



**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

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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DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____ <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: _____ _____
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Form	ACO1 - Well Completion
Operator	Grand Mesa Operating Company
Well Name	K-R-K 1-21
Doc ID	1067178

Tops

Name	Top	Datum
Stone Corral	2422	+654
Bs/Stone Corral	2443	+633
Heebner	3981	-905
Lansing	4030	-954
Muncie Creek	4206	-1130
Stark	4304	-1228
Hushpuckney	4349	-1273
Marmaton	4420	-1344
Little Osage	4548	-1472
Morrow	4702	-1626
Mississippian	4753	-1677
LTD	4854	

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/>

Mark Sievers, Chairman  
Ward Loyd, Commissioner  
Thomas E. Wright, Commissioner

Sam Brownback, Governor

November 09, 2011

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

Re: ACO1  
API 15-171-20839-00-00  
K-R-K 1-21  
SE/4 Sec.21-16S-33W  
Scott 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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Grand Mesa Operating  
1700 N Waterfront PKWY  
BLDG 600  
Wichita KS 67206  
ATTN: Kent Matson

**21-16-33 Scott Co**

**K-R-K - # 1-21**

Job Ticket: 45454

**DST#: 1**

Test Start: 2011.10.18 @ 04:49:00

## GENERAL INFORMATION:

Formation: **Pleasanton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:02:00

Time Test Ended: 12:46:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Shane McBride

Unit No: 55

**Interval: 4380.00 ft (KB) To 4400.00 ft (KB) (TVD)**

Reference Elevations: 3076.00 ft (KB)

Total Depth: 4400.00 ft (KB) (TVD)

3065.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 6771 Outside**

Press @ Run Depth: 132.36 psig @ 4381.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.10.18

End Date:

2011.10.18

Last Calib.:

1899.12.30

Start Time:

04:49:00

End Time:

12:46:30

Time On Btm:

2011.10.18 @ 07:01:45

Time Off Btm:

2011.10.18 @ 10:35:30

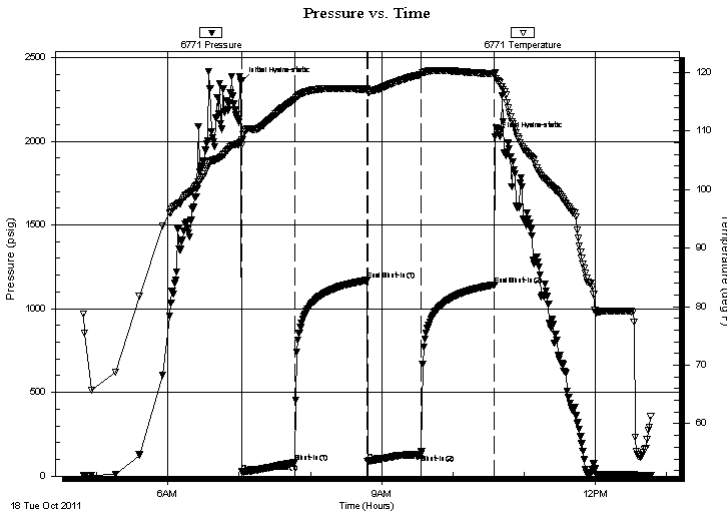
**TEST COMMENT:** IF- Weak Surface Blow Built to 2 1/4"

IS- No Blow

FF- Weak Surface Blow Built to 1"

FS- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2357.11	108.14	Initial Hydro-static
1	24.77	107.54	Open To Flow (1)
45	80.92	115.34	Shut-In(1)
106	1168.89	117.12	End Shut-In(1)
107	88.26	116.67	Open To Flow (2)
152	132.36	119.63	Shut-In(2)
214	1143.17	119.73	End Shut-In(2)
214	2028.23	119.89	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
70.00	WCM 30%w 70%m	0.34
175.00	MCW 20%m 80%w	0.95

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Grand Mesa Operating

**21-16-33 Scott Co**

1700 N Waterfront PKWY  
BLDG 600  
Wichita KS 67206  
ATTN: Kent Matson

**K-R-K - # 1-21**

Job Ticket: 45454

**DST#: 1**

Test Start: 2011.10.18 @ 04:49:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

37000 ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.54 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4700.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
70.00	WCM 30%w 70%m	0.344
175.00	MCW 20%m 80%w	0.952

Total Length: 245.00 ft      Total Volume: 1.296 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

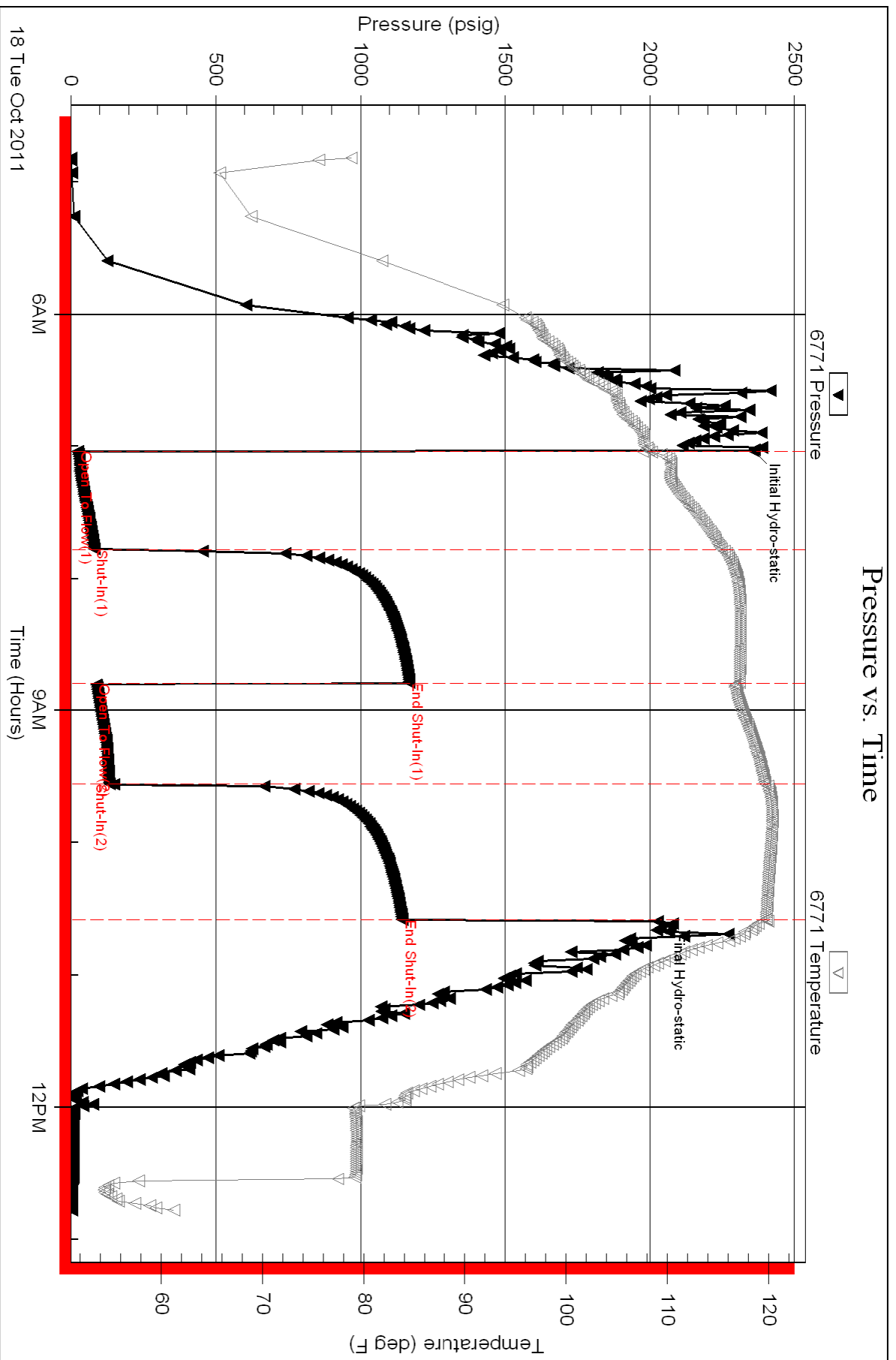
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW is .233 @ 58f = 37000

### Pressure vs. Time





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Grand Mesa Operating  
1700 N Waterfront PKWY  
BLDG 600  
Wichita KS 67206  
ATTN: Kent Matson

**21-16-33 Scott Co**

**K-R-K - # 1-21**

Job Ticket: 45455

**DST#: 2**

Test Start: 2011.10.19 @ 14:10:00

## GENERAL INFORMATION:

Formation: **Johnson / Atoka**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 16:21:30  
 Time Test Ended: 19:42:45  
 Interval: **4608.00 ft (KB) To 4695.00 ft (KB) (TVD)**  
 Total Depth: 4695.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 55  
 Reference Elevations: 3076.00 ft (KB)  
 3065.00 ft (CF)  
 KB to GR/CF: 11.00 ft

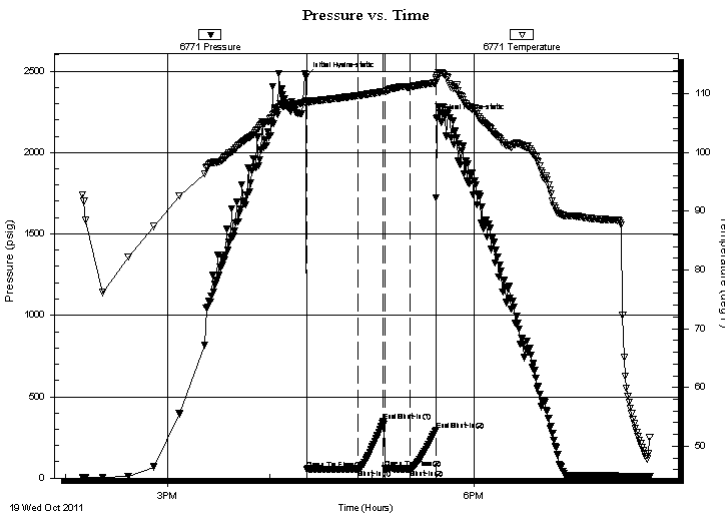
## Serial #: 6771

**Outside**

Press @ Run Depth: 56.44 psig @ 4609.00 ft (KB)  
 Start Date: 2011.10.19 End Date: 2011.10.19  
 Start Time: 14:10:00 End Time: 19:42:45  
 Capacity: 8000.00 psig  
 Last Calib.: 2011.10.19  
 Time On Btm: 2011.10.19 @ 16:21:00  
 Time Off Btm: 2011.10.19 @ 17:37:45

TEST COMMENT: IF- Weak Surface Blow Died in 12 1/2min  
 IS- No Blow  
 FF- No Blow  
 FS- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2463.34	108.73	Initial Hydro-static
1	53.72	108.46	Open To Flow (1)
31	56.36	109.68	Shut-In(1)
46	349.55	110.38	End Shut-In(1)
47	59.77	110.34	Open To Flow (2)
62	56.44	111.14	Shut-In(2)
77	295.18	111.86	End Shut-In(2)
77	2207.75	112.41	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
61.00	Mud 100% m	0.30
0.00	Few Oil Spots in Tool	0.00

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Grand Mesa Operating

**21-16-33 Scott Co**

1700 N Waterfront PKWY  
BLDG 600  
Wichita KS 67206  
ATTN: Kent Matson

**K-R-K - # 1-21**

Job Ticket: 45455

**DST#: 2**

Test Start: 2011.10.19 @ 14:10:00

### Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 10.00 lb/gal

Viscosity: 55.00 sec/qt

Water Loss: 9.57 in<sup>3</sup>

Resistivity: ohm.m

Salinity: 7000.00 ppm

Filter Cake: 1.00 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
61.00	Mud 100%m	0.300
0.00	Few Oil Spots in Tool	0.000

Total Length: 61.00 ft      Total Volume: 0.300 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

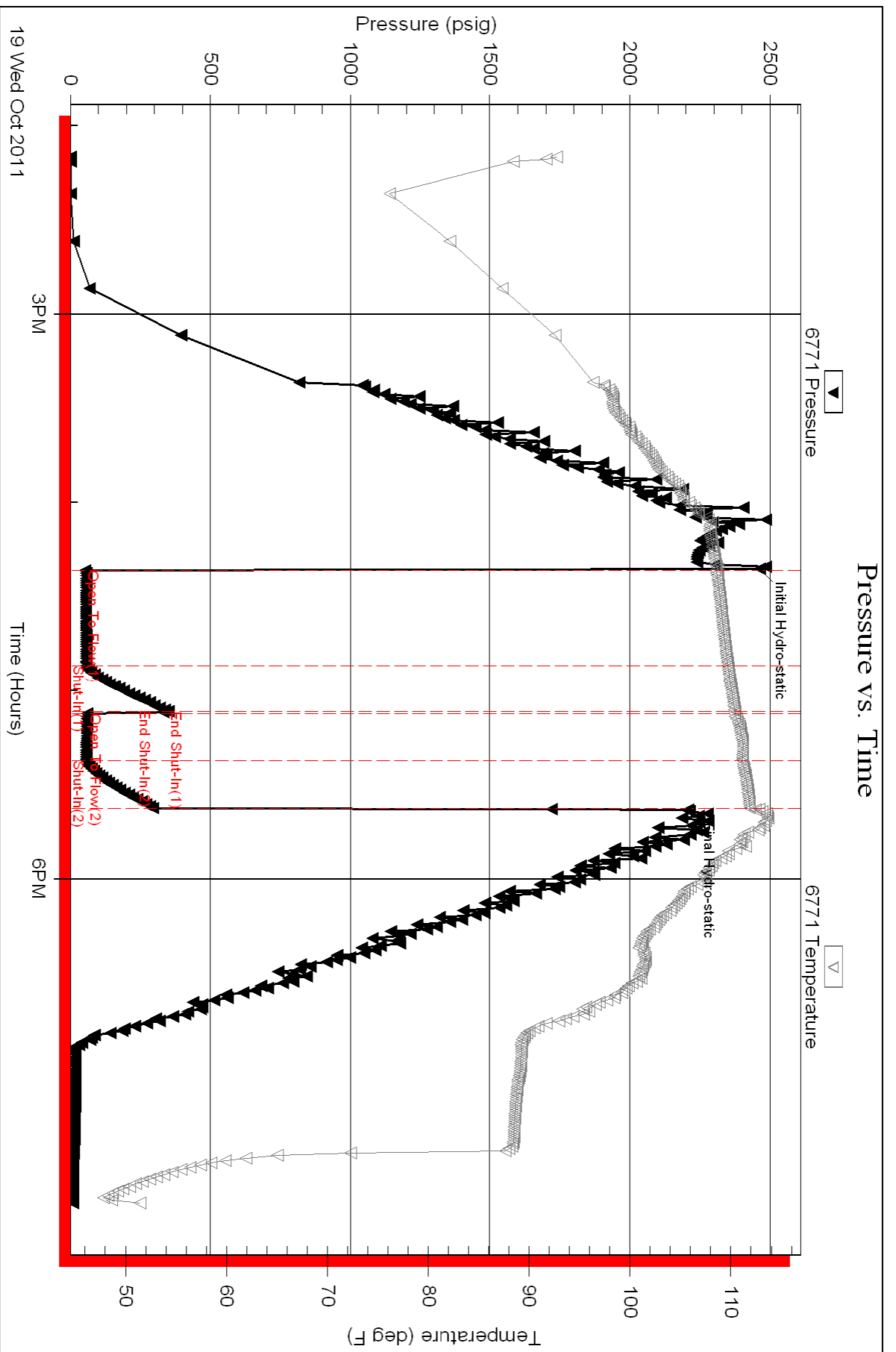
Recovery Comments:

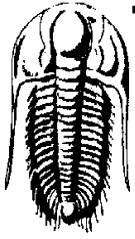
Serial #: 6771

Outside Grand Mesa Operating

K-R-K - #1-21

DST Test Number: 2





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Grand Mesa Operating  
 1700 N Waterfront PKWY  
 BLDG 600  
 Wichita KS 67206  
 ATTN: Kent Matson

**21-16-33 Scott Co**  
**K-R-K - # 1-21**  
 Job Ticket: 45456      **DST#: 3**  
 Test Start: 2011.10.20 @ 16:33:00

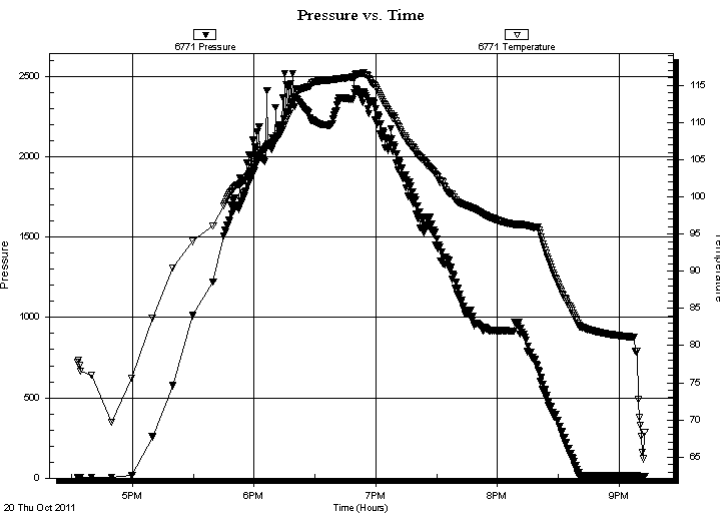
## GENERAL INFORMATION:

Formation:	<b>Mississippi</b>		
Deviated:	No	Whipstock:	ft (KB)
Time Tool Opened:		Test Type:	Conventional Bottom Hole (Reset)
Time Test Ended:	21:12:30	Tester:	Shane McBride
		Unit No:	55
<b>Interval:</b>	<b>4772.00 ft (KB) To 4850.00 ft (KB) (TVD)</b>	Reference Elevations:	3076.00 ft (KB)
Total Depth:	4850.00 ft (KB) (TVD)		3065.00 ft (CF)
Hole Diameter:	7.88 inches	Hole Condition:	Good
		KB to GR/CF:	11.00 ft

## Serial #: 6771      Outside

Press @ Run Depth:	psig @	4773.00 ft (KB)	Capacity:	8000.00 psig	
Start Date:	2011.10.20	End Date:	2011.10.20	Last Calib.:	2011.10.20
Start Time:	16:33:00	End Time:	21:12:30	Time On Btm:	
				Time Off Btm:	

TEST COMMENT: Mis-Run Hole in Pipe on Bottm of Stand 39



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

## Recovery

Length (ft)	Description	Volume (bbl)
1674.00	Mud 100% m	21.34

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Grand Mesa Operating

**21-16-33 Scott Co**

1700 N Waterfront PKWY  
BLDG 600  
Wichita KS 67206  
ATTN: Kent Matson

**K-R-K - # 1-21**

Job Ticket: 45456

**DST#: 3**

Test Start: 2011.10.20 @ 16:33:00

## Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 55.00 sec/qt

Water Loss: 8.75 in<sup>3</sup>

Resistivity: ohm.m

Salinity: 6500.00 ppm

Filter Cake: 1.00 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
1674.00	Mud 100%m	21.341

Total Length: 1674.00 ft      Total Volume: 21.341 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

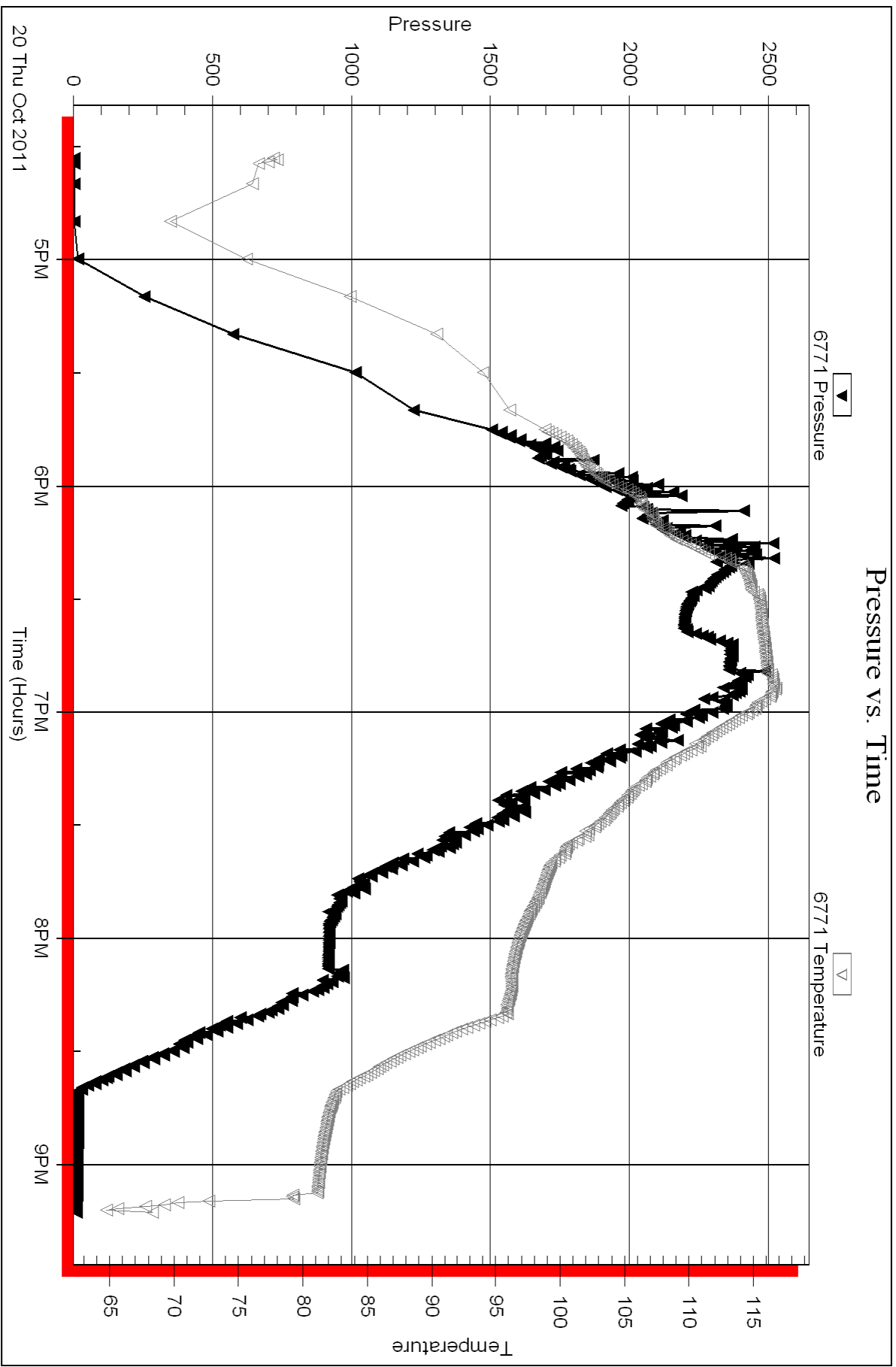
Recovery Comments:

Serial #: 6771

Outside Grand Mesa Operating

K-R-K - #1-21

DST Test Number: 3





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Grand Mesa Operating  
1700 N Waterfront PKWY  
BLDG 600  
Wichita KS 67206  
ATTN: Kent Matson

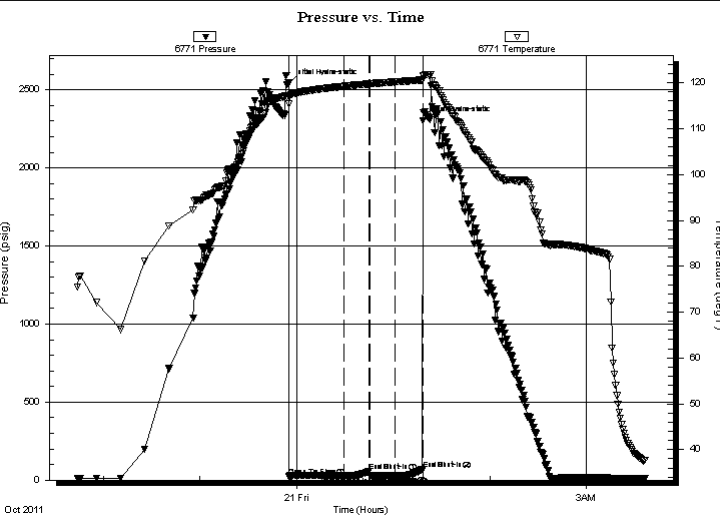
**21-16-33 Scott Co**  
**K-R-K - # 1-21**  
Job Ticket: 45457 **DST#: 4**  
Test Start: 2011.10.20 @ 21:44:00

## GENERAL INFORMATION:

Formation: **Mississippi**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 23:55:15  
Time Test Ended: 03:36:30  
Interval: **4772.00 ft (KB) To 4850.00 ft (KB) (TVD)**  
Total Depth: 4850.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Shane McBride  
Unit No: 55  
Reference Elevations: 3076.00 ft (KB)  
3065.00 ft (CF)  
KB to GR/CF: 11.00 ft

**Serial #: 6771 Outside**  
Press @ Run Depth: 26.35 psig @ 4773.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2011.10.20 End Date: 2011.10.21 Last Calib.: 1899.12.30  
Start Time: 21:44:00 End Time: 03:36:30 Time On Btm: 2011.10.20 @ 23:55:00  
Time Off Btm: 2011.10.21 @ 01:18:30

**TEST COMMENT:** IF- Weak Surface Blow Died in 15min  
IS- No Blow  
FF- No Blow  
FS- No Blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2543.52	116.94	Initial Hydro-static
1	24.26	115.34	Open To Flow (1)
35	27.02	119.23	Shut-In(1)
50	57.02	119.76	End Shut-In(1)
51	30.15	119.76	Open To Flow (2)
66	26.35	120.17	Shut-In(2)
84	71.37	120.62	End Shut-In(2)
84	2304.23	121.61	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud 100% m	0.05

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Grand Mesa Operating

**21-16-33 Scott Co**

1700 N Waterfront PKWY  
BLDG 600  
Wichita KS 67206  
ATTN: Kent Matson

**K-R-K - # 1-21**

Job Ticket: 45457

**DST#: 4**

Test Start: 2011.10.20 @ 21:44:00

## Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 55.00 sec/qt

Water Loss: 8.77 in<sup>3</sup>

Resistivity: ohm.m

Salinity: 6500.00 ppm

Filter Cake: 1.00 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
10.00	Mud 100%m	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:

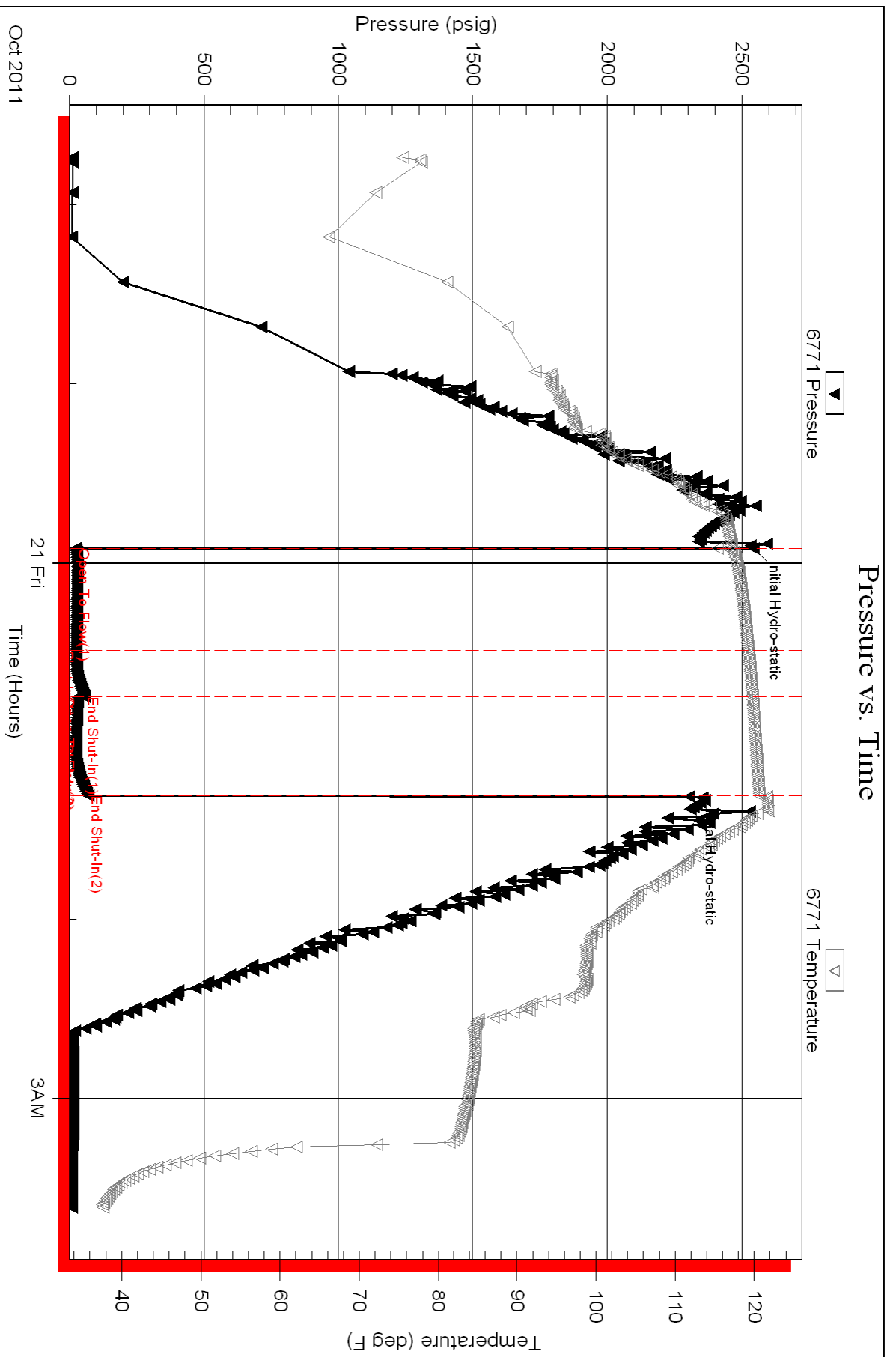
Recovery Comments:

Serial #: 6771

Outside Grand Mesa Operating

K-R-K - #1-21

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 45457

Printed: 2011.10.21 @ 08:13:09



# ALLIED CEMENTING CO., LLC. 036088

Federal Tax I.D.# 20-5975804

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

SERVICE POINT:  
Oakley, KS

DATE <u>10-13-11</u>	SEC. <u>21</u>	TWP. <u>16</u>	RANGE <u>33</u>	CALLED OUT	ON LOCATION	JOB START <u>7:30 am</u>	JOB FINISH <u>8:00 pm</u>
LEASE <u>R-R-K</u>	WELL # <u>1-21</u>	LOCATION <u>Penectary 95, 30, Y25</u>			COUNTY <u>Scott</u>	STATE <u>KS</u>	
OLD OR <u>NEW</u> (Circle one)				<u>Waite</u>			

CONTRACTOR Marfin #22

TYPE OF JOB Surface

HOLE SIZE 12 1/4" T.D. 226'

CASING SIZE 2 3/8" DEPTH 226'

TUBING SIZE DEPTH

DRILL PIPE DEPTH

TOOL DEPTH

PRES. MAX MINIMUM

MEAS. LINE SHOE JOINT

OWNER Same

CEMENT

AMOUNT ORDERED 165 sks com

3% cc 2% ogel

CEMENT LEFT IN CSG. 15'

PERFS.

DISPLACEMENT 135661

COMMON 165 sks @ 16.25 2682.25

POZMIX @

GEL 3.25 sks @ 26.25 85.31

CHLORIDE 6 sks @ 58.20 349.20

ASC @

EQUIPMENT

PUMP TRUCK CEMENTER Lakene

# 431 HELPER Darren

BULK TRUCK

# 096/306 DRIVER Tyler/Brandon

BULK TRUCK

# DRIVER

HANDLING 174 sks @ 2.25 391.50

MILEAGE 119 sks/mile 765.60

TOTAL 4251.30

REMARKS:

Mix 165 sks down casing

displace with water

cement did circulate

Ther Report

CHARGE TO: Grand Mesa

STREET

CITY STATE ZIP

SERVICE

DEPTH OF JOB 226'

PUMP TRUCK CHARGE 1125.00

EXTRA FOOTAGE @

MILEAGE 40 x 2 @ 7.00 560.00

MANIFOLD Swedge @ 325.00

light vehicle @ 400 320.00

TOTAL 2380.00

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.

PLUG & FLOAT EQUIPMENT

@

@

@

@

@

TOTAL

PRINTED NAME Kelly Wilson

SIGNATURE Kelly Wilson

SALES TAX (If Any)

TOTAL CHARGES

DISCOUNT IF PAID IN 30 DAYS

# ALLIED CEMENTING CO., LLC. 043516

Federal Tax I.D.# 20-5975804

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

SERVICE POINT:  
Ogkley

DATE <u>10-21-11</u>	SEC. <u>21</u>	TWP. <u>16s</u>	RANGE <u>23w</u>	CALLED OUT	ON LOCATION	JOB START <u>1:00pm</u>	JOB FINISH <u>2:00pm</u>
LEASE <u>KRR</u>		WELL # <u>1-21</u>		LOCATION <u>Pence Co E 1/2</u>		COUNTY <u>Scott</u>	STATE <u>KS</u>
OLD OR <u>NEW</u> (Circle one)				<u>winto</u>			

CONTRACTOR Muffin 22

TYPE OF JOB PTA

HOLE SIZE 2 7/8 T.D. 4850'

CASING SIZE \_\_\_\_\_ DEPTH \_\_\_\_\_

TUBING SIZE \_\_\_\_\_ DEPTH \_\_\_\_\_

DRILL PIPE 4 1/2 DEPTH 2430'

TOOL \_\_\_\_\_ DEPTH \_\_\_\_\_

PRES. MAX \_\_\_\_\_ MINIMUM \_\_\_\_\_

MEAS. LINE \_\_\_\_\_ SHOE JOINT \_\_\_\_\_

CEMENT LEFT IN CSG. \_\_\_\_\_

PERFS. \_\_\_\_\_

DISPLACEMENT \_\_\_\_\_

OWNER same

CEMENT

AMOUNT ORDERED 300 sks 6 1/4

470 gel 1/4 Flo-seal

COMMON <u>180 sks</u>	@ <u>16.25</u>	<u>2925.00</u>
POZMIX <u>120 sks</u>	@ <u>8.50</u>	<u>1020.00</u>
GEL <u>10 sks</u>	@ <u>21.25</u>	<u>212.50</u>
CHLORIDE _____	@ _____	_____
ASC _____	@ _____	_____
<u>Flo-seal 25 #</u>	@ <u>2.70</u>	<u>202.50</u>
HANDLING <u>313 sks</u>	@ <u>2.25</u>	<u>204.25</u>
MILEAGE <u>18 sk/mile</u>		<u>1322.20</u>
TOTAL		<u>6441.45</u>

**EQUIPMENT**

PUMP TRUCK CEMENTER Andrew

# 422 HELPER Ethan

BULK TRUCK

# 394 DRIVER Tyler

BULK TRUCK

# \_\_\_\_\_ DRIVER \_\_\_\_\_

**REMARKS:**

50 sks @ 2430'

80 sks @ 1680'

10 sks @ 340'

10 sks @ 240'

20 sks @ 160'

20 sks mouse hole

30 sks Red hole

thank you

CHARGE TO: Grand mesa

STREET \_\_\_\_\_

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

**SERVICE**

DEPTH OF JOB 2430'

PUMP TRUCK CHARGE \_\_\_\_\_ 1250.00

EXTRA FOOTAGE @ \_\_\_\_\_

MILEAGE 40 miles X 2 @ 7.00 560.00

MANIFOLD @ \_\_\_\_\_

Light vehicle @ 4.00 320.00

TOTAL 1620.00

**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 Kelly Wilson

SIGNATURE Kelly Wilson

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

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

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

# GRAND MESA OPERATING COMPANY

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

1700 N. WATERFRONT PARKWAY  
BLDG. 600  
WICHITA, KANSAS 67208-5514

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

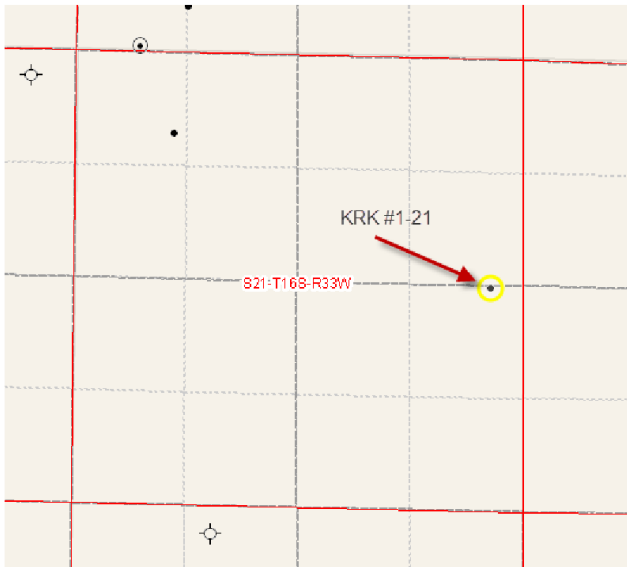
Well Name: KRK #1-21  
 Location: 2589' FSL, 353' FEL, 21-16s-33w, Scott County, Kansas  
 License Number: API: 15-171-20839      Region: Scott County  
 Spud Date: 10/13/2011      Drilling Completed: 10/20/2011  
 Surface Coordinates: Lat: 38.8818173  
 Long: -100.7902181  
 Bottom Hole Coordinates: Vertical hole

Ground Elevation (ft): 3065'      K.B. Elevation (ft): 3076'  
 Logged Interval (ft): 3600' To: RTD      Total Depth (ft): 4850'  
 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: Kent R. Matson  
 Company: Matson Geological Services, LLC  
 Address: 33300 W. 15th Street S.  
 Garden Plain, Kansas 67050  
 316-644-1975



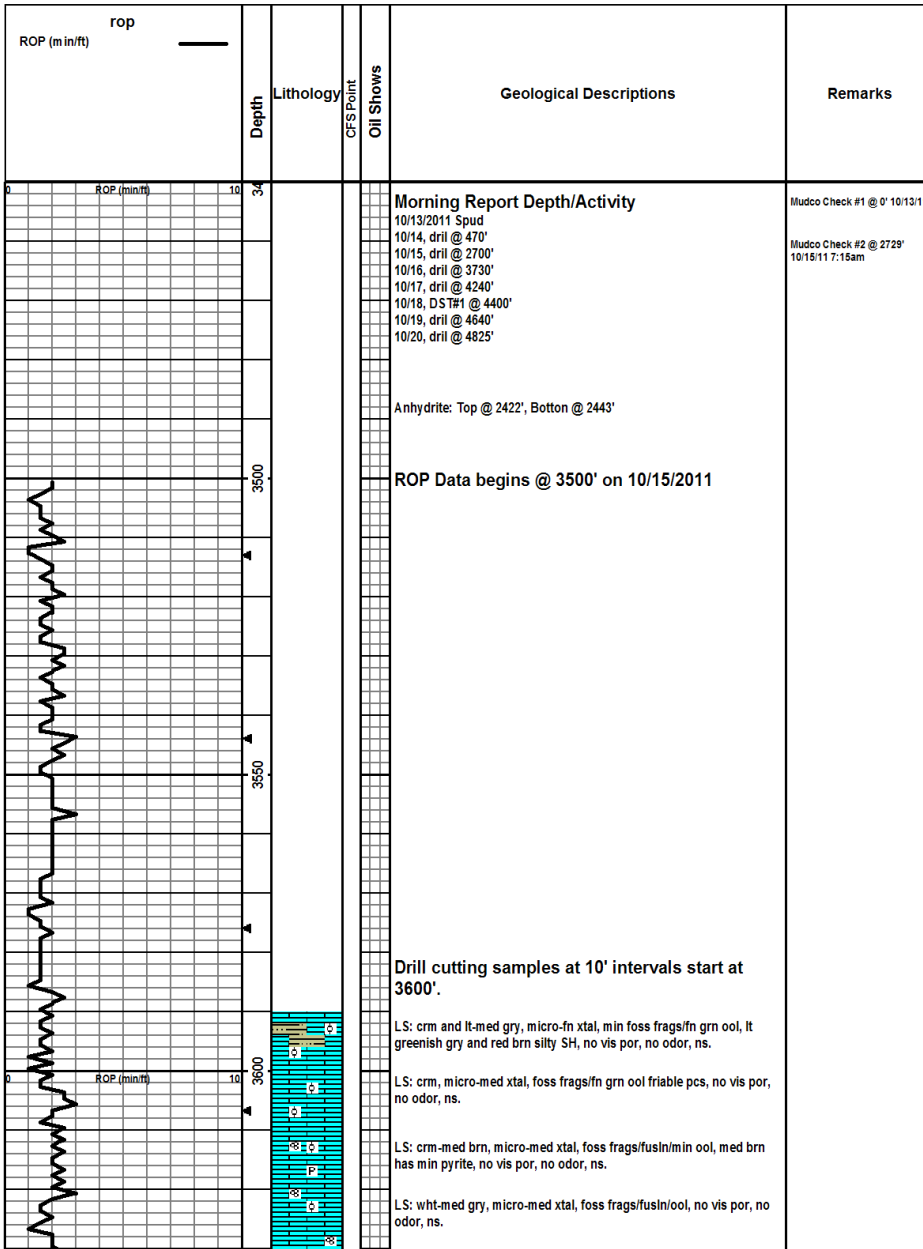
## COMMENTS

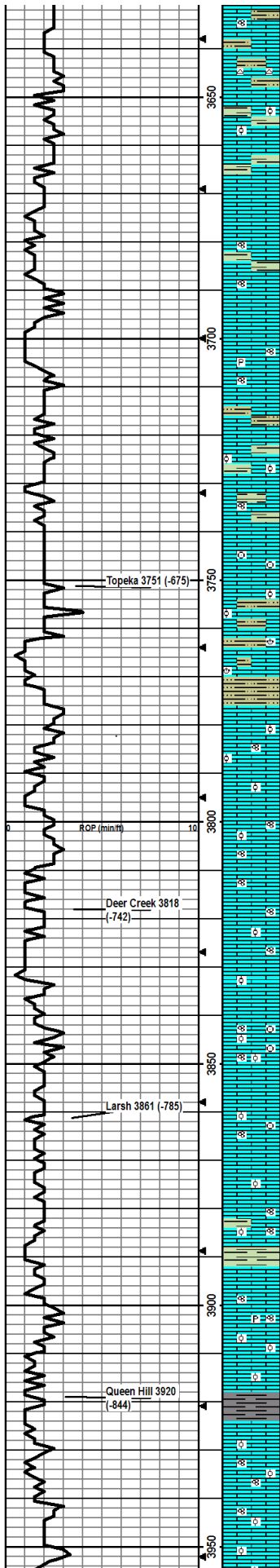
Contractor: Murfin Drilling Company Rig #22  
 Pusher: Kelly Wilson  
 Surface Casing: 8 5/8" set at 225' w/165sx  
 Production Casing: Production casing was not installed and the hole was plugged and abandoned based on field observations of drill cuttings and DST tests.  
 Mud by: MudCo  
 DST's by: Trilobite Testing  
 Logs by: Superior (DIL, CN-CD, ML)  
 RTD= 4850'  
 LTD= 4854'

## FORMATION TOPS

FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Queen Hill	3920'	-844	3921'	-845

Heebner Shale	3981'	-905	3984'	-908
Toronto	4003'	-927	4004'	-928
Lansing	4023'	-947	4022'	-946
Muncie Creek Shale	4211'	-1135	4211'	-1135
Stark Shale	4300'	-1224	4303'	-1227
Hushpuckney Shale	4345'	-1269	4348'	-1272
Marmaton	4421'	-1345	4420'	-1344
Upper Fort Scott	4522'	-1446	4526'	-1450
Little Osage Shale	4545'	-1469	4546'	-1470
Excello Shale	4561'	-1485	4563'	-1487
Johnson Zone	4631'	-1555	4630'	-1554
Morrow	4699'	-1623	4698'	-1622
Mississippian	4750'	-1674	4751'	-1675
RTD	4850'	-1774		
LTD			4854'	-1778





LS: crm-lt gryish brn, micro-med xtal, foss frags/fusin, silty/sndy, some lt greenish to dk gry silty SH, no vis por, no odor, ns.

Same as above w/min lt gry chert.

LS: crm-med gryish brn, micro-fn xtal, foss frags/min ool, silty/sndy, lt-dk gry SH, no vis por, no odor, ns.

LS: crm-med brnsh gry, micro-med xtal, foss frags, lt-dk gry SH, no vis por, no odor, ns.

LS: crm-lt brn and lt-med gry, micro-fn xtal, foss frags, no vis por, no odor, ns.

LS: crm-lt gry, micro-med xtal, foss frags/fusin, lt-med gry silty SH, no vis por, no odor, ns.

LS: med gryish brn, fn-med xtal, foss frags, no vis por, no odor, ns.

LS: crm-lt brn and lt gry, micro-med xtal, foss frags/fusin, silty/sndy, min pyrite, min ppt-fn por, no odor, ns.

LS: med brnsh gry, micro-med xtal, foss frags, silty/sndy, med gry silty SH, no vis por, no odor, ns.

LS: wht-crm w/med brnsh gry, micro-fn xtal, foss frags/fn grnd ool, some red brn and med gry SH, ppt-fn por, no odor, ns.

LS: crm-lt gryish brn, micro-med xtal, foss frags/fusin/fn-cors grn ool, red brn and med gry silty SH, min ppt por, no odor, ns.

LS: med gry, micro-med xal, foss frags/crin, silty, min ppt por, no odor, ns.

LS: gryish crm-lt brn, micro-med xtal, foss frags/ool, ool pcs friable, med greenish gry silty SH, no vis por, no odor, ns.

LS: lt-med gry and brn, micro-fn xtal, foss frags/brack/ool, red brn and med gry silty SH, no vis por, no odor, ns.

SH: med-dk greenish gry and gry, some red brn w/in green mottling, some vry silty, soft-firm and brittle.

LS: crm and med brnsh gry, micro-fn xtal, foss frags/fusin/fn grnd ool, no vis por, no odor, ns.

LS: wht-crm and gryish crm, micro-fn xtal, foss frags/fn grnd ool-silty, some wht chalky pcs, no vis por, no odor, ns.

LS: wht-crm and lt gryish brn, micro-med xtal, foss frags/fusin/ool-silty/sandy, min wht chalky pcs, no vis por, no odor, ns.

LS: crm-lt gry, micro-fn xtal, foss frags/fusin, silty, no vis por, no odor, ns.

LS: crm-med gryish brn, micro-med xtal, foss frags/fusin/ool-silty, no vis por, no odor, ns.

LS: crm, micro-fn xtal, vry fn ool/silty, hard but friable, no vis por, no odor, ns.

LS: crm, micro-fn xtal, foss frags/crin/fusin/vry fn grnd ool/silty, no vis por, no odor, ns.

Same as above w/no crin or fusin.

LS: crm-lt brn, micro-fn xtal, foss frags/crin/fusin/vry fn grnd ool/silty, no vis por, no odor, ns.

LS: crm-lt gryish brn, micro-fn xtal, min foss frags, some pcs w/abund fn grnd ool/silt, no vis por, no odor, ns.

LS: crm-lt gryish brn, micro-med xtal, foss frags/fusin/min ool, lt greenish gry-dk gry silty SH, no vis por, no odor, ns.

SH: red brn/lt greenish gry/med-dk gry, silty, soft-brittle and fissile.

LS: wht-crm w/lt gry, micro-med xtal, foss frags/fusin/abund fn grnd ool, min pyrite, no vis por, no odor, ns.

LS: lt-med gry, micro-fn xtal, foss frags/fn grnd ool/silty, no vis por, no odor, ns.

SH: med-dk gry/bik w/some red brn, soft-firm, some fissile.

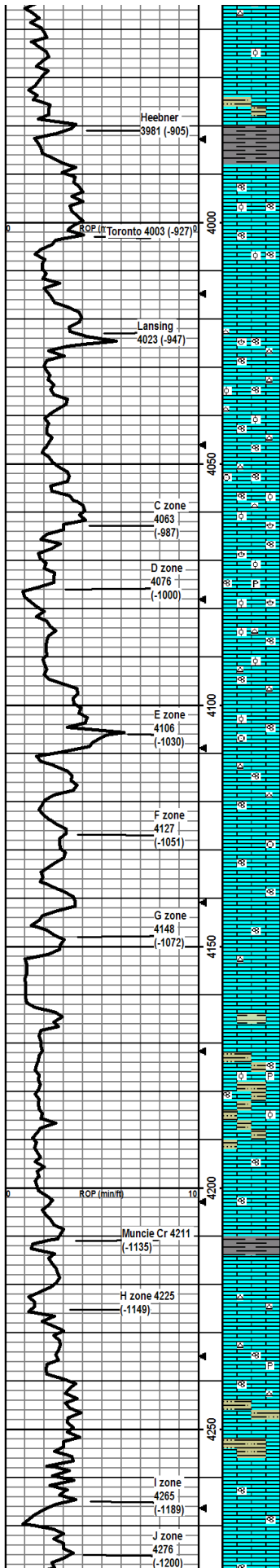
LS: lt-med brn, micro-fn xtal, min foss frags/fn grnd ool, no vis por, no odor, ns.

LS: wht/crm/lt brnsh gry, micro-fn xtal, foss frags/fusin/fn grnd ool, some wht chalky pcs, no vis por, no odor, ns.

Same as above.

LS: wht-crm, micro-fn xtal, foss frags/fn grnd ool/silty, min wht chert,

Mudco Check #3 @ 3746'  
 10/16/11 8:15am  
 wt vis pH chl  
 9.0 59 10.0 5400  
 Filt LCM  
 8.8 3



no vis por, no odor, ns.

LS: crm-lt brn, micro-fn xtal, foss min frags/fn grnd ool/silty, no vis por, no odor, ns.

LS: wht/crm/lt brn, micro-fn xtal, foss frags, silty, lt-dk gry silty SH, no vis por, no odor, ns.

SH: dk gry-blk, slit cal, firm, fissile.

LS: crm-lt gry, micro-fn xtal, foss frags/brac/fusln/fn grnd ool, ppt-fn por, slit crush odor, 4 pcs w/dk brn tar oil, slit stream cut when crushed, slit flor, ssfo.

LS: lt gryish brn, micro-fn xtal, foss frags/fusln/fn grnd ool/silty, ppt-fn por, no odor, slit flor, several pcs w/dk brn tar oil, gd stream cut, gd flor, ssfo.

LS: wht-crm/lt gry, micro-fn xtal, foss frags, ppt-fn por, no odor, 1 pce w/fo, no flor, vsfso.

LS: wht-crm, micro-fn xtal, wht chert, foss frags/brac/fusln, ppt-fn por, no odor, 1 pce w/fo in vug por, no flor, ssfo.

LS: crm-lt brn and gry, micro-med xtal, wht chert, foss frags/fusln/med grnd ool, ppt-fn por, no odor, 2 pcs w/fo, no flor, ssfo.

LS: crm, micro-med xtal, wht chert, foss frags/fusln/fn-med grnd ool, min ppt-fn por, no odor, ns.

LS: wht-crm, micro-med xtal, wht chert, wht chalky pcs, foss frags/crin/fusln/ool, min ppt-fn por, no odor, ns.

LS: crm, micro-fn xtal, wht chalky pcs, min pyrite, foss frags/fusln/brac/ool, min ppt por, no odor, ns.

LS: crm-lt brn, micro-med xtal, min pyrite, foss frags/fusln/brac/ool, min ppt-fn por, no odor, ns.

LS: crm, micro-fn xtal, min pyrite, min wht chert, foss frags/fusln/ool, min ppt por, no odor, ns.

LS: crm-lt brn, micro-med xtal, wht chalky pcs, min wht chert, foss frags/fusln/ool, min ppt por, no odor, ns.

LS: crm-lt brn, micro-med xtal, foss frags/fusln/crin/ool, min ppt por, no odor, ns.

LS: crm-lt brn, micro-med xtal, min wht chert, foss frags/fusln, min ppt por, no odor, ns.

LS: crm, micro-fn xtal, foss frags/fusln/min crin, silty pcs easily crushed, min ppt in-xtal por, no odor, ns.

LS: crm-lt brn, micro-fn xtal, foss frags/fusln, silty pcs easily crushed, min ppt-fn in-xtal por, no odor, 1 pce w/brn oil staining, streaming cut, no flor, vsfso.

LS: crm, micro-fn xtal, foss frags/fusln, min ppt-fn por, no odor, ns.

LS: crm-lt brn, micro-fn xtal, foss frags, min wht chert, silty pcs easily crushed, min ppt por, no odor, ns.

LS: crm-lt brn, micro-med xtal, few foss frags, few silty pcs, few green and gry silty SH, min ppt in-xtal por, no odor, ns.

LS: crm, micro-med xtal, foss frags/fusln/few ool, min pyrite, min ppt-fn por, no odor, ns.

Same as above w/red brn/med greenish gry/med-dk gry, silty SH.

LS: crm-lt brn, micro-med xtal, foss frags/fusln, ppt-fn por, no odor, 2 pcs w/fo, stream cut, dull flor, vsfso.

LS: wht/crm-lt brn, micro-med xtal, foss frags/fusln, ppt-fn por, slit crush odor, 1 pce w/fo, dull flor, vsfso.

SH: med greenish gry/med-dk gry/blk and red brn, some silty, soft to firm and fissile.

LS: crm-med brn, micro-med xtal, wht chert, foss frags, wht silty/sndy pcs, no vis por, no odor, ns.

LS: wht-crm-med brn w/some lt gry, micro-fn xtal, wht-lt gry chert, slit pyritic, foss frags/fusln, min ppt in-xtal por, no odor, ns.

LS: crm-med brn, micro-fn xtal, min wht chert, med greenish gry/dk gry/red brn silty SH, foss frags/fusln, min ppt por, no odor, ns.

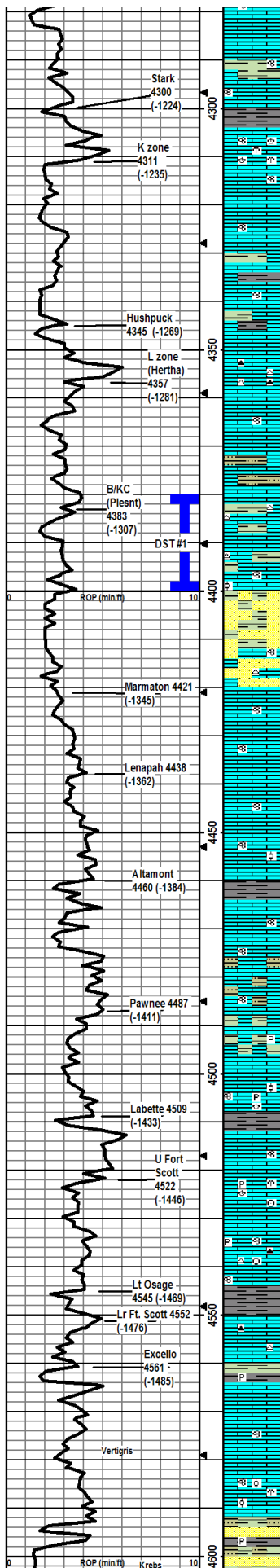
LS: crm, micro-fn xtal, increase in SH - greenish gry/dk gry-blk/red brn, foss frags, no vis por, no odor, ns.

LS: crm-lt gryish brn, micro-fn xtal, foss frags/fusln, min fn por, slit crush odor, several pcs w/fo, dull flor/streaming cut, ssfo.

LS: crm-lt brn, micro-fn xtal, foss frags/fusln, min fn por, slit crush odor, 4 pcs in pcs 20" and 60" sample w/fo, dull flor/streaming cut, ssfo.

CFS @ 4073'  
30" 60"

Mudco Check #4 @ 4256'  
10/17/11 10:50am  
wt vis pH chl  
8.1 57 10.0 4700  
FIT LCM  
9.6 2



color, 1 pce in ea 30' and 60' smpls w/ro, cut not streaming cut, sfo.

LS: crm-lt brn w/min lt gry, micro-med xtal, some greenish gry/med-dk gry/blk SH, foss frags/fusin, min ppt por, no vis por, no odor, ns.

SH: blk, firm, fissile, gas bubbles.

LS: crm-lt brn, micro-med xtal, foss frags/brac/fusin/bryz, mostly ppt-fn por w/one pce of vug por w/fo in 4321 stop smpl, slt crush odor, flor, sfo.

LS: crm-med brn, micro-med xtal, foss frags/fusin, ppt-fn in-xtal and frac por, no odor, ns.

LS: crm-lt brn and gry, micro-fn xtal, foss frags/fusin, mostly no por w/min ppt-fn in-xtal por, no odor, ns.

LS: crm-lt brn, micro-med xtal, foss frags/fusin, some greenish gry/gry/dk gry/red brn silty SH, no vis por, no odor, ns.

LS: wht/crm/med brn, micro-med xtal, foss frags/fusin, few pcs of blk SH, min ppt por, no odor, ns.

LS: crm-med brn, micro-fn xtal, abund red brn/greenish gry/dk gry/blk SH in 30" smpl, foss frags, mostly min ppt por w/1 pce in 60" smpl w/gd vug por, no odor, ns.

LS: crm-dk brn, micro-med xtal, wht/gry/dk brn chert, foss frags, no vis por, slt crushed odor but ns, no oil flor, 1 pce in 60" smpl of poss dk brn tar oil but no flor or cut, nfo.

LS: crm/gryish crm-dk brn, micro-med xtal, foss frags/fusin, min ppt in-xtal por, no odor, ns.

LS: crm-med brn, micro-med xtal, greenish gry/gry/red brn silty SH, foss frags, min ppt in-xtal por, no odor, ns.

LS: crm-lt brn, micro-med xtal, wht/brn chert, greenish gry/gry SH, min foss frags, min ppt in-xtal por, no odor, ns.

LS: wht-lt gryish brn, micro-fn xtal, min wht chert, some greenish gry/gry SH, min foss frags/fusin/min ool, min ppt por, no odor, ns.

SS/SH mix: ss is lt gry/green, mostly quartz, vf w/coarser grns, sa-sr, not sorted; SH is lt-med gry/greenish gry, soft; no odor, ns.

SS/LS mix: ss is as above w/wht vfg pcs; ls is crm-lt brn, micro-fn xtal, min wht chert, silty, foss frags/fusin, min ppt in-xtal por, no odor, ns.

LS: crm-med brn, micro-med xtal, silty-crushes easily, foss frags/fusin, min ppt por, no odor, ns.

LS: crm-lt brn, micro-fn xtal, min silty pcs, wht chalky pcs, foss frags/fusin, min ppt in-xtal por, no odor, ns.

LS: lt gry/crm-dk brn, micro-med xtal, foss frags/fusin, min ppt in-xtal por, no odor, ns.

LS: crm, micro-med xtal, foss frags/fusin/fg ool, min ppt in-xtal por, no odor, ns.

SH: gryish green/dk gry/blk, some vsilty, soft-firm and brittle.

LS: crm-lt brn, micro-fn xtal, foss frags/fusin, min ppt por, no odor, ns.

LS: crm-lt brn, micro-fn xtal, greenish gry and gry silty SH, foss frags/fusin, min ppt por, no odor, ns.

LS/SH same as above.

LS: wht/crm/lt gry, micro-fn xtal, min pyrite, greenish gry-dk gry SH, min foss frags, min ppt por, no odor, ns.

LS: crm-dk brn, micro-med xtal, min pyrite, foss frags/fusin/brac/ool, min ppt por, no odor, ns.

SH: blk, carb, firm, fissile.

LS: wht-lt brn, micro-fn xtal, foss frags/fusin, min ppt por, no odor, ns.

LS: crm/lt gry, micro-med xtal, some pyrite, foss frags/crin/brac/bryz, ppt-fn vug por, slt crush odor, 1 pce w/fo when crushed, flor w/slow stream cut, sfo.

LS: gry/crm/med brn, micro-med xtal, min pyrite, wht/gry/blk chert, foss frags/crin/fusin, ppt por, no odor, ns.

SH: dk gry/blk, firm, fissile.

LS: crm/lt gry, micro-med xtal, crm/brn chert, foss frags, min ppt por, no odor, ns.

SH: greenish gry/dk gry/blk, min pyrite, firm, fissile.

LS: crm/lt brn, micro-fn xtal, min foss frags, min ppt por, no odor, ns.

LS: wht/crm, micro-fn xtal, min foss frags/fusin, ppt-fn por, slt crush odor, yel flor, 1 pce w/fo, sfo.

LS: crm-lt brn, micro-fn xtal, foss frags/fusin/bryz/fg ool-silty, ppt-fn por, slt crush odor, 1 pce w/fo, no flor but gd stream cut, sfo.

SH SS mix: SH is red brn/greenish gry/med-dk gry/blk, some vry silty, some pyrite, soft to firm and fissile; SS is lt gry/brn, vf grnd, friable.

CFS @ 4285'  
30"/60"

CFS @ 4321'  
30"/60"

CFS @ 4350'  
30"/60"

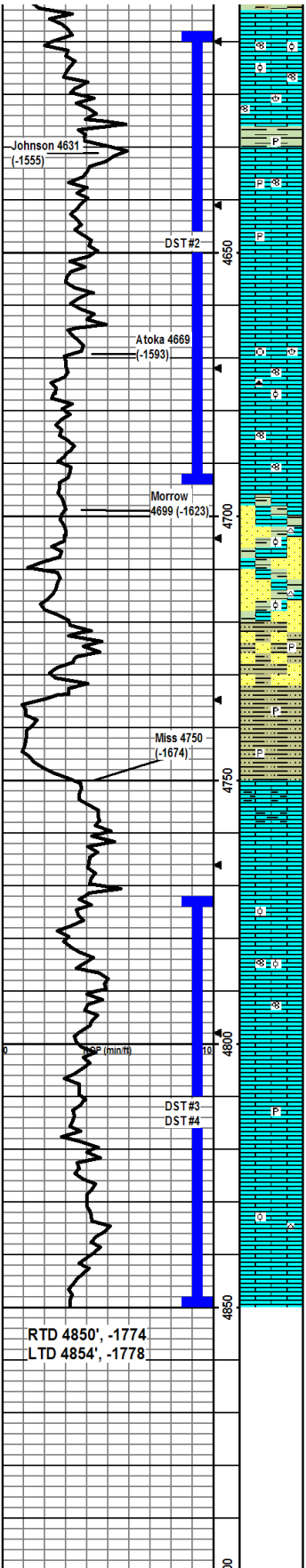
CFS @ 4359'  
30"/60"

**DST1) 4380-4400**  
4560/4560  
1st) Weak SB built to 2.25", no BB  
2nd) Weak SB built to 1", no BB  
IFP 24-80#  
ISIP 1168# FFP  
88-132# F SIP 1143#  
HP 2357-2028#  
Recvd: 70" WCM, 175" MCW

CFS @ 4400'  
30"/60"

Mudco Check #5 @ 4400'  
10/18/11 5:30am  
wt vis pH CH  
9.4 64 9.5 5400  
Filt LCM  
10.4 2

NOTE:  
When making short trip prior to DST driller noticed very strong gas odor several times when breaking pipe connections.



LS: crm-med brn/lt gry, micro-fn xtal, min foss frags/fusln/vf grnd ool, min ppt por, no odor, ns.

Same as above.

LS: wht-med brn, micro-med xtal, min foss frags/fusln/brac, min ppt por, no odor, ns.

SH: flood of red brn/greenish gry/med gry, some pyrite, some vry silty.

LS: wht-crm, micro-med xtal, min pyrite, foss frags/fusln, min ppt por, no odor, ns.

LS: crm-med brn, micro-fn xtal, min pyrite, few foss frags, min ppt por, no odor, ns.

LS: crm/lt gry, micro-med xtal, few foss frags, min frac por, no odor, ns.

LS: crm/lt gry, micro-fn xtal, some wht chalky pcs, foss frags/crin/fusln/brac, min ppt-frac por, no odor, ns.

LS: crm-lt brn, micro-fn xtal, lt brn chert, some wht chalky pcs, foss frags/grnd ool, ool pcs are chalky, min por, no odor, ns.

LS: crm/lt brn/lt gry, micro-fn xtal, min foss frags/fusln/sev pcs w/lattice struc, min ppt frac por, no odor, ns.

Same as above: 1 pcs in 60" smpl w/fo, would not stream until crushed.

4710' sample appears to be trash w/mix of LS/SH w/coarse sand sized quartz grains, no odor, ns.

LS/SH/SS mix: LS is wntorm-brn/lt gry, micro-fn xtal, min foss frags/fusln w/some ool pcs, wht chert, min ppt por; SH is red-rust brn/greenish gry-dk gry, soft to firm and fissile, some pyrite; SS is wht/gryish green/rust brn, vf grnd, some loose w-rnd coarse grnd quartz; no odor, ns.

Same as above.

SH/SS mix: SH is red brn/greenish gry/dk gry, some pcs vry silty, some pyrite, soft to firm and fissile; SS is wht/med greenish gry, vf grnd, some loose coarse grnd quartz; no odor, ns.

SH: red brn, olive, greenish gry, lt-dk gry, some pcs vry silty, some pyrite, some LS nodules, soft-firm and fissile.

Same as above w/some mustard yel mottling in greenish gry pcs.

LS: lt gry, micro xtal, some foss frags, vry argillaceous, no vis por, no odor, ns.

LS: crm, micro xtal, no foss, dense w/no vis por, no odor, ns.

LS: crm/lt gry/med brn, micro-fn xtal, crm is ool and easily crushed, lt gry is hard w/no foss or vis por, med brn is hard w/ foss frags, no odor, ns.

LS: crm, micro-fn xtal, foss frags/fusln/ool, min in-xtal por, no odor, ns.

LS: crm-med gryish brn, micro-fn xtal, foss fusln, grainy, no vis por, no odor, ns.

LS: lt gryish crm/med brn, micro xtal, min sm foss frags, min frac por, no odor, ns.

LS: crm w/dk brn inclusion, micro xtal, min pyrite, no vis por, no odor, ns.

LS: crm/dk brn, micro xtal, no vis por, no odor, ns.

LS: crm/lt brn, micro-fn xtal, min chert, crm pcs have vfg ool and crushes easily, lt brn pcs are dense and hard w/some frac por, no odor, ns.

LS: crm/lt brn, crm pcs are grainy and crush easily, lt brn pcs are micro xtal and dense, no vis por, no odor, ns.

**DST2) 4608-4695**

30/16/15/15  
1st) Weak SB died in 12.5 min, no BB  
2nd) No blow, no BB  
IFP 53-56#  
ISIP 249# FFP  
59-56# F SIP 235#  
HP 2463-2207#  
Recvd: 61' mud w/few oil spots in tool

CFS @ 4665'  
30"

Mudco Check #6 @ 4695'  
10/19/11 11:10am  
wt vis pH chl  
9.6 55 9.5 7000  
FIL LCM  
8.8 1

CFS @ 4695'  
30"/60"

4650'-4700': not enough sample for dry sample collection.

**DST3) 4772-4850**

DST #3 failed due to a hole in a drill stem pipe.

**DST4) 4772-4850**

30/15/15/15  
1st) Weak SB died in 15 min, no BB  
2nd) No blow, no BB  
IFP 24-27#  
ISIP 57# FFP 30-26#  
F SIP 71#  
HP 2543-2304#  
Recvd: 10' mud

Mudco Check #7 @ 4850'  
10/20/11 9:00am  
wt vis pH chl  
9.4 55 10.5 6500  
FIL LCM  
8.8 2

CFS @ 4850'  
30"/60"

RTD 4850', -1774  
LTD 4854', -1778