



**WELL COMPLETION FORM**  
**WELL HISTORY - DESCRIPTION OF WELL & LEASE**

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

- New Well       Re-Entry       Workover
- Oil       WSW       SWD       SIOW
- Gas       D&A       ENHR       SIGW
- OG       GSW       Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic       Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

- Deepening       Re-perf.       Conv. to ENHR       Conv. to SWD
- Conv. to GSW
- Plug Back: \_\_\_\_\_ Plug Back Total Depth \_\_\_\_\_
- Commingled      Permit #: \_\_\_\_\_
- Dual Completion      Permit #: \_\_\_\_\_
- SWD      Permit #: \_\_\_\_\_
- ENHR      Permit #: \_\_\_\_\_
- GSW      Permit #: \_\_\_\_\_

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE       NW       SE       SW

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

**Drilling Fluid Management Plan**

(Data must be collected from the Reserve Pit)

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite: \_\_\_\_\_

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

**AFFIDAVIT**

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

**KCC Office Use ONLY**

- Letter of Confidentiality Received  
Date: \_\_\_\_\_
- Confidential Release Date: \_\_\_\_\_
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_



Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops and base of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed. Attach complete copy of all Electric Wire-line Logs surveyed. Attach final geological well site report.

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Submitted Electronically <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(If no, Submit Copy)</i>  List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
_____ Perforate _____ Protect Casing _____ Plug Back TD _____ Plug Off Zone				

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD:      Size: \_\_\_\_\_ Set At: \_\_\_\_\_ Packer At: \_\_\_\_\_ Liner Run:  Yes  No

Date of First, Resumed Production, SWD or ENHR. \_\_\_\_\_ Producing Method:  
 Flowing    Pumping    Gas Lift    Other *(Explain)* \_\_\_\_\_

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
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<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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Form	ACO1 - Well Completion
Operator	Grand Mesa Operating Company
Well Name	VAILE 1-22
Doc ID	1052275

All Electric Logs Run

CPDCN Log
AISF Electric Log
Micro. Res. Log
Dual Rec. Cement Bond Log

Form	ACO1 - Well Completion
Operator	Grand Mesa Operating Company
Well Name	VAILE 1-22
Doc ID	1052275

Tops

Name	Top	Datum
Bs/Stone Corral	2534	+504
Heebner	3986	-948
Lansing	4033	-995
Muncie Creek	4183	-1145
Hushpuckney	4305	-1267
Marmaton	4372	-1334
Little Osage	4500	-1462
Johnson	4602	-1564
Morrow	4625	-1587
Mississippian	4660	-1622
LTD	4735	

Conservation Division  
Finney State Office Building  
130 S. Market, Rm. 2078  
Wichita, KS 67202-3802



phone: 316-337-6200  
fax: 316-337-6211  
<http://kcc.ks.gov/>

Thomas E. Wright, Chairman  
Ward Loyd, Commissioner

Corporation Commission

Sam Brownback, Governor

March 14, 2011

Ronald N. Sinclair  
Grand Mesa Operating Company  
1700 N WATERFRONT PKWY BLDG 600  
WICHITA, KS 67206-5514

Re: ACO1  
API 15-109-20964-00-00  
VAILE 1-22  
SW/4 Sec.22-13S-32W  
Logan County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,  
Ronald N. Sinclair

# ALLIED CEMENTING CO., LLC. 040851

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31  
RUSSELL, KANSAS 67665

SERVICE POINT:

Oakley

DATE <u>12-1-10</u>	SEC. <u>22</u>	TWP. <u>13</u>	RANGE <u>32</u>	CALLED OUT	ON LOCATION	JOB START <u>6:30pm</u>	JOB FINISH <u>7:00pm</u>
LEASE <u>Vaile</u>	WELL# <u>1-22</u>	LOCATION <u>Oakley 11.5 1w 3 1/2 S</u>			COUNTY <u>Logan</u>	STATE <u>KS</u>	
OLD OR <input checked="" type="radio"/> NEW (Circle one)				<u>E into</u>			

CONTRACTOR <u>Murfin Drilling Rig 24</u>	OWNER <u>same</u>
TYPE OF JOB <u>Surface</u>	
HOLE SIZE <u>12 1/4</u>	T.D. <u>222'</u>
CASING SIZE <u>8 5/8</u>	DEPTH <u>221'</u>
TUBING SIZE	DEPTH
DRILL PIPE	DEPTH
TOOL	DEPTH
PRES. MAX	MINIMUM
MEAS. LINE	SHOE JOINT
CEMENT LEFT IN CSG. <u>15'</u>	
PERFS.	
DISPLACEMENT <u>13.12 BBL</u>	

CEMENT	
AMOUNT ORDERED <u>165 sks com</u>	
<u>3900 2969 e</u>	
COMMON <u>165 sks</u>	@ <u>15.45 2549.25</u>
POZMIX	@
GEL <u>3</u>	@ <u>20.80 62.40</u>
CHLORIDE <u>6</u>	@ <u>58.20 349.20</u>
ASC	@
	@
	@
	@
	@
	@
	@
	@
	@
HANDLING <u>174 sks</u>	@ <u>2.40 417.60</u>
MILEAGE <u>108 sk/mile</u>	<u>261.00</u>
TOTAL <u>3639.45</u>	

**EQUIPMENT**

PUMP TRUCK # <u>423-281</u>	CEMENTER <u>Andrew</u>
	HELPER <u>Lorene</u>
BULK TRUCK # <u>404</u>	DRIVER <u>Wil</u>
BULK TRUCK #	DRIVER

**REMARKS:**

Cement did circulate  
5 BBL  
  
thank you

CHARGE TO: Grand mesa

STREET \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

**SERVICE**

DEPTH OF JOB <u>222'</u>	
PUMP TRUCK CHARGE	<u>1018.00</u>
EXTRA FOOTAGE	@
MILEAGE <u>15 miles</u>	@ <u>7.00 105.00</u>
MANIFOLD	@
	@
	@
TOTAL <u>1123.00</u>	

**PLUG & FLOAT EQUIPMENT**

	@
	@
	@
	@
	@
TOTAL _____	

To Allied Cementing Co., LLC.  
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME Anthony Martin

SIGNATURE Anthony Martin

SALES TAX (If Any) \_\_\_\_\_

TOTAL CHARGES \_\_\_\_\_

DISCOUNT \_\_\_\_\_ IF PAID IN 30 DAYS

0

JOB LOG

SWIFT Services, Inc.

DATE 12-11-10 PAGE NO. 1

CUSTOMER GRAND MESA WELL NO. 1-22 LEASE VAILE JOB TYPE 2-STAGE TICKET NO. 19256

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL)(GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1930							ONLOCATION
								CMT: Bottom 175SS EA-2
								TOP 300 SS SMO
								R.D 4734, SET PIPE 4453, ST 20.0, TEECT 4432
								5 1/2 155" H.D.V. ON TOP #46, 2529 FT
								CENT 2,3,5,7,9,11,45 BARS 2,46
								SCRATCHERS 3,4,5, JOEA-100 FT
								LAST 9 JOINTS 100 FT + 1-20 FT
930	2130							START CS6-9 FLOATED
1130	2330							DROP BALL - BREAK CIRC & R-TATE PIPE
	0010	5.0	12				300	MUD FLUSH 500 GALS
			20					MUD FLUSH 2 1/2
	0025		42.5					EA-2 CMT 175SS
								DROP CD PLUG, WASH OUT PL
	0030	7.0	0				300	START DISP W/ H2O
			46				300	" " W/ MUD
			90				500	
			95				600	
			100				700	
	0045	4.5	105.5				1600	LAND PLUG - RELEASE - DRY
							1000	DROP ON OPENING DART
	0100						1000	OPEN D.V. CIRC W/ RIG & HES, WAIT ON H2O
	0615		7.5					PLUG R.H.30, M.H.15
	0620	6.5	20				300	MUD FLUSH 2 1/2
	0645	5	141				5	SMO CMT 255SS @ 11.2" GAL
								DROP AIR CLOSING PLUG
	0650	6.0	0				300	START DRY
			320				500	CIRC CMT TO PIT! 50SS
			55.0				500	
	0700		60.1				1500	LAND & CLOSE DV
								DAVE Johnny May John Rob
	0800							JOB COMPLETE
								THANK YOU!
								DAVE, JESSE, ROB, JOHN

JOB LOG

SWIFT Services, Inc.

DATE 011811 PAGE NO. 7

CUSTOMER		WELL NO.		LEASE		JOB TYPE		TICKET NO.	
GRAND MESA		1-22		UMBLE		ACIDIZE FORMATION		20103	
CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS	
				T	C	TUBING	CASING		
	0839								ON LOCATION GRANDALAS WELL SERV. SWABING WELL DOWN
									TAC. 50' PERFS. 4316'-21'
									DEPTH 50' SPOT 4338' 2.861
									TREAT 4274'
									CS, 47' 1.1186 Bbl
									Th, 4274' 24.74646 Bbl
									TOTAL 25.86506 Bbl
	0935	2.5-0	2	✓		0-VAC			SPOTTED ACID
	0945								MOVE TOOL
	0957	3	2.1	✓		0			START PUMPING
	0952	3	7	✓		0			DN FLUSH
	0958	3.5-0	25	✓		0-VAC			SITUT DOWN 1/2 LET LOAD
	1000	0	25.75	✓		0			LOADED
	1000	.18-0	25.75	✓		300			STAGNANT
	1002		25.75	✓		400			"
	1005		26	✓		500			"
	1011	.18	26.50	✓		450			FEEDING
	1013	.18	27	✓		325			"
	1019	.18	28	✓		250			"
	1020	.30	28.25	✓		325			"
	1021	.35	28.50	✓		375			"
	1022	.35	29	✓		400			"
	1025	.35	30	✓		400			"
	1028	.35	31	✓		400			"
	1031	.35	32	✓		400			"
	1032	.35	32.5	✓		375			"
	1034	.35-0	33	✓		350			ESIP
						VAC			4 MIN
									PRU DOWN
									TICKET
									Job Completed
									THANK YOU DUSTY & RUSSELL



# GRAND MESA

# OPERATING COMPANY

(316) 265-3000  
FAX: (316) 265-3455

1700 N. WATERFRONT PARKWAY  
BLDG. 600  
WICHITA, KANSAS 67206-5514

Scale 1:240 (5"=100') Imperial  
Measured Depth Log

Well Name: #1-22 Vaile  
Location: 2065' FSL, 573' FWL, Section 22-13S-32W Logan County, KS  
License Number: API: 15-109-20964 Region: Wildcat  
Spud Date: 12-2-2010 Drilling Completed: 12-11-2010  
Surface Coordinates: Lat: 38.9075447  
Long: -100.8686626  
Bottom Hole Coordinates: Vertical hole  
Ground Elevation (ft): 3033' K.B. Elevation (ft): 3038'  
Logged Interval (ft): 3600' To: RTD Total Depth (ft): 4734'  
Formation: Mississippian at RTD  
Type of Drilling Fluid: Chemical

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

## GEOLOGIST

Name: Steven P. Carl  
Company: Grand Mesa Operating Company  
Address: 1700 N. Waterfront Parkway, Bldg 600  
Wichita, Kansas 67206  
316-256-3000



## COMMENTS

Contractor: Murfin Drilling Company Rig #24  
Pusher: Tony Martin  
Surface Casing: 8 5/8" set at 221' w/165sx  
Production Casing: 5 1/2" set at 4453', to further test the KC "L" zone.  
Mud by: MudCo  
DST's by: Eagle Testing  
Logs by: Weatherford (DIL, CN-CD, ML)  
RTD=4734'  
LTD=4735'

## FORMATION TOPS

FORMATION

SAMPLE TOPS  
Depth Datum

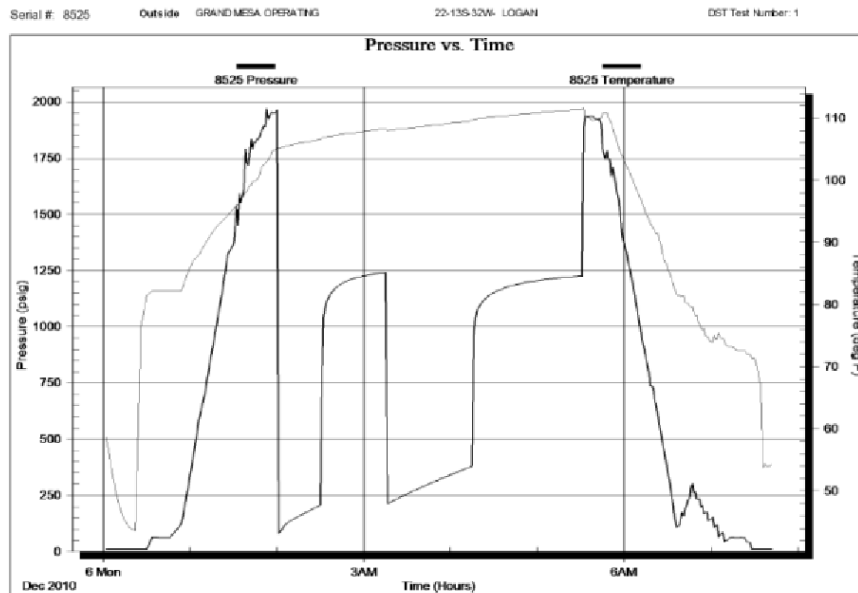
LOG TOPS  
Depth Datum

Stone Corral	2513'	+525	2513'	+525
B/Stone Corral	2532'	+465	2533'	+505
Heebner Shale	3990'	-952	3987'	-949
Lansing	4035'	-997	4033'	-995
Muncie Creek Shale	4185'	-1147	4184'	-1146
Stark Shale	4269'	-1231	4270'	-1232
Hushpuckney Shale	4305'	-1267	4306'	-1268
Marmaton	4372'	-1334	4372'	-1334
Upper Fort Scott	4472'	-1434	4473'	-1435
Little Osage Shale	4499'	-1461	4500'	-1462
Excello Shale	4523'	-1485	4524'	-1486
Johnson Zone	4599'	-1561	4602'	-1564
Morrow	4623'	-1585	4625'	-1587
Mississippian	4659'	-1621	4661'	-1623
RTD	4734'	-1696		
LTD			4735'	-1697

## DRILL STEM TESTS

DST No. 1 Oread/Toronto  
Interval: 3937'-4030'  
Times: 30-45-60-75  
Recovery: 660' Water  
FP: 86-209/217-381#  
SIP: 1244-1229#

IFP: Fair blow, B.O.B. in 13 minute  
ISIP: no return  
FFP: Fair blow, B.O.B. in 14 minutes  
FSIP: no return



## DRILL STEM TESTS

DST No. 2 Lansing "C-D"  
Interval: 4054'-4105'  
Times: 30-45-60-75  
Recovery: 30' Mud, 120' WCM, 360' MW  
FP: 63-176/169-293#  
SIP: 1205-1177#

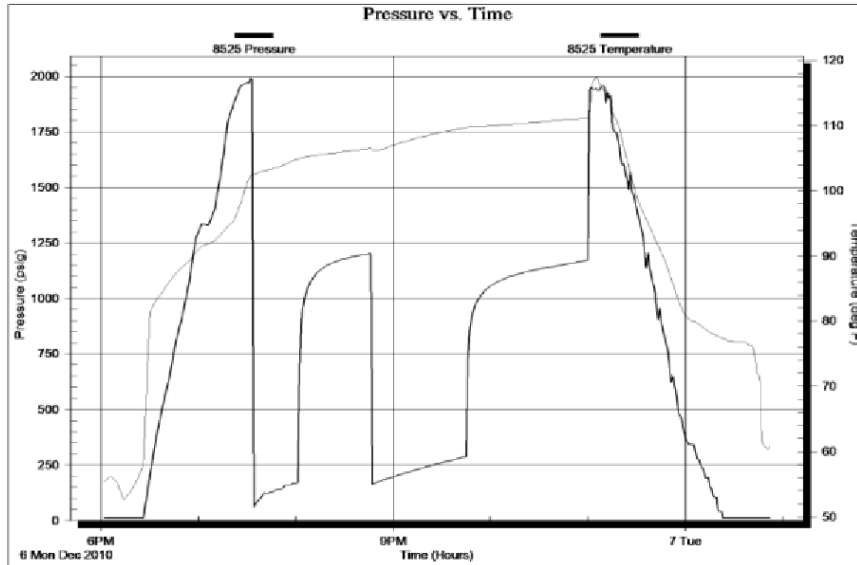
IFP: Weak B.O.B. in 28 minutes  
ISIP: no return  
FFP: Weak B.O.B. in 24 minutes  
FSIP: no return

Serial #: 8525

Outside GRAND MESA OPERATING

22-135-32W- LOGAN

DST Test Number: 2



## DRILL STEM TESTS

DST No. 3 Lansing "E-F"  
 Interval: 4097'-4135'  
 Times: 30-45-45-60  
 Recovery: 90' WCM, 180' MW  
 FP: 51-119/124-172#  
 SIP: 1111-1042#

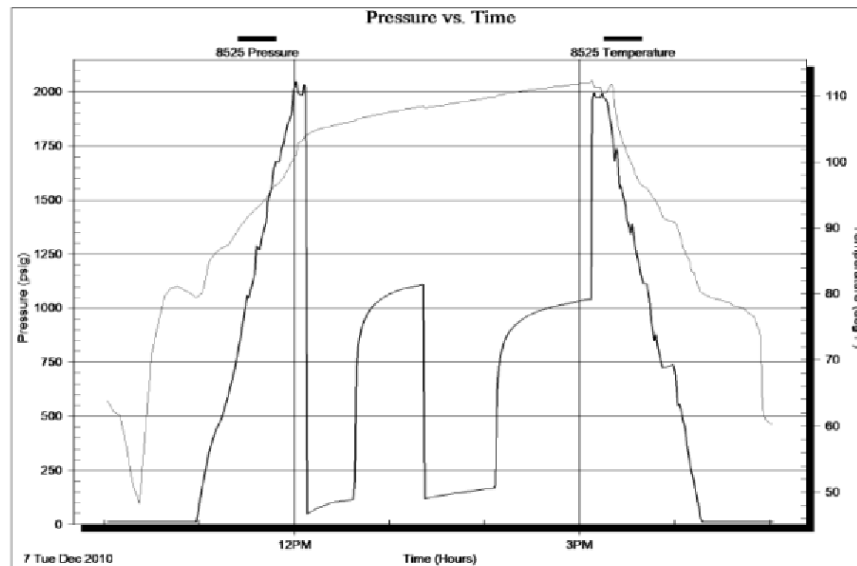
IFP: Weak blow built to 8in  
 ISIP: No blow back  
 FFP: Weak blow built to 10in  
 FSIP: No blow back

Serial #: 8525

Outside GRAND MESA OPERATING

22-135-32W- LOGAN

DST Test Number: 3

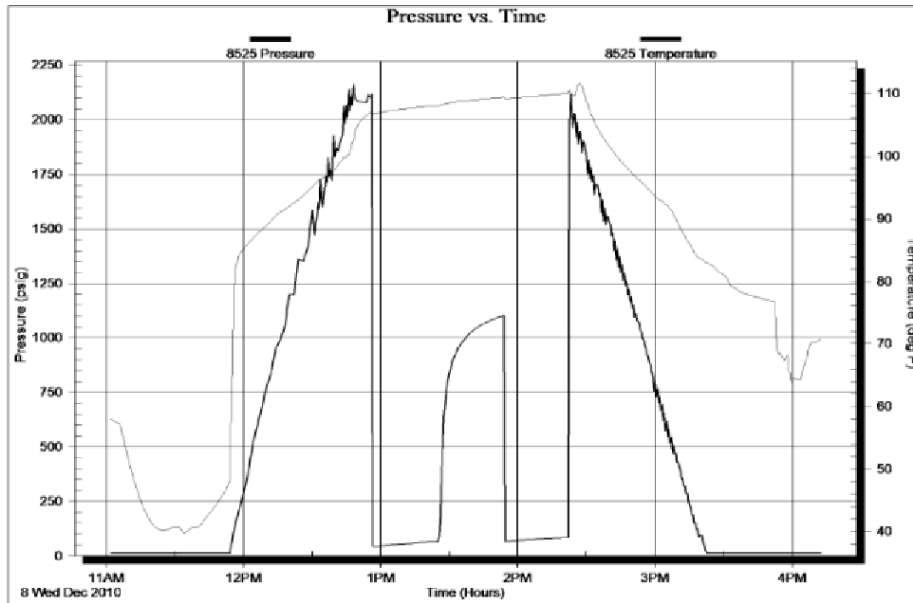


## DRILL STEM TESTS

DST No. 4 Lansing "K"  
 Interval: 4265'-4300'  
 Times: 30-30-20-OUT  
 Recovery: 80' Mud Trace of Water  
 FP: 49-69/72-88#  
 SIP: 1103#

IFP: Surface blow  
 ISIP: no return  
 FFP: Surface blow

Serial #: 8525      Outside      GRAND MESA OPERATING      22-135-32W- LOGAN      DST Test Number: 4

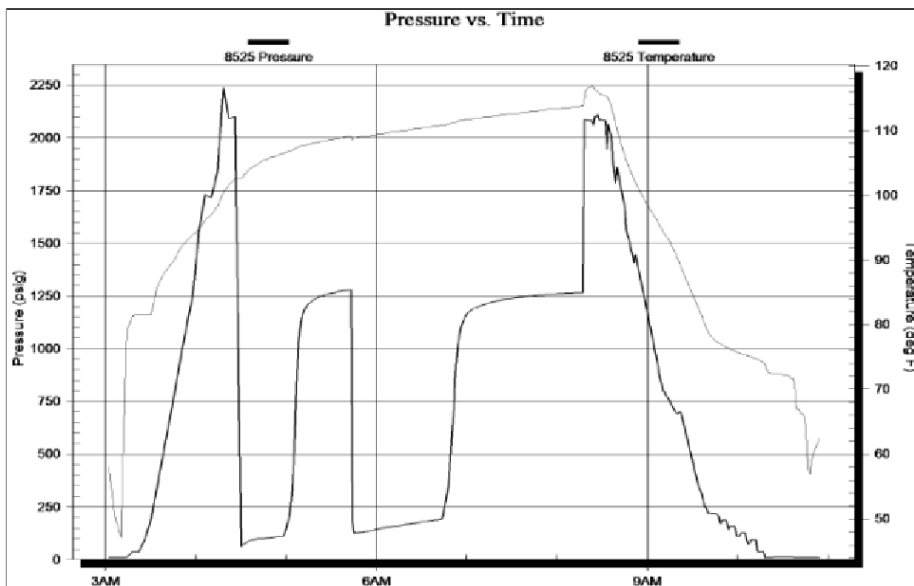


## DRILL STEM TESTS

DST No. 5 Lansing "L"  
 Interval: 4300'-4336'  
 Times: 30-45-60-90  
 Recovery: 1140'GIP, 260' CGO, 120' MCO  
 FP: 54-116/130-195#  
 SIP: 1282-1270#

IFP: Fair blow bldg to B.O.B. in 18min  
 ISIP: 5in return blow  
 FFP: Fair blow bldg. to B.O.B. in 15min  
 FSIP: B.O.B. on return

Serial #: 8525      Outside      GRAND MESA OPERATING      22-135-32W- LOGAN      DST Test Number: 5

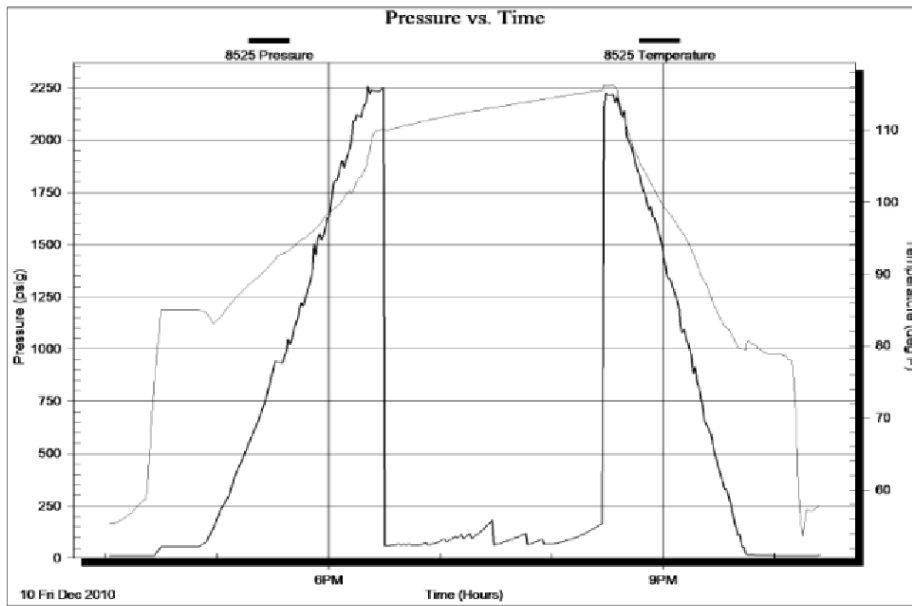


# DRILL STEM TESTS

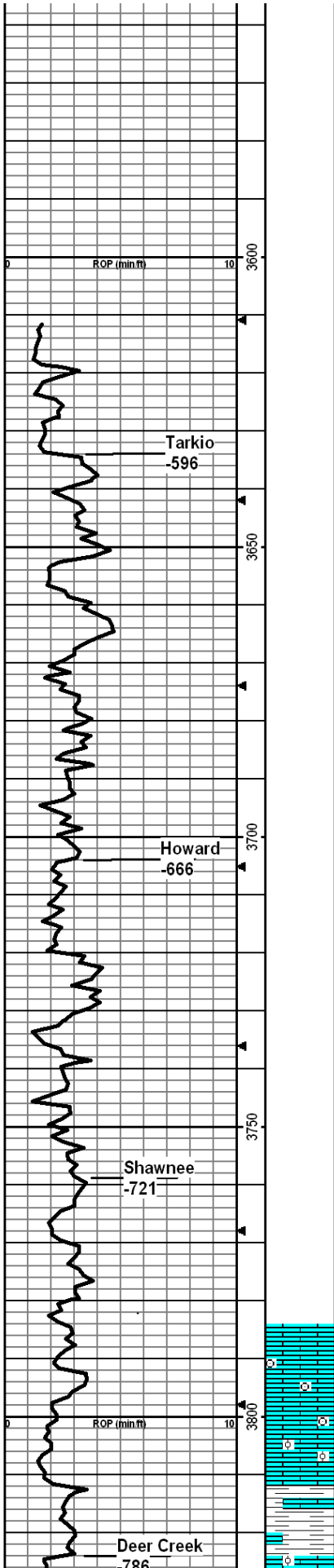
DST No. 6 Krebs/Johnson  
 Interval: 4552'-4629'  
 Times: 30-30-30-30  
 Recovery: 10'Mud, trace oil  
 FP: 64-80/67-72#  
 SIP: 183-170#

IFFP: Surface blow  
 ISIP: No blow back  
 FFP: Weak surface blow  
 FSIP: No blow back

Serial #: 8525      Outside: GRAND MESA OPERATING      22-13S-32W- LOGAN      DST Test Number: 6



Curve Track 1		Depth	Lithology	CFS Point	Oil Shows	Geological Descriptions	Remarks
ROP (min/ft)							
		2500				<b>Morning Report Depth/Activity</b> Spud at 3:00 pm on 12-1-2010 12-2, drlg @ 470' 12-3, drlg @ 2110' 12-4, drlg @ 3420' 12-5, drlg @ 3889' 12-6, drlg @ 4061' 12-7, DST#3 @ 4135' 12-8, DST#4 @ 4300' 12-9, DST #5 @ 4336' 12-10, drlg @ 4610' 12-11, Logging @ 4734'	
		2550					



Bit trip @ 3611'  
 Survey = 3/4 degrees  
 Strap = 0.31' Long

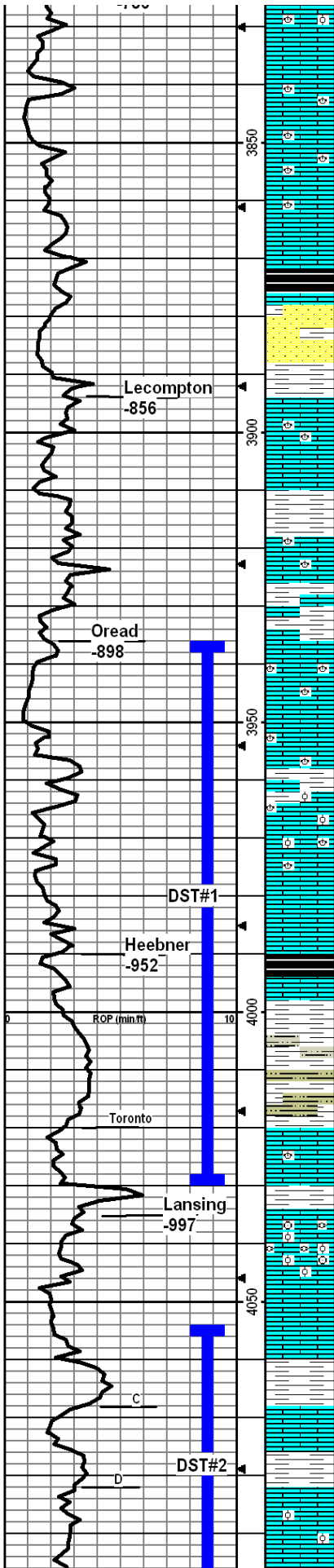
ROP Data begins @ 3612'

LS-crm/lt tan/wht, crs xln, grainy, foss-crin/misc, sm chalk, fr-gd int xln por, no odr, no fluor, ns.

LS-med-lt tan, mottled, crs xln, foss-crin/misc, incr chalk, fr int xln por, few chert-gry, foss, op, no odr, ns.

LS-drk gry, mottled, crs xln, foss-misc, ool in part, deformed ool, chalky, easy crush, few chert as above, scat pr int xln por, Shalely-drk gry, few blk carb, no odr, ns.

LS-mostly as above, sm LS-lt tan, crs xln, foss, fr int xln por, sm silty



SS, cup water is muddy brn/red, no odr, ns.

LS-lt tan, crs xln, foss-misc, sparry, mostly dense, scat fr int xln por, no cup odr, ns.

LS-lt gry/crm, fn-med xln, sm crs xln, foss-brach/misc, grainy, chalky, scat int xln/vug por, no odr, ns.

LS-med-lt tan/crm, crs xln, mealy, grainy, chalky, foss-brach/crin/misc, med crush, fr-gd int xln/foss por, no odr, ns.

LS-med-lt tan, med xln, foss-brach/fus/crin, decr chalk, mostly dense, scat pr int xln por, no odr, ns.

LS-mostly as above, sm SH-blk, carb, sm SH-gry, SS-vfn grn, arg, no odr, ns.

SS-lt gry/blu, fn grn, well strtd, friable to semi well cem, nvp, SH-red/brn/gry, sm silty, ns.

SH-red/gry-silty, sandy, firm to v soft, muddy, sticky, no cup odr, ns.

LS-lt tan/gry, med xln, mealy, grainy, foss/misc, chalky, mostly dense, med crush, scat int xln por, no odr, ns.

SH-gry/red/maroon, firm, fissile, sandy, silty, sm soft/waxy, few pcs blk, carb.

LS-tan, crs xln, profus foss-brach/bryz/fus/crin, mealy, grainy, easy-med crush, mostly dense, scat fr int xln/foss por, no odr, ns.

SH-lt gry, silty, sm sandy, LS-med-lt gry, fn xln, foss, dense, hard, brittle, diff crush, nvp, ns, sm LS-foss, as above, no odr, ns.

LS-gry, fn xln, sparry, sm foss, slty chalky, mostly dense w/pr int xln por, few pcs w/gd int xln/vug/frac por, gsfo in rare pcs, scat dead oil (does not cut), vssfo in many pcs per tray, no cup odr.

LS-lt tan, med xln, slty chalky, mealy, foss-misc, mostly dense w/nvp, few pcs w/pr int xln por w/ssfo as above, no cup odr, no fluor.

LS-lt tan, med-crs xln, profus foss-misc, ool in part, mostly dense w/nvp, sm w/fr int ool/foss por, frac'd w/lrg calcite rhombs, ss to fs drk fo in several pcs per tray, no cup odr, no fluor.

LS-lt tan, med xln, foss, mealy, chalky, mostly dense, scat int xln por, no cup odr, few pcs LS as above, ssfo.

SH-blk, carb.

LS-tan, crs xln, foss, dense, hard, diff crush, nvp, ns.

SH-med gry, mostly firm, waxy, sm silty.

SH and Mudstone, red/brn/gry, firm-fissile to v soft/muddy, sticky, cup water dirty red/brn.

30min, LS-wht, fn xln, dense, brittle, med crush, nvp, no odr, ns.

60min, as above, LS-wht, fn xln, dense, foss-brach, nvp, ns.

SH-med gry, firm.

LS-wht, crs xln, mealy, flakey, foss-fus/crin, ool, easy crush, sm dense/uniform, med crush, scat pr int xln/foss/ool por, brt mineral fluor, no cup odr, ns.

LS-med tan, fn xln, decr foss, decr ool, dense, diff crush, rare int xln/foss por, no cup odr, ns.

SH-gry/blk, firm.

SH-lt gry/blu, mudstone, v soft, sticky, silty.

30min, LS-lt tan/crm, fn xln, uniform, rare foss, mostly dense, slty chalk, sm w/fr int xln por, st sho med brn to in all por, few pcs chert-wht op, no cup odr, sm dul min fluor.

60min, LS- as above, decr sfo, mostly dense, brittle, no cup odr, SH-med gry, firm.

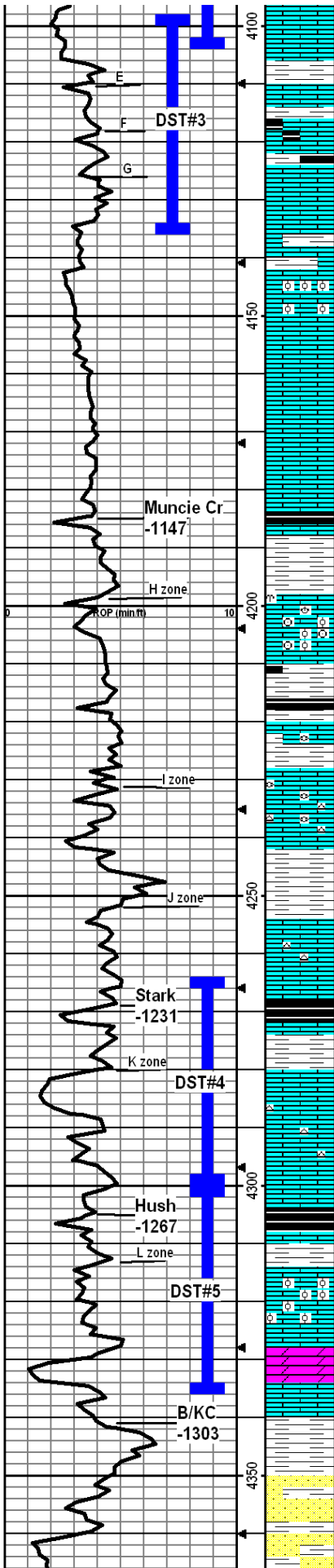
LS-crm, fn xln, mostly dense, uniform, med-diff crush, pr int xln por, ssfo in all por, may be from above, no cup odr, scat min fluor.

LS-crm, fn xln, sm crs xln, all dense, mostly uniform, rare foss, rare ool, few pcs chert-gry op, no cup odr, scat min fluor, ns.

30min, LS-lt gry, mostly fn xln, uniform, dense, sm med xln, scat pr int

**DST#1**  
 3937'-4030'  
 30-45-60-75  
 Rec: 660' MW  
 Chlor: 42,000  
 IFP: 86-209#  
 FFP: 217-381#  
 ISIP: 1244#  
 FSIP: 1229#  
 BHT: 110degF

**DST#2**  
 4054'-4105'  
 30-45-60-75  
 Rec: 30' Mud  
 120' MW  
 360' MW  
 Chlor: 35,000  
 IFP: 63-176#  
 FFP: 169-293#  
 ISIP: 1205#  
 FSIP: 1177#  
 BHT: 114degF



xln/pp por, chalky, no cup odr, no fluor, no stn in drys, ns.

60min, no change.

SH-med-drk gry, sm red/brn, firm, waxy.

LS-t tan/crm, fn xln, mostly dense, scat int xlnpp por, abund barren por, med crush, stly chalky, 2-4 pcs per tray wssfo, no cup odr.

LS-mostly as above, stly chalky, rare ool, many pcs per tray wpr-fr int xln/vug por, fs med brn fo in most por, sm thick tarry oil, no gas bub, no cup odr.

LS-crm, fn xln, mostly dense, few pcs wpr-fr int xln por, sho med brn fo as above, no cup odr, SH-drk gry blk.

30min, LS-crm, fn xln, sm crs, mostly dense, sm chert-wht, op, few pcs per tray wpr int xln por, sso in most por, no cup odr, no fluor.

60min, LS-as above, crm, fn xln, dense, uniform, decr in sho lith, fnt odr on break, no cup odr, no fluor.

SH-gry/grn, waxy, LS-crm, fn xln, mostly uniform, dense, sm profus ool, v small ool's densely packed w/nvp, no cup odr, no fluor, ns.

LS-lt gry/crm, fn xln, dense, brittle, med crush, uniform, rare foss/ool, nvp, no odr, ns.

LS-crm/gry, fn-med xln, sm ool, mostly dense/uniform, sm stylo, nvp, no cup odr, ns.

LS-lt gry, fn-med xln, uniform, stly chalky, nvp, no cup odr, ns.

SH-blk, carb.

LS-brn, med-crs xln, foss-crin/fus, dense, hard, sm frac por, few frac filled w/flakey dead oil, cuts pale blu, no cup odr, nsfo.

SH-gry, soft to firm, fissile, waxy.

LS-med gry, mottled, fn-med xln, foss-crin/brach/fus, dense, hard, diff crush, nvp, no odr, ns.

LS-crm, crs xln, profus ool, densely packed ool, nvp, no cup odr, ns.

SH-predom brn/red, sm gry, sm orn, few pcs blk carb.

LS-med tan, fn xln, foss-fus, dense, brittle, hard, diff crush, nvp, no cup odr, ns.

LS-lt tan/gry, fn xln, foss, dense, nvp, no cup odr, ns.

LS-med brn, md-crs xln, foss-crin/fus, brittle, hard, dense, nvp, sm chalk, sm LS-crm, fn xln, foss-fus, grainy, dense, sm chert-milky, foss, transl, no cup odr, ns.

SH-equal mix of red/brn/gry, sm silty, sm waxy.

LS-crm, fn xln, dense, hard, uniform, few foss, few chert, abund chalk, nvp, no cup odr, ns.

SH-blk, carb.

LS-mottled brn, fn xln, dense, diff crush, brittle, sm foss, scat pr int xln por, vnt cup odr, slt sho lt fro, not vis under wht light, brt fluor.

SH-red/brn/gry.

LS-lt gry, fn xln, grainy, uniform, sm stly foss, stly chalky, pr int xln por, scat lt brn stn in dry, cuts dul yel, spotty sat, no cup odr, rare sso, sm chert-wht, op.

LS-gry, fn xln, dense, hard, rare foss, sm chert as above, scat pr vug por, no fluor, no cup odr, nsfo.

LS-gry, fn-med xln, dense, hard, mostly uniform, rare foss, scat int xln, por, no cup odr, ns.

SH-blk, carb.

LS-med brn, fn xln, rare foss, hard, dense, nvp, no odr, ns.

LS-predom gry, fn xln, dense, hard, nvp, plus LS-gry, crs xln, profus foss/ool, gd int ool/foss por, gd sho med brn fro, bleed o&g on break, gd cup odr, dul yel fluor.

LS-gry, fn xln, dense, hard, stly foss, nvp, ns, decr sho lith from above, fnt cup odr.

DOLO-gry, vfn xln, rare foss, mostly uniform, dense, diff crush, nvp, no cup odr, dul yel min (dolo) fluor, ns.

SH-predom brick red, 40% med-drk gry, sm silty.

Predom SH as above, sm SS-gry, vfn grn, arg, nvp, ns.

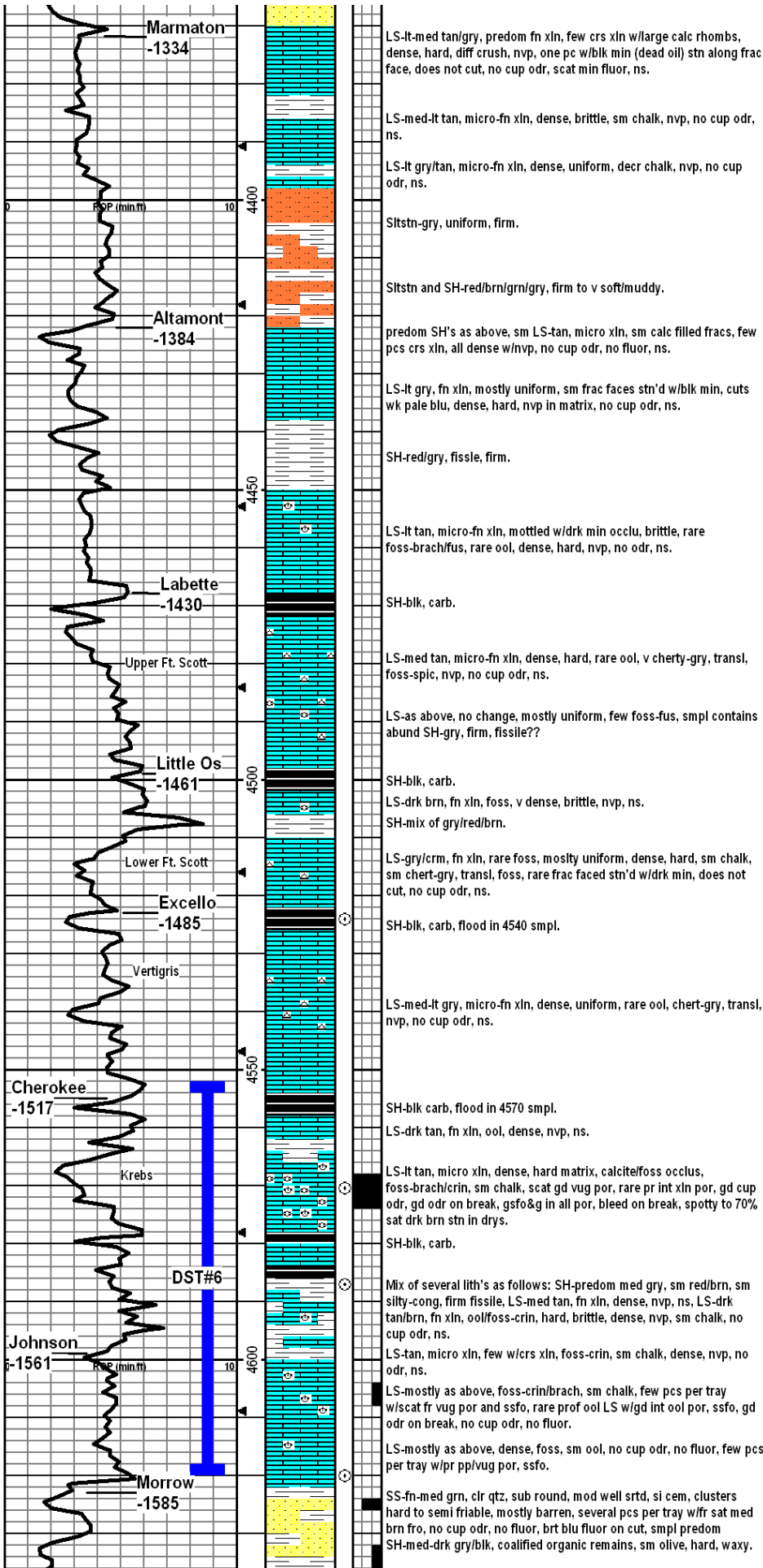
SS-gry/grn, vfn grn, well srtd, arg, abund SH-all colors, sm silty/sandy, sm waxy, few cong, no cup odr, ns.

**DST#3**  
 4097'-4135'  
 30-45-45-60  
 Rec: 90' WCM  
 180' MW  
 Chohr: 37,000  
 IFP: 51-119#  
 FFP: 124-172#  
 ISIP: 1111#  
 FSIP: 1042#

**DST#4**  
 4265'-4300'  
 30-30-20-out  
 Rec: 80' Mud  
 Tr Wtr  
 IFP: 48-69#  
 FFP: 72-88#  
 ISIP: 1103#  
 FSIP: N/A

**DST#5**  
 4300'-4336'  
 30-45-60-90  
 Rec: 260' CGO  
 120' MCO  
 1140' GIP  
 Grav: 34deg  
 IFP: 53-116#  
 FFP: 130-195#  
 ISIP: 1282#  
 FSIP: 1270#





LS-lt-med tan/gry, predom fn xln, few crs xln w/large calc rhombs, dense, hard, diff crush, nvp, one pc w/blk min (dead oil) stn along frac face, does not cut, no cup odr, scat min fluor, ns.

LS-med-lt tan, micro-fn xln, dense, brittle, sm chalk, nvp, no cup odr, ns.

LS-lt gry/tan, micro-fn xln, dense, uniform, decr chalk, nvp, no cup odr, ns.

Slstn-gry, uniform, firm.

Slstn and SH-red/brn/grn/gry, firm to v soft/muddy.

predom SH's as above, sm LS-tan, micro xln, sm calc filled frac, few pcs crs xln, all dense w/nvp, no cup odr, no fluor, ns.

LS-lt gry, fn xln, mostly uniform, sm frac faces stn'd w/blk min, cuts wk pale blu, dense, hard, nvp in matrix, no cup odr, ns.

SH-red/gry, fissle, firm.

LS-lt tan, micro-fn xln, mottled w/drck min occlu, brittle, rare foss-brach/fus, rare ool, dense, hard, nvp, no odr, ns.

SH-blk, carb.

LS-med tan, micro-fn xln, dense, hard, rare ool, v cherty-gry, transl, foss-splic, nvp, no cup odr, ns.

LS-as above, no change, mostly uniform, few foss-fus, smpl contains abund SH-gry, firm, fissile??

SH-blk, carb.

LS-drk brn, fn xln, foss, v dense, brittle, nvp, ns.

SH-mix of gry/red/brn.

LS-gry/crm, fn xln, rare foss, mostly uniform, dense, hard, sm chalk, sm chert-gry, transl, foss, rare frac faced stn'd w/drck min, does not cut, no cup odr, ns.

SH-blk, carb, flood in 4540 smpl.

LS-med-lt gry, micro-fn xln, dense, uniform, rare ool, chert-gry, transl, nvp, no cup odr, ns.

SH-blk carb, flood in 4570 smpl.

LS-drk tan, fn xln, ool, dense, nvp, ns.

LS-lt tan, micro xln, dense, hard matrix, calcitefoss occlus, foss-brach/crin, sm chalk, scat gd vug por, rare pr int xln por, gd cup odr, gd odr on break, gsf&g in all por, bleed on break, spotty to 70% sat drk brn stn in dry.

SH-blk, carb.

Mix of several lith's as follows: SH-predom med gry, sm red/brn, sm silty-cong, firm fissile, LS-med tan, fn xln, dense, nvp, ns, LS-drk tan/brn, fn xln, ool/foss-crin, hard, brittle, dense, nvp, sm chalk, no cup odr, ns.

LS-tan, micro xln, few w/crs xln, foss-crin, sm chalk, dense, nvp, no odr, ns.

LS-mostly as above, foss-crin/brach, sm chalk, few pcs per tray w/scat fr vug por and sfo, rare prof ool LS w/gd int ool por, sfo, gd odr on break, no cup odr, no fluor.

LS-mostly as above, dense, foss, sm ool, no cup odr, no fluor, few pcs per tray w/pr pp/vug por, sfo.

SS-fn-med grn, clr qtz, sub round, mod well srtd, si cem, clusters hard to semi friable, mostly barren, several pcs per tray w/fr sat med brn fro, no cup odr, no fluor, brt blu fluor on cut, smpl predom SH-med-drk gry/blk, coalified organic remains, sm olive, hard, waxy.

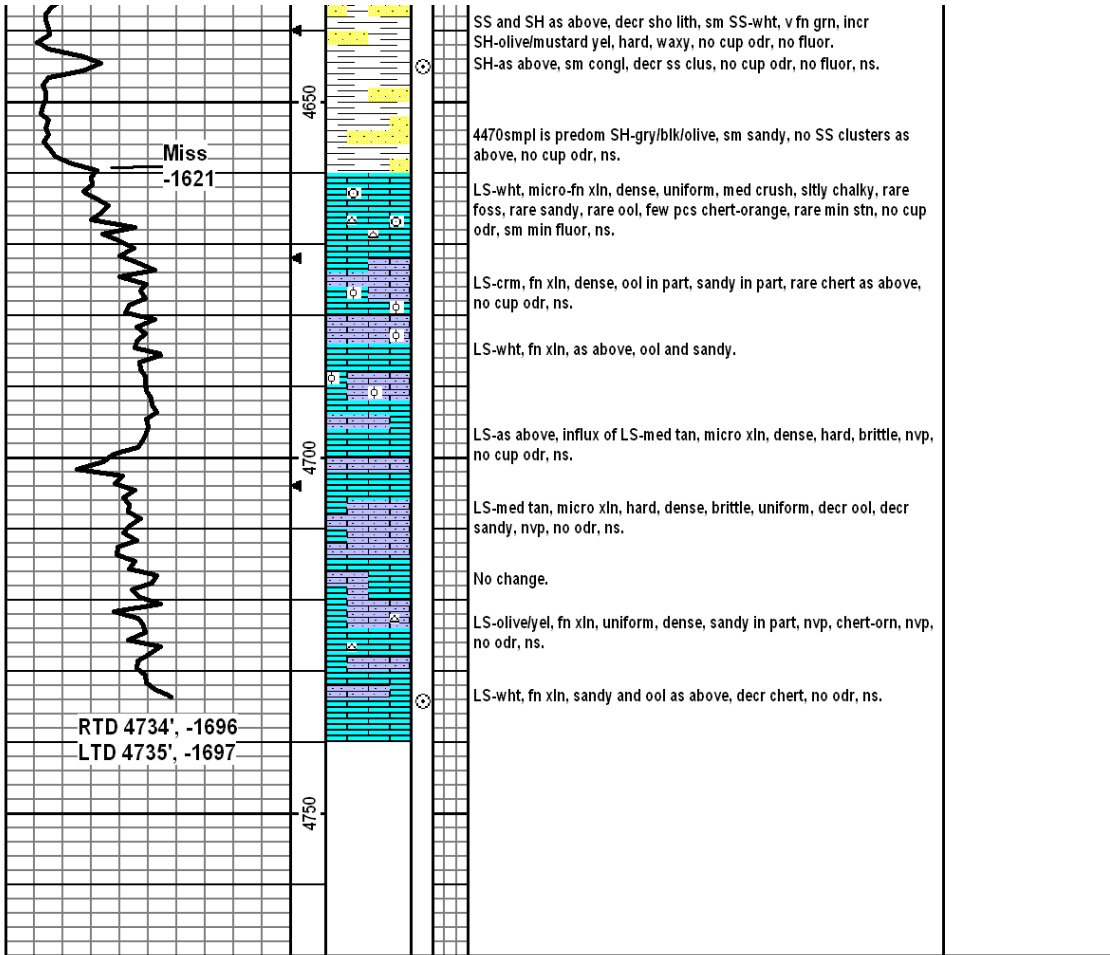
**VIS: 53secs**  
**WT: 9.3lbs**

4510 and 4520 samples were nearly all shale. Circ'd at 4524 for 45min to condition hole.

Sample quality thru the vertigris was poor. Shut down at 4570 to short trip and condition mud system.

Short trip at 4570

**DST#6**  
**4552'-4620'**  
**30-30-30-30**  
**Rec: 10' Mud**  
**Trace Oil**  
**IFP: 64-80#**  
**FFP: 67-72#**  
**ISIP: 183#**  
**FSIP: 170#**





## DRILL STEM TEST REPORT

Prepared For: **GRAND MESA OPERATING**

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206

ATTN: STEVE CARL

**22-13S-32W- LOGAN**

**VAILE 1-22**

Start Date: 2010.12.06 @ 00:00:00

End Date: 2010.12.06 @ 07:37:30

Job Ticket #: 1056                      DST #: 1

Eagle Testers LLC.

P.O.Box 1011, Great Bend, KS 67530

620-617-7548

Printed: 2010.12.06 @ 00:56:36

GRAND MESA OPERATING  
VAILE 1-22  
22-13S-32W- LOGAN  
DST # 1  
TORONTO  
2010.12.06



# DRILL STEM TEST REPORT

GRAND MESA OPERATING

VAILE 1-22

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206  
ATTN: STEVE CARL

22-13S-32W- LOGAN

Job Ticket: 1056      **DST#: 1**  
Test Start: 2010.12.06 @ 00:00:00

## GENERAL INFORMATION:

Formation: **TORONTO**

Deviated: No Whipstock:                      ft (KB)

Time Tool Opened: 02:02:00

Time Test Ended: 07:37:30

Test Type: Conventional Bottom Hole (Initial)

Tester: DAVID NICHOLS

Unit No: 15 62 MRT SCOTT CIT

**Interval: 3937.00 ft (KB) To 4030.00 ft (KB) (TVD)**

Total Depth: 4030.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3039.00 ft (KB)

3033.00 ft (CF)

KB to GR/CF: 6.00 ft

**Serial #: 6651**

**Inside**

Press @ RunDepth: 381.50 psig @ 4026.00 ft (KB)

Capacity: 5000.00 psig

Start Date: 2010.12.06      End Date: 2010.12.06

Last Calib.: 2010.12.06

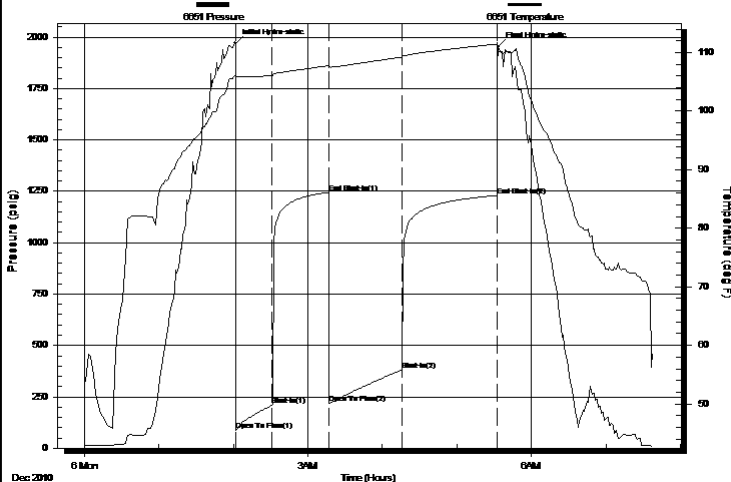
Start Time: 00:00:00      End Time: 07:37:30

Time On Btm: 2010.12.06 @ 02:01:30

Time Off Btm: 2010.12.06 @ 05:33:30

**TEST COMMENT:** 30-INITIAL OPENING FAIR BLOW BOTTOM BUCKET IN 13 MINS  
45-INITIAL SHUT IN NO BLOW BACK  
60-FINAL OPENING FAIR BLOW BOTTOM BUCKET IN 14 MINS  
75-FINAL SHUT IN NO BLOW BACK

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1970.57	106.21	Initial Hydro-static
1	86.49	105.79	Open To Flow (1)
30	209.11	106.11	Shut-In(1)
75	1244.20	107.76	End Shut-In(1)
76	217.38	107.49	Open To Flow (2)
135	381.50	109.24	Shut-In(2)
211	1228.92	111.45	End Shut-In(2)
212	1951.88	110.24	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
660.00	MUDDY WATER 15%M 85%WATER	8.49

## Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)





# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

GRAND MESA OPERATING

**VAILE 1-22**

1700 N WATERFRONT  
 PKWY BLDG 600  
 WICHITA KS 67206  
 ATTN: STEVE CARL

**22-13S-32W- LOGAN**

Job Ticket: 1056 **DST#: 1**  
 Test Start: 2010.12.06 @ 00:00:00

## Tool Information

Drill Pipe:	Length: 3794.00 ft	Diameter: 3.88 inches	Volume: 55.48 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 55000.00 lb
			<u>Total Volume: 56.07 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	0.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	3937.00 ft			Final 48000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	93.00 ft			
Tool Length:	116.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
SHUT IN TOOL	5.00			3919.00	
HYD S.I. Tool	5.00			3924.00	
jars	6.00			3930.00	
safty joint	2.00			3932.00	
TRAVEL COLER	2.00			3934.00	
Packer	3.00			3937.00	23.00 Bottom Of Top Packer
travel collar	1.00			3938.00	93.00 Tool Interval
Packer	1.00			3939.00	
change over sub	0.75			3939.75	
drill pipe	62.50			4002.25	
change over sub	0.75			4003.00	
Perforations	22.00			4025.00	
Recorder	1.00	6651	Inside	4026.00	
Recorder	1.00	8525	Outside	4027.00	
bull plug	3.00			4030.00	1000115.00 Bottom Packers & Anchor

**Total Tool Length: 116.00**



# DRILL STEM TEST REPORT

FLUID SUMMARY

GRAND MESA OPERATING

VAILE 1-22

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206  
ATTN: STEVE CARL

22-13S-32W- LOGAN

Job Ticket: 1056

DST#: 1

Test Start: 2010.12.06 @ 00:00:00

## Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 50.00 sec/qt

Water Loss: 10.00 in<sup>3</sup>

Resistivity: ohm.m

Salinity: 2000.00 ppm

Filter Cake: inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API:

Water Salinity: deg API

ppm

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
660.00	MUDDY WATER 15%M 85%WATER	8.487

Total Length: 660.00 ft      Total Volume: 8.487 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

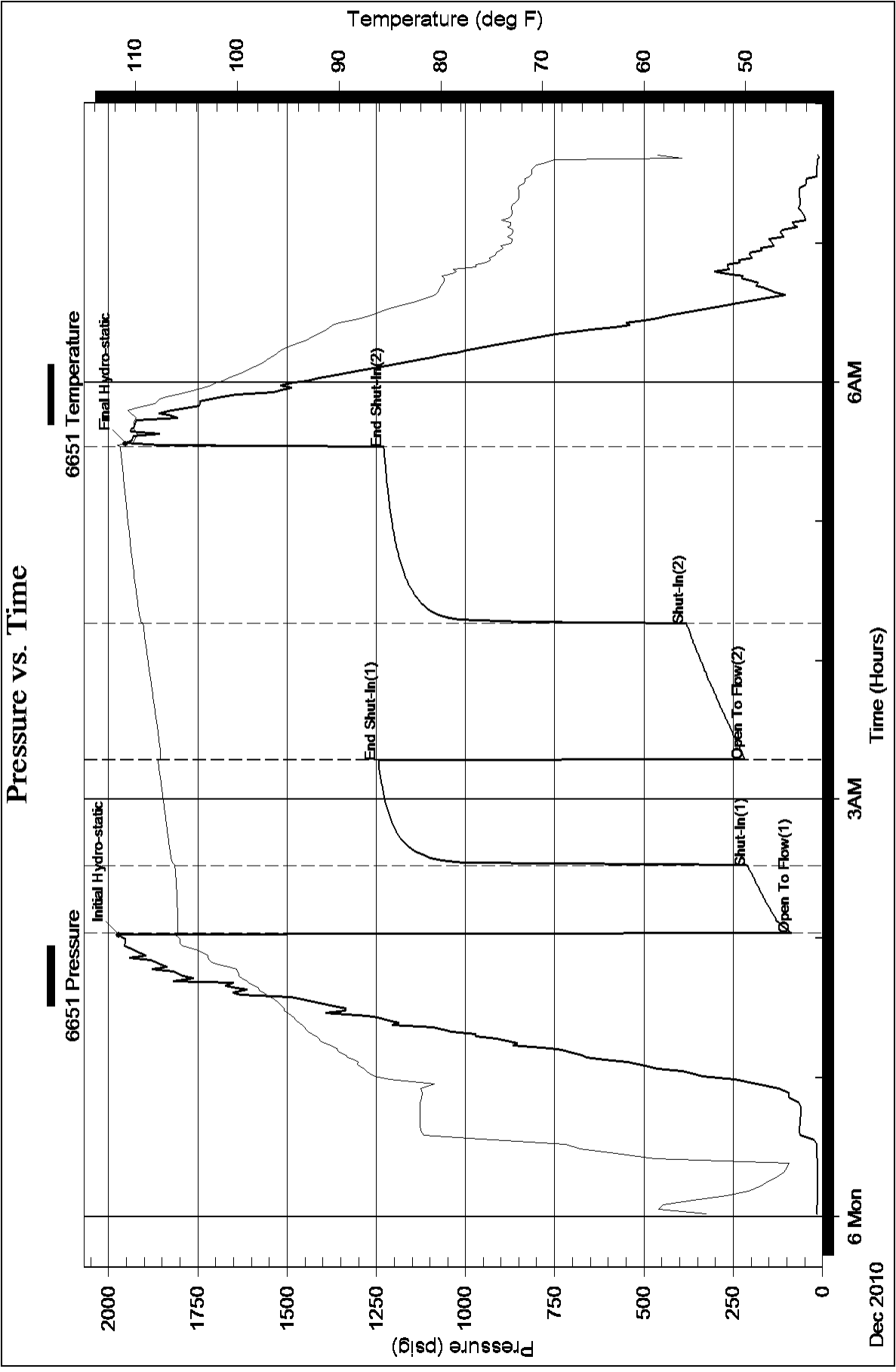
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RECOVERY CHOLRIDES 41,000

### Pressure vs. Time



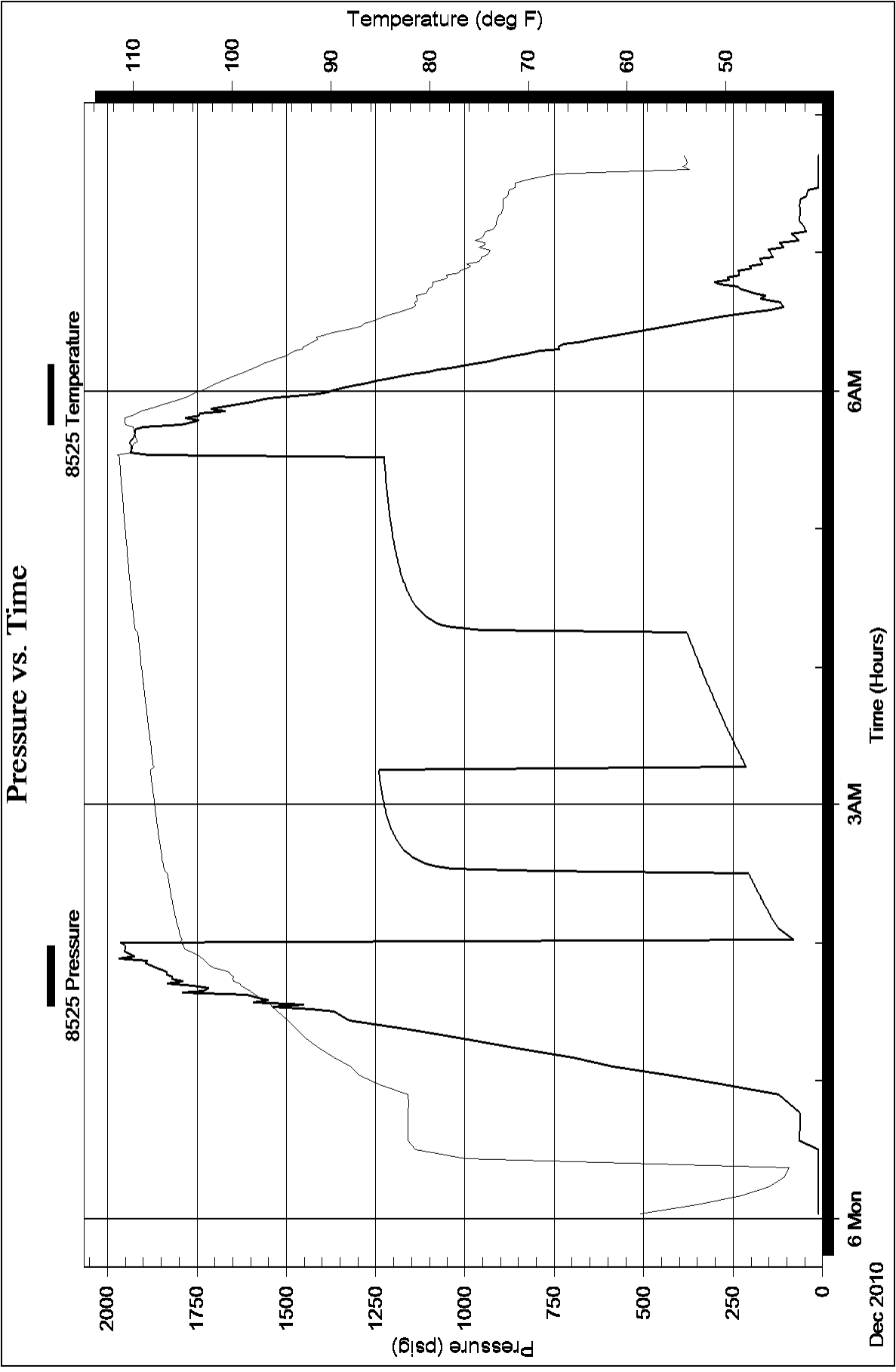


Serial #: 8525

Outside GRAND MESA OPERATING

22-13S-32W- LOGAN

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **GRAND MESA OPERATING**

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206

ATTN: STEVE CARL

**22-13S-32W- LOGAN**

**VAILE 1-22**

Start Date: 2010.12.06 @ 18:00:00

End Date: 2010.12.07 @ 00:52:30

Job Ticket #: 1057                      DST #: 2

Eagle Testers LLC.

P.O.Box 1011, Great Bend, KS 67530

620-617-7548

Printed: 2010.12.06 @ 18:59:16

GRAND MESA OPERATING  
VAILE 1-22  
22-13S-32W- LOGAN  
DST # 2  
LKC C-D  
2010.12.06







# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

GRAND MESA OPERATING

**VAILE 1-22**

1700 N WATERFRONT  
 PKWY BLDG 600  
 WICHITA KS 67206  
 ATTN: STEVE CARL

**22-13S-32W- LOGAN**

Job Ticket: 1057

**DST#: 2**

Test Start: 2010.12.06 @ 18:00:00

## Tool Information

Drill Pipe:	Length: 3911.00 ft	Diameter: 3.88 inches	Volume: 57.20 bbl	Tool Weight:	2.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	55000.00 lb
			<u>Total Volume: 57.79 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	0.00 ft			String Weight: Initial	49000.00 lb
Depth to Top Packer:	4054.00 ft			Final	49000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	51.00 ft				
Tool Length:	74.00 ft				
Number of Packers:	2	Diameter:	6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
SHUT IN TOOL	5.00			4036.00	
HYD S.I. Tool	5.00			4041.00	
jars	6.00			4047.00	
safty joint	2.00			4049.00	
TRAVEL COLER	2.00			4051.00	
Packer	3.00			4054.00	23.00 Bottom Of Top Packer
travel collar	1.00			4055.00	51.00 Tool Interval
Packer	1.00			4056.00	
change over sub	0.75			4056.75	
drill pipe	31.50			4088.25	
change over sub	0.75			4089.00	
Perforations	11.00			4100.00	
Recorder	1.00	6651	Inside	4101.00	
Recorder	1.00	8525	Outside	4102.00	
bull plug	3.00			4105.00	1000073.00 Bottom Packers & Anchor

**Total Tool Length: 74.00**



# DRILL STEM TEST REPORT

FLUID SUMMARY

GRAND MESA OPERATING

VAILE 1-22

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206  
ATTN: STEVE CARL

22-13S-32W- LOGAN

Job Ticket: 1057

DST#: 2

Test Start: 2010.12.06 @ 18:00:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 47.00 sec/qt  
Water Loss: 9.60 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 2400.00 ppm  
Filter Cake: inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psig

Oil API: deg API  
Water Salinity: ppm

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	MUD 100%MUD	0.148
120.00	WATER CUT MUD 60%MUD 40%WATER	0.881
360.00	MUDDY WATER 10%MUD 90%WATER	5.265

Total Length: 510.00 ft Total Volume: 6.294 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

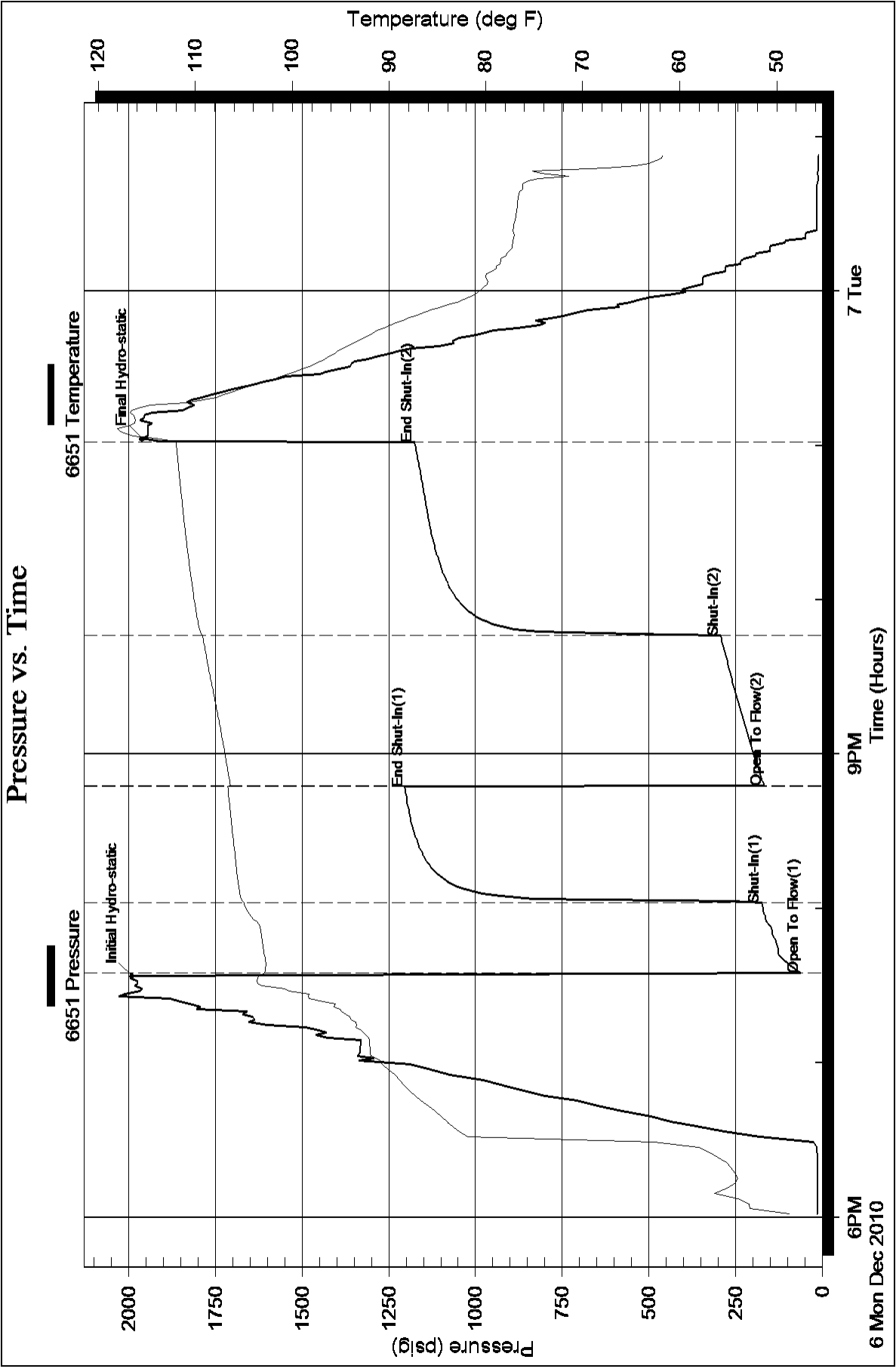
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RECOVERY CHOLRIDES 35,000

### Pressure vs. Time

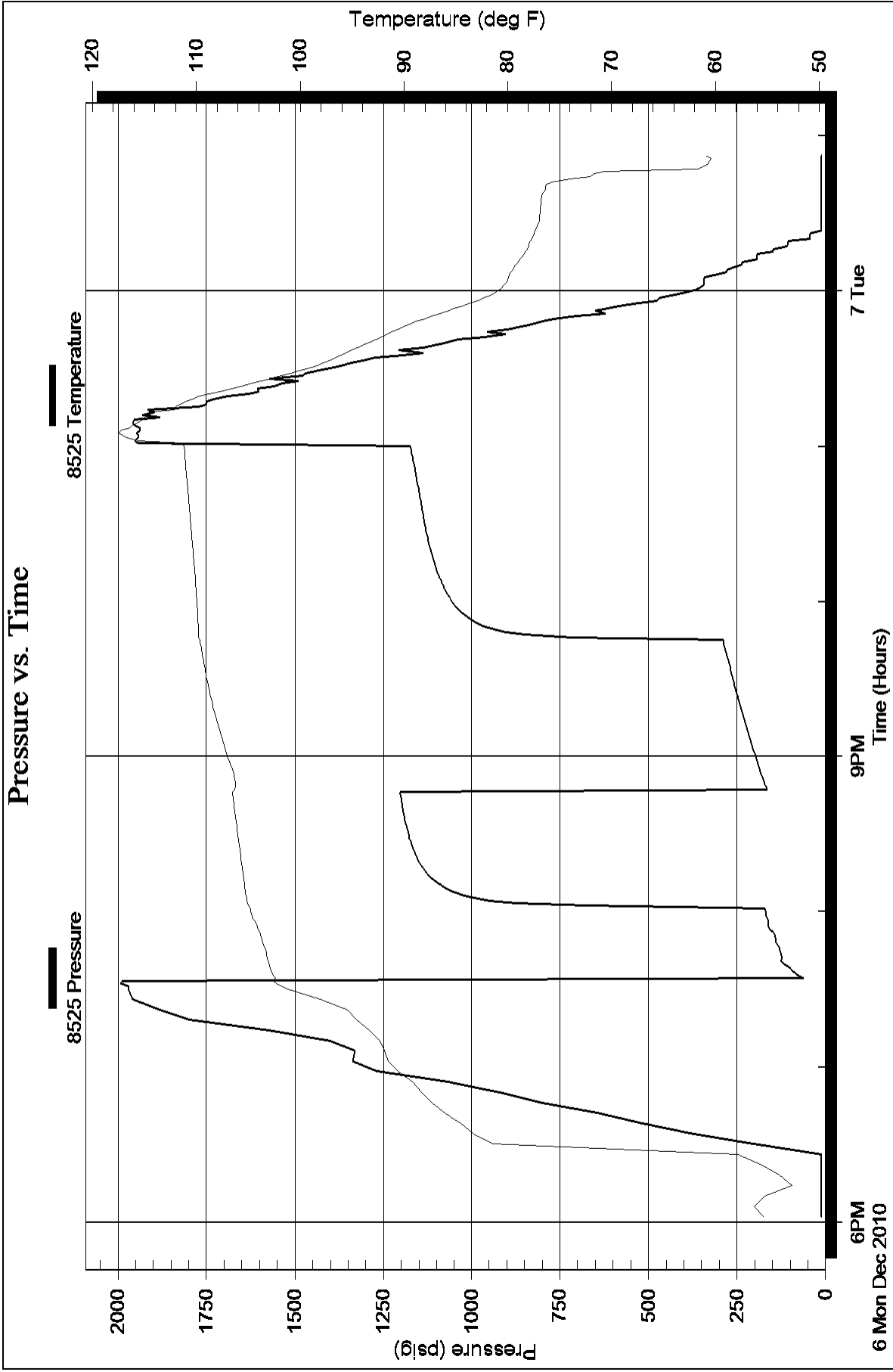


Serial #: 8525

Outside GRAND MESA OPERATING

22-13S-32W- LOGAN

DST Test Number: 2







## DRILL STEM TEST REPORT

Prepared For: **GRAND MESA OPERATING**

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206

ATTN: STEVE CARL

**22-13S-32W- LOGAN**

**VAILE 1-22**

Start Date: 2010.12.07 @ 10:00:00

End Date: 2010.12.07 @ 16:57:00

Job Ticket #: 1058                      DST #: 3

Eagle Testers LLC.

P.O.Box 1011, Great Bend, KS 67530

620-617-7548

Printed: 2010.12.07 @ 10:48:48

GRAND MESA OPERATING  
VAILE 1-22  
22-13S-32W- LOGAN  
DST # 3  
LKC E-F  
2010.12.07







# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

GRAND MESA OPERATING

**VAILE 1-22**

1700 N WATERFRONT  
 PKWY BLDG 600  
 WICHITA KS 67206  
 ATTN: STEVE CARL

**22-13S-32W- LOGAN**

Job Ticket: 1058 **DST#: 3**  
 Test Start: 2010.12.07 @ 10:00:00

## Tool Information

Drill Pipe:	Length: 3954.00 ft	Diameter: 3.88 inches	Volume: 57.82 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 58.42 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	1.00 ft			String Weight: Initial 49000.00 lb
Depth to Top Packer:	4097.00 ft			Final 49000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	38.00 ft			
Tool Length:	61.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
SHUT IN TOOL	5.00			4079.00	
HYD S.I. Tool	5.00			4084.00	
jars	6.00			4090.00	
safty joint	2.00			4092.00	
TRAVEL COLER	2.00			4094.00	
Packer	3.00			4097.00	23.00 Bottom Of Top Packer
travel collar	1.00			4098.00	38.00 Tool Interval
Packer	1.00			4099.00	
Anchor	31.00			4130.00	
Recorder	1.00	6651	Inside	4131.00	
Recorder	1.00	8525	Outside	4132.00	
BULL PLUG	3.00			4135.00	1000060.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>61.00</b>				



# DRILL STEM TEST REPORT

## FLUID SUMMARY

GRAND MESA OPERATING

VAILE 1-22

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206  
ATTN: STEVE CARL

22-13S-32W- LOGAN

Job Ticket: 1058

DST#: 3

Test Start: 2010.12.07 @ 10:00:00

### Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 48.00 sec/qt  
Water Loss: 9.20 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 2800.00 ppm  
Filter Cake: inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psig

Oil API: deg API  
Water Salinity: ppm

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
90.00	WATER CUT MUD 60%MUD40%WATER	0.443
180.00	MUDDY WATER 10%MUD90%WATER	2.331

Total Length: 270.00 ft      Total Volume: 2.774 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

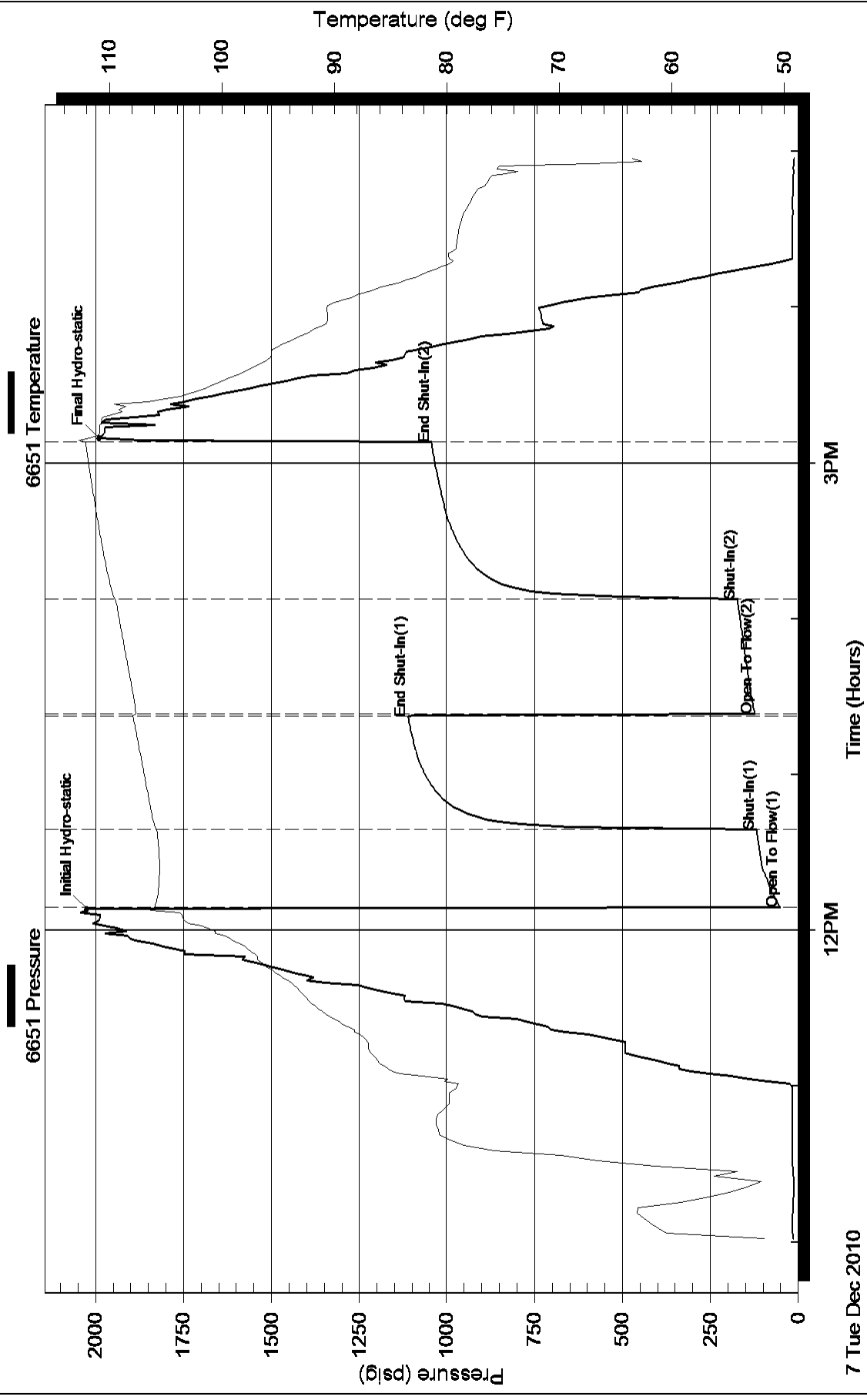
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RECOVERY CHOLRIDES 37,000

### Pressure vs. Time

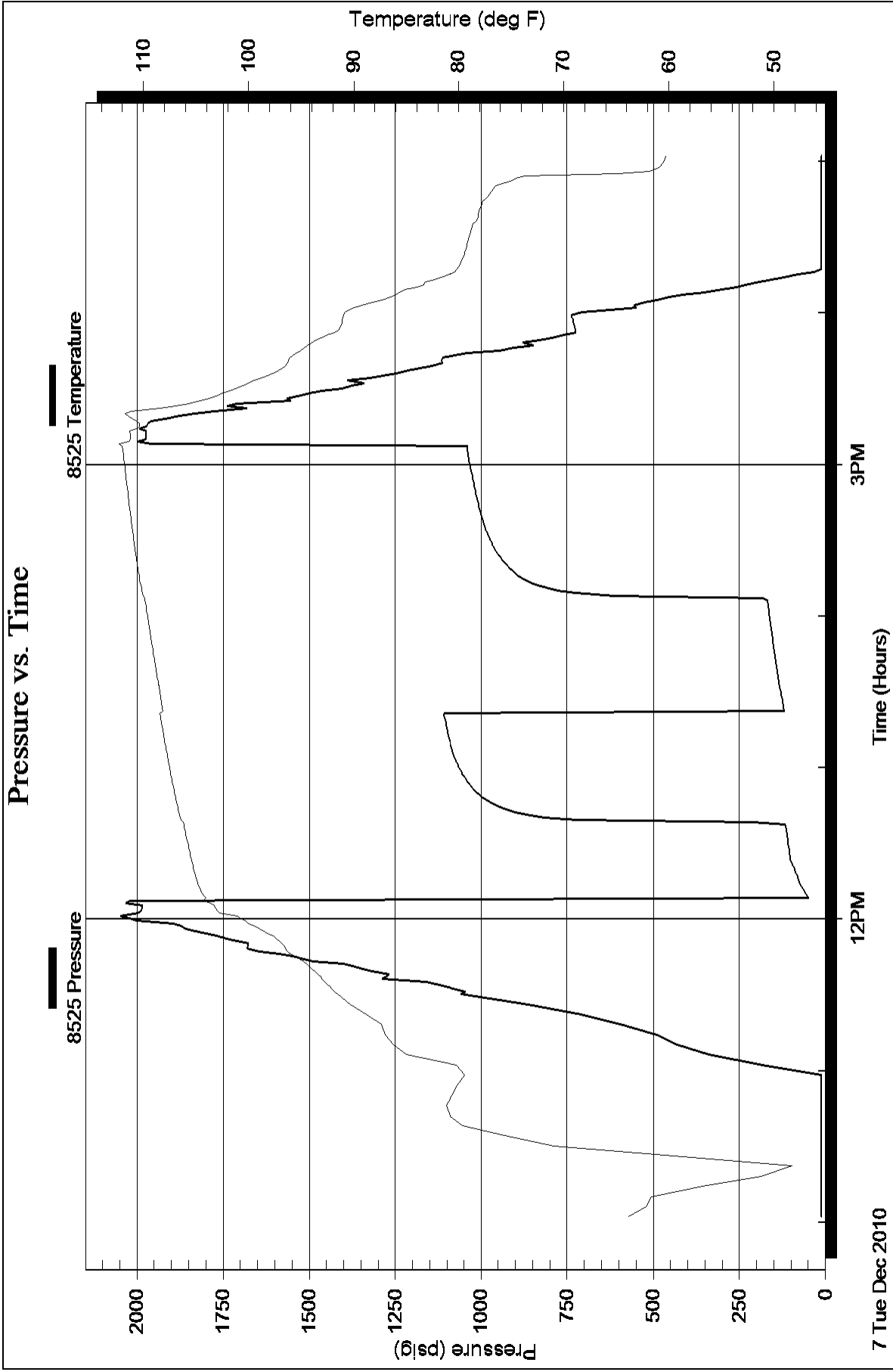


Serial #: 8525

Outside GRAND MESA OPERATING

22-13S-32W- LOGAN

DST Test Number: 3



Eagle Testers LLC.

Ref. No: 1058

Printed: 2010.12.07 @ 10:48:50



## DRILL STEM TEST REPORT

Prepared For: **GRAND MESA OPERATING**

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206

ATTN: STEVE CARL

**22-13S-32W- LOGAN**

**VAILE 1-22**

Start Date: 2010.12.08 @ 11:00:00

End Date: 2010.12.08 @ 16:08:00

Job Ticket #: 1059                      DST #: 4

Eagle Testers LLC.

P.O.Box 1011, Great Bend, KS 67530

620-617-7548

Printed: 2010.12.08 @ 11:27:25

GRAND MESA OPERATING  
VAILE 1-22  
22-13S-32W- LOGAN  
DST # 4  
LKC -K-  
2010.12.08





# DRILL STEM TEST REPORT

GRAND MESA OPERATING

VAILE 1-22

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206  
ATTN: STEVE CARL

22-13S-32W- LOGAN

Job Ticket: 1059      **DST#: 4**  
Test Start: 2010.12.08 @ 11:00:00

## GENERAL INFORMATION:

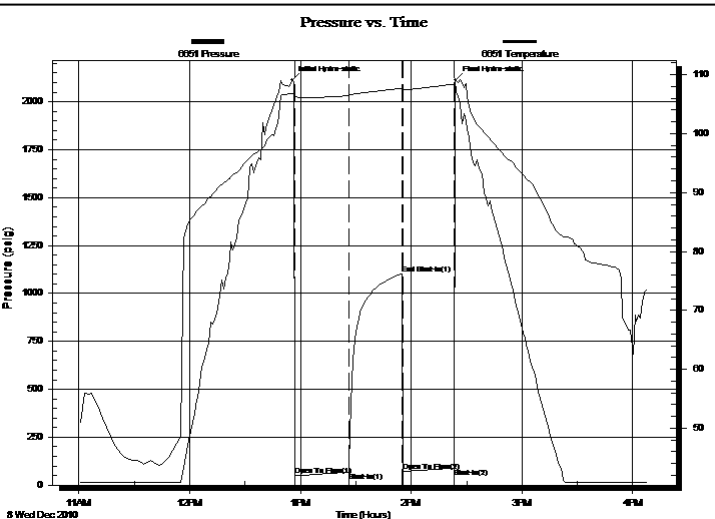
Formation: **LKC -K-**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 12:57:00  
 Time Test Ended: 16:08:00  
 Interval: **4265.00 ft (KB) To 4300.00 ft (KB) (TVD)**  
 Total Depth: 4300.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: DAVID NICHOLS  
 Unit No: 15 62 MRT SCOTT CIT  
 Reference Elevations: 3039.00 ft (KB)  
 3033.00 ft (CF)  
 KB to GR/CF: 6.00 ft

## Serial #: 6651

Inside

Press @ RunDepth: 68.79 psig @ 4296.00 ft (KB)      Capacity: 5000.00 psig  
 Start Date: 2010.12.08      End Date: 2010.12.08      Last Calib.: 2010.12.08  
 Start Time: 11:00:00      End Time: 16:08:00      Time On Btm: 2010.12.08 @ 12:55:30  
 Time Off Btm: 2010.12.08 @ 14:24:00

TEST COMMENT: 30-INITIAL OPENING SURFACE BLOW  
 30-INITIAL SHUT IN NO BLOW BACK  
 20-FINAL OPENING SURFACE BLOW



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2112.43	106.78	Initial Hydro-static
2	48.58	105.96	Open To Flow (1)
31	68.79	106.43	Shut-In(1)
60	1102.71	107.73	End Shut-In(1)
60	72.05	107.45	Open To Flow (2)
88	87.95	108.42	Shut-In(2)
89	2112.67	108.81	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
80.00	MUD TRACE OF WATER 10%WATER90%0.39)	

## Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)





# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

GRAND MESA OPERATING

**VAILE 1-22**

1700 N WATERFRONT  
 PKWY BLDG 600  
 WICHITA KS 67206  
 ATTN: STEVE CARL

**22-13S-32W- LOGAN**

Job Ticket: 1059 **DST#: 4**  
 Test Start: 2010.12.08 @ 11:00:00

## Tool Information

Drill Pipe:	Length: 4123.00 ft	Diameter: 3.88 inches	Volume: 60.30 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 55000.00 lb
			<u>Total Volume: 60.89 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	1.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4265.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	35.00 ft			
Tool Length:	58.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
SHUT IN TOOL	5.00			4247.00	
HYD S.I. Tool	5.00			4252.00	
jars	6.00			4258.00	
safty joint	2.00			4260.00	
TRAVEL COLER	2.00			4262.00	
Packer	3.00			4265.00	23.00 Bottom Of Top Packer
travel collar	2.00			4267.00	35.00 Tool Interval
Packer	3.00			4270.00	
Anchor	25.00			4295.00	
Recorder	1.00	6651	Inside	4296.00	
Recorder	1.00	8525	Outside	4297.00	
BULL PLUG	3.00			4300.00	1000057.00 Bottom Packers & Anchor

**Total Tool Length: 58.00**



# DRILL STEM TEST REPORT

## FLUID SUMMARY

GRAND MESA OPERATING

VAILE 1-22

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206  
ATTN: STEVE CARL

22-13S-32W- LOGAN

Job Ticket: 1059

DST#: 4

Test Start: 2010.12.08 @ 11:00:00

### Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 48.00 sec/qt  
Water Loss: 9.20 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 2800.00 ppm  
Filter Cake: inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psig

Oil API: deg API  
Water Salinity: ppm

### Recovery Information

Recovery Table

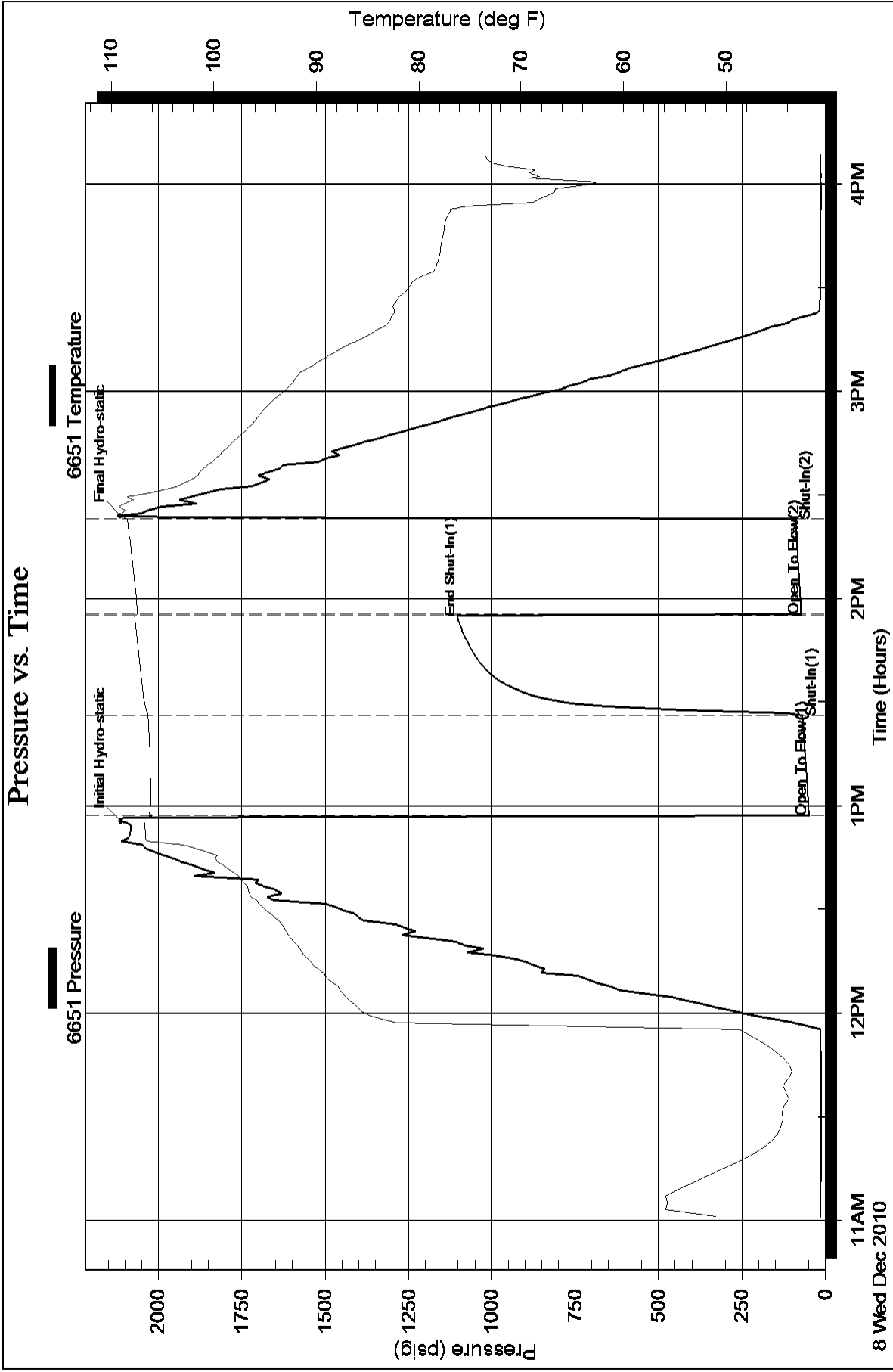
Length ft	Description	Volume bbl
80.00	MUD TRACE OF WATER 10%WATER90%MU	0.393

Total Length: 80.00 ft      Total Volume: 0.393 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments:

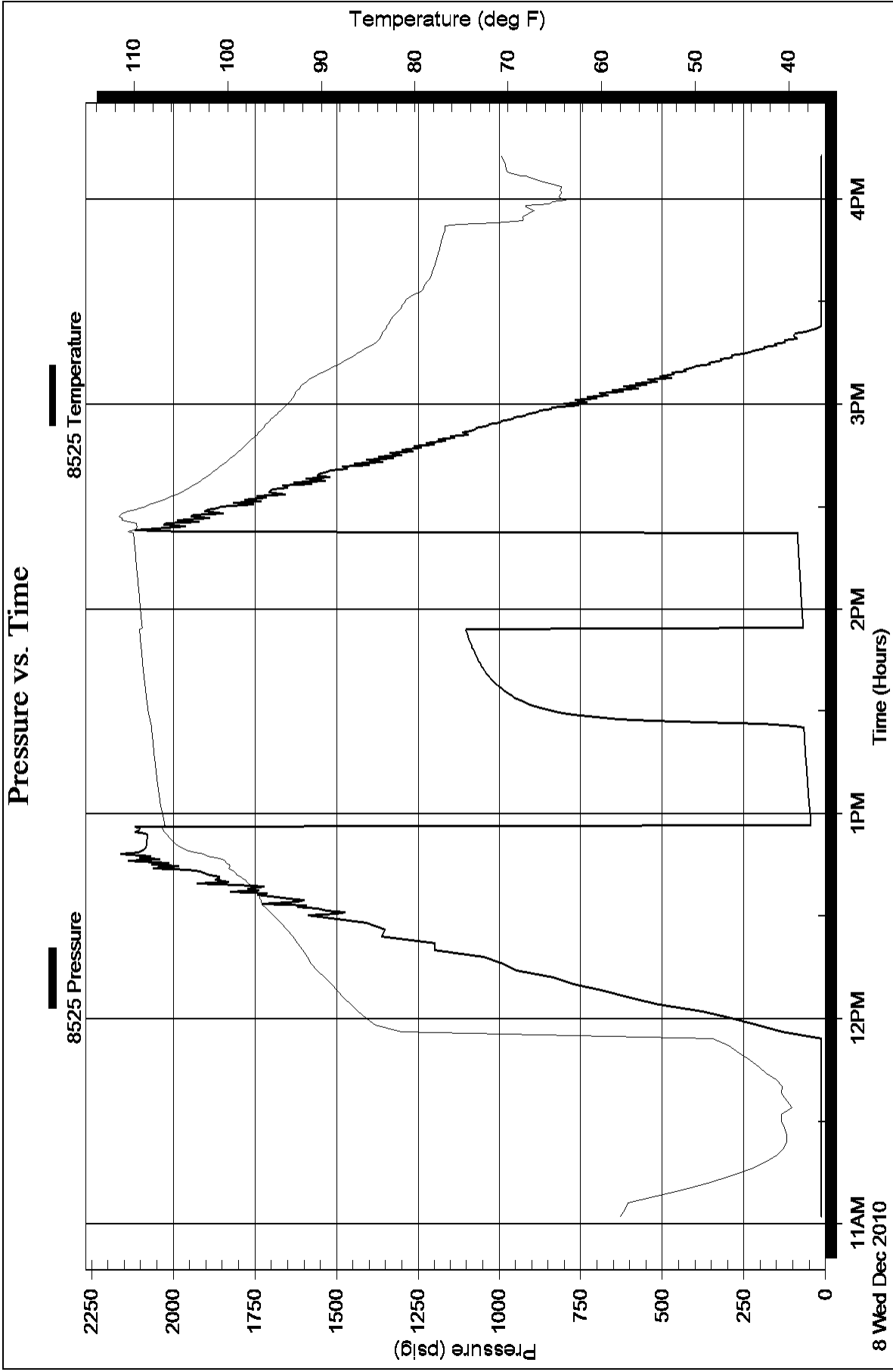


Serial #: 8525

Outside GRAND MESA OPERATING

22-13S-32W- LOGAN

DST Test Number: 4





## DRILL STEM TEST REPORT

Prepared For: **GRAND MESA OPERATING**

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206

ATTN: STEVE CARL

**22-13S-32W- LOGAN**

**VAILE 1-22**

Start Date: 2010.12.09 @ 03:00:00

End Date: 2010.12.09 @ 10:50:00

Job Ticket #: 1060                      DST #: 5

Eagle Testers LLC.

P.O.Box 1011, Great Bend, KS 67530

620-617-7548

Printed: 2010.12.09 @ 03:14:39

GRAND MESA OPERATING  
VAILE 1-22  
22-13S-32W- LOGAN  
DST # 5  
LKC-L-  
2010.12.09



# DRILL STEM TEST REPORT

GRAND MESA OPERATING

VAILE 1-22

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206  
ATTN: STEVE CARL

22-13S-32W- LOGAN

Job Ticket: 1060 **DST#: 5**  
Test Start: 2010.12.09 @ 03:00:00

## GENERAL INFORMATION:

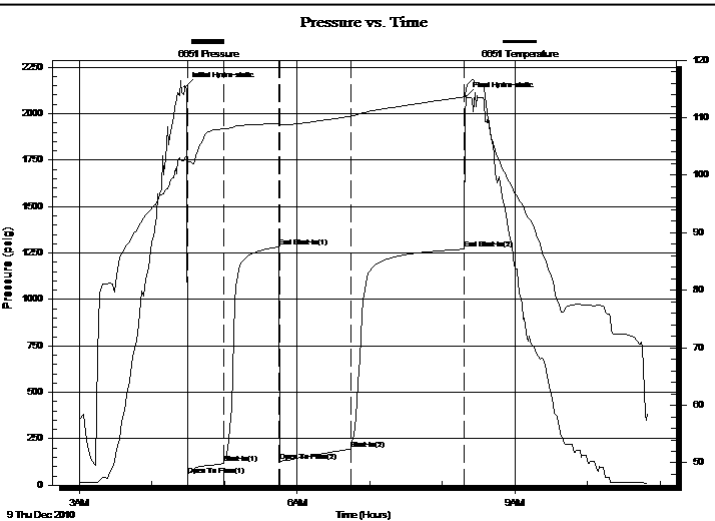
Formation: **LKC -L-**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:29:00  
 Time Test Ended: 10:50:00  
 Interval: **4300.00 ft (KB) To 4336.00 ft (KB) (TVD)**  
 Total Depth: 4336.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: DAVID NICHOLS  
 Unit No: 15 62 MRT SCOTT CIT  
 Reference Elevations: 3039.00 ft (KB)  
 3033.00 ft (CF)  
 KB to GR/CF: 6.00 ft

## Serial #: 6651

Inside

Press @ RunDepth: 194.97 psig @ 4332.00 ft (KB) Capacity: 5000.00 psig  
 Start Date: 2010.12.09 End Date: 2010.12.09 Last Calib.: 2010.12.09  
 Start Time: 03:00:00 End Time: 10:50:00 Time On Btm: 2010.12.09 @ 04:27:30  
 Time Off Btm: 2010.12.09 @ 08:19:30

TEST COMMENT: 30-INITIAL OPENING FAIR BLOW BOTTOM BUCKET IN 18 MINS  
 45-INITIAL SHUT IN 5 INCHES INTO WATER  
 60-FINAL OPENING FAIR BLOW BOTTOM BUCKET IN 15 MINS  
 90-FINAL SHUT IN BOTTOM BUCKET



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2144.57	103.24	Initial Hydro-static
2	53.73	101.81	Open To Flow (1)
32	116.43	108.03	Shut-In(1)
77	1282.59	109.07	End Shut-In(1)
79	130.41	108.76	Open To Flow (2)
137	194.97	110.26	Shut-In(2)
231	1270.37	113.61	End Shut-In(2)
232	2093.05	114.88	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
1140.00	GAS IN PIPE 100%GAS	15.51
260.00	GASSY OIL 20%GAS80%OIL	3.80
120.00	MUD CUT OIL 60%OIL40%M	1.75

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)







# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

GRAND MESA OPERATING

**VAILE 1-22**

1700 N WATERFRONT  
 PKWY BLDG 600  
 WICHITA KS 67206  
 ATTN: STEVE CARL

**22-13S-32W- LOGAN**

Job Ticket: 1060 **DST#: 5**  
 Test Start: 2010.12.09 @ 03:00:00

## Tool Information

Drill Pipe:	Length: 4157.00 ft	Diameter: 3.88 inches	Volume: 60.79 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 58000.00 lb
			<u>Total Volume: 61.38 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	0.00 ft			String Weight: Initial 49000.00 lb
Depth to Top Packer:	4300.00 ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	36.00 ft			
Tool Length:	59.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
SHUT IN TOOL	5.00			4282.00	
HYD S.I. Tool	5.00			4287.00	
jars	6.00			4293.00	
safty joint	2.00			4295.00	
TRAVEL COLER	2.00			4297.00	
Packer	3.00			4300.00	23.00 Bottom Of Top Packer
travel collar	2.00			4302.00	36.00 Tool Interval
Packer	3.00			4305.00	
Anchor	26.00			4331.00	
Recorder	1.00	6651	Inside	4332.00	
Recorder	1.00	8525	Outside	4333.00	
BULL PLUG	3.00			4336.00	1000058.00 Bottom Packers & Anchor

**Total Tool Length: 59.00**



# DRILL STEM TEST REPORT

FLUID SUMMARY

GRAND MESA OPERATING

VAILE 1-22

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206  
ATTN: STEVE CARL

22-13S-32W- LOGAN

Job Ticket: 1060

DST#: 5

Test Start: 2010.12.09 @ 03:00:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 49.00 sec/qt  
Water Loss: 7.20 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 2500.00 ppm  
Filter Cake: inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psig

Oil API: deg API  
Water Salinity: ppm

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1140.00	GAS IN PIPE 100%GAS	15.507
260.00	GASSY OIL 20%GAS80%OIL	3.802
120.00	MUD CUT OIL 60%OIL40%M	1.755

Total Length: 1520.00 ft Total Volume: 21.064 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

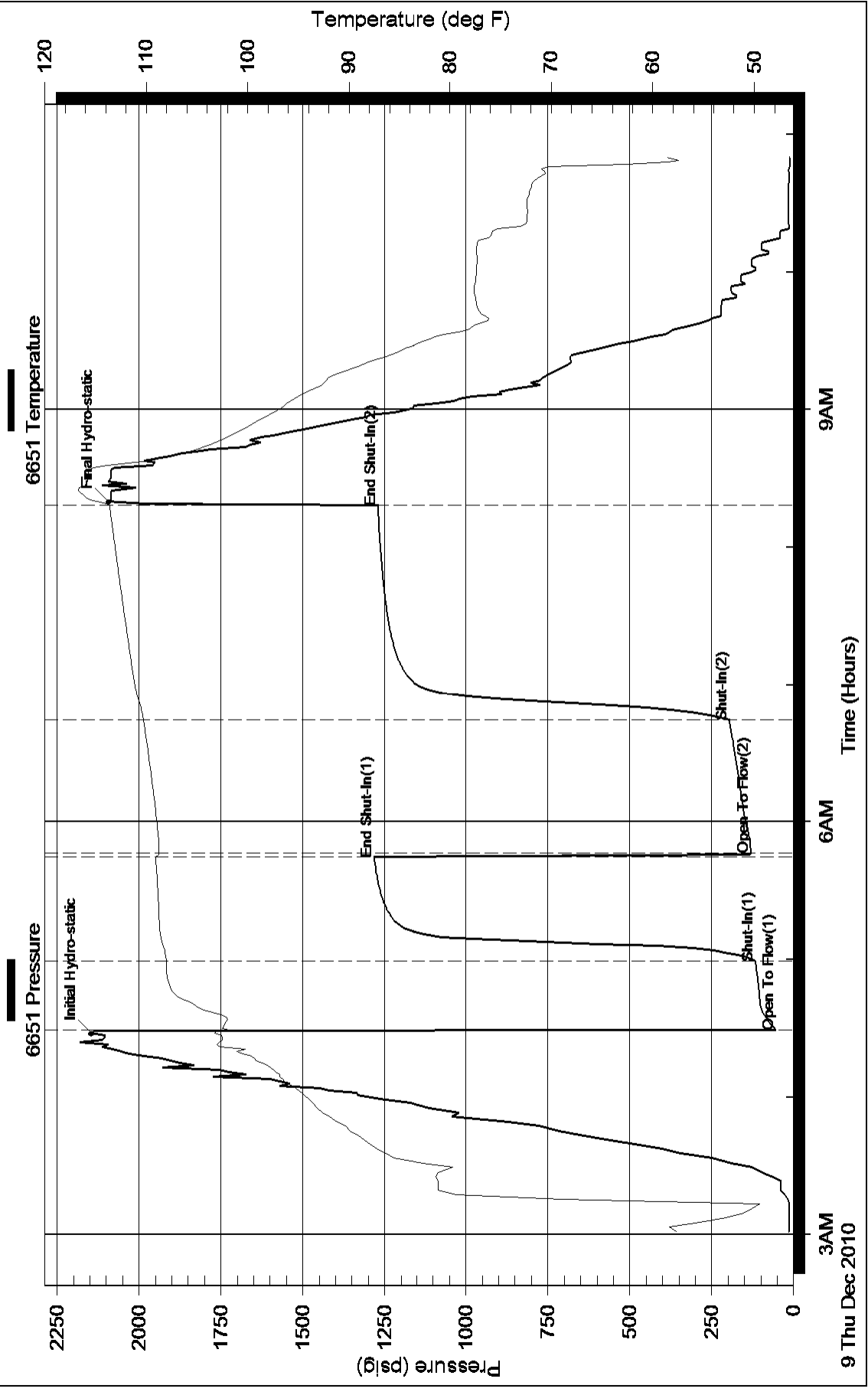
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: GRAVITY OF OIL 34

### Pressure vs. Time

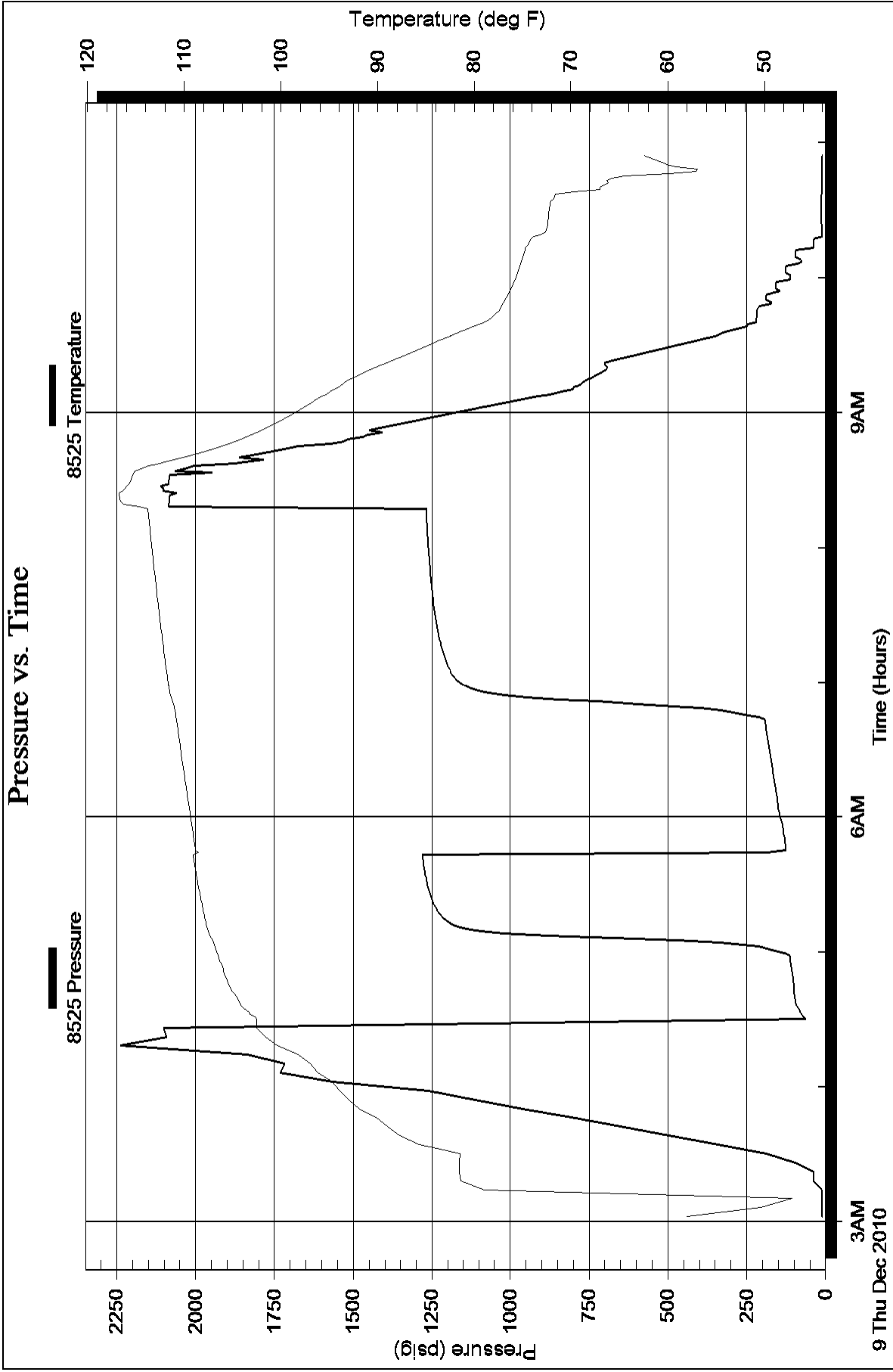


Serial #: 8525

Outside GRAND MESA OPERATING

22-13S-32W- LOGAN

DST Test Number: 5





## DRILL STEM TEST REPORT

Prepared For: **GRAND MESA OPERATING**

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206

ATTN: STEVE CARL

**22-13S-32W- LOGAN**

**VAILE 1-22**

Start Date: 2010.12.10 @ 16:00:00

End Date: 2010.12.10 @ 22:16:00

Job Ticket #: 1061                      DST #: 6

Eagle Testers LLC.

P.O.Box 1011, Great Bend, KS 67530

620-617-7548

Printed: 2010.12.13 @ 09:24:52

GRAND MESA OPERATING

VAILE 1-22

22-13S-32W- LOGAN

VAILE 1-22

DST # 6

KREBS-JOHNSON

2010.12.10



# DRILL STEM TEST REPORT

GRAND MESA OPERATING

VAILE 1-22

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206  
ATTN: STEVE CARL

22-13S-32W- LOGAN

Job Ticket: 1061 **DST#: 6**  
Test Start: 2010.12.10 @ 16:00:00

## GENERAL INFORMATION:

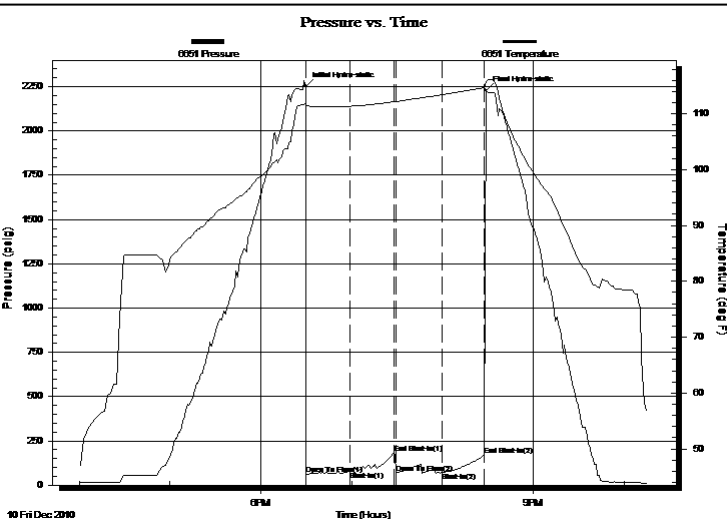
Formation: **KREBS-JOHSON**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 18:30:00  
 Time Test Ended: 22:16:00  
 Interval: **4552.00 ft (KB) To 4620.00 ft (KB) (TVD)**  
 Total Depth: 4620.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: DAVID NICHOLS  
 Unit No: 15 62 MRT SCOTT CIT  
 Reference Elevations: 3039.00 ft (KB)  
 3033.00 ft (CF)  
 KB to GR/CF: 6.00 ft

## Serial #: 6651

Inside

Press @ RunDepth: 71.55 psig @ 4616.00 ft (KB) Capacity: 5000.00 psig  
 Start Date: 2010.12.10 End Date: 2010.12.10 Last Calib.: 2010.12.10  
 Start Time: 16:01:00 End Time: 22:16:00 Time On Btm: 2010.12.10 @ 18:29:30  
 Time Off Btm: 2010.12.10 @ 20:28:30

TEST COMMENT: 30-INITIAL OPENING SURFACE BLOW  
 30-INITIAL SHUT IN NO BLOW BACK  
 30-FINAL OPENING WEAK SURFACE BLOW  
 30-FINAL SHUT IN NO BLOW BACK



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2251.95	112.03	Initial Hydro-static
1	63.70	111.47	Open To Flow (1)
30	79.56	111.35	Shut-In(1)
59	182.94	112.18	End Shut-In(1)
60	66.79	112.18	Open To Flow (2)
90	71.55	113.42	Shut-In(2)
118	169.81	114.67	End Shut-In(2)
119	2228.68	115.81	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	MUD TRACE OF OIL 5%OIL95%MUD	0.05

## Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)







# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

GRAND MESA OPERATING

**VAILE 1-22**

1700 N WATERFRONT  
 PKWY BLDG 600  
 WICHITA KS 67206  
 ATTN: STEVE CARL

**22-13S-32W- LOGAN**

Job Ticket: 1061 **DST#: 6**  
 Test Start: 2010.12.10 @ 16:00:00

## Tool Information

Drill Pipe:	Length: 4410.00 ft	Diameter: 3.88 inches	Volume: 64.49 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 65.08 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	6.75 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	4552.00 ft			Final 54000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	68.00 ft			
Tool Length:	96.75 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-in tool	5.00			4528.25	
Hydraulic tool	5.00			4533.25	
Change over sub	0.75			4534.00	
Jars	6.00			4540.00	
Safety Joint	2.00			4542.00	
Packer	5.00			4547.00	28.75 Bottom Of Top Packer
Packer	5.00			4552.00	
Anchor	5.00			4557.00	
change over sub	0.75			4557.75	
drill pipe	31.50			4589.25	
change over sub	0.75			4590.00	
anchor	25.00			4615.00	
Recorder	1.00	6651	Inside	4616.00	
Recorder	1.00	8525	Outside	4617.00	
bull plug	3.00			4620.00	68.00 Bottom Packers & Anchor

**Total Tool Length: 96.75**



# DRILL STEM TEST REPORT

## FLUID SUMMARY

GRAND MESA OPERATING

VAILE 1-22

1700 N WATERFRONT  
PKWY BLDG 600  
WICHITA KS 67206  
ATTN: STEVE CARL

22-13S-32W- LOGAN

Job Ticket: 1061

DST#: 6

Test Start: 2010.12.10 @ 16:00:00

### Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 59.00 sec/qt  
Water Loss: 8.79 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 3500.00 ppm  
Filter Cake: inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psig

Oil API: deg API  
Water Salinity: ppm

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	MUD TRACE OF OIL 5%OIL95%MUD	0.049

Total Length: 10.00 ft      Total Volume: 0.049 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

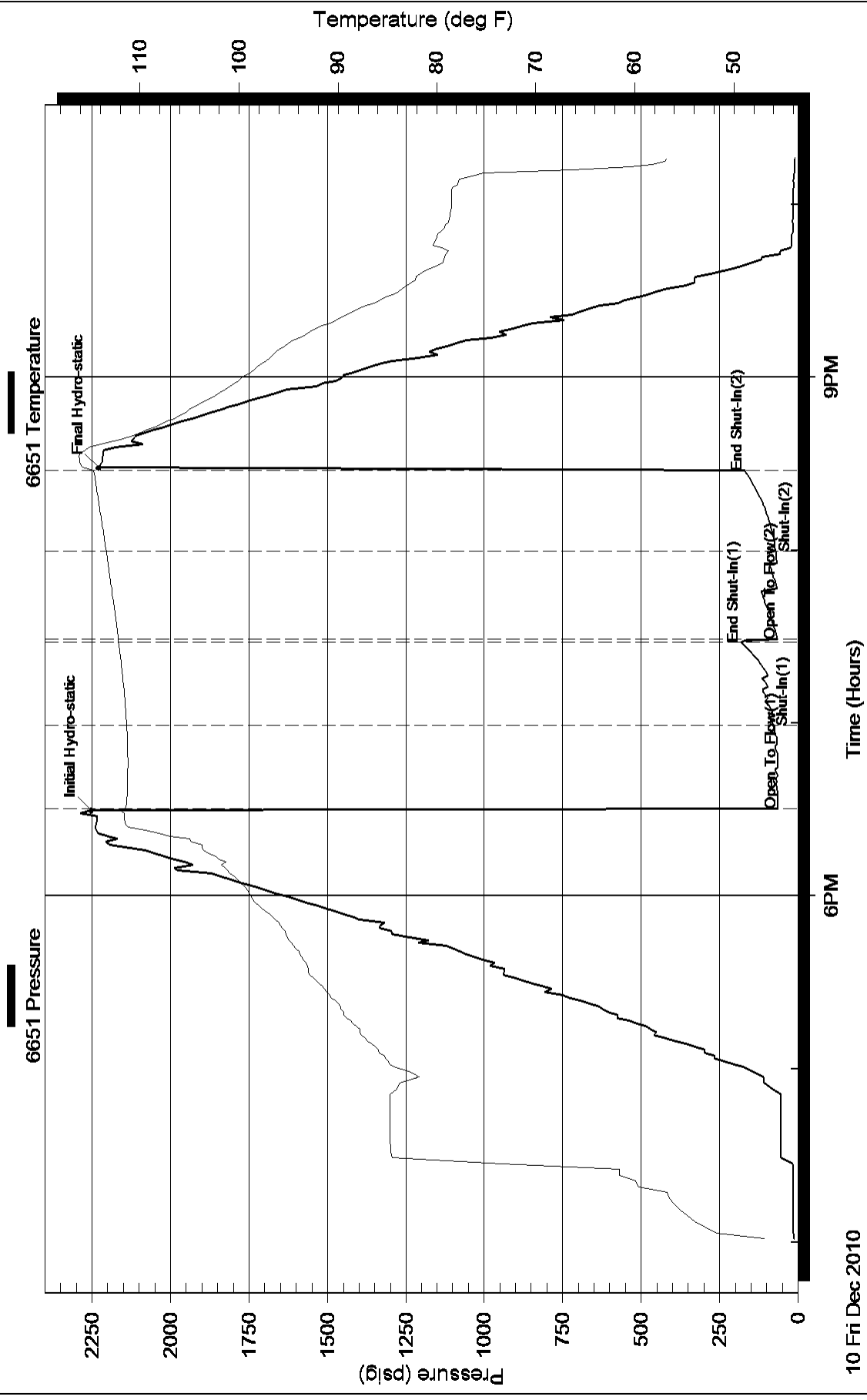
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time



Serial #: 8525

Outside GRAND MESA OPERATING

22-13S-32W- LOGAN

DST Test Number: 6

