

BERENERGY CORPORATION

H. J. ROETZEL 'A' 27

SW SE NW NE SEC 24 T20S R11W

BARTON COUNTY, KANSAS

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SUMMARY

Berenergy Corporation ran 5 1/2" production casing in the vertical H. J. Roetzel 'A' 27 well to 3365' TD in the Cambrian-Ordovician Arbuckle Group. Onsite geologic services started at spud, and included examination of drill cuttings and Pason total gas/chromatography. Two DSTs were run. DIL-GR-SP-CNL-CDL-CAL-MLL and sonic logs were run from base of surface casing to TD. The primary objective was the Arbuckle. Secondary objectives included sands in the Chase Group, the Tarkio Limestone and the Topeka Limestone, and limestones in the Lansing-Kansas City Group.

Drilling

The surface hole was drilled with fresh water mud. The salty drilling fluid that resulted from drilling the Hutchinson salt member of the Sumner Group at ~1000' was removed from the reserve pit. After 8 5/8" surface casing was set at 1334', drilling with fresh water continued to 2530'. The remainder of the hole was drilled with water-based mud. There were no problems with the hole during drilling, drill stem testing, logging, or casing.

Chase Group

Total gas increased from a background of 4-10 units to a peak of 252 units at the top of the Chase Group sands. Maximum total gas of 277 units was recorded in gas show interval 1516' – 1536'. No liquid hydrocarbon shows were observed.

Tarkio Limestone

Total gas increased from a background of 50-100 units to a peak of 1326 units at 2310' in the lower Tarkio. No liquid hydrocarbon shows were observed.

Topeka Limestone

Total gas increased from a background of 10-20 units to a peak of 183 units at the top of the Topeka. No liquid hydrocarbon shows were observed.

Lansing–Kansas City Groups

Zones 'A' through 'L' were documented in this well. Overall, oil staining was limited to zones 'D', 'I', and 'J'. Total gas averaged 150-200 units. Maximum formation gas was 355 units in Zone 'G'; trip gas was 1298 units. Cut fluorescence ranged from slow streaming pale yellow to fast streaming blue-white. DST 1 recovered 2170 ft of gas in drill pipe on top of 110 ft of gas and oil-cut mud from combined zones 'D', 'E' and 'F'. The sampler contained 4000 ml of 39.6° gravity oil and no water.

Arbuckle Group

The top of the Arbuckle was penetrated carefully. It was drilled 1 ft at a time with each foot circulated before the next was drilled. Drill cuttings from the top 6 ft of the Arbuckle, 3250' – 3256', exhibited no oil show. Total gas was ~100 units. DST 2 of the top 6 ft recovered 800 ft of mud-cut water and 6 ft of mud-cut water with an oil skim. The sampler contained 2000 ml of water and no oil.

Drill cuttings from a second horizon roughly 60 ft into the Arbuckle had a strong petroleum odor, commonly were oil-stained, displayed visible porosity and yielded cut fluorescence that was instant fast streaming bright white-blue. Total gas increased to 226 units.

Ryan J. Thress
Consulting Wellsite Geologist
June 2014

Berenergy Corporation
H. J. Roetzel 'A' 27

WELL DATA

OPERATOR: Berenergy Corporation

WELL NAME: H. J. Roetzel 'A' 27

SURFACE LOCATION: 1270' FNL & 1788' FEL
SW SE NW NE Sec. 24, T20S, R11W
Barton County, Kansas

LAT/LONG: 38.3007925°, -98.4855037°

ELEVATIONS: GL 1749' KB 1759'

API NUMBER: 15-009-25868

ROAD DIRECTIONS: From Great Bend, KS, E 16 miles on KS-96; S 4 miles on 2nd Rd; W 1 mile on Ave Q; N 0.7 mile on SE 160th Ave; W 0.3 mile on lease road to location.

SURFACE CASING: 8 5/8" set at 1334'

PRODUCTION CASING: 5 1/2" set at 3365'

SPUD DATE: June 4, 2014 01:45 hrs

DRILLING COMPLETED: June 12, 2014 15:40 hrs

TOTAL DEPTH: 3365' Driller 3363' Logger

LAST FORMATION: Arbuckle Group

OPERATOR REPS: Energy Operating Company Inc.
Dan Hall – Engineer
David Braden – Engineer

WELLSITE SUPERVISION: L. E. Ed Buchanan

FORMATION TOPS

Formation KB 1759	Sample Top MD	Log Top MD	Log Top TVD	Log Top Subsea	Drilled Thickness
PERMIAN Chase Group	1401	1398	1398	361	
PENNSYLVANIAN Wabaunsee Group	–				
Tarkio Ls	2262	2261	2261	-502	62
Shawnee Group					
Topeka Ls	2580	2577	2577	-818	76
Oread Ls	2744	2741	2741	-982	103
Heebner Sh Mbr	2847	2844	2844	-1085	5
Toronto Ls Mbr	2853	2850	2850	-1091	29
Douglas Group	2882	2879	2879	-1120	91
Brown Lime	2973	2970	2970	-1211	5
Lansing-Kansas City Group	–				
Zone A	2990	2987	2987	-1228	16
Zone B	3006	3003	3003	-1244	14
Zone C	3020	3017	3017	-1258	13
Zone D	3033	3030	3030	-1271	23
Zone E	3056	3053	3053	-1294	9
Zone F	3065	3062	3062	-1303	15
Zone G	3080	3077	3077	-1318	52
Zone H	3132	3129	3129	-1370	16
Zone I	3148	3145	3145	-1386	19
Zone J	3167	3164	3164	-1405	41
Zone K	3208	3205	3205	-1446	29
Zone L	3237	3234	3234	-1475	13
CAMBRIAN-ORDOVICIAN Arbuckle Group	– 3250		3247	-1488	115
Total Depth Driller	3365				
Total Depth Logger		3363	3363	-1604	

Geologic ages from:

Moore et al. (1951); *The Kansas rock column* (No. 89-93). University of Kansas Publications.

LITHOLOGY AND SHOWS

The following descriptions are interpretive. Derrick hands collected lagged 30-ft samples 1390' - 1840'; no samples 1840' - 2200'; 30-ft samples 2200' - 2350'; no samples 2350' - 2570' and 10-ft samples 2570' - 3365' TD, along with spot samples to constrain select tops and when drilling activities dictated. Samples were reviewed with the aid of wireline logs from 1334' to 3365' TD, and wireline logs were adjusted down 3 feet on the Wellsite Geologist's Composite Log to match driller's depths.

Samples were inspected using an Olympus SZ61 stereoscope. Grain sizes were determined by use of an AmStrat grain size comparator. Colors of wet cuttings were determined from the Rock-Color Chart distributed by the Geological Society of America. 10% HCl was used in acid reaction tests, and Alizarin red was used to aid with carbonate species determination.

Selected samples were examined for oil fluorescence with a US GeoSupply brand fluoroscope. Cut tests for liquid hydrocarbons were performed with solvent on wet cuttings. All samples collected were drilled with fresh water and water-based mud and sieved and rinsed in fresh water.

Significant gas shows, as determined with a Pason Gas Analyzer (TG; C1-C4), are described in each formation overview. The reader may also refer to the accompanying Wellsite Geologist's Composite Log for the complete record of lagged mud log gas correlated to wireline log data.

Surface Casing: 8 5/8" set at 1334'; +425' subsea

CHASE GROUP SAMPLE TOP: 1401' LOG: 1398' TVD: 1398' SUBSEA: +361'

Overview:

The topmost group of Wolfcampian beds is made up of prominent escarpment-making sands, limestones, and shales. The shale units are predominantly gray and massive, though locally characterized by shades of reds and greens. Chert or flint-bearing limestones are included in this division. The Chase group sands are known for gas shows in this area. Samples 1390'-1810' are all medium-sand sized (250-500 μ) chips and sand grains and contain abundant iron filings; cuttings are too small for complete and thorough descriptions. Only rock type is barely discernible. Occasionally there exists a coarse-grained chip.

1401' - 1840'

SHALE: light olive gray to greenish gray, soft, occasional millimeter-sized platy cuttings, some zones very calcareous, others non calcareous, without significant difference in appearance, rare pyrite nodules; **CHERT:** white to clear, hard, conchoidal fracture, no reaction with HCl; **LIMESTONE:** white (N9), sub-millimeter sized chips, rounded, strong reaction in HCl; **SANDSTONE:** clear to white (N9), soft to firm, subrounded medium to coarse-grained sand sized chips composed of very fine to fine-grained sand, typically a lime sandstone, commonly micaceous, calcite cemented; **SHALE:** medium light gray (N6) to dark greenish gray (5GY 4/1) to dark reddish brown (10R 3/4), moderate firm, platy, generally smooth, locally gritty/silty, locally calcareous.

1840' - 2200'

No samples collected.

LITHOLOGY AND SHOWS

RICHARDSON GROUP SAMPLE TOP: N/A' LOG: N/A' TVD: N/A' SUBSEA: N/A'

Overview: The Richardson Subgroup comprises the youngest Pennsylvanian rocks of the Wabaunsee Group and includes strata from the top of the Brownville limestone to the top of the Tarkio limestone. Samples were caught at the base of the Richardson Subgroup to identify the transition into the Tarkio limestone. The Richardson is predominately red and green shale with silty lenses and limestone stringers. Total gas increased from a background of 40-60 units to a peak of 388 units within the sampled section. No oil shows were observed.

2200' – 2262' **SHALE**: med dark gray (N4) to a dark greenish gray (5G 4/1), platy to sub blocky, long thin blades common, soft to mod firm, locally micaceous, calcareous; with **SHALE**: dark reddish brown (10R 3/4) to very dusky red (10R 2/2), platy, soft, moderately strong reaction to HCl, fully decrepitates in HCl; **SHALE**: dark greenish gray (5GY 4/1), soft, platy to sub blocky, moderate reaction to HCl; local lenses of **SILTSTONE**: medium gray (N5) to medium dark gray (N4), sub blocky, soft, gritty with local areas of high clay content, moderately reacts to HCl; with stringers of **LIMESTONE**: very light gray (N8) to light gray (N7), platy to sub blocky, firm to moderately hard, brittle, very reactive to HCl.

TARKIO LS SAMPLE TOP: 2262' LOG: 2261' TVD: 2261' SUBSEA: -502'

Overview: The Tarkio limestone is youngest member of the Nemaha Subgroup of the Wabaunsee Group. It is gray to weathered brown and commonly consists of two massive beds separated by a shaly zone. Fossils are very common, especially fusulinids. Algal remains are present in the upper bed. Total gas increased from a background of 50-100 units to a peak of 1326 units. No oil shows were observed.

2262' – 2350' **LIMESTONE**: very light gray (N8) to light gray (N7), platy to sub blocky, firm to moderately hard, brittle, very reactive to HCl; yellow fluorescence, slow diffuse pale yellow cut, splotchy halo; with **SHALE**: medium gray (N5) to medium dark gray (N4), very soft, platy to sub rounded, no to slight reaction in HCl; and **CHERT**: white to clear, hard, commonly large, well-rounded grains, conchoidal fracture, no reaction with HCl.

2350' - 2570' No samples collected.

TOPEKA LS
SHAWNEE GROUP SAMPLE TOP: 2580' LOG: 2577' TVD: 2577' SUBSEA: -818'

Overview: The Shawnee Group is part of the Upper Pennsylvanian Series and comprises four limestone formations and three shale formations. Thick limestones and a distinctive type of cyclic sedimentation are characteristics that distinguish these rocks from

LITHOLOGY AND SHOWS

those of neighboring groups. The shale formations are 2-6 ft thick. Total gas increased from a background of 10-20 units to a peak of 183 units at the top of Topeka Limestone. No hydrocarbon shows were observed.

2580' – 2678'	LIMESTONE: mottled white (N9) to light gray (N7) to buff, crystalline and algal limestone common, blocky, firm to very hard, locally fossiliferous, no visible porosity, vigorous reaction to HCl, firm to hard, smells strongly of sulfur while reacting with HCl; LIMESTONE: light gray (N7) to bluish white (5B 9/1) mottled with medium dark gray (N4), firm to very hard, blocky to sub-blocky, crystalline, fossiliferous, vigorous reaction to HCl; SHALE: dark reddish brown (10R 3/4) to very dusky red (10R 2/2), platy, soft, locally gritty appearance, moderately strong reaction to HCl, fully decrepitates in HCl; SHALE: dark greenish gray (5GY 4/1), soft, platy to sub blocky, moderate reaction to HCl. Cuts: 2610' no fluorescence, no cut, no halo; 2640' dull yellow fluorescence, no cut, no halo; 2670' pale yellow fluorescence, slow diffuse pale yellow cut, no halo.
2678' – 2681'	SHALE: medium dark gray (N4) to black (N1), firm, platy cuttings, slightly calcareous, no fluorescence.
2681' – 2699'	Second LIMESTONE: pale yellowish brown (10YR 6/2) to very light gray (N8), firm, sub blocky cuttings, mudstone to wackestone texture, unidentifiable fossil debris, no visible porosity, argillaceous, very dull yellow fluorescence, yellow diffuse cloudy cut. Cut 2720': dull yellow fluorescence, no cut, splotchy incomplete halo.
2699' – 2702'	SHALE: medium gray (N5) to medium dark gray (N4), firm, platy cuttings, slightly calcareous, no fluorescence.
2702' – 2740'	Third LIMESTONE: yellowish gray (5Y 8/1), hard, sub-blocky, wackestone, local calcite lined vug porosity, rare fracture porosity with residual stain, vigorous reaction in HCl with strong odor sulfurous odor; pale yellow with splotches of yellow mineral fluorescence, pale yellow diffuse cut.
2740' – 2744'	SHALE: med dark gray (N4) to dark gray (N3), platy and elongated, firm and brittle, locally very silty, strong reaction to HCl; also occasionally a very dusky red (10R 2/2), higher silt content, soft, slightly calcareous.
OREAD LS	SAMPLE TOP: 2744' LOG: 2741' TVD: 2741' SUBSEA: -982'
2744' – 2847'	Fourth LIMESTONE: med light gray (N6), occurs as blocky cuttings, mudstone, locally streaked with medium dark gray (N4) argillaceous material, no fluorescence; LIMESTONE: yellowish gray (5Y 8/1), firm to moderately hard, blocky cuttings, mudstone to wackestone, commonly fossiliferous, occasional fracture porosity with residual stain, occasional chert fragments, pale dull yellow fluorescence. Cuts: 2760' very slow diffuse cut, splotchy, incomplete, very pale yellow residual halo; 2800' pale yellow with splotches of yellow mineral fluorescence, pale yellow diffuse cut; 2840' pale yellow mineral fluorescence, pale yellow diffuse cut, patchy halo.

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HEEBNER SH MBR	SAMPLE TOP: 2847	LOG: 2844'	TVD: 2844'	SUBSEA: -1085'
2847' – 2853'	SHALE: grayish black (N2) to black (N1), platy, firm and brittle, waxy yet with a slightly gritty appearance, weak reaction to HCl.			
TORONTO LS MBR	SAMPLE TOP: 2853'	LOG 2850'	TVD: 2850'	SUBSEA: -1091'
2853' – 2882'	LIMESTONE: very pale orange (10YR 8/2), occurs as ~1mm subangular chips, firm to hard, locally fossiliferous, reacts vigorously to HCl; pale yellow fluorescence, pale yellow cut.			
DOUGLAS GROUP	SAMPLE TOP: 2882'	LOG: 2879'	TVD: 2879'	SUBSEA: -1120'
Overview:	The Douglas Group conformably underlies the Shawnee Group. It consists primarily of clastic rocks, mostly shale. Limestones are quantitatively of minor importance. No significant oil or gas shows; background gas averaged 40-50 units.			
2882' – 2973'	Predominantly SHALE: moderate brown (5YR 3/4), moderately soft, platy to sub blocky cuttings, gritty, silty, calcareous, no fluorescence; SHALE: dark greenish gray (5GY 4/1), soft, platy to sub blocky, moderate reaction to HCl; SHALE: light gray (N6) to med. dark gray (N4), sub blocky, very soft, waxy, micaceous, locally silty with gritty appearance, no reaction to a moderate reaction in HCl, sample mainly consists of armored mud balls—unconsolidated clay balls with rock chips; with minor stringers of LIMESTONE: very pale orange (10YR 8/2), occurs as ~1mm subangular chips, firm to hard, locally fossiliferous, reacts vigorously to HCl. Cut 2920': occasional pale yellow mineral fluorescence, no cut, no halo.			
BROWN LIME	SAMPLE TOP: 2973'	LOG: 2970'	TVD: 2970'	SUBSEA: -1211'
Overview:	Marker bed right above the Lansing-Kansas City Group. The limestone is commonly dark brown and very hard, easily seen on engineering data. Included in this section is the shale that separates the Brown Lime and the Lansing-Kansas City Group. No significant gas or oil shows were observed.			
2973' – 2978'	LIMESTONE: dark yellowish brown (10YR 4/2), blocky, angular, very hard, dense, crystalline, locally fossiliferous, reacts vigorously to HCl.			
2978' – 2990'	SHALE: medium gray (N5) to medium dark gray (N4), firm, platy cuttings, slightly calcareous, no fluorescence; with SILTSTONE: medium gray (N5) to medium dark			

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gray (N4), sub blocky, soft, gritty with local areas of high clay content and locally micaceous, slight to no reaction in HCl. Cut 2980': no mineral fluorescence, slow streaming light blue cut, incomplete halo.

LANSING-KANSAS CITY GROUP

SAMPLE TOP: 2990' LOG: 2987' TVD: 2987' SUBSEA: -1228'

Overview:

The Lansing-Kansas City Group contains 12 limestone formations (zones 'A' through 'L') alternating with marine shale units and has a thickness of about 260 feet at this location. Many of the limestones are cross-bedded, oolitic, and algal. Overall, oil staining was limited to zones 'D', 'I', and 'J'. Total gas averaged 150-200 units. Maximum formation gas was 355 units in Zone 'G'; trip gas was 1298 units. Cut fluorescence ranged from slow streaming pale yellow to fast streaming blue-white. DST 1 recovered 2170 ft of gas in drill pipe on top of 110 ft of gas and oil-cut mud from combined zones 'D', 'E' and 'F'. The sampler contained 4000 ml of 39.6° gravity oil and no water.

2990' – 3006'

Zone A; **LIMESTONE**: white (N9) to grayish orange (10YR 7/4), hard, sub blocky cuttings, fossiliferous, subhedral pyrite, rare vugs, locally a packstone but more commonly dense mudstone, local oil staining, pale yellow to yellow fluorescence. Cut 3000': dull yellow to rare bright yellow mineral fluorescence, slow streaming pale yellow cut, incomplete halo.

3006' – 3020'

Zone B; **LIMESTONE**: white (N9) to grayish orange (10YR 7/4), hard, sub blocky cuttings, fossiliferous, subhedral pyrite, rare vugs, locally a packstone but more commonly dense mudstone, local oil staining, pale yellow to yellow fluorescence; **SHALE**: medium gray (N5), firm platy chips and bit scrapings, locally silty, non-calcareous, silty chips remain intact in H₂O, no fluorescence.

3020' – 3033'

Zone C; **LIMESTONE**: moderate yellowish brown (10YR 5/4), locally very pale orange (10YR 8/2), firm to hard, blocky cuttings, micrite, less commonly peloidal, local vugs and fenestral porosity with oil staining, fossiliferous, occasional pyrite nodules. Cut: slow streaming to cloudy light blue cut, light blue halo.

3033' – 3056'

Zone D; **LIMESTONE**: light brownish gray (5YR 6/1) to white (N9), hard to very hard, mudstone, local intraclasts, tight, pale yellow fluorescence, pale yellow cut, petroliferous odor. Cut 3040': dull to bright yellow fluorescence, light blue slow diffuse cut and patchy halo.

3056' – 3065'

Zone E; **LIMESTONE**: light brownish gray (5YR 6/1) to white (N9), hard to very hard, mudstone, local intraclasts, tight, pale yellow fluorescence, pale yellow cut, petroliferous odor. **SHALE**: med light gray (N6) to dark greenish gray (5GY 4/1) to dark reddish brown (10R 3/4), mod firm, platy to sub blocky cuttings, generally smooth, locally gritty/silty, locally calcareous.

3065' – 3080'

Zone F; **LIMESTONE**: white (N9), moderately hard, packstone or biolithite with interclastic porosity stained with oil residue, vigorous reaction in HCl, slow streaming blue cut, faint halo, strong petroliferous odor. Cut 3070': yellow

LITHOLOGY AND SHOWS

fluorescence, light blue streaming cut and patchy halo.

- 3080' – 3132' Zone G; A thick sequence of **LIMESTONE**: mod yellowish brown (10YR 5/4), locally very pale orange (10YR 8/2), firm, sub blocky cuttings, mudstone to packstone, tight, occasional fossils, occasional light oil staining. **LIMESTONE**: very pale orange (10YR 8/2) to grayish orange (10YR 7/4), hard, brittle, mudstone, tight, occasional stylolite, no oil stain, reacts vigorously in HCl. Cut 3120': dull yellow fluorescence, occasional chip has light blue slow streaming cut, patchy halo.
- 3132' – 3148' Zone H; **LIMESTONE**: white (N9) to mod yellowish brown (10YR 5/4), sub blocky to platy, firm, mudstone, commonly fossiliferous, locally soft and chalky, trace vug porosity with light oil staining. **SHALE**: medium dark gray (N4) to black (N1), moderately firm, locally calcareous, common pyrite, common thin (< 1mm) black lamina, no fluorescence. Cut 3140': dull yellow fluorescence, light blue slow diffuse cut, patchy halo.
- 3148' – 3167' Zone I; **LIMESTONE**: white (N9) to mod yellowish brown (10YR 5/4), sub blocky to platy, firm, mudstone, commonly fossiliferous, locally soft and chalky, trace vug porosity with light oil staining.
- 3167' – 3208' Zone J; **LIMESTONE**: white (N9) to medium light gray (N6) to moderate yellowish brown (10YR 5/4), mudstone, hard, blocky, locally vuggy, no oil stains, locally fossiliferous, weak slow streaming pale yellow cut; **SHALE**: med dark gray (N4) to a dark greenish gray (5G 4/1), platy to sub blocky, soft to moderately firm, locally micaceous, locally calcareous. Cut 3170': dull yellow fluorescence, light blue slow diffuse cut with occasional chip with light blue slow streaming cut, weak complete halo.
- 3208' – 3237' Zone K; **LIMESTONE**: mottled pale yellowish brown (10YR 6/2) with very light gray (N8), mudstone, tight, firm to hard, blocky, locally fossiliferous, locally vuggy, rare intercrystalline porosity. Cut 3230': pale yellow fluorescence, no cut, weak patchy halo.
- 3237' – 3250' Zone L; **LIMESTONE**: white (N9) to med light gray (N6) to moderate yellowish brown (10YR 5/4), mudstone, locally crystalline, hard, locally soft and chalky, blocky, occasional vugs, no oil stains, locally fossiliferous, no fluorescence, no cut.

ARBUCKLE GROUP SAMPLE TOP: 3250' LOG: 3247' TVD: 3247' SUBSEA: -1488'

Overview: The Arbuckle Dolomite (Cambrian-Ordovician) is composed mostly of light gray to white, vuggy and sucrosic dolomite. The top of the Arbuckle was penetrated carefully. It was drilled 1 ft at a time with each foot circulated before the next was drilled. Drill cuttings from the top 6 ft of the Arbuckle, 3250' – 3256', exhibited no oil show. Total gas was ~100 units. DST 2 of the top 6 ft recovered 800 ft of mud-cut water and 6 ft of mud-cut water with an oil skim. The sampler contained 2000 ml of water and no oil.

LITHOLOGY AND SHOWS

3250' – 3365' TD

DOLOMITE: white (N9) to buff, crystalline, sucrosic texture common, visible porosity, hard, vugs common, no stain in Alizarin Red, slow mild reaction in HCl, weak petroliferous odor, dull yellow mineral fluorescence; **DOLOMITE:** grayish orange (10YR 7/4), mudstone, hard, tight, sub-blocky chips, no stain in Alizarin Red, no oil staining, slow mild reaction in HCl. **DOLOMITE:** grayish orange (10YR 7/4), grainstone and sucrosic textures, hard, visible porosity--interparticle and vug, moderate to significant oil staining, slow mild reaction in HCl, strong petroliferous odor. **DOLOMITE:** grayish orange (10YR 7/4), hard, sub-blocky, tight mudstone or wackestone, occasional recrystallized oolitic-rich zones, no oil staining, calcite fracture fill, chert nodules common, occasional pyrite, slow mild reaction in HCl, no stain in Alizarin Red. Cut 3280': bright yellow fluorescence, instant blue white slow streaming cut to cloudy cut, blue white halo. Cut 3000': bright yellow fluorescence, instant bright white blue fast streaming cut to milky cloud, full white halo.



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Beren Energy Corporation

24-20S-11W Barton

PO Box 5850
Denver, CO 80217

Roetzel A 27

Job Ticket: 58994

DST#: 1

ATTN: Ed Buchanan

Test Start: 2014.06.10 @ 05:07:47

GENERAL INFORMATION:

Formation: **Lansing Kansas City**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:50:17

Time Test Ended: 14:44:32

Test Type: Conventional Bottom Hole (Initial)

Tester: Leal Cason

Unit No: 74

Interval: **3032.00 ft (KB) To 3079.00 ft (KB) (TVD)**

Reference Elevations: 1759.00 ft (KB)

Total Depth: 3079.00 ft (KB) (TVD)

1749.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GRVCF: 10.00 ft

Serial #: 8367

Outside

Press@RunDepth: 63.27 psig @ 3033.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.06.10

End Date:

2014.06.10

Last Calib.:

2014.06.10

Start Time:

05:07:47

End Time:

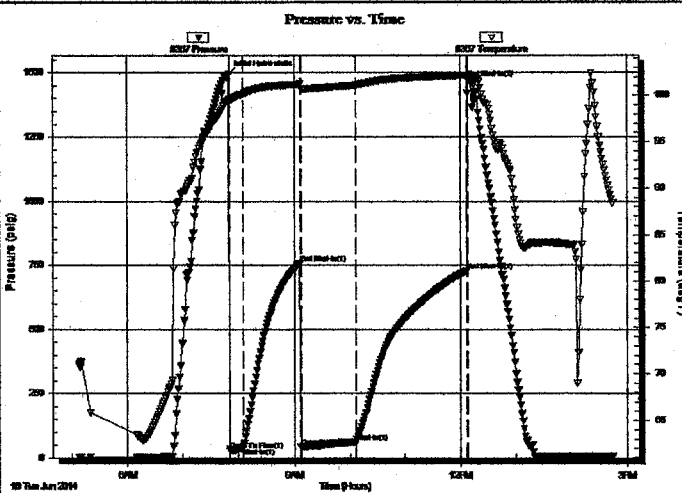
14:44:32

Time On Btm:

2014.06.10 @ 07:49:47

Time Off Btm:

TEST COMMENT: IF: Strong Blow, BOB in 2 minutes
IS: No Blow Back
FF: Strong Blow, BOB immediate
FS: No Blow Back



PRESSURE SUMMARY

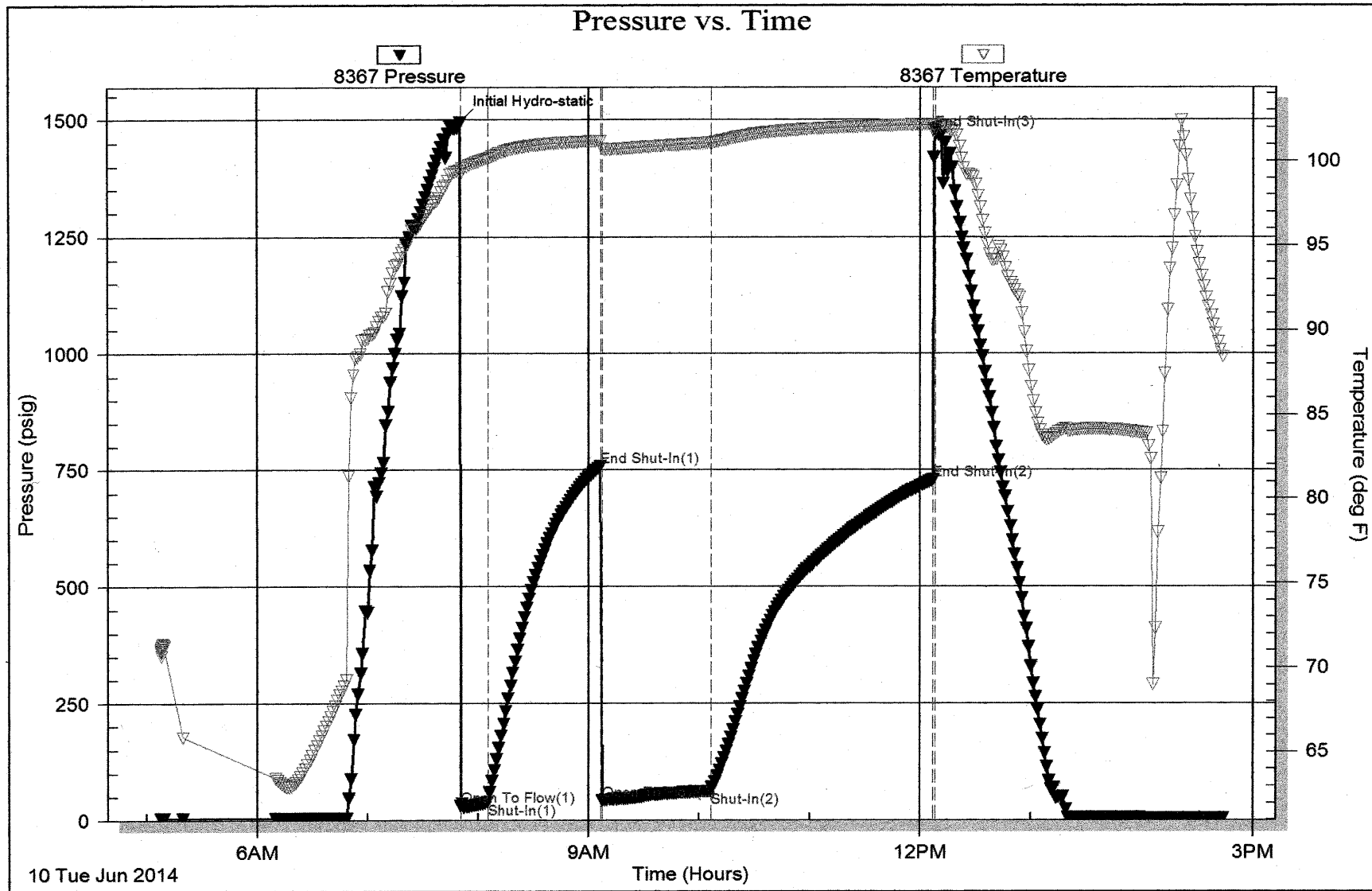
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1495.55	99.45	Initial Hydro-static
1	30.98	99.27	Open To Flow (1)
16	39.87	100.15	Shut-In(1)
77	757.99	101.19	End Shut-In(1)
78	42.55	100.72	Open To Flow (2)
137	63.27	101.07	Shut-In(2)
257	728.58	102.16	End Shut-In(2)
259	1478.15	101.86	End Shut-In(3)

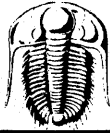
Recovery

Length (ft)	Description	Volume (bbl)
0.00	2170 GIP	0.00
110.00	GOCM 15%G 15%O 70%M	1.54

Gas Rates

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





TRILOBITE TESTING, INC.

P.O. Box 362 • Hays, Kansas 67601

FLUID SAMPLER DATA

Ticket No. 58994 Date 06/10/14
 Company Name Beien Energy corporation
 Lease Roetzol A27 Test No. 1
 County Barton Sec. 24 Twp. 20S Rng. 11W

SAMPLER RECOVERY

Gas 29.04 cuft ML
 Oil 4000 ML
 Mud _____ ML
 Water _____ ML
 Other _____ ML
 Pressure 600 psi ML
 Total 4000 ML

PIT MUD ANALYSIS

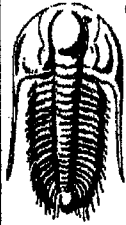
Chlorides 1600 ppm.
 Resistivity N/C ohms @ N/C F
 Viscosity 44
 Mud Weight 9.0
 Filtrate 8.4
 Other _____

SAMPLER ANALYSIS

Resistivity _____ ohms @ _____ F
 Chlorides _____ ppm.
 Gravity 39.6 corrected @60F

PIPE RECOVERY

TOP
 Resistivity N/C ohms @ _____ F
 Chlorides N/C ppm.
MIDDLE
 Resistivity N/C ohms @ _____ F
 Chlorides N/C ppm.
BOTTOM
 Resistivity N/C ohms @ _____ F
 Chlorides N/C ppm.



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Bereenergy Corporation

24-20S-11W Barton

PO Box 5850
Denver, CO 80217

Roetzel A 27

Job Ticket: 58995

DST#: 2

ATTN: Ed Buchanan

Test Start: 2014.06.11 @ 16:41:24

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:17:09

Time Test Ended: 08:26:24

Test Type: Conventional Bottom Hole (Reset)

Tester: Leal Cason

Unit No: 74

Interval: **3250.00 ft (KB) To 3257.00 ft (KB) (TVD)**

Reference Elevations: 1759.00 ft (KB)

Total Depth: 3256.50 ft (KB) (TVD)

1749.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

Serial #: 6798

Inside

Press@RunDepth: 367.59 psig @ 3250.50 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.06.11

End Date:

2014.06.12

Last Calib.: 2014.06.12

Start Time: 16:41:24

End Time:

08:26:24

Time On Btm: 2014.06.11 @ 18:08:09

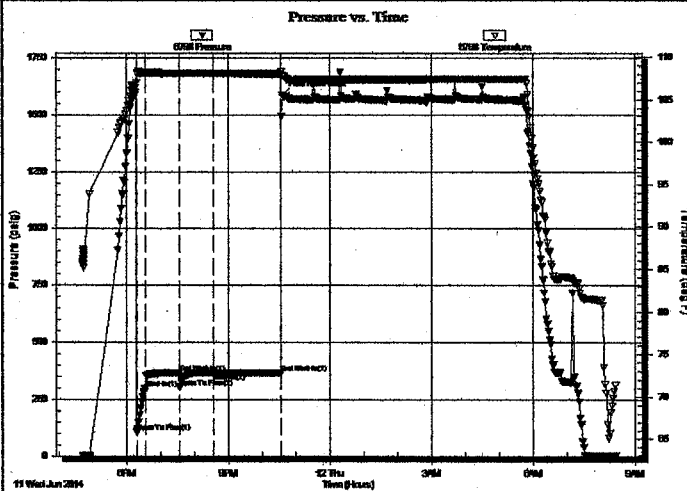
Time Off Btm: 2014.06.11 @ 22:36:09

TEST COMMENT: IF: Strong Blow, BOB in 90 seconds

IS: No Blow Back

FF: Weak Blow, Built to 6 inches by 8 minutes, Dead @ 25 minutes

FSI: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1630.67	106.02	Initial Hydro-static
9	105.84	106.98	Open To Flow (1)
25	301.05	108.12	Shut-In(1)
85	367.61	108.10	End Shut-In(1)
86	303.61	108.07	Open To Flow (2)
146	367.59	108.07	Shut-In(2)
266	368.18	108.05	End Shut-In(2)
268	1587.85	107.88	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
800.00	MCW 20%M 80%W	11.22
6.00	SOMCW 1%O 24%M 75%W	0.08

* Recovery from multiple tests

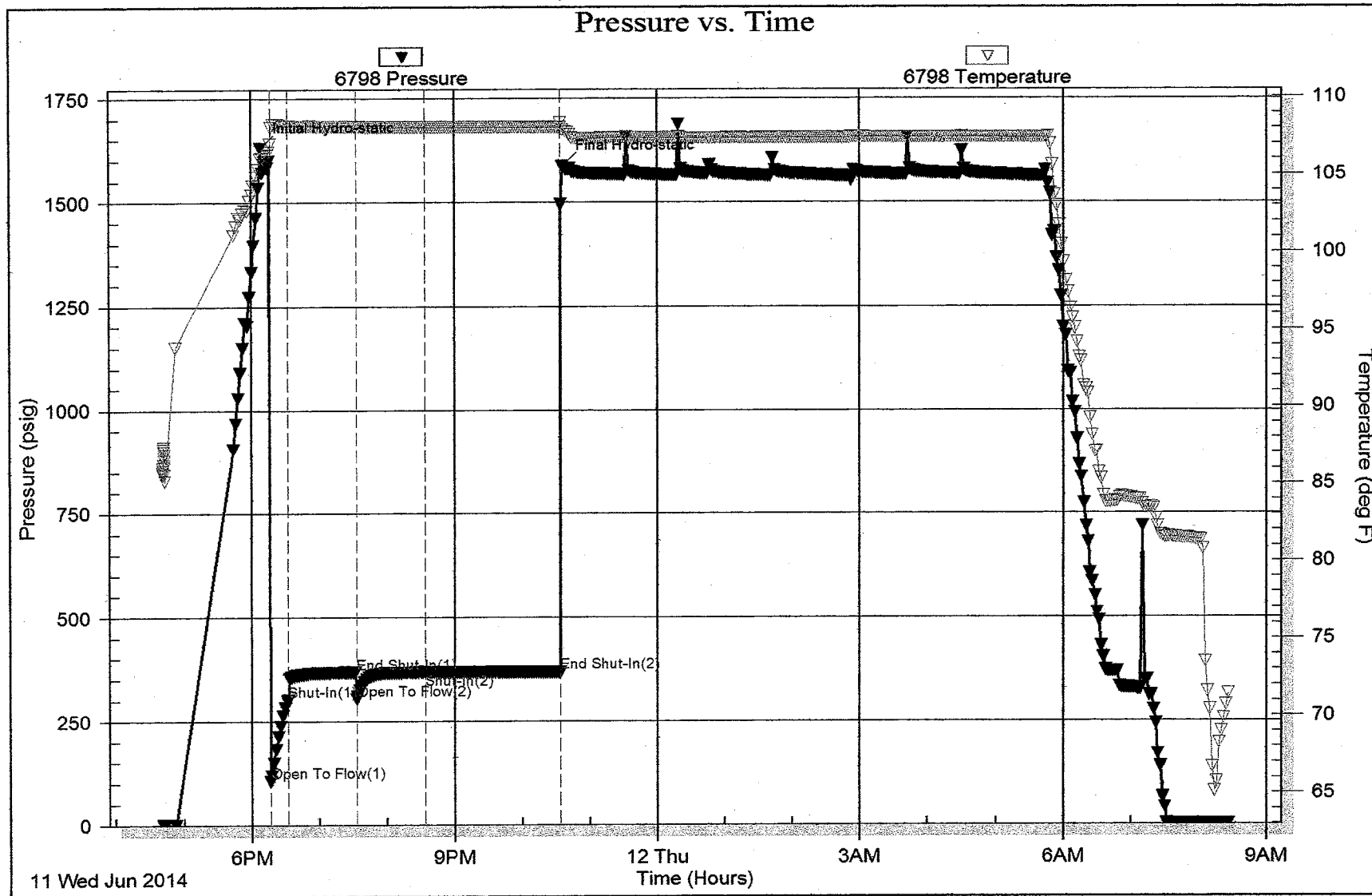
Gas Rates

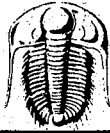
	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

Trilobite Testing, Inc

Ref. No: 58995

Printed: 2014.06.12 @ 08:39:21





TRILOBITE TESTING, INC.

P.O. Box 362 • Hays, Kansas 67601

FLUID SAMPLER DATA

Ticket No. 58995 Date 06/12/14
 Company Name Bereenergy Corporation
 Lease Roetzel A-27 Test No. 2
 County Barton Sec. 24 Twp. 20S Rng. 11W

SAMPLER RECOVERY

Gas 0.4 CU FT ML
 Oil _____ ML
 Mud _____ ML
 Water 2000 ML
 Other _____ ML
 Pressure 25 psi ML
 Total 2000 ML

PIT MUD ANALYSIS

Chlorides 3000 ppm.
 Resistivity NIC ohms @ NIC F
 Viscosity 52
 Mud Weight 9.3
 Filtrate 8.8
 Other _____ ML

SAMPLER ANALYSIS

Resistivity .47 ohms @ 61 F
 Chlorides 17000 ppm.
 Gravity NIC corrected @60F

PIPE RECOVERY

TOP
 Resistivity .46 ohms @ 60 F
 Chlorides 17000 ppm.
MIDDLE
 Resistivity .46 ohms @ 60 F
 Chlorides 17000 ppm.
BOTTOM
 Resistivity .46 ohms @ 60 F
 Chlorides 17000 ppm.

SERVICES

CONTRACTOR:	Val Energy Rig 6	Wichita, KS
SUPERVISION:	L. E. Ed Buchanan	661-204-2565
WELLSITE GEOLOGY:	T. M. McCoy & Co., Inc. Ryan J. Thress	Wilson, WY 307-733-4332
RIG INSTRUMENTATION:	Pason Systems	Golden, CO 877-255-3158
WIRELINE SERVICES:	Pioneer Energy Services Dale Legleiter	Hays, KS 785-625-3858
DRILLING FLUIDS:	Mudco Jason Whiting	Great Bend, KS 620-282-0556
DRILLSTEM TESTING:	Trilobite Testing, Inc. Andy Carrier	Hays, KS 785-625-4778
CASING:	Murray Casing Crews Inc.	Great Bend, KS 620-793-7587
CEMENT:	Allied Oil & Gas Services Wayne Davis	Great Bend, KS 620-793-5861

DAILY OPERATIONS

Day	Report Date	Depth	Ft Cut	Start	End	Hrs	Reported Activity (previous 24 hr leading to 6 AM report time)
1	2-Jun	0	0	12:00 13:30	13:00 20:30	1.00 7.00	MIRU skid camp house Wait on 2nd truck load with generator, potable water tank, septic system. (2nd truck broke down at Hoistington, KS).
2	3-Jun	0	0	06:00 10:00	10:00 17:00	4.00 7.00	Unload 2nd truck with generator, potable water tank, septic system onto 1st truck at Hoisington, KS. Mobe to Reotzel A 27. Set in & rig up potable water tank, generator, septic system. Rig down potable water tank & fill half full with well water for Roetzel A 27 lease. Set in potable water tank & rig up.
3	4-Jun	0	0	06:00 07:30 07:30 16:00 16:00 23:00	07:30 16:00 23:00 6:00	1.50 8.50 7.00 7.00	Wait for Val Rig 6 to mobe in loads on Roetzel A 27 location. MIRU Val Rig 6. Rig up trucks left location at 16:00 hrs 6/3/2014. Send rotary table to machine shop for repairs. Continue rig up equipment to drill. Dry watch rig.
4	5-Jun	345	345	06:00 07:00 12:30 01:00 01:45 01:45 03:30 03:30 03:45 05:15 05:15 05:45	07:00 12:30 01:00 01:45 03:30 03:45 05:15 05:45	1.00 5.50 12.50 0.75 1.75 0.25 1.50 0.50 0.25	Dry watch rig. Replacement rotary table arrived 12:30 hrs. Install replacement rotary table, mounts, floor plates, & chain guard w/ welders. Drill rat & mouse holes. Drill 12 1/4" hole 0' - 194'. Calibrate Pason. Drill 194' - 315'. Circulate. Survey 315'--0.25 deg. Drill 315' - 345'.
5	6-Jun	1285	940	06:00 10:00 10:30 16:30 17:00 17:00 02:30 02:30 03:00	10:00 10:30 16:30 17:00 02:30 03:00	4.00 0.50 6.00 0.50 9.50 0.50 3.00	Drill 345' - 620'. Circulate. Survey 620'--0.75 deg. Drill 620' - 901'. Service rig. Survey 901'--0.25 deg. Drill 901' - 1215'. Repair geolograph line. Drill 1215' - 1285'.

DAILY OPERATIONS

Day	Report Date	Depth	Ft Cut	Start	End	Hrs	Reported Activity (previous 24 hr leading to 6 AM report time)
6	7-Jun	1334	49	06:00	08:30	2.50	Drill 1285' - 1334'.
				08:30	09:00	0.50	Circulate 2x bottoms up.
				09:00	12:00	3.00	Wiper trip to bit, drop survey, strap drill pipe out. Kelly up at 90', work off drilling ring.
				12:00	13:30	1.50	Clean off bit, remove survey tool. Trip in to 1334'. Survey 1334'--0.75 deg.
				13:30	14:00	0.50	Circulate 2x bottoms up.
				14:00	15:30	1.50	Trip out to run surface casing.
				15:30	21:30	6.00	Safety meeting w/ rig crew & casing crew. Run 1338.73' 31 jts 8 5/8" J-55 24# ST& C 8rd casing. Shoe set at 1334'; float collar at 1288.51'. Work casing thru gravel 90' - 420'. Rig down casing crew.
				21:30	22:30	1.00	Safety meeting w/ rig crew & cementers. Circulate and reciprocate casing 20 ft.
				22:30	00:30	2.00	Rig up cement head & lines. Test lines to 3000psi, pump 5bbls water ahead followed by 689.5/ft3 or 350sx Lead cement: Density=12.5ppg Yield=1.97 ft3/sx Water=10.7 gal/sx. Followed by 351/ft3 or 300sx Tail cement: Density=14.8ppg Yield=1.17 ft3/sx Water=6.4 gal/sx. Shut down, release wiper plug, displace with 82.25bbls fresh water. Bump plug with 1360psi with 890psi prior. Hold 1360psi for 5 minutes, release pressure, floats held (ok) CIP @ 00:09hrs 6/7/2014 Received 14bbls cement returns back to surface. R/D cementers.
				00:30	06:00	5.50	Monitor cement for fall back. No cement fall back on surface job. Wait on cement 12 hrs.
7	8-Jun	1453	119	06:00	12:00	6.00	Wait on cement.
				12:00	13:30	1.50	Break out 8 5/8" landing joint. Install Larkin well head. Nipple up BOPE.
				13:30	15:30	2.00	Make up bit 2 & BHA. Trip in to 1270'.
				15:30	19:00	3.50	Test BOP. Adapter union leaking, remove, tighten several times, constantly leaking. Adapter union is worn out.
				19:00	20:30	1.50	Trip out to repair BOPE.
				20:30	23:00	2.50	Remove and set out rotary table, remove annular BOP. Cut off & replace adapter union set with welder. Install & nipple up annular BOP. Install rotary table.
				23:00	23:30	0.50	Trip in 4 stands DCs to 378'.
				23:30	00:00	0.50	Test BOPE to 577 psi, hold for 10 min, OK.
				00:00	01:00	1.00	Trip in to 1288'.
				01:00	02:00	1.00	Drill out cement, float collar, cement & shoe at 1334'.

DAILY OPERATIONS

Day	Report Date	Depth	Ft Cut	Start	End	Hrs	Reported Activity (previous 24 hr leading to 6 AM report time)
				02:00	06:00	4.00	Drill 7 7/8" hole 1334' - 1453'.
8	9-Jun	2470	1017	06:00	15:00	9.00	Drill 1453' - 1869'.
				15:00	15:30	0.50	Service rig. Work on 2" line to BOP.
				15:30	19:30	4.00	Drill 1869' - 2026'.
				19:30	20:00	0.50	Circulate. Survey 2026'--1 deg.
				20:00	06:00	10.00	Drill 2026' - 2470'.
9	10-Jun	3079	609	06:00	07:30	1.50	Drill 2470' - 2557'.
				07:30	08:00	0.50	Displace hole with mud.
				08:00	15:00	7.00	Drill 2557' - 2866'.
				15:00	15:30	0.50	Service rig.
				15:30	19:30	4.00	Drill 2866' - 3021'.
				19:30	20:30	1.00	Circulate. Survey 3021'--1.25 deg.
				20:30	23:00	2.50	Drill 3021' - 3079'.
				23:00	23:45	0.75	Circulate samples.
				23:45	01:45	2.00	Wipe hole to shoe at 1334'. Trip in to 3079'.
				01:45	03:00	1.25	Circulate bottoms up twice.
				03:00	06:00	3.00	Trip out for DST 1. Strap drill pipe out.
10	11-Jun	3247	168	06:00	06:30	0.50	Pick up & make up DST tools.
				06:30	08:00	1.50	Trip in with DST 1. Test LKC zones D, E, & F 3032' - 3079'.
				08:00	12:15	4.25	DST 1: Open 15 min, shut-in 60 min, open 60 min, shut-in 120 min.
				12:15	13:30	1.25	Trip out with DST 1. Gas at 10 stands out, estimate 2396', no H2S.
				13:30	14:30	1.00	Recovered 110 ft of mud cut oil. Break down & lay down DST tools.
				14:30	15:45	1.25	Make up bit 2 & BHA. Trip in to 1334'.
				15:45	16:00	0.25	Fill drill pipe and circulate out gas from same.
				16:00	17:00	1.00	Trip in to 3079'.
				17:00	18:00	1.00	Circulate out gas from drill pipe & hole (1298 units).
				18:00	01:00	7.00	Drill 3079' - 3239'.
				01:00	06:00	5.00	Drill 3239' - 3247'. Drill 1 ft at a time, then circulate samples for top of Arbuckle.

DAILY OPERATIONS

Day	Report Date	Depth	Ft Cut	Start	End	Hrs	Reported Activity (previous 24 hr leading to 6 AM report time)
11	12-Jun	3256	9	06:00	12:30	6.50	Drill 3247' - 3256'.
				12:30	14:00	1.50	Wipe hole to shoe at 1334'. Trip in to 3256'.
				14:00	15:00	1.00	Circulate 2x bottoms up.
				15:00	17:00	2.00	Trip out for DST 2.
				17:00	18:15	1.25	Make up DST 2 & trip in to 3256.5'.
				18:15	22:45	4.50	DST 2: Open 15 min; shut-in 60 min; open 60 min; shut-in 120 min.
				22:45	05:45	7.00	Unseat DST packer. Rig down DST head & hose. Wait for daylight to pull DST 2. Gained 500 lbs--6000 lbs on weight indicator.
				05:45	06:00	0.25	Trip out with DST 2.
12	13-Jun	3365	109	06:00	06:45	0.75	Trip out with DST 2. Oil skim water 806'.
				06:45	07:30	0.75	Reverse out skim oil to water truck.
				07:30	08:30	1.00	Trip out with DST 2. Lay down and load out DST 2 tools.
				08:30	09:15	0.75	Make up bit 2 & trip in to shoe at 1334'.
				09:15	09:30	0.25	Fill pipe at shoe.
				09:30	10:15	0.75	Trip in to 3256'.
				10:15	11:15	1.00	Circulate 2x bottoms up.
				11:15	15:45	4.50	Drill 3256' - 3365'.
				15:45	16:15	0.50	Circulate bottoms up.
				16:15	17:30	1.25	Wipe hole 18 stands to 2230'. Trip in to 3365'.
				17:30	18:30	1.00	Circulate 2x bottoms up.
				18:30	21:00	2.50	Drop survey tool. Trip out for wireline logs.
				21:00	01:00	4.00	Safety meeting w/ rig crew & Pioneer loggers. Rig up & run DIL-GR-SP CNL-CDL-GR-Cal-MLL & Sonic logs.
				01:00	03:30	2.50	Make up bit 2 & trip in to shoe at 1334'. Fill pipe. Trip in to 3365'.
03:30	05:30	2.00	Circulate hole clean for casing. Wait for casing crew to help lay down drill pipe.				
05:30	06:00	0.50	Lay down drill pipe to run 5 1/2" production casing.				
13	14-Jun	3365	0	06:00	10:00	4.00	Lay down drill pipe, drill collars, kelly, rat hole & mouse hole.
				10:00	14:00	4.00	Safety meeting with rig crew & casing crew. Rig up casing tools. Run 81 jts 3385.70' of J-55 15.5# 5 1/2" LT&C 8rd casing. Shoe set at 3364'.

DAILY OPERATIONS

Day	Report Date	Depth	Ft Cut	Start	End	Hrs	Reported Activity (previous 24 hr leading to 6 AM report time)
				14:00	15:30	1.50	Circulate hole with 5 1/2" casing clean. Reciprocate 15 ' while circulating. Safety meeting with rig crew & cementers.
				15:30	16:30	1.00	Break last joint 5 1/2" casing. Rig down casing tools. Rig up cement head & lines. Make up last joint 5 1/2" casing.
				16:30	17:00	0.50	Cement rat hole & mouse hole.
				17:00	18:00	1.00	Cement 5 1/2" casing. Cement 5.5" casing. Pump 5bbls fresh water followed by 10bbls DU 1100 mud flush, followed by 5bbls fresh water. Pump 30sx neat rathole 20sx neat mouse hole. Mix & pump 330ft3/ft or 58.77bbls or 210sx ASC 10% salt + 6% gypseal + 5#/sx coalseal +0.03%FL160 + 1.4% defoamer. Shut down, flush lines clean, release wiper plug. Displace with 80bbls fresh water. Bump plug with 1050 psi with 350 psi prior. Hold 1050 psi for 5 minutes (ok) release pressure floats held (ok). CIP @ 17:45hrs 6/13/2014. Rig down cementers. Good circulation through cement job.
				18:00	21:00	3.00	Pick up BOP. Set casing slips with 60K. Rough cut 5 1/2" casing, lay down 18' of cut-off 5 1/2" casing. Nipple down BOP. Weld slip on 5 1/2" casing collar 6" above ground level. Install rubber packing, split rings & wing union on Larkin style wellhead. Install 5 1/2" x 2" swedge, 2" ball valve, and secure well.
				21:00	02:00	5.00	Clean and shovel out mud tanks. RELEASE RIG 02:00 HRS 6/14/2014
				02:00	06:00	4.00	Wait on daylight to rig down rig for rig move.

MUD RECORD

Report #	Date	Depth ft	WT lb/gal	Vis sec/qt	PV cp	YP lb/100ft ²	Gels 10s/10m	Filtrate API	Cake x/32"	pH	Alkalinity ppm	H ₂ O %	Chlorides ppm	Solids	Sand %	Calcium ppm	LCM lb/bbl	Remarks
1	6/3	0	9.6	40					water	7.0			390			140		
2	6/5	799	10.2	41				n/c		7.0		86.9	7,800	13.1	trace	hvy	trace	
3	6/6	1334	10.3	42				n/c		7.0		91.2	91,000	8.8	trace	hvy	trace	
4	6/8	1806	9.3	29				n/c		7.0		93.2	6,400	6.8	trace	hvy	0	
5	6/9	2826	9	44	12	11	7/28	8.40	1	10.0	0.48/-	95.1	1,600	4.9	trace	20	0	
6	6/10	3079	9.3	67	15	13	8/34	8.80	1	9.5	0.36/-	93	3,200	7	trace	20	0	
7	6/11	3256	9.3	52	17	13	8/35	8.80	1	10.5	0.58/-	93	3,000	7	trace	10	trace	
8	6/12	3256	9.2	57	19	21	10/25	8.80	1	11.0	0.72/-	93.7	2,000	6.3	trace	20	trace	

MUD RECORD

Report #	Date	Depth ft	WT lb/gal	Vis sec/qt	PV cp	YP lb/100ft ²	Gels 10s/10m	Filtrate API	Cake x/32"	pH	Alkilineity ppm	H ₂ O %	Chlorides ppm	Solids	Sand %	Calcium ppm	LCM lb/bbl	Remarks
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ABBREVIATIONS & UNITS

Weight (Wt)	lbs/gal
Viscosity (Vis)	sec/qt
Plastic Viscosity (PV)	centipoise
Yield Point (YP)	lbs/100 sq ft
Gel Strengths (Gels)	lbs/100 sq ft (10 sec / 10 min)
Filtrate API	ml/30 min
Filter cake	x/32"
Alkilineity	ppm
H ₂ O %	% water by volume
Chlorides	ppm in water phase
Solids	% by volume
Sand	% by volume
Calcium	ppm in water phase
Lost circulation material (LCM)	lb/bbl added

DEVIATIONS

MD ft	INC deg
0	0
315	0.25
620	0.75
902	0.25
1334	0.75
2026	1.00
3021	1.25
3365	0.5

DRILLING CURVE

