LK6326

0045276

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

March 14, 1996

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

SEP 1996
RECEIVED
EDMC

MAR 1996
RECEIVED
Data
Log In

RE: Log-in No: L6326
Quotation No: Q400000-B
Document File No: 0126596
WHC Document Control No: 322

The attached data report contains the analytical results of samples that were subcontracted to Southwest Research Institute (SWRI) by Lockheed Analytical Services on 26 and 27 January 1996.

The temperature of the cooler upon receipt was 27°C. The temperature of the box received was room temperature. 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.

Chain-of-custody forms, sample receiving checklist, and log-in report are also enclosed representing the samples received within this group. The SDG number used by SWRI is BOGL96. This number corresponds to the Lockheed assigned SDG number of LK6326.

If you have any questions concerning the analysis or the data please call Kathleen M. Hall at (509) 375-4741.

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

Sincerely,

Kathleen M. Hall

Kathleen M. Hall
Client Services Representative

cc: Client Services
Document Control

SOUTHWEST RESEARCH INSTITUTE

6220 CULEBRA ROAD • POST OFFICE DRAWER 28510 • SAN ANTONIO, TEXAS, USA 78228-0510 • (210) 684-5111 • TELEX 244846

Chemistry and Chemical Engineering Division
Department of Environmental Chemistry

March 13, 1996

Lockheed Analytical Services
2950 George Washington Parkway
Suite A
Richland, Washington DC 99352
Attn: Kathleen Hall

Subject:	SwRI Project Number:	01-6301-002
	SDG:	BOGL96
	SwRI Work Order Number:	8374
	Samples Received:	January 26, 1996

Dear Sir:

Enclosed please find the analytical data for the above referenced case.

If you should have any questions, please do not hesitate to call me at 210/522-2169.

Sincerely,

Jo Ann Boyd
Group Leader
Quality Assurance Unit,
Division 01

TECHNICAL APPROVAL:

Kevin Villalobos
Group Leader

JAB/sks

Encl

cc: Karen Germann, Lockheed Analytical Services, 975 Kelly Johnson Dr., Las Vegas, NV 89119

LOCKHEED ANALYTICAL/ SDG: BOGL96

1. One (1) soil sample for Moisture Content and Radscreen Analysis:

SwRI	Customer ID
66073	BOGL96 (10')

Four (4) soil sample for Bulk Density, Moisture Content, Moisture Retention, Particle Size, Permeability, Porosity, and Radscreen Analysis:

SwRI	Customer ID	SwRI	Customer ID
66074	BOGL98 (10.5-11')	66076	BOGLB2 (24.5-25')
66075	BOGLB0 (17.5-18')	66078	BOGLB7 (39.5-40')

Three (3) soil sample for Moisture Content, Particle Size, and Radscreen Analysis:

SwRI	Customer ID	SwRI	Customer ID
66077	BOGLB5 (30')	66080	BOGLC1 (60')
66079	BOGLB9 (50')		

2. Samples were received at SwRI on January 26, 1996 for a thirty-five (35) day turnaround time from Validated Time of Sample Receipt (VTSR).

3. There was not enough sample remaining to perform duplicate analysis.

BULK DENSITY ANALYSIS

1. Samples were analyzed according to WHC-IP-0635, VOL 1, GEL-14 and ASTM Methods.

2. The lab found a discrepancy in the equation for bulk density/porosity indicated on WHC-IP-0635, Vol. 1. The lab referred back to ASTM Method D2937 for the correct calculation. (See notation in the raw data regarding the equation formula Logbook GS/BD I-94 page 80)

LOCKHEED ANALYTICAL SDG: BOGL96
SwRI Project Number: 01-6301-002
SwRI Work Order Number: 8374
March 13, 1996
Page 2

MOISTURE CONTENT ANALYSIS

Samples were analyzed according to WHC-IP-0635, VOL 1, GEL-14.

PARTICLE SIZE ANALYSIS

Samples were analyzed according to WHC-IP-0635, VOL 1, GEL-07.

POROSITY ANALYSIS

Samples were analyzed according to WHC-IP-0635, VOL 1, GEL-14.

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JBoyd

JoAnn Boyd
Group Leader
Quality Assurance Unit
Division 01

3/13/96

Date

LOCKHEED ANALYTICAL/ SDG: BOGL96

1. Four (4) soil samples for Permeability Analysis:

SwRI	Customer ID	SwRI	Customer ID
66074	BOGL98 (10.5-11')	66076	BOGLB2 (24.5-25')
66075	BOGLB0 (17.5-18')	66078	BOGLB7 (39.5-40')

2. Samples were received at SwRI on January 26, 1996 for a thirty-five (35) day turnaround time from Validated Time of Sample Receipt (VTSR).

3. There was not enough sample remaining to perform duplicate analysis.

4. The analysis for Moisture Retention will follow in a separate data package.

PERMEABILITY ANALYSIS

1. Samples were analyzed according to WHC-IP-0635, VOL 1, GEL-09.

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Boyd

Jo Ann Boyd
Group Leader
Quality Assurance Unit
Division 01

3/19/96

Date

LOCKHEED ANALYTICAL/ SDG: BOGL96

1. Eight (8) soil samples for Moisture Retention Analysis:

SwRI	Customer ID	SwRI	Customer ID
66074	BOGL98 (10.5-11')	66076	BOGLB2 (24.5-25')
66075	BOGLB0 (17.5-18')	66078	BOGLB7 (39.5-40')
66101	BOGL72	66103	BOGL80
66102	BOGL74	66104	BOGL85

2. Samples were received at SwRI on January 26 & 27, 1996 for a thirty-five (35) day turnaround time from Validated Time of Sample Receipt (VTSR).

3. There was not enough sample remaining to perform duplicate analysis.

MOISTURE RETENTION ANALYSIS

Samples were analyzed according to WHC-IP-0635, VOL 1, GEL-17 based on ASTM Method D2325.

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Director or his designee, as verified by the following signature."

Jo Ann Boyd

Jo Ann Boyd
Group Leader
Quality Assurance Unit
Division 01

3/29/96
Date

SOUTHWEST RESEARCH INSTITUTE

6220 CULEBRA ROAD • POST OFFICE DRAWER 28510 • SAN ANTONIO, TEXAS, USA 78228-0510 • (210) 684-5111 • TELEX 244846

Chemistry and Chemical Engineering Division
Department of Environmental Chemistry

March 29, 1996

Lockheed Analytical Services
2950 George Washington Parkway
Suite A
Richland, Washington DC 99352
Attn: Kathleen Hall

Subject:	SwRI Project Number:	01-6301-002
	SDG:	BOGL96
	SwRI Work Order Number:	8374
	Samples Received:	January 26, 1996

Dear Sir:

Enclosed please find Particle Size Data and the corrected narrative (page 1) for the above referenced case.

Due to the insufficient amount of the sample, the partical size for seive #40, #60, #100, and #200 were based from a reduced weight of 29.39g for sample 66074 (BOGL98 (10.5'-11')), 43.42g for sample 66076 (BOGLB2 (24.5'-25')), and 42.76g for sample 66078 (BOGLB7 (39.5'-40')).

The seives from 4" to 10" were determined accordingly by method.

If you should have any questions, please do not hesitate to call me at 210/522-2169.

Sincerely,

Jo Ann Boyd
Group Leader
Quality Assurance Unit,
Division 01

JAB/sks

Encl

Bechtel Hanford, Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Data Turnaround
☐ Priority
■ Normal

Collector: D. C. Weekes	Company Contact: S. J. Trent / D. C. Weekes	Telephone: (509) 372-9326
Project Designation: 1301N/1325N SI (Limited Field Investigation)	Sampling Location: 1301-N/1325-N Cribs 100N	SAF No.: B95-089
Ice Chest No.: N/A BW 1-25-96 GWS-055	Field Logbook No.: EL-1275	Method of Shipment: Hand Carry in DOE vehicle.
Shipped To: SOUTHWEST RESEARCH INST. ~~WHC Geotechnical Engineering Laboratory~~ BW 1-25-96	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks: Radioactive, All from borehole B2539

Special Handling and/or Storage

Preservation	NONE	NONE
Type of Container	moisture tin	SS
No. of Container(s)	1	
Volume	400g	1000g

SAMPLE ANALYSIS

Sample No.	Matrix*	Date Sampled	Time Sampled	Moisture Content	Particle Size Distribution
BOGL96 (10')	Soil	12/19/95	1424	X	
BOGL98 (10.5-11')	Soil	12/20/95	0827	X	*
BOGLB0 (17.5-18')	Soil	12/20/95	0940	X	*
BOGLB2 (24.5-25')	Soil	12/22/95	0930	X	* BW 1/10/96
BOGLB5 (30')	Soil	12/22/95	1018	X	~~also~~ Var. sample collected for Particle Size Distribution only
BOGLB7 (39.5-40')	Soil	12/27/95	1013	X	*

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
DC Weekes	1/10/96 0900	WS Thompson	1/10/96 0900
WS Thompson	1/10/96 0945	EE	0945
EE Bubitch	1-25-96 0810	Bubitch	1-10-96
		R. V.	1/26/96 05:3

SPECIAL INSTRUCTIONS
* Test also for moisture retention (GEL-18), Bulk density/porosity (GEL-14), and permeability (GEL-09)

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
	R. V.	S. Tech.	1/26/96

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford, Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Data Turnaround: ☐ Priority ■ Normal

Collector: D. C. Weekes	Company Contact: S. J. Trent / D. C. Weekes	Telephone: (509) 372-9326
Project Designation: 1301N/1325N SI (Limited Field Investigation)	Sampling Location: 1301-N/1325-N Cribs 100N	SAF No.: B95-089
Ice Chest No.: N/A BW 1-25-96 645-055	Field Logbook No.: EL-1275	Method of Shipment: Hand Carry in DOE vehicle.
Shipped To: SouthWEST RESEARCH INST. ~~WHC Geotechnical Engineering Laboratory~~ BW 1-25-96	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks: Radioactive, All from borehole B2539.

Special Handling and/or Storage:

Preservation	NONE	NONE	
Type of Container	moisture tin	Plas jar ~~SS~~ DCW 12/28/95	
No. of Container(s)	1	1	
Volume	400g	1000g	

SAMPLE ANALYSIS

Sample No.	Matrix*	Date Sampled	Time Sampled	Moisture Content	Particle Size Distribution	
B0GLB9 (50')	Soil	12/27/95	1407	X	Also 1 jar sample collected for Particle Size Distribution	
B0GLC1 (60')	SOIL	12/28/95	0920	X	Also 1 jar sample collected for Partical size distribution	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
DC Weekes	1/10/96 0900	WS Thompson	1/10/96 0900
WS Thompson	1/10/96 0945	EHE Bunthen	1-10-96 0945
EHE Bunthen	1-25-96 0810	[illegible]	1/26/96 2:30
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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: [illegible]	Title: [illegible]	Date/Time: 1/26/96
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator R. K. Biyani L5-31

Company Contact R. K. Biyani

Telephone 376-1004

Project Designation/Sampling Locations 1301-N Trench

Collection Date 11/9 - 11/16/95

Ice Chest No. N.A.

Field Logbook No. EL-1275

Bill of Lading/Airbill No. N.A.

Offsite Property No. N.A.

Method of Shipment Pickup

Shipped to 3720 Bldg, PNNL

Possible Sample Hazards/Remarks Radioactivity per attached sheet

INTACT

Sample Identification

BOGL72, BOGL74, BOGL80, BOGL85 Soil inside ~~[illegible]~~ WST 1/25/96 small sealed can (4"x6" can)

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished By	Date	Time	Received By	Date	Time
R.K. Biyani RKBiyani	1/19/96	1pm	[illegible]	1/19/96	1:17 pm
[illegible]	1/25/96	1:40 pm	[illegible]	1/25/96	1:140
[illegible] Thompson	1/25/96	1525	Joe Mouri	1-27-96	09.43

Final Sample Disposition

Disposal Method: Disposed by: Date/Time:

Comments: Samples received at room temp. (INTACT) J.M.J. 1-27-96

BOGL85
522 pCi/gm Co_{60}
3200 pCi/gm Cs_{137}
Sr_{90} - 139 pCi/gm

BOGL74
10.4 pCi/gm Co_{60}
108 pCi/gm Cs_{137}
1410 pCi/gm Sr_{90}

BOGL80
24.6 pCi/gm Sr_{90}

BOGL85
24.7 pCi/gm Sr_{90}

Note: This CofC was initiated by R.K. Biyani, when W.S. Thompson picked up the samples at the 3720 Bldg. from PNNL, they were packaged in a small metal can (≈ 4"x6"). The can was sealed and labeled radioactive so I did not open to inspect contents. I ~~packaged~~ WST 1/25/96 overpacked the can inside a new fiberboard box with vermiculite and then sealed box. Because I did not see the actual soil, I estimated the total activity to be [illegible] for shipment. WST 1/25/96

A-6000-407 (12/92) WEF061

CLIENT: LOCKHEED ANALYTICAL
SDG: BOGL96

BULK DENSITY/POROSITY ANALYSIS METHOD WHC-IP-0635, VOL. 1

CLIENT: LOCKHEED ANALYTICAL
SDG: BOGL96

SAMPLE RESULTS

SwRI
DIVISION 01
GEOTECHNICAL TESTING LABORATORY
BULK DENSITY/POROSITY
WHC-IP-0635, VOL. 1

010001

Customer:	**LOCKHEED MARTIN**
Client Sample ID:	**BOGL98(10.5-11)**
SwRI Sample ID:	**66074**
Work Order #:	**8374**
Project #:	**01-6301-002**
Lab #:	**B143/L116 and B199/L101 & L102**
Test by:	**J.T., D.B., SAI., K.V.**
Date:	**02/08/1996**
sample length in cylinder (cm)	15.154cm
sleeve inside diameter (cm)	9.8085cm
volume (cm3)	1144.38cm3
wt of sample + mold (g)	3293.93g
wt of mold (g)	775.03g
wet wt of sample (g)	2518.90g
water content % dry wt	3.969%
wet density of sample (g/cm3)	**2.218g/cm3**
dry wt of sample (g)	2418.93 g
dry density of sample (g/cm3)	**2.134g/cm3**
particle density (g/cm3)	2.981 g/cm3
porosity	**28.4 %**

COMMENTS: For raw data refer to laboratory notebook pages.

ADDITIONAL COMMENTS: All data are accurately and completely recorded.

The test operator was trained and used calibrated instruments.

Checked by: [illegible] Date: 3/12/96

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SwRI
DIVISION 01
GEOTECHNICAL TESTING LABORATORY
BULK DENSITY/POROSITY
WHC-IP-0635, VOL. 1

010002

Customer:	**LOCKHEED MARTIN**
Client Sample ID:	**BOGLBO(17.5-18')**
SwRI Sample ID:	**66075**
Work Order #:	**8374**
Project #:	**01-6301-002**
Lab #:	**B143/L116 and B199/L101 & L102**
Test by:	**J.T., D.B., SAL, K.V.**
Date:	**02/08/1996**
sample length in cylinder (cm)	15.151cm
sleeve inside diameter (cm)	9.809cm
volume (cm3)	1144.16cm3
wt of sample + mold (g)	3202.06g
wt of mold (g)	758.75g
wet wt of sample (g)	2443.31g
water content % dry wt	3.208%
wet density of sample (g/cm3)	**2.135g/cm3**
dry wt of sample (g)	2364.93g
dry density of sample (g/cm3)	**2.069g/cm3**
particle density (g/cm3)	2.864 g/cm3
porosity	**27.8 %**

COMMENTS: For raw data refer to laboratory notebook pages.

ADDITIONAL COMMENTS: All data are accurately and completely recorded.

The test operator was trained and used calibrated instruments.

Checked by: Kevin Villalobos Date: 3/12/96

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SwRI
DIVISION 01
GEOTECHNICAL TESTING LABORATORY
BULK DENSITY/POROSITY
WHC-IP-0635, VOL. 1

010003

Customer:	**LOCKHEED MARTIN**
Client Sample ID: BOGLB2 (24.5'-25')	~~**BOGLBO(17.5-18')**~~ SAV 3/14/96
SwRI Sample ID:	**66076**
Work Order #:	**8374**
Project #:	**01-6301-002**
Lab #:	**B143/l116 and B199/L101 & L102**
Test by:	**J.T., D.B., SAI., K.V.**
Date:	**02/08/1996**
sample length in cylinder (cm)	15.190cm
sleeve inside diameter (cm)	9.806cm
volume (cm3)	1146.50cm3
wt of sample + mold (g)	3340.63g
wt of mold (g)	773.01g
wet wt of sample (g)	2567.62g
water content % dry wt	2.97%
wet density of sample (g/cm3)	**2.239g/cm3**
dry wt of sample (g)	2491.37g
dry density of sample (g/cm3)	**2.175g/cm3**
particle density (g/cm3)	2.875 g/cm3
porosity	**24.4 %**

COMMENTS: For raw data refer to laboratory notebook pages.

ADDITIONAL COMMENTS: All data are accurately and completely recorded.

The test operator was trained and used calibrated instruments.

Checked by: Kevin Villalobos Date: 3/12/96

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000014

SwRI
DIVISION 01
GEOTECHNICAL TESTING LABORATORY
BULK DENSITY/POROSITY
WHC-IP-0635, VOL. 1

010004

Customer:	**LOCKHEED MARTIN**
Client Sample ID:	**BOGLB7(39.5-40')**
SwRI Sample ID:	**66078**
Work Order #:	**8374**
Project #:	**01-6301-002**
Lab #:	**B143/l116 and B199/L101 & L102**
Test by:	**J.T, D.B., SAI., K.V**
Date:	**02/08/1996**
sample length in cylinder (cm)	12.927cm
sleeve inside diameter (cm)	9.840cm
volume (cm3)	982.60cm3
wt of sample + mold (g)	2688.16g
wt of mold (g)	736.31g
wet wt of sample (g)	1951.85g
water content % dry wt	3.391%
wet density of sample (g/cm3)	**1.985g/cm3**
dry wt of sample (g)	1885.67g
dry density of sample (g/cm3)	**1.921g/cm3**
particle density (g/cm3)	2.927 g/cm3
porosity	**34.4 %**

COMMENTS: For raw data refer to laboratory notebook pages.

ADDITIONAL COMMENTS: All data are accurately and completely recorded.

The test operator was trained and used calibrated instruments.

Checked by: Kevin Kellabobs Date: 3/12/96

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CLIENT: LOCKHEED ANALYTICAL
SDG: BOGL96

SIEVE/HYDROMETER ANALYSIS METHOD WHC-IP-0635, VOL. 1

CLIENT: LOCKHEED ANALYTICAL
SDG: BOGL96

SAMPLE RESULTS

020002

SwRI
DIVISION 01
GEOTECHNICAL TESTING LABORATORY
SIEVE/HYDROMETER ANALYSIS
WHC-IP-0635, VOL. 1

Client: LOCKHEED MARTIN	Client Sample ID: BOGLB9 (50')	SwRI Sample ID: 66079	WO#: 8374
Project #: 01-6301-002	Lab #: B143/ 116 & B199/ L101 &L102	Test by: JT, DB, KV	Date:3/1/96

Sample WT (g)	SIEVE SIZE IN.	CUMULATIVE WT.	%WEIGHT RETAINED	% PASSING	COMMENTS	GRAIN SIZE MM
3812.03	4"	0	0.0	100.0		100
	2.5"	0	0.0	100.0		63
	2"	873.99	22.9	77.1		50
	1.5"	264.08	29.9	70.1		38.1
	¾"	790.42	50.6	49.4		19.0
	⅜"	577.82	65.7	34.3		9.5
WT.#10	#4	344.51	74.8	25.2		4.75
SAMP. (g)	#10	169.31	79.2	20.8		2.00
N/R	#40	401.76	89.8	10.2		0.425
	#60	134.31	93.3	6.7		0.250
	#100	93.66	95.7	4.3		0.150
	#200	51.56	97.1	2.9		0.075

BALANCE NUMBER	14	CALIBRATION DUE DATE	06/24/96
THERMOMETER NUMBER	010185	CALIBRATION DUE DATE	07/96
HYDROMETER	N/R	CALIBRATION DUE DATE	N/A

Additional Notes: Per Client request Hydrometer analysis not required. (N/R)

Checked by: Kevin Villalobos Date: 3/28/96

Revised date: 03/28/96

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SwRI
DIVISION 01
GEOTECHNICAL TESTING LABORATORY
SIEVE/HYDROMETER ANALYSIS
WHC-IP-0635, VOL. 1

020003

Client: LOCKHEED MARTIN	Client Sample ID: BOGLC1 (60')	SwRI Sample ID: 66080	WO#: 8374
Project #: 01-6301-002	Lab #: B143/1 16 & B199/ L101 & L102	Test by: JT, DB, KV	Date:3/1/96

Sample WT (g)	SIEVE SIZE IN.	CUMULATIVE WT.	%WEIGHT RETAINED	% PASSING	COMMENTS	GRAIN SIZE MM
1313.45	4"	0	0.0	100.0		100
	2.5"	0	0.0	100.0		63
	2"	0	0.0	100.0		50
	1.5"	0	0.0	100.0		38.1
	¾"	221.56	16.9	83.1		19.0
	⅜"	253.31	36.2	63.8		9.5
WT.#10	#4	148.46	47.5	52.5		4.75
SAMP. (g)	#10	138.31	58.0	42.0		2.00
N/R	#40	271.17	78.6	21.4		0.425
	#60	58.75	83.1	16.9		0.250
	#100	44.29	86.5	13.5		0.150
	#200	54.45	90.6	9.4		0.075

BALANCE NUMBER	14	CALIBRATION DUE DATE	06/24/96
THERMOMETER NUMBER	010185	CALIBRATION DUE DATE	07/96
HYDROMETER	N/R	CALIBRATION DUE DATE	N/A

Additional Notes: Per Client request Hydrometer analysis not required. (N/R)

Checked by: Trevor Villalobos Date: 3/28/96

Revised date: 03/28/96

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SwRI
DIVISION 01
GEOTECHNICAL TESTING LABORATORY
SIEVE/HYDROMETER ANALYSIS
WHC-IP-0635, VOL. 1

020001

Client: LOCKHEED MARTIN	Client Sample ID: BOGLB5(30')	SwRI Sample ID: 66077	WO#: 8374
Project #: 01-6301-002	Lab #: B143/ 116 & B199/ L101 & L102	Test by: JT, DB, KV	Date:3/1/96

Sample WT (g)	SIEVE SIZE IN.	CUMULATIVE WT.	%WEIGHT RETAINED	% PASSING	COMMENTS	GRAIN SIZE MM
2663.37	4"	0	0.0	100.0		100
	2.5"	0	0.0	100.0		63
	2"	782.1	29.4	70.6		50
	1.5"	350.97	42.5	57.5		38.1
	¾"	546.51	63.1	36.9		19.0
	⅜"	148.97	68.7	31.3		9.5
WT.#10	#4	86.89	71.9	28.1		4.75
SAMP. (g)	#10	154.16	77.7	22.3		2.00
N/R	#40	432.92	94.0	6.0		0.425
	#60	33.8	95.2	4.8		0.250
	#100	27.72	96.3	3.7		0.150
	#200	24.15	97.2	2.8		0.075

BALANCE NUMBER	14	CALIBRATION DUE DATE	06/24/96
THERMOMETER NUMBER	010185	CALIBRATION DUE DATE	07/96
HYDROMETER	N/R	CALIBRATION DUE DATE	N/A

Additional Notes: Per Client request Hydrometer analysis not required. (N/R)

Checked by: Kevin Vellalobos Date: 3/28/96

Revised date: 03/28/96

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SwRI
DIVISION 01
GEOTECHNICAL TESTING LABORATORY
SIEVE/HYDROMETER ANALYSIS
WHC-IP-0635, VOL. 1

Client: LOCKHEED MARTIN	Client Sample ID: BOGLB0(17.5 - 18')	SwRI Sample ID: 66075	WO#: 8374
Project #: 01-6301-002	Lab #: B199/ L101 & 102	Test by: JT, SAI, KV	Date:3/27/96

Sample WT (g)	SIEVE SIZE IN.	CUMULATIVE WT.	%WEIGHT RETAINED	% PASSING	COMMENTS	GRAIN SIZE MM
2087.05	4"	0	0.0	100.0		100
	2.5"	0	0.0	100.0		63
	2"	167.10	8.0	92.0		50
	1.5"	128.33	14.2	85.8		38.1
	¾"	222.88	24.8	75.2		19.0
	⅜"	288.43	38.7	61.3		9.5
WT. (g)	#4	245.83	50.4	49.6		4.75
PASSING #10	#10	293.68	64.5	35.5		2.00
43.42	#40	30.86	89.7	10.3		0.425
	#60	4.93	93.8	6.2		0.250
	#100	2.81	96.1	3.9		0.150
	#200	.2.41	98.0	2.0		0.075

BALANCE NUMBER	14	CALIBRATION DUE DATE	06/24/96
THERMOMETER NUMBER	010185	CALIBRATION DUE DATE	07/96
HYDROMETER	N/R	CALIBRATION DUE DATE	N/A

Additional Notes: Per Client request Hydrometer analysis not required. (N/R)

Checked by: Kevin Villalobos Date: 3/28/96

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SwRI
DIVISION 01
GEOTECHNICAL TESTING LABORATORY
SIEVE/HYDROMETER ANALYSIS
WHC-IP-0635, VOL. 1

Client: LOCKHEED MARTIN	Client Sample ID: BOGL98(10.5 - 11')	SwRI Sample ID: 66074	WO#: 8374
Project #: 01-6301-002	Lab #: B199/ L101 & 102	Test by: JT, SAI, KV	Date:3/27/96

Sample WT (g)	SIEVE SIZE IN.	CUMULATIVE WT.	%WEIGHT RETAINED	% PASSING	COMMENTS	GRAIN SIZE MM
2168.65	4"	0	0.0	100.0		100
	2.5"	0	0.0	100.0		63
	2"	0	0.0	100.0		50
	1.5"	481.50	22.2	77.8		38.1
	¾"	425.96	41.8	58.2		19.0
	⅜"	332.63	57.2	42.8		9.5
WT. (g)	#4	200.34	66.4	33.6		4.75
PASSING #10	#10	209.18	76.1	23.9		2.00
29.39	#40	23.79	95.4	4.6		0.425
	#60	2.72	97.7	2.3		0.250
	#100	1.22	98.6	1.4		0.150
	#200	.81	99.3	0.7		0.075

BALANCE NUMBER	14	CALIBRATION DUE DATE	06/24/96
THERMOMETER NUMBER	010185	CALIBRATION DUE DATE	07/96
HYDROMETER	N/R	CALIBRATION DUE DATE	N/A

Additional Notes: Per Client request Hydrometer analysis not required. (N/R)

Checked by: Kevin Villalobos Date: 3/28/96

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SwRI
DIVISION 01
GEOTECHNICAL TESTING LABORATORY
SIEVE/HYDROMETER ANALYSIS
WHC-IP-0635, VOL. 1

Client: LOCKHEED MARTIN	Client Sample ID: BOGLB2(24.5 - 25')	SwRI Sample ID: 66076	WO#: 8374
Project #: 01-6301-002	Lab #: B199/ L101 & 102	Test by: JT, SAI, KV	Date:3/27/96

Sample WT (g)	SIEVE SIZE IN.	CUMULATIVE WT.	%WEIGHT RETAINED	% PASSING	COMMENTS	GRAIN SIZE MM
2229.20	4"	0	0.0	100.0		100
	2.5"	0	0.0	100.0		63
	2"	0	0.0	0.0		50
	1.5"	49.73	2.2	97.8		38.1
	¾"	181.27	10.4	89.6		19.0
	⅜"	373.52	27.1	72.9		9.5
WT. (g)	#4	397.86	45.0	55.0		4.75
PASSING #10	#10	603.06	72.0	28.0		2.00
43.05	#40	32.03	92.8	7.2		0.425
	#60	3.94	95.4	4.6		0.250
	#100	2.29	96.9	3.1		0.150
	#200	.2.41	98.3	1.7		0.075

BALANCE NUMBER	14	CALIBRATION DUE DATE	06/24/96
THERMOMETER NUMBER	010185	CALIBRATION DUE DATE	07/96
HYDROMETER	N/R	CALIBRATION DUE DATE	N/A

Additional Notes: Per Client request Hydrometer analysis not required. (N/R)

Checked by: Kevin Villalobos Date: 3/28/96

040001

SwRI
DIVISION 01
GEOTECHNICAL TESTING LABORATORY
SIEVE/HYDROMETER ANALYSIS
WHC-IP-0635, VOL. 1

Client: LOCKHEED MARTIN	Client Sample ID: BOGLB7(39.5 - 40')	SwRI Sample ID: 66078	WO#: 8374
Project #: 01-6301-002	Lab #: B199/ L101 & 102	Test by: JT, SAI, KV	Date:3/27/96

Sample WT (g)	SIEVE SIZE IN.	CUMULATIVE WT.	%WEIGHT RETAINED	% PASSING	COMMENTS	GRAIN SIZE MM
1635.13	4"	0	0.0	100.0		100
	2.5"	0	0.0	100.0		63
	2"	0	0.0	100.0		50
	1.5"	0	0.0	100.0		38.1
	¾"	0	0.0	100.0		19.0
	⅜"	97.09	5.9	94.1		9.5
WT. (g)	#4	364.29	28.2	71.8		4.75
PASSING #10	#10	717.01	72.1	27.9		2.00
42.76	#40	33.87	94.2	5.8		0.425
	#60	4.14	96.9	3.1		0.250
	#100	1.92	98.2	1.8		0.150
	#200	1.41	99.1	0.9		0.075

BALANCE NUMBER	14	CALIBRATION DUE DATE	06/24/96
THERMOMETER NUMBER	010185	CALIBRATION DUE DATE	07/96
HYDROMETER	N/R	CALIBRATION DUE DATE	N/A

Additional Notes: Per Client request Hydrometer analysis not required. (N/R)

Checked by: Kevin Villalobos Date: 3/28/96

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29d

CLIENT: LOCKHEED ANALYTICAL
SDG: BOGL96

SOIL MOISTURE ANALYSIS METHOD LAS SOP GEL-14

CLIENT: LOCKHEED ANALYTICAL
SDG: BOGL96

SAMPLE RESULTS

SwRI
DIVISION 01
GEOTECHNICAL TESTING LABORATORY
SOIL MOISTURE
WHC-IP-0635, VOL. 1, GEL - 14

Client: LOCKHEED MARTIN	Client Sample ID: BOGLB9 (50')	SwRI Sample ID: 66079	WO#: 8374
Project #: 01-6301-002	Lab #: B199/ L101	Test by: JT, DB, KV	Date:3/1/96

System ID	Client ID	Wt. of Wet sample (g)	Wt. of Dry sample (g)	% Dry	% Wet
66073	BOGL96 (10')	358.95	340.63	94.62	5.38
66074	BOGL98 (10.5-11')	387.37	366.25	94.24	5.76
66075	BOGLB0 (17.5-18')	407.46	392.84	96.28	3.72
66076	BOGLB2 (24.5-25')	429.96	415.25	96.64	3.36
66077	BOGLB5 (30')	368.06	348.45	94.37	5.63
66078	BOGLB7 (39.5-40')	488.71	471.76	96.41	3.59
66079	BOGLB9 (50')	372.92	363.71	97.46	2.54
66080	BOGLC1(60')	407.01	388.99	95.37	4.63

BALANCE NUMBER	14	CALIBRATION DUE DATE	06/24/96
THERMOMETER NUMBER	010185	CALIBRATION DUE DATE	07/96

Additional Notes: Per Client request Hydrometer analysis not required. (N/R)

Checked by: Kevin Villalobos Date: 3/12/96

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Client: LOCKHEED ANALYTICAL
SDG: BOGL96

PERMEABILITY ANALYSIS

Client: LOCKHEED ANALYTICAL
SDG: BOGL96

RESULTS

Southwest Research Institute
Saturated Hydraulic Conductivity (Falling Headwater Method)
WHC-IP-0635, Vol. 1., GEL -09

Client :	Lockheed Analytical	Work Order:	8374	Date Received:	01/26/96	Project:	01-6301-002
Sample ID:	66074	Client Sample ID:	BOGL98 (10.5-11')	Date Analyzed:	03/15/96	Test by:	K.V., SAI., D.B.

Diameter of the sample (D)	= 6.39 cm	Length of the sample (L)	= 8.00 cm	Viscosity of water at 20^0 C = 1.002 cp
Cross-sectional area of the sample (A)	= 32.154 cm^2	Time (t)	= 10 seconds	Viscosity of water at 23^0 C = 0.9325 cp
Diameter of the standpipe (d)	= 1.45 cm	Avg. ln [H1/H2]	= 1.55	Test temperature = 23^0 C
Cross-sectional area of the standpipe (a)	= 1.64 cm^2	Value of [aL/At]	= 0.041	

$K_{avg.}$ = [aL/At] ln [H1/H2] $K_{avg.}$ = ***0.064*** *cm/sec*

Average hydraulic conductivity (K_{Avg}) is corrected to Viscosity of water at 20^0C by multiplying the ratio of Viscosity of water at test temperature to the viscosity of water at 20^0 C. The ratio of the Viscosity of water at 20^0 C to the Viscosity of water at test temperature was calculated to be 0.931.

$K_{visc} = K_{Avg.} * 0.931$ K_{visc} = 0.064 * 0.931 = ***0.059*** *cm/sec*

Run	Initial head (H1) (cm)	Final head (H2) (cm)	Volume of water (cm^3)	Time (sec)	Discharge (cm^3/sec)	H1/H2	Ln (H1/H2)	Hyd. Cond K (cm/sec)
1	57.0	12.1	76.0	10	7.60	4.71	1.55	0.064
2	57.0	12.0	77.0	10	7.70	4.75	1.56	0.064
3	57.3	11.7	78.0	10	7.80	4.89	1.59	0.065
4	57.0	11.8	77.5	10	7.75	4.83	1.58	0.065
5	57.0	12.3	76.5	10	7.65	4.63	1.53	0.063
6	57.0	12.2	76.5	10	7.65	4.67	1.54	0.063
7	57.0	12.4	78.0	10	7.80	4.60	1.53	0.063
8	57.0	12.0	76.5	10	7.65	4.75	1.56	0.064
9	57.0	12.3	76.5	10	7.65	4.63	1.53	0.063
Avg.	**57.03**	**12.1**	**76.9**	**10**	**7.69**	**4.72**	**1.55**	**0.064**

All data are accurately and completely recorded. The test operator was trained and used calibrated instruments.

Checked By: [signature] Date: 3/20/96

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Southwest Research Institute
Saturated Hydraulic Conductivity (Falling Headwater Method)
WHC-IP-0635, Vol. 1., GEL -09

Client :	Lockheed Analytical	Work Order:	8374	Date Received:	01/26/96	Project:	01-6301-002
Sample ID:	66075	Client Sample ID:	BOGLB0 (17.5-18')	Date Analyzed:	03/15/96	Test by:	K.V., SAI., D.B.

Diameter of the sample (D)	= 6.39 cm	Length of the sample (L)	= 8.00 cm	Viscosity of water at 20° C = 1.002 cp
Cross-sectional area of the sample (A)	= 32.154 cm^2	Time (t)	= 10 seconds	Viscosity of water at 23° C = 0.9325 cp
Diameter of the standpipe (d)	= 1.45 cm	Avg. ln [H1/H2]	= 1.50	Test temperature = 23° C
Cross-sectional area of the standpipe (a)	= 1.64 cm^2	Value of [aL/At]	= 0.041	

$K_{avg.}$ = [aL/At] ln [H1/H2] $K_{avg.}$ = ***0.062*** *cm/sec*

Average hydraulic conductivity (K_{Avg}) is corrected to Viscosity of water at 20°C by multiplying the ratio of Viscosity of water at test temperature to the viscosity of water at 20° C. The ratio of the Viscosity of water at 20° C to the Viscosity of water at test temperature was calculated to be 0.931.

$K_{visc} = K_{Avg.} * 0.931$ $K_{visc} = 0.0615 * 0.931 =$ ***0.058*** *cm/sec*

Run	Initial head (H1) (cm)	Final head (H2) (cm)	Volume of water (cm^3)	Time (sec)	Discharge (cm^3/sec)	H1/H2	Ln (H1/H2)	Hyd. Cond K (cm/sec)
1	57.0	12.8	76.0	10	7.60	4.45	1.49	0.061
2	57.0	12.6	76.0	10	7.60	4.52	1.51	0.062
3	57.0	12.6	76.0	10	7.60	4.52	1.51	0.062
4	57.0	12.7	76.0	10	7.60	4.49	1.50	0.062
5	57.0	12.8	76.0	10	7.60	4.45	1.49	0.061
6	57.0	12.7	76.0	10	7.60	4.49	1.50	0.062
7	57.0	12.6	76.0	10	7.60	4.52	1.51	0.062
8	57.0	12.7	76.0	10	7.60	4.49	1.50	0.062
9	57.0	12.6	76.0	10	7.60	4.52	1.51	0.062
Avg.	**57.0**	**12.7**	**76.0**	**10**	**7.60**	**4.49**	**1.50**	**0.062**

All data are accurately and completely recorded. The test operator was trained and used calibrated instruments.

Checked By: Date: 3/20/96

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Southwest Research Institute
Saturated Hydraulic Conductivity (Falling Headwater Method)
WHC-IP-0635, Vol. 1., GEL -09

Client:	Lockheed Analytical	Work Order:	8374	Date Received:	01/26/96	Project:	01-6301-002
Sample ID:	66076	Client Sample ID:	BOGLB2 (24.5-25')	Date Analyzed:	03/15/96	Test by:	K.V., SAI., D.B.

Diameter of the sample (D)	= 6.39 cm	Length of the sample (L)	= 8.00 cm	Viscosity of water at 20^0 C = 1.002 cp
Cross-sectional area of the sample (A)	= 32.154 cm^2	Time (t)	= 10 seconds	Viscosity of water at 23^0 C = 0.9325 cp
Diameter of the standpipe (d)	= 1.45 cm	Avg. ln [H1/H2]	= 1.64	Test temperature = 23^0 C
Cross-sectional area of the standpipe (a)	= 1.64 cm^2	Value of [aL/At]	= 0.041	

$K_{avg.}$ = [aL/At] ln [H1/H2] $K_{avg.}$ = ***0.067*** ***cm/sec***

Average hydraulic conductivity (K_{Avg}) is corrected to Viscosity of water at 20^0C by multiplying the ratio of Viscosity of water at test temperature to the viscosity of water at 20^0 C. The ratio of the Viscosity of water at 20^0 C to the Viscosity of water at test temperature was calculated to be 0.931.

$K_{visc} = K_{Avg.} * 0.931$ K_{visc} = 0.067 * 0.931 = ***0.062*** ***cm/sec***

Run	Initial head (H1) (cm)	Final head (H2) (cm)	Volume of water (cm^3)	Time (sec)	Discharge (cm^3/sec)	H1/H2	Ln (H1/H2)	Hyd. Cond K (cm/sec)
1	57.0	11.0	77.5	10	7.75	5.18	1.65	0.068
2	57.0	11.2	78.0	10	7.80	5.09	1.63	0.067
3	57.0	11.3	78.0	10	7.80	5.04	1.62	0.067
4	57.0	11.0	79.0	10	7.90	5.18	1.65	0.068
5	57.0	11.2	78.0	10	7.80	5.09	1.63	0.067
6	57.0	11.2	78.5	10	7.85	5.09	1.63	0.067
7	57.0	10.9	79.0	10	7.90	5.23	1.65	0.068
8	57.0	11.0	79.0	10	7.90	5.18	1.65	0.068
9	57.0	11.2	78.5	10	7.85	5.09	1.63	0.067
Avg.	**57.0**	**11.1**	**78.4**	**10**	**7.84**	**5.13**	**1.64**	**0.067**

All data are accurately and completely recorded. The test operator was trained and used calibrated instruments.

Checked By: [signature] Date: 3/20/96

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Southwest Research Institute
Saturated Hydraulic Conductivity (Falling Headwater Method)
WHC-IP-0635, Vol. 1., GEL - 09

Client:	Lockheed Analytical	Work Order:	8374	Date Received:	01/26/96	Project:	01-6301-002
Sample ID:	66078	Client Sample ID:	BOGLB7 (39.5 - 40')	Date Analyzed:	03/15/96	Test by:	K.V., SAI., D.B.

Diameter of the sample (D)	= 6.39 cm	Length of the sample (L)	= 8.00 cm	Viscosity of water at 20^0 C = 1.002 cp
Cross-sectional area of the sample (A)	= 32.154 cm^2	Time (t)	= 10 seconds	Viscosity of water at 23^0 C = 0.9325 cp
Diameter of the standpipe (d)	= 1.45 cm	Avg. ln [H1/H2]	= 1.39	Test temperature = 23^0 C
Cross-sectional area of the standpipe (a)	= 1.64 cm^2	Value of [aL/At]	= 0.041	

$K_{avg.}$ = [aL/At] ln [H1/H2] $K_{avg.}$ = ***0.057*** *cm/sec*

Average hydraulic conductivity (K_{Avg}) is corrected to Viscosity of water at 20^0C by multiplying the ratio of Viscosity of water at test temperature to the viscosity of water at 20^0 C. The ratio of the Viscosity of water at 20^0 C to the Viscosity of water at test temperature was calculated to be 0.931.

$K_{visc} = K_{Avg.} * 0.931$ K_{visc} = 0.057 * 0.931 = ***0.053*** *cm/sec*

Run	Initial head (H1) (cm)	Final head (H2) (cm)	Volume of water (cm^3)	Time (sec)	Discharge (cm^3/sec)	H1/H2	Ln (H1/H2)	Hyd. Cond K (cm/sec)
1	57.0	14.3	73.0	10	7.30	3.99	1.38	0.057
2	57.0	14.1	73.5	10	7.35	4.04	1.40	0.057
3	57.0	14.3	73.0	10	7.30	3.99	1.38	0.057
4	57.0	14.3	73.0	10	7.30	3.99	1.38	0.057
5	57.0	14.0	74.0	10	7.40	4.07	1.40	0.057
6	57.0	14.2	73.5	10	7.35	4.01	1.39	0.057
7	57.0	14.2	73.5	10	7.35	4.01	1.39	0.057
8	57.0	13.9	74.0	10	7.40	4.10	1.41	0.058
9	57.0	13.9	74.0	10	7.40	4.10	1.41	0.058
Avg.	**57.0**	**14.1**	**73.5**	**10**	**7.35**	**4.03**	**1.39**	**0.057**

All data are accurately and completely recorded. The test operator was trained and used calibrated instruments.

Checked By: [signature] Date: 3/20/96

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Client: LOCKHEED ANALYTICAL
SDG: BOGL96
WO#: 8374

MOISTURE RETENTION ANALYSIS

Client: LOCKHEED ANALYTICAL
SDG: BOGL96
WO#: 8374

SAMPLE DATA

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Bar Main Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-7	517.12	504.64	12.48	393.77	110.87	11.26	03/08/96	23
0.0	0.1	TC-7	517.12	504.64	12.48	393.77	110.87	11.26	03/08/96	23
6.8	0.1	TC-7	516.64	504.64	12.00	393.77	110.87	10.82	03/09/96	25
13.8	1.0	TC-7	516.52	504.64	11.88	393.77	110.87	10.72	03/10/96	24
41.3	1.0	TC-7	515.41	504.64	10.77	393.77	110.87	9.71	03/11/96	26
68.9	2.0	TC-7	514.21	504.64	9.57	393.77	110.87	8.63	03/11/96	25
137.7	10.0	TC-7	513.87	504.64	9.23	393.77	110.87	8.33	03/12/96	26
344.3	20.0	TC-7	512.24	504.64	7.60	393.77	110.87	6.85	03/12/96	23
495.8	20.0	TC-7	511.34	504.40	6.94	393.77	110.63	6.27	03/13/96	25
757.5	20.0	TC-7	510.59	504.64	5.95	393.77	110.87	5.37	03/14/96	25
964.0	20.0	TC-7	509.01	504.64	4.37	393.77	110.87	3.94	03/14/96	24
1101.9	20.0	TC-7	508.47	504.64	3.83	393.77	110.87	3.45	03/16/96	24

SwRI ID: 66074
Client Sample Id: BOGL98 (10.5-11')

Reviewed By: KV
KEVIN VILLALOBOS
Date: 28 Mar 96
SwRI EWG LABS

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Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Bar Main Wetting Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
1005.4	20.0	TC-7	504.65	503.21	1.44	393.77	109.44	1.32	02/27/96	22
826.4	20.0	TC-7	505.34	503.21	2.13	393.77	109.44	1.95	02/28/96	25
482.1	20.0	TC-7	507.99	503.21	4.78	393.77	109.44	4.37	02/29/96	24
275.6	20.0	TC-7	509.00	503.21	5.79	393.77	109.44	5.29	03/01/00	26
275.5	20.0	TC-7	508.89	503.21	5.68	393.77	109.44	5.19	03/02/96	23
137.7	10.0	TC-7	510.12	503.21	6.91	393.77	109.44	6.31	03/03/96	24
68.9	2.0	TC-7	510.99	503.21	7.78	393.77	109.44	7.11	03/04/96	23
27.5	1.0	TC-7	511.34	503.21	8.13	393.77	109.44	7.43	03/05/96	22
13.8	1.0	TC-7	512.67	503.21	9.46	393.77	109.44	8.64	03/06/96	23
0.0	0.1	TC-7	514.23	503.21	11.02	393.77	109.44	10.07	03/07/96	23
0.0	0.1	TC-7	513.87	503.21	10.66	393.77	109.44	9.74	03/08/96	23

SwRI ID: 66074
Client Sample Id: BOGL98 (10.5-11')

Reviewed by: KV
KEVIN VILLALOBOS
Date: 28 Mar 96
SwRI EWG LABS

010002

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Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Bar Primary Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-7	522.93	505.49	17.44	393.77	111.72	15.61	02/10/96	23
0.0	0.1	TC-7	518.14	505.49	12.65	393.77	111.72	11.32	02/14/96	23
0.0	0.1	TC-7	518.13	505.49	12.64	393.77	111.72	11.31	02/17/96	23
13.8	2.0	TC-7	517.50	505.49	12.01	393.77	111.72	10.75	02/18/96	23
41.3	10.0	TC-7	516.45	505.49	10.96	393.77	111.72	9.81	02/19/96	23
68.9	20.0	TC-7	515.54	505.49	10.05	393.87	111.62	9.00	02/20/96	23
137.7	20.0	TC-7	514.98	505.49	9.49	393.77	111.72	8.49	02/21/96	23
275.5	20.0	TC-7	514.79	505.49	9.30	393.77	111.72	8.32	02/22/96	23
482.2	20.0	TC-7	513.43	505.49	7.94	393.77	111.72	7.11	02/23/96	22
826.4	20.0	TC-7	513.13	505.49	7.64	393.77	111.72	6.84	02/24/96	23
1005.4	20.0	TC-7	512.56	505.49	7.07	393.77	111.72	6.33	02/25/96	23

SwRI ID: 66074
Client Sample Id: BOGL98 (10.5-11')

Reviewed By:
KEVIN VILLALOBOS
Date: 28 Mar 96
SwRI EWG LABS

010003

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Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Kettle Bar Drying Curve

Tension in ~~g~~m	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
1.0	0.02	1A	24.09	23.40	0.69	4.79	18.61	3.71	03/24/96	23
4.0	0.10	1B	23.87	23.29	0.58	4.49	18.80	3.09	03/25/96	23
7.2	0.10	1C	24.15	23.74	0.41	4.80	18.94	2.16	03/26/96	23
10.2	0.10	1D	25.99	25.58	0.41	4.79	20.79	1.97	03/27/96	23
15.2	0.10	1E	25.00	24.71	0.29	4.69	20.02	1.45	03/28/96	23

SwRI ID: 66074
Client Sample Id: BOGL98 (10.5-11')

Reviewed By: [illegible]
[illegible] VILLALOBOS
Date: 28 MAR 96
SwRI EWG LABS

010004

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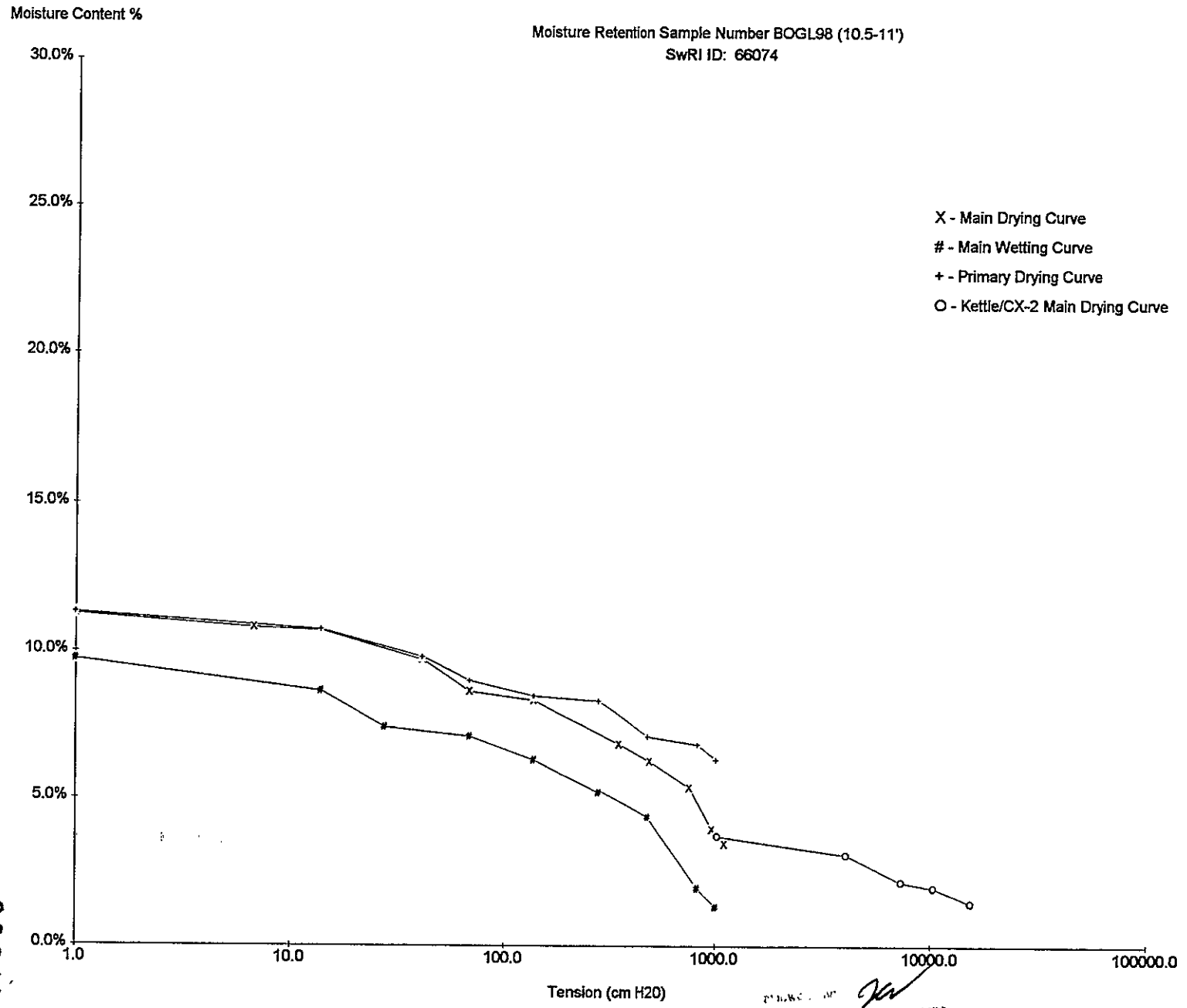
Printed: 03/28/1996
ver (03/04/96)



KEVIN VILLALOBOS
Date 28 Mar 96
SwRI EVS

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SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Bar Main Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-5	529.11	511.68	17.43	395.56	116.12	15.01	03/08/96	23
0.0	0.1	TC-5	528.98	511.68	17.30	395.56	116.12	14.90	03/08/96	23
6.8	0.1	TC-5	527.89	511.68	16.21	395.56	116.12	13.96	03/09/96	25
13.8	1.0	TC-5	527.75	511.68	16.07	395.56	116.12	13.84	03/10/96	24
41.3	1.0	TC-5	525.69	511.68	14.01	395.56	116.12	12.07	03/11/96	26
68.9	2.0	TC-5	524.51	511.68	12.83	395.56	116.12	11.05	03/11/96	25
137.7	10.0	TC-5	523.07	511.68	11.39	395.56	116.12	9.81	03/12/96	26
344.3	20.0	TC-5	520.45	511.68	8.77	395.56	116.12	7.55	03/12/96	23
495.8	20.0	TC-5	519.88	511.68	8.20	395.56	116.12	7.06	03/13/96	25
757.5	20.0	TC-5	519.49	511.68	7.81	395.56	116.12	6.73	03/14/96	25
964.0	20.0	TC-5	518.89	511.68	7.21	395.56	116.12	6.21	03/14/96	24
1101.9	20.0	TC-5	518.78	511.68	7.10	395.56	116.12	6.11	03/16/96	24

SwRI ID: 66075
Client Sample Id: BOGLB0 (17.5-18')

Reviewed By: [illegible]
LEVEL VALIDATION
Date: 28 Mar 96
SwRI EWG LABS

010006

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Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Bar Main Wetting Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
1005.4	20.0	TC-5	516.24	510.14	6.10	395.56	114.58	5.32	02/27/96	22
826.4	20.0	TC-5	517.18	510.14	7.04	395.56	114.58	6.14	02/28/96	25
482.1	20.0	TC-5	518.03	510.14	7.89	395.56	114.58	6.89	02/29/96	24
275.6	20.0	TC-5	518.98	510.14	8.84	395.56	114.58	7.72	03/01/96	26
275.5	20.0	TC-5	518.87	510.14	8.73	395.56	114.58	7.62	03/02/96	23
137.7	10.0	TC-5	519.87	510.14	9.73	395.56	114.58	8.49	03/03/96	24
68.9	2.0	TC-5	520.75	510.14	10.61	395.56	114.58	9.26	03/04/96	23
27.5	1.0	TC-5	522.76	510.14	12.62	395.56	114.58	11.01	03/05/96	22
13.8	1.0	TC-5	523.09	510.14	12.95	395.56	114.58	11.30	03/06/96	23
0.0	0.1	TC-5	523.89	510.14	13.75	395.56	114.58	12.00	03/07/96	23
0.0	0.1	TC-5	524.02	510.14	13.88	395.56	114.58	12.11	03/08/96	23

SwRI ID: 66075
Client Sample Id: BOGLB0 (17.5-18')

Reviewed by: KV
KEVIN VILLALOBOS
Date: 28 Mar 96
SwRI EWG LABS

010007

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Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Bar Primary Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-5	531.98	512.42	19.56	395.56	116.86	16.74	02/10/96	23
0.0	0.1	TC-5	531.48	512.42	19.06	395.56	116.86	16.31	02/14/96	23
0.0	0.1	TC-5	530.01	512.42	17.59	395.56	116.86	15.05	02/17/96	23
13.8	1.0	TC-5	529.02	512.42	16.60	395.56	116.86	14.21	02/18/96	23
41.3	1.0	TC-5	527.18	512.42	14.76	395.56	116.86	12.63	02/19/96	23
68.9	2.0	TC-5	526.28	512.42	13.86	395.56	116.86	11.86	02/20/96	23
137.7	10.0	TC-5	524.23	512.42	11.81	395.56	116.86	10.11	02/21/96	23
275.5	20.0	TC-5	523.21	512.42	10.79	395.56	116.86	9.23	02/22/96	23
482.2	20.0	TC-5	521.79	512.42	9.37	395.56	116.86	8.02	02/23/96	22
826.4	20.0	TC-5	520.99	512.42	8.57	395.56	116.86	7.33	02/24/96	23
1005.4	20.0	TC-5	520.49	512.42	8.07	395.56	116.86	6.91	02/25/96	23

SwRI ID: 66075
Client Sample Id: BOGLB0 (17.5-18')

Reviewed by: KEVIN VILLALOBOS
Date: 28 MAR 96
SwRI EWG LABS

010008

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Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Kettle Bar Drying Curve

Tension in g/m	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C HG 3/28/96
1.0	0.02	2A	27.32	26.03	1.29	4.69	21.34	6.04	03/24/96	23.0
4.0	0.10	2B	27.33	26.61	0.72	4.79	21.82	3.30	03/25/96	23.0
7.2	0.10	2C	26.91	26.43	0.48	4.70	21.73	2.21	03/26/96	23.0
10.2	0.10	2D	27.10	26.73	0.37	4.79	21.94	1.69	03/27/96	23.0
15.2	0.10	2E	28.55	28.26	0.29	4.80	23.46	1.24	03/28/96	23.0

SwRI ID: 66075
Client Sample Id: BOGLB0 (17.5-18')

Reviewed by: KV
KEVIN VILLALOBOS
Date: 28 Mar 96
SwRI EWG LABS

010009

Printed: 03/28/1996
ver (03/04/96)

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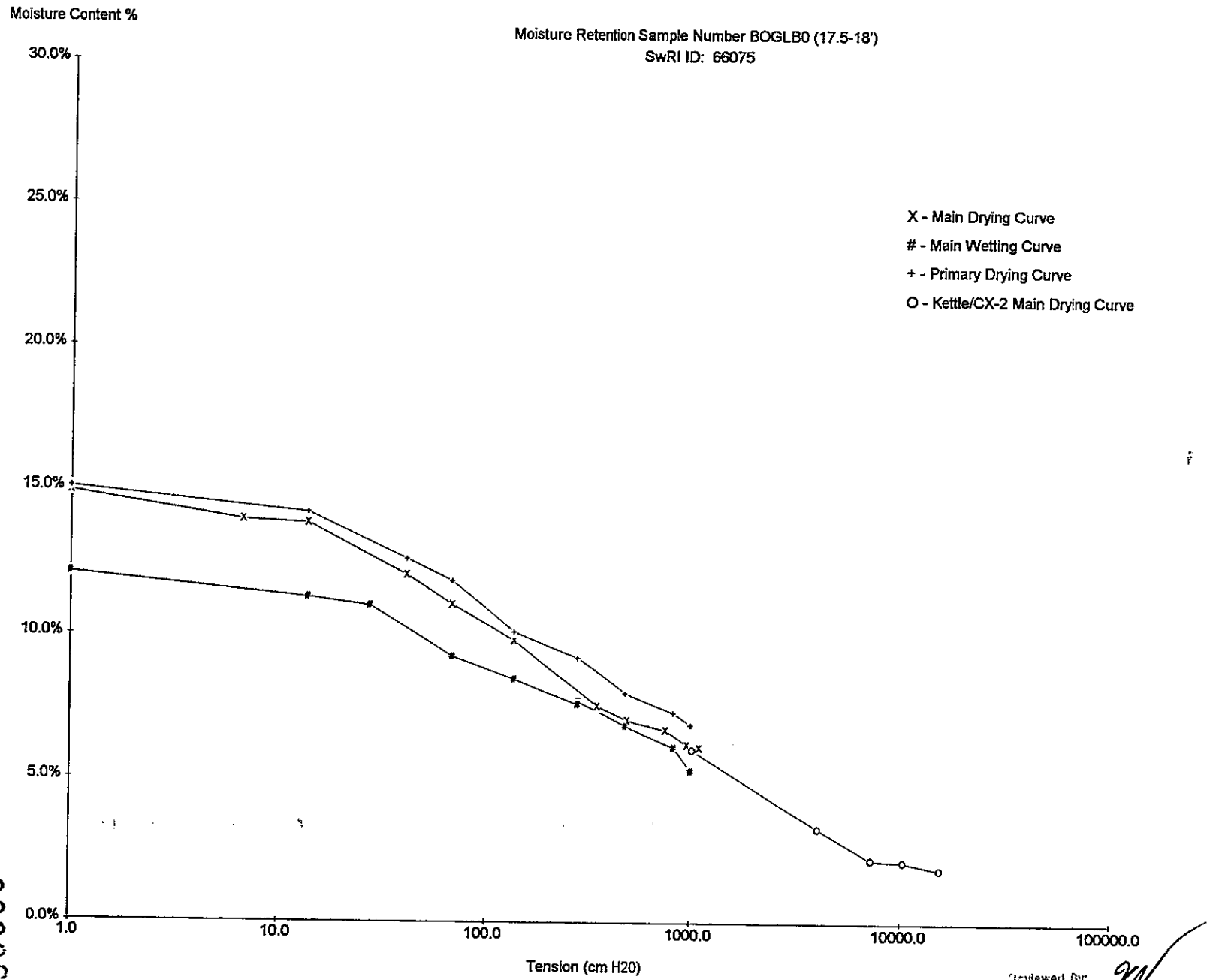

Reviewed By: KV
KEVIN VILLALOBOS
Date: 28 Mar 96
SwRI EWG LABS

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Bar Main Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-8	523.01	507.48	15.53	393.93	113.55	13.68	03/08/96	23
0.0	0.1	TC-8	522.98	507.48	15.50	393.93	113.55	13.65	03/08/96	23
6.8	1.0	TC-8	521.69	507.48	14.21	393.93	113.55	12.51	03/09/96	25
13.8	1.0	TC-8	521.11	507.48	13.63	393.93	113.55	12.00	03/10/96	24
41.3	1.0	TC-8	520.40	507.48	12.92	393.93	113.55	11.38	03/11/96	26
68.9	2.0	TC-8	518.92	507.48	11.44	393.93	113.55	10.07	03/11/96	25
137.7	10.0	TC-8	517.89	507.48	10.41	393.93	113.55	9.17	03/12/96	26
344.3	20.0	TC-8	516.83	507.48	9.35	393.93	113.55	8.23	03/12/96	23
495.8	20.0	TC-8	515.98	507.48	8.50	393.93	113.55	7.49	03/13/96	25
757.5	20.0	TC-8	515.21	507.48	7.73	393.93	113.55	6.81	03/14/96	25
964.0	20.0	TC-8	514.98	507.48	7.50	393.93	113.55	6.61	03/14/00	24
1101.9	20.0	TC-8	514.01	507.48	6.53	393.93	113.55	5.75	03/16/96	24

SwRI ID: 66076
Client Sample Id: BOGLB2 (24.5-25')

000061

Reviewed By: KEVIN VILLALOBOS
Date: 3/28/96
SwRI EWG LAS

010011

Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Bar Main Wetting Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.0	TC-8	0.00	0.00	0.00	0.00	0.00		02/26/00	23
0.0	0.0	TC-8	0.00	0.00	0.00	0.00	0.00		02/26/00	23
1005.4	20.0	TC-8	513.55	508.65	4.90	393.93	114.72	4.27	02/27/96	22
826.4	20.0	TC-8	514.68	508.65	6.03	393.93	114.72	5.26	02/28/96	25
482.1	20.0	TC-8	515.85	508.65	7.20	393.93	114.72	6.28	02/29/96	24
275.6	20.0	TC-8	516.38	508.65	7.73	393.93	114.72	6.74	03/01/00	26
275.5	20.0	TC-8	516.58	508.65	7.93	393.93	114.72	6.91	03/02/96	23
137.7	10.0	TC-8	517.31	508.65	8.66	393.93	114.72	7.55	03/03/96	24
68.9	2.0	TC-8	518.42	508.65	9.77	393.93	114.72	8.52	03/04/96	23
27.5	1.0	TC-8	519.89	508.65	11.24	393.93	114.72	9.80	03/05/96	22
13.8	1.0	TC-8	519.99	508.65	11.34	393.93	114.72	9.88	03/06/96	23
0.0	0.1	TC-8	521.86	508.65	13.21	393.93	114.72	11.51	03/07/96	23
0.0	0.1	TC-8	521.98	508.65	13.33	393.93	114.72	11.62	03/08/96	23

SwRI ID: 66076
Client Sample Id: BOGLB2 (24.5-25')

000062

Reviewed By: KEVIN VILLALOBOS
Date: 3/28/96
SwRI EWG LABS

010012

Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Bar Primary Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-8	538.07	509.11	28.96	393.93	115.18	25.14	02/10/96	23
0.0	0.1	TC-8	526.74	509.11	17.63	393.93	115.18	15.31	02/14/96	23
0.0	0.1	TC-8	524.58	509.11	15.47	393.93	115.18	13.43	02/17/96	23
13.8	1.0	TC-8	523.98	509.11	14.87	393.93	115.18	12.91	02/18/96	23
41.3	1.0	TC-8	522.64	509.11	13.53	393.93	115.18	11.75	02/19/96	23
68.9	2.0	TC-8	521.44	509.11	12.33	393.93	115.18	10.70	02/20/96	23
137.7	10.0	TC-8	520.15	509.11	11.04	393.93	115.18	9.58	02/21/96	23
275.5	20.0	TC-8	519.08	509.11	9.97	393.93	115.18	8.66	02/22/96	23
482.2	20.0	TC-8	518.12	509.11	9.01	393.93	115.18	7.82	02/23/96	22
826.4	20.0	TC-8	517.37	509.11	8.26	393.93	115.18	7.17	02/24/96	23
1005.4	20.0	TC-8	516.76	509.11	7.65	393.93	115.18	6.64	02/25/96	23

SwRI ID: 66076
Client Sample Id: BOGLB2 (24.5-25')

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Review By: KEVIN VILLALOBOS
Date: 3/28/96
SwRI EWG LABS

010013

Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Kettle Bar Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
1.0	0.02	3A	27.76	26.34	1.42	4.49	21.85	6.50	03/24/96	23
4.0	0.10	3B	26.31	25.72	0.59	4.62	21.10	2.80	03/25/96	23
7.2	0.10	3C	26.26	25.84	0.42	4.48	21.36	1.97	03/26/96	23
10.2	0.10	3D	26.13	25.84	0.29	4.78	21.06	1.38	03/27/96	23
15.2	0.10	3E	27.34	27.12	0.22	4.80	22.32	0.99	03/28/96	23

SwRI ID: 66076
Client Sample Id: BOGLB2 (24.5-25')

3/28/96

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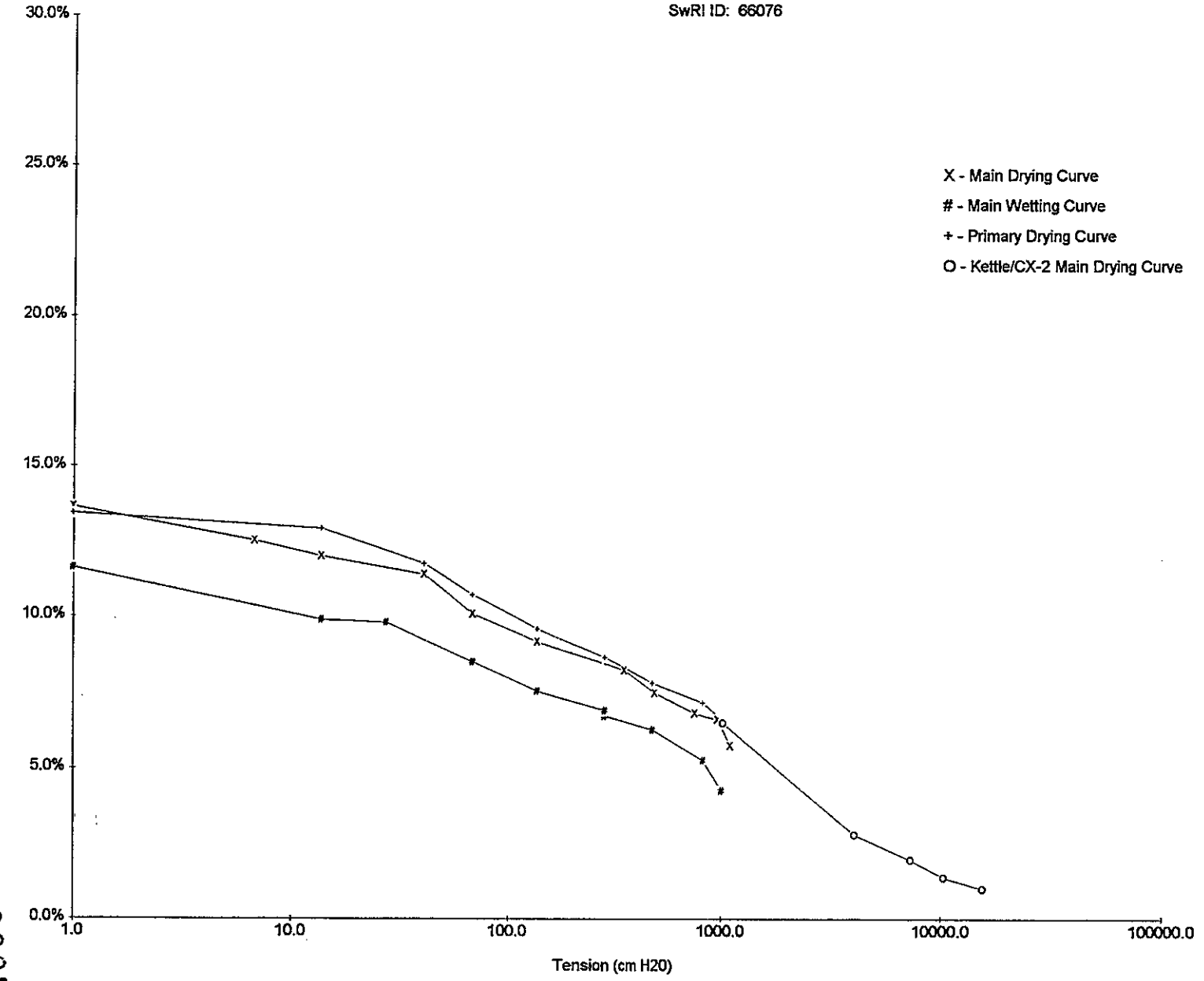
Printed: 03/28/1996
ver (03/04/96)

Moisture Content %

Moisture Retention Sample Number BOGLB2 (24.5-25')
SwRI ID: 66076



KEVIN VILLALOBOS
Date: 3/28/96
SwRI EWG LABS

010015

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SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Bar Main Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-6	524.04	509.87	14.17	394.19	115.68	12.25	03/08/96	23
0.0	0.1	TC-6	524.12	509.87	14.25	394.19	115.68	12.32	03/08/96	23
6.8	0.1	TC-6	523.98	509.87	14.11	394.19	115.68	12.20	03/09/96	25
13.8	1.0	TC-6	523.79	509.87	13.92	394.19	115.68	12.03	03/10/96	24
41.3	1.0	TC-6	522.24	509.87	12.37	394.19	115.68	10.69	03/11/96	26
68.9	2.0	TC-6	521.42	509.87	11.55	394.19	115.68	9.98	03/11/96	25
137.7	10.0	TC-6	520.88	509.87	11.01	394.19	115.68	9.52	03/12/96	26
344.3	20.0	TC-6	519.76	509.87	9.89	394.19	115.68	8.55	03/12/96	23
495.8	20.0	TC-6	519.04	509.87	9.17	394.19	115.68	7.93	03/13/96	25
757.5	20.0	TC-6	517.83	509.87	7.96	394.19	115.68	6.88	03/14/96	25
964.0	20.0	TC-6	517.25	509.87	7.38	394.19	115.68	6.38	03/14/96	24
1101.9	20.0	TC-6	516.46	509.87	6.59	394.19	115.68	5.70	03/16/96	24

SwRI ID: 66078
Client Sample Id: BOGLB7 (39.5-40')

Reviewed by: KEVIN VILLALOBOS
Date: 28 Mar 96
SwRI EWG LABS

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Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Bar Main Wetting Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample {e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
1005.4	20.0	TC-6	512.45	508.99	3.46	394.19	114.80	3.01	02/27/96	22
826.4	20.0	TC-6	513.37	508.99	4.38	394.19	114.80	3.82	02/28/96	25
482.1	20.0	TC-6	514.68	508.99	5.69	394.19	114.80	4.96	02/29/96	24
275.6	20.0	TC-6	515.37	508.99	6.38	394.19	114.80	5.56	03/01/00	26
275.5	20.0	TC-6	515.53	508.99	6.54	394.19	114.80	5.70	03/02/96	23
137.7	10.0	TC-6	517.47	508.99	8.48	394.19	114.80	7.39	03/03/96	24
68.9	2.0	TC-6	519.24	508.99	10.25	394.19	114.80	8.93	03/04/96	23
27.5	1.0	TC-6	520.14	508.99	11.15	394.19	114.80	9.71	03/05/96	22
13.8	1.0	TC-6	520.52	508.99	11.53	394.19	114.80	10.04	03/06/96	23
0.0	0.1	TC-6	521.36	508.99	12.37	394.19	114.80	10.78	03/07/96	23
0.0	0.1	TC-6	521.48	508.99	12.49	394.19	114.80	10.88	03/08/96	23

SwRI ID: 66078
Client Sample Id: BOGLB7 (39.5-40')

Reviewed By: KEVIN VILLALOBOS
Date: 28 Mar 96
SwRI ENG LABS

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Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Bar Primary Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample {e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-6	524.26	510.38	13.88	394.19	116.19	11.95	02/10/96	23
0.0	0.1	TC-6	524.51	510.38	14.13	394.19	116.19	12.16	02/14/96	23
0.0	0.1	TC-6	524.95	510.38	14.57	394.19	116.19	12.54	02/17/96	23
13.8	1.0	TC-6	524.30	510.38	13.92	394.19	116.19	11.98	02/18/96	23
41.3	1.0	TC-6	523.04	510.38	12.66	394.19	116.19	10.90	02/19/96	23
68.9	2.0	TC-6	522.14	510.38	11.76	394.19	116.19	10.12	02/20/96	23
137.7	10.0	TC-6	521.61	510.38	11.23	394.19	116.19	9.67	02/21/96	23
275.5	20.0	TC-6	521.02	510.38	10.64	394.19	116.19	9.16	02/22/96	23
482.2	20.0	TC-6	520.47	510.38	10.09	394.19	116.19	8.68	02/23/96	22
826.4	20.0	TC-6	519.24	510.38	8.86	394.19	116.19	7.63	02/24/96	23
1005.4	20.0	TC-6	518.87	510.38	8.49	394.19	116.19	7.31	02/25/96	23

SwRI ID: 66078
Client Sample Id: BOGLB7 (39.5-40')

Reviewed By: KEVIN VILLALOBOS
Date: 28 Mar 96
SwRI EWG LABS

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Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8374

Kettle Bar Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
1.0	0.02	4A	26.94	25.72	1.22	4.78	20.94	5.83	03/24/96	23
4.0	0.10	4B	27.23	26.55	0.68	4.79	21.76	3.13	03/25/96	23
7.2	0.10	4C	27.92	27.42	0.50	4.60	22.82	2.19	03/26/96	23
10.2	0.10	4D	27.23	26.86	0.37	4.70	22.16	1.67	03/27/96	23
15.2	0.10	4E	26.05	25.80	0.25	4.79	21.01	1.19	03/28/96	23

SwRI ID: 66078
Client Sample Id: BOGLB7 (39.5-40')

Reviewed By: KV
KEVIN VILLALOBOS
Date: 28 Mar 96
SwRI EWG LABS

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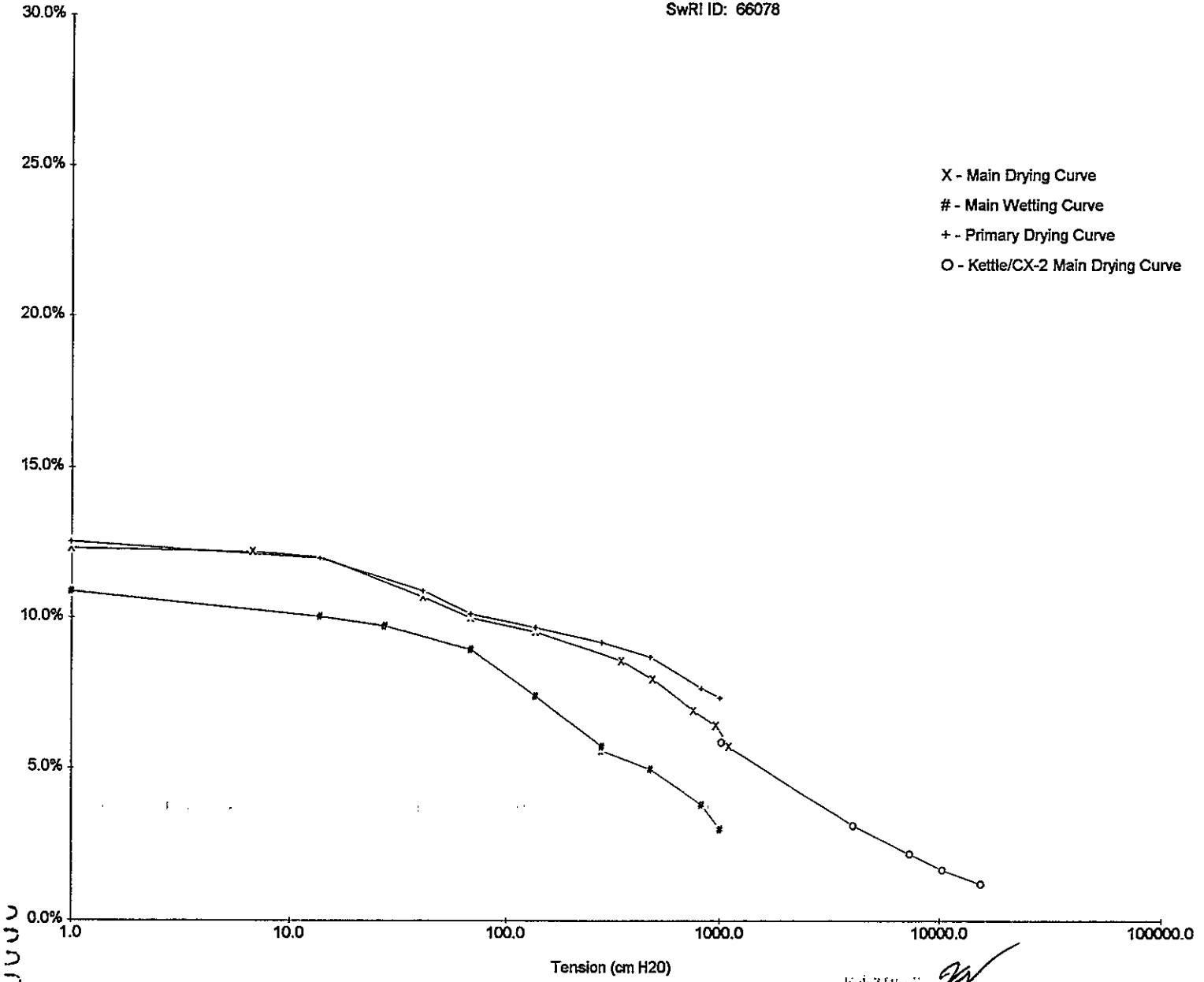
Printed: 03/28/1996
ver (03/04/96)

Moisture Content %

Moisture Retention Sample Number BOGLB7 (39.5-40')
SwRI ID: 66078



KEVIN VILLAREAL
Date 28 Mar 96
SwRI CWG 1.NB5

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SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Bar Main Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-1	539.60	510.53	29.07	395.14	115.39	25.19	03/08/96	23
0.0	0.1	TC-1	539.10	510.53	28.57	395.14	115.39	24.76	03/08/96	23
6.8	1.0	TC-1	539.12	510.53	28.59	395.14	115.39	24.78	03/09/96	25
13.8	1.0	TC-1	538.97	510.53	28.44	395.14	115.39	24.65	03/10/96	24
41.3	1.0	TC-1	538.41	510.53	27.88	395.14	115.39	24.16	03/11/96	26
68.9	2.0	TC-1	536.56	510.53	26.03	395.14	115.39	22.56	03/11/96	25
137.7	10.0	TC-1	534.98	510.53	24.45	395.14	115.39	21.19	03/12/96	26
344.3	20.0	TC-1	531.68	510.53	21.15	395.14	115.39	18.33	03/12/96	23
495.8	20.0	TC-1	531.23	510.53	20.70	395.14	115.39	17.94	03/13/96	25
757.5	20.0	TC-1	529.87	510.53	19.34	395.14	115.39	16.76	03/14/96	25
964.0	20.0	TC-1	529.05	510.53	18.52	395.14	115.39	16.05	03/14/96	24
1101.9	20.0	TC-1	527.89	510.53	17.36	395.14	115.39	15.04	03/16/96	24

SwRI ID: 66101
Client Sample Id: BOGL72

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Printed: 03/28/1996
ver (03/04/96)

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SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Bar Main Wetting Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
1005.4	20.0	TC-1	525.06	512.89	12.17	395.14	117.75	10.34	02/27/96	22
826.4	20.0	TC-1	526.85	512.89	13.96	395.14	117.75	11.86	02/28/96	25
482.1	20.0	TC-1	527.86	512.89	14.97	395.14	117.75	12.71	02/29/96	24
275.6	20.0	TC-1	530.86	512.89	17.97	395.14	117.75	15.26	03/01/96	26
275.5	20.0	TC-1	530.98	512.89	18.09	395.14	117.75	15.36	03/02/96	23
137.7	10.0	TC-1	532.06	512.89	19.17	395.14	117.75	16.28	03/03/96	24
68.9	2.0	TC-1	532.56	512.89	19.67	395.14	117.75	16.70	03/04/96	23
27.5	1.0	TC-1	533.54	512.89	20.65	395.14	117.75	17.54	03/05/96	22
13.8	1.0	TC-1	534.52	512.89	21.63	395.14	117.75	18.37	03/06/96	23
0.0	0.1	TC-1	534.85	512.89	21.96	395.14	117.75	18.65	03/07/96	23
0.0	0.1	TC-1	535.41	512.89	22.52	395.14	117.75	19.13	03/08/96	23
0.0	0.0	TC-1	0.00	0.00	0.00	0.00	0.00			0

SwRI ID: 66101
Client Sample Id: BOGL72

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Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Bar Primary Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample {e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-1	544.89	513.19	31.70	395.14	118.05	26.85	02/10/96	23
0.0	0.1	TC-1	543.34	513.19	30.15	395.14	118.05	25.54	02/14/96	23
0.0	0.1	TC-1	543.19	513.19	30.00	395.14	118.05	25.41	02/17/96	23
13.8	1.0	TC-1	542.58	513.19	29.39	395.14	118.05	24.90	02/18/96	23
41.3	1.0	TC-1	542.55	513.19	29.36	395.14	118.05	24.87	02/19/96	23
68.9	2.0	TC-1	540.72	513.19	27.53	395.14	118.05	23.32	02/20/96	23
137.7	10.0	TC-1	538.67	513.19	25.48	395.14	118.05	21.58	02/21/96	23
275.5	20.0	TC-1	536.10	513.19	22.91	395.14	118.05	19.41	02/22/96	23
482.2	20.0	TC-1	535.24	513.19	22.05	395.14	118.05	18.68	02/23/96	22
826.4	20.0	TC-1	533.78	513.19	20.59	395.14	118.05	17.44	02/24/96	23
1005.4	20.0	TC-1	533.12	513.19	19.93	395.14	118.05	16.88	02/25/96	23

SwRI ID: 66101
Client Sample Id: BOGL72

3/28/96

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Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Kettle Bar Drying Curve

Tension in gm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
1.0	0.02	5A	29.82	26.55	3.27	4.48	22.07	14.82	03/24/96	23
4.0	0.10	5B	29.31	27.82	1.49	4.62	23.20	6.42	03/25/96	23
7.2	0.10	5C	28.98	28.08	0.90	4.79	23.29	3.86	03/26/96	23
10.2	0.10	5D	28.70	28.02	0.68	4.61	23.41	2.90	03/27/96	23
15.2	0.10	5E	29.37	28.93	0.44	4.79	24.14	1.82	03/28/96	23

SwRI ID: 66101
Client Sample Id: BOGL72

3/28/96

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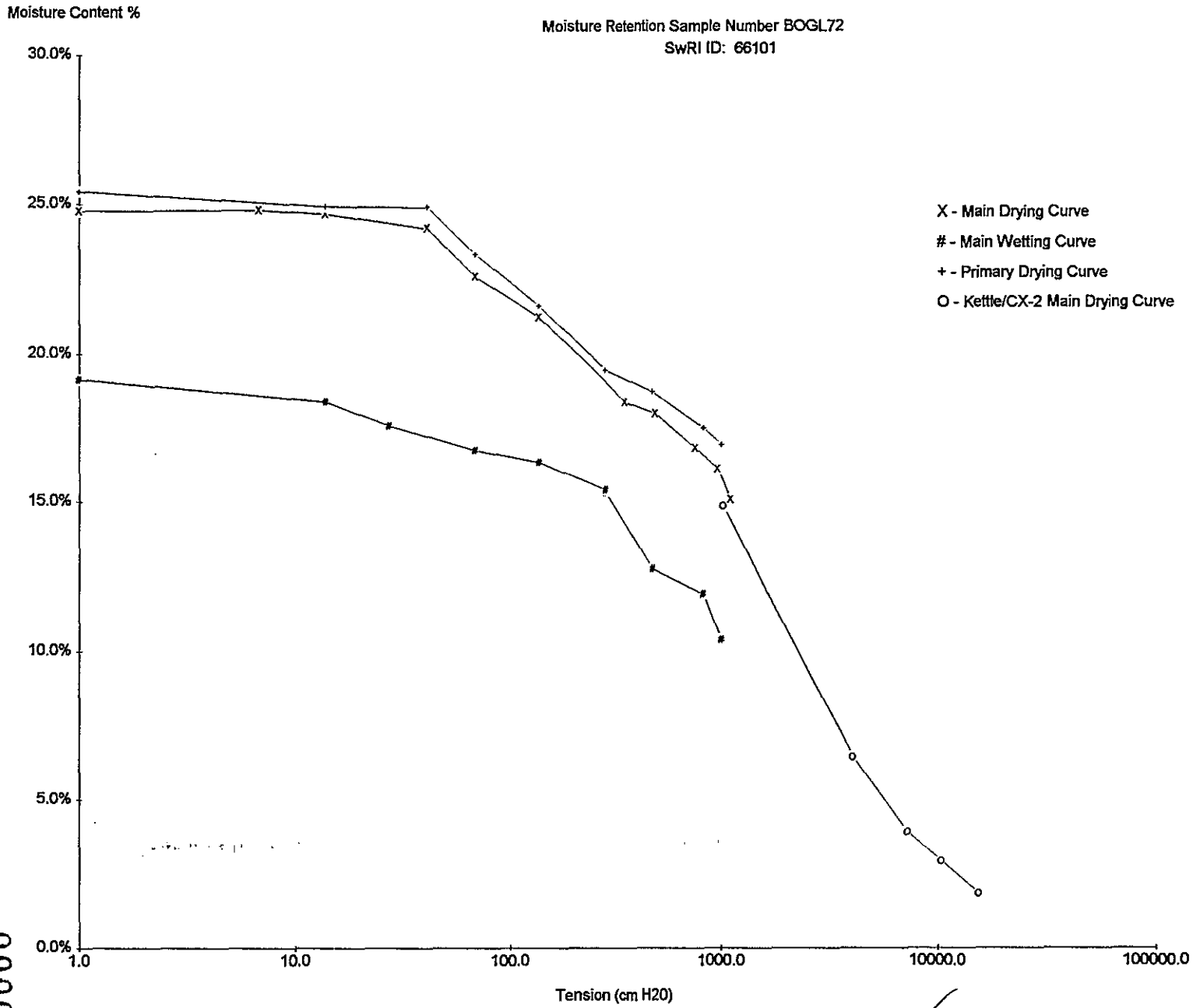
Printed: 03/28/1996
ver (03/04/96)



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SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Bar Main Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-2	524.12	495.21	28.91	394.20	101.01	28.62	03/08/96	23
0.0	0.1	TC-2	524.16	495.21	28.95	394.20	101.01	28.66	03/08/96	23
6.8	0.1	TC-2	523.68	495.21	28.47	394.20	101.01	28.19	03/09/96	25
13.8	1.0	TC-2	523.54	495.21	28.33	394.20	101.01	28.05	03/10/96	24
41.3	1.0	TC-2	523.12	495.21	27.91	394.20	101.01	27.63	03/11/96	26
68.9	2.0	TC-2	521.35	495.21	26.14	394.20	101.01	25.88	03/11/96	25
137.7	10.0	TC-2	514.95	495.21	19.74	394.20	101.01	19.54	03/12/96	26
344.3	20.0	TC-2	511.07	495.21	15.86	394.20	101.01	15.70	03/12/96	23
495.8	20.0	TC-2	510.56	495.21	15.35	394.20	101.01	15.20	03/13/96	25
757.5	20.0	TC-2	508.87	495.21	13.66	394.20	101.01	13.52	03/14/96	25
964.0	20.0	TC-2	507.89	495.21	12.68	394.20	101.01	12.55	03/14/96	24
1101.9	20.0	TC-2	507.68	495.21	12.47	394.20	101.01	12.35	03/16/96	24

SwRI ID: 66102
Client Sample Id: BOGL74

3/28/96

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Printed: 03/28/1996
ver (03/04/96)

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SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Bar Main Wetting Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample {e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.0	TC-2	0.00	0.00	0.00	0.00	0.00		02/26/96	23
0.0	0.0	TC-2	0.00	0.00	0.00	0.00	0.00		02/26/96	23
1005.4	20.0	TC-2	503.87	493.61	10.26	394.20	99.41	10.32	02/27/96	22
826.4	20.0	TC-2	504.23	493.61	10.62	394.20	99.41	10.68	02/28/96	25
482.1	20.0	TC-2	505.13	493.61	11.52	394.20	99.41	11.59	02/29/96	24
275.6	20.0	TC-2	506.42	493.61	12.81	394.20	99.41	12.89	03/01/96	26
275.5	20.0	TC-2	506.54	493.61	12.93	394.20	99.41	13.01	03/02/96	23
137.7	10.0	TC-2	510.47	493.61	16.86	394.20	99.41	16.96	03/03/96	24
68.9	2.0	TC-2.	512.14	493.61	18.53	394.20	99.41	18.64	03/04/96	23
27.5	1.0	TC-2	513.77	493.61	20.16	394.20	99.41	20.28	03/05/96	22
13.8	1.0	TC-2	515.65	493.61	22.04	394.20	99.41	22.17	03/06/96	23
0.0	0.1	TC-2	518.23	493.61	24.62	394.20	99.41	24.77	03/07/96	23
0.0	0.1	TC-2	517.89	493.61	24.28	394.20	99.41	24.42	03/08/96	23

SwRI ID: 66102
Client Sample Id: BOGL74

KEVIN VILLA
Date: 3/28/96

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Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Bar Primary Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-2	524.89	494.91	29.98	394.20	100.71	29.77	02/10/96	23
0.0	0.1	TC-2	524.10	494.91	29.19	394.20	100.71	28.98	02/14/96	23
0.0	0.1	TC-2	524.05	494.91	29.14	394.20	100.71	28.93	02/17/96	23
13.8	1.0	TC-2	523.89	494.91	28.98	394.20	100.71	28.78	02/18/96	23
41.3	1.0	TC-2	522.86	494.91	27.95	394.20	100.71	27.75	02/19/96	23
68.9	2.0	TC-2	522.26	494.91	27.35	394.20	100.71	27.16	02/20/96	23
137.7	10.0	TC-2	516.62	494.91	21.71	394.20	100.71	21.56	02/21/96	23
275.5	20.0	TC-2	513.87	494.91	18.96	394.20	100.71	18.83	02/22/96	23
482.2	20.0	TC-2	511.89	494.91	16.98	394.20	100.71	16.86	02/23/96	22
826.4	20.0	TC-2	510.65	494.91	15.74	394.20	100.71	15.63	02/24/96	23
1005.4	20.0	TC-2	508.63	494.10	14.53	394.20	99.90	14.54	02/25/96	23

SwRI ID: 66102
Client Sample Id: BOGL74

REVIEWED BY: KV
REVIN VILLAGO
DATE: 3/28/96
CLIENT EVAL

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Printed: 03/28/1996
ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Kettle Bar Drying Curve

Tension in g/m	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
1.0	0.02	1A	30.28	27.45	2.83	4.51	22.94	12.34	03/24/96	23
4.0	0.10	1B	29.24	28.12	1.12	4.68	23.44	4.78	03/25/96	23
7.2	0.10	1C	29.50	28.72	0.78	4.82	23.90	3.26	03/26/96	23
10.2	0.10	1D	29.54	28.93	0.61	4.80	24.13	2.53	03/27/96	23
15.2	0.10	1E	30.22	29.77	0.45	4.81	24.96	1.80	03/28/96	23

SwRI ID: 66102
Client Sample Id: BOGL74

REVIEWED 3/28/96

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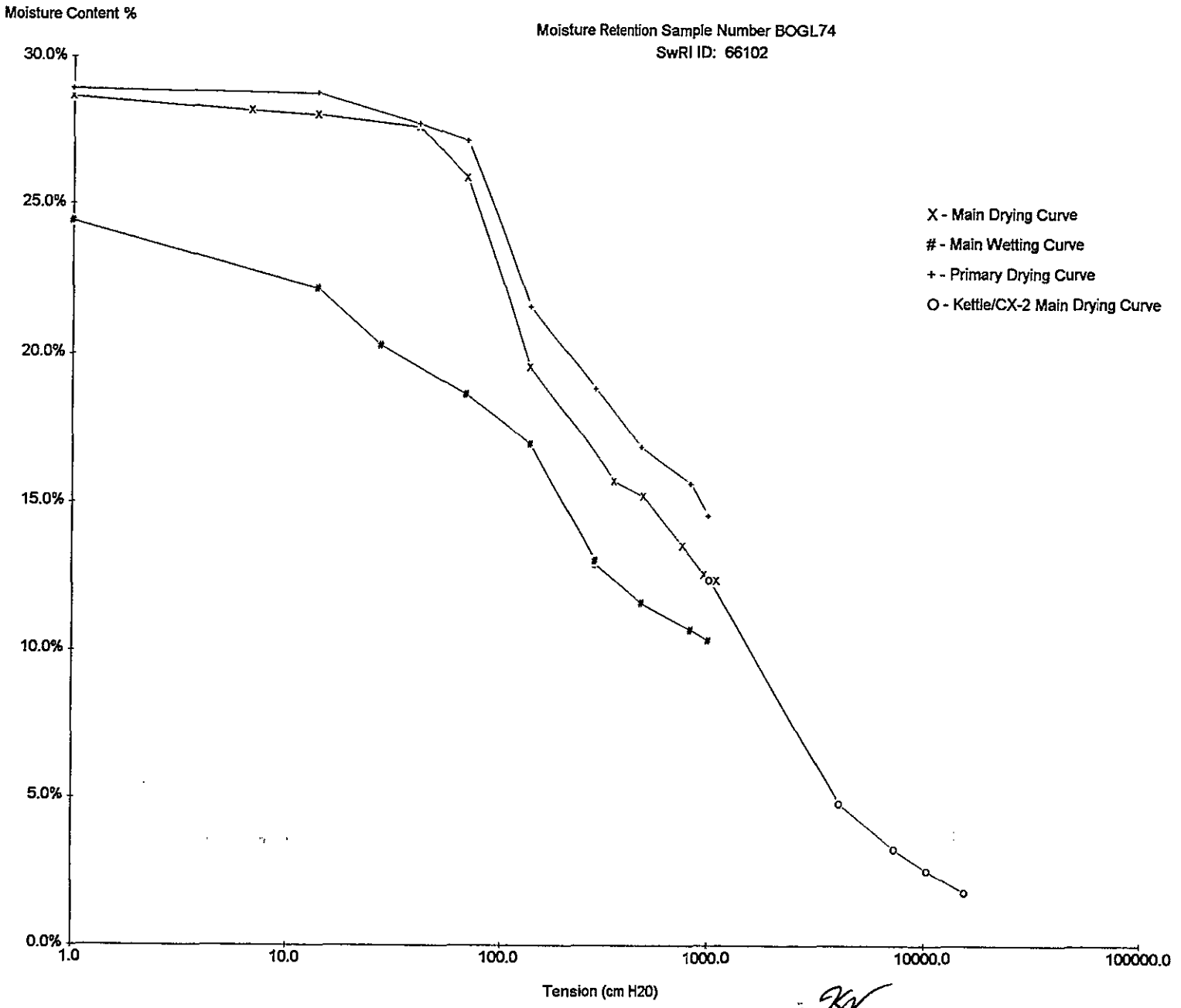
Printed: 03/28/1996
ver (03/04/96)



KV
3/28/96

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SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Bar Main Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample {e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-3	542.56	515.38	27.18	394.68	120.70	22.52	03/08/96	23
0.0	0.1	TC-3	543.15	515.38	27.77	394.68	120.70	23.01	03/08/96	23
6.8	0.1	TC-3	542.12	515.38	26.74	394.68	120.70	22.15	03/09/96	25
13.8	1.0	TC-3	542.01	515.38	26.63	394.68	120.70	22.06	03/10/96	24
41.3	1.0	TC-2	541.09	515.38	25.71	394.68	120.70	21.30	03/11/96	26
68.9	2.0	TC-3	538.67	515.38	23.29	394.68	120.70	19.30	03/11/96	25
137.7	10.0	TC-3	535.47	515.38	20.09	394.68	120.70	16.64	03/12/96	26
344.3	20.0	TC-3	533.45	515.38	18.07	394.68	120.70	14.97	03/12/96	23
495.8	20.0	TC-3	532.41	515.38	17.03	394.68	120.70	14.11	03/13/96	25
757.5	20.0	TC-3	531.45	515.38	16.07	394.68	120.70	13.31	03/14/96	25
964.0	20.0	TC-3	531.01	515.38	15.63	394.68	120.70	12.95	03/14/96	24
1101.9	20.0	TC-3	530.53	515.38	15.15	394.68	120.70	12.55	03/16/96	24

SwRI ID: 66103
Client Sample Id: BOGL80

Reviewed By: [illegible]
REVIEW [illegible]
Date: 3/28/96
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ver (03/04/96)

SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Bar Main Wetting Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample {e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
1005.4	20.0	TC-3	526.87	515.11	11.76	394.68	120.43	9.77	02/27/96	22
826.4	20.0	TC-3	527.43	515.11	12.32	394.68	120.43	10.23	02/28/96	25
482.1	20.0	TC-3	528.67	515.11	13.56	394.68	120.43	11.26	02/29/96	24
275.6	20.0	TC-3	530.88	515.11	15.77	394.68	120.43	13.09	03/01/96	26
275.5	20.0	TC-3	530.78	515.11	15.67	394.68	120.43	13.01	03/02/96	23
137.7	10.0	TC-3	532.64	515.11	17.53	394.68	120.43	14.56	03/03/96	24
68.9	2.0	TC-3	535.01	515.11	19.90	394.68	120.43	16.52	03/04/96	23
27.5	1.0	TC-3	537.87	515.11	22.76	394.68	120.43	18.90	03/05/96	22
13.8	1.0	TC-3	538.65	515.11	23.54	394.68	120.43	19.55	03/06/96	23
0.0	0.1	TC-3	540.12	515.11	25.01	394.68	120.43	20.77	03/07/96	23
0.0	0.1	TC-2	541.13	515.11	26.02	394.68	120.43	21.61	03/08/96	23

SwRI ID: 66103
Client Sample Id: BOGL80

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SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Bar Primary Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-3	553.46	516.80	36.66	394.68	122.12	30.02	02/10/96	23
0.0	0.1	TC-3	547.79	516.80	30.99	394.68	122.12	25.38	02/14/96	23
0.0	0.1	TC-3	544.65	516.80	27.85	394.68	122.12	22.81	02/17/96	23
13.8	1.0	TC-3	544.00	516.80	27.20	394.68	122.12	22.27	02/18/96	23
41.3	1.0	TC-3	543.16	516.80	26.36	394.68	122.12	21.59	02/19/96	23
68.9	2.0	TC-3	541.51	516.80	24.71	394.68	122.12	20.23	02/20/96	23
137.7	10.0	TC-3	539.46	516.80	22.66	394.68	122.12	18.56	02/21/96	23
275.5	20.0	TC-3	536.34	516.80	19.54	394.68	122.12	16.00	02/22/96	23
482.2	20.0	TC-3	534.79	516.80	17.99	394.68	122.12	14.73	02/23/96	22
826.4	20.0	TC-3	533.89	516.80	17.09	394.68	122.12	13.99	02/24/96	23
1005.4	20.0	TC-3	533.54	516.80	16.74	394.68	122.12	13.71	02/25/96	23

SwRI ID: 66103
Client Sample Id: BOGL80

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Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Kettle Bar Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
1.0	0.02	1A	30.00	27.22	2.78	4.81	22.41	12.41	03/24/96	23
4.0	0.10	1B	29.57	28.38	1.19	4.70	23.68	5.03	03/25/96	23
7.2	0.10	1C	29.30	28.51	0.79	4.81	23.70	3.33	03/26/96	23
10.2	0.10	1D	28.86	28.34	0.52	4.62	23.72	2.19	03/27/96	23
15.2	0.10	1E	29.81	29.49	0.32	4.70	24.79	1.29	03/28/96	23

SwRI ID: 66103
Client Sample Id: BOGL80

Reviewed By: KV
KEVIN VILLALOBOS
Date: 3/28/96
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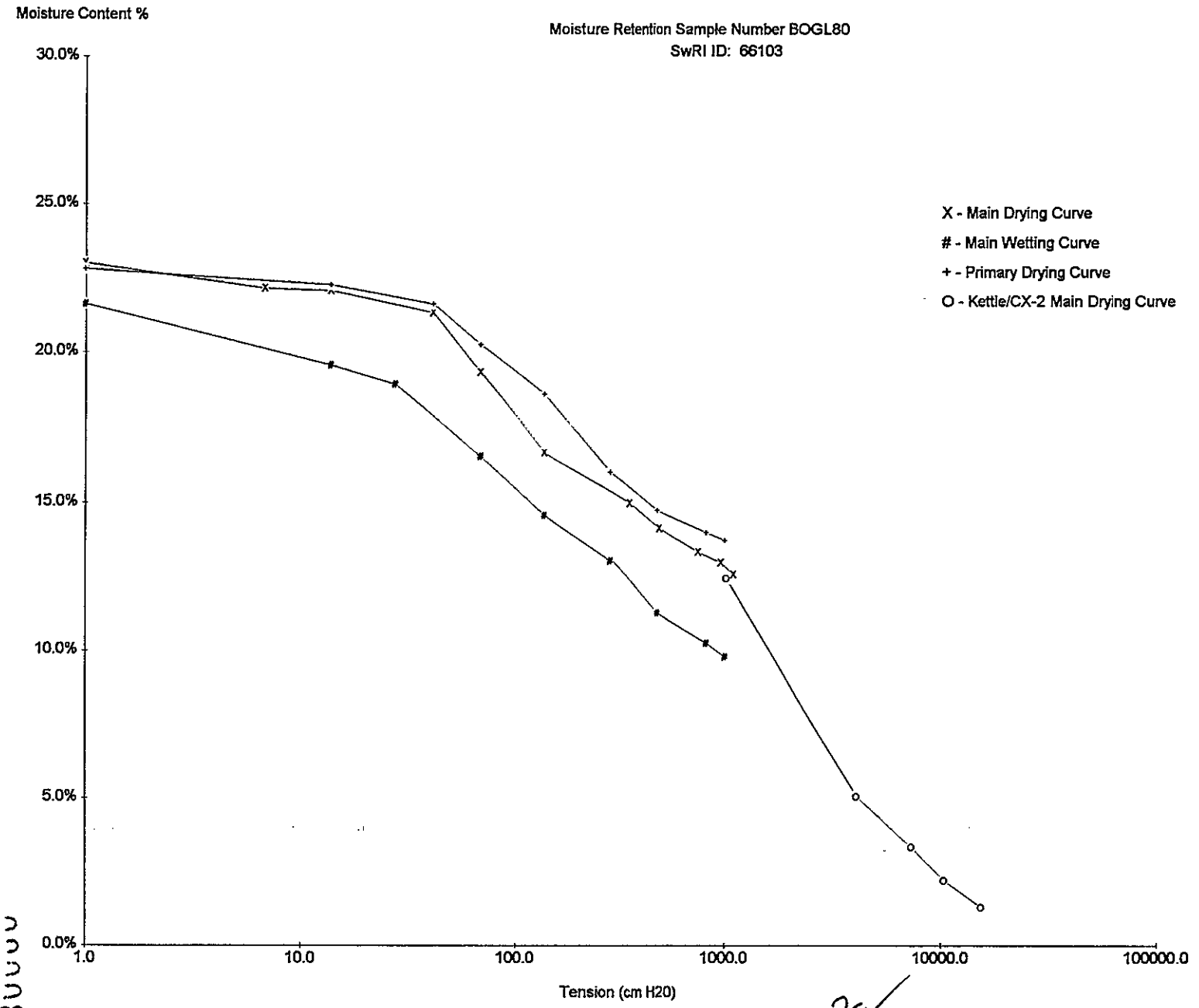

Reviewed by: KV
KEVIN VILLAROEL
Date: 3/28/96
SwRI EVG LABS

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SwRI
Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Bar Main Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample {e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-4	541.21	512.56	28.65	394.31	118.25	24.23	03/08/96	23
0.0	0.1	TC-4	540.12	512.56	27.56	394.31	118.25	23.31	03/08/96	23
6.8	0.1	TC-4	539.89	512.56	27.33	394.31	118.25	23.11	03/09/96	25
13.8	1.0	TC-4	539.12	512.56	26.56	394.31	118.25	22.46	03/10/96	24
41.3	1.0	TC-4	537.89	512.56	25.33	394.31	118.25	21.42	03/11/96	26
68.9	2.0	TC-4	535.98	512.56	23.42	394.31	118.25	19.81	03/11/96	25
137.7	10.0	TC-4	534.13	512.56	21.57	394.31	118.25	18.24	03/12/96	26
344.3	20.0	TC-4	531.87	512.56	19.31	394.31	118.25	16.33	03/12/96	23
495.8	20.0	TC-4	530.56	512.56	18.00	394.31	118.25	15.22	03/13/96	25
757.5	20.0	TC-4	528.67	512.56	16.11	394.31	118.25	13.62	03/14/96	25
964.0	20.0	TC-4	527.68	512.56	15.12	394.31	118.25	12.79	03/14/96	24
1101.9	20.0	TC-4	529.34	514.87	14.47	394.31	120.56	12.00	03/16/96	24

SwRI ID: 66104
Client Sample Id: BOGL85

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Date: 3/28/96
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Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Bar Main Wetting Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
1005.4	20.0	TC-4	525.90	513.12	12.78	394.31	118.81	10.76	02/27/96	22
826.4	20.0	TC-4	526.35	513.12	13.23	394.31	118.81	11.14	02/28/96	25
482.1	20.0	TC-4	527.21	513.12	14.09	394.31	118.81	11.86	02/29/96	24
275.6	20.0	TC-4	528.62	513.12	15.50	394.31	118.81	13.05	03/01/96	26
275.5	20.0	TC-4	528.61	513.12	15.49	394.31	118.81	13.04	03/02/96	23
137.7	20.0	TC-4	531.42	513.12	18.30	394.31	118.81	15.40	03/03/96	24
68.9	10.0	TC-4	533.98	513.12	20.86	394.31	118.81	17.56	03/04/96	23
27.5	10.0	TC-4	536.47	513.12	23.35	394.31	118.81	19.65	03/05/96	22
13.8	2.0	TC-4	537.47	513.12	24.35	394.31	118.81	20.49	03/06/96	23
0.0	2.0	TC-4	539.12	513.12	26.00	394.31	118.81	21.88	03/07/96	23
0.0	1.0	TC-4	538.46	513.12	25.34	394.31	118.81	21.33	03/08/96	23

SwRI ID: 66104
Client Sample Id: BOGL85

Reviewed By: KEVIN VILLALOBOS
Date: 3/28/96
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Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Bar Primary Drying Curve

Tension in cm	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample {e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
0.0	0.1	TC-4	551.48	514.87	36.61	394.31	120.56	30.37	02/10/96	23
0.0	0.1	TC-4	546.32	514.87	31.45	394.31	120.56	26.09	02/14/96	23
0.0	0.1	TC-4	543.72	514.87	28.85	394.31	120.56	23.93	02/17/96	23
13.8	2.0	TC-4	543.09	514.87	28.22	394.31	120.56	23.41	02/18/96	23
41.3	10.0	TC-4	541.68	514.87	26.81	394.31	120.56	22.24	02/19/96	23
68.9	20.0	TC-4	539.87	514.87	25.00	394.31	120.56	20.74	02/20/96	23
137.7	20.0	TC-4	538.12	514.87	23.25	394.31	120.56	19.29	02/21/96	23
275.5	20.0	TC-4	536.24	514.87	21.37	394.31	120.56	17.73	02/22/96	23
482.2	20.0	TC-4	534.21	514.87	19.34	394.31	120.56	16.04	02/23/96	22
826.4	20.0	TC-4	531.89	514.87	17.02	394.31	120.56	14.12	02/24/96	23
1005.4	20.0	TC-4	531.00	514.87	16.13	394.31	120.56	13.38	02/25/96	23

SwRI ID: 66104
Client Sample Id: BOGL85

Reviewed by: KEVIN VILLA DEC
Date: 3/28/96
SwRI EWG LABS

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ver (03/04/96)

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Divison 1

Client: LOCKHEED ANALYTICAL SERVICES
Work Order: 8379

Kettle Bar Drying Curve

Tension in g/m	error in tension value +/-	Container number	Weight of container / ring, + wet sample (a)	Weight of container / ring, + dry sample (b)	Weight of moisture (c) = (a-b)	Weight of container and ring (d)	Weight of dry sample (e) = (b-d)	Moisture content, wt % (c/e)*100	Date Measured	Temperature deg C
1.0	0.02	1A	29.89	27.24	2.65	4.79	22.45	11.80	03/24/96	23
4.0	0.10	1B	29.64	28.68	0.96	4.80	23.88	4.02	03/25/96	23
7.2	0.10	1C	29.07	28.55	0.52	4.62	23.93	2.17	03/26/96	23
10.2	0.10	1D	29.13	28.81	0.32	4.70	24.11	1.33	02/27/96	23
15.2	0.10	1E	30.12	29.91	0.21	4.81	25.10	0.84	03/28/96	23

SwRI ID: 66104
Client Sample Id: BOGL85

Date: 3/28/96

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ver (03/04/96)

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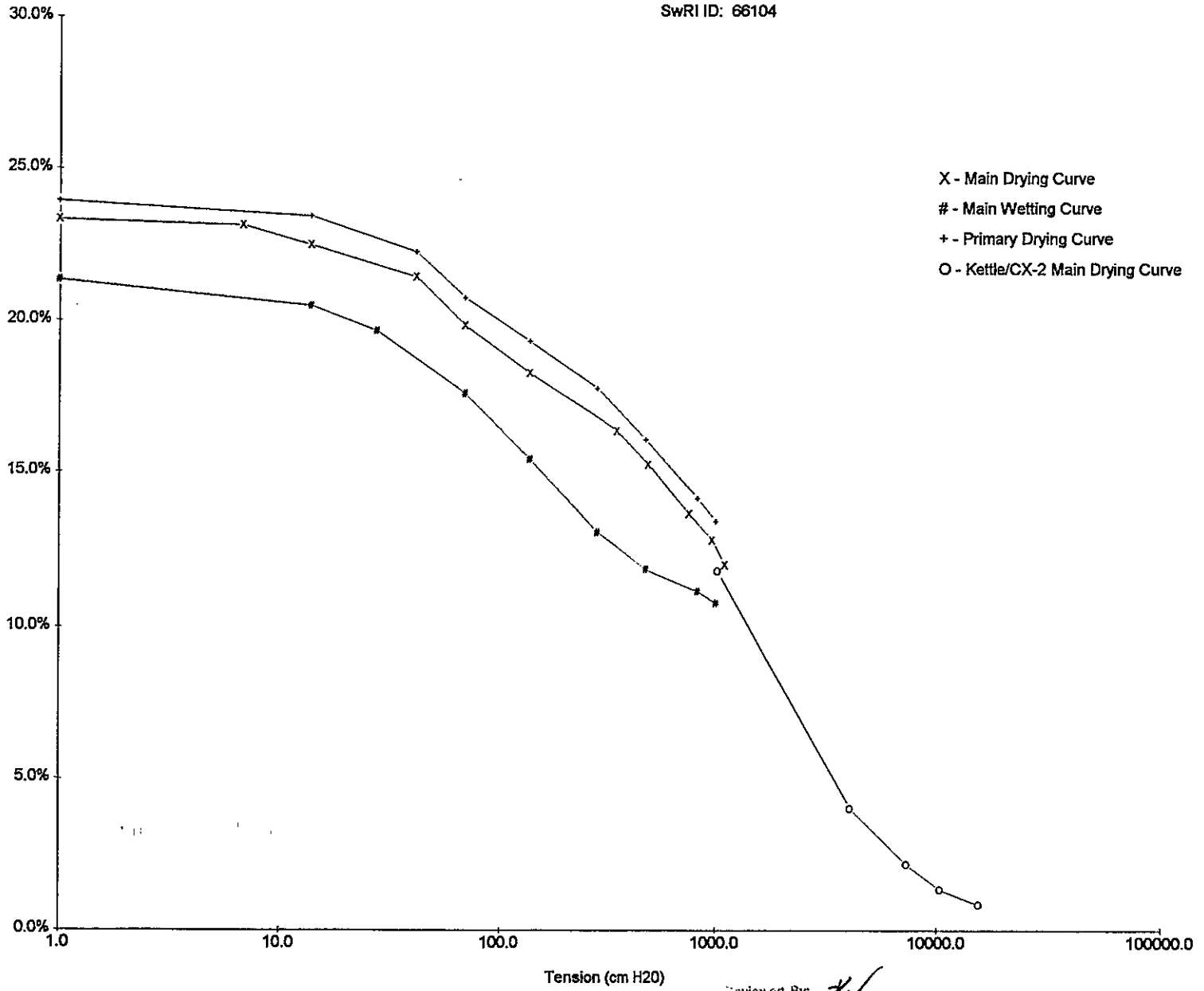
Moisture Content %

Moisture Retention Sample Number BOGL85
SwRI ID: 66104



Reviewed By: KV
KEVIN VILLALOBOS
Date: 3/28/96
SwRI EWG LABS

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