

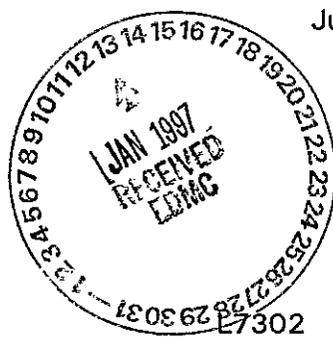
Lockheed Environmental Systems & Technologies Co.
Lockheed Analytical Services
975 Kelly Johnson Drive Las Vegas, Nevada 89119-3705
Telephone 702-361-0220 800-582-7605 Facsimile 702-361-8146

0046383



July 29, 1996

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



| | |
|---------------------------|-----------|
| RE: Log-in No.: | L7302 |
| Quotation No.: | Q400000-B |
| SAF: | B96-125 |
| Document File No.: | 0622596A |
| BHI Document Control No.: | 379 |
| SDG No.: | LK7302 |

The attached data report contains the analytical results of samples that were submitted to Lockheed Analytical Services on 22 June 1996. The temperature of the cooler upon receipt was 2°C. Sample containers received agree with the chain-of-custody documentation. Sample containers were received intact. Samples were received in time to meet the analytical holding time requirements. Methods 8260 and 8270 were deleted from the login due to insufficient sample volume.

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 Kathleen M. Hall at (509) 375-4741.

"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,
Kathleen M. Hall
Kathleen M. Hall
Client Services Representative

cc: Client Services
Document Control

**CASE NARRATIVE
INORGANIC TCLP 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), duplicate sample(s).

Preparation and Analysis Requirements

All samples were received on June 22, 1996. The samples were logged in as L7302 and were prepared and analyzed in batch 622 bh2 for TCLP metals. The samples were analyzed by Method 7000 Furnace Metals for arsenic, selenium and lead, Method 7470 Mercury and Method 6010 ICP Metals for all other analytes.

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 with the following exceptions: The matrix spike recoveries for arsenic (130%), selenium (128%) and mercury (57%) were outside of acceptance limits. The recoveries based on the LCS (arsenic 108.2%, selenium 108% and mercury 105%) support that the analytical system was operating within control limits.
- The duplicate sample precision for lead was outside of acceptance limits. All associated samples are flagged with an "**".

Shellee McGrath
Prepared By

July 29, 1996
Date

Revised

LOCKHEED ANALYTICAL SERVICES
LOGIN CHAIN OF CUSTODY REPORT (ln01)
Jul 16 1996, 03:24 pm

Login Number: L7302
Account: 596 Bechtel Hanford, Inc. * Richland, WA
Project: BECHTEL-HANFORD Bechtel Hanford Project

| Laboratory | Client | Collect | Receive | Due |
|---------------|---------------|---------|---------|---------|
| Sample Number | Sample Number | Date | Date | PR Date |

*

| | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------|----------------|-----------|
| L7302-1 | BOHGZO | 19-JUN-96 | 22-JUN-96 | 07-JUL-96 |
| TEMP 2; SAF# B96-125, SAMPLING REQUIREMENTS IN ORDER=ACTIVITY SCAN, IGNITABILITY, METALS BY ICP, MERCURY, CYANIDE, SULFIDES, VOA, SEMI-VOA, TICS, TCLP=(M) | | | | |
| Location: RFG19-105C | | | | |
| Liq. Waste 7 | S 1010 | IGNITABILITY | Hold:26-JUN-96 | |
| Liq. Waste 7 | S 1311 | TCLP REG. EXTR. | Hold:03-JUL-96 | |
| TCLP Extr 13 | S 6010 | ICP METALS | Hold:16-DEC-96 | |
| TCLP Extr 13 | S 7000 | FURNACE METALS | Hold:16-DEC-96 | |
| TCLP Extr 13 | S 7470 | MERCURY | Hold:17-JUL-96 | |
| Liq. Waste 7 | S | SCREENING | Hold:16-DEC-96 | |

| | | | | |
|--------------|-------------|--------------------|-----------|-----------|
| L7302-2 | REPORT TYPE | 22-JUN-96 | 22-JUN-96 | 07-JUL-96 |
| SAF# B96-125 | | | | |
| Location: | | | | |
| Water | 1 | S EDD - DISK DEL. | | |
| Water | 1 | S GCMS2 | | |
| Water | 1 | S INORG TYPE 2 RPT | | |

* Deleted 8260 & 8270 Semi-VOA.
Not enough sample to perform analysis.

Signature: Dudith L Bains
Date: 07-16-96 00 7

062-25961

LOCKHEED ANALYTICAL SERVICES
 LOGIN CHAIN OF CUSTODY REPORT (ln01)
 Jul 03 1996, 11:54 am

Login Number: L7302
 Account: 596 Bechtel Hanford, Inc. * Richland, WA
 Project: BECHTEL-HANFORD Bechtel Hanford Project

| Laboratory Sample Number | Client Sample Number | Collect Date | Receive Date | Due PR Date |
|-----------------------------|-------------------------|-----------------|-----------------|----------------|
|-----------------------------|-------------------------|-----------------|-----------------|----------------|

| | | | | |
|---------|--------|-----------|-----------|-----------|
| L7302-1 | BOHGZO | 19-JUN-96 | 22-JUN-96 | 07-JUL-96 |
|---------|--------|-----------|-----------|-----------|

TEMP 2; SAF# B96-125, SAMPLING REQUIREMENTS IN ORDER=ACTIVITY SCAN,
 IGNITABILITY, METALS BY ICP, MERCURY, CYANIDE, SULFIDES, VOA, SEMI-VOA, TICS,
 TCLP=(M)

Location: 133

| | | | |
|--------------|--------|-----------------|----------------|
| Liq. Waste 7 | S 1010 | IGNITABILITY | Hold:26-JUN-96 |
| Liq. Waste 7 | S 1311 | TCLP REG. EXTR. | Hold:03-JUL-96 |
| TCLP Extr 13 | S 6010 | ICP METALS | Hold:16-DEC-96 |
| TCLP Extr 13 | S 7000 | FURNACE METALS | Hold:16-DEC-96 |
| TCLP Extr 13 | S 7470 | MERCURY | Hold:17-JUL-96 |
| Liq. Waste 7 | S 8240 | VOLATILES | Hold:03-JUL-96 |
| Liq. Waste 7 | S 8270 | SEMI-VOLATILES | Hold:03-JUL-96 |
| Liq. Waste 7 | S | SCREENING | Hold:16-DEC-96 |

| | | | | |
|---------|-------------|-----------|-----------|-----------|
| L7302-2 | REPORT TYPE | 22-JUN-96 | 22-JUN-96 | 07-JUL-96 |
|---------|-------------|-----------|-----------|-----------|

SAF# B96-125

Location:

| | | | |
|-------|---|---|------------------|
| Water | 1 | S | EDD - DISK DEL. |
| Water | 1 | S | GCMS2 |
| Water | 1 | S | INORG TYPE 2 RPT |

* Removal 335.2 TOTAL CYANIDE + TO30 SULFIDE
 INSUFFICIENT SAMPLE REMAINING

Page 1

Signature: _____

Date: _____

R. Callan

7-3-96

00 8
 CG72594A

LOCKHEED ANALYTICAL SERVICES
 LOGIN CHAIN OF CUSTODY REPORT (ln01)
 Jun 24 1996, 03:42 pm

Login Number: L7302
 Account: 596 Bechtel Hanford, Inc. * Richland, WA
 Project: BECHTEL-HANFORD Bechtel Hanford Project

| Laboratory Sample Number | Client Sample Number | Collect Date | Receive Date | Due PR Date |
|-----------------------------|-------------------------|-----------------|-----------------|----------------|
|-----------------------------|-------------------------|-----------------|-----------------|----------------|

| | | | | |
|---------|--------|-----------|-----------|-----------|
| L7302-1 | BOHGZO | 19-JUN-96 | 22-JUN-96 | 07-JUL-96 |
|---------|--------|-----------|-----------|-----------|

TEMP 2; SAF# B96-125, SAMPLING REQUIREMENTS IN ORDER=ACTIVITY SCAN,
 IGNITABILITY, METALS BY ICP, MERCURY, CYANIDE, SULFIDES, VOA, SEMI-VOA, TICs,
 TCLP=(M)

Location: 157

| | | | | |
|------------|----|---|----------------------|----------------|
| Liq. Waste | 7 | S | 1010 IGNITABILITY | Hold:26-JUN-96 |
| Liq. Waste | 7 | S | 1311 TCLP REG. EXTR. | Hold:03-JUL-96 |
| Liq. Waste | 7 | S | 335.2 CYANIDE TOTAL | Hold:03-JUL-96 |
| TCLP Extr | 13 | S | 6010 ICP METALS | Hold:16-DEC-96 |
| TCLP Extr | 13 | S | 7000 FURNACE METALS | Hold:16-DEC-96 |
| TCLP Extr | 13 | S | 7470 MERCURY | Hold:17-JUL-96 |
| Liq. Waste | 7 | S | 8240 VOLATILES | Hold:03-JUL-96 |
| Liq. Waste | 7 | S | 8270 SEMI-VOLATILES | Hold:03-JUL-96 |
| Liq. Waste | 7 | S | 9030 SULFIDE | Hold:26-JUN-96 |
| Liq. Waste | 7 | S | SCREENING | Hold:16-DEC-96 |

| | | | | |
|---------|-------------|-----------|-----------|-----------|
| L7302-2 | REPORT TYPE | 22-JUN-96 | 22-JUN-96 | 07-JUL-96 |
|---------|-------------|-----------|-----------|-----------|

SAF# B96-125

Location:

| | | | | |
|-------|---|---|------------------|--|
| Water | 1 | S | EDD - DISK DEL. | |
| Water | 1 | S | GCMS2 | |
| Water | 1 | S | INORG TYPE 2 RPT | |

Page 1

Signature: *A. Mills*

Date: 6-24-96

00 9

0622596A

Bechtel Hanford, Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

L7302

| | | | |
|-----------------------------------------------------|---------------------------------------|-------------------------------------------|-----------------------------------------|
| Collector Doug Bowers | Company Contact Patty Huff | Telephone 373-4566 | Data Turnaround X Priority Normal |
| Project Designation Waste container 100N-96-0200 | Sampling Location 100N waste pad | SAF No. B96-125 | |
| Ice Chest No. B.114 | Field Logbook No. EFL 1133-1 | Method of Shipment Air freight | |
| Shipped To Lockheed | Offsite Property No. W96-0-0640-50 | Bill of Lading/Air Bill No. 2909658732 | |

| | | | | | | | | | | | | | | | | | | | | |
|---------------------------------|---------------------------------|---------------------------|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Possible Sample Hazards/Remarks | Preservation | none | | | | | | | | | | | | | | | | | | |
| | Type of Container | original (P) container | | | | | | | | | | | | | | | | | | |
| | No. of Container(s) | 1 | | | | | | | | | | | | | | | | | | |
| | Special Handling and/or Storage | Volume | 500 mL | | | | | | | | | | | | | | | | | |
| SAMPLE ANALYSIS | | | see item #1 below | | | | | | | | | | | | | | | | | |

| Sample No. | Matrix* | Date Sampled | Time Sampled | | | | | | | | | | | | | | | | | | |
|------------|---------|--------------------------|--------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| BOHGEO | L | 6-19-96 7/15/96-19-96 | 1416 | X | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | | Sign/Print Names | |
|--------------------------------|---------------------------|----------------------------|--------------------------|
| Relinquished By Doug Bowers | Date/Time 6-19-96/1531 | Received By Patty Huff | Date/Time 6-19-96 |
| Relinquished By Patty Huff | Date/Time 6-21-96 | Received By [Signature] | Date/Time [Signature] |
| Relinquished By | Date/Time | Received By | Date/Time |
| Relinquished By | Date/Time | Received By | Date/Time |

SPECIAL INSTRUCTIONS
 Due to limited sample volume, preform sampling in order listed on the field sampling requirements.
 Item #1 Activity scan, Ignitability, Metals by ICP, Mercury, Cyanide, Sulfides, VOA, Semi-VOA.

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

| | | | |
|--------------------------|----------------------------|---------------------------|---------------------------|
| LABORATORY SECTION | Received By [Signature] | Title Sample Custodian | Date/Time 6-22-96/0930 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

HCHS 8502

Jim Parson - 373-4949

Figure 4.b. NPIC WASTE CERTIFICATION

The undersigned certifies that, to the best of his/her knowledge, that the waste addressed on uniform hazardous waste manifest/item number _____/_____ was generated or stored in an area where there is a potential for contamination due to the presence of unencapsulated or unconfined radioactive material.

It is additionally certified that while the waste was in the location described by the paragraph above, the waste was in a form or location which could not be internally contaminated (aerosol cans, sealed containers, fluorescent light tubes, etc.). The waste's exterior and/or container have additionally met all of the external radiation release requirements of WHC-CM 1-6 (WHC Radiological Control Manual) and DOE Order 5400.5.

Description of Process Knowledge:

: 100N-96-0200
This container contains liquid from punctured aerosol cans (2) - The aerosol cans were originally in a zone - The cans were clean & released from the zone - This waste is NOT radioactive

Patt Huff
Name (print)

Patt Huff
Signature

6/10/96
Date

Shipper
Title

1330N/100N
Facility

BHI
Contractor

o.k per Jim Parson
on phone call 6-19-96
@ 1/36

| | | | | | |
|-------------------------------|-------------|---------|----------|------------|---|
| Post-it [®] Fax Note | 7671 | Date | 6/19 | # of pages | 1 |
| To | Doug Bowers | From | Lawrence | | |
| Co./Dept. | | Co. | | | |
| Phone # | | Phone # | 2-9534 | | |
| Fax # | (6-885) | Fax # | | | |

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LOCKHEED MARTIN



Sample Login Login Review Checklist

Lot Number L7302

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 from 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

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

LOGIN CHAIN OF CUSTODY

| | <u>YES</u> | <u>NO</u> | <u>N/A</u> | <u>Comment</u> |
|-------------------------------------------------------------------------|------------|-----------|------------|----------------|
| 1. Are the collect, receive, and due dates correct for every sample? | <u>X</u> | ___ | ___ | _____ |
| 2. Have all appropriate comments been indicated in the comment section? | ___ | ___ | <u>X</u> | _____ |

SAMPLE RECEIVING CHECKLIST

| | <u>YES</u> | <u>NO</u> | <u>N/A</u> | <u>Comment</u> |
|-------------------------------------------------------------------------------|------------|-----------|------------|----------------|
| 1. Are all discrepancies between the COC and the login noted (if applicable)? | ___ | ___ | <u>X</u> | _____ |

Almille 6-24-96
primary review signature date

Almille 6-24-96
secondary review signature date

0012 OC 22596A

**Lockheed Analytical Services
Sample Receiving Checklist**

Client Name: Bechtel-Hanford

Job No. L7302

Cooler ID:

| COOLER CONDITION UPON RECEIPT | | | |
|----------------------------------------------------------------------------------------------------|-------------------------------------|----|--------------------------|
| Temperature of cooler upon receipt: | <u>2°C</u> | | |
| 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 | | |
| 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 | | | <u>MT</u> |
| are samples bi-phasic (if so, indicate sample ID'S): | | | <u>ML</u> |
| MISCELLANEOUS ITEMS | | | |
| | Yes | No | * Comments/Discrepancies |
| samples with short holding times | | X | |
| samples to subcontract | | X | |
| ADDITIONAL COMMENTS/DISCREPANCIES | | | |
| | | | |
| | | | |
| | | | |
| Completed by / date: | <u>Adm [Signature] 6-24-96</u> | | |
| 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 | | | |

1045546

LOCKHEED ANALYTICAL SERVICES

Sample Results

| | |
|--------------------------|---------------------------|
| Client Sample ID: BOHGZO | Date Collected: 19-JUN-96 |
| Matrix: Liq. Waste | Date Received: 22-JUN-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 | 6.0 | N/A | | 26-JUN-96 | 38460 | L7302-1 |

LOCKHEED ANALYTICAL SERVICES

Sample Results

| | |
|--------------------------|---------------------------|
| Client Sample ID: BOHGZO | Date Collected: 19-JUN-96 |
| Matrix: TCLP Extr | Date Received: 22-JUN-96 |
| Percent Solids: N/A | |

| Constituent | Units | Method | Result | MDL | RDL | Data Qual | Dilution | Date Analyzed | LAS Batch ID | LAS Sample ID |
|----------------|-------|--------|----------|--------|-------|-----------|----------|---------------|--------------|---------------|
| Barium, TCLP | mg/l | 6010 | 0.20 | 0.080 | 10. | B | 1 | 05-JUL-96 | 38492 | L7302-1 |
| Cadmium, TCLP | mg/l | 6010 | < 0.030 | 0.030 | 0.10 | U | 1 | 05-JUL-96 | 38492 | L7302-1 |
| Chromium, TCLP | mg/l | 6010 | 0.20 | 0.060 | 0.50 | B | 1 | 05-JUL-96 | 38492 | L7302-1 |
| Silver, TCLP | mg/l | 6010 | < 0.060 | 0.060 | 0.50 | U | 1 | 05-JUL-96 | 38492 | L7302-1 |
| Arsenic, TCLP | mg/L | 7060 | 0.23 | 0.030 | 0.10 | NS | 1 | 05-JUL-96 | 38493 | L7302-1 |
| Lead, TCLP | mg/L | 7421 | 0.55 | 0.020 | 0.030 | * | 1 | 05-JUL-96 | 38493 | L7302-1 |
| Selenium, TCLP | mg/L | 7740 | < 0.030 | 0.030 | 0.050 | UN | 1 | 05-JUL-96 | 38493 | L7302-1 |
| Mercury, TCLP | mg/l | 7470 | < 0.0020 | 0.0020 | 0.020 | NU | 1 | 08-JUL-96 | 38494 | L7302-1 |