

JUSTIN D. CARTER

CONSULTING GEOLOGIST

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

Well Name: RUTTI-GATES 1-5
Well Id:
Location: NW, NW, SE Sec. 5 - 22S - 13W Stafford Co., KS
License Number: 15-185-24056-0000
Spud Date: 08/19/19
Surface Coordinates: 2310' FSL, 2310' FEL
Region: Wildcat
Drilling Completed: 08/25/19

Bottom Hole
Coordinates:
Ground Elevation (ft): 1896' K.B. Elevation (ft): 1905'
Logged Interval (ft): 3100' To: 3880' Total Depth (ft): 3880'
Formation: L/KC, CONGL., VIOLA, ARBUCKLE
Type of Drilling Fluid: Chemical Mud

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

OPERATOR

Company: BIRD DOG OIL, LLC
Address: 1801 Broadway, Suite #200
Denver, CO 80202-3840
Co. Geo.: Mr. Scott Stewart

GEOLOGIST

Name: Justin D. Carter
Company: Consulting Geologist
Address: 1640 N. Roosevelt Ave.
Liberal, KS 67901
Phone: 620-655-1187

Comments

Drilling Contractor: Southwind Drilling Rig #3
Tool Pusher: Jay Krier

8 5/8" surface casing set at 432'

Mud: MudCo
Engineer: Rick Hughes

Gas Detector: Blue Stem

DSTs: Trilobite Testing
Tester: Leal Cason

Open-Hole Loggers: ELI Wireline



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Bird Dog Oil
 1801 Broadway Ste 200
 Denver, CO 80202
 ATTN: Justin Carter

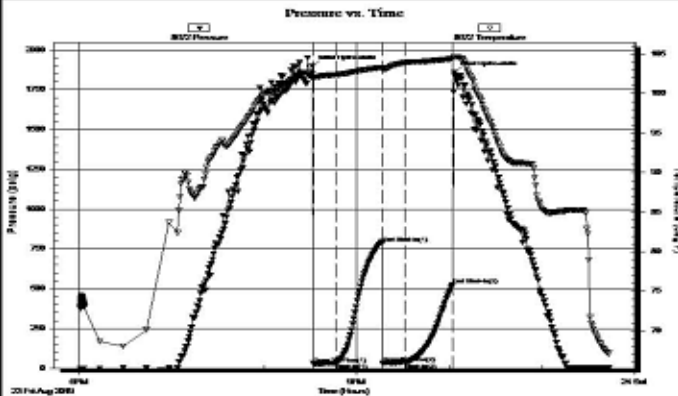
5-22S-13W Stafford
Rutti-Gates 1-5
 Job Ticket: 65895 **DST#: 1**
 Test Start: 2019.08.23 @ 18:01:00

GENERAL INFORMATION:

Formation: **Conglomerate**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 20:31:47
 Tester: Leal Cason
 Time Test Ended: 23:43:02
 Unit No: 74
 Interval: **3662.00 ft (KB) To 3690.00 ft (KB) (TVD)**
 Reference Elevations: 1905.00 ft (KB)
 Total Depth: 3690.00 ft (KB) (TVD)
 1896.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Good
 KB to GR/CF: 9.00 ft

Serial #: 8672 **Inside**
 Press@RunDepth: 33.90 psig @ 3663.00 ft (KB) Capacity: psig
 Start Date: 2019.08.23 End Date: 2019.08.23 Last Calib.: 2019.08.23
 Start Time: 18:01:01 End Time: 23:43:02 Time On Btm: 2019.08.23 @ 20:31:02
 Time Off Btm: 2019.08.23 @ 22:03:02

TEST COMMENT: IF: Weak 3/4 inch Blow
 ISI: No Blow Back
 FF: Weak 1/4 inch Blow
 FSI: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1898.17	102.48	Initial Hydro-static
1	30.31	101.97	Open To Flow (1)
16	31.36	102.38	Shut-In(1)
46	787.84	103.25	End Shut-In(1)
46	33.20	103.04	Open To Flow (2)
60	33.90	103.90	Shut-In(2)
91	523.79	104.44	End Shut-In(2)
92	1857.59	104.62	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud	0.07

Gas Rates

Choke (Inches)	Pressure (psig)	Gas Rate (MMcf/d)



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Bird Dog Oil
 1801 Broadway Ste 200
 Denver, CO 80202
 ATTN: Justin Carter

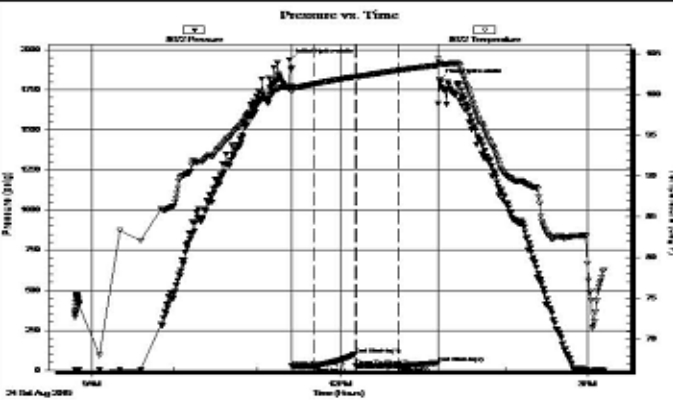
5-22S-13W Stafford
Rutti-Gates 1-5
 Job Ticket: 65896 **DST#: 2**
 Test Start: 2019.08.24 @ 08:48:00

GENERAL INFORMATION:

Formation: **Viola**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 11:25:17
 Tester: Leal Cason
 Time Test Ended: 15:12:02
 Unit No: 74
 Interval: **3690.00 ft (KB) To 3727.00 ft (KB) (TVD)**
 Reference Elevations: 1905.00 ft (KB)
 Total Depth: 3727.00 ft (KB) (TVD)
 1896.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Good
 KB to GR/CF: 9.00 ft

Serial #: 8672 Inside
 Press@RunDepth: 28.35 psig @ 3691.00 ft (KB) Capacity: psig
 Start Date: 2019.08.24 End Date: 2019.08.24 Last Calib.: 2019.08.24
 Start Time: 08:48:01 End Time: 15:12:02 Time On Btm: 2019.08.24 @ 11:23:32
 Time Off Btm: 2019.08.24 @ 13:12:17

TEST COMMENT: IF: Weak Blow , Built to 1 1/2 inch
 IS: No Blow Back
 FF: Weak Blow , Built to 1/2 inch
 FSI: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1938.70	101.00	Initial Hydro-static
2	25.17	100.37	Open To Flow (1)
18	24.93	101.29	Shut-In(1)
48	100.40	102.17	End Shut-In(1)
48	26.96	102.18	Open To Flow (2)
79	28.35	102.96	Shut-In(2)
108	47.15	103.62	End Shut-In(2)
109	1813.81	103.87	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	SOSM 1%O 99%M	0.21

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Bird Dog Oil
 1801 Broadway Ste 200
 Denver, CO 80202
 ATTN: Justin Carter

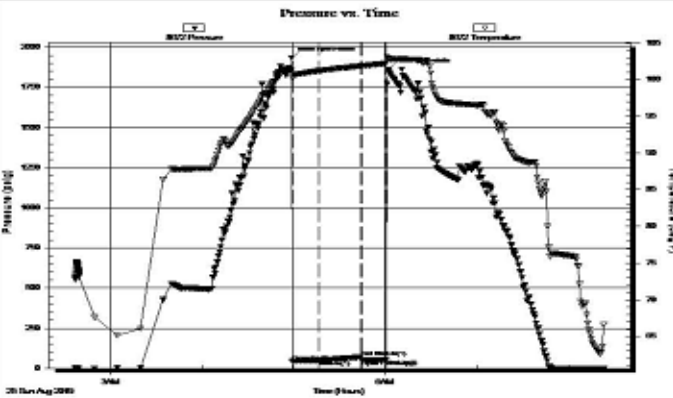
5-22S-13W Stafford
Rutti-Gates 1-5
 Job Ticket: 65897 **DST#: 3**
 Test Start: 2019.08.25 @ 02:37:00

GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 04:59:02
 Tester: Leal Cason
 Time Test Ended: 08:23:02
 Unit No: 74
 Interval: **3720.00 ft (KB) To 3778.00 ft (KB) (TVD)**
 Reference Elevations: 1905.00 ft (KB)
 Total Depth: 3778.00 ft (KB) (TVD)
 1896.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Good
 KB to GR/CF: 9.00 ft

Serial #: 8672 **Inside**
 Press@RunDepth: 49.92 psig @ 3721.00 ft (KB) Capacity: psig
 Start Date: 2019.08.25 End Date: 2019.08.25 Last Calib.: 2019.08.25
 Start Time: 02:37:01 End Time: 08:23:02 Time On Btm: 2019.08.25 @ 04:58:47
 Time Off Btm: 2019.08.25 @ 06:01:32

TEST COMMENT: IF: Weak Blow , Built to 3/4 inch, Dead @ 14 minutes
 IS: No Blow Back
 FF: No Blow , Pulled Test



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1934.89	101.15	Initial Hydro-static
1	43.79	100.19	Open To Flow (1)
18	49.92	101.20	Shut-In(1)
45	70.40	101.86	End Shut-In(1)
46	50.20	101.87	Open To Flow (2)
62	54.31	102.27	Shut-In(2)
63	1860.77	103.00	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
20.00	Mud	0.28

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

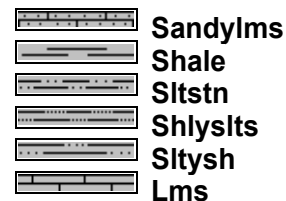
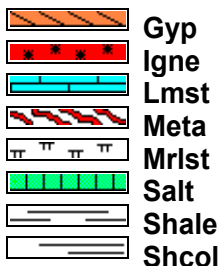
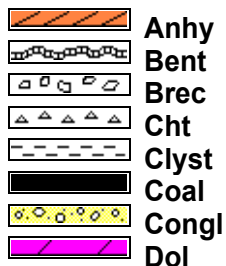
Remarks

After careful review of the sample log, electric logs, and DST reports, the decision was made to P&A the Rutti-Gates #1-5.

Respectfully submitted,

Justin D. Carter
 Consulting Geologist

ROCK TYPES

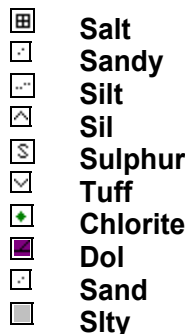


ACCESSORIES

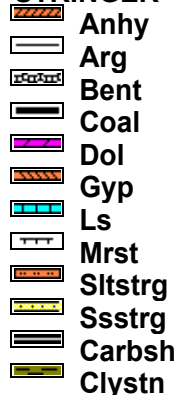
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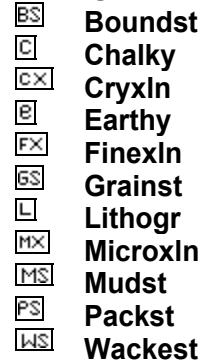
MINERAL



STRINGER

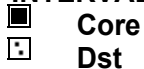


TEXTURE



OTHER SYMBOLS

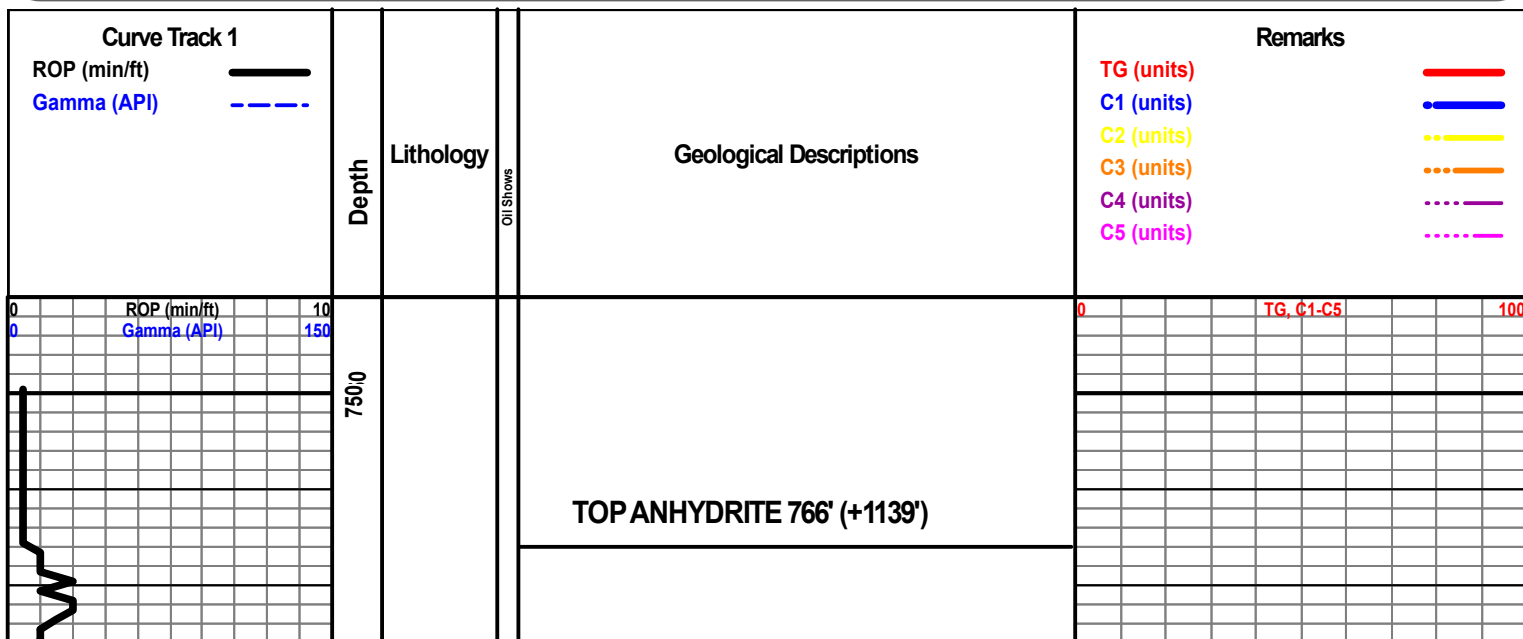
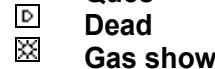
INTERVALS



OIL SHOWS



Ques



BASE ANHYDRITE 791' (+1114')

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

DEPTH BREAK

8000

3050

BIT #2
VAREL 7 7/8"
HE-29
SN: 1617112
3/14s

DISPLACE HOLE @ 2907

GEOLOGIST ON LOCATION 8:30 A.M. 08/22/19

WT 8.6
VIS 42
LCM 1/2#
RPM 80
WOB 30K
PP 800
SPM 60

3100

3150



LS- LT TN, HRD DNS, FVF-XLN, SUB-SUCRO MTRX THRU, IMBED FOSS FRAGS SCAT THRU, NO FLO, TR INTER-XLN POR, NS

LS- CRM, HRD DNS, VF-XLN, RE-XLN MTRX IP TO SUB-SUCRO MTRX IP, TR IMBED FOSS FRAGS, NO FLO, NO VIS POR

LS- LT TN, BRITT, FVF-XLN, GRNST, TR SFT WHT CHLK, NO FLO, PR INTER-XLN POR SCAT THRU, NS

LS- CRM, MD/F-XLN, GRNST, SFT WHT CHLK IP, NO FLO, PR INTER-XLN POR THRU, NS

LS- CRM OFF WHT, HRD, FVF-XLN, GRNST IP TO RE-XLN MTRX IP, TR IMBED FOSS FRAGS, NO FLO, NO VIS POR

TG, C1-C5 100

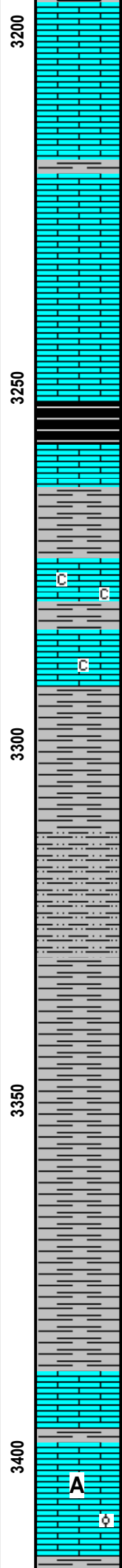
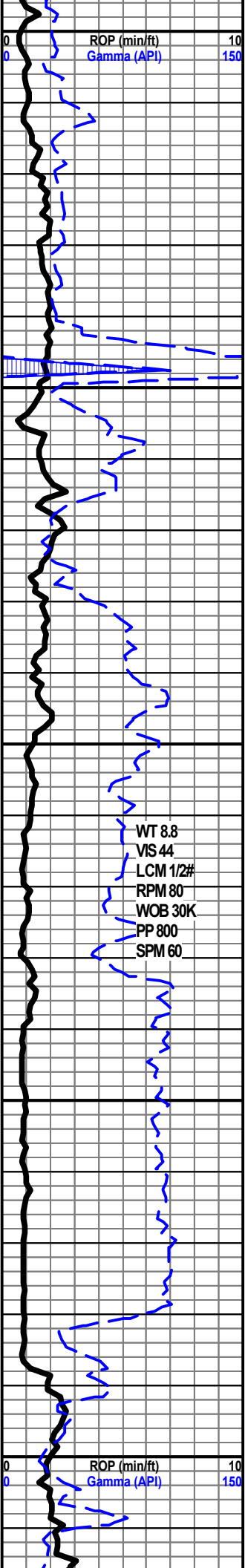
10:00 A.M. 08/22/19

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LS- LT TN, HRD TO BRITT IP, VF-XLN, RE-XLN MTRX IP TO TR SUB-SUCRO MTRX, NO FLO, NO VIS POR

LS- TN, HRD DNS, VF-XLN, RE-XLN MTRX IP, NO FLO, NO VIS POR

LS- CRM TN, HRD DNS, VF-XLN, RE-XLN MTRX IP, NO FLO, NO VIS POR

HEEBNER 3253' (-1348')

LS- GY, HRD DNS, CRYPTO-XLN, RE-XLN MTRX THRU, IMBED BLK SH IP, NO FLO, NO VIS POR

TORONTO 3274' (-1369')

LS- WHT, HRD, MD/F-XLN, GRNST IP TO RE-XLN MTRX IP, SFT WHT CHLK IP, NO FLO, TR INTER-XLN POR TO NO VIS POR THRU, NS

DOUGLAS 3292' (-1387')

SH- DK GY BLK RD, FRM, FISS

SLTST- GY, HRD TT, F-GRNS, DISS BLK SH SCAT THRU, PR INTER-GRN POR SCAT THRU, NS

SH- LT GRN, FRM, BLKY, LMY

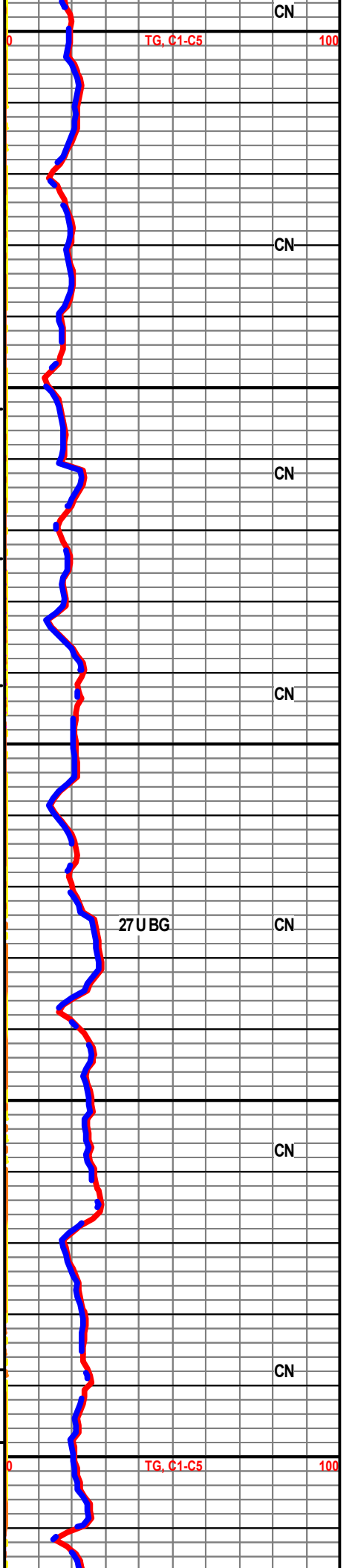
SH- DK GY LT GRN, FRM, BLKY, LMY TO FISS IP

SH- DK GY, A/A

BROWN LIME 3388' (-1483')

LANSING 3398' (-1493')

LS- CRM, HRD DNS, VF-XLN, RE-XLN MTRX IP, TR IMBED OOL, NO FLO, NO VIS CUT, NO VIS POR



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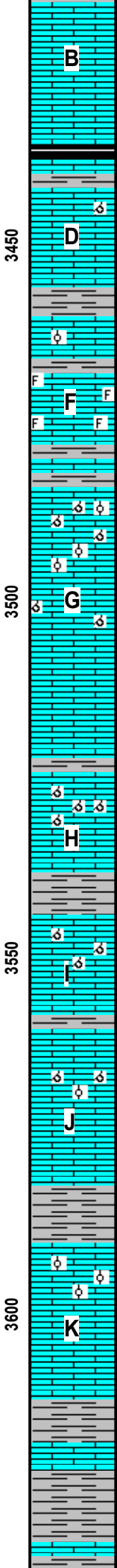
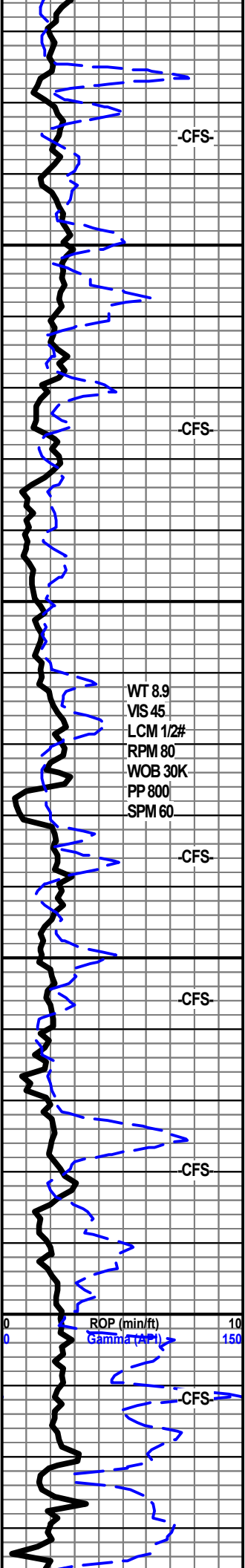
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LS- CRM LT CRM, HRD DNS, F/VF-XLN, RE-XLN MTRX THRU, TR BRIT BLU FLO, V/FAINT SLO BLU STRM CUT, TR INTER-XLN POR TO FRAC POR IP, TR TN STAIN, V/FAINT ODOR, NSFO

LS- WHT, BRITT, F/VF-XLN, GRNST, TR FINE CALC XLS, TR YEL FLO, NO VIS CUT, TR OOMLD POR TO TR INTER-XLN POR, NO STAIN, NO ODOR

LS- TN GY, HRD DNS, VF-XLN, RE-XLN MTRX THRU, TR IMBED OOL, TR SFT WHT CHLK, NO FLO, NO VIS POR

LS- BRN TN, HRD DNS, VF-XLN, GRNST, IMBED FOSS FRAGS THRU, NO FLO, NO VIS CUT, TR INTER-FOSS POR TO NO VIS POR IP, TR BLK RESID STAIN, NO ODOR

LS-WHT LT TN, BRITT, VF-XLN, GRNST THRU, OOL IP, SFT WHT CHLK IP, NO FLO, PR OOMLD POR IP TO TR MICRO PP POR, NS

LS- TN, HRD DNS, VF-XLN, RE-XLN MTRX IP, TR SFT WHT CHLK, NO FLO, TR OOMLD POR, NS

LS- LT TN, HRD DNS, VF-XLN, RE-XLN MTRX THRU, NO FLO, NO VIS POR

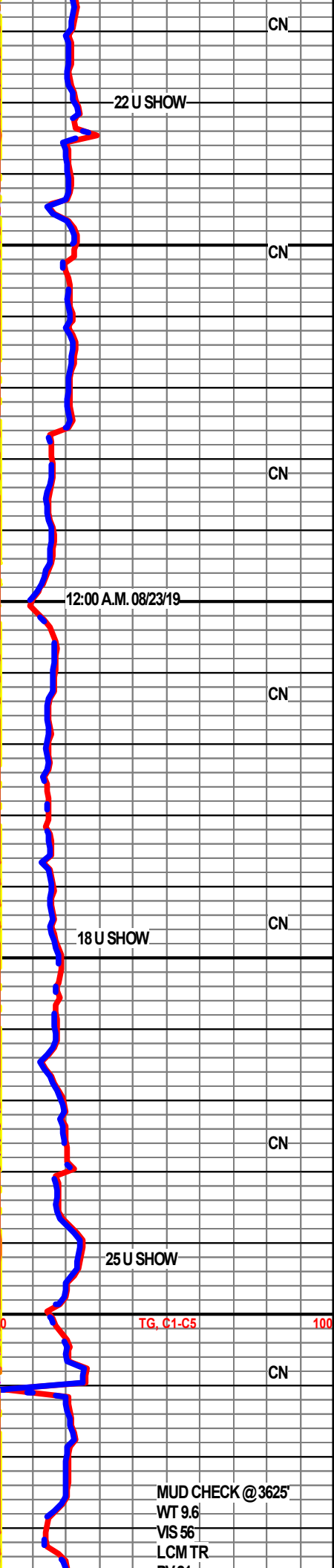
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LS- WHT, BRITT, VF-XLN, GRNST, TR OOL, SFT WHT CHLK SCAT THRU, PR BLU FLO IP, V/FAINT STRM CUT, PR/FR OOMLD POR THRU, TR "TARRY" OIL STAIN, NO ODOR

LS- CRM, BRITT, F/VF-XLN, GRNST, SFT WHT CHLK IP, TR OOL, NO FLO, NO VIS CUT, PR OOMLD POR IP, TR BLK STAIN, NO ODOR

LS- CRM WHT, HRD TO BRITT IP, F-XLN, GRNST, SFT WHT CHLK THRU, OOL IP, YEL GLD FLO IP, FAINT FLUSH TO PR SLO BLU STRM CUT, TR INTER-XLN POR TO TR OOMLD POR, LIVE BLK STAIN IP, FAINT ODOR

LS- BFF TN, HRD DNS, VF-XLN, RE-XLN MTRX THRU TO TR GRNST, SFT WHT CHLK IP, NO FLO, NO VIS CUT, TR INTER-XLN POR, TR LIVE BLK STAIN, NO ODOR



WT 8.9
VIS 45
LCM 1/2#
RPM 80
WOB 30K
PP 800
SPM 60

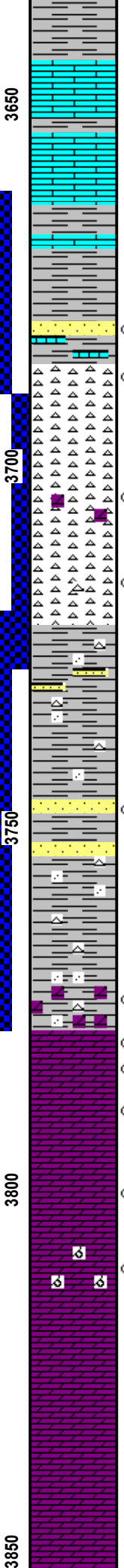
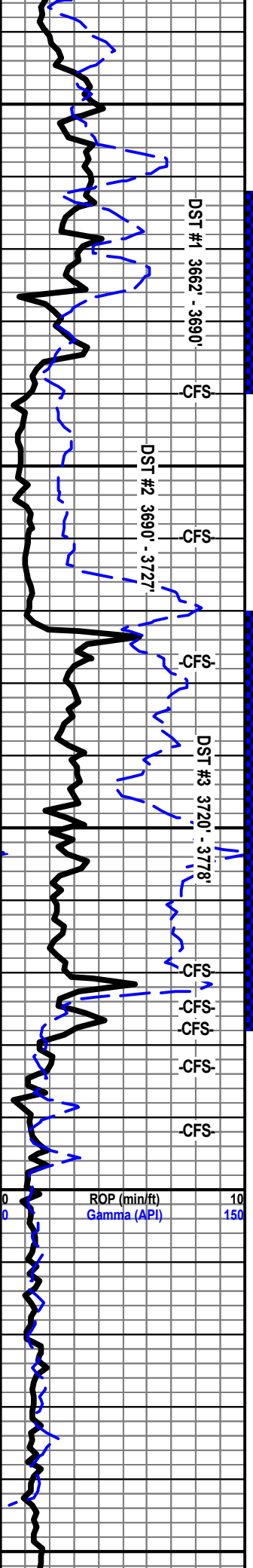
ROP (min/ft) 10
Gamma (API) 150

BKC 3613' (-1708')

LS- CRM BFF, HRD DNS, F/VF-XLN, GRNST IP TO RE-XLN MTRX IP, IMBED GY SH IP, NO FLO, NO VIS POR

MUD CHECK @3625'
WT 9.6
VIS 56
LCM TR

TG, C1-C5 100



SH- RD, SFT, GMMY

LS- BFF CRM, HRD DNS, CRYPTO-XLN, RE-XLN MTRX THRU, NO FLO, NO VIS POR

LS- CRM, HRD DNS, CRYPTO-XLN, RE-XLN MTRX IP, NO FLO, NO VIS POR

SH- GY RD, FRM, BLKY, FISS IP TO BLKY IP

SS- WHT, TT TO FRI IP, F-GRNS, SUB-RND GRNS, CALC CMNT, SFT WHT CHLK IP, NO FLO, NO VIS CUT, PR/FR INTER-GRN POR, NO ODOR

VIOLA 3685' (-1780')

CHRT- WHT, HRD DNS, ANG, YEL GLD FLO IN 50%, PR SLO BLU STRM CUT, POSS FRAC POR, BLK STAIN IP, FAINT ODOR, NSFO

STRAP OUT @ 3690', 4.26' SHORT TO BOARD

CHRT- WHT, HRD DNS, ANG, TR WHT DOLO, YEL GLD FLO THRU, FAINT SLO BLU STRM CUT, POSS FRAC POR, TR BLK STAIN, TR FREE OIL, FAINT ODOR

CHRT- WHT, HRD DNS, ANG, YEL GLD FLO THRU, PR/FR SLO BLU STRM CUT, POSS FRAC POR, BLK STAIN IP, FAINT ODOR, TR FREE OIL

SIMPSON 3723' (-1818')

SS- WHT, TT, MD/VF-GRNS, PR SRT, SUB-RND GRNS, CALC CMNT, SFT WHT CHLK IP, RND CLR QTZ XLS IP, NO FLO, NO VIS CUT, PR INTER-GRN POR THRU, TR STAIN, NO ODOR

SS- TN CLR, TT TO FRI IP, F-GRNS, SUB-ANG GRNS, CALC CMNT, YEL GLD FLO THRU, FR FLUSH TO FR SLO BLU STRM CUT, PR/FR INTER-GRN POR THRU, TN STAIN SCAT THRU, TR FREE OIL, V/FAINT ODOR

SH- TURQ, FRM, FISS, TR CHRT, TR DOLO

3776' DOLO- WHT TN, HRD DNS, F/VF-XLN, RE-XLN MTRX IP TO SUCRO MTRX IP, YEL GLD FLO THRU, PR FLUSH TO PR/FR SLO BLU STRM CUT, PR INTER-XLN POR IP, TN STAIN SCAT THRU, FAIR ODOR, NSFO

ARBUCKLE 3778' (-1873')

DOLO- LT TN, HRD DNS, VF-XLN, SUCRO MTRX THRU TO TR CHLKY, YEL GLD FLO THRU, PR SLO BLU STRM CUT, PR INTER-XLN POR THRU, TN STAIN THRU, NO ODOR, NSFO

DOLO- CRM TN, HRD TO BRITT IP, F/VF-XLN, SUCRO MTRX THRU, SFT WHT CHLK IP, YEL GLD FLO SCAT THRU, FAINT FLUSH TO PR SLO BLU STRM CUT, PR/FR INTER-XLN POR THRU, TN TO BLK STAIN IP, STRNG ODOR, GD SHOW FREE OIL

3800' DOLO- TN CLR, HRD DNS, MD/VF-XLN, SUCRO MTRX THRU, DLL YEL GLD FLO THRU, PR SLO BLU STRM CUT, FR INTER-XLN POR THRU, TN STAIN THRU, FR ODOR, NSFO

3812' DOLO- BFF; HRD, MD-XLN, SUCRO MTRX THRU, BRIT BLU/GLD FLO SCAT THRU, FR FLUSH TO FR BLU STRM CUT, FR INTER-XLN POR THRU TO OOMLD POR, BLK STAIN SCAT THRU, FR ODOR, TR FREE OIL

DOLO- BFF TN, HRD DNS, MD/VF-XLN, SUCRO MTRX THRU TO TR RE-XLN MTRX, YEL GLD FLO THRU, NO VIS CUT, PR/FR INTER-XLN POR THRU, FAINT ODOR

DOLO- CRM, HRD DNS, MD/VF-XLN, SUCRO MTRX THRU, DLL YEL GLD FLO THRU, NO VIS CUT, PR/FR INTER-XLN POR THRU, NO STAIN, NO ODOR

PV 21
YP 25
PH 10.5
FIL 10.0
CAL 40
CHL 5,300

CN

12:00 A.M. 08/24/19

CN

CN

MUD CHECK @ 3727'

WT 9.3
VIS 72
LCM 0
PV 24
YP 24
PH 11.5
FIL 8.8
CAL 20
CHL 5,900

CN

CN

12:00 A.M. 08/25/19

MUD CHECK @ 3778'

WT 9.1
VIS 59
LCM 0
PV 15
YP 17
PH 11.0
TG FIL 10.8
CAL 60
CHL 7,500

CN

CN

100

DOLO- BFF CRM, HRD DNS, MDF-XLN, SUCRO MTRX THRU,
NO FLO, FR INTER-XLN POR THRU, NS

DOLO- BFF, HRD DNS, MDF-XLN, SUCRO MTRX THRU, NO
FLO, PR/FR INTER-XLN POR IP TO FR OOMLD POR IP, NS

CN

8:00 P.M. 08/25/19

R.T.D. 3880'

L.T.D. 3876'

00