Shakespeare Oil Company, Inc.
202 West Main Street
Salem, IL 62881

Geologist on well: A. Tobias Eck

WELL-SITE GEOLOGICAL and DRILLING REPORT

OPERATOR **Shakespeare Oil Company, Inc.**
LEASE **H-C** WELL No. **1-7A**
LOCATION **2035' FSL & 1501' FWL**
Sec. **7** Twp. **33S** Rge. **41W**
COUNTY **Baca** STATE **Colorado**
CONTRACTOR **Duke Drilling Co. Rig #5**

COMM. **12/13/2017** COMP. **12/22/2017**
RTD. **4950'** LTD. **4944'**
DRILLING TIME KEPT FROM **3900'** to **TD**
SAMPLES EXAMINED FROM **3900'** to **TD**
GEOLOGICAL SUPERVISION FROM **3900'** to **TD**
MUD UP **2990'** MUD TYPE **Chemical**

ELEVATION
KB: **3743'**
DF:
GL: **3732'**

OPEN-HOLE LOGS **DIL, Neu/Den w/ PE, MEL**
[ELI]

Formation Record

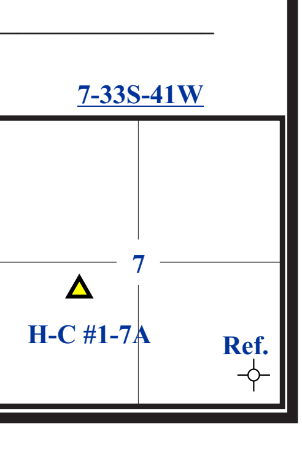
FORMATION	LOG TOP DATUM	SAMPLE TOP DATUM	STRUCTURAL COMPARISON
Stone Corral	1462' (+2281')	1469' (+2274')	+14'
Marmaton	4009' (-266')	4013' (-270')	+8'
Cherokee	4160' (-417')	4167' (-424')	+9'
Atoka	4424' (-681')	4437' (-694')	+6'
Morrow	4590' (-847')	4587' (-844')	-9'
'Purdy' Sst.	4728' (-985')	4732' (-989')	-1'
Mid. Morrow	4863' (-1120')	4865' (-1122')	N/A'

CASING RECORD

SURFACE **13 3/8" @ 592'**
Intermediate- 8 5/8" @ 1,365'
PRODUCTION **Dry Hole**

REFERENCE WELL FOR STRUCTURAL COMPARISON
TXO's Freshour #1 (SE SE 7-33S-41W)

7-33S-41W



DRILLING CHRONOLOGY, DST's and GENERAL INFO

BIT RECORD

NO.	SIZE	MAKE	TYPE	DEPTH OUT	FEET	HOURS
1	17 1/2	JZ	Tri-Cone	592'	592'	11.25
2	12 1/4	JZ	Tri-Cone	1365'	773'	17
3	7 7/8	SMITH	PDC	4474'	3109'	40.75
4	7 7/8	SMITH	Tri-Cone	4950'	476'	28.25

GENERAL INFO

DUKE DRILLING COMPANY
RIG #5
Toolpusher- KEN McGUIRE

Drilling with 12k-14k lbs on bit and 90-100 RPM **W/ PDC**
Pumping 60 spm - 370 gpm - 650 @ standpipe

40-42k lbs on bit & 80 RPM/ 850-1000 psi w/ button bit

18 collars (6.25"x2.25")- 523'

NOTE: Decreased WOB to 30-35K and pump strokes to 50-54 through Morrow Section.

DAILY DRILLING and MUD INFO @ BOTTOM OF LOG

DAILY STATUS

DATE	Depth/Activity
12/13/17	MI/RU & Spud @ 5pm
12/14/17	515'/ Drilling
12/15/17	600'/ WOC
12/16/17	829'/ Drilling
12/17/17	1365'/ Running 8 5/8"
12/18/17	1675'/ Drilling
12/19/17	3306'/ Drilling
12/20/17	4473'/ Bit trip
12/21/17	4643'/ Drilling
12/22/17	4937'/ Drilling

DRILL-STEM TEST RECORD

No DST's run

Remarks and Recommendations

The H-C #1-7A was drilled 90' to the west of the H-C #1-7 after the latter was plugged at 1,162' due to severe lost circulation.

A pdc bit was used from intermediate casing-point to 4475', and was replaced with a button bit to TD. 30' 'kelly-down' wet and dry samples were evaluated from 3900'-4475', and 10' wet and dry samples were evaluated from 4450' to TD. As a result of sample, and electric log evaluations, the H-C #1-7A was plugged and abandoned.

12/22/17
Respectfully submitted,

A. Tobias Eck
Shakespeare Oil Company, Inc.

Basic Legend

Basic Lithologies

Limestone	Shale
Sandstone	Carbonaceous Shale
Dolomite	Siltstone
Chert	Anhydrite

Hydrocarbon Shows

- ○ Slight or Residual Show
- ◒ Fair Oil Show
- ● Strong Oil Show
- ✹ Gas Show

(Industry-Standard symbols and abbreviations)

SAMPLE DESCRIPTION (Lagged) | Comments, DST's & FORMATION TOPS

Stone Corral
1462' (+2281')

Discontinuity in Depth Track

Sh, dk gry, silty, soft, occ. ls. qtz., clr, vfn grn, rnd.

Sh, dk gry, silty, soft

Good Sample Quality

Lst, crm-gry, foss/pell wckst, dns. w/ vp-no vis ϕ, NSFOC

Sh, dk. gry, v. silty

Occ. Sdst, wht, vf-grn, qtz, v-well srt, sl. glauc. wht. calc. cmt, pr vis ϕ, NSFOC

Sh, dk. gry, silty

Sh, dk. gry, soft, few pcs red sh.

Marmaton
4009' (-266')

Lst, crm, mdst., cryptoxln, chty. some foss/pell. pckst., w/ vp interpart. ϕ, NSFOC

Sh, dk. gry, silty

Sh, blk, carb., fiss., calc.

Sh, dk. gry, soft

Lst, crm, foss/pell. wckst., dns., vp vis ϕ

Sh, gry-dk. gry, sl calc., soft, some grn, waxy

few pcs. Sdst, clr, vf-grn, qtz, wht. calc. cmt. NSFOC

Sh, gry-dk. gry, sl calc., some red

Sh, gry-dk. gry, sl calc.

Cherokee
4160' (-417')

Lst, gry-tan, mttld, wckst, dns., w/ vp-no vis ϕ

Sh, dk. gry, sl. silty, soft, few pcs. hard, sl calc.

Lst, dk. gry, mttld, foss. wckst, dns. some crm, mdst, sl. foss, dns.

Lst, dk. gry, mttld, foss. wckst, dns.

Sh, dk. gry-blk, plty, sl. calc.
Sh, red, soft

Lst, lt. brn-tan, mttld, pckst, w/ pr interpart. ϕ, NSFOC

Sh, dk. gry-blk, occ. red, plty, sl. calc.

Sh, dk. gry-blk, occ. red, plty, sl. calc.

Lst, tan-brn, mdst., cryptoxln, cherty, dnse

Sh, gry, some red, brn, vry silty
Sst, vf grn, qtz, clr, wht cmt, w/ vp interpart ϕ, NSFOC

Lst, crm, foss. wckst-pckst, w/ p interpart ϕ, NSFOC

Sh, gry, some red, brn
some Sst, vf-grn, clr qtz, wht cmt, w/ vp interpart. ϕ, NSFOC

Lst, crm, foss/pell wckst-pckst, w/ vp interpart. ϕ, NSFOC

Sh, gry, brn, soft

Lst, tan, mudst, dns. cherty

Sh, dk. gry, soft

Atoka
4424' (-681')

Lst, brn-dk. gry, mttld, foss wckst-pckst., dns, vp interpart. ϕ, NSFOC

Lst, as above, becoming sandy- fn-grn qtz, subang.

Sh, dk. gry-blk, sl. calc.

Trip out for button bit @ 4474'

Sh, dk. gry-blk, sl. calc.

Sh, gry, brn

Lst, crm-tan, mudst, dns, sl. cherty

Lost approx. 200 bbls mud @4495'

Sh, blk, carb.

Lst, brn, mttld, foss wckst, dns.
Sh, blk, carb.
Lst, brn, mttld, foss wckst, dns.
Sh, blk, carb.

Lst, brn-dk. brn, mttld, foss wckst, dns.

Gas bubbles in smpl cups thru '13 Fingers' No vis Shows in Lst's

Sh, blk, carb.
Lst, brn-dk. brn, mttld, foss wckst, dns.
Sh, blk, carb.

Lst, brn-dk. brn, mttld, foss wckst, dns, sl. pyr.

Sh, blk, carb.

WOB- 30k & Pump str: 50 Up. Morrow

Lst, dk. gry, mdst-wckst, dns, sl. pyr.

Morrow
4590' (-847')

Sh, dk. gry

Sh, dk. gry

Sh, gry, dk. gry, blky

WOB- 35k lb Pump str: 54 75 RPM thru Morrow

Lst, lt. tan, mudst, cryptoxln, sl. cherty

Sh, dk. gry-blk

Sh, lt. gry-gry, fw pc. red, soft

Sh, gry, dk. gry, soft, pyr.

Sh, gry-grn, soft

Sh, dk. gry, blocky, firm
Sh, gry, soft, pyr.

few ls qtz grns- clr-crm, subang, crse.

Sh, gry, soft, pyr.

Sh, gry, soft, pyr.

Sh, gry, soft, pyr.

Sst, fg, qtz, tite cmt, VSSFO on brk (blk/flaky) gils, w/ pr interpart ϕ, rr sp. st.,no fl, no cut

Sst, gry, fg, qtz, tite clay cmt, gils, w/ pr interpart ϕ, rr sp. st, no fl, no cut, sl. pyr.

Purdy Sand
4728' (-985')

Sh, gry- soft

Sst, clr, qtz, crs grn, ang-subang, mod. sort., w/ f-g interpart. ϕ, spt. st, w/ evn bri yel fl., sl. odor, sl. cut, no FO

aa w/ increase wht cly fill and barren ϕ

Sst, aa, w/ v rr spt st, dull yel fl, no od, no cut

Sh, gry- dk. gry, blky,

Sh, dk. gry, firm, pyr.

Sand from above in smp to 4810'

Sh, dk. gry, firm, blky, pyr.

WOB- 40k lb Pump str: 60 80 RPM - TD

Sh, dk. gry, firm, blky,

Sh, gry-dk. gry, firm

Sh, gry, soft

Sh, gry, soft

Sh, dk. gry, blky, pyr.

Sh, dk. gry, firm

Mid. Morrow
4863' (-1120')

Sh, gry-dk. gry, soft

Sh, dk. gry, blky, firm

Sh, dk. gry, blky, firm

Sh, dk. gry, blky, firm

few pc. Sst, qtz, clr, f-mc grn, pr. srtd, wht. cly cmt, tite, NSFOC

Sh, aa, incr. of gry, soft sh.

Sh, dk. gry, firm, fw pc. brn lst, mudst, dns.

Sh, dk. gry, firm, blky, fw pc. sst, f-m grn, qtz, pr sort, subang, wht cly cmt, tite, NSFOC

10 stand Short Trip @ TD

RTD 4950 @ 7:45 am 12/22/17

DAILY DRILLING and MUD INFORMATION

GEOLOGIST ON LOCATION 14:30 hours 12/19/2017

12/19/17- **WOB**: 13k **KELLY RPM**: 90-100 **PUMP**: 60 spm,360 gpm, 650 psi @ standpipe
MUD: VIS: 64 WT: 8.7 Chl: LCM: 2# Filt:7.2

12/20/17- **WOB**: 12-14k **KELLY RPM**: 90-100 **PUMP**: 60 spm,368 gpm, 800 psi @ standpipe
MUD: VIS: 52 WT: 9.3 Chl: 1700ppm LCM: 4# Filt:7.2 SHT@4474=1°

12/21/17- **WOB**: 35k **KELLY RPM**: 75-80 **PUMP**: 54 spm,368 gpm, 800 psi @ standpipe
MUD: VIS: 55 WT: 9.1 Chl: 875ppm LCM: 14# Filt:6.8

12/22/17- **WOB**: 40k **KELLY RPM**: 80 **PUMP**: 60 spm,368 gpm, 950 psi @ standpipe
MUD: VIS: 57 WT: 9.2 Chl: 800 ppm LCM: 12# Filt: 6.0

MUD-CO/SERVICE MUD
ENGINEER: JUSTIN WHITING