

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

0045082

LOCKHEED MARTIN 

May 23, 1996

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

| | |
|------------------------|--------------------------------|
| RE: Log-in No.: | L6880 |
| Quotation No.: | Q400000-B |
| SAF: | B96-035-092 <i>Apr 5/31/96</i> |
| Document File No.: | 0423596A |
| BHI Document File No.: | 356 |
| SDG No.: | LK6880 |



The attached data report contains the analytical results of samples that were submitted to Lockheed Analytical Services on 23 April 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 designated for hexachrome analysis were not 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 Kathleen Hall at (509) 375-4741.

Lockheed Analytical Services

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Release of this data report has been authorized by the Laboratory Director or the Director's designee as evidenced by the following signature.

" 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 Manger or a designee, as verified by the following signature."

Sincerely,

A handwritten signature in black ink, appearing to read "Kathleen M. Hall for". The signature is written in a cursive style with a large initial "K".

Kathleen M. Hall
Client Services Representative

cc: Client Services
Document Control

0004

**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

- One water sample was received for LK6880 and analyzed in batch 423 bh for selected analytes as requested on the chain of custody. Quality control analysis was performed on the following samples:

| Client ID | LAL # | | Method |
|-----------|---------|---------|--------------------------|
| BOHD10 | L6880-2 | MS, DUP | 7196 Hexavalent Chromium |

Holding Time Requirements

- The sample was received outside of method-specified holding time and the sample is 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.

Kay McCann
Prepared By

May 2, 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), duplicate sample(s).

Preparation and Analysis Requirements

All samples were received on April 23, 1996. The samples were logged in as L6880 and were prepared and analyzed in batch 423 bh. The samples were analyzed by Method 200.7 ICP Metals.

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

May 23, 1996
Date

LOCKHEED ANALYTICAL SERVICES
 LOGIN CHAIN OF CUSTODY REPORT (ln01)
 Apr 23 1996, 02:32 pm

Login Number: L6880
 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 |
|---|-------------------------|-----------------|-----------------|----------------|
| L6880-1 temp 2 Location: 157 Water 1 S SCREENING | B0HD10 | 15-APR-96 | 23-APR-96 | 28-MAY-96 |
| | | Hold:12-OCT-96 | | |
| L6880-2 temp 2 Location: 157 Water 1 S 7196 CHROMIUM (VI) | B0HD10 | 15-APR-96 | 23-APR-96 | 28-MAY-96 |
| | | Hold:16-APR-96 | | |
| L6880-3 temp 2; Cr ONLY Location: 157 Water 1 S 200.7 METALS | B0HD10 | 15-APR-96 | 23-APR-96 | 28-MAY-96 |
| | | Hold:12-OCT-96 | | |
| L6880-4 Location: Water 1 S EDD - DISK DEL. Water 1 S INORG TYPE 2 RPT | REPORT TYPE | 23-APR-96 | 23-APR-96 | 28-MAY-96 |

Signature: *[Handwritten Signature]*
 Date: 4-23-96 0009
 0423596A

| | | | |
|---|---|---|---|
| Collector R. Fahlberg | Company Contact M.T. Stankovich | Telephone 372 9626 | <input type="checkbox"/> Priority <input checked="" type="checkbox"/> Normal |
| Project Designation 100-HR-3 Routine Process Samples | Sampling Location 100 Area | SAF No. B96-092 | |
| Ice Chest No. <i>Brook 5</i> | Field Logbook No. <i>EL-1309</i> | Method of Shipment Hqnd Delivered | |
| Shipped To Lockheed | Offsite Property No. NA <i>W96-0-0640-41</i> | Bill of Lading/Air Bill No. NA <i>2904655485</i> | |

| Possible Sample Hazards/Remarks | Preservation | HNO3 | cool to 4c | None | | | | | |
|---------------------------------|-------------------|-------|------------|------|--|--|--|--|--|
| | Type of Container | G/P | G/P | G/P | | | | | |
| | No. of Containers | 1 | 1 | 1 | | | | | |
| Special Handling and/or Storage | Volume | 500mL | 500mL | 20mL | | | | | |

| SAMPLE ANALYSIS | | | | ICP Metals, 2 Cr | Cr Hex | Activity Scan | | | | |
|-----------------|----------|----------------|--------------|------------------|----------|---------------|-----------------|--|--|--|
| Sample No. | Matrix* | Date Sampled | Time Sampled | | | | | | | |
| <i>BOH D10</i> | <i>W</i> | <i>4-15-96</i> | <i>1035</i> | <i>X</i> | <i>X</i> | <i>X</i> | <i>Influent</i> | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | SPECIAL INSTRUCTIONS | Matrix* |
|---------------------|----------------------|--|--|
| Relinquished By | Date/Time | Sample analysis for Chromium VI is requested for information only. The ERC contractor acknowledges the 24-hour holding time will not be met. | <ul style="list-style-type: none"> 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 |
| <i>R. Fahlberg</i> | <i>4/15/96 14:50</i> | | |
| Received By | Date/Time | | |
| <i>B. Whitten</i> | <i>4-15-96 14:50</i> | | |
| Relinquished By | Date/Time | | |
| <i>Free White</i> | <i>4-22-96 1000</i> | | |
| Received By | Date/Time | | |
| <i>B. Whitten</i> | <i>4-22-96</i> | | |
| Relinquished By | Date/Time | | |
| <i>0</i> | | | |

| | | | |
|--------------------------|---------------------------------|----------------------------------|----------------------------------|
| LABORATORY SECTION | Received By <i>M. Miller</i> | Title <i>Sample Custodian</i> | Date/Time <i>4-23-96/0945</i> |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

Environmental
Restoration
Contractor **ERC Team**
Interoffice Memorandum

Job No. 22192
Written Response Required: NO
CCN: N/A
OU: N/A
TSD: N/A
ERA: N/A
Subject Code: 5830

TO: W. S. Thompson N1-28 DATE: February 29, 1996
G. C. Henckel H4-80

COPIES: K. A. Smith X0-23 FROM: S. K. De Mers 
T. L. Lafreniere X0-23 Radiological Controls
D. E. Gergely X0-23 T7-05/373-1913

SUBJECT: Total Activities for Off-Site Shipments of Groundwater Samples to NRC Licensed Laboratories

There is no need to perform total activities prior to offsite shipment to NRC licensed labs of samples taken from ground water wells located on the Hanford Site.

All wells reviewed to date for radiological content have shown no well with a total activity in excess of 2,000,000 pCi/l (2,000 pCi/gm), the Department Of Transportation limit for radioactive material. The highest activity in any known well is 1.56×10^6 pCi/l H³.

While this does not constitute any release from radiological controls for worker protection, it does allow samples to be shipped based on historical laboratory data and save the expense of doing radiochemical analysis.

A copy of the most recent analytical data should be provided to the NRC licensed laboratory with the samples being shipped or if no data is available for new wells, the most recent data from adjacent wells.

LOCKHEED MARTIN



Sample Login Login Review Checklist

Lot Number LL880

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> | _____ |

[Signature]
primary review signature

4-23-96
date

[Signature]
secondary review signature

4-23-96 0012
date

04235961

SAMPLE CHECK-IN LIST

Date/Time Received: 4-23-96

SDG#: NA

Work Order Number: NA

SAF #: B96-092

Shipping Container ID: Brooks

Chain of Custody #: ML

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

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

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

9. Is the information on the COC and Sample bottles in agreement?
 Yes No

Notes: Hex Chem holding time exceeded

Sample Custodian/Laboratory: MLM/ML Date: 4-23-96
 Telephoned To: Kathleen Hall On 4-23-96 By Anthony Miller

Lockheed Analytical Services
Sample Receiving Checklist

Client Name: *Bechtel Harford*

Job No. *U680*

Cooler ID:

| COOLER CONDITION UPON RECEIPT | | | |
|--|-------------------------------------|----------|--|
| Temperature of cooler upon receipt: | <i>2°C</i> | | |
| temperature of temp. blank upon receipt: | | | |
| | Yes | No | * Comments/Discrepancies |
| custody seals intact | <i>X</i> | | |
| chain of custody present | <i>X</i> | | |
| blue ice (or equiv.) present/frozen | <i>X</i> | | |
| rad survey completed | <i>X</i> | | |
| SAMPLE CONDITION UPON RECEIPT | | | |
| | Yes | No | * Comments/Discrepancies |
| all bottles labeled | <i>X</i> | | |
| samples intact | <i>X</i> | | |
| proper container used for sample type | <i>X</i> | | |
| sample volume sufficient for analysis | <i>X</i> | | |
| proper pres. indicated on the COC | <i>X</i> | | |
| VOA's contain headspace | | | <i>MF</i> |
| are samples bi-phasic (if so, indicate sample ID'S): | | | <i>MF</i> <i>MB</i> |
| | | | |
| | | | |
| MISCELLANEOUS ITEMS | | | |
| | Yes | No | * Comments/Discrepancies |
| samples with short holding times | <i>X</i> | | <i>Hex - Chrom. exceeded hold. by time</i> |
| samples to subcontract | | <i>X</i> | |
| ADDITIONAL COMMENTS/DISCREPANCIES | | | |
| | | | |
| | | | |
| | | | |
| Completed by / date: | <i>AM [Signature] 4-23-96</i> | | |
| 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 | | | |

04235967

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

| Client Sample Number | LAL Sample Number | SDG Number | Matrix | Method |
|-------------------------|----------------------|---------------|--------|-----------------|
| BOHD10 | L6880-1 | | Water | SCREENING |
| | L6880-2 | | Water | 7196 CHROMIUM (|
| | L6880-3 | | Water | 200.7 METALS |
| REPORT TYPE | L6880-4 | | Water | EDD - DISK DEL. |
| | L6880-4 | | Water | INORG TYPE 2 RP |

0015

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LOCKHEED ANALYTICAL SERVICES

Sample Results

| | |
|--------------------------|---------------------------|
| Client Sample ID: BOHD10 | Date Collected: 15-APR-96 |
| Matrix: Water | Date Received: 23-APR-96 |
| Percent Solids: N/A | |

| Constituent | Units | Method | Result | Project Reporting Limit | Data Qualifier(s) | Date Analyzed | LAS Batch ID | LAS Sample ID |
|----------------------|-------|--------|--------|-------------------------|-------------------|---------------|--------------|---------------|
| Chromium, hexavalent | mg/L | 7196 | 0.17 | 0.020 | H | 26-APR-96 | 36384 | L6880-2 |

LOCKHEED ANALYTICAL SERVICES

Sample Results

| | |
|--------------------------|---------------------------|
| Client Sample ID: BOHD10 | Date Collected: 15-APR-96 |
| Matrix: Water | Date Received: 23-APR-96 |
| Percent Solids: N/A | |

| Constituent | Units | Method | Result | MDL | RDL | Data Qual | Dilution | Date Analyzed | LAS Batch ID | LAS Sample ID |
|-----------------|-------|--------|--------|--------|-------|-----------|----------|---------------|--------------|---------------|
| CHROMIUM, TOTAL | mg/L | 6010 | 0.76 | 0.0060 | 0.010 | | 1 | 20-MAY-96 | 36395 | L6880-3 |

LOCKHEED ANALYTICAL SERVICES

METALS RESULTS

QC Data Summary For Reagent Blank Analysis

| Constituent | Units | IDL | RDL | LAS Batch ID | Date Analyzed | Reagent Blank Result | Data Qualifier |
|-----------------|-------|------|-----|--------------------|------------------|----------------------------|-------------------|
| CHROMIUM, TOTAL | mg/L | .006 | .01 | 36395 | 20-MAY-96 | < .006 | |

LOCKHEED ANALYTICAL SERVICES

METALS RESULTS

QC Data Summary For Duplicate Sample Analysis

Client Sample ID BOHD10 (DUP)

| Constituent | Units | LAS Batch ID | LAS Sample ID | Date Analyzed | Sample Result | Duplicate Result | Relative Percent Difference | Control Limit | Data Qualifier |
|-----------------|-------|--------------|---------------|---------------|---------------|------------------|-----------------------------|---------------|----------------|
| CHROMIUM, TOTAL | mg/L | 36395 | L6880-3 | 20-MAY-96 | 0.7578 | 0.7358 | 3 | | |

LOCKHEED ANALYTICAL SERVICES

METALS RESULTS

QC Data Summary For Matrix Spike Sample Analysis

Client Sample ID BOHD10 (MS)

| Constituent | Units | LAS Batch ID | LAS Sample ID | Date Analyzed | Matrix Spike Result | Sample Result | Spike Added | (%) Recovery | Data Qualifier |
|-----------------|-------|--------------|---------------|---------------|---------------------|---------------|-------------|--------------|----------------|
| CHROMIUM, TOTAL | mg/L | 36395 | L6880-3 | 20-MAY-96 | 0.9411 | 0.7578 | 0.2000 | 92 | |

LOCKHEED ANALYTICAL SERVICES

METALS RESULTS

QC Data Summary For Laboratory Control Sample Analysis

Sample: 36395LCS

| Constituent | Units | LAS Batch ID | Date Analyzed | LCS True Value | LCS Result | (%) Recovery |
|-----------------|-------|--------------|---------------|----------------|------------|--------------|
| CHROMIUM, TOTAL | mg/L | 36395 | 20-MAY-96 | 0.2000 | 0.1844 | 92.2 |