI |
| | L7545-9 | | SolidWaste | 1311 TCLP REG. |
| | L7545-9 | | SolidWaste | 300.0 CHLORIDE |
| | L7545-9 | | SolidWaste | 300.0 FLUORIDE |
| | L7545-9 | | SolidWaste | 300.0 NITRATE |
| | L7545-9 | | SolidWaste | 300.0 NITRITE |
| | L7545-9 | | SolidWaste | 300.0 PHOSPHATE |
| | L7545-9 | | SolidWaste | 300.0 SULFATE |
| | L7545-9 | | SolidWaste | 335.2 CYANIDE T |
| | L7545-9 | | TCLP Extr | 6010A ICP METAL |
| | L7545-9 | | TCLP Extr | 7470 MERCURY |
| | L7545-9 | | SolidWaste | 8240 VOLATILES |
| | L7545-9 | | SolidWaste | 8270 SEMI-VOLAT |
| | L7545-9 | | SolidWaste | 9030 SULFIDE |
| | L7545-9 | | SolidWaste | 9045 PH |
| | L7545-9 | | SolidWaste | SCREENING |
| REPORT TYPE | L7545-10 | | Water | EDD - DISK DEL. |
| | L7545-10 | | Water | GC2 |
| | L7545-10 | | Water | GCMS2 |
| | L7545-10 | | Water | INORG TYPE 2 RP |



0730596B

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST L7545 | B96-143-1 | Page 2 of 2 |
|---|---|---|---|

Data Turnaround: ☐ Priority ☐ Normal

| | | |
|---|---|---|
| Collector: Doug Bowers | Company Contact: Don Eckert | Telephone No.: 373-4955 |
| Project Designation: 100-N 90-Day Pad Waste Container Characterization | Sampling Location: 109N building 100 Area | SAF No.: B96-143 |
| Ice Chest No.: SML-483 | Field Logbook No.: EFL-1133-1 | Method of Shipment: Common Carrier (ground) |
| Shipped To: Lockheed | Offsite Property No.: | Bill of Lading/Air Bill No.: |

POSSIBLE SAMPLE HAZARDS/REMARKS: Unknown

Special Handling and/or Storage: Cool to 4C.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | None | None | None | None | none | | | | | |
| Type of Container | aG | G/P | aG | G | aG | aG | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | 1 | 1 | | | | | |
| Volume | 60ml | 125ml | 60ml | 125ml | 60ml | 250ml | | | | | |
| SAMPLE ANALYSIS | Semi-VOA - 8270A (TCL) | Cyanide (Total) - 335 2 | Cyanide (Total) - 335 2 | Sulfides - 9030 | Sulfides - 9030 | See #1 below | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B0HXX7 | Other Solid | 7-23-96 | 0821 | X | | X | | X | ~~X~~ | [illegible] 7-23-96 | | | |
| B0HXX8 | Other Solid | 7-23-96 | 0830 | | | | | | X | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | | |
|---|---|---|---|
| Relinquished By: Doug Bowers | Date/Time: 7-24-96 / 0620 | Received By: [illegible] | Date/Time: 7/24/96 0620 |
| Relinquished By: D. St John ITH / D. St John | Date/Time: 7-24-96 0730 | Received By: [illegible] / B Whitten | Date/Time: 7-24-96 0730 |
| Relinquished By: [illegible] / B Whitten | Date/Time: 7-26-96 0700 BW | Received By: | Date/Time: |
| Relinquished By: | Date/Time: | Received By: | Date/Time: |

SPECIAL INSTRUCTIONS

Due to limited volumes of some waste containers, perform sampling and analysis in order listed on FSR

Data Turnaround Requirements - 15 days

#1 entire volume of sample in 1 container

DUE TO SHIPPING REQUIREMENTS, THE ERC CONTRACTOR ACKNOWLEDGES THE HOLDING TIME FOR SULFIDES BY EPA 9030 MAY NOT BE MET BW 7-25-96

Matrix *

- S - Soil
- SE - Sediment
- SO - Solid
- SL - Sludge
- W - Water
- O - Oil
- A - Air
- DS - Drum Solids
- DL - Drum Liquids
- T - Tissue
- WI - Wipe
- L - Liquid
- V - Vegetation
- X - Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By: [illegible] | Title: Sample Custodian | Date/Time: 7-30-96 / 16:00 |
| FINAL SAMPLE DISPOSITION | Disposal Method: | Disposed By: | Date/Time: |

0730596 8 0017

**Bechtel Hanford Inc.**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B96-143-1 

Data Turnaround: ☐ Priority ☐ Normal

| | | |
|---|---|---|
| **Collector** Doug Bowers | **Company Contact** Don Eckert | **Telephone No.** 373-4955 |
| **Project Designation** 100-N 90-Day Pad Waste Container Characterization | **Sampling Location** 109N building 100 Area | **SAF No.** B96-143 |
| **Ice Chest No.** SML-483 | **Field Logbook No.** EFL-1133-1 | **Method of Shipment** Common Carrier (ground) |
| **Shipped To** Lockheed | **Offsite Property No.** | **Bill of Lading/Air Bill No.** |

**POSSIBLE SAMPLE HAZARDS/REMARKS**
Unknown

**Special Handling and/or Storage**
Cool to 4C.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Preservation** | None | None | None | None | None | None | None | None | None | None |
| **Type of Container** | P | G | aG | G | aG | G/P | aG | G | aG | aG |
| **No. of Container(s)** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **Volume** | 20ml | 125ml | 60ml | 300ml | 125ml | 125ml | 60ml | 125ml | 60ml | 125ml |
| **SAMPLE ANALYSIS** | Activity Scan | Ignitability - 1010; pH (Soil) - 9045 | Ignitability - 1010; pH (Soil) - 9045 | See item (1) in Special Instructions | See item (2) in Special Instructions | See item (3) in Special Instructions | See item (4) in Special Instructions | VOA - 8240A (TCL) | VOA - 8240A (TCL) | Semi-VOA - 8270A (TCL) |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B0HXX7 | Other Solid | 7-23-96 | 0831 | X | | X | | X | | X | | X | |
| B0HXX8 | Other Solid | 7-23-96 | 0830 | ~~X~~ 7/24/96 DJS | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

**CHAIN OF POSSESSION** — Sign/Print Names

| Relinquished By | Date/Time | Received By | Date/Time |
|---|---|---|---|
| Doug Bowers | 7-24-96/0820 | David St John | 7/24/96 0820 |
| David St John (D. St John ITN) | 7-24-96 0732 | Rick Walker (GR) Bch.Hen | 0730 7-24-96 |
| Rick Walker (GR) Bch.Hen | 0900 7-24-96 | | |
| | | | |

**SPECIAL INSTRUCTIONS**
Due to limited volumes of some waste containers, perform sampling and analysis in order listed on FSR.
Data Turnaround Requirements - 15 days

(1) Metals by ICP (TCLP) - 1311/6010A; Mercury (TCLP) - 1311/7470
(2) Metals by ICP (TCLP) - 1311/6010A; Mercury (TCLP) - 1311/7470
(3) IC Anions - 300.0 (Fluoride, Nitrogen in Nitrite, Phosphate, Nitrogen in Nitrate, Chloride, Sulfate)
(4) IC Anions - 300.0 (Nitrogen in Nitrate, Phosphate, Sulfate, Fluoride, Nitrogen in Nitrite, Chloride)

**Matrix ***

| | | |
|---|---|---|
| S | = | Soil |
| SE | = | Sediment |
| SO | = | Solid |
| SL | = | Sludge |
| W | = | Water |
| O | = | Oil |
| A | = | Air |
| DS | = | Drum Solids |
| DL | = | Drum Liquids |
| T | = | Tissue |
| WI | = | Wipe |
| L | = | Liquid |
| V | = | Vegetation |
| X | = | Other |

| | | | |
|---|---|---|---|
| **LABORATORY SECTION** | Received By: Paul Davis | Title: Sample Custodian | Date/Time: 7-30-96/16:00 |
| **FINAL SAMPLE DISPOSITION** | Disposal Method | Disposed By | Date/Time |

0930596

# MESSAGE CONFIRMATION

07/31/96 15:38
SESSION NO.= 155 ID=LOCKHEED LAB SAMPLE RECEIVING

| DATE | TIME | S,R-TIME | DISTANT STATION ID | MODE | PAGES | RESULT | |
|---|---|---|---|---|---|---|---|
| 07/31 | 15:34 | 04'32" | 5093754238 | G3 -S | 05 | OK | 0000 |

0730596B 0019

# HAZARDOUS MATERIAL SHIPMENT RECORD (HMSR)

**SHIPPING INST.**

SHIP TO: LOCKHEED LAB
Company: 975 KELLY JOHNSON RD
Address: LAS VEGAS NV 89119
City, State, Zip: TONY MILLER
Attention:

Originating Facility: Building 4701-C, Area 1100
Originator Signature: [signature]
Date: 7-26-96
FROM: ☐ WHC ☐ KEH ☐ PNL ☒ OTHER BHI

OFFSITE ONLY: SHIP: ☒ PREPAID ☐ COLLECT
VIA: ☐ Parcel Post ☐ Air Parcel Post ☒ Freight (~~Rail~~/Truck) ☐ Air (Passenger) ☐ Air (Cargo)
Cost Code: X60125

**SHIPMENT DESCRIPTION**

| CONTAINERS / PACKAGING | | | | | | CONTENT DESCRIPTION |
|---|---|---|---|---|---|---|
| Number of Containers | Type | DOT Spec | Package Dimensions | Quantity Pkg | Gross Wt. Each Pkg | See 49 CFR 172.101(c) Hazardous Material Table |
| 1 | STEEL DRUM | 1A2 | 29.5"X19.5" 30 GAL DRUM | 24 BOTTLES 7.130 mL | 110 lbs | Proper Ship Name: CORROSIVE LIQUID, ACIDIC, ORGANIC, N<br>Hazard Class: 8 PG I (SAMPLES FOR ANALYSIS)<br>UN/NA No.: UN3265<br>List Secondary Hazards: NONE<br>List Labels Req'd/Applied CORROSIVE |
| | | | | N/A | | Proper Ship Name:<br>Hazard Class:<br>UN/NA No.:<br>List Secondary Hazards:<br>List Labels Req'd/Applied |
| | | | | | | Proper Ship Name:<br>Hazard Class:<br>UN/NA No.:<br>List Secondary Hazards:<br>List Labels Req'd/Applied |

| Total No. Containers | Gross Wt of Shipment | Identify Placards Required: | Identify Property Control or Return Order No. (if applicable) |
|---|---|---|---|
| 1 | 110 lbs | 1. NONE 2. 3. 4. | N/A |

Material in manufacturers original container: ☐ Yes ☒ No
Container free of deterioration or damage: ☒ Yes
Container acceptability documented: ☒ Yes
Material is packaged, sealed, marked and labelled to meet DOT requirements ☒ Yes

Describe Internal Packaging: SAMPLES ARE DOUBLE BAGGED WITH BLUE ICE CUSHIONED WITH VERMICULITE AND BUBBLE WRAP

| RADIATION RELEASE | Survey No. | Date | RM Signature | Print Name |
|---|---|---|---|---|
| | N/A | 43 | | |

## CERTIFICATION

**CONTRACTORS CERTIFICATION**

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transport according to the applicable regulations of the Department of Transportation:

This shipment is within the Limitations prescribed for: ☐ Passenger Aircraft ☐ Cargo Aircraft ☒ NA

Authorizing Signature: [signature] Print Name: RONALD L. CLAWSON Date: 7-26-96

## FOR OFFSITE SHIPMENTS – ADDITIONAL APPROVAL REQUIRED

| WHC | TRAFFIC | B.L. No. | Date Shipped | ETA | Routing | Special Considerations |
|---|---|---|---|---|---|---|
| | | BHI-3669 | 7/26/96 | 7/29/96 | Viking | |

WHC Traffic: [signature] WHC Shipping:

0020

0730596B

54-3000-596 (10-87)

VALIDATED RESULTS SHORT REPORT 24 Jul 199

Customer ID: BOHXX7
Lab Sample#: S96E000883
Sample Date:
Recv. Date: 07/23/96 18:45

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 4.79 | %Uncertainty |
| Total Activity by LSC (Solid) | 2.24e-4 | uCi/g |

Customer ID: BOHXX8
Lab Sample#: S96E000884
Sample Date:
Recv. Date: 07/23/96 18:51

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 21.2 | %Uncertainty |
| Total Activity by LSC (Solid) | < 9.26e-6 | uCi/g |

Customer ID: BOHXX2
Lab Sample#: S96E000885
Sample Date:
Recv. Date: 07/23/96 18:51

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 7.31 | %Uncertainty |
| Total Activity by LSC (Solid) | 4.14e-5 | uCi/g |

Customer ID: BOHXX3
Lab Sample#: S96E000886
Sample Date:
Recv. Date: 07/23/96 18:51

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 20.31 | %Uncertainty |
| Total Activity by LSC (Solid) | < 9.59e-6 | uCi/g |

Customer ID: BOHXX0
Lab Sample#: S96E000887
Sample Date:
Recv. Date: 07/23/96 18:51

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 7.62 | %Uncertainty |
| Total Activity by LSC (Solid) | 2.04e-4 | uCi/g |

VALIDATED RESULTS SHORT REPORT 24 Jul 19

Customer ID: BOHXS9 Sample Date:
Lab Sample#: S96E000876 Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|

Customer ID: BOHXS9 Sample Date:
Lab Sample#: S96E000876 Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 11.53 | %Uncertainty |
| Total Activity by LSC (Liquid) | < 9.73e-6 | uCi/mL |

Customer ID: BOHXT0 Sample Date:
Lab Sample#: S96E000877 Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 4.87 | %Uncertainty |
| Total Activity by LSC (Liquid) | 1.22e-4 | uCi/mL |

Customer ID: BOHXT1 Sample Date:
Lab Sample#: S96E000878 Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 5.39 | %Uncertainty |
| Total Activity by LSC (Liquid) | 1.47e-4 | uCi/mL |

Customer ID: BOHXW6 Sample Date:
Lab Sample#: S96E000879 Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 14.64 | %Uncertainty |
| Total Activity by LSC (Liquid) | < 9.23e-6 | uCi/mL |

Customer ID: BOHXW7 Sample Date:
Lab Sample#: S96E000880 Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | n/a | %Uncertainty |
| Total Activity by LSC (Liquid) | qnch 2 hi | uCi/mL |

UNABLE TO ANALYZE



0730596 B 0022

VALIDATED RESULTS SHORT REPORT 24 Jul 199

Customer ID: BOHXW8
Lab Sample#: S96E000881

Sample Date:
Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|

Customer ID: BOHXW8
Lab Sample#: S96E000881

Sample Date:
Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 12.99 | %Uncertainty |
| Total Activity by LSC (Liquid) | < 8.91e-6 | uCi/mL |

Customer ID: BOHXW9
Lab Sample#: S96E000882

Sample Date:
Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 11.9 | %Uncertainty |
| Total Activity by LSC (Liquid) | < 9.34e-6 | uCi/mL |



0023

0730596B

INTERIM RESULTS REPORT 23 Jul 199

Customer ID: BOHXV8
Lab Sample#: S96E000856
Sample Date:
Recv. Date: 07/22/96 16:45

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Activity by LSC (Solid) | < 9.89e-6 | uCi/g |
| Total Act. by LSC: % Uncert. | 13.07 | %Uncertainty |

Customer ID: BOHXV9
Lab Sample#: S96E000857
Sample Date:
Recv. Date: 07/22/96 16:45

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Activity by LSC (Solid) | < 1.18e-5 | uCi/g |
| Total Act. by LSC: % Uncert. | 14.64 | %Uncertainty |

~~Customer ID: BOHXV0~~ WRONG # BW 1-24-96
Lab Sample#: S96E000858
Sample Date:
Recv. Date: 07/22/96 16:45

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Activity by LSC (Solid) | 1.78e-4 | uCi/g |
| Total Act. by LSC: % Uncert. | 4.8 | %Uncertainty |

Customer ID: BOHXW1
Lab Sample#: S96E000859
Sample Date:
Recv. Date: 07/22/96 16:45

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Activity by LSC (Solid) | < 9.05e-6 | uCi/g |
| Total Act. by LSC: % Uncert. | 11.68 | %Uncertainty |

Customer ID: BOHXW2
Lab Sample#: S96E000860
Sample Date:
Recv. Date: 07/22/96 16:45

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Activity by LSC (Solid) | 3.1e-5 | uCi/g |
| Total Act. by LSC: % Uncert. | 8.71 | %Uncertainty |

Customer ID: BOHXW5
Lab Sample#: S96E000861
Sample Date:
Recv. Date: 07/22/96 16:45

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Activity by LSC (Solid) | < 7.96e-6 | uCi/g |
| Total Act. by LSC: % Uncert. | 13.6 | %Uncertainty |



0024

0730596B

VALIDATED RESULTS SHORT REPORT 24 Jul 199

Customer ID: BOHXS3
Lab Sample#: S96E000870
Sample Date:
Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 11.27 | %Uncertainty |
| Total Activity by LSC (Liquid) | < 8.78e-6 | uCi/mL |

Customer ID: BOHXS4
Lab Sample#: S96E000871
Sample Date:
Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 11.76 | %Uncertainty |
| Total Activity by LSC (Liquid) | < 8.77e-6 | uCi/mL |

Customer ID: BOHXS5
Lab Sample#: S96E000872
Sample Date:
Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 19.41 | %Uncertainty |
| Total Activity by LSC (Liquid) | < 9.82e-6 | uCi/mL |

Customer ID: BOHXS6
Lab Sample#: S96E000873
Sample Date:
Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 13.33 | %Uncertainty |
| Total Activity by LSC (Liquid) | < 9.49e-6 | uCi/mL |

Customer ID: BOHXS7
Lab Sample#: S96E000874
Sample Date:
Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 12.39 | %Uncertainty |
| Total Activity by LSC (Liquid) | < 9.76e-6 | uCi/mL |

Customer ID: BOHXS8
Lab Sample#: S96E000875
Sample Date:
Recv. Date: 07/23/96 18:35

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 11.49 | %Uncertainty |
| Total Activity by LSC (Liquid) | < 8.66e-6 | uCi/mL |



0730596B 025

VALIDATED RESULTS SHORT REPORT 25 Jul 1996

Customer ID: BOHXW0
Lab Sample#: S96E000858

Sample Date:
Recv. Date: 07/22/96 16:45

| PARAMETER | RESULTS | UNITS |
|---|---|---|
| Total Activity by LSC | | |
| Total Act. by LSC: % Uncert. | 4.8 | %Uncertainty |
| Total Activity by LSC (Solid) | 1.78e-4 | uCi/g |



0730596-B 0026

# SAMPLE CHECK-IN LIST

Date/Time Received: 7-30-96/16:00 SDG#: n/a

Work Order Number: n/a SAF #: B96-143

Shipping Container ID: SML-483 Chain of Custody # B96-143-1

1. Custody Seals on shipping container intact? Yes [X] No [ ]
2. Custody Seals dated and signed? Yes [X] No [ ]
3. Sample temperature 26°C
4. Vermiculite/packing materials is Wet [ ] Dry [X]
5. Each sample is in a plastic bag? Yes [X] No [ ]
6. Sample holding times exceeded? Yes [X] No [ ]

7. Samples have:
   - ___ tape
   - X custody seals
   - ___ hazard labels
   - ___ appropriate sample labels

8. Samples are:
   - X in good condition
   - ___ broken
   - ___ leaking
   - ___ have air bubbles

9. Is the information on the COC and Sample bottles in agreement?

   Yes[ ] No [ ]

Notes: Blue ice not Frozen

Sample Custodian/Laboratory: [signature]/LAS Date: 7-31-96

Faxed ~~Telephoned~~ To: Kathleen Hall On 7-31-96 By [signature]
PCD 7-31-96



0027
0730596B

LOCKHEED MARTIN

## Sample Login
## Login Review Checklist

**Lot Number** L7545

The login review should be conducted by that person logging in the samples as well as a peer. Please use this checklist to ensure that such reviews occur in a uniform basis. Please sign and date below to verify that a login review has occurred. This checklist should be affixed to each login package prior to distribution.

For effective login review, at a minimum, five reports form the login process are required. These are the COC (or equivalent), the login COC report, the sample summary report, the sample receiving checklist, and the login quotation. Before beginning review, ensure that these five components are available. Jobs with single component samples, the sample summary report may be omitted.

| SAMPLE SUMMARY REPORT | YES | NO | N/A | Comment |
|---|---|---|---|---|
| 1. Are all sample ID's correct? | X | | | |
| 2. Are all samples present? | X | | | |
| 3. Are all matrices indicated correctly? | X | | | |
| 4. Are all analyses on the COC logged in for the appropriate samples? | X | | | |
| 5. Are all analyses logged in for the correct container? | X | | | |
| 6. Are samples logged in according to LAS batching procedures? | X | | | |

| LOGIN CHAIN OF CUSTODY | YES | NO | N/A | Comment |
|---|---|---|---|---|
| 1. Are the collect, receive, and due dates correct for every sample? | X | | | |
| 2. Have all appropriate comments been indicated in the comment section? | X | | | |

| SAMPLE RECEIVING CHECKLIST | YES | NO | N/A | Comment |
|---|---|---|---|---|
| 1. Are all discrepancies between the COC and the login noted (if applicable)? | | | X | |

primary review signature — 7-31-96 date

secondary review signature — 7-31-96 date

0730596B

# Lockheed Analytical Services
## Sample Receiving Checklist



Client Name: Bechtel-Hanford Job No. L7545 Cooler ID: N/A

**COOLER CONDITION UPON RECEIPT**

Temperature of cooler upon receipt: 26°C

temperature of temp. blank upon receipt: —

| | Yes | No | * Comments/Discrepancies |
|---|---|---|---|
| custody seals intact | X | | |
| chain of custody present | X | | |
| blue ice (or equiv.) present/frozen | | X | Blue ice not frozen |
| rad survey completed | X | | |

**SAMPLE CONDITION UPON RECEIPT**

| | Yes | No | * Comments/Discrepancies |
|---|---|---|---|
| all bottles labeled | X | | |
| samples intact | X | | |
| proper container used for sample type | X | | |
| sample volume sufficient for analysis | X | | |
| proper pres. indicated on the COC | X | | |
| VOA's contain headspace | | N/A | |
| are samples bi-phasic (if so, indicate sample ID'S): | | N/A | |

**MISCELLANEOUS ITEMS**

| | Yes | No | * Comments/Discrepancies |
|---|---|---|---|
| samples with short holding times | | X | |
| samples to subcontract | | N/A | |

**ADDITIONAL COMMENTS/DISCREPANCIES**

Completed by / date: [illegible] 7-31-96

Sent to the client (date/initials): ** Client's signature upon receipt:

*Notes: * = contact the appropriate CSR of any discrepancies immediately upon receipt*

*** = please review this information and return via facsimile to the appropriate CSR (702) 361-8146*

9605730

002

version 2.0 (11/11/94)

SEE BACK OF MEMO COPY DATE LAS VEGAS 702/871-5323 96/07/27 02:06:34

96/07/26 7/31

L01602
FREIGHT BILL # 569643455

viking freight
A Caliber System Company
P.O. BOX 6490
SAN JOSE, CA 95164
TELEPHONE (408) 922
CAL T84,649

SHIPPER
US DEPT OF ENERGY
PO BOX 1970 G1 14
P. O. BOX 1970
RICHLAND WA 99352

DELV # 569643455
ROUTING WD SCAC = VIKN
PAS/LVS-21A
14528/999999
REF. #

PAGE 1 OF 2
CONSIGNEE COPY
IL

CONSIGNEE CCCA BILL: BCT350GRRC
LOCKHEED LAB
TONY MILLER SH# BHI3669
975 KELLY JOHNSON RD
LAS VEGAS NV 89119

| UNITS | P | HM | DESCRIPTION | WEIGHT IN LBS | RATE | CHARGES |
|---|---|---|---|---|---|---|
| | | | *EMERGENCY CONTACT:* | | | |
| | | | *1-509-373-3800 DAY OR NIGHT* | | | |
| 5 | X | | FLAMMABLE LIQUID, NOS (SAMPLES | 309 | | |
| | | | *FOR ANALYSIS), 3, UN1993, | | | |
| | | | *PG I, LIMITED QUANTITY, | | | |
| | | | *NO LABELS REQUIRED, ERG# 128 | | | |
| | | | *POLY COOLERS | | | |
| 1 | X | | CORROSIVE LIQUID, ACIDIC, | 110 | | |
| | | | *ORGANIC, NOS (SAMPLES FOR | | | |
| | | | *ANALYSIS), 8, UN3265, PG I, | | | |
| | | | *CORROSIVE LABELS APPLIED, | | | |
| | | | *ERG# 153 | | | |
| | | | *STEEL DRUM | | | |

DRIVER
UNITS
DATE
TIME

| | RECEIVED IN GOOD ORDER EXCEPT AS NOTED | RECEIVING CO. NAME | | SURCHARGE | |
|---|---|---|---|---|---|
| MOND | X | | | | AMT. COL |
| | PRINT LAST NAME | SEAL # | INTACT ON RECEIPT X | AMT. DUE | |

SEE BACK OF MEMO COPY DATE LAS VEGAS 702/871-5323 96/07/27 02:06:35

96/07/26 7/31

L01602
FREIGHT BILL # 569643455

viking freight
A Caliber System Company
P.O. BOX 6490
SAN JOSE, CA 9516
TELEPHONE (408) 9
CAL T84,649

SHIPPER
US DEPT OF ENERGY
PO BOX 1970 G1 14
P. O. BOX 1970
RICHLAND WA 99352

DELV # 569643455
ROUTING WD SCAC = VIKN
PAS/LVS-21A
14528/999999
REF. #

PAGE 2 OF 2
IL

CONSIGNEE CCCA BILL: BCT350GRRC
LOCKHEED LAB
TONY MILLER SH# BHI3669
975 KELLY JOHNSON RD
LAS VEGAS NV 89119

| UNITS | P | HM | DESCRIPTION | WEIGHT IN LBS | RATE | CHARGES |
|---|---|---|---|---|---|---|
| | | | *COST CODE: X60125 | | | |
| | | | *S7S | | | |
| | | | **..RDD..DEL..7-29-96..MONDAY | | | |
| | | | *FRIDAY P/U AND MONDAY DELVY | | | |
| | | | DEFICIT WEIGHT | 81 | | |
| | | | FUEL SURCHARGE | | | |
| 6 | | | | 500 | | |

DRIVER
UNITS
DATE
TIME

WE'RE ONE. WE'RE REGIONAL. WE'RE NATIONAL. WE'RE VIKING

0030

| | RECEIVED IN GOOD ORDER EXCEPT AS NOTED | RECEIVING CO. NAME | | SURCHARGE | |
|---|---|---|---|---|---|
| MOND | X | | 0730596 B | | AMT. CO |
| | PRINT LAST NAME | SEAL # | INTACT ON RECEIPT X | AMT. DUE | PREPAID |

# LOCKHEED ANALYTICAL SERVICES

## Sample Results

| | |
|---|---|
| Client Sample ID: B0HXX7 | Date Collected: 23-JUL-96 |
| Matrix: SolidWaste | Date Received: 30-JUL-96 |
| Percent Solids: N/A | |

| Constituent | Units | Method | Result | Project Reporting Limit | Data Qualifier(s) | Date Analyzed | LAS Batch\|ID | LAS Sample\|ID |
|---|---|---|---|---|---|---|---|---|
| Ignitability | deg F | 1010 | 0.00 | N/A | H NO FLASH | 02-AUG-96 | 39652 | L7545-2 |
| Chloride | mg/kg | 300.0 | 24000 | 20. | HD(1:100) | 13-SEP-96 | 39930 | L7545-4 |
| Fluoride | mg/kg | 300.0 | 290 | 100 | HD(1:100) | 13-SEP-96 | 39931 | L7545-4 |
| Nitrate-N | mg/kg | 300.0 | 17. | 2.0 | HD(1:10) | 13-SEP-96 | 41246 | L7545-4 |
| Nitrite-N | mg/kg | 300.0 | < 2.0 | 10. | NHD(1:100)U | 13-SEP-96 | 41247 | L7545-4 |
| Ortho Phosphate | mg/kg | 300.0 | 300 | 10. | HD(1:10) | 13-SEP-96 | 41248 | L7545-4 |
| Sulfate | mg/kg | 300.0 | 100000 | 100 | HD(1:100) | 13-SEP-96 | 41249 | L7545-4 |
| Cyanide | mg/kg | 335.2 | 0.88 | 0.50 | H | 08-AUG-96 | 39780 | L7545-7 |
| Sulfide | mg/kg | 9030 | 16. | 60. | NHB | 21-AUG-96 | 40554 | L7545-8 |
| pH | pH Units | 9045 | 9.7 | 0.10 | H | 20-AUG-96 | 39868 | L7545-3 |

# LOCKHEED ANALYTICAL SERVICES

## Sample Results

| | |
|---|---|
| Client Sample ID: B0HXX8 | Date Collected: 23-JUL-96 |
| Matrix: SolidWaste | Date Received: 30-JUL-96 |
| Percent Solids: N/A | |

| Conatituent | Units | Method | Result | Project Reporting Limit | Data Qualifier(s) | Date Analyzed | LAS Batch\|ID | LAS Sample\|ID |
|---|---|---|---|---|---|---|---|---|
| Ignitability | deg F | 1010 | 0.00 | N/A | H NO FLASH | 02-AUG-96 | 39652 | L7545-9 |

**LOCKHEED ANALYTICAL LABORATORY**
**CALIBRATION SUMMARY - LOW LEVEL**
**DETERMINATION OF CHLORIDE BY METHOD 300.0 (IC)**

| | | |
|---|---|---|
| | CALIB. DATE: 9/13/96 | INTERCEPT: -0.006 |
| LAL BATCH: 730-BH | CALIB. TIME: 8:09 | LINEAR COEFF.: 1.374E-07 |
| CALIB. CURVE: QUADRATIC | R SQUARED: 0.99998 | QUADRATIC COEFF.: -5.049E-16 |

**STANDARD DATA**

MANUFACTURER: EMSCIENCE LOT NUMBER: 33210335

| STANDARD ID | CONCENTRATION | RESPONSE |
|---|---|---|
| AUTOCAL1 | 0 mg/L | 0 |
| AUTOCAL2 | 0.02 mg/L | 303535 |
| AUTOCAL3 | 0.02 mg/L | 135812 |
| AUTOCAL4 | 0.05 mg/L | 447562 |
| AUTOCAL5 | 0.1 mg/L | 725704 |
| AUTOCAL6 | 1 mg/L | 7532436 |
| AUTOCAL7 | 5 mg/L | 43355764 |

**INITIAL CALIBRATION VERIFICATION STANDARD**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| ICVL | 1 mg/L | 1.000 mg/L | 100 % |

**INITIAL CALIBRATION BLANK**

| SAMPLE ID | FOUND | FLAG |
|---|---|---|
| ICB | <0.0100 mg/L | U |

**CONTINUING CALIBRATION VERIFICATION STANDARDS**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| CCVL | 1 mg/L | 0.972 mg/L | 97 % |
| CCVL | 1 mg/L | 0.960 mg/L | 96 % |

**CONTINUING CALIBRATION BLANKS**

| SAMPLE ID | FOUND | FLAG |
|---|---|---|
| CCB | <0.0100 mg/L | U |
| CCB | <0.0100 mg/L | U |

**LOCKHEED ANALYTICAL LABORATORY**
**CALIBRATION SUMMARY - LOW LEVEL**
**DETERMINATION OF NITRITE-N BY METHOD 300.0 (IC)**

| | | |
|---|---|---|
| | CALIB. DATE: 9/13/96 | INTERCEPT: 0.001 |
| LAL BATCH: 730-BH | CALIB. TIME: 8:09 | LINEAR COEFF.: 5.636E-08 |
| CALIB. CURVE: QUADRATIC | R SQUARED: 1.00000 | QUADRATIC COEFF.: -1.901E-16 |

**STANDARD DATA**

MANUFACTURER: BAKER LOT NUMBER: D10718

| STANDARD ID | CONCENTRATION | RESPONSE |
|---|---|---|
| AUTOCAL1 | 0 mg/L | 0 |
| AUTOCAL2 | 0.006 mg/L | 103714 |
| AUTOCAL3 | 0.006 mg/L | 97288 |
| AUTOCAL4 | 0.015 mg/L | 256724 |
| AUTOCAL5 | 0.03 mg/L | 505104 |
| AUTOCAL6 | 0.3 mg/L | 5413699 |
| AUTOCAL7 | 1.5 mg/L | 29547212 |

**INITIAL CALIBRATION VERIFICATION STANDARD**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| ICVL | 0.3 mg/L | 0.289 mg/L | 96 % |

**INITIAL CALIBRATION BLANK**

| SAMPLE ID | FOUND | FLAG |
|---|---|---|
| ICB | <0.0020 mg/L | U |

**CONTINUING CALIBRATION VERIFICATION STANDARDS**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| CCVL | 0.3 mg/L | 0.329 mg/L | 110 % |
| CCVL | 0.3 mg/L | 0.323 mg/L | 108 % |

**CONTINUING CALIBRATION BLANKS**

| SAMPLE ID | FOUND | FLAG |
|---|---|---|
| CCB | <0.0020 mg/L | U |
| CCB | <0.0020 mg/L | U |

**LOCKHEED ANALYTICAL LABORATORY**
**CALIBRATION SUMMARY - LOW LEVEL**
**DETERMINATION OF NITRATE-N BY METHOD 300.0 (IC)**

| | | |
|---|---|---|
| | CALIB. DATE: 9/13/96 | INTERCEPT: -0.001 |
| LAL BATCH: 730-BH | CALIB. TIME: 8:09 | LINEAR COEFF.: 5.148E-08 |
| CALIB. CURVE: QUADRATIC | R SQUARED: 1.00000 | QUADRATIC COEFF.: -1.254E-16 |

**STANDARD DATA**

MANUFACTURER: FISHER LOT NUMBER: 916724

| STANDARD ID | CONCENTRATION | RESPONSE |
|---|---|---|
| AUTOCAL1 | 0 mg/L | 0 |
| AUTOCAL2 | 0.005 mg/L | 114472 |
| AUTOCAL3 | 0.005 mg/L | 94652 |
| AUTOCAL4 | 0.0125 mg/L | 280340 |
| AUTOCAL5 | 0.025 mg/L | 507428 |
| AUTOCAL6 | 0.25 mg/L | 4927282 |
| AUTOCAL7 | 1.25 mg/L | 25932476 |

**INITIAL CALIBRATION VERIFICATION STANDARD**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| ICVL | 0.25 mg/L | 0.256 mg/L | 102 % |

**INITIAL CALIBRATION BLANK**

| SAMPLE ID | FOUND | FLAG |
|---|---|---|
| ICB | <0.0030 mg/L | U |

**CONTINUING CALIBRATION VERIFICATION STANDARDS**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| CCVL | 0.25 mg/L | 0.249 mg/L | 100 % |
| CCVL | 0.25 mg/L | 0.249 mg/L | 100 % |

**CONTINUING CALIBRATION BLANKS**

| SAMPLE ID | FOUND | FLAG |
|---|---|---|
| CCB | <0.0030 mg/L | U |
| CCB | <0.0030 mg/L | U |

**LOCKHEED ANALYTICAL LABORATORY**
**CALIBRATION SUMMARY - LOW LEVEL**
**DETERMINATION OF SULFATE BY METHOD 300.0 (IC)**

| | | |
|---|---|---|
| | CALIB. DATE: 9/13/96 | INTERCEPT: -0.041 |
| LAL BATCH: 730-BH | CALIB. TIME: 8:09 | LINEAR COEFF.: 1.481E-07 |
| CALIB. CURVE: QUADRATIC | R SQUARED: 0.99997 | QUADRATIC COEFF.: 5.060E-17 |

**STANDARD DATA**

MANUFACTURER: FISHER LOT NUMBER: 942865

| STANDARD ID | CONCENTRATION | RESPONSE |
|---|---|---|
| AUTOCAL1 | 0 mg/L | 0 |
| AUTOCAL2 | 0.04 mg/L | 518816 |
| AUTOCAL3 | 0.04 mg/L | 592116 |
| AUTOCAL4 | 0.1 mg/L | 1129100 |
| AUTOCAL5 | 0.2 mg/L | 1757564 |
| AUTOCAL6 | 2 mg/L | 13676194 |
| AUTOCAL7 | 10 mg/L | 66280042 |

**INITIAL CALIBRATION VERIFICATION STANDARD**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| ICVL | 1 mg/L | 1.089 mg/L | 109 % |

**INITIAL CALIBRATION BLANK**

| SAMPLE ID | FOUND | FLAG |
|---|---|---|
| ICB | -0.0183 mg/L | U |

**CONTINUING CALIBRATION VERIFICATION STANDARDS**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| CCVL | 2 mg/L | 1.882 mg/L | 94 % |
| CCVL | 2 mg/L | 1.917 mg/L | 96 % |

**CONTINUING CALIBRATION BLANKS**

| SAMPLE ID | FOUND | FLAG |
|---|---|---|
| CCB | -0.0309 mg/L | U |
| CCB | -0.0305 mg/L | U |

**LOCKHEED ANALYTICAL LABORATORY**
**CALIBRATION SUMMARY - HIGH LEVEL**
**DETERMINATION OF CHLORIDE BY METHOD 300.0 (IC)**

| | | |
|---|---|---|
| | CALIB. DATE: 9/13/96 | INTERCEPT: 2.125 |
| LAL BATCH: 730-BH | CALIB. TIME: 8:09 | LINEAR COEFF.: 8.206E-08 |
| CALIB. CURVE: QUADRATIC | R SQUARED: 0.99989 | QUADRATIC COEFF.: -7.004E-19 |

**STANDARD DATA**

MANUFACTURER: EMSCIENCE LOT NUMBER: 33210335

| STANDARD ID | CONCENTRATION | RESPONSE |
|---|---|---|
| AUTOCAL1 | 5 mg/L | 44395960 |
| AUTOCAL2 | 10 mg/L | 93949762 |
| AUTOCAL3 | 25 mg/L | 267897898 |
| AUTOCAL4 | 75 mg/L | 900282805 |
| AUTOCAL5 | 150 mg/L | 1829637324 |

**INITIAL CALIBRATION VERIFICATION STANDARD**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| ICVH | 50 mg/L | 49.31 mg/L | 99 % |

**INITIAL CALIBRATION BLANK (See low-level calibration summary sheet)**

**CONTINUING CALIBRATION VERIFICATION STANDARDS**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| CCVH | 50 mg/L | 47.18 mg/L | 94 % |
| CCVH | 50 mg/L | 46.85 mg/L | 94 % |

**CONTINUING CALIBRATION BLANKS (See low-level calibration summary sheet)**

**LOCKHEED ANALYTICAL LABORATORY**
**CALIBRATION SUMMARY - HIGH LEVEL**
**DETERMINATION OF NITRITE-N BY METHOD 300.0 (IC)**

| | | |
|---|---|---|
| | CALIB. DATE: 9/13/96 | INTERCEPT: 0.446 |
| LAL BATCH: 730-BH | CALIB. TIME: 8:09 | LINEAR COEFF.: 3.836E-08 |
| CALIB. CURVE: QUADRATIC | R SQUARED: 0.99998 | QUADRATIC COEFF.: 4.258E-18 |

**STANDARD DATA**

MANUFACTURER: BAKER LOT NUMBER: D10718

| STANDARD ID | CONCENTRATION | RESPONSE |
|---|---|---|
| AUTOCAL1 | 1.5 mg/L | 30354817 |
| AUTOCAL2 | 3 mg/L | 64009176 |
| AUTOCAL3 | 7.5 mg/L | 178575166 |
| AUTOCAL4 | 22.5 mg/L | 543275128 |
| AUTOCAL5 | 45 mg/L | 1040875210 |

**INITIAL CALIBRATION VERIFICATION STANDARD**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| ICVH | 15 mg/L | 14.46 mg/L | 96 % |

**INITIAL CALIBRATION BLANK (See low-level calibration summary sheet)**

**CONTINUING CALIBRATION VERIFICATION STANDARDS**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| CCVH | 15 mg/L | 15.19 mg/L | 101 % |
| CCVH | 15 mg/L | 15.12 mg/L | 101 % |

**CONTINUING CALIBRATION BLANKS (See low-level calibration summary sheet)**

**LOCKHEED ANALYTICAL LABORATORY**
**CALIBRATION SUMMARY - HIGH LEVEL**
**DETERMINATION OF NITRATE-N BY METHOD 300.0 (IC)**

| | | |
|---|---|---|
| | CALIB. DATE: 9/13/96 | INTERCEPT: 0.473 |
| LAL BATCH: 730-BH | CALIB. TIME: 8:09 | LINEAR COEFF.: 3.706E-08 |
| CALIB. CURVE: QUADRATIC | R SQUARED: 0.99989 | QUADRATIC COEFF.: -2.452E-18 |

**STANDARD DATA**

MANUFACTURER: FISHER LOT NUMBER: 916724

| STANDARD ID | CONCENTRATION | RESPONSE |
|---|---|---|
| AUTOCAL1 | 1.25 mg/L | 25951736 |
| AUTOCAL2 | 2.5 mg/L | 54170230 |
| AUTOCAL3 | 6.25 mg/L | 150872225 |
| AUTOCAL4 | 18.75 mg/L | 513473066 |
| AUTOCAL5 | 37.5 mg/L | 1075127666 |

**INITIAL CALIBRATION VERIFICATION STANDARD**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| ICVH | 12.5 mg/L | 12.29 mg/L | 98 % |

**INITIAL CALIBRATION BLANK (See low-level calibration summary sheet)**

**CONTINUING CALIBRATION VERIFICATION STANDARDS**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| CCVH | 12.5 mg/L | 12.20 mg/L | 98 % |
| CCVH | 12.5 mg/L | 12.28 mg/L | 98 % |

**CONTINUING CALIBRATION BLANKS (See low-level calibration summary sheet)**

**LOCKHEED ANALYTICAL LABORATORY**
**CALIBRATION SUMMARY - HIGH LEVEL**
**DETERMINATION OF SULFATE BY METHOD 300.0 (IC)**

| | | |
|---|---|---|
| | CALIB. DATE: 9/13/96 | INTERCEPT: 3.404 |
| LAL BATCH: 730-BH | CALIB. TIME: 8:09 | LINEAR COEFF.: 1.207E-07 |
| CALIB. CURVE: QUADRATIC | R SQUARED: 0.99990 | QUADRATIC COEFF.: -2.212E-18 |

**STANDARD DATA**

MANUFACTURER: FISHER LOT NUMBER: 942865

| STANDARD ID | CONCENTRATION | RESPONSE |
|---|---|---|
| AUTOCAL1 | 10 mg/L | 66434440 |
| AUTOCAL2 | 20 mg/L | 135768506 |
| AUTOCAL3 | 50 mg/L | 373631202 |
| AUTOCAL4 | 150 mg/L | 1250109704 |
| AUTOCAL5 | 300 mg/L | 2578296980 |

**INITIAL CALIBRATION VERIFICATION STANDARD**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| ICVH | 50 mg/L | 47.94 mg/L | 96 % |

**INITIAL CALIBRATION BLANK (See low-level calibration summary sheet)**

**CONTINUING CALIBRATION VERIFICATION STANDARDS**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| CCVH | 100 mg/L | 98.91 mg/L | 99 % |
| CCVH | 100 mg/L | 98.33 mg/L | 98 % |

**CONTINUING CALIBRATION BLANKS (See low-level calibration summary sheet)**

**LOCKHEED ANALYTICAL LABORATORY**
**QUALITY CONTROL DATA SUMMARY**
**LABORATORY CONTROL SAMPLE (LCS) - LOW CONCENTRATIONS**

LAL BATCH: 730-BH

**LABORATORY CONTROL SAMPLE (LCS)**

| LCS ID | ANALYTE | TRUE | FOUND | RECOVERY |
|---|---|---|---|---|
| LCSL | CHLORIDE | 1.000 mg/L | 0.980 mg/L | 98 % |
| LCSL | NITRITE-N | 0.300 mg/L | 0.287 mg/L | 96 % |
| LCSL | NITRATE-N | 0.250 mg/L | 0.251 mg/L | 101 % |
| LCSL | SULFATE | 1.000 mg/L | 1.067 mg/L | 107 % |

**LABORATORY CONTROL SAMPLE DUPLICATE (LCS-DUP)**

| LCS ID | ANALYTE | TRUE | FOUND | RECOVERY |
|---|---|---|---|---|

(No low-concentration Laboratory Control Sample duplicate)

**LABORATORY CONTROL SAMPLE-LABORATORY CONTROL SAMPLE DUPLICATE COMPARISON**

| ANALYTE | LCS | LCS-DUP | RPD | FLAG |
|---|---|---|---|---|

(No low-concentration Laboratory Control Sample duplicate)

**LOCKHEED ANALYTICAL LABORATORY**
**QUALITY CONTROL DATA SUMMARY**
**LABORATORY CONTROL SAMPLE (LCS) - HIGH CONCENTRATIONS**

LAL BATCH: 730-BH

**LABORATORY CONTROL SAMPLE (LCS)**

| LCS ID | ANALYTE | TRUE | FOUND | RECOVERY |
|---|---|---|---|---|
| LCSH | CHLORIDE | 50.00 mg/L | 48.58 mg/L | 97 % |
| LCSH | NITRITE-N | 15.00 mg/L | 14.34 mg/L | 96 % |
| LCSH | NITRATE-N | 12.50 mg/L | 12.31 mg/L | 98 % |
| LCSH | SULFATE | 50.00 mg/L | 47.96 mg/L | 96 % |

**LABORATORY CONTROL SAMPLE DUPLICATE (LCS-DUP)**

| LCS ID | ANALYTE | TRUE | FOUND | RECOVERY |
|---|---|---|---|---|

(No low-concentration Laboratory Control Sample duplicate)

**LABORATORY CONTROL SAMPLE-LABORATORY CONTROL SAMPLE DUPLICATE COMPARISON**

| ANALYTE | LCS | LCS-DUP | RPD | FLAG |
|---|---|---|---|---|

(No low-concentration Laboratory Control Sample duplicate)

**LOCKHEED ANALYTICAL LABORATORY**
**QUALITY CONTROL DATA SUMMARY**
**METHOD BLANK**

LAL BATCH: 730-BH

**METHOD BLANK (MB)**

| LAS ID | ANALYTE | FOUND | FLAG |
|---|---|---|---|
| FILTERED BLANK | CHLORIDE | <0.0100 mg/L | U |
| FILTERED BLANK | NITRITE-N | <0.0020 mg/L | U |
| FILTERED BLANK | NITRATE-N | <0.0030 mg/L | U |
| FILTERED BLANK | SULFATE | -0.0323 mg/L | U |

**LOCKHEED ANALYTICAL LABORATORY**
**QUALITY CONTROL DATA SUMMARY**
**MATRIX SPIKE AND MATRIX SPIKE DUPLICATE SAMPLES**

LAL BATCH - 730-BH

## MATRIX SPIKE SAMPLES

| LAS ID | ANALYTE | SAMPLE RESULT (mg/kg) | SPIKE ADDED (mg/kg) | SPIKED SAMPLE RESULT (mg/kg) | SPIKE RECOVERY % | (100 ± 25) | FLAG |
|---|---|---|---|---|---|---|---|
| L7545-4D (100) | CHLORIDE | 23899.83 | 398.41 | 24312.67 | | | a |
| L7545-4D (100) | NITRITE-N | <0.2 U | 119.52 | <0.2 U | | | N |
| L7545-4D (10) | NITRATE-N | 17.13 | 99.60 | 111.32 | | 94.6 | |
| L7545-4D (100) | SULFATE | 102288.41 | 398.41 | 100773.72 | | | a |

## MATRIX SPIKE DUPLICATE SAMPLES

| LAS ID | ANALYTE | SAMPLE RESULT (mg/kg) | SPIKE ADDED (mg/kg) | SPIKED SAMPLE RESULT (mg/kg) | SPIKE RECOVERY % | (100 ± 25) | FLAG |
|---|---|---|---|---|---|---|---|
| L7545-4D (100) | CHLORIDE | 23899.83 | 398.41 | 611.90 | | -5845.2 | |
| L7545-4D (100) | NITRITE-N | <0.2 U | 119.52 | 126.68 | | 106.0 | |
| L7545-4D (10) | NITRATE-N | 17.13 | 99.60 | 103.46 | | 86.7 | |

## MATRIX SPIKE-MATRIX SPIKE DUPLICATE COMPARISON

| LAS ID | ANALYTE | MATRIX SPIKE RESULT (mg/kg) | MATRIX SPIKE DUP RESULT (mg/kg) | ± 15 RPD % | FLAG |
|---|---|---|---|---|---|
| L7545-4D (100) | CHLORIDE | 24312.67 | 611.90 | 190.2 | |
| L7545-4D (100) | NITRITE-N | <0.2 U | 126.68 | #VALUE! | |
| L7545-4D (10) | NITRATE-N | 111.32 | 103.46 | 7.3 | |

**LOCKHEED ANALYTICAL LABORATORY**
**QUALITY CONTROL DATA SUMMARY**
**DUPLICATE SAMPLE ANALYSIS**

LAL BATCH 730-BH

DUPLICATE SAMPLES

| LAS ID | ANALYTE | SAMPLE RESULT (mg/kg) | DUPLICATE RESULT (mg/kg) | ± 15 RPD (%) | FLAG |
|---|---|---|---|---|---|
| L7545-4D (100) | CHLORIDE | 23899.83 | 25409.63 | 6.1 | |
| L7545-4D (100) | NITRITE-N | <0.2 U | <0.2 U | | b |
| L7545-4D (10) | NITRATE-N | 17.13 | 15.95 | 7.1 | |
| L7545-4D (100) | SULFATE | 102288.41 | 107593.62 | 5.1 | |

**LOCKHEED ANALYTICAL LABORATORY**
**CALIBRATION SUMMARY - LOW LEVEL**
**DETERMINATION OF FLUORIDE BY METHOD 300.0 (IC)**

| | | |
|---|---|---|
| | CALIB. DATE: 9/13/96 | INTERCEPT: -0.013 |
| LAL BATCH: 730-BH | CALIB. TIME: 9:54 | LINEAR COEFF.: 5.862E-08 |
| CALIB. CURVE: QUADRATIC | R SQUARED: 0.99994 | QUADRATIC COEFF.: -9.561E-17 |

**STANDARD DATA**

MANUFACTURER: BAKER LOT NUMBER: D13143

| STANDARD ID | CONCENTRATION | RESPONSE |
|---|---|---|
| AUTOCAL1 | 0 mg/L | 0 |
| AUTOCAL2 | 0.02 mg/L | 405706 |
| AUTOCAL3 | 0.02 mg/L | 602284 |
| AUTOCAL4 | 0.05 mg/L | 1567570 |
| AUTOCAL5 | 0.1 mg/L | 1807638 |
| AUTOCAL6 | 1 mg/L | 17758646 |
| AUTOCAL7 | 5 mg/L | 102724196 |

**INITIAL CALIBRATION VERIFICATION STANDARD**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| ICVL | 1 mg/L | 1.001 mg/L | 100 % |

**INITIAL CALIBRATION BLANK**

| SAMPLE ID | FOUND | FLAG |
|---|---|---|
| ICB | <0.0070 mg/L | U |

**CONTINUING CALIBRATION VERIFICATION STANDARDS**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| CCVL | 1 mg/L | 1.018 mg/L | 102 % |

**CONTINUING CALIBRATION BLANKS**

| SAMPLE ID | FOUND | FLAG |
|---|---|---|
| CCB | <0.0070 mg/L | U |

**LOCKHEED ANALYTICAL LABORATORY**
**CALIBRATION SUMMARY - LOW LEVEL**
**DETERMINATION OF ORTHO-PHOSPHATE BY METHOD 300.0 (IC)**

| | | |
|---|---|---|
| | CALIB. DATE: 9/13/96 | INTERCEPT: 0.005 |
| LAL BATCH: 730-BH | CALIB. TIME: 9:54 | LINEAR COEFF.: 1.017E-07 |
| CALIB. CURVE: QUADRATIC | R SQUARED: 1.00000 | QUADRATIC COEFF.: -9.825E-17 |

**STANDARD DATA**

MANUFACTURER: EMSCIENCE LOT NUMBER: 32038210

| STANDARD ID | CONCENTRATION | RESPONSE |
|---|---|---|
| AUTOCAL1 | 0 mg/L | 0 |
| AUTOCAL2 | 0.04 mg/L | 326654 |
| AUTOCAL3 | 0.04 mg/L | 327658 |
| AUTOCAL4 | 0.1 mg/L | 950748 |
| AUTOCAL5 | 0.2 mg/L | 1879702 |
| AUTOCAL6 | 2 mg/L | 20004186 |
| AUTOCAL7 | 10 mg/L | 109945626 |

**INITIAL CALIBRATION VERIFICATION STANDARD**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| ICVL | 1 mg/L | 0.978 mg/L | 98 % |

**INITIAL CALIBRATION BLANK**

| SAMPLE ID | FOUND | FLAG |
|---|---|---|
| ICB | <0.0020 mg/L | B |

**CONTINUING CALIBRATION VERIFICATION STANDARDS**

| SAMPLE ID | TRUE VALUE | FOUND | RECOVERY |
|---|---|---|---|
| CCVL | 2 mg/L | 2.026 mg/L | 101 % |

**CONTINUING CALIBRATION BLANKS**

| SAMPLE ID | FOUND | FLAG |
|---|---|---|
| CCB | <0.0020 mg/L | B |

**LOCKHEED ANALYTICAL LABORATORY**
**QUALITY CONTROL DATA SUMMARY**
**LABORATORY CONTROL SAMPLE (LCS) - LOW CONCENTRATIONS**

LAL BATCH: 730-BH

**LABORATORY CONTROL SAMPLE (LCS)**

| LCS ID | ANALYTE | TRUE | FOUND | RECOVERY |
|---|---|---|---|---|
| LCSL | FLUORIDE | 1.000 mg/L | 0.996 mg/L | 100 % |
| LCSL | ORTHO-PHOSPHATE | 1.000 mg/L | 1.003 mg/L | 100 % |

**LABORATORY CONTROL SAMPLE DUPLICATE (LCS-DUP)**

| LCS ID | ANALYTE | TRUE | FOUND | RECOVERY |
|---|---|---|---|---|

(No low-concentration Laboratory Control Sample duplicate)

**LABORATORY CONTROL SAMPLE-LABORATORY CONTROL SAMPLE DUPLICATE COMPARISON**

| ANALYTE | LCS | LCS-DUP | RPD | FLAG |
|---|---|---|---|---|

(No low-concentration Laboratory Control Sample duplicate)

**LOCKHEED ANALYTICAL LABORATORY**
**QUALITY CONTROL DATA SUMMARY**
**METHOD BLANK**

LAL BATCH: 730-BH

**METHOD BLANK (MB)**

| LAS ID | ANALYTE | FOUND | FLAG |
|---|---|---|---|
| FILTERED BLANK | FLUORIDE | <0.0070 mg/L | U |
| FILTERED BLANK | ORTHO-PHOSPHATE | <0.0020 mg/L | B |

**LOCKHEED ANALYTICAL LABORATORY**
**QUALITY CONTROL DATA SUMMARY**
**MATRIX SPIKE AND MATRIX SPIKE DUPLICATE SAMPLES**

LAL BATCH - 730-BH

## MATRIX SPIKE SAMPLES

| LAS ID | ANALYTE | SAMPLE RESULT (mg/kg) | SPIKE ADDED (mg/kg) | SPIKED SAMPLE RESULT (mg/kg) | SPIKE RECOVERY % | (100 ± 25) | FLAG |
|---|---|---|---|---|---|---|---|
| L7545-4D (100) | FLUORIDE | 291.820 | 14.88 | 316.66 | | | a |
| L7545-4D (10) | ORTHOPHOSPHATE | 304.130 | 29.76 | 302.93 | | | a |

## MATRIX SPIKE DUPLICATE SAMPLES

| LAS ID | ANALYTE | SAMPLE RESULT (mg/kg) | SPIKE ADDED (mg/kg) | SPIKED SAMPLE RESULT (mg/kg) | SPIKE RECOVERY % | (100 ± 25) | FLAG |
|---|---|---|---|---|---|---|---|
| N/A | | | | | | | |

## MATRIX SPIKE-MATRIX SPIKE DUPLICATE COMPARISON

| LAS ID | ANALYTE | MATRIX SPIKE RESULT (mg/kg) | ATRIX SPIKE DUP RESULT (mg/kg) | ± 15 RPD % | FLAG |
|---|---|---|---|---|---|
| N/A | | | | | |

**LOCKHEED ANALYTICAL LABORATORY**
**QUALITY CONTROL DATA SUMMARY**
**DUPLICATE SAMPLE ANALYSIS**

LAL BATCH - 730-BH

DUPLICATE SAMPLES

| LAS ID | ANALYTE | SAMPLE RESULT (mg/kg) | DUPLICATE RESULT (mg/kg) | ± 15 RPD (%) | FLAG |
|---|---|---|---|---|---|
| L7545-4D (100) | FLUORIDE | 291.82 | 286.64 | 1.79 | |
| L7545-4D (10) | ORTHOPHOSPHATE | 304.13 | 303.8 | 0.11 | |

# LOCKHEED ANALYTICAL LABORATORY
## WATER QUALITY PARAMETERS
## CALIBRATION SUMMARY

| | | |
|---|---|---|
| SDG: N/A | UNITS: mg/L | CONSTANT: 0.000248801 |
| LAL BATCH: 730-bh2 | CALIBRATION DATE: 8/8/96 | LINEAR COEFFICIENT: 1.560445041 |
| METHOD: 335.2 | CALIBRATION TIME: 9:15 p.m. | QUADRATIC COEFFICIENT: N/A |
| ANALYTE: Total Cyanide | NUMBER OF STANDARDS: 7 | CUBIC COEFFICIENT: N/A |
| INSTRUMENT: Spectronic 20D | CALIBRATION TYPE: Linear | COEFFICIENT OF DETERMINATION ($r^2$): 0.999954013 |

### STANDARD DATA

| STANDARD ID | MANUFACTURER | LOT # | TRUE VALUE | INSTRUMENT RESPONSE (578nm) | CALCULATED CONCENTRATION |
|---|---|---|---|---|---|
| 1 | EM | 30078115 | 0.000 | 0.000 | 0.000 |
| 2 | - | - | 0.010 | 0.015 | 0.009 |
| 3 | - | - | 0.020 | 0.031 | 0.020 |
| 4 | - | - | 0.100 | 0.156 | 0.100 |
| 5 | - | - | 0.200 | 0.315 | 0.202 |
| 6 | - | - | 0.300 | 0.470 | 0.301 |
| 7 | - | - | 0.400 | 0.622 | 0.398 |

### INITIAL CALIBRATION VERIFICATION DATA

| SAMPLE ID | TRUE VALUE | FOUND | % RECOVERY |
|---|---|---|---|
| ICV | 0.320 | 0.322 | 100.6 |

### INITIAL CALIBRATION BLANK DATA

| SAMPLE ID | INJECTION # | FOUND |
|---|---|---|
| ICB | N/A | 0.005 U |

### CONTINUING CALIBRATION VERIFICATION DATA

| SAMPLE ID | INJECTION # | TRUE VALUE | FOUND VALUE | % RECOVERY |
|---|---|---|---|---|
| CCV | N/A | 0.200 | 0.197 | 98.5 |

### CONTINUING CALIBRATION BLANK DATA

| SAMPLE ID | INJECTION # | FOUND |
|---|---|---|
| CCB | N/A | 0.005 U |

# LOCKHEED ANALYTICAL LABORATORY
# WATER QUALITY PARAMETERS
# QUALITY CONTROL DATA SUMMARY

| | |
|---|---|
| SDG: N/A | ANALYTE: Total Cyanide |
| LAL BATCH: 730-bh2 | UNITS: mg/L (mg/kg in solids/oils) |

## LABORATORY CONTROL SAMPLES

| LCS ID | ACCEPTANCE LIMITS (%R) | TRUE VALUE | FOUND VALUE | % RECOVERY |
|---|---|---|---|---|
| lcss | 16.9-77.3 mg/kg | 44.7 mg/kg | 50.427 mg/kg | 112.8 |
| lcsw | 90-110 | 0.100 | 0.095 | 95.0 |

## MATRIX SPIKE SAMPLES

| CLIENT SAMPLE ID | ACCEPTANCE LIMITS (%R) | SPIKED SAMPLE RESULT | SAMPLE RESULT | SPIKE ADDED | % RECOVERY |
|---|---|---|---|---|---|
| B0HXX7 | 75-125 | 5.495 | 0.881 | 5.000 | 92.3 |

## LABORATORY DUPLICATE SAMPLES

| CLIENT SAMPLE ID | ACCEPTANCE LIMITS (RPD) | SAMPLE VALUE | DUPLICATE VALUE | RPD |
|---|---|---|---|---|
| B0HXX7 | 20 | 0.881 | 0.824 | 6.7 |

## FIELD DUPLICATE SAMPLES

| CLIENT SAMPLE ID | CLIENT DUPLICATE SAMPLE ID | SAMPLE VALUE | DUPLICATE VALUE | RPD |
|---|---|---|---|---|
| N/A | | | | |

## FIELD BLANK SAMPLES

| CLIENT SAMPLE ID | ANALYSIS RESULT |
|---|---|
| N/A | |

## MATRIX BLANK SAMPLES

| LAL SAMPLE ID | ANALYSIS RESULT |
|---|---|
| pb | 0.005 U |

# LOCKHEED ANALYTICAL LABORATORY
# WATER QUALITY PARAMETERS
# CALIBRATION SUMMARY

| | | |
|---|---|---|
| SDG: N/A | UNITS: mg/L | CONSTANT: N/A |
| LAL BATCH: 730-bh2 | CALIBRATION DATE: 8/20/96 | LINEAR COEFFICIENT: N/A |
| METHOD: 9030A | CALIBRATION TIME: N/A | QUADRATIC COEFFICIENT: N/A |
| ANALYTE: Sulfide | NUMBER OF STANDARDS: 3 | CUBIC COEFFICIENT: N/A |
| INSTRUMENT: N/A | CALIBRATION TYPE: N/A | COEFFICIENT OF DETERMINATION ($r^2$): N/A |

## STANDARD DATA

| STANDARD ID | MANUFACTURER | LOT # | TRUE VALUE | INSTRUMENT RESPONSE | CALCULATED CONCENTRATION |
|---|---|---|---|---|---|
| $KIO_3$ | EM Scientific | 29160028 | 1.0268 g/100 mL | N/A | N/A |
| Iodine | EM Scientific | 3000201 | 0.0250 N | N/A | 0.02397 N |
| $Na_2S_2O_3.5H_2O$ | Mallinckrodt | 8100 KHJN | 0.0250 N | N/A | 0.02419 N |

## INITIAL CALIBRATION VERIFICATION DATA

| SAMPLE ID | TRUE VALUE | FOUND | % RECOVERY |
|---|---|---|---|
| ICV | 13.29 | 13.285 | 100.0 |

## INITIAL CALIBRATION BLANK DATA

| SAMPLE ID | INJECTION # | FOUND |
|---|---|---|
| ICB | N/A | 0.600 U |

## CONTINUING CALIBRATION VERIFICATION DATA

| SAMPLE ID | INJECTION # | TRUE VALUE | FOUND VALUE | % RECOVERY |
|---|---|---|---|---|
| CCV1 | N/A | 23.325 | 22.661 | 97.2 |
| CCV2 | N/A | 23.325 | 22.584 | 96.8 |

## CONTINUING CALIBRATION BLANK DATA

| SAMPLE ID | INJECTION # | FOUND |
|---|---|---|
| CCB1 | N/A | 0.600 U |
| CCB2 | N/A | 0.600 U |

# LOCKHEED ANALYTICAL LABORATORY
# WATER QUALITY PARAMETERS
# QUALITY CONTROL DATA SUMMARY

| | |
|---|---|
| SDG: N/A | ANALYTE: TOTAL SULFIDE |
| LAL BATCH: 730-bh2 | UNITS: mg/L (mg/kg sample results) |

## LABORATORY CONTROL SAMPLES

| LCS ID | ACCEPTANCE LIMITS (%R) | TRUE VALUE | FOUND VALUE | % RECOVERY |
|---|---|---|---|---|
| lcs | 75-125 | 9.33 | 8.147 | 87.3 |

## MATRIX SPIKE SAMPLES

| CLIENT SAMPLE ID | ACCEPTANCE LIMITS (%R) | SPIKED SAMPLE RESULT | SAMPLE RESULT | SPIKE ADDED | % RECOVERY |
|---|---|---|---|---|---|
| B0HXX7 | 65-135 | 126.547 | 15.869 B | 186.6 | 58.8 * |

## LABORATORY DUPLICATE SAMPLES

| CLIENT SAMPLE ID | ACCEPTANCE LIMITS (%RPD) | SAMPLE VALUE | DUPLICATE VALUE | RPD |
|---|---|---|---|---|
| B0HXX7 | 25 | 15.869 B | 15.821 B | b |

## FIELD DUPLICATE SAMPLES

| CLIENT SAMPLE ID | CLIENT DUPLICATE SAMPLE ID | SAMPLE VALUE | DUPLICATE VALUE | RPD |
|---|---|---|---|---|
| N/A | | | | |

## FIELD BLANK SAMPLES

| CLIENT SAMPLE ID | ANALYSIS RESULT |
|---|---|
| N/A | |

## MATRIX BLANK SAMPLES

| LAL SAMPLE ID | ANALYSIS RESULT |
|---|---|
| pb | 0.600 U |

# LOCKHEED ANALYTICAL LABORATORY
# WATER QUALITY PARAMETERS
# CALIBRATION SUMMARY

| | |
|---|---|
| SDG: | UNITS: pH |
| LAL BATCH: 730-BH2 | CALIBRATION DATE: 08-20-96 |
| METHOD: 9045 | NUMBER OF STANDARDS: 2 |
| ANALYTE: pH | |
| INSTRUMENT: ORION 420 A | |

## STANDARD DATA

| STANDARD ID | MANUFACTURER | LOT # | TRUE VALUE (pH) | INSTRUMENT RESPONSE (pH) |
|---|---|---|---|---|
| CCV7 | VWR | 9101878408 | 7.00 | 7.00 |
| CCV10 | FISHER | 9101877217 | 10.00 | 10.01 |

## INITIAL CALIBRATION VERIFICATION DATA

| SAMPLE ID | TRUE VALUE (pH) | FOUND (pH) | DIFFERENCE (pH) |
|---|---|---|---|
| ICV7 | 7.00 | 7.09 | 0.09 |
| ICV10 | 10.00 | 10.07 | 0.07 |

## CONTINUING CALIBRATION VERIFICATION DATA

| SAMPLE ID | TRUE VALUE (pH) | FOUND VALUE (pH) | DIFFERENCE (pH) |
|---|---|---|---|
| CCV7 | 7.00 | 7.01 | 0.01 |
| CCV10 | 10.00 | 10.02 | 0.02 |
| | | | |
| | | | |

LOCKHEED ANALYTICAL LABORATORY

WATER QUALITY PARAMETERS

QUALITY CONTROL DATA SUMMARY

| | |
|---|---|
| SDG: | ANALYTE: pH |
| LAL BATCH: 730-8H2 | UNITS: pH |

LABORATORY DUPLICATE SAMPLES

| CLIENT SAMPLE ID | ACCEPTANCE LIMITS (DIFFERENCE) | SAMPLE VALUE (pH) | DUPLICATE VALUE (pH) | DIFFERENCE (pH) |
|---|---|---|---|---|
| BOHXX7 | ± 0.20 | 9.73 | 9.62 | 0.11 |

# LOCKHEED ANALYTICAL SERVICES

## Sample Results

| | |
|---|---|
| Client Sample ID: B0HXX7 | Date Collected: 23-JUL-96 |
| Matrix: TCLP Extr | Date Received: 30-JUL-96 |
| Percent Solids: N/A | |

| Constituent | Units | Method | Result | MDL | RDL | Data Qual | Dilution | Date Analyzed | LAS Batch ID | LAS Sample ID |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic, TCLP | mg/L | 6010 | < 0.15 | 0.15 | 0.50 | U | 5 | 20-SEP-96 | 40948 | L7545-3 |
| Barium, TCLP | mg/L | 6010 | 0.72 | 0.010 | 2.0 | B | 1 | 04-SEP-96 | 40948 | L7545-3 |
| Cadmium, TCLP | mg/L | 6010 | 0.35 | 0.030 | 0.050 | | 1 | 04-SEP-96 | 40948 | L7545-3 |
| Chromium, TCLP | mg/L | 6010 | 0.42 | 0.040 | 0.10 | | 1 | 04-SEP-96 | 40948 | L7545-3 |
| Lead, TCLP | mg/L | 6010 | 15. | 0.020 | 0.030 | | 1 | 04-SEP-96 | 40948 | L7545-3 |
| Selenium, TCLP | mg/L | 6010 | 0.17 | 0.040 | 0.10 | | 1 | 04-SEP-96 | 40948 | L7545-3 |
| Silver, TCLP | mg/L | 6010 | < 0.040 | 0.040 | 0.10 | U | 1 | 26-SEP-96 | 40948 | L7545-3 |
| Mercury, TCLP | mg/l | 7470 | < 0.020 | 0.020 | 0.020 | U | 1 | 10-SEP-96 | 40949 | L7545-3 |

# LOCKHEED ANALYTICAL SERVICES

GC/MS FOR VOLATILE ORGANICS
8240 VOLATILES

| | | | |
|---|---|---|---|
| Client Sample ID: | B0HXX7 | LAL Sample ID: | L7545-5 |
| Date Collected: | 23-JUL-96 | Date Received: | 30-JUL-96 |
| Date Analyzed: | 05-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | SolidWaste | Analytical Batch ID: | 080596-8260-C1 |
| Percent Moisture: | N/A | Preparation Dilution: | 1.00 |

| SURROGATE | RECOVERY | QC Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 96% | 77-127 |
| Toluene-d8 | 82% * | 84-120 |
| Bromofluorobenzene | 39% * | 78-125 |

| CONSTITUENT | CAS NO. | RESULT ug/kg | PRACTICAL QUANTITATION LIMIT ug/kg | DATA QUALIFIER(s) |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | 1.2 | 5.0 | J |
| Vinyl Chloride | 75-01-4 | <5.0 | 5.0 | |
| Bromomethane | 74-83-9 | <5.0 | 5.0 | |
| Chloroethane | 75-00-3 | <5.0 | 5.0 | |
| Trichlorofluoromethane | 75-69-4 | <5.0 | 5.0 | |
| Acetone | 67-64-1 | 54. | 10. | B |
| 1,1-Dichloroethene | 75-35-4 | <5.0 | 5.0 | |
| Carbon Disulfide | 75-15-0 | <5.0 | 5.0 | |
| Methylene Chloride | 75-09-2 | <5.0 | 5.0 | |
| trans-1,2-Dichloroethene | 156-60-5 | <5.0 | 5.0 | |
| Vinyl Acetate | 108-05-4 | <10. | 10. | |
| 1,1-Dichloroethane | 75-34-3 | <5.0 | 5.0 | |
| 2-Butanone | 78-93-3 | 66. | 10. | B |
| cis-1,2-Dichloroethene | 156-59-2 | <5.0 | 5.0 | |
| Chloroform | 67-66-3 | 1.2 | 5.0 | J |
| 2-Hexanone | 591-78-6 | <10. | 10. | |
| 1,1,1-Trichloroethane | 71-55-6 | <5.0 | 5.0 | |
| Carbon tetrachloride | 56-23-5 | <5.0 | 5.0 | |
| 1,2-Dichloroethane | 107-06-2 | <5.0 | 5.0 | |
| Benzene | 71-43-2 | <5.0 | 5.0 | |
| Trichloroethene | 79-01-6 | <5.0 | 5.0 | |
| 1,2-Dichloropropane | 78-87-5 | <5.0 | 5.0 | |
| Bromodichloromethane | 75-27-4 | <5.0 | 5.0 | |
| 2-Chloroethylvinylether | 110-75-8 | <20. | 20. | |
| 4-Methyl-2-Pentanone | 108-10-1 | <10. | 10. | |
| cis-1,3-Dichloropropene | 10061-01-5 | <5.0 | 5.0 | |
| Toluene | 108-88-3 | 5.4 | 5.0 | |
| trans-1,3-Dichloropropene | 10061-02-6 | <5.0 | 5.0 | |
| 1,1,2-Trichloroethane | 79-00-5 | <5.0 | 5.0 | |
| Tetrachloroethene | 127-18-4 | 1.5 | 5.0 | JB |
| Dibromochloromethane | 124-48-1 | <5.0 | 5.0 | |
| Chlorobenzene | 108-90-7 | <5.0 | 5.0 | |
| Ethylbenzene | 100-41-4 | 9.6 | 5.0 | |
| m,p-Xylene | 136777-61-2 | 14. | 5.0 | |
| o-Xylene | 95-47-6 | 5.8 | 5.0 | |
| Styrene | 100-42-5 | <5.0 | 5.0 | |
| Bromoform | 75-25-2 | <5.0 | 5.0 | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <5.0 | 5.0 | |
| 1,3-Dichlorobenzene | 541-73-1 | 2.8 | 5.0 | J |
| 1,4-Dichlorobenzene | 106-46-7 | 2.8 | 5.0 | J |
| 1,2-Dichlorobenzene | 95-50-1 | 2.6 | 5.0 | J |

# LOCKHEED ANALYTICAL SERVICES

SEMI-VOLATILE ORGANICS BY GC/MS
8270 SEMI-VOLATILES

| | | | |
|---|---|---|---|
| Client Sample ID: | B0HXX7 | LAL Sample ID: | L7545-6 |
| Date Collected: | 23-JUL-96 | Date Received: | 30-JUL-96 |
| Date Analyzed: | 19-AUG-96 | Date Extracted: | 05-AUG-96 |
| Matrix: | SolidWaste | Analytical Batch ID: | 081996-8270-A |
| QC Group: | 8270 SEMI-VOLATILES_39790 | Analytical Dilution: | 1 |
| Percent Moisture: | N/A | Preparation Dilution: | 62.3 |

| SURROGATE | RECOVERY | QC Limits |
|---|---|---|
| 2-Fluorophenol | 62% | 15-111 |
| Phenol-d5 | 73% | 21-110 |
| Nitrobenzene-d5 | 66% | 17-114 |
| 2-Fluorobiphenyl | 104% | 29-114 |
| 2,4,6-Tribromophenol | 52% | 33-136 |
| Terphenyl-d14 | 144% | 32-151 |

| CONSTITUENT | CAS NO. | RESULT ug/Kg | PRACTICAL QUANTITATION LIMIT ug/Kg | DATA QUALIFIER(s) |
|---|---|---|---|---|
| Phenol | 108-95-2 | <41000 | 41000 | |
| bis(2-Chloroethyl)ether | 111-44-4 | <41000 | 41000 | |
| 2-Chlorophenol | 95-57-8 | <41000 | 41000 | |
| 1,3-Dichlorobenzene | 541-73-1 | <41000 | 41000 | |
| 1,4-Dichlorobenzene | 106-46-7 | <41000 | 41000 | |
| Benzyl alcohol | 100-51-6 | <81000 | 81000 | |
| 1,2-Dichlorobenzene | 95-50-1 | <41000 | 41000 | |
| 2-Methylphenol | 95-48-7 | <41000 | 41000 | |
| bis(2-chloroisopropyl)ether | 108-60-1 | <41000 | 41000 | |
| 4-Methylphenol | 106-44-5 | <41000 | 41000 | |
| N-Nitroso-di-n-propylamine | 621-64-7 | <41000 | 41000 | |
| Hexachloroethane | 67-72-1 | <41000 | 41000 | |
| Nitrobenzene | 98-95-3 | <41000 | 41000 | |
| Isophorone | 78-59-1 | <41000 | 41000 | |
| 2-Nitrophenol | 88-75-5 | <41000 | 41000 | |
| 2,4-Dimethylphenol | 105-67-9 | <41000 | 41000 | |
| Benzoic acid | 65-85-0 | <210000 | 210000 | |
| bis(2-Chloroethoxy)methane | 111-91-1 | <41000 | 41000 | |
| 2,4-Dichlorophenol | 120-83-2 | <41000 | 41000 | |
| 1,2,4-Trichlorobenzene | 120-82-1 | <41000 | 41000 | |
| Naphthalene | 91-20-3 | <41000 | 41000 | |
| 4-Chloroaniline | 106-47-8 | <81000 | 81000 | |
| Hexachlorobutadiene | 87-68-3 | <41000 | 41000 | |
| 4-Chloro-3-methylphenol | 59-50-7 | <81000 | 81000 | |
| 2-Methylnaphthalene | 91-57-6 | <41000 | 41000 | |
| Hexachlorocyclopentadiene | 77-47-4 | <41000 | 41000 | |
| 2,4,6-Trichlorophenol | 88-06-2 | <41000 | 41000 | |
| 2,4,5-Trichlorophenol | 95-95-4 | <41000 | 41000 | |
| 2-Chloronaphthalene | 91-58-7 | <41000 | 41000 | |
| 2-Nitroaniline | 88-74-4 | <210000 | 210000 | |
| Dimethylphthalate | 131-11-3 | <41000 | 41000 | |
| Acenaphthylene | 208-96-8 | <41000 | 41000 | |
| 2,6-Dinitrotoluene | 606-20-2 | <41000 | 41000 | |
| 3-Nitroaniline | 99-09-2 | <210000 | 210000 | |
| Acenaphthene | 83-32-9 | <41000 | 41000 | |
| 2,4-Dinitrophenol | 51-28-5 | <210000 | 210000 | |
| 4-Nitrophenol | 100-02-7 | <210000 | 210000 | |

0083

# LOCKHEED ANALYTICAL SERVICES

SEMI-VOLATILE ORGANICS BY GC/MS
8270 SEMI-VOLATILES

| | | | |
|---|---|---|---|
| Client Sample ID: | B0HXX7 | LAL Sample ID: | L7545-6 |
| Date Collected: | 23-JUL-96 | Date Received: | 30-JUL-96 |
| Date Analyzed: | 19-AUG-96 | Date Extracted: | 05-AUG-96 |
| Matrix: | SolidWaste | Analytical Batch ID: | 081996-8270-A |
| QC Group: | 8270 SEMI-VOLATILES_39790 | Analytical Dilution: | 1 |
| Percent Moisture: | N/A | Preparation Dilution: | 62.3 |

| CONSTITUENT | CAS NO. | RESULT ug/Kg | PRACTICAL QUANTITATION LIMIT ug/Kg | DATA QUALIFIER(s) |
|---|---|---|---|---|
| Dibenzofuran | 132-64-9 | <41000 | 41000 | |
| 2,4-Dinitrotoluene | 121-14-2 | <41000 | 41000 | |
| Diethylphthalate | 84-66-2 | <41000 | 41000 | |
| 4-Chlorophenyl-phenylether | 7005-72-3 | <41000 | 41000 | |
| Fluorene | 86-73-7 | <41000 | 41000 | |
| 4-Nitroaniline | 100-01-6 | <210000 | 210000 | |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | <210000 | 210000 | |
| N-Nitrosodiphenylamine (1) | 86-30-6 | <41000 | 41000 | |
| 4-Bromophenyl-phenylether | 101-55-3 | <41000 | 41000 | |
| Hexachlorobenzene | 118-74-1 | <41000 | 41000 | |
| Pentachlorophenol | 87-86-5 | <210000 | 210000 | |
| Phenanthrene | 85-01-8 | 12000 | 41000 | J |
| Anthracene | 120-12-7 | <41000 | 41000 | |
| Carbazole | 86-74-8 | <41000 | 41000 | |
| Di-n-butylphthalate | 84-74-2 | 17000 | 41000 | J |
| Fluoranthene | 206-44-0 | <41000 | 41000 | |
| Pyrene | 129-00-0 | <41000 | 41000 | |
| Butylbenzylphthalate | 85-68-7 | <41000 | 41000 | |
| 3,3'-Dichlorobenzidine | 91-94-1 | <81000 | 81000 | |
| Benzo(a)anthracene | 56-55-3 | <41000 | 41000 | |
| Chrysene | 218-01-9 | <41000 | 41000 | |
| bis(2-Ethylhexyl)phthalate | 117-81-7 | 85000 | 41000 | |
| Di-n-octylphthalate | 117-84-0 | <41000 | 41000 | |
| Benzo(b)fluoranthene | 205-99-2 | <41000 | 41000 | |
| Benzo(k)fluoranthene | 207-08-9 | <41000 | 41000 | |
| Benzo(a)pyrene | 50-32-8 | <41000 | 41000 | |
| Indeno(1,2,3-cd)pyrene | 193-39-5 | <41000 | 41000 | |
| Dibenz(a,h)anthracene | 53-70-3 | <41000 | 41000 | |
| Benzo(g,h,i)perylene | 191-24-2 | <41000 | 41000 | |

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# LOCKHEED ANALYTICAL SERVICES

SEMI-VOLATILE ORGANICS BY GC/MS
8270 SEMI-VOLATILES

| | | | |
|---|---|---|---|
| Client Sample ID: | B0HXX7 | LAL Sample ID: | L7545-6 |
| Date Collected: | 23-JUL-96 | Date Received: | 30-JUL-96 |
| Date Analyzed: | 19-AUG-96 | Date Extracted: | 05-AUG-96 |
| Matrix: | SolidWaste | Analytical Batch ID: | 081996-8270-A |
| QC Group: | 8270 SEMI-VOLATILES_39790 | Analytical Dilution: | 1 |
| Percent Moisture: | N/A | Preparation Dilution: | 62.3 |

| SURROGATE | RECOVERY | QC Limits |
|---|---|---|
| 2-Fluorophenol | 56% | 15-111 |
| Phenol-d5 | 74% | 21-110 |
| Nitrobenzene-d5 | 75% | 17-114 |
| 2-Fluorobiphenyl | 94% | 29-114 |
| 2,4,6-Tribromophenol | 45% | 33-136 |
| Terphenyl-d14 | 138% | 32-151 |

| CONSTITUENT | CAS NO. | RESULT ug/Kg | PRACTICAL QUANTITATION LIMIT ug/Kg | DATA QUALIFIER(s) |
|---|---|---|---|---|
| Phenol | 108-95-2 | <41000 | 41000 | |
| bis(2-Chloroethyl)ether | 111-44-4 | <41000 | 41000 | |
| 2-Chlorophenol | 95-57-8 | <41000 | 41000 | |
| 1,3-Dichlorobenzene | 541-73-1 | <41000 | 41000 | |
| 1,4-Dichlorobenzene | 106-46-7 | <41000 | 41000 | |
| Benzyl alcohol | 100-51-6 | <81000 | 81000 | |
| 1,2-Dichlorobenzene | 95-50-1 | <41000 | 41000 | |
| 2-Methylphenol | 95-48-7 | <41000 | 41000 | |
| bis(2-chloroisopropyl)ether | 108-60-1 | <41000 | 41000 | |
| 4-Methylphenol | 106-44-5 | <41000 | 41000 | |
| N-Nitroso-di-n-propylamine | 621-64-7 | <41000 | 41000 | |
| Hexachloroethane | 67-72-1 | <41000 | 41000 | |
| Nitrobenzene | 98-95-3 | <41000 | 41000 | |
| Isophorone | 78-59-1 | <41000 | 41000 | |
| 2-Nitrophenol | 88-75-5 | <41000 | 41000 | |
| 2,4-Dimethylphenol | 105-67-9 | <41000 | 41000 | |
| Benzoic acid | 65-85-0 | <210000 | 210000 | |
| bis(2-Chloroethoxy)methane | 111-91-1 | <41000 | 41000 | |
| 2,4-Dichlorophenol | 120-83-2 | <41000 | 41000 | |
| 1,2,4-Trichlorobenzene | 120-82-1 | <41000 | 41000 | |
| Naphthalene | 91-20-3 | <41000 | 41000 | |
| 4-Chloroaniline | 106-47-8 | <81000 | 81000 | |
| Hexachlorobutadiene | 87-68-3 | <41000 | 41000 | |
| 4-Chloro-3-methylphenol | 59-50-7 | <81000 | 81000 | |
| 2-Methylnaphthalene | 91-57-6 | <41000 | 41000 | |
| Hexachlorocyclopentadiene | 77-47-4 | <41000 | 41000 | |
| 2,4,6-Trichlorophenol | 88-06-2 | <41000 | 41000 | |
| 2,4,5-Trichlorophenol | 95-95-4 | <41000 | 41000 | |
| 2-Chloronaphthalene | 91-58-7 | <41000 | 41000 | |
| 2-Nitroaniline | 88-74-4 | <210000 | 210000 | |
| Dimethylphthalate | 131-11-3 | <41000 | 41000 | |
| Acenaphthylene | 208-96-8 | <41000 | 41000 | |
| 2,6-Dinitrotoluene | 606-20-2 | <41000 | 41000 | |
| 3-Nitroaniline | 99-09-2 | <210000 | 210000 | |
| Acenaphthene | 83-32-9 | <41000 | 41000 | |
| 2,4-Dinitrophenol | 51-28-5 | <210000 | 210000 | |
| 4-Nitrophenol | 100-02-7 | <210000 | 210000 | |

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# LOCKHEED ANALYTICAL SERVICES

SEMI-VOLATILE ORGANICS BY GC/MS
8270 SEMI-VOLATILES

| | | | |
|---|---|---|---|
| Client Sample ID: | B0HXX7 | LAL Sample ID: | L7545-6 |
| Date Collected: | 23-JUL-96 | Date Received: | 30-JUL-96 |
| Date Analyzed: | 19-AUG-96 | Date Extracted: | 05-AUG-96 |
| Matrix: | SolidWaste | Analytical Batch ID: | 081996-8270-A |
| QC Group: | 8270 SEMI-VOLATILES_39790 | Analytical Dilution: | 1 |
| Percent Moisture: | N/A | Preparation Dilution: | 62.3 |

| CONSTITUENT | CAS NO. | RESULT ug/Kg | PRACTICAL QUANTITATION LIMIT ug/Kg | DATA QUALIFIER(s) |
|---|---|---|---|---|
| Dibenzofuran | 132-64-9 | <41000 | 41000 | |
| 2,4-Dinitrotoluene | 121-14-2 | <41000 | 41000 | |
| Diethylphthalate | 84-66-2 | <41000 | 41000 | |
| 4-Chlorophenyl-phenylether | 7005-72-3 | <41000 | 41000 | |
| Fluorene | 86-73-7 | <41000 | 41000 | |
| 4-Nitroaniline | 100-01-6 | <210000 | 210000 | |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | <210000 | 210000 | |
| N-Nitrosodiphenylamine (1) | 86-30-6 | <41000 | 41000 | |
| 4-Bromophenyl-phenylether | 101-55-3 | <41000 | 41000 | |
| Hexachlorobenzene | 118-74-1 | <41000 | 41000 | |
| Pentachlorophenol | 87-86-5 | <210000 | 210000 | |
| Phenanthrene | 85-01-8 | 11000 | 41000 | J |
| Anthracene | 120-12-7 | <41000 | 41000 | |
| Carbazole | 86-74-8 | <41000 | 41000 | |
| Di-n-butylphthalate | 84-74-2 | <41000 | 41000 | |
| Fluoranthene | 206-44-0 | <41000 | 41000 | |
| Pyrene | 129-00-0 | <41000 | 41000 | |
| Butylbenzylphthalate | 85-68-7 | <41000 | 41000 | |
| 3,3'-Dichlorobenzidine | 91-94-1 | <81000 | 81000 | |
| Benzo(a)anthracene | 56-55-3 | <41000 | 41000 | |
| Chrysene | 218-01-9 | <41000 | 41000 | |
| bis(2-Ethylhexyl)phthalate | 117-81-7 | 99000 | 41000 | |
| Di-n-octylphthalate | 117-84-0 | <41000 | 41000 | |
| Benzo(b)fluoranthene | 205-99-2 | <41000 | 41000 | |
| Benzo(k)fluoranthene | 207-08-9 | <41000 | 41000 | |
| Benzo(a)pyrene | 50-32-8 | <41000 | 41000 | |
| Indeno(1,2,3-cd)pyrene | 193-39-5 | <41000 | 41000 | |
| Dibenz(a,h)anthracene | 53-70-3 | <41000 | 41000 | |
| Benzo(g,h,i)perylene | 191-24-2 | <41000 | 41000 | |

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