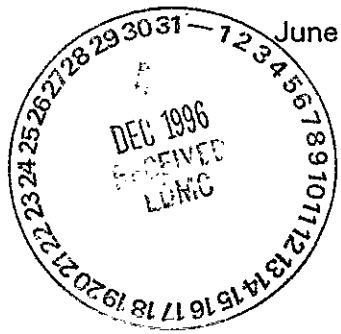
LK7072-LAS

0046115

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



June 18, 1996

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

RE:		
	Log-in No.:	L7072
	Quotation No.:	Q400000-B
	SAF:	B96-092
	Document File No.:	0521596
	BHI Document File No.:	370
	SDG No.:	LK7072

The attached data report contains the analytical results of samples that were submitted to Lockheed Analytical Services on 21 May 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.

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,

Karen Hermann FOR

Kathleen M. Hall
Client Services Representative

cc: Client Services
Document Control

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 LK7072 and analyzed in batch 521 bh for selected analytes as requested on the chain of custody. Quality control analysis was performed on the following samples:

Client ID	LAL #		Method
BOHD22	L7072-3	MS, DUP	7196 Hexavalent Chromium

Holding Time Requirements

- All samples were received and analyzed outside of the method-specific holding times. 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

May 24, 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 May 21, 1996. The samples were logged in as L7072 and were prepared and analyzed in batch 521 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

June 17, 1996
Date

Lockheed Analytical Services
DATA QUALIFIERS FOR INORGANIC ANALYSES
[Revised 08/28/92]

For Use on the Analytical Data Reporting Forms	
B	***For CLP Analyses Only*** -- Reported value is less than the contract required detection limit (CRDL) but greater than or equal to the instrument detection limit (IDL).
C	***For Routine, Non-CLP Analyses Only*** -- 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	***For CLP Analyses Only*** -- 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	***For CLP Reporting Only*** -- Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
W	***For AAS Only*** -- 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	
a[1]	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.
b[1]	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.

LOCKHEED ANALYTICAL SERVICES
LOGIN CHAIN OF CUSTODY REPORT (ln01)
May 23 1996, 09:24 am

Login Number: L7072
Account: 596 Bechtel Hanford, Inc. * Richland, WA
Project: BECHTEL-HANFORD Bechtel Hanford Project

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date	PR	Due Date
L7072-1	B0HD22	16-MAY-96	21-MAY-96		25-JUN-96
TEMP 2					
Location: 156TMP-1					
Water 1 S SCREENING		Hold: 12-NOV-96			
L7072-2	B0HD22	16-MAY-96	21-MAY-96		25-JUN-96
TEMP 2					
Location: 156TMP-1					
Water 1 S 200.7 METALS		Hold: 12-NOV-96			
* L7072-3	B0HD22	16-MAY-96	21-MAY-96		25-JUN-96
TEMP 2					
Location: 156TMP-1					
Water 1 S 7196 CHROMIUM (VI)		Hold: 17-MAY-96			
L7072-4	REPORT TYPE	21-MAY-96	21-MAY-96		25-JUN-96
Location:					
Water 1 S EDD - DISK DEL.					
Water 1 S INORG TYPE 2 RPT					

* product changed

Signature: [signature]

Date: 5-23-96 0009

0521596

LOCKHEED ANALYTICAL SERVICES
LOGIN CHAIN OF CUSTODY REPORT (ln01)
May 21 1996, 01:24 pm

Login Number: L7072
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
L7072-1			B0HD22	16-MAY-96	21-MAY-96	25-JUN-96
TEMP 2						
Location: 157						
Water	1	S	SCREENING	Hold:12-NOV-96		
L7072-2			B0HD22	16-MAY-96	21-MAY-96	25-JUN-96
TEMP 2						
Location: 157						
Water	1	S	200.7 METALS	Hold:12-NOV-96		
L7072-3			B0HD22	16-MAY-96	21-MAY-96	25-JUN-96
TEMP 2						
Location: 157						
Water	1	S	218.4 CHROMIUM (VI)	Hold:17-MAY-96		
L7072-4			REPORT TYPE	21-MAY-96	21-MAY-96	25-JUN-96
Location:						
Water	1	S	EDD - DISK DEL.			
Water	1	S	INORG TYPE 2 RPT			

Signature: Paula Davis

Date: 5-21-96

0010

0521596

Bechtel Hanford, Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

L7072

Page 1 of 1

Data Turnaround: ☐ Priority ■ Normal

Collector: R.Fahlberg	Company Contact: M.T. Stankovich	Telephone: 372-9626
Project Designation: 100-HR-3 Routine Process Samples	Sampling Location: 100 Area	SAF No.: B96-092
Ice Chest No.: 189-A	Field Logbook No.: EL-1304	Method of Shipment: Haqnd Delivered
Shipped To: Lockheed	Offsite Property No.: ~~NA~~ KT 5/20/96 W96-0-0640-45	Bill of Lading/Air Bill No.: ~~NA~~ KT 5/20/96 290 4656 924

Possible Sample Hazards/Remarks	Special Handling and/or Storage	Preservation	HNO3	cool to 4c	None								
		Type of Container	G/P	G/P	G/P								
		No. of Containers	1	1	1								
		Volume	500mL	500mL	20mL								
SAMPLE ANALYSIS			ICP Metals, 2 Cr	Cr Hex	Activity Scan								

Sample No.	Matrix*	Date Sampled	Time Sampled										
B0HDZ2	W	5/16/96	09:25	X	X	X			Enf				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By / Date/Time	R.Fahlberg / T.R. Fahlberg 5/16/96 1400	Received By / Date/Time	~~Bechtel~~ Bechtel 5-16-96 1400
Relinquished By / Date/Time	~~Bechtel~~ Bechtel 5-17-96 0900	Received By / Date/Time	KT 5/20/96
Relinquished By / Date/Time	K. Trapp / K. Trapp 5/20/96 1000	Received By / Date/Time	
Relinquished By / Date/Time		Received By / Date/Time	

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.

K. Trapp is relinquishing for Bill Whitten who is absent.

Matrix*
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: L.M. Miller	Title: Sample Custodian	Date/Time: 5-21-96/0845	
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time	

7514 (8) 100

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 Codes: 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 H^3.

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.

NON-RADIOLOGICAL SHIPMENT RELEASE

The contents of this shipment #W96-0-0670-45 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

05d159C

SAMPLE CHECK-IN LIST

Date/Time Received: 5-21-96 1045 SDG#: n/a

Work Order Number: n/a SAF #: B96-092.

Shipping Container ID: 189-A Chain of Custody # n/a

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

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

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

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

Yes [X] No [ ]

Notes: _____

Sample Custodian/Laboratory: [illegible] / LHS Date: 5-21-96

Faxed
~~Telephoned~~ To: Kathleen Hall On 5-21-96 By [illegible]
Pcd 5-21-96

0014

0521596

LOCKHEED MARTIN

Sample Login
Login Review Checklist

Lot Number L2022

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 form 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	YES	NO	N/A	Comment
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	YES	NO	N/A	Comment
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	YES	NO	N/A	Comment
1. Are all discrepancies between the COC and the login noted (if applicable)?			X	

[signature] 5-21-96
primary review signature date

[signature] 5-21-96
secondary review signature date

0015
052196

Lockheed Analytical Services
Sample Receiving Checklist

Client Name: Westinghouse Job No. L7022 Cooler ID: Blank

COOLER CONDITION UPON RECEIPT			
Temperature of cooler upon receipt:	2°C		
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		N/A	
are samples bi-phasic (if so, indicate sample ID'S):		N/A	

MISCELLANEOUS ITEMS			
	Yes	**No**	*** Comments/Discrepancies**
samples with short holding times	X		Chromium III, Nos past 180 Holding Times
samples to subcontract		N/A	

ADDITIONAL COMMENTS/DISCREPANCIES

Completed by / date: Paula Davis 5-21-96

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*

0016

Version 2.0 (11/11/94)

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

Client Sample Number	LAL Sample Number	SDG Number	Matrix	Method
B0HD22 -	L7072-1		Water	SCREENING -
	L7072-2		Water	200.7 METALS -
	L7072-3		Water	218.4 CHROMIUM
REPORT TYPE -	L7072-4		Water	EDD - DISK DEL.
	L7072-4		Water	INORG TYPE 2 RP

0017

0521590

LOCKHEED ANALYTICAL SERVICES

Sample Results

Client Sample ID: B0HD22	Date Collected: 16-MAY-96
Matrix: Water	Date Received: 21-MAY-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	0.65	0.10	HD(1:5)	23-MAY-96	37350	L7072-3

Lockheed Analytical Laboratory

Determination of Hexavalent Chromium
Calibration and Calibration Verification Results

LAL Batch ID: 521-BH
Work Group: 7196 CHROMIUM (VI)_37350
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	0.043	0.043	0.052	104
0.100	0.083	0.083	0.101	101
0.200	0.161	0.161	0.197	99
0.250	0.205	0.205	0.251	101

Slope = 1.2322
Intercept = -0.0012
Correlation (r) = 0.9998

Measured Instrument Response: Absorbance (540 nm)

Calibration Verification Results

Sample Identification	True Concentration (mg/L)	Found Concentration (mg/L)	Analyte Recovery (%)
ICV	0.1	0.099	99
CCV	0.1	0.100	100

Calibration Blank Results

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

Lockheed Analytical Laboratory

Determination of Hexavalent Chromium
Quality Control Results

LAL Batch ID: 521-BH
Work Group: 7196 CHROMIUM (VI)_37350
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	0.048	96
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
L7072-3	0.647	0.653	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
L7072-3S	0.647	0.25	0.900	101	

Spiked Sample/Spike Duplicate Results (Difference)

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

LOCKHEED ANALYTICAL SERVICES

Sample Results

Client Sample ID: B0HD22	Date Collected: 16-MAY-96
Matrix: Water	Date Received: 21-MAY-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	0.65	0.0030	0.010		1	11-JUN-96	37720	L7072-2