

START

9613445.2901

0044355

LK4772

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 26, 1995

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



RE: Log-in No.:
Quotation No.:
SAF:
Document File No.:
BHI Document File No.:
SDG No.:

L4772
Q400000-B
B95-074
0617596
234
LK4772



The attached data report contains the analytical results of samples that were submitted to Lockheed Analytical Services on 17 June 1995.

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 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.

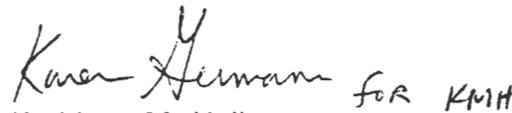
Lockheed Analytical Services

Log-in No.: L4772
Quotation No.: Q400000-B
SAF: B95-074
Document File No.: 0617596
BHI Document File No.:234
SDG No.: LK4772
Page1

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 hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Sincerely,


Kathleen M. Hall
Client Services Representative

cc: Client Services
Document Control

Lockheed Analytical Services

Log-in No.: L4772
 Quotation No.: Q400000-B
 SAF: B95-074
 Document File No.: 0617596
 BHI Document File No.:234
 SDG No.: LK4772
 Page2

**CASE NARRATIVE
 INORGANIC NON-METALS ANALYSES
 WATER**

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 sample(s), and duplicate sample(s).

Preparation and Analysis Requirements

- Two water samples were received for LK4772 and analyzed in batch 617 bh for selected analytes as requested on the chain of custody. Quality control analysis was performed on the following sample:

Client ID	LAL #		Method
BOG3T8	L4772-3	DUP	160.2 Total Suspended Solids

Holding Time Requirements

- All samples were analyzed within the 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

June 20, 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.

9613445.2905

LOCKHEED ANALYTICAL SERVICES
 LOGIN CHAIN OF CUSTODY REPORT (ln01)
 Jun 19 1995, 03:23 pm

Login Number: L4772
 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
L4772-1 temp 2; SAF# B95-074 Location: RFG01-43 Water 1 S SCREENING	BOG3T8	15-JUN-95	17-JUN-95	02-JUL-95
		Hold:12-DEC-95		
L4772-2 temp 2; SAF# B95-074 Location: RFG01-43 Water 1 S SCREENING	BOG3T9	16-JUN-95	17-JUN-95	02-JUL-95
		Hold:13-DEC-95		
L4772-3 temp 2; SAF# B95-074 Location: RFG01-07A Water 1 S 160.2 TSS	BOG3T8	15-JUN-95	17-JUN-95	02-JUL-95
		Hold:22-JUN-95		
L4772-4 temp 2; SAF# B95-074 Location: RFG01-07A Water 1 S 160.2 TSS	BOG3T9	16-JUN-95	17-JUN-95	02-JUL-95
		Hold:23-JUN-95		
L4772-5 temp 2; SAF# B95-074 Location: RFG01-07A Water 1 S NONE	BOG3T8	15-JUN-95	17-JUN-95	02-JUL-95
		Hold:25-JUN-95		
L4772-6 temp 2; SAF# B95-074 Location: RFG01-07A Water 1 S NONE	BOG3T8	15-JUN-95	17-JUN-95	02-JUL-95
		Hold:25-JUN-95		
L4772-7 temp 2; SAF# B95-074 Location: RFG01-07A Water 1 S NONE	BOG3T9	16-JUN-95	17-JUN-95	02-JUL-95
		Hold:26-JUN-95		
L4772-8 temp 2; SAF# B95-074 Location: RFG01-07A Water 1 S NONE	BOG3T9	16-JUN-95	17-JUN-95	02-JUL-95
		Hold:26-JUN-95		
L4772-9 SAF# B95-074 Location: Water 1 S EDD - DISK DEL.	REPORT TYPE	19-JUN-95	17-JUN-95	02-JUL-95

9613445.2906

LOCKHEED ANALYTICAL SERVICES
LOGIN CHAIN OF CUSTODY REPORT (ln01)
Jun 19 1995, 03:23 pm

Login Number: L4772
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
-----------------------------	-------------------------	-----------------	-----------------	----------------

Water	1	S INORG TYPE 2	RPT	
-------	---	----------------	-----	--

Page 2

Signature: Annelle

Date: 6-19-95

008

0617596

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

L4722

Collector Doug Bowers	Company Contact J. R. Freeman-Pollard	Telephone No. 372-9347	<input checked="" type="checkbox"/> Priority <input type="checkbox"/> Normal
Project Designation 200 ZP-1 Particle size distribution	Sampling Location 200 West	SAF No. B95-0 74	
Ice Chest No. Bill	Field Logbook No. EFL 1133	Method of Shipment Air Freight	
Shipped To Lockheed	Offsite Property No. W95-0-0204-35	Bill of Lading/Air Bill No. 2904631563	

Possible Sample Hazards/Remarks unknown	Preservative	cool 4C	cool 4C	cool 4C	cool 4C	cool 4C												
	Type of Container	P/G	P/G	P/G	P/G	P/G												
No. of Container(s)	1	1	1	1	1													
Special Handling and/or Storage Cool to 4C	Volume	1L	500 mL	500 mL	20 mL	20 mL												
SAMPLE ANALYSIS		Particle size distribution	Particle size distribution	total suspended solids	Activity Scan	Total Activity												

Sample No.	Matrix*	Date Sampled	Time Sampled															
BOG 3T8 JJB 6-16-95	W	6-15-95	0933	X	X	X	X											
BOG 3T8	W	6-15-95	0933	X	X	X	X											

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix*	
Relinquished By Doug Bowers	Date/Time 6-15-95/0944	Received By Eric	Date/Time 0944					S	= Soil
Relinquished By Eric	Date/Time 0900	Received By Vic	Date/Time 6-15-95					SE	= Sediment
Relinquished By Vic	Date/Time 6/16/95	Received By	Date/Time					SO	= Solid
Relinquished By Vic	Date/Time	Received By	Date/Time					SL	= Sludge
Relinquished By Vic	Date/Time	Received By	Date/Time	W	= Water	DS	= Drum Solids	DL	= Drum Liquids
Relinquished By Vic	Date/Time	Received By	Date/Time	O	= Oil	T	= Tissue	WI	= Wipe
Relinquished By Vic	Date/Time	Received By	Date/Time	A	= Air	L	= Liquid	V	= Vegetation
LABORATORY SECTION	Received By A Smith	Title Sample Custodian	Date/Time 6-17-95/0900	X	= Other				
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time						

0617596

9615445.2907

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround

Priority
 Normal

Collector Doug Bowers	Company Contact J.R. Freeman - Pollard	Telephone No. 372-9347
Project Designation 200 ZP-1 Particle size distribution	Sampling Location 200 West	SAF No. B95-074
Ice Chest No. Bill	Field Logbook No. EFL1133	Method of Shipment Air Freight
Shipped To Lockheed	Offsite Property No. W95-0-02091-35	Bill of Lading/Air Bill No. 2904631563

Possible Sample Hazards/Remarks unknown	Preservative	cool 4C	cool 4C	cool 4C	cool 4C	cool 4C												
	Type of Container	P/G	P/G	P/G	P/G	P/G												
Special Handling and/or Storage Cool to 4C	No. of Container(s)	1	1	1	1	1												
	Volume	1L	500 ml	500 ml	20 ml	20 ml												
SAMPLE ANALYSIS	Particle size distribution	Particle size distribution	total suspended solids	Activ-ity Scan	Total Activ-ity													

9613445, 2908

Sample No.	Matrix*	Date Sampled	Time Sampled															
BOG3T9	W	6-16-95	0916	X	X	X	X											
BOG3T9	W	6-16-95	0916	X	X	X	X											

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS										Matrix*	
Relinquished By	Date/Time	Received By	Date/Time											S	= Soil
Doug Bowers	6-16-95/1002	Eric	1002											SE	= Sediment
Relinquished By	Date/Time	Received By	Date/Time											SO	= Solid
Eric	1030	Bill Whitten	6-16-95											SL	= Sludge
Relinquished By	Date/Time	Received By	Date/Time	W	= Water										
Bill Whitten	6-16-95			O	= Oil										
Relinquished By	Date/Time	Received By	Date/Time	A	= Air										
				DS	= Drum Solids										
Relinquished By	Date/Time	Received By	Date/Time	DL	= Drum Liquids										
				T	= Tissue										
Relinquished By	Date/Time	Received By	Date/Time	WI	= Wipe										
				L	= Liquid										
Relinquished By	Date/Time	Received By	Date/Time	V	= Vegetation										
				X	= Other										

LABORATORY SECTION	Received By	Title	Date/Time
	W. Smith	Sample Custodian	6-17-95/0910
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

9613445.2909
[43] From: Michael A Wesselman at -BHI004 6/14/95 5:12PM (1240 bytes: 1 ln)
To: Douglas L Bowers at -WHC279, David A St John at -WHC279, Wendy S Thompson
-WHC279, Terry L Lafreniere at -WHC80
Subject: NEW ZP-1 WELLS

----- Message Contents -----

No total activity analysis is required on wells 299-W15-29, W15-30, or W15-31A. Though these wells were just completed, total activities were performed on the slurries generated while drilling and no contamination was discovered. Nearby wells indicate that there is no significant amount of radioactivity in the area's groundwater. These two indicators provide sufficient process knowledge to exempt these wells from total activity analysis.

Well number 299-W15-16 can also be exempted from total activity analysis since both gross alpha and gross beta levels are below 10 picocuries per liter and tritium levels are below 4% of a derived concentration guide.

If there are any questions please call me at 372-9079.

011

0617596

ERC Team

Environmental
Restoration
Contractor

Job No. 22192
Written Response Request: NO
CCN: N/A
OU: 200-ZP-1
TSD: N/A
ERA: N/A
Subject Code: SESO, 8640

Interoffice Memorandum

TO: WS Thompson N3-05

DATE: March 28, 1995

COPIES: See Below

FROM: MA Wesselman
Radiological Controls/200 Areas
N3-06/ 376-2084

SUBJECT: 200-ZP-1 EXEMPTION FROM TOTAL ACTIVITIES AND RCT COVERAGE.

There is no need to perform total activities prior to offsite shipment to NRC licensed labs of samples taken from the attached list of wells.

After reviewing GEODAT data dating from 1953 to the present it is evident that none of the wells have ever had contaminants above the fifty picocuries per gram detection limit of a 222-S total activity analysis. The highest gross beta occurred in a 9/24/66 sample from well# 699-51-63, the value was 15 picocuries per milliliter/gram gross beta. Since 1992 the highest recorded value is .076 picocuries per milliliter for beta activity 299-W11-30. All processes which release radioactive materials to the soil column in 200 West have been greatly reduced or stopped. Wells which are closer to potentially leaking waste tanks are also below the detection limit. This information coupled with the total activities performed on these wells over the past three years provides sufficient process knowledge to conclude that activity levels in the water are not likely to increase above the detection limit of a total activity analysis in any given sample interval.

The radioactive screening data from the previous sampling round should always be checked to confirm levels have not increased over time. If the levels should double in any sample interval preshipment screening of samples from the affected wells should be resumed. If any of these the wells should not be sampled for radioactive contaminants in the next three years and there are no wells nearby which will provide representative data (ie. closer to the Tank Farms or known plumes), a preshipment screen should also be performed.

Radiological monitoring during sampling will only be required if the wells are located in contamination or radiation areas or if the wells themselves are labeled with radiological stickers. Monitoring requirements for down hole work such as pump removal will be determined based on the history of each well on a case by case basis.


Michael Wesselman

9613445.2911

L4772

WHC/BHI SAMPLE CHECK-IN LIST

Date/Time Received: 6-17-95/0900 SDG #: NA

Work Order Number: NA SAF #: B95-074

Shipping Container ID: B-11 Chain of Custody # NA

1. Custody Seals on shipping container intact? Yes No

2. Custody Seals dated and signed? Yes No

3. Chain-of-Custody record present? Yes No

4. Cooler temperature 2°C

5. Vermiculite/packing materials is Wet Dry

6. Number of samples in shipping container: 7

7. Sample holding times exceeded: Yes No

8. Samples have: X tape X hazard labels
X custody seals X appropriate sample labels

9. Samples are: X in good condition leaking
 broken have air bubbles

10. Were any anomalies identified in sample receipt? Yes No

11. Description of anomalies (include sample numbers):

Sample Custodian: Miller On: 6-19-95

Telephoned To: Karl Hall On 6-19-95 BY Anthony Miller

0617596



**Sample Login
Login Review Checklist**

Lot Number L4772

The login review should be conducted by that person logging in the samples as well as a peer. Please use this checklist to ensure that such reviews occur in a uniform basis. Please sign and date below to verify that a login review has occurred. This checklist should be affixed to each login package prior to distribution.

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

SAMPLE SUMMARY REPORT

	<u>YES</u>	<u>NO</u>	<u>N/A</u>	<u>Comment</u>
1. Are all sample ID's correct?	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

	<u>YES</u>	<u>NO</u>	<u>N/A</u>	<u>Comment</u>
1. Are the collect, receive, and due dates correct for every sample?	X	—	—	_____
2. Have all appropriate comments been indicated in the comment section?	—	—	X	_____

SAMPLE RECEIVING CHECKLIST

	<u>YES</u>	<u>NO</u>	<u>N/A</u>	<u>Comment</u>
1. Are all discrepancies between the COC and the login noted (if applicable)?	—	—	X	_____

[Signature]
primary review signature

6-19-95
date

[Signature]
secondary review signature

6-19-95
date

**Lockheed Analytical Services
Sample Receiving Checklist**

Client Name: *Bachsch. Howard*

Job No: *L4772*

Cooler ID:

COOLER CONDITION UPON RECEIPT

Temperature of cooler upon receipt: *2°C*

temperature of temp. blank upon receipt:

	Yes	No	* Comments/Discrepancies
custody seals intact	<input checked="" type="checkbox"/>		
chain of custody present	<input checked="" type="checkbox"/>		
blue ice (or equiv.) present/frozen	<input checked="" type="checkbox"/>		
rad survey completed	<input checked="" type="checkbox"/>		

SAMPLE CONDITION UPON RECEIPT

	Yes	No	* Comments/Discrepancies
all bottles labeled	<input checked="" type="checkbox"/>		
samples intact	<input checked="" type="checkbox"/>		
proper container used for sample type	<input checked="" type="checkbox"/>		
sample volume sufficient for analysis	<input checked="" type="checkbox"/>		
proper pres. indicated on the COC	<input checked="" type="checkbox"/>		
VOA's contain headspace			<i>N/A</i>
are samples bi-phasic (if so, indicate sample ID'S):			<i>N/A</i>

MISCELLANEOUS ITEMS

	Yes	No	* Comments/Discrepancies
samples with short holding times		<input checked="" type="checkbox"/>	
samples to subcontract		<input checked="" type="checkbox"/>	

ADDITIONAL COMMENTS/DISCREPANCIES

Samples requesting particle size distribution are going to be subcontracted.

Completed by / date: *Admiller 6-19-95*

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

9613445.2913

0617546

015

9613445.2914

LOCKHEED ANALYTICAL SERVICES

COMMON IONS AND ADDITIONAL ANALYTES

Sample Results

Client Sample ID: B0G3T8	Date Collected: 15-JUN-95
Matrix: Water	Date Received: 17-JUN-95

Constituent	Units	Method	Result	Reporting Det Limit	Data Qualifier(s)	Date Analyzed	LAS Batch ID	LAS Sample ID
Non Filterable Residue	mg/L	160.2	340	12		20-JUN-95	24453	L4772-3

9613445.2915

LOCKHEED ANALYTICAL SERVICES

COMMON IONS AND ADDITIONAL ANALYTES

Sample Results

Client Sample ID: B0G3T9	Date Collected: 16-JUN-95
Matrix: Water	Date Received: 17-JUN-95

Constituent	Units	Method	Result	Reporting Det Limit	Data Qualifier(s)	Date Analyzed	LAS Batch ID	LAS Sample ID
Non Filterable Residue	mg/L	160.2	< 12	12		20-JUN-95	24453	L4772-4

9613445.2916

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

Client Sample Number	LAL Sample Number	SDG Number	Matrix	Method
BOG3T8 -	L4772-1		Water	SCREENING -
	L4772-3		Water	160.2 TSS -
	L4772-5		Water	NONE -
	L4772-6		Water	NONE -
BOG3T9 -	L4772-2		Water	SCREENING -
	L4772-4		Water	160.2 TSS -
	L4772-7		Water	NONE -
	L4772-8		Water	NONE -
REPORT TYPE -	L4772-9		Water	EDD - DISK DEL. -
	L4772-9		Water	INORG TYPE 2 RPT

0617596

Lockheed Analytical Laboratory
 SDG: BOG3T8
 SWRI Work Order Number: 7156
 June 28, 1995
 Page 1

SwRI Case Narrative
Lockheed Analytical Laboratory SDG BOG3T8

1. Two (2) Water Samples for Particle Size Analysis:

SwRI ID	Customer ID	SwRI ID	Customer ID
55446	BOG3T8	55447	BOG3T9

2. Samples were received at SwRI on June 21, 1995 for a ten (10) day turnaround time from Validated Time of Sample Receipt (VTSR).
3. Statement of work requests 10 day turnaround, chain-of-custody requests 7 days. Client notified. (See Log-in Non-conformance 06/21/95)
4. Electronic diskette enclosed. Diskette has been scanned and found free of viruses.

PARTICLE SIZE ANALYSIS

1. Samples were analyzed by ASTM Method D422 Standard Test Method for Particle-Size Analysis of Soils.
2. There are no holding time specifications for this method.
3. There are no QC criteria established for this method.
4. The samples were analyzed and met required criteria as per method.

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions 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."

Jo Ann Boyd 6/28/95

 Jo Ann Boyd, Date
 Group Leader
 Quality Assurance Unit,
 Division 01

Sample Check-In List (1 Per Shipping Container)

Date/Time Received 6-21-95 / 09:20
Project/Client # Lockheed Env. Sys. + Tech
01-6301-001

Client Name Lockheed Env. Sys.
Batch or Case B063T8

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

1. Condition of shipping container? INTACT

2. Custody Seals on cooler intact? Yes [] No []

3. Custody Seals dated and signed? Yes [] No [] N/A ON SAMPLE CONT.

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: 4

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 6°C #2

11. The following paperwork should be accounted for (N/A if not applicable):

Chain of Custody #(s) Request for Analysis #(s)

Airbill # 2896451176 Carrier Fed Ex

12. Have any anomalies been identified above? Yes [] No []

13. Memos have been initiated for all anomalies identified above? Yes []

Printed Name/Signature Robert Preslar R. Preslar Date/Time 6/21/95 09:20

(Continued...)

Southwest Research Institute
Grain Size Report

SwRI Sample ID: 55447
Work Order #: 7156
Project: 01-6301-001

Customer: LOCKHEED ENV. SYS. & TEST
Client Sample ID: BOG3T9
Sample Matrix: WATER
Date: LESAT/WESTHO
SDG: BOG3T8

Sieve of +10

Total Sample Wt: 1002.4

Sieve	Wt. Retained	% Retained	% Pass
3"	0	0.0	100.0
2"	0	0.0	100.0
1 1/2"	0	0.0	100.0
1"	0	0.0	100.0
3/4"	0	0.0	100.0
3/8"	0	0.0	100.0
#4	0	0.0	100.0
#10	0	0.0	100.0

Date Analyzed: 06/26/95

Sieve of -20/+200

Weight of Materials used in Hydrometer: 1002.4

Sieve	Wt. Retained each Sieve	Yield	Wt. Retained	% Retained	% Pass
#20	0	0.00	0.00	0.0	100.0
#40	0	0.00	0.00	0.0	100.0
#60	0	0.00	0.00	0.0	100.0
#100	0	0.00	0.00	0.0	100.0
#200	0	0.00	0.00	0.0	100.0

Date Analyzed: 06/26/95

Specific Gravity: 1.00

Hydrometer ID: 152H-001A

Temp.	Reading Time	Hydro. Reading	Hydro. Corr.	Corrected Hydro Reading	L	Diam (mm)	% Finer
20	2	1	1	0	16.1	0.074	0.000
20	5	1	1	0	16.1	0.047	0.000
20	15	1	1	0	16.1	0.027	0.000
20	30	1	1	0	16.1	0.019	0.000
20	60	1	1	0	16.1	0.013	0.000
20	250	1	1	0	16.1	0.007	0.000
20	1440	1	1	0	16.1	0.003	0.000

Date Analyzed: 06/26/95

Southwest Research Institute
Grain Size Report

SwRI Sample ID: 55446
Work Order #: 7156
Project: 01-6301-001

Customer: LOCKHEED ENV. SYS. & TEST
Client Sample ID: BOG3T8
Sample Matrix: WATER
Lab: LESAT/WESTHO
SDG: BOG3T8

Total Sample Wt: 1008.0

Sieve of +10

Sieve	Wt. Retained	% Retained	% Pass
3"	0	0.0	100.0
2"	0	0.0	100.0
1 1/2"	0	0.0	100.0
1"	0	0.0	100.0
3/4"	0	0.0	100.0
3/8"	0	0.0	100.0
#4	0	0.0	100.0
#10	0	0.0	100.0

Date Analyzed: 06/26/95

Sieve of -20/+200

Weight of Materials used in Hydrometer: 1008.0

Sieve	Wt. Retained each Sieve	Yield	Wt. Retained	% Retained	% Pass
#20	0	0.00	0.00	0.0	100.0
#40	0	0.00	0.00	0.0	100.0
#60	0	0.00	0.00	0.0	100.0
#100	0	0.00	0.00	0.0	100.0
#200	0	0.00	0.00	0.0	100.0

Date Analyzed: 06/26/95

Specific Gravity: 1.00 Hydrometer ID: 152H-001A

Temp.	Reading Time	Hydro. Reading	Hydro. Corr.	Corrected Hydro Reading	L	Diam (mm)	% Finer
20	2	2	1	1	16.0	0.073	0.133
20	5	2	1	1	16.0	0.046	0.133
20	15	2	1	1	16.0	0.027	0.133
20	30	2	1	1	16.0	0.019	0.133
20	60	2	1	1	16.0	0.013	0.133
20	250	1	1	0	16.1	0.007	0.000
20	1440	1	1	0	16.1	0.003	0.000

Date Analyzed: 06/26/95