KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1068659

Form ACO-1
June 2009
Form Must Be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 9855
Name: Grand Mesa Operating Company
Address 1: 1700 N WATERFRONT PKWY BLDG 600
Address 2:
City: WICHITA State: KS Zip: 67206 + 5514
Contact Person: Ronald N. Sinclair
Phone: (316) 265-3000
CONTRACTOR: License # 30606
Name: Murfin Drilling Co., Inc.
Wellsite Geologist: John Goldsmith
Purchaser: None

Designate Type of Completion:

- [x] New Well
- [ ] Re-Entry
- [ ] Workover

- [ ] Oil
- [ ] WSW
- [ ] SWD
- [ ] SIOW
- [ ] Gas
- [x] 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 #:

10/15/2011	10/25/2011	10/25/2011
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-171-20840-00-00
Spot Description: 975' FNL & 1172' FWL NESENWNW
NE - SE - NW - NW Sec. 21 Twp. 16 S. R. 33 [ ] East [x] West
975 Feet from [x] North / [ ] South Line of Section
1172 Feet from [ ] East / [x] West Line of Section
Footages Calculated from Nearest Outside Section Corner:
[ ] NE [x] NW [ ] SE [ ] SW
County: Scott
Lease Name: UNRUH Well #: 1-21
Field Name: Wildcat
Producing Formation: None
Elevation: Ground: 3077 Kelly Bushing: 3082
Total Depth: 4850 Plug Back Total Depth: 0
Amount of Surface Pipe Set and Cemented at: 247 Feet
Multiple Stage Cementing Collar Used? [ ] Yes [x] 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: 21000 ppm Fluid volume: 1000 bbls
Dewatering method used: Evaporated
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

- [x] **Letter of Confidentiality Received**
  Date: 11/28/2011
- [x] **Confidential Release Date:** 11/27/2013
- [x] **Wireline Log Received**
- [x] **Geologist Report Received**
- [ ] **UIC Distribution**

ALT [ ] I [x] II [ ] III **Approved by:** NAOMI JAMES **Date:** 11/28/2011

Side Two

[redacted]

1068659

Operator Name: Grand Mesa Operating Company Lease Name: UNRUH Well #: 1-21

Sec. 21 Twp. 16 S. R. 33 ☐ East ☑ West County: Scott

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 ☑ Yes ☐ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☑ Yes ☐ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

Electric Log Submitted Electronically ☑ Yes ☐ No
(If no, Submit Copy)

List All E. Logs Run:

AI Shallow Focussed Elect. Log
CPDCN Micro. Log
Micro. Log

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name	Top	Datum
Attached	Attached	Attached

CASING RECORD ☑ New ☐ 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
Surface	12.25	8.625	23	247	Common	175	3%CC, 2% Gel

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:
☐ Perforate
☐ Protect Casing
☐ Plug Back TD
☑ Plug Off Zone

Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
0-4850	60/40 Pozmix	300	4% Gel, 1/4#sx Flocele
-			

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

DISPOSITION OF GAS:
☐ Vented ☐ Sold ☐ Used on Lease
(If vented, Submit ACO-18.)

METHOD OF COMPLETION:
☐ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*
☐ Other *(Specify)*

PRODUCTION INTERVAL:

Mail to: KCC - Conservation Division, 130 S. Market - Room 2078, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	Grand Mesa Operating Company
Well Name	UNRUH 1-21
Doc ID	1068659

Tops

Name	Top	Datum
Stone Corral	2433	+649
Bs/Stone Corral	2452	+630
Heebner	3984	-902
Lansing	4027	-945
Muncie Creek	4201	-1119
Stark	4290	-1208
Hushpuckney	4339	-1257
Marmaton	4410	-1328
Little Osage	4544	-1462
Morrow	4702	-1620
Mississippian	4741	-1659
LTD	4850	

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

Kansas
Corporation Commission

Phone: 316-337-6200
Fax: 316-337-6211
http://kcc.ks.gov/

November 22, 2011

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

Re: ACO1
API 15-171-20840-00-00
UNRUH 1-21
NW/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

DRILL STEM TEST REPORT

Grand Mesa Operating Company

1700 N Waterfront PKWY
BLDG 600 Witchita KS
67206-5514
ATTN: John Goldsmith

21-16s-33w

Unruh 1-21

Job Ticket: 44332 **DST#: 1**

Test Start: 2011.10.20 @ 16:40:00

GENERAL INFORMATION:

Formation: **Kansas City "L"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:29:15
Time Test Ended: 22:14:15

Test Type: Conventional Bottom Hole (Initial)
Tester: Jace McKinney
Unit No: 28

Interval: 4336.00 ft (KB) To 4361.00 ft (KB) (TVD)
Total Depth: 4361.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

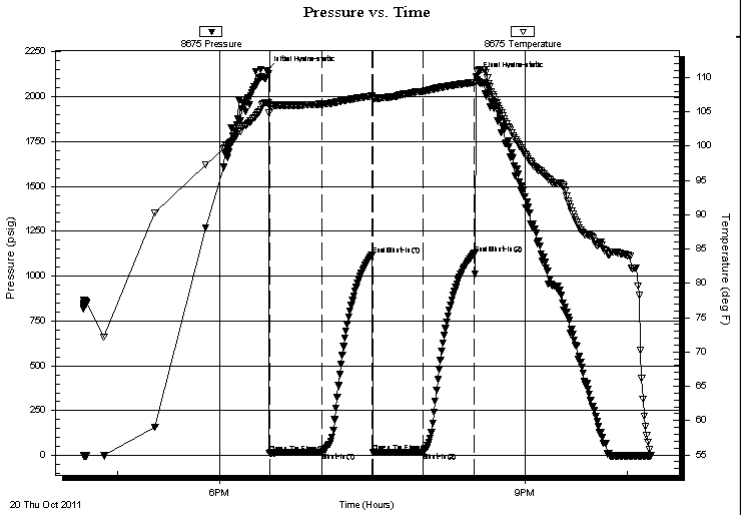
Reference Elevations: 3082.00 ft (KB)
3077.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8675 **Inside**

Press@RunDepth: 18.88 psig @ 4337.00 ft (KB)
Start Date: 2011.10.20 End Date: 2011.10.20
Start Time: 16:40:01 End Time: 22:14:15

Capacity: 8000.00 psig
Last Calib.: 2011.10.20
Time On Btm: 2011.10.20 @ 18:28:00
Time Off Btm: 2011.10.20 @ 20:31:00

TEST COMMENT: Surface blow
No return blow
No blow
No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2145.64	106.38	Initial Hydro-static
2	14.38	104.86	Open To Flow (1)
32	19.32	106.11	Shut-In(1)
62	1118.57	107.29	End Shut-In(1)
63	17.68	106.85	Open To Flow (2)
92	18.88	107.98	Shut-In(2)
122	1126.57	109.25	End Shut-In(2)
123	2109.97	110.10	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	100% Mud	0.00

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Grand Mesa Operating Company

1700 N Waterfront PKWY
BLDG 600 Witchita KS
67206-5514

ATTN: John Goldsmith

21-16s-33w

Unruh 1-21

Job Ticket: 44332 **DST#: 1**

Test Start: 2011.10.20 @ 16:40:00

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:	ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.99 in³	Gas Cushion Type:			
Resistivity:	0.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3600.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	100% Mud	0.005

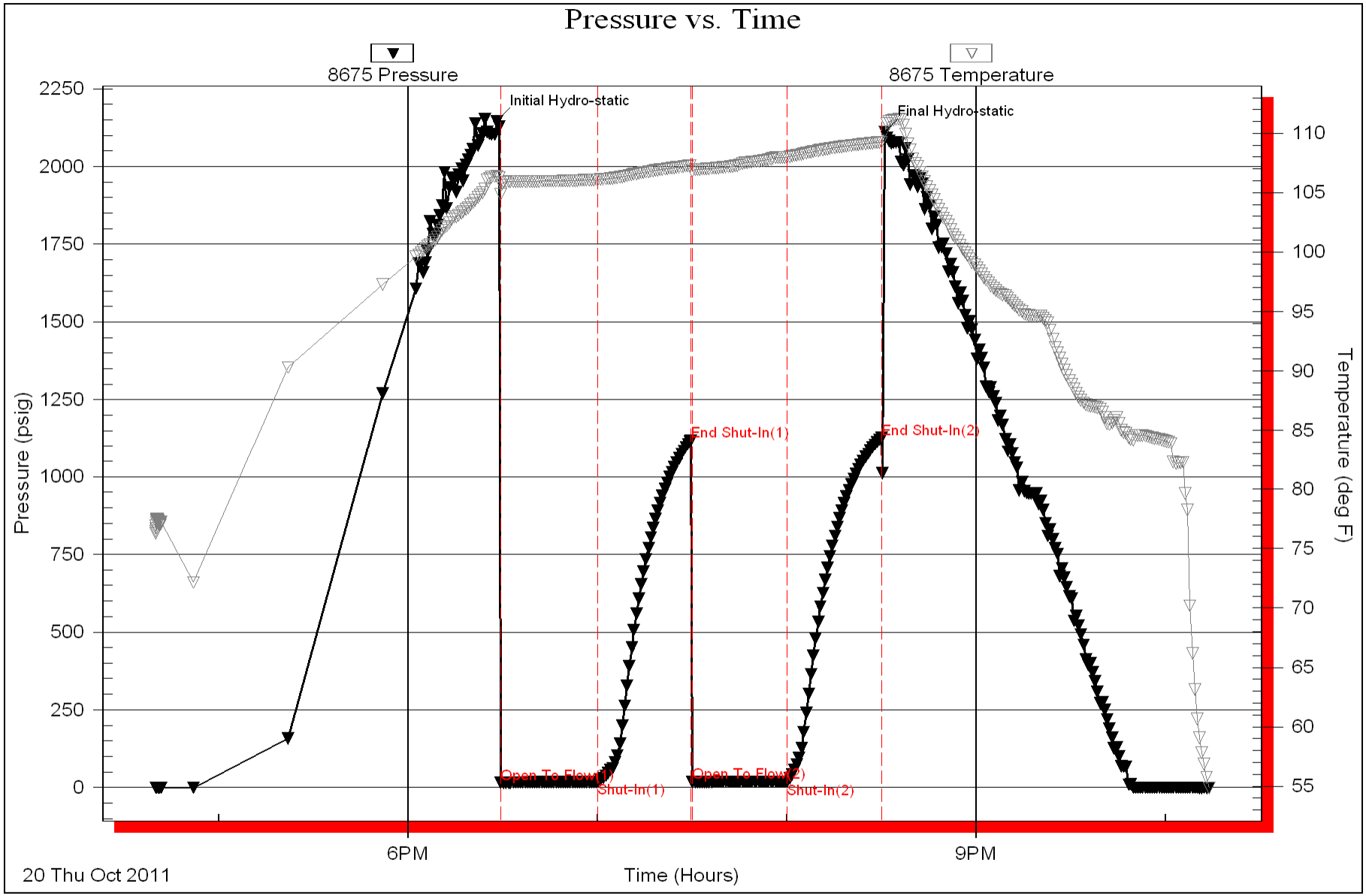
Total Length: 1.00 ft Total Volume: 0.005 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments:

Serial #: 8675 **Inside** Grand Mesa Operating Company Unruh 1-21 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 44332 Printed: 2011.10.21 @ 08:19:36

DRILL STEM TEST REPORT

Grand Mesa Operating Company

1700 N Waterfront PKWY
BLDG 600 Witchita KS
67206-5514
ATTN: John Goldsmith

21-16s-33w

Unruh 1-21

Job Ticket: 44333 **DST#: 2**

Test Start: 2011.10.21 @ 08:00:00

GENERAL INFORMATION:

Formation: **Pleasaton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:00:00
Time Test Ended: 13:37:15

Test Type: Conventional Bottom Hole (Reset)
Tester: Jace McKinney
Unit No: 28

Interval: 4365.00 ft (KB) To 4398.00 ft (KB) (TVD)
Total Depth: 4398.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

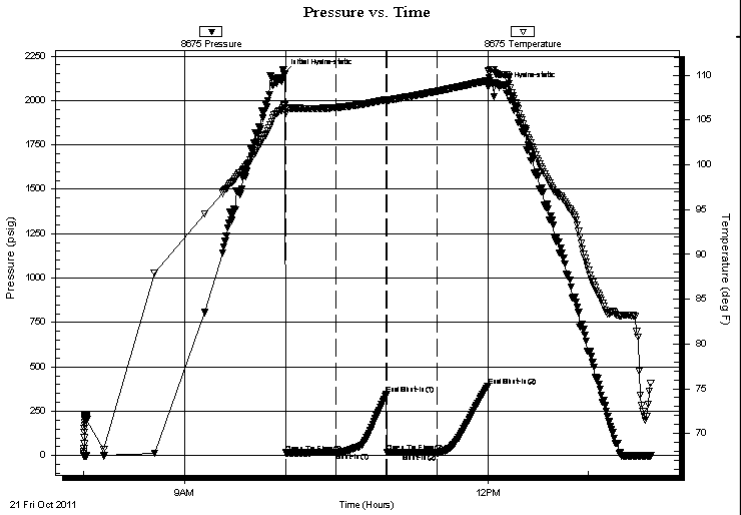
Reference Elevations: 3082.00 ft (KB)
3077.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8675 **Inside**

Press@RunDepth: 14.20 psig @ 4366.00 ft (KB)
Start Date: 2011.10.21 End Date: 2011.10.21
Start Time: 08:00:01 End Time: 13:37:15

Capacity: 8000.00 psig
Last Calib.: 2011.10.21
Time On Btm: 2011.10.21 @ 09:59:00
Time Off Btm: 2011.10.21 @ 12:00:15

TEST COMMENT: Built to 1/4" blow
No return blow
No blow
No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2151.88	106.62	Initial Hydro-static
1	15.13	105.78	Open To Flow (1)
31	16.67	106.40	Shut-In(1)
61	344.27	107.29	End Shut-In(1)
61	16.86	107.08	Open To Flow (2)
91	14.20	108.22	Shut-In(2)
121	393.00	109.40	End Shut-In(2)
122	2076.05	110.55	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	100% Mud	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Grand Mesa Operating Company

1700 N Waterfront PKWY
BLDG 600 Witchita KS
67206-5514

ATTN: John Goldsmith

21-16s-33w

Unruh 1-21

Job Ticket: 44333 **DST#: 2**

Test Start: 2011.10.21 @ 08:00:00

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:	ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.99 in³	Gas Cushion Type:			
Resistivity:	0.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3600.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	100% Mud	0.005

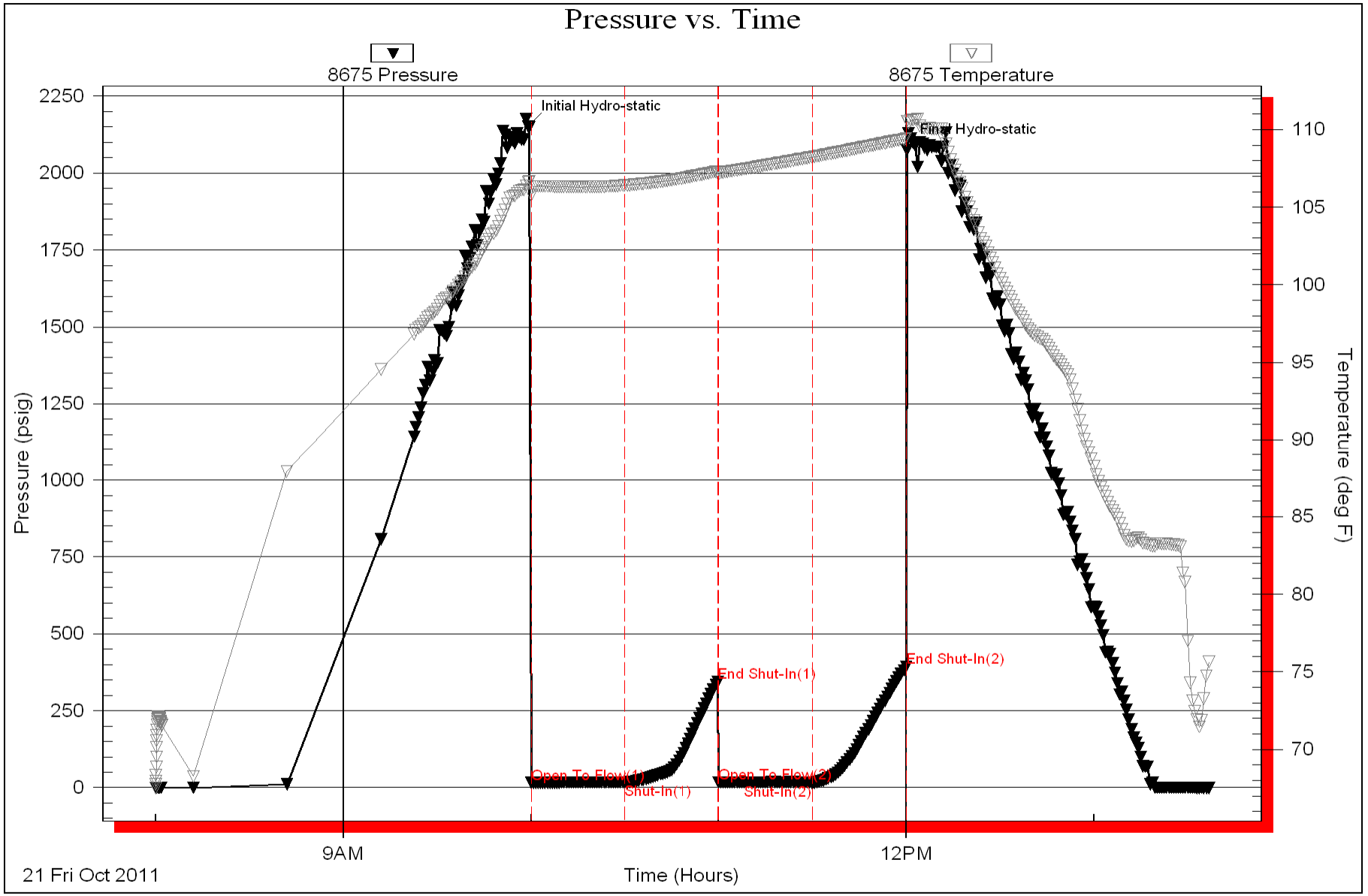
Total Length: 1.00 ft Total Volume: 0.005 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments:

Serial #: 8675 **Inside** Grand Mesa Operating Company Unruh 1-21 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 44333 Printed: 2011.10.21 @ 14:15:38

DRILL STEM TEST REPORT

Grand Mesa Operating Company

1700 N Waterfront PKWY
BLDG 600 Witchita KS
67206-5514
ATTN: John Goldsmith

21-16s-33w

Unruh 1-21

Job Ticket: 44334 **DST#: 3**

Test Start: 2011.10.22 @ 17:35:00

GENERAL INFORMATION:

Formation: **Johnson**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 20:03:30
Time Test Ended: 23:53:15

Test Type: Conventional Bottom Hole (Reset)
Tester: Jace McKinney
Unit No: 28

Interval: 4612.00 ft (KB) To 4662.00 ft (KB) (TVD)
Total Depth: 4662.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

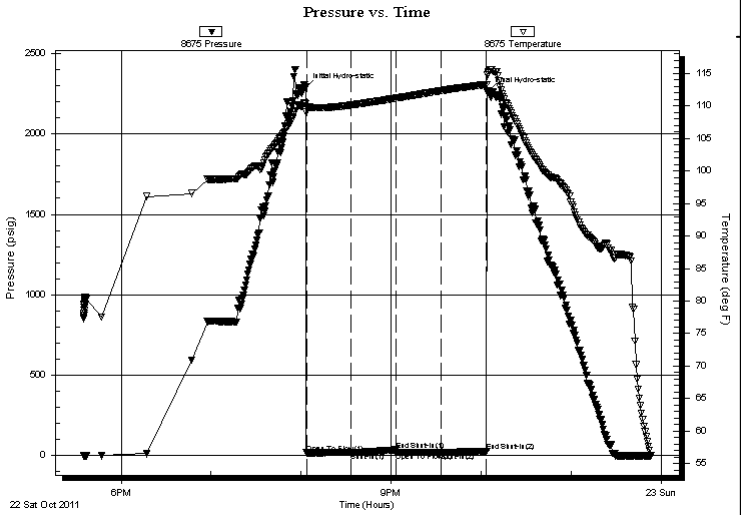
Reference Elevations: 3082.00 ft (KB)
3077.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8675 **Inside**

Press@RunDepth: 20.73 psig @ 4613.00 ft (KB)
Start Date: 2011.10.22 End Date: 2011.10.22
Start Time: 17:35:01 End Time: 23:53:15

Capacity: 8000.00 psig
Last Calib.: 2011.10.22
Time On Btm: 2011.10.22 @ 20:03:15
Time Off Btm: 2011.10.22 @ 22:04:30

TEST COMMENT: Built to1/4" blow
No return blow
No blow
No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2290.43	110.36	Initial Hydro-static
1	17.45	109.05	Open To Flow (1)
30	18.58	110.14	Shut-In(1)
60	35.86	111.20	End Shut-In(1)
61	18.22	111.20	Open To Flow (2)
90	20.73	112.35	Shut-In(2)
121	28.39	113.33	End Shut-In(2)
122	2266.52	115.04	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	100% Mud	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Grand Mesa Operating Company

1700 N Waterfront PKWY
BLDG 600 Witchita KS
67206-5514

ATTN: John Goldsmith

21-16s-33w

Unruh 1-21

Job Ticket: 44334 **DST#: 3**

Test Start: 2011.10.22 @ 17:35:00

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:	ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.98 in³	Gas Cushion Type:			
Resistivity:	0.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3600.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	100% Mud	0.005

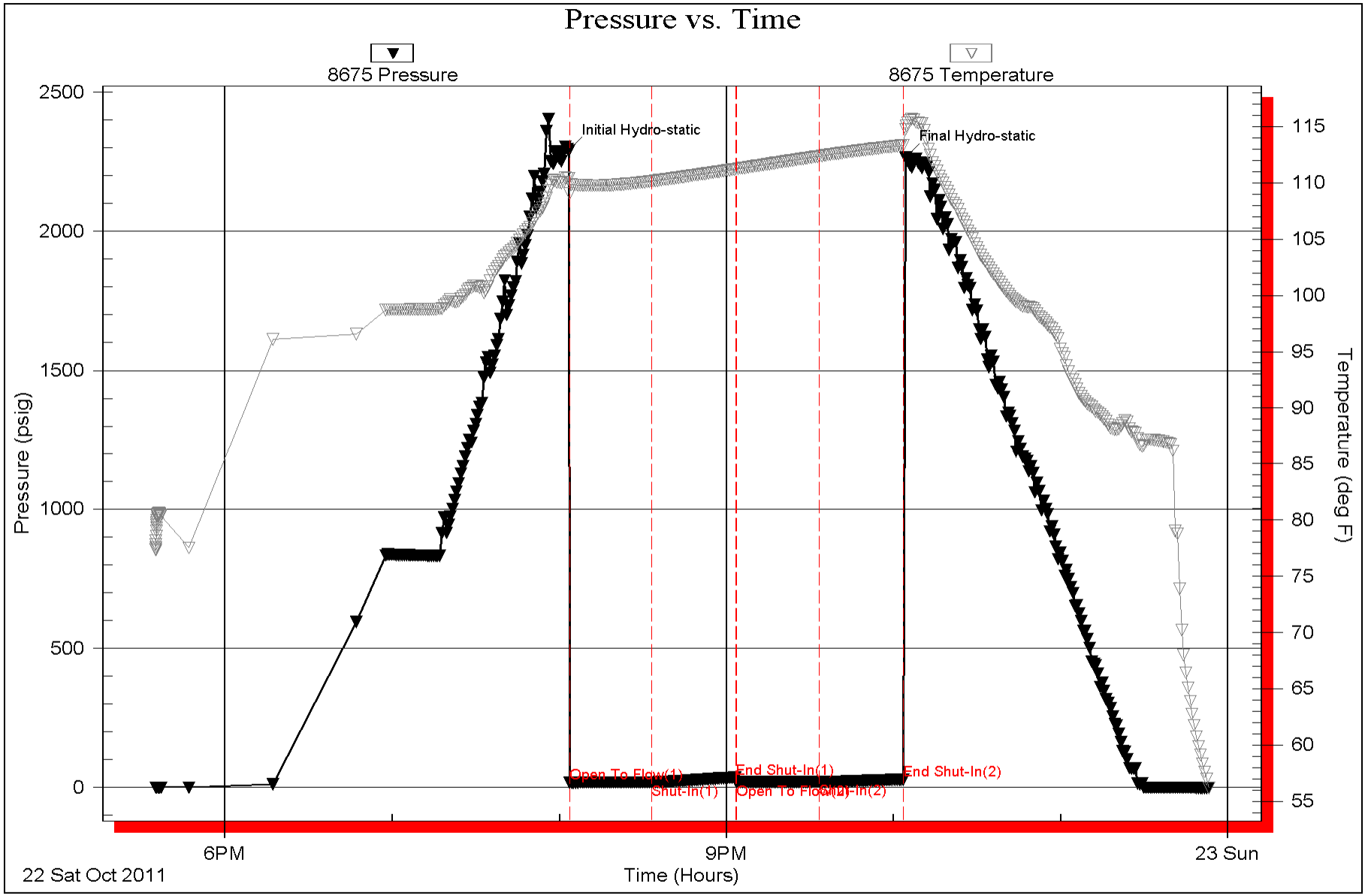
Total Length: 1.00 ft Total Volume: 0.005 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments:

Serial #: 8675 **Inside** Grand Mesa Operating Company Unruh 1-21 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 44334 Printed: 2011.10.23 @ 09:45:49

DRILL STEM TEST REPORT

Grand Mesa Operating Company

1700 N Waterfront PKWY
BLDG 600 Witchita KS
67206-5514
ATTN: John Goldsmith

21-16s-33w

Unruh 1-21

Job Ticket: 44335 **DST#: 4**

Test Start: 2011.10.23 @ 12:25:00

GENERAL INFORMATION:

Formation: **Atoka**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:55:15
Time Test Ended: 20:36:15

Test Type: Conventional Bottom Hole (Reset)
Tester: Jace McKinney
Unit No: 28

Interval: 4662.00 ft (KB) To 4702.00 ft (KB) (TVD)
Total Depth: 4702.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

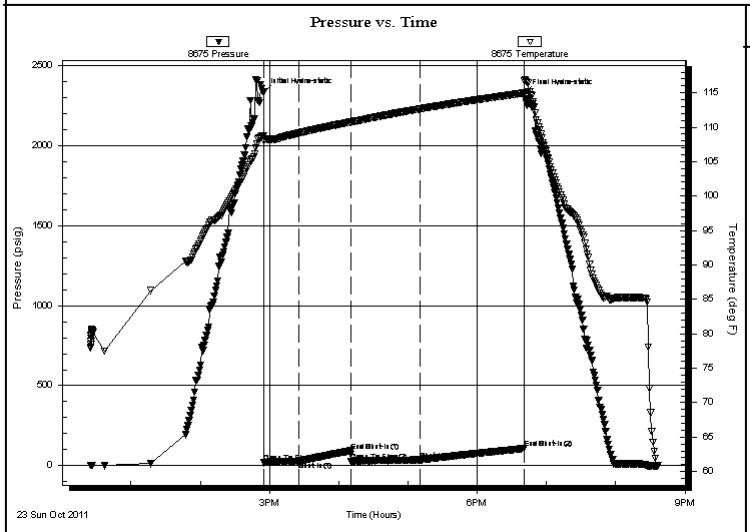
Reference Elevations: 3082.00 ft (KB)
3077.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8675 **Inside**

Press@RunDepth: 34.88 psig @ 4663.00 ft (KB)
Start Date: 2011.10.23 End Date: 2011.10.23
Start Time: 12:25:01 End Time: 20:36:15

Capacity: 8000.00 psig
Last Calib.: 2011.10.23
Time On Btm: 2011.10.23 @ 14:54:45
Time Off Btm: 2011.10.23 @ 18:41:00

TEST COMMENT: Built to 2 1/2" blow
No return blow
Built to 2 1/2" blow
No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2335.57	108.75	Initial Hydro-static
1	18.41	108.06	Open To Flow (1)
31	26.92	109.12	Shut-In(1)
76	92.37	110.74	End Shut-In(1)
76	24.39	110.72	Open To Flow (2)
136	34.88	112.64	Shut-In(2)
226	106.99	114.95	End Shut-In(2)
227	2325.83	116.71	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
40.00	gcom 10%G 20%O 70%M	0.20

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Grand Mesa Operating Company

1700 N Waterfront PKWY
BLDG 600 Witchita KS
67206-5514

ATTN: John Goldsmith

21-16s-33w

Unruh 1-21

Job Ticket: 44335 **DST#: 4**

Test Start: 2011.10.23 @ 12:25:00

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:	ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.97 in³	Gas Cushion Type:			
Resistivity:	0.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3600.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
40.00	gcom 10%G 20%O 70%M	0.197

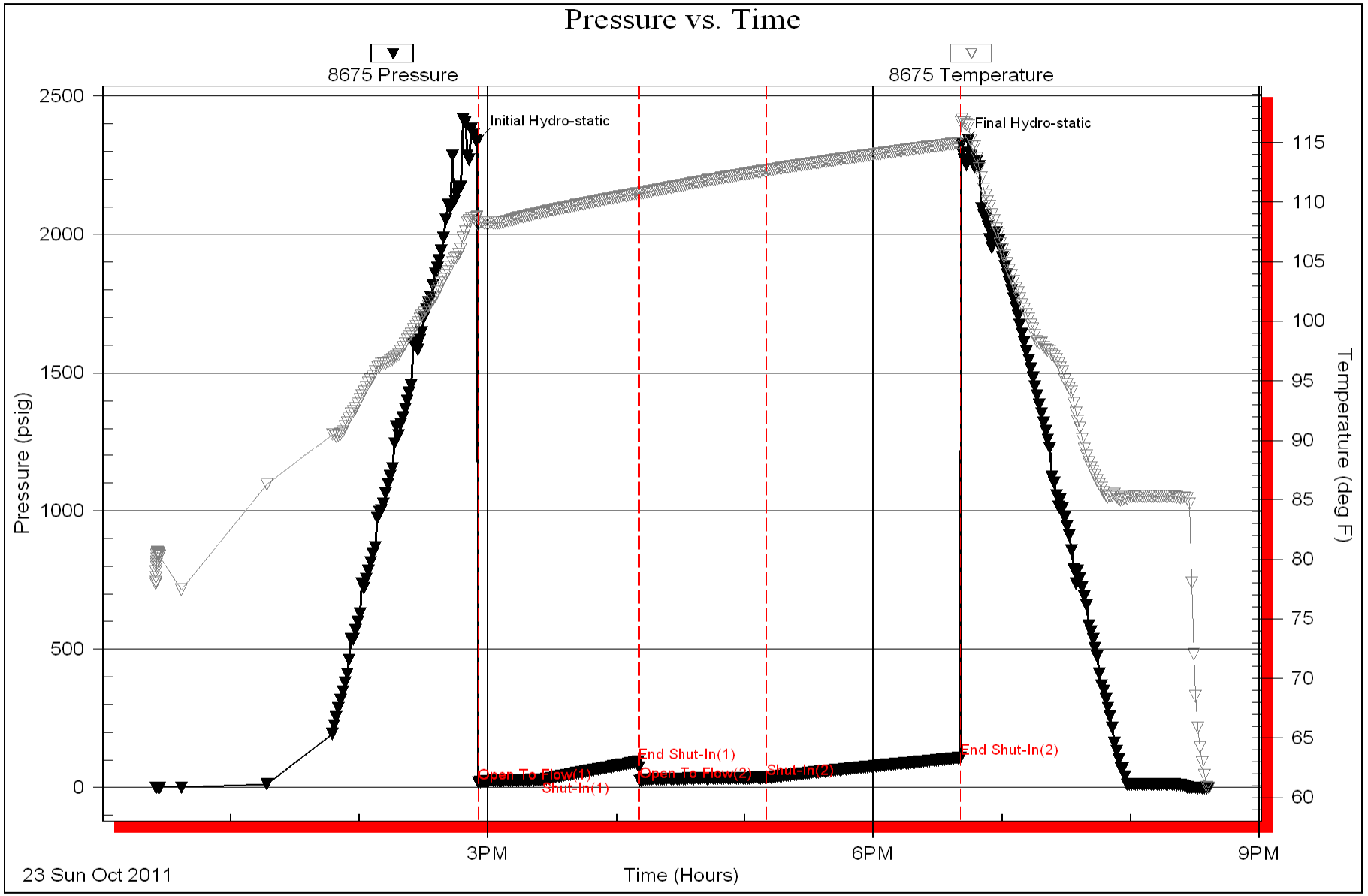
Total Length: 40.00 ft Total Volume: 0.197 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments:

Serial #: 8675 **Inside** Grand Mesa Operating Company Unruh 1-21 DST Test Number: 4



Trilobite Testing, Inc Ref. No: 44335 Printed: 2011.10.24 @ 08:42:47

CONSOLIDATED
Oil Well Services, LLC

ENTERED

TICKET NUMBER 28261
LOCATION Oakley
FOREMAN Fuzzy

PO Box 884, Chanute, KS 66720
620-431-9210 or 800-467-8676

FIELD TICKET & TREATMENT REPORT
CEMENT

Rs

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
10-15-11	3372	Unruh 1-21	21	16	33w	Scott

CUSTOMER: Grand Mesa
MAILING ADDRESS:
CITY: | STATE: | ZIP CODE:

Pence 4E 1 1/2 S E in

TRUCK #	DRIVER	TRUCK #	DRIVER
463	Josh G		
439	Cody R		

JOB TYPE Surface HOLE SIZE 12 1/4 HOLE DEPTH 247' CASING SIZE & WEIGHT 8 5/8
CASING DEPTH 245' DRILL PIPE TUBING OTHER
SLURRY WEIGHT 14.7 SLURRY VOL 1.36 WATER gal/sk 6.5 CEMENT LEFT in CASING 15'
DISPLACEMENT 14.45 DISPLACEMENT PSI MIX PSI RATE

REMARKS: Safety meeting on Mo Rig #24, Rig up & circulate Mix 175sks Class 'A' 3%cc, 2%gel. Displace 14 1/2 BBL and shut in.
cement did circulate approx BBLs To pit in cellar

Thanks Fuzzy & crew

ACCOUNT CODE	QUANITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
5401S	1	PUMP CHARGE	1025.00	1025.00
5406	40	MILEAGE	5.00	200.00
5407A	8.23 Ton	Ton Mileage Delivery	1.58	520.00
1104S	175sks	Class 'A' cement	16.80	2940.00
1102	494#	Calcium Chloride	.84	414.96
1118B	329#	Bentonite	.24	78.96
		subtotal		5178.92
		less 10% discount		517.89
				4661.03
		245075	SALES TAX	256.51
			ESTIMATED TOTAL	4917.54

Ravin 3737

AUTHORIZTION Anthony Mart TITLE Pusher Rig #24 DATE

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.

CONSOLIDATED
Oil Well Services, LLC

PO Box 884, Chanute, KS 66720
620-431-9210 or 800-467-8676

ENTERED

TICKET NUMBER 33669
LOCATION Oakley
FOREMAN Fuzzy

FIELD TICKET & TREATMENT REPORT
CEMENT

125

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
10-25-11	3372	Unruh 1-21	21	16	33	Scott

CUSTOMER: Grand Mesa Operating Co.
MAILING ADDRESS:
CITY: STATE: ZIP CODE:

Pence east to Haviland Rd

TRUCK #	DRIVER	TRUCK #	DRIVER
463	Josh G		
439	Derek G		
	Cecil P		

JOB TYPE PTA HOLE SIZE 7 7/8 HOLE DEPTH 4850' CASING SIZE & WEIGHT
CASING DEPTH DRILL PIPE 4 1/2 TUBING OTHER
SLURRY WEIGHT 14.1 SLURRY VOL 1.40 WATER gal/sk 6.7 CEMENT LEFT in CASING
DISPLACEMENT DISPLACEMENT PSI MIX PSI RATE

REMARKS: Safety meeting on Mon Pin #24 . Rig up and plug as ordered.
50 sks @ 2480'
80 sks @ 1680'
50 sks @ 840'
50 sks @ 280'
20 sks @ 60'
30 sks RH
20 sks MH
300 sks

Thanks Fuzzy + crew

ACCOUNT CODE	QUANITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
5405N	1	PUMP CHARGE	1250.00	1250.00
5406	40	MILEAGE	5.00	200.00
5407A	12.9 ton	Ton Mileage Delivery	1.55	815.38
1131	300	60/40 poz	14.33	4305.00
1118B	1032#	Bentonite	.24	247.68
1107	75#	flo-seal	2.66	199.50
		subtotal		7017.38
		less 10%	discount	701.94
		subtotal		6315.64
		245332	SALES TAX	355.00
			ESTIMATED TOTAL	6670.64

Ravin 3737

AUTHORIZTION Anthony Martin TITLE Pusher DATE 10-25-11

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.

GRAND MESA OPERATING COMPANY

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

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

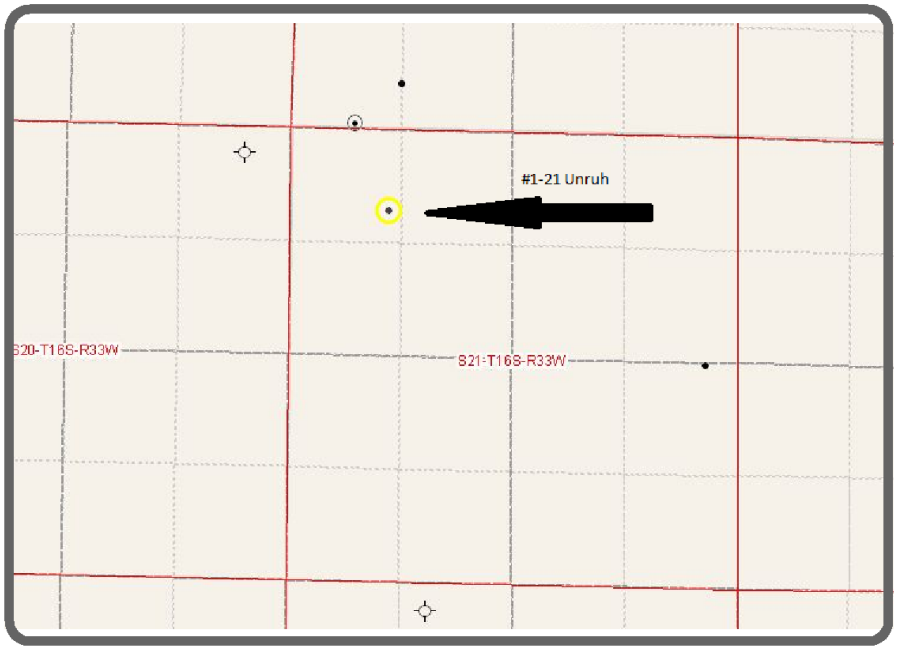
Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name:	#1-21 Unruh		
Location:	975' FNL, 1172' FWL, 21-16s-33w, Scott County, Kansas		
License Number:	API: 15-171-20840	Region:	Scott County
Spud Date:	10/15/2011	Drilling Completed:	10/25/2011
Surface Coordinates:	Lat: 38.6534438 Long: -100.9767432		
Bottom Hole Coordinates:	Vertical hole		
Ground Elevation (ft):	3077'	K.B. Elevation (ft):	3082'
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: John Goldsmith
Company: John Goldsmith Wellsite Service
Address: 322 Greenwood Ct.
Cheney, KS 67025
316-640-0236



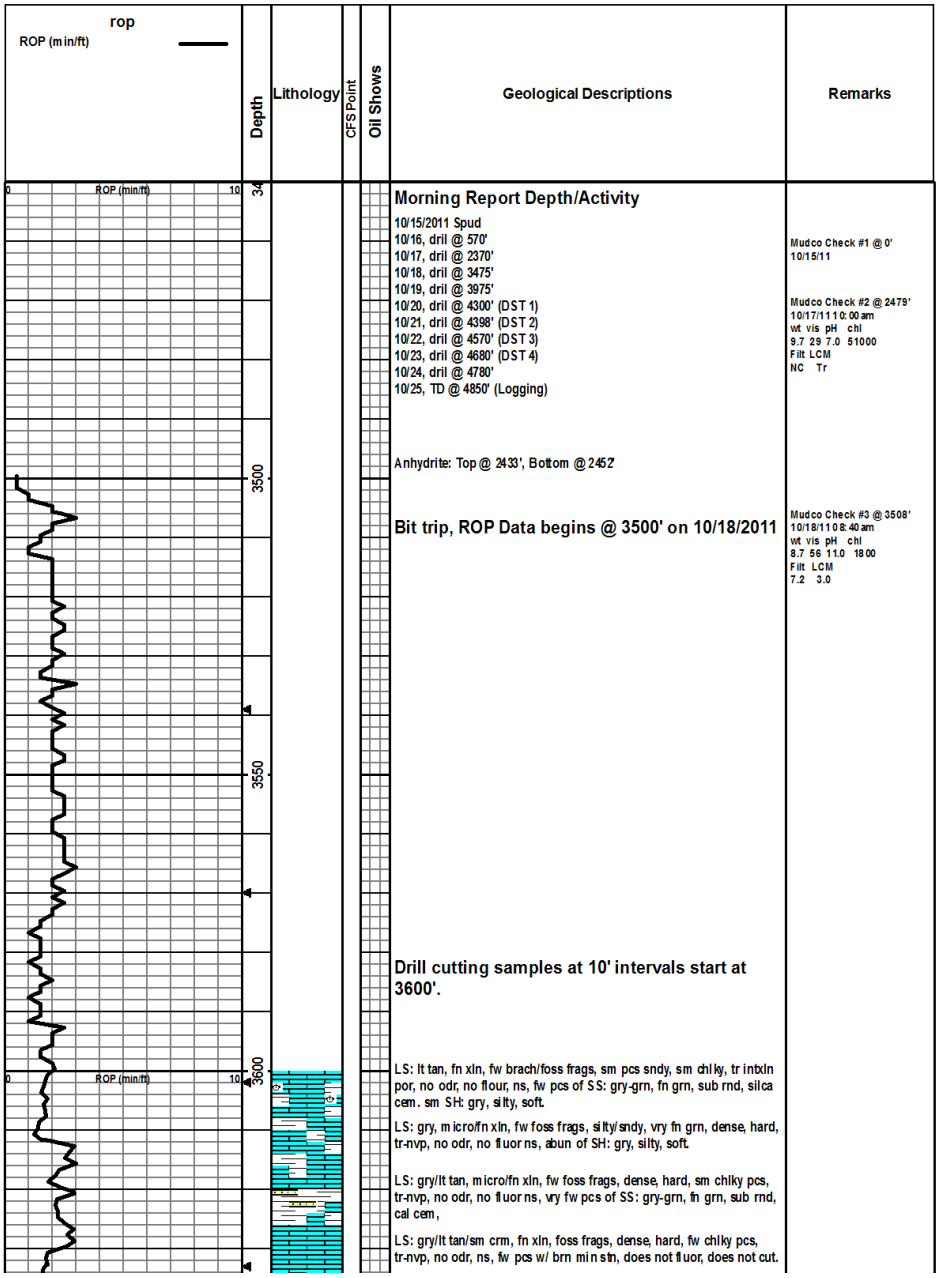
COMMENTS

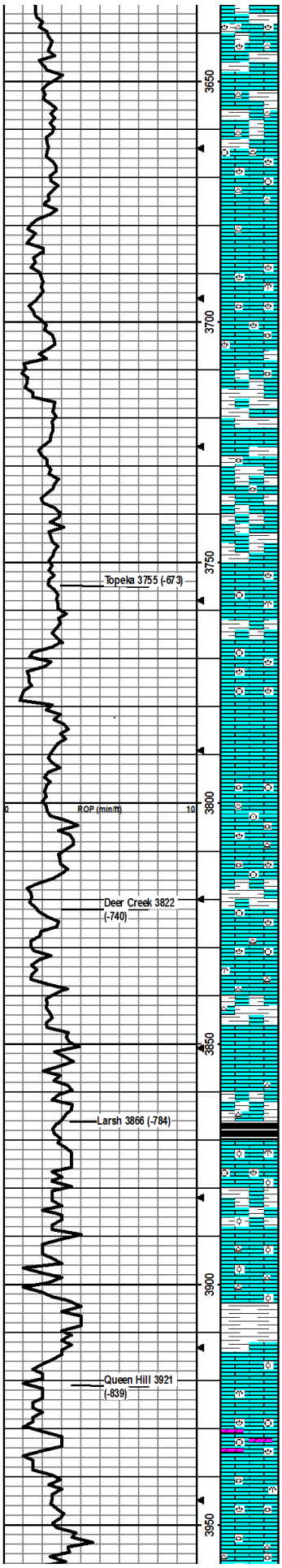
Contractor: Murfin Drilling Company Rig #24
Pusher: Tony Martin
Surface Casing: 8 5/8" set at 234' w/175sx
Production Casing: Plugged to RTD
Mud by: MudCo
DST's by: Trilobite Testing
Logs by: Weatherford (DIL, CN-CD, ML)
RTD=4850'
LTD=4850'

FORMATION TOPS

FORMATION	SAMPLE TOPS Depth	Datum	LOG TOPS Depth	Datum
Queen Hill	3921'	-839	3921'	-839
Heebner Shale	3983'	-901	3983'	-901

Toronto	4005'	-923	4005'	-923
Lansing	4029'	-947	4028'	-946
Muncie Creek Shale	4200'	-1118	4200'	-1118
Stark Shale	4291'	-1209	4290'	-1208
Hushpuckney Shale	4340'	-1258	4339'	-1257
Marmaton	4411'	-1329	4411'	-1329
Upper Fort Scott	4522'	-1440	4522'	-1440
Little Osage Shale	4546'	-1464	4545'	-1463
Excello Shale	4561'	-1479	4561'	-1479
Johnson Zone	4634'	-1552	4634'	-1552
Morrow	4703'	-1621	4703'	-1621
Mississippian	4741'	-1659	4741'	-1659
RTD	4850'	-1768		
LTD			4850'	-1768





LS: crm/lt tan, micro xln, foss frags/brach, dense, brittle, fw chalky, tr-nvp, no cup odr, no fluor, ns, sm Chert: brn, tans, fw SH: gry-grn, silty, fissile, soft.

Much as above, fw more pcs of gry, dense, hard, LS.

LS: lt tan/gry, micro/fn xln, fw foss frags, dense, hard, fw chlky pcs, tr-nvp, no cup odr, no fluor, ns, fw Chert: wht-opaque, sm SH: gry/drk gry, fissile, med crush, sm carb.

LS: lt tan/gry, fn xln, foss frags/crin/brach, dense, brittle, fw pcs chlky, tr-nvp, no cup odr, no fluor, ns, fw Chert: brn, foss, fw pcs pyrite.

LS: crm/lt tan, micro xln, foss frags/various, sm ool, dense, brittle, tr-nvp, no cup odr, no fluor, ns, sm Chert: gryish.

LS: crm/lt tan, micro xln, foss frags, dense, brittle, sm chlky, tr-nvp, no cup odr, no fluor, ns, sm grn-gry, fn xln, dense, hard.

LS: crm/lt tan, micro xln, foss var/crin/brach, dense brittle, sm chlky, tr-nvp in most, fw w/ fr intfoss por, no cup odr, no fluor, ns.

LS: crm/lt tan/sm gray, micro-fn xln, foss frags/fuss/brach, dense, sm chlky, tr-nvp, no cup odr, sm drk min stn, does not cut, fw pcs of SS: gry, fn grn, sub rnd, cal cem.

LS: gry/lt tan, fn xln, fw foss frags, dense, hard, fw pcs of chlk, tr-nvp, no cup odr, ns, svrl pcs of SS: gry/lt brn, fn grn, sub rnd, sil cem, pyritic, med crush.

LS: gry, fn xln, dense, hard, fw chlky pcs, tr-nvp, no cup odr, ns, sm SH: gry, silty, fissile, med crush.

LS: gry/lt tan, sm mot, fn-med xln, dense, hard, sm chlky, fw foss frags, tr-nvp, no cup odr, ns, vry fw pcs SH: gry/blu/grn, silty, med crush.

Much of the same as above.

LS: lt tan/gry, sm chlky and mot, micro-fn xln, dense, vry fw foss frags, tr-nvp, no cup odr, ns, sm SH: gry, fissile, fw Chert: gry.

LS: gry/lt tan, fn xln, mot, foss var, dense, hard, tr-nvp, no cup odr, no fluor, ns.

LS: crm/lt tan, micro-fn xln, sm chalky, tr-nvp, no cup odr, no fluor, ns, sm SH: gry/drk gray.

LS: gry/lt tan, fn xln, dense, hard, sm abund foss brach/crin/frags, tr-nvp, no cup odr, no fluor, ns.

LS: crm/lt tan, micro-fn xln, dense, brittle, foss var/brach/crin, tr-nvp, no cup odr, no fluor, ns.

LS: gry/lt tan, micro-fn xln, dense, sm hard, sm chlky, fw foss frags, tr-nvp, no cup odr, no fluor, ns.

LS: lt tan/gry, micro-fn xln, foss fuss/crin/frags, mottled, tr-nvp, no cup odr, no fluor, ns, sm Chert: wht-opaque, foss frags.

LS: lt tan/gry, fn xln, foss frags/fuss/var, sm sndy, vfn grns, tr-nvp, no cup odr, no fluor, ns, sm Chert: gry/lt brn.

LS: lt tan, micro-fn xln, foss crin/brach/frags, sm chlky, tr-nvp, no cup odr, no fluor, ns. fw SH: gry, silty, fissile, med crush.

LS: lt tan, fn-med xln, foss brach/crin, tr intfoss por, no cup odr, no fluor, ns, sm Chert: lt brn.

LS: lt tan, fn-med xln, dense, fw foss frags, fw pcs v foss, tr-intxln por, no cup odr, no fluor, ns, fw Chert: lt brn, sm SH: drk gry.

LS: lt tan, fn-med xln, dense, sm foss var, tr intxln por, no cup odr, no fluor, ns, sm SH: drk gry/blk, sm carb.

LS: lt tan/gry, micro-fn xln, dense, brittle, no cup odr, no fluor, ns.

LS: lt tan, fn-med xln, dense, sm foss brach/var, tr-nvp, no cup odr, no fluor, ns, fw pcs Chert: gry, trans, foss, sm SH: red-brn/gry, silty, soft.

LS: lt tan, fn-med xln, foss brach/crin/var, fw ool, dense, brittle, sm chlky, tr intfoss por, no cup odr, no fluor, ns, sm SH: gry/drk gry, silty.

Much of the same as above, much more SH: gry/drk gry, silty, fissile, soft-med crush.

LS: crm/lt tan, fn-med xln, foss fus/crin/frags, sm sndy, vfn grns, sm chlky, tr intfoss por, no cup odr, no fluor, ns, fw Chert: gry/lt brn, trans.

SH: red-brn/gry, sm silty, fissile, soft-med crush.

LS: crm/lt tan, fn-med xln, foss fuss/crin/var, sm ool, tr intfoss/ool por, no cup odr, no fluor, ns, abund SH: gry-grn, silty, soft.

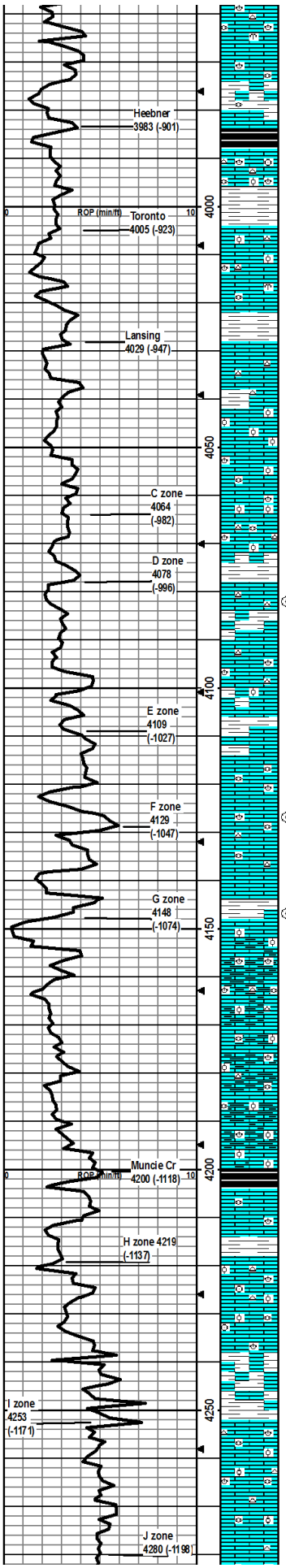
LS: crm/lt tan, fn xln, fw foss frags, tr-nvp, no cup odr, no fluor, ns.

LS: crm/lt tan, fn xln, foss crin/brach/var, dense, tr vug por, no cup odr, slight m in stn, does not fluor, ns, 1-2 pcs of DOL: gry/lt tan, fn xln, dense.

LS: crm/lt tan, fn-med xln, foss frags/var/fuss, brittle, sm sndy, vfn grns, sm chlky, tr intxln por, no cup odr, no fluor, ns, sm SH: red-brn/gry, silty, soft.

LS crm/lt tan, micro-fn xln, foss frags/fuss/var, dense, hard, sm gritty/sndy, vfn grns, sm chlky, tr-nvp, no cup odr, no fluor, ns,

LS: crm/lt tan/sm gry, micro/fn xln, foss fuss/brach/frags, dense, hard,



sm clky, vry fw gritty, tr-nvp, no cup odr, no fluor, ns, sm Chert: gry/lt brn, foss.

LS: crm/ lt tan, micro-fn xln, foss frags/fuss/var, dense, sm hard, sm chlky, tr intxln/ intfoss por, no cup odr, no fluor, ns, sm SH: gry/red-brn, silty, soft

LS: crm/lt tan, fn xln, foss frags/var, fw chlk, tr-nvp, no cup odr, slght drk min stn on edges, does not cut, does not fluor, nsfo, SH: gry-grn, silty soft.

LS: crm/lt tan, fn-med xln, foss brach/crin/fuss, sm ool, fw chlk, tr-nvp, no cup odr, ns, sm Chert: gry/lt brn, trans, abun SH: gray/blk, sm carb, soft, fissile.

SH: gry/drk gry/red-brn, silty, no cup odr, ns.

LS: crm/lt tan, fn xln, foss frags/var, fw ool, sm clk, tr intxln por/tr vug por, scat dul yel fluor, vry slw cut pale blu, vssfo, 1-2 pcs/tray.

LS: crm/lt tan, micro xln, fw foss frags, sm clk, tr-nvp/pr vug por, vry slght cup odr, dul yel fluor in fw pcs, fw vugs filled w/ fo, cuts pal blu, sm SH: gry-grn, silty, soft.

Mudco Check #4 @ 4020'
10/19/111 0:05am
wt vis pH chl
9.0 51 10.5 4000
Filt LCM
7.2 2

SH: gry-grn, silty, fissile, med crush. LS: crm/lt tan, micro-fn xln, foss frags, dense, sm chlk, rare ppt intxln por, no odr, ns.

LS: crm/lt tan, micro-fn xln, sm foss, sm chlk, rare tr intxln por, no cup odr, ns, fw Chert: wht-opaque, abund SH: gry/grn/red-brn, silty, med crush.

LS: crm/lt tan, fn xln, profus ool, fr int ool por, no cup odr, ss of dead tary oil, slow cut pal blu, min scat flour, sm SH: gray/red-brn, silty, fissile, med crush.

LS: lt tan, micro-fn xln, sm var foss, fw ool, no cup odr, ns, sm SH: gry-grn/red-brn, silty, med-firm crush.

LS: lt tan, fn xln, foss fuss/brach/frags, sm ool, fr ppt intxln/rare intfoss por, no cup odr, dul yel fluor, stream cuts pal blu, ssfo, sm SH: gry/grn, silty, fissile, med crush.

LS: fw pcs much as above, predmtly SH: gry/grn/red-brn, silty med crush, tr-nvp, no cup odr, 4-5 pcs w/ ssfo in 30', 1-2 pcs in 60' smpl, dul yel fluor, stream cut pal blu, ssfo.

CFS@4082'
30"/60"

SH: gry-grn, silty, soft

LS: crm/lt tan, fn xln, dense, brittle, chlky, tr ppt/rare vug por, no cup odr, ns.

LS: crm, fn xln, dense, brittle, foss brach/var, sm chalk, tr ppt/rare vug por, no cup odr, ns, abund SH: gry/grn, silty, fissile, med crush.

LS: crm, fn xln, dense, foss crin/fuss/frags, rare vug por in 2nd rexln and frac, drk min stn, in the cracks, does not fluor, does not cut, nsfo, abund SH: gry/grn/red-brn, fissile, med crush.

LS: crm, fn xln, dense, sm foss fuss/frags/brach, fr-gd intxln por/tr small vug por, fr hydrocarb odr, gd cup odr, dul yel-gld fluor, cut pal blu, ssfo, 4-5 pcs in the 30" smpl, 2-3 pcs in the 60" smpl, 60" smpl abund SH: gry-grn, fissile, med crush.

CFS@4127'
30"/60"

LS: crm/lt tan, fn xln, foss var, ool, tr-nvp, vs cup odr, 1-2 pcs LS: crm/wht, micro xln, foss, ool, fr intfoss por, w/ ssfo, slght cup odr, dul yel/gld fluor, stream cut pal blu. 5-6 pcs in the stop smpl, 2-3 pcs in 30" smpl, sm Chert: wht-opaque, abund SH: gry/grn/bluish, fissile, silty, soft-med crush.

CFS@4147'
30"

LS: crm/lt tan, micro-fn xln, foss fuss/brach/frags, sm ool, dense, brittle, sm chlk, tr-nvp, no cup odr, ns, fw Chert: gry-opaque, foss, abund SH: gry, fissile, med crush.

LS: gry/lt tan, micro-fn xln, foss var, fw ool, dense, hard, tr-nvp, no cup odr, ns, sm SH: gry, fissile, silty, med crush.

LS: gry, micro-fn xln, fw foss frags, dense, hard, tr-nvp, no cup odr, ns, abudn SH: gry/red-brn, silty, soft.

LS: gry/lt tan, micro-fn xln, vry fw foss frags, ool, dense hard, fr intool por, no cup odr, ns, sm SH: gry, silty soft.

LS: gry/lt tan, fn xln, sm foss frags, vry ool, dense, hard, fr-gd intool por, no cup odr, ns, sm SH: gry/grn, fissile, med crush.

SH: gry/drk gry/blk, fissile, carb, med crush.

LS: lt tan/gry, fn xln, fw foss frags, dense, brittle, sm chlk, tr-nvp, no cup odr, ns, sm SH: gry/red-brn, silty, med crush.

SH: gry/red-brn, soft silty, LS: lt tan, fn-med xln, foss crin/ brach/frags, fw chlk pcs, tr-nvp, no cup odr, slght drk min stn on fw pcs, does not cut, does not fluor, nsfo.

LS: lt tan/gry, fn xln, foss crin/ brach/frags, ool, hard, brittle, fr rare intool por/ppt intxln por, v slght cup odr, vssfo, dul yel fluor, slow cut pal blu, does not break out of por well, sm Chert: wht-opaque, foss.

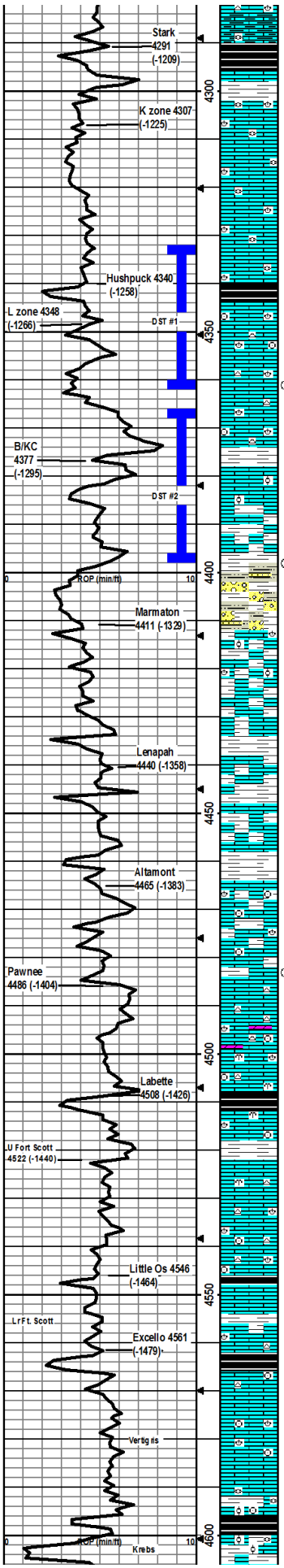
LS: lt tan/gry, fn xln, sm ool, fw chlk, tr-fr intool por, no cup odr, vssfo, 1-2 pcs/tray, w/ tr ppt por, may be from up hole, slow cut, dul yel fluor, abund of SH: gry/red-brn, silty, fissile, soft.

SH: gry/red-brn, silty, soft

LS: lt tan, fn xln, foss brach/fuss/frags, sm ool, fw chlk, tr intxln por/rare fr intool por, no cup odr, ns, sm Chert: wht-opaque, sharp, sm SH: gry/grn/red-brn, silty, fissile, med crush.

LS: lt tan, fn xln, foss brach/fuss, fw ool, fw chlk, pr-fr intxln por/rare intfoss por, vry slght cup odr, scat dull yel fluor, vssfo in foss cast and in frac planes, stream cuts pal blu, sm Chert: wht-opaque, sharp, foss.

Much as the same above, 1 pc of LS: crm, fn xln, tr ppt intxln por/rare vug por, ssfo, dul yel fluor, cut pal blu, most likely from up hole,



abund of SH: gry/red-brn, silty, fissile, med crush.

LS: crm/lt tan, fn xln, foss brach/fuss/var, tr-nvp, no cup odr, ns, abund SH: gry/grn/red-brn, fissile, soft-med crush.

SH: gry/drk gry/blk, sm carb, silty, med crush, fissile.

LS: gry/lt tan, fn-med xln, fw foss brach/frags, vry chlky, brittle, fr intxln por/fr vug por, dul yel fluor, ssfo in vugs, stream cut pal blu, slight cup odr, 3-4 pcs/tray, fr stns in intxln por, fo bleeds out of vugs swell when crushed in water, fw Chert: wht-opaque, sm SH: gry, silty, soft.

LS: crm/lt tan, fn xln, foss brach/fuss/var, sm chlk, fr-gd intfoss por, slight cup odr, scat dul yel fluor, fw pcs drk spts of dead oil, slw cut pal blu, fw pcs Chert: wht-opaque, foss, sm SH: gry/drk gry/red-brn, med crush fissile.

Mudco Check #5 @ 4323'
10/20/11 09:45 am
wt vis pH chl
9.2 56 10.5 3600
Filt LCM
8.0 2

LS: gry/lt tan, fn xln, dense, hard, tr-nvp, no cup odr, 1-2 pcs crm/lt tan, foss, fr-gd vug por, dul yel fluor, cut pal blu, ssfo, possibly from up hole.

DST1) 4332-4361
30/30/30/30
1st) Weak surface blow
2nd) No Blow
IFP 14-19#
ISIP 1119#
FFP 18-19# FSIP
1127#
HP 2146-2110#
Recvd: 1' of Mud

SH: blk/gry, silty, med crush, carb.

LS: lt tan/gry, fn xln, foss brach/crin/frags, brittle, pr intxln por/sm fr-gd vug por in secd rxln, dul yel fluor, stream cut pal blu, gd cup odr, gsfo, slght cup odr in 30" smpl, good fo in frac planes on crush, 60" smpl had a fw less pcs than the 30" smpl.

CFS @ 4361'
30"/60"

LS: gry/lt tan, fn xln, fw foss var, dnese, hard, tr-nvp, no cup odr, ns, fw Chert: gry.
LS: gry/lt tan, fn-med xln, fw foss brach/var/frags, dense, sm chlkhard, tr-nvp, no cup odr, 1-2 pcs w/ drk min stn, no fluor, no cut, nsfo, fw Chert: gry.
LS: lt tan, fn xln, foss, dense, med crush, tr-nvp, no cup odr, ns, abund SH: gry-grn, silty, easy-med crush.

DST2) 4365-4398
30/30/30/30
1st) Wk surface built to 1/4"
2nd) No blow
IFP 15-17#
ISIP 344#
FFP 17-14# FSIP
393#
HP 2152-2076#
Recvd: 1' of Mud

LS: crm/lt tan, fn-med xln, ool, fr-gd intxln por/fr intool por, easy-med crush, gd cup odr, gd yel/gold fluor, stream cut pal blu, svrl pcs in stop smpl, svrl pcs in 30" smp, less in 60" smpl w/ abund of SH: gry/drk gry/red-brn, silty, fissile, med crush.

CFS @ 4398'
30"/60"

SiltStn: gry, vfn grn, arg, tr-nvp, fw pcs of SS: blu-gry, fn grn, sub rnd, arg, cal cem, abund of SH: gry/drk gry/red-brn, silty, med crush, no cup odr, ns.

Mudco Check #6 @ 4398'
10/21/11 10:50 am
wt vis pH chl
9.3 49 9.5 5800
Filt LCM
8.0 2

LS: lt tan/gry, micro-fn xln, sm foss brach/var, fw ool, tr-nvp, abund SH: gry/grn/red-brn, fissile, med crush, no cup odr, ns.

SH: gry/drk gry/red-brn, silty, easy-med crush, fw SS: lt blu-gry, vfn grn, arg, maybe from up hole, tr-nvp, no cup odr, ns.

Much of the same as above, fw LS: lt tan, micro-fn xln, dense, hard, rare ppt-intxln por, no cup odr, ns.

LS: lt tan/gry, fn xln, dense, hard, rare foss, sm 2nd rexln, tr-nvp/rare intxln por in 2nd rexln, abund SH: gry/red, silty, fissile, med crush, no cup odr, ns.

LS: gry/lt tan, fn xln, rare foss, dense, hard, sm chlk, tr intxln por, sm drk min stn, no fluor, no cut, abund SH: gry-grn/red, silty, soft-med crush. no cup odr, nsfo

LS: crm/lt tan, fn xln, foss crin/brach/frags, dense, rare ppt intxln por/sm vug por, dul yel fluor, stream cut pal blu, abund SH: gry/red, silty, med crush, no cup odr, vssfo, 2-3 pcs in 4480' smpl, 3-4 in 30" smpl.

CFS @ 4483'
30"

LS: crm/lt tan, micro xln, dense, hard, tr-nvp, fw Chert: brn, trans, no cup odr, ns.

LS: crm/lt tan, fn xln, foss crin/brach,var, dense, hard, tr ppt intxln por, scat dul yel fluor, slw cut pal blu, vssfo, hard to brk out of por, no cup odr, sm Chert: gry, sharp, fw pcs DOL: lt tan, fn xln, dense, pr intxln por.

LS: gry/lt tan, fn xln, fw foss frags, dense, sm hard, tr-nvp, abund of SH: gry/drk gry/blk, fissile, sm carb, med crush, no cup odr, ns.

LS: lt tan/gry, fn xln, foss, ool, tr intxln por, mostly SH: gry/grn/red-brn, silty, fissile, med crush, sm SltSt: gry, vfn grn, arg, no cup odr, ns.

LS: crm/lt tan, fn xln, sm foss, dense, sm chlk, tr-nvp, fw drk min stns on facies, no fluor, no cut, no cup odr, ns.

LS: lt tan, fn xln, foss brach/var, dense, hard, tr-nvp, fw Chert: why-opaque, sharp, no cup odr, ns.

LS: lt tan/gry, fn-med xln, foss crin/brach/frags, sm chlk, tr intxln por, abund of SH: gry/drk gry/blk, sm carb, fissile, med crush, no cup odr, ns.

LS: crm/lt tan, micro-fn xln, foss crin/frags, dense, hard, sm chlk, tr intxln por, no cup odr, speckld dul yel fluor, slw cut pal blu, vssfo, 2-3 pcs/tray, no cup odr, sm SH: gry/drk gry, silty, easy-med crush.

LS: lt tan, mot, fn xln, foss brach/crin/frags, ool, dense, hard, tr-nvp, sm Chert: gry, trans, sm SH: gry/drk gry/blk, med crush, fissile, sm carb, no cup odr, ns.

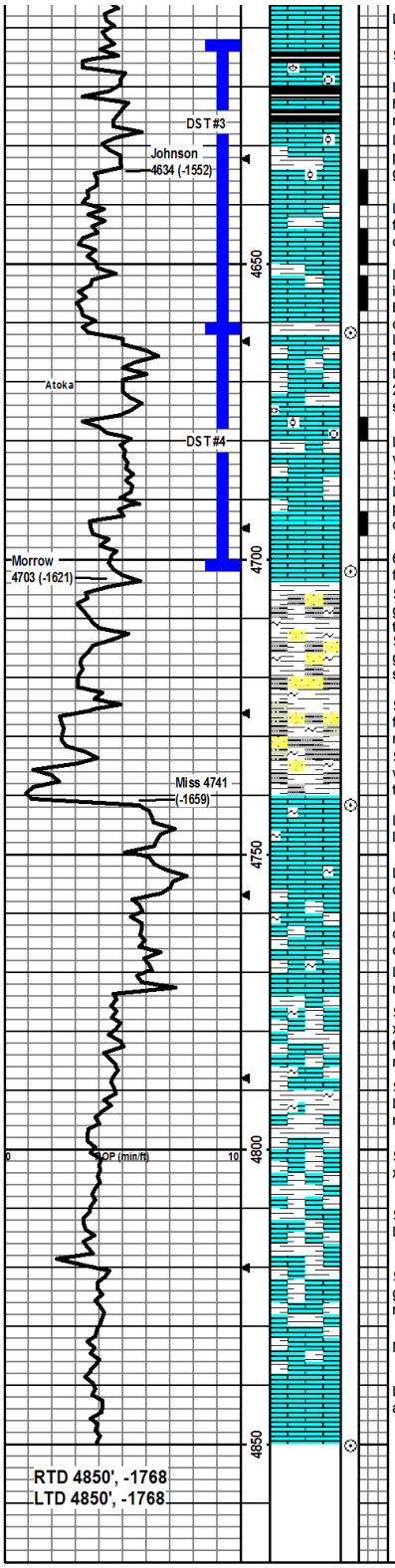
Mudco Check #7 @ 4569'
10/22/11 07:30 am
wt vis pH chl
9.3 50 10.0 7000
Filt LCM
8.0 2

LS: lt tan, fn xln, foss frags, ool, ppt intxln por, sm chlk, vssfo in svrl pcs, scat yel fluor, slow cut pal blu, no cup odr, sm Chert: gry, foss, smpls are vry small.

LS: gry/lt tan, fn xln, foss brach/frags, tr-rare intxln por, dense, hard, fw chlk, sm SH: gry/red-brn, silty, fissile, med crush, no cup odr, ns.

LS: lt/gry, fn xln, foss brach/crin/var, ool, dense, hard, tr-nvp, abund SH: gry/blk, silty, fissile, most carb.

Mostly SH: gry/red-brn, silty, easy-med crush.



LS: gry, fn xln, dense, hard, tr-nvp, no cup odr, ns.

SH: drk gry/blk, carb, fissile.

LS: crm/lt tan, micro-fn xln, vry foss brach/crin/frags, ool, dense, hard, tr ppt-intxln por, sm SH: drk gry/blk, carb, fissile, no cup odr, ns.

LS: crm/lt tan, fn xln, foss, sm ool, dense, tr-fr intxln por, ssfo, 5-6 pcs/tray, dul yel/gold fluor, stream cut pal blu, vslght cup odr, sm SH: gry/red-brn, silty, sm fissile, easy-med crush.

LS: crm/lt tan, fn-med xln, uniform, rare pr vug/fr intxln por, fw frac facies, frsfo, svrl pcs/tray, dul yel fluor, stream cut pal blu, vslght cup odr, sm SH: gry/red-brn, sm fissile, fw silty, med crush.

LS: crm/lt tan, fn xln, fr intxln por, rare frac facies, frsfo, svrl pcs/tray in 30" smpl, less in the 60" smpl, dul yel/gold fluor, stream cut pal blu, slght-fr cup odr, fw SH: gry/red-brn, sm fissile, fw silty, med crush.

LS: lt tan, fn xln, fw foss crin/frags, tr-nvp, mostly SH: gry/red/brn, fissile, med crush, no cup odr, ns.

LS: crm/lt tan, fn xln, fw foss fuss/crin, tr-pr intxln por/rare vug por w/ 2nd rexln, vssfo, 4-5 pcs/tray, scat dul yel fluor, stream cut pal blu, v slght cup odr, abund SH: gry/drk gry, fissile, med crush.

LS: gry/lt tan, fn-med xln, fw foss crin/frags, sm ool, pr intxln por, vssfo, 3-4 pcs/tray, dul yel fluor, slw cut pal blu, no cup odr, abund SH: gry/grn, fissile, sm silty, med crush.

LS: gry/lt tan, fn xln, sm platey, foss, ool, pr intx por, vssfo, 2-3 pcs/tray in 30" smpl, scat dul yel fluor, slw cut pal blu, v slght cup odr, sm SH: gry/red-brn/fw blk, fissile, sm carb, med crush.

60" only 1-2 pcs, probably from above, mostly LS: crm/lt tan, dense, foss, tr-nvp, no cup odr, ns

SH: gry/blu-grn/olive, silty, soft, sm glauc, sm waxy, SltstN: brn, vfn grn, soft, SS: blu-grn-gry, fn grn, sub rnd, well srtd, sil cem, glauc, tr-nvp, no cup odr, ns.

SH: gry/blu/grn/olive, silty, easy-med crush, glauc, sm waxy, SltstN: gry/purpl/brn, vfn grn, soft, SS: blu-gry, fn-crs grn, sub rnd, med srtd, sil cem, arg, glauc, tr-nvp, no cup odr, nsfo on crush in water.

SltStn: gry/blu, vfn grn, v soft, arg, sm SH: gry/olive, silty, soft, fissile, fw SS: blu-gry, fn grn, sub rnd, med srtd, sil cem, arg, glauc, tr-nvp, nsfo on crush in water, no cup odr.

SH: gry/olive, silty, soft, fissile, sm SltstN: gry/blu, vfn grn, v soft, arg, v fw SS: blu-gry, fn grn, sub rnd, well srtd, sil cem, sm arg, glauc, tr-nvp, nsfo on crush in water, no cup odr.

LS: wht, fn xln, v sandy, gainy, fn grns, sm glauc, med crush, sm LS: lt tan, micro xln, dense, brittle, tr-nvp, no cup odr, no fluor, ns.

LS: wht, fn xln, v sandy, grainy, fn grns, sm crs grn, sm glauc, med crush, brittle, tr-nvp, no cup odr, ns.

LS: wht, fn xln, v sandy, grainy, fn grns, sm crs grn, sm glauc, med crush, brittle, tr-nvp, abund SH: gry/olive, fissile, med crush, no cup odr, no fluor, ns.

LS: much as above, SH: gry/blk, fissile med crush, less olive, sm carb, no cup odr, no fluor, ns.

SH: gry/blu-grn/blk, silty, fissile, med crush, fw carb, sm LS: wht, fn xln, v sandy, fn grns, sm crs grns, sm glauc, med crush, brittle, tr-nvp, fw LS: lt tan, micro xln, foss, dense, hard, tr-nvp, no cup odr, ns.

SH: gry/blu-grn/red-brn, silty, fissile, easy-med crush, sm glauc, v fw LS: wht, fn xln, sandy, fn grns, glauc, med crush, tr-nvp, no cup odr, ns.

SH: gry/blu/grn/red/brn, fissile, med crush, sm glauc, fw LS: wht, fn xln, sandy, fn grns, glauc, brittle, med crush, tr-nvp, no cup odr, ns.

SH: gry/blu/grn/brn, fissile, med crush, fw SH: org-red, silty, soft, sm LS: wht, fn xln, sandy, fn grns, dense, hard, tr-nvp, no cup odr, ns.

SH: gry/blu/grn/brn/red, soft, med crush, sm LS: wht, fn xln, sandy, fn grns, dense, hard, tr-nvp, fw SltstN: red-brn, vfn grn, easy crush, soft, no cup odr, ns.

Much of the same as above.

LS: wht, fn xln, sandy, fn grns, fw chalky, fw foss, dense, tr-nvp, abund SH gray/blu/grn/brn/red, fissile, med crush, no cup odr, ns.

DST3) 4612-4662
30/30/30/30
1st) Wk surface built to 1/4"
2nd) No blow
IFP 117-19#
ISIP 36#
FFP 18-21# FSIP 28#
HP 2290-2267#
Recvd: 1' of Mud

CFS@4662'
30"/60"

DST4) 4662-4702
30/30/30/30
1st) Wk surface built to 1/4"
2nd) No blow
IFP 117-19#
ISIP 36#
FFP 18-21# FSIP 28#
HP 2290-2267#
Recvd: 1' of Mud

Mudco Check #8 @ 4700'
10/23/1109:00am
wt vis pH chl
9.4 54 10.0 7000
Filt LCM
8.8 1

CFS@4742'
30"/60"

Mudco Check #8 @ 4784'
10/24/1107:50am
wt vis pH chl
9.2 50 10.5 7000
Filt LCM
8.8 2

CFS@4850'
30"