START 9613446.1796

0044364

LK3999 #1/2

Lockheed

Environmental Systems & Services

Lockheed Analytical Services
975 Kelly Johnson Drive
Las Vegas, Nevada 89119-3705

Phone: (702) 361-0220
Phone: (800) 582-7605
Fax: (702) 361-8146

April 10, 1995

JUN 1996 RECEIVED EDMC

APR 1995 RECEIVED Data Log In

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

RE:	Log-in No.:	L3999
	Quotation No.:	Q400000-B
	SAF:	B95-030
	Document File No.:	0307596
	WHC Document File No.:	186
	SDG No.:	LK3999

The attached data report contains the analytical results of samples that were submitted to Lockheed Analytical Services on 7 March 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 were not received in time to meet the analytical holding time requirements. (See attached Sample Receiving Checklist). All discrepancies identified upon receipt of the samples have been forwarded to the client and are documented in the enclosed chain-of-custody records.

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.

Lockheed Analytical Services

Log-in No.: L3999
Quotation No.: Q400000-B
SAF: B95-030
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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,

for Kathleen M. Hall
Client Services Representative

cc: Client Services
Document Control

Lockheed Analytical Services

Log-in No.: L3999
Quotation No.: Q400000-B
SAF: B95-030
Document File No.: 0307596
WHC Document File No.: 186
SDG No.: LK3999
Page2

CASE NARRATIVE
INORGANIC NON 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

- One water and one filtered water sample were received for LK3999 and prepared as batch 307WH and analyzed for selected analytes as requested on the chain of custody.

Quality control analysis was performed on the following sample:

Client ID	LAL #		Method
BODX98	L3999-9	DUP	120.1 Conductivity
	L3999-10	DUP, MS	180.1 Turbidity
	L3999-11	DUP	9040 pH
BODX99	L3999-22	MS, DUP	300.0 Chloride, Fluoride, Nitrate-N, Nitrite-N, Orthophosphate, Sulfate

Holding Time Requirements

- All samples were analyzed within the specified holding time, except Method 180.1 Turbidity, Method 300.0 Nitrate-N, Nitrite-N and Orthophosphate which were received from the client out of holding time; and Method 9040 pH which was inadvertently analyzed outside of holding time. Analyses proceeded at the direction of the client and the applicable 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

March 29, 1995
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 March 7, 1995. The samples were logged in as L3999 and were prepared and analyzed in batches 307 bhT and 307 bhD.

Holding Times

All samples were analyzed within the method-specific holding times.

Method Blanks-

The method blanks were free of contamination.

Internal Quality Control-

All Internal Quality Control were within acceptance limits.

Shellee McGrath
Prepared By

March 31, 1995
Date

CASE NARRATIVE
ORGANIC ANALYSES

Analytical Method 413.1 Oil and Grease

Analytical Batch 032895-413.1

The samples were extracted and analyzed within holding time on March 28, 1995. Total Oil and Grease was not detected in the method blank (MB). The recoveries of Total Oil and Grease in the matrix spike (MS), matrix spike duplicate (MSD) and laboratory control sample (LCS) were within QC limits. The relative percent difference (RPD) between the MS and MSD recoveries was within QC limits.

Analytical Method 418.1 Total Recoverable Petroleum Hydrocarbons (TRPH)

Analytical Batch 032495-418.1

The samples were extracted within holding time on March 21, 1995 and analyzed within holding time on March 24, 1995. All initial and continuing calibrations were within QC criteria. TRPH was not detected in the method blank (MB). Due to insufficient sample volume, a laboratoty control sample (LCS) and a laboratory control sample duplicate (LCSDUP) were extracted and analyzed in place of a matrix spike (MS) and a matrix spike duplicate (MSD). The TRPH recoveries in the LCS and LCSDUP were within QC limits. The relative percent difference (RPD) between the LCS and LCSDUP recoveries was within QC limits.

Lydia M. Coleman
Prepared By

April 10, 1995
Date

CASE NARRATIVE
RADIOCHEMICAL 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, duplicate samples.

Holding Time Requirements

All holding times were met.

Chemical Recoveries and MDAs can be found on the preparation sheets and calculation sheets, respectively, on the attached raw data for each method.

Analytical Method

Gamma Spectrum Analysis

The gamma spectrum analysis was performed using LAL-91-SOP-0063. No problems were encountered during analysis. All QC criteria were met.

Gross Alpha Beta

The gross alpha beta analysis was performed using LAL-91-SOP-0060. The alpha matrix spike analysis was slightly below limits; however, since the LCS is within limits, the data is considered acceptable. All other QC criteria were met.

Strontium

The strontium analysis was performed using LAL-91-SOP-0196. No problems were encountered during analysis. All QC criteria were met.

Tritium

The tritium analysis was performed using LAL-91-SOP-0066. No problems were encountered during analysis. All QC criteria were met.

Yvonne M. Jacoby
Prepared By

April 10, 1995
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.

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Lockheed Analytical Services

DATA QUALIFIERS FOR ORGANIC ANALYSES

[Revised 01/19/1994]

For Use On The Analytical Data Reporting Forms	
A	***For CLP analyses Only*** – The TIC is a suspected aldol-condensation product.
B	Any constituent that was also detected in the associated blank whose concentration was greater than the practical or reporting detection limit (PQL or RDL).
C	Constituent confirmed by GC/MS analysis. *[pesticide/PCB analyses only]*
D	Constituent detected in the diluted sample. It also indicates that an accurate quantitation is not possible due to surrogates being diluted out of the samples during the course of the analysis.
E	Constituent concentration exceeded the calibration range.
G	The quantitation is not gasoline or diesel but believed to be some other combination of hydrocarbons.
H	Sample analysis performed outside of method- or client-specified maximum holding time requirement.
J	*Estimated value* – (1) constituent detected at a level less than the RDL or PQL and greater than or equal to the MDL; (2) estimated concentration for TICs ***(For CLP Reporting Only)***.
N	***For CLP Reporting Only*** – Tentatively identified constituents (TICs) identified based on mass spectral library search.
P	***For CLP Reporting Only*** – The percent difference between the concentrations detected on both GC columns was greater than 25 percent *[pesticide/PCB analyses only]*.
U	***For CLP Reporting Only*** – Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
X, Y, or Z	Analyst-defined qualifier.
N/A (% Moisture)	N/A in the % moisture cell indicates that data are reported on an "*as received*" basis. A value in the % moisture cell indicates that data are reported based on a "*dry weight*" basis. ***For non-CLP work***, RDLs are not adjusted for % moisture even when data are reported on a "*dry weight*" basis.
For Use On The QC Data Reporting Forms	
*****	QC data (i.e., percent recovery data for matrix spike, matrix spike duplicate, laboratory control standard, or surrogates; and RPD for matrix spike duplicate or unspiked duplicate) exceeded acceptance limits.
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
DATA QUALIFIERS FOR RADIOCHEMICAL ANALYSES
[Revised 08/28/92]

For Use on the Analytical Data Reporting Forms	
B	Any constituent that was also detected in the associated blank whose concentration was greater than the reporting detection limit (RDL) and/or minimum detectable activity (MDA).
C	Presence of high TDS in sample required reduction of sample size which increased the MDA.
D	Constituent detected in the diluted sample.
E	Constituent concentration exceeded the calibration or attenuation curve range.
F	***For Alpha Spectrometry Only***-- FWHM exceeded acceptance limits.
H	Sample analysis performed outside of method-specified maximum holding time requirement.
Y	Chemical yield exceeded acceptance limits.
For Use on the QC Data Reporting Forms	
*****	QC data (i.e., percent recovery data for laboratory control standard and matrix spike; and RPD for replicate analyses) exceeded acceptance limits.
a[1]	The spike recovery and/or RPD for matrix spike and 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 MDA.

[1] Used as foot note designations on the QC summary form.

9613446.1805

LOGIN CHAIN OF CUSTODY REPORT (ln01)
Mar 14 1995, 01:16 pm

Login Number: L3999
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
L3999-1	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-43					
Water 1 S SCREENING		Hold:30-AUG-95			
L3999-2	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Water 1 S 6010 ICP METALS		Hold:30-AUG-95			
L3999-3	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Water 1 S 300.0 CHLORIDE		Hold:31-MAR-95			
Water 1 S 300.0 FLUORIDE		Hold:31-MAR-95			
Water 1 S 300.0 NITRATE		Hold:05-MAR-95			
Water 1 S 300.0 NITRITE		Hold:05-MAR-95			
Water 1 S 300.0 PHOSPHATE		Hold:05-MAR-95			
Water 1 S 300.0 SULFATE		Hold:31-MAR-95			
L3999-4	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Water 1 S 413.1 OIL AND GREASE		Hold:31-MAR-95			
L3999-5	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
L3999-6	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
L3999-7	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
L3999-8	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Water 1 S 418.1 TPH		Hold:31-MAR-95			

013

* CHANGED MATRIX TO 15 (FILT H_2O) FOR ANALYSES 300.0 FLUORIDE, NITRITE, PHOSPHATE ON SAMPLE L3999-2

RC 3-14-95

— LAB REQUEST —

C0307590

9613446.1806

LOGIN CHAIN OF CUSTODY REPORT (ln01)
Mar 14 1995, 01:16 pm

Login Number: L3999
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
L3999-9	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Water 1 S 120.1 CONDUCTIVITY		Hold:31-MAR-95			
L3999-10	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Water 1 S 180.1 TURBIDITY		Hold:05-MAR-95			
L3999-11	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Water 1 S 9040 PH		Hold:10-MAR-95			
L3999-12	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 156CART-5					
Water 1 S TRITIUM(H3) LAL-0066		Hold:30-AUG-95			
L3999-13	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 142					
Water 1 S GAMMA SPEC LAL-0063		Hold:30-AUG-95			
Water 1 S GR ALP/BETA LAL-0060		Hold:30-AUG-95			
Water 1 S SR-90 LAL-0196		Hold:30-AUG-95			
L3999-14	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 156CART-5					
L3999-15	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 156CART-5					
L3999-16	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 156CART-5					
L3999-17	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 156CART-5					

9613446.1807

LOGIN CHAIN OF CUSTODY REPORT (ln01)
Mar 14 1995, 01:16 pm

Login Number: L3999
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
L3999-18	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 156CART-5					
L3999-19	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 156CART-5					
L3999-20	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 156CART-5					
L3999-21	B0DX99	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Filt H20 15 S 6010 ICP METALS	Hold:30-AUG-95				
L3999-22	B0DX99	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Filt H20 15 S 300.0 CHLORIDE	Hold:31-MAR-95				
Filt H20 15 S 300.0 FLUORIDE	Hold:31-MAR-95				
Filt H20 15 S 300.0 NITRATE	Hold:05-MAR-95				
Filt H20 15 S 300.0 NITRITE	Hold:05-MAR-95				
Filt H20 15 S 300.0 PHOSPHATE	Hold:05-MAR-95				
Filt H20 15 S 300.0 SULFATE	Hold:31-MAR-95				
L3999-23	REPORT TYPE	07-MAR-95	07-MAR-95		11-APR-95
Location:					
Water 1 S EDD - DISK DEL.					
Water 1 S INORG TYPE 2 RPT +					
Water 1 S RAD RPT TYPE 2					

015

Signature: Paul Daup

Date: 3-14-95

030759

9613446.1808

LOGIN CHAIN OF CUSTODY REPORT (ln01)
Mar 07 1995, 05:36 pm

Login Number: L3999
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
L3999-1	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-43					
Water 1 S SCREENING		Hold:30-AUG-95			
L3999-2	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Water 1 S 6010 ICP METALS		Hold:30-AUG-95			
L3999-3	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Water 1 S 300.0 CHLORIDE		Hold:31-MAR-95			
Water 1 S 300.0 FLUORIDE		Hold:31-MAR-95			
Water 1 S 300.0 NITRATE		Hold:05-MAR-95			
Water 1 S 300.0 NITRITE		Hold:05-MAR-95			
Water 1 S 300.0 PHOSPHATE		Hold:05-MAR-95			
Water 1 S 300.0 SULFATE		Hold:31-MAR-95			
L3999-4	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Water 1 S 413.1 OIL AND GREASE		Hold:31-MAR-95			
L3999-5	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
L3999-6	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
L3999-7	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
L3999-8	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Water 1 S 418.1 TPH		Hold:31-MAR-95			

0307596

9613446.1809

LOGIN CHAIN OF CUSTODY REPORT (ln01)
Mar 07 1995, 05:36 pm

Login Number: L3999
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
L3999-9	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Water 1 S 120.1 CONDUCTIVITY		Hold:31-MAR-95			
L3999-10	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Water 1 S 180.1 TURBIDITY		Hold:05-MAR-95			
L3999-11	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Water 1 S 9040 PH		Hold:10-MAR-95			
L3999-12	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 157					
Water 1 S TRITIUM(H3) LAL-0066		Hold:30-AUG-95			
L3999-13	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 157					
Water 1 S GAMMA SPEC LAL-0063		Hold:30-AUG-95			
Water 1 S GR ALP/BETA LAL-0060		Hold:30-AUG-95			
Water 1 S SR-90 LAL-0196		Hold:30-AUG-95			
L3999-14	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 157					
L3999-15	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 157					
L3999-16	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 157					
L3999-17	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 157					

0307546

9613446.1810

LOGIN CHAIN OF CUSTODY REPORT (ln01)
Mar 07 1995, 05:36 pm

Login Number: L3999
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
L3999-18	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 157					
L3999-19	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 157					
L3999-20	B0DX98	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: 157					
L3999-21	B0DX99	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Filt H20 15 S 6010 ICP METALS	Hold:30-AUG-95				
L3999-22	B0DX99	03-MAR-95	07-MAR-95		11-APR-95
TEMP 4 "SAF # B95-030"					
Location: RFG01-7A					
Filt H20 15 S 300.0 CHLORIDE	Hold:31-MAR-95				
Water 1 S 300.0 FLUORIDE	Hold:31-MAR-95				
Filt H20 15 S 300.0 NITRATE	Hold:05-MAR-95				
Water 1 S 300.0 NITRITE	Hold:05-MAR-95				
Water 1 S 300.0 PHOSPHATE	Hold:05-MAR-95				
Filt H20 15 S 300.0 SULFATE	Hold:31-MAR-95				
L3999-23	REPORT TYPE	07-MAR-95	07-MAR-95		11-APR-95
Location:					
Water 1 S EDD - DISK DEL.					
Water 1 S INORG TYPE 2 RPT +					
Water 1 S RAD RPT TYPE 2					

Signature: Paul C Davis 018

Date: 3-07-95

030755

Bechtel Hanford Incorporated

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST L3999

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: K. Lee / A Rizzo	Company Contact: J. V. Borghese	Telephone No.: (509) 372-9584
Project Designation: 100-NR-2 Groundwater Sampling - Round 7	Sampling Location: 100 N	SAF No.: B95-030
Ice Chest No.: GWS-024	Field Logbook No.: EFL-1058	Method of Shipment: Federal Express
Shipped To: Lockheed	Offsite Property No.: W95-0-0204-19	Bill of Lading/Air Bill No.: 2904621246
Possible Sample Hazards/Remarks		

Sample No.	Matrix*	Date Sampled	Time Sampled	ICP Metals-TAL Unfiltered	Anions (IC) F, Cl, SO4, PO4, NO2 NO3. Unfiltered	Oil and Grease	TPH	Conductivity	Turbidity	pH	Tritium	Activity Scan	Gross Alpha, Gross Beta, Sr-90, Gamma Spec			ICP Metals-TAL Filtered	Anions (IC) F, Cl, SO4, PO4, NO2 NO3. Filtered
Preservative				HNO3	Cool 4C	H2SO4	HCl	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	HNO3			HNO3	Cool 4C
Type of Container				G	P/G	G	Gs*	P/G	P/G	P	~~G~~ P	P	G			G	P/G
No. of Container(s)				1	1	4	1	1	1	1	1	1	8			1	1
Volume				500mL	500mL	1L	1L	250mL	250mL	125mL	500mL	20mL	1L			500mL	500mL
B0DX98	W	3 3 95	1059	X	X	X	X	X	X	X	X	X	X				
B0DX99	W	3 3 95	1059													X	X

Special Handling and/or Storage: Maintain samples between 2C and 6C.

SAMPLE ANALYSIS

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
AG Rizzo	3-3-95 1225	David St. John ERC	03 03-95 1225
Relinquished By	Date/Time	Received By	Date/Time
David St. John ERC	3-3-95 1315	K. Trapp/K. Trapp ERC	1317 3/3/95
Relinquished By	Date/Time	Received By	Date/Time
K. Trapp/K. Trapp	1000 3/6/95		
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Sample analysis for PO4, NO2, and NO3 by EPA 300.0; turbidity by EPA 180.1; and pH by SW-846 9040 are being requested for information only. The ERC Contractor acknowledges that the hold times will not be met.

The Activity Scan is for all samples listed on this chain of custody.

Gs* = Glass with septum top. No head space.

Tritium provided in Sealed Plastic instead of GLASS 3 3 95 (TR)

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	Title	Date/Time
	Paula Davis	Sample Custodian	3-07-95/9:45am

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

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9613446.1812

AMPLE STATUS REPORT FOR N 4871. RAD SCREEN 199-N-21 TIME: 3/ 6/95 8:30
DISPATCHED: 2/22/95 14:38 SAMPLE HAS NOT BEEN SLURPED PAGE 1
RECEIVED: 3/ 6/95 7:48

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	XR5561

END OF REPORT

BODX48
BODX49
BODX98
BODX99

KT 3/6/95

020

0307596

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Sample Login

Login Review Checklist

Lot Number L3999

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 an effective login review, at a minimum, five reports from the login process are required. These are the chain of custody (or equivalent), the login chain of custody report, the sample summary report, the sample receiving checklist, and the login quotation. Before beginning a review, ensure that these five components are available. For jobs with single component samples, the sample summary report may be ommited.

Sample Summary Report N/A	Yes	No
1. Are all sample IDs correct?	X	—
2. Are all samples present?	X	—
3. Are all matrices correct? (e.g., TCLP analyses should be on a TCLP leachate, field blanks should be water)	X	—
4. Are all analyses on the chain of custody/login quotation included?	X	—
5. Are analyses logged in for the correct container? (e.g., analyses requiring preservation logged in for a preserved container and vice versa)	X	—
6. Are samples logged in according to laboratory batching procedures? (e.g., TCLP regular leaching and associated metals/semivolatile organics should be logged in on the same bottle)	X	—

Login Chain of Custody Report		
1. Are the Collect, Receive , and Due dates correct for every sample?	X	—
2. Have appropriate sample comments been included? (e.g., MS/MSD designation, comments from the client concerning method modifications)	—	N/A

Sample Receiving Checklist		
1. Are any discrepancies between the chain of custody and the login noted? (e.g., client IDs different on chains of custody and bottle labels, samples not sent, samples lost from breakage)	—	N/A

Primary review signature	Date	Secondary review signature	Date
[signature]	3-02-95	[signature]	3-02-95

021

030759

Figure 1

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 3-07-95/9:45am Client Name Westinghouse-Hanford

Project/Client # SAF # R95-030 Batch or Case # N/A

Cooler ID (if noted on outside of cooler) N/A

1. Condition of shipping container? Good
2. Custody Seals on cooler intact? Yes [X] No [ ]
3. Custody Seals dated and signed? Yes [X] No [ ]
4. Chain of Custody record is taped on inside of cooler lid? Yes [X] No [ ]
5. Vermiculite/packing material is: Wet [ ] Dry [X] _____
6. Each sample is in a plastic bag? Yes [X] No [ ] _____
7. Number of sample containers in cooler: 22
8. Samples have:
   - ____ tape
   - X custody seals
   - ____ hazard labels
   - ____ appropriate sample labels
9. Samples are:
   - X in good condition
   - ____ broken
   - ____ other
   - ____ leaking
   - ____ have air bubbles
10. Coolant Present? Yes [X] No [ ] Sample Temperature 4°C
11. The following paperwork should be accounted for (N/A if not applicable):

    Chain of Custody #(s) N/A

    Request for Analysis #(s) N/A

    Airbill # 290 4621 246 Carrier FedEx
12. Have any anomalies been identified above? Yes [ ] No [ ] N/A
13. Memos have been initiated for all anomalies identified above? Yes [ ] N/A

Printed Name/Signature PAUL C DAVIS Paul C Davis Date/Time 3-07-95/9:45am

Lockheed Analytical Services
Sample Receiving Checklist

Client Name: WHC Job No. L3999 Cooler ID: NA

COOLER CONDITION UPON RECEIPT

Temperature of cooler upon receipt: 4°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):		NIT	

MISCELLANEOUS ITEMS

	Yes	No	* Comments/Discrepancies
samples with short holding times	X		passed Holing Times
samples to subcontract			nitrite / nitrate / Turbidity

ADDITIONAL COMMENTS/DISCREPANCIES 300.0 Phosphate, nitrite and Fluoride were not under The Filtered H2O matrix in the Data Base. They were Logged into Data Base Under water matrix.

Completed by / date: Paul Dang 3-07-95

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 facsimille to the appropriate CSR (702) 361-8146*

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version 2.0 (11/11/94)

9613446.1816

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

Client Sample Number	LAL Sample Number	SDG Number	Matrix	Method
BODX98	L3999-1		Water	SCREENING
	L3999-2		Water	6010 ICP METALS
	L3999-3		Water	300.0 CHLORIDE
	L3999-3		Water	300.0 FLUORIDE
	L3999-3		Water	300.0 NITRATE
	L3999-3		Water	300.0 NITRITE
	L3999-3		Water	300.0 PHOSPHATE
	L3999-3		Water	300.0 SULFATE
	L3999-4		Water	413.1 OIL AND GRE
	L3999-8		Water	418.1 TPH
	L3999-9		Water	120.1 CONDUCTIVI
	L3999-10		Water	180.1 TURBIDITY
	L3999-11		Water	9040 PH
	L3999-12		Water	TRITIUM(H3) LAL-C
	L3999-13		Water	GAMMA SPEC LAL-00
	L3999-13		Water	GR ALP/BETA LAL-C
	L3999-13		Water	SR-90 LAL-0196
BODX99	L3999-21		Filt H20	6010 ICP METALS
	L3999-22		Filt H20	300.0 CHLORIDE
	L3999-22		Water	300.0 FLUORIDE
	L3999-22		Filt H20	300.0 NITRATE
	L3999-22		Water	300.0 NITRITE
	L3999-22		Water	300.0 PHOSPHATE
	L3999-22		Filt H20	300.0 SULFATE
REPORT TYPE	L3999-23		Water	EDD - DISK DEL.
	L3999-23		Water	INORG TYPE 2 RPT
	L3999-23		Water	RAD RPT TYPE 2

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LOCKHEED ANALYTICAL SERVICES

COMMON IONS AND ADDITIONAL ANALYTES

Sample Results

Client Sample ID: B0DX98	Date Collected: 03-MAR-95
Matrix: Water	Date Received: 07-MAR-95

Constituent	Units	Method	Result	Reporting Det|Limit	Data Qualifier(s)	Date Analyzed	LAS Batch|ID	LAS Sample|ID
Specific Conductance	uS/cm	120.1	1200	1		20-MAR-95	20417	L3999-9
Turbidity	NTU	180.1	1.3	N/A	H	20-MAR-95	20418	L3999-10
Chloride	mg/L	300.0	22.	0.02		15-MAR-95	20415	L3999-3
Fluoride	mg/L	300.0	0.32	0.1		14-MAR-95	20413	L3999-3
Nitrate-N	mg/L	300.0	5.4	0.02	H	15-MAR-95	20411	L3999-3
Nitrite-N	mg/L	300.0	< 0.01	0.01	H	15-MAR-95	20412	L3999-3
Ortho Phosphate	mg/L	300.0	< 0.1	0.1	H	14-MAR-95	20414	L3999-3
Sulfate	mg/L	300.0	390	1	D(1:10)	15-MAR-95	20416	L3999-3
pH	pH Units	9040	7.9	0.1	H	20-MAR-95	20419	L3999-11

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LOCKHEED ANALYTICAL SERVICES

COMMON IONS AND ADDITIONAL ANALYTES

Sample Results

Client Sample ID: BODX99	Date Collected: 03-MAR-95
Matrix: Filt H2O	Date Received: 07-MAR-95

Constituent	Units	Method	Result	Reporting Det Limit	Data Qualifier(s)	Date Analyzed	LAS Batch ID	LAS Sample ID
Chloride	mg/L	300.0	22.	0.02		15-MAR-95	20415	L3999-22
Fluoride	mg/L	300.0	0.32	0.1		14-MAR-95	20413	L3999-22
Nitrate-N	mg/L	300.0	5.3	0.02	N	15-MAR-95	20411	L3999-22
Nitrite-N	mg/L	300.0	< 0.02	0.02	N	15-MAR-95	20412	L3999-22
Ortho Phosphate	mg/L	300.0	< 0.1	0.1	N	14-MAR-95	20414	L3999-22
Sulfate	mg/L	300.0	400	1	D(1:10)	15-MAR-95	20416	L3999-22

04/26/95 14:08 LOCKHEED ANALYTICAL SERVICES → 5099434218 NO.000 P02

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DEQ 4-27-95

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LOCKHEED ANALYTICAL SERVICES

COMMON IONS AND ADDDITIONAL ANALYTES

QC Data Summary For Reagent Blank Analysis

Constituent	Units	Reporting Detection Limit	LAS Batch ID	Date Analyzed	Reagent Blank Result	Data Qualifier
Nitrate-N	mg/L	.02	20411	03/15/95	< .02	
Nitrite-N	mg/L	.01	20412	03/15/95	< .01	
Fluoride	mg/L	.1	20413	03/14/95	< .1	
Ortho Phosphate	mg/L	.1	20414	03/14/95	< .1	
Chloride	mg/L	.02	20415	03/15/95	< .02	
Sulfate	mg/L	.1	20416	03/15/95	< .1	
Turbidity	NTU	N/A	20418	03/20/95	0.0260	

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LOCKHEED ANALYTICAL SERVICES

COMMON IONS AND ADDDITIONAL ANALYTES

QC Data Summary For Laboratory Control Sample Analysis

Constituent	Units	LAS Batch ID	Date Analyzed	LCS True Value	LCS Result	(%) Recovery
Nitrate-N	mg/L	20411	03/15/95	12.5	13.4	107
Nitrite-N	mg/L	20412	03/15/95	15.0	15.0	100
Fluoride	mg/L	20413	03/14/95	1.00	1.08	108
Ortho Phosphate	mg/L	20414	03/14/95	1.00	0.953	95
Chloride	mg/L	20415	03/15/95	50.0	51.2	102
Sulfate	mg/L	20416	03/15/95	50.0	50.9	102
Turbidity	NTU	20418	03/20/95	5.04	5.08	101

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LOCKHEED ANALYTICAL SERVICES

COMMON IONS AND ADDITIONAL ANALYTES

QC Data Summary For Matrix Spike Sample Analysis

Client Sample ID B0DX98

Constituent	Units	LAS Batch ID	LAS Sample ID	Date Analyzed	Matrix Spike Result	Sample Result	Spike Added	(%) Recovery	Data Qualifier
Turbidity	NTU	20418	L3999-10	03/20/95	6.54	1.30	5.04	104	

LOCKHEED ANALYTICAL SERVICES

COMMON IONS AND ADDITIONAL ANALYTES

QC Data Summary For Duplicate Sample Analysis

Client Sample ID B0DX98

Constituent	Units	LAS Batch ID	LAS Sample ID	Date Analyzed	Sample Result	Duplicate Result	Relative Percent Difference	Data Qualifier
Turbidity	NTU	20418	L3999-10	03/20/95	1.30	1.34	0	
pH	pH Units	20419	L3999-11	03/20/95	7.90	7.87	0	

TOTAL METALS RESULTS

Client Sample ID: BODX98	Date Collected: 03-03-95	Matrix: water
LAL Batch ID(s): 307 bhT	Date Received: 03-07-95	SAF 95-030

Constituents	Method	Concentration (mg/L)	IDL (mg/L)	RDL (mg/L)	Data Qualifier(s)	Date Analyzed	LAL ID
Aluminum	6010	<0.07	0.07	0.20	U	03-24-95	L3999-2
Antimony	6010	<0.05	0.05	0.060	U	03-24-95	L3999-2
Arsenic	6010	<0.05	0.05	0.20	U	03-24-95	L3999-2
Barium	6010	<0.03	0.03	0.20	U	03-24-95	L3999-2
Beryllium	6010	<0.001	0.001	0.005	U	03-24-95	L3999-2
Cadmium	6010	<0.004	0.004	0.005	U	03-24-95	L3999-2
Calcium	6010	88	0.05	5.0		03-24-95	L3999-2
Chromium	6010	<0.003	0.003	0.010	U	03-24-95	L3999-2
Cobalt	6010	<0.008	0.008	0.050	U	03-24-95	L3999-2
Copper	6010	<0.004	0.004	0.025	U	03-24-95	L3999-2
Iron	6010	0.13	0.010	0.10		03-24-95	L3999-2
Lead	6010	<0.09	0.09	0.10	U	03-24-95	L3999-2
Magnesium	6010	17	0.06	5.0		03-24-95	L3999-2
Manganese	6010	0.0061	0.002	0.015	B	03-24-95	L3999-2_
Nickel	6010	<0.012	0.012	0.040	U	03-24-95	L3999-2
Potassium	6010	7.5	0.68	5.0		03-24-95	L3999-2
Selenium	6010	<0.09	0.09	0.30	U	03-24-95	L3999-2
Silver	6010	<0.008	0.008	0.010	U	03-24-95	L3999-2
Sodium	6010	150	0.03	5.0		03-24-95	L3999-2
Thallium	6010	<0.049	0.049	0.50	U	03-24-95	L3999-2
Vanadium	6010	<0.012	0.012	0.050	U	03-24-95	L3999-2
Zinc	6010	0.014	0.011	0.020	B	03-24-95	L3999-2

Comments:

DISSOLVED METALS RESULTS

Client Sample ID: BODX99	Date Collected: 03-03-95	Matrix: filtered water
LAL Batch ID(s): 307 bhD	Date Received: 03-07-95	SAF 95-030

Constituents	Method	Concentration (mg/L)	IDL (mg/L)	RDL (mg/L)	Data Qualifier(s)	Date Analyzed	LAL ID
Aluminum	6010	<0.07	0.07	0.20	U	03-24-95	L3999-21
Antimony	6010	<0.05	0.05	0.060	U	03-24-95	L3999-21
Arsenic	6010	<0.05	0.05	0.20	U	03-24-95	L3999-21
Barium	6010	<0.03	0.03	0.20	U	03-24-95	L3999-21
Beryllium	6010	<0.001	0.001	0.005	U	03-24-95	L3999-21
Cadmium	6010	<0.004	0.004	0.005	U	03-24-95	L3999-21
Calcium	6010	84	0.05	5.0		03-24-95	L3999-21
Chromium	6010	<0.003	0.003	0.010	U	03-24-95	L3999-21
Cobalt	6010	<0.008	0.008	0.050	U	03-24-95	L3999-21
Copper	6010	<0.004	0.004	0.025	U	03-24-95	L3999-21
Iron	6010	<0.010	0.010	0.10	U	03-24-95	L3999-21
Lead	6010	<0.09	0.09	0.10	U	03-24-95	L3999-21
Magnesium	6010	16	0.06	5.0		03-24-95	L3999-21
Manganese	6010	<0.002	0.002	0.015	U	03-24-95	L3999-21
Nickel	6010	<0.012	0.012	0.040	U	03-24-95	L3999-21
Potassium	6010	6.8	0.68	5.0		03-24-95	L3999-21
Selenium	6010	<0.09	0.09	0.30	U	03-24-95	L3999-21
Silver	6010	<0.008	0.008	0.010	U	03-24-95	L3999-21
Sodium	6010	140	0.03	5.0		03-24-95	L3999-21
Thallium	6010	<0.049	0.049	0.50	U	03-24-95	L3999-21
Vanadium	6010	<0.012	0.012	0.050	U	03-24-95	L3999-21
Zinc	6010	<0.011	0.011	0.020	U	03-24-95	L3999-21

Comments:

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LOCKHEED ANALYTICAL SERVICES

OIL AND GREASE - GRAVIMETRIC METHOD
413.1 OIL AND GREASE

Client Sample ID:	B0DX98	LAL Sample ID:	L3999-4
Date Collected:	03-MAR-95	Date Received:	07-MAR-95
Date Analyzed:	28-MAR-95	Date Extracted:	28-MAR-95
Matrix:	Water	Analytical Batch ID:	032895-413.1
QC Group:	413.1 OIL AND GREASE_20890	Dilution Factor:	1

CONSTITUENT	RESULT mg/L	PRACTICAL QUANTITATION LIMIT mg/L	DATA QUALIFIER(s)
Total Oil and Grease	<5.00	5.00	

9613446.1826

LOCKHEED ANALYTICAL SERVICES

OIL AND GREASE - GRAVIMETRIC METHOD
413.1 OIL AND GREASE

Client Sample ID:	BODX98	LAL Sample ID:	20890MS
Date Collected:	03-MAR-95	Date Received:	24-MAR-95
Date Analyzed:	28-MAR-95	Date Extracted:	28-MAR-95
Matrix:	Water	Analytical Batch ID:	032895-413.1
QC Group:	413.1 OIL AND GREASE_20890	Dilution Factor:	1

CONSTITUENT	RESULT mg/L	PRACTICAL QUANTITATION LIMIT mg/L	DATA QUALIFIER(s)
Total Oil and Grease	191	5.00	

LOCKHEED ANALYTICAL SERVICES

OIL AND GREASE - GRAVIMETRIC METHOD
413.1 OIL AND GREASE

Client Sample ID:	BODX98	LAL Sample ID:	20890MSD
Date Collected:	03-MAR-95	Date Received:	24-MAR-95
Date Analyzed:	28-MAR-95	Date Extracted:	28-MAR-95
Matrix:	Water	Analytical Batch ID:	032895-413.1
QC Group:	413.1 OIL AND GREASE_20890	Dilution Factor:	1

CONSTITUENT	RESULT mg/L	PRACTICAL QUANTITATION LIMIT mg/L	DATA QUALIFIER(s)
Total Oil and Grease	186	5.00	

LOCKHEED ANALYTICAL SERVICES

MATRIX SPIKE DATA SUMMARY
OIL AND GREASE - GRAVIMETRIC METHOD
413.1 OIL AND GREASE

Client Sample ID:	BODX98	LAL Sample ID:	20890MS
Date Collected:	03-MAR-95	Date Received:	07-MAR-95
Date Analyzed:	28-MAR-95	Date Extracted:	28-MAR-95
Matrix:	Water	Analytical Batch ID:	032895-413.1
QC Group:	413.1 OIL AND GREASE_20890	Dilution Factor:	1

Constituent	Spike Added mg/L	Sample Concentration mg/L	Matrix Spike Concentration mg/L	% Recovery	QC Limits % Recovery
Total Oil and Grease	203	0.0100	191	94	70-120

LOCKHEED ANALYTICAL SERVICES

MATRIX SPIKE DUPLICATE DATA SUMMARY
OIL AND GREASE - GRAVIMETRIC METHOD
413.1 OIL AND GREASE

Client Sample ID:	BODX98	LAL Sample ID:	20890MSD
Date Collected:	03-MAR-95	Date Received:	07-MAR-95
Date Analyzed:	28-MAR-95	Date Extracted:	28-MAR-95
Matrix:	Water	Analytical Batch ID:	032895-413.1
QC Group:	413.1 OIL AND GREASE_20890	Dilution Factor:	1

Constituent	Spike Added mg/L	Matrix Spike Duplicate Concentration mg/L	% Recovery	RPD	QC Limits RPD	QC Limits % Recovery
Total Oil and Grease	203	186	91	3	20	70-120

HT = 03/31.
DUE 04/11

TRACKING SHEET DATA REPORT (bs10)

EXTRACTION SHEET FOR: 413.1 OIL AND GREASE Extraction

WORKSHEET NUMBER: 413.1 OIL AND GREASE_20890

LAL #	QC TYPE	CLIENT ID	DATE COLLECTED	DATE RECEIVED/ CREATED	VOL/WT EXTR	MS MLS	TARE WEIGHT	FINAL WEIGHT	RESULT	
					AG 3/28/95					
L3999-4		BODX98	03-MAR-95	07-MAR-95	1 lit		1.56769	1.56770 g	.01 mg	→ .01 mg/l
L4089-1		NP-TR2B-031695	16-MAR-95	18-MAR-95	9/0		1.56581 g	1.56649 g	~~.68 mg~~ 0.75	→ .75 mg/l
20890MB	MB	Method Blank		24-MAR-95	1 lit		1.56235 g	1.56231 g	Ø	DA 4/3/95 → Ø
20890LCS	LCS	Lab Ctrl Sample		24-MAR-95	1 lit	2.0	1.56681 g	1.75467 g	187.86 g	→ 187.86 mg/l
20890MS L3999-5	MS	BODX98		24-MAR-95	1 lit	2.0	1.56500 g	1.75606 g	191.06 mg	→ 191.06 mg/l
20890MSD L3999-6	MSD	BODX98		24-MAR-95	1 lit	2.0	1.56960 g	1.75555	185.95 mg	→ 185.95 mg/l
~~SPIKELOT20890~~	~~SPIKELOT~~	~~Spike Lot Sample~~		~~24-MAR-95~~						

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DATE STARTED: 3/28/95 DATE COMPLETED: 3/28/95 SIGNED: A.R. Ghadery

QC BATCH# : 413.1 OIL AND GREASE_20890 LOT #'S SPIKE WITNESS: DAVE WITKOWSKI

MS ID # : 0606-94-3 CONC: 1cl 74 mg/ml FREON: 33202 NA2SO4: N/A SIGNED:

NARRATIVE REVIEWED BY: [signature] 03-28-95

Page 1

$$MS\%R = \frac{191.06 - .01}{203.48} = 94\%$$ ✓

$$MSD\%R = \frac{185.95 - .01}{203.48} = 91\%$$ ✓

$$LCS\%R = \frac{187.86}{203.48} = 92\%$$ ✓

1D. Arch 4/3/95

080

LOCKHEED ANALYTICAL SERVICES

TOTAL PETROLEUM HYDROCARBONS BY FTIR
418.1 TPH

Client Sample ID:	BODX98	LAL Sample ID:	L3999-8
Date Collected:	03-MAR-95	Date Received:	07-MAR-95
Date Analyzed:	24-MAR-95	Date Extracted:	21-MAR-95
Matrix:	Water	Analytical Batch ID:	032495-418.1
QC Group:	418.1 TPH_20712	Dilution Factor:	1

CONSTITUENT	RESULT mg/L	PRACTICAL QUANTITATION LIMIT mg/L	DATA QUALIFIER(s)
TRPH	<1.00	1.00	

HT=03/31
DUE 04/11

TRACKING SHEET DATA REPORT (bs07)

EXTRACTION SHEET FOR: 418.1 TPH Extraction

WORKSHEET NUMBER: 418.1 TPH_20712

LAL #	QC TYPE	CLIENT ID	DATE COLLECTED	DATE RECEIVED/ CREATED	VOL/WT EXTR	MS MLS	BROUGHT TO FINAL VOLUME OF	AMT GIVEN TO ANALYST
				3-21-95				
L3999-8		BODX98	03-MAR-95	07-MAR-95	1000. ml		100. ml	75. ml
20712MB	MB	Method Blank		21-MAR-95				
20712LCS	LCS	Lab Ctrl Sample		21-MAR-95		.5		
20712LCSDUP	LCSD	Lab Ctrl Sample Dup		21-MAR-95				
~~SPIKELOT20712~~	~~SPIKELOT~~	~~Spike Lot Sample~~		~~21-MAR-95~~			UCB	03-21-95

9613446.1832

DATE STARTED: 3-21-95 DATE COMPLETED: 3-21-95 SIGNED: [signature]

QC BATCH# : 418.1 TPH_20712 LOT #'S SILICA ID#: 6551 SPIKE WITNESS: [signature]

MS ID # : 0107-53-2 CONC: 4200 mg/l FREON: 332UZ NA2SO4: 146100

NARRATIVE REVIEWED BY: [signature] 03-21-95

Insufficient sample volume was sent to perform MS/MSD. Therefore, LCS/LCSDUP were performed as per CSR. UCB 03-21-95

092

RAD DATA REPORT (ra01)

Bechtel Hanford, Inc. * Richland, WA

Bechtel Hanford Project (Project BECHTEL-HANFORD)

Client Sample ID: B0DX98 | LAL Sample ID: L3999-12

Date Collected: 03-MAR-95 | Date Received: 07-MAR-95

Matrix: Water | Login Number: L3999

SDG: LK3999

Constituent	Analyzed	Batch	Activity	Error	MDA	DataQual	Units
H-3	05-APR-95	TRITIUM(H3) LAL-0066_20661	990	300	280		pCi/L

094

RAD DATA REPORT (ra01)

Bechtel Hanford, Inc. * Richland, WA

Bechtel Hanford Project (Project BECHTEL-HANFORD)

Client Sample ID: B0DX98 | LAL Sample ID: L3999-13

Date Collected: 03-MAR-95 | Date Received: 07-MAR-95

Matrix: Water | Login Number: L3999

SDG: LK3999

Constituent	Analyzed	Batch	Activity	Error	MDA	DataQual	Units
Ac-228(Ra-228)	30-MAR-95	GAMMA SPEC LAL-0063_20330	8.	25.	36.		pCi/L
Co-58	30-MAR-95	GAMMA SPEC LAL-0063_20330	-7.2	5.4	11.		pCi/L
Co-60	30-MAR-95	GAMMA SPEC LAL-0063_20330	-4.1	3.1	13.		pCi/L
Cs-137	30-MAR-95	GAMMA SPEC LAL-0063_20330	-3.8	5.6	10.		pCi/L
Eu-152	30-MAR-95	GAMMA SPEC LAL-0063_20330	-6.	12.	57.		pCi/L
Eu-154	30-MAR-95	GAMMA SPEC LAL-0063_20330	-11.	10.	43.		pCi/L
Eu-155	30-MAR-95	GAMMA SPEC LAL-0063_20330	2.	14.	18.		pCi/L
Fe-59	30-MAR-95	GAMMA SPEC LAL-0063_20330	-9.6	7.7	29.		pCi/L
Pb-212	30-MAR-95	GAMMA SPEC LAL-0063_20330	3.	12.	16.		pCi/L
Pb-214(Ra-226)	30-MAR-95	GAMMA SPEC LAL-0063_20330	6.	12.	18.		pCi/L
Ra-226(GAMMA)	30-MAR-95	GAMMA SPEC LAL-0063_20330	-40	120	190		pCi/L
U-235(GAMMA)	30-MAR-95	GAMMA SPEC LAL-0063_20330	-32.	22.	39.		pCi/L
Gross Alpha	31-MAR-95	GR ALP/BETA LAL-0060_20589	4.2	3.9	5.7	C	pCi/L
Gross Beta	31-MAR-95	GR ALP/BETA LAL-0060_20589	10.3	4.2	6.2	C	pCi/L
Total radio-strontium	06-APR-95	SR-90 LAL-0196_20603	0.75	0.94	1.6		pCi/L

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RADIATION RESULTS CHECK REPORT

Workgroup Number: GR ALP/BETA LAL-0060_20589

Sample	Parameter	Value	Error	MDA
20589DUP1	Gross Alpha	7.28917	4.84383	6.25213
20589LCS1	Gross Alpha	36.6099	4.38969	1.2734
20589MBB1	Gross Alpha	-0.0221728	0.440799	0.963786
20589MS1	Gross Alpha	66.2706	12.0722	6.37814
L3999-13	Gross Alpha	4.18174	3.88047	5.72074
20589DUP1	Gross Beta	16.8351	4.60065	6.17274
20589LCS1	Gross Beta	44.7341	3.76502	2.04517
20589MBB1	Gross Beta	-0.573308	1.09054	2.00951
20589MS1	Gross Beta	107.164	9.58483	5.87126
L3999-13	Gross Beta	10.2621	4.18122	6.19089

Uploaded
Done

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WORK GROUP REPORT (wk02)

Apr 04 1995, 02:45 pm

Work Group: TRITIUM(H3) LAL-0066_20661 for Department: 12 Radiation Prep.

Created: 20-MAR-95 Due: 04-APR-95 Operator: d hogge

Sample	Account Name	ClientID	C	Product	Matrix	Stat	UA	Workdate	PR	Location
				Page 1						
20661DUP1	DUP	L3999-12	S	TRITIUM(H3) LAL-0066	Water	DONE	U	20-MAR-95		
20661LCS1	LCS	Lab Ctrl Sample	S	TRITIUM(H3) LAL-0066	Water	DONE	U	20-MAR-95		
20661MBB1	MB	Method Blank	S	TRITIUM(H3) LAL-0066	Water	DONE	U	20-MAR-95		
20661MS1	MS	L3999-12	S	TRITIUM(H3) LAL-0066	Water	DONE	U	20-MAR-95		
L3999-12	Bechtel Hanford, Inc.	BOOX98	S	TRITIUM(H3) LAL-0066	Water	DONE	U	06-APR-95	155	

Comments:

20661DUP1	L3999-12
20661LCS1	LCS
20661MBB1	MB
20661MS1	L3999-12
L3999-12	TEMP 4 "SAF # B95-030"