

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 Recompletion Date _____ 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
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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
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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:	
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Form	ACO1 - Well Completion
Operator	Ramshorn Resources, LLC
Well Name	Marsh 2-27
Doc ID	1463704

Tops

Name	Top	Datum
Topeka	3532	1624
Heebner	4031	2123
Lansing	4198	2290
Pawnee	4698	2790
Mississippian	4751	2843
Woodford	4895	2987
Viola	4930	3022
Arbuckle	5165	3257

QUALITY WELL SERVICE, INC.

7084

Federal Tax I.D. # 481187368
Home Office 30060 N. Hwy 281, Pratt, KS 67124
Mailing Address P.O. Box 468

Office 620-727-3410
Fax 620-672-3663

Rich's Cell 620-727-3409
Brady's Cell 620-727-6964

Date	3-29-13	Sec.	27	Twp.	32S	Range	15W	County	Barber	State	Ks	On Location	Finish
Lease	MARSH	Well No.	2-27		Location								
Contractor					DUKE OZG Rig #1								
Type Job	13 3/8	Owner 2.7 S 2.2 W 1 S into											
Hole Size	17 1/2	T.D.	136'										
Csg.	13 3/8 54.5"	Depth	135										
Tbg. Size		Depth											
Tool		Depth											
Cement Left in Csg.	25	Shoe Joint	25										
Meas Line		Displace	16										

Location Menard Wagon Hwy 160 to Deadhead Rd
 To Quality Well Service, Inc.
 You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.
 Charge To RAMSHORN RESOURCES LLC
 Street _____
 City _____ State _____
 The above was done to satisfaction and supervision of owner agent or contractor.
 Cement Amount Ordered 3000x Common 2 1/2 FEL 3 1/2 CL 1 1/2 R

EQUIPMENT

Pumptrk	8	No.		USED	250x
Bulktrk	11	No.	TS	Common	250
Bulktrk		No.	JAKE	Poz. Mix	
Pickup		No.		Gel.	5x
				Calcium	9x

JOB SERVICES & REMARKS

Rat Hole		Hulls	
Mouse Hole		Salt	
Centralizers		Flowseal	125 lbs
Baskets	2 at = 605' from surface	Kol-Seal	
D/V or Port Collar		Mud CLR 48	
		CFL-117 or CD110 CAF 38	
		Sand	
		Handling	264
		Mileage	25
			13 3/8
		FLOAT EQUIPMENT	
		Guide Shoe	
		Centralizer	
		Baskets	1 EA
		AFU Inserts	
		Float Shoe	
		Latch Down	
		SERVICE SUP.	
		LMV	25
		Pumptrk Charge	Cord
		Mileage	50

Run 3 H's 13 3/8 54.5" csg set @ 135'
 Csg on Bottom Hook upto csg Pump
 Weig cellar filling up
 Pump 5 Bbls H₂O
 START mix! Pump 200x Common
 2 1/2 FEL 3 1/2 CL 1 1/2 P.S @ 14.8" lpl @ 50 gal/b
 Disp 16 Bbls H₂O [1.41 @ 3]
 Close valve on csg Didn't circ CNT
 Wait 15 min tag BASKET LET SET 1 1/2
 mix! Pump 50x Common 2 1/2 FEL 3 1/2 CL 1 1/2 P.S
 CNT in Cellar 1.15 10 in down
 RELEASED BY G-man

Thank you
 PLEASE CALL AGAIN
 TOM TS JAKE

X Signature [Signature]

Tax _____
 Discount _____
 Total Charge _____

QUALITY WELL SERVICE, INC.

7085

Federal Tax I.D. # 481187368

Home Office 30060 N. Hwy 281, Pratt, KS 67124

Mailing Address P.O. Box 468

Rich's Cell 620-727-3409

Brady's Cell 620-727-6964

Office 620-727-3410
Fax 620-672-3663

Date	Sec.	Twp.	Range	County	State	On Location	Finish
Date 3-30-19	27	32S	15W	Barber	Ks		
Lease MAZSH	Well No. 2-27	Location MEOLIDGE Ks W on HWY 760 to DEERHEAD Rd					
Contractor DUKE PEG Big #1	Owner 27 S 2.2 W 1 S into			To Quality Well Service, 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 Surface	T.D. 500'			Charge To RAMSHORN RESOURCES LLL			
Hole Size 12 1/4	Depth 496			Street			
Csg. 8 5/8	Depth			City State			
Tbg. Size	Depth			The above was done to satisfaction and supervision of owner agent or contractor.			
Tool	Depth			Cement Amount Ordered 4155 Common 21 GAL 3/16 1/2"			
Cement Left in Csg. 36.97	Shoe Joint 36.97						
Meas Line	Displace 29.22						
EQUIPMENT							
Pumptrk 8	No. TJ			USED 315 SX			
Bulktrk 11	No. JAKE			Common 315 SX			
Bulktrk	No.			Poz. Mix			
Pickup	No.			Gel. 6 SX			
				Calcium 11 SX			
JOB SERVICES & REMARKS				Hulls			
Rat Hole				Salt			
Mouse Hole				Flowseal 157.5 lb			
Centralizers TOP OF # 6				Kol-Seal			
Baskets Bottom # 7				Mud CLR 48			
D/V or Port Collar				CFL-117 or CD110 CAF 38			
Run 13 H's 8 5/8 24" csg set @ 496				Sand			
csg on Bottom Hookup to Csg. BEGAK				Handling 332			
circ w/leg				Mileage 25			
START Pumping 10 Bbls H ₂ O				8 5/8 FLOAT EQUIPMENT			
START MIX Pump 315 SX Common				Guide Shoe 1 EA			
21 GAL 3/16 1/2" PS. 14.8" GAL 6.50 gal 1.41 ft				Centralizer 1 EA			
SHOT DOWN RELEASE 8 5/8 WOODEN Plug				Baskets 1 EA			
START DISP				AFU Inserts 1 EA Baffle Plate			
15.07 circ cmt to pit				Float Shoe 1 EA 8 5/8 WOODEN Plug			
29.22 out 605"				Latch Down 1 EA HEAD MANIFOLD			
Plug down				SERVICE Sp.			
Close Valve on Csg				LMW 25			
				Pumptrk Charge Surface			
				Mileage 50			
Thank you							
PLEASE Call AGAIN							
TOM JAKE TJ							
X Signature				Tax			
				Discount			
				Total Charge			

Drilling Company, Inc.
Bend, Kansas

Daily Drilling

DATE 04-06 TO 19 RIG NO. 1
WELL NO. 2-27
STATE KS
COUNTY Barber
LEASE March Barber
WE HAVE NOT BEEN INJURED THIS DAY
Hacia 8

QUALITY WELL SERVICE, INC.

Federal Tax I.D. # 481187368
Home Office 30060 N. Hwy 281, Pratt, KS 67124
Mailing Address P.O. Box 468
Office 620-727-3410
Fax 620-672-3663
7096

Rich's Cell 620-727-3409
Brady's Cell 620-727-6964

Date	4-6-19	Sec.	27	Twp.	32S	Range	15W	County	Barber	State	KS	On Location		Finish	
Lease	March	Well No.	2-27			Location		MEO Lodge, 1/2 W on Hwy 160 to Addressed							
Contractor	Duke Delg Rigs #1														
Type Job	5 1/2 L.S.														
Hole Size	7 7/8														
Csg.	5 1/2														
Tbg. Size															
Tool															
Cement Left in Csg.	42														
Meas Line															
	Shoe Joint 42														
	Displace 123 18														
	Owner 4 S 2 W.S into														
	To Quality Well Service, Inc.														
	You are hereby requested to rent cementing equipment and furnish														
	cement and helper to assist owner or contractor to do work as listed.														
	Charge To Ramshorn Resources LLC														
	Street														
	City														
	State														
	The above was done to satisfaction and supervision of owner agent or contractor.														
	Cement Amount Ordered 290 sz Pro C 2% KEL 10% Salt														
	5 1/2 Kolseal .6% C-16A @ 25% C-41P 50sz 6440														
	Common 290 sz Pro C														
	Poz. Mix 37 sz														
	Gel. 5														
	Cation 20 sz														

EQUIPMENT

Pumptrk	B	No.	
Bulktrk	7	No.	JAKE
Bulktrk		No.	
Pickup		No.	

JOB SERVICES & REMARKS

Rat Hole 30sz
 Mouse Hole 20sz
 Centralizers ~~3~~
 Baskets ~~2~~
 DV or Port Collar PER SHAPE 1st. 42
 Run 123 H's 5 1/2 15 5" csg set 2 5200'
 csg on Bottom Hook up to csg & Break
 circ w/ rig 30mm Drop Ball
 SET PKR W/ RIG 1100' (circ 30mm)
 After Pumping 12 Bbls H₂O 12 Bbls MFS Bbls H₂O
 Plug P.M. 4.15
 SPAG mix & Pump 290 sz Pro C
 14.8°/gal 1.50 H₂O
 SHUT DOWN Washup tel/ Release LP Plug
 START Disp w/ 2% RCL 7:30 AM
 97 out Lift ps. 700'
 Slow RATE 5 BPM
 24 at Plug down 1200'
 25 up 1700'
 Release / HECO 1/2 Bbl Back
 200 Ciga thru 503
 Signature Jerry

Hulls C-16A 163.50 #
 Salt 32
 Flow Seal C-41P 68.15 #
 Kol-Seal 1450 #
 Mud CLR 48 500 gpl
 CFL-117 or CD110 CAF 38 CC-1
 Sand
 Handling
 Mileage 25

5 1/2 FLOAT EQUIPMENT

Guide Shoe
 Centralizer 9 EA
 Baskets 2 EA
 AEL Inserts PER SHAPE 1 EA
 Float Shoe
 Latch Down 1 EA
 SERVICE Supr.
 LMV 25
 Pumptrk Charge L.S.
 Mileage 50

Thank you
 please
 call KEAN
 TOO TIGHT
 JAKE

Tax
 Discount
 Total Charge

Covey

The Well Watchers

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

Well Name: **MARSH 2 - 27**
Location: **Section 27 - Township 32 South - Range 15 West**
Licence Number: **15-007-24347-00-00** Region: **Barber County, KS.**
Spud Date: **30 March 2019** Drilling Completed:
Surface Coordinates: **2,305' FNL & 2,073' FEL**
(Approximate NE SW SW NE)

Bottom Hole
Coordinates:
Ground Elevation (ft): **1,896'** K.B. Elevation (ft): **1,908'**
Logged Interval (ft): **3,200'** To: **Total Depth (ft):**
Formation: **Foraker -----> 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: 1,908'

FORMATION TOPS

GL: 1,896'

Formation	Rotary Sample Depth (Datum)	E-log Depth (Datum)
Stotler	3,275' (-1,367')	
Topeka	? 3,532' (-1,624')	
LeCompton LS	3,819' (-1,911')	
Kanwaka Sh	3,855' (-1,947')	
Heebner Shale	4,031' (-2,123')	
Douglas Shale	4,059' (-2,151')	
Lansing	4,198' (-2,290')	
Stark Shale	NC	
B / KC	4,616' (-2,708')	
Pawnee	4,698' (-2,790')	
Cherokee Sh	4,747' (-2,839')	
MISS	4,751' (-2,843')	
Compton LS	4,866' (-2,958')	
Woodford Sh	4,895' (-2,987')	
Viola	4,930' (-3,022')	
Simpson	5,061' (-3,153')	
Arbuckle	5,165' (-3,257')	

RTD: 5,300'

LTD: 5,

ATD: 5,

Float:

E-Log is to rotary sample depth.

E-Loggers:

Weatherford (Liberal, Kansas)

DST #1 - VIOLA

Rotary Depth: 4,932' - 4,963'
Logger's Depth: 4,9

IFP: 279# - 662# / 30"
ISIP: 1,837# / 45"
FFP: 586# - 1,345# / 60"
FSIP: 1,345# / 90"
BHT: 136 deg F
MH: 2,455# - 2,403#

Trilobite Testing ... Pratt, KS.

Recovery:
2,076' Gas in Pipe.
252' Gassy Water & Mud cut OIL.
(20%G, 22%W, 28%M, 30%O)
189' Gassy OIL. (20%G, 80%O)
252' Gassy OIL & Mud cut Water.
(10%G, 10%O, 20%M, 60%W)
2,142' Water.

IF: Strong Blow. BOB -15 seconds,
GTS - 11", Guaged Gas.
ISI: Would not bleed off.
FF: Strong Blow. BOB - GTSTM immediate
Gauged Gas.
FSI: Would not bleed off.

Gas Gauge:
1FP: 15" - 46 MCF @ 1/4" chock.
20" - 46 MCF @ 1/4" chock.
30" - 46 MCF @ 1/4" chock.
2FP: 10" - TSTM.
20" - TSTM.
30" - 9MCF @ 1/8" chock.
40" - 11MCF @ 1/8" chock.
50" - 13MCF @ 1/8" chock.
60" - 17MCF @ 1/8" chock.

Recovery Water: (76,000 ppm)
System Water: (3,000 ppm)

Recovery Water (Engineer): (NA)
Reported Rw = 0.08 ohms @ 88 deg F.

API - 28.2 deg Sampler: NA

2019

DAILY DRILLING - MARCH & APRIL

2019

12/1/4" Hole (Surface)

30 March --- Spud @ 8:30am.
Drilled to 84'.
Lost Circ (300 Bbl).
Redrill with 17-1/2" bit.

17/1/2" Hole (Redrill Shallow Surface)

30 March --- Redrilled 0' to 136'.
Ran 13-3/8" casing.
Set @ 136' with
200 sx Common
(2% Gel, 3% CC, 1/4# CF).
Cement did not circ.
Filled backside with
50sx Common (2%Gel,
3%CC, 1/4# CF).
[Quality Well Services]
Plug Down @ 8:15pm.
WOC.

12/1/4" Hole (Deepen Surface)

30 March --- Drilled 136' to 500'.
Ran 8-3/8" casing. Set @ 496'.
315 sx Common
(2% Gel, 3%CC, 1/4# CF).
[Quality Well Services]
Plug down @ 3:30pm.
WOC. Test BOP.

7-7/8" Hole (Vertical)

31 March --- Drilled Cement.
U/S casing @ 12:15am.
7am @ 950'.
1 April --- 7am @ 2,855'
2 --- 7am @ 4,264'. Bit trip @ 4,482'.
Resumed Drilling @ 4:38pm.
3 --- 7am @ 4,725'.

7-7/8" Hole (Vertical)

4 April --- Drill to 4,963'.
Start and
7am @ 4,963'.
..... Finish DST #1.
(4,932' - 4,963').
Resumed Drilling
@ 10:17pm.
5 --- 7am @ 5,139'.
Drilled to RTD (5,300")
@ 10:45am.
E-Log.
[Weatherford]

HOLE DEVIATION (136' - ' MD)

17-1/2" Surface Hole

DEPTH / TVD	INCLINATION	AZIMUTH	NORTH	SOUTH	EAST	WEST	DOGLEG deg/100'
136' /	0.75						

7-7/8" Vertical Hole

500' /	0.75	
1,014' /	0.75	
1,519' /	0.75	
2,024' /	0.75	
2,529' /	1.00	
3,033' /	1.00	
3,538' /	0.75	
4,326' /	0.75	
4,482' /	0.75 (Bit Trip)	
4,963' /	1.00 (DST #1)	
5,300' /	x.xx (RTD)	

No Strap ----- Board:
Strap: _____
Diff: _____

Inclination Surveys provided by Duke Drilling - Rig #1 - Wichita, Kansas

BIT RECORD

DATE	SIZE	TYPE	JET SIZE	DEPTH IN / OUT	CUM. FT.	HOURS	ROP
SURFACE ---							
		(IADC)					(ft/hr)
30 March 2019	12-1/4"	Varel	15 - 15 - 15	0' / 84'	84'	1.5	56.0
30 March 2019	17-1/2"	HT RR4620	15's	0' / 136'	136'	1.0	136.0
30 March 2019	12-1/4"	Varel	15 - 15 - 15	136' / 500'	364'	4.5	80.1
VERTICAL ---							
31 March 2019	7-7/8"	Varel 516 (PDC)	2 - 15's & 7 - 14's	500' / 4,482'	3,982'	41.0	97.1
2 April 2019	7-7/8"	Varel HE28 (527)	15 - 15 - 15	4,482' / 4,963'	481'	29.0	16.6
4 April 2019	7-7/8"	Varel 516 (PDC)	2 - 15's & 7 - 14's	4,963' / 5,300'	337'		

CONTRACTOR

Duke Drilling Co. --- Rig # 1

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

Rig #1: (620) 793-0839
Toolpusher: Mike Godfrey (620) 786-1727

Pump: Ideco MM550
6" x 15" @ 60 SPM.
1,050 PSI @ Standpipe.

Drill Pipe: 4-1/2"XH. (16#/ft - used)

Under Surface Casing to 4,482':
PDC bit 6 - 8M on bit @ 100+ RPM.

Bit Trip @ 4,482'.

Tri-Cone: 4,482' ----> 4,963': 40M on bit @ 65/70 RPM.

PDC Bit: 4,963' --> RTD. 14M-16M @ 65/70 RPM.

Check Weight Indicator @ 4,482'.

WI showing 100M at 4,482' -vs- Calculated String Weight of 97.4M.
Therefore, WOB of 32M# showing on WI = 31+M# Actual WOB.

Drill Collars: 6.25" x 2-3/8" --- 469'. (89.5#/ft)

Dry Collar Weight: 41,976#

(@ 9.3 ppg / Buoyancy Factor 0.858)

Buoyancy Collar Weight: 36,015#

Design Factor: 15%, therefore:

available WOB is 30,613#

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 3
- Shale
- Shcol
- Shgy
- Sltst
- Ss
- Till
- Ss 2

MINERAL

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

- Mica
- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Breccfrag
- 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

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

STRINGER

- Calc dol
- Silty dol
- Anhy

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
- Breccfrag

- 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

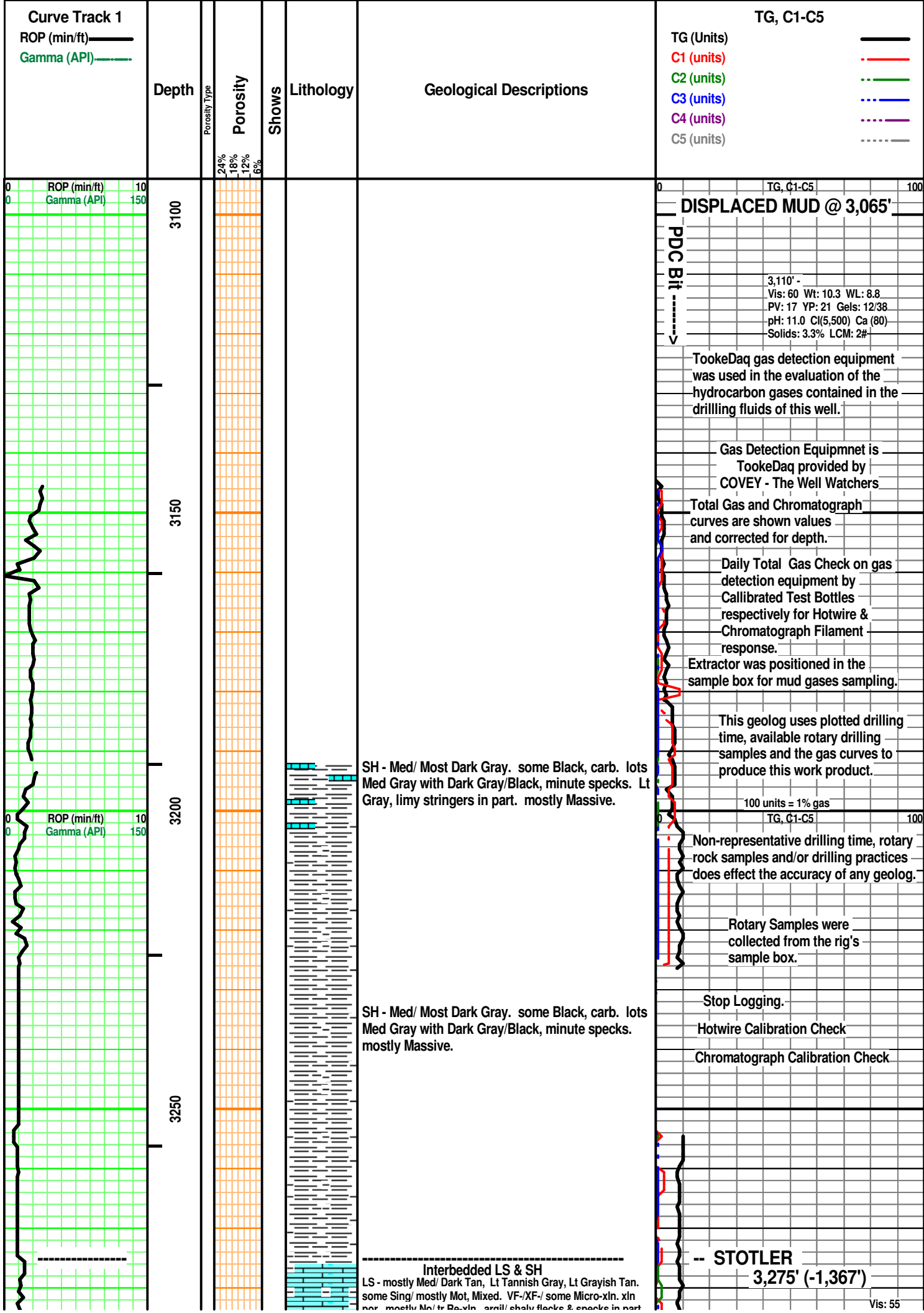
ACTIVITY

- Lost circluation
- Circulate for same

- Circulate for same
- Rtd
- Trip

- Connection
- Rft

- Sidewall



Curve Track 1
 ROP (min/ft) ———
 Gamma (API) ———

Depth

Porosity Type

Porosity

Shows

Lithology

Geological Descriptions

TG, C1-C5
 TG (Units) ———
 C1 (units) - - - - -
 C2 (units) - - - - -
 C3 (units) - - - - -
 C4 (units) - - - - -
 C5 (units) - - - - -

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

3100

3150

3200

3250

24%
18%
12%
6%

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.

Interbedded LS & SH
 LS - mostly Med/ Dark Tan, Lt Tannish Gray, Lt Grayish Tan.
 some Sing/ mostly Mot, Mixed. VF-/XF-/ some Micro-xln. xln
 not mostly Na/tr Be-ylv. arnil/ shaly flacks & snocks in part

TG, C1-C5 100

DISPLACED MUD @ 3,065'

PDC Bit

3,110' -
 Vis: 60 Wt: 10.3 WL: 8.8
 PV: 17 YP: 21 Gels: 12/38
 pH: 11.0 Cl(5,500) Ca (80)
 Solids: 3.3% LCM: 2#

TookeDaq gas detection equipment
 was used in the evaluation of the
 hydrocarbon gases contained in the
 drilling fluids of this well.

Gas Detection Equipmnet is
 TookeDaq provided by
 COVEY - The Well Watchers

Total Gas and Chromatograph
 curves are shown values
 and corrected for depth.

Daily Total Gas Check on gas
 detection equipment by
 Callibrated Test Bottles
 respectively for Hotwire &
 Chromatograph Filament
 response.

Extractor was positioned in the
 sample box for mud gases sampling.

This geolog uses plotted drilling
 time, available rotary drilling
 samples and the gas curves to
 produce this work product.

100 units = 1% gas

Non-representative drilling time, rotary
 rock samples and/or drilling practices
 does effect the accuracy of any geolog.

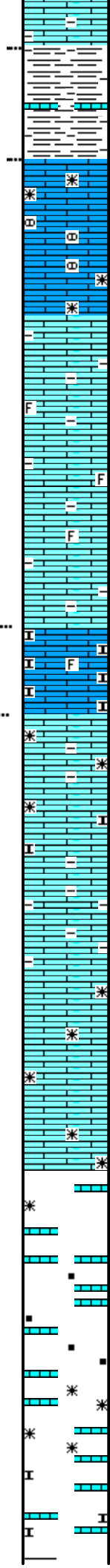
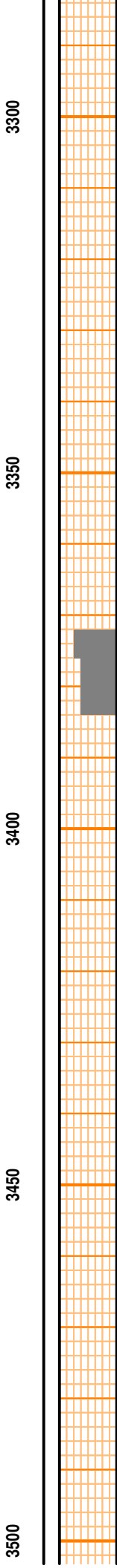
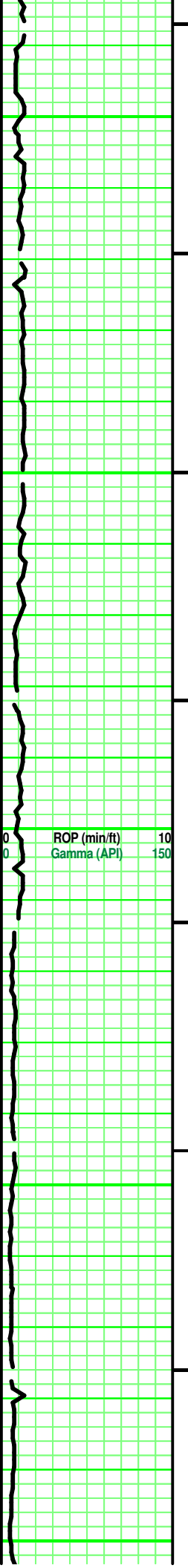
Rotary Samples were
 collected from the rig's
 sample box.

Stop Logging.

Hotwire Calibration Check

Chromatograph Calibration Check

-- STOTLER
3,275' (-1,367')



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.

some pcs: 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.

few pcs: LS - Lt Tan. Sing. Micro-xln. xln por. Chalk. tr fossil frag. Friable. No/ tr vis por.

Interbedded LS's

few pcs: 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.

Vis: 53
Wt: 8.9
LCM: 2#

100 units = 1% gas

TG, C1-C5

100

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

Interbedded LS

misc pcs: 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.

misc pcs: 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. one pcs: No odor/ flourescence/ free or or gas, stain ?, no cut/acid/residual.

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

misc pcs: 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.

some pcs: SH - Med/ Dark Gray. tr/some Silvery

Hotwire Check

Chromatograph Check

Changed pump strokes
..... adjusted gas curves
down 12'.

Gray. Massive. limy in part near top. tr/ some minute Black specks/frags.

Hotwire: 83u/ 3u (Bk)
Chromatograph: 66u / 2u (Bk)

Hole Dev:
deg @ 3,538'

?-----TOPEKA 3,532' (-1,624')
Mixture of LS's

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

some pcs: LS - Off Whitish Tan, Lt Tan, Pale Lt Gray. 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.

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

misc pcs: 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.

some pcs: LS - Pale 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.

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

Clean sample box.

Vis: 48
Wt: 9.1
LCM: 2#

Clean sample box.

100 units = 1% gas
16. C1-C5 100

Clean sample box.

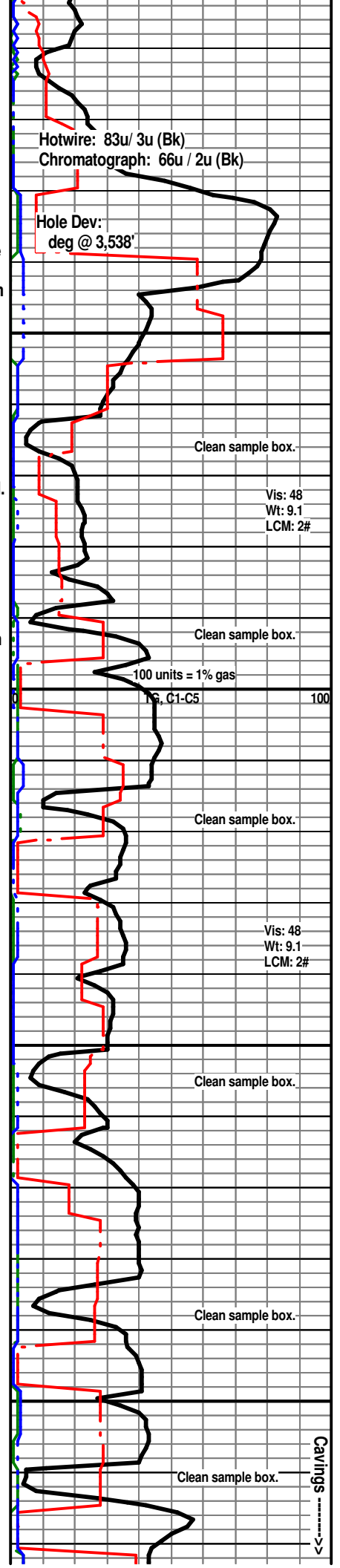
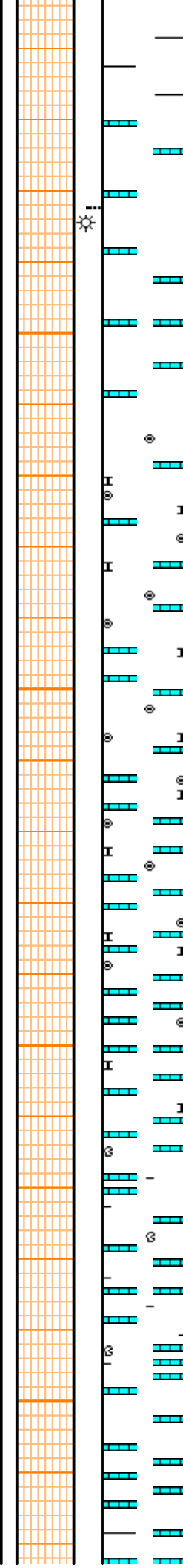
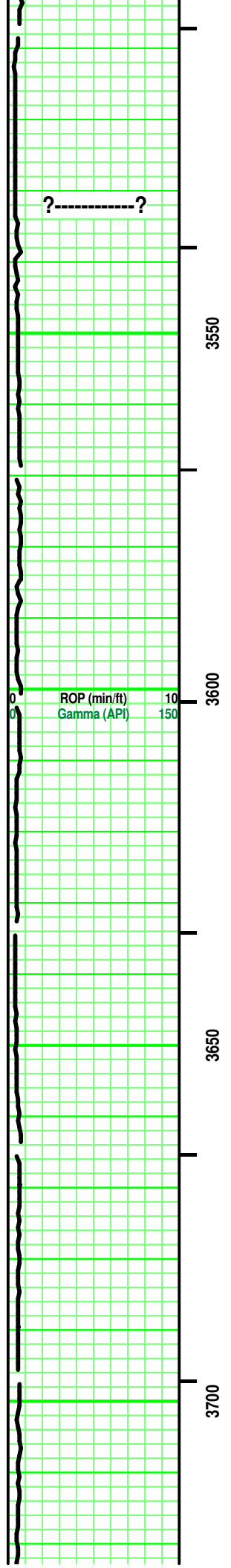
Vis: 48
Wt: 9.1
LCM: 2#

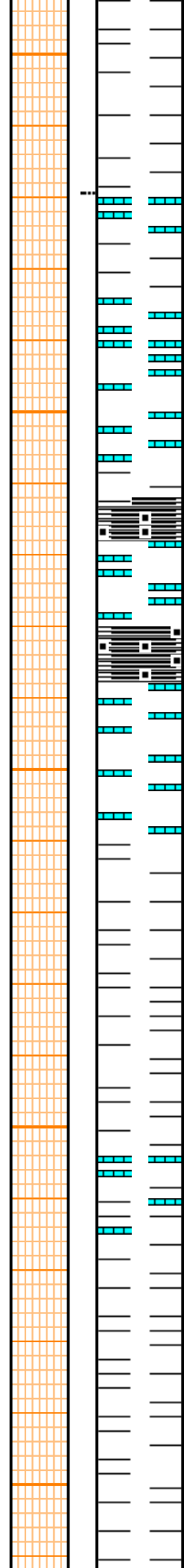
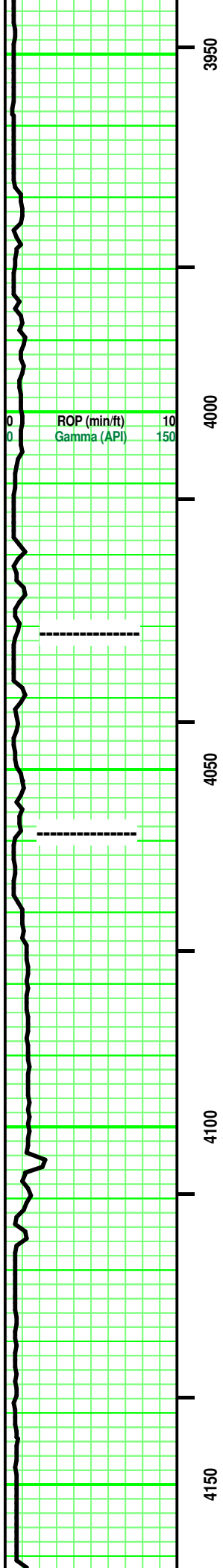
Clean sample box.

Clean sample box.

Clean sample box.

Cavings ----->





few pcs: 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 - Dark Gray. Sing. tr calc.
SH - Black. Sing. Carb. Soft.

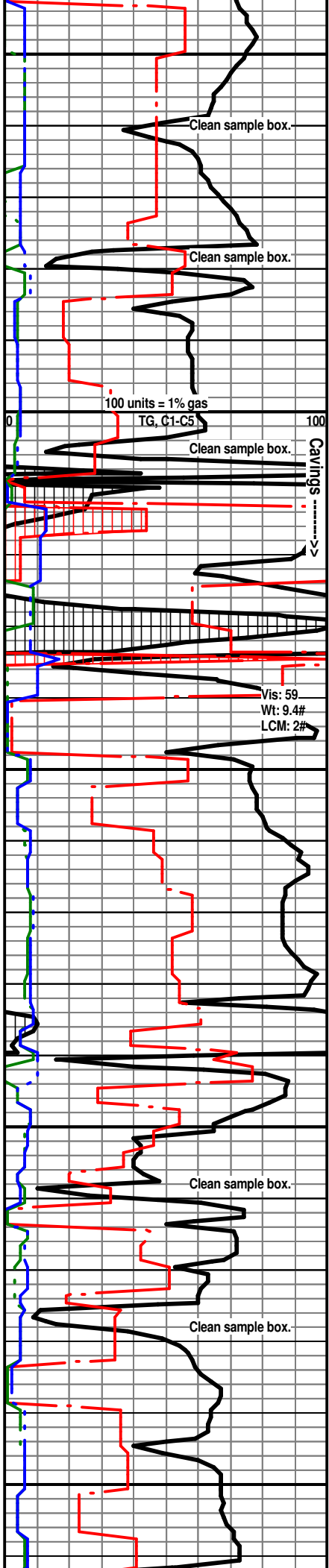
few pcs: LS - Grays/ tr Tan, Lt Brown. Sing. Micro-/ XF-xln. xln por. argil/shaly interbedded or in part. tr Re-xln. Firm. No/ tr vis por.

--- **HEEBNER SH 4,031' (- 2,123')**
SH - Black. Sing. Carb. Soft.

few pcs: 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.

---- **DOUGLAS SH 4,059' (-2,151')**
some pcs: SH - Lt/ Med/ tr Darkish Gray, silver gray. Sing. minute dark specks. Silty/ rare calc in part. Massive.

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.



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

4200

4250

4300

4350

----- LANSING 4,198' (-2,290')

misc pcs: 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.

few/some pcs: 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.

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

some/mics pcs: 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.

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.

100 units = 1% gas
TG, C1-C5

Clean sample box.

Clean sample box.

Clean sample box.

Clean sample box.

Clean sample box.

Vis: 56
Wt: 9.6
LCM: 1#

Clean sample box.

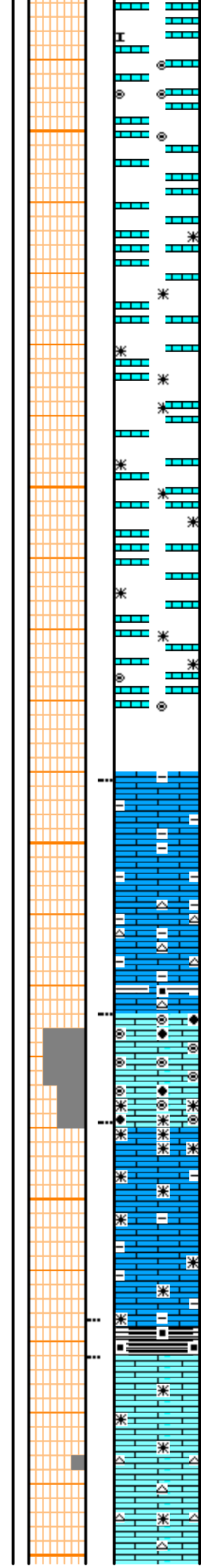
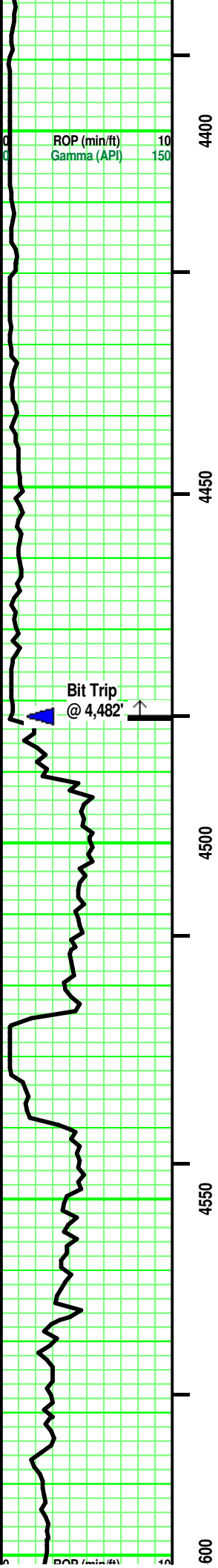
Clean sample box.

Hole Dev:
0.75 degree @ 4,326'

Clean sample box.

Clean sample box.

Interbedded LS's



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

misc pcs: 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: LS - Off White, Lt Tan Micro-Oolites. tr Clear, mostly Lt/Med Tan Matrix (Semi-transparent). tr Re-sln. mostly Friable. tr/ fair vis por.

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

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

rare pcs: SH - Black. Sing. Carb. (Stark SH)

LS - Med/ Dark Tan, some 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. few pcs: Black. Sing. XF-xln (high shaly). mostly 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 sample box.
100 units = 1% gas
TG, C1-C5 100

4,458' -
Vis: 55 Wt: 9.4+ WL: 8.8
PV: 15 YP: 15 Gels: 12/46
pH: 10.5 Cl (5,000) Ca (80)
Solids; 7.5% LCM: 3#

----- PDC Bit
Tri-Cone Bit ----->

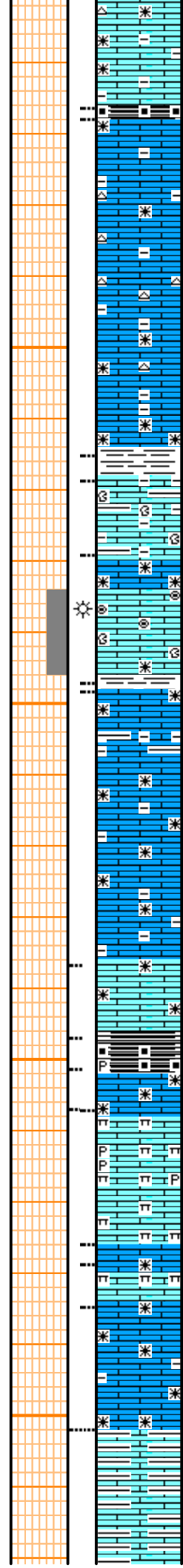
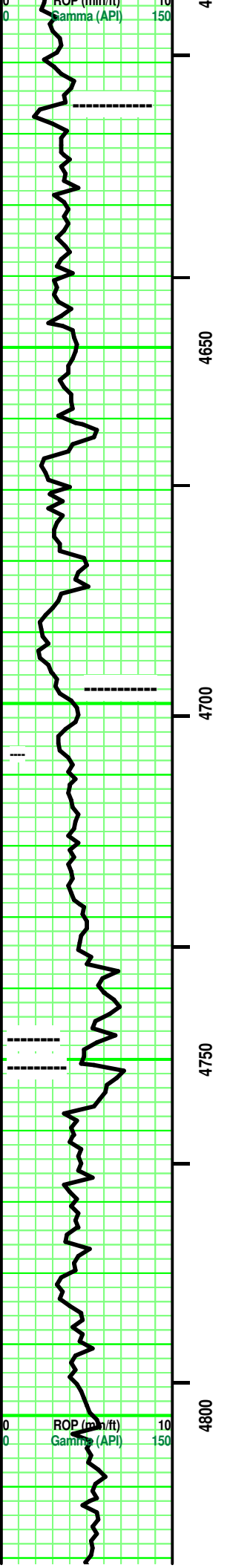
xxxxxxxxx BIT TRIP xxxxxxxxx
^--- CFS @ 4,482': 60
^--- Hole Dev: 0.75 deg @ 4,482'.
^--- T/I, repeatedly break Circ.
^--- On bottom, circ: 20".
^--- Resume Drilling.

Clean sample box.

Vis: 53
Wt: 9.1
LCM: 3#

Clean sample box.

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



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.

SH - Med/ Dark Gray. Sing. Massive. tr misc minute inclusions.

LS - Grays/ tr Tan. Mot/Mixed. XF-xln. xln por. Mixture of misc dark Brown/Grays/ Tans misc rubble/ rounded inclusions and frags. argil/shaly in part. other misc rubble. No/ tr vis por.

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

LS - Tans/ Brown. Mixed/ Mot. XF-/Micro-xln. xln & particle por. Misc, VF/XF SA LS frags and F/XF Oolites. Re-xln infill. mixture of Friable and Firm. most No, some tr vis por. Faint odor. ----->

PAWNEE 4,698' (-2,790')

LS - Tans/ some Off White. Sing. Add Lt/Med Gray with depth. some Med drusy Brown. Sing/ some Mot. Micro-/ XF-xln. xln por. some Re-xln. Firm. No/ tr vis por.

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

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

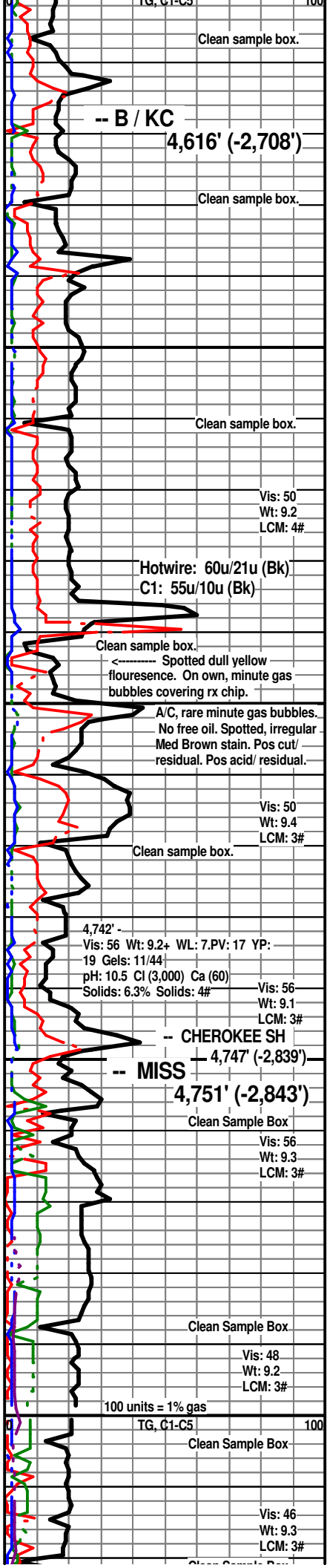
LS - Dark Gray, Blackish Gray. Sing. Crypto-xln. xln por. Firm. No vis por.

Mixture of:

LS/ Marl - Blue Green. Sing. Micro-xln. xln por. minute pyrite in part. partly Friable. No 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. rare misc dark minute specks. All Firm. No vis por.



-- B / KC
4,616' (-2,708')

Hotwire: 60u/21u (Bk)
C1: 55u/10u (Bk)

Spotted dull yellow fluorescence. On own, minute gas bubbles covering rx chip.

A/C, rare minute gas bubbles. No free oil. Spotted, irregular. Med Brown stain. Pos cut/ residual. Pos acid/ residual.

4,742' -
Vis: 56 Wt: 9.2+ WL: 7.PV: 17 YP:
19 Gels: 11/44
pH: 10.5 Cl (3,000) Ca (60)
Solids: 6.3% Solids: 4#

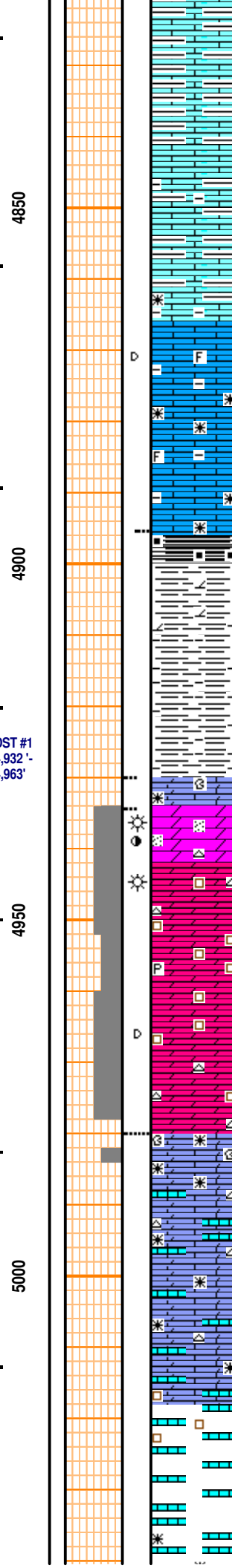
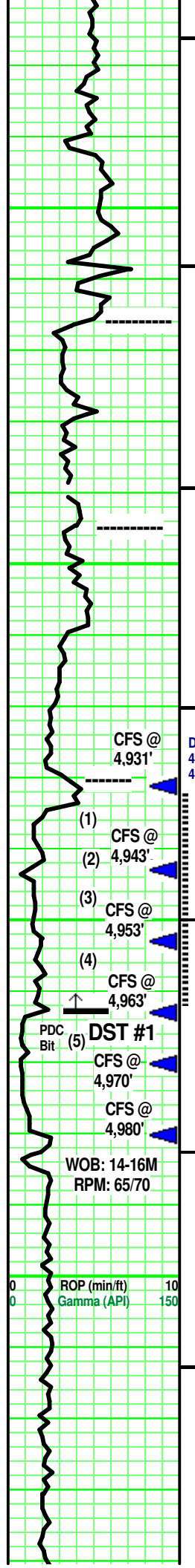
-- CHEROKEE SH
-- MISS - 4,747' (-2,839')

4,751' (-2,843')

100 units = 1% gas

TG, C1-C5

Vis: 46
Wt: 9.3
LCM: 3#



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.

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.

1 pc: LS - Tans / tr Whitish Tan. mixture of: Subehedral, (semi-transparent xtals), Re-xln infill & XF-xln frags. Firm. tr/ rare good vis por. No/? odor. Spotted v dull yellow fluorescence. No free oil or gas. Asphaltic infill, No/ weak Pos cut & residual. No/ weak Pos acid & residual.

SH - Black (Brown Scratch/Hue). Sing. Black, carb random (silt-sized, irregular shaped), tr ultra-silt-sized pyritic specks (some lams), partly Soft. Massive.

SH - Med Brown, Med Grayish Brown. Sing. Massive. tr dolomitic and grainy. Silty.

NOTE: Tri-Cone Bit to 4,482' - 4,963'. PDC Bit 4,963' - RTD.

VIOLA 4,930' (-3,022')

DOL (tr calc) (1) - Pale Lt Grayish White / Off White. Sing. Micro-/ XF-xln. xln por. mixture of Friable / Firm. Tr vis por. Fair odor. uniform Yellow fluorescence. On own, minute gas bubbles clinging to rx chip. spotted, irregular Pale Brown stain. Pos cut/ residual. Pos acid/ residual.

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

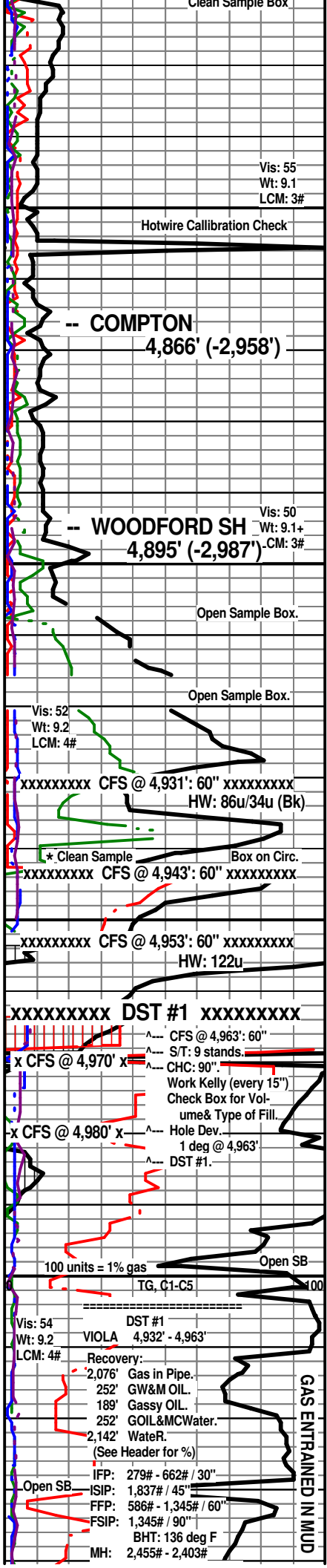
DOL (3 & 4) - Pale Lt Tan/ tr to some Pale Lt Gray. Sing. VF-/Micro subehedral xtals. mixture of vuggy and xln por. Friable in part. some sutured grains. Fair/some Good, some Tr vis por. Faint to Good odor. tr Uniform, some spotted dull yellow fluorescence. On own, minute gas bubbles clinging to rx chip. rare minute free med brown oil. Spotted pale Lt Brown stain rimming vuggy por. Weak/ Pos cut and residual. Weak/ Pos acid and residual.

Dol (5) - similar to (4) above. Add: minute, random asphaltic flecks and infill. Add: Chert - White/ tr clear. mostly Opaque. High fossil inclusions. No tripolitic.

Mixture of LS & LS (HI Dol)

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. Mixed. Opaque. Misc fossil frags inclusions in part. No tripolitic.} No/ tr chalky in part. Firm. No/ tr vis por.

LS - Lt/ Med Tan. Mot. Micro-xln. xln & sucrosic por. tr XF, SA, Med/ Dark Tan carbonate frags. tr arguk, partly Friable. tr vis por.



Vis: 55
Wt: 9.1
LCM: 3#

Hotwire Calibration Check

COMPTON 4,866' (-2,958')

Vis: 50
Wt: 9.1+
LCM: 3#

WOODFORD SH 4,895' (-2,987')

Open Sample Box.

Open Sample Box.

Vis: 52
Wt: 9.2
LCM: 4#

xxxxxxx CFS @ 4,931': 60" xxxxxxxx
HW: 86u/34u (Bk)

* Clean Sample Box on Circ.
xxxxxxx CFS @ 4,943': 60" xxxxxxxx

xxxxxxx CFS @ 4,953': 60" xxxxxxxx
HW: 122u

xxxxxxx DST #1 xxxxxxxx

CFS @ 4,963': 60"
S/T: 9 stands.
CHC: 90"
Work Kelly (every 15")
Check Box for Volume & Type of Fill.
Hole Dev. 1 deg @ 4,963'
DST #1.

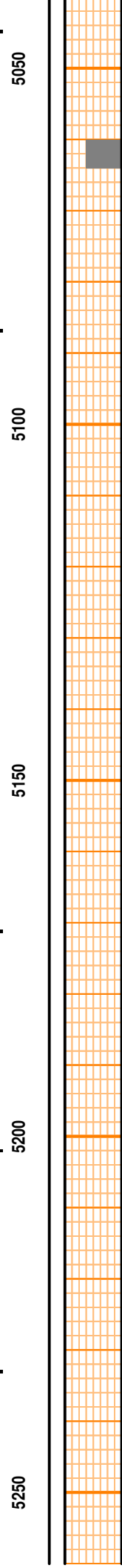
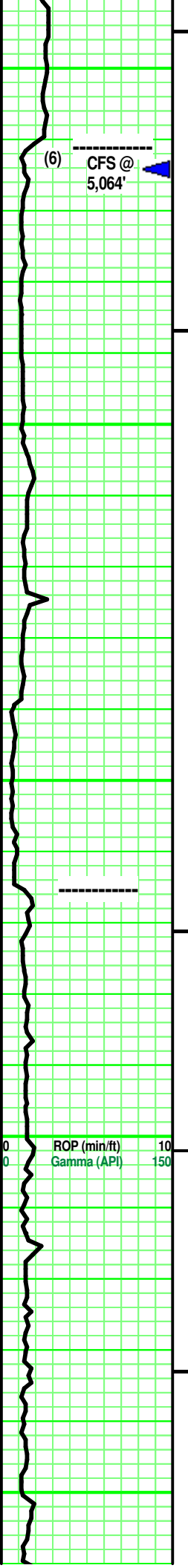
100 units = 1% gas

TG, C1-C5

Vis: 54
Wt: 9.2
LCM: 4#

DST #1
VIOLA 4,932' - 4,963'
Recovery:
2,076' Gas in Pipe.
252' GW&M OIL.
189' Gassy OIL.
252' GOIL&MCWater.
2,142' Water.
(See Header for %)
IFP: 279# - 662# / 30"
ISIP: 1,837# / 45"
FFP: 586# - 1,345# / 60"
FSIP: 1,345# / 90"
BHT: 136 deg F
MH: 2,455# - 2,403#

GAS ENTRAINED IN MUD



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

* LS - Med/Dark Tan. Mixed. Cyprto-xln. Clear Re-xln xtals lining/filling fracture, irregular spaced pattern. tr vis por.

----- **SIMPSON SD 5,061' (-3,153')**

SS (6) - Lt Brown. Sing. Silt/ VF sized qtz grains. SA. Mod sort. poor sph. vitreous luster. 'floating' grain contact. Highly calc. mics, minute specks/inclusions. Friable. No/ tr vis por.

misc pcs: SS - 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.

misc pcs: SS - Clear/ Grayish Brown. Pale Light Gray with depth. Mot/Mixed. 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.

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

?? Influx of SS ----

SS - Clear/ Grays/ rare Off White. Mixed/ Mot. F/VF qtz grains. SA/SR. Mod sort. Mod sph. Vitreous/ some Frosted luster. Point/ sutured grain contact. Misc SA/A, VF, splintery Med Gray shale mixed in. Friable. Fair/ Good vis por.

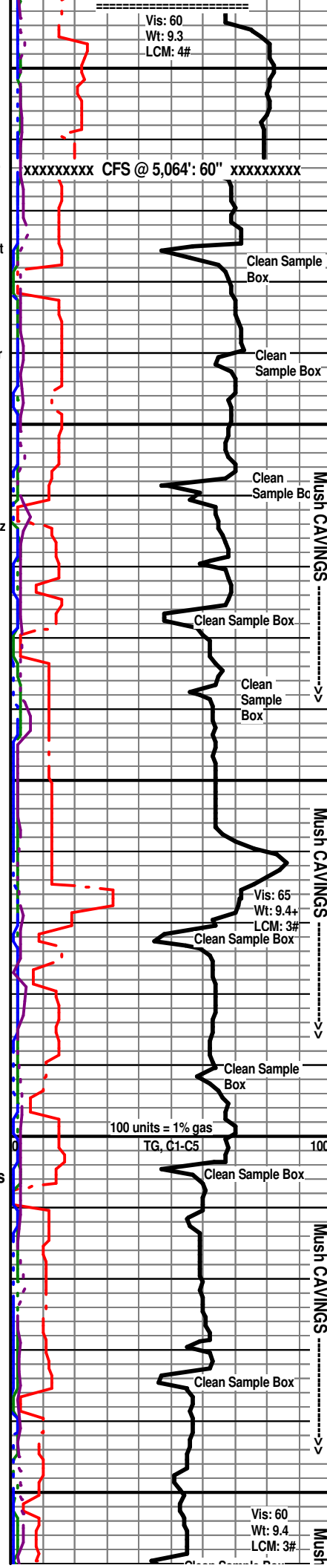
----- **ARBUCKLE 5,165' (-3,257')**

few pcs: DOL - tr Dark Gray/ mostly Lt & Med Gray. Sing/ some Mot. XF-/ Micro-Re-xln. xln & sucrosic por. tr argil (VF, SA) frags. mixutre of: mostly partial friable & dense. most fair/ some tr and good vis por.

few/ some pcs: 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.

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

some/ misc pcs: Dol (no/ tr calc) - Pale Lt/ Tan. Sing/ rare Mixed. XF-/Micro-xln. xln por. No/ tr Sandy (Silt/VF, SR, vitreous qtz grains in matrix.) partly Firm. No/ tr vis por.



Vis: 60
Wt: 9.3
LCM: 4#

xxxxxxxx CFS @ 5,064': 60" xxxxxxxxxxx

Clean Sample Box

Clean Sample Box

Clean Sample Box

Clean Sample Box

Clean Sample Box

Mush CAVINGS

----- **ARBUCKLE 5,165' (-3,257')**

Vis: 65
Wt: 9.4+
LCM: 3#
Clean Sample Box

Clean Sample Box

Clean Sample Box

Clean Sample Box

Mush CAVINGS

100 units = 1% gas
TG, C1-C5

Vis: 60
Wt: 9.4
LCM: 3#

Mush

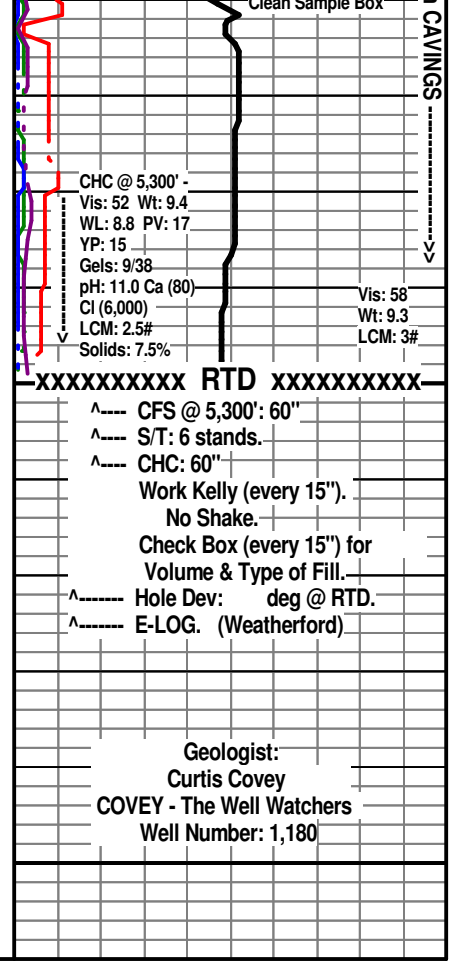
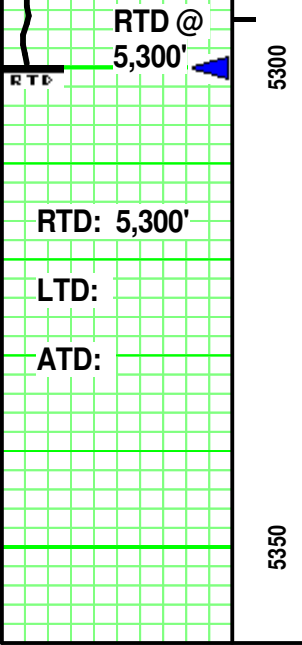
partly Firm. No/ tr vis por.

some/ misc pcs: Dol (no/ tr calc) - Pale Lt/ Tan.
Sing/ rare Mixed. XF-/Micro-xln. xln por. No/ tr
Sandy (Silt/VF, SR, vitreous qtz grains in matrix.)
partly Firm. No/ tr vis por.

MARSH #1 - 27

2,305' FNL & 2,073' FEL 27-T32S-R15W
Barber County, Kansas

RAMSHORN RESOURCES, LLC.
Wichita, Kansas





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

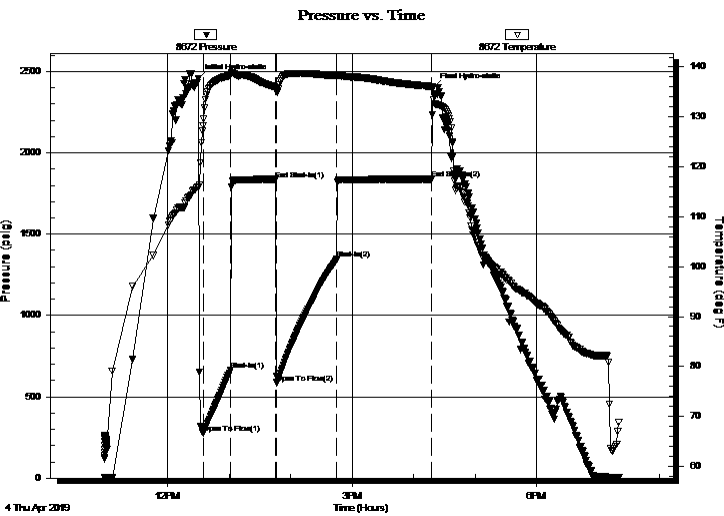
27-32S-15W Barber
Marsh 2-27
 Job Ticket: 64960 **DST#: 1**
 Test Start: 2019.04.04 @ 10:58:00

GENERAL INFORMATION:

Formation: **Viola**
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 12:34:17 Tester: Leal Cason
 Time Test Ended: 19:20:02 Unit No: 74
 Interval: **4932.00 ft (KB) To 4963.00 ft (KB) (TVD)** Reference Elevations: 1912.00 ft (KB)
 Total Depth: 4963.00 ft (KB) (TVD) 1900.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 12.00 ft

Serial #: 8672 Inside
 Press@RunDepth: 1344.96 psig @ 4933.00 ft (KB) Capacity: psig
 Start Date: 2019.04.04 End Date: 2019.04.04 Last Calib.: 2019.04.04
 Start Time: 10:58:01 End Time: 19:20:02 Time On Btm: 2019.04.04 @ 12:29:47
 Time Off Btm: 2019.04.04 @ 16:18:47

TEST COMMENT: IF: Strong Blow , BOB in 15 seconds. GTS in 11 minutes, Gauged Gas
 IS: Would Not Bleed Off
 FF: Strong Blow , BOB & GTS Immediate, Gauged Gas
 FS: Would Not Bleed Off



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2455.44	116.02	Initial Hydro-static
5	278.85	128.27	Open To Flow (1)
31	662.52	138.34	Shut-In(1)
75	1837.43	135.95	End Shut-In(1)
77	586.43	135.01	Open To Flow (2)
135	1344.96	138.28	Shut-In(2)
227	1838.00	136.08	End Shut-In(2)
229	2403.34	133.52	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	2076 GIP	0.00
2142.00	Water	30.05
252.00	GOMCW 10%G 10%O 20%M 60%W	3.53
189.00	GSY Oil 20%G 80%O	2.65
252.00	GWMCO 20%G 22%W 28%M 30%O	3.53

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.25	14.50	45.85
Last Gas Rate	0.13	31.00	16.99
Max. Gas Rate	0.13	31.00	16.99



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

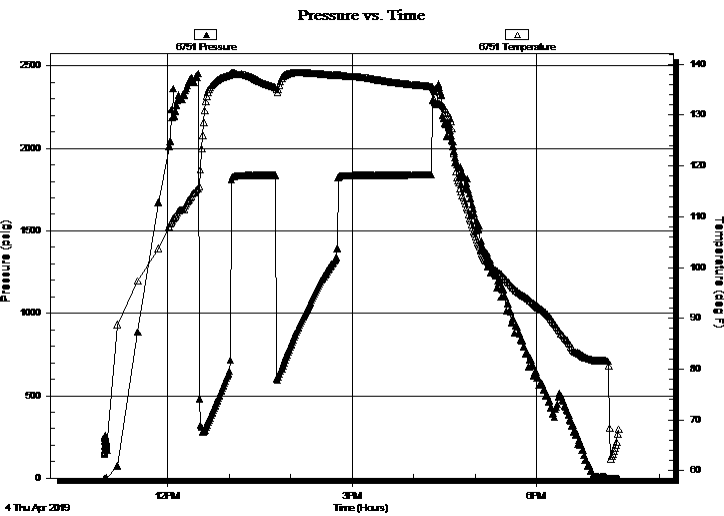
27-32S-15W Barber
Marsh 2-27
 Job Ticket: 64960 **DST#: 1**
 Test Start: 2019.04.04 @ 10:58:00

GENERAL INFORMATION:

Formation: **Viola**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 12:34:17 Tester: Leal Cason
 Time Test Ended: 19:20:02 Unit No: 74
 Interval: **4932.00 ft (KB) To 4963.00 ft (KB) (TVD)** Reference Elevations: 1912.00 ft (KB)
 Total Depth: 4963.00 ft (KB) (TVD) 1900.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 12.00 ft

Serial #: 6751 Outside
 Press@RunDepth: psig @ 4933.00 ft (KB) Capacity: psig
 Start Date: 2019.04.04 End Date: 2019.04.04 Last Calib.: 2019.04.04
 Start Time: 10:58:01 End Time: 19:20:02 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF: Strong Blow , BOB in 15 seconds. GTS in 11 minutes, Gauged Gas
 IS: Would Not Bleed Off
 FF: Strong Blow , BOB & GTS Immediate, Gauged Gas
 FS: Would Not Bleed Off



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

Recovery		
Length (ft)	Description	Volume (bbl)
0.00	2076 GIP	0.00
2142.00	Water	30.05
252.00	GOMCW 10%G 10%O 20%M 60%W	3.53
189.00	GSY Oil 20%G 80%O	2.65
252.00	GWMCO 20%G 22%W 28%M 30%O	3.53

Gas Rates			
	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.25	14.50	45.85
Last Gas Rate	0.13	31.00	16.99
Max. Gas Rate	0.13	31.00	16.99



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ramshorn Resources

27-32S-15W Barber

300 N Mead Ste 200
Wichita, KS 67202

Marsh 2-27

Job Ticket: 64960

DST#: 1

ATTN: Curtis Covey

Test Start: 2019.04.04 @ 10:58:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

28.2 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

76000 ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 0.02 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	2076 GIP	0.000
2142.00	Water	30.047
252.00	GOMCW 10%G 10%O 20%M 60%W	3.535
189.00	GSY Oil 20%G 80%O	2.651
252.00	GWMCO 20%G 22%W 28%M 30%O	3.535

Total Length: 2835.00 ft Total Volume: 39.768 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity w as 29.8 @ 86 degrees

RW w as .08 @ 88 degrees



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

GAS RATES

Ramshorn Resources

27-32S-15W Barber

300 N Mead Ste 200
Wichita, KS 67202

Marsh 2-27

Job Ticket: 64960

DST#: 1

ATTN: Curtis Covey

Test Start: 2019.04.04 @ 10:58:00

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	15	0.25	14.50	45.85
1	20	0.25	14.75	46.24
1	30	0.25	14.75	46.24
2	30	0.13	10.00	9.13
2	40	0.13	16.00	11.38
2	50	0.13	20.00	12.88
2	60	0.13	31.00	16.99

