

Confidentiality Requested:

Yes No

**KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION**

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

**WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE**

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

New Well Re-Entry Workover

Oil WSW SWD

Gas DH EOR

OG GSW

CM (Coal Bed Methane)

Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

Deepening Re-perf. Conv. to EOR Conv. to SWD

Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or Recompletion Date _____ Date Reached TD _____ Completion Date or Recompletion Date _____

API No.: _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite: _____

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: _____

Confidential Release Date: _____

Wireline Log Received Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

1. Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____				
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5) (Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	IA Operating, Inc.
Well Name	SAWYER #15-1
Doc ID	1391598

All Electric Logs Run

CDN
DIL
MICRO
SONIC



Company: IA Operating, Inc.
Lease: Sawyer #15-1

SEC: 15 TWN: 20S RNG: 4W
 County: MCPHERSON
 State: Kansas
 Drilling Contractor: Southwind Drilling, Inc - Rig 8
 Elevation: 1480 GL
 Field Name: Groveland South
 Pool: Ext
 Job Number: 108

DATE
 February
08
 2018

DST #1 **Formation: VIOLA** **Test Interval: 3740 - 3759'** **Total Depth: 3759'**
 Time On: 08:25 02/08 Time Off: 14:22 02/08
 Time On Bottom: 10:15 02/08 Time Off Bottom: 12:15 02/08

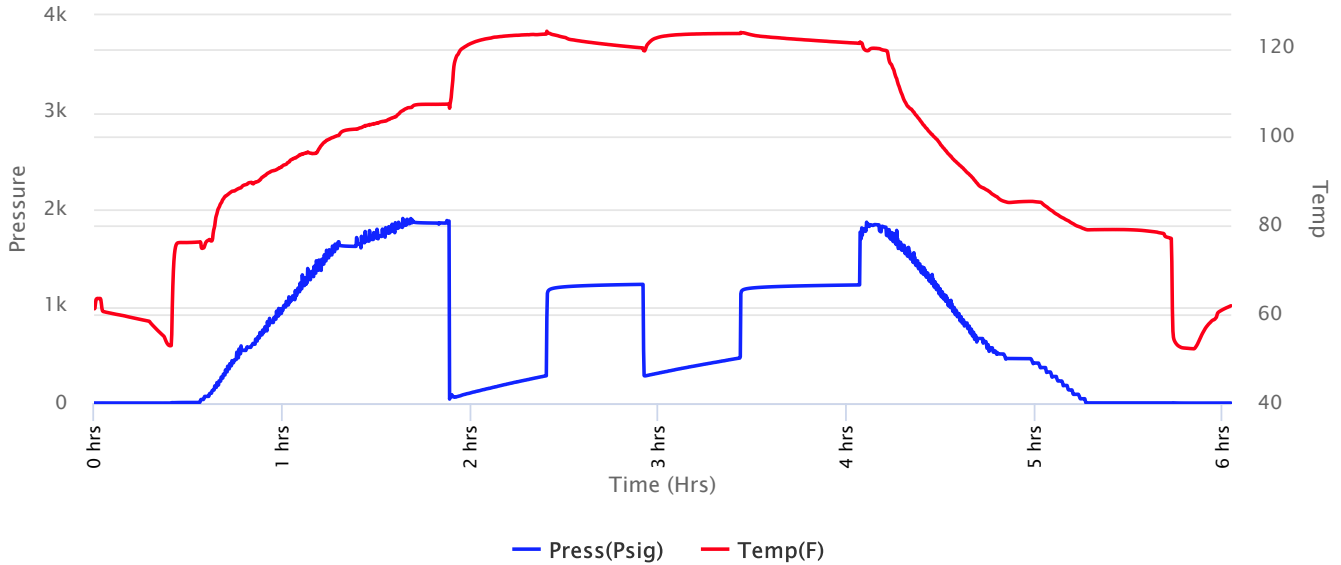
Electronic Volume Estimate:
 1137'

1st Open
 Minutes: 30
 69.5" at 30 min

1st Close
 Minutes: 30
 0" at 30 min

2nd Open
 Minutes: 30
 58.1" at 30 min

2nd Close
 Minutes: 30
 0" at 30 min





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 Time On: 08:25 02/08 Time Off: 14:22 02/08
 Time On Bottom: 10:15 02/08 Time Off Bottom: 12:15 02/08

Recovered

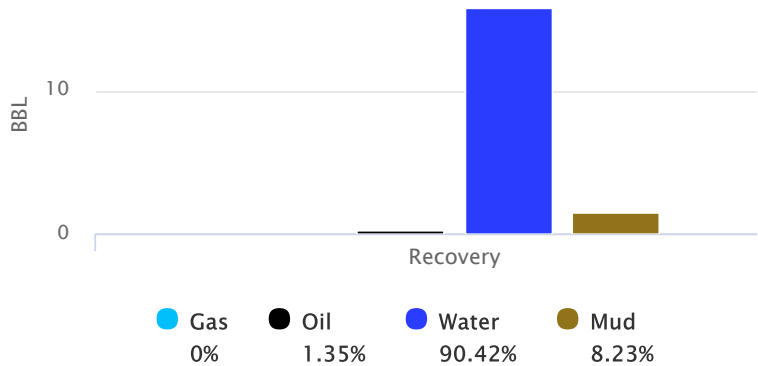
Foot	BBLs	Description of Fluid	Gas %	Oil %	Water %	Mud %
428	6.09044	SLOCMLCW	0	2	80	18
800	11.384	SLOCMLCW	0	1	96	3

Total Recovered: 1228 ft
 Total Barrels Recovered: 17.47444

Reversed Out
 NO

Initial Hydrostatic Pressure	1859	PSI
Initial Flow	43 to 283	PSI
Initial Closed in Pressure	1226	PSI
Final Flow Pressure	282 to 480	PSI
Final Closed in Pressure	1221	PSI
Final Hydrostatic Pressure	1834	PSI
Temperature	124	°F
Pressure Change Initial Close / Final Close	0.5	%

Recovery at a glance





Company: IA Operating, Inc.
Lease: Sawyer #15-1

SEC: 15 TWN: 20S RNG: 4W
County: MCPHERSON
State: Kansas
Drilling Contractor: Southwind Drilling,
Inc - Rig 8
Elevation: 1480 GL
Field Name: Groveland South
Pool: Ext
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DATE February 08 2018

DST #1	Formation: VIOLA	Test Interval: 3740 - 3759'	Total Depth: 3759'
	Time On: 08:25 02/08	Time Off: 14:22 02/08	
	Time On Bottom: 10:15 02/08	Time Off Bottom: 12:15 02/08	

REMARKS:

TOOL SAMPLE:8% OIL 90% WATER 2% MUD

IFP:3/4"BLOW-INCREASING TO BOB IN 4 MINUTES 35 SECONDS

ISIP:NO BLOW BACK

FFP:1/4"BLOW-INCREASING TO BOB IN 6 MINUTES 5 SECONDS

FSIP:NO BLOW BACK

Ph: 7

RW: .56 @ 60 degrees F

Chlorides: 16000 ppm



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 State: Kansas
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 Elevation: 1480 GL
 Field Name: Groveland South
 Pool: Ext
 Job Number: 108

<p>DATE February 08 2018</p>

DST #1 **Formation: VIOLA** **Test Interval: 3740 - 3759'** **Total Depth: 3759'**

Time On: 08:25 02/08 Time Off: 14:22 02/08
 Time On Bottom: 10:15 02/08 Time Off Bottom: 12:15 02/08

Down Hole Makeup

Heads Up: 34.77 FT	Packer 1: 3734.5 FT
Drill Pipe: 3741.7 FT <i>ID-3 1/2</i>	Packer 2: 3740 FT
Weight Pipe: FT <i>ID-2 7/8</i>	Top Recorder: 3723.92 FT
Collars: FT <i>ID-2 1/4</i>	Bottom Recorder: 3742 FT
Test Tool: 34.07 FT <i>ID-3 1/2-FH</i> <i>Jars</i> <i>Safety Joint</i>	Well Bore Size: 7 7/8
Total Anchor: 19	Surface Choke: 1"
<u>Anchor Makeup</u>	Bottom Choke: 5/8"
Packer Sub: 1 FT	
Perforations: (top): FT <i>4 1/2-FH</i>	
Change Over: FT	
Drill Pipe: (in anchor): FT <i>ID-3 1/2</i>	
Change Over: FT	
Perforations: (below): 18 FT <i>4 1/2-FH</i>	



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Elevation: 1480 GL
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<p>DATE February 08 2018</p>

DST #1 **Formation: VIOLA** **Test Interval: 3740 - 3759'** **Total Depth: 3759'**

Time On: 08:25 02/08 Time Off: 14:22 02/08
Time On Bottom: 10:15 02/08 Time Off Bottom: 12:15 02/08

Mud Properties

Mud Type: CHEMICAL **Weight:** 9.6 **Viscosity:** 48 **Filtrate:** 8.8 **Chlorides:** 1300 ppm



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Elevation: 1480 GL
Field Name: Groveland South
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DATE February 08 2018

DST #1 **Formation: VIOLA** **Test Interval: 3740 - 3759'** **Total Depth: 3759'**

Time On: 08:25 02/08 Time Off: 14:22 02/08
Time On Bottom: 10:15 02/08 Time Off Bottom: 12:15 02/08

Gas Volume Report

1st Open

2nd Open

Time	Orifice	PSI	MCF/D
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Time	Orifice	PSI	MCF/D
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Company: IA Operating, Inc.
Lease: Sawyer #15-1

SEC: 15 TWN: 20S RNG: 4W
 County: MCPHERSON
 State: Kansas
 Drilling Contractor: Southwind Drilling, Inc - Rig 8
 Elevation: 1480 GL
 Field Name: Groveland South
 Pool: Ext
 Job Number: 108

DATE
 February
08
 2018

DST #2 **Formation: SIMPSON SAND** **Test Interval: 3775 - 3792'** **Total Depth: 3792'**
 Time On: 22:50 02/08 Time Off: 04:35 02/09
 Time On Bottom: 00:32 02/09 Time Off Bottom: 02:32 02/09

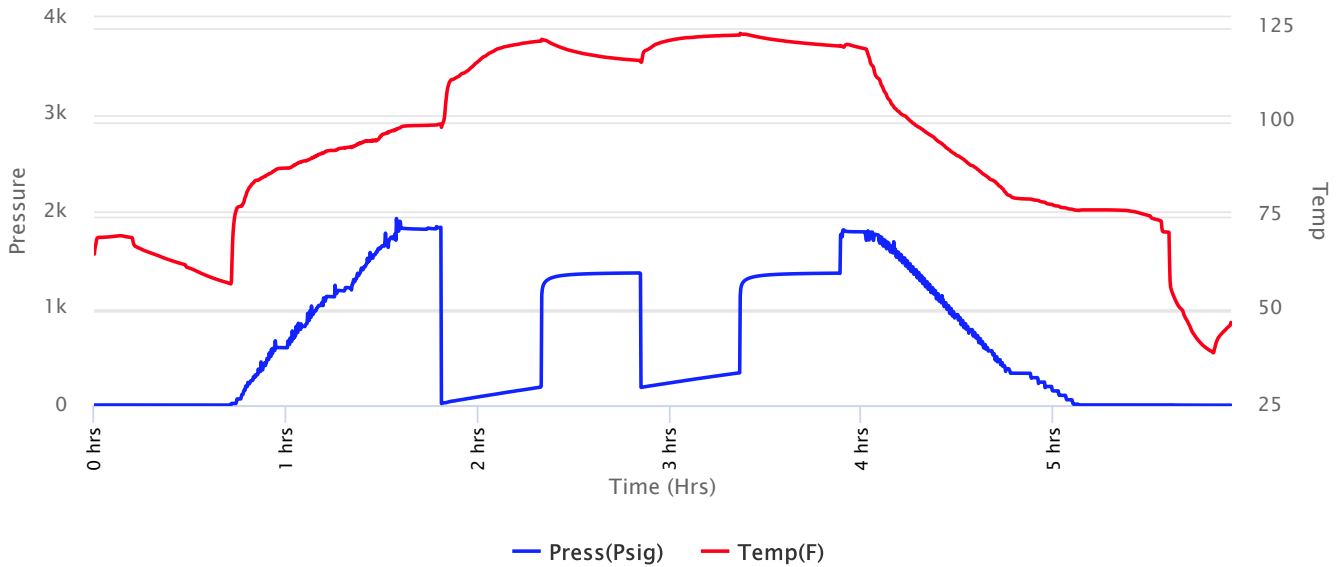
Electronic Volume Estimate:
 716'

1st Open
 Minutes: 30
 35.7" at 30 min

1st Close
 Minutes: 30
 0" at 30 min

2nd Open
 Minutes: 30
 41.2" at 30 min

2nd Close
 Minutes: 30
 0" at 30 min





Company: IA Operating, Inc.
Lease: Sawyer #15-1

SEC: 15 TWN: 20S RNG: 4W
 County: MCPHERSON
 State: Kansas
 Drilling Contractor: Southwind Drilling, Inc - Rig 8
 Elevation: 1480 GL
 Field Name: Groveland South
 Pool: Ext
 Job Number: 108

DATE
 February
08
 2018

DST #2 **Formation: SIMPSON SAND** **Test Interval: 3775 - 3792'** **Total Depth: 3792'**
 Time On: 22:50 02/08 Time Off: 04:35 02/09
 Time On Bottom: 00:32 02/09 Time Off Bottom: 02:32 02/09

Recovered

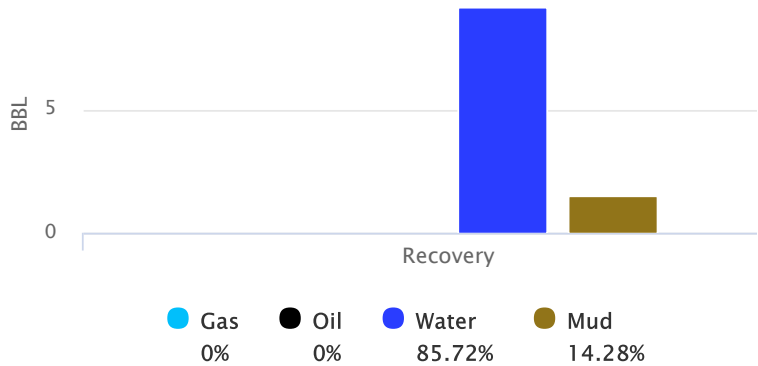
Foot	BBLs	Description of Fluid	Gas %	Oil %	Water %	Mud %
210	2.9883	HMCW	0	0	65	35
100	1.423	SLMCW	0	0	84	16
440	6.2612	SLMCW	0	0	96	4

Total Recovered: 750 ft
 Total Barrels Recovered: 10.6725

Reversed Out
 NO

Initial Hydrostatic Pressure	1821	PSI
Initial Flow	19 to 187	PSI
Initial Closed in Pressure	1358	PSI
Final Flow Pressure	185 to 335	PSI
Final Closed in Pressure	1360	PSI
Final Hydrostatic Pressure	1790	PSI
Temperature	124	°F
Pressure Change Initial Close / Final Close	0.0	%

Recovery at a glance





Company: IA Operating, Inc.
Lease: Sawyer #15-1

SEC: 15 TWN: 20S RNG: 4W
County: MCPHERSON
State: Kansas
Drilling Contractor: Southwind Drilling,
Inc - Rig 8
Elevation: 1480 GL
Field Name: Groveland South
Pool: Ext
Job Number: 108

DATE February 08 2018

DST #2	Formation: SIMPSON SAND	Test Interval: 3775 - 3792'	Total Depth: 3792'
	Time On: 22:50 02/08	Time Off: 04:35 02/09	
	Time On Bottom: 00:32 02/09	Time Off Bottom: 02:32 02/09	

REMARKS:

TOOL SAMPLE:100% WATER

IFP:1/2"BLOW-INCREASING TO BOB IN 11 MINUTES

ISIP:NO BLOW BACK

FFP:1/4"BLOW-INCREASING TO BOB IN 9 MINUTES 15 SECONDS

FSIP:NO BLOW BACK

TRACE OF OIL IN TOP 210' OF RERCOVERY

Ph: 7

RW: .68 @ 50 degrees F

Chlorides: 12000 ppm



Company: IA Operating, Inc.
Lease: Sawyer #15-1

SEC: 15 TWN: 20S RNG: 4W
County: MCPHERSON
State: Kansas
Drilling Contractor: Southwind Drilling,
Inc - Rig 8
Elevation: 1480 GL
Field Name: Groveland South
Pool: Ext
Job Number: 108

DATE February 08 2018

DST #2 **Formation:** **Test Interval: 3775 -** **Total Depth: 3792'**
SIMPSON SAND **3792'**
Time On: 22:50 02/08 Time Off: 04:35 02/09
Time On Bottom: 00:32 02/09 Time Off Bottom: 02:32 02/09

Mud Properties

Mud Type: CHEMICAL **Weight:** 9.5 **Viscosity:** 54 **Filtrate:** 7.2 **Chlorides:** 1200 ppm



Mudgrove

Petroleum Geology
212 Main Street, Claflin KS

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY IA Operations, Inc.
 LEASE Sawyer #15-1
 FIELD Groveland South (Ext.)
 LOCATION NW-SW-SE-SW (473' FSL & 1456' FWL)
 SEC 15 TWSP 20S RGE 4W
 COUNTY McPherson STATE Kansas

ELEVATIONS

KB 1490'
 DF _____
 GL 1480'
 Measurements Are All
 From KB

CONTRACTOR Southwind Drilling, Inc. (Rig # 1)
 SPUD 01/30/2018 COMP 02/09/2018
 RTD 3865' LTD 3865'
 MUD UP 2100' TYPE MUD Chemical

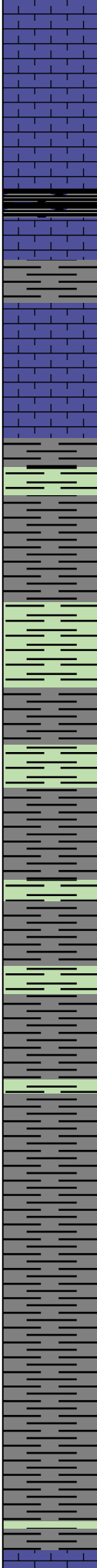
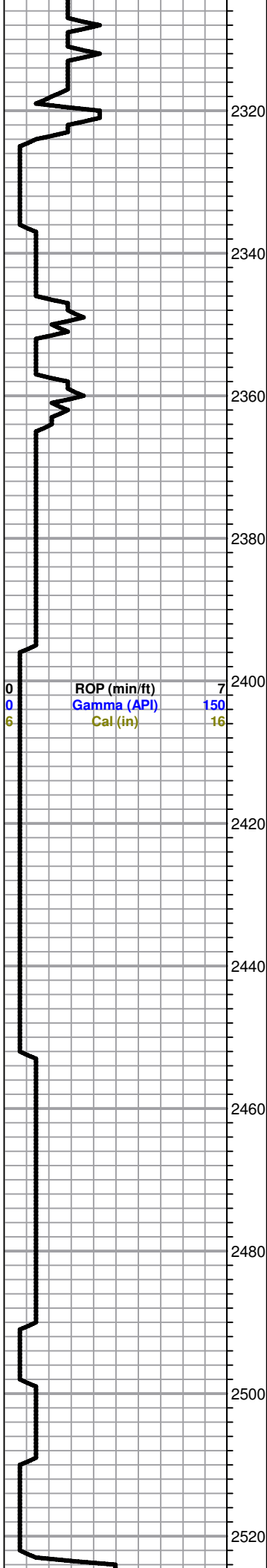
CASING

SURFACE 8 5/8" @ 602'
 PRODUCTION None

ELECTRICAL SURVEYS ELI; DIL, CDL/CNL/PE MEL/SONIC

SAMPLES SAVED FROM 2300' TO RTD
 DRILLING TIME KEPT FROM 2300' TO RTD
 SAMPLES EXAMINED FROM 2300' TO RTD
 GEOLOGICAL SUPERVISION FROM 2300' TO RTD
 GEOLOGIST ON WELL Wyatt Urban

FORMATION TOPS	LOG	SAMPLES
Heebner 2334 (-844)		Simpson Sd 3786 (-2296)
Toronto 2354 (-864)		Arbuckle 3854 (-2364)
Douglas 2371 (-881)		RTD 3865 (-2375)
Brown Lime 2535 (-1045)		LTD 3865 (-2375)
Lansing 2570 (-1080)		
Miss 3222 (-1732)		



no shos

Heebner 2332.0 (-842.0)

Sh, black carb.

Sh, gry, soft, silty

Toronto 2346.0 (-856.0)

LS, white, cream, fxl, scattered p.p. porosity, chalky, no shows, no odor

Douglas 2365.0 (-875.0)

Sh, gry, brn, few greenish, soft, waxey

Tr. sd. gry, f- med grain, sub rounded, well sorted, friable, no shows, no odor

Sh, a/a gry, soft, silty, no shows

Sh a/a, tr. sd. gry, clr, a/a, no shows

Sd. a/a, tr. pyrite, no shows

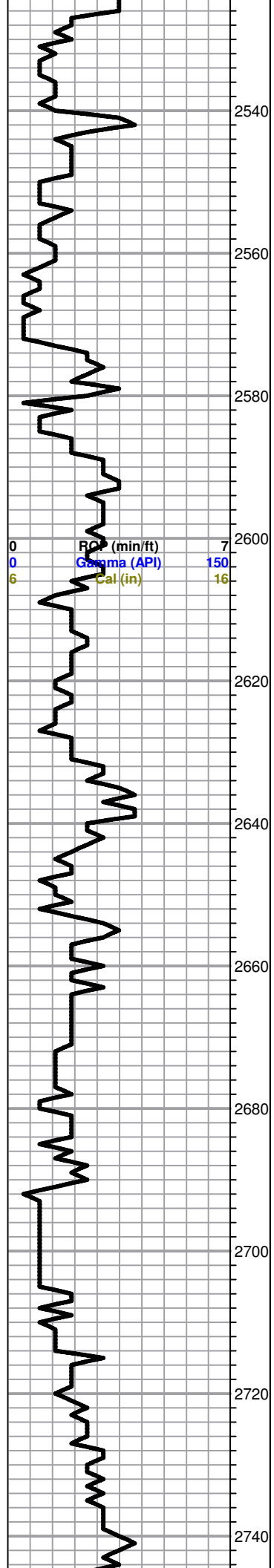
Sh, gry, silty soft, tr. sd.

Sh, a/a, tr. sd. gry, dk gry

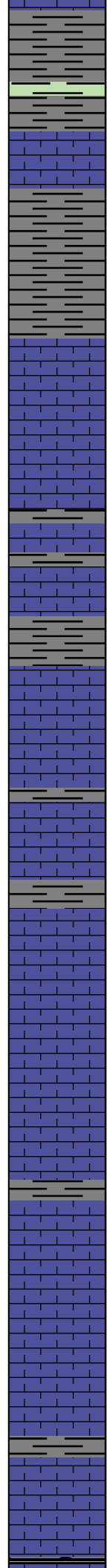
Sh, gry, dk gry, soft silty, tr. sd. a/a no shows,

Sh, gry, dk gry, maroon, green, aqua greenish, soft, tr. ls, white, fxl, v. chalky, no shows, no odor

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100



0 RQI (min/ft) 7
 0 Gamma (API) 150
 6 Cal (in) 16



Sh, a/a soft aqua green, maroon.

LS, tan, brn, mott. few ool, fxl, poor visible porosity, chalky, no shows, no odor

Sh, gry, dk gry, soft, silty

Sh, a/a, Tr. LS, brn, fxl, dense, cherty, no shows, no odor

Lansing 2570.0 (-1080.0)

LS, white, cream, ool, foss, poor visible porosity, chalky, no shows, no odor.

LS, tan, buff, foss, ool, fair scattered oom porosity, chalky in pts, no shows, no odor

LS, cream, tan, fxl, poor visible porosity, chalky, no shows

Slug black, gry, shale

LS, tan, buff, fxl, foss, chalky, poor-fair scattered visible porosity, no shows, no odor

LS, tan, buff, fxl, foss, tr. white ool, foss chert

Sh, gry, silty, soft

LS, brn, fxl, foss, scattered p.p. porosity, no shows, no odor

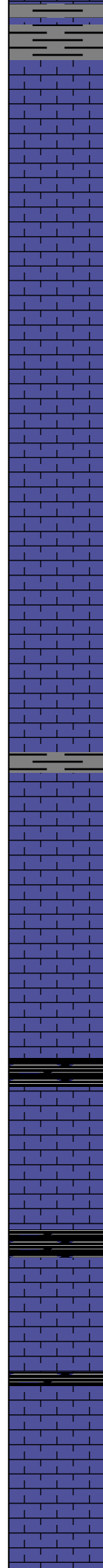
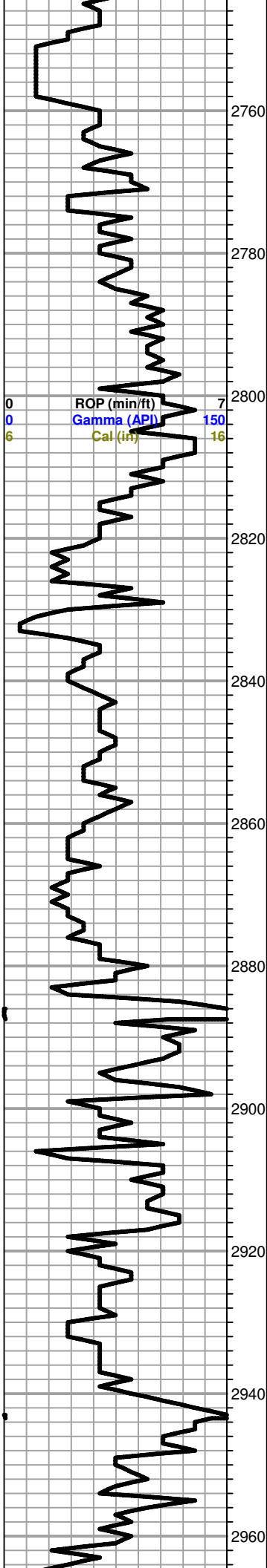
LS, cream, tan, fxl, few foss, poor visible porosity, tr. white chalk, no shows

LS, tan, ool, oom, scattered oom porosity, v. chalky, no shows

LS, tan, buff, fxl, dense, poor visible porosity, no shows

LS, brn, fxl, dense, poor visible porosity, cherty, no shows

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100



Sh, gry, waxey, soft

LS, tan, buff, foss, scattered vuggy type porosity, chalky, nsfo

LS, tan, buff, fxl, foss, poor visible porosity, few cherty, no shows

LS, cream to tan, foss, fxl, dense, poor visible porosity, cherty in pts, no shows

LS, cream, tan, fxl, dense, poor visible porosity, cherty, tr. tan, opaque cherts, few foss, no shows

LS, tan, buff, foss, scattered oom porosity, chalky, no shows, no odor

LS, tan, buff, fxl, dense, poor visible porosity, cherty, no shows, no odor

LS, tan, cream, fxl, foss, poor visible porosity, chalky, no shows, no odor

Sh, black carb, few green
 tr. LS, brn fxl, dense, poor visible porosity, cherty

LS, buff, tan, fxl, dense, poor visible porosity, cherty, no shows

Stark 2918.0 (-1428.0)

Sh, black carb

LS, brn, fxl, foss, poor visible porosity, cherty, dense, no shows

LS, tan, cream, ool, poor visible porosity, chalky in pts, no shows,

LS, gry, fxl, dense, cherty, no shows,

LS cream. white. foss. poor visible porositv. chalkv in

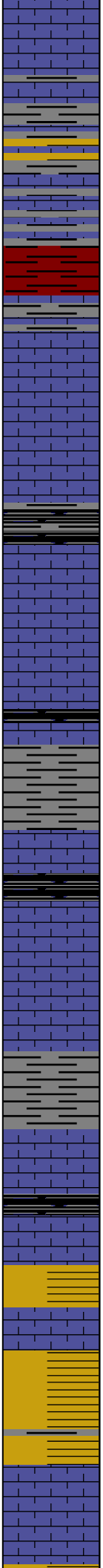
Poor Samples

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

... green, white, ... fossils poorly preserved, cherty in
pts, no shows . tr. chert white, opaque, foss.

2980
3000
3020
3040
3060
3080
3100
3120
3140
3160
3180

ROP (min/ft) 7
Gamma (API) 150
Cal (in) 16



Sh, slug maroon, greenish, purple (dolom.) Tr. white, opaque cherts (foss) no shows, no odor

Sh, maroon, (red wash) soft, tr. cherts, yellow, opaque.

LS, gry, tan, fxl, dense, poor visible porosity, chalky, no shows, no odor

Sh, gry, dk gry, blk, soft

LS, gry, lt. gry, fxl, dense, poor visible porosity, no shows, no odor

LS, white, cream, fxl, dense, poor visible porosity, tr. pyrite, no shows,

Sh, black carb, few soft gry shales

LS, gry, fxl, few foss, poor visible porosity, chalky, no shows, no odor

Sh, black, dk gry, silty

LS, white, cream, few foss, poor visible porosity, no shows, no odor

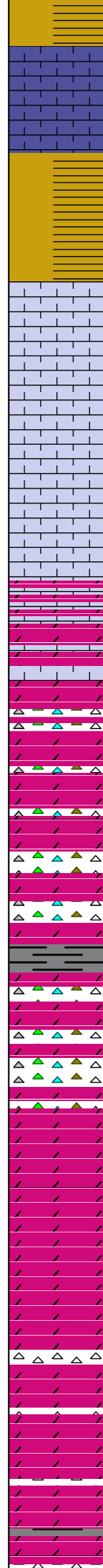
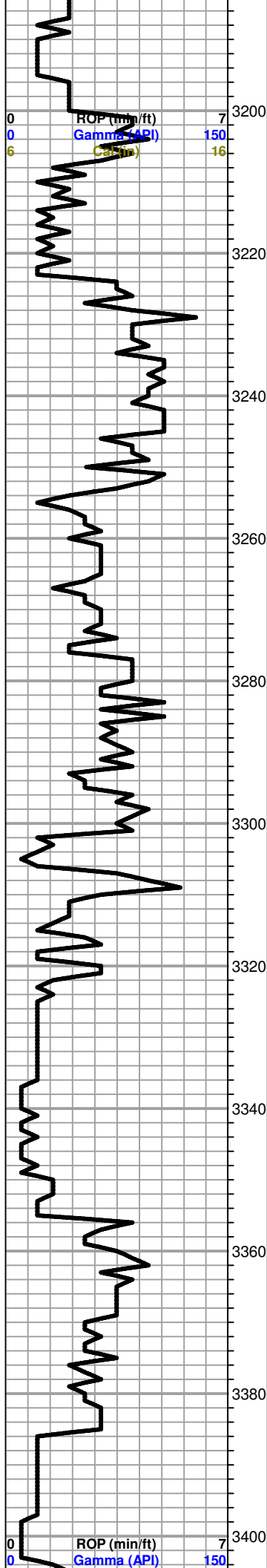
Sh, back carb

Slug yellow, gry, soft shale,
Tr. LS, white, gry, fxl, dense, poor visible porosity, no shows, no odor

Sh, a/a, tr. purplish shale waxey,

LS, white, gry, fxl, cherty, poor visible porosity, no shows, no odor

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100



Sh, gry, white, v. soft

LS, white, gry, fxl, dense, cherty, no shows

Sh yellow, gry, soft, v. soft mica. no shows no odor

Miss. 3224.0 (-1734.0)

LS, white, cream, sl. dol. fxl, scattered p.p. porosity, chalky in pts, no shows, no odor (tr. black stain on few)

LS, white, buff, dol. poor visible porosity, sl. chalky, no shows, no odor

LS, tan, white, dol. fxl, poor visible porosity, cherty, in pts, tr. chert white, foss, poor visible porosity, no shows, no odor

Chert, white, foss, few opaque, no shows, no odor
Dol. tan, gry, fxl, scattered vis. porosity, no shows, no odor

Sh purple, gry, waxey, Chert white, opaque, foss, cherty, no shows, no odor
Tr. dol. gry, suc. scattered p.p. porosity, no shows, no odor

Sh. slug yellow, purple, gry, few black carb.
Chert a/a, Dol.. a/a

Dol. gry, scattered p.p. porosity, suc. no shows, no odor
Tr. sh. black gry, few yellow

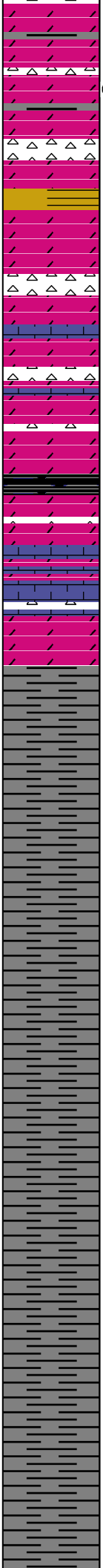
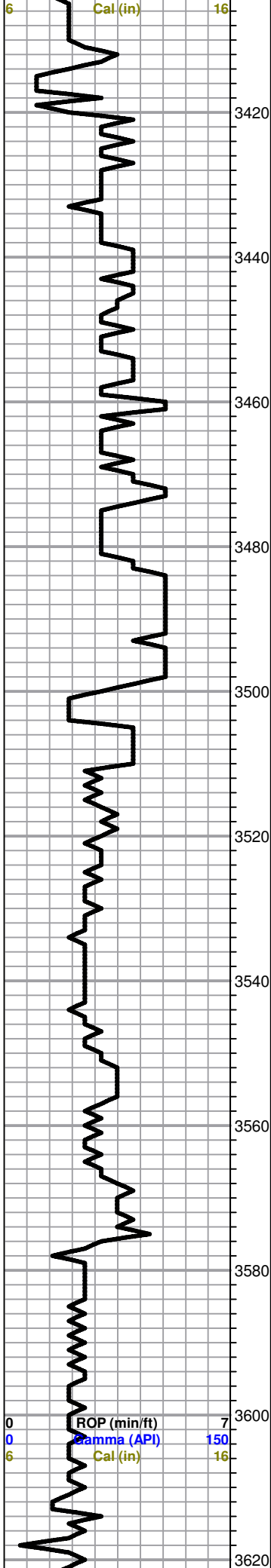
Sh, gry, maroon, few yellow, Tr. chert white, foss,
Dol. tan gry, suc. fair inxln porosity, no shows, no odor

Sh. a/a. Dol. a/a

Sh, gry, black carb, few yellow, purp. Dol. tan, buff,
suc. scattered p.p. porosity, fair inxln porosity,
tr. white chert foss no shows, no odor

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

0	Total Gas (units)	100
0	C1 (units)	100



Sh, a/a, chert, white, opaque, foss, no sfo, tr. black stain, (shale rubbing), no odor

Sh, yellow, brn, dk gry, few purp, mica.
Chert, white, (increase in opaque cherts) few foss, no shows, no odor

Dol white, gry, fxl, dense, poor visible porosity, cherty in pts, no shows, no odor
Sh. a/a

Sh, black carb, gry, fissile
Slug cherts, opaque white, decrease in foss.cherts

Dol. a/a tr. LS, white, cream, gry, fxl dense, no shows

LS, white, cream, dol. fxl, dense, poor visible porosity, no shows, no odor

Kinderhook 3499.0 (-2009.0)

Slug maroon, yellow, maroon (rust), gray shales, (banded multi- color) Waxey

Sh, gry, dk gry, few black carb, (gry sh. v. soft)

Sh, a/a

Sh, gry, silty soft

Sh, gry, greenish, few black carb, no show, no odor

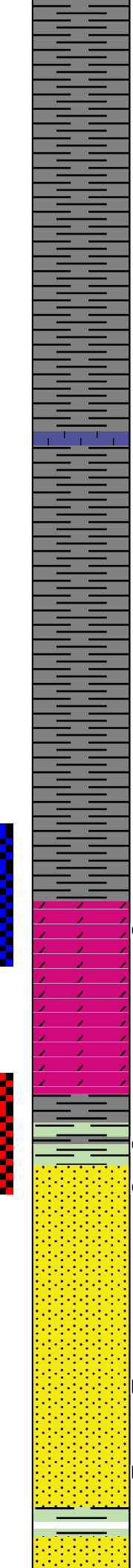
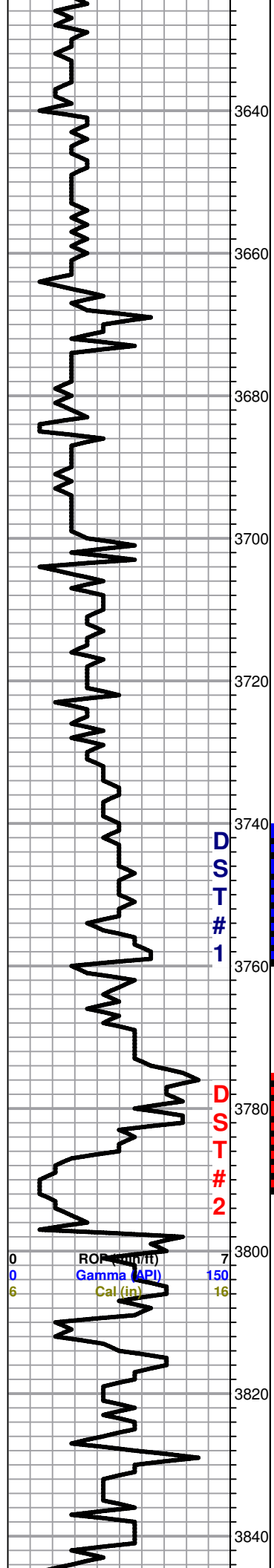
Sh, soft, gry, silty, no shows, no odor

0 C2 (units) 100
0 C3 (units) 100
0 C4 (units) 100

Slug waxey banded Shales

20 Stand Short Trip 8:00 pm

0 Total Gas (units) 100
0 C1 (units) 100
0 C2 (units) 100
0 C3 (units) 100
0 C4 (units) 100



Sh, gry, dk gry, soft

Sh, a/a,

Sh, gry, dk gry, soft, few black, no shows, tr. ls, brn-tan, fxl, few foss, poor visible porosity, no shows

Sh, a/a

Sh, gry, silty, few v. soft gry, tr. black carb, no shows, no odor

Sh, gry, dk gry, silty, few slugs, v. soft gry shale

Viola 3752.0 (-2262.0)

Dol. white, gry, fxl, v. dense, poor visible porosity, poor inxln porosity, tr. sppty sfo, ??? odor in broken samples
 Abd. pyrite in samples, (lost show in 40 min. cfs)

Dol. a/a, v. dense, poor visible porosity, poor inxln porosity, abd. pyrite, no shows, no odor

Simpson Sd. 3787.0 (-2297.0)

Sd. clr,-brn, sub rounded qtz, well sorted, dense, nsfo, (no 100% dead oil flakes) no odor

(60 min.)- Sd. crl, qtz, sub rounded, well sorted, Lt. SFO., thick viscous/ tarry oil.

(Increase in odor and Live oil show in 60 min. sample).

Sd. Gry, tan, f- med grain, sub rounded, well sorted, friable, nsfo, no odor, few black (dead oil) stain

Sd. clr, qtz, f-med grain, well rounded, well sorted, friable, tr. black stain, nsfo, no odor, tr. pyrite

Slug green, black carb shale

Sd. A/a, increase in pyrite

Poor Samples- V. soft gry shale

DST#1 3740-3759

30-30-30-30

1st Open:
BOB 4 mins.

2nd Open:
BOB 6.5 mins.

Recovery:
428' SLOCMCW
(2%O, 80%W, 18% M)

800' SLOCMCW
(1%O, 96%W, 3% M)

Pressures:
ISIP 1226 psi
FSIP 1221 psi
IFP 43-283 psi
FFP 282-480 psi
HSH 1859-1834 psi

DST#2 3775-3792

30-30-30-30

1st Open:
BOB 11 mins
no return on ISIP

2nd Open:
BOB 9.15 mins.
no return of FSIP

Recovery:
210' HMCW
(65%W, 35%M)
100' SLMCW
(84%W, 16%M)

Su. Ava, increase in pyrite

Sh, gry, greenish, few black carb

Arbuckle 3858.0 (-2368.0)

Dol. gry, f. grain, scattered visible porosity, suc. nsfo,

LTD 3865.0 (-2375.0)

RTD 3865.0 (-2375.0)

440' SLMCW
(96%W, 4%M)

Pressures

ISIP 1358 psi

FSIP 1360 psi

IFP 19-187 psi

FFP 185-335 psi

HSH 1821-1790 psi

3860

3880

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 642

Date	1-31-18	Sec.	15	Twp.	20	Range	4	County	McPherson	State	Ks	On Location		Finish	3:45 AM
Lease	Sawyer			Well No.	15-1			Location	Lyon's - E to C.L., E to 8th Rd, 45						
Contractor	Southwind			#	1			Owner	To Dakota Rd, 1 1/4 E, N/5						
Type Job	Conductor							To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.							
Hole Size	17 1/2"			T.D.	215'			Charge To	I.A. Operating						
Csg.	13 3/8" 48#			Depth	214'			Street							
Tbg. Size				Depth				City	State						
Tool				Depth				The above was done to satisfaction and supervision of owner agent or contractor.							
Cement Left in Csg.	15'			Shoe Joint	15'			Cement Amount Ordered	250 80/20 3%U 2%Gel						
Meas Line	Displace			30 Bcs			1/2# Flo-seal per sack								
EQUIPMENT															
Pumptrk	16	No.		Cementer	Travis			Common	200						
				Helper				Poz. Mix	50						
Bulktrk	9	No.		Driver	Jordan			Gel.	5						
				Driver				Calcium	9						
Bulktrk	p.u.	No.		Driver	Rick										
JOB SERVICES & REMARKS															
Remarks:	Cement did Circulate							Hulls							
Rat Hole								Salt							
Mouse Hole								Flowseal	125#						
Centralizers								Kol-Seal							
Baskets								Mud CLR 48							
D/V or Port Collar								CFL-117 or CD110 CAF-38							
								Sand							
								Handling	264						
								Mileage							
FLOAT EQUIPMENT															
								Guide Shoe							
								Centralizer							
								Baskets							
								AFU Inserts							
								Float Shoe							
								Latch Down							
								Pumptrk Charge	Conductor Surface						
								Mileage	49						
								Tax							
								Discount							
								Total Charge							
X Signature	[Signature]														

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 644

Date	2-1-18	Sec.	15	Twp.	20	Range	4	County	Mcpherson	State	Ks	On Location		Finish	4:15 PM
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Lease Sawyer Location Lyon's - E to C.L., E to 8th Rd, 45 to

Well No. 15-1 Owner Dakota Rd, 1 1/4 E, N/IATO

Contractor Southwind #1 To Quality Oilwell Cementing, Inc.
You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.

Type Job Surface Charge To I.A. Operating

Hole Size 12 1/4" T.D. 605' Street

Csg. 8 5/8" Depth 602.50' City State

Tbg. Size Depth City State

Tool Depth The above was done to satisfaction and supervision of owner agent or contractor.

Cement Left in Csg. 20' Shoe Joint 20' Cement Amount Ordered 450 80/20 3%CC 2%Gel 1/2# Flowseal

Meas Line Displace 37 BLS 200 80/20 3%CC 2%Gel

EQUIPMENT

Pumptrk 16 No. Cementer Rick Common 472

Bulktrk 19 No. Driver David Poz. Mix 118

Bulktrk P.U. No. Driver Rick Gel. 11

Calcium 33

JOB SERVICES & REMARKS

Remarks: pump 450 sx cement on Hulls

Rat Hole bottom shut down released Salt

Mouse Hole plug + displaced w/ 37 BLS Flowseal 125#

Centralizers shut in Kol-Seal

Baskets 1 @ 200' - 1 @ 560' Mud CLR 48

D/V or Port Collar Run 100' of 1" pipe CFL-117 or CD110 CAF 38

down annulus + pump 140 sx cement Sand

Cement did circulate Handling 645

FLOAT EQUIPMENT

Guide Shoe Rubber plug

Centralizer

Baskets 2

AFU Inserts

Float Shoe

Latch Down

Used Total 590

Pumptrk Charge Surface

Mileage 45

X Signature [Signature]

Tax
Discount
Total Charge

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 645

Date	2-2-18	Sec.	15	Twp.	20	Range	4	County	Mcpherson	State	Ks	On Location		Finish	2:00 PM
Lease								Well No.		Location					
Sawyer								15-1		Lyons - E to C.L., E to 8th Rd, 45 to Dakota Rd, 1 1/4 E, N15					
Contractor								1		To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.					
Type Job										Charge To I.A. Operating					
Hole Size								T.D.		Street					
Csg.								Depth		City					
Tbg. Size								Depth		State					
Tool								Depth		The above was done to satisfaction and supervision of owner agent or contractor.					
Cement Left in Csg.								Shoe Joint		Cement Amount Ordered 150 Q-Pro-C Thixotropic					
Meas Line								Displace		500# Hulls 1/2 floseal					
EQUIPMENT												Common			
Pumptrk 16 No.								Cementer		150					
Bulktrk 9 No.								Helper		Travis					
Bulktrk p.u. No.								Driver		Donny					
								Driver		Rick					
JOB SERVICES & REMARKS												Hulls 300# (6)			
Remarks:										Salt					
Rat Hole										Flowseal 75#					
Mouse Hole										Kol Seal Gyp Seal 16					
Centralizers										Mud CLR 48					
Baskets										CFL-117 or CD110 CAF 38					
D/V or Port Collar										Sand					
Run 60' Drill pipe mix 150#								Handling		153					
Cement w/ 300# Hulls in first 75#								Mileage							
+ Displaced w/ Bus.										FLOAT EQUIPMENT					
Rigged down										Guide Shoe					
										Centralizer					
										Baskets					
										AFU Inserts					
										Float Shoe					
										Latch Down					
										Pumptrk Charge 0 plug back					
										Mileage 40					
Signature <i>[Signature]</i>												Tax			
												Discount			
												Total Charge			

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 649

Date	2-10-18	Sec.	15	Twp.	20	Range	4	County	Mcpherson	State	Ks	On Location		Finish	6:00 AM
								Location	Lyon's - E to C. L., 8E to 8th Rd, 4S						

Lease	Sawyer	Well No.	15-1	Owner	to Dakota Rd, 1 1/4 E, 1/2 S										
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Contractor	Southwind	#	1	To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.											
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Type Job	Plug	Hole Size	7 7/8"	T.D.	3865'	Charge To	I.A. operating								
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Csg.		Depth		Street											
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Tbg. Size	4 1/2" D.P.	Depth	3843'	City	State										
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Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.											
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Cement Left in Csg.		Shoe Joint		Cement Amount Ordered	210 5X 60/46 4% gel 1/4# flow seal										
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Meas Line		Displace	H ₂ O / mud												
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EQUIPMENT

Pumptrk	16	No.		Cementer	David										Common	126
				Helper											Poz. Mix	84
Bulktrk	9	No.		Driver	Jordan										Gel.	8
				Driver											Calcium	
Bulktrk	p.u.	No.		Driver	Rick										Hulls	

JOB SERVICES & REMARKS

Remarks:	3843' - 35 5X														
Rat Hole	693' - 35 5X														
Mouse Hole	341' - 35 5X														
Centralizers	186' - 35 5X														
Baskets	62' - 20 5X														
D/V or Port Collar	Rathole - w/ 30 5X														
	Mousehole w/ 20 5X														
	Cement did Circulate														
	Salt														
	Flowseal 50#														
	Kol-Seal														
	Mud CLR 48														
	CFL-117 or CD110 CAF 38														
	Sand														
	Handling 28														
	Mileage														

FLOAT EQUIPMENT

	Guide Shoe														
	Centralizer														
	Baskets														
	AFU Inserts														
	Float Shoe														
	Latch Down														

Pumptrk Charge	plug														
Mileage	40														

	Tax														
	Discount														
	Total Charge														

X Signature *[Signature]*