

OPERATOR

Company: CARRIE EXPLORATION AND DEVELOPMENT, LLC
 Address: 210 W 22ND STREET
 HAYS, KANSAS 67601

Contact Geologist: RON HEROLD
 Contact Phone Nbr: 785-625-9318
 Well Name: HAGER # C-1
 Location: SE SE SW, Sec.17-T19S-R10W
 API: 15-159-22,798-00-00
 Pool:
 State: KANSAS

Field: CHASE-SILICA
 Country: USA

Scale 1:240 Imperial

Well Name: HAGER # C-1
 Surface Location: SE SE SW, Sec.17-T19S-R10W
 Bottom Location:
 API: 15-159-22,798-00-00
 License Number: 6768
 Spud Date: 9/19/2014 Time: 2:00 PM
 Region: RICE COUNTY
 Drilling Completed: 9/25/2014 Time: 5:21 AM
 Surface Coordinates: 330' FSL & 2310' FWL
 Bottom Hole Coordinates:
 Ground Elevation: 1764.00ft
 K.B. Elevation: 1772.00ft
 Logged Interval: 2200.00ft To: 3410.00ft
 Total Depth: 3410.00ft
 Formation: ARBUCKLE
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: -98.4534951
 Latitude: 38.392095
 N/S Co-ord: 330' FSL
 E/W Co-ord: 2310' FWL

LOGGED BY

Company: SOLUTIONS CONSULTING, INC.
 Address: 108 WEST 35TH STREET
 HAYS, KANSAS 67601

Phone Nbr: 785-650-4540 / 785-639-1337
 Logged By: GEOLOGIST

Name: STEVE REED / HERB DEINES

CONTRACTOR

Contractor: DISCOVERY DRILLING, INC.
 Rig #: 2
 Rig Type: MUD ROTARY
 Spud Date: 9/19/2014 Time: 2:00 PM
 TD Date: 9/25/2014 Time: 5:21 AM
 Rig Release: 9/25/2014 Time: 10:45 PM

ELEVATIONS

K.B. Elevation: 1772.00ft Ground Elevation: 1764.00ft
 K.B. to Ground: 8.00ft

NOTES

RECOMMENDATION TO RUN PRODUCTION CASING BASED ON FAVORABLE ARBUCKLE STRUCTURE, RESULTS OF DST # 2 AND LOG ANALYSIS.


FORMATION TOPS COMPARISON

	WELL NAME		COMPARISON WELL	COMPARISON WELL
	HAGER C-1		DEWERFF B-1	HAGER #1
	1772KB		1773KB	1770KB
	API: 15-159-22798		API: 15-159-22787	API: 15-159-21296
FORMATION	SAMPLE TOPS	LOG TOPS	LOG TOPS (DATUM)	LOG TOPS (DATUM)
ANHYDRITE TOP	482' (+1290')	484 (+1288)	+1277	NA
GRAND HAVEN	2203' (-431')	2205 (-433)	-427	NA
DOVER	2232' (-460')	2235 (-463)	-455	NA
STOTLER/TARKIO LM	2283' (-511')	2285 (-513)	-509	NA
TOPEKA	2592' (-820')	2592 (-820)	-818'	-827'
HEEBNER	2857' (-1085')	2860 (-1088)	-1085'	-1100'
TORONTO	2877' (-1105')	2881 (-1109)	-1106'	-1122'
BROWN LIME	2979' (-1207')	2982 (-1210)	-1204'	-1221'
LKC	3001' (-1229')	3004 (-1232)	-1228'	-1245'
BKC	3261' (-1489')	3263 (-1491)	-1489'	-1505'
ARBUCKLE	3323' (-1551')	3326 (-1554)	-1548'	-1555'
RTD	3410' (-1637')	3410 (-1638)	-1587'	-1605'

SUMMARY OF DAILY ACTIVITY

- 9-19-14 R.U., spud @ 12:45 pm, 8 5/8" surface casing set at 305' w/225 sxs common, 2% gel, 3% cc, WOC, survey 3/4°
- 9-20-14 315', drilling
- 9-21-14 1655', drilling
- 9-22-14 2385', drilling
- 9-23-14 3030', drilling, CFS @ 3080', short trip, CTCH, TOWB for DST #1, survey 1/2°, DST #1 2984'-3080' LKC "A-F", CFS @ 3117', CFS @ 3195'
- 9-24-14 3255', drilling, CFS @ 3325', CFS @3330', short trip, CTCH, TOWB for DST #2, DST #2 3255' to 3330' "Arbuckle"
- 9-25-14 3410', drilling, RTD 3410' @5:21AM, CCH, TOWB, survey 1 1/2, logs, run production casing

DST # 1 TEST SUMMARY

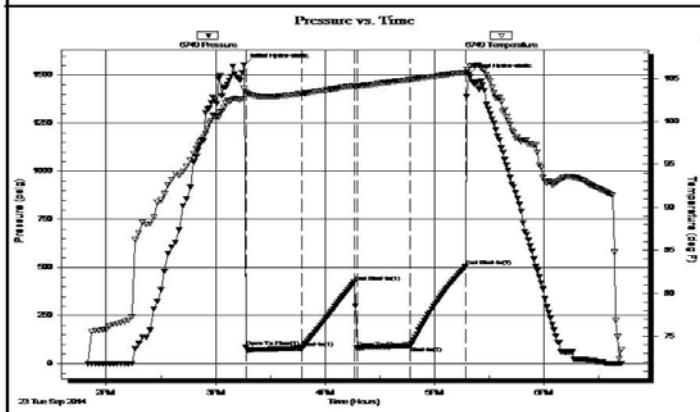
	DRILL STEM TEST REPORT	
	Carrie Exploration adn Development 210 W 22nd Hays, Kansas 67601 ATTN: Steve Reed	17/19S/10W/Rice Hager C-1 Job Ticket: 60273 DST#: 1 Test Start: 2014.09.23 @ 13:49:00

GENERAL INFORMATION:

Formation: Lansing/Kansas City	Test Type: Conventional Bottom Hole (Initial)
Deviated: No Whipstock: ft (KB)	Tester: Ken Swinney
Time Tool Opened: 15:16:30	Unit No: S1 Great Bend/40
Time Test Ended: 18:43:00	Reference Elevations: 1772.00 ft (KB)
Interval: 2984.00 ft (KB) To 3080.00 ft (KB) (TVD)	1764.00 ft (CF)
Total Depth: 3080.00 ft (KB) (TVD)	KB to GR/CF: 8.00 ft
Hole Diameter: 7.80 inches Hole Condition: Fair	

Serial #: 6749	Inside				
Press@RunDepth: 90.28 psig @ 3075.95 ft (KB)	Capacity: 8000.00 psig				
Start Date: 2014.09.23	End Date: 2014.09.23	2014.09.23	2014.09.23		
Start Time: 13:50:00	End Time: 18:43:00	18:43:00	2014.09.23 @ 15:15:30		
			Time Off Btm: 2014.09.23 @ 17:18:30		

TEST COMMENT: 1ST Open 30 Minutes/Good blow /Blow built to bottom of bucket in 1 minute 15 seconds
 1ST Shut In 30 Minutes/Weak surface blow back
 2ND Open 30 Minues/Strong blow /Blow built to bottom of bucket in 15 seconds
 2ND Shut In 30 Minutes/Blow back built to 1/4 inch



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1554.64	103.84	Initial Hydro-static
1	87.07	103.41	Open To Flow (1)
32	80.43	103.23	Shut-In(1)
61	423.96	104.15	End Shut-In(1)
62	81.06	104.10	Open To Flow (2)
91	90.28	104.84	Shut-In(2)
122	504.77	105.70	End Shut-In(2)
123	1503.39	106.04	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
70.00	Mud with show of oil/Mud 100%	0.98
0.00	1232 feet of gas in pipe/Gas 100%	0.00

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

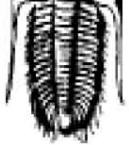
Trilobite Testing, Inc

Ref. No: 60273

Printed: 2014.09.23 @ 22:28:44

DST # 2 TEST SUMMARY

	DRILL STEM TEST REPORT	
	Carrie Exploration adn Development 210 W 22nd Hays, Kansas 67601 ATTN: Steve Reed	17/19S/10W/Rice

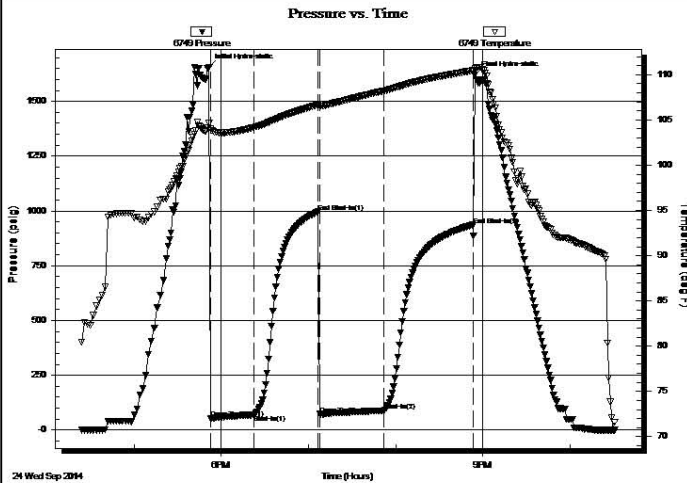


GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 17:52:30
 Time Test Ended: 22:31:00
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Ken Swinney
 Unit No: S1 Great Bend/40
 Interval: **3255.00 ft (KB) To 3330.00 ft (KB) (TVD)**
 Total Depth: 3330.00 ft (KB) (TVD)
 Reference Elevations: 1772.00 ft (KB)
 1764.00 ft (CF)
 Hole Diameter: 7.80 inches Hole Condition: Fair
 KB to GR/CF: 8.00 ft

Serial #: 6749 Inside
 Press@RunDepth: 88.91 psig @ 3325.65 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.09.24 End Date: 2014.09.24 Last Calib.: 2014.09.24
 Start Time: 16:24:00 End Time: 22:31:00 Time On Btm: 2014.09.24 @ 17:51:30
 Time Off Btm: 2014.09.24 @ 20:54:30

TEST COMMENT: 1ST Open 30 Minutes/Fair blow /Blow built to 7 1/4 inches
 1ST Shut In 45 Minutes/Blow back built to just below surface
 2ND Open 45 Minutes/Good blow /Blow built to 11 inches
 2ND Shut In 60 Minutes/Blow back built to 1/4 inch



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1654.77	104.62	Initial Hydro-static
1	51.99	104.00	Open To Flow (1)
31	69.62	104.17	Shut-In(1)
75	996.08	106.67	End Shut-In(1)
76	72.57	106.50	Open To Flow (2)
121	88.91	108.22	Shut-In(2)
182	935.05	110.45	End Shut-In(2)
183	1620.49	110.73	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
74.00	Gas cut Oily Mud	0.36
0.00	Gas 15% Oil 25% Mud 60%	0.00
40.00	Clean gassy oil	0.20
0.00	Gas 10% Oil 90%	0.00
0.00	134 feet of gas in pipe	0.00

Gas Rates

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

ROCK TYPES

Cht vari	Congl	Lmst fw7>	Carbon Sh	Ss
Clystgy	Dolprim	shale, grn	shale, red	Lscongl
Clystcol	Lmst fw<7	shale, gry	Shcol	

ACCESSORIES

MINERAL

▲ Chert, dark

FOSSIL

F Fossils < 20%

STRINGER

~~~~ Chert

TEXTURE

C Chalky

~ Glauconite  
 P Pyrite  
 △ Chert White  
 Mc Mica

~ Oomoldic  
 ⊗ Fossilinid

L Lithogr

**OTHER SYMBOLS**

**EVENTS**

- ⌋ Casing Shoe
- ▽ RTF
- ▶ Sidewall
- ▲ Left Casing Shoe
- ▼ Right Casing Shoe

**INTERVALS**

- Core
- DST

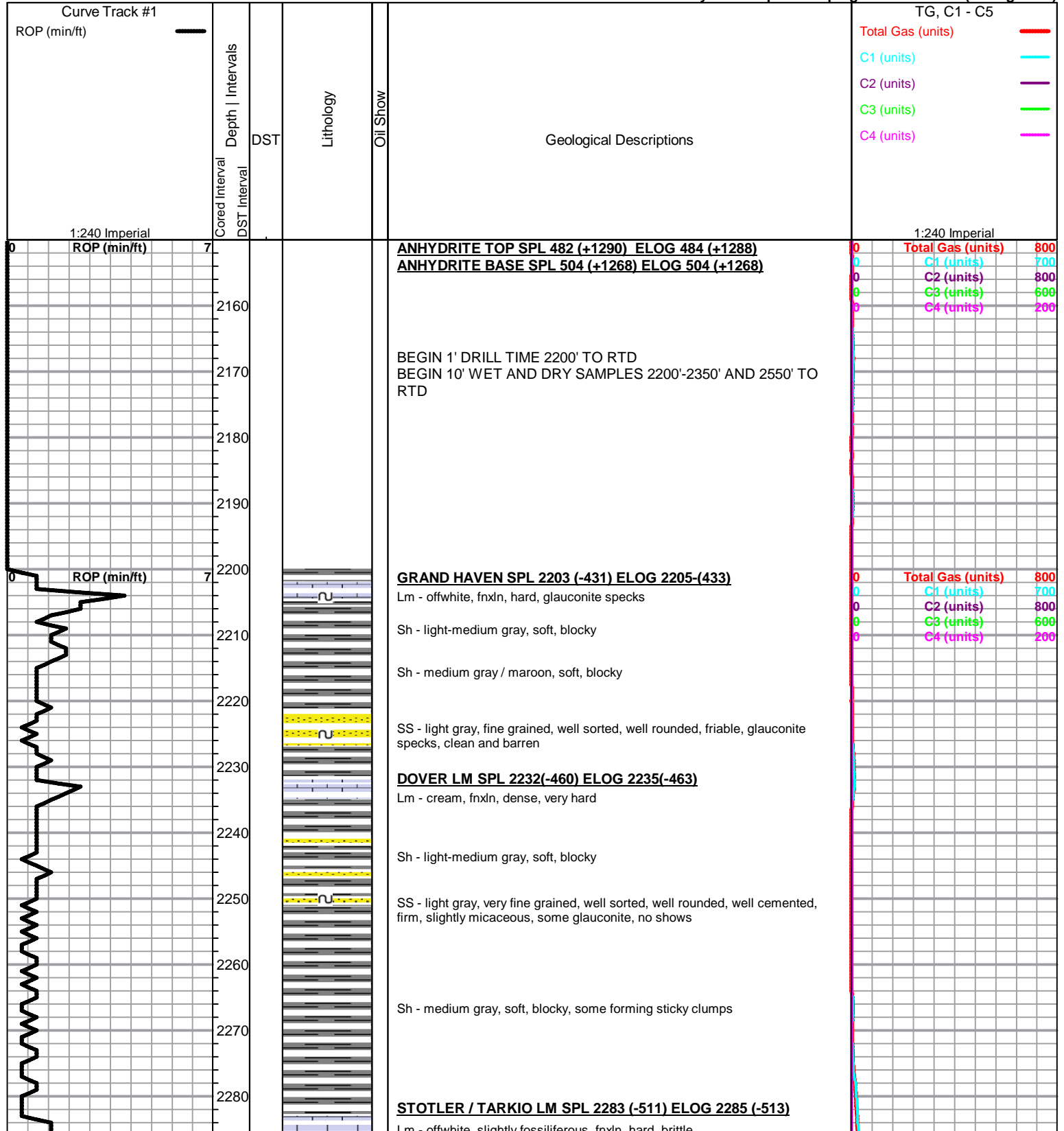
**Oil Show**

- Good Show
- Fair Show
- Poor Show
- Spotted or Trace
- Questionable Stn
- Dead Oil Stn
- Fluorescence
- \* Gas

**DST**

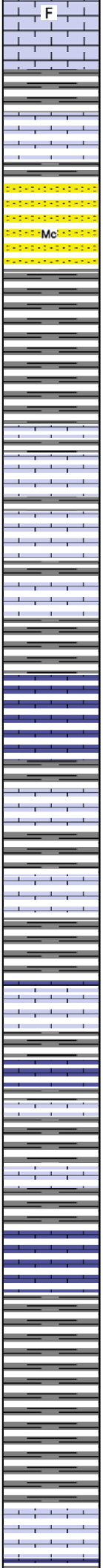
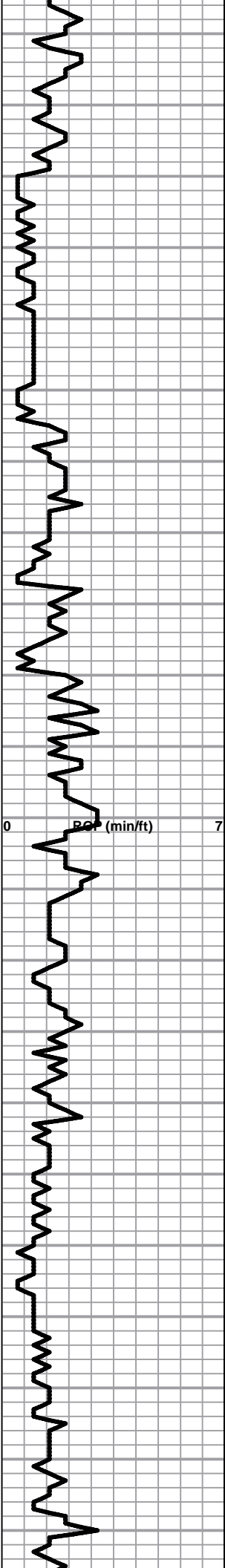
- DST Int
- DST alt
- Core
- tail pipe
- DST

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2290  
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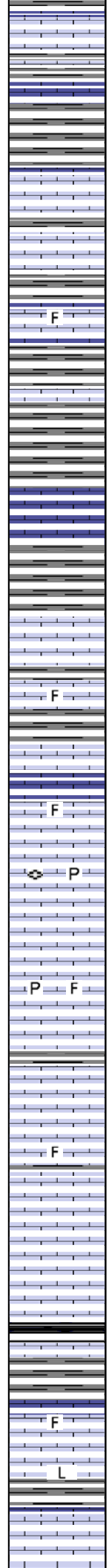
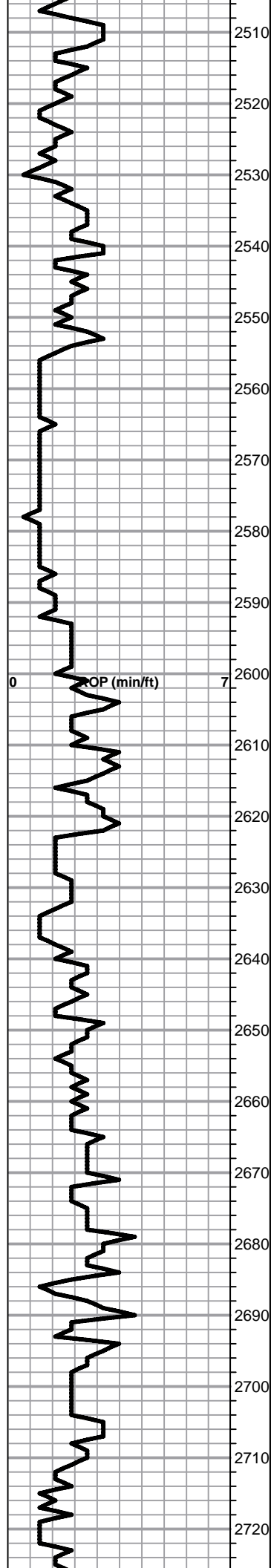
0 ROP (min/ft) 7



Lm - tan, fnxln, dense, hard  
Lm - tan-cream, fossiliferous, fn-medxln, friable  
  
Lm - cream-offwhite, fine interxln porosity, hard, brittle  
  
Sh - medium gray, soft, blocky  
  
SS- light gray, fine grained, well sorted, well rounded, well cemented, firm, no shows, slightly micaceous  
  
Sh - light-medium gray, soft, blocky

**NO SAMPLES CAUGHT FROM 2350 TO 2550**

|   |                   |     |
|---|-------------------|-----|
| 0 | Total Gas (units) | 800 |
| 0 | C1 (units)        | 700 |
| 0 | C2 (units)        | 800 |
| 0 | C3 (units)        | 600 |
| 0 | C4 (units)        | 200 |



Lm - tan-light gray, fnxln, hard, brittle

F Lm - tan-medium brown, fnxln, slightly fossiliferous, brittle

Sh - light-medium gray, soft, blocky

Sh - medium-dark gray, soft, blocky

**TOPEKA SPL 2592 (-820) ELOG 2592(-820)**

Lm - cream-tan, fnxln, hard, brittle

F Lm - tan-light gray, slightly fossiliferous, hard

Lm - light gray, fnxln, hard, pyrite

F Lm - cream-tan, fnxln, slightly fossiliferous, dense, hard

P Lm - cream, granular, brittle, pyrite, fusulinids

P F Lm - tan, fnxln, fossiliferous, brittle, pyrite

Lm - cream, granular, moderate hardness

F Lm - cream-tan, fnxln to granular, slightly fossiliferous, brittle

Lm - cream-light brown, fnxln to granular, bedded chalk in part

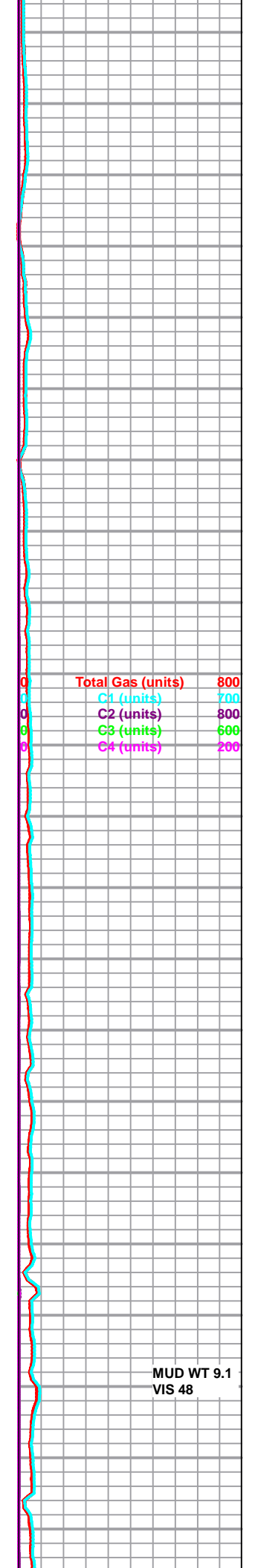
Lm - cream-tan, fossil porosity, friable, no shows

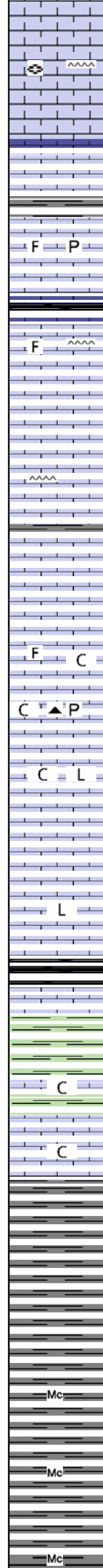
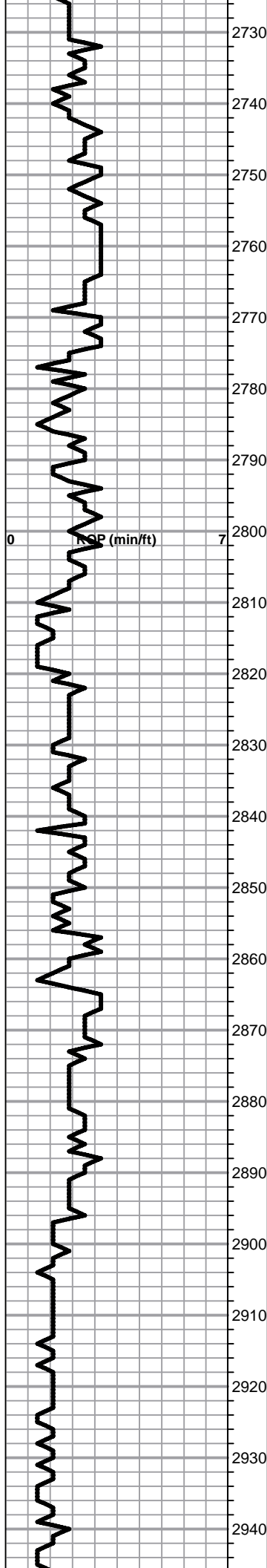
Sh - black, carbonaceous, waxy  
Lm - cream, medxln to granular in part, firm on crush, slightly chalky

F Lm - cream-tan, slightly fossiliferous, dense, hard

L Lm - tan, fnxln to lithographic in part, dense, hard

Lm - tan, granular, friable, no shows, chalky





Lm - light gray-brown, fn-medxn, slightly fossiliferous, bedded chalk in part

Lm - cream, medxn, fusulinids, hard, brittle, bedded chalk, cherty

Lm - tan-light brown, medxn with fine interxn porosity, hard, brittle, bedded chalk in part

Lm - tan, medium brown, fossiliferous, fine interxn porosity, dense, very hard, pyrite

Sh - black, carbonaceous, waxy

Lm - cream-tan, fnxn to granular, brittle, slightly fossiliferous, cherty

Lm - tan, mottled, granular, friable, bedded chalk in part

Lm - tan, fine interxn porosity, hard, brittle, bedded chalk, slightly cherty

Sh - medium gray, soft, blocky

Lm - cream-tan, dark fossil clasts in granular matrix, friable, chalky

Lm - cream-tan, fnxn to granular, well cemented, hard, slight chalk, black chert, pyrite clusters

Lm - cream, fnxn to lithographic in some, hard, brittle, slight chalk

Lm - tan, fine interxn porosity, dense, hard, slight bedded chalk

Lm - medium brown, lithographic, very hard, brittle

**HEEBNER SPL 2857 (-1085) ELOG 2860(-1088)**

Sh - black, carbonaceous, waxy

Lm - tan, fnxn, dense, very hard

Sh - greenish gray, soft, blocky, forming sticky clumps in part

**TORONTO SPL 2877 (-1105) ELOG 2881(-1109)**

Lm - offwhite, bright and clean, fnxn to granular, slightly chalky

Lm - cream-offwhite, fnxn, hard, slightly chalky, no shows

**DOUGLAS SHALE SPL 2892 (-1120) ELOG 2891 (-1119)**

Sh - maroon, soft, blocky

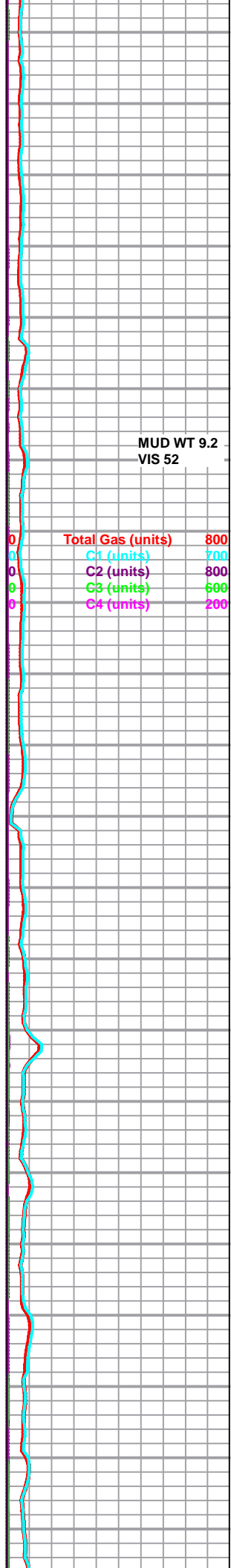
Sh - light greenish gray / maroon, soft, blocky

SS - dark gray, micaceous, very fine grained, angular, well sorted, well cemented, firm, SFO specks upon crush, good streaming wet cut, no odor

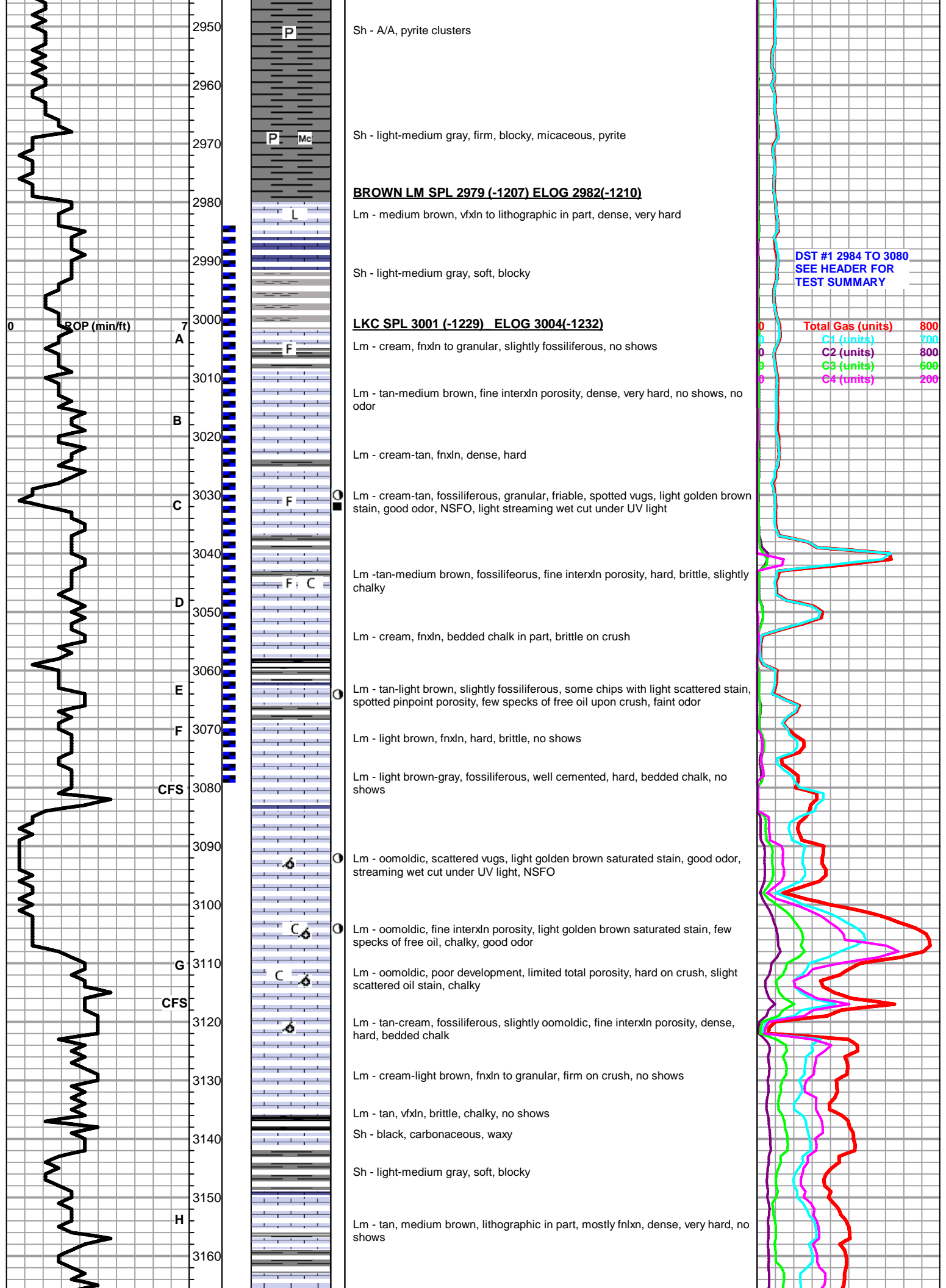
Sh - light-medium gray, micaceous, soft, blocky, silty, gritty

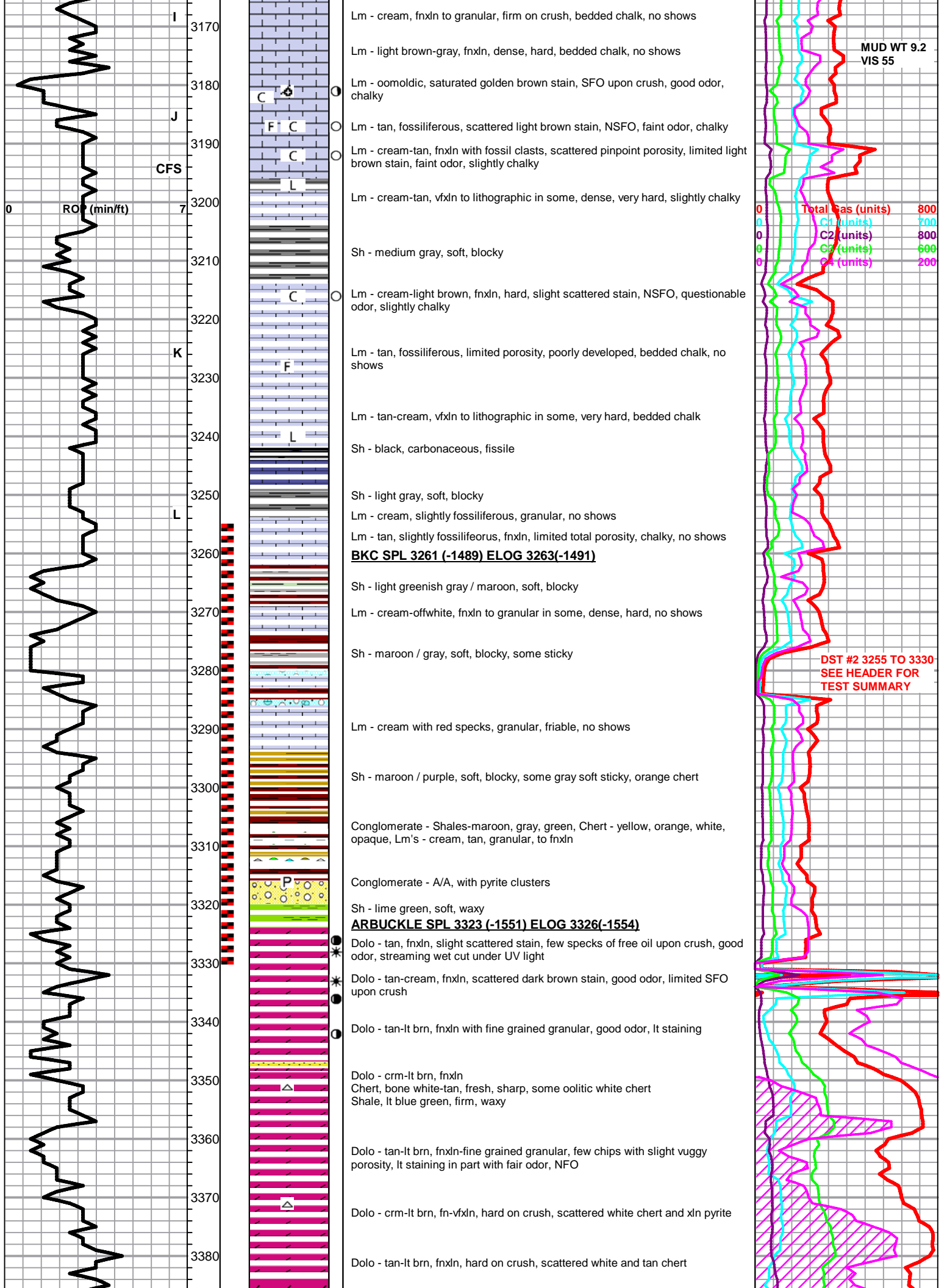
Sh - light gray, soft, blocky, silty, micaceous, forming sticky clumps in part

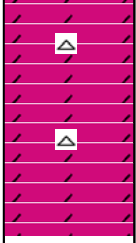
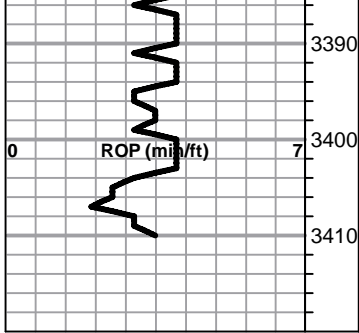
Sh - medium gray, soft, blocky, silty, micaceous











Dolo - tan-lt brn, fn-vfxln, white-tan fresh, sharp chert, scattered xln pyrite

Dolo - lt brn, fn-vfxln, chert, white, fresh, sharp

Dolo - crm-lt brn, fn-vfxln, increasing white-lt pink chert and quartz

**RTD 3410-1638    LTD 3411-1639**

