

START 9713516.2075

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

LK 7539-QES

0046207

LOCKHEED MARTIN



August 26, 1996

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

RE: Log-in No.:	L7539
Quotation No.:	Q400000-B
SAF:	B96-092
Document File No.:	0730596
BHI Document File No.:	391
SDG No.:	LK7539



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 3°C. Sample containers received 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 with the exception of chromium VI determination.

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,



Kathleen M. Hall
Client Services Representative

cc: Client Services
Document Control

Lockheed Analytical Services

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**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 LK7539 and analyzed in batch 730 bh for selected analytes as requested on the chain of custody. Quality control analysis was performed on the following samples:

Client ID	LAL #		Method
BOHYB4	L7539-3	DUP,MS	7196 Chromium (VI)

Holding Time Requirements

- The sample was received and analyzed outside of the method-specific holding time and the associated 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

August 6, 1996
 Date

Lockheed Analytical Services

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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 July 30, 1996. The samples were logged in as L7539 and were prepared and analyzed in batch 730 bhX. 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

August 23, 1996
Date

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LOCKHEED ANALYTICAL SERVICES
LOGIN CHAIN OF CUSTODY REPORT (ln01)
Jul 30 1996, 04:31 pm

Login Number: L7539
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
L7539-1 TEMP 3 Location: 157 Water 1 S SCREENING	BOHYB4	25-JUL-96	30-JUL-96	03-SEP-96
		Hold:21-JAN-97		
L7539-2 TEMP 3 Location: RFG02-40B Water 1 S 200.7 METALS	BOHYB4	25-JUL-96	30-JUL-96	03-SEP-96
		Hold:21-JAN-97		
L7539-3 TEMP 3 Location: RFG02-40B Water 1 S 7196 CHROMIUM (VI)	BOHYB4	25-JUL-96	30-JUL-96	03-SEP-96
		Hold:26-JUL-96		
L7539-4 Location: Water 1 S EDD - DISK DEL. Water 1 S INORG TYPE 2 RPT	REPORT TYPE	30-JUL-96	30-JUL-96	03-SEP-96

Signature: Paul Jans

Date: 7-30-96

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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
BOHYB4	L7539-1 L7539-2 L7539-3		Water Water Water	SCREENING 200.7 METALS 7196 CHROMIUM (V
REPORT TYPE	L7539-4 L7539-4		Water water	EDD - DISK DEL. INORG TYPE 2 RPT

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Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

L 7539

B96-092-8

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Data Turnaround

- Priority
- Normal

Collector <i>K. Trapp</i>	Company Contact Mike Stankovich	Telephone No. 372-9626
Project Designation 100-HR-3 Treatability Study for pump & treat process	Sampling Location 100-HR-3	SAF No. B96-092
Ice Chest No. <i>SML-292</i>	Field Logbook No. EL-1309, EL-1281	Method of Shipment Federal Express
Shipped To Lockheed	Offsite Property No. <i>W96-0-0314-3</i>	Bill of Lading/Air Bill No. <i>290-4661094</i>

POSSIBLE SAMPLE HAZARDS/REMARKS Unknown	Preservation	HNO3 to pH <	None	None						
	Type of Container	P	P	P						
	No. of Container(s)	1	1	1						
Special Handling and/or Storage Cool to 4C.	Volume	500ml	500ml	20ml						

SAMPLE ANALYSIS	Metals & Trace Elements by ICP - 200.7 (Chromium)	Chromium Hex - 7196	Activity Scan						
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Sample No.	Matrix *	Sample Date	Sample Time						
BOHYB4	Water	7/25/96	0923	X	X	X			

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS Sample analysis for Chromium VI is requested for information only. The ERC Contractor acknowledges the 24-hour holding time will not be met.	Matrix *
Relinquished By <i>K. Trapp</i>	Date/Time 1300	Received By <i>B. Whitten</i>	<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
Relinquished By <i>K. Trapp</i>	Date/Time 1053	Received By <i>B. Whitten</i>	
Relinquished By <i>K. Trapp</i>	Date/Time 7/25/96	Received By <i>B. Whitten</i>	
Relinquished By	Date/Time	Received By	

LABORATORY SECTION	Received By <i>hmmill</i>	Title Sample Custodian	Date/Time 7.30.96/0915
FINAL SAMPLE	Disposal Method	Disposed By	Date/Time

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NON-RADIOLOGICAL SHIPMENT RELEASE

The contents of this shipment # W16-0-0314-3 have been reviewed and contains no radioactive material and therefore, are not subject to radiological control requirements.

Original signed by:

Kris A. Smith, Manager
Project Radiological Controls

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: 520

TO: W. S. Thompson N1-28
G. C. Henckel H4-80

DATE: February 29, 1996

COPIES: K. A. Smith X0-23
T. L. Lafreniere X0-23
D. E. Gergely X0-23

FROM: S. K. De Mers 
Radiological Controls
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.

SAMPLE CHECK-IN LIST

Date/Time Received: 7-30-96/9:30

SDG#: N/A

Work Order Number: N/A

SAF #: B96-092

Shipping Container ID: SMC-292

Chain of Custody #: B96-092-8

- 1. Custody Seals on shipping container intact? Yes No
- 2. Custody Seals dated and signed? Yes No
- 3. Sample temperature 30
- 4. Vermiculite/packing materials is Wet Dry
- 5. Each sample is in a plastic bag? Yes No
- 6. Sample holding times exceeded? Yes No

7. Samples have:

<input type="checkbox"/> tape	<input type="checkbox"/> hazard labels
<input checked="" type="checkbox"/> custody seals	<input type="checkbox"/> appropriate sample labels

8. Samples are:

<input checked="" type="checkbox"/> in good condition	<input type="checkbox"/> leaking
<input type="checkbox"/> broken	<input type="checkbox"/> have air bubbles

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

Yes No

Notes: Chromium III was passed it's 24 hr holding time

Sample Custodian/Laboratory: Paul Deans/LAS Date: 7-30-96

Telephoned To: KATHLEEN HALL On 7-30-96 By Paul Deans

faxed
pd 7-30-96

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Sample Login Login Review Checklist

Lot Number 62535

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>	_____

Paul J. Jones 7-30-96
primary review signature date

[Signature] 7-30-96
secondary review signature date

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Lockheed Analytical Services
Sample Receiving Checklist

Client Name: *Becthal - Hanford*

Job No. *L7539*

Cooler ID: *meat*

COOLER CONDITION UPON RECEIPT

Temperature of cooler upon receipt: *3°*
temperature of temp. blank upon receipt: *-*

	Yes	No	* Comments/Discrepancies
custody seals intact	<input checked="" type="checkbox"/>		
chain of custody present	<input checked="" type="checkbox"/>		
blue ice (or equiv.) present/frozen	<input checked="" type="checkbox"/>		
rad survey completed	<input checked="" type="checkbox"/>		

SAMPLE CONDITION UPON RECEIPT

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

MISCELLANEOUS ITEMS

	Yes	No	* Comments/Discrepancies
samples with short holding times	<input checked="" type="checkbox"/>		<i>Chromium II, The Sample was passed</i>
samples to subcontract			<i>N/A IT'S 24 hr Holding Time per 2-30-96</i>

ADDITIONAL COMMENTS/DISCREPANCIES

Completed by / date: *Frank Dora 2-30-96*

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

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LOCKHEED ANALYTICAL SERVICES

COMMON IONS AND ADDITIONAL ANALYTES

Sample Results

Client Sample ID: B0HYB4	Date Collected: 25-JUL-96
Matrix: Water	Date Received: 30-JUL-96

Constituent	Units	Method	Result	Reporting Det Limit	Data Qualifier(s)	Date Analyzed	LAS Batch ID	LAS Sample ID
Chromium, hexavalent	mg/L	7196	0.77	0.02	H	05-AUG-96	39797	L7539-3

Lockheed Analytical Laboratory**Determination of Hexavalent Chromium
Calibration and Calibration Verification Results**

LAL Batch ID: 730-BH

Work Group: 7196 CHROMIUM (VI)_39797

Method: 7196 (Hexavalent Chromium)

Calibration Results

Standard Concentration (mg/L)	Measured Instrument Response	Linearized Instrument Response	Calculated Concentration (mg/L)	Standard Recovery (%)
0.000	0.000	0.000	-0.001	
0.025	0.021	0.021	0.025	99
0.050	0.042	0.042	0.051	102
0.100	0.082	0.082	0.101	101
0.200	0.162	0.162	0.201	101
0.250	0.200	0.200	0.249	99

Slope = 1.2499

Intercept = -0.0015

Correlation (r) = 0.9999

Measured Instrument Response: Absorbance (540 nm)

Calibration Verification Results

Sample Identification	True Concentration (mg/L)	Found Concentration (mg/L)	Analyte Recovery (%)
ICV	0.1	0.101	101
CCV	0.1	0.100	100

Calibration Blank Results

Sample Identification	Analyte Found (mg/L)
ICB	0.003 U
CCB	0.003 U

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Lockheed Analytical Laboratory**Determination of Hexavalent Chromium
Quality Control Results**

LAL Batch ID: 730-BH

Work Group: 7196 CHROMIUM (VI)_39797

Method: 7196 (Hexavalent Chromium)

Laboratory Control Sample/Duplicate Results (Recovery)

Sample Identification	True Concentration (mg/L)	Found Concentration (mg/L)	Analyte Recovery (%)
LCS	0.05	0.049	97
LCSD	(No LCSD analyzed)		

Laboratory Control Sample/Duplicate Results (Difference)

LCS Result (mg/L)	LCSD Result (mg/L)	Relative Difference (%)	Flag
(No LCSD analyzed)			

Preparation Blank Results

Sample Identification	Analyte Found (mg/L)
PB	0.003 U

Sample Duplicate Results (Difference)

LAL Sample Identification	Sample Result (mg/L)	Duplicate Result (mg/L)	Relative Difference (%)	Flag
L7539-3	0.768	0.774	1	

Spiked Sample/Spike Duplicate Results (Recovery)

LAL Sample Identification	Sample Result (mg/L)	Analyte Added (mg/L)	Spike Result (mg/L)	Spike Recovery (%)	Flag
L7539-3S	0.768	0.25	1.030	105	

Spiked Sample/Spike Duplicate Results (Difference)

Spike Result (mg/L)	Spike Dup Result (mg/L)	Relative Difference (%)	Flag
(No spike duplicate analyzed)			

0021

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LOCKHEED ANALYTICAL SERVICES

Sample Results

Client Sample ID: BOHYB4	Date Collected: 25-JUL-96
Matrix: Water	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
CHROMIUM	mg/L	200.7	0.68	0.0060	0.010		1	20-AUG-96	39819	L7539-2