

**START**

9713534.2709

LK8208-LAS  
0046825

**LOCKHEED MARTIN**



# ***Lockheed Analytical Services***

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



## **ANALYTICAL DATA REPORT**

**FOR**

**NITRATE, NITRITE, TOTAL URANIUM BY KPA,  
STRONTIUM-90, TECHNETIUM-99 AND TRITIUM**

LOG-IN NUMBER:	<u>L8208</u>
QUOTATION NUMBER:	<u>Q400000-B</u>
SAF:	<u>B97-023</u>
DOCUMENT FILE NUMBER:	<u>1026596A</u>
BHI DOCUMENT FILE NO.:	<u>410</u>
SDG NUMBER:	<u>LK8208</u>

9713534.2710

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**

November 26, 1996

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

RE: Log-in No.: L8208  
Quotation No.: Q400000-B  
SAF: B97-023  
Document File No.: 1026596A  
BHI Document File No.: 410  
SDG No.: LK8208



The attached data report contains the analytical results of samples that were submitted to Lockheed Analytical Services on October 26, 1996. The temperature of the cooler upon receipt was 2°C. Sample containers received agree with the chain-of-custody documentation. All sample containers were received intact. Samples were 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 Mary Wolf at (702) 361-3955, extension 311. If you are unable to contact the client services representative, please call Mary B. Ford, client services manager, at extension 326.

"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 Manager or a designee, as verified by the following signature."

Sincerely,

Mary K. Wolf  
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 LK8208 and analyzed in batch 1026 bh2 for selected analytes to be analyzed in client-specified order as requested on the chain of custody. Quality control analysis was performed on the following samples:

Client ID	LAL #		Method
BOJCS5	L8208-3	DUP, MS	300.0 Nitrate-Nitrogen

**Holding Time Requirements**

- The samples were received and analyzed within method-specific holding time.

**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 5, 1996  
 Date

Lockheed Analytical Services

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### **CASE NARRATIVE INORGANIC TOTAL URANIUM ANALYSES**

The routine calibration and quality control analyses performed for this batch include as applicable: instrument calibration, initial and continuing calibration verification, quench monitoring standards, instrument background analysis, method blanks, yield tracer, laboratory control samples, matrix spike samples, and matrix spike duplicate samples.

#### **Preparation and Analysis Requirements**

All samples were received on October 26, 1996. The samples were logged in as L8208 and were prepared and analyzed in batch 1026 bt.

#### **Holding Time Requirements**

All holding time requirements were met.

#### **Total Uranium**

The Total Uranium analysis was performed using LAL-91-SOP-0168. All samples were prepared in Workgroup U TOTAL KPA LAL-0168 42903 with a Method Blank (MBB1), Laboratory Control Sample (LCS1), Duplicate (DUP1) and Matrix Spike (MS1). No problems were encountered during preparation or analysis. All QC criteria were met and no reanalysis was performed.

Shellee McGrath  
Prepared By

November 19, 1996  
Date

Lockheed Analytical Services

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## CASE NARRATIVE RADIOCHEMISTRY ANALYSES

The routine calibration and quality control (QC) analyses performed for this batch include as applicable: instrument calibration, initial and continuing calibration verification, quench monitoring standards, instrument background analysis, method blanks, yield tracer, laboratory control samples, matrix spike samples, and duplicate samples.

NOTE: Chemical recoveries and minimum detectable activities (MDAs) can be found on the preparation sheets and calculation sheets on the attached raw data for each method.

### Holding Time Requirements

All holding time requirements were met.

### Gas Proportional Counter

#### *Analytical Method Strontium-90*

The strontium-90 analysis was performed using standard operating procedure (SOP), LAL-91-SOP-0065. The samples were analyzed in workgroups 43149, 43582 and 43729. The samples in workgroup 43149 were re-analyzed in workgroup 43582 due to out-of-criteria recoveries for the laboratory control sample (LCS) and matrix spike (MS). Sample BOJCS5 (L8208-9) in workgroup 43582 was re-analyzed in workgroup 43729 due to a low chemical recovery. No analyses from workgroups 43149 and 43582 were reported. The instrument calibration verification met criteria. The method blank was within QC criteria. The LCS and MS recoveries were within QC criteria. The duplicate (DUP) recoveries were within QC criteria. No other re-analyses were performed.

### Liquid Scintillation Counter

#### *Analytical Method Technetium-99*

The technetium-99 analysis was performed using SOP, LAL-91-SOP-0169. The samples were analyzed in workgroup 43151. The instrument calibration verification met criteria. The method blank was within QC criteria. The LCS and MS recoveries were within QC criteria. The DUP recoveries were within QC criteria. The quench value was within curve limitations. No re-analyses were performed.

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**Lockheed Analytical Services**

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*Analytical Method Tritium*

The tritium analysis was performed using SOP, LAL-91-SOP-0066. The samples were analyzed in workgroup 43158. The instrument calibration verification met criteria. The method blank was within QC criteria. The LCS and MS recoveries were within QC criteria. The DUP recoveries were within QC criteria. The quench value was within curve limitations. No re-analyses were performed.

Yvonne M. Jacoby  
Prepared By

November 26, 1996  
Date

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Collector <b>D.C. Call</b>	Company Contact Jane Borghese	Telephone No. (509) 373-4790	Project Coordinator Koerner, CC	Data Turnaround 45 Days
Project Designation Pre-Startup Sampling for 100-HR-3 Interim Action Monitoring	Sampling Location 100 H and 100 D	SAF No. B97-023		
Ice Chest No. <b>96-051</b>	Field Logbook No. <b>EL-1289</b>	Method of Shipment Federal Express		
Shipped To Lockheed	Offsite Property No. <b>W97-0001-4</b>	Bill of Lading/Air Bill No. <b>2771634397</b>		

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	Cool 4C	HNO3 to pH <2	HCl to pH <2	HNO3 to pH <2					
	Type of Container	P	G	P	P	P	P					
	No. of Container(s)	1	1	1	1	4	4					
Special Handling and/or Storage Maintain samples between 2 degrees C and 6 degrees C.	Volume	20ml	500ml	500ml	500ml	1000ml	1000ml					
SAMPLE ANALYSIS				Activity Scan	Tritium - H3	IC Anions - 300 0 (Nitrogen in Nitrate)	Total Uranium	Technetium-99	Strontium-89,90 - Total Sr			

Sample No.	Matrix *	Sample Date	Sample Time	Activity Scan	Tritium - H3	IC Anions - 300 0 (Nitrogen in Nitrate)	Total Uranium	Technetium-99	Strontium-89,90 - Total Sr			
BQJCS5	Water	10-24-96	1231	X	X	X	X	X	X			

CHAIN OF POSSESSION	Sign/Print Names		SPECIAL INSTRUCTIONS ** The ERC Contractor acknowledges the 48-hour holding time for nitrate is not likely achievable					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
	Relinquished By <i>D.C. Call</i>	Date/Time 10-24-96/14:30	Received By <i>Paula White</i>	Title ERC	Date/Time 1430			
	Relinquished By <i>Paula White</i>	Date/Time 0900	Received By <i>B. White</i>	Title B. White	Date/Time 10-24-96			
	Relinquished By <i>Paula White</i>	Date/Time 10-25-96	Received By	Title	Date/Time			

LABORATORY SECTION	Received By <i>Paula White</i>	Title Sample Custodian	Date/Time 10-26-96 19:3
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

1026596

970524.2/15

9713534.2716

## LOCKHEED ANALYTICAL SERVICES

## Sample Results

Client Sample ID: BOJCS5	Date Collected: 24-OCT-96
Matrix: Water	Date Received: 26-OCT-96
Percent Solids: N/A	

Constituent	Units	Method	Result	Project Reporting Limit	Date Qualifier(s)	Date Analyzed	LAS Batch ID	LAS Sample ID
Nitrate-N	mg/L	300.0	3.7	0.020		26-OCT-96	42893	L8208-3

9713534.2717

# LOCKHEED ANALYTICAL SERVICES

## RADIOCHEMISTRY DATA REPORT

Account Name: Bechtel Hanford, Inc. \* Richland, WA

Project Name: BECHTEL-HANFORD

Project Desc: Bechtel Hanford Project

Client Sample ID: B0JCS5

Date Collected: 24-OCT-96

Matrix: Water

Login Number: L8208

Date Received: 26-OCT-96

Constituent	Method	Batch	Activity	Error	MDA	Qualifier	Units	Analysed	Lab ID
Uranium	KPA	42903	1.981	0.10	0.82		ug/L	18-NOV-96	L8208-4

9713534.2718

# LOCKHEED ANALYTICAL SERVICES

## RADIOCHEMISTRY DATA REPORT

Account Name: Bechtel Hanford, Inc. \* Richland, WA

Project Name: BECHTEL-HANFORD

Project Desc: Bechtel Hanford Project

Client Sample ID: BOJCS5

Date Collected: 24-OCT-96

Matrix: Water

Login Number: L8208

Date Received: 26-OCT-96

Constituent	Method	Batch	Activity	Refer	NDA	Dilution	Units	Analyzed	Lab ID
H-3	LAL-0066	43158	1540	280	220		pCi/L	07-NOV-96	L8208-2

9713534.2719

# LOCKHEED ANALYTICAL SERVICES

## RADIOCHEMISTRY DATA REPORT

Account Name: Bechtel Hanford, Inc. \* Richland, WA  
Project Name: BECTEL-HANFORD  
Project Desc: Bechtel Hanford Project

Client Sample ID: BOJCS5  
Date Collected: 24-OCT-96  
Matrix: Water

Login Number: L8208  
Date Received: 26-OCT-96

Constituent	Method	Batch	Activity	Error	MVA	Qualifier	Units	Analized	Lab ID
Tc-99	LAL-0169	43151	2.1	4.1	7.0		pCi/L	19-NOV-96	L8208-5

9713534.2720

# LOCKHEED ANALYTICAL SERVICES

## RADIOCHEMISTRY DATA REPORT

Account Name: Bechtel Hanford, Inc. \* Richland, WA  
Project Name: BECTEL-HANFORD  
Project Desc: Bechtel Hanford Project

Client Sample ID: BOJCS5  
Date Collected: 24-OCT-96  
Matrix: Water

Login Number: L8208  
Date Received: 26-OCT-96

Constituent	Method	Batch	Activity	Error	MDA	Qualifier	Units	Analyzed	Lab ID
Sr-89,90	LAL-0065	43729	0.19	0.35	0.60		pCi/L	25-NOV-96	L8208-9