



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1209391
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
-----------------------------------	-----------------	---

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: _____

1209391

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

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: _____ _____
--	--	---

Form	ACO1 - Well Completion
Operator	Samuel Gary Jr. & Associates, Inc.
Well Name	GRIFFITH ET AL 1-18
Doc ID	1209391

All Electric Logs Run

DEN-NEUT
INDUCTION
MICRO
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: 2/22/2014
 Invoice # 466

P.O.#:
 Due Date: 3/24/2014
 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:
 GRIFFITH ET AL 1-18

Description of Work:
 SURFACE JOB

RECEIVED

MAR 04 2014

SAMUEL GARY JR.
 & ASSOCIATES, INC.

DRLG COMP W/O LOE GG

Account	8200.138
Well/Prospect	
Deck	
AFE	
Approval	SLP
Description	

Services / Items Included:

	Quantity	Price	Taxable	Item	Quantity	Price	Taxable
Labor		\$ 1,020.55	No				
Common-Class A	200	\$ 3,352.94	Yes				
Pump Truck Mileage-Job to Nearest Camp	48	\$ 535.40	No				
Bulk Truck Matl-Material Service Charge	211	\$ 471.65	No				
Calcium Chloride	7	\$ 435.46	Yes				
8 5/8" Basket	1	\$ 353.18	Yes				
Bulk Truck Mileage-Job to Nearest Bulk Plant	48	\$ 313.30	No				
8 5/8" Top Rubber Plug	1	\$ 118.47	Yes				
Baffle Plate Aluminum, 8 5/8"	1	\$ 100.59	Yes				
Premium Gel (Bentonite)	4	\$ 72.78	Yes				
8 5/8" Centralizer	1	\$ 71.53	Yes				

Invoice Terms:

Net 30

SubTotal: \$ 6,845.83
 Discount Available ONLY if Invoice is Paid & Received within listed terms of invoice: \$ (1,026.88)

SubTotal for Taxable Items:	\$ 3,829.20
SubTotal for Non-Taxable Items:	\$ 1,989.76
Total:	\$ 5,818.95
Tax:	\$ 283.36

7.40% Graham County Sales Tax

Thank You For Your Business!

Amount Due: \$ 6,102.31
Applied Payments:
Balance Due: \$ 6,102.31

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. 466

Date	2-22-14	Sec.	18	Twp.	10	Range	22	County	Graham	State	KS	On Location		Finish	23:45
------	---------	------	----	------	----	-------	----	--------	--------	-------	----	-------------	--	--------	-------

Lease	Griffith ETAL		Well No.	1-18		Location	Wankeaney N DRd 3E								
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Contractor	Discovery #4		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.											
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Type Job	Surface		Charge To	Sam Gary Jr & Associates											
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Hole Size	12'14		T.D.	414											
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Csg.	8 5/8		Depth	414											
------	-------	--	-------	-----	--	--	--	--	--	--	--	--	--	--	--

Tbg. Size			Depth												
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Tool			Depth												
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Cement Left in Csg.	40.41		Shoe Joint	40.41		Cement Amount Ordered	200 com 3% occ 2% Gel								
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Meas Line			Displace	23 3/4 BBL											
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EQUIPMENT				Common
Pumptrk	5	No.	Cementer Helper	200
Bulktrk	9	No.	Driver Heath	Poz. Mix
Bulktrk	Pu	No.	Driver Matt	Gel. 4
				Calcium 7

JOB SERVICES & REMARKS

Remarks:	Hulls
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Rat Hole	Salt
----------	------

Mouse Hole	Flowseal
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Centralizers #1	Kol-Seal
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Baskets #2	Mud CLR 48
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D/V or Port Collar	CFL-117 or CD110 CAF 38
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	Sand
--	------

	Handling 211
--	--------------

	Mileage 8 5/8
--	---------------

CEMENT DID CIRCULATE

FLOAT EQUIPMENT

	Guide Shoe
--	------------

	Centralizer 1
--	---------------

	Baskets 1
--	-----------

	AFU Inserts
--	-------------

	Float Shoe
--	------------

	Latch-Down 1
--	--------------

	Baffle Plate 1
--	----------------

	Rubber Plug 1
--	---------------

	Pumptrk Charge Surface
--	------------------------

	Mileage 48
--	------------

	Tax
--	-----

	Discount
--	----------

	Total Charge
--	--------------

X Signature *[Signature]*



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: 3/1/2014
 Invoice # 7166

P.O.#:

Due Date: 3/31/2014

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	8300.217
Well/Prospect	
Deck	
AFE	
Approval	AP by MRH
Description	

RECEIVED
 MAR 07 2014
 SAMUEL GARY JR.
 & ASSOCIATES, INC.

Reference:
 GRIFFITH ET AL 1-18

Description of Work:
 PLUG JOB

Services / Items Included:	Quantity	Price	Taxable	Item	Quantity	Price	Taxable
Labor		\$ 1,020.55	Yes				
Common-Class A	162	\$ 2,715.88	Yes				
POZ Mix-Standard	108	\$ 760.45	Yes				
Bulk Truck Matl-Material Service Charge	280	\$ 625.88	Yes				
Pump Truck Mileage-Job to Nearest Camp	48	\$ 535.40	Yes				
Bulk Truck Mileage-Job to Nearest Bulk Plant	48	\$ 313.30	Yes				
Premium Gel (Bentonite)	10	\$ 181.95	Yes				
Flo Seal	67	\$ 149.76	Yes				
Dry Hole Plug	1	\$ 62.59	Yes				

Invoice Terms:

Net 30		SubTotal: \$ 6,365.76
	Discount Available <u>ONLY</u> if Invoice is Paid & Received within listed terms of invoice:	\$ (954.86)
	SubTotal for Taxable Items:	\$ 5,410.90
	SubTotal for Non-Taxable Items:	\$ -
	Total:	\$ 5,410.90
	Tax:	\$ 400.41
	Amount Due:	\$ 5,811.31
	Applied Payments:	
	Balance Due:	\$ 5,811.31

7.40% Graham County Sales Tax

Thank You For Your Business!

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

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

No. 7166

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

Date	3-1-14	Sec.	18	Twp.	10	Range	22	County	Graham	State	Ks	On Location		Finish	12:30 PM
------	--------	------	----	------	----	-------	----	--------	--------	-------	----	-------------	--	--------	----------

Lease GRIFFITH ET AL Well No. 1-18 Location Wakeeny, Ks - N to C.L., N to D Rd

Owner in Graham County, 3E, N 1/4

Contractor Discovery #4
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 Plug
Hole Size 7 7/8" T.D. 4159' Charge To Sam Gary Jr. + Associates

Csg. _____ Depth _____ Street _____

Tbg. Size 4 1/2" D.P. Depth 4130' City _____ State _____

Tool _____ Depth _____ The above was done to satisfaction and supervision of owner agent or contractor.

Cement Left in Csg. _____ Shoe Joint _____ Cement Amount Ordered 270 60/40 4% Gel

Meas Line _____ Displace H2O / mud 1/4# FS

EQUIPMENT

Pumptrk	16	No.	Cementor	Billy	Common	162
			Helper		Poz. Mix	108
Bulktrk	14	No.	Driver	David	Gel.	10
			Driver		Calcium	
Bulktrk	p.u.	No.	Driver	Rick	Hulls	
			Driver		Salt	

JOB SERVICES & REMARKS

Remarks:	<u>4130' - 50 SX</u>	Flowseal	<u>67#</u>
Rat Hole	<u>1916' - 25 SX</u>	Kol-Seal	
Mouse Hole	<u>1029 - 100 SX</u>	Mud CLR 48	
Centralizers	<u>464 - 40 SX</u>	CFL-117 or CD110 CAF 38	
Baskets	<u>40 - 10 SX w/ plug</u>	Sand	
D/V or Port Collar	<u>Rat hole - 30 SX</u>	Handling	<u>280</u>
	<u>Mouse Hole 15 SX</u>	Mileage	

Cement did Circulate

FLOAT EQUIPMENT

Guide Shoe	
Centralizer	
Baskets	
AFU Inserts	
Float Shoe	
Latch Down	

1- Dryhole plug

Pumptrk Charge plug

Mileage 48

X Signature

Tax _____
Discount _____
Total Charge _____



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Samuel Gart Jr. and Associates

18-10s-22w Graham KS

1515 Wynkoop Dr. STE 700
Denver CO, 80202

Griffith et al 1-18

Job Ticket: 56084

DST#: 1

ATTN: Chris Mitchell

Test Start: 2014.02.28 @ 22:22:00

GENERAL INFORMATION:

Formation: **LKC "K"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:04:15

Time Test Ended: 06:13:45

Test Type: Conventional Straddle (Initial)

Tester: Cody Bloedorn

Unit No: 73

Interval: 3834.00 ft (KB) To 3874.00 ft (KB) (TVD)

Reference Elevations: 2362.00 ft (KB)

Total Depth: 4159.00 ft (KB) (TVD)

2354.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8655

Inside

Press @ Run Depth: 27.66 psig @ 3835.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.02.28

End Date:

2014.03.01

Last Calib.:

2014.03.01

Start Time: 22:22:05

End Time:

06:13:44

Time On Btm:

2014.03.01 @ 01:04:00

Time Off Btm:

2014.03.01 @ 03:35:00

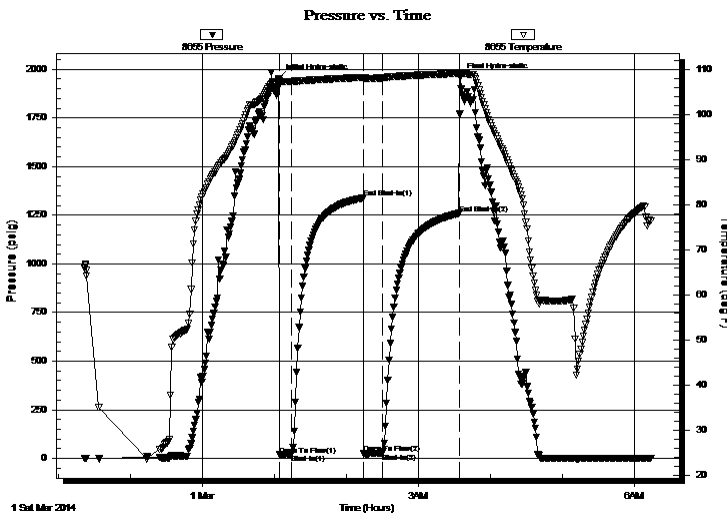
TEST COMMENT: 10 - IF- 1 1/4" blow

60 - IS- No return

15 - FF- No blow

60 - FS- No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1953.74	107.45	Initial Hydro-static
1	17.99	106.56	Open To Flow (1)
11	22.21	107.30	Shut-In(1)
71	1339.17	108.25	End Shut-In(1)
71	24.32	107.91	Open To Flow (2)
87	27.66	108.14	Shut-In(2)
150	1259.75	109.12	End Shut-In(2)
151	1957.13	109.36	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud with oil spots, 100%M	0.05

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Samuel Gart Jr. and Associates

18-10s-22w Graham KS

1515 Wynkoop Dr. STE 700
Denver CO, 80202

Griffith et al 1-18

ATTN: Chris Mitchell

Job Ticket: 56084

DST#: 1

Test Start: 2014.02.28 @ 22:22:00

GENERAL INFORMATION:

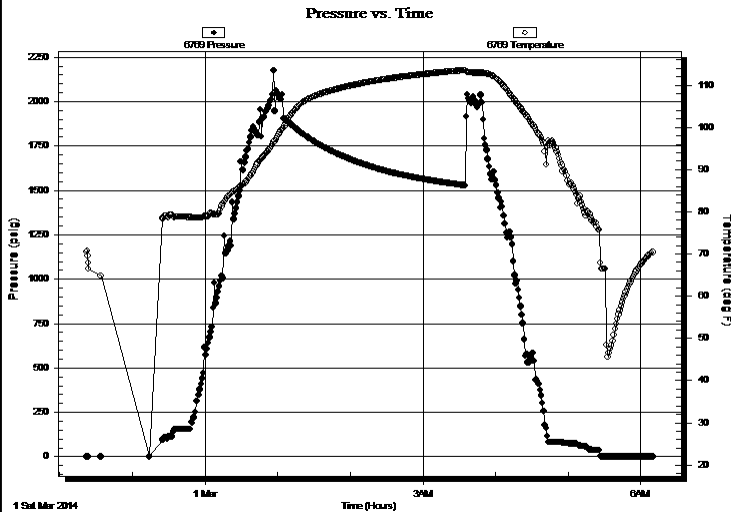
Formation: LKC "K"
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:04:15
Time Test Ended: 06:13:45
Interval: 3834.00 ft (KB) To 3874.00 ft (KB) (TVD)
Total Depth: 4159.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches **Hole Condition:** Fair
Test Type: Conventional Straddle (Initial)
Tester: Cody Bloedorn
Unit No: 73
Reference Elevations: 2362.00 ft (KB)
 2354.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 6769 Below (Straddle)

Press @ Run Depth: psig @ 4160.00 ft (KB) **Capacity:** 8000.00 psig
Start Date: 2014.02.28 **End Date:** 2014.03.01 **Last Calib.:** 2014.03.01
Start Time: 22:22:05 **End Time:** 06:10:29 **Time On Btm:**
Time Off Btm:

TEST COMMENT:

- 10 - IF- 1 1/4" blow
- 60 - IS- No return
- 15 - FF- No blow
- 60 - FS- No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud with oil spots, 100%M	0.05

Gas Rates

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



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Samuel Gart Jr. and Associates

1515 Wynkoop Dr. STE 700
Denver CO, 80202

ATTN: Chris Mitchell

18-10s-22w Graham KS

Griffith et al 1-18

Job Ticket: 56084

DST#: 1

Test Start: 2014.02.28 @ 22:22:00

GENERAL INFORMATION:

Formation: LKC "K"

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:04:15

Time Test Ended: 06:13:45

Interval: 3834.00 ft (KB) To 3874.00 ft (KB) (TVD)

Total Depth: 4159.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Straddle (Initial)

Tester: Cody Bloedorn

Unit No: 73

Reference Elevations: 2362.00 ft (KB)

2354.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8875 Fluid

Press @ Run Depth: psig @ 3798.00 ft (KB)

Start Date: 2014.02.28 End Date: 2014.03.01

Start Time: 22:22:05 End Time: 06:15:14

Capacity: 8000.00 psig

Last Calib.: 2014.03.01

Time On Btm:

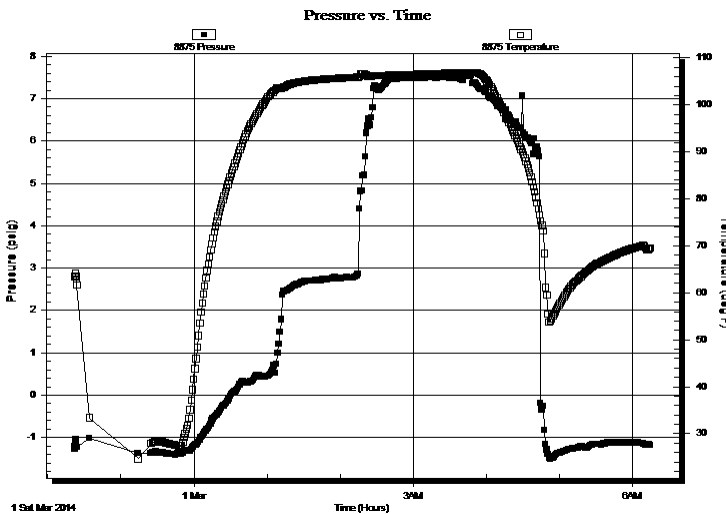
Time Off Btm:

TEST COMMENT: 10 - IF- 1 1/4" blow

60 - IS- No return

15 - FF- No blow

60 - FS- No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud with oil spots, 100%M	0.05

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Samuel Gart Jr. and Associates

18-10s-22w Graham KS

1515 Wynkoop Dr. STE 700
Denver CO, 80202

Griffith et al 1-18

Job Ticket: 56084

DST#: 1

ATTN: Chris Mitchell

Test Start: 2014.02.28 @ 22:22:00

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:

bbbl

Water Loss: 8.38 in³

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
10.00	Mud w ith oil spots, 100%M	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

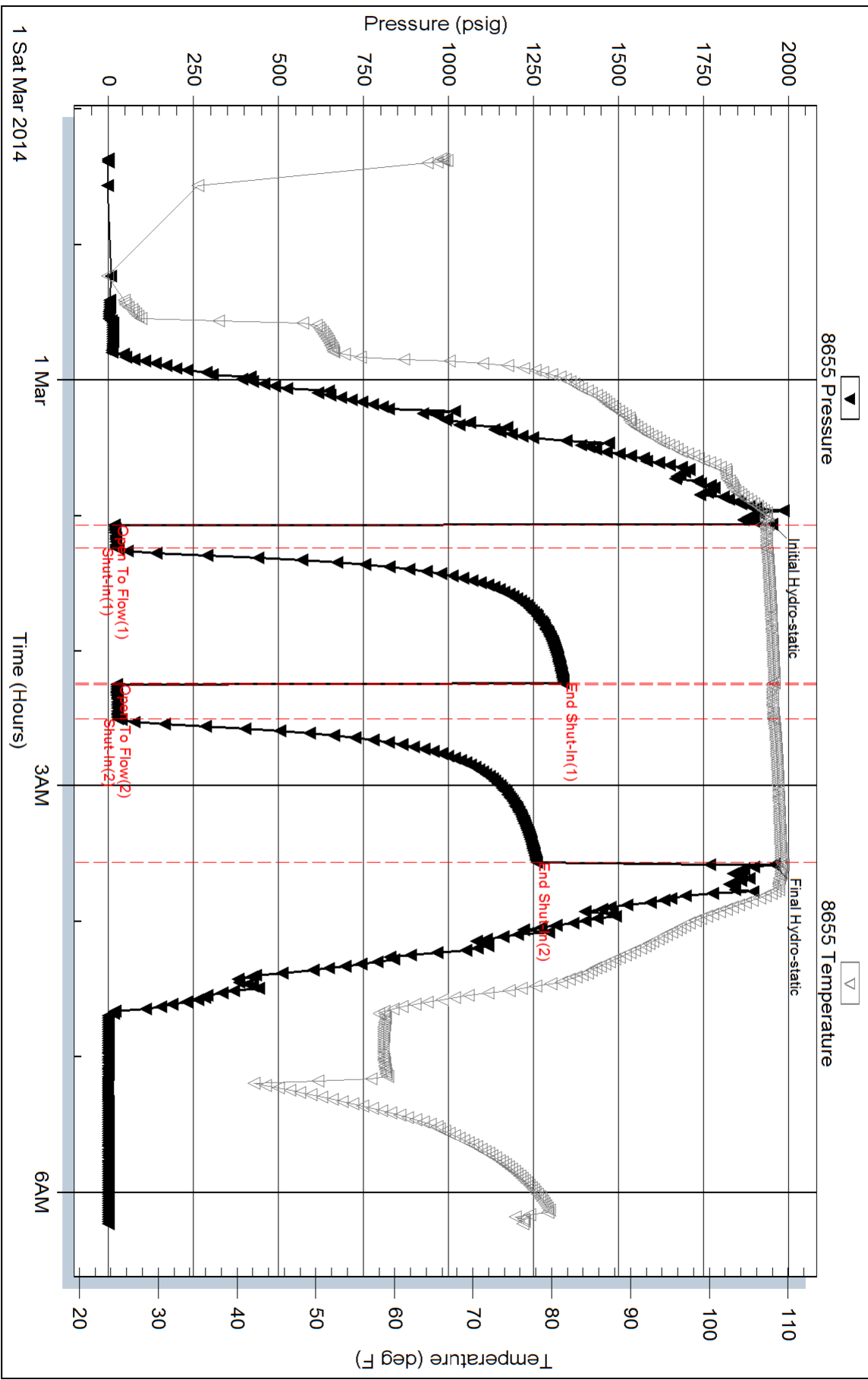
Serial #:

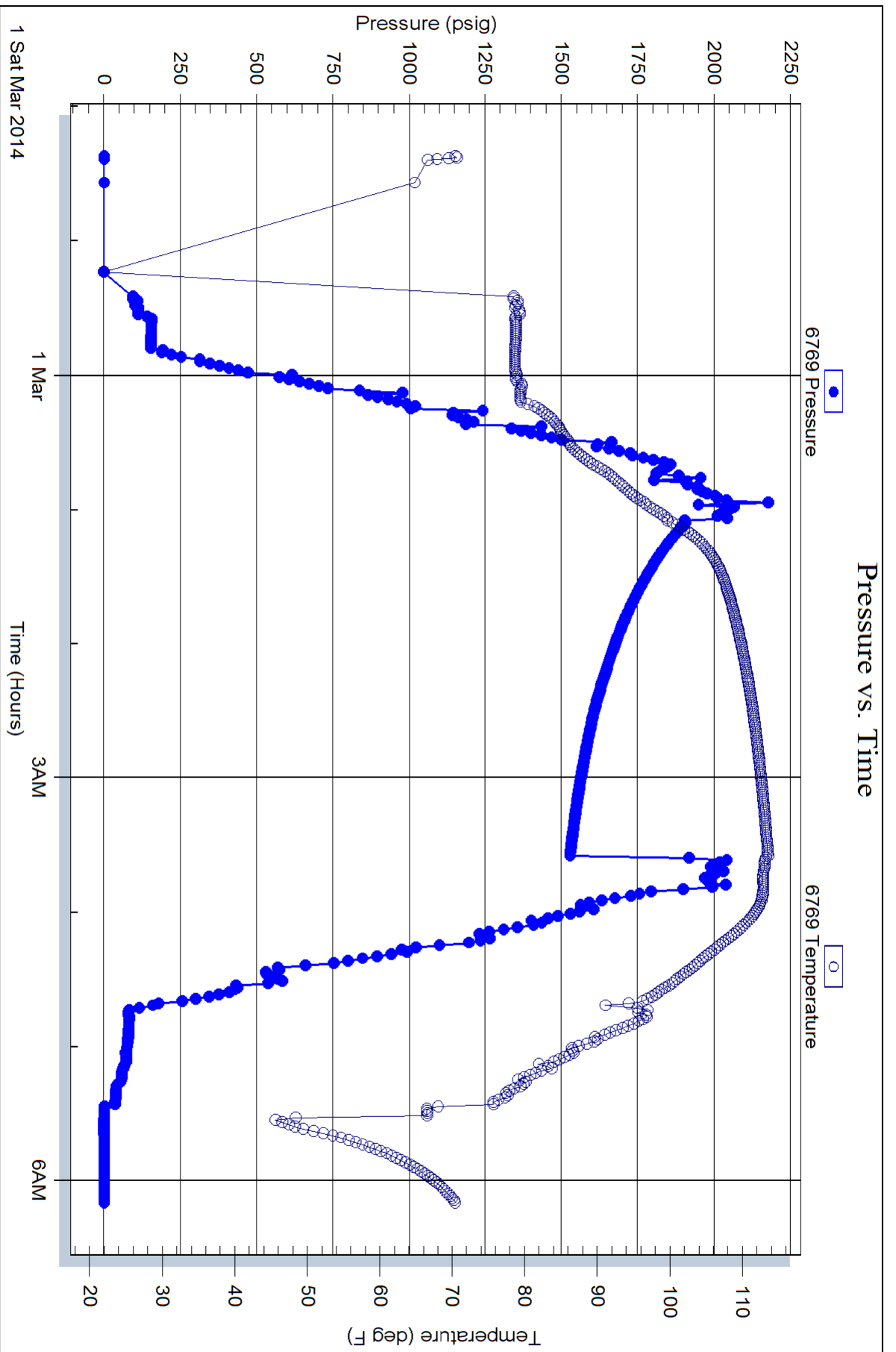
Laboratory Name:

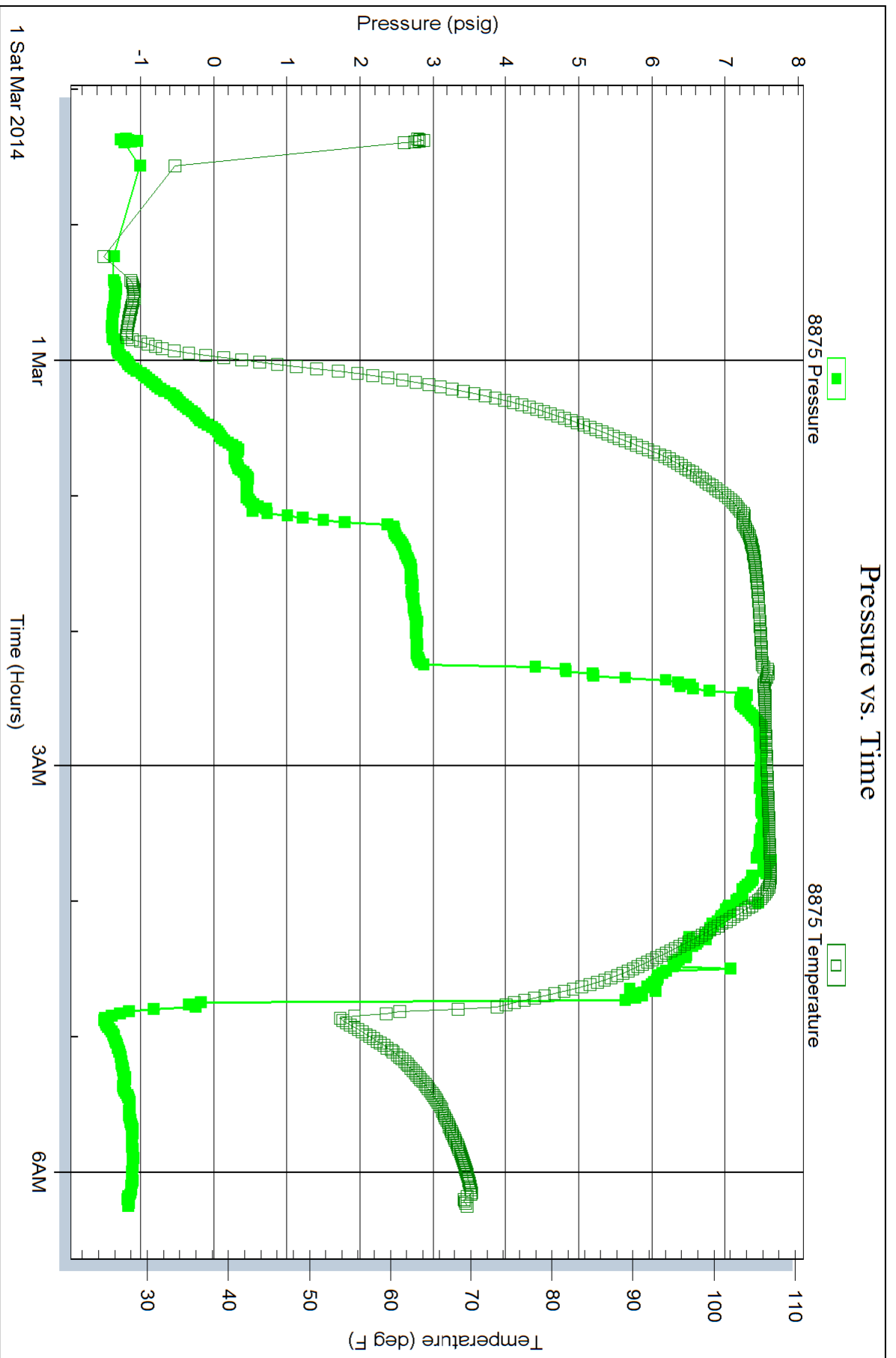
Laboratory Location:

Recovery Comments: Sampler: filled w ith mud, 2000ML, No PSI on it.

Pressure vs. Time









EARTH TECH OGL, INC

PO BOX 683 8918th st
 HOOKER, OK 73945 GREAT BEND, KANSAS 67531
 1-888-543-8378

COMPANY: SAMUEL GARY JR & ASSOCIATES, INC
 WELL: GRIFFTH ET AL 1-18
 FIELD: WILDCAT COUNTY: GRAHAM COUNTY STATE: KANSAS
 LOCATION: 200 FSL / 950 FWL
SEC. 18-T10S-R22W
 Interval Logged: 3370' To: 4160' G.L.: 2354' K.B: 2362'
 Date Logged: 2/25/14 To: 2/28/14 Spud Date: 2/22/14
 Rig: DISCOVERY DRILLING Unit No.: 4
 Loggers: _____
 Api No.: 15-065-24010
 Filename: griffith_et_al_1-18.mlw
 Geologist: Jeff Quimby

Abbreviations:

NB...New Bit
 CO...Circ Out
 NR...No Returns
 TG...Trip Gas
 WOB...Wt on Bit
 RPM...Rev/Min
 SG...Survey Gas
 DST...Drill Stem Test
 DS...Directional Survey
 CG...Connection gas
 LAT...Logged After Trip
 PP...Pump Pressure
 SPM...Strokes/Min
 DTG...Down Time Gas

Mud Data

WT...Weight
 PH...Acidity
 CHL...Chlorides
 V...Viscosity
 F..Filtrate
 SC...Solids Content

Lithology Symbols:

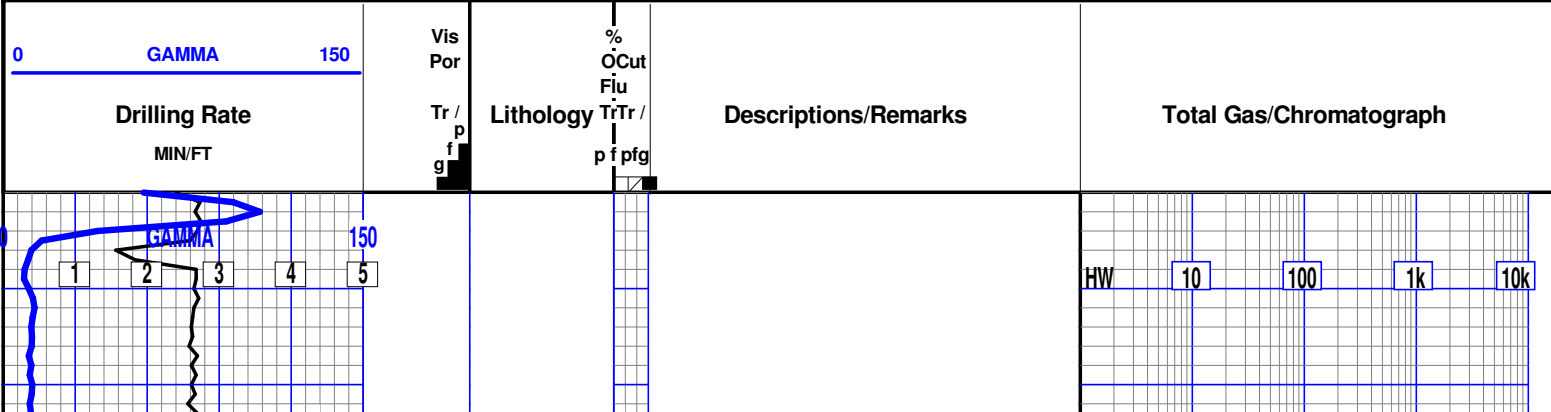
Anhydrite	Salt	Granite
Siltstone	Chert	Sandstone
Dolomite	Conglomerate	Limestone
Coal	Shale	Bentonite
Carb Shale	Granite Wash	Quartz Wash
Red Sh	Org Sh	Green Sh
Cust Sh1	Cust Sh2	Cust Sh3
Cust Sh4	Cust Sh5	Cust Sh6

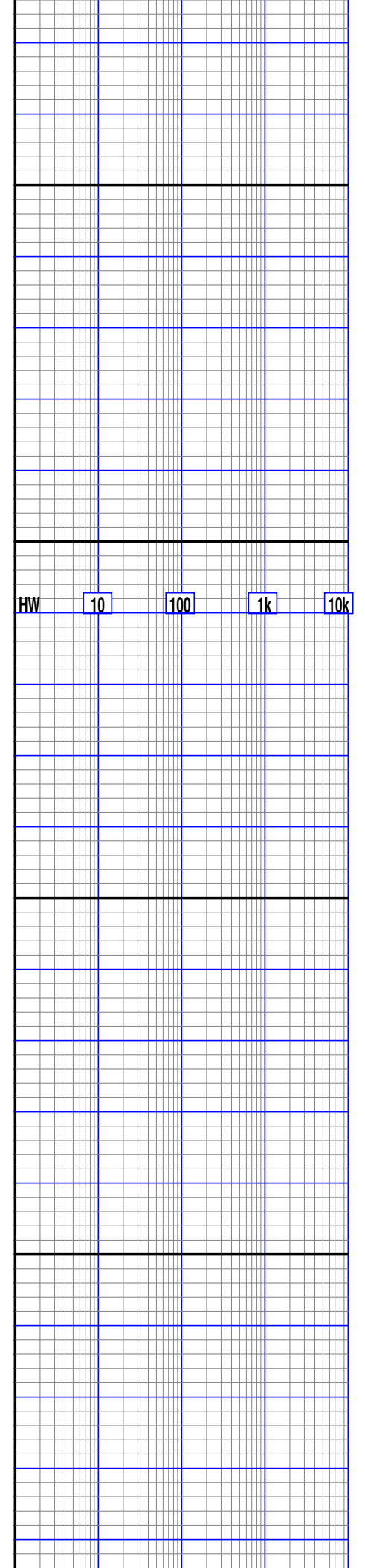
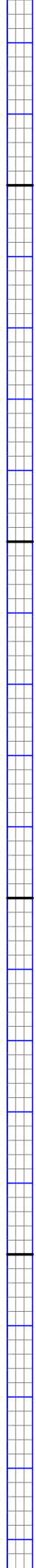
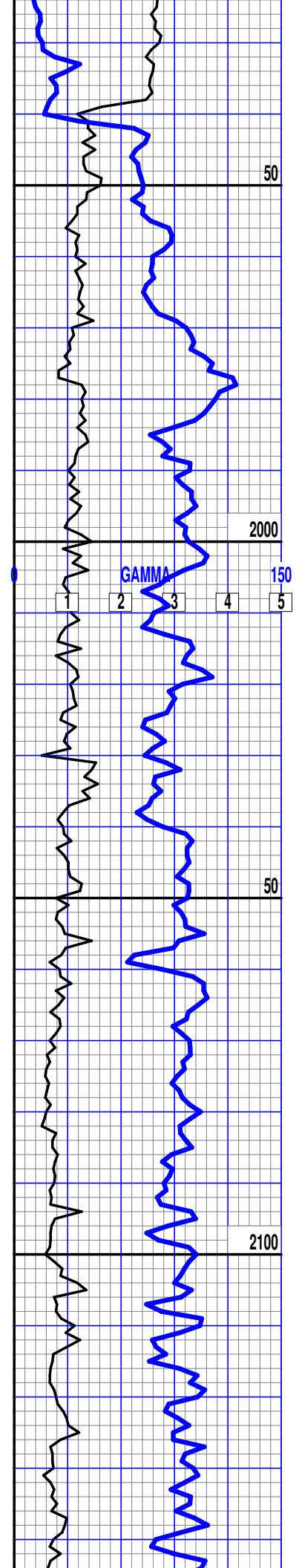
Gas Chromatograph Analysis:

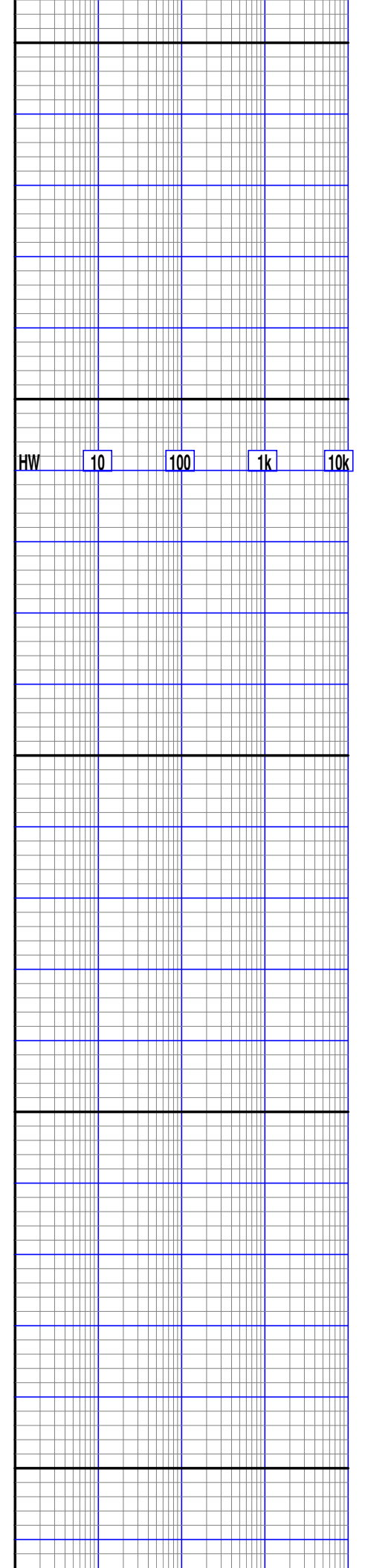
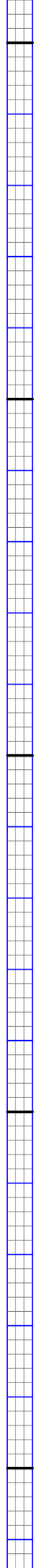
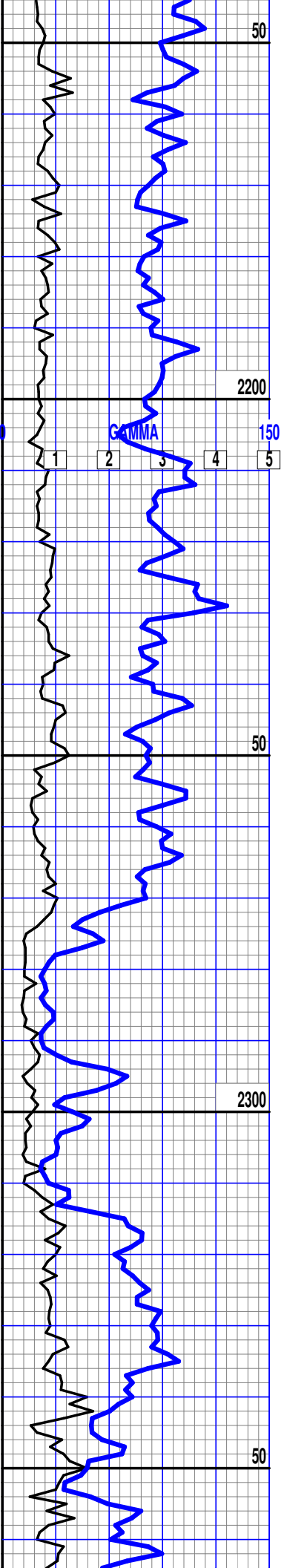
HW HW
 C1 C1
 C2 C2
 C3 C3
 IC4 IC4
 NC4 NC4
 IC5 IC5

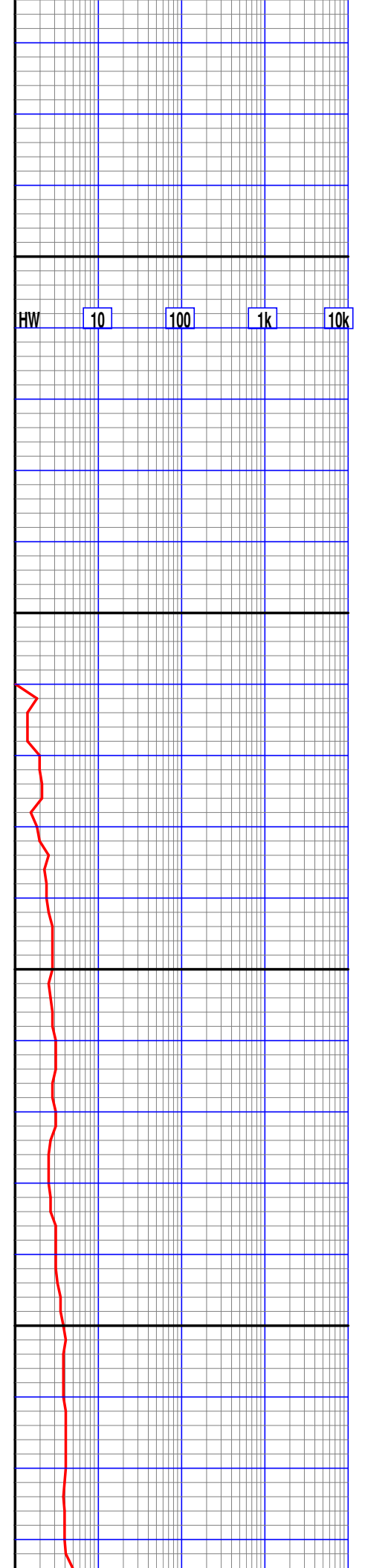
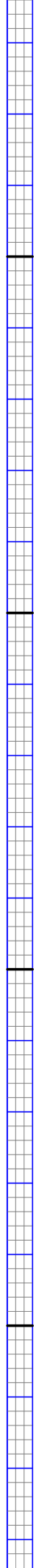
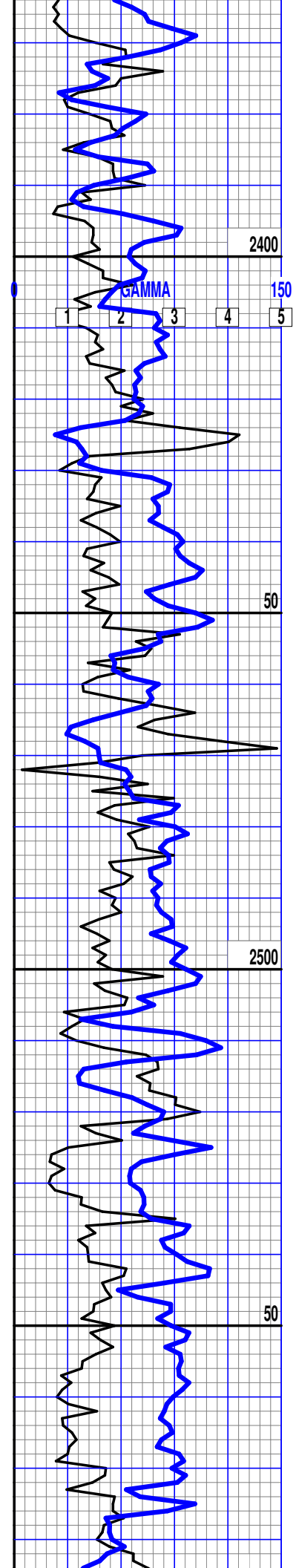
Accessories

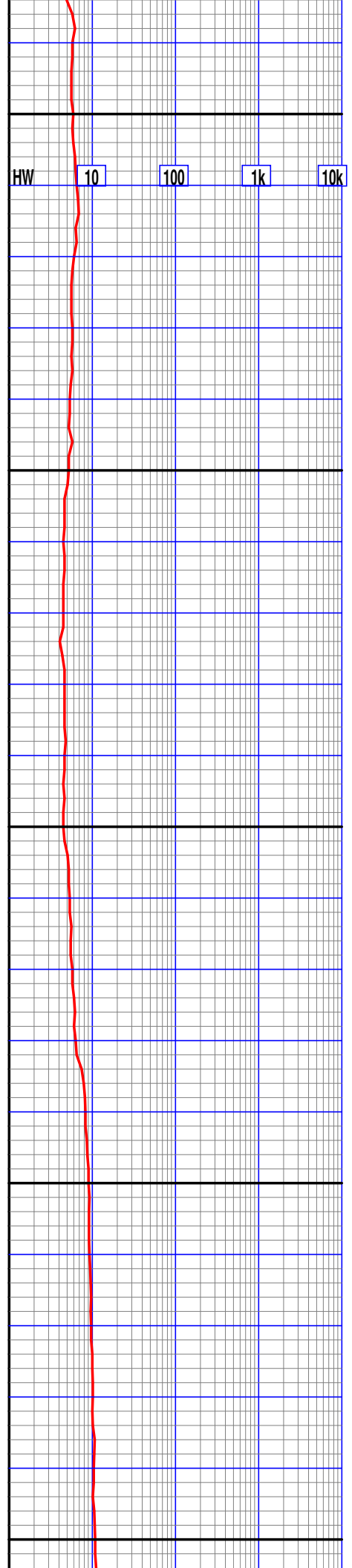
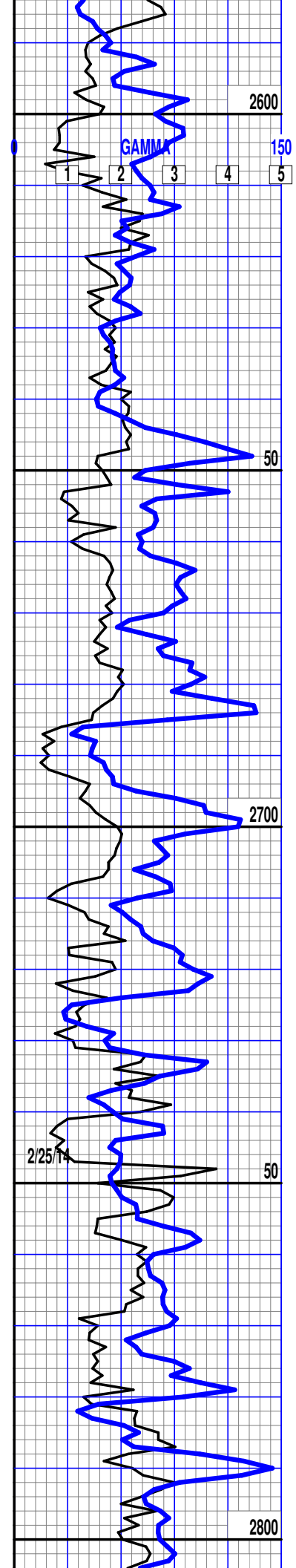
Glauconite Pyrite Fossils Oolites
 Fractures Cement

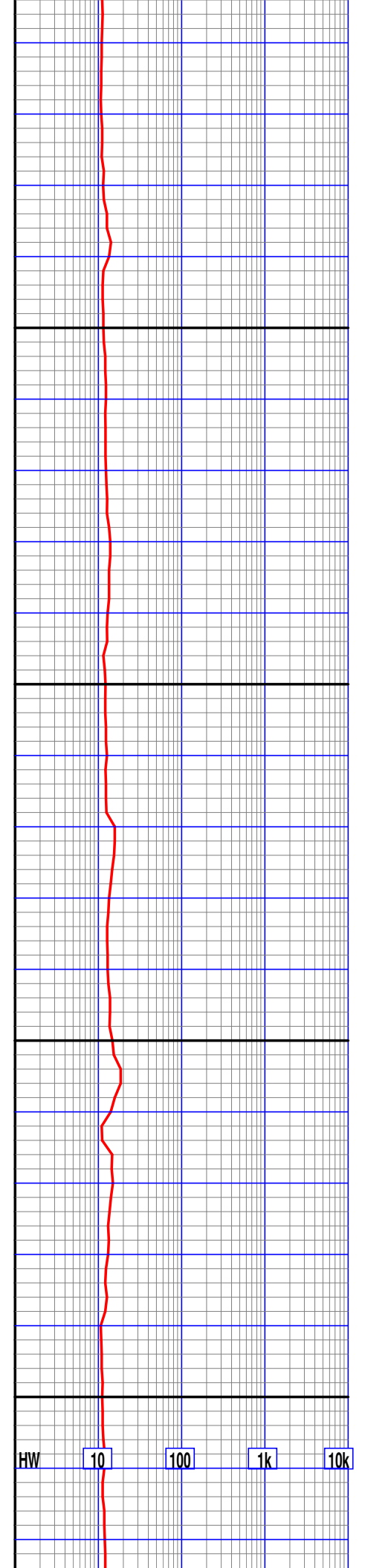
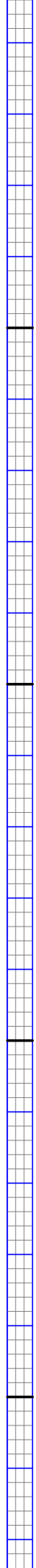
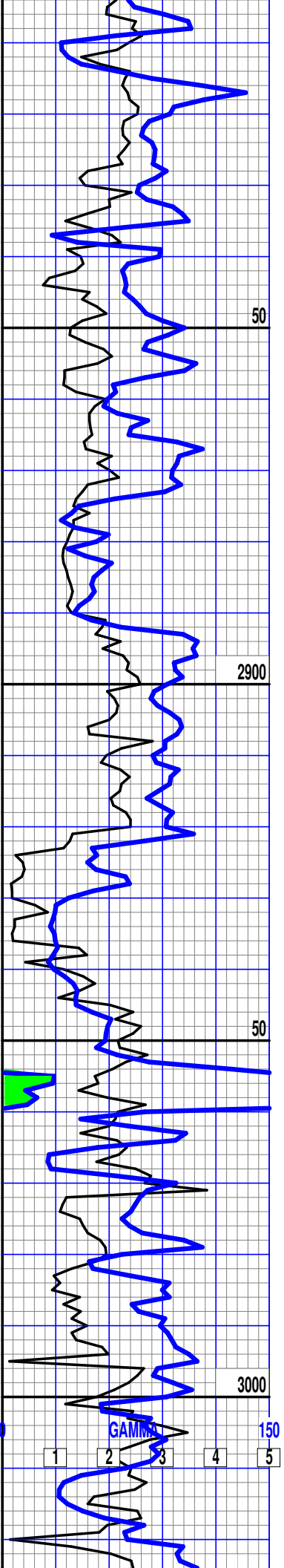


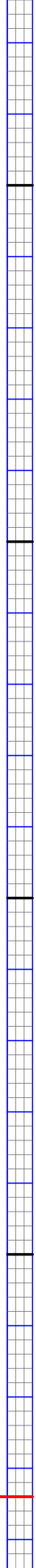
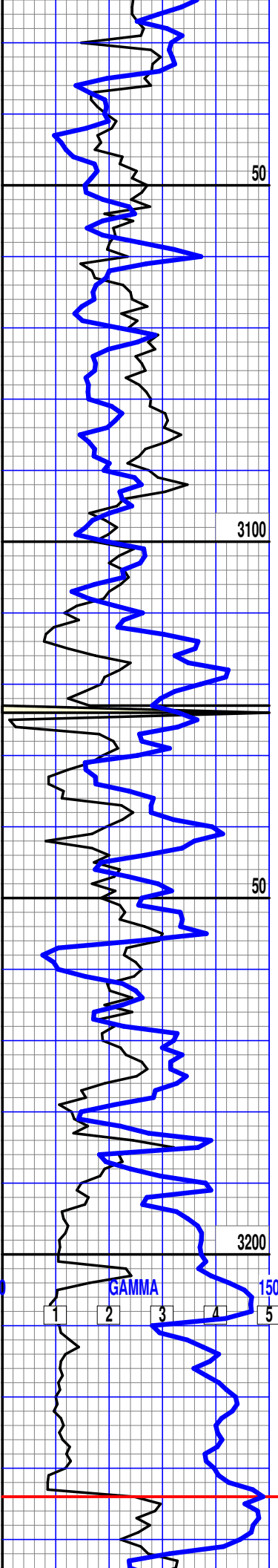




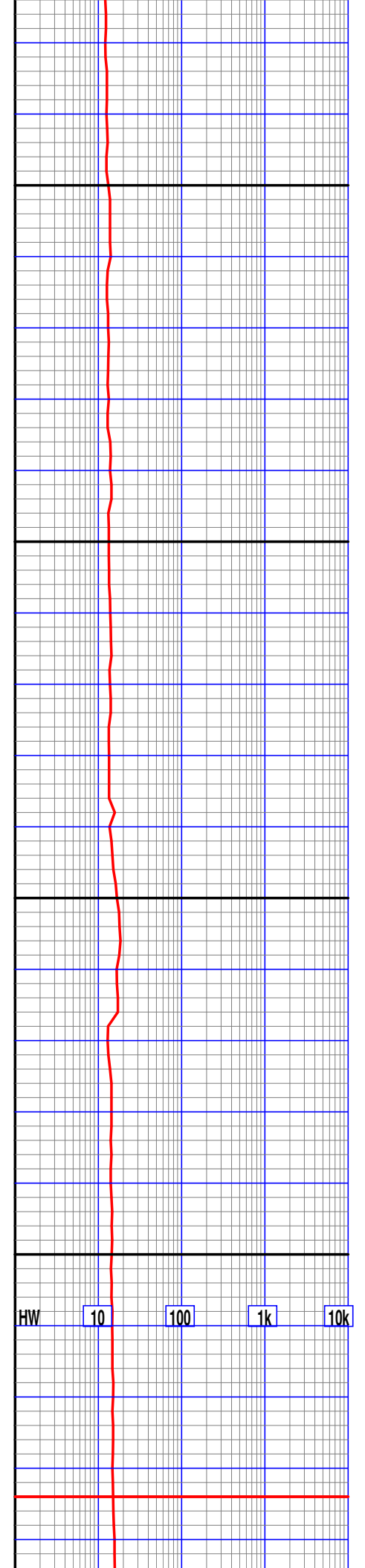


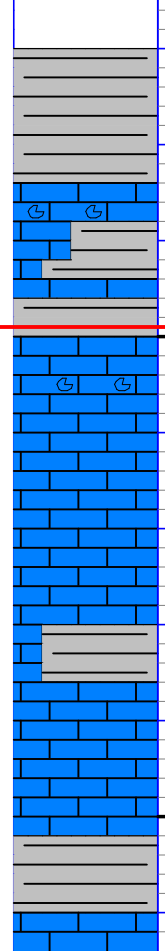
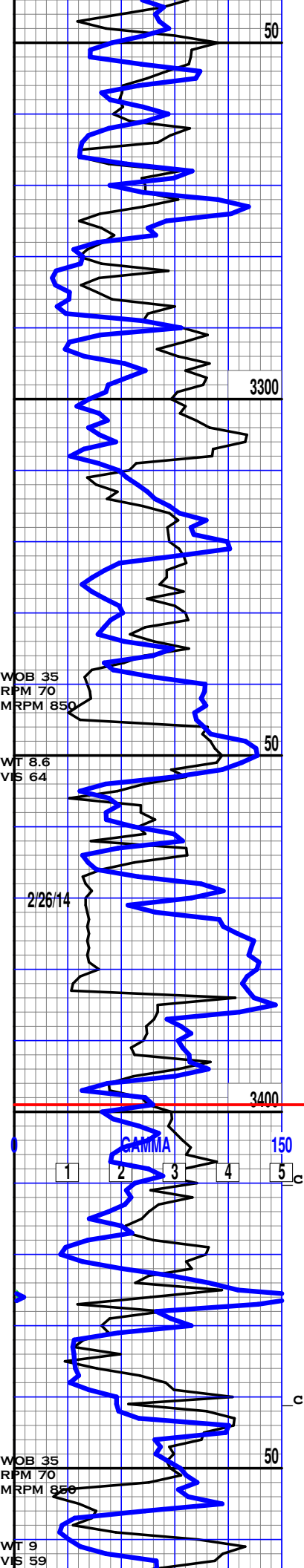






ELMONT 3234' (-872')





START MANNED UNIT 2/26/14
 SH-GRY LT GRY, SFT BRITT TO FRM IP, BLKY

SH-GRY, FRM TO BRITT, BLKY

LS-GRY MD GRY TO MOTTED OFF WHT IP, HD DNS, MD-F-XLN, RE-XLN THRU, LMND GRY SH THRU, IMBD FOSS FRGS IP, DLL YEL FLO IP, NO VIS POR, NO SHOW
TOPEKA 3399' (-1037')

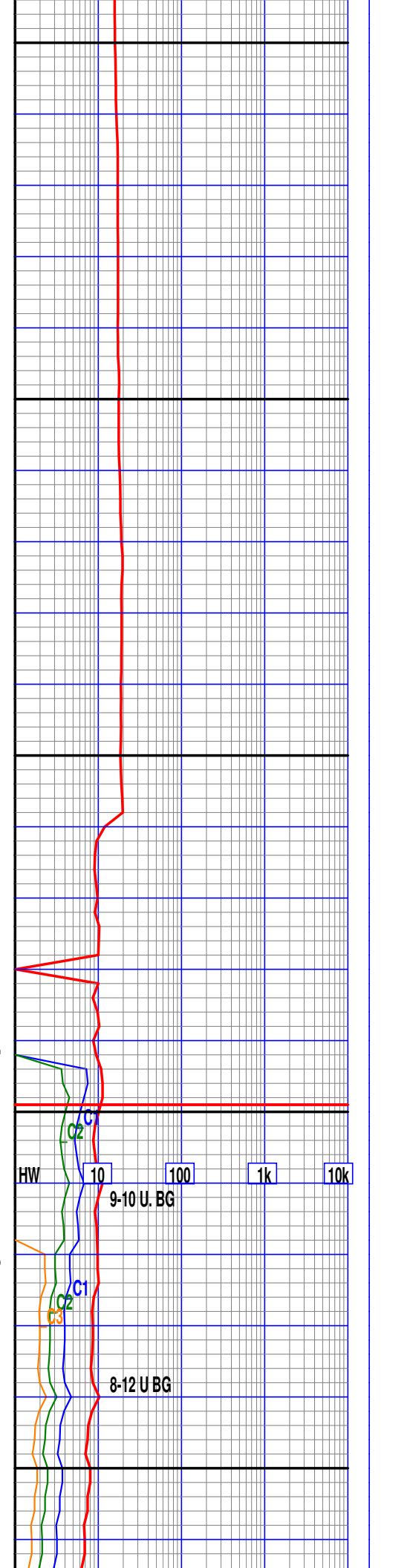
LS- OFF WHT CRM, HD DNS TO BRITT IP, F-XLN, SLI RE-XLN IP, IMBD FOSS FRGS IP, IMBD CALC XLS IP, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

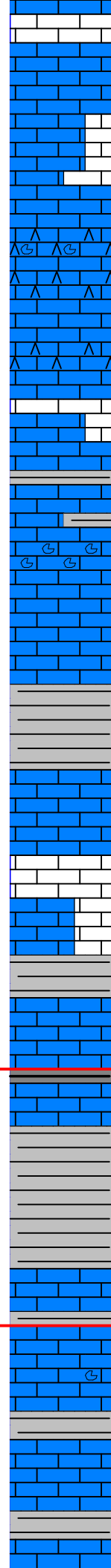
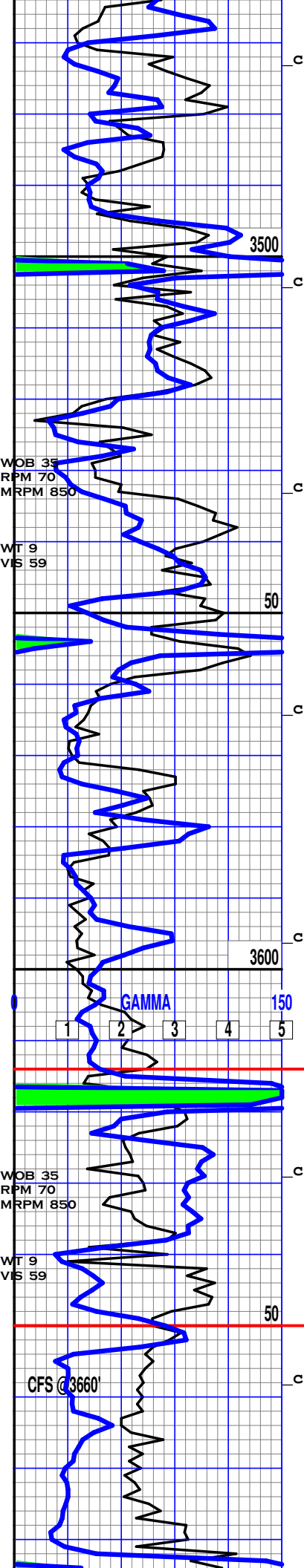
LS- OFF WHT WHT, HD DNS, F-XLN, SLI SUCRO MTRX IP, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

SH-GRY, FRM TO BRITT IP, SMTH BLKY

LS- OFF WHT CRM TO TN, HD DNS, F-XLN SUCRO MTRX IP, TR IMBD FOSS FRGS IP, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

SH-GRY MD GRY, FRM BRITT, BLKY TO SMTH BLKY IP





LS- OFF WHT WHT, HD DNS BRIT MD-XLN, SUB-CHLKY MTRX IP IMBD WHT SFT CHLK IP, GMMY WHT CHLK IN TRAY, DLL YEL FLO, NO VIS POR, NO VIS CUT OR SHOW

LS- OFF WHT WHT, HD DNS MD-F-XLN, SUCRO MTRX, IMBD WHT CHRT, IMBD FOSS FRGS IP, DLL YEL FLO, NO VIS POR, NO VIS CUT OR SHOW

LS-WHT OFF WHT, HD DNS, MD-XLN, IMBD WHT CHRT W/ FOSS FRGS, NO VIS FLO, NO VIS POR NO VIS CUT OR SHOW

LS- WHT OFF WHT CRM, HD DNS, F-XLN SUB-CHLKY IP, IMBD WHT CHLK IP, WHT GMMY CHLK IN TRAY, NO VIS FLO, NO VIS POR NO VIS CUT OR SHOW

LS- OFF WHT WHT CRM, HD DNS, F-XLN RE-XLN MTRX TO SUCRO MTRX IP, IMBD FOSS FRGS IP, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

LS- CRM OFF WHT, HD DNS, F-XLN RE-XLN MTRX, IMBD GRY SH IP, NO VIS FLO, NO VIS POR NO VIS CUT OR SHOW

SH- GRY MD GRY, SFT BRITT, BLKY

LS- OFF WHT WHT CRM, HD DNS, F-XLN SUCRO IP, IMBD WHT CHLK IP, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

LS- OFF WHT WHT, HD BRITT, MD-XLN, ABDT WHT GMMY CHLK IN TRAY, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

SH- GRY MD GRY, FRM TO BRITT BLKY

HEEBNER 3616' (-1254')
SH-BLK DRK GRY, SFT BRITT, BLKY, CARB

SH- GRY TO MOTTED RED IP, SFT BRITT, BLKY

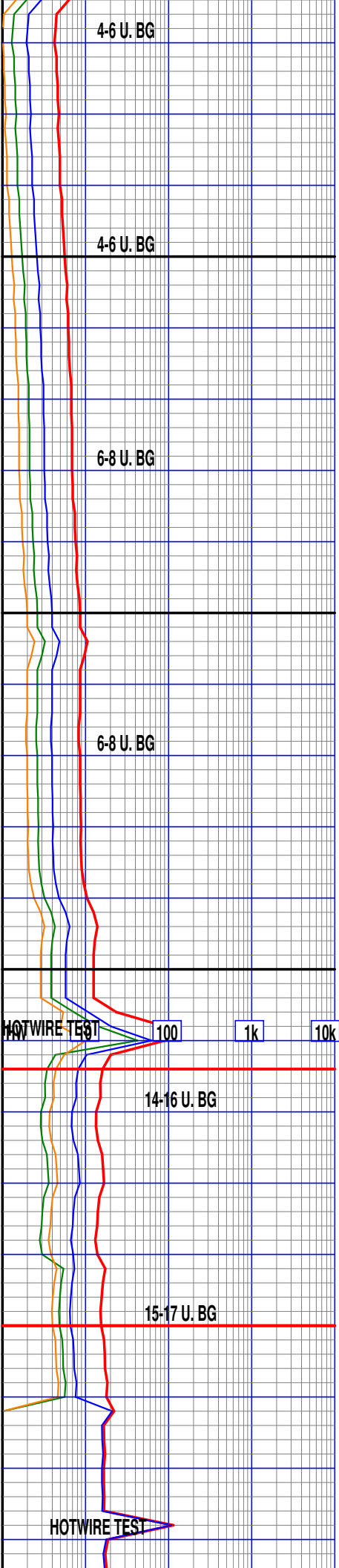
SH-GRY SLI GRN TO MOTTED RED SFT BRITT TO V/GMMY, BLKY

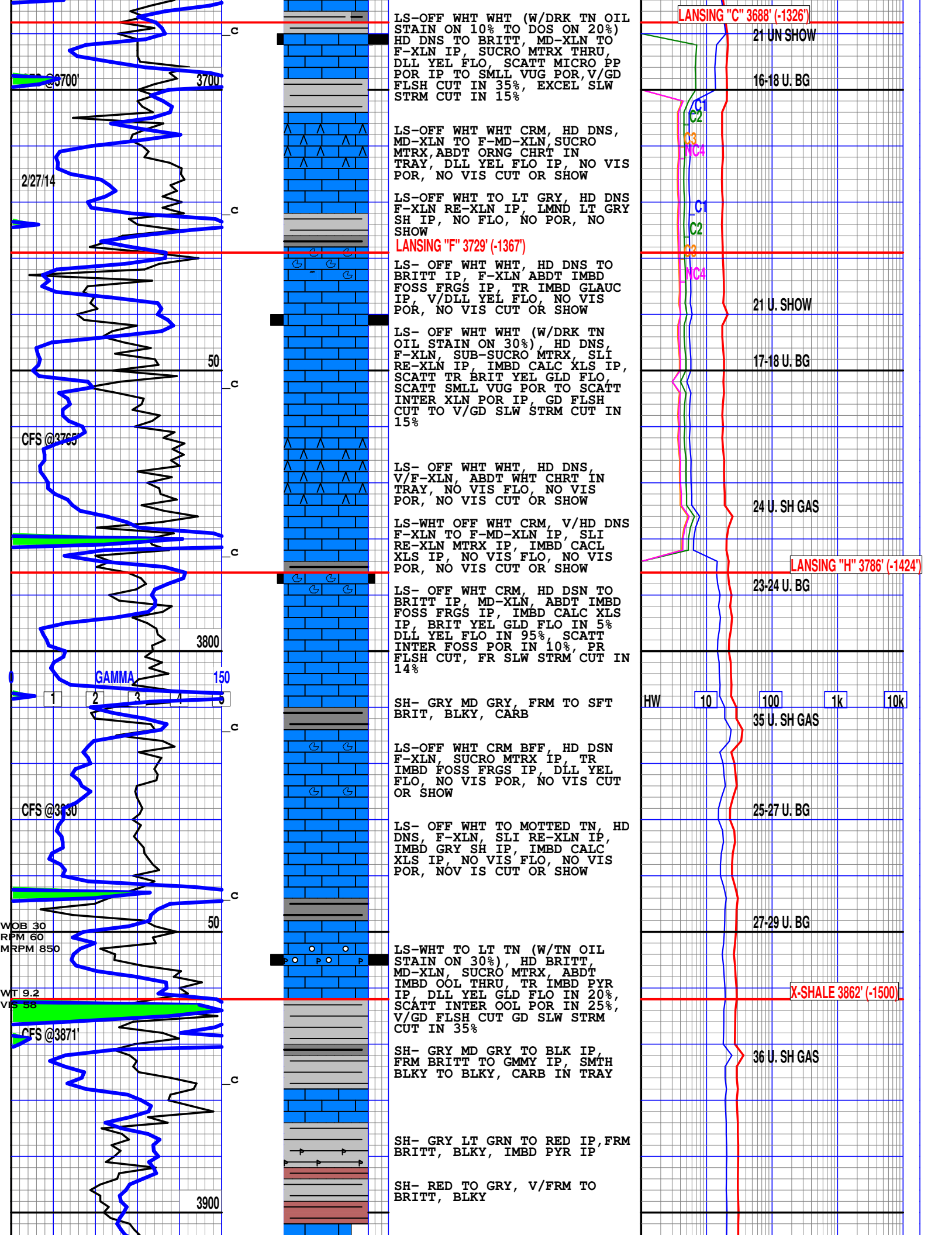
LANSING 3650' (-1288')

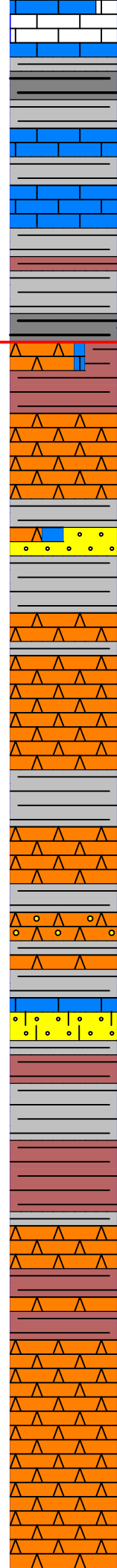
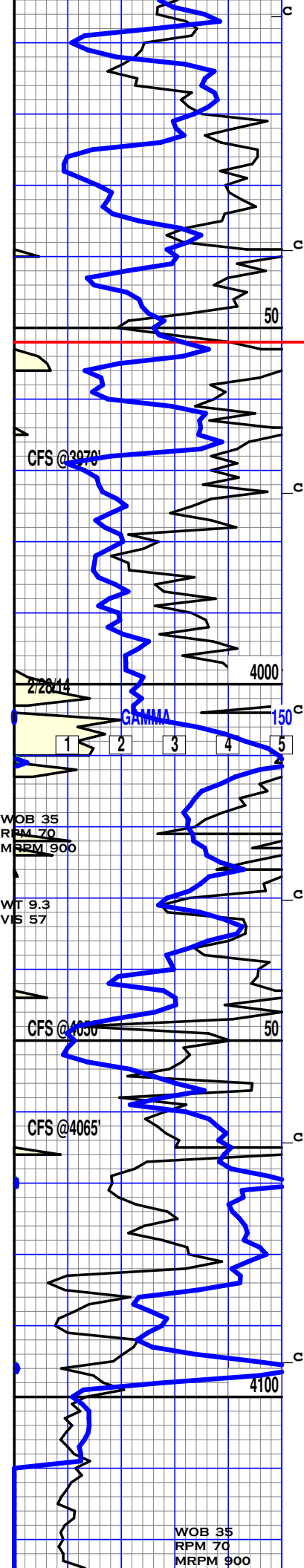
LS-OFF WHT CRM, HD DNS, F-XLN TO V/F-XLN, IMBD FOSS FRGS IP, DLL YEL FLO, NO VIS POR, NO VIS CUT OR SHOW

LS- OFF WHT WHT, HD DNS, F-XLN RE-XLN THRU, TR IMBD CALC XLS IP, BRIT' YEL FLO, SCATT TR SMLL VUG POR IP, NO VIS CUT OR SHOW

SH- MD DRK GRY, FRM TO BRITT BLKY







MD-XLN SUB-CHLKY THRU, IMBD WHT CHLK IP, DLL YEL FLO, NO VIS POR, NO VIS CUT OR SHOW

SH- BLK SFT CARB

LS- OFF WHT WHT, V/HD DNS, MD-XLN V/SUCRO MTRX THRU, IMBD WHT CHRT THRU IP, IMBD GLAUC IP, IMBD PYR IP, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

SH-GRY TO MOTT RED IP, V/SFT GMMY, IMBD PYR IP, BLKY

MARMATON 3952' (-1590')

CHRT-OFF WHT ORNG TO YELL, HD DNS, MD-XLN SUCRO MTRX IP, IMBD LS IP, IMBD RD SH IP, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

CHRT-CRM TO ORNG, V/HD DNS, V/F-XLN TO MD-XLN WTHRD IP, IMBD FOSS FRGS IP, NO VIS FLO, NO VIS CUT OR SHOW

SS- OFF WHT TO LT GRY, ORTZ GRNS, HD TO FRI V/FRI IP, CRS TO PBBLE GRNS, S-RND, WLL SRT, CALC CMNT THRU, IMBD CHRT IP, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

CHRT-CRM TO TN, HD DNS, V/F-XLN, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

CHRT-WHT OFF WHT, HD DNS, MD-XLN WTHRD IP, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

SH-GRY TO DRK GRY, SFT BRITT TO V/GMMY IP, BLKY

CHRT- CRM TO ORNG, HD DNS, V/F-XLN MD-XLN IP, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

SS-OFF WHT CRM TO TN, ORTZ GRNS THRU, HD TT TO FRI CRS TO PBBLE RND TO S-ANG GRNS, PR SRT, CALC CMNT THRU IP, ADBT IMBD LS IP, IMBD WHT CHRT IP, DLL YEL GLD FLO IN 30% TO NO FLO, SCATT INTER XLN POR IN 60%, NO FLSSH CUT GD SLW STRM CUT IN 40%

SH- GRY TO RED, V/SFT GMMY IMBD PYR IP, BLKY

SH-RED, FRM TO V/GMMY IP, BLKY

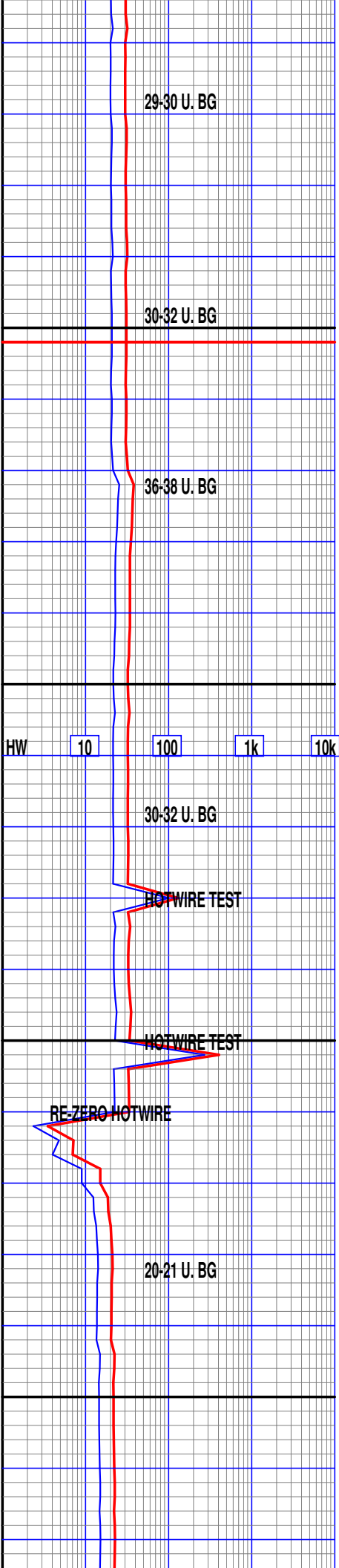
CHRT-OFF WHT TO YEL, V/HD DNS, MD-XLN TO V/F-XLN, IMBD OOL THRU IP, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

SH-RED TO GRY, FRM TO SFT BRITT IP, IMBD CHRT IP, BLKY

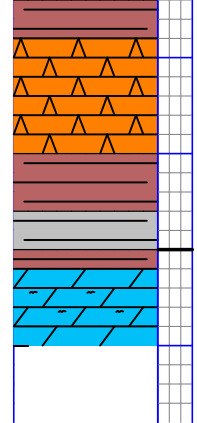
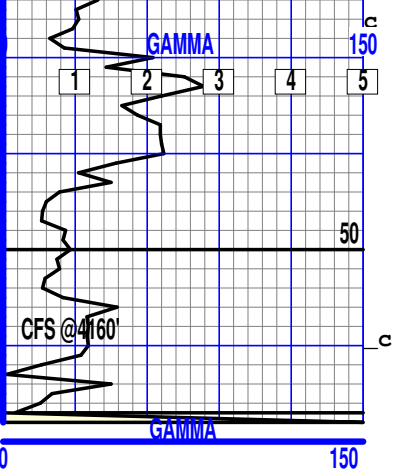
CHRT-OFF WHT WHT TO MOTT YEL HD DNS, V/F-XLN TO F-MD-XLN IMBD RED SH IP, IMBD FOSS FRGS IP, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

CHRT-OFF WHT YELL TO MOTT RED, HD DNS, V/F-XLN, IMBD RED SH IP, NO VIS FLO, NO VIS POR, NO VIS CUT OR SHOW

CHRT-WHT MOTT YELL, HD DNS,



WOB 35
RPM 70
MRPM 900



V/F-XLN TO F-MD-XLN, IMBD
 PYR IP, TR IMBD FOSS FRGS IP
 NO VIS FLO, NO VIS POR, NO
 VIS CUT OR SHOW

DOL-OFF WHT WHT, HD DNS, MD-
 XLN, SUCRO MTRX, IMBD GLAUC
 IP, IMBD RED SH IP, NO VIS
 FLO, NO VIS POR, NO VIS CUT
 OR SHOW

R.T.D @4160' 10 A.M. 2/28/2014

