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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

LK5739

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LOCKHEED MARTIN



December 5, 1995

Ms. Joan Kessner
Bechtel Hanford, Inc.
P.O. Box 969
1022 Lee Boulevard
Richland, WA 99352

RE:	Log-in No.:	L5739
	Quotation No.:	Q400000-B
	SAF:	B96-035
	Document File No.:	1031596
	BHI Document File No.:	291
	SDG No.:	LK5739



The attached data report contains the analytical results of samples that were submitted to Lockheed Analytical Services on 31 October 1995.

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 for chromium VI analysis were received outside of 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.



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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

- Two water samples were received for LK5739 and analyzed in batch 1031 bh for selected analytes as requested on the chain of custody. Quality control analysis was performed on the following sample:

Client ID	LAL #		Method
BOGRL9	L5739-3	MS, DUP	7196 Hexavalent Chromium

Holding Time Requirements

- The samples were received outside of 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.

Kay McCann
 Prepared By

November 3, 1995
 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 October 31, 1995. The samples were logged in as L5739 and were prepared and analyzed in batch 1031 bh.

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.
- The matrix spike recovery for chromium exceeded the 75-125% acceptance limit, however, the sample concentration is considered significant (i.e., greater than four times the spiking level) relative to the amount spiked into the sample. Therefore, the data are not qualified.

Shellee McGrath
Prepared By

December 5, 1995
Date

Lockheed Analytical Services
DATA QUALIFIERS FOR INORGANIC ANALYSES

[Revised 08/28/92]

For Use on the Analytical Data Reporting Forms	
B	<i>For CLP Analyses Only</i> -- Reported value is less than the contract required detection limit (CRDL) but greater than or equal to the instrument detection limit (IDL).
C	<i>For Routine, Non-CLP Analyses Only</i> -- Any constituent that was also detected in the associated blank whose concentration was greater than the reporting detection limit (RDL).
D	Presence of high levels of interfering constituents required dilution of sample which increased the RDL by the dilution factor.
E	Estimated value due to presence of interference.
H	Sample analysis performed outside of method-or client-specified maximum holding time requirement.
M	<i>For CLP Analyses Only</i> -- Duplicate injection precision criterion was not met.
N	Matrix spike recovery exceeded acceptance limits.
S	Reported value was determined from the method of standard addition.
U	<i>For CLP Reporting Only</i> -- Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
W	<i>For AAS Only</i> -- Post-digestion spike for Furnace AAS did not meet acceptance criteria and sample absorbance is less than 50% of spike absorbance.
X, Y, or Z	Analyst-defined qualifier.
*	Relative percent difference (RPD) for duplicate analysis exceeded acceptance limits.
+	Correlation coefficient (r) for the MSA is less than 0.995.
For Use on the QC Data Reporting Forms	
a¹	The spike recovery and/or RPD for matrix spike and matrix spike duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b¹	The RPD cannot be computed because the sample and/or duplicate concentration was below the RDL.

¹ Used as footnote designations on the QC summary form.

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LOCKHEED ANALYTICAL SERVICES
LOGIN CHAIN OF CUSTODY REPORT (ln01)
Oct 31 1995, 12:08 pm

Login Number: L5739
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
L5739-1 TEMP 2 Location: 157 Water 1 S SCREENING	B0GRL9	27-OCT-95	31-OCT-95	05-DEC-95
		Hold:24-APR-96		
L5739-2 TEMP 2 Location: 157 Water 1 S SCREENING	B0GRM0	27-OCT-95	31-OCT-95	05-DEC-95
		Hold:24-APR-96		
L5739-3 TEMP 2 Location: 157 Water 1 S 7196 CHROMIUM (VI)	B0GRL9	27-OCT-95	31-OCT-95	05-DEC-95
		Hold:28-OCT-95		
L5739-4 TEMP 2 Location: 157 Water 1 S 7196 CHROMIUM (VI)	B0GRM0	27-OCT-95	31-OCT-95	05-DEC-95
		Hold:28-OCT-95		
L5739-5 TEMP 2 Location: 157 Water 1 S 218.2 CHROMIUM	B0GRL9	27-OCT-95	31-OCT-95	05-DEC-95
		Hold:24-APR-96		
L5739-6 TEMP 2 Location: 157 Water 1 S 218.2 CHROMIUM	B0GRM0	27-OCT-95	31-OCT-95	05-DEC-95
		Hold:24-APR-96		
L5739-7 Location: Water 1 S EDD - DISK DEL. Water 1 S INORG TYPE 2 RPT	REPORT TYPE	31-OCT-95	31-OCT-95	05-DEC-95

Signature: *Paul S. Davis*
Date: 10-31-95 0009

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Bechtel Hanford, Inc.

L5739

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Data Turnaround
 Priority
 Normal

Collector <i>K. Trapp</i>	Company Contact <i>M. Stankevich</i>	Telephone <i>(209) 272-9055</i>
Project Designation <i>100-HB-3 Pump and Treat</i>	Sampling Location <i>100 D</i>	SAF No. <i>092-035</i>
Ice Chest No. <i>SML-112</i>	Field Logbook No. <i>NA</i>	Method of Shipment <i>Federal Express</i>
Shipped To <i>Lockheed</i>	Offsite Property No. <i>W96-0-0640-06</i>	Bill of Lading/Air Bill No. <i>2904644897</i>

Possible Sample Hazards/Remarks	Preservation	HNO ₃	Cool 4°C	None
		Type of Container	P	P
	No. of Container(s)	1	1	1
Special Handling and/or Storage <i>Maintain samples between 2°C and 6°C</i>	Volume	500 mL	500 mL	20 mL
SAMPLE ANALYSIS		Chrom-ium	Chrom-ium VI	Activity Scan

Sample No.	Matrix*	Date Sampled	Time Sampled										
<i>BO GAL 9</i>	<i>W</i>	<i>10/27/95</i>	<i>1314</i>	<i>X</i>	<i>X</i>	<i>X</i>							
<i>BO GAMO</i>	<i>W</i>	<i>10/27/95</i>	<i>1323</i>	<i>X</i>	<i>X</i>	<i>X</i>							

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix*
Relinquished By <i>K. Trapp</i>	Date/Time <i>0830</i>	Received By <i>B. Whitten</i>	Date/Time <i>0830</i>
Relinquished By <i>B. Whitten</i>	Date/Time <i>10-30-95</i>	Received By <i>B. Whitten</i>	Date/Time <i>10-30-95</i>
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

- 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 <i>ARMY</i>	Title <i>Sample Custodian</i>	Date/Time <i>10-31-95 / 0900</i>
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

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 010

Environmental Restoration Contractor **ERC Team**
Interoffice Memorandum

Job No. 22192
Written Response Required:
CCF: N/A
OD: 100HR-3
TSD: N/A
ERA: N/A
Subject Code: 500

TO: Dave Blumentkranz H4-90

DATE: April 26, 1995

COPIES: Doug Bowers N3-05

FROM: Mike Wesselman
Radiological Controls
N3-06/376-2084

Post-it® Fax Note	7671	Date	5/1	# of pages	1
To	D. Bowers	From	D. Blumentkranz		
Co./Dept.	ITH/Samp.	Co.	CHI/ERS		
Phone #	376-1007	Phone #	372-9658		
Fax #	376-5991	Fax #			

SUBJECT: EXEMPTION OF SAMPLES FROM 100-HR-3 PUMP AND TREAT FROM TOTAL ACTIVITY ANALYSIS.

After reviewing sampling data recorded on GeoDat as well as data from the latest resin change at the unit, it has been concluded that there is no need to perform total activity analysis of water sample from 100-HR-3 prior to offsite shipment. Water from all wells in the area is well below levels which would deliver 100 millirem per year CEDE to any one drinking two liters a day, no water exceeds the 2000 picocurie per gram limit for shipment as non radioactive by Department of Transportation. Activity trends in all wells have been downward for the last twenty years. Sample from the pump and treat system itself indicate less than six picocuries per gram of tritium and less than ten picocuries per liter of both alpha and beta contamination. All discharges of radioactive material to the ground in the 100-I Area have ceased, the actions of the pump and treat system do not appear to be mobilizing previously deposited materials. Based on the above information and the results of total activities performed to date there is sufficient process knowledge to conclude that preshipment screening of water samples is no longer required.


Mike Wesselman

maw

Distribution

SAMPLE CHECK-IN LIST

Date/Time Received: 10-31-95/0900 SDG#: NA

Work Order Number: NA SAF #: B96-035

Shipping Container ID: SML-112 Chain of Custody #: NA

- 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

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: Chromium IR was passed Holding Time

Sample Custodian/Laboratory: Falco Din/LAS Date: 10-31-95
 Telephoned To: Kathleen Hell On 10-31-95 By Falco Din
 Pcd (0-3)-75

LOCKHEED MARTIN



Sample Login Login Review Checklist

Lot Number LS239

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?	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

	<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?	X	—	—	_____
2. Have all appropriate comments been indicated in the comment section?	X	—	—	_____

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)?	—	—	X	_____

Paul Davis
primary review signature

10-31-95
date

[Signature]
secondary review signature

10-31-95
date

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Lockheed Analytical Services
Sample Receiving Checklist

Client Name: *Bectel-Houston*

Job No. *25739*

Cooler ID: *2112*

COOLER CONDITION UPON RECEIPT

Temperature of cooler upon receipt: *20*

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			<i>NA</i>
are samples bi-phasic (if so, indicate sample ID'S):			<i>NA</i>

MISCELLANEOUS ITEMS

	Yes	No	* Comments/Discrepancies
samples with short holding times	X		<i>Chromatogram, was passed holding time</i>
samples to subcontract			<i>NA</i>

ADDITIONAL COMMENTS/DISCREPANCIES

Completed by / date: *Paula Jones 10-31-95*

Sent to the client (date/initials): *10-31-95* ** 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 Laboratory
SAMPLE SUMMARY REPORT (su02)
Bechtel Hanford, Inc. * Richland, WA

Client Sample Number	LAL Sample Number	SDG Number	Matrix	Method
BOGRL9 -	L5739-1 L5739-3 L5739-5		Water Water Water	SCREENING - 7196 CHROMIUM (V) 218.2 CHROMIUM -
BOGRMO -	L5739-2 L5739-4 L5739-6		Water Water Water	SCREENING - 7196 CHROMIUM (V) 218.2 CHROMIUM
REPORT TYPE -	L5739-7 L5739-7		Water Water	EDD - DISK DEL.- INORG TYPE 2 RPT

0015

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LOCKHEED ANALYTICAL SERVICES

Sample Results

Client Sample ID: BOGRL9	Date Collected: 27-OCT-95
Matrix: Water	Date Received: 31-OCT-95
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	0.40	0.10	HD(1:5)	01-NOV-95	29632	L5739-3

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LOCKHEED ANALYTICAL SERVICES

Sample Results

Client Sample ID: BOGRMO	Date Collected: 27-OCT-95
Matrix: Water	Date Received: 31-OCT-95
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	0.13	0.020	H	01-NOV-95	29632	L5739-4

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LOCKHEED ANALYTICAL SERVICES

Sample Results

Client Sample ID: BOGRL9	Date Collected: 27-OCT-95
Matrix: Water	Date Received: 31-OCT-95
Percent Solids: N/A	

Constituent	Units	Method	Result	IDL	RDL	Data Qual	Dilution	Date Analyzed	LAS Batch ID	LAS Sample ID
Chromium, Total	mg/L	218.2	0.67	0.020	0.20		20	04-DEC-95	29735	L5739-5

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LOCKHEED ANALYTICAL SERVICES

Sample Results

Client Sample ID: BOGRM0	Date Collected: 27-OCT-95
Matrix: Water	Date Received: 31-OCT-95
Percent Solids: N/A	

Constituent	Units	Method	Result	IDL	RDL	Data Qual	Dilution	Date Analyzed	LAS Batch ID	LAS Sample ID
Chromium, Total	mg/L	218.2	0.096	0.0050	0.050	S+	5	04-DEC-95	29735	L5739-6