



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1193487  
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: \_\_\_\_\_

1193487

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 <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  List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
--	---

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: <input type="checkbox"/> Yes <input type="checkbox"/> No
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Date of First, Resumed Production, SWD or ENHR.	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____
---	--

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
--	--	---

Form	ACO1 - Well Completion
Operator	Samuel Gary Jr. & Associates, Inc.
Well Name	HARDY 1-14
Doc ID	1193487

All Electric Logs Run

INDUCTION
MICRO
POROSITY
SONIC
SPECTRAL





**QUALITY OILWELL CEMENTING, INC.**  
 PO Box 32 - 740 West Wichita Ave, Russell KS 67665  
 Phone:785-324-1041 fax:785-483-1087  
 Email: cementing@ruraltel.net

Date: 11/19/2013  
 Invoice # 7482

P.O.#:  
 Due Date: 12/19/2013  
 Division: Russell

# Invoice

**Contact:**  
 Samuel Gary Jr & Associates Inc  
**Address/Job Location:**  
 Samuel Gary Jr & Associates Inc  
 1815 11th Street  
 Great Bend, KS 67530

**Reference:**  
 HARDY 1-14

**Description of Work:**  
 LONG SURFACE JOB

RECEIVED

DEC 06 2013

SAMUEL GARY JR.  
 & ASSOCIATES, INC.

PRLG  COMP  W/O  LOE  GG  
 8200.138  
 Deck  
 APT  
 Jm

Services / Items Included:	Quantity	Price	Taxable
Labor		\$ 991.39	No
Common-Class A	350	\$ 5,700.00	Yes
Calcium Chloride	13	\$ 785.60	Yes
Bulk Truck Matl-Material Service Charge	370	\$ 803.43	No
Pump Truck Mileage-Job to Nearest Camp	51	\$ 552.61	No
8 5/8" Basket	1	\$ 343.09	Yes
Bulk Truck Mileage-Job to Nearest Bulk Plant	51	\$ 323.37	No
8 5/8" Centralizer	2	\$ 138.97	Yes
Premium Gel (Bentonite)	7	\$ 123.73	Yes
8 5/8" Top Rubber Plug	1	\$ 115.09	Yes
Baffle Plate Aluminum, 8 5/8"	1	\$ 97.71	Yes

Item	Quantity	Price	Taxable
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**Invoice Terms:**

Net 30

SubTotal: \$ 9,974.98  
 Discount Available ONLY if Invoice is Paid & Received within listed terms of invoice: \$ (1,496.25)

SubTotal for Taxable Items:	\$ 6,208.56
SubTotal for Non-Taxable Items:	\$ 2,270.17
<b>Total:</b>	<b>\$ 8,478.73</b>
<b>Tax:</b>	<b>\$ 428.39</b>

6.90% Norton County Sales Tax

**Thank You For Your Business!**

**Amount Due: \$ 8,907.12**  
**Applied Payments:**  
**Balance Due: \$ 8,907.12**

Past Due Invoices are subject to a service charge (annual rate of 24%)  
 This does not include any applicable taxes unless it is listed.  
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# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 7482

Date	11-19-13	Sec.	14	Twp.	5	Range	23	County	Norton	State	KS	On Location		Finish	11:45p.m.
Location <i> Hwy 9 + Hill City 3/4 W 1/5 W Ninto</i>															

Lease	<i>Hardy</i>	Well No.	<i>1-14</i>	Owner	To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.
Contractor	<i>Discovery #2</i>				
Type Job	<i>Surface</i>				
Hole Size	<i>12 1/4</i>	T.D.	<i>519</i>	Charge To	<i>Sam Loun / J &amp; Associates</i>
Csg.	<i>8 5/8</i>	Depth	<i>518</i>	Street	
Tbg. Size		Depth		City	State
Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Cement Left in Csg.	<i>42</i>	Shoe Joint	<i>42</i>	Cement Amount Ordered	<i>350 com 3 1/2 CC 2 1/2 CC 1 1/2 #10</i>
Meas Line		Displace	<i>30 1/4 BCL</i>		

**EQUIPMENT**

Pumptrk	<i>17</i>	No.	Cementer	<i>Saig</i>	Common	<i>350</i>
			Helper		Poz. Mix	
Bulktrk		No.	Driver	<i>Coyle</i>	Gel.	<i>7</i>
			Driver		Calcium	<i>13</i>
Bulktrk	<i>19</i>	No.	Driver	<i>Clayton</i>		
			Driver			

**JOB SERVICES & REMARKS**

Remarks:	Hulls
Rat Hole	Salt
Mouse Hole	Flowseal
Centralizers	Kol-Seal
Baskets	Mud CLR 48
D/V or Port Collar	CFL-117 or CD110 CAF 38
<i>8 5/8 on bottom. Est. Circulation</i>	Sand
<i>Mix 3.50 SK &amp; Displace.</i>	Handling <i>370</i>
	Mileage

**FLOAT EQUIPMENT**

<i>Cement DID CIRCULATE</i>	Guide Shoe	<i>8 5/8</i>
	Centralizer	<i>32</i>
	Baskets	<i>1</i>
	AFU Inserts	<i>Baffle Plate</i>
	Float Shoe	<i>Rubber Plug</i>
	Latch Down	

	Pumptrk Charge	<i>Long Surface</i>
	Mileage	<i>51</i>

X Signature <i>[Signature]</i>	Tax	
	Discount	
	Total Charge	



**QUALITY OILWELL CEMENTING, INC.**

PO Box 32 - 740 West Wichita Ave, Russell KS 67665  
 Phone:785-324-1041 fax:785-483-1087  
 Email: cementing@ruraltel.net

Date: 11/25/2013  
 Invoice # 7248

P.O.#:

Due Date: 12/25/2013

Division: Russell

# Invoice

**Contact:**

Samuel Gary Jr & Associates Inc

**Address/Job Location:**

Samuel Gary Jr & Associates Inc  
 1815 11th Street  
 Great Bend, KS 67530

DRLG  COMP  W/O  LOE  GG

RECEIVED

DEC 06 2013

SAMUEL GARY JR.  
& ASSOCIATES, INC.

Account	8300.238
Job/Prospect	
Desk	
AFE	
Approval	<i>[Signature]</i>
Description	

**Reference:**

HARDY 1-14

**Description of Work:**

PROD LONG STRING

**Services / Items Included:**

Quantity	Price	Taxable	Item	Quantity	Price	Taxable
Labor	\$ 963.85	No	Defoamer A or CAF-38	50	\$369.44	Yes
Common-Class A	\$ 3,562.50	Yes	Bulk Truck Mileage-Job to Nearest Bulk Plant	51	\$314.39	No
Cement Port Collar, 5 1/2"	\$ 2,638.89	Yes	Salt (Fine)	19	\$279.98	Yes
Gilsonite	\$ 1,673.58	Yes	Latch Down Plug & Baffle, 5 1/2"	1	\$236.44	Yes
5 1/2" Basket	\$ 1,452.44	Yes	5 1/2" Regular Guide Shoes	1	\$152.00	Yes
CFL 117	\$ 1,144.39	Yes	Flo Seal	56	\$118.22	Yes
5 1/2" Turbolizer	\$ 551.00	Yes	KCL	2	\$63.04	Yes
Pump Truck Mileage-Job to Nearest Camp	\$ 537.26	No				
Bulk Truck Mat-Material Service Charge	\$ 536.22	No				
CD-110	\$ 494.00	Yes				
Mud Clear	\$ 390.56	Yes				

**Invoice Terms:**

Net 30

SubTotal: \$ 15,478.20

Discount Available ONLY if Invoice is Paid & Received within listed terms of invoice: \$ (2,321.73)

SubTotal for Taxable Items: \$ 11,157.51

SubTotal for Non-Taxable Items: \$ 1,998.96

Total: \$ 13,156.47

Tax: \$ 769.87

6.90% Norton County Sales Tax

**Thank You For Your Business!**

**Amount Due: \$ 13,926.34**

**Applied Payments:**

**Balance Due: \$ 13,926.34**

Past Due Invoices are subject to a service charge (annual rate of 24%)

This does not include any applicable taxes unless it is listed.

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# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 7248

Date	11-25-13	Sec.	14	Twp.	5	Range	23	County	Norton	State	KS	On Location		Finish	08:15
Location													Hwy 9, 3/4 W, S to Y Stay Right, 1 W, Nn 2		

Lease	Hardy	Well No.	1-14	Owner	To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.										
Contractor	Discovery #2														
Type Job	long string														
Hole Size	7 7/8	T.D.	3805	Charge To	Sam Gary Jr & Associates										
Csg.	5 1/2 15.5 #	Depth	3800	Street											
Tbg. Size		Depth		City	State										
Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.											
Cement Left in Csg.		Shoe Joint	43.45	Cement Amount Ordered	225 sx Q pro-c 10% salt										
Meas Line		Displace	89.4661		5% Gilsonite 1/4 # Flow, 20661 KCL										

**EQUIPMENT**

Pumptrk	5	No.	Cementer		Common	225 .8% CD-110, 25% CAF-38, 3% CFL-117									
			Helper	Lonnie W.	Poz. Mix										
Bulktrk	14	No.	Driver		Gel.										
			Driver	Lonnie M.											
Bulktrk	P4	No.	Driver		Calcium	CD-110 117 #									
			Driver	Travis	Hulls	KCL 2 gal									

**JOB SERVICES & REMARKS**

Remarks:		Salt	19
Rat Hole	30sx	Flowseal	56 #
Mouse Hole	15sx	Kol-Seal	100 1057 #
Centralizers	1,3,5,7,9,11,13,15,50	Mud CLR 48	500 gal
Baskets	4,10,16,49	CFL-117 or CD110 CAF 38	50
Port Collar	at 1764	Sand	176 #
Pipe on bottom broke circulation pumped 500gal Mud CLR 40 with 10 bbl fw behind it. Plugged Rat hole with 30sx and Mouse hole with 15sx. Hooked to 5 1/2 Mixed 180sx Shutdown washed pump and lines. Released Plug and displaced with 20661 KCL and 69.4 bbl fw plug landed and held.		Handling	254
		Mileage	

**FLOAT EQUIPMENT**

Guide Shoe	1
Centralizer	9 turbos
Baskets	4 wetherford
AFU Inserts	
Float Shoe	
Latch Down	1

Lift pressure 900 psi

1 port collar

Plug landed at 1500 psi

Pumptrk Charge prod Long string  
Mileage 51

X Signature

*James P. Pannunzio*

Tax  
Discount  
Total Charge





**QUALITY OILWELL CEMENTING, INC.**

PO Box 32 - 740 West Wichita Ave, Russell KS 67665  
 Phone: 785-324-1041 fax: 785-483-1087  
 Email: cementing@ruraltel.net

Date: 12/16/2013  
 Invoice # 7666

P.O.#:  
 Due Date: 1/15/2014  
 Division: Russell

# Invoice

**Contact:**  
 Samuel Gary Jr & Associates Inc  
**Address/Job Location:**  
 Samuel Gary Jr & Associates Inc  
 1815 11th Street  
 Great Bend, KS 67530

DRLG  COMP  W/O  LOE  GG

Account	8300. 238
Well/Prospect	
Deck	
AFE	
Approval	<i>[Signature]</i>
Description	

RECEIVED

JAN 02 2014

SAMUEL GARY JR.  
& ASSOCIATES, INC.

**Reference:**  
 HARDY 1-14

**Description of Work:**  
 PORT COLLAR JOB

Services / Items Included:	Quantity	Price	Taxable	Item	Quantity	Price	Taxable
Labor		\$ 991.39	Yes				
mon, MetsoBeads, Plater, Gel, FloSeal, Calcium)	150	\$ 3,113.83	Yes				
Bulk Truck Matl-Material Service Charge	300	\$ 651.43	Yes				
Pump Truck Mileage-Job to Nearest Camp	51	\$ 552.61	Yes				
Bulk Truck Mileage-Job to Nearest Bulk Plant	51	\$ 323.37	Yes				
Flo Seal	75	\$ 162.86	Yes				
Premium Gel (Bentonite)	2	\$ 35.35	Yes				

**Invoice Terms:**

Net 30		SubTotal: \$ 5,830.83
	Discount Available <u>ONLY</u> if Invoice is Paid & Received within listed terms of invoice:	\$ (874.62)
	SubTotal for Taxable Items:	\$ 4,956.20
	SubTotal for Non-Taxable Items:	\$ -
	Total:	\$ 4,956.21
	Tax:	\$ 341.98
	<b>Amount Due:</b>	<b>\$ 5,298.19</b>
	<b>Applied Payments:</b>	
	<b>Balance Due:</b>	<b>\$ 5,298.19</b>

6.90% Norton County Sales Tax

**Thank You For Your Business!**

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# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

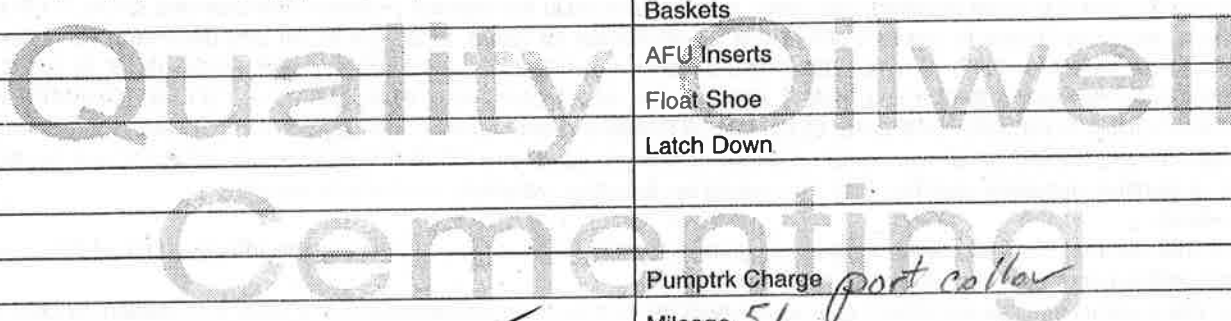
Home Office P.O. Box 32 Russell, KS 67665

No. 7666

Phone 785-483-2025  
Cell 785-324-1041

Date	12-16-13	Sec.	Twp.	Range	County	State	On Location	Finish
					Norton	KS		12:30pm
Lease					Location			
Hardy					Hwy. 9, 1W, 1S, 1W, n to Rig			
Well No.					Owner			
1-14					To Quality Oilwell Cementing, Inc.			
Contractor					You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.			
Type Job					Charge To			
Port Collar					Sam Gary			
Hole Size					T.D.			
Csg. 5 1/2					Depth			
Tbg. Size 2 7/8					Depth		Street	
Tool					Depth		City	
Cement Left in Csg.					Shoe Joint		State	
Meas Line					Displace		The above was done to satisfaction and supervision of owner agent or contractor.	
					EQUIPMENT		Cement Amount Ordered 300sx QMDC 1/4# Flow	
Pumptrk 5					No. Cementer		6 gel on the side used 150	
Bulktrk 13					No. Helper		Common	
Bulktrk PU					No. Driver		Poz. Mix	
					No. Driver		Gel. 2	
					No. Driver		Calcium	
					No. Driver		Hulls	
JOB SERVICES & REMARKS					Remarks:		Salt	
					Rat Hole		Flowseal 75#	
					Mouse Hole		Kol-Seal	
					Centralizers		Mud CLR 48	
					Baskets		CFL-117 or CD110 CAF 38	
<del>DN</del> or Port Collar 1764							Sand	
Tested tool to 1000 psi held. Opened tool mixed 2 gel to circulate. Mixed 150.sx to circulate cement displaced with 9/4 bbl fw. Closed tool tested to 1000 psi held. Ran in and washed clean							Handling 300	
							Mileage	
							FLOAT EQUIPMENT	
							Guide Shoe	
							Centralizer	
							Baskets	
							AFU Inserts	
							Float Shoe	
							Latch Down	
							Pumptrk Charge port collar	
							Mileage 51	
							Tax	
							Discount	
							Total Charge	
X Signature								

*James Pannunzi*





**QUALITY OILWELL CEMENTING, INC.**  
 PO Box 32 - 740 West Wichita Ave, Russell KS 67665  
 Phone: 785-324-1041 fax: 785-483-1087  
 Email: cementing@ruraltel.net

Date: **7701**  
 Invoice #

P.O.#:

Due Date:

Division: *Russell*

# Invoice

**Contact:**  
 Samuel Gary Jr & Associates Inc  
**Address/Job Location:**  
 Samuel Gary Jr & Associates Inc  
 1815 11th Street  
 Great Bend, KS 67530

**Reference:**  
 HARDY 1-14

**Description of Work:**  
 SQUEEZE JOB

RECEIVED  
 JAN 06 2014  
 SAMUEL GARY JR.  
 & ASSOCIATES, INC.

DRLG  COMP  W/O  LOE  GG

Account	8300.238
Well/Prospect	
Deck	
AFE	<i>[Signature]</i>
Approval	
Description	

Services / Items Included:	Quantity	Price	Taxable	Item	Quantity	Price	Taxable
Labor		\$ 991.39	Yes				
Common-Class A	200	\$ 3,257.14	Yes				
Pump Truck Mileage-Job to Nearest Camp	52	\$ 563.44	Yes				
Bulk Truck Matl-Material Service Charge	207	\$ 449.49	Yes				
Calcium Chloride	7	\$ 423.02	Yes				
Bulk Truck Mileage-Job to Nearest Bulk Plant	52	\$ 329.71	Yes				

**Invoice Terms:**

Net 30

	SubTotal:	\$	6,014.18
	Discount Available <u>ONLY</u> if Invoice is Paid & Received within listed terms of invoice:	\$	(902.13)
<hr/>			
	SubTotal for Taxable Items:	\$	5,112.06
	SubTotal for Non-Taxable Items:	\$	-
<hr/>			
	Total:	\$	5,112.05
	Tax:	\$	352.73
	<b>Amount Due:</b>	<b>\$</b>	<b>5,464.78</b>
	<b>Applied Payments:</b>		
	<b>Balance Due:</b>	<b>\$</b>	<b>5,464.78</b>

6.90% Norton County Sales Tax

**Thank You For Your Business!**

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# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 7701

Date	12-18-13	Sec.		Twp.		Range		County	Worton	State	KS	On Location		Finish	2:00pm
Lease								Well No.		Owner					
Hardy								1-14		To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.					
Contractor								Alliance		Charge To					
T.R. Services										Sam Cooney Jr + Associates					
Type Job								T.D.		Street					
Squeeze										City					
Hole Size								Depth		State					
2 7/8										The above was done to satisfaction and supervision of owner agent or contractor.					
Csg.								Depth		Cement Amount Ordered					
5 1/2										200 com 3/CC					
Tbg. Size								Depth		Cement					
2 7/8										Meas Line					
Tool								Depth		Displace					
Baker Norman										EQUIPMENT					
Cement Left in Csg.								Shoe Joint		Common					
										200					
JOB SERVICES & REMARKS										Poz. Mix					
Remarks:										Gel.					
Rat Hole										Calcium					
Mouse Hole										7					
Centralizers										Hulls					
Baskets										Salt					
D/V or Port Collar										Flowseal					
Test Plug to 2000'										Kol-Seal					
Plugs 3374-8										Mud CLR 48					
Pack 5BLE 800'										CFL-117 or CD110 CAF 38					
Pack set to squeeze 3267										Sand					
Mixed 200 sil + squeeze to 1000'										Handling					
Wash around tool. Pull 2 joints +										207					
Shine 1000'										Mileage					
										FLOAT EQUIPMENT					
										Guide Shoe					
										Centralizer					
										Baskets					
										AFU Inserts					
										Float Shoe					
										Latch Down					
										Pumptrk Charge					
										Squeeze Job					
										Mileage					
										52					
Signature										Tax					
										Discount					
										Total Charge					



**QUALITY OILWELL CEMENTING, INC.**  
 PO Box 32 - 740 West Wichita Ave, Russell KS 67665  
 Phone: 785-324-1041 fax: 785-483-1087  
 Email: cementing@ruraltel.net

Date: 1/7/2014  
 Invoice # 7707

P.O.#:  
 Due Date: 2/6/2014  
 Division: Russell

# Invoice

**Contact:**  
 Samuel Gary Jr & Associates Inc  
**Address/Job Location:**  
 Samuel Gary Jr & Associates Inc  
 1815 11th Street  
 Great Bend, KS 67530

**Reference:**  
 HARDY 1-14

**Description of Work:**  
 SQUEEZE JOB

RECEIVED

JAN 20 2014

SAMUEL GARY JR.  
 & ASSOCIATES, INC.

LG  COMP  W/O  LOE  GG

Account	8300.238
Well/Prospect	
Deck	
AFE	
Description	<i>[Signature]</i>

Services / Items Included:	Quantity	Price	Taxable
Labor		\$ 991.39	Yes
Common-Class A	350	\$ 5,700.00	Yes
Bulk Truck Matl-Material Service Charge	363	\$ 788.23	Yes
Calcium Chloride	13	\$ 785.60	Yes
Pump Truck Mileage-Job to Nearest Camp	51	\$ 552.61	Yes
Bulk Truck Mileage-Job to Nearest Bulk Plant	51	\$ 323.37	Yes

Item	Quantity	Price	Taxable
------	----------	-------	---------

**Invoice Terms:**

Net 30

SubTotal: \$ 9,141.19  
 Discount Available ONLY if Invoice is Paid & Received within listed terms of invoice: \$ (1,371.18)

SubTotal for Taxable Items:	\$ 7,770.01
SubTotal for Non-Taxable Items:	\$ -
Total:	\$ 7,770.01
Tax:	\$ 536.13

6.90% Norton County Sales Tax

**Thank You For Your Business!**

**Amount Due: \$ 8,306.14**  
**Applied Payments:**  
**Balance Due: \$ 8,306.14**

Past Due Invoices are subject to a service charge (annual rate of 24%)  
 This does not include any applicable taxes unless it is listed.  
 ©2008-2013 Straker Investments, LLC. All rights reserved.

# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

No. 7707

Phone 785-483-2025  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

Date	1-7-14	Sec.	Twp.	Range	County	State	On Location	Finish
					Worton	KS		1.45pm

Location Hill City - 10 Hwy 1W/S/W/V into

Lease Hardy Well No. 1-14 Owner \_\_\_\_\_

Contractor \_\_\_\_\_ To Quality Oilwell Cementing, Inc.  
You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.

Type Job Squeeze Charge To Sam Gray Jr + Assoc.

Hole Size 3 7/8 T.D. \_\_\_\_\_ Street \_\_\_\_\_

Csg. 5 1/2 Depth \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_

Tbg. Size 2 1/8 Depth \_\_\_\_\_ The above was done to satisfaction and supervision of owner agent or contractor.

Tool Expvt Depth \_\_\_\_\_ Cement Amount Ordered 350 lbm 3/1-CC

Cement Left in Csg. \_\_\_\_\_ Shoe Joint \_\_\_\_\_

Meas Line \_\_\_\_\_ Displace \_\_\_\_\_

**EQUIPMENT** Common 350

Pumptrk 15 No. Cementer Chris Poz. Mix \_\_\_\_\_

Bulktrk \_\_\_\_\_ No. Helper \_\_\_\_\_ Gel. 13

Bulktrk 4 No. Driver Nick Calcium \_\_\_\_\_

Bulktrk \_\_\_\_\_ No. Driver Chad \_\_\_\_\_

**JOB SERVICES & REMARKS** Hulls \_\_\_\_\_

Remarks: \_\_\_\_\_ Salt \_\_\_\_\_

Rat Hole \_\_\_\_\_ Flowseal \_\_\_\_\_

Mouse Hole \_\_\_\_\_ Kol-Seal \_\_\_\_\_

Centralizers \_\_\_\_\_ Mud CLR 48 \_\_\_\_\_

Baskets \_\_\_\_\_ CFL-117 or CD110 CAF 38 \_\_\_\_\_

D/V or Port Collar \_\_\_\_\_ Sand \_\_\_\_\_

Pkg set 3445 Parts 3327-30 Handling 363

3374-80 3409-15 Mileage \_\_\_\_\_

Rate 431 @ 1000# Packer set to **FLOAT EQUIPMENT**

Squeeze @ 3141 mixed 350 lbm 3/1-CC Guide Shoe \_\_\_\_\_

Squeezed to 1500 psi. Washman's Tool. Centralizer \_\_\_\_\_

Thank's Baskets \_\_\_\_\_

AFU inserts \_\_\_\_\_

Float Shoe \_\_\_\_\_

Latch Down \_\_\_\_\_

Pumptrk Charge Squeeze

Mileage 51

Signature \_\_\_\_\_ Tax \_\_\_\_\_

Discount \_\_\_\_\_

Total Charge \_\_\_\_\_

X Signature \_\_\_\_\_



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

SAMUEL GARY & ASSOC. INC.

**SEC. 14 - 5 S. - 23 W. - NORTON CO.**

1515 WYNKOOP SUITE 700  
DENVER CO.  
80202  
ATTN: CLAYTON CAMOZZI

**HARDY #1-14**

Job Ticket: 55863

**DST#: 1**

Test Start: 2013.11.22 @ 13:45:00

## GENERAL INFORMATION:

Formation: **TORONTO**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:16:30

Time Test Ended: 20:46:00

Test Type: Conventional Bottom Hole (Initial)

Tester: BOB HAMEL

Unit No: 61

**Interval: 3333.00 ft (KB) To 3376.00 ft (KB) (TVD)**

Reference Elevations: 2157.00 ft (KB)

Total Depth: 3376.00 ft (KB) (TVD)

2149.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 8.00 ft

**Serial #: 8673**

**Inside**

Press@RunDepth: 86.57 psig @ 3369.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.11.22

End Date:

2013.11.22

Last Calib.:

2013.11.22

Start Time: 13:45:01

End Time:

20:46:00

Time On Btm:

2013.11.22 @ 16:12:30

Time Off Btm:

2013.11.22 @ 19:00:00

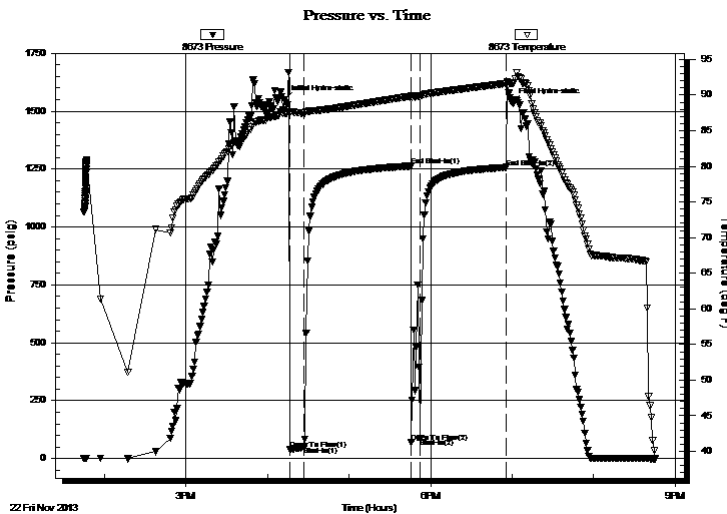
TEST COMMENT: I.F. - 10 - 1/4 INT. BLOW NO BUILD @ 10 MIN.

I.S.I. - 75 - NO B.B.

F.F. - 5 - W.S.B. DIES IN 2 MIN.

F.S.I. - 60 - NO B.B.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1550.90	87.36	Initial Hydro-static
4	38.02	87.45	Open To Flow (1)
15	50.81	87.47	Shut-In(1)
93	1262.91	89.84	End Shut-In(1)
94	71.05	89.48	Open To Flow (2)
100	86.57	89.72	Shut-In(2)
163	1257.43	91.62	End Shut-In(2)
168	1536.15	91.66	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	MUD 100%	0.05

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

SAMUEL GARY & ASSOC. INC.

**SEC. 14 - 5 S. - 23 W. - NORTON CO.**

1515 WYNKOOP SUITE 700  
DENVER CO.  
80202  
ATTN: CLAYTON CAMOZZI

**HARDY #1-14**

Job Ticket: 55863

**DST#: 1**

Test Start: 2013.11.22 @ 13:45:00

## GENERAL INFORMATION:

Formation: **TORONTO**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:16:30

Time Test Ended: 20:46:00

Test Type: Conventional Bottom Hole (Initial)

Tester: BOB HAMEL

Unit No: 61

**Interval: 3333.00 ft (KB) To 3376.00 ft (KB) (TVD)**

Total Depth: 3376.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2157.00 ft (KB)

2149.00 ft (CF)

KB to GR/CF: 8.00 ft

## Serial #: 8651

Press@RunDepth: psig @ ft (KB)

Start Date: 2013.11.22

End Date: 2013.11.22

Capacity: 8000.00 psig

Last Calib.: 2013.11.22

Start Time: 13:45:01

End Time: 20:46:00

Time On Btm:

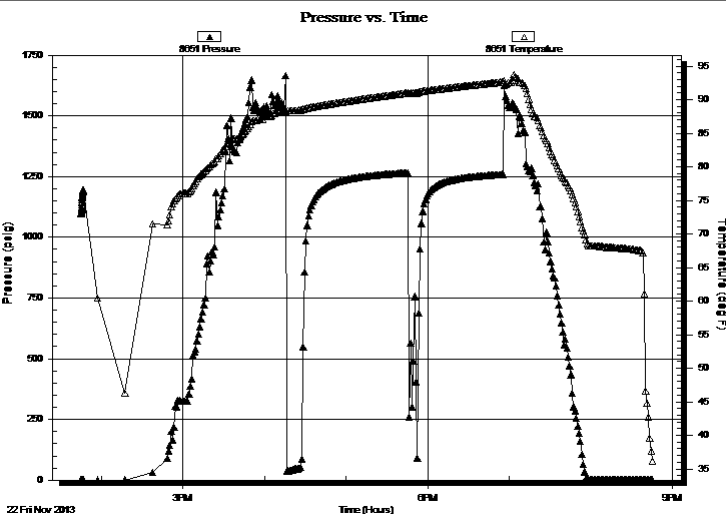
Time Off Btm:

TEST COMMENT: I.F. - 10 - 1/4 INT. BLOW NO BUILD @ 10 MIN.

I.S.I. - 75 - NO B.B.

F.F. - 5 - W.S.B. DIES IN 2 MIN.

F.S.I. - 60 - NO B.B.



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	MUD 100%	0.05

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

SAMUEL GARY & ASSOC. INC.

**SEC. 14 - 5 S. - 23 W. - NORTON CO.**

1515 WYNKOOP SUITE 700  
DENVER CO.  
80202  
ATTN: CLAYTON CAMOZZI

**HARDY #1-14**

Job Ticket: 55863

**DST#: 1**

Test Start: 2013.11.22 @ 13:45:00

## GENERAL INFORMATION:

Formation: **TORONTO**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:16:30

Time Test Ended: 20:46:00

Test Type: Conventional Bottom Hole (Initial)

Tester: BOB HAMEL

Unit No: 61

**Interval: 3333.00 ft (KB) To 3376.00 ft (KB) (TVD)**

Reference Elevations: 2157.00 ft (KB)

Total Depth: 3376.00 ft (KB) (TVD)

2149.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 8.00 ft

## Serial #: 8791

Press@RunDepth: psig @ ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.11.22 End Date: 2013.11.22

Last Calib.: 2013.11.22

Start Time: 13:45:01 End Time: 20:46:30

Time On Btm:

Time Off Btm:

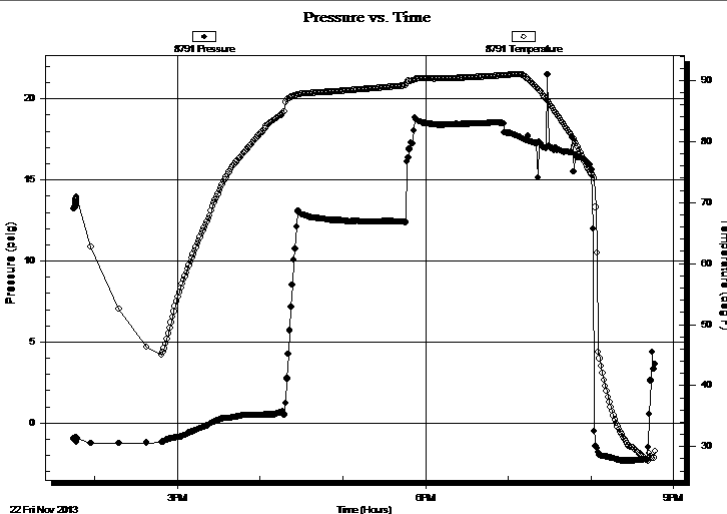
TEST COMMENT: I.F. - 10 - 1/4 INT. BLOW NO BUILD @ 10 MIN.

I.S.I. - 75 - NO B.B.

F.F. - 5 - W.S.B. DIES IN 2 MIN.

F.S.I. - 60 - NO B.B.

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	MUD 100%	0.05

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

SAMUEL GARY & ASSOC. INC.

**SEC. 14 - 5 S. - 23 W. - NORTON CO.**

1515 WYNKOOP SUITE 700  
DENVER CO.  
80202  
ATTN: CLAYTON CAMOZZI

**HARDY #1-14**

Job Ticket: 55863

**DST#: 1**

Test Start: 2013.11.22 @ 13:45:00

### Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 8.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 52.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.20 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 500.00 ppm			
Filter Cake: 2.00 inches			

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	MUD 100%	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: SAMPLER RECOVERY = 30 P.S.I. / 500 M.L. MUD

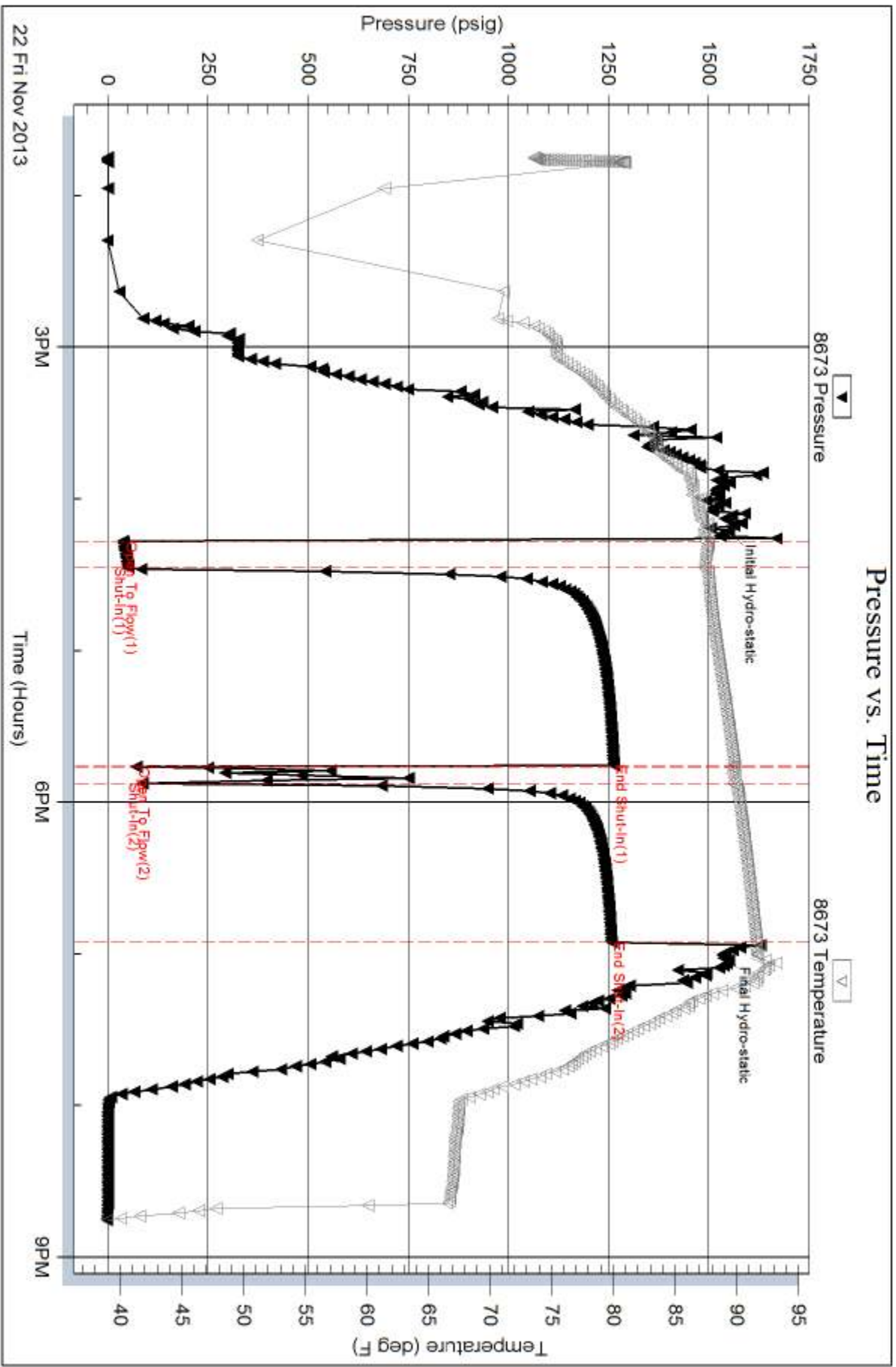
Serial #: 8673

Inside

SAMUEL GARY & ASSOC. INC.

HARDY #1-14

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 55863

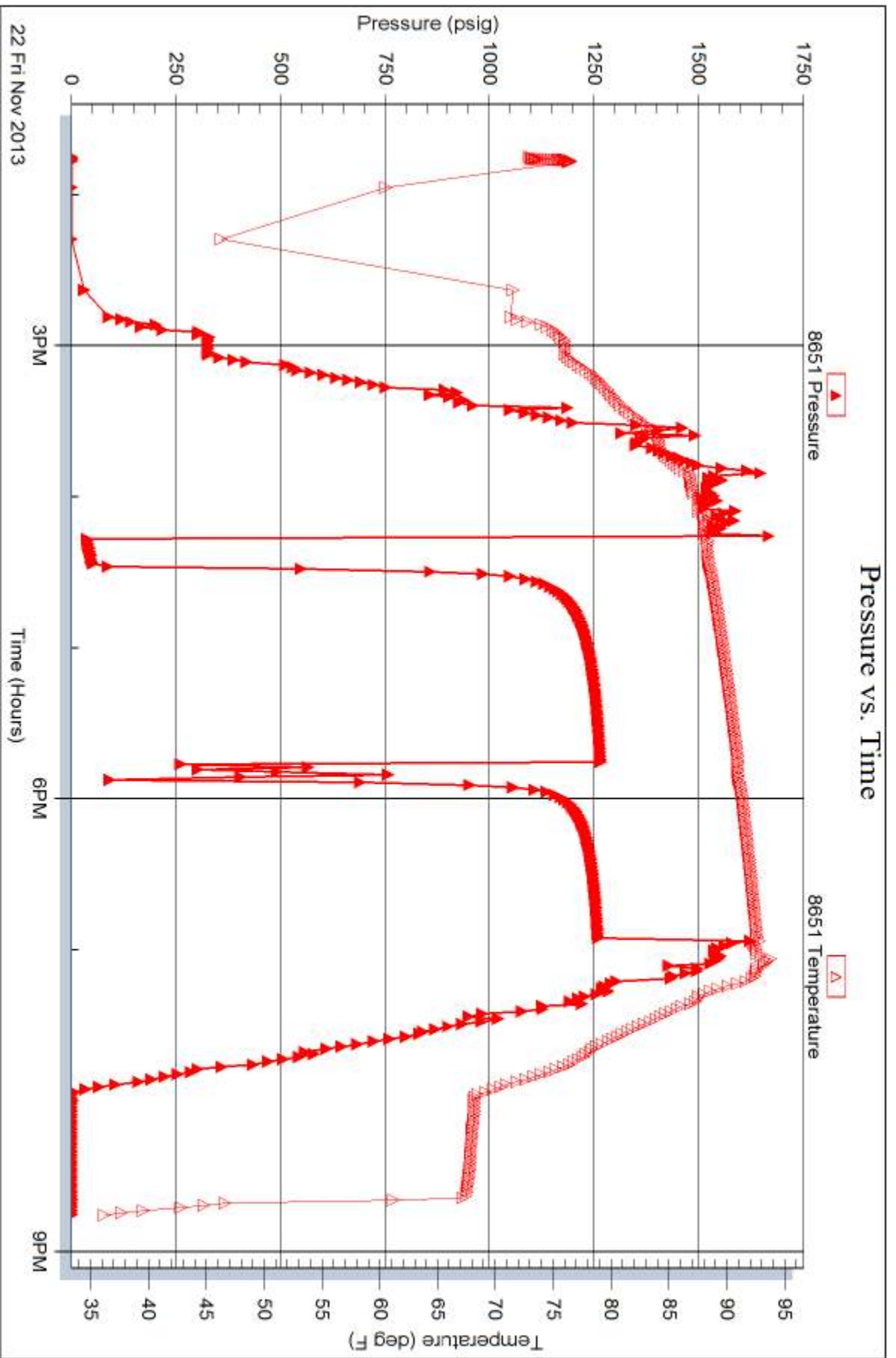
Printed: 2013.11.23 @ 00:26:48

Serial #: 8651

SAMUEL GARY & ASSOC. INC.

HARDY #1-14

DST Test Number: 1

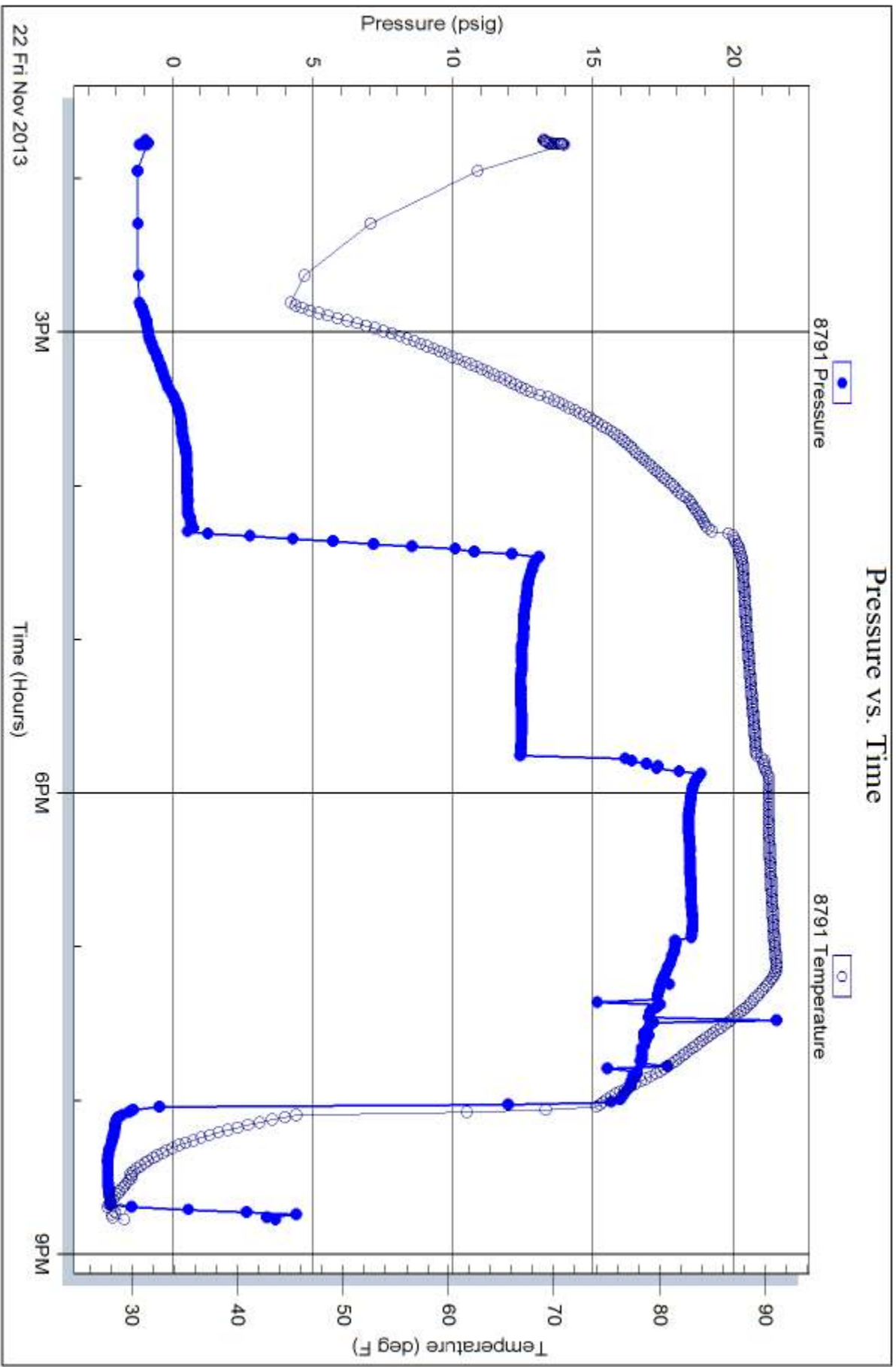


Serial #: 8791

SAMUEL GARY & ASSOC. INC.

HARDY #1-14

DST Test Number: 1





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

SAMUEL GARY & ASSOC. INC.

**SEC. 14 - 5 S. - 23 W. - NORTON CO.**

1515 WYNKOOP SUITE 700  
DENVER CO.  
80202  
ATTN: CLAYTON CAMOZZI

**HARDY #1-14**

Job Ticket: 55864

**DST#: 2**

Test Start: 2013.11.23 @ 06:15:00

## GENERAL INFORMATION:

Formation: **LANS. "B"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:20:30

Time Test Ended: 14:44:00

Test Type: Conventional Bottom Hole (Reset)

Tester: BOB HAMEL

Unit No: 61

**Interval: 3373.00 ft (KB) To 3436.00 ft (KB) (TVD)**

Reference Elevations: 2157.00 ft (KB)

Total Depth: 3436.00 ft (KB) (TVD)

2149.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 8.00 ft

**Serial #: 8673**

**Inside**

Press@RunDepth: 281.40 psig @ 3411.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.11.23

End Date:

2013.11.23

Last Calib.:

2013.11.23

Start Time: 06:15:01

End Time:

14:44:00

Time On Btm:

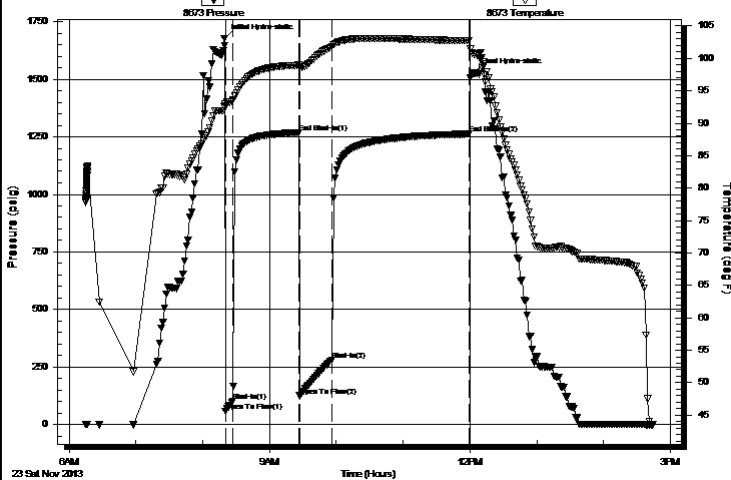
2013.11.23 @ 08:19:30

Time Off Btm:

2013.11.23 @ 12:03:30

**TEST COMMENT:** I.F. - 5 - 1/2 INT. BLOW BUILT TO (B.O.B. IN 5 MIN.)  
I.S.I. - 60 - NO B.B.  
F.F. - 30 - 1/4 INT BLOW BUILT TO (B.O.B. IN 6 MIN.)  
F.S.I. - 120 - NO B.B.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1677.32	92.53	Initial Hydro-static
1	56.69	92.75	Open To Flow (1)
8	102.64	93.49	Shut-In(1)
67	1268.57	98.95	End Shut-In(1)
68	125.02	98.62	Open To Flow (2)
97	281.40	101.80	Shut-In(2)
220	1262.69	102.70	End Shut-In(2)
224	1526.96	100.67	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
189.00	S,O,S,M,W, 5%OIL 10% MUD 85%	W2.36R
252.00	O,C,M,W, 15% OIL 30% MUD 55%	W3.53
214.00	O,C,M, 20% OIL 80% MUD	3.00

Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

SAMUEL GARY & ASSOC. INC.

**SEC. 14 - 5 S. - 23 W. - NORTON CO.**

1515 WYNKOOP SUITE 700  
DENVER CO.  
80202  
ATTN: CLAYTON CAMOZZI

**HARDY #1-14**

Job Ticket: 55864

**DST#: 2**

Test Start: 2013.11.23 @ 06:15:00

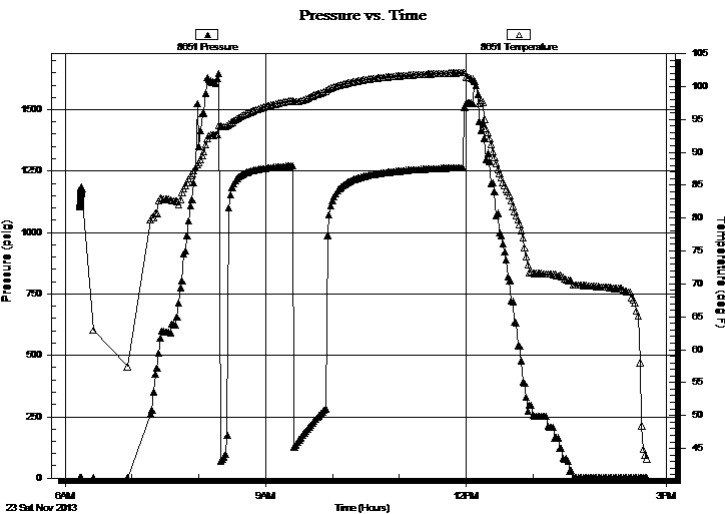
## GENERAL INFORMATION:

Formation: **LANS. "B"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 08:20:30  
 Time Test Ended: 14:44:00  
 Interval: **3373.00 ft (KB) To 3436.00 ft (KB) (TVD)**  
 Total Depth: 3436.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: BOB HAMEL  
 Unit No: 61  
 Reference Elevations: 2157.00 ft (KB)  
 2149.00 ft (CF)  
 KB to GR/CF: 8.00 ft

## Serial #: 8651

Press@RunDepth: psig @ ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.11.23 End Date: 2013.11.23 Last Calib.: 2013.11.23  
 Start Time: 06:13:01 End Time: 14:42:30 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** I.F. - 5 - 1/2 INT. BLOW BUILT TO (B.O.B. IN 5 MIN.)  
 I.S.I. - 60 - NO B.B.  
 F.F. - 30 - 1/4 INT BLOW BUILT TO (B.O.B. IN 6 MIN.)  
 F.S.I. - 120 - NO B.B.



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
189.00	S,O,S,M,W, 5%OIL 10% MUD 85%	W2.36R
252.00	O,C,M,W, 15% OIL 30% MUD 55%	W3.53
214.00	O,C,M, 20% OIL 80% MUD	3.00

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

SAMUEL GARY & ASSOC. INC.

**SEC. 14 - 5 S. - 23 W. - NORTON CO.**

1515 WYNKOOP SUITE 700  
DENVER CO.  
80202  
ATTN: CLAYTON CAMOZZI

**HARDY #1-14**

Job Ticket: 55864

**DST#: 2**

Test Start: 2013.11.23 @ 06:15:00

### GENERAL INFORMATION:

Formation: **LANS. "B"**

Deviated: No Whipstock: ft (KB)

Test Type: Conventional Bottom Hole (Reset)

Time Tool Opened: 08:20:30

Tester: BOB HAMEL

Time Test Ended: 14:44:00

Unit No: 61

**Interval: 3373.00 ft (KB) To 3436.00 ft (KB) (TVD)**

Reference Elevations: 2157.00 ft (KB)

Total Depth: 3436.00 ft (KB) (TVD)

2149.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 8.00 ft

### Serial #: 8791

Press@RunDepth: psig @ ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.11.23 End Date: 2013.11.23

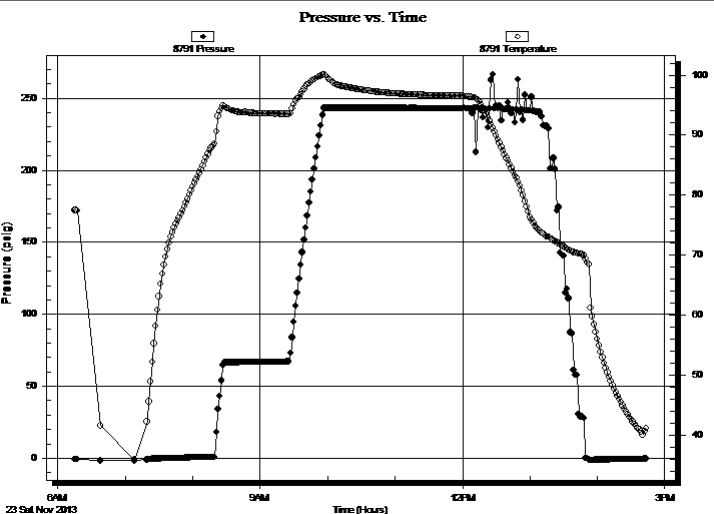
Last Calib.: 2013.11.23

Start Time: 06:15:01 End Time: 14:44:03

Time On Btm:

Time Off Btm:

TEST COMMENT: I.F. - 5 - 1/2 INT. BLOW BUILT TO (B.O.B. IN 5 MIN.)  
I.S.I. - 60 - NO B.B.  
F.F. - 30 - 1/4 INT BLOW BUILT TO (B.O.B. IN 6 MIN.)  
F.S.I. - 120 - NO B.B.



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
189.00	S,O,S,M,W, 5%OIL 10% MUD 85%	W2.36R
252.00	O,C,M,W, 15% OIL 30% MUD 55%	W3.53
214.00	O,C,M, 20% OIL 80% MUD	3.00

### Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

SAMUEL GARY & ASSOC. INC.

**SEC. 14 - 5 S. - 23 W. - NORTON CO.**

1515 WYNKOOP SUITE 700  
DENVER CO.  
80202

**HARDY #1-14**

Job Ticket: 55864

**DST#: 2**

ATTN: CLAYTON CAMOZZI

Test Start: 2013.11.23 @ 06:15:00

## 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: 54.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.20 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 500.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
189.00	S,O,S,M,W, 5%OIL 10% MUD 85% WATER	2.360
252.00	O,C,M,W, 15% OIL 30% MUD 55% WATER	3.535
214.00	O,C,M, 20% OIL 80% MUD	3.002

Total Length: 655.00 ft Total Volume: 8.897 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments: SAMPLER RECOVERY = 2,000 M.L. TOTAL FLUID 10M.L. OIL / 1,990 M.L. WATER P.S.I. = 60  
RESISTIVITY = .165 OHMS @ 53 F  
CHLORIDES = 68,000

Serial #: 8673

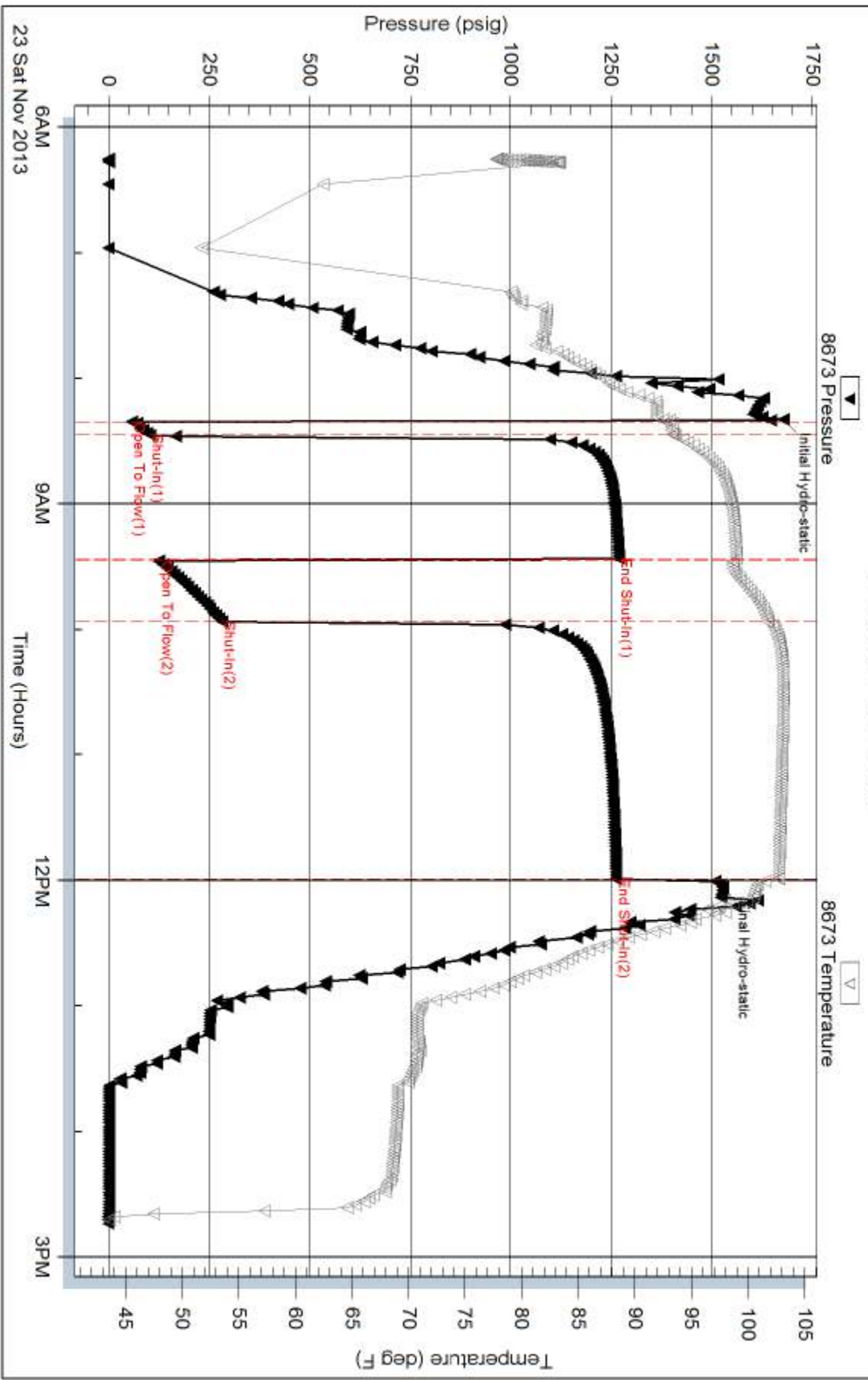
Inside

SAMUEL GARY & ASSOC. INC.

HARDY #1-14

DST Test Number: 2

### Pressure vs. Time



Triobite Testing, Inc

Ref. No: 55864

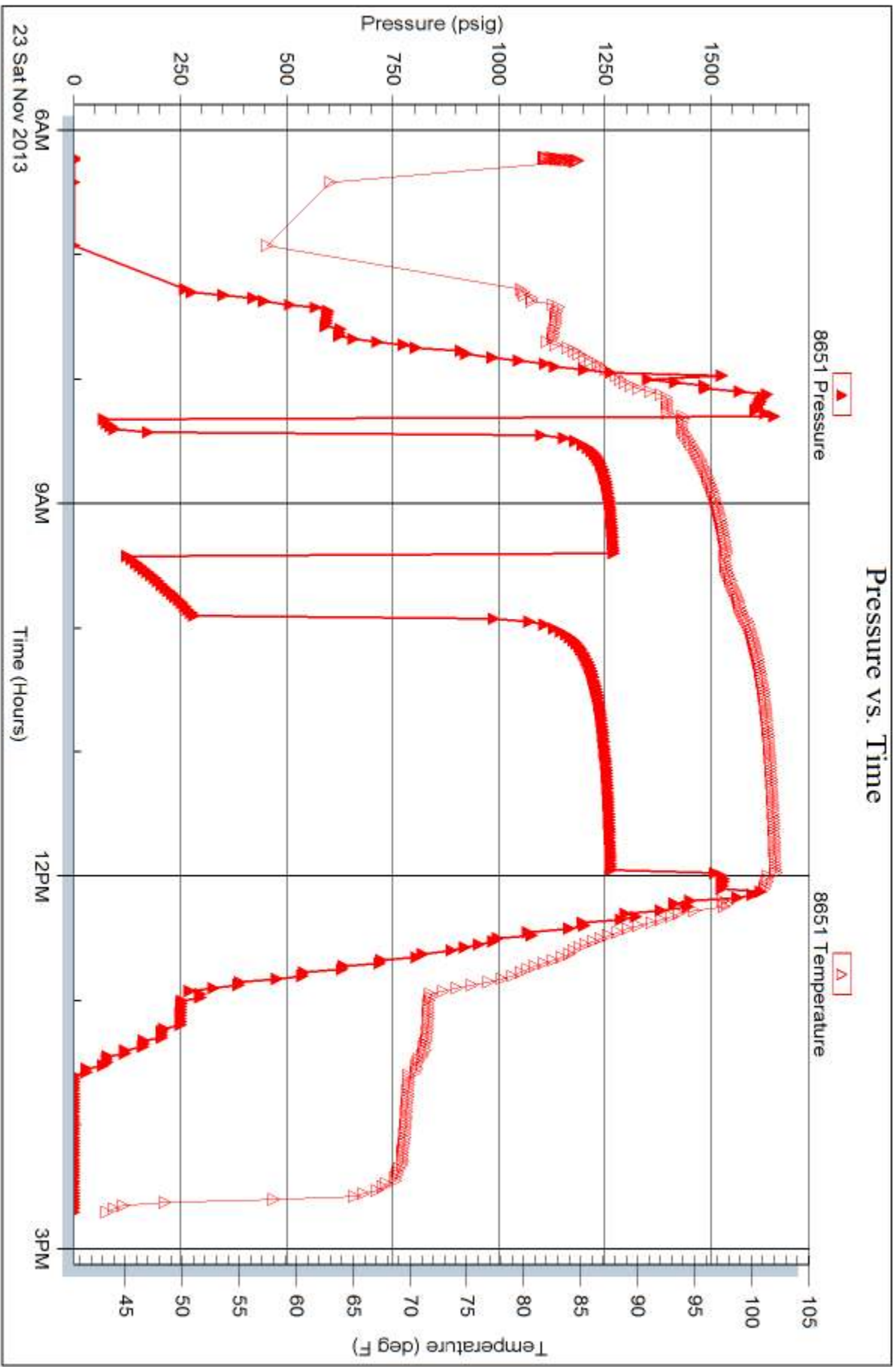
Printed: 2013.11.23 @ 22:43:48

Serial #: 8651

SAMUEL GARY & ASSOC. INC.

HARDY #1-14

DST Test Number: 2



Tribble Testing, Inc

Ref. No: 55864

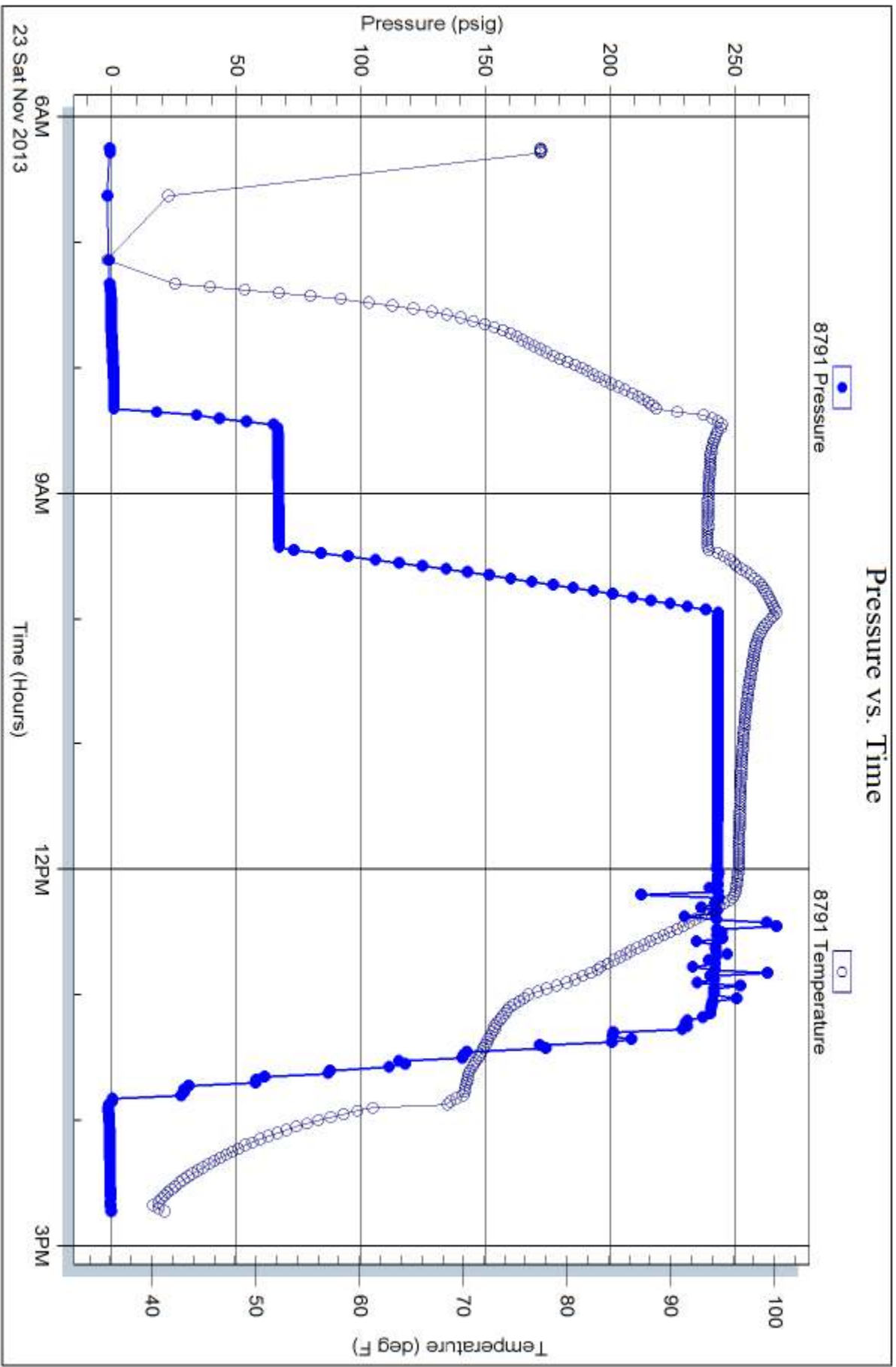
Printed: 2013.11.23 @ 22:43:48

Serial #: 8791

SAMUEL GARY & ASSOC. INC.

HARDY #1-14

DST Test Number: 2



Tribble Testing, Inc

Ref. No: 55864

Printed: 2013.11.23 @ 22:43:48



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

Well Name: HARDY # 1-14  
Location: SEC. 14 - 5S - 23W Norton County, Kansas  
License Number: 15-137-20677-0000  
Spud Date: NOV. 19, 2013  
Surface Coordinates: 1795' FSL & 1220' FEL  
Region: Wildcat  
Drilling Completed: NOV. 24, 2013

Bottom Hole  
Coordinates:  
Ground Elevation (ft): 2149' K.B. Elevation (ft): 2157'  
Logged Interval (ft): 3100' To: 3805' Total Depth (ft): 3805'  
Formation: Lansing Arbuckle  
Type of Drilling Fluid: Natural Chemical

Printed by WellSight Log Viewer from WellSight Systems 1-800-447-1534 www.WellSight.com

**OPERATOR**

Company: Sam Gary Jr. & Associates  
Address: 1515 Wynkoop, Ste. # 700  
Denver, Co. 80202  
Co. Geo: Clayton Camozzi

**GEOLOGIST**

Name: Tim Hedrick/ Tom Flowers  
Company: Earth Tech OGL, Inc.  
Address: PO Box 683  
Hooker, Okla. 73945  
1-(888)- 543-8378 Work Cell-(580)-754-0062

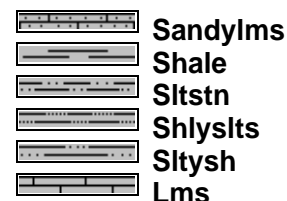
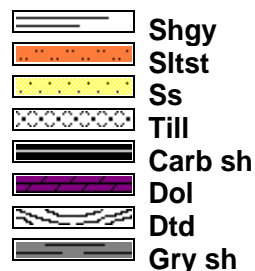
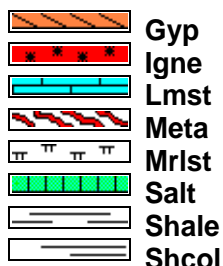
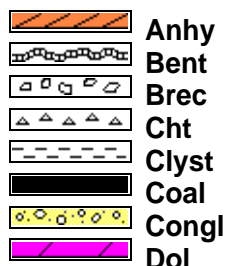
**DST's Report**

DST #1 3307'-3350' 10-75-5-60  
IF-1/4 INT. BLOW (NO BUILD @ 10 MIN), /ISI-75 NB/ FF-W.S.B ( DIED IN 2 MIN),/ FSI- NB  
IH-1551, FH-1536/ IF- 38 TO 51, FF-71 TO 87/ ISI- 1263, FSI 1257/ RECOVERED- 10' TF, 10' M., 100% M. , BHT 91  
DEG.  
SAMPLER- 500 ML M., 30 PSI, PIT CHL- 500

**DST's Report**

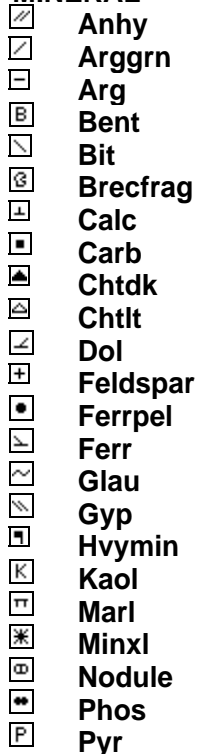
DST #2 3373'-3436' 5-60-30-120  
IF- 1/2 (B.O.B IN 5 MIN)/ ISI- NB/ FF-1/4 (B.O.B IN 6 MIN)/ FSI-NB/  
IH- 1677, FH-1527/ IF- 57 TO 103, FF- 125 TO 281/ ISI- 1269, FSI- 1263/ REC.- 655' TF, 214' OCM, 20% OIL, 80%  
MUD, 252' OCMW, 15% OIL, 55% WATER, 30% MUD/ 189' SASMW, 5% OIL 85% WATER, 10% MUD/ BHT-98,  
API-165@53 DEG, CHLR-68,000, CHLR- 500 PPM SYSTEM/ SAMPLER- 1990 ML, 60-PSI ML, TOTAL-2000 ML. PIT  
CHL-500/ TEST CHL 68,000 @ 53 DEG., .165 RESIS.

## ROCK TYPES

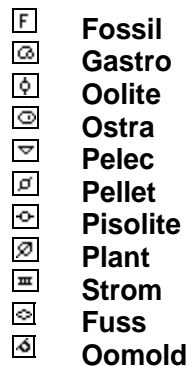
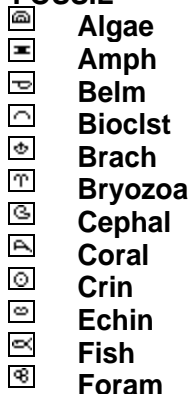


## ACCESSORIES

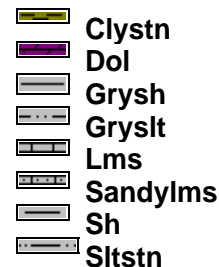
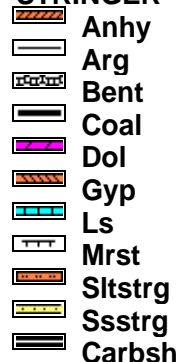
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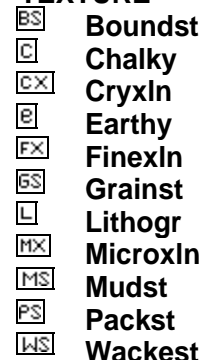
### FOSSIL



### STRINGER

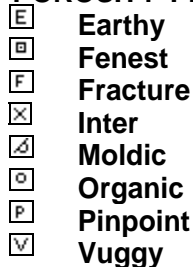


### TEXTURE



## OTHER SYMBOLS

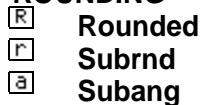
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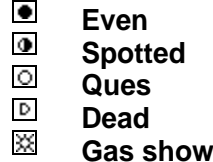
### SORTING



### ROUNDING



### OIL SHOWS

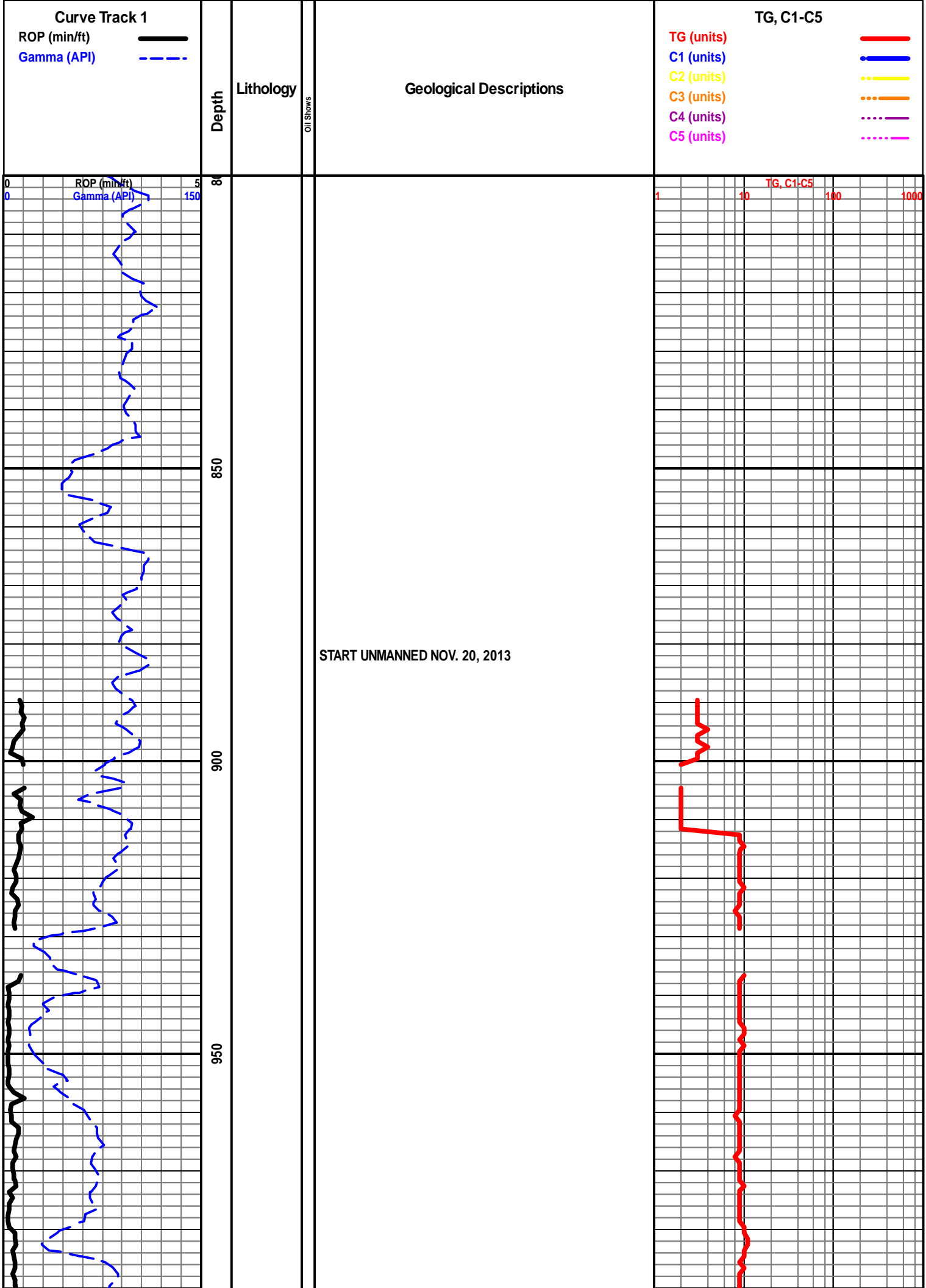


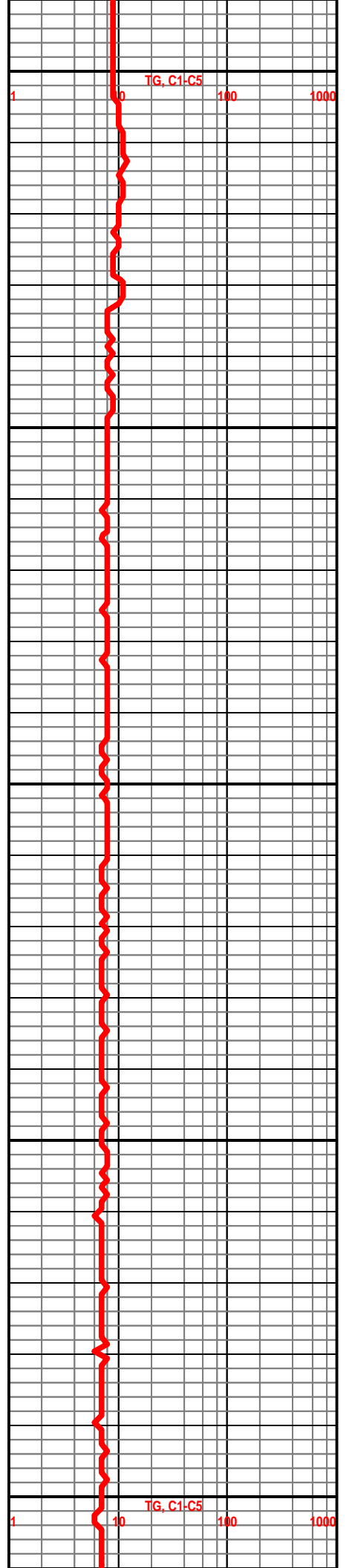
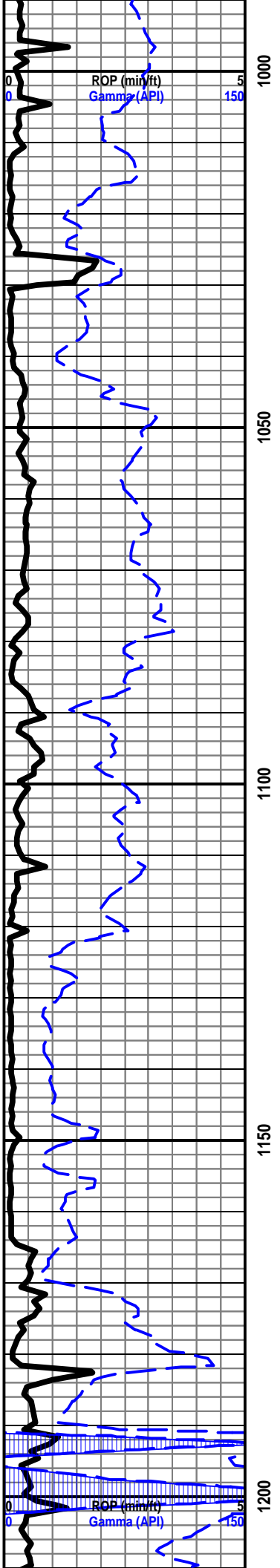
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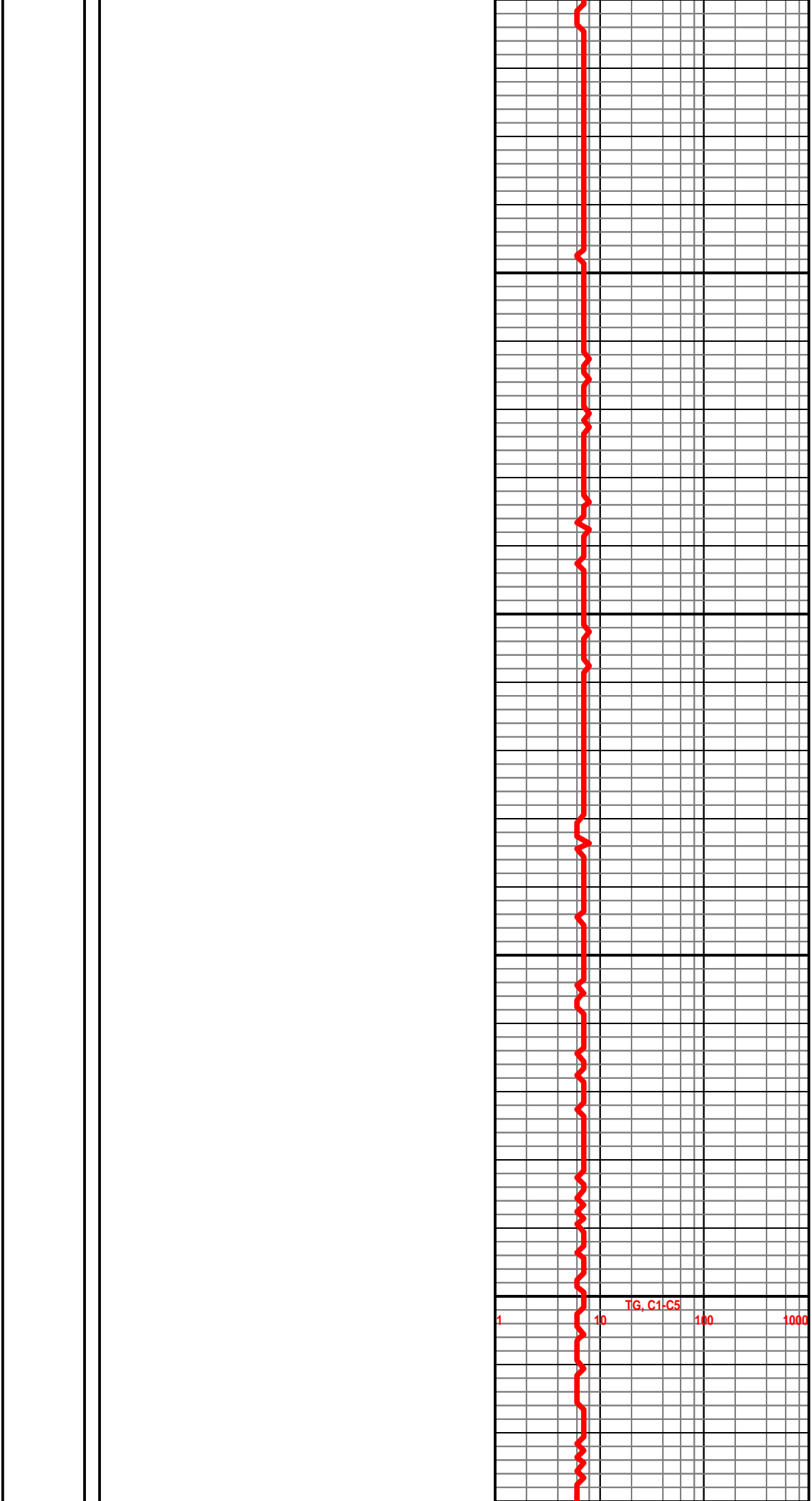
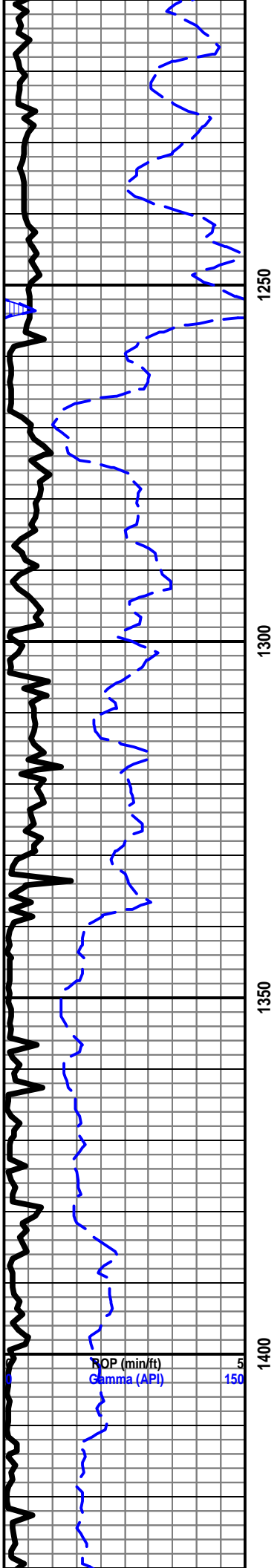
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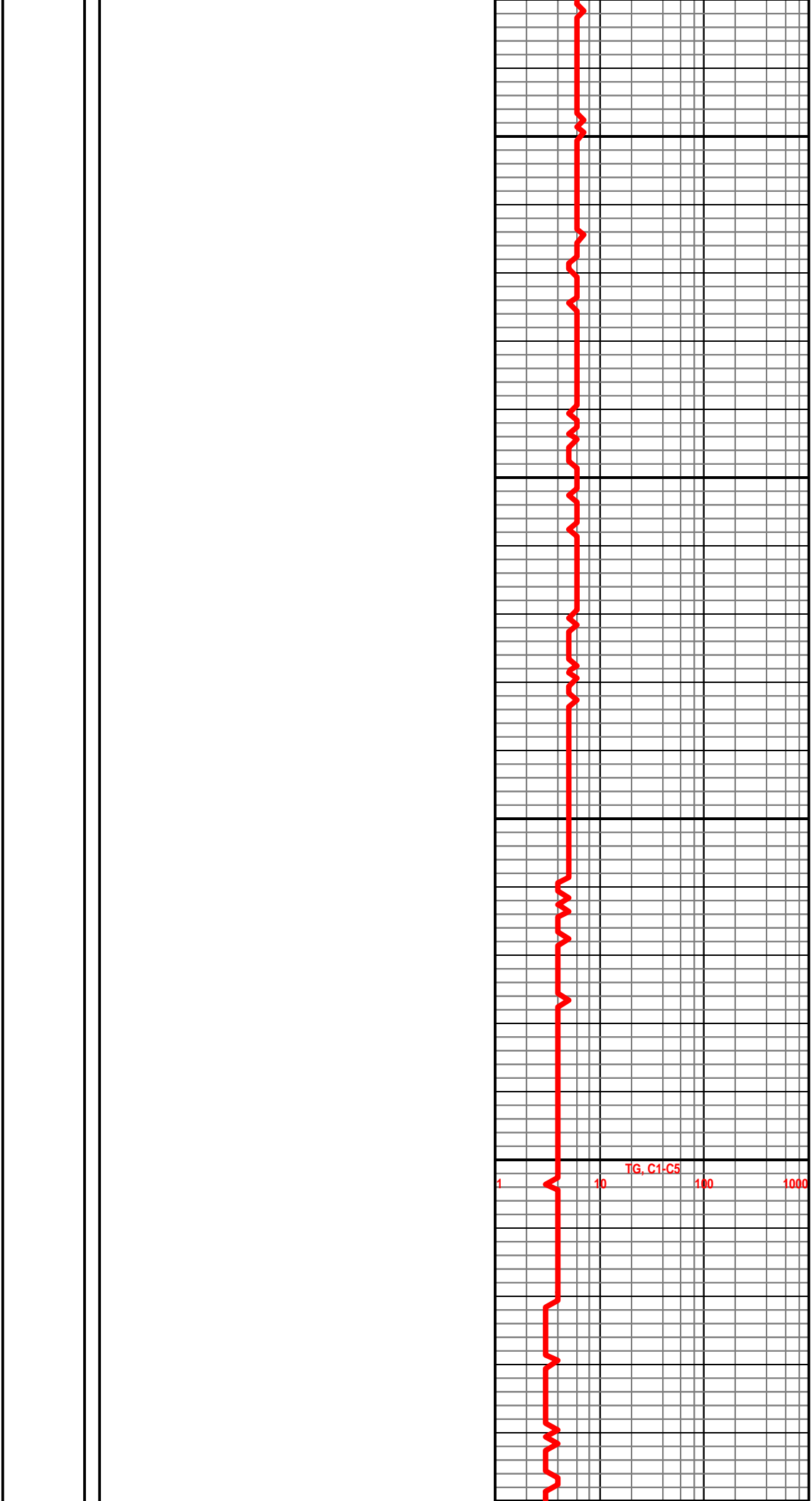
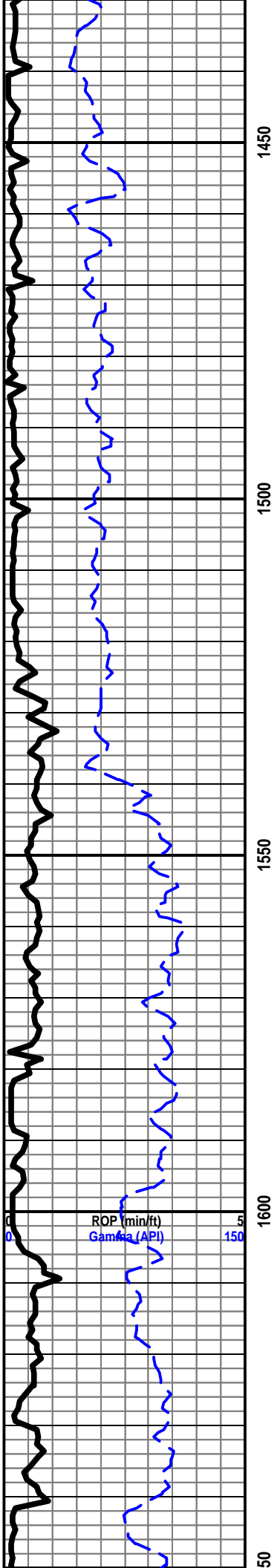


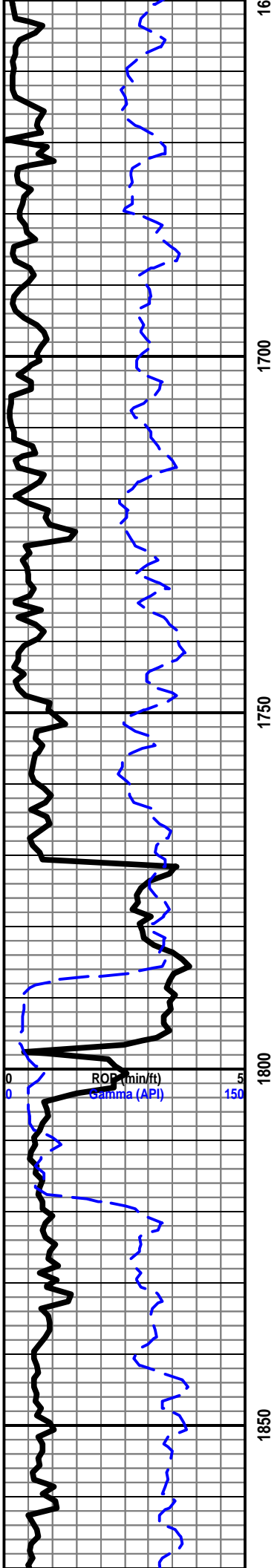








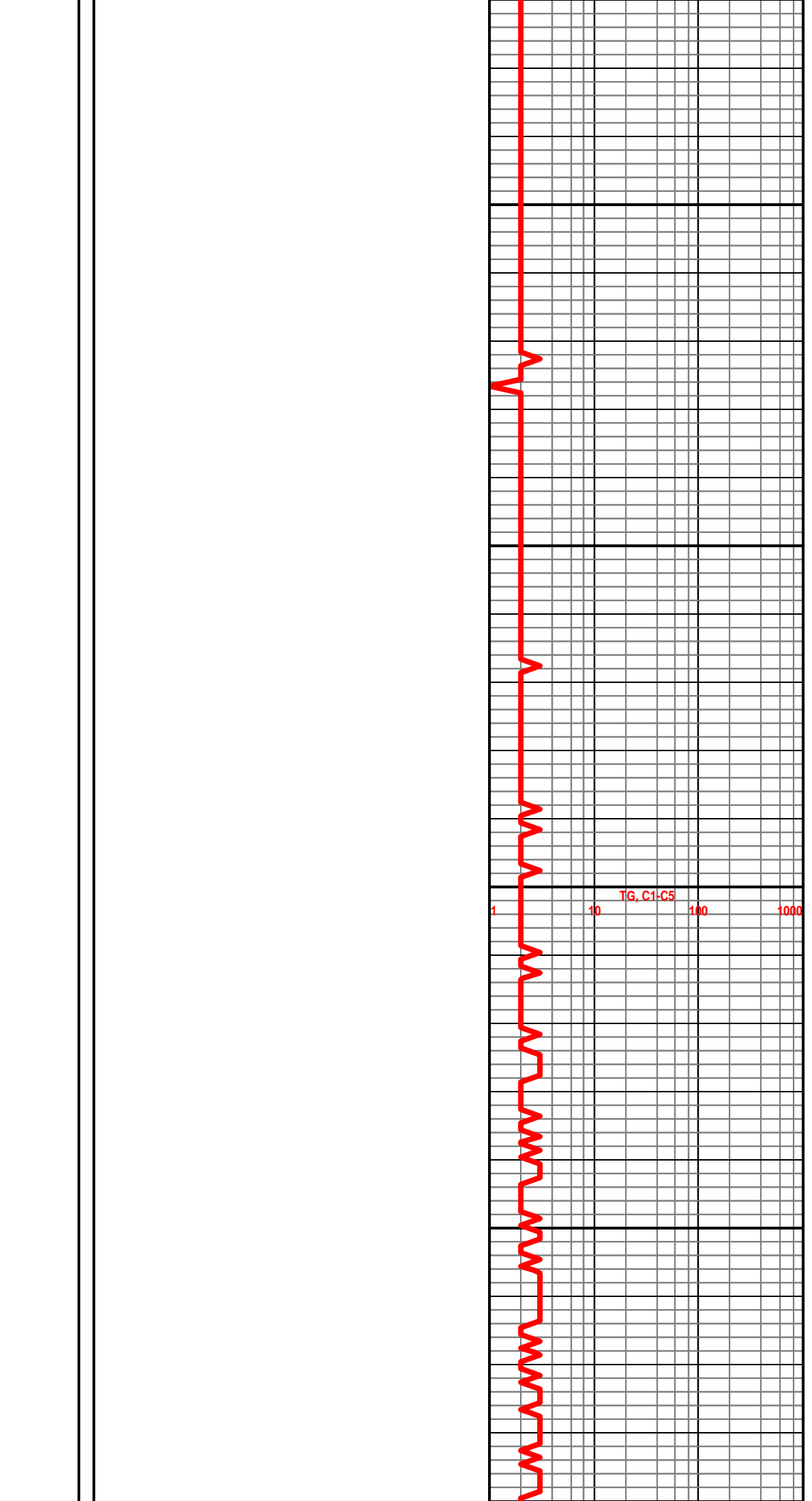
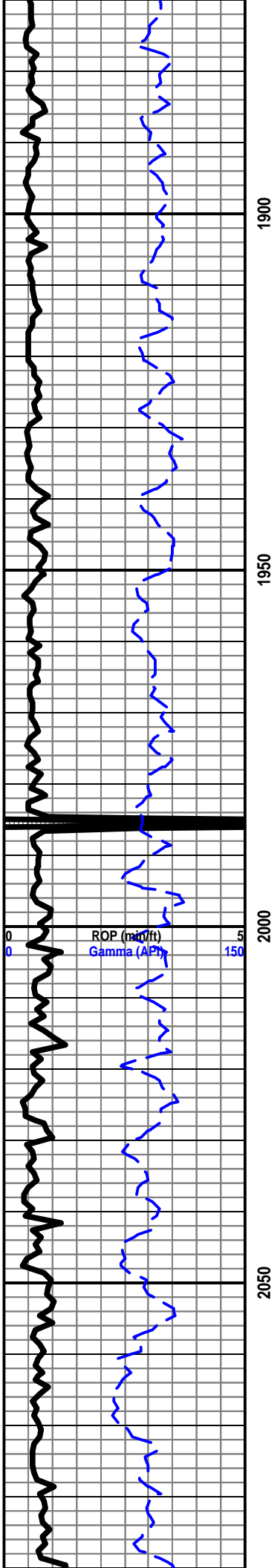


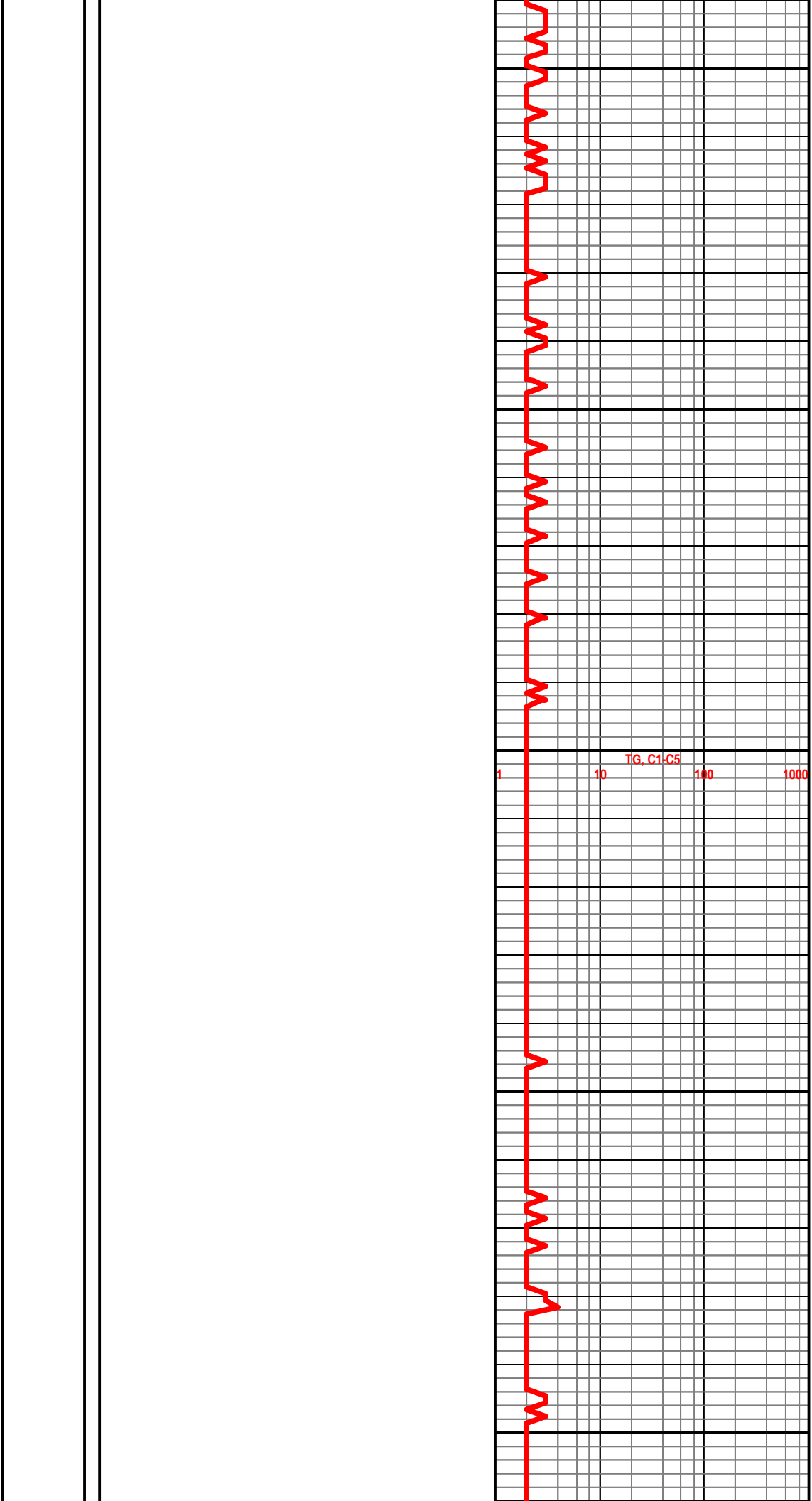
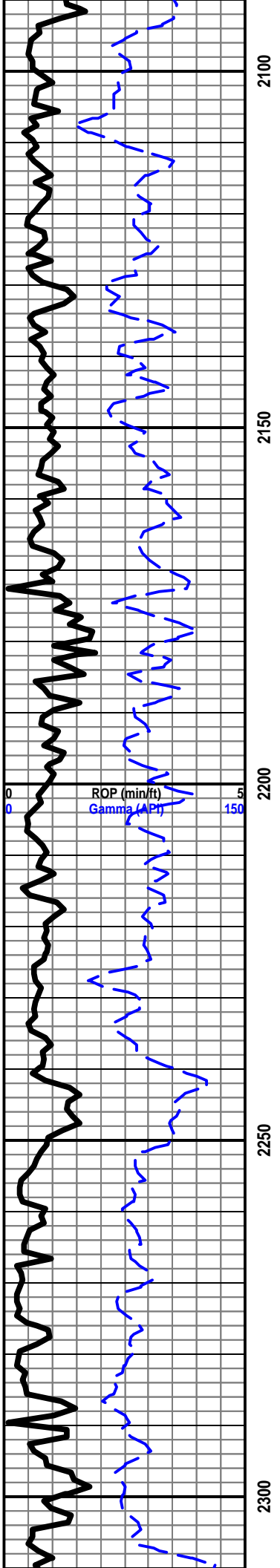


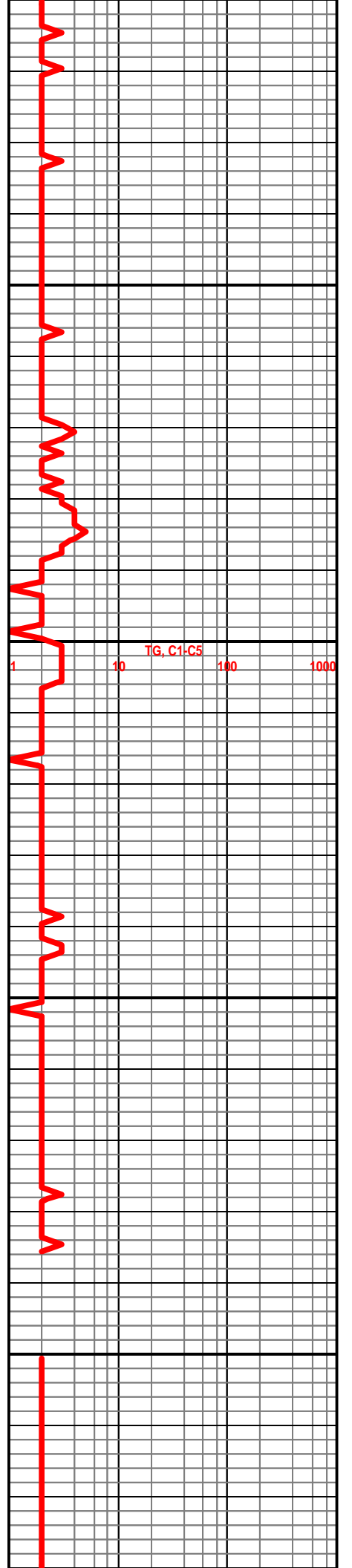
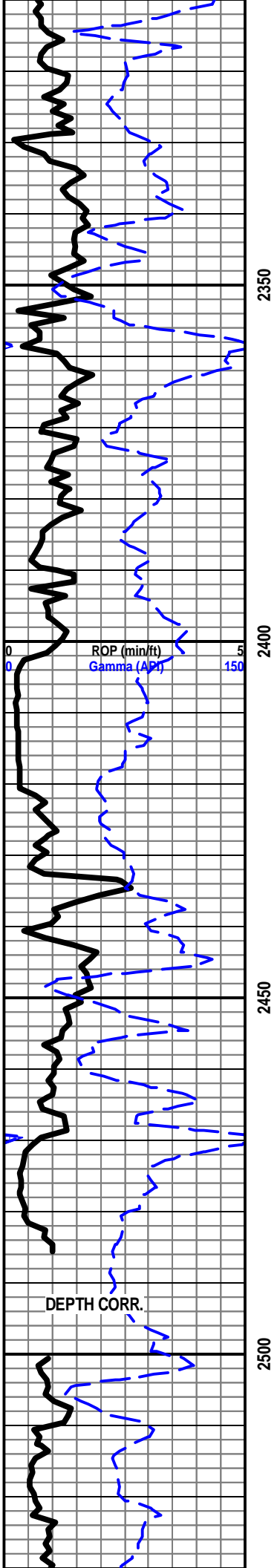
ROP (min/ft) 0 5  
Gamma (API) 0 150

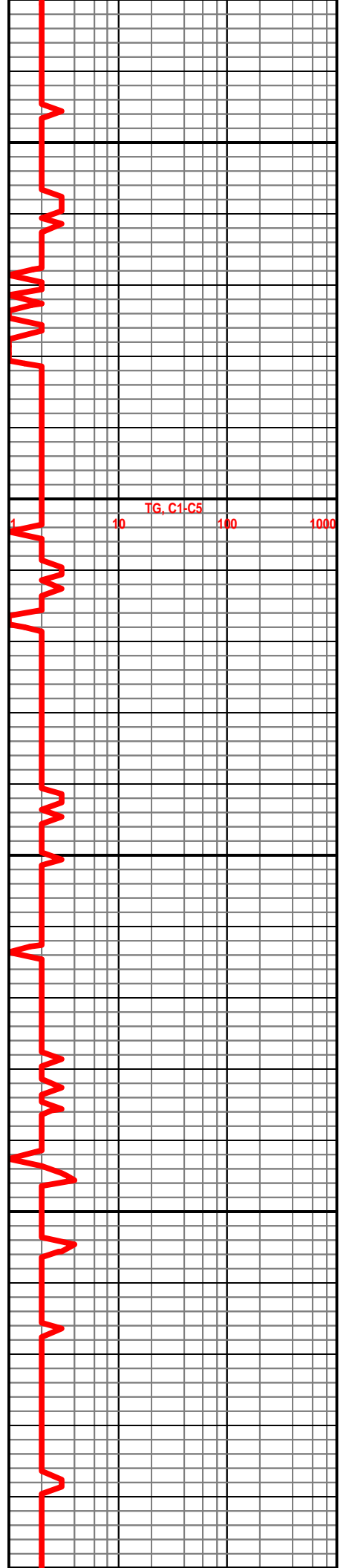
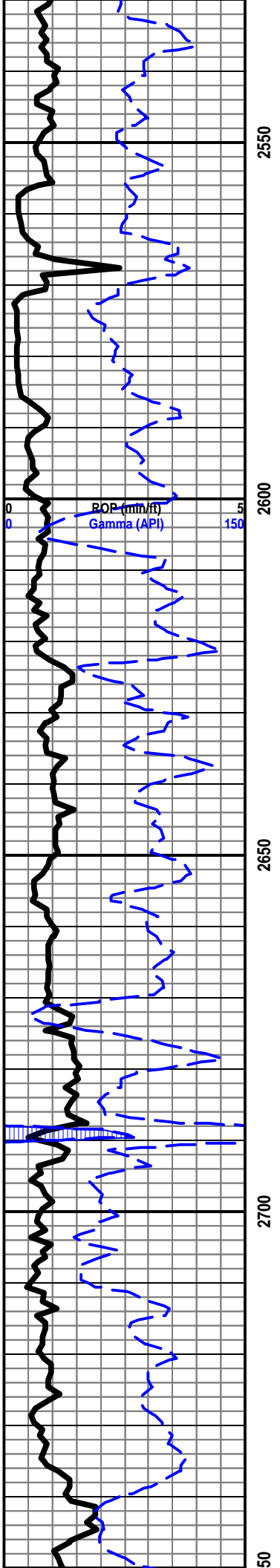


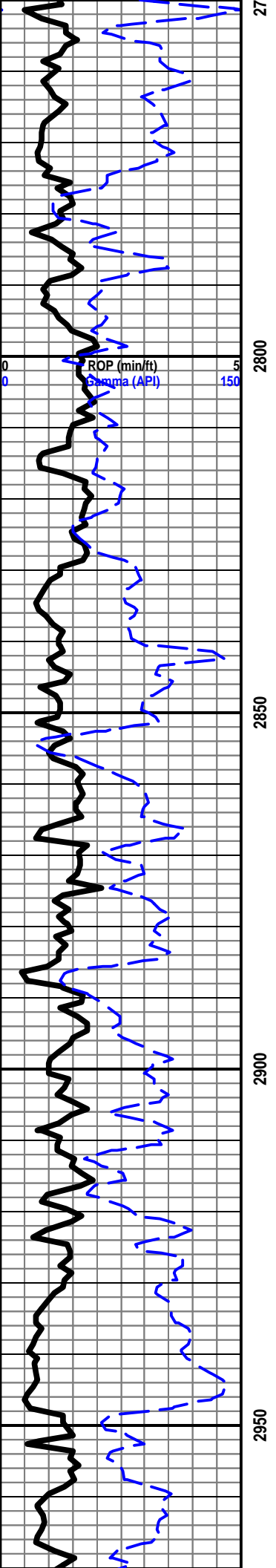
TG, C1-C5 10 100 1000



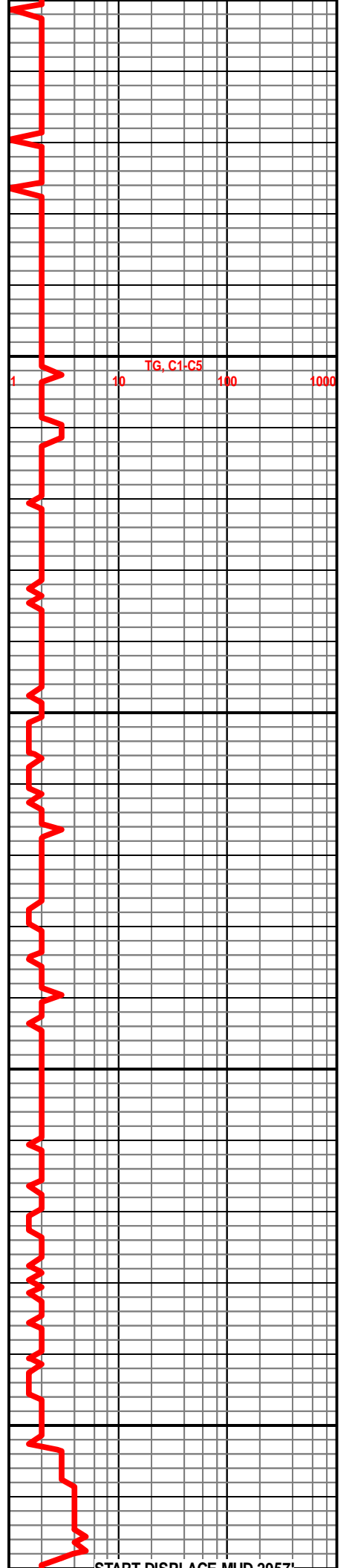






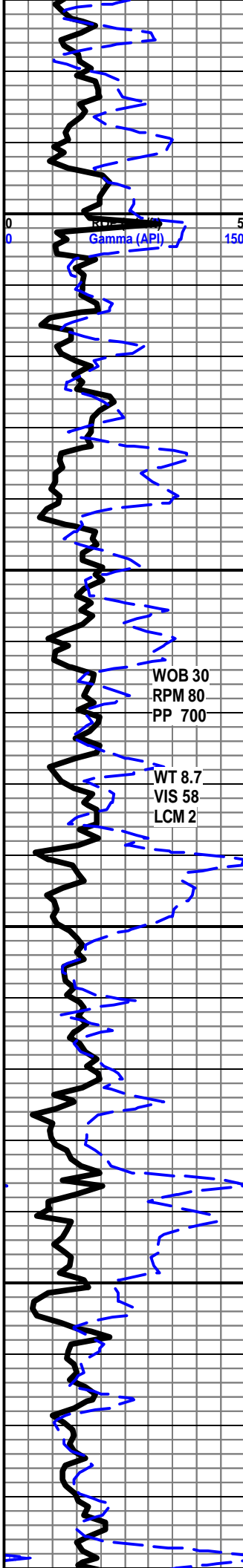


JANESVILLE SHALE 2829' - 672'



START DISPLAC MUD 2957'



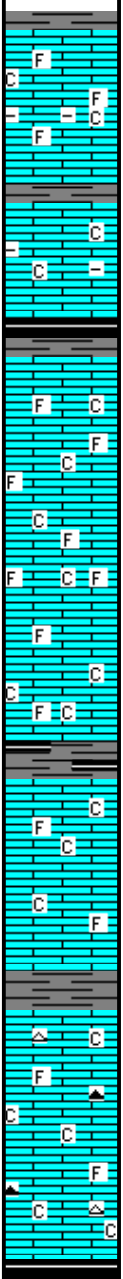


3000  
3050  
3100  
3150

Gamma (API)

WOB 30  
RPM 80  
PP 700

WT 8.7  
VIS 58  
LCM 2



START MANNED UNIT NOV. 21, 2013

LS- CRM OFF WHT LT GY- HD TO BRITT, MD-F-XLN, V/  
RE-XLN MTRX, V/ FOSS , HVY TR SFT WHT CHLK IMBD IP,  
SCAT IMBD LT GY SH IP, DLL YEL MIN FLO THRU, NO VIS  
POR, NO VIS SHOW OR CUT

LS- LT TN LT GY - HD DNS MOTT, MD-F-XLN TO TT SUCRO  
MTRX, ABDT IMBD GY SH IP, TR SFT WHT CHLK, DLL YEL  
MIN FLO THRU, NO VIS POR, NO VIS SHOW

**TOPEKA 3094' - 937'**

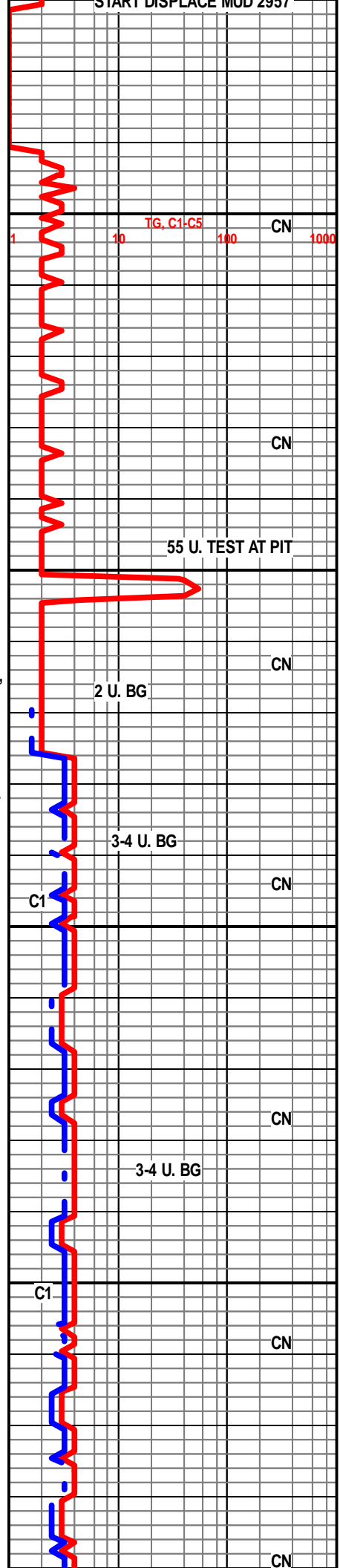
LS- OFF WHT CRM- HD DNS IP TO V/ SFT, MD-F-XLN TO  
ABDT SFT WHT CHLK IP, ABDT IMBD FOSS, TR FREE  
FOSS IP, NO VIS POR, NO VIS CUT OR SHOW

LS- CRM BFF- HD TO V/ BRITT IP, MD-XLN, V/ RE-XLN  
MTRX, SUCRO IP, ABDT IMBD FOSS FRGS THRU, IMBD  
CALC XLS SCAT THRU, IMBD FRM WHT CHLK IP, LT YEL  
MIN FLO, NO VIS POR, NO VIS SHOW OR CUT

SH- MD TO DK GY- FRM BLKY TO BLK SFT CARB IP

LS- WHT OFF WHT CRM- HD TOSFT- MD-XLN TO V/  
SUCRO S-CHLKY MTRX IP, TR FOSS FRGS SCAT IP,  
POSS SLI DOLO IP , DLL YEL MIN FLO IP, TR PR MICRO  
PP POR IP, NO VIS SHOW OR CUT

LS- WHT OFF WHT CRM-MD HD TO SFT- MD-XLN TO V/  
SUCRO S-CHLKY MTRX IP, ABDT SFT GMMY CHLK IP, TR  
FOSS FRGS SCAT IP, TN TO TRNSLCNT CHRT , DLL YEL  
MIN FLO IP, TR PR MICRO PP POR IP, NO VIS SHOW OR  
CUT



TG, C1-C5

2 U. BG

3-4 U. BG

3-4 U. BG

55 U. TEST AT PIT

CN

CN

CN

CN

CN

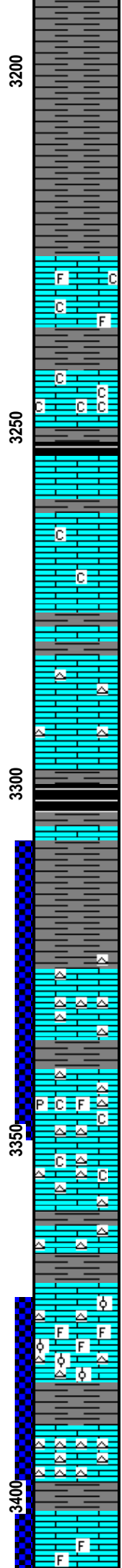
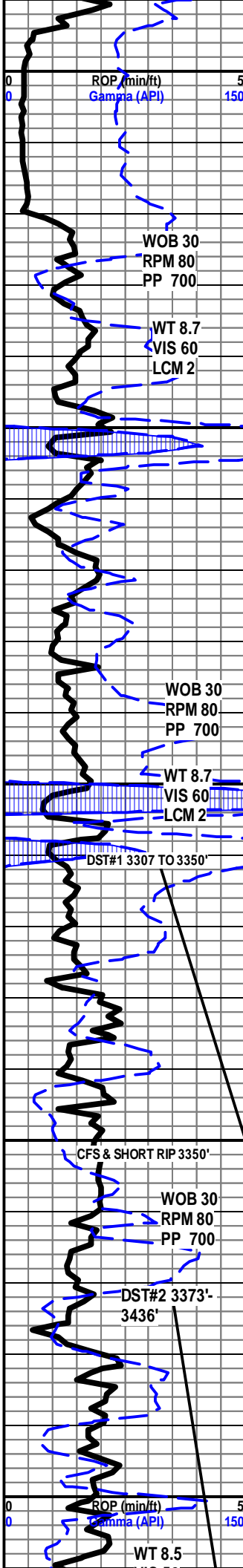
CN

CN

C1

C1

START DISPLACE MOD 2937



**SH- BLK SFT CARB**

**SH- RED DK RED, V/ SFT GMMY TO TR SLTY TXT IP**

**LS- CRM LT TN TN - HD DNS TR BRITT, MD-F-XLN RE-XLN MTRX IP, SUCRO IP, FOSS FRGS SCAT IP, CALC XLS IMBD, TR S-CHLKY IP, NO FLO, NO VIS POR, NO VIS SHOW**

**LS- OFF WHT CRM TN BLK( DUE TO TAR STN IP) MD HD TO SFT, V/ SUCRO S-CHLKY TO CHLKY W/ TR LV OIL IN CHLK, BRIT YEL GLD FLO IN 60%, NO VIS POR, V/ GD FL SH CUT IN 40%, GD SLO STRM CUT IN 40% NO ODOR, LT TN LCH ON DISH**

**LS- OFF WHT CRM BFF- HD IP TO BRITT, MD-F-XLN IP, V/ SUCRO TO SUCRO S-CHLKY IP, HVY TR ABDT SFT WHT CHLK IP, SMLL CALC XLS IP, DLL YEL MIN FLO, NO VIS POR, NO VIS SHOW OR CUT**

**LS- CRM BFF LT TN - HD DNS SLI TR BRITT, MD-V/F-XLN, RE-XLN, ABDT IMBD OFF WHT LT GY CHRT, DLL YELL MIN FLO, NO VIS POR, NO VIS SHOW**

**HEEBNER 3301' - 1144'**

**SH- BLK SFT CARB**

**SH- RED TO LT GY - V/ SFT GMMY, TR SLTY TXT IP**

**3326-3329- LS- CRM TN BRN( DUR TO LIV OIL STN IN 80%) HD DNS BRITT IP, F-V/F- XLN TO TT SUCRO MTRX IP, ABDT IMBD TN WHT CHRT IP, BRIT YEL GLD FLO IN 30%, DLL YEL GLD FLO IN 50%, PR TO TR FR MICRO PP POR IN 30%, FR SCAT MICROVUG POR IN 10%, EXCEL FL SH CUT IN 80%, EXCEL SLO STRM MLKY BLU CUT IN 80%, NO ODOR, DK BRN LCH ON DISH**

**LANSING 3340' - 1183'**

**LS- OFF WHT CRM BFF- HD, V/ BRITT, MD-XLN IP TO SUCRO S-CHLKY IP, ABDT WHT SFT CHLK ABDT WHT TRSLCNT CHRT, TR SCAT FOSS FRGS IP, TR IBD DIS PYR IP, DLL TO LT YEL MIN FLO IP, NO VIS POR, NO VIS CUT OR SHOW**

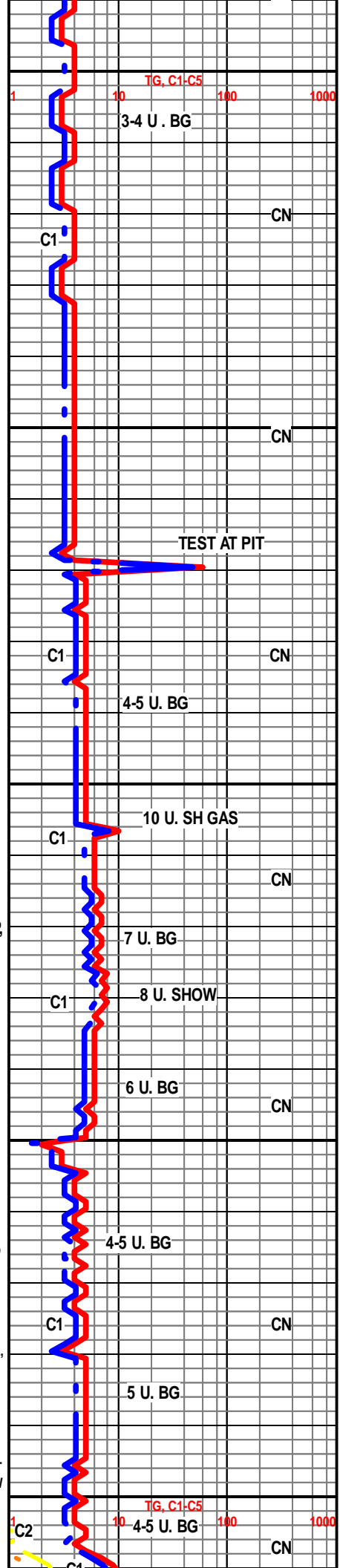
**LANSING "B" 3369' -1212'**

**3350'-3365 LS- OFF WHT CRM BFF, HD DNS TO BRIT, F-XLN TO SUCRO S-CHLKY MTRX, TRS SFT WHT CHLK IP, ABDT TN WHT CHRT, DUL YEL FLO IN 30%, NO VIS POR, NO VIS SHOW**

**3374'-3378' LS- CRM TN BRN (DUE TO LIVE OIL STN SCAT THRU) MD-XLN, V/RE-XLN, ABDT IMBD FOSS THRU, SCAT IMBD SM TO MD OOL, IMBD WHT CHRT IP, BRT YEL GLD FLO SCAT THRU, DUL YEL GLD FLO IP, PR TO FR TO GD VIS INTER-FOSS POR IN 10%, PR SCAT INTER-XLN POR THRU, EXCL INST FL SH CUT, EXCL SLW STRM MLKY BLUE CUT THRU, NO ODOR, BRN LCH ON DISH**

**LS-CRM LT TN LT GRY, HD DNS MOTT, F/VF-XLN, S-SUCRO IP, ABDT WHT TRSLCNT CHRT, DUL YEL MIN FLO IP, NO VIS POR, NO VIS CUT OR SHOW**

**3408'-3412' LS- CRM LT TN TO TN (DUE TO LT BRN OIL STN SCAT THRU) MD/F-XLN, V RE-XLN MTRX, ABDT IMBD FOSS & FOSS FRGS THRU, SM OOL IP, BRT YEL GLD FLO IN 60% DUL YEL GLD IN 40% PR**



VIS 52  
API 7.2  
CHL 500  
LCM 1

CFS@ 3436'

CFS@ 3462'

CFS@ 3493'

CFS@ 3527'

WOB 30.  
RPM 80  
PP 900

WT 8.8  
VIS 54  
API 7.2  
CHL 500  
LCM 1

ROK (min/ft)  
Gamma (API)



3415'-3418' LS- WHT TO OFF WHT LT GRV, MD HD TO SFT, V SUCRO S-CHLKY MTRX W/ ABDT FRM WHT CHLK THRU, SLI TRS DISS SH IP, BRT YEL GLD FLO IN 2%, DUL YEL FLO IN 10%, NO VIS POR, WK FLSH CUT TO V/WK GSSY CUT, NO ODOR, NO STN ON DISH

3424'-3432' LS- OFF WHT TO CRM BFF, HD TO MD HD, V SUCRO S-CHLKY MTRX, HVY TR ABDT FRM CHLK THRU, DUL YEL MIN FLO IP, NO VIS POR, NO VIS CUT OR SHOW

SH- BLK SFT CARB W/ABDT IMBD DISS PYR

**LANSING "F" 3438' -1281'**

3456'-3458' LS- CRM LT TN TO TN (LT TN OIL STN THRU) HD IPTO V BRTT, MD-XLN, V RE-XLN MTRX, V FOSS, ABDT FREE FLOAT FOSS IN CUP, TR MICRO OOL IP, BRT YEL GLD FLO IN 98%, FR TO GD VIS INTER-FOSS POR IN 15-20%, SCAT VUG POR IN 10%, HVY TR LIVE OIL IN CUP & IN VUG, EXCL INST FLSH CUT THRU, EXCL SLW STRM MLKY BLUE CUT THRU, TN LCH ON DISH, GD OIL ODOR

SH- RD V SFT GUMMY

**LANSING "G" 3484' -1327**

3485'-3490' LS- CRM LT TN TO TN (DUE TO TN TO LT BRN OIL STN THRU) HD TO BRTT, MD-XLN, V RE-XLN MTRX, V FOSS THRU, SCAT IMBD MD OOL THRU, BRT YEL GLD FLO THRU, ABDT PR TO FR INTER-FOSS POR THRU, TR GD INTER-FOSS POR IP, TR PR MICRO VUG POR, EXCL INST FLSH CUT 100%, EXCL SLW STRM MLKY BLUE CUT IN 100%, DRK TN LCH ON DISH, GD OIL ODOR

3505'-3507' LS- CRM LT TN TO TN (TN OIL STN IN 50-60%) TR DOS, HD DNS TR BRTT, MD/F-XLN IP, IMBD FOSS FRGS THRU, TR WHT CHRT, BRT YEL GLD FLO IN 30%, DUL YEL GLD FLO IN 50%, V PR VIS INTER-FOSS POR IN 5%, TR MICRO VUG POR IN ONE ROCK, EXCL FLSH IN 40%, EXCL SLW STRM CUT IN 50%, V LT TN LCH ON DISH, LT OIL ODOR

LS- OFF WHT TO CRM, HD DNS, F/MD-XLN, RE-XLN IP, HVY TR FRM WHT CHLK, SLI TR FOSS, WHT TO CLR CHRT, LT BRT YEL MIN FLO, NO VIS POR, NO VIS CUT OR SHOW

**BKC 3528' - 1371'**

LS- WHT OFF WHT- FRM IPTO V/ SFT ABDT WHT CHLK THRU, TR SUCR S-CHLKY IP, TR DOS ON TWO ROCKS. V/ DLL YEL FLO THRU. NO VIS OR , NO VIS CUT OR SHOW

SH- RED DK RED- FRM IP GRNY TXT TO V/ SFT GMMYTHRU, TR SLTY

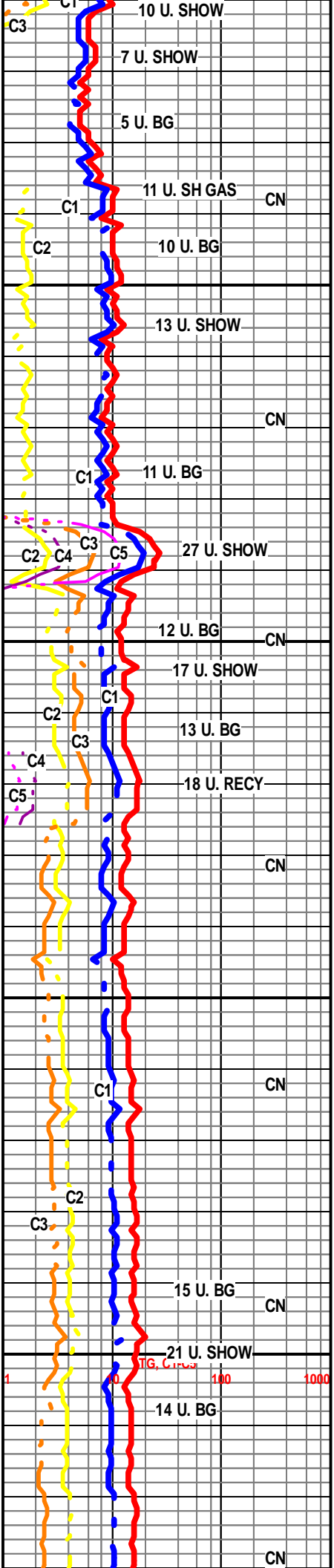
LS- OFF WHT WHT TO CRM- HD DNS MD-XLN TO SUCRO S-CHLKY TO CHLKY MTRX, TR FOSS FRGS, LT YEL MIN FLO IP, NO VIS POR, NO VIS SHOW OR CUT

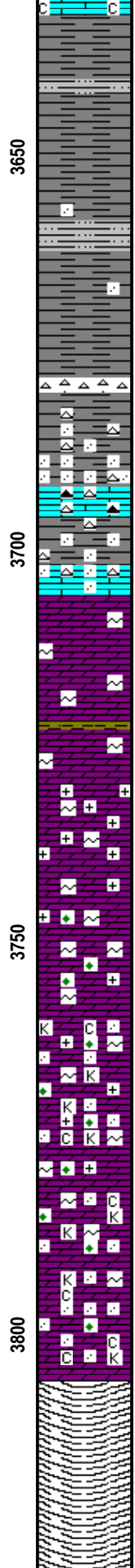
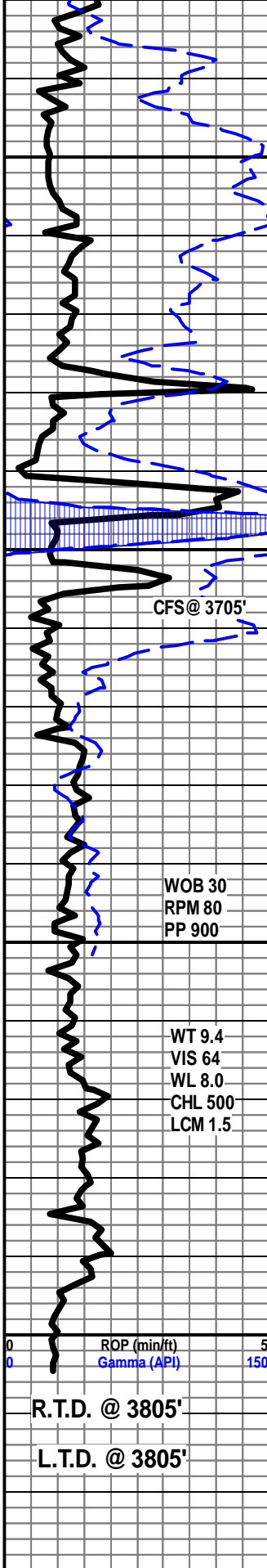
SH- RED DK RED GRN- FRM BLKY GRNY TXT , V/ CALC IP

LS- WHT OFF WHT CRM- HD DNS TO BRITT IP, MD-F-XLN RE-XLN MTRX, ABDT IMBD FOSS FRGS IP , SCAT IMBD SMLL OOL IP, ABDT FRM WHT CHLK IP, BRIT YEL GLD FLO THRU,, PR TO FR INTER-FOSS POR IN 20-30%, V/ GD FLSH CUT IN 60%, V/ GD SLO STRM MLKY BLU CUT IN 80%, LT OIL ODOR, V/ LT TN STN ON DISH

SH- RED - FRM BLK GRNY TXT IP TO V/ SFT GMMY

LS- OFF WHT TO WHT - HD DNS TO SFT IP, MD-XLN TO SUCRO S-CHLKY, ABDT SFT WHT CHLK THRU, TR IMBD V/VF-QURTZ GRNS IMBD IP, NO FLO, NO VIS POR, NO VIS SHOW OR CUT





SH- RED DK RED- V/ SFT GMMY TXT TO V/ GRNY TXT IP, HVYTR SMLL TO MD QRTZ GRNS IMBD IP

SH- RED DK RED- V/ SFT GMMY TXT TO V/ GRNY TXT IP, HVYTR SMLL TO MD QRTZ GRNS IMBD IP, HVY TR FREE LRG TO PBBL SIZE S-RND CLR GRNS IP

CHRT- CLR WHT RED- HD DNS MOTT CRYPTO-XLN TXT

SH- RED DK RED- V/ FRM BLKY , V/ CRS GRNY TXT, ABDT IMBD F-MD-S-RND CLR QRTZ GRNS SCAT THRU, CLR RED CHRT

LS & S INTERBEDS- CRM LT GY- HD DNS TO BRITT, MD-XLN TO SUCRO MTRX, ABDT IMBD DISS LT GY SH, ABDT IMBD F-MD-GRN S-RND TO RND CLR QRTZ GRNS, NO FLO, NO VIS POR, NO VIS SHOW OR CUT

**ARBUCKLE 3706' - 1549'**

DOLO- WHT OFF WHT , HD V/ BRITT, V/ FN SUCRO MTRX, IMBD GLAUC IP, SLI TR WHT CHLK IMBD IP, TR GRN CLAY IP, NO FLO, FR VIS INTER-XLN POR IP, NO VIS SHOW OR CUT,

DOLO-WHT REDISH BRN- HD DNS MOTT V/ FN SUCRO MTRX, ABDT FELDSPR, SCAT IMBD GLAUC, NO FLO, PR VIS INTER-XLN POR, NO VIS SHOW OR CUT

OFF WHT CRM REDDISH BRN- HD DNS TO BRITT, V/ CRS SUCRO MTRX, ABDT MD ANG DOLO GRNS THRU, V/ GLAUC, FELDSPRS, TR CHLORITE, HVY TR IMBD CHLK IP, NO VIS FLO, PR TO FR TO SCAT GD MICRO VUG POR IP, GD INTER-XLN POR IP, NO VIS SHOW OR CUT

DOLO- OFF WHT CRM REDDISH PINK- HD DNS TO TR BRITT, MD-XLN TO CRS SUCRO MTRX IP, S-CHLKY IP, ABDT IMBD GLAUC, KAOL AND CHLORITE, FELDSPRS, SCAT IMBD SMLL TO MD S-RND TO RND CLR QRTZ GRNS , NO FLO, PR SCAT MICRO VUG POR, FR TO GD VIS INTER-XLN POR IP, NO VIS SHOW OR CUT

DOLO- OFF WHT TO CRM- HD DNS TO BRITT, MD-XLN TO SUCRO MTRX , ABDT SMLL TO MD ANG DOLO GRNS IP, TR SFT CHLK IP, SCAT IMBD MD S-RND TO RND CLR QRTZ GRNS, TR QRTZITE IP, SCAT TR KAOL, CHLORITE , GLAUC, NO FLO, SCAT PR RO FR TO GD INTER-XLN POR IN 50%, NO VIS CUT OR SHOW

R.T.D. @ 10:12 AM NOV. 24, 2013

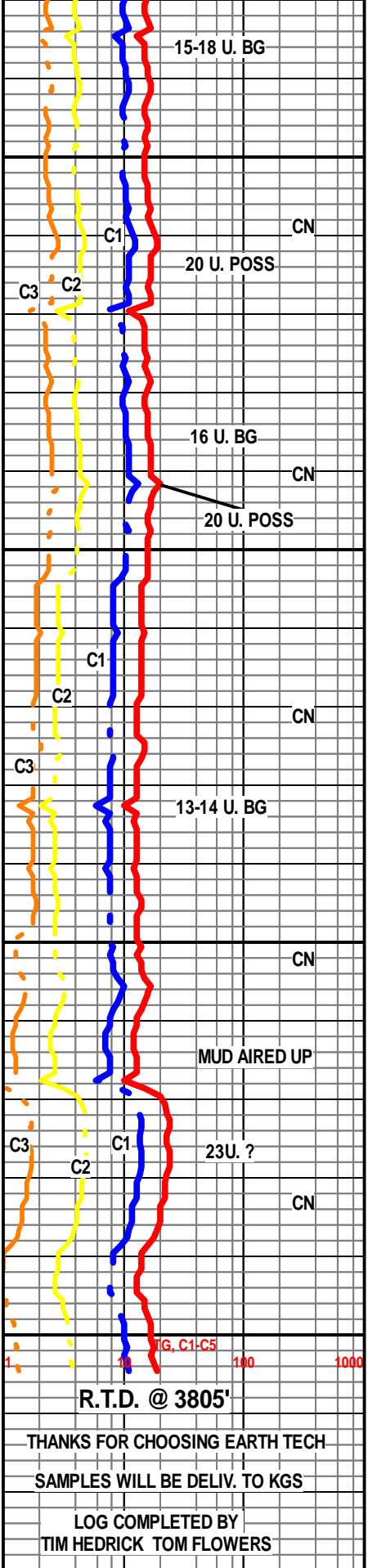
CFS 60 MINUTES

SHORT TRIP

CTCH 1.5 HRS

TRIP OUT F/ LOGS/ WEATHERFORD, LIBERAL

FINISH LOGS 9:40 PM NOV. 24, 2013



WOB 30  
RPM 80  
PP 900

WT 9.4  
VIS 64  
WL 8.0  
CHL 500  
LCM 1.5

R.T.D. @ 3805'

THANKS FOR CHOOSING EARTH TECH

SAMPLES WILL BE DELIV. TO KGS

LOG COMPLETED BY  
TIM HEDRICK TOM FLOWERS