



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1113919  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

Form must be Typed  
Form must be Signed  
All blanks must be Filled

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
- Plug Back       Conv. to GSW       Conv. to Producer
- 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

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27       NAD83       WGS84

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

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

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

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

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

Total Vertical 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

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



1113919

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

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

**INSTRUCTIONS:** Show important tops 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.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
Cores Taken	<input type="checkbox"/> Yes <input type="checkbox"/> No			
Electric Log Run	<input type="checkbox"/> Yes <input type="checkbox"/> No			
List All E. Logs Run:				

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
<input type="checkbox"/> Perforate				
<input type="checkbox"/> Protect Casing				
<input type="checkbox"/> Plug Back TD				
<input type="checkbox"/> Plug Off Zone				

Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

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> _____	PRODUCTION INTERVAL: _____ _____
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**#1 Nau 25 C**  
1798' FSL & 1538' FWL  
148' N 112' W SW NE SW Section 25-26S-23W  
Ford County, Kansas  
API# 15-057-20848-00-00  
Elevation: 2418' GL, 2430' KB

Sample Tops			Ref. Well
Anhydrite	1481'	+949	-8
B/Anhydrite	1513'	+917	-5
Stotler	3483'	-1053	+1
Heebner	4110'	-1680	+9
Lansing	4226'	-1796	+7
Muncie Shale	4414'	-1984	+1
Stark Shale	4548'	-2118	flat
Hush. Shale	4586'	-2156	-1
BKC	4666'	-2236	flat
Marmaton	4674	-2244	flat
Altamont	4712'	-2282	-3
Pawnee	4752'	-2322	+4
Fort Scott	4776'	-2346	flat
Cherokee Shale	4794'	-2364	-1
Huck	4862'	-2432	-4
Atoka Shale	4889'	-2459	-5
Mississippian	4908'	-2478	-2
RTD	5090'	-2660	

# ALLIED OIL & GAS SERVICES, LLC 059040

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 93999  
SOUTHLAKE, TEXAS 76092

SERVICE POINT:  
Coccat haul, KS

DATE <u>10-22-11</u>	SEC. <u>25</u>	TWP. <u>26S</u>	RANGE <u>23E</u>	CALLED OUT <u>6:00 PM</u>	ON LOCATION <u>9:00 AM</u>	JOB START <u>11:22 PM</u>	JOB FINISH <u>11:48 PM</u>
LEASE <u>N/A</u>	WELL # <u>1-25C</u>		LOCATION <u>1/2 mi. east of Springfield, South on 127th to to Wright Road, West 25 miles, South on 126th to Wright Road, West to 123rd turn South 1.5 miles. East into location.</u>		COUNTY <u>Ford</u>	STATE <u>KS</u>	

CONTRACTOR Duke J OWNER Ritchie Exploration

TYPE OF JOB Surface Casing  
 HOLE SIZE 12 1/4" T.D. 376 FT  
 CASING SIZE 8 5/8" 24# DEPTH 359 ft  
 TUBING SIZE \_\_\_\_\_ DEPTH \_\_\_\_\_  
 DRILL PIPE \_\_\_\_\_ DEPTH \_\_\_\_\_  
 TOOL \_\_\_\_\_ DEPTH \_\_\_\_\_  
 PRES. MAX \_\_\_\_\_ MINIMUM \_\_\_\_\_  
 MEAS. LINE \_\_\_\_\_ SHOE JOINT 20 ft  
 CEMENT LEFT IN CSG. 20 ft - 1.27 bbls (5.33)  
 PERFS. \_\_\_\_\_  
 DISPLACEMENT 22.5 bbls Fresh Water

CEMENT  
 AMOUNT ORDERED 225 ss Class "A"  
+3% Cacl + 2% Gcl

EQUIPMENT

PUMP TRUCK # <u>348</u>	CEMENTER <u>Charles Elkins</u>	<u>1</u>
BULK TRUCK # <u>344/170</u>	HELPER <u>Josh Isaac</u>	<u>2</u>
BULK TRUCK # _____	DRIVER <u>Joel Monahan</u>	<u>1</u>
BULK TRUCK # _____	DRIVER _____	

COMMON <u>225</u>	@ <u>17.90</u>	<u>4,027.<sup>50</sup></u>
POZMIX _____	@ _____	
GEL <u>4</u>	@ <u>23.40</u>	<u>93.60</u>
CHLORIDE <u>8</u>	@ <u>64.00</u>	<u>512.<sup>00</sup></u>
ASC _____	@ _____	
_____	@ _____	
_____	@ _____	
_____	@ _____	
_____	@ _____	
_____	@ _____	
_____	@ _____	
_____	@ _____	
HANDLING <u>242.7</u>	@ <u>2.48</u>	<u>602.<sup>87</sup></u>
MILEAGE <u>11.09 x 43 x</u>	<u>2.60</u>	<u>1,239.<sup>86</sup></u>
		<u>1,766.<sup>87</sup></u>
		<u>TOTAL 6,475.<sup>35</sup></u>

REMARKS:  
Pump 5 bbls Fresh Water  
Pump 53.5 bbls (225 ss) Cement  
Pump 22.5 bbls Fresh Water  
Leave 20 ft / 1.27 bbls (5.33) Cement in Casing  
Circulate 11 bbls (46 ss) Cement to Surface.

CHARGE TO: Ritchie Exploration  
 STREET \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

SERVICE

DEPTH OF JOB <u>359</u>		
PUMP TRUCK CHARGE _____	<u>1912.<sup>35</sup></u>	
EXTRA FOOTAGE _____	@ _____	
MILEAGE <u>Hum 43</u>	@ <u>7.70</u>	<u>331.<sup>10</sup></u>
MANIFOLD _____	@ _____	
<u>Hum 43</u>	@ <u>4.40</u>	<u>189.<sup>20</sup></u>
_____	@ _____	
		<u>TOTAL 2,032.<sup>55</sup></u>

PLUG & FLOAT EQUIPMENT

_____	@ _____	
_____	@ _____	
_____	@ _____	
_____	@ _____	
_____	@ _____	
_____	@ _____	
		TOTAL _____

To: Allied Oil & Gas Services, 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.

SALES TAX (If Any) 368.33  
 TOTAL CHARGES 8,507.90  
 DISCOUNT 25% 2,126.97 IF PAID IN 30 DAYS  
6,380.93

PRINTED NAME Mike Godfrey  
 SIGNATURE Mike Godfrey





**CONSOLIDATED**  
Oil Well Services, LLC

TICKET NUMBER 37242

LOCATION Oakley

FOREMAN Fuzzly

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

**FIELD TICKET & TREATMENT REPORT**  
**CEMENT**

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
11-2-12	7173	NAU 25-41	25	26S	23W	Fond
CUSTOMER Relative Exploration		Jct more S. 50 + 83 Set 1/2 ← to west of Rd S 1/2 E Rd 123 13/45 ← to				
MAILING ADDRESS		TRUCK #	DRIVER	TRUCK #	DRIVER	
CITY		463	Jenny G			
STATE		530	Travis W			
ZIP CODE			Jeremy	Ride along		

JOB TYPE Prod HOLE SIZE 7 7/8 HOLE DEPTH 5090' CASING SIZE & WEIGHT 5 1/2 15.5  
 CASING DEPTH 5078' DRILL PIPE \_\_\_\_\_ TUBING \_\_\_\_\_ \*8 OTHER P-Collar 1430'  
 SLURRY WEIGHT 13.8 SLURRY VOL 1.42 WATER gal/sk 6.9 CEMENT LEFT in CASING 2120  
 DISPLACEMENT 120.3 DISPLACEMENT PSI \_\_\_\_\_ MIX PSI \_\_\_\_\_ RATE \_\_\_\_\_

REMARKS: Safety meeting on Duke #1 float equip cent #1, 2, 3, 7, 86, 88  
 102, Port Collar top @ 87. Baskets 86, 102. Rv up and circ like  
 Pump 5 BBL water, mix 500 gal mud flush, 5 BBL water, mix 20 sks  
 MH, 30 sks RH. mix 175 sks OWC w/s \*Kolsal 140 or 190 CDJ-26  
 w/d spacer. Wash pump and lines. Drop plug and displace  
 120 1/2 BBLs hit + Press 800\* hand plug @ 1300\*. float  
 held.

Thanks Fuzzly  
+ crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
5401C	1	PUMP CHARGE	3020.00	3020.00
5406	60	MILEAGE	5.00	300.00
5407A	10.6 tow	Tow mileage Delivery	100.00	1062.00
1126	225 sks	OWC	22.52	5073.25
1110A	1125 #	Kolsal	.56	630.00
1137	53 #	CDJ-26	9.69	513.57
1146	32 #	CAF-38	9.23	311.04
11446	500 gal	Mud Flush	1.00	500.00
4203	1	5 1/2 - Guide shoe (w)	193.00	193.00
4228B	1	5 1/2 - AFU Insert	206.00	206.00
4136	7	5 1/2 - Turbolizers (w)	72.00	504.00
4104	2	5 1/2 - Baskets (w)	276.00	552.00
4285	1	5 1/2 - Port Collar (L)	2075.00	2075.00
		subtotal		14940.86
		less 10%		1494.08
		subtotal		13446.78
		SALES TAX		755.45
		ESTIMATED TOTAL		14202.31

Bavin 3737

AUTHORIZATION [Signature] TITLE \_\_\_\_\_ 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.

[Signature] 254266



**CONSOLIDATED**  
Oil Well Services, LLC

TICKET NUMBER 39108  
LOCATION Oakley, KS  
FOREMAN Walt Dinkel

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

**FIELD TICKET & TREATMENT REPORT**  
**CEMENT**

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
11-7-12	7173	NAU 25c #1	25	263	23 <sup>W</sup>	Ford
CUSTOMER: <u>Kitchie Exploration</u>			Deltmore 50th to Jet			
MAILING ADDRESS			1/2 E to Wright Rd			
CITY			5 <sup>th</sup> E			
STATE			1345-65			
ZIP CODE			463			
			528 T127			
			Camp Davis			
			Mila Mantle			

JOB TYPE Port Collar HOLE SIZE \_\_\_\_\_ HOLE DEPTH \_\_\_\_\_ CASING SIZE & WEIGHT 5 1/2  
 CASING DEPTH \_\_\_\_\_ DRILL PIPE \_\_\_\_\_ TUBING 2 7/8" - 1430' OTHER P.C 1430'  
 SLURRY WEIGHT 12.5 SLURRY VOL \_\_\_\_\_ WATER gal/sk \_\_\_\_\_ CEMENT LEFT in CASING \_\_\_\_\_  
 DISPLACEMENT 8 1/4 DISPLACEMENT PSI \_\_\_\_\_ MIX PSI \_\_\_\_\_ RATE 4 BPM

REMARKS: Safety Meeting, rig up equipment, Test Casing to 1000# Held  
Open Tool & establish Circ, mixed 225 sks. 6940 ppy 6% gel, 1/2# Flo-Sol  
W/ 250# Hulls, circ. cement to surface, Displace 7 1/2 Bbl H<sub>2</sub>O  
Shot Tool, Test to 1000# Held, run 5 Jts, circ. clean

Thank You  
Walt & crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
5401	1	PUMP CHARGE	1,325.00	1,325.00
5406	60	MILEAGE	5.00	300.00
1131	225 SKS	6940 ppy	15.10	3,397.50
1118B	1164# #	gel	.25	291.00
1107	56 #	Flo-Sol	2.82	157.92
1105	250#	Cotton Seed Hulls	.55	137.50
5407A	9.68	Ton Mileage Delivery	162	970.20
				6,579.12
		Less 10% Disc.		657.91
				5,921.21
			SALES TAX	285.04
			ESTIMATED TOTAL	6206.25

Ravin 3737

AUTHORIZATION Guy Rowe

TITLE \_\_\_\_\_ 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.

254289

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  
Thomas E. Wright, Commissioner  
Shari Feist Albrecht, Commissioner

Sam Brownback, Governor

February 06, 2013

John Niernberger  
Ritchie Exploration, Inc.  
8100 E 22ND ST N # 700  
BOX 783188  
WICHITA, KS 67278-3188

Re: ACO1  
API 15-057-20848-00-00  
Nau 25C 1  
SW/4 Sec.25-26S-23W  
Ford 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,  
John Niernberger

# Adam Eldani Geo-Log/Report

## WellSight Systems

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

Well Name: #1 Nau 25C  
Location: SEC 25- twp 26S- rge 23W FORD COUNTY  
License Number: API 15-057-20848  
Spud Date: 10/23/2012  
Surface Coordinates: 2020' FSL & 1725' FWL  
Region: KANSAS  
Drilling Completed: 11/02/2012

Bottom Hole Deviation Surveys are detailed through out the Geo-Report.

Coordinates:  
Ground Elevation (ft): 2418  
Logged Interval (ft): 3400 To: 5091  
Formation: Mississippian  
Type of Drilling Fluid: Mud-Co Chemical

K.B. Elevation (ft): 2430

Total Depth (ft): 5090

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

### OPERATOR

Company: Ritchie Exploration Inc. (drilled by DUKE #1)  
Address: 8100 E. 22nd ST. N. #700  
Wichita, KS, 67278-3188

### GEOLOGIST

Name: Adam M.A. Eldani  
Company: Ritchie Exploration Inc.  
Address: 8100 E. 22nd ST. N. #700  
Wichita, KS, 67278-3188

### misc.

All DST's info. are NEAR the correct log depth.

#### DAILY DRILLING REPORT:

RIG: DUKE #1

TOOL PUSHER: MIKE GODREY

MUD: MUD CO. (JUSTIN WHITING)

GAS DETECTOR: EART TECH. CO.

DRILL STEM TEST'S: TRILOBITE TESTING, INC.

LOGS: NABORS (MIKE GARRISON)

OFFICE: PETER FIORINI







1550

3300

3350

3400

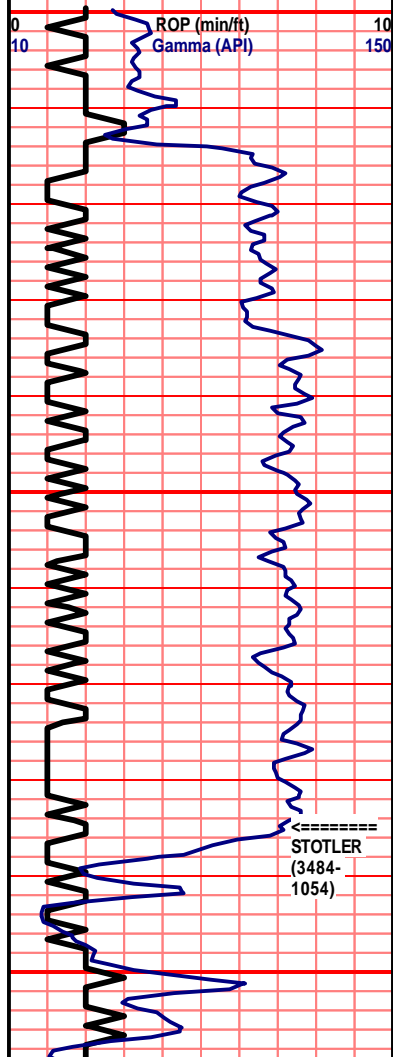
3450

3500

NO SAMPLE

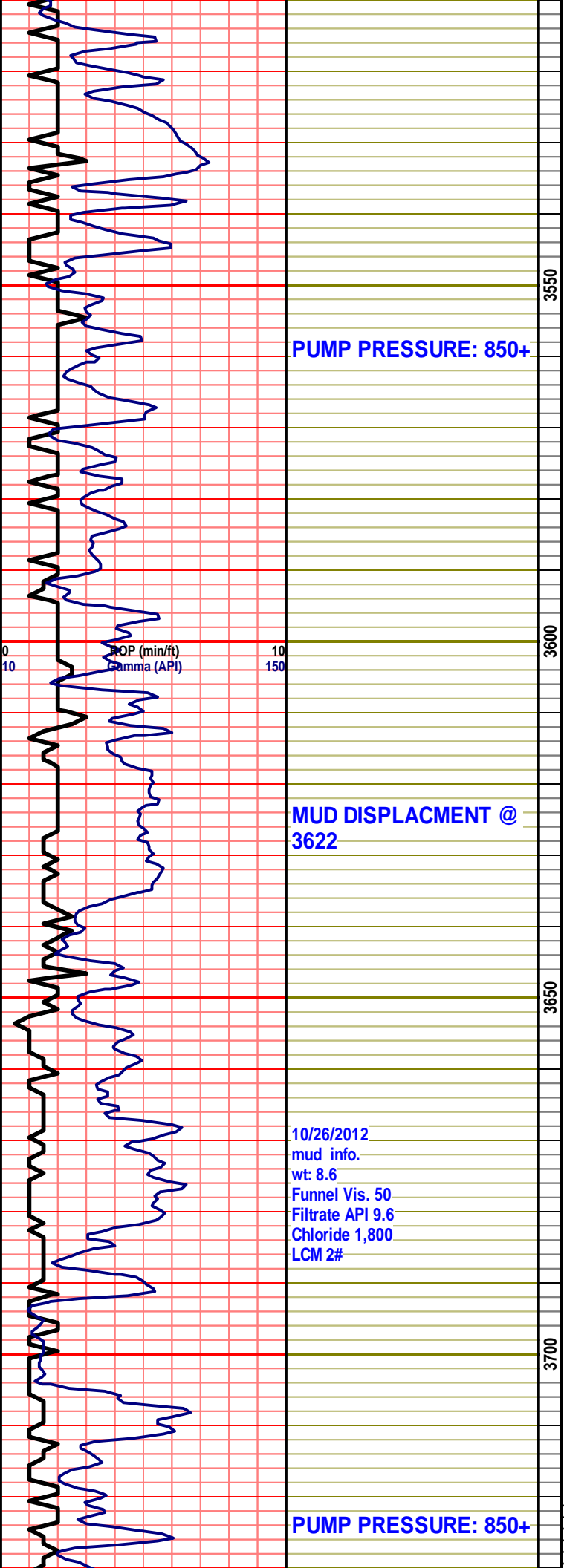
NO SAMPLES AVA.

NO SAMPLES AVA.



PUMP PRESSURE: 850+

TG C1-C5  
1 10 100 1000



NO SAMPLES AVA.

PUMP PRESSURE: 850+

3550

3600

ROP (min/ft)  
Gamma (API)

10  
150

TG C1-C5  
1 10 100 1000

NO SAMPLES AVA.

MUD DISPLACMENT @  
3622

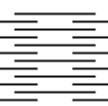
3650

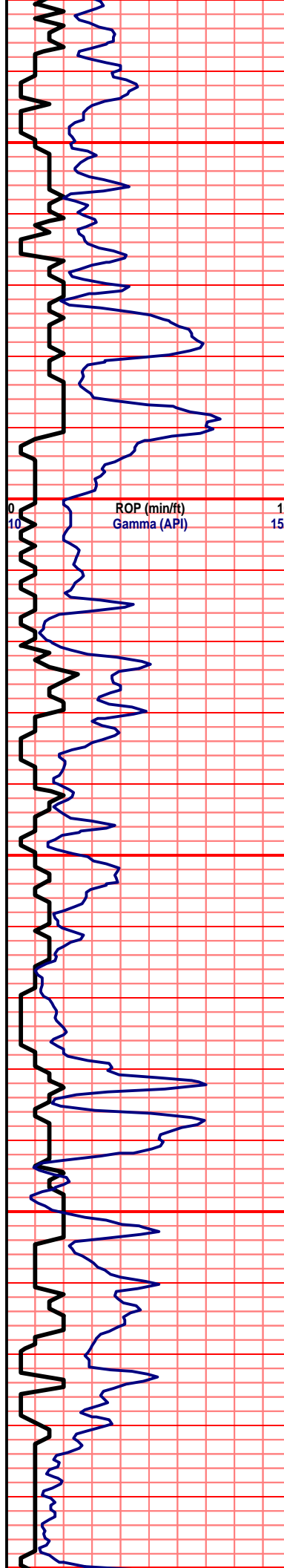
10/26/2012  
mud info.  
wt: 8.6  
Funnel Vis. 50  
Filtrate API 9.6  
Chloride 1,800  
LCM 2#

NO SAMPLES AVA.

3700

PUMP PRESSURE: 850+



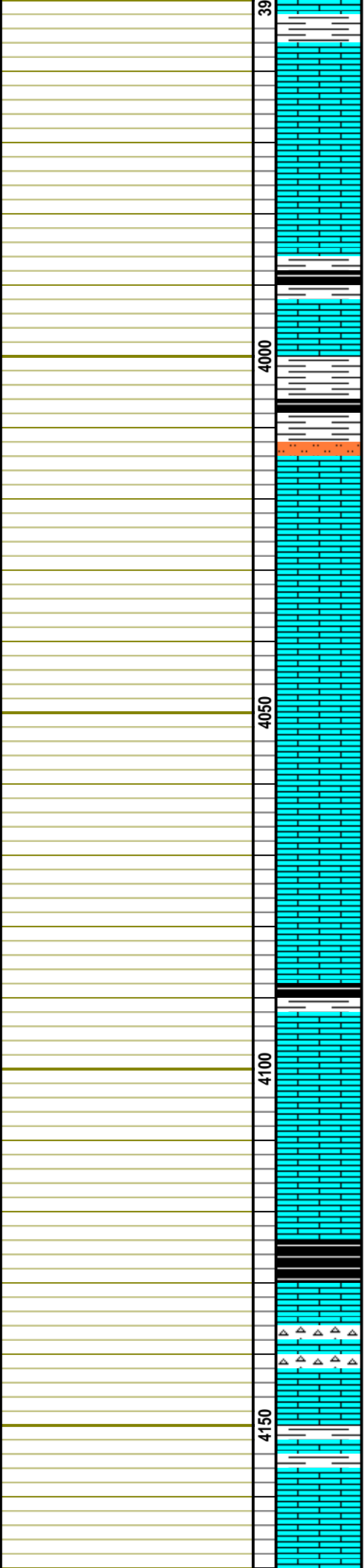
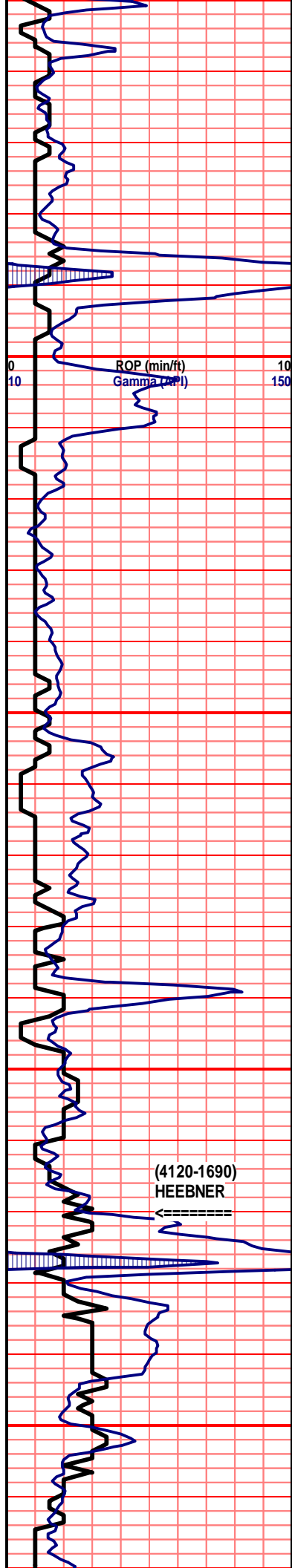


GEOLOGIST ON LOCATION @ 3777'



- 3800: lots of gry sh, drk crm grn stn lm, intr prtcl por, no odr, ns.
- 3810: crm pack stn, poor-fair por, no odr, ns.
- 3820: aa, incrs in gry sh.
- 3830: lots of gry sh, incrs in sub-chlky lm, crm pack stn lm, intr prtcl por, no odr, ns.
- 3840: aa, tan foss (fuss) lm, foss por, no odr, ns.
- 3850: aa incrs in foss lm, incrs lght crm chlky lm, no odr, ns.
- 3860: incrs in red and gold sh, tan-gry micrtic lm, poor por, no odr, ns
- 3870: incrs in mlky foss chrt, lm aa, no odr, ns.
- 3880: crm sub-chlky lm, sli foss, no odr, ns.
- 3890: gry foss lm, dense, well cemntd, tan micrtic lm, cmnt flooded, no vis por, no odr, ns.
- 3900: incrs in gry sh, lm aa, no odr, ns.
- 3910: crm-gry pack-grn stn lm, poor-fair por, no odr, ns.
- 3920: mstly gry, green and red sh. tan micrtic lm, no odr, ns.
- 3930: aa, incrs in wht-gry chrt.
- 3940: lots of chrt, tan-lght crm micrtic lm, no odr, ns.
- 3950: tan-crm inxln lm, poor inxln por, no odr, ns.
- 3960: aa, lots of mlky chrt.
- 3970: incrs in maroonand gry sh, lght crm inxln lm, poor inxln lm, no odr, ns.
- 3980: incrs in crm chrt and chrtly lm, no vis por, no odr, ns.

TG C1-C5  
1 10 100 1000



3990: crm-tan grn stn, fn grn, intr prtcl por, no odr, ns.

4000: gry inxln lm, poor por, lots of chrt.

4010: incrs in gry sh, incrs in crm chlk and subchky lm, no odr, ns.

4020: aa, no sig change.

4030: crm-drk tan micrtic lm, well cemntd, poor-no por, no odr, ns.

4040: lots of gry sh, drk tan pack stn, med grn, poor-no por, no odr, ns.

4050: shw of blk carb sh, incrs in pyrt, lm aa.

4060: incrs in drk crm chlky lm, shw of gry slit stn, no odr, ns.

4070: aa, incrs in gry sh.

4080: mstly tan-drtly tan pack stn, fn grn, poor-fair por, no odr, ns.

4090: aa, no sig change.

4100: crm-tan micrtic lm, poor por, no odr, ns.

4110: crm-tan inxln lm, poor ixln por, no odr, ns.

4120: slight incrs in blk sh, lots of gry sh, few chps of blk carb sh, lm aa, no odr, ns.

4130: tan-lght gry fn xln lm, poor-no por, no odr, ns.

4140: aa no sig change, no odr, ns.

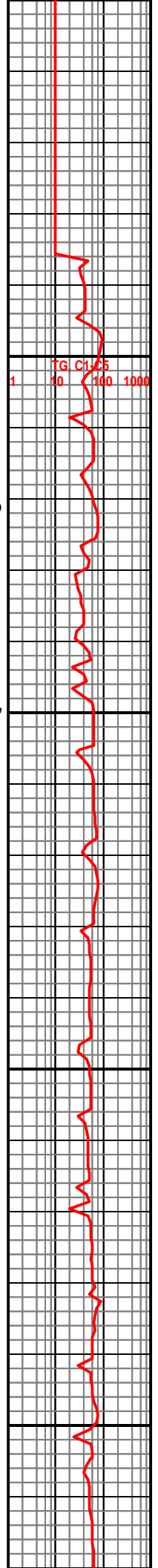
4150: lots of blk sh, tan cors xln lm, semi foss, poor por, no odr, ns.

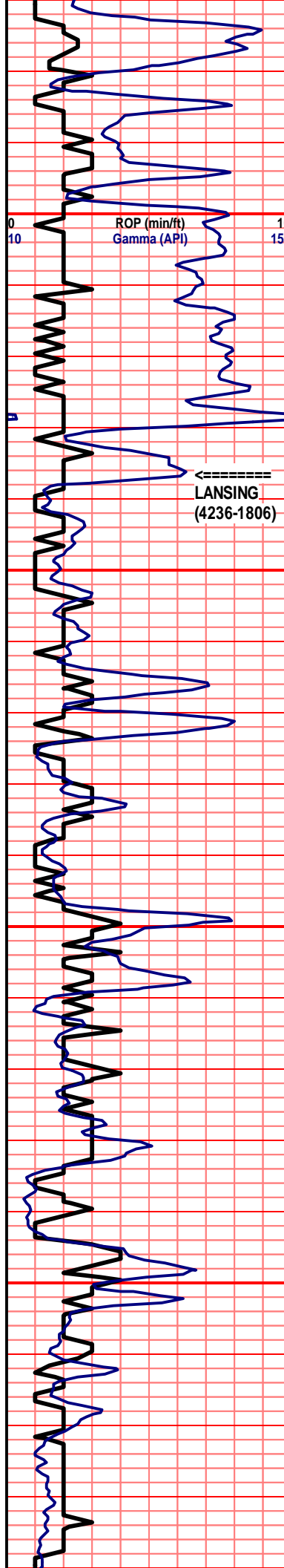
4160: tan inxln lm, semi chrt and foss, poor-no vis por, no odr, ns.

4170: lght crm fn xln lm, no vis por, no odr, ns.

4180: incrs in maroon and gry sh, tan-gry foss lm, highly pyrtzd, no vis por, no odr, ns.

4190: aa, drk crm-tan fn xln lm, sli foss, no vis por,





4200: incrs in gry sh, lm aa, incrs in crm sub chlky lm,

4210: aa sh, tan-drk brwn inxln lm, semi foss, cemntd floded vians, no vis por, no odr, ns.

4220: incrs in tan mictric lm, v. fn grn, no odr, ns.

4230: crm-gry inxln lm, foss, no vis por, no odr, ns.

4240: aa, no sig change.

4250: incrs in gry sh, tan cors xln lm, sli foss, well cemntd, poor por, no odr, ns.

4260: mstly gry and maroon sh, crm-lght gry fn xln lm, well cemntd, no vis por, no odr, ns.

4270: gry xln lm, big vuggy por, no odr, ns.

4280: incrs in whtsh-gry chrt, foss, incrs in drty crm mictric lm, no odr, ns.

4290: crm-gry chrt, gry-tan cors xln lm, dense, poor-no por, no odr, ns.

4300: crm inxln lm, poor inxln por, no odr, ns.

4310: incrs in gry sh, crm-tan-gry inxln lm, dense, poor por, no odr, ns.

4320: aa, incrs in foss and chrt.

4330: drk-lght crm lm, fn xln, pyrtzd, poor-no por, no odr, ns.

4340: aa, decrease in pyrtzation, few tan ool lm, cemnt floded, no vis por, no odr, ns.

4350: tan- brwnsh/gry inxlnb lm, v. dense, semi chrt, incrs in foss gry chrt, no odr, ns.

4360: lots of milky chrt, lots of lght tan chrt lm, poor-no por, no odr, ns.

4370: incrs in crm chl and sub-chlky lm.

4380: lots of wht and lght crm chrt, lght gry inxln lm, no vis por, no odr, ns.

4390: incrs in gry sh, incrs fn xln lm, foss, no odr, ns.

4400: lm aa, few chps tan-brwn ool cst lm, fair-execl por, no odr, ns.

4410: lots of wht-crm chrt, tan-gry inxln lm, dense, poor no por, no odr, ns.



no odr, ns.

4200: incrs in gry sh, lm aa, incrs in crm sub chlky lm,

4210: aa sh, tan-drk brwn inxln lm, semi foss, cemntd floded vians, no vis por, no odr, ns.

4220: incrs in tan mictric lm, v. fn grn, no odr, ns.

4230: crm-gry inxln lm, foss, no vis por, no odr, ns.

4240: aa, no sig change.

4250: incrs in gry sh, tan cors xln lm, sli foss, well cemntd, poor por, no odr, ns.

4260: mstly gry and maroon sh, crm-lght gry fn xln lm, well cemntd, no vis por, no odr, ns.

4270: gry xln lm, big vuggy por, no odr, ns.

4280: incrs in whtsh-gry chrt, foss, incrs in drty crm mictric lm, no odr, ns.

4290: crm-gry chrt, gry-tan cors xln lm, dense, poor-no por, no odr, ns.

4300: crm inxln lm, poor inxln por, no odr, ns.

4310: incrs in gry sh, crm-tan-gry inxln lm, dense, poor por, no odr, ns.

4320: aa, incrs in foss and chrt.

4330: drk-lght crm lm, fn xln, pyrtzd, poor-no por, no odr, ns.

4340: aa, decrease in pyrtzation, few tan ool lm, cemnt floded, no vis por, no odr, ns.

4350: tan- brwnsh/gry inxlnb lm, v. dense, semi chrt, incrs in foss gry chrt, no odr, ns.

4360: lots of milky chrt, lots of lght tan chrt lm, poor-no por, no odr, ns.

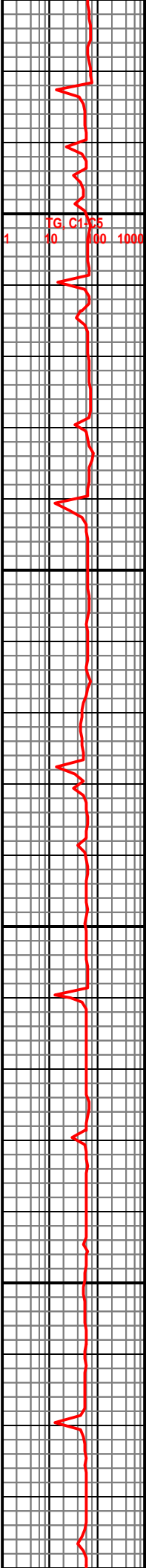
4370: incrs in crm chl and sub-chlky lm.

4380: lots of wht and lght crm chrt, lght gry inxln lm, no vis por, no odr, ns.

4390: incrs in gry sh, incrs fn xln lm, foss, no odr, ns.

4400: lm aa, few chps tan-brwn ool cst lm, fair-execl por, no odr, ns.

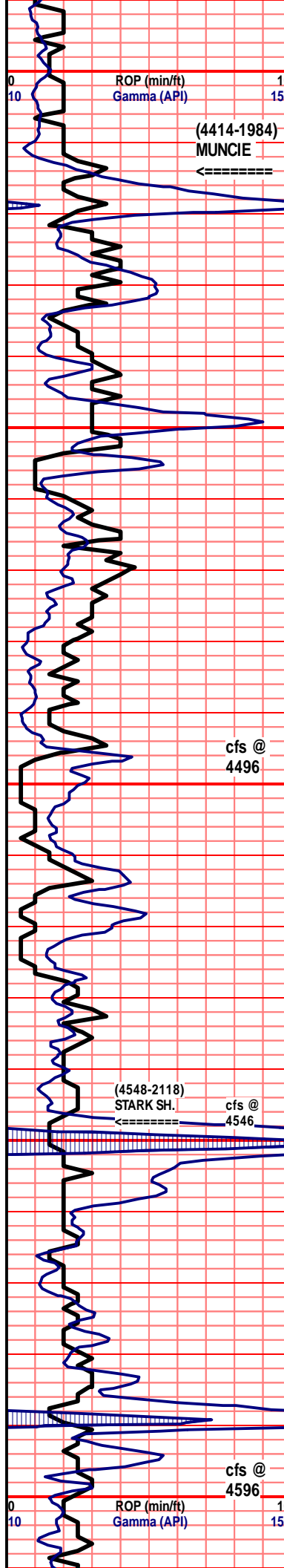
4410: lots of wht-crm chrt, tan-gry inxln lm, dense, poor no por, no odr, ns.



**PUMP PRESSURE:  
825+**

07/21/2011  
mud info.  
wt: 9.3  
Funnel Vis. 43  
Filtrate API 9.6  
Chloride 5,300

**MUD VIS. ADJUSTED TO 47 AFTER  
HOURS**



10/27/2012  
 mud info.  
 wt: 9.2  
 Funnel Vis. 54  
 Filtrate API 8.8  
 Chloride 3,200  
 LCM 2#

(4414-1984)  
 MUNCIE  
 ←-----

cfs @  
 4496

(4548-2118)  
 STARK SH.  
 ←-----  
 cfs @  
 4546

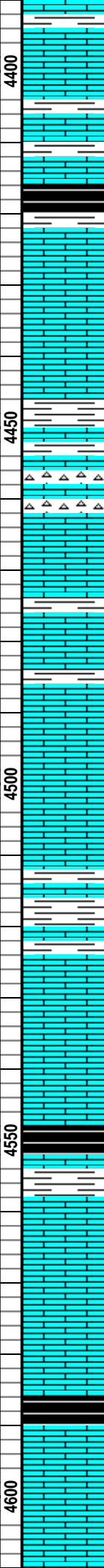
cfs @  
 4596

30MIN: incrs in gry sh, few chps of blk carb sh, mstly drk crm sub-chlky lm, some ool cast lm, lots of por, no odr, ns. 60MIN: lght crm inxln lm, semi dense, poor por, no odr, ns.

30MIN: lots of chlk and sub-chlky lm, gry inxln lm, semi dense, poor por, no odr, ns. 60MIN: incrs in gry sh, incrs in chlk, shw of lght brwn ool lm, cemnt flooded, no vis por, no odr, ns.

30MIN: incrs in gry sh, few chps of blk carb sh, mstly drk crm sub-chlky lm, some ool cast lm, lots of por, no odr, ns. 60MIN: lght crm inxln lm, semi dense, poor por, no odr, ns.

30MIN: lots of blk sh, incrs in wht chrt, crm inxln lm, poor por, no odr, ns. 60MIN: crm-brwn inxln lm, highly pyrtzd, dense, no vis por, no odr, ns.



4420: incrs in gry-grysh/green sh, crm fn xln lm, no vis por, no odr, ns.

4430: greater incrs in sh few blk chps, lm aa, no odr, ns.

4440: incrs in blk sh, tan inxln lm, poor por, lots of crm micrtic lm, no odr, ns.

4450: tan-gry inxln lm, poor-no por, no odr, ns.

4460: incrs in chlk and chlky lm.

4470: incrs in gry sh, tan-crm inxln lm, poor inxln por, no odr, ns.

4480: incrs in crm chrt and chrtly lm, few wht ool cast lm, hrd to brk, well cemntd, no odr, ns.

4490: aa, incrs in crmy sub-chlky lm.

4500: tan fn xln lm, sli foss, no vis por, no odr, ns.

4510: incrs in gry sh, tan-gry inxln lm, cemnt flooded frac, poor-no por, no odr, ns.

4520: aa, incrs in chlk.

4530: lght brwn ool lm, modrtly cemntd, inrt prtcl por, no odr, ns.

4540: drk tan-lght brwn ool cast lm, lots of por, no odr, ns.

4550: aa, incrs in gry inxln lm, no odr, ns.

4560: aa, no sig change.

4570: lots of blk carb sh, vis gas bub upon brk.

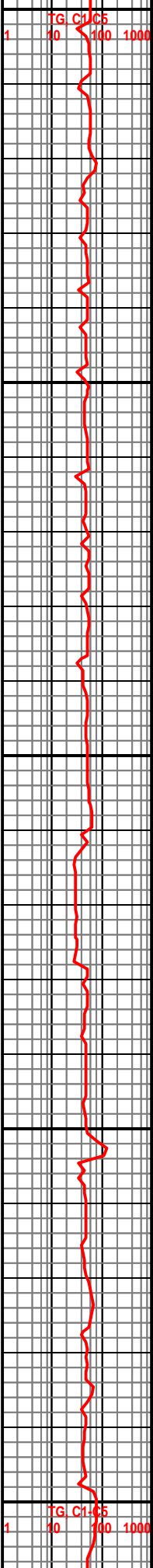
4580: lght gry inxln lm, semi dense, poor por, no odr, ns.

4590: aa, incrs in chlk and sub-chlky lm, no odr, ns.

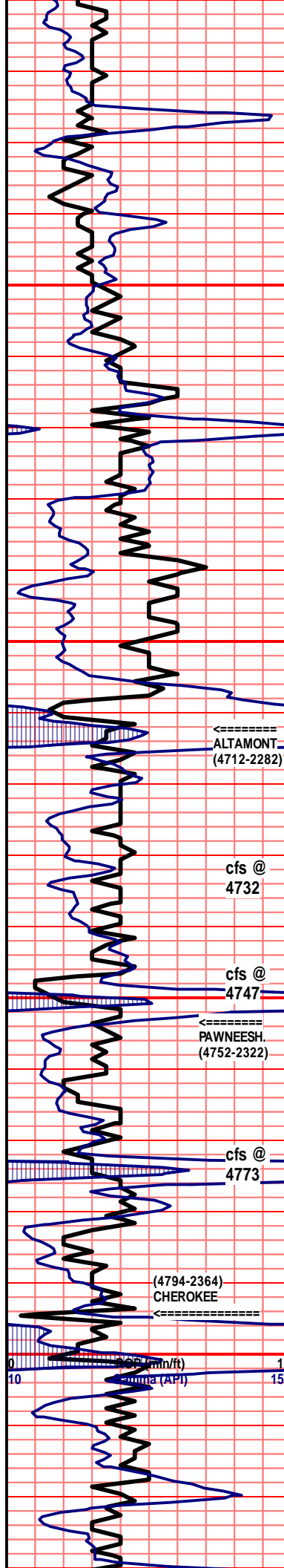
4600: incrs in blk sh, lots of brwn-grysh crm chrt, brwn inxln lm, semi chrtly, poor por, no odr, ns.

4610: gry inxln lm, dense, no vis por, no odr, ns.

4620: crm inxln lm, inxln por, incrs in wht chlk and crmy sub-chlky lm, no odr, ns.







10/28/2012  
mud info.  
wt: 9.2  
Funnel Vis. 60  
Filtrate API 8.4  
Chloride 3,700  
LCM 1#

**PUMP PRESSURE 850+**

**PUMP PRESSURE 900+**

**Bit Trip @ 4707**

**DEVIATION SURVEY 1 1/2 DEGREES.**

←===== ALTAMONT (4712-2282)

cfs @ 4732

cfs @ 4747

←===== PAWNEESH (4752-2322)

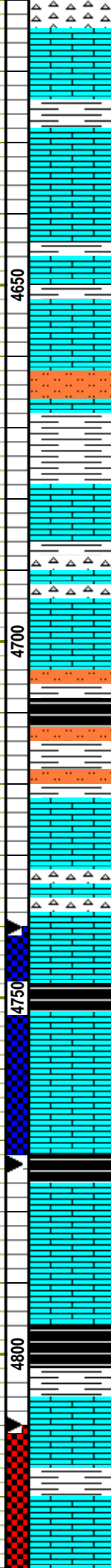
cfs @ 4773

(4794-2364) ←===== CHEROKEE

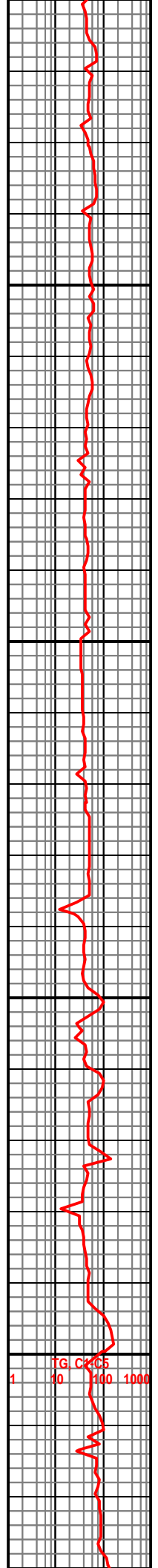
10/29/2012 mud info. wt: 9.0 Funnel Vis. 72 Filtrate API 8.0 Chloride 4,700 LCM 1#	10/30/2012 mud info. wt: 9.35 Funnel Vis. 50 Filtrate API 8.8 Chloride 6,600 LCM 2#
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**PUMP PRESSURE 900+**

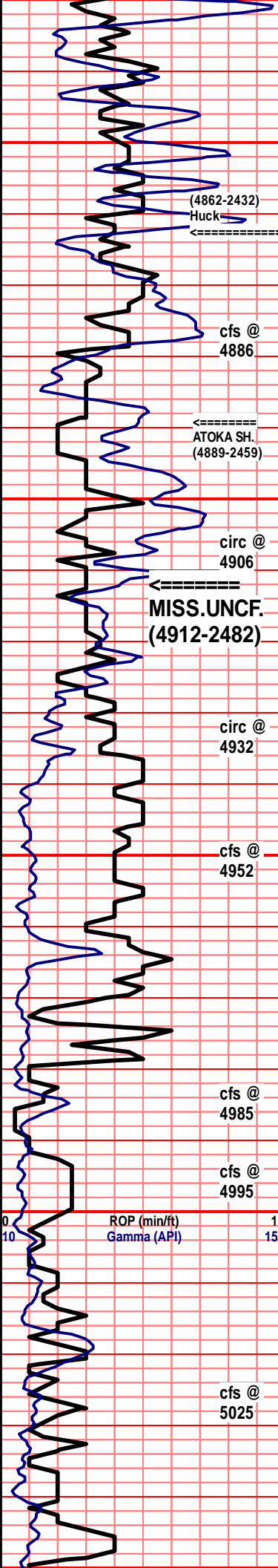
DST #2 4854-4886  
PACKER FAILED AFTER 15MIN ON 1ST OPEN.  
REC: 1620 GCM (15%G).  
GTS 3MIN  
3/4" CHOKE  
10MIN: 959,059 CF/D



4630: incrs in wht chrt, lm and chlk aa.  
4640: tan inxln lm, poor inxln por, no odr, ns.  
4650: aa, incrs in gry sh, incrs in chlk lm.  
4660: gry inxln lm, poor inxln por, lots of crm lm, sli chiky, noodr, ns.  
4670: incrs in lght-drk gry sh, lm aa.  
4680: lght tan ool lm, fair ool cast por, no odr, ns.  
4690: incrs in gry slit stn, incrs in grysh/green sh.  
4700: drk tan-lght gry inxln lm, fair inxln por, lots of crm sub-chiky lm, no odr, ns.  
4710: incrs in gry pyrtzd chrt, incrs in marron, green and gry sh.  
4720: sh aa, incrs in clr slit stn, incrs in tan-gry inxln lm, poor por, no odr, ns.  
4730: aa, no sig change.  
4740: crm-tan inxln lm, semi dense, cemnt flooded fracs, no odr, ns.  
4750: aa, incrs in translucnt chrt.  
4760: shw of blk carb sh, tan-drk tan inxln lm, poor por, no odr, ns.  
4770: crm-tan inxln lm, poor por, slight odr, ns.  
4780: incrs blk and gry sh, lots of gry slit stn, few gry pack stn lm, poor-far por, no odr, ns.  
4790: mstly gry sh, incrs in chlk, brwn-gry inxln lm, semi dense, poor por, no odr, ns.  
4800: incrs in mlky chrt, incrs in crm sub-chiky lm, no odr, ns.  
4810: incrs in blk carb sh, lght-drk crm inxln lm, poor-fair inxln por, no odr, ns.  
4820: aa, incrs in gry sh.  
4830: incrs in maroon sh, tan-brown inxln lm, cemnt flooded, dense, no vis por, no odr, ns.  
4840: incrs in blk sh, lots of mlky chrt, lm aa, no odr,



1000  
100  
10  
1



**DST #3 2810-4886**  
**30-60-90-90**  
 Initial flow period 30" with 3/4" choke:  
 Gauged 1,005mcf/5"  
 1,005 mcf/10"  
 1,318 mcf/15"  
 Final flow period 90" with 3/4" choke:  
 Gauged 1,162 mcf/5"  
 1,318 mcf/15"  
 1,474 mcf/25"  
 1,474 mcf/35"  
 1,474 mcf/45"  
 1,474 mcf/55"  
 1,474 mcf/65"  
 1,474 mcf/75"  
 1,474 mcf/85"  
 Gas analysis measured 893 BTU  
 REC: 140'GCM (15%G)  
 IFP:381-326 FFP:350-316  
 SIP: 1550-1547

**DST #4 4967-4995**  
**30-45-45-60**  
 REC: 1600' SOCW (1-2%OIL). IFP:  
 162-444; FFP: 475-799:  
 SIP: 1488-1480

**DST #5 4999-5025**  
**30-45-45-60**  
 Rec: 65' VSOCMW (1% oil, 37%  
 mud, 62% water), 125' MW w/ oil  
 specks (11% mud, 89% water) and  
 1270' water.  
 Total fluid 1460'.  
 IFP: 49-352#/30"ISIP:1530#/45"  
 FFP:345-680#/45"FSIP:1520#/60



ns.

4850: tan-brwn inxln lm, poor-no por, cemnt floded fracs, no odr, ns.

4860: aa, no sig change.

4870: incrs in gry sh, tan-brwn inxln lm, sli foss, poor por, cemnt floded, gry prtly xln/ prtly mictric lm, poor inxln por, no odr, ns.

4880: lm aa, inrs in chlk and sub chlky lm.

4890: inrss in gry sh, incrs in gry slt stn, lots of mlky-gld chrt, crm-ight semi xln lm, w/ fair fensrtl por, (posbly uphole) weak shw of free brwn oil, slight-no odr.

4900: mstly drk-ight gry sh, incrs in blk, green and purp sh, few tan cors inxln lm, w/ xln por, w/ a v. ssfo, no odr.

4910: lots of crm-gold chrt, incrs in wht slt stn, drk tan foss lm, (fuss) no odr, ns.

4920: mstly wht chrtly lm, incrs in green, purp, wht slt stn, few lm chps, aa, no odr ns.

4930: mstly gold-crm chrt and chrtly lm, few brwn fn xln lm, poor-no por, no odr, ns.

4940: aa, incrs in wht chlk.

4950: crm-ight yellow chrt, few tan fn xln lm, cemnt floded fracs, no odr, ns. incrs of chlk.

4960: aa, incrs in chlk & chlky lm.

4970: mstly crm-wht chrt & chrtly lm, lots of chlk and chlky lm, no odr, ns.

4980: wht dolo/lm, cors xln, execlnt por, no odr, ns.

4990: drk crm dolo lm, w/ good intr prtcl por, brwn inxln lm w/ pin point vuggy por, shw of lght brwn oil, fair-strng odr.

5000: shw of oil aa, tan inxln lm, poor inxln por, ns, fair-strng odr from sample.

5010: gry-brwnsh/gry inxln lm, poor por, ns, few gry dolo/lm w/ shw of free oil (uphole), weak odr.

5020: aa, lots of shws, fair odr.

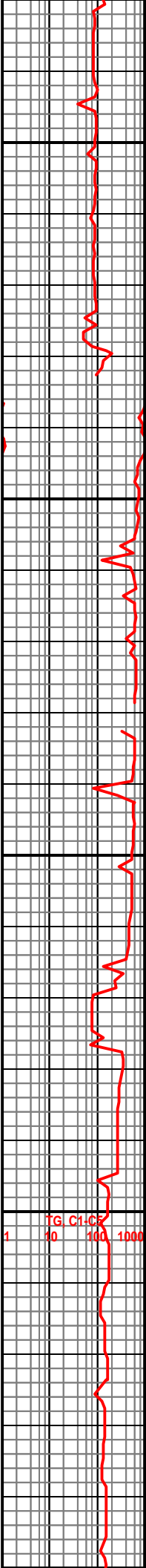
5030: crm grn stn lm, fair intr prtcl por, ns, crm-tan ixln lm, dense, no vis por, ns, slight odr in smple (uphole).

5040: tan inxln lm, sli foss, dense, crm mictric lm, cemnt floded, poor-no por, no odr, ns.

5050: aa, no sig change.

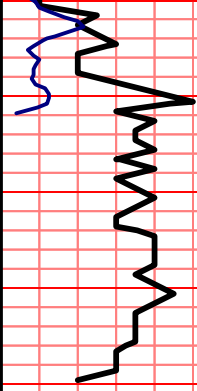
5060: crm-ight gry fn xln lm, poor-no por, no odr, ns.

5070: wht oummv smpl. mstlv wht chlk and chlky lm.



ROP (min/ft)  
 Gamma (API)

PG C1-C2  
 100 1000 10000



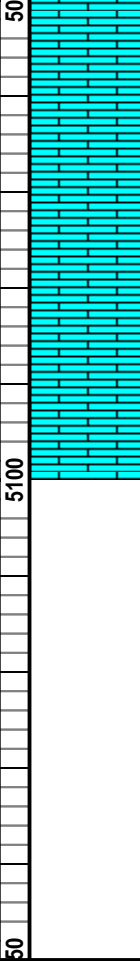
RTD  
5090'

DEVIATION SURVEY 1  
DEGREE.

10/31/2012  
mud info.  
wt: 9.2  
Funnel Vis. 55  
Filtrate API 11.6  
Chloride 6,500  
LCM 2#

11/01/2012  
mud info.  
wt: 9.15  
Funnel Vis. 50  
Filtrate API 9.2  
Chloride 6,500  
LCM 1#

20MIN: lght crm cors lm, w/ big  
vuggy por, no odr, ns. 60MIN: lots  
of chl and chiky lm, tan mictric  
lm, lght crm fn xln lm, dense, no  
vis por, no odr, ns.



5080: aa, incrs in drk tan inxln lm, semi dense, no  
vis por, no odr, ns.

5090: aa, no sig change.

