

**START**

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LK5913

1/6  
1/1

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

**LOCKHEED MARTIN**



December 15, 1995

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

RE: Log-in No.:	L5913
Quotation No.:	Q400000-B
SAF:	B96-035
Document File No.:	1129596
BHI Document File No.:	299
SDG No.:	LK5913



The attached data report contains the analytical results of samples that were submitted to Lockheed Analytical Services on 29 November 1995.

The temperature of the cooler upon receipt was 4°C. Sample containers received agree with the chain-of-custody documentation. Sample containers were received intact. Samples designated for Hexavalent chromium 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.



0003

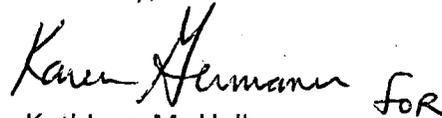
**Lockheed Analytical Services**

Log-in No.: L5913  
Quotation No.: Q40000-B  
SAF: B96-035  
Document File No.: 1129596  
BHI Document File No.:299  
SDG No.: LK5913  
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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 LK5913 and analyzed in batch 1129 bh for selected analytes as requested on the chain of custody. Quality control analysis was performed on the following samples:

Client ID	LAL #		Method
BOGRN1	L5913-5	MS, DUP	7196 Chromium (VI)

#### Holding Time Requirements

- All samples were received outside of the method-specific holding time and 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

December 4, 1995  
 Date

**Lockheed Analytical Services**

Log-in No.: L5913  
Quotation No.: Q400000-B  
SAF: B96-035  
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BHI Document File No.:299  
SDG No.: LK5913  
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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 November 29, 1995. The samples were logged in as L5913 and were prepared and analyzed in batch 1114 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

December 15, 1995  
Date

9613428.1664

Revised

LOCKHEED ANALYTICAL SERVICES  
 LOGIN CHAIN OF CUSTODY REPORT (1n01)  
 Dec 05 1995, 03:19 pm

Login Number: L5913  
 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
L5913-1 TEMP 4 "SAF # B96-035" Location: 156--018 Water 1 S SCREENING	BOGRN1	27-NOV-95	29-NOV-95	03-JAN-96
			Hold:25-MAY-96	
L5913-2 TEMP 4 "SAF # B96-035" Location: 156--018 Water 1 S SCREENING	BOGRN2	27-NOV-95	29-NOV-95	03-JAN-96
			Hold:25-MAY-96	
* L5913-3 TEMP 4 "SAF # B96-035" Location: 133 Water 1 S 200.7 CHROMIUM TOTAL	BOGRN1	27-NOV-95	29-NOV-95	03-JAN-96
			Hold:25-MAY-96	
* L5913-4 TEMP 4 "SAF # B96-035" Location: 133 Water 1 S 200.7 CHROMIUM TOTAL	BOGRN2	27-NOV-95	29-NOV-95	03-JAN-96
			Hold:25-MAY-96	
L5913-5 TEMP 4 "SAF # B96-035" Location: 133 Water 1 S 7196 CHROMIUM (VI)	BOGRN1	27-NOV-95	29-NOV-95	03-JAN-96
			Hold:28-NOV-95	
L5913-6 TEMP 4 "SAF # B96-035" Location: 133 Water 1 S 7196 CHROMIUM (VI)	BOGRN2	27-NOV-95	29-NOV-95	03-JAN-96
			Hold:28-NOV-95	
L5913-7 Location: Water 1 S EDD - DISK DEL. Water 1 S GERMANN Water 1 S INORG TYPE 2 RPT	REPORT TYPE	29-NOV-95	29-NOV-95	03-JAN-96

\* Login product changed from 218.2 Chromium to 200.7 Chromium Total. Change necessary because of high chromium levels found in the samples. Client approval granted on 12/5/95. JmH 12/5/95

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Signature: Jujuana Mitchell-HallDate: 12/5/95

0010

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9613428.1665

LOCKHEED ANALYTICAL SERVICES  
 LOGIN CHAIN OF CUSTODY REPORT (ln01)  
 Nov 29 1995, 12:21 pm

Login Number: L5913  
 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
L5913-1 TEMP 4 "SAF # B96-035" Location: 157 Water 1 S SCREENING	BOGRN1	27-NOV-95	29-NOV-95	03-JAN-96
			Hold:25-MAY-96	
L5913-2 TEMP 4 "SAF # B96-035" Location: 157 Water 1 S SCREENING	BOGRN2	27-NOV-95	29-NOV-95	03-JAN-96
			Hold:25-MAY-96	
L5913-3 TEMP 4 "SAF # B96-035" Location: 157 Water 1 S 218.2 CHROMIUM	BOGRN1	27-NOV-95	29-NOV-95	03-JAN-96
			Hold:25-MAY-96	
L5913-4 TEMP 4 "SAF # B96-035" Location: 157 Water 1 S 218.2 CHROMIUM	BOGRN2	27-NOV-95	29-NOV-95	03-JAN-96
			Hold:25-MAY-96	
L5913-5 TEMP 4 "SAF # B96-035" Location: 157 Water 1 S 7196 CHROMIUM (VI)	BOGRN1	27-NOV-95	29-NOV-95	03-JAN-96
			Hold:28-NOV-95	
L5913-6 TEMP 4 "SAF # B96-035" Location: 157 Water 1 S 7196 CHROMIUM (VI)	BOGRN2	27-NOV-95	29-NOV-95	03-JAN-96
			Hold:28-NOV-95	
L5913-7 Location: Water 1 S EDD - DISK DEL. Water 1 S GERMANN Water 1 S INORG TYPE 2 RPT	REPORT TYPE	29-NOV-95	29-NOV-95	03-JAN-96

Signature: Paul C. Jones  
 Date: 11-29-95 0011

1129596

Bechtel Hanford, Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

L5913

Data Turnaround
Priority
Normal

Collector: K. Trapp, M. Mehlhorn; Company Contact: B. D. Blumenkranz; Telephone: (509) 372-9658; Project Designation: 100-HR-3 Pump and Treatment; Sampling Location: 100-HR-3 Pump and Treat; SAF No.: B96-035; Ice Chest No.: GWS-015; Field Logbook No.: NA; Method of Shipment: Federal Express; Shipped To: Lockheed; Offsite Property No.: W96-0-0640-10; Bill of Lading/Air Bill No.: 8904647103

Table with columns: Preservation (HNO3, Cool 4°C, None), Type of Container (P/G, P), No. of Container(s) (1, 1, 1), Special Handling and/or Storage (Maintain samples between 2°C and 6°C), Volume (500mL, 500mL, 20mL), Chrom-ium - Total, Chrom-ium VI, Activity Scan.

Table with columns: Sample No., Matrix\*, Date Sampled, Time Sampled. Rows include BOGRN1 and BOGRN2.

CHAIN OF POSSESSION table with columns: Relinquished By, Date/Time, Sign/Print Names, Received By, Date/Time.

SPECIAL INSTRUCTIONS and Matrix\* legend table.

LABORATORY SECTION and FINAL SAMPLE DISPOSITION fields.

999-849-666

Environmental  
Restoration  
Contractor

**ERC Team**

**Interoffice Memorandum**

Job No. 22192  
Written Response Required: NO  
CCY: N/A  
COT: R04HR-3  
TED: N/A  
ERAI: N/A  
Subject Code: 5480

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.	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-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

maw

Distribution

0013

112959

### SAMPLE CHECK-IN LIST

Date/Time Received: 11-29-95 / 0915 SDG#: 11167

Work Order Number: 11167 SAF #: B96-035

Shipping Container ID: GWS015 Chain of Custody #: 11167

- 1. Custody Seals on shipping container intact? Yes  No
- 2. Custody Seals dated and signed? Yes  No
- 3. Sample temperature 4°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 IV was passed holding time BGRN1 (LS913-5)  
BGRN2 (LS913-6).

Sample Custodian/Laboratory: Paula Davis / LHS Date: 11-29-95  
 Telephoned To: Kathleen HOLL On 11-29-95 By Paula Davis  
 Fxpg

# LOCKHEED MARTIN



## Sample Login Login Review Checklist

Lot Number LS913

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>	_____

Frank Davis  
primary review signature

11-29-95  
date

Alm De  
secondary review signature

0015

11-29-95  
date

1129596

Lockheed Analytical Services  
Sample Receiving Checklist

Client Name: *Bechtel-Hanford*

Job No. *L5913*

Cooler ID: *not*

COOLER CONDITION UPON RECEIPT

Temperature of cooler upon receipt: *40*

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		<input checked="" type="checkbox"/>	<i>not</i>
are samples bi-phasic (if so, indicate sample ID'S):		<input checked="" type="checkbox"/>	<i>not</i>

MISCELLANEOUS ITEMS

	Yes	No	* Comments/Discrepancies
samples with short holding times	<input checked="" type="checkbox"/>		<i>Chromium, Beta Sample were passed</i>
samples to subcontract		<input checked="" type="checkbox"/>	<i>not holding times</i>

ADDITIONAL COMMENTS/DISCREPANCIES

Completed by / date: *Frank Davis 11-29-95*

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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112956

0016

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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
BOGRN1 _	L5913-1 L5913-3 L5913-5		Water Water Water	SCREENING ~ 218.2 CHROMIUM ~ 7196 CHROMIUM (VI
BOGRN2 ~	L5913-2 L5913-4 L5913-6		Water Water Water	SCREENING ~ 218.2 CHROMIUM - 7196 CHROMIUM (VI
REPORT TYPE -	L5913-7 L5913-7 L5913-7		Water Water Water	EDD - DISK DEL. ~ GERMANN - INORG TYPE 2 RPT

0017

1129596

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## LOCKHEED ANALYTICAL SERVICES

## Sample Results

Client Sample ID: BOGRN1	Date Collected: 27-NOV-95
Matrix: Water	Date Received: 29-NOV-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	0.77	0.10	HD(1:5)	30-NOV-95	30765	L5913-5

9613428.1673

## LOCKHEED ANALYTICAL SERVICES

## Sample Results

Client Sample ID: BOGRN2	Date Collected: 27-NOV-95
Matrix: Water	Date Received: 29-NOV-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	0.61	0.10	HD(1:5)	30-NOV-95	30765	L5913-6

0020

9613428.1674

## LOCKHEED ANALYTICAL SERVICES

## Sample Results

Client Sample ID: BOGRN1	Date Collected: 27-NOV-95
Matrix: Water	Date Received: 29-NOV-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	200.7	0.75	0.0010	0.010		1	14-DEC-95	31299	L5913-3

9613428.1675

## LOCKHEED ANALYTICAL SERVICES

## Sample Results

Client Sample ID: BOGRN2	Date Collected: 27-NOV-95
Matrix: Water	Date Received: 29-NOV-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	200.7	0.64	0.0010	0.010		1	14-DEC-95	31299	L5913-4