

Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1247844
OIL & GAS CONSERVATION DIVISION

Form ACO-1
August 2013

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

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

- New Well Re-Entry Workover
- Oil WSW SWD SIOW
- Gas D&A ENHR SIGW
- OG GSW Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

- Deepening Re-perf. Conv. to ENHR Conv. to SWD
- Plug Back Conv. to GSW Conv. to Producer
- Commingled Permit #: _____
- Dual Completion Permit #: _____
- SWD Permit #: _____
- ENHR Permit #: _____
- GSW Permit #: _____

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE NW SE SW

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

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

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

1247844

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

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

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

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

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

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

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

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

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD: Size: _____ Set At: _____ Packer At: _____ Liner Run: Yes No

Date of First, Resumed Production, SWD or ENHR: _____ Producing Method:
 Flowing Pumping Gas Lift Other *(Explain)* _____

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

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
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Form	ACO1 - Well Completion
Operator	Falcon Exploration, Inc.
Well Name	JAMES KOEHN 5-31(NW)
Doc ID	1247844

All Electric Logs Run

DUAL SPACED NEUTRON
WAVE SONIC
MEL
ACRT

Form	ACO1 - Well Completion
Operator	Falcon Exploration, Inc.
Well Name	JAMES KOEHN 5-31(NW)
Doc ID	1247844

Tops

Name	Top	Datum
STOTLER	3534	-697
TARKIO	3600	-763
LANSING	4250	-1413
PAWNEE	4854	-2017
MORROW SH	5132	-2295
MORROW SS	5160	-2323
ST GEN	5272	-2435
ST LOUIS	5312	-2475



Cement Report

Customer	FALCON Exploration	Lease No.	James Koehn	Date	12-15-14
Lease	James Koehn	Well #	5-31	Service Receipt	1717-05224A
Casing	8 5/8"	Depth	1861'	County	GRAY
Job Type	8 5/8" Surface	Formation		State	KS
				Legal Description	31-28-30

Pipe Data		Perforating Data		Cement Data
Casing size	8 5/8" 24#	Tubing Size		Lead 4/60 sks 12.45ppg 1" Alcon Blend 3% CaCl ₂ 1/4" Polyflake 2% WCA-1
Depth	1861'	Depth	From To	
Volume	81.1 BBLs	Volume	From To	Tail in 150 sks 12.3ppg Premium Plus Cement 2% CaCl ₂ 1/4" Polyflake
Max Press		Max Press	From To	
Well Connection		Annulus Vol.	From To	
Plug Depth	1818'	Packer Depth	From To	

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
0900					Called Out
1200					On Location Safety Meeting Set up
					On Bottom - Circulate Makeup handle manifold - Drop Bull
842			20	5	Pump 20 BBLs of polymer LCM Mud Flush
847	100		180.2	5	Mix and Pump Lead cement 12.45ppg 136.6 BBLs Water Requirement (180.2 BBLs slurry)
920	100		58.5	5	Mix and Pump Tail cement 12.3ppg 45 BBLs Mix Water (58.5 BBLs slurry)
940	100		115.6	5	Finished mixing cement ^{last 20 BBLs} Drop Plug - Start Displacement Pump 5 BBLs water
1020					Land Plug ^{last 20 BBLs shut down} 5 BBLs - 5 mins
1027					Released
1030					Float Held
					Monitor Fall back 3-4 Hrs

Service Units	89315	70897-19570	Luis	Gilbert	
Driver Names	Roger	Sam	30463-19586	14354-19578	

Leon Kuhns
Tyce Davis
Roger Brown



Cement Report

Customer Falcon Exploration	Lease No.	Date 12/22/14
Lease James Koehn	Well # 5-31	Service Receipt
Casing 5 1/2	Depth 5050	County Gray State KS
Job Type LS,	Formation	Legal Description

Pipe Data		Perforating Data		Cement Data
Casing size 5 1/2	Tubing Size	Shots/Ft		Lead 505K A-Cor
Depth 5051	Depth	From	To	@ 11.4#
Volume 129.24	Volume	From	To	2.95 18.10
Max Press 3500	Max Press	From	To	Tail in 1555K AA-2
Well Connection P.C.	Annulus Vol.	From	To	@ 14.8#
Plug Depth	Packer Depth	From	To	1.51 6.64

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
01:30					on loc, surface, R.U.
06:58	3000				Test Lines
07:02	320		12	5	Pump superflush
07:04	320		5	4	H ₂ O spacer
07:06					Plug Rtm
07:18	150		0	4	Start mixing @ 11.4#
07:26	250		26	6	on Tail @ 14.8#
07:37	0		42	0	Finished mixing, Washup, Drop Plug
07:44	210		0	7	Start Drop
08:05	960		119	2.8	Slow Rate
08:09	960-1560		129	0	Plug Down
08:11	0				Release Psi, Float held
					Job Complete

Service Units	76939	3722337726	1962737725		
Driver Names	C. Hinz	G. Schwaninger	H. Rufeger		

Don Kuhn Customer Representative
 Tyler Davis Station Manager
 Chad Hinz Cementer



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

Well Name: JAMES KOEHN #5-31 (NW)
API: 15 - 069 - 20,492 - 00 - 00
Location: Se-Ne-Nw-NW 1/4 of SEC. 31 - 28 S. - 30 W
License Number: KCC #5316
Spud Date: 12/14/2014
Surface Coordinates: 352' FNL & 1158' FWL

Region: GRAY CO., KS.
Drilling Completed: 12/22/2014

**Bottom Hole
Coordinates:**
Ground Elevation (ft): 2826' **K.B. Elevation (ft):** 2837'
Logged Interval (ft): SURFACE To: 5450' **Total Depth (ft):** 5450'
Formation: MISSISSIPPIAN "ST. LOUIS"
Type of Drilling Fluid: CHEMICAL/POLYMER/GEL. & MUD DISPLACEMENT @ 2842'.

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

OPERATOR

Company: Falcon Exploration, Inc. KCC #5316
Address: 125 North Market Street, Ste. #1252
Wichita, Kansas 67202

GEOLOGIST

Name: David P. Williams, P.G. #88 KSBTP
Company: DW Energy, LLC (DWE)
Address: 312 North Broadview Street
Wichita, Kansas 67208

CASING & DEVIATION

Surface Casing: Spud at 7:00 pm on 12/13/14. Drilled 12-1/4" to 1866'. Ran 44 joints of new 24#, 8-5/8" casing. Talled 1844.40'. Set at 1861.40' KB . Welded straps on GS & bottom 3 joints, then tack welded all collars. Cemented with 460 sks A-Conn; 3% CC, 1/4# FS. Tailed with 150 sks Premium Plus; 2% CC. Cement did circulate. Plug down at 10:30 pm on 12/15/14. Basic Energy Svcs Cementing ticket #05224. Centralizers (6) on 2,11,18,24,32,37. Baskets (2) 26, 40.

Deviation Survey's: @ 1866' = 1 1/2 degrees; @ 1982' = 3/4 degree; @ 2483' = 1 degree; @ 3033' = 1 degree; @ 4340' = 2 degrees; 4978' = 3 degrees; @ 5118' = 3 degrees; Gyro Wireline @ 5118' = 3 1/2 degrees; @ 5450' = 1 1/2 degrees.

Production Casing: Ran 130 joints new 15.5#, 5-1/2" casing. Tally 5451'. Set at 5447' KB. Guide shoe on bottom. Float insert insert in top 1st collar. Centralizers (5) on 2,4,10,25,29. Basket (2) on 8,14. Cemented with 500 gal Super Flush; 50 sks A-Conn Scavenger; 2% CC, 1/4# PF. Tailed with 150 sks AA-2 5% W-60; 10% Salt; .6% C-15; 1/4# DF, 5# Gilsonite. Plug down at 8:00 am on 12/22/14. Basic Energy Svcs Cementing ticket #05045. Plugged rathole with 30 sks and mousehole with 20 sks. Sterling reported to KCC (Eric MacLaren) on

DSTs

NONE


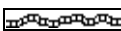
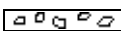

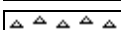
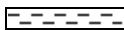


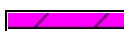









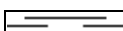
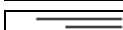



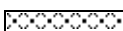
Comments

After review of all geologic samples as examined and analysis from the electric logs run, it was determined by all parties that 5 1/2" production casing should be run in order to further evaluate this well.

Respectfully submitted,






David P. Williams, P.G











ROCK TYPES

 Anhy  Bent  Brec  Carb sh  Cht	 Clyst  Coal  Congl  Dol  Grn sh	 Gry sh  Gyp  Igne  Lmst  Meta	 Mrlst  Red shale  Salt  Shale  Shcol	 Shgy  Sltst  Ss  Till
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ACCESSORIES








MINERAL





	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












FOSSIL

	Algae
	Amph












	Belm
	Bioclst
	Brach
	Bryozoa
	Cephal
	Coral
	Crin
	Echin
	Fish
	Foram
	Fossil
	Fuss
	Gastro
	Oolite
	Oomold
	Ostra
	Pelec

	Pellet
	Pisolite
	Plant
	Strom

STRINGER

	Anhy
	Arg
	Bent
	Coal
	Dol
	Grysh
	Gyp
	Ls
	Mrst
	Sltstrg
	Ssstrg

TEXTURE

	Boundst
	Chalky
	Cryxln
	Earthy
	Finexln
	Grainst
	Lithogr
	Microxln
	Mudst
	Packst
	Wackest

OTHER SYMBOLS

- POROSITY**
 [E] Earthy
 [B] Fenest
 [F] Fracture
 [X] Inter
 [Z] Moldic
 [O] Organic
 [P] Pinpoint

- [V] Vuggy
SORTING
 [W] Well
 [M] Moderate
 [P] Poor

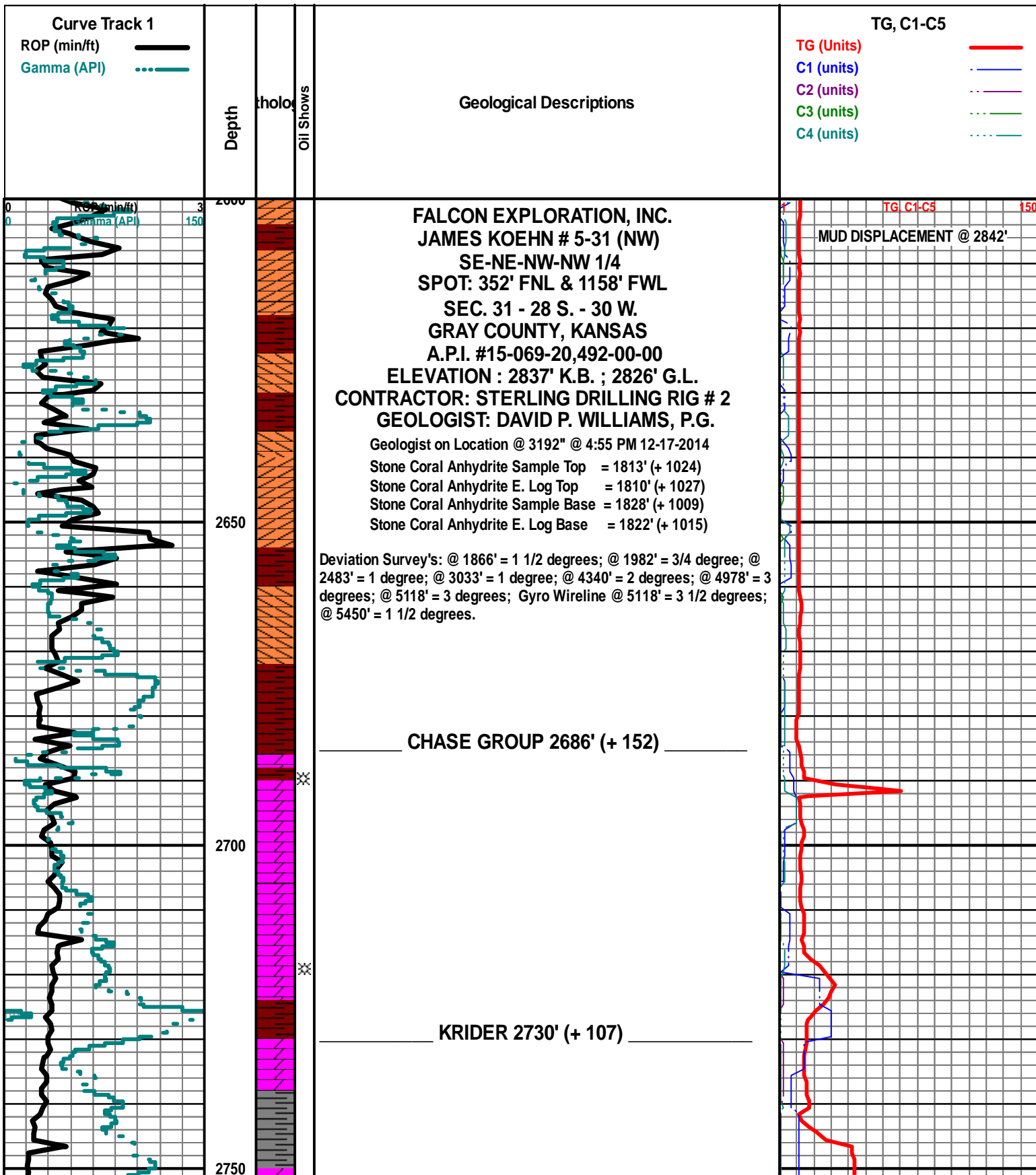
- ROUNDING**
 [R] Rounded
 [r] Subrnd
 [a] Subang
 [A] Angular

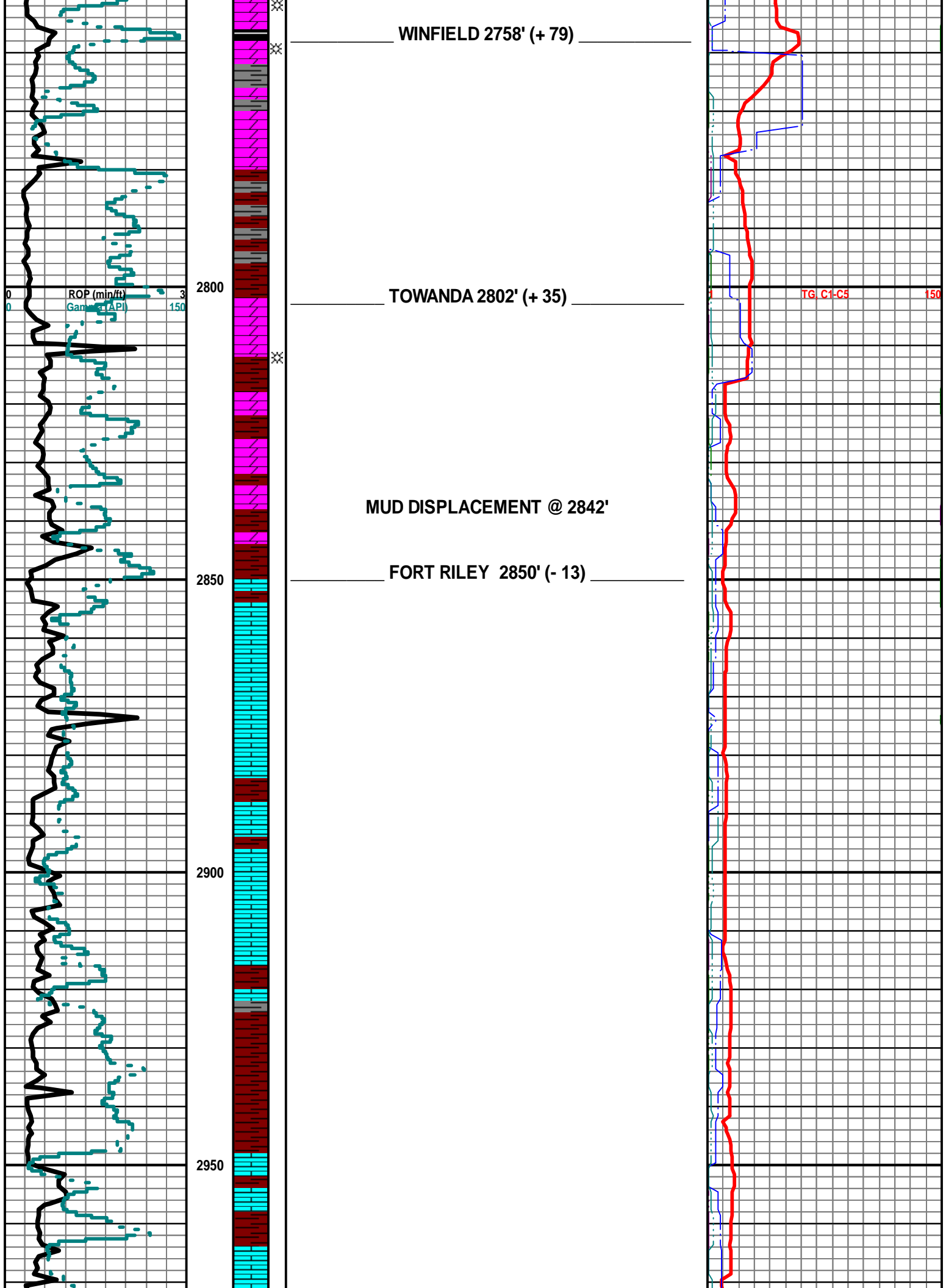
- [●] Even
 [◉] Spotted
 [◌] Ques
 [◻] Dead

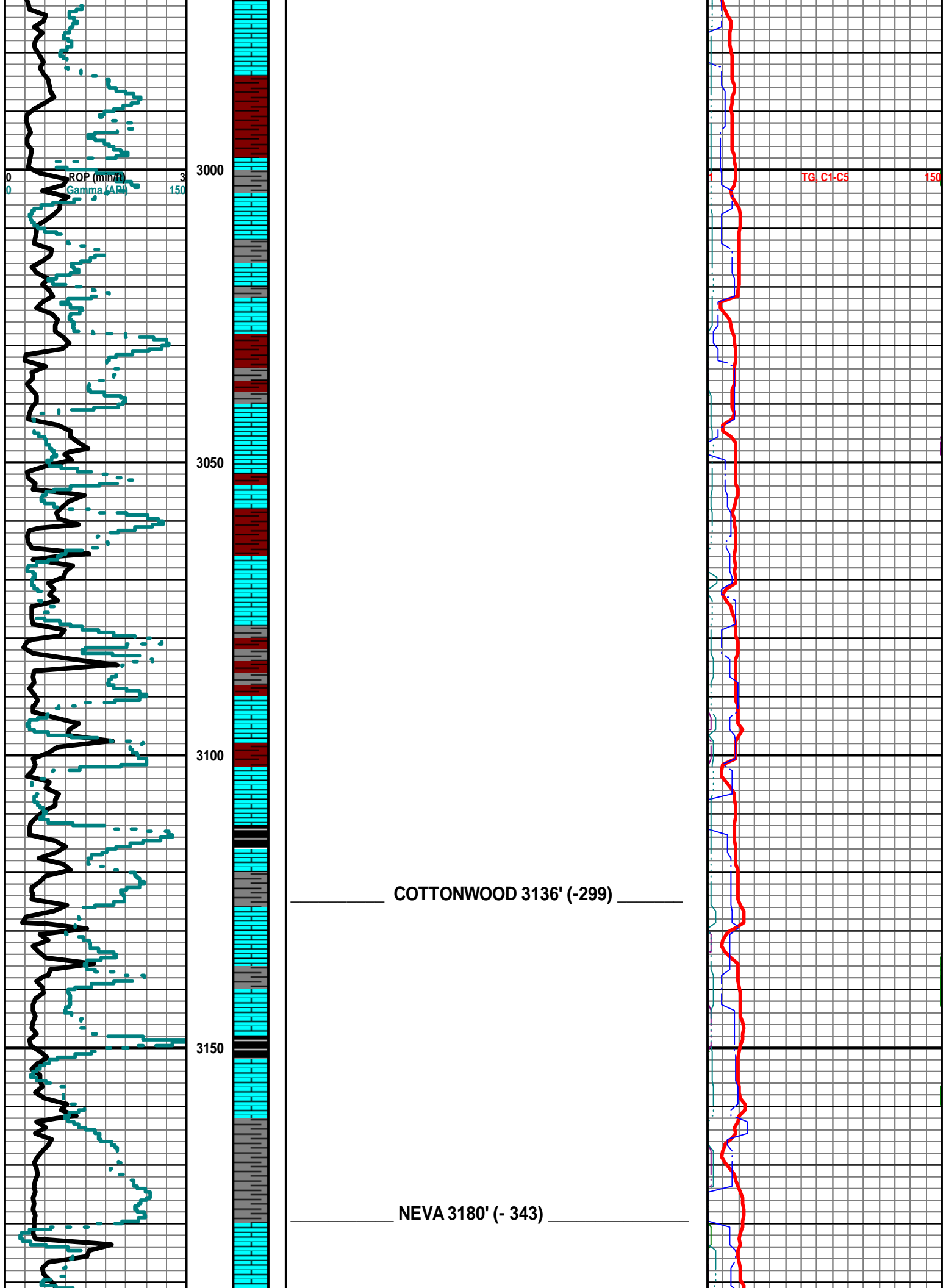
- EVENT**
 [▽] Rft
 [▲] Sidewall

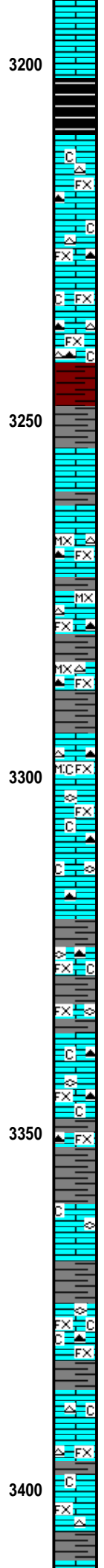
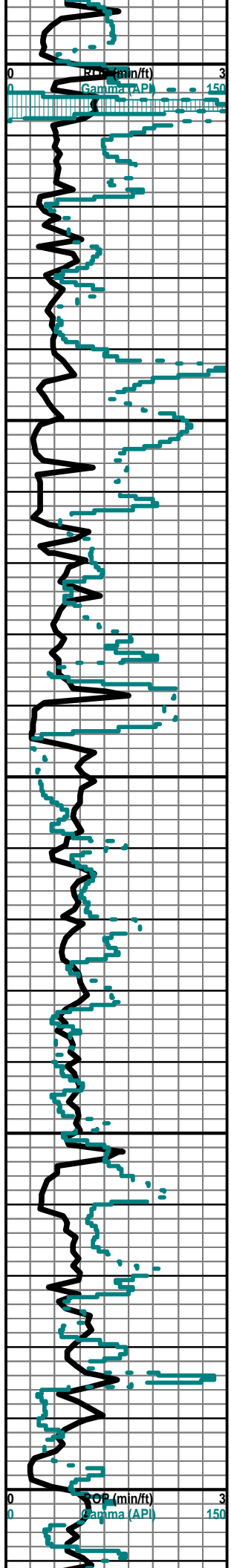
- OIL SHOW**
 [✖] Gas show

- INTERVAL**
 [■] Dst
 [■] Dst_alt









Note: All samples have been lagged to depth by calculated time.

Begin 31' Sample Examination @ 3300'.

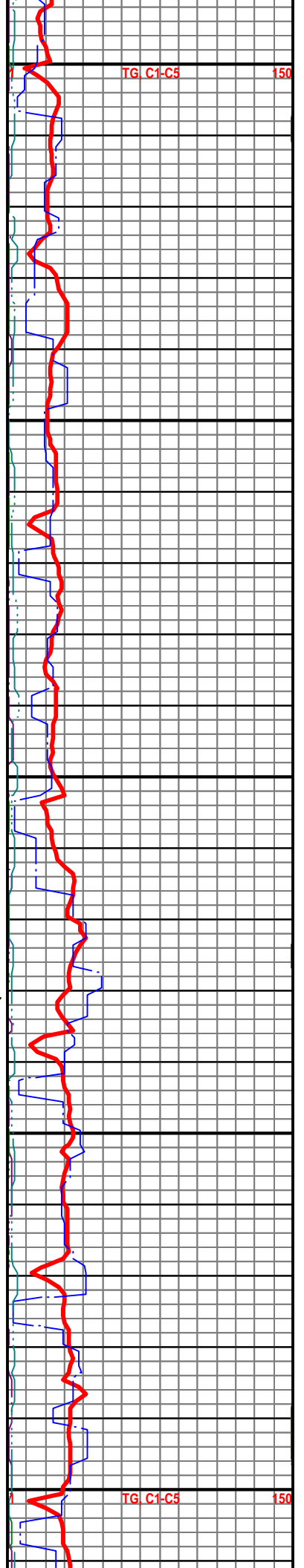
Sh Gry Soft-Fissil Ls Wht-Crm-Gry FxIn Poor Pin-Pt IxIn Por Cht
 Wht-Drk Gry Op Shp Vit Chalky No Odor No Flor No Stn NS

FORAKER 3294' (- 457)

Ls Crm-Gry MicroIn-FxIn Dns Micrite Grad Poor-Med Pin-Pt IxIn Vug Por Cht Wht-Drk Gry
 Op Shp Vit Chalky Sh Red-Maroon-Gry Soft-Fissil No Odor No Flor No Stn NS

Ls Wht-Crm-Gry FxIn Poor IxIn Por Dns Micrite Grad Ppt IxIn Sli Vug Por
 (w/Abd Fos (Fuss) Inclus) Cht Wht-Drk Gry Translu-Op Shp Vit Chalk Sh
 Char-Gry Soft-Fissil No Odor No Stn No Flor NS

Ls Wht-Crm-Gry FxIn Dns Micrite Grad Poor IxIn Por Grad Ppt IxIn Sli
 Vug Por (w/Abd Fos (Fuss) Inclus) Cht Wht-Drk Gry Translu-Op Shp Vit
 Chalk Sh Char-Gry Soft-Fissil No Odor No Stn No Flor NS



FALL CITY 3420' (- 503)

Ls Crm-Wht-Gry FxIn Poor IxIn Por Dns Micrite Cht Wht-Clear Transp-Op Shp Vt Chalk Sh Char-Gry-Red-Maroon-Lt Grn Soft-Fissil No Odor No Stn No Flor NS

3450

Ls Wht-Crm-Gry FxIn Grad Pin-Pt Por Fair-Med IxIn Por Grad Poor OOM Por Poor Dissolu Poor Leaching Cht Gry Op Shp Vit Fos (Fuss) Chalky Sh Char-Gry Fissil No Odor No Stn No Flor NS

3500

LS Crm-Gry FxIn IxIn Por Micritic Dsn No Vis Por Barren Fos (Fuss) Chalk Sh Grn-Red Soft Fissil No Odor No Flor No Stn Fair ? Min Flor (Lt Grn) NS

ROOT SHALE 3514' (- 677)

STOTLER 3532' (- 695)

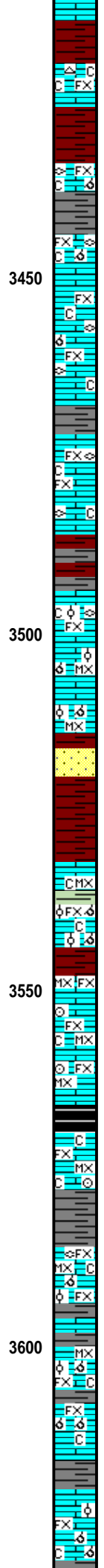
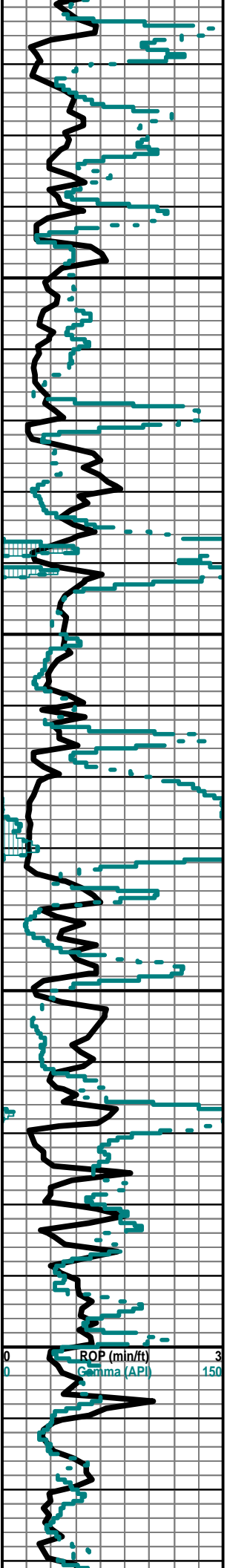
3550

Ls Wht-Crm-Gry MicroxIn-FxIn IxIn Por Micritic Dsn Barren Grad Fair OOM Por (w/OOL (Small) in pl) Fair InterOOM/OOL Por Fair Leaching Fair Disolu Chalk Sh Grn-Red Soft No Odor Med-Good Flor No Stn NS

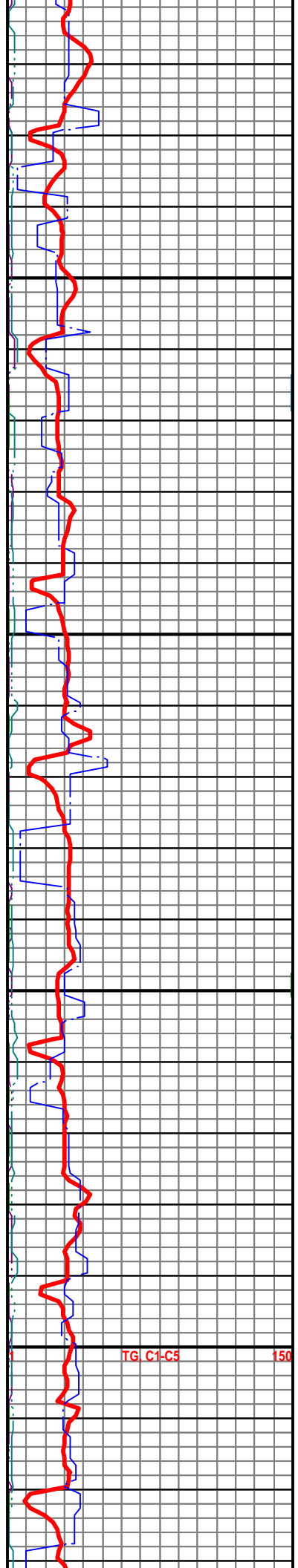
3600

Ls Wht-Crm-Gry MicroxIn-FxIn IxIn Por Micritic Dsn Barren Fos (Crim) Chalk Sh Grn-Red Soft No Odor Med-Good Flor No Stn NS

TARKIO 3600' (- 763)



Well log text descriptions for FALL CITY, ROOT SHALE, STOTLER, and TARKIO formations, including lithology and properties.



TG C1-C5

150

Ls Wht-Crm FxIn IxIn Por Chalk Sh Grn-Red-Char Soft Fissil No Odor No Stn Fair-Med Flor (Lt Grn-Lt Wht) NS

3650

BERN 3671' (- 834)

Ls Wht-Gry FxIn Poor IxIn Ppt Por Grad Micritic Dsn Barren Chalk Sh Gry-Char-Tr/ Blk-Carb Fissil No Odor No Flor No Stn NS

3700

Ls Wht-Crm-Gry MicroxIn-FxIn Poor IxIn Por Mostly Micritic Grad Poor OOM Por (w/Small OOids in pl) Poor Leaching Cht Wht-Brn Op Shp Vit Fos (Fuss) Chalk Sh Gry-Char Soft No Odor No Flor No Stn NS

3750

Ls Wht-Crm MicroxIn-FxIn Dns Micrite Grad Poor Ppt IxIn Por Barren Chalk Sh Char-Gry-Red No Odor No Flor No Stn NS

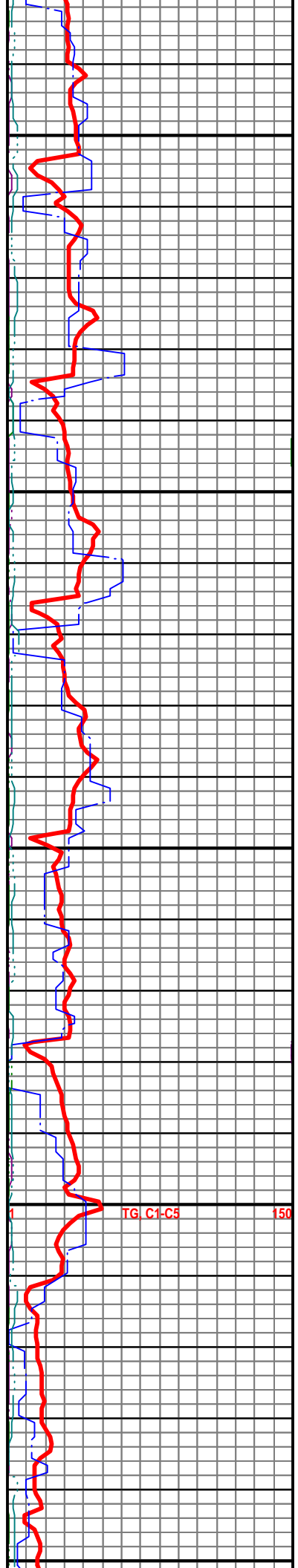
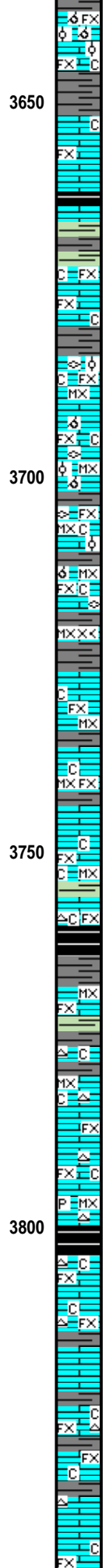
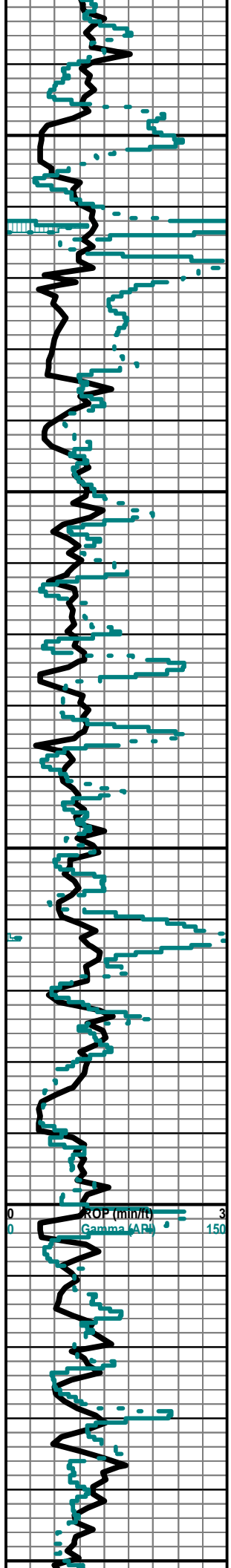
3800

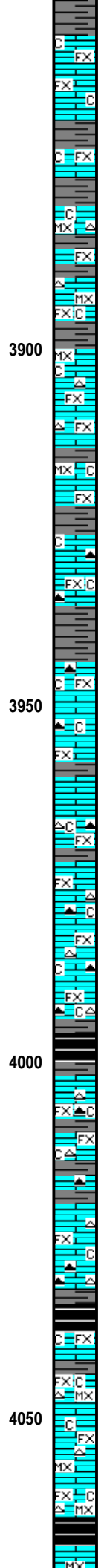
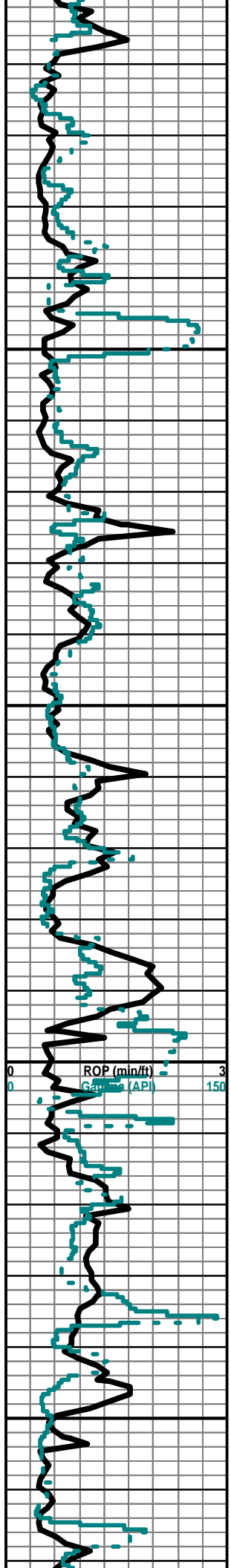
Ls Wht-Crm-Gry MicroxIn-FxIn Dns Micrite (w/Pyr Inclus) Grad Poor IxIn Por Barren Cht Tan-Op Shp Vit Chalk Sh Char-Grn Fissil Soft No Odor No Flor No Stn NS

TOPEKA 3804' (- 967)

Ls Wht-Crm FxIn Poor IxIn Por Grad Micritic Dsn Barren Cht Wht-Gry Transl-Op Shp Vit Chalk Sh Char-Red Fissil Soft No Odor No Flor No Stn NS

3850





Ls Wht-Crm-Gry FxIn Poor IxIn Por Mostly Micritic Dsn Barren Chalk Sh
Char-Grn Fissil No Odor No Flor No Stn NS

3900

Ls Wht-Crm MicroIn-FxIn IxIn Por Micritic Dsn Barren Cht Wht Op Shp
Vit Chalk Sh Char-Gry No Odor No Flor No Stn NS

3950

Ls Wht-Gry FxIn Poor IxIn Por Mostly Micritic Dsn Barren Chalk Cht
Drk-Gry Transl-Op Shp Vit Sh Char-Gry Fissil-Soft No Odor No Flor No
Stn NS

4000

Sh Blk Carb-Gry-Char Soft-Fissil Ls Wht-Crm-Gry FxIn Dns Micrite Grad
Poor Ppt IxIn Por Cht Wht-Drk Gry (Banded)-Tan Translu-Op Shp Vit
Chalk No Odor No Flor No Stn NS

LeCOMPTON 4002' (- 1165)

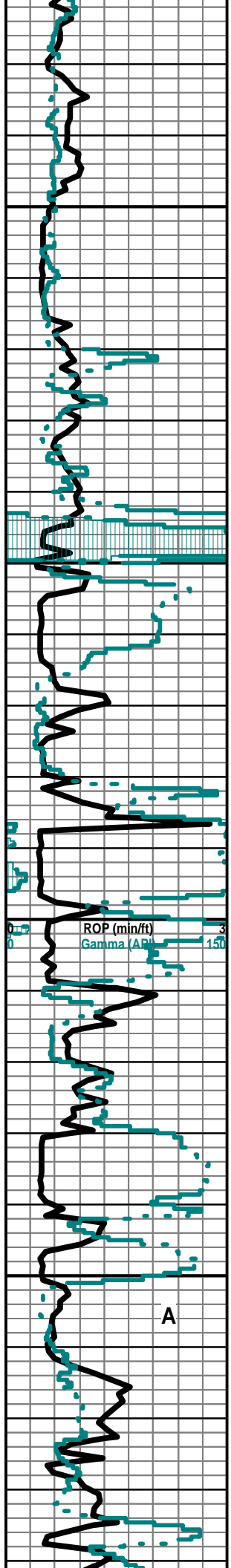
TG C1-C5 150

4050

Ls Wht-Crm-Gry FxIn Dns Micrite Grad Poor Ppt IxIn Por Cht Drk
Gry-Tan Translu-Op Shp Vit Chalk Sh Blk Carb-Gry Char Soft- Fissil
No Odor No Flor No Stn NS

QUEEN HILL 4064' (- 1227)

OREAD 4068' (- 1231)



Ls Crm-Gry MicroIn-FxIn Dns Micrite Grad Poor-Fair IxIn Por Cht Ian
Op Shp Vit Chalk Sh Char-Grn Fissil No Odor No Stn No Flor NS

Ls Crm-Gry FxIn Dns Micrite Grad Poor-Fair IxIn Por Grad Poor OOM
Por Barren Cht Tan-Drk Gry Op Shp Vit Chalk Sh Char-Grn Fissil No
Odor No Stn No Flor NS

HEEBNER 4142' (- 1305)

Sh Blk Carb-Gry-Char Soft-Fissil Ls Wht-Crm-Gry FxIn Dns Micrite Grad
Poor Ppt IxIn Por Pyr Mass Chalk No Odor No Flor No Stn SG in Blk Sh

TORONTO 4164' (- 1327)

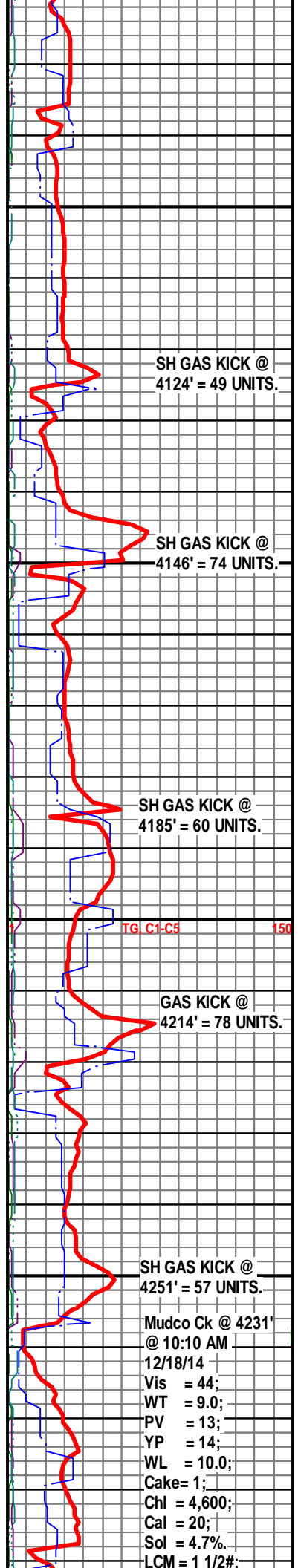
DOUGLAS 4182' (- 1345)

Sh Char-Drab Grn-Aqua-GrySoft-Fissil Ls Crm FxIn Dns Micrite Poor IxIn
Por Chalk Cht Wht Translu-Op Shp Vit Sh Blk Carb-AA Fissil No Odor No
Stn No Flor NS

IATAN (BROWN LIME) 4242' (- 1405)

LANSING 4251' (- 1414)

Ls Crm-Gry FxIn Dns Micrite Poor IxIn Por Cht Gry Translu-Op Shp Vit
Chalk Sh Char-Gry Fissil No Odor No Stn No Flor NS



SH GAS KICK @
4124' = 49 UNITS.

SH GAS KICK @
4146' = 74 UNITS.

SH GAS KICK @
4185' = 60 UNITS.

GAS KICK @
4214' = 78 UNITS.

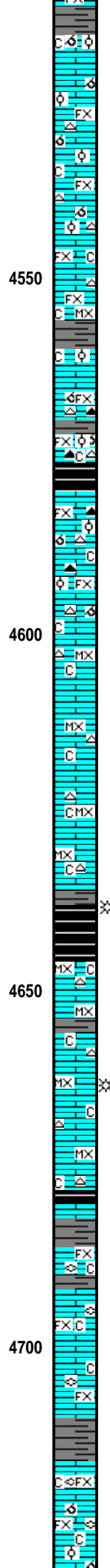
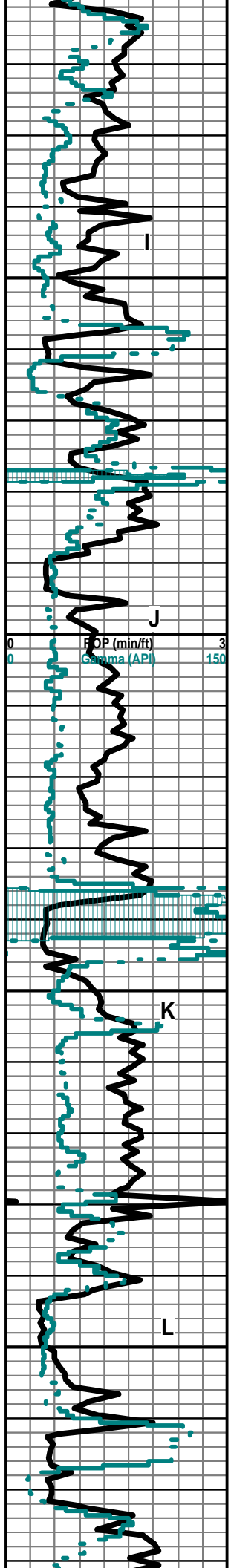
SH GAS KICK @
4251' = 57 UNITS.

Mudco Ck @ 4231'
@ 10:10 AM
12/18/14
Vis = 44;
WT = 9.0;
PV = 13;
YP = 14;
WL = 10.0;
Cake= 1;
Chl = 4,600;
Cal = 20;
Sol = 4.7%
LCM = 1 1/2#;

ROP (min/ft)
Gamma (API)

TG C1-C5 150

A



Sh Char-Gry Fissil Ls Crm-Ian FxIn micritic Grad Med OOM (w/Small OOL in pl) Fair-Med Vug InterOOM Dissolu Barren Cht Wht Op Shp Vit Pyr Mass Chalky No Odor No Flor No Stn NS

Ls Wht-Crm MicroIn-FxIn Dns Micrite Grad Med-Good OOM Por Med-Good Vug Dissolu Barren Cht Wht Op Shp Vit Chalky Sh Char-Gry-Aqua Fissil No Odor No Flor No Stn NS

Ls Wht-Crm FxIn Micrite Grad Fair-Med Vug OOM Por Cht Wht-Drk Gry Op Shp Vit Chalk Sh Char-Gry Fissil No Odor No Flor No Stn NS

Ls Crm-Tan MicroIn Dns Micrite Barren Cht Wht-Tan Op Shp Vit Chalk Sh Char-Gry Fissil No Odor No Flor No Stn NS

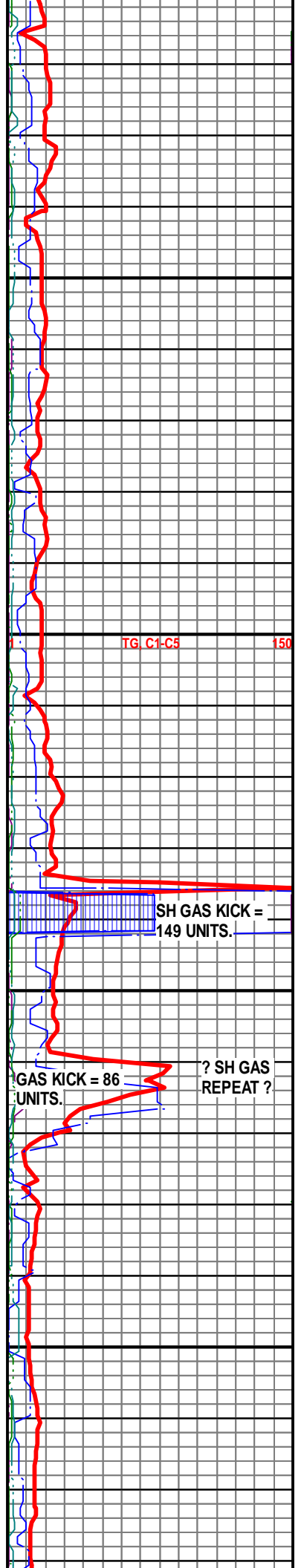
STARK SHALE 4636' (- 1799)

Sh Blk Carb Fissil V Abd (w/SG) Ls AA No Odor No Stn No Flor NS

KANSAS CITY "SWOPE" (K) 4646' (-1809)

Sh Blk Carb Fissil V Abd Ls Crm-Tan MicroIn Dns Micrite Barren Cht Wht-Tan Op Shp Vit Chalk No Odor No Flor No Stn NS

Sh Char-Gry Fissil Ls Crm-Tan-Gry FxIn Poor IxIn Por Micritic Dns Barren Grad Poor OOM (w/Small OODs in pl) Por Chalk Fos (Fuss) No Odor No Flor No Stn NS

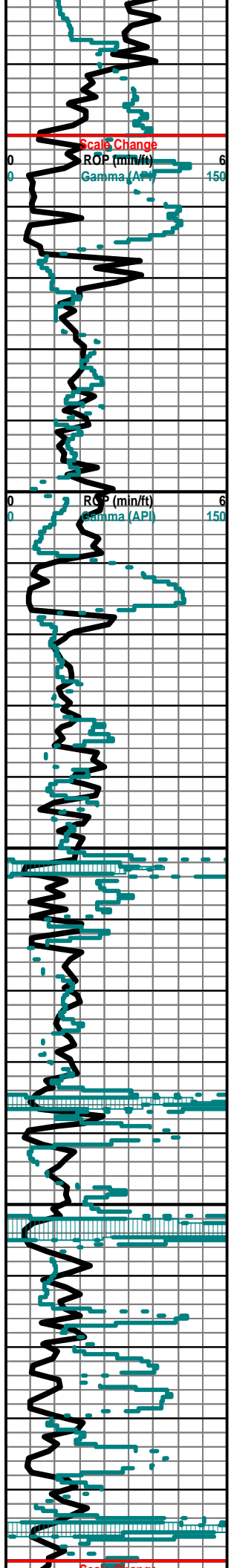


TG C1-C5 150

SH GAS KICK = 149 UNITS.

GAS KICK = 86 UNITS.

? SH GAS REPEAT ?



4750
 4800
 4850
 4900
 4950



MARMATON 4765' (- 1928)

Ls Wht-Crm FxIn Poor IxIn Por Micritic Dns Barren Cht Wht (w/Fos (Fuss) Inklus) Chalk Wht Soft Sh Char-Gry Fissil AA No Odor No Flor No Stn NS

MARMATON 4800' (- 1928)

Ls Wht-Crm FxIn Poor IxIn Por Micritic Dns Barren Cht Wht (w/Fos (Fuss) Inklus) Chalk Wht Soft Sh Char-Gry Fissil AA No Odor No Flor No Stn NS

Ls Wht-Crm FxIn Poor IxIn Por Micritic Dns Barren Cht Wht-Tan Op Shp Vit Chalk Sh Char-Gry-Aqua Fissil No Odor No Flor No Stn NS

PAWNEE 4854' (- 2017)

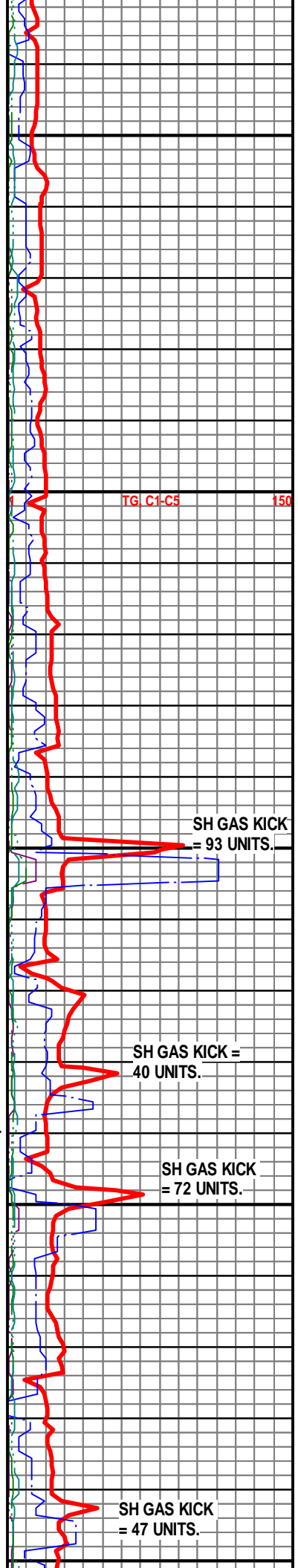
LABETTE 4884' (- 2047)

Ls Wht-Crm MicroxIn Dns Micrite Grad Poor IxIn Por Barren Cht Wht-Op Shp Vit Chalk Sh Blk Carb (V Abd)-Char-Gry Fissil No Odor Sli ? Min Flor No Stn NS

CHEROKEE 4902' (- 2065)

Ls Wht-Crm MicroxIn Dns Micrite Grad Poor IxIn Por Barren Cht Tan Op Shp Vit Chalk Sh Blk Carb-Char-Gry-Drab Grn Fissil No Odor Sli ? Min Flor No Stn NS

SECOND CHEROKEE SHALE 4944' (- 2107)



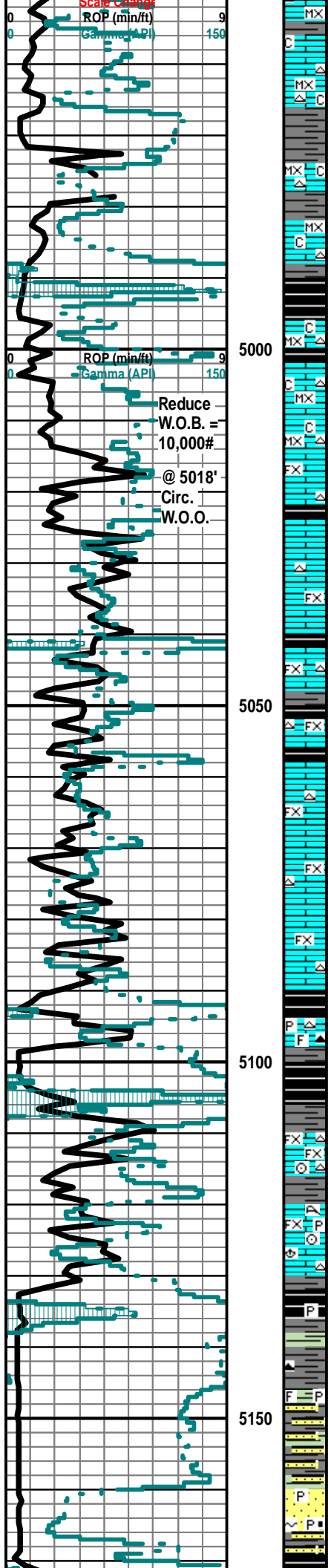
TG C1-C5 150

SH GAS KICK = 93 UNITS.

SH GAS KICK = 40 UNITS.

SH GAS KICK = 72 UNITS.

SH GAS KICK = 47 UNITS.



Ls Wht-Crm MicroxIn Dns Micrite Grad Poor IxIn Por Barren Cht Tan Op Shp Vit Chalk Sh Blk Carb-Char-Gry-Drab Grn Fissil No Odor Sli ? Min Flor No Stn NS

THIRD CHEROKEE SHALE 4988' (-2151)

60" CFS @ 5018' Ls Wht-Crm MicroxIn Dns Micrite Grad Poor IxIn Por Barren Cht Tan Op Shp Vit Chalk Sh Blk Carb-Char-Gry-Drab Grn Fissil No Odor Sli ? Min Flor No Stn NS

Begin 10' Samples Wet & Dry @ 5100'

Sh Blk Carb-Char-Gry Fissil Ls Crm-Wht-Tan FxIn Poor IxIn Por Micritic Dns Barren Cht Wht-Gry-Tan Translu-Op Shp Vit No Odor No Flor No Stn NS

Sh Blk Carb-Char-Gry Fissil Ls Crm-Wht-Tan FxIn Poor IxIn Por Micritic Dns Barren Cht Wht (Abd)-Gry Translu-Op Shp Vit No Odor No Flor No Stn NS

Ls Crm-Wht-Tan FxIn Poor IxIn Por Micritic Dns Barren Cht Amber-Tan-Gry Translu-Op Shp Vit Sh Blk Carb-Char-Gry Fissil No Odor No Flor No Stn NS

Ls Crm-Wht-Tan FxIn Poor IxIn Por Micritic (w/Pyr Inklus) Dns Barren Cht Tan-Drk Gry (w/Wht Fos Inklus) Translu-Op Shp Vit Sh Blk Carb-Char-Gry Inc Fissil No Odor No Flor No Stn NS

Ls Crm-Wht-Tan FxIn Poor IxIn Por Micritic Dns Barren Cht Amber-Gry Translu-Op Shp Vit Sh Blk Carb-Char-Gry Inc Fissil No Odor No Flor No Stn NS

Ls Crm-Wht-Tan FxIn Poor IxIn Por Micritic Dns Barren Cht Amber-Gry Translu-Op Shp Vit Fos (Crin) Sh Blk Carb-Char-Gry Inc Fissil No Odor No Flor No Stn NS

Ls Crm-Wht-Tan FxIn Poor IxIn Por Micrite (w/Pyr Inklus) Dns Barren Cht Tan Translu-Op Shp Vit Fos (Coral, Crin) Sh Blk Carb (w/Pyr Inklus)-Char-Gry Fissil No Odor No Flor No Stn NS

MORROW SHALE 5130' (- 2293)

Sh Blk Carb-Gry-Drab Grn/Gry Fissil Ls Crm MicroxIn Poor IxIn Por Micrite Dns Barre Fos (Brach, Crin) Pyr Mass No Odor No Flor No Stn NS

Sh Blk Carb-Gry-Drab Grn/Gry Fissil Ls Crm MicroxIn Poor IxIn Por Micrite Dns Barre Fos (Brach, Crin) Pyr Mass No Odor No Flor No Stn NS

30" CFS @ 5180' Sh Blk Carb-Gry-Drab Grn Fissil Ls Crm-Tan MicroxIn Poor IxIn Por Micritic Dns Barren Qtz Ss Wht-Lt Brn-Gry Frosted-Clear Clusters Lg-Med IGran Por Cht Drk Amber (w/Fos Inklus) Translu Shp Vit Pyr Mass Tr Qtz Ss Wht VFGn Dns Poor Sort No Odor No Flor No Stn NS

MORROW SAND 5160' (- 2323)

60" CFS @ 5180' Qtz Ss Wht-Lt Brn-Gry Frosted-Clear Clusters Lg-Med IGran Por (15 of Tray) Ang-Sub Ang-Sub Rd (cL = 350-500 Microns = 1.5 - 1.0 Ø) Well Sort Hvy CaCO3 Matrix (w/Carb & Glacu & Pyr Inklus) Friable (w/SG & SFO (Lt Brn)) Sh Char (Abd) AA Pyr Mass No Flor ? Faint Odor Fair (Lt Brn Stn) MSG & MSFO

Mudco Ck @ 4977'
@ 7:55 AM
12/19/14
Vis = 54;
WT = 9.2;
PV = 17;
YP = 21;
WL = 8.8;
Cake = 1;
Chl = 2,800;
Cal = 20;
Sol = 6.3%.
LCM = 3#;
DMC = \$ 2,952.45;
CMC = \$ 14,416.05

TG C1-C5 150

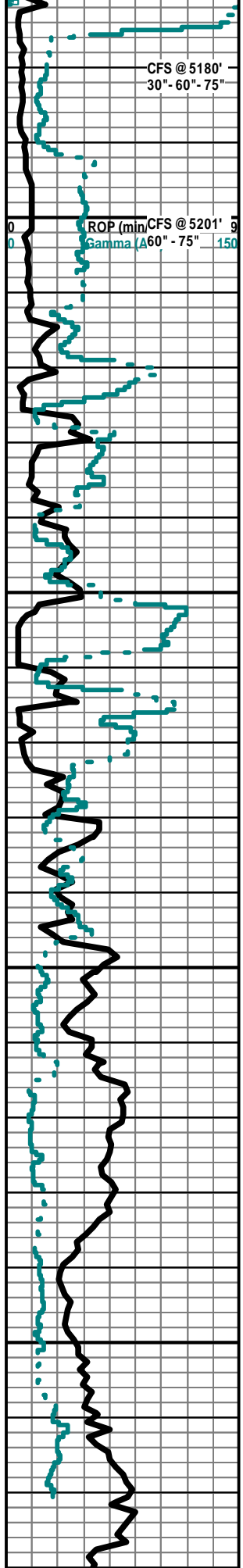
PIPE STRAP=<.34">
LONG TO BOARD.

@ 5018' T.O.H. For
Deviation "Gyro"
WIRELINE Logging
Survey . B.H.L. IS 82'
W. & 37' S. = 90' SW
OF SURFACE LOC.

Mudco Ck @ 5125'
@ 7:10 AM
12/20/14
Vis = 50;
WT = 9.3;
PV = 16;
YP = 17;
WL = 9.0;
Cake = 1;
Chl = 1,800;
Cal = 20;
Sol = 7.0%.
LCM = 3#;
DMC = \$ 1,954.60;
CMC = \$ 16,370.65.

GAS KICK =
72 UNITS.

GAS KICK =

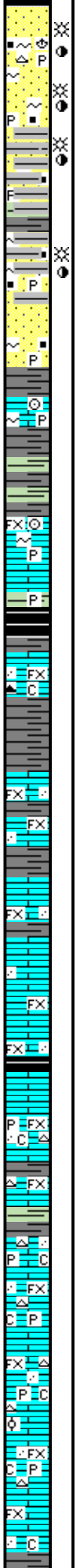


5200

5250

5300

5350



75" CFS @ 5180' Qtz Ss Wht-Lt Brn-Gry Sli Frosted-Clear Clusters Lg-Med-Small Igran Por (20% of Tray) Ang-Sub Ang-Sub Rd (cU = 710-1000 Microns = 0.5 - 0.0 Ø) Well Sort CaCO3 Matrix (w/Carb & Glacu & Pyr Inclus) V Friable (w/FSG & FSFO (Lt Brn)) Cht Wht Op Shp Vit Fos (Brach) Pyr Mass Sh Char (Abd) AA No Flor ? Faint Odor Fair (Lt Brn Stn) MSG & MSFO

60" CFS @ 5201' Qtz Ss Frosted-Clear-Wht-Lt Brn-Gry Clusters Med-Lg Igran Por (30% of Tray) Ang-Sub Ang (vcL = 1000-1410 Microns = 0.0 - 0.5 Ø) Well Sort Tr/CaCO3 Matrix Dec (w/Carb & Glacu Inclus & Pyr Inclus) Friable (w/GSG & GSFO (Lt Brn)) Sh Char (Abd) AA No Flor Fair-Med Inc Odor Med-Good Stn (Lt Brn) GSG & GSFO

75" CFS @ 5201' Qtz Ss Frosted-Clear-Lt Brn-Gry-Wht Med-Lg Inc Clusters Ang-Sub Ang (w/Carb & Glacu & Pyr Inclus) (vcL = 1000-1410 Microns = 0.0 - 0.5 Ø) Good Igran Por (in 25% of Tray) V Friable Med-Well Sort GSG & GSFO Pyr Mass Sh Char Abd AA Fair Odor SFO (Abd in 30% of Tray) GSG & GSFO

Qtz Ss Frosted-Clear-Lt Brn-Gry-Wht Med-Lg Clusters Ang-Sub Ang (w/Carb & Glacu & Pyr Inclus & Tr Gillsontic Residue) (vcL = 1000-1410 Microns = 0.0 - 0.5 Ø) Good Igran Por (in 20% of Tray) Friable Med-Well Sort MSG & MSFO AA Pyr Mass Sh Char Abd AA Faint ? Odor MSG & MSFO

Sh Char-Gry/Grn- Aqua Fissi Qtz Ss Frosted-Clear-Gry-Wht Med-Lg Clusters Ang-Sub Ang (w/Carb & Glacu & Pyr Inclus & Tr Gillsontic Residue) (vcU = 1410-2000 Microns = 0.5 - 1.0 Ø) Good Igran Por (in 20% of Tray) Friable Med-Well Sort MSG & MSFO AA Pyr Mass Faint ? Odor MSG & MSFO

Sh Char-Gry/Grn- Aqua Fissi Qtz Ss Frosted-Clear-Wht Lg Clusters Ang-Sub Ang (w/Carb & Glacu & Pyr Inclus & Tr Gillsontic Residue) ((vcU = 1410-2000 Microns = 0.5 - 1.0 Ø) Good Igran Por (in 10% of Tray) Friable Med-Well Sort MSG & MSFO Pyr Mass (? Sluff) No Odor MSG & MSFO

Ls Wht-Crm FxIn Dns Micrite (w/Chlorite or Glacu Inclus) Grad Fair-Med IxIn Ppt Pt Por Fos (Crim) Pyr Mass Chalk Sh Char-Gry- Grn- Aqua Fissil No Odor No Flor NS

Ls Wht-Crm FxIn Dns Micrite (w/Chlorite or Glacu Inclus) Grad Fair-Med IxIn Ppt Pt Por Fos (Crim) Pyr Mass Chalk Sh Char-Gry- Grn-Aqua Fissil No Odor No Flor NS

Sh Blk Carb-Char-Gry/Grn-Aqua Fissil Ls Wht FxIn Dns Micrite (w/Chlorite or Glacu Inclus) Grad Fair-Med IxIn Ppt Pt Por Pyr Mass Chalk No Odor No Flor NS

MISSISSIPPIAN "Ste. GEN" 5258' (- 2421)

Ls Wht MicroxIn Dns Micrite Cht Drk Blk Op Shp Vit Chalky Sh Char-Drab Grn-Gry-Aqua-Drk Brn Fissil No Odor No Stn No Flor NS

Ls Wht-Gry FxIn Poor "Sandy Ls" (w/Small Qtz Ss Inclus) Wht-Crm-Tan VFGrn Ang-Sub Ang Inclus (fL=125-177 Microns= 3.0-2.25 Ø) Barren Grad Crm-Tan-Gry FxIn Dns Micrite Sh Char-Blk Carb-Gry-Drab Grn-Aqua Fissil No Odor No Stn No Flor NS

Ls Wht-Gry FxIn Poor "Sandy Ls" (w/Small Qtz Ss Inclus) Wht-Crm-Tan VFGrn Ang-Sub Ang Inclus (fL=125-177 Microns= 3.0-2.25 Ø) Barren Grad Crm-Tan-Gry FxIn Dns Micrite Sh Char-Blk Carb-Gry-Drab Grn-Aqua Fissil No Odor No Stn No Flor NS

Ls Wht-Gry FxIn Poor "Sandy Ls" (w/Small Qtz Ss Inclus) Wht-Crm-Tan VFGrn Ang-Sub Ang Inclus (fL=125-177 Microns= 3.0-2.25 Ø) Barren Grad Crm-Tan-Gry FxIn Dns Micrite Sh Char-Blk Carb-Gry-Drab Grn-Aqua Fissil No Odor No Stn No Flor NS

Ls Wht-Gry FxIn Poor "Sandy Ls" (w/Small Qtz Ss Inclus) Wht-Crm-Tan VFGrn Ang-Sub Ang Inclus (fL=125-177 Microns= 3.0-2.25 Ø) Barren Grad Crm-Tan-Gry FxIn Dns Micrite Sh Char-Blk Carb-Gry-Drab Grn-Aqua Fissil No Odor No Stn No Flor NS

MISS. ST. LOUIS 5315' (- 2478)

Ls Wht-Gry FxIn Poor "Sandy Ls" (w/Small Qtz Ss Inclus) Wht-Crm-Tan VFGrn Ang-Sub Ang Inclus (fL=125-177 Microns= 3.0-2.25 Ø) Barren Grad Crm-Tan-Gry FxIn Dns Micrite Sh Char-Blk Carb-Gry-Drab Grn-Aqua Fissil No Odor No Stn No Flor NS

Ls Wht-Crm FxIn Poor "Sandy Ls" Por Grad Dns Micrite Cht Peach Op Shp Vit Chalky Pyr Mass Sh Blk Carb (w/Pyr Inclus)-Char-Gry-Grn-Aqua-Red Fissil No Odor No Stn No Flor NS

ST. LOUIS UPPER "B" Ø 5336' (- 2499)

Ls Wht-Crm FxIn Poor "Sandy Ls" Por AA Grad Dns Micrite Cht Tan Op Shp Vit Chalky Pyr Mass Sh Char-Gry-Grn-Aqua-Red Fissil No Odor No Stn No Flor NS

Ls Wht-Crm FxIn Poor "Sandy Ls" AA Por Grad Dns Micrite Cht Tan Op Shp Vit Pyr Mass Chalky Sh Char-Gry-Grn-Aqua-Red Fissil No Odor No Stn No Flor NS

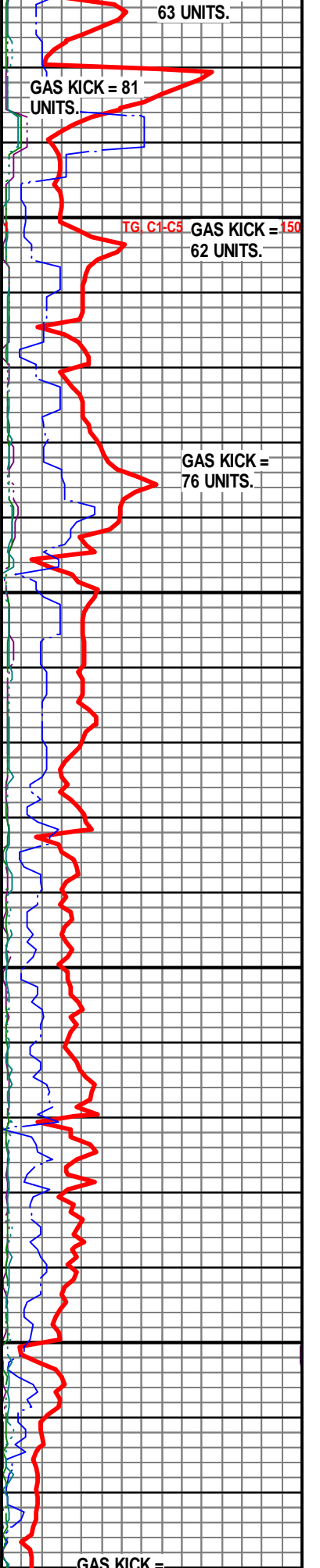
Ls Wht-Crm FxIn Poor "Sandy Ls" AA Por Grad Dns Micrite Cht Tan Op Shp Vit Chalky Pyr Mass Sh Char-Gry-Grn-Aqua-Red Fissil No Odor No Stn No Flor NS

Ls Wht-Crm FxIn Poor "Sandy Ls" AA Por Grad Dns Micrite Cht Tan Op Shp Vit Chalky Pyr Mass Sh Char-Gry-Grn-Aqua-Ren Fissil No Odor No Stn No Flor NS

Ls Wht-Crm FxIn Poor "Sandy Ls" AA Por Grad Dns Micrite Chalky Sh Char-Gry- Grn-Aqua-Red Fissil No Odor No Stn No Flor NS

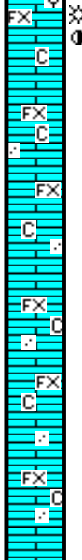
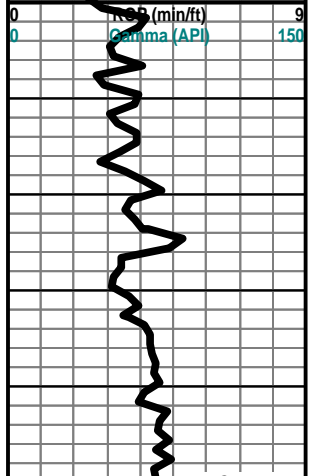
ST. LOUIS LWR "B" Ø 5383' (- 2546)

60" CFS @ 5396' Chalk "V Gummy" (V Abd) Ls Wht FxIn OOL Por (> 80% of Tray) w/Small-Med Ooid Clusters in pl w/Med-Good In Ppt InterOOL Por (w/Sg & SFO With Heat Under Wtr) Many Single Ooids in pl (15% of Tray & w/Tr Sli Sat Stn (Drk Brn) Fair-Med Odor (Dark Gas & Oil Droplets Do Not Flow) Fine (Crin, Com) Sh Char-Fissil (Ck) in Tray & Med



CFS @ 5396' 60" - 75"

5400



(Both Gas & Oil Droplets Do Not Flow) Fos (Crin, Coral) Sh Char Fissil (5% in Tray) med Odor Drk Blk Stn on OOL Edges SG & SO

75" CFS @ 5396' Ls Wht FxIn OOL Por (w/Small-Med OOid Clusters Inc in pl > 25% of Tray w/Med-Good in Ppt InterOOL Por w/SG & SFO) AA Single OOids In pl AA (15% of Tray) Chalk AA " V Gummy" (Abd-50% of Tray) Sh Char (10% in Tray) Fissil Med Odor Drk Blk Stn on OOL Edges MSG & MSO
Ls Wht-Crm FxIn Poor "Sandy Ls" (w/Small Qtz Ss Inklus) Wht-Crm-Tan VFGrn Ang-Sub Ang Inklus (fL=125-177 Microns= 3.0-2.25 Ø) Por Grad Dns Micrite Cht Wht-Peach Translu-Op Shp Vt Chalky Sh Char-Gry-Grn-Aqua Fissil No Odor No Stn No Flor NS

30" CFS @ 5450' Ls Wht-Crm FxIn "Sandy Ls" (w/Small Qtz Ss Inklus) Wht-Crm-Tan VFGrn Ang-Sub Ang Inklus (fL=125-177 Microns= 3.0-2.25 Ø) Poor lxIn Por Grad Dns Micritic Barren Cht Wht-Peach Translu-Op Shp Vt Chalk (Abd) Sh Vari-Colored Blk-Carb-Char-Drab Grn-Aqua Soft-Fissil No Odor No Stn No Flor NS

60" CFS @ 5450' Ls Wht-Crm FxIn "Sandy Ls" (w/Small Qtz Ss Inklus) Wht-Crm-Tan VFGrn Ang-Sub Ang Inklus (fL=125-177 Microns= 3.0-2.25 Ø) Poor lxIn Por Grad Dns Micritic Barren Cht Wht-Peach Translu-Op Shp Vt Chalk (Abd) Sh Vari-Colored Blk-Carb-Char-Drab Grn-Aqua Soft-Fissil No Odor No Stn No Flor NS

75" CFS @ 5450' Ls Wht-Crm FxIn "Sandy Ls" (w/Small Qtz Ss Inklus) Wht-Crm-Tan VFGrn Ang-Sub Ang Inklus (fL=125-177 Microns= 3.0-2.25 Ø) Poor lxIn Por Grad Dns Micritic Barren Cht Wht-Peach Translu-Op Shp Vt Chalk (Abd) Sh Vari-Colored Blk-Carb-Char-Drab Grn-Aqua Soft-Fissil No Odor No Stn No Flor NS

TG C1-C5 150

Mudco Ck @ 5450'
 @ 7:10 AM
 12/21/14
 Vis = 59;
 WT = 9.3;
 PV = 18;
 YP = 19;
 WL = 6.8;
 Cake = 1;
 Chl = 1,800;
 Cal = 20;
 Sol = 7.0%.
 LCM = 3#;
 DMC=\$ 2,834.85;
 CMC=\$19,205.50

CFS @ 5450' 30" - 60" - 75"

5450

R.T.D. = 5450' (-2613)
L.T.D. = 5450' (-2613)

Electric Logs Run: By Halliburton Logging:
 Induction; Compensated Density-Neutron; Di-Pole Sonic;
 Microresistivity & Cased Hole Gamma Ray-Nutron Logs.

Dual

Geologist left Location @ 5:00 PM on 12-21-14

5500

5550