

Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

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

Gas DH EOR

OG GSW

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 EOR Conv. to SWD

Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: _____

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 Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops 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 Geologist Report / Mud Logs <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				

1. Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*
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)*

Date of first Production/Injection or Resumed Production/Injection:	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

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> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
---	---	------------------------------------

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
----------------	-------	---------	------------	--

Form	ACO1 - Well Completion
Operator	Ramshorn Resources, LLC
Well Name	MARSH 1-27
Doc ID	1412520

Tops

Name	Top	Datum
Herrington	2226	-349
Council Grove	2592	-715
Topeka	3504	-1627
Lansing	4168	-2291
Marmaton	4629	-2752
Mississippian	4720	-2843
Woodford	4872	-2995
Viola	4904	-3027
Simpson	5040	-3163
Arbuckle	5154	-3277

3613A Y Road
 Madison, KS 66860
 Ph: 620-437-2661
 Fax: 620-437-2881



HURRICANE SERVICES INC

104 Prairie Plaza Parkway
 Garnett, KS 66032
 Ph: 785-448-3100
 Fax: 785-448-3102

FED ID# 48-1214033
 MC ID# 165290

Remit to: Hurricane Services, Inc.
 250 N. Water, Suite 200
 Wichita, KS 67202

Customer:
 RAMSHORN RESOURCES LLC
 300 N MEAD
 SUITE 200
 WICHITA, KS 67202

Invoice Date: 3/8/2018
 Invoice #: 0037115
 Lease Name: MARSH
 Well #: 1-27
 County: BARBER

Date/Description	HRS/QTY	Rate	Total
Ticket 100887 Surface New	0.000	0.000	0.00
Heavy Eq Mileage	50.000	2.438	121.88
Light Eq Mileage	25.000	1.125	28.13
Ton Mileage	284.000	0.975	276.90
Cement plug container	1.000	206.250	206.25
Cementer #231	1.000	712.500	712.50
Cement Pozmix 60/40	250.000	9.638	2,409.38 T
Bentonite Gel	430.000	0.225	96.75 T
Calcium Chloride	645.000	0.750	483.75 T
Pheno Seal	125.000	1.275	159.38 T
Guide Shoe Reg 8 5/8"	1.000	225.000	225.00 T
8 5/8" Alum Baffle plate SI	1.000	101.250	101.25 T
8 5/8" Centralizer x 12 1/4"	1.000	67.500	67.50 T
Wooden plug 8 5/8"	1.000	81.000	81.00 T

Net Invoice 4,969.67
 Sales Tax (7.50%) 271.80
Total 5,241.47

All invoices are due upon receipt. Interest at the rate of 1 1/2% per month may be charged on all invoices not paid within 30 days from date of invoice.

WE APPRECIATE YOUR BUSINESS!



250 N. Water, Ste 200 - Wichita, Ks 67202

HURRICANE SERVICES INC

104 Prairie Plaza Parkway - Garnett, Ks 66032

Customer	Ramshorn Resources LLC			Customer Name:	Jerry Auld	Ticket No.:	100893			
Address:	300 N. Mead Suite 200			Contractor:	Duke Drilling Rig # 2	Date:	3/19/2018			
City, State, Zip:	Wichita, Ks. 67202			Job type:	5 1/2 LS	Well Type:	Oil			
Service District:	Medicine Lodge, Ks.			Well Details:	Sec 27	Twp:	32S	R:	15W	
Well name & No.	Marsh 1-27			Well Location:	County: Barber	State:	Kansas			
Equipment #	Driver	Equipment #	Driver	Equipment #	Driver	TRUCK CALLED			AM PM	TIME
231	Cody					ARRIVED AT JOB			AM PM	10:00
177-250	Devin					START OPERATION			AM PM	5:15
28	Todd					FINISH OPERATION			AM PM	7:45
31	Glen	Fennis				RELEASED			AM PM	8:15
						MILES FROM STATION TO WELL				25

Product/Service Code	Description	Unit of Measure	Quantity	List Price/Unit	Gross Amount	Net Amount
C001	Heavy Equip. One Way	mi	50.00	\$3.25	\$162.50	\$125.13
C002	Light Equip. One Way	mi	25.00	\$1.50	\$37.50	\$28.88
C003	Ton Mileage - One way	mi	283.00	\$1.30	\$367.90	\$283.28
C012	Cement Plug Container	job	1.00	\$275.00	\$275.00	\$211.75
C018	Cement Pump	ea	1.00	\$2,500.00	\$2,500.00	\$1,875.00
CP005	H-Long	sack	140.00	\$17.00	\$2,380.00	\$1,832.60
CP010	60/40 Pozmix Cement	sack	75.00	\$12.85	\$963.75	\$742.09
CP016	Bentonite Gel	lb	390.00	\$0.30	\$117.00	\$90.00
CP018	KOL-Seal	lb	700.00	\$0.65	\$455.00	\$350.35
CP023	Salt	sack	15.00	\$7.00	\$105.00	\$80.85
CP029	Defoamer	lb	33.00	\$6.00	\$198.00	\$152.46
CP032	Mud Flush	gal	500.00	\$1.00	\$500.00	\$385.00
CP040	Fluid Loss Additive - Cementing	lb	79.00	\$8.25	\$651.75	\$501.85
CP084	5 1/2" Float Shoe - AFU Flapper Type	ea	1.00	\$270.00	\$270.00	\$207.90
CP093	5 1/2" Centralizers	ea	6.00	\$80.00	\$480.00	\$369.60
CP094	5 1/2" Cement Baskets	ea	2.00	\$260.00	\$520.00	\$400.40
CP095	5 1/2 LD Plug & Baffle	ea	1.00	\$332.50	\$332.50	\$256.03
AF101	Liquid KCL Substitute	gal	10.00	\$28.75	\$287.50	\$221.38

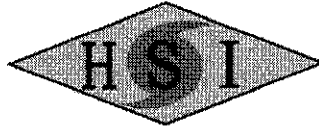
TERMS: Cash in advance unless Hurricane Services Inc. (HSI) has approved credit prior to sale. Credit terms of sale for approved accounts are total invoice due on or before the 30th day from the date of invoice. Past due accounts may pay interest on the balance past due at the rate of 1 3/4% per month or the maximum allowable by applicable state or federal laws if such laws limit interest to a lesser amount. In the event it is necessary to employ an agency and/or attorney to affect the collection of said account, Customer hereby agrees to pay all fees directly or indirectly incurred for such collection. In the event that Customer's account with HSI becomes delinquent, HSI has the right to revoke any and all discounts previously applied in arriving at net invoice price. Upon revocation, the full invoice price without discount will become immediately due and subject to collection. Prices quoted are estimates only and are good for 90 days from the date of issue. Pricing does not include federal, state, or local taxes, or royalties and stated price adjustments. Actual charges may vary depending upon time, equipment, and material ultimately required to perform these services. Discount rate is based on 30 days net payment terms or cash.

DISCLAIMER NOTICE:
This technical data is presented in good faith, but no warranty is given by and H.S.I. assumes no liability for advice or recommendations made concerning results to be obtained from the use of any product or service. The information presented is HSI best estimate of the actual results that may be achieved and should be used for comparison purposes and make no guarantee of future production performance. Customer warrants that well and all associated equipment in acceptable condition to receive services by H.S.I. Likewise, the customer will guarantee proper operational care of all customer owned production and associated equipment, while H.S.I. is on location performing services which could adversely affect the performance of such services.
Authorization below acknowledges receipt and acceptance of all terms and conditions stated above.

Gross: \$10,603.40		Net: \$8,114.62
Total Taxable	\$ -	Tax Rate:
Frac and Acid service treatments designed with intent to increase production on newly drilled or existing wells are not taxable.		Sale Tax: \$ -
		Total: \$ 8,114.62
Date of Service:	3/21/2018	
HSI Representative:	Todd Seba	
Customer Comments:		

X _____
CUSTOMER AUTHORIZED AGENT

TREATMENT REPORT



HURRICANE SERVICES INC

Customer: Ramshorn Res.LLC	Date: 3/21/2018	Ticket No.: 100893
Field Rep:		
Address:		
City, State:		
County, Zip:		

Field Order No.: 100893	Open Hole:	Perf Depths (ft)	Perfs
Well Name: Marsh 1-27	Casing Depth: 5217'		
Location: Deerehead	Casing Size: 5 1/2 15.5 LB		
Formation:	Tubing Depth:		
Type of Service: 5 1/2 LS	Tubing Size:		
Well Type: Oil	Liner Depth:		
Age of Well: New	Liner Size:		
Packer Type:	Liner Top:		
Packer Depth:	Liner Bottom:		
Treatment Via: Casing	Total Depth: 5218'		
		Total Perfs	0

TIME	INJECTION RATE		PRESSURE		REMARKS	PROP (lbs)	HCL (gls)	FLUID (bbls)
	FLUID	N2/CO2	STP	ANNULUS				
9:00 PM					Called Out			
12:00 AM					On Location WFE			
					Trucks On Location Hold Safety Meeting Spot & Set Up			
					TD= 5218' TP= 5225'.91 SJ= 42'.12 Run 107 Jt's 5 1/2 15.5 LB			
					1St Jt AFU Float Shoe & LD Baffle			
					Centralizers on Jt's 1-4-7-10-13-16			
					Cement Baskets on Jt's 7-15 Pin Ends			
2:30 AM					Start Casing			
5:15 AM					Casing On Bottom & Drop Ball			
5:30 AM					Hook Up To Casing & Break Circulation W/Rig			
6:37 AM	3.0		120.0		Start Pumping 10 BBI H2O Spacer			10.00
					Start Pumping 12 BBI Mud Flush			12.00
					Start Pumping 5 BBI H2O Spacer			5.00
6:48 AM	5.0		350.0		Start Mix & Pump 140 Sk @ 14.8 PPG			37.40
6:58 AM					Shut Down Clear Pump & lines Release LD Plug			15.00
7:03 AM	6.2		200.0		Start Displacement			
	6.0		550.0		Lift Pressure			109.00
	5.0		700.0		Slow Rate			120.00
TOTAL:								321.05

SUMMARY			
Max Fl. Rate	Avg Fl. Rate	Max PSI	Avg PSI
6.2	4.2	700.0	352.5

PRODUCTS USED

Treater: Todd Seba

Customer: Jeery Auld

Covey

The Well Watchers

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

Well Name: MARSH 1 - 27
Location: Section 27 - Township 32 South - Range 15 West
Licence Number: 15-007-24325-00-00 Region: Barber County, KS.
Spud Date: 7 March 2018 Drilling Completed: 19 March 2018
Surface Coordinates: 1,840' FNL & 1,685' FEL
(Approximate SW NE SW NE)

Bottom Hole
Coordinates:
Ground Elevation (ft): 1,869' K.B. Elevation (ft): 1,877'
Logged Interval (ft): 2,200' To: 5,218' Total Depth (ft): 5,218'
Formation: Chase -----> Arbuckle
Type of Drilling Fluid: Chemical, Low Solids, Non-dispersed

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

OPERATOR

Company: RAMSHORN RESOURCES, LLC
Address: 300 North Mead, Suite 200
Wichita, Kansas
(620) 930-8058
POC:
Ben Crouch
JD Dubwig

GEOLOGIST

Name: Curtis E. Covey
Company: COVEY - The Well Watchers
Address: 6548 Bedford Circle
Derby, Kansas 67037
Office: (316) 776-0367 Cell: (316) 217-4679

KB: 1,877'

FORMATION TOPS

GL: 1,869'

Formation	Rotary Sample Depth (Datum)	E-log Depth (Datum)
Herrington	2,226' (-349')	2,226' (-349')
Krider	2,254' (-377')	2,254' (-377')
Winfield	2,300' (-423')	2,304' (-427')
Gage Sh	2,354' (-477')	2,356' (-479')
Towanda	2,374' (-497')	2,372' (-495')
Ft. Riley	2,330' (-553')	2,430' (-553')
Florence	2,464' (-587')	2,464' (-587')
Wreford	2,574' (-697')	2,572' (-695')
Council Grove	2,596' (-719')	2,592' (-715')
Foraker	2,919' (-1,042')	2,928' (-1,051')
Wabauunsee Group Top	3,097' (-1,220')	3,100' (-1,223')
Stotler	3,243' (-1,366')	3,245' (-1,369')
Topeka	3,504' (-1,627')	3,504' (-1,627')
LeCompton LS	3,786' (-1,909')	3,788' (-1,911')
Kanwaka Sh	3,823' (-1,946')	3,824' (-1,947')
Heebner Shale	4,000' (-2,123')	4,004' (-2,127')
Douglas Shale	4,027' (-2,150')	4,030' (-2,153')
Lansing	4,168' (-2,291')	4,168' (-2,291')
KC	4,249' (-2,372')	4,252' (-2,375')
Stark Shale	4,491' (-2,614')	4,494' (-2,617')
B / KC	4,583' (-2,706')	4,584' (-2,707')
Marmaton	4,630' (-2,753')	4,629' (-2,752')
Pawnee	4,663' (-2,786')	4,677' (-2,800')
Ft. Scott	4,698' (-2,821')	4,701' (-2,824')
Cherokee Sh	4,711' (-2,834')	4,716' (-2,839')
MISS	4,718' (-2,841')	4,720' (-2,843')
Compton LS	4,843' (-2,966')	4,836' (-2,959')
Woodford Sh	4,891' (-3,014')	4,872' (-2,995')
Viola	4,901' (-3,024')	4,904' (-3,027')
Simpson	5,035' (-3,158')	5,040' (-3,163')
Arbuckle	5,145' (-3,268')	5,154' (-3,277')

RTD: 5,218'

LTD: 5,221'

ATD: 5,229'

Float:

E-Log is 0' - 8' low to rotary sample depth.

E-Loggers:

Halliburton Energy Service
(El Reno, Oklahoma)**DST #1 - VIOLA**Rotary Depth: 4,925' - 4,936'
Logger's Depth: 4,928' - 4,939'IFP: 980# - 1,541# / 30"
ISIP: 1,858# / 45"
FFP: 1,562# - 2,808# / 15"
FSIP: 1,858# / 15"

BHT: 140 deg F

MH: 2,495# - 2,366#

Note: Dropped Bar -
reversed through Kelly.

Recovery:

189' Gas in Pipe.
4,601' Gassy Muddy Water cut OIL.
(6%M, 10%W, 24%G, 60%O)
120' SI OIL speckled Mud cut Water
(2%O, 10%M, 88%W)IF: Strong Blow. BOB -12 seconds,
GTS - 8", Guage & caught sample.
ISI: FTS - 8", 300 inch Blow Back.
FF: Strong Blow. BOB & GTS immediately.
TSTM, FTS in about 10".
FSI: Would not bleed off.

Gas Guage:

1FP: 10" - 151 MCF @ 1/4" chock.
20" - 81 MCF @ 1/2" chock.
30" - 14 MCF @ 1/4" chock.Recovery Water: (126,000 ppm)
System Water: (4,500 ppm)

Recovery Water (Engineer): (NA)

Reported Rw = 0.08 ohms @ 56 F.

Sampler: NA

Trilobite Testing ... Pratt, KS.

12-1/4" Hole (Surface)
 7 March --- Spud @ 6:30pm.
 8 --- Drilled to 305'.
 Ran 8-5/8" casing.
 Set @ 305'.
 250 sx 60/40 POZ
 (2% Gel, 3% CC).
 Cement did circ.
 [Hurricane Services].
 Plug Down @ 4:30am.
 WOC.

7-7/8" Hole (Vertical)
 8 March --- Drilled Cement.
 U/S casing @ 3:15pm.
 9 --- 7am @ 1,200'.
 10 --- 7am @ 2,200'.
 11 --- 7am @ 2,680'.
 12 --- 7am @ 3,190'.
 13 --- 7am @ 3,635'.
 14 --- 7am @ 3,986'.
 15 --- 7am @ 4,325'.
 Bit Trip @ 4,476'.
 16 --- Resumed Drilling @ 1:25am.
 7am @ 4,540'.

7-7/8" Hole (Vertical)
 17 March --- 7am @ 4,805'.
 Drilled to 4,936'.
 18 --- 7am @ 4936'.
 DST #1: Viola (4,925' - 4,936').
 Resumed Drilling @ 11:05pm.
 19 --- 7am @ 5,020'.
 RTD (5,218') @ 11:03pm.
 20 --- E-logging.
 (Halliburton)

HOLE DEVIATION (305' - 5,217' MD)

12-1/4" Surface Hole									
DEPTH / TVD	INCLINATION		AZIMUTH	NORTH	SOUTH	EAST	WEST	DOGLEG deg/100'	
305' /	---	0.75							
7-7/8" Vertical Hole									
483' /	---	1.00							
888' /	---	0.75							
1,297' /	---	0.75							
1,673' /	---	0.75							
2,045' /	---	0.75							
2,452' /	---	0.75							
2,859' /	---	0.75							
3,299' /	---	0.75							
3,705' /	---	1.50+							
3,799' /	---	0.75							
4,206' /	---	0.75							
4,476' /	---	0.25 (Bit Trip)							
4,936' /	---	0.25 (DST #1)							
5,218' /	---	0.75 (RTD)							

DST #1 Board: 4,955.57'
 Strap: 4,954.50'
 Diff: 1.07' Short

Inclination Surveys provided by Duke Drilling - Rig #2 - Wichita, Kansas

BIT RECORD

DATE	SIZE	TYPE	JET SIZE	DEPTH IN / OUT	CUM. FT.	HOURS	ROP
SURFACE ---							
		(IADC)					(ft/hr)
7 March 2018	12-1/4"	JZ MT (437X)	15 - 15 - 15	0' / 305'	305'	3.00	101.7
VERTICAL ---							
8 March 2018	7-7/8"	JZ HA - 20 (517)	15 - 15 - 15	305' / 4,476'	4,171'	137.75	30.3
15 March 2018	7-7/8"	JZ ENPO 120-J (517)	15 - 15 - 15	4,476' / 5,217'	741'	52.50	14.1

CONTRACTOR

Duke Drilling Co. --- Rig # 2

100 South Main, Suite 410
Wichita, Kansas 67202
Office: (316) 267-1331

Pump: EMSCO D-300
6" x 14" @ 58/60 SPM.
675 - mostly 900/950 PSI
@ Standpipe.

Drill Pipe: 4-1/2"XH. Heavy Wall (18#/ft - used)

Under Surface to 4,476':
Drill Collars: 6" x 2.25" --- 474'. (83#/ft)
Dry Collar Weight: 28,625#
(@ 9.4 ppg / Buoyancy Factor 0.856)
Bouyancy Collar Weight: 33,677#
Design Factor: 15%, therefore:
available WOB is 28,625#

Bit / Collar Trip @ 4,476' to RTD:
Drill Collars: 6" x 2.25" --- 536'. (83#/ft)
Dry Collar Weight: 44,488#
(@ 9.4 ppg / Buoyancy Factor 0.856)
Bouyancy Collar Weight: 38,082#
Design Factor: 15%, therefore:
available WOB is 32,370#

Check Weight Indicator @ 3,299'.

WI weighing like Calculated String Weight.
WOB of 28M# on WI = 28M# Actual WOB.

Add two collars @ 4,476', adjusted WOB ...
WOB 32M# on WI = 32M# Actual WOB.

ROCK TYPES

POROSITY

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

LITHOLOGY

- Anhy
- Bent
- Brec
- Cht
- Clyst
- Coal
- Granite wash
- Congl
- Dol lmst
- Silty dol

- Calc dol
- Dol 2
- Dol
- Gyp
- Igne
- Lmst 2
- Lmst
- Meta
- Mrlst
- Salt
- Shale 3
- Shale
- Shcol
- Shgy
- Sltst
- Ss
- Till
- Ss 2

MINERAL

- Mica
- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl

STRINGER

- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff
- Copper
- Ooliticastic
- Ooloid
- Oolite
- Sucrosic
- Dark specks

STRINGER

- Calc dol
- Silty dol
- Anhy

SHOW

- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Calc dol
- Sltstrg
- Ssstrg
- Chalk
- New symbol
- Oil
- Spotted
- Ques
- Dead
- Gas
- Oil/gas
- Bed contact

ACCESSORIES

FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Spore
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro

- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

MINERAL

- Mica
- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag

- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos

- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff
- Copper
- Ooliticastic
- Ooloid
- Oolite
- Sucrosic
- Dark specks

STRINGER

- Calc dol

- Silty dol
- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Calc dol
- Sltstrg
- Ssstrg
- Chalk
- New symbol

OTHER SYMBOLS

ACTIVITY

-  Lost circulation
-  Circulate for sam



Circulate for sam

Rtd

Trip



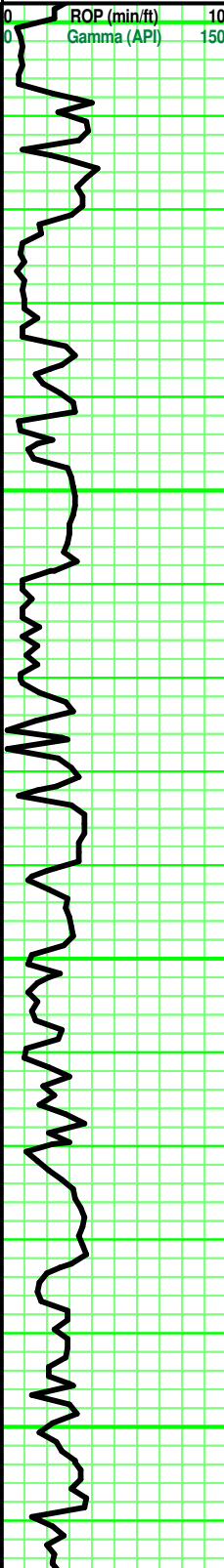
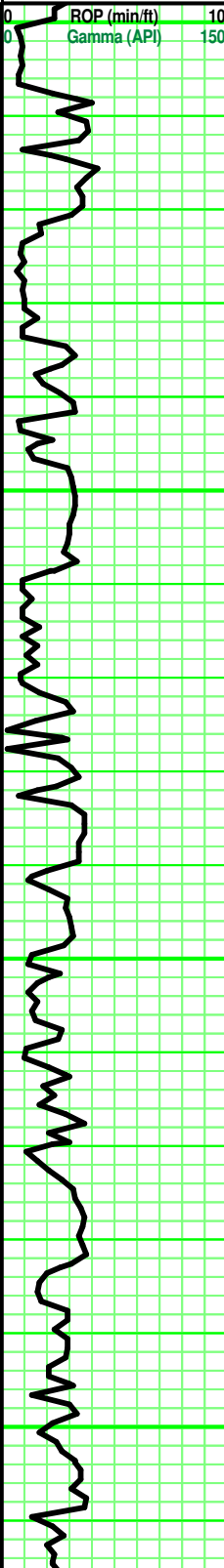
Connection



Rft



Sidewall

Curve Track 1 ROP (min/ft) ——— Gamma (API) ———	Depth	Porosity Type	Porosity	Shows	Lithology	Geological Descriptions	TG, C1-C5
 	2000		24% 18% 12% 6%				<p>TG (Units) ———</p> <p>C1 (units) ———</p> <p>C2 (units) ———</p> <p>C3 (units) ———</p> <p>C4 (units) ———</p> <p>C5 (units) ———</p>
							<p>TG, C1-C5</p> <p>100 units = 1% Gas</p> <p>2,010' - Vis: 28 Wt: 9.8 Wtr Loss: NC pH: 7.0 Cl: 148,000 Ca: Hvy Solids: 1.8%</p> <p>TookeDaq gas detection equipment was used in the evaluation of the hydrocarbon gases contained in the drilling fluids of this well.</p> <p>Gas Detection Equipmnet is TookeDaq provided by COVEY - The Well Watchers</p> <p>Hole Dev: 2,045' - 0.75 deg</p> <p>Total Gas and Chromatograph curves are shown values and corrected for depth.</p> <p>Daily Total Gas Check on gas detection equipment by Calibrated Test Bottles respectively for Hotwire & Chromatograph Filament response.</p> <p>Extractor was positioned in the sample box for mud gases sampling.</p> <p>This geolog uses plotted drilling time, available rotary drilling samples and the gas curves to produce this work product.</p> <p>Non-representative drilling time, rotary rock samples and/or drilling practices does effect the accuracy of any geolog.</p> <p>Rotary Samples were collected from the rig's sample box.</p>

Interbedded AnHydrite & Shale

AnH - rare Clear, mostly White/ Off White/ tr Lt Grayish White. Sing/ tr Mot. Opaque. Drusy texture.

SH - tr Lt/ mostly Med Gray. Sing. tr AnH streaks.

Add pcs: LS (rare Dol in part) - Lt Gray/ Tan. Mot. VF-xln. xln por. partly friable. No/ tr vis por.

few pcs: LS (rare Dol in part) - Lt Gray/ Tan. Mot. VF-xln. xln por. partly friable. No/ tr vis por.

SH - tr Lt/ mostly Med Gray. Sing. tr AnH streaks.

few pcs: DOL (Calc) - Dark Tan/ Dark Tan with Dark Gray argil flecks (F/VR, Ang). Some Sing/ some Mot. F/VF xln and re-xln. xln por. partly Firm/ Firm. tr/ Fair vis por. some interbedded argil/shaly streaks.

few pcs: DOL (Calc) - Dark Tan/ Dark Tan with Dark Gray argil flecks (F/VR, Ang). Some Sing/ some Mot. F/VF xln and re-xln. xln por. partly Firm/ Firm. tr/ Fair vis por. some interbedded argil/shaly streaks.

few pcs: LS (Dol) - Pale Grayish Tan/ tr Tan. Some Sing/ tr Mot. VF-xln. xln por. {rare Chert: Tan. Sing. Opaque. No Inclusiong.} some intermixed/ interbedded argil/ shale. Friable. tr vis por.

some pcs: LS (mostly No/ rare dol) - Lt Gray/ some Tan. mostly Mot/ tr Sinc. XF-xln. xln por. argil/shaly in part. Friable/ tr Firm. mostly No/ rare minute fossil frag.

Add: LS - Lt Gray. Sing. VF-/XF-xln. xln & particle por. Med/ tr Dark Gray Ang, Shale fragments. partly Firm. No/ tr vis por.

SH - Med Gray/ Greenish Gray. Limy in part. partly ductile. soft. few pcs: F/VF, Ang Tan LS frags in gray shale.

LS - mostly Tan/ Dark Tan. Sing/ tr Mot. Add: Lt to rare Med Gray with Depth. VF-/XF- xln. xln por. mostly No/ tr Re-xln. Argil/ shaly with depth. No/ rare fossil frag. Subchalkv in part. partlv Firm. No/

Close sample box @ 2,190'.

100 units = 1% Gas

TG, C1-C5

100

2,224' -
Vis: 34 Wt: 9.5 WL: NC
pH: 7.0 Cl: 100,000
Cl: HVY Solids: 2.6%

-- HERRINGTON
2,226' (- 349')

-- KRIDER
2,254' (- 377')

Vis: 33
Wt: 9.5

←----- Cavings ----->

-- WINFIELD
2,300' (- 423')

Vis: 30
Wt: 9.4

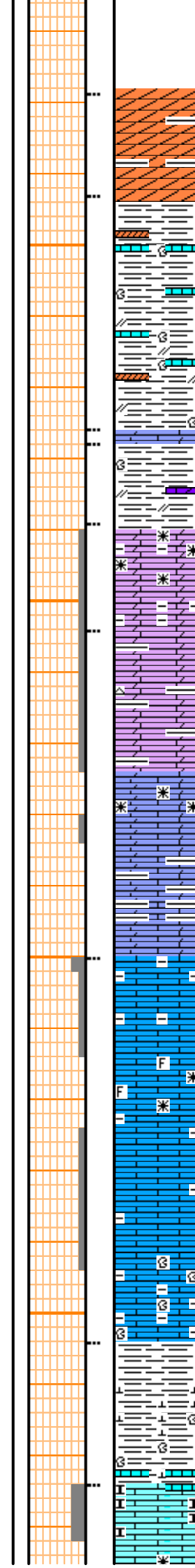
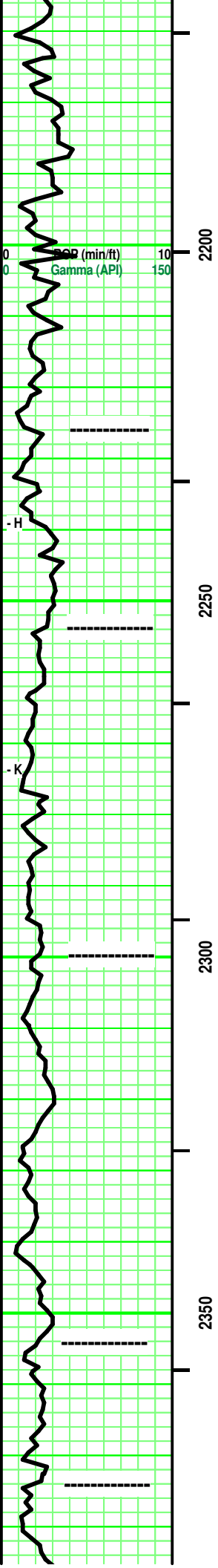
Hotwire Check

Chromatograph Check

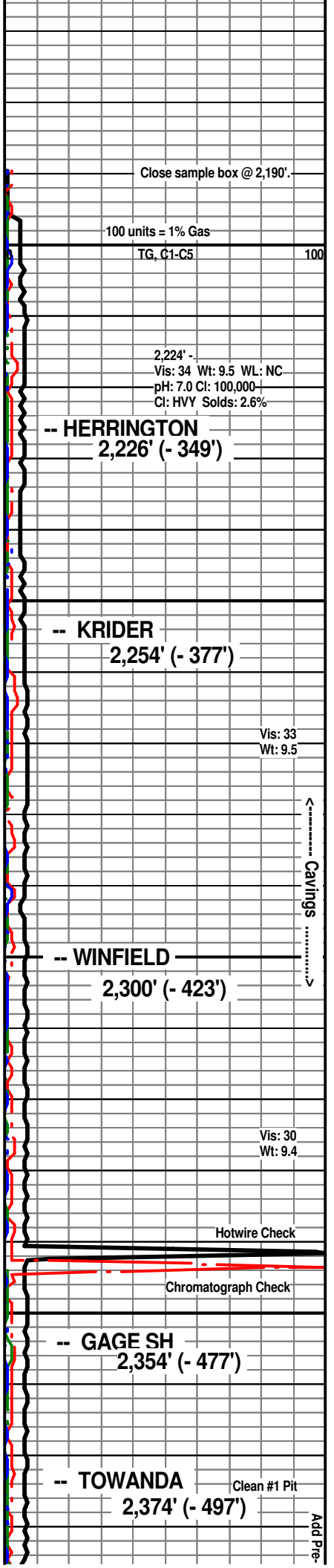
-- GAGE SH
2,354' (- 477')

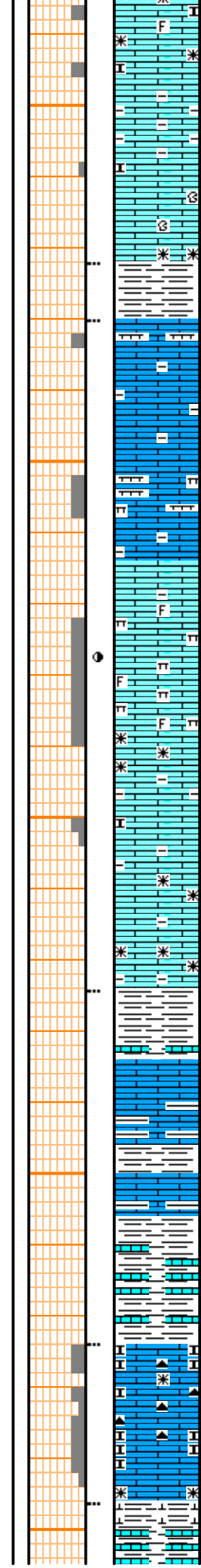
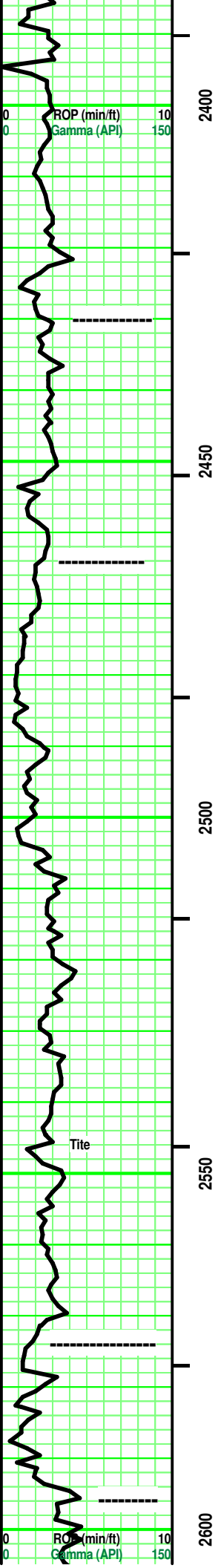
-- TOWANDA
2,374' (- 497')
Clean #1 Pit

Add Pre-



Interbedded AnHydrite & Shale
AnH - rare Clear, mostly White/ Off White/ tr Lt Grayish White. Sing/ tr Mot. Opaque. Drusy texture.
SH - tr Lt/ mostly Med Gray. Sing. tr AnH streaks.
Add pcs: LS (rare Dol in part) - Lt Gray/ Tan. Mot. VF-xln. xln por. partly friable. No/ tr vis por.
few pcs: LS (rare Dol in part) - Lt Gray/ Tan. Mot. VF-xln. xln por. partly friable. No/ tr vis por.
SH - tr Lt/ mostly Med Gray. Sing. tr AnH streaks.
few pcs: DOL (Calc) - Dark Tan/ Dark Tan with Dark Gray argil flecks (F/VR, Ang). Some Sing/ some Mot. F/VF xln and re-xln. xln por. partly Firm/ Firm. tr/ Fair vis por. some interbedded argil/shaly streaks.
few pcs: DOL (Calc) - Dark Tan/ Dark Tan with Dark Gray argil flecks (F/VR, Ang). Some Sing/ some Mot. F/VF xln and re-xln. xln por. partly Firm/ Firm. tr/ Fair vis por. some interbedded argil/shaly streaks.
few pcs: LS (Dol) - Pale Grayish Tan/ tr Tan. Some Sing/ tr Mot. VF-xln. xln por. {rare Chert: Tan. Sing. Opaque. No Inclusiong.} some intermixed/ interbedded argil/ shale. Friable. tr vis por.
some pcs: LS (mostly No/ rare dol) - Lt Gray/ some Tan. mostly Mot/ tr Sinc. XF-xln. xln por. argil/shaly in part. Friable/ tr Firm. mostly No/ rare minute fossil frag.
Add: LS - Lt Gray. Sing. VF-/XF-xln. xln & particle por. Med/ tr Dark Gray Ang, Shale fragments. partly Firm. No/ tr vis por.
SH - Med Gray/ Greenish Gray. Limy in part. partly ductile. soft. few pcs: F/VF, Ang Tan LS frags in gray shale.
LS - mostly Tan/ Dark Tan. Sing/ tr Mot. Add: Lt to rare Med Gray with Depth. VF-/XF- xln. xln por. mostly No/ tr Re-xln. Argil/ shaly with depth. No/ rare fossil frag. Subchalkv in part. partlv Firm. No/





tr/ some fair vis por.

SH - Lt / Med Gray. tr Tannish Gray/ Grayish Green. Sing. soft.

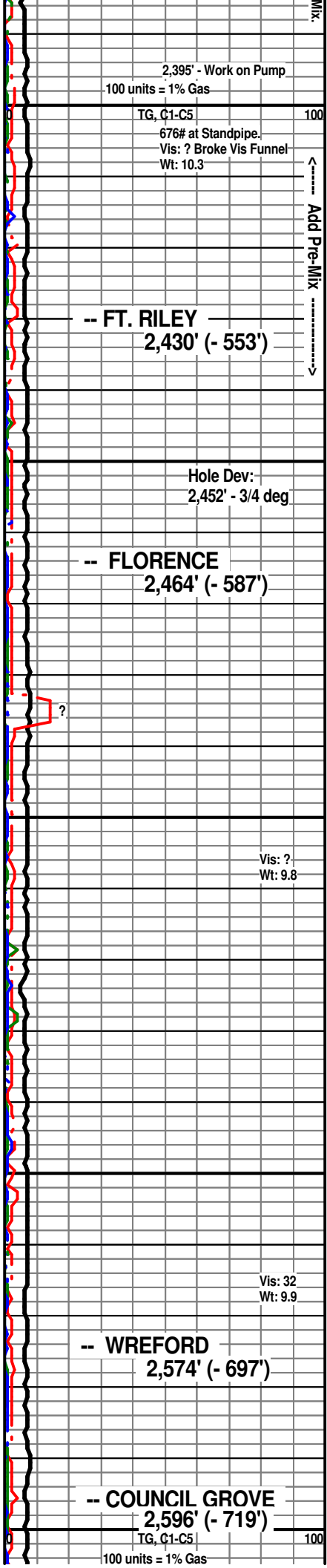
LS - Pale/ V Lt & rare Med Gray, Grayish Tan. Mot. VF-/ XF-xln. xln por. tr Re-xln. Argil/ shaly in part/ thinly interbedded and frags. partly Firm. Marly in part. No/ tr vis por.

LS - Lt & tr Med Tan. Add Lt Gray and Tannish Gray with depth. VF-/ XF-xln. xln and particle por. marly in part. mostly No/ rare fossil frag. mostly No/ rare Re-xln. No/ tr argil intermixed. No/ tr / rare fair vis por. No odor. No fluorescence. No free oil or gas. tr spotted, irregular Med Brown stain. No cut/residual. No acid/residual.

Interbedded LS & SH
SH - some Lt/ mostly Med Gray, Greenish Gray. some pcs - highly limy in part. tr brittle.

LS - Off White/ Tan. Sing. tr Mot. tr Lt Gray with argil in part. VF-/XF-xln. xln por. tr Re-xln in part. chalky in part. partly Friable. {rare/tr CHERT - Multi colored Brown/Gray/Tan/Clear. Opaque. Inclusions. No tripolitic.} tr/ fair vis por.

SH - Lt Gray (at top) / Med and tr Dark Gray with depth. Highly Limy near top grading to shale. tr Greenish Gray at depth.



2,395' - Work on Pump
100 units = 1% Gas
TG, C1-C5 100
676# at Standpipe.
Vis: ? Broke Vis Funnel
Wt: 10.3

-- FT. RILEY
2,430' (- 553')

Hole Dev:
2,452' - 3/4 deg

-- FLORENCE
2,464' (- 587')

Vis: ?
Wt: 9.8

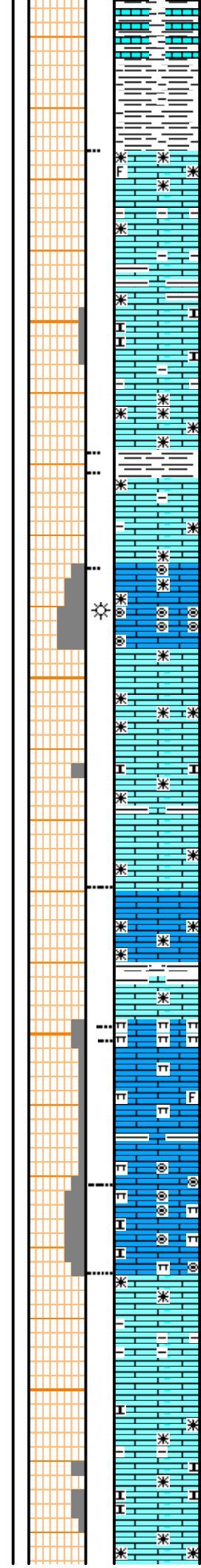
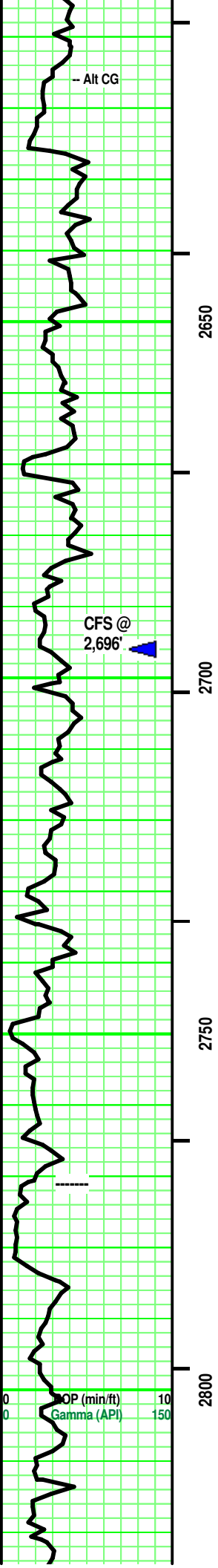
Vis: 32
Wt: 9.9

-- WREFORD
2,574' (- 697')

-- COUNCIL GROVE
2,596' (- 719')

TG, C1-C5 100
100 units = 1% Gas

Mix:
Add Pre-Mix



LS - Tans/ Off White. Sing/ Mot. tr VF-/ mostly XF-/ Micro-xln. xln por. some Re-xln. argil/ shaly intermixed and interbedded. rare shaly ang, VF frag. mostly Firm. Chalky and Friable in part. rare fossil frag near top. No/ tr vis por.

SH - Lt Gray. Sing. Massive. soft.
 LS - Med Tan. Sing Micro-/XF-xln. xln por. tr Re-xln. mostly No/ tr argil in part. Firm. No/ tr vis por.

LS - Off White. Micro-/VF-oolites. Clear/ off white re-xln matrix. Friable. tr/Fair vis por.
 1pc: similar to (1). No odor. No free or after crushing any gas or oil. No stain. Very Weak cut/ residual. Weak acid / residual

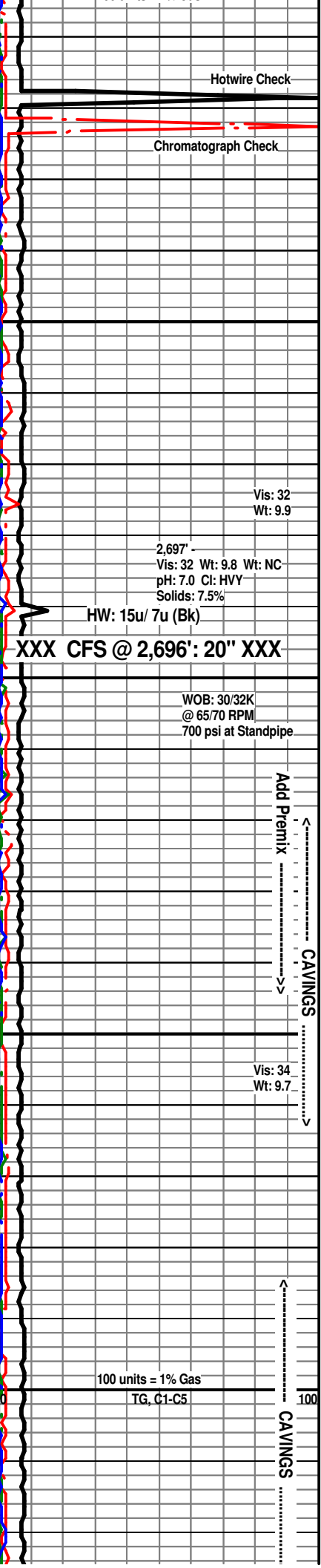
LS - Tans/ some Lt Tannish Gray. Micro-/ XF-xln. xln por. rare chalky in part. tr/ some Re-xln. tr intermixed/interbedded argil/ shale. mostly Firm. No/ tr vis por.

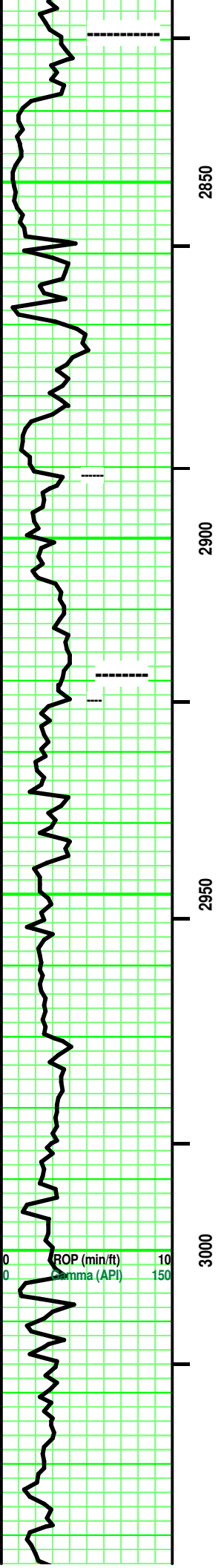
Interbedded SH & LS
 SH - Med Gray. Sing. platty. tr calc.
 LS - Some Tan/ some Off White. tr Pale Gray. Sing. XF-/Micro-xln. xln por. No/ tr Re-xln. No/ tr argil in part. partly Firm/ Firm. No/ tr vis por.

LS - Pale Lt Gray/ Sing. Micro-xln. xln por. marly & chalky. tr argil in part. mostly No/ rare minute fossil frag. soft. No vis por.

few pcs:
 LS - Tannish Gray Re-xln F Oolites. Re-xln, opaque Grayish Tan matrix. misc minute inclusions. soft. No/ rare chalky in part. tr vis por.

LS - Tans/ Lt Gray. Sing/Mot. XF-/Micro-xln. xln por. some intermixed/interbedded Lt/ Med Gray argil/shale. No/ tr Re-xln. No/ tr chalky in part. partly Firm. No/ tr vis por.





2850

2900

2950

3000

SH - Med/ Dark Gray. Sing. limy.

LS - Med / Dark Tan, tr Off White. tr Sing/ Mot. Micro-/ tr Crypto-xln. xln por. No/ tr Re-xln. . Firm. No/ tr vis por.

few pcs:
LS - Pale Tan/ Tan, Off White. Sing. XF-xln. xln por. Chalk. Friable. No/ tr vis por.

few pcs:
LS - Med / Dark Tan. Mot. Micro-/ tr Crypto-xln. xln por. No/ tr Re-xln. No/ tr argil. No/ rare clear inclusions. Firm. No/ tr vis por.

Add: LS - Lt/ Med Gray. Sing. Micro-xln. xln por. argil. Frim. No/ tr vis por.

SH - Med Gray. Sing. Massive. soft.

LS (2) - mostly Tans/ tr Off White. Sing/ tr Mot. VF-/XF-xln. Micro-xln with depth. Re-xln with depth Chalky in part at top. tr Lt/Med Gray argil interbedded. No/ tr vis por.

LS - similar to (2) above.
LS - Lt/ Med Tan. Mot. VF-/XF-xln. xln por. tr chalky. mostly No/ rare fossil frag. Friable. tr/ rare fair vis por.

LS - Tans. Sing. XF-xln. xln por. tr argil. partly Firm. No vis por.

LS - Lt/ Med Tan. Mot. VF-/XF-xln. xln por. minute Med Gray shaly flecks. Friable. tr/ rare fair vis por.

LS - Lt- / mostly Med Tan, Tannish Lt Gray. Mot. tr Pale Lt Grayish Tan. Sing. XF-/ VF-xln. some Micro-xln. xln and tr particle por. No/ tr Re-xln. tr intermixed argil/ interbedded Lt/Med Gray shale. few pcs: Med Tan nodules in clear matrix. mostly Firm. No/ tr vis por.

-- NEVA
2,829' (- 952')

Hole Dev:
2,859' - 3/4 deg.

Vis: 33
Wt: 9.8

WOB:32M
400 psi at Standpipe
@ 39 SPM.

DISPLACED MUD @ 2,904

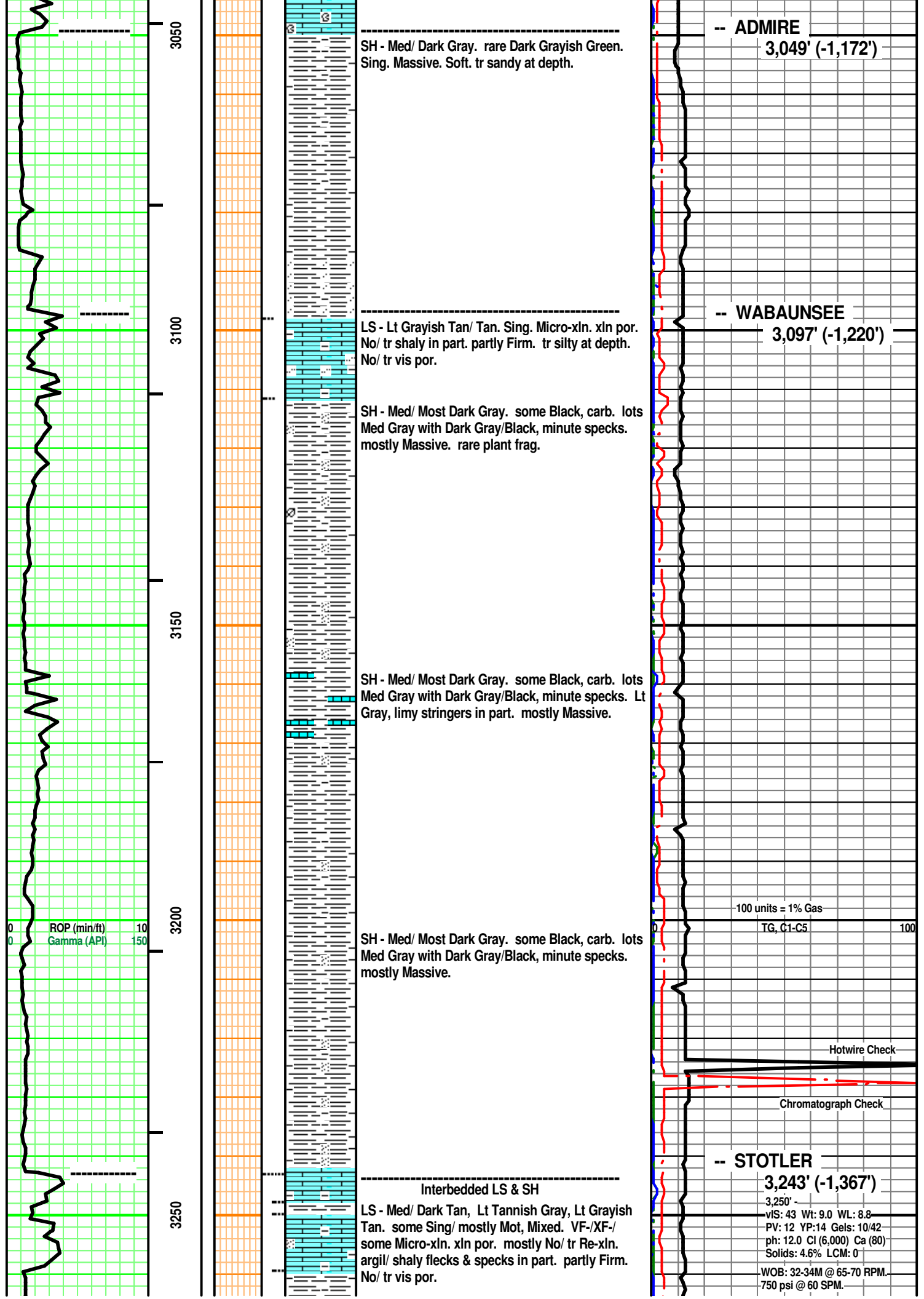
-- FORAKER
2,919' (-1,042')

Hole Dev:
2,859' - 3/4 deg.

100 units = 1% Gas
TG, C1-C5 100

Vis: 48
Wt: 8.9

CAVINGS



-- ADMIRE
3,049' (-1,172')

SH - Med/ Dark Gray. rare Dark Grayish Green.
Sing. Massive. Soft. tr sandy at depth.

-- WABAUNSEE
3,097' (-1,220')

LS - Lt Grayish Tan/ Tan. Sing. Micro-xln. xln por.
No/ tr shaly in part. partly Firm. tr silty at depth.
No/ tr vis por.

SH - Med/ Most Dark Gray. some Black, carb. lots
Med Gray with Dark Gray/Black, minute specks.
mostly Massive. rare plant frag.

SH - Med/ Most Dark Gray. some Black, carb. lots
Med Gray with Dark Gray/Black, minute specks. Lt
Gray, limy stringers in part. mostly Massive.

SH - Med/ Most Dark Gray. some Black, carb. lots
Med Gray with Dark Gray/Black, minute specks.
mostly Massive.

100 units = 1% Gas
TG, C1-C5 100

Hotwire Check

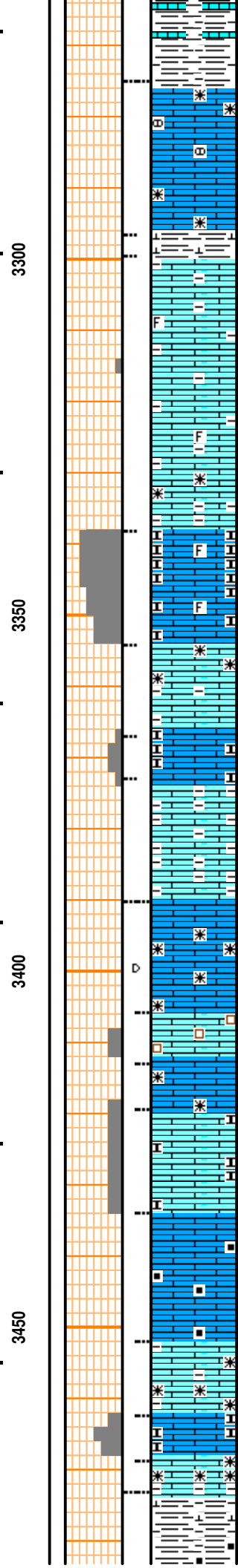
Chromatograph Check

-- STOTLER
3,243' (-1,367')

Interbedded LS & SH
LS - Med/ Dark Tan, Lt Tannish Gray, Lt Grayish
Tan. some Sing/ mostly Mot, Mixed. VF-/XF-/
some Micro-xln. xln por. mostly No/ tr re-xln.
argil/ shaly flecks & specks in part. partly Firm.
No/ tr vis por.

3,250'
vIS: 43 Wt: 9.0 WL: 8.8
PV: 12 YP:14 Gels: 10/42
ph: 12.0 Cl (6,000) Ca (80)
Solids: 4.6% LCM: 0
WOB: 32-34M @ 65-70 RPM.
750 psi @ 60 SPM.

ROP (min/ft) 10
Gamma (API) 150



SH - Med Greenish Gray/ Med Gray. Sing. tr interbedded limy streaks. soft.

LS - Tans/ tr Lt Gray. Sing/ Mot. Xf-xln. xln por. No/ tr Re-xln. No/ tr Brown limy, VF nodules/ frags. Firm. No/ tr Lt Gray argil. No/ tr vis por.

SH - Lt/ Med Gray. Sing. tr calc.

LS - Off Whitish Tan, Grayish Tan. Sing. VF-/ XF-xln. xln por. No/ tr chalky. No/ tr argil in part. No/ tr fossil frags. partly Firm.

LS - (3) Lt Tan. Sing. Micro-xln. xln por. Chalk. tr fossil frag. Friable. No/ tr vis por.

LS - Off Whitish Tan, Grayish Tan. Sing. VF-/ XF-xln. xln por. No/ tr Re-xln. No/ tr argil in part. partly Firm. No/ tr vis por.

LS - similar to (3) above.

LS - V Pale Lt Gray. Sing. Micro-/ Crypto-xln. xln. argil. Firm. No vis por.

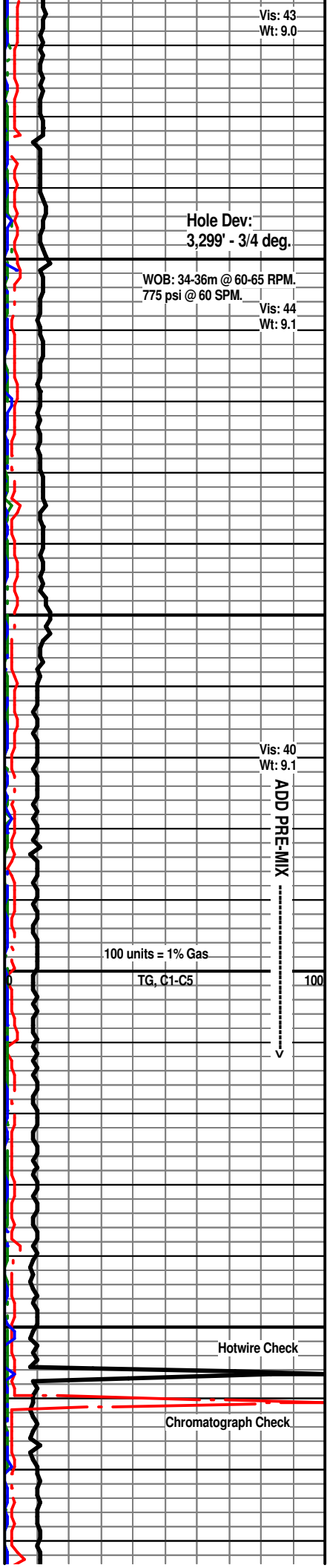
Interbedded LS
LS - Med Tan. Sing. XF-xln. xln and tr particle por in par. tr Re-xln. minute, ang Dark Brown flecks. No/ tr vis por. No odor/ flourescence/ free or or gas, stain ?, no cut/acid/residual.

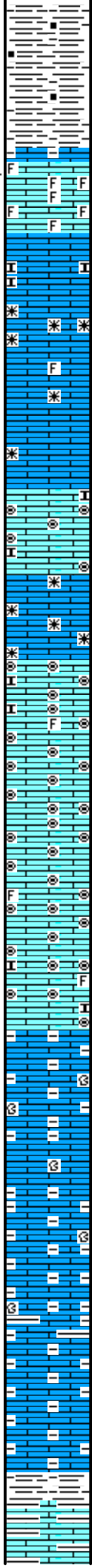
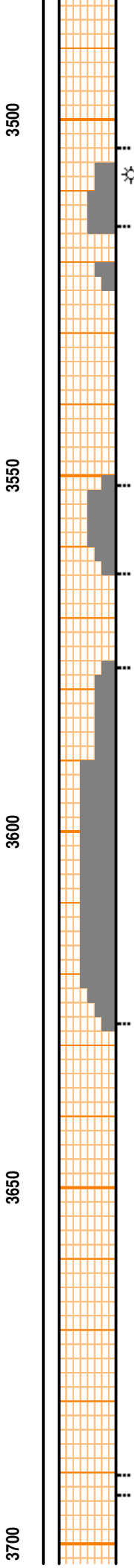
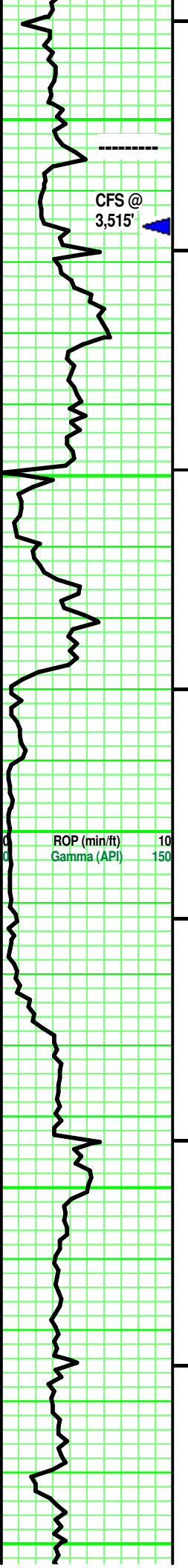
LS - Lt Grayish Tan, Tans. Sing/Mot/Mixed. tr VF/ most XF-/ some Micro-xln. mostly xln/ tr sucroisc por. No/ tr Re-xln. Chalky in part. No/ tr agil in part. Mixture of partly Friable to Firm. No/ tr/ some Fair vis por.

LS - Tans. Mot. XF-/Micro-xln. xln por. Add: minute, Black carb flecks (XF, Ang, irregular) partly Friable. No/ tr vis por.

LS - Pale Grayish Tan. Sing. Micro-/ Crypto-xln. xln por. tr Re-xln. No/ tr minute argil (intermixed - Dark Gray, platty, irregular). Firm. No/ tr vis por.

SH - Med/ Dark Gray. tr/some Silvery Gray. Massive. limy in part near top. tr/ some minute Black specks/frags.





LS - Tans. Mot/Mixed. VF-xln. xln & partice por.
No/ tr Clear, calc matrix. fossil frags. Friable. tr/
Fair vis por. No/? odor. No free oil or gas.
Uniform Yellow florescence. No stain. Pos cut/
residual. Pos acid/ residual.

LS(4) - Off Whitish Tan, Lt Tan, Pale Lt Gray. Sing/
Mot/ Mixed. XF-/ mostly Micro-xln. xln por. Re-xln
with depth. chalky in part. rare fossil frag. mostly
Firm. Mixture of No and Fair vis por.

LS - Off Whitish Tan, Lt Tan. Sing/ Mixed.
Micro-xln. xln por. Chalky. rare Lt Tan
Micro-Oolites. Friable. Fair vis por.

LS - similiar to (4) above.

LS - Lt/ tr Med Tan XF-/ Micro-Oolites in Clear/ Med
Off Whitish Tan Matrix. No/ tr misc fossil frags.
No/ tr Off White Chalk. Friable. tr/ Fair/ Good vis
por.

LS - Pale/Lt Gray, Grayish Tan, Greenish Gray.
Sing/Mot/ some Mixed. XF-/Micro-xln. xln por.
argil. No/ tr minute limy frags (XF, SA/SR).
Massive. No/ tr vis por.

SH - Med/ Dark Gray, Greenish Gray. Sing. tr
Platty.

LS - Grays, Dark Silverish Gray. Highly Shaly.
Massive. No/ tr vis por.

-- TOPEKA
3,504' (-1,627')

HW: 20u / 9u (Bk)

XXXX CFS @ 3,515': 40" XXXX

Vis: 55
Wt: 9.4

100 units = 1% Gas

TG, C1-C5

100

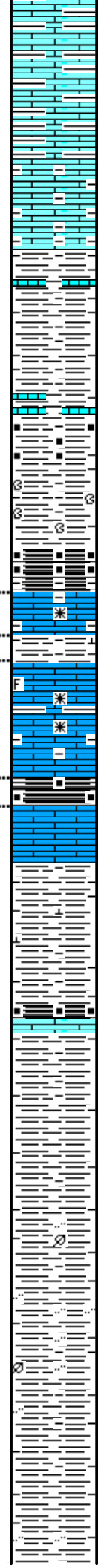
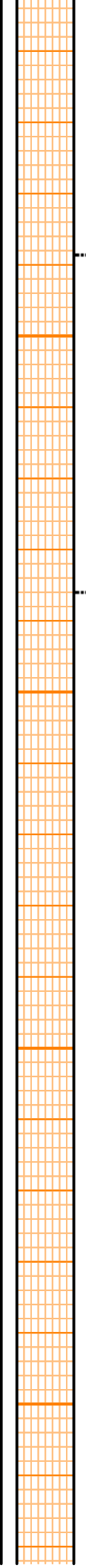
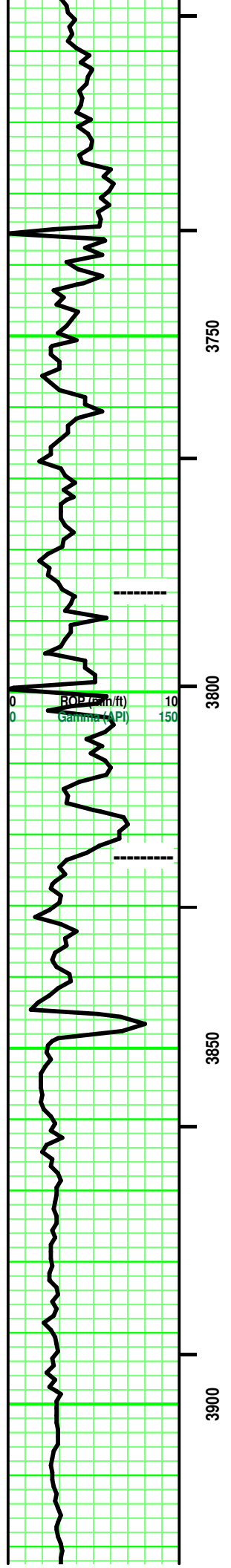
3,658' -
Vis: 49 Wt: 9.5 WL: 8.8
PV: 15 YP: 16 Gels: 11/48
pH: 12.0 Cl: 5,000 Ca:80
Solids: 8.2% LCM: 0

3,660' Sample -
few pcs: LS - Med Druzy Tan XF
Oolicast. Clear Med Brownish Tan
Matrix. tr Re-xln.

WOB: 36-38M @ 65-70 RPM.
800 psi @ 60 SPM.

Vis: 49
Wt: 9.5

Hole Dev:



SH - Very Dark Gray, Sing. Dark Gray with Tan (VF, Ang, platty) frags. Black, carb and soft. some limy stringers interbedded.

Interbedded LS & SH
LS - Grays/ Tans. Sing/ Mixed. Micro- tr XF-xln. xln por. tr Re-xln. rare fossil frag. No/ tr vis por.

SH - Med/ Dark Gray. Sing. some calc streaks.

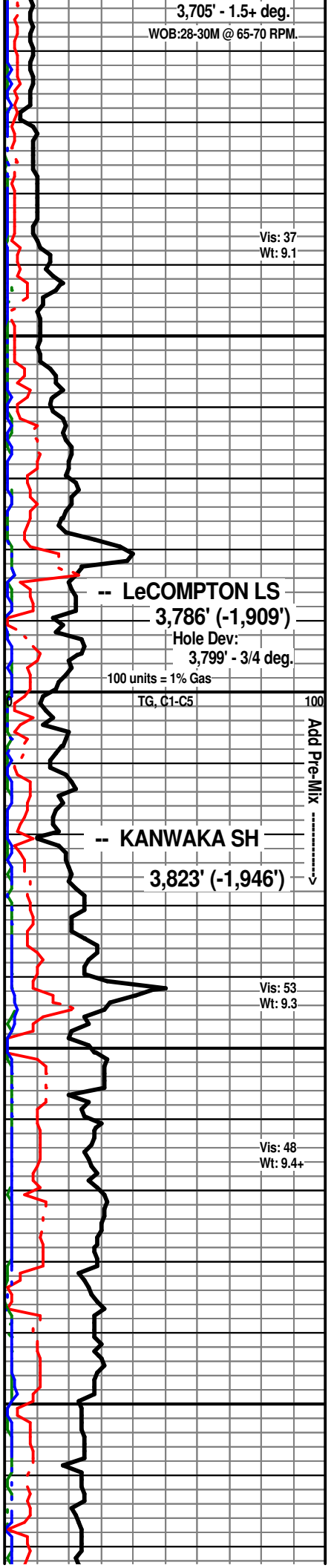
SH - Black, carb, soft.

SH - Med/ Dark Gray. Sing. tr Calc near top. Firm.

SH - Black. Sing. carb. soft.
LS - Med Tan. Sing. Micro-xln. xln por. Firm. No vis por.

SH - Med/ Dark Gray, Silvery Gray. Sing/ Mot. some misc inclusions (plant, carb frags). some silty in part.

SH - Med/ Dark Gray, Silvery Gray. Sing/ Mot. some misc inclusions (plant, carb frags). some silty in part.



Vis: 37
Wt: 9.1

-- LeCOMPTON LS
3,786' (-1,909')
Hole Dev:
3,799' - 3/4 deg.

100 units = 1% Gas

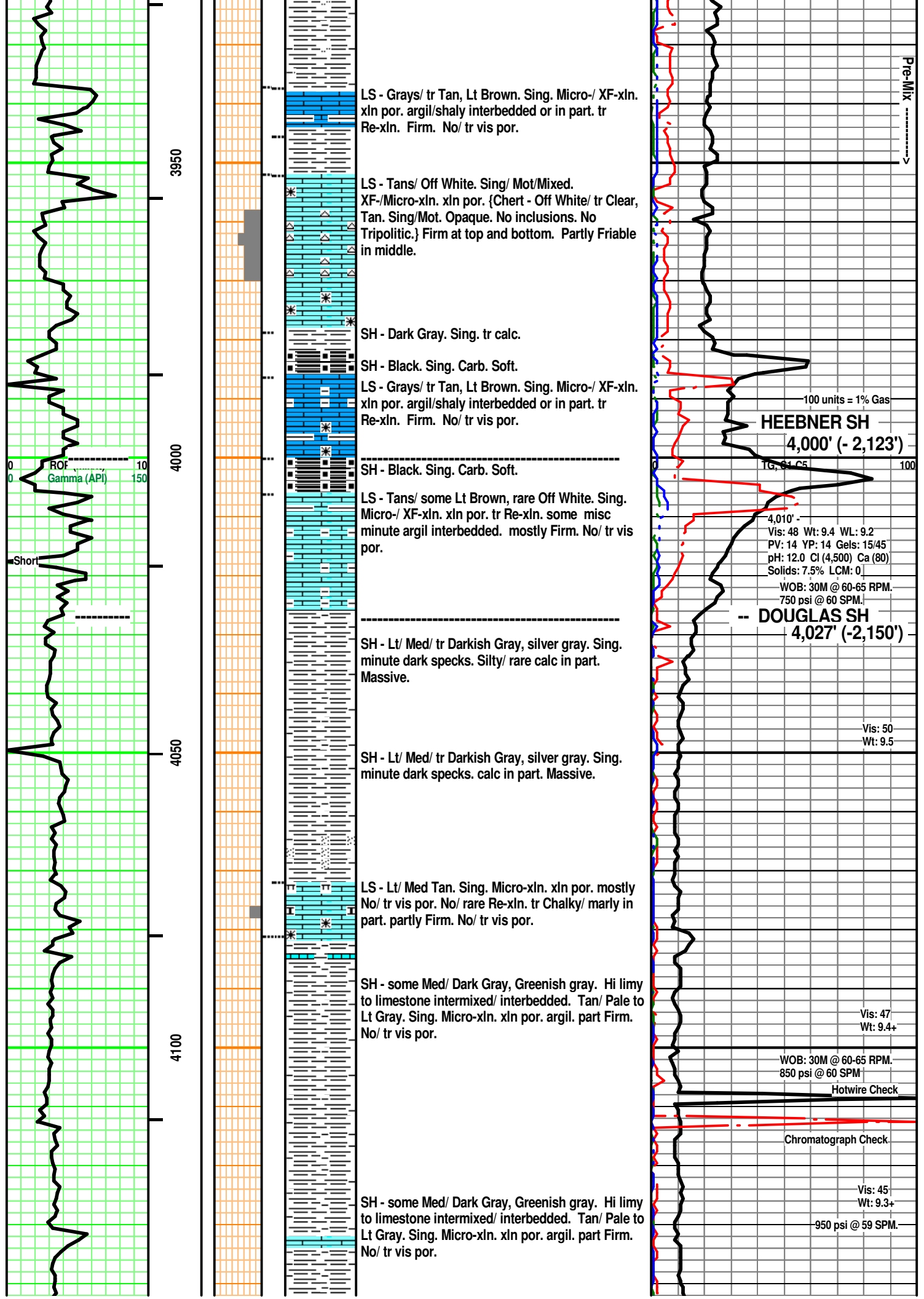
TG, C1-C5

Add Pre-Mix

-- KANWAKA SH
3,823' (-1,946')

Vis: 53
Wt: 9.3

Vis: 48
Wt: 9.4+



Pre-Mix ----->

LS - Grays/ tr Tan, Lt Brown. Sing. Micro-/ XF-xln. xln por. argil/shaly interbedded or in part. tr Re-xln. Firm. No/ tr vis por.

LS - Tans/ Off White. Sing/ Mot/Mixed. XF-/Micro-xln. xln por. {Chert - Off White/ tr Clear, Tan. Sing/Mot. Opaque. No inclusions. No Tripolitic.} Firm at top and bottom. Partly Friable in middle.

SH - Dark Gray. Sing. tr calc.

SH - Black. Sing. Carb. Soft.

LS - Grays/ tr Tan, Lt Brown. Sing. Micro-/ XF-xln. xln por. argil/shaly interbedded or in part. tr Re-xln. Firm. No/ tr vis por.

SH - Black. Sing. Carb. Soft.

LS - Tans/ some Lt Brown, rare Off White. Sing. Micro-/ XF-xln. xln por. tr Re-xln. some misc minute argil interbedded. mostly Firm. No/ tr vis por.

SH - Lt/ Med/ tr Darkish Gray, silver gray. Sing. minute dark specks. Silty/ rare calc in part. Massive.

SH - Lt/ Med/ tr Darkish Gray, silver gray. Sing. minute dark specks. calc in part. Massive.

LS - Lt/ Med Tan. Sing. Micro-xln. xln por. mostly No/ tr vis por. No/ rare Re-xln. tr Chalky/ marly in part. partly Firm. No/ tr vis por.

SH - some Med/ Dark Gray, Greenish gray. Hi limy to limestone intermixed/ interbedded. Tan/ Pale to Lt Gray. Sing. Micro-xln. xln por. argil. part Firm. No/ tr vis por.

SH - some Med/ Dark Gray, Greenish gray. Hi limy to limestone intermixed/ interbedded. Tan/ Pale to Lt Gray. Sing. Micro-xln. xln por. argil. part Firm. No/ tr vis por.

100 units = 1% Gas

HEEBNER SH
4,000' (-2,123')

4,010' -
Vis: 48 Wt: 9.4 WL: 9.2
PV: 14 YP: 14 Gels: 15/45
pH: 12.0 Cl (4,500) Ca (80)
Solids: 7.5% LCM: 0
WOB: 30M @ 60-65 RPM.
750 psi @ 60 SPM.

DOUGLAS SH
4,027' (-2,150')

Vis: 50
Wt: 9.5

Vis: 47
Wt: 9.4+

WOB: 30M @ 60-65 RPM.
850 psi @ 60 SPM

Hotwire Check

Chromatograph Check

Vis: 45
Wt: 9.3+
950 psi @ 59 SPM.

ROF
Gamma (API)

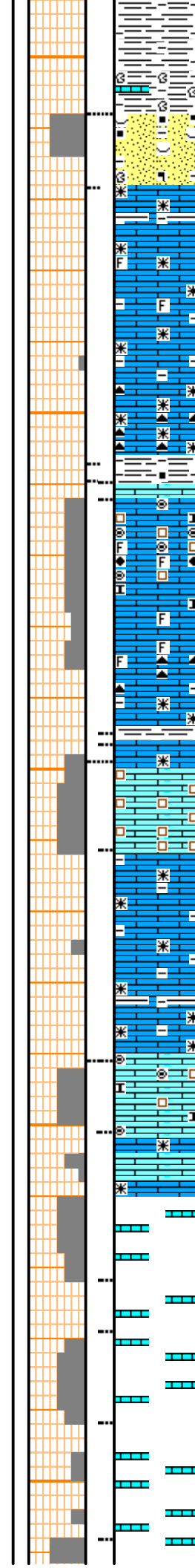
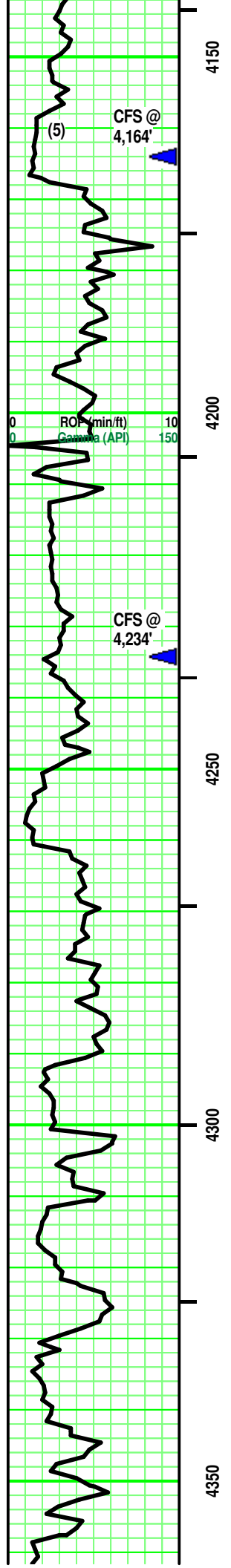
Short

3950

4000

4050

4100



SS (5) - Clear/ Grays/ tr Off White. Mot. Silt/ tr VF qtz grains. SR/SA. Hi sort. Mod sph. Frosted luster. Sutured/ some point grain contact. tr Calc/ mostly Si cement. Argil (matrix infill). Mica (Musc.). some dissem carb flecks. some heavy minerals. Partly Friable. Fair vis por.

LS - Lt Gray/ Off White/ Tan. Sing/ some Mot. XF-/ Micro-xln, rare Crypto-xln. xln por. Re-xln. Fossil frags in part. Argil in part. Firm. No/ tr vis por.
 LS - Tan. Sing Micro-xln. xln por. Re-xln. Chalky in part. mostly Firm. No/ tr vis por.

Add: Chert - Off White/ Brown/ Med Gray/ tr Silvery Gray. Mot/ Mixed. Opaque. Misc Inclusions. No tripolitic.

SH - Dark Gray. Sing. tr carb flecks. soft.
 Mixture of:
 LS - Pale Grayish Tan, Lt and Med Tan. XF-/ some Micro-xln. xln, particle and vuggy por. misc fossil frags, Micro-Oolites and fossil hash. Friable. tr/ most Fair and some Good vis por.

Add: Chalk- White. Sing. Highly Friable.
 Add: Chert - Browns, Grays, White, Clear. Mixed. Opaque. misc inclusions. No tripolitic.

SH - Med/ Dark Gray. Sing.

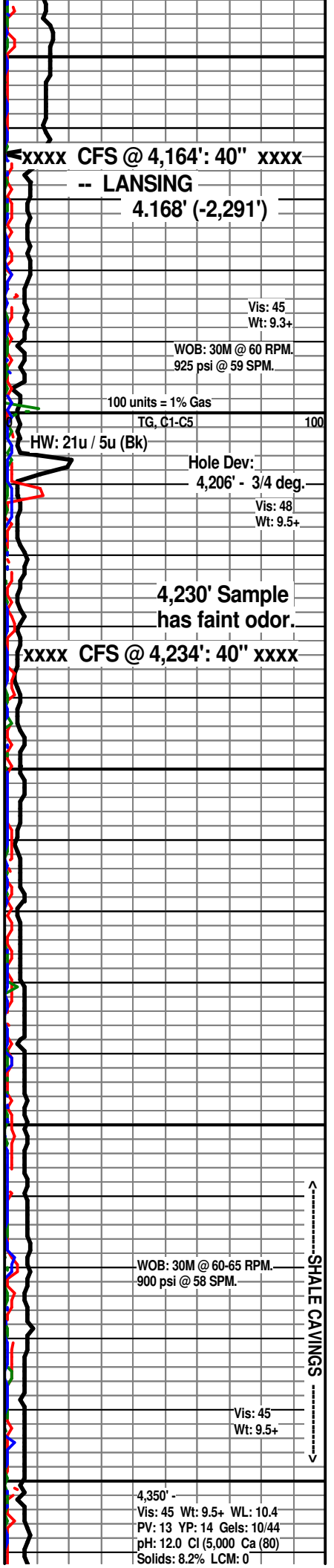
LS - Tans. Mot/Mixed. XF-xln. xln and sucrosic por. Friable. tr/ fair vis por.

LS - Lt/ Med Tan, Pale Grayish Tan. rare Yellowish Tan. some XF-/ mostly Micro-xln. xln por. some Re-xln. Pale Gray argil in part (mixed). Firm. No/ tr vis por.

SH - Dark Gray. Sing. Platty.

Mixture of:
 LS - Lt and Med Tan. XF-/ some Micro-xln. xln, particle and vuggy por. misc fossil frags, rare Micro-Oolites. fossil hash. Chalky in part. Friable. tr/ most Fair vis por.

LS - Pale Grayish Tan, tr Off Whitish Tan. Sing/ tr Mot. XF-/ Micro-xln. xln por. No/ tr Re-xln. Firm. No/ tr vis por.



xxxx CFS @ 4,164': 40" xxxx
 -- LANSING
 4.168' (-2,291')

Vis: 45
 Wt: 9.3+
 WOB: 30M @ 60 RPM.
 925 psi @ 59 SPM.

100 units = 1% Gas
 TG, C1-C5 100

HW: 21u / 5u (Bk)
 Hole Dev: 4,206' - 3/4 deg.

Vis: 48
 Wt: 9.5+

4,230' Sample has faint odor.

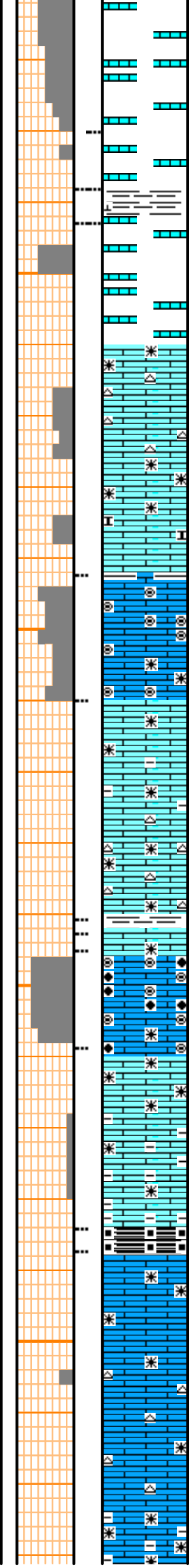
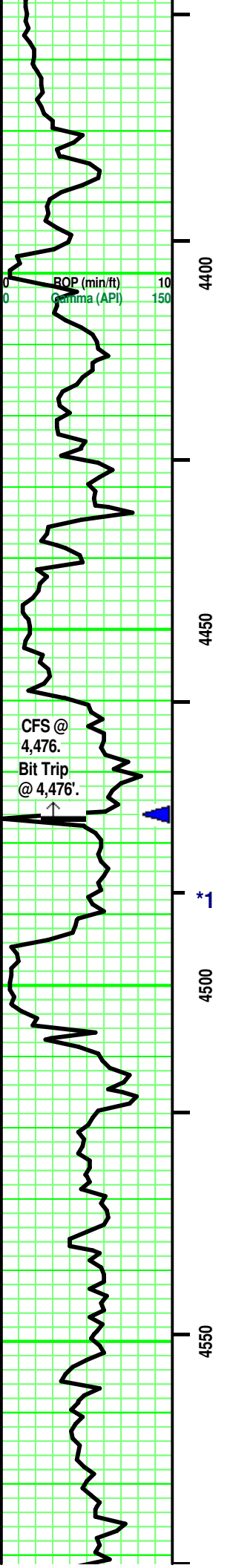
xxxx CFS @ 4,234': 40" xxxx

WOB: 30M @ 60-65 RPM.
 900 psi @ 58 SPM.

SHALE CAVINGS

Vis: 45
 Wt: 9.5+

4,350' -
 Vis: 45 Wt: 9.5+ WL: 10.4
 PV: 13 YP: 14 Gels: 10/44
 pH: 12.0 Cl (5,000 Ca (80)
 Solids: 8.2% LCM: 0



SH - Med/ Dark Gray. Sing. platy. tr calc.

LS - Tans. Sing/ Mixed. XF-/Micro-xln. xln por. No/ tr Re-xln. {some Chert - Pale Grayish Tan, Lt Tan. Mot. Opaque. No/ tr inclusions. No tripolitic.} No/ tr chalky in part. Mostly Firm. mostly No/ tr vis por.

few pcs: SH - Med Gray. Sing. tr calc.
LS - Off White, Lt Tan Micro-Oolites. tr Clear, mostly Lt/Med Tan Matrix (Semi-transparent). tr Re-sin. mostly Friable. tr/ fair vis por.

LS (6) - Tans, Whitish Tan, Tanish Gray at depth. Sing/ Mixed. tr XF-/ Micro-/ some Crypto-xln. xln por. No/ some Re-xln. argil in part. Firm. No/ tr vis por.

Add: Chert - Pale Gray, Pale Grayish Tan. Sing. Opaque. No/ ? minute inclusions. No tripolitic.

STARK SH 4,491' (-2,614')
SH - Dark Gray. Sing.
LS - similar to (6) above.

LS - Med/ Dark Tan, Brownish Tan XF-/ Micro-Oolites and Ooloids. Clear/ semitransparent Matrix. some fossil hash. Friable. None to mostly Good/ excellent vis por.

LS - Tans/ Lt Gray. Sing/ tr Mot. Crypto-/ some Micro-xln. xln por. some argil. tr Re-xln. Firm. No/ tr vis por.

SH - Black. Carb. minute pyrite. Soft.
LS - Tan/ some Off White & rare Lt Gray. Sing/ some Mot. Micro-/ XF-xln. xln por. some Re-xln. No/ tr argil. {Chert - Tan, Grayish Tan. Sing. Opaque. No/ rare inclusions. No tripolitic.} No/ tr vis por.

Clean Suction Pit

SHALE CAVINGS
Add Pre-Mix

Vis: 48
Wt: 9.4
100 units = 1% Gas
TG, C1-C5

Vis: 48
Wt: 9.4

- ^--- CFS @ 4,476' 60"
- ^--- T/O.
- ^--- Hole Dev: 1/4 deg.
- ^--- Add two collars. - v
- ^--- T/I. Repeatedly break circ.
- ^--- CHC.
- ^--- Resumed Drilling.

Vis: 43
Wt: 9.5

4,460' -
WOB: 30M @ 60 RPM.
950 psi @ 59-60 SPM.

*1 Correction @ 4,487'. (-3.20')

xxxx BIT TRIP @ 4,476' xxxx

Add Pre-Mix

Vis: 50
Wt: 9.3
LCM: 5#

Vis: 51
Wt: 9.2
LCM: 4#

Work on Pump @ 4,542'

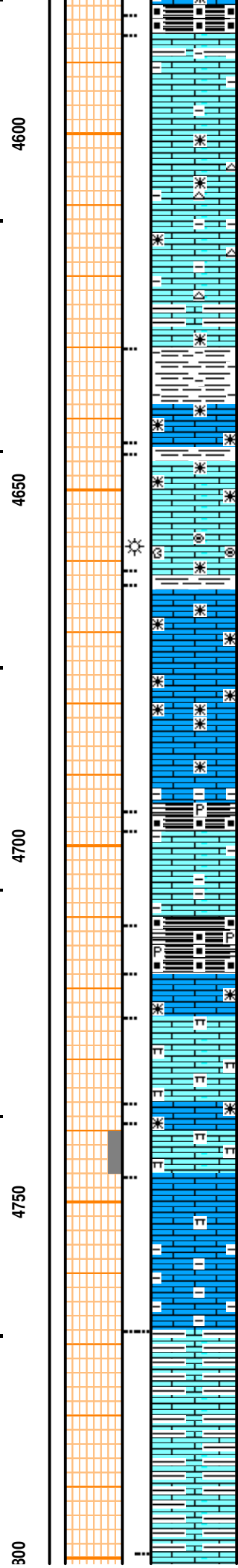
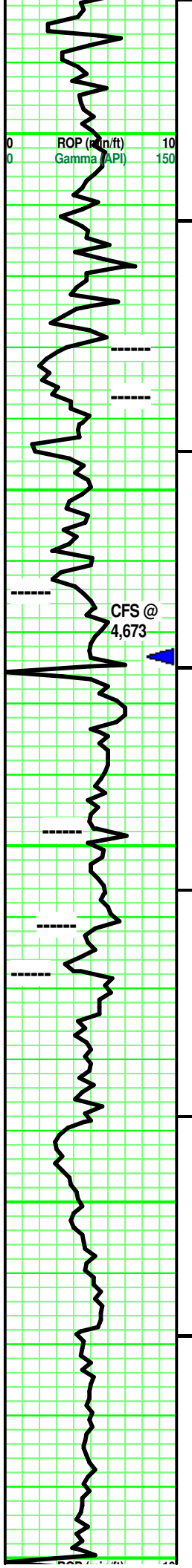
Vis: 47
Wt: 9.3

4,568' -
Vis: 46 Wt: 9.3 WL: 9.0
PV: 13 YP: 14 Gels: 9/42
pH: 11.5 Cl (4,000) Ca (80)
Solids: 6.9% LCM: 2.5#

WOB: 30-32M @ 60-65 RPM.
950 psi @ 58 SPM.

Vis: 46
Wt: 9.3
LCM 2.5#

Add Pre-Mix



SH - Black. Carb. minute pyrite. Soft.
 LS - Tans/ some Off Whitish Tan/ some Lt & Med Gray. Sing/ some Mot/ tr Mixed. Micro-/ XF-xln. xln por. some Re-xln. tr argil. {few pcs: Chert - Grays/ White/ Clear. Mot/Mixed. Opaque. Inclusions. No tripolitic.} mostly Firm. No/ tr vis por.

----- **MARMATON 4,630' (-2,753')**
 SH - Med/ Dark Gray. Sing. Massive. tr misc minute inclusions.

----- **ALTAMONT 4,635' (-2,758')**
 LS - Tan/ Lt Gray. Sing/ some Mot. Micro-/ XF-xln. xln por. some Re-xln. tr argil. No/ tr vis por.

SH - Med Gray. Sing. soft.
 LS - Tans/ Brown. Mixed/ Mot. XF-/Micro-xln. xln & particle por. Misc, VF/XF SA LS frags and Oolites. Re-xln. mixture of Friable and Firm. most No, some tr vis por. Faint odor. Spotted dull yellow ----->

SH - Lt/ Med Gray. Sing. platty.
 ----- **PAWNEE 4,663' (-2,786')**

LS - Tans/ some Off White. Sing/ some Mot. Micro-/ XF-xln. xln por. some Re-xln. Firm. No/ tr vis por.

SH - Black. Carb Soft. tr Pyritic. tr fissile.
 ----- **FT. SCOTT 4,698' (-2,821')**

LS - Tans/ Grays/ rare Off White. Sing/ Mot. XF-/Micro-xln. xln por. Hi argil/ shaly intermixed/interbedded (Med/ Dark Gray. some Black. some Re-xln. Misc fossil frags. partly firm. No/ tr vis por.

SH - Black. Carb. minute pyritic lams. Soft.

LS - Dark Gray, Blackish Gray. Sing. Crypto-xln. xln por. Firm. No vis por.

LS/ Marl - Blue Green. Sing. Micro-xln. xln por. partly Friable. No vis por.

LS - Med Tan. Sing/ some Mot. Crypto-xln. xln por. some Re-xln. Firm. No/ tr vis por.

LS (Marl) - Tan. Sing. Micro-xln. xln por. marly/chalky. partly Friable. No/ tr vis por.

LS - Tans/ Off White/ Pale Grayish Off White. Sing/ tr Mixed. tr XF-/ mostly Micro-xln, tr Crypto-xln. xln por. tr Re-xln. tr argil in part. mostly Firm. No/ tr vis por.

LS - Dark Greenish Gray, Dark Gray, Blackish Gray. Sing. Micro-xln. xln por. Highly shaly. some pcs are highly limy / some pcs are high argillaceous. All Firm. No vis por.

-- B / KC
4,583' (-2,706')

100 units = 1% Gas
 TG, C1-C5
 WOB: 39-32M @60-65 RPM.
 Wis: 51
 Wt: 9.2
 LCM: 3.5#

Vis: 52
 Wt: 9.3
 LCM: 3#

fluorescence. On own, minute gas bubbles covering rx chip. A/C, rare minute gas bubbles. No free oil. Spotted, irregular Med Brown stain. Pi s cut/ residual. Pos acid/ residual. <-----

WOB: 32M @ 60-65 RPM.
 950 psi @ 58 SPM.

Hotwire: 44u/13u (Bk)
 Vis: 48
 Wt: 9.3
 LCM: 2.5#

xxxx CFS @ 4,673': 40" xxxx

Vis: 51
 Wt: 9.3
 LCM: 2.5#

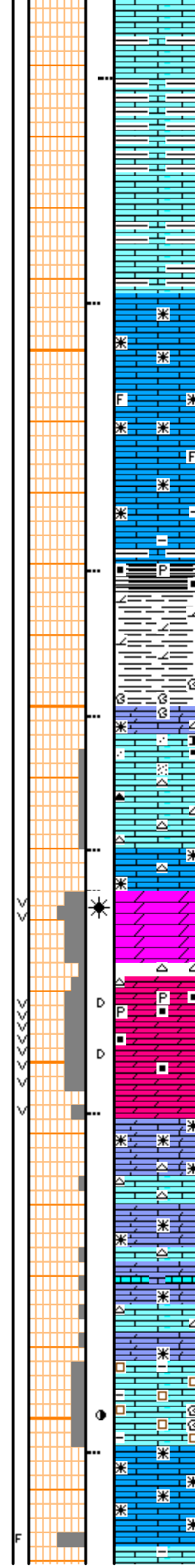
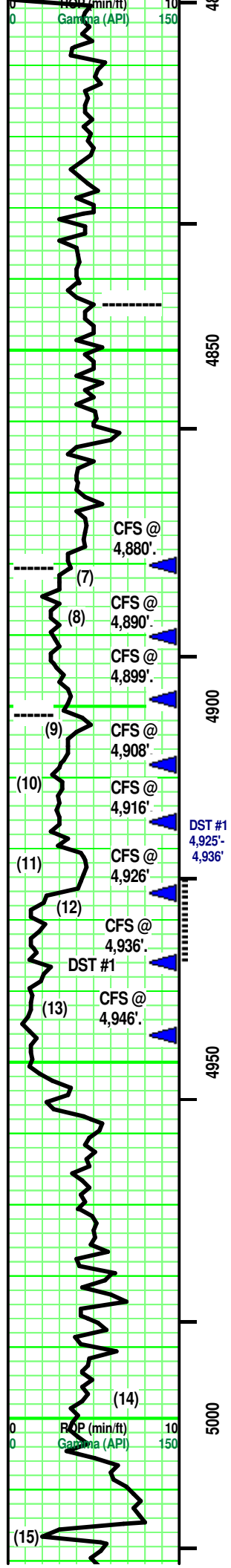
Vis: 51
 Wt: 9.3
 LCM: 2+#

-- **CHEROKESS SH**
4,711' (-2,834')

-- **MISS**
4,718' (-2,841')

Vis: 50
 Wt: 9.4
 LCM: 2#

100 units = 1% Gas
 Vis: 56
 Wt: 9.2
 LCM: 2#



LS - Dark Greenish Gray, Dark Gray, Blackish Gray. Add: Lt Tan with depth. interbedded. Sing. Micro-xln. xln por. Highly shaly. some pcs are highly limy / some pcs are high argillaceous. All Firm. No vis por.

----- COMPTON 4,843' (-2,966')
 LS - Tans/ Pale Gray, rare Off White. Sing/ tr Mot. Micro-/ tr XF-xln. xln por. some Re-xln. tr argil in part. rare fossil frag. Firm. No/ tr vis por.

'Rubble'

----- WOODFORD SH 4,891' (-3,014')
 SH (7) - Black (Brown Scratch/Hue). Sing. Black, carb random (silt-sized, irregular shaped), tr ultr-silt-sized pyritic specks (some lams), partly Soft. Massive.

SH (8) - Med Brown, Med Grayish Brown. Sing. Massive. dolomitic and grainy. i
 Rubble

----- VIOLA 4,901' (-3,024')
 LS - Pale Lt Grayish White / Off White. rare Tan. mostly Sing/ some Mot. Micro-/ XF-xln. xln & part por. some Chalky in part (mixed with VF, ang, irregular Med Gray/ Tan Chert, opaque, VF, Ang, frags). some dolomitic frags/pcs in part. some SA/SR, mod sphericity, well sorted, silt-sized qtz and misc dark grains 'floating' in rx matrix. some Re-xln. mixture of Friable / Firm. No/ Tr vis por.

(10) Add: Chert - Off Whitish Tan/ Pale Lt Gray. Semi-transparent. minute inclusions. No tripolitic.

LS (11) - Lt/ Med Tan, Pale Grayish Tan. Sing. tr XF-/ mostly Micro-xln. xln por. tr Chert similar to 10 above. No/ tr Re-xln. Firm. No/ tr vis por.

DOL (12) - Off White/ Pale Lt Gray. Sing. VF-/Micro subeuhedral xtals. mixture of vuggy and xln por. Friable in part. some sutured grains. Fair/some Good, some Tr vis por. Faint odor. tr Uniform, some spotted dull yellow fluorescence. On own, minute gas bubbles clinging to rx chip. rare minute freed med brown oil. Spotted pale Lt Brown stain rimming vuggy por. Weak/ Pos cut and residual. Weak/ Pos acid and residual.

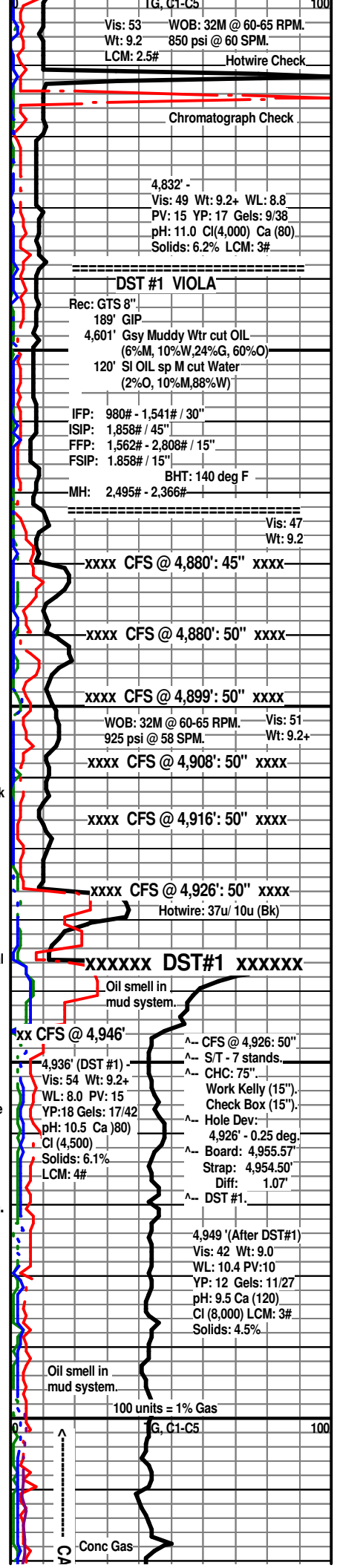
DOL (13) - litho similar to (12) above. add: subeuhedral pyrtie xtals. spotted, irregular carb infill. Gas clinging to rx chip. Show similar to above. Add: Chert - White/ tr clear. mostly Opaque. High fossil inclusions. No tripolitic.

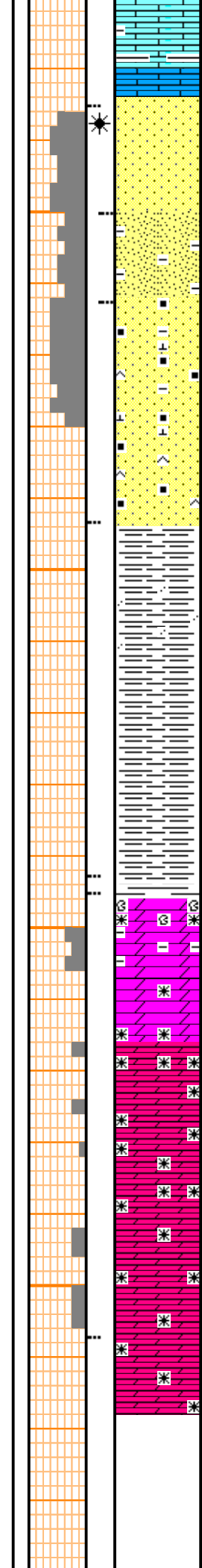
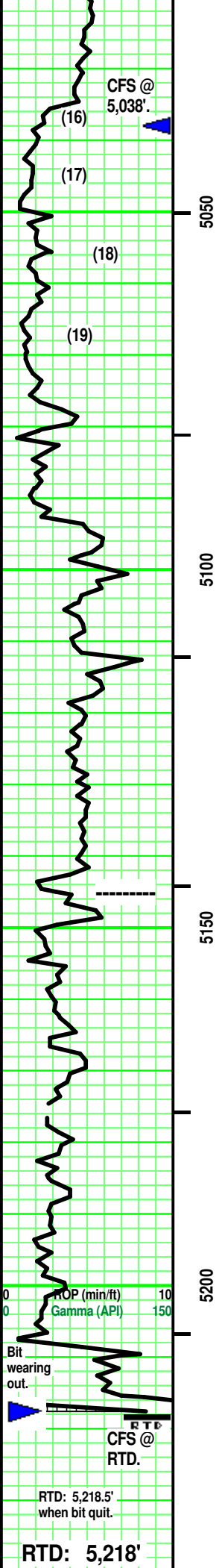
LS (Dol in part) - Tans/ tr Pale Lt Gray, tr Off White. Sing/ Mot/ tr Mixed. XF-/ Micro-/ Crypto-xln. xln por. Interbedded LS/ Dol streaks in part. {No/ some Chert - Off White/ White/ Grayish Tan. Opaque. Misc fossil frags in part. No tripolitic.} No/ tr chalky in part. Firm. No/ tr vis por.

LS (14) - Lt/ Med Tan. Mot. Micro-xln. xln & sucrosic por. tr XF, SA, Med/ Dark Tan carbonate frags. tr arguk, partly Friable. tr vis por. Spotted, irregular Lt/Med Brown stain on 2 pcs. Spotted very dull yellow fluorescence. No free oil or gas. No cut/ residual. No/? acid/ residual.

LS - Med/ Dark Tan, Drusy Gray Tan. Crypto-xln. xln por. Re-xln. Firm. No vis por.

Add: LS (15) - Med/Dark Tan. Mixed. Cyrpto-xln. Clear Re-xln xtals lining/filling fracture, irregular spaced pattern. tr vis por.





LS - Med Tan. Sing. XF-/Micro-xln. xln por. argil in part. partly Firm. No/ tr vis por.

SH - Med Gray. Sing. calc.
LS - similar to immediately above.

----- SIMPSON SD 5,035' (- 3,158')
few pcs of disseminated sand. SS (16) - Clear. Sing. VF Quartz grain. SR. Mod sphericity. Frosted luster. No/ tr surface Re-xn. One pcs floating on wash water (OIL wet surface). Uniform dull yellow fluorescence. No free oil. very minute gas bubble clinging to floating sand grain. NC on cut/acid/ residual.

some disseminated sand grains. SS (17) - Clear/ v Pale Lt Gray, rare Off White VF quartz grains. SA. Mod sphericity. mixture of vitreous and frosted luster. No show.

SS (18) - Clear/ Lt Gray. VF-/ tr silt sized quartz grain. SA/SR. Mod sphericity. Frosted luster. Sutured/ some pinpoint contact. Lt Gray Clay/argil in part. tr vis por.

SS (19) - Clear/ Off White. Pale Light Gray with depth. Mot. rare F/ mostly VF- & tr silt sized qtz grains. SR/SA. Mod sort. Mod sph. Vitreous/ frosted grain contact. Calc/ sil cement. mostly sutured/ some point grain contact. tr argil in part. carb flecks infilling (Ang, VF). some SA, VF Dark Gray frags. few pcs: SA, Silt/tr VF Dark Green frags with depth. partly Friable. Fair/ tr good vis por.

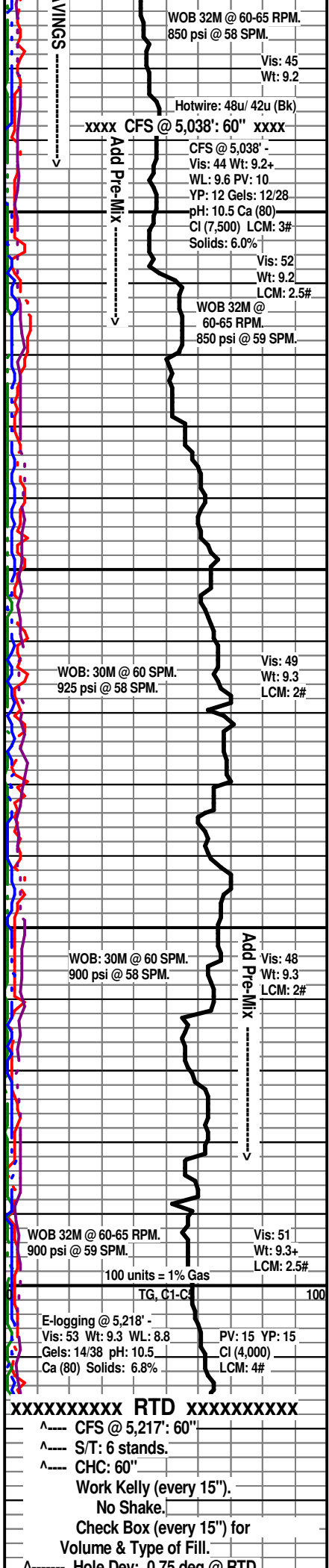
SH - Pale Blue, Blue Gray, (Pale Greenish Blue Gray), Lt Blackish Gray in part. Sing. No/ tr silty/ silt-sized qtz sand. Massive. ductile.

Add: SH (marly) - Pale purplish Pink. Sing. Massive.

----- ARBUCKLE 5,145' (-3,268')
Rubble
DOL - tr Dark Gray/ mostly Lt & Med Gray. Sing/ some Mot. XF-/ Micro-Re-xln. xln & sucrosic por. tr argil (VF, SA) frags. mixture of: mostly partial friable & dense. most fair/ some tr and good vis por.

DOL - mostly Med/ Dark Tan. Lt Tan in part. Sing/ some Mixed with Lt & tr Med Gray. XF-/ Micro-Re-xln. mostly Re-xln & sutures xtal por. partly Firm. tr/ most fair vis por.

Add: Med Tan, F-VF subeuhedral dolomite xtals in XF-/ Micro-Re-xln.



MARSH #1 - 27

1,840' FNL & 1,685' FEL 27-T32S-R15W

Barber County, Kansas

LTD: 5,221'

ATD: 5,229'

E-LOG.
(Halliburton Energy Services)

RAMSHORN RESOURCES, LLC.
Wichita, Kansas

Geologist:
Curtis Covey
COVEY - The Well Watchers
Well Number: 1,170



DRILL STEM TEST REPORT

Prepared For: **Ramshorn Resources**

300 N Mead Ste 200
Wichita, KS 67202

ATTN: Curtis Covey

Marsh #1-27

27-32S-15W Barber,KS

Start Date: 2018.03.18 @ 05:42:49

End Date: 2018.03.18 @ 17:20:36

Job Ticket #: 63371 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2018.03.28 @ 08:51:52



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ramshorn Resources
 300 N Mead Ste 200
 Wichita, KS 67202
 ATTN: Curtis Covey

27-32S-15W Barber,KS

Marsh #1-27

Job Ticket: 63371

DST#: 1

Test Start: 2018.03.18 @ 05:42:49

GENERAL INFORMATION:

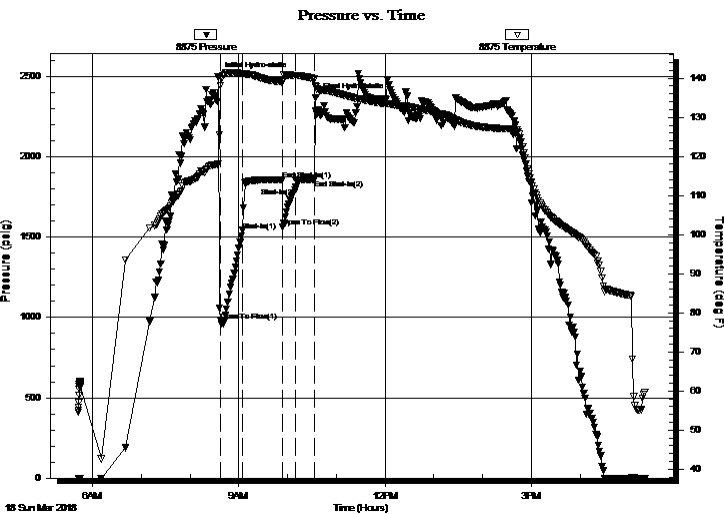
Formation: **Viola**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 08:37:36
 Tester: Leal Cason
 Time Test Ended: 17:20:36
 Unit No: 74
 Interval: **4925.00 ft (KB) To 4936.00 ft (KB) (TVD)**
 Reference Elevations: 1877.00 ft (KB)
 Total Depth: 4936.00 ft (KB) (TVD)
 1869.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Good
 KB to GR/CF: 8.00 ft

Serial #: 8875

Inside

Press@RunDepth: 1808.68 psig @ 4926.00 ft (KB) Capacity: psig
 Start Date: 2018.03.18 End Date: 2018.03.18 Last Calib.: 2018.03.18
 Start Time: 05:42:50 End Time: 17:20:36 Time On Btm: 2018.03.18 @ 08:34:36
 Time Off Btm: 2018.03.18 @ 10:34:51

TEST COMMENT: IF: Strong Blow , BOB in 20 seconds, GTS in 8 Minutes, Gauged & Caught Sample
 IS: FTS in 8 minutes, 300 inch Blow Back
 FF: Strong Blow , BOB & GTS Immediate, TSTM, FTS in Approx 10 minutes
 FS: Would Not Bleed Off



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2495.36	118.11	Initial Hydro-static
4	979.75	138.12	Open To Flow (1)
30	1541.28	141.12	Shut-In(1)
80	1858.06	139.03	End Shut-In(1)
80	1562.45	139.34	Open To Flow (2)
96	1808.68	140.66	Shut-In(2)
119	1858.81	139.74	End Shut-In(2)
121	2366.29	137.76	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	189 GIP	0.00
120.00	SOSMCW 2%O 10%M 88%W	1.68
4601.00	GMMVCO 24%G 6%M 10%W 60%O	64.54

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.25	95.00	150.71
Last Gas Rate	0.25	9.00	14.28
Max. Gas Rate	0.25	95.00	150.71



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ramshorn Resources

27-32S-15W Barber,KS

300 N Mead Ste 200
Wichita, KS 67202

Marsh #1-27

Job Ticket: 63371

DST#: 1

ATTN: Curtis Covey

Test Start: 2018.03.18 @ 05:42:49

Tool Information

Drill Pipe:	Length: 4910.00 ft	Diameter: 3.80 inches	Volume: 68.87 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 68.87 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	11.00 ft			String Weight: Initial 69000.00 lb
Depth to Top Packer:	4925.00 ft			Final 85000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	11.00 ft			
Tool Length:	37.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: Dropped Bar, Reversed Out Through Kelly

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			4904.00	
Hydraulic tool	5.00			4909.00	
Jars	5.00			4914.00	
Safety Joint	2.00			4916.00	
Packer	5.00			4921.00	26.00 Bottom Of Top Packer
Packer	4.00			4925.00	
Stubb	1.00			4926.00	
Recorder	0.00	8875	Inside	4926.00	
Recorder	0.00	6749	Outside	4926.00	
Perforations	7.00			4933.00	
Bullnose	3.00			4936.00	11.00 Bottom Packers & Anchor

Total Tool Length: 37.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ramshorn Resources
300 N Mead Ste 200
Wichita, KS 67202
ATTN: Curtis Covey

27-32S-15W Barber,KS
Marsh #1-27
Job Ticket: 63371
Test Start: 2018.03.18 @ 05:42:49

DST#: 1

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: 126000 ppm	
Viscosity: 62.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.78 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4000.00 ppm			
Filter Cake: 0.02 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	189 GIP	0.000
120.00	SOSMCW 2%O 10%M 88%W	1.683
4601.00	GMWCO 24%G 6%M 10%W 60%O	64.540

Total Length: 4721.00 ft Total Volume: 66.223 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments: Rw was .08 @ 56 degrees



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

GAS RATES

Ramshorn Resources

27-32S-15W Barber, KS

300 N Mead Ste 200
Wichita, KS 67202

Marsh #1-27

Job Ticket: 63371

DST#: 1

ATTN: Curtis Covey

Test Start: 2018.03.18 @ 05:42:49

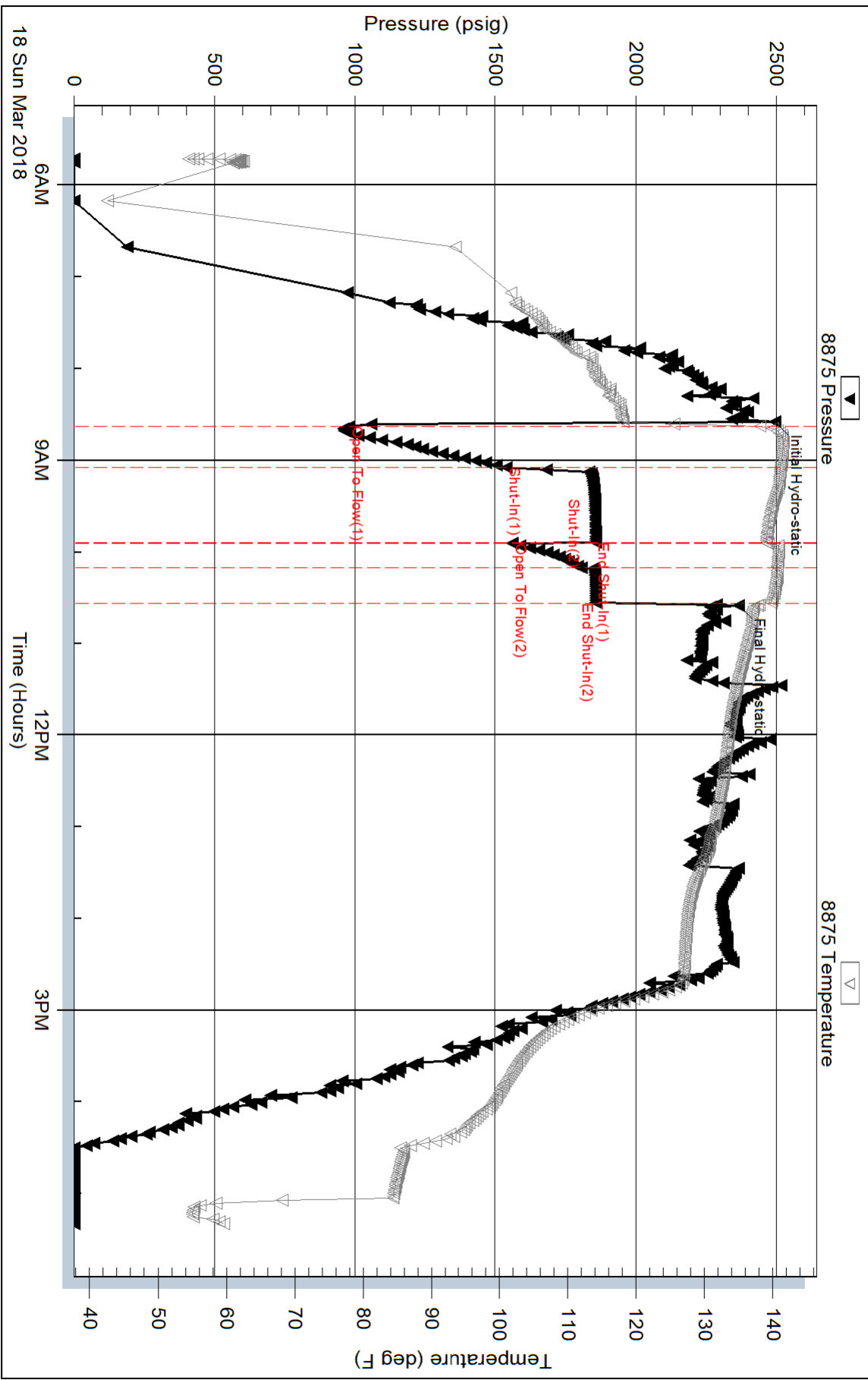
Gas Rates Information

Temperature: 59 (deg F)
Relative Density: 0.65
Z Factor: 0.8

Gas Rates Table

Flow Period	Elapsed Time	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
1	10	0.25	95.00	150.71
1	20	0.25	12.00	19.04
1	30	0.25	9.00	14.28

Pressure vs. Time



Serial #: 6749

Outside Ramshorn Resources

Marsh #-1-27

DST Test Number: 1

