

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 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)</i> <i>(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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QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-1071
Cell 785-324-1041

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

No. 1771

Date <u>2/21/20</u>	Sec. <u>2</u>	Twp. <u>11</u>	Range <u>21</u>	County <u>Trego</u>	State <u>Kansas</u>	On Location	Finish <u>9:30 pm</u>
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Location Elli's N to County Line 3W Sinto

Lease <u>Cook</u>	Well No. <u>16</u>	Owner
Contractor		To Quality Oilwell Cementing, Inc.
Type Job		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 <u>12 1/4</u>	T.D. <u>222'</u>	Charge To <u>Patterson Energy LLC</u>
Csg. <u>8 5/8</u>	Depth <u>221.91'</u>	Street
Tbg. Size	Depth	City
Tool	Depth	State
Cement Left in Csg. <u>15'</u>	Shoe Joint <u>15'</u>	The above was done to satisfaction and supervision of owner agent or contractor.
Meas Line	Displace <u>13</u>	Cement Amount Ordered <u>150⁹⁰/₂₀ 3%cc 2% gel</u>

EQUIPMENT

Pumptrk <u>20</u> No.	Cementer Helper <u>Nick</u>	Common <u>120</u>
Bulktrk <u>1</u> No.	Driver xxxx <u>Doug</u>	Poz. Mix <u>30</u>
Bulktrk <u>P.U.</u> No.	Driver <u>David</u>	Gel. <u>3</u>
		Calcium <u>6</u>

JOB SERVICES & REMARKS

Remarks: <u>Cement Did Circulate</u>	Hulls
Rat Hole	Salt
Mouse Hole	Flowseal
Centralizers	Kol-Seal
Baskets	Mud CLR 48
D/V or Port Collar	CFL-117 or CD110 CAF 38
	Sand
	Handling <u>159</u>
	Mileage

FLOAT EQUIPMENT

	Guide Shoe
	Centralizer
	Baskets
	AFU Inserts
	Float Shoe
	Latch Down

Thanks

Pumptrk Charge <u>Surface</u>
Mileage <u>34</u>

X Signature John Aschler

Tax
Discount
Total Charge

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-1071
Cell 785-324-1041

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

No. 1949

Date	2-26-20	Sec.	2	Twp.	11	Range	21	County	Trego	State	KS	On Location		Finish	1:15pm
Lease								Well No.		Owner					

Lease								Well No. 16		Owner					
Contractor								Type Job		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								T.D.		Charge To					
Csg.								Depth		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.								Shoe Joint		Cement Amount Ordered					
Meas Line								Displace		Common					

EQUIPMENT			
Pumptrk	No.	Cementer	
		Helper	
Bulktrk	No.	Driver	
		Driver	
Bulktrk	No.	Driver	
		Driver	

JOB SERVICES & REMARKS

Remarks:

Rat Hole 30SK

Mouse Hole 15SK

Centralizers

Baskets

D/V or Port Collar

Phys Rathole & Mousehole.

Cement 5 1/2 with 30SK

Cement Circulated.

Plug Under @ 1200*

Thanks

Common	350 80/20 QMDC
Poz. Mix	
Gel.	
Calcium	
Hulls	
Salt	
Flowseal	87#
Kol-Seal	
Mud CLR 48	
CFL-117 or CD110 CAF 38	
Sand	
Handling	350
Mileage	

FLOAT EQUIPMENT	
Guide Shoe	
Centralizer	
Baskets	
AFU Inserts	
Float Shoe	
Latch Down	

Pumptrk Charge	prod string Top Stage
Mileage	34
Tax	
Discount	
Total Charge	

X Signature *Ann Weverling*

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-1071
Cell 785-324-1041

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

No. 1948

Date	2-26-20	Sec.	2	Twp.	11	Range	21	County	Jesse	State	KS	On Location		Finish	12:00p
Location								Palco S CO Line 3W S into							

Lease	Cook		Well No.	16	Owner	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.									
Contractor	D. Scavery #4		Bottom Stage		Charge To Patterson Energy/										
Type Job	DU Job				Street										
Hole Size	2 7/8		T.D.	3740	City										
Csg.	5 1/2		Depth	3739	State										
Tbg. Size			Depth		The above was done to satisfaction and supervision of owner agent or contractor.										
Tool	DU Tool		Depth	1559	Cement Amount Ordered 150 com 10' Salt 5' Gilsonte										
Cement Left in Csg.	28'		Shoe Joint	28'	Meas Line Displace 86 BL 500 gal mud/clear 20 BL KCL										

EQUIPMENT

Pumptrk	20	No.	Cement	Craig	Helper		Poz. Mix
Bulktrk	19	No.	Driver	Mike	Driver		2 gal KCL
Bulktrk	15	No.	Driver	Tony	Driver		Calcium
			Driver	Michael	Driver		

JOB SERVICES & REMARKS

Remarks:		Hulls
Rat Hole		Salt 14
Mouse Hole		Flowseal
Centralizers		Kol-Seal 750 #
Baskets		Mud CLR 48 500 gal
D/V or Port Collar		CFL-117 or CD110 CAP 38
		Sand
		Handling 171
		Mileage

5 1/2 size @ 3739. Baffle @ 3711.
Bot Circulation Pump 500 gal mud/clear
10 BL KCL Cement 5 1/2 with 150 SK
Clear lines & displace plug.
15 9 BL KCL
Displace 54 BL water 27 BL mud
5 BL water to land plug
Plug landed @ 1400 #.
Drop Dat & open DU Tool.
Circ. 1 HR.

FLOAT EQUIPMENT

Guide Shoe	
Centralizer	7
Baskets	2
AFU Inserts	DU Tool
Float Shoe	1
Latch Down	1
Pumptrk Charge	prod string Bottom stage
Mileage	34

X Signature *Avan Weaverling*

Tax
Discount
Total Charge

Geological Report

Cook #16

600' FNL & 2100' FWL

Sec. 2 T11s R21w

Trego County, Kansas



Patterson Energy, LLC.

General Data

Well Data: Patterson Energy, LLC.
Cook #16
600' FNL & 2100' FWL
Sec. 2 T11s R21w
Trego County, Kansas
API # 15-195-23102-0000

Drilling Contractor: Discovery Drilling Co., Inc. Rig #4

Geologist: Jason T Alm

Spud Date: February 20, 2020

Completion Date: February 26, 2020

Elevation: 2088' Ground Level
2096' Kelly Bushing

Directions: Ellis KS, north to county line, 5 miles west, south into location.

Casing: 222' 8 5/8" surface casing
3734' 5 1/2" production casing

Samples: 10' wet and dry, 3100' to RTD

Drilling Time: 3000' to RTD

Electric Logs: Gemini Wireline "Casey Patterson"
CNL/CDL, DIL, MEL

Drillstem Tests: None

Problems: None

Remarks: None

Formation Tops

	Patterson Energy, LLC.
	Cook #16
	Sec. 2 T11s R21w
	600' FNL & 2100' FWL
Formation	
Anhydrite	1531' +565
Base	1587' +509
Topeka	3108' -1012
Heebner	3312' -1216
Toronto	3334' -1238
Lansing	3350' -1254
BKC	3576' -1480
Arbuckle	3634' -1538
LTD	3735' -1639
RTD	3740' -1644

Sample Zone Descriptions

Topeka 30' zone (3132' -1036):
 Ls – Fine crystalline, oolitic in part with scattered fair to good pinpoint inter-crystalline and oolitic porosity, light to fair oil stain with light spotted saturation in porosity, slight show of free oil in sample, good show of free oil on cup, good odor.

LKC F-zone (3438' -1342):
 Ls – Fine crystalline, oolitic in part with scattered fair to good inter-crystalline and vuggy porosity with very scattered fair oomoldic porosity, light to good oil stain por, many rocks with light to fair saturation, good show of free oil on break and cup, strong sour odor, scat dull to fair yellow fluorescents, chalky in part.

LKC I-zone (3507' -1411):
 Ls –Sl. Dolo – Fine crystalline with poor to scat fair inter-crystalline and vuggy porosity, light to fair oil stain with light scattered saturation, fair show of free oil, good show of free oil on cup, good odor, light to fair spotted yellow fluorescents, few large rhombic dolomite crystals.

LKC J-zone**(3524' -1428):**

Ls – Fine crystalline, oolitic with poor to fair oomoldic and scattered vuggy porosity, light to fair spotted oil stain, few rocks with light spotted saturation, slight to fair show of free oil on break, light odor, dull to fair yellow fluorescents.

LKC K-zone**(3540' -1444):**

Ls – Fine crystalline, oolitic in part with fair oolitic and pinpoint inter-crystalline porosity, light to fair oil stain and scattered light saturation, fair show of free oil, fair to good odor, fair to good spotted yellow fluorescents.

Arbuckle**(3634' -1538):**

Ls – Fine to medium sucrosic and rhombic crystalline with fair to good inter-crystalline and scattered vuggy porosity, light to heavy oil stain with much even saturation, good show of free oil in sample and in cup, strong odor, light to fair yellow-green fluorescents, slightly cherty.

Structural Comparison

	Patterson Energy, LLC. Cook #16 Sec. 2 T11s R21w 600' FNL & 2100' FWL	Peel Hardman Cook #1 Sec. 2 T11s R21w 300' FNL & 2310' FWL		Peel Hardman Cook #2 Sec. 2 T11s R21w SE NE NW	
Formation					
Anhydrite	1531' +565	1528' +562	(+3)	NA	FL
Base	1587' +509	NA	NA	NA	NA
Topeka	3108' -1012	3107' -1017	(+5)	3100' -1021	(+9)
Heebner	3312' -1216	3316' -1226	(+10)	3336' -1227	(+11)
Toronto	3334' -1238	3338' -1248	(+10)	3359' -1250	(+12)
Lansing	3350' -1254	3356' -1266	(+12)	3375' -1266	(+12)
BKC	3576' -1480	3580' -1490	(+10)	3602' -1493	(+13)
Arbuckle	3634' -1538	3642' -1552	(+14)	3662' -1553	(+15)

Summary

The location for the Cook #16 was found via 3-D seismic survey. The new location ran structurally as expected via the survey. No Drill Stem Tests were conducted. After all gathered data had been examined the decision was made to run 5 ½ inch production casing to further evaluate the Cook #16 well.

Recommended Perforations

Primary:

Arbuckle Lower	3664' – 3670'
Arbuckle Upper	3638' – 3644'

Secondary:

LKC K-zone	3545' – 3548'
LKC J-zone	3531' – 3533'
LKC I-zone	3509' – 3514'
LKC E-zone	3552' – 3557'

Before Abandonment:

Plattsmouth	3261' – 3266'
Topeka 30'	3132' – 3137'

Respectfully Submitted,

Jason T Alm
Hard Rock Consulting, Inc.
AAPG #10134582