



Environmental Systems & Technologies

Lockheed Analytical Services
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Las Vegas, Nevada 89119-3705

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April 7, 1995

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

RE: Log-in No.:	L3969
Quotation No.:	Q400000-B
SAF:	B95-011
Document File No.:	0303596
WHC Document File No.:	185
SDG No.:	LK3969



The attached data report contains the analytical results of samples that were submitted to Lockheed Analytical Services on 3 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 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) 943-4423.



Lockheed Analytical Services

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Release of this data report has been authorized by the Laboratory Director or the Director's designee as evidenced by the following signature.

" I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manger or a designee, as verified by the following signature."

Sincerely,

Kathleen M. Hall
Client Services Representative

cc: Client Services
Document Control

Lockheed Analytical Services

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CASE NARRATIVE INORGANIC 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 3, 1995. The samples were logged in as L3969 and were prepared and analyzed in batch 303 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.

Sample Results

- TCLP results are not bias corrected for matrix spike recovery. A ten fold dilution was performed in sample preparation to reduce the dissolved solids analyzed.

Shellee McGrath
Prepared By

March 29, 1995
Date

Lockheed Analytical Services

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**CASE NARRATIVE
ORGANIC ANALYSES**

Analytical Method 8015M Total Petroleum Hydrocarbons (TPH)

Analytical Batch 030695-8015-D3

All associated samples were extracted within holding time on March 14, 1995 and analyzed within holding time on March 15, 1995. All initial and continuing calibrations were within QC criteria. Target compound Diesel Range Organics was not detected in the method blank (20363MB). The recovery of surrogate compound Di-n-octylphthalate was within QC criteria for all associated samples analyzed. The recoveries of Diesel Range Organics in the matrix spike (20363MS), matrix spike duplicate (20363MSD) and laboratory control sample (20363LCS) were within QC limits. The relative percent difference (RPD) between the MS and MSD recoveries was within QC limits. Diesel Range Organics was not detected in the associated client sample analyzed.

Lydia M. Coleman
Prepared By

April 7, 1995
Date

Lockheed Analytical Services
DATA QUALIFIERS FOR INORGANIC ANALYSES

[Revised 08/28/92]

For Use on the Analytical Data Reporting Forms	
B	<i>For CLP Analyses Only</i> – Reported value is less than the contract required detection limit (CRDL) but greater than or equal to the instrument detection limit (IDL).
C	<i>For Routine, Non-CLP Analyses Only</i> – Any constituent that was also detected in the associated blank whose concentration was greater than the reporting detection limit (RDL).
D	Presence of high levels of interfering constituents required dilution of sample which increased the RDL by the dilution factor.
E	Estimated value due to presence of interference.
H	Sample analysis performed outside of method-or client-specified maximum holding time requirement.
M	<i>For CLP Analyses Only</i> – Duplicate injection precision criterion was not met.
N	Matrix spike recovery exceeded acceptance limits.
S	Reported value was determined from the method of standard addition.
U	<i>For CLP Reporting Only</i> – Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
W	<i>For AAS Only</i> – Post-digestion spike for Furnace AAS did not meet acceptance criteria and sample absorbance is less than 50% of spike absorbance.
X, Y, or Z	Analyst-defined qualifier.
*	Relative percent difference (RPD) for duplicate analysis exceeded acceptance limits.
+	Correlation coefficient (r) for the MSA is less than 0.995.
For Use on the QC Data Reporting Forms	
a¹	The spike recovery and/or RPD for matrix spike and matrix spike duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b¹	The RPD cannot be computed because the sample and/or duplicate concentration was below the RDL.

¹ Used as footnote designations on the QC summary form.

DATA QUALIFIERS FOR ORGANIC ANALYSES

[Revised 01/19/1994]

For Use On The Analytical Data Reporting Forms	
A	<i>For CLP analyses Only</i> – 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. [<i>pesticide/PCB analyses only</i>]
D	Constituent detected in the diluted sample. It also indicates that an accurate quantitation is not possible due to <u>surrogates</u> 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	<i>Estimated value</i> -- (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 (<i>For CLP Reporting Only</i>).
N	<i>For CLP Reporting Only</i> – Tentatively identified constituents (TICs) identified based on mass spectral library search.
P	<i>For CLP Reporting Only</i> – The percent difference between the concentrations detected on both GC columns was greater than 25 percent [<i>pesticide/PCB analyses only</i>].
U	<i>For CLP Reporting Only</i> – 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. <i>For non-CLP work</i> , 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	<i>For Alpha Spectrometry Only</i> -- 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.
a¹	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.
b¹	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.

9613440.0204

LOGIN CHAIN OF CUSTODY REPORT (Ln01)
Mar 04 1995, 03:08 pm

Login Number: L3969
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
L3969-1 temp 4; SAF # 95-011 Location: RFG01-42 Water 1 S SCREENING	BODRL3	01-MAR-95	03-MAR-95	07-APR-95
		Hold:28-AUG-95		
L3969-2 temp 4; SAF # 95-011 Location: RFG01-07A Soil 4 S 1311 TCLP REG. EXTR. TCLP Extr 13 S 6010 ICP METALS TCLP Extr 13 S 7000 FURNACE METALS TCLP Extr 13 S 7470 MERCURY Soil 4 S PERCENT SOLIDS	BODRL3	01-MAR-95	03-MAR-95	07-APR-95
		Hold:15-MAR-95		
		Hold:28-AUG-95		
		Hold:28-AUG-95		
		Hold:29-MAR-95		
		Hold:15-MAR-95		
L3969-3 temp 4; SAF # 95-011 Location: RFG01-07A Soil 4 S 8015M - TPH	BODRL3	01-MAR-95	03-MAR-95	07-APR-95
		Hold:15-MAR-95		
L3969-4 temp 4; SAF # 95-011 Location: 157 Soil 4 S GAMMA SPEC LAL-0064 Soil 4 S GR ALP/BETA LAL-0061 Soil 4 S SR-90 LAL-0196 Soil 4 S TRITIUM(H3) LAL-0067	BODRL3	01-MAR-95	03-MAR-95	07-APR-95
		Hold:28-AUG-95		
L3969-5 temp 4; SAF # 95-011 Location: 157	BODRL3	01-MAR-95	03-MAR-95	07-APR-95
L3969-6 Location: Water 1 S EDD - DISK DEL. Water 1 S INORG TYPE 2 RPT Water 1 S RAD RPT TYPE 2	REPORT TYPE	03-MAR-95	03-MAR-95	07-APR-95

Page 1

Signature: Date:

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mmill

3-4-95

m303 sk

BECHTEL
Westinghouse Hanford
Company *3/1/95*

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1
Data Turnaround
 Priority
 Normal

Collector *3/1/95*
~~W. V. SETZER~~ *G. G. HAMILTON*
Project Designation
N SPRINGS ERA PUMP AND TREAT SAMPLING
Ice Chest No.
Home boy

Company Contact *3/1/95*
~~W. V. SETZER~~ *R. C. HAVENOR*
Sampling Location
199-N-104A
Field Logbook No.
EL-1234
Offsite Property No.
W95-0-0204-19

Telephone No. *3/1/95 (509)*
~~(509) 376-2413~~ *539 2136*
SAF No.
95-011
Method of Shipment
BY AIR
Bill of Lading/Air Bill No.
2904620765

L3969

Possible Sample Hazards/Remarks
NONE DETECTED BY FIELD INSTRUMENTS

Preservative	NONE	COOL 4	NONE	NONE	COOL 4
Type of Container	aG	aG	P	aG	P
No. of Container(s)	1	1	1	1	1

Special Handling and/or Storage
COOL TO 4 DEGREES CENTIGRADE

Volume	250ml	120ml	500ml	1000ml	20ml
TCLP METALS	TPH DIESEL RANGE	1 * SEE BELOW	1 * SEE BELOW	ACTIVIT SCAN	

SAMPLE ANALYSIS

Sample No.	Matrix*	Date Sampled	Time Sampled															
<i>BODRL3</i>	<i>S</i>	<i>3-1-95</i>	<i>0900</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>										
	<i>S</i>																	
	<i>S</i>																	
	<i>S</i>																	
	<i>S</i>																	
	<i>S</i>																	

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By <i>[Signature]</i>	Date/Time <i>3/1/95</i>	Received By <i>[Signature]</i>	Date/Time <i>3/1/95</i>
Relinquished By <i>K. Trapp</i>	Date/Time <i>3/2/95</i>	Received By <i>[Signature]</i>	Date/Time <i>3/2/95</i>
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS
*1- GROSS ALPHA, BETA (LAL-91SOP-0061) Sr-90 (LAL-91-SOP-0196) TRITIUM (LAL-91-SOP-0067) GAMMA SPEC TO INCLUDE- Co-60 (LAL-91-SOP-0064), Cs-137 (LAL-91-SOP-0063)

SUMMARY DELIVERABLE

- 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 <i>[Signature]</i>	Title <i>Sample Custodian</i>	Date/Time <i>3-3-95/0930</i>
FINAL SAMPLE DISPOSITION	Disposal Method <i>1</i>	Disposed By	Date/Time

0303596

9615440.0205

AMPLE STATUS REPORT FOR N 4619. RAD SCREEN BODRL2 TIME: 3/ 2/95 8:35
DISPATCHED: 1/27/95 10:42 SAMPLE HAS NOT BEEN SLURPED PAGE 1
RECEIVED: 3/ 2/95 7:56

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD CHARGE
****	*****	*****	RANGE? ANS? CODE
4271	TOT-ACT	5.00000E 01 pCi/G	*** ** *
			N Y XR5308

END OF REPORT

BODRL2

BODRL3

KT 3/2/95

BODRL4

0303596

Sample Login

Login Review Checklist

Lot Number L3969

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, as 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 omitted.

Sample Summary Report

Yes No

N/A

- | | | | | |
|----|---|----------|---|---|
| 1. | Are all sample IDs correct? | <u>X</u> | — | — |
| 2. | Are all samples present? | <u>X</u> | — | — |
| 3. | Are all matrices correct?
<small>(e.g., TCLP analyses should be on a TCLP leachate, field blanks should be water)</small> | <u>X</u> | — | — |
| 4. | Are all analyses on the chain of custody/login quotation included? | <u>X</u> | — | — |
| 5. | Are analyses logged in for the correct container?
<small>(e.g., analyses requiring preservation logged in for a preserved container and vice versa)</small> | <u>X</u> | — | — |
| 6. | Are samples logged in according to laboratory batching procedures?
<small>(e.g., TCLP regular leaching and associated metals/semivolatile organics should be logged in on the same bottle)</small> | <u>X</u> | — | — |

Login Chain of Custody Report

- | | | | | |
|----|--|----------|---|---|
| 1. | Are the Collect, Receive, and Due dates correct for every sample? | <u>X</u> | — | — |
| 2. | Have appropriate sample comments been included?
<small>(e.g., MS/MSD designation, comments from the client concerning method modifications)</small> | <u>X</u> | — | — |

Sample Receiving Checklist

- | | | | | |
|----|---|---|---|----------|
| 1. | Are any discrepancies between the chain of custody and the login noted?
<small>(e.g., client IDs different on chains of custody and bottle labels, samples not sent, samples lost from breakage)</small> | — | — | <u>4</u> |
|----|---|---|---|----------|

Murphy

3-4-95

Paul Jones

3-24-95

Primary review signature

Date

Secondary review signature

Date

Figure 1

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 3-3-95/0830 Client Name Westinghouse
 Project/Client # 95-011 Batch or Case # NA
 Cooler ID (if noted on outside of cooler) NA

1. Condition of shipping container? good
2. Custody Seals on cooler intact? Yes No
3. Custody Seals dated and signed? Yes No
4. Chain of Custody record is taped on inside of cooler lid? Yes No
5. Vermiculite/packing material is: Wet Dry _____
6. Each sample is in a plastic bag? Yes No _____
7. Number of sample containers in cooler: 5
8. Samples have: tape _____ hazard labels
 custody seals appropriate sample labels
9. Samples are: in good condition _____ leaking
 _____ broken _____ have air bubbles
 _____ other
10. Coolant Present? Yes No Sample Temperature 4°C
11. The following paperwork should be accounted for (N/A if not applicable):
 Chain of Custody #(s) NA
 Request for Analysis #(s) NA
 Airbill # 2904620765 Carrier FedEx
12. Have any anomalies been identified above? Yes No NA
13. Memos have been initiated for all anomalies identified above? Yes No NA

Printed Name/Signature Anthony Miller Date/Time 3-4-95/0830

**Lockheed Analytical Services
Sample Receiving Checklist**

Client Name: Westinghouse

Job No. L3969

Cooler ID:

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			<u>NA</u>
are samples bi-phasic (if so, indicate sample ID'S):			<u>NA</u>

MISCELLANEOUS ITEMS

	Yes	No	* Comments/Discrepancies
samples with short holding times		X	
samples to subcontract		X	

ADDITIONAL COMMENTS/DISCREPANCIES

Completed by / date: MM/ll 3-4-95

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*

9613440.0209

03035940

9613440.0210

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

Client Sample Number	LAL Sample Number	SDG Number	Matrix	Method
BODRL3 -	L3969-1		Water	SCREENING -
	L3969-2		Soil	1311 TCLP REG. EX-
	L3969-2		TCLP Extr	6010 ICP METALS -
	L3969-2		TCLP Extr	7000 FURNACE META
	L3969-2		TCLP Extr	7470 MERCURY -
	L3969-2		Soil	PERCENT SOLIDS -
	L3969-3		Soil	8015M - TPH -
	L3969-4		Soil	GAMMA SPEC LAL-00
	L3969-4		Soil	GR ALP/BETA LAL-0
	L3969-4		Soil	-SR-90 LAL-0196 -
L3969-4		Soil	-TRITIUM(H3) LAL-0	
REPORT TYPE -	L3969-6		Water	EDD - DISK DEL.
	L3969-6		Water	INORG TYPE 2 RPT
	L3969-6		Water	RAD RPT TYPE 2

9613440.0211

TCLP ANALYSIS (SW-846 1311)

SAMPLE RESULTS

Client Sample ID: BODRL3	LAL Sample ID: L3969-2
LAL Batch ID: 303 bh	Matrix: soil (TCLP Extract)
TCLP Extraction Fluid Type: 1	Date Extracted: 03-20-95
Percent Solids (TCLP): 100	SAF 95-011

Constituent	Method of Analysis	Regulatory Limit (mg/L)	IDL (mg/L)	RDL (mg/L)	Result (mg/L)	Data Qualifier	Date Analyzed
Arsenic	6010	5.0	0.5	2.0	<0.5	U	03-24-95
Barium	6010	100	0.3	10	1.9	B	03-24-95
Cadmium	6010	1.0	0.04	0.1	<0.04	U	03-24-95
Chromium	6010	5.0	0.03	0.5	<0.03	U	03-24-95
Lead	6010	5.0	0.9	1.0	<0.9	U	03-24-95
Mercury	7471	0.2	0.002	0.02	<0.002	U	03-22-95
Selenium	7740	1.0	0.03	0.1	<0.03	U	03-22-95
Silver	6010	5.0	0.08	0.5	<0.08	U	03-24-95

Comments:

9613440.0212

LOCKHEED ANALYTICAL SERVICESTOTAL PETROLEUM HYDROCARBONS (TPH)
8015M - TPH'

Client Sample ID:	BODRL3	LAL Sample ID:	L3969-3
Date Collected:	01-MAR-95	Date Received:	03-MAR-95
Date Analyzed:	15-MAR-95	Analytical Batch ID:	030695-8015-D-3
Date Extracted:	14-MAR-95	Analytical Dilution:	1
Matrix:	Soil	Preparation Dilution:	1.0
Percent Moisture:	N/A	QC Group:	8015M - TPH_20363

SURROGATE RECOVERY (%)		
		QC Limits
DI-N-OCTYLPHTHALATE	84	55-140

CONSTITUENT	CAS NO.	RESULT mg/kg	PRACTICAL QUANTITATION LIMIT mg/kg	DATA QUALIFIER(s)
Diesel Range Organics		<30.	30.	

9613440.0213

LOCKHEED ANALYTICAL SERVICES

SPIKED SAMPLE RESULT
 TOTAL PETROLEUM HYDROCARBONS (TPH)
 8015M - TPH

Client Sample ID:	BODRL3	LAL Sample ID:	20363MS
Date Collected:	01-MAR-95	Date Received:	03-MAR-95
Date Analyzed:	15-MAR-95	Analytical Batch ID:	030695-8015-D-3
Date Extracted:	14-MAR-95	Analytical Dilution:	1
Matrix:	Soil	Preparation Dilution:	0.99
Percent Moisture:	N/A	QC Group:	8015M - TPH_20363

SURROGATE RECOVERY (%)		
		QC Limits
DI-N-OCTYLPHTHALATE	105	55-140

CONSTITUENT	CAS NO.	RESULT mg/kg	PRACTICAL QUANTITATION LIMIT mg/kg	DATA QUALIFIER(s)
Diesel Range Organics		490	30.	

9613440.0214

LOCKHEED ANALYTICAL SERVICES

SPIKED SAMPLE RESULT
 TOTAL PETROLEUM HYDROCARBONS (TPH)
 8015M - TPH

Client Sample ID:	BODRL3	LAL Sample ID:	20363MSD
Date Collected:	01-MAR-95	Date Received:	03-MAR-95
Date Analyzed:	15-MAR-95	Analytical Batch ID:	030695-8015-D-3
Date Extracted:	14-MAR-95	Analytical Dilution:	1
Matrix:	Soil	Preparation Dilution:	0.98
Percent Moisture:	N/A	QC Group:	8015M - TPH_20363

SURROGATE RECOVERY (%)		
		QC Limits
DI-N-OCTYLPHTHALATE	95	55-140

CONSTITUENT	CAS NO.	RESULT mg/kg	PRACTICAL QUANTITATION LIMIT mg/kg	DATA QUALIFIER(S)
Diesel Range Organics		470	29.	

9613440.0215

LOCKHEED ANALYTICAL SERVICES

MATRIX SPIKE DATA SUMMARY
 TOTAL PETROLEUM HYDROCARBONS (TPH)
 8015M - TPH

Client Sample ID:	BODRL3	LAL Sample ID:	20363MS
Date Collected:	01-MAR-95	Date Received:	03-MAR-95
Date Analyzed:	15-MAR-95	Analytical Batch ID:	030695-8015-D-3
Date Extracted:	14-MAR-95	Analytical Dilution:	1
Matrix:	Soil	Preparation Dilution:	0.99
Percent Moisture:	N/A	QC Group:	8015M - TPH_20363

SURROGATE RECOVERY (%)		
		QC Limits
DI-N-OCTYLPHTHALATE	105	55-140

Constituent	Spike Added mg/kg	Sample Concentration mg/kg	MS Concentration mg/kg	% Recovery	QC Limits
					% Recovery
Diesel Range Organics	494	0.000	494	100	30-138

9613440.0216

LOCKHEED ANALYTICAL SERVICES

MATRIX SPIKE DUPLICATE DATA SUMMARY
 TOTAL PETROLEUM HYDROCARBONS (TPH)
 8015M - TPH

Client Sample ID:	BODRL3	LAL Sample ID:	20363MSD
Date Collected:	01-MAR-95	Date Received:	03-MAR-95
Date Analyzed:	15-MAR-95	Analytical Batch ID:	030695-8015-D-3
Date Extracted:	14-MAR-95	Analytical Dilution:	1
Matrix:	Soil	Preparation Dilution:	0.98
Percent Moisture:	N/A	QC Group:	8015M - TPH_20363

SURROGATE RECOVERY (%)	
	QC Limits
DI-N-OCTYLPHTHALATE	95 55-140

Constituent	Spike Added mg/kg	MSD Concentration mg/kg	% Recovery	RPD	QC Limits	
					RPD	% Recovery
Diesel Range Organics	489	472	97	4	30	30-138

RAD DATA REPORT (ra01)

Bechtel Hanford, Inc. * Richland, WA

Bechtel Hanford Project (Project BECHTEL-HANFORD)

Client Sample ID: BODRL3

LAL Sample ID: L3969-4

Date Collected: 01-MAR-95

Date Received: 03-MAR-95

Matrix: Soil

Login Number: L3969

SDG: LK3969

Constituent	Analyzed	Batch	Activity	Error	MDA	DataQual	Units
Ac-228(Ra-228)	25-MAR-95	GAMMA SPEC LAL-0064_20336	0.62	0.12	0.14		pCi/g
Co-58	25-MAR-95	GAMMA SPEC LAL-0064_20336	-0.015	0.015	0.038		pCi/g
Co-60	25-MAR-95	GAMMA SPEC LAL-0064_20336	0.137	0.027	0.037		pCi/g
Cs-137	25-MAR-95	GAMMA SPEC LAL-0064_20336	-0.009	0.018	0.032		pCi/g
Eu-152	25-MAR-95	GAMMA SPEC LAL-0064_20336	-0.028	0.028	0.14		pCi/g
Eu-154	25-MAR-95	GAMMA SPEC LAL-0064_20336	-0.005	0.042	0.13		pCi/g
Eu-155	25-MAR-95	GAMMA SPEC LAL-0064_20336	0.025	0.067	0.087		pCi/g
Fe-59	25-MAR-95	GAMMA SPEC LAL-0064_20336	0.037	0.039	0.078		pCi/g
Pb-212	25-MAR-95	GAMMA SPEC LAL-0064_20336	0.604	0.086	0.060		pCi/g
Pb-214(Ra-226)	25-MAR-95	GAMMA SPEC LAL-0064_20336	0.415	0.064	0.060		pCi/g
Ra-226(GAMMA)	25-MAR-95	GAMMA SPEC LAL-0064_20336	-0.08	0.47	0.64		pCi/g
U-235(GAMMA)	25-MAR-95	GAMMA SPEC LAL-0064_20336	-0.05	0.13	0.18		pCi/g
Gross Alpha	03-APR-95	GR ALP/BETA LAL-0061_20595	4.7	4.2	6.2	C	pCi/g
Gross Beta	03-APR-95	GR ALP/BETA LAL-0061_20595	21.4	4.4	5.4		pCi/g
Total radio-strontium	27-MAR-95	SR-90 LAL-0196_20604	0.25	0.20	0.33		pCi/g
H-3	04-APR-95	TRITIUM(H3) LAL-0067_20663	0.3	3.2	4.1		pCi/g

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LOCKHEED ANALYTICAL SERVICES

RADIOCHEMISTRY ANALYTES

QC Data Summary For Duplicate Sample Analysis

SDG: LK3969

Analyte	Batch ID	Client ID	LAL ID	Date Analyzed	Sample Result	Error 2 Sigma	Duplicate Result	Error 2 Sigma	RER	RPD	Q
Cs-137	20336	BODRL3	L3969-4	03/25/95	-0.00921	0.0178	0.00596	0.0321	0.4	934	
Gross Alpha	20595	BODRL3	L3969-4	04/03/95	4.75	4.2	6.59	4.36	0.216	32.5	
Gross Beta	20595	BODRL3	L3969-4	04/03/95	21.4	4.42	23.3	4.68	0.2	8.5	
Total radio	20604	BODRL3	L3969-4	03/27/95	0.25	0.203	0.637	0.233	0.888	87.3	
H-3	20663	BODRL3	L3969-4	04/04/95	0.336	3.19	0.883	4.02	0.076	89.7	

Uploaded
Done

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WORK GROUP REPORT (wk02)

Mar 18 1995, 04:20 pm

Work Group: SR-90 LAL-0196_20604 for Department: 12 Radiation Prep.

Created: 18-MAR-95 Due: 01-APR-95 Operator: a wong

Sample	Account Name	Client ID	C Product	Matrix	Stat	UA	Workdate	PR	Location
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20604DUP1	DUP	L3969-4	S SR-90 LAL-0196	Soil	WIP	U	18-MAR-95		
20604LCS1	LCS	Lab Ctrl Sample	S SR-90 LAL-0196	Soil	WIP	U	18-MAR-95		
20604HBB1	MB	Method Blank	S SR-90 LAL-0196	Soil	WIP	U	18-MAR-95		
L3969-4	Bechtel Hanford, Inc.	BODRL3	S SR-90 LAL-0196	Soil	WIP	U	02-APR-95		142

Comments:

20604DUP1	L3969-4
20604LCS1	LCS
20604HBB1	MB
L3969-4	temp 4; SAF # 95-011

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PJW*

WORK GROUP REPORT (wk02)

Apr 03 1995, 08:29 am

Work Group: TRITIUM(H3) LAL-0067_20663 for Department: 12 Radiation Prep.

Created: 20-MAR-95 Due: 02-APR-95 Operator: d hogge

Sample Account Name ClientID C Product Matrix Stat UA Workdate PR Location

Sample	Account Name	ClientID	C Product	Matrix	Stat UA	Workdate	PR Location
20663DUP1	DUP	L3969-4	S TRITIUM(H3) LAL-0067	Soil	DONE U	20-MAR-95	
20663LCS1	LCS	Lab Ctrl Sample	S TRITIUM(H3) LAL-0067	Soil	DONE U	20-MAR-95	
20663HBB1	MB	Method Blank	S TRITIUM(H3) LAL-0067	Soil	DONE U	20-MAR-95	
20663MS1	MS	L3969-4	S TRITIUM(H3) LAL-0067	Soil	DONE U	20-MAR-95	
L3969-4	Bechtel Hanford, Inc.	BOORL3	S TRITIUM(H3) LAL-0067	Soil	DONE U	02-APR-95	155

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Comments:

20663DUP1 L3969-4
 20663LCS1 LCS
 20663HBB1 MB
 20663MS1 L3969-4
 L3969-4 temp 4; SAF # 95-011

20/9

9613440.0221
RADIATION RESULTS CHECK REPORT

Workgroup Number: TRITIUM(H3) LAL-0067_20663

Sample	Parameter	Value	Error	MDA
20663DUP1	H-3	0.88304	4.01872	5.19025
20663LCS1	H-3	33.4281	5.90493	4.15974
20663HBB1	H-3	-0.0285895	3.19396	4.31304
20663MS1	H-3	58.1538	7.92613	4.66574
L3969-4	H-3	0.336344	3.1866	4.11416