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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

0044358 LK4889
SAF-B95-053

LOCKHEED MARTIN

July 20, 1995

Ms. Joan Kessner
Bechtel Hanford, Inc.
345 Hills
P.O. Box 969
Richland, WA 99352



RE: Log-in No.:	L4889
Quotation No.:	Q400000-B
SAF:	B95-053
Document File No.:	0711596
WHC Document File No.:	244
SDG No.:	LK4889

The attached data report contains the analytical results of samples that were submitted to Lockheed Analytical Services on 11 July 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 were received in time to meet the analytical holding time requirements, with the exception of chromium VI.

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) 943-4423.

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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

- One water sample was received for LK4889 and analyzed in batch 711 bh for selected analytes as requested on the chain of custody. Quality control analysis was performed on the following sample:

Client ID	LAL #		Method
BOFMB6	L4889-3	MS, DUP	7196 Hexavalent Chromium

Holding Time Requirements

- The samples for Method 7196 Hexavalent Chromium were received outside of holding time and all 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

July 13, 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 July 11, 1995. The samples were logged in as L4889 and were prepared and analyzed in batch 711 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.

Shellee McGrath
Prepared By

July 19, 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)
 Jul 11 1995, 01:02 pm

Login Number: L4889
 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
L4889-1 TEMP 2 Location: 157 Water 1 S SCREENING	BOFMB6	07-JUL-95	11-JUL-95	15-AUG-95
		Hold:03-JAN-96		
L4889-2 TEMP 2 Location: 157 Water 1 S 218.2 CHROMIUM	BOFMB6	07-JUL-95	11-JUL-95	15-AUG-95
		Hold:03-JAN-96		
L4889-3 TEMP 2 Location: 157 Water 1 S 7196 CHROMIUM (VI)	BOFMB6	07-JUL-95	11-JUL-95	15-AUG-95
		Hold:08-JUL-95		
L4889-4 Location: Water 1 S EDD - DISK DEL. Water 1 S INORG TYPE 2 RPT	REPORT TYPE	11-JUL-95	11-JUL-95	15-AUG-95

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Signature: Paul DeJans

009

Date: 7-11-95

0711-596

Westinghouse Hanford Company

L4889

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Data Turnaround

Priority
 Normal

Collector Doug Bowers / STEVE GWAEK	Company Contact Dave Blumenkranz	Telephone No. 372-9658
Project Designation 100 HR-3 Treatability Study	Sampling Location 100 D	SAF No. B95-053
Ice Chest No. CASSI	Field Logbook No.	Method of Shipment Air Freight

Shipped To Lockheed	Offsite Property No. BW-ATA-7-10-95 W95-0-0204-39	Bill of Lading/Air Bill No. BW-ATA-7-10-95 2904639126
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Possible Sample Hazards/Remarks unknown	Preservative	HNO3	none	none	none
	Type of Container	G/P	G/P	P/G	P/G
	No. of Container(s)	1	1	1	1
	Volume	500 mL	500 mL	20 mL	20 mL
Special Handling and/or Storage cool to 4 C	Chrom-ium - Total	Chrom-ium VI	Activ-ity Scan	Rad Screen	

SAMPLE ANALYSIS

Sample No.	Matrix *	Date Sampled	Time Sampled			
BOFMBle	W	7/7/95	1000	X	X	X

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *	
Relinquished By STEVE GWAEK	Date/Time 7/7/95 1110	Received By [Signature]	Date/Time 1110	Analysis vor Chromium (VI) by SW -846 7196 is being 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 	
Relinquished By ERC	Date/Time 0900	Received By [Signature]	Date/Time 7-7-95				
Relinquished By [Signature]	Date/Time 7-10-95	Received By	Date/Time				
Relinquished By 010	Date/Time	Received By	Date/Time				

LABORATORY SECTION	Received By [Signature]	Title Sample Custodian	Date/Time 7-11-95/0830
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FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time
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862541512948

Environmental Restoration Contractor **ERC Team**
Interoffice Memorandum

Job No. 22192
Written Response Request: NO
CCF: N/A
OU: F000003
TSD: N/A
ERA: N/A
Subject Code: 500

TO: Dave Blumenkranz 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. Blumenkranz		
Co./Dept.	ITH/Samp.	Co.	CHZ/E&S		
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-D 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
Mike Wesselman

maw

Distribution

SAMPLE CHECK-IN LIST

Date/Time Received: 7-11-95/8:30amSDG#: NAWork Order Number: NASAF #: B95-053Shipping Container ID: CASSI Chain of Custody #: NA

1. Custody Seals on shipping container intact? Yes No
2. Custody Seals dated and signed? Yes No
3. Sample temperature 20
4. Vermiculite/packing materials is NA 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: _____

Sample Custodian/Laboratory: Paulc Jans Date: 7-11-95Telephoned To: K-Hall On 7-11-95 By T. MILLER

LOCKHEED MARTIN



Sample Login Login Review Checklist

Lot Number L4889

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 Jarvis
primary review signature

7-11-95
date

A. Smith
secondary review signature

7-11-95
date

**Lockheed Analytical Services
Sample Receiving Checklist**

Client Name: *Westinghouse/Hanford*

Job No. *PC-11-95
L489 L4889*

Cooler ID: *N/A*

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

Temperature of cooler upon receipt: *20*

temperature of temp. blank 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>N/A</i>
are samples bi-phasic (if so, indicate sample ID'S):			<i>N/A</i>

MISCELLANEOUS ITEMS

Temperature of cooler upon receipt: *20*

temperature of temp. blank upon receipt:

	Yes	No	* Comments/Discrepancies
samples with short holding times	X		<i>Sample passed Holding Time.</i>
samples to subcontract			<i>N/A</i>

ADDITIONAL COMMENTS/DISCREPANCIES

Completed by / date: *Paula Davis 7-11-95*

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

Client Sample Number	LAL Sample Number	SDG Number	Matrix	Method
BOFMB6 -	L4889-1		Water	SCREENING
	L4889-2		Water	218.2 CHROMIUM -
	L4889-3		Water	7196 CHROMIUM (V)
REPORT TYPE -	L4889-4		Water	EDD - DISK DEL.
	L4889-4		Water	INORG TYPE 2 RPT

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LOCKHEED ANALYTICAL SERVICES

Sample Results

Client Sample ID: B0FMB6	Date Collected: 07-JUL-95
Matrix: Water	Date Received: 11-JUL-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	0.028	0.020	H	11-JUL-95	25163	L4889-3

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LOCKHEED ANALYTICAL SERVICES

COMMON IONS AND ADDITIONAL ANALYTES

Sample Results

Client Sample ID: B0FMB6	Date Collected: 07-JUL-95
Matrix: Water	Date Received: 11-JUL-95

Constituent	Units	Method	Result	Reporting Det/Limit	Data Qualifier(s)	Date Analyzed	LAS Batch ID	LAS Sample ID
Chromium, Total	mg/L	218.2	0.028	0.01		12-JUL-95	25164	L4889-2

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LOCKHEED ANALYTICAL SERVICES

METALS RESULTS

QC Data Summary For Reagent Blank Analysis

Constituent	Units	Reporting Detection Limit	LAS Batch ID	Date Analyzed	Reagent Blank Result	Data Qualifier
Chromium, Total	mg/L	.002	25164	07/12/95	< .002	

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LOCKHEED ANALYTICAL SERVICES

METALS RESULTS

QC Data Summary For Laboratory Control Sample Analysis

Sample: 25164LCS

Constituent	Units	LAS Batch ID	Date Analyzed	LCS True Value	LCS Result	(%) Recovery
Chromium, Total	mg/L	25164	07/12/95	0.0250	0.02257	90.3