

OPERATOR

Company: ALAN J. VONFELDT
 Address: PO BOX 611
 RUSSELL, KANSAS 67665-0611

Contact Geologist: ALAN VONFELDT
 Contact Phone Nbr: 785-483-1252
 Well Name: MICHAELIS # 4
 Location: NE SE SW SW, SEC.33-T14S-R13W
 API: 15-167-24,083-00-00
 Pool: IN FIELD
 State: KANSAS
 Field: HALL-GURNEY
 Country: USA

Scale 1:240 Imperial

Well Name: MICHAELIS # 4
 Surface Location: NE SE SW SW, SEC.33-T14S-R13W
 Bottom Location:
 API: 15-167-24,083-00-00
 License Number: 7281
 Spud Date: 10/31/2018 Time: 4:00 PM
 Region: RUSSELL COUNTY
 Drilling Completed: 11/3/2018 Time: 7:00 PM
 Surface Coordinates: 460' FSL & 1005' FWL
 Bottom Hole Coordinates:
 Ground Elevation: 1727.00ft
 K.B. Elevation: 1735.00ft
 Logged Interval: 2100.00ft To: 2975.00ft
 Total Depth: 2975.00ft
 Formation: TARKIO SAND
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: -98.7768732
 Latitude: 38.785147
 N/S Co-ord: 460' FSL
 E/W Co-ord: 1005' FWL

LOGGED BY

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

Phone Nbr: (785) 639-1337
 Logged By: GEOLOGIST Name: HERB DEINES

CONTRACTOR

Contractor: SOUTHWIND DRILLING, INC
 Rig #: 3
 Rig Type: MUD ROTARY
 Spud Date: 10/31/2018 Time: 4:00 PM
 TD Date: 11/3/2018 Time: 7:00 PM
 Rig Release: 11/4/2018 Time: 7:00 PM

ELEVATIONS

K.B. Elevation: 1735.00ft Ground Elevation: 1727.00ft
 K.B. to Ground: 8.00ft

NOTES

PRODUCTION CASING WAS RAN TO TEST AND PRODUCE THE TARKIO SAND.

| | MICHAELIS # 4 NE SE SW SW SEC.33-14S-13W KB 1735' | MICHAELIS # 1 SE NE SW SW SEC.33-14-13W KB 1733' | MICHAELIS # 3 NW SE NE SW SEC.33-14-13W KB 1724' |
|----------------|--|---|---|
| | LOG TOPS | | |
| Anhydrite top | 688+1047 | + 1039 | |
| Anhydrite base | 723+1012 | +1015 | +1016 |
| Grand Haven | 2240 -505 | - 502 | - 503 |
| Dover Lime | 2263 - 528 | - 524 | - 525 |
| Tarkio Lime | 2311 - 576 | - 573 | - 574 |
| Elmont | 2374 - 639 | - 638 | - 638 |
| Topeka | 2586 -851 | - 852 | - 850 |
| Heebner Sh. | 2815-1080 | -1083 | -1079 |
| Toronto | 2833-1098 | -1102 | -1098 |
| LKC | 2883-1148 | -1152 | -1148 |
| RTD | 2975-1240 | -1485 | -1478 |

SUMMARY OF DAILY ACTIVITY

- 10-31-18 RU, spud 4:00PM, drill to 304', slope survey ¾ degree
- 11-01-18 304', set 8 5/8" surface pipe to 304' w/ 175 sxs 60/40 pos 2%gel
3%CC, plug down 12:30AM, drill plug at 8:30AM
- 11-02-18 1909', drilling, displaced 2005'-2029'
- 11-03-18 2700', drilling, RTD 2975'@ 7:00PM, short trip 30 stands, TOWB
- 11-04-18 2975', logs, DST # 1, 2892'-2975', LDDP, run production casing, RD



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Alan J. Vonfeldt
 P.O. BOX 611
 Russell KS 67665+0611
 ATTN: Herb Deines

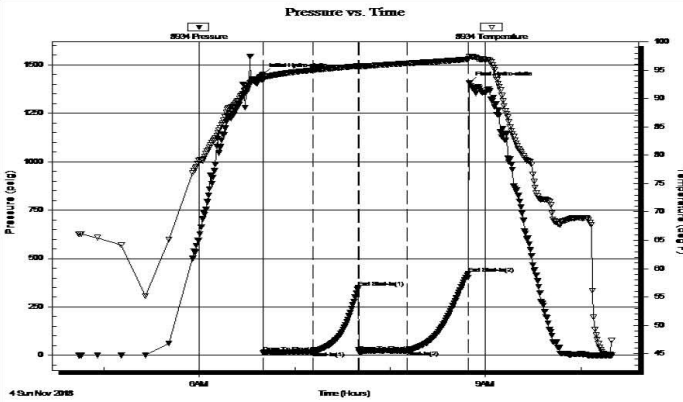
33-14S-13W Russell KS
Michaelis #4
 Job Ticket: 64761 **DST#: 1**
 Test Start: 2018.11.04 @ 04:44:00

GENERAL INFORMATION:

Formation: **LKC 'C'**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 06:40:15 Tester: Spencer J. Staab
 Time Test Ended: 10:19:45 Unit No: 84
 Interval: **2892.00 ft (KB) To 2975.00 ft (KB) (TVD)** Reference Elevations: 1735.00 ft (KB)
 Total Depth: 2975.00 ft (KB) (TVD) 1727.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 8.00 ft

Serial #: 8934 Inside
 Press@RunDepth: 24.43 psig @ 2895.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.11.04 End Date: 2018.11.04 Last Calib.: 2018.11.04
 Start Time: 04:44:15 End Time: 10:19:45 Time On Btm: 2018.11.04 @ 06:40:00
 Time Off Btm: 2018.11.04 @ 08:50:00

TEST COMMENT: 30-IF-Weak-Fair; Built to 4&1/4"
 30-ISI-No Return
 30-FF-Weak; Built to 2&1/4"
 30-FSI-No Return



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1451.25 | 94.05 | Initial Hydro-static |
| 1 | 13.11 | 93.16 | Open To Flow (1) |
| 32 | 19.55 | 95.01 | Shut-In(1) |
| 60 | 349.93 | 95.73 | End Shut-In(1) |
| 61 | 18.07 | 95.65 | Open To Flow (2) |
| 91 | 24.43 | 96.20 | Shut-In(2) |
| 129 | 422.64 | 96.93 | End Shut-In(2) |
| 130 | 1407.30 | 97.44 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbt) |
|-------------|-----------------|--------------|
| 25.00 | V SOCM 2%O 98%M | 0.35 |
| | | |
| | | |
| | | |
| | | |

Gas Rates

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

Trilobite Testing, Inc

Ref. No: 64761

Printed: 2018.11.04 @ 18:44:11

ROCK TYPES

Lmst fw<7
 shale, grn
 Carbon Sh
 Ss

ACCESSORIES

MINERAL

- P Pyrite
- △ Chert White

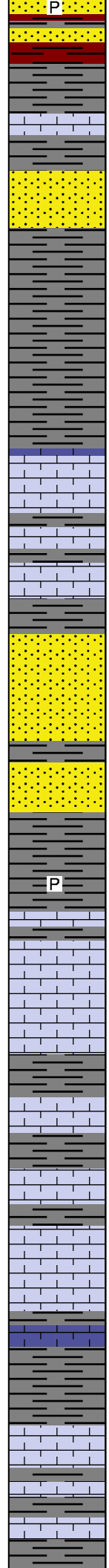
FOSSIL

- Oolite
- ⊕ Oomoldic

| Curve Track #1 ROP (min/ft) | Depth Intervals | DST | Lithology | Oil Show | Geological Descriptions | Curve Track #3 |
|--------------------------------|---|-----|-----------|----------|--|--|
| 1:240 Imperial ROP (min/ft) | Cored Interval DST Interval | | | | | 1:240 Imperial |
| | 0 5 2100 2110 2120 2130 2140 2150 2160 2170 2180 2190 2200 2210 2220 2230 2240 | | | | <p>BEGIN 1' DRILL TIME FROM 2100' TO RTD BEGIN 10' WET AND DRY SAMPLES FROM 2200' TO RTD</p> <p>ANHYDRITE TOP 688+1047 ANHYDRITE BASE 723+1012</p> <p>Lime, lt brn-lt gray, fnxln</p> <p>Lime, crm, fnxln, slightly chalky, slightly fossiliferous</p> <p>Lime, lt brn-lt gray, fnlxn</p> <p>Lime, crm-lt brn-lt gray, fn-vfxln, crinoid segments</p> <p>GRAND HAVEN 2240-505</p> <p>Lime, crm-lt brn, fn-vfxln, fusulinids</p> | <p>8 5/8" SURFACE CASING SET TO 304' W/175 SXS 60/40 POS 2%GEL 4%CC.</p> <p>SLOPE 3/4 DEGREE @ 304'</p> |

2250
2260
2270
2280
2290
2300
2310
2320
2330
2340
2350
2360
2370
2380
2390
2400
2410
2420
2430
2440
2450
2460

0 ROP (m/min) 5



Sandstone, lt gray, gritty, pyritic, NS

DOVER LIME 2263-528

Sandstone, lt gray to white, poorly sorted with fine grit in part, scattered to sat staining, lt odor, show of lt gassy oil, gas bubbles.

Shale, med gray, soft sticky clumping

TARKIO LIME 2311-576

Lime, crm-lt brn-lt gray, fnlxn

Lime, lt-med brn, fn-micro ln

Lime, lt-med brn, fn-vfxln

Sandstone, lt gray, very fine grained to gritty, laminated in part, micaceous, NS, no staining, no odor

Shale, lt brn-med gray, blocky to sticky clumping with pyrite clusters

Lime, lt brn, fn-vfxln

Lime, lt brn, fnxln, chalky matrix in part

Shale, lt gray, soft mud

Lime, lt-med brn, fn-vfxln

Lime, lt-med brn-med grayish brn, fnxln, fossiliferous in part

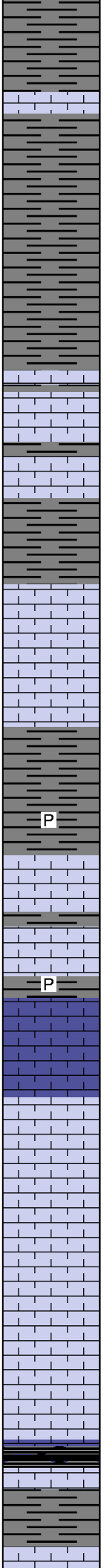
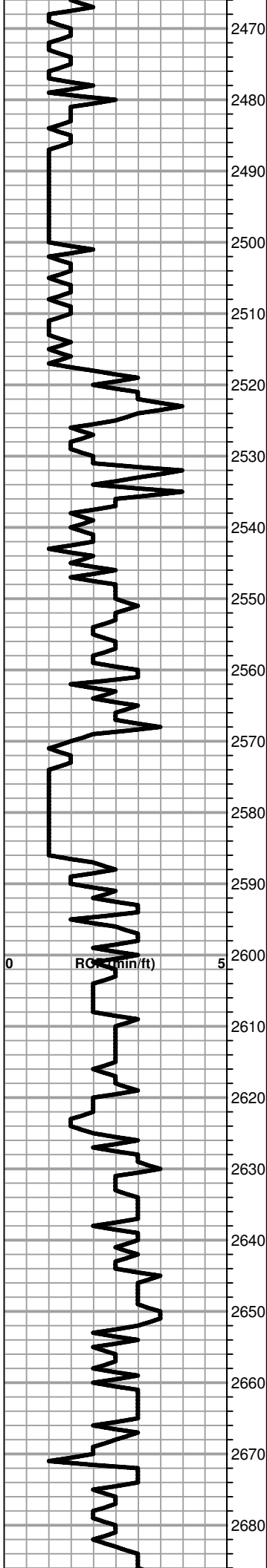
Lime, med to dark grayish brn, fnxln, fossiliferous

Lime, med brn-med grayish brn, fnxln-granular in part, slightly fossiliferous, dirty shaley in part

Shale, lt gray, soft sticky

Lime, med brn-med grayish brn, fn-vfxln, fossiliferous

Lime, lt-med gray, fnxln, gray-black mottling



Shale, lt-med gray, soft mud

Lime, dark brn, fnxln

Shale, lt-med gray, soft mud to soft sticky to soft blocky

Lime, med-dark brn-dark grayish brn,fn-vfxln, fusulinids

Lime, lt-dark brn, fn-vfxln

Shale, lt-med gray, soft blocky

Lime, med brn-med grayish brn, fn-vfxln, fossiliferous

Lime, lt-dark brn, fn-vfxln

Lime, med brn-drk grayish brn, fn-vfxln

Shale, lt gray, soft sticky with pyrite clusters

TOPEKA 2586-851

Lime, lt-med brn, fn-micro xln

Lime, crm-lt brn, fnxln, slight bedded chalk in part

Lime, lt-med brn, fnxln

Lime, med brn-lt grayish brn, fnxln

Lime, lt-med brn, fnxln-granular in part, slight bedded chalk in part

Lime, lt-med brn, fn-vfxln, slightly fossiliferous

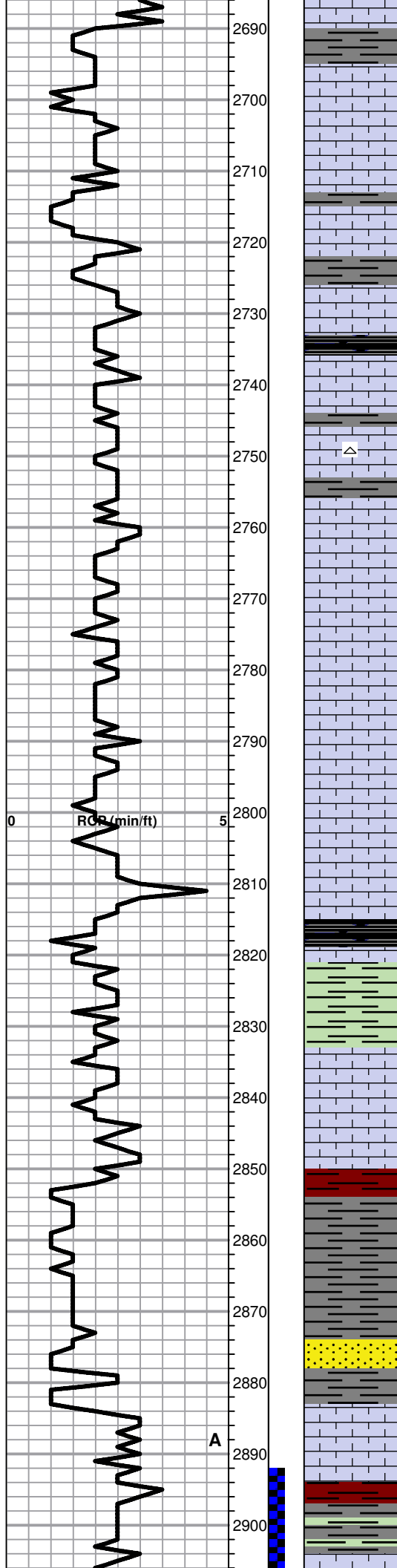
Lime, med brn, fn-vfxln, slightly fossiliferous

Lime, lt-med brn, mostly fn-vfxln, fossiliferous

Shale, black carbonaceous

Lime, lt brn, microxln

Shale, lt gray, firm blocky, calcareous in part



Lime, white-crm, vfxln, lithographic

Lime, lt brn, fnxln

Lime, lt brn-lt grayish brn, fn-vfxln

Lime, lt-med brn, fnxln

Lime, lt-med brn-lt grayish brn, fn-vfxln

Shale, black carbonaceous

Lime, lt brn, granular in part with scattered fine vugs, show of dark oil in few chips, no odor

Lime, lt-med brn-lt grayish brn, fn-vfxln with scattered microxln

Lime

Lime, lt brn, fnlxn-granular in part, bedded chalk in part

Lime, lt brn, fnxln-granular, bedded chalk, NS

Lime, lt brn, fnxln, bedded chalk

Lime, lt brn, fnxln, bedded chalk

Lime, lt-med brn, fn-micro xln

HEEBNER SHALE 2815-1080

Shale, black carbonaceous fissile, blocky
Lime, med brn, vfxln

Shale, lime green to lt gray, soft sticky

TORONTO 2833-1098

* Lime, crm, fnxln to granular in part, lt odor, NFO, fair wet cut, very lt staining, likely gas zone

Lime, crm-lt brn, fn-vfxln

Shale, reddish brn, soft sticky grading into med gray sticky

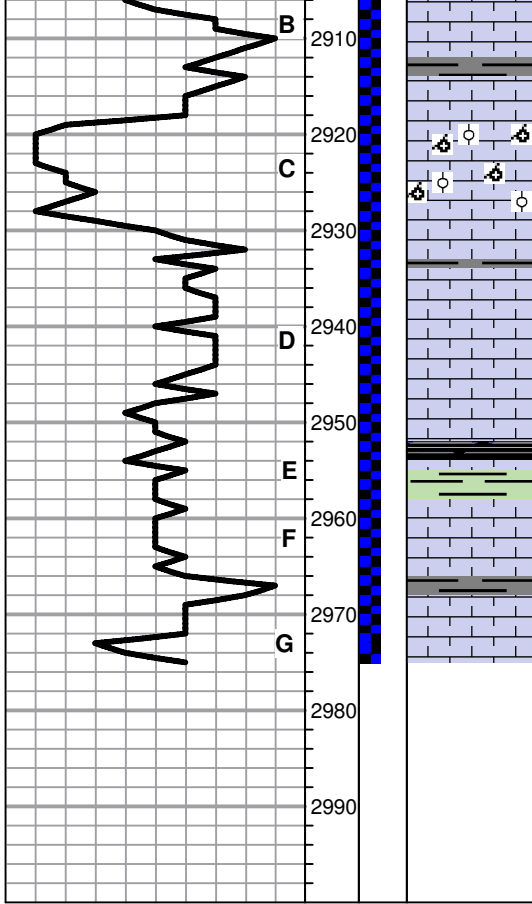
Sandstone, crm-lt gray, very fine grain, lt staining, NFO or odor.

LKC 2883-1148

Lime, lt-med brn, fn-vfxln

Lime, lt-med brn, fn-vfxln with bedded chalk, NS

Shale, red-brn-lt green, soft sticky



Lime, lt-med brn, fn-micro xln

Lime, lt brn-oolmoldic, strong odor, sat staining in part with show of lt gassy oil on crush.

Lime, crm, fn-micro xln

Lime, crm-buff, fn-micro xln

Lime crm, fn-micro xln

Shale, black carbonaceous
Lime, offwhite to lt gray, fnxln

Lime, med brn-granular in part, slightly fossiliferous, scattered ppt vuggy porosity with lt spotty stain, NFO or odor

Lime, crm-lt brn, fn-micro xln

RTD 2975-1240 LTD 2975-1240

DST # 1 2892' TO 2975'
SEE HEADER FOR TEST SUMMARY

4 1/2" PRODUCTION CASING SET TO 2472' W/125 SXS 60/40 POS 10% SALT, 2%GEL, 4%CC,30 SKS IN RATHOLE, JOB COMPLETE 6:45PM 11/04/18

SLOPE 1 1/2 DEGREES