

**OPERATOR**

Company: MUSTANG ENERGY CORPORATION  
 Address: PO BOX 1121  
 HAYS, KANSAS 67601

Contact Geologist: ROD BRIN  
 Contact Phone Nbr: 785-623-0533  
 Well Name: GOTTSCHALK A #1  
 Location: S2 NW SW SE Sec. 2-16s-19w  
 Pool: WILDCAT  
 State: KANSAS  
 API: 15-165-22,041-00-00  
 Field: UNNAMED  
 Country: USA

## Scale 1:240 Imperial

Well Name: GOTTSCHALK A #1  
 Surface Location: S2 NW SW SE Sec. 2-16s-19w  
 Bottom Location:  
 API: 15-165-22,041-00-00  
 License Number: 33922  
 Spud Date: 9/3/2013 Time: 5:41 PM  
 Region: ELLIS COUNTY  
 Drilling Completed: 9/9/2013 Time: 12:50 PM  
 Surface Coordinates: 720' FSL & 2310' FEL  
 Bottom Hole Coordinates:  
 Ground Elevation: 2033.00ft  
 K.B. Elevation: 2041.00ft  
 Logged Interval: 2900.00ft To: 3718.00ft  
 Total Depth: 3718.00ft  
 Formation: LANSING/KANSAS CITY  
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: -99.3904915 Latitude: 38.6863734  
 N/S Co-ord: 720' FSL  
 E/W Co-ord: 2310' FEL

**LOGGED BY**

Company: SOLUTIONS CONSULTING, INC.  
 Address: 108 W 35TH  
 HAYS, KS 67601

Phone Nbr: (785) 639-1337  
 Logged By: Geologist Name: HERB DEINES/CHRIS NEELEY

**CONTRACTOR**

Contractor: DISCOVERY DRILLING, INC.  
 Rig #: 4  
 Rig Type: MUD ROTARY  
 Spud Date: 9/3/2013 Time: 5:41 PM  
 TD Date: 9/9/2013 Time: 12:50 PM  
 Rig Release: 9/10/2013 Time: 2:15 PM

**ELEVATIONS**

K.B. Elevation: 2041.00ft Ground Elevation: 2033.00ft  
 K.B. to Ground: 8.00ft

**NOTES**

RECOMMENDATION TO RUN 5 1/2" PRODUCTION CASING BASED ON POSITIVE RESULTS OF DRILL STEM TEST #2, AND IDENTIFICATION OF ADDITIONAL POSSIBLE PAY ZONES ON OPEN HOLE LOGS.

OPEN HOLE LOGGING: NABORS COMPLETION AND PRODUCTION SERVICES CO: DUAL INDUCTION LOG, MICRO LOG, SONIC LOG, COMPENSATED DENSITY/NEUTRON LOG

DRILL STEM TESTING: TRILOBITE TESTING INC. ONE (1) CONVENTIONAL AND ONE (1) STRADDLE TEST

**FORMATION TOPS SUMMARY**

<b>GOTTSCHALK A #1</b>	<b>GOTTSCHALK # 1</b>
720' FSL & 2310' FEL, SE/4	E2 NW NW NE
Sec. 2-16s-19w	Sec. 2-16s-19w
2033' GL 2041' KB	Reference Well


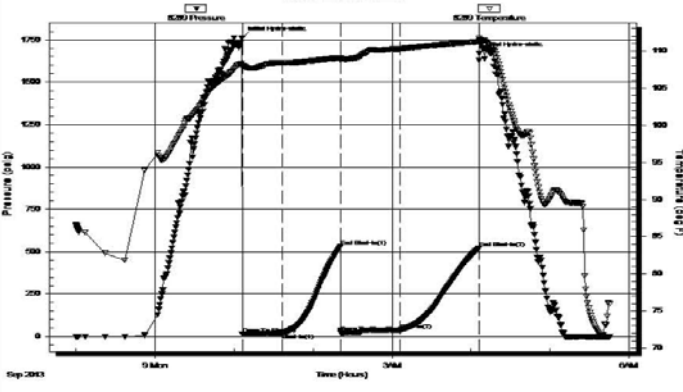
<u>FORMATION</u>	<u>SAMPLE TOPS</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>
Anhydrite		1243+ 805	+ 801
B-Anhydrite	1274+ 767	1274+ 767	+ 769
Topeka	3007- 966	3003- 962	- 957
Heebner Shale	3282-1241	3277-1236	-1241
Toronto	3302-1261	3298-1257	-1261

Toronto	3302-1281	3298-1237	-1201
LKC	3322-1281	3318-1277	-1286
BKC	3571-1530	3565-1524	-1529
Marmaton	3598-1557	3594-1553	-1558
Arbuckle	3618-1577	3611-1570	-1572
Reagan Sand	3658-1617	3655-1614	-1630
Granite Wash	3712-1671		
RTD	3718-1677		
LTD		3714-1673	-1642

**SUMMARY OF DAILY ACTIVITY**

- 9-03-13 RU, spud
- 9-04-13 976', drilling, set 8 5/8" to 1242' w/ 450 sxs Common, 2%Gel, 3%CC, plug down 9:45PM, WOC 12 hrs, slope 1/2 degree
- 9-05-13 1242', WOC, drill plug 10:30 AM
- 9-06-13 2095', drilling
- 9-07-13 2783', drilling, displaced mud system
- 9-08-13 3440', CFS 3626' DST # 1 3568'-3626' Arbuckle
- 9-09-13 3626', finish DST # 1, TIWB RTD 3718' @12:50PM. TOWB, logs, Straddle test # 2 3335'-3355' "C" LKC
- 9-10-13 3718' finish DST # 2, TIWB, LDDP, run 5 1/2" production casing set to 3713', plug down 1:45PM

**DST # 1 TEST SUMMARY ARBUCKLE ZONE TEST**

 <b>TRILOBITE TESTING, INC.</b>	<b>DRILL STEM TEST REPORT</b>																																						
	Mustang Energy Corporation P.O. Box 1121 Hays KS 67601 ATTN: Chris Nealey		<b>2 16s 19w Rush</b>  <b>Gottschalk A # 1</b> Job Ticket: 50467 <b>DST#: 1</b> Test Start: 2013.09.08 @ 23:00:00																																				
<b>GENERAL INFORMATION:</b>																																							
Formation: <b>Arbuckle</b> Deviated: No Whipstock: 2041.00 ft (KB) Time Tool Opened: 01:06:15 Time Test Ended: 05:45:00		Test Type: Conventional Bottom Hole (Initial) Tester: Jim Svaty Unit No: 54																																					
Interval: <b>3568.00 ft (KB) To 3626.00 ft (KB) (TVD)</b> Total Depth: 3626.00 ft (KB) (TVD) Hole Diameter: 7.88 inches Hole Condition: Fair		Reference Elevations: 2041.00 ft (KB) 2033.00 ft (CF) KB to GR/CF: 8.00 ft																																					
<b>Serial #: 8289 Outside</b>																																							
Press@RunDepth: 37.20 psig @ 3589.00 ft (KB) Start Date: 2013.09.08      End Date: 2013.09.09 Start Time: 23:00:02      End Time: 05:45:00		Capacity: 8000.00 psig Last Calib.: 2013.09.09 Time On Btm: 2013.09.09 @ 01:06:00 Time Off Btm: 2013.09.09 @ 04:06:15																																					
<b>TEST COMMENT:</b> 30-IFP- Surface Blow Building to 1/4in. Died Back in 20min. 45-ISIP- No Blow 45-FFP- No Blow on Open Flushed at 15min. 1/4in. Blow Died Back in 7min. 60-FSP- No Blow																																							
<b>Pressure vs. Time</b> 		<b>PRESSURE SUMMARY</b>																																					
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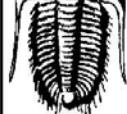
Trilobite Testing, Inc

Ref. No: 50467

Printed: 2013.09.09 @ 06:31:45

**DST # 2 STRADDLE TEST SUMMARY "C" LKC 3335'-3355' BOTTOM PACKER HELD**

 <b>TRILOBITE TESTING, INC.</b>	<b>DRILL STEM TEST REPORT</b>		
	Mustang Energy Corporation		<b>2 16s 19w Rush</b>



TESTING, INC.

P.O. Box 1121  
Hays KS 67601  
ATTN: Chris Neeley

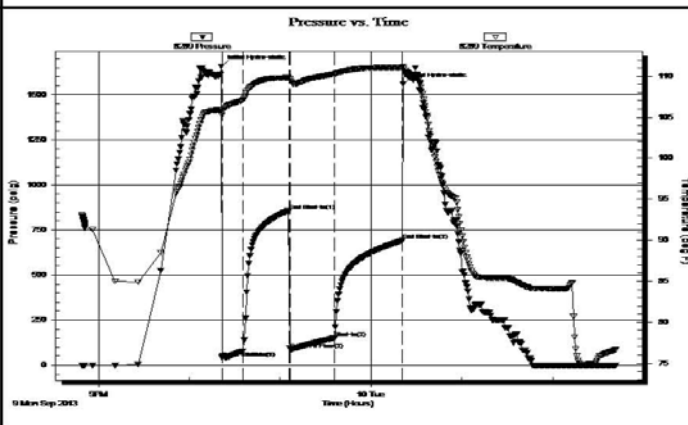
Gottschalk A # 1  
Job Ticket: 50468 DST#: 2  
Test Start: 2013.09.09 @ 20:49:00

GENERAL INFORMATION:

Formation: **LKC " C "**  
Deviated: No Whipstock: 2041.00 ft (KB)  
Time Tool Opened: 22:21:30  
Time Test Ended: 02:42:00  
Test Type: Conventional Straddle (Reset)  
Tester: Jim Svaty  
Unit No: 54  
Interval: **3335.00 ft (KB) To 3355.00 ft (KB) (TVD)**  
Total Depth: 3714.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Reference Elevations: 2041.00 ft (KB)  
2033.00 ft (CF)  
KB to GR/CF: 8.00 ft

Serial #: **8289** Outside  
Press@RunDepth: 149.72 psig @ 3336.00 ft (KB)  
Start Date: 2013.09.09 End Date: 2013.09.10  
Start Time: 20:49:02 End Time: 02:42:00  
Capacity: 8000.00 psig  
Last Calib.: 2013.09.10  
Time On Btm: 2013.09.09 @ 22:21:15  
Time Off Btm: 2013.09.10 @ 00:21:15

TEST COMMENT: 15-IFP- BOB in 1min. 30sec.  
30-ISIP- BOB in 5min. 30sec.  
30-FFP- BOB in 1min. 10sec.  
45-FSP- BOB in 11min. 30sec.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1657.95	105.87	Initial Hydro-static
1	41.33	105.24	Open To Flow (1)
15	77.50	107.11	Shut-In(1)
45	857.57	109.84	End Shut-In(1)
46	88.15	109.63	Open To Flow (2)
75	149.72	110.26	Shut-In(2)
120	691.70	111.08	End Shut-In(2)
120	1557.75	111.23	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
123.00	MCO 15% m 85% o	1.45
567.00	Gassy CO 20% g 80% o	7.95

Gas Rates

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

Recovery from multiple tests  
Trilobite Testing, Inc Ref. No: 50468 Printed: 2013.09.10 @ 06:21:48

ROCK TYPES

Clystgy	Dol Lime	Lscong1	Carbon Sh	Ss
Clystcol	Lmst fw<7	shale, grn	shale, red	
Dolprim	Lmst fw>7	shale, gry	grnt	

ACCESSORIES

<b>MINERAL</b> ▲ Chert, dark ∩ Glauconite P Pyrite .* Sandy ∴ Varicolored chert	<b>FOSSIL</b> ◇ Brachiopod ○ Crinoids ⊕ Fossilinid	<b>STRINGER</b> ~ Chert ■ Sandstone ■ Shale ■ green shale ■ carb shale
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OTHER SYMBOLS

DST  
■ DST Int  
■ DST alt

Printed by GEOstrip VC Striplog version 4.0.7.0 (www.grsi.ca)

Curve Track #1 ROP (min/ft)

Curve Track #3

1:240 Imperial ROP (min/ft)

Depth | Intervals  
Cored Interval  
DST Interval

DST

Lithology

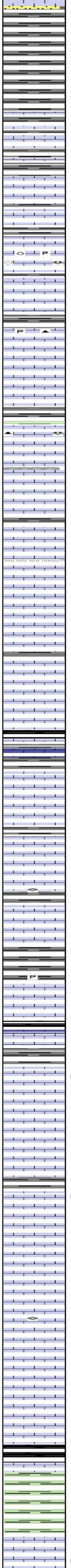
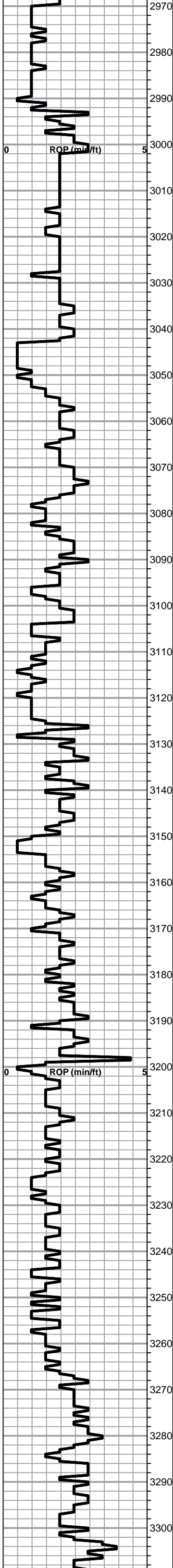
Oil Show

Geological Descriptions

BEGIN 1' DRILL TIME FROM 2900' TO RTD  
BEGIN 10' WET AND DRY SAMPLES FROM 3000' TO RTD  
ANHYDRITE TOP Elog 1243 (+798)  
ANHYDRITE BASE Elog 1274 (+767)

8 5/8" SURFACE CASING  
SET TO 1242' W/450 SXS  
COMMOM 3%CC, 2%GEL  
SLOPE 1/2 DEGREE

Shale, dark gray, sandy, blocky  
Lime, dirty gray to dark brown, fxl, fossiliferous, hard



SS, dark gray, poorly sorted, sub rounded, glauconitic, micaceous

Lime, tan, fxln, flaky texture, hard and brittle

Lime, dark brown, vfxln to dense, hard on crush

Lime, dark brown, hard on crush, trashy

Lime, lt. tan, vfxln to dense, pisolitic grainstone, with intergranular porosity filled with sparry calcite

**TOPEKA SPL 3007 (-966)**

Lime, dark brown-grey, fxln, fossiliferous in part, hard and brittle

Lime, dark gray to gray-tan, vfxln, fossiliferous, hard

Lime, dark gray to brown, vfxln, fossiliferous, hard on crush

Lime, lt gray, trashy, dense hard and brittle

Lime, tan, slightly fossiliferous, clean

Shale, dark gray, blocky, silty

Lime, lt tan, vfxln, sucrosic with pinpoint porosity, sparry fill, brittle, chalky in part

Lime, mottled dark gray and brown, fxln, hard on crush

Lime, lt gray, vfxln, to dense, hard on crush

Lime, tan, fossiliferous, with hummucky dark gray shale stringers

Lime, tan, med-xln to fxln, sucrosic, chalky in part

Lime, med-gray with dark gray mottle, fxln, grading into dark gray fossiliferous, hard and brittle

Lime, tan to gray, granular in part, fossiliferous, chalky matrix, pinpoint porosity

Lime, brown, oolitic to fossiliferous, hard on crush

Lime, lt brown with red flecks, med-xln, consistent intergranular porosity

Shale, black, hard, carbonaceous; green/gray, silty, blocky

Lime, tan, dense, angular chips, very hard, clean

Lime, tan, packstone composed of very small oolites, hard on crush

Chert, gray, fossiliferous, spiculitic

Lime, gray, dense to granular fxln, cherty in part

Lime, brown, vfxln to fxln, fair intergranular porosity with pyrite backfill

Lime, lt tan, dense, clean and barren, hard on crush

Lime, tan to gray, med-xln, granular, soft on crush

Shale, black, carbonaceous

Lime, faint odor, very light oil on crush, good wet streaming cut, and UV, lt tan, med-xln, sucrosic, slightly chalky, soft on crush, fossiliferous, consistent pinpoint porosity, some chips oolitic

Lime, tan-brown, oolitic in part, slight chalky matrix

Lime, fxln to dense, oolitic to vuggy porosity, some subhedral recrystallization, stained, some free oil on crush

Lime, tan-gray, coarse xln, slight stain; sticky white chalk

Lime, tan to cream, vfxln, soft on crush

Lime, gray, fxln, soft on crush, even pinpoint porosity

Lime, tan, fxln, with brown to dark grey hummucky lamination

**HEEBNER SPL 3282 (-1241)**

Shale, black carbonaceous

Lime, lt brown-tan, vfxln, hard on crush

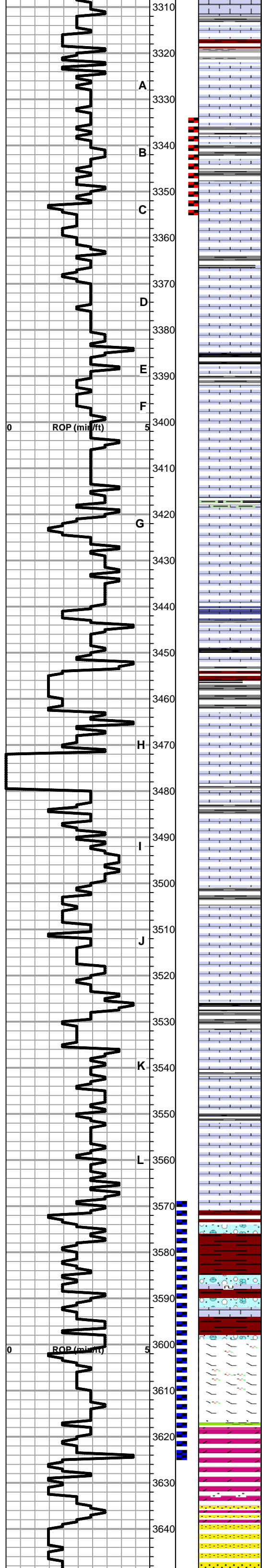
**TORONTO SPL 3302 (-1261)**

Lime, tan, fxln, vuggy porosity, oil oozing from chips, significant show on crush

LOG INTERVAL 3197-99 SHOULD BE PERFORATED AND TESTED PRIOR TO ABANDONMENT OF WELL BASED ON HIGH STRUCTURE. ZONE LOOKS WET ON LOGS BUT HAD A SHOW IN SAMPLES.

LOG INTERVAL 3222-24 SHOULD BE PERFORATED AND TESTED PRIOR TO ABANDONMENT OF WELL BASED ON HIGH STRUCTURE OF WELL.

LOG INTERVAL 3303-05 SHOULD BE PERFORATED AND TESTED PRIOR TO



3310  
Lime, tan, fxln, granular, pinpoint porosity, soft on crush, chalky, dark stain

3320  
Shale, red, blocky, hard, sandy; green, soft, sticky  
**LKC SPL 3322(-1281)**

3330  
Lime, tan, fxln, granular, saturated stain

3340  
Lime, lt brown, vfxln to dense, chert in part, faint odor

3350  
Lime, dark gray, fxln, oolitic in part, hard on crush

3360  
Lime, cream, vfxln, fossiliferous in part, pinpoint to vuggy porosity, surface stain common, good odor

3370  
Lime, off-white, vfxln, scattered oolites

3380  
Lime, lt tan/cream, fxln, fossil fragments, vuggy solution porosity, consistent intergranular porosity, good odor, lt brown surface stain

3390  
Shale, black, carbonaceous

3400  
Lime, lt brown/gray mottled, fxln matrix, fossiliferous

3410  
Lime, tan, fxln, well cemented and tight

3420  
Lime, tan to faint gray, dense oolitic

3430  
Lime, tan, vfxln, hard and brittle

3440  
Shale, black, hard, carbonaceous with wavy green stringers

3450  
Lime, tan, fxln, chalky and clean

3460  
Lime, lt brown, fxln, hard on crush

3470  
Shale, varicolored, platy, blocky

3480  
Lime, tan, clean, vfxln to dense

3490  
Lime, lt tan, fxln, vuggy porosity, slightly chalky matrix, soft on crush, surface stain

3500  
Lime, cream, vfxln to dense, scattered pinpoint porosity, significant amounts of white chalk clumps

3510  
Lime, cream, vfxln, fossiliferous, pinpoint porosity, slight surface stain

3520  
Lime, tan to lt brown, vfxln, hard on crush

3530  
Lime, lt brown, vfxln, with some sparry backfill, chalky in part, hard on crush

3540  
Lime, gray, shaly

3550  
Shale, black, carbonaceous, hard

3560  
Lime, cream, fxln, sporadic intergranular porosity with significant calcite mineralization, hard on crush

3570  
Lime, lt brown, dense, angular chips, hard on crush

3580  
Shale, dark gray

3590  
Lime, lt brown to reddish-brown, micro-xln, cherty, few chips of conglomerate

3600  
**BKC SPL 3571 (-1530)**

3610  
Lime, fxln to dense, dark brown to dark gray, fossiliferous, oolitic

3620  
Shale, red wash, soft

3630  
Lime, clastic mix, white to gray, significant red shale staining

3640  
**MARMATON SPL 3598 (-1557)**

3650  
Lime, cream, fxln, intergranular porosity

3660  
Dolomitic limestone, tan to cream, fxln, hard on crush

3670  
**ARBUCKLE SPL 3618 (-1577)**

3680  
Dolomite, lt brown, med-xn, fair intergranular porosity, with spotty to saturated stain, very light oil on crush, free oil in cup, good odor

3690  
Sandstone resulting from dissolution of dolomite clear quartz grains, subangular, moderate sorting, some fused grains, friable, spotty to saturated stain

3700  
Sandstone, fabric as above, but color appears dark grey to

ABANDONMENT OF WELL

LOG INTERVAL 3319-21 SHOULD BE PERFORATED AND TESTED PRIOR TO ABANDONMENT OF WELL

DST #2 STRADDLE TEST 3335' TO 3355' SEE HEADER FOR SUMMARY

LOG INTERVAL 3347-52 SHOULD BE PERFORATED AND TESTED.

LOG INTERVAL 3361-64 SHOULD BE PERFORATED AND TESTED PRIOR TO ABANDONMENT OF WELL

LOG INTERVAL 3390-93 SHOULD BE PERFORATED AND TESTED PRIOR TO ABANDONMENT OF WELL

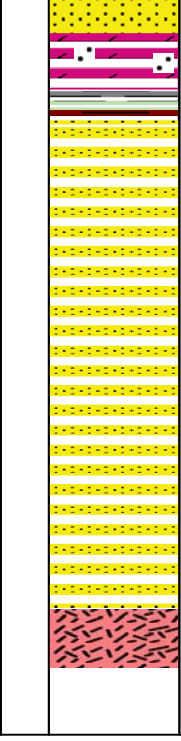
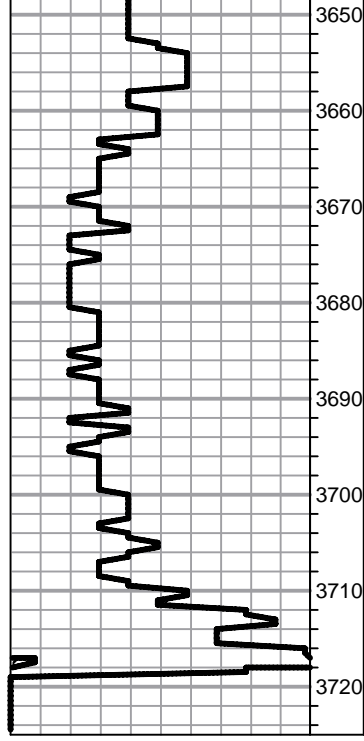
LOGS SHOW ZONE TO BE WET

GEOLOGRAPH ISSUE

MICROLOG SHOWS ZONES BELOW "G" ZONE TO HAVE VERY LIMITED PERMEABILITY

DST #1 CONVENTIONAL BOTTOM HOLE TEST 3568' TO 3626' SEE HEADER FOR TEST SUMMARY

LOG INTERVALS 3619, 3622 AND 3626-28 SHOULD BE PERFORATED AND TESTED. LOG INTERVAL 3632-45 SANDY WITH POTENTIAL FOR HIGH PERMEABILITY AND SALT WATER.



D

jet black due to saturation with flaky dead oil, upon crush stain washes readily leaving clear quartz grains

**REAGAN SAND SPL 3658 (-1617)**

Sandstone, white, frosted grains, clean, well-rounded, poorly sorted, loose grains

**GRANITE WASH SPL 3712 (-1671)**

**RTD 3718 (-1677) LTD 3714 (-1673)**

5 1/2" PRODUCTION SET TO  
3713' W/ 140 SXS COMMON,  
10% SALT, 5% GILSONITE  
RATHOLE W/ 30 SXS  
MOUSEHOLE W/ 20 SXS  
PLUG DOWN 1:45PM  
9/10/2013

SLOPE 1 1/4 DEGREES @  
3718