

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. 1956

Date	Sec.	Twp.	Range	County	State	On Location	Finish
3-5-20				Trego	KS		11:00pm
Lease				Well No. 17		Owner	
Contractor				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		Patterson Energy	
Hole Size		T.D.		Street		City State	
Csg.		Depth		City		State	
Tbg. Size		Depth		The above was done to satisfaction and supervision of owner agent or contractor.			
Tool		Depth		Cement Amount Ordered			
Cement Left in Csg.		Shoe Joint		150 80/20 31.4 21.402			
Meas Line		Displace		1336			
<b>EQUIPMENT</b>				Common			
Pumptrk	No.	Cementer	Helper	120			
Bulktrk	No.	Driver	Driver	30			
Bulktrk	No.	Driver	Driver	3			
Bulktrk	No.	Driver	Driver	6			
<b>JOB SERVICES &amp; REMARKS</b>				Hulls			
Remarks:				Salt			
Rat Hole				Flowseal			
Mouse Hole				Kol-Seal			
Centralizers				Mud CLR 48			
Baskets				CFL-117 or CD110 CAF 38			
D/V or Port Collar				Sand			
8 5/8 on bottom Fast Circulation.				Handling 159			
Mix 150SK & Displace.				Mileage			
Cement Circulation				<b>FLOAT EQUIPMENT</b>			
				Guide Shoe			
				Centralizer			
				Baskets			
				AFU Inserts			
				Float Shoe			
				Latch Down			
				Pumptrk Charge			
				Mileage			
				Surface			
				34			
				Tax			
				Discount			
				Total Charge			
Signature							

Thanks

X Signature John Lamb



# 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. 1959

Date	Sec.	Twp.	Range	County	State	On Location	Finish
3-10-20	2	11	21	Trego	KS		2:15 AM
Lease				Well No. 17		Owner	
Contractor				Bottom Stage		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				DU Job		Charge To	
Hole Size				7 7/8		Patterson Energy	
Csg.				5 1/2 17#		Depth	
Tbg. Size				Depth		Street	
Tool				DU Tool		City	
Cement Left in Csg.				18.42		State	
Meas Line				Displace		The above was done to satisfaction and supervision of owner agent or contractor.	
EQUIPMENT				86 BC		Cement Amount Ordered	
Pumptrk				17 No. Cementer		150 com 10% salt 5/4 lbomite	
Bulktrk				9 No. Driver		seagal mod clear 10 BC KCL	
Bulktrk				15 No. Driver		Common 150	
JOB SERVICES & REMARKS				Remarks:		Poz. Mix	
Rat Hole				Rat Hole		Gel.	
Mouse Hole				Mouse Hole		Calcium - KCL 1 gallon	
Centralizers				Centralizers		Hulls	
Baskets				Baskets		Salt 13	
D/V or Port Collar				D/V or Port Collar		Flowseal	
5 1/2 set @ 3729. Battled @ 3710.58				5 1/2 set @ 3729. Battled @ 3710.58		Kol-Seal 750#	
Est. Circulation Pump seagal mod clear				Est. Circulation Pump seagal mod clear		Mud CLR 48 500 gallon	
10 BC KCL Cement 5 1/2 with 150 SK				10 BC KCL Cement 5 1/2 with 150 SK		CFL-117 or CD110 CAF 38	
Clear lines & Displace Plug #9 BC				Clear lines & Displace Plug #9 BC		Sand	
Displace with 54 BC water				Displace with 54 BC water		Handling 170	
2.7 bl mod 5 BC water to land plug.				2.7 bl mod 5 BC water to land plug.		Mileage	
Lift pressure 700#				Lift pressure 700#		FLOAT EQUIPMENT	
Plug landed @ -1500#.				Plug landed @ -1500#.		Guide Shoe	
Drop Dart Open DU Tool.				Drop Dart Open DU Tool.		Centralizer 7	
Thanks				Thanks		Baskets 2	
Pumptrk Charge				Production string Bottom Stage		AFU Inserts DU Tool	
Mileage				34		Float Shoe 1	
Signature				Signature		Latch Down 1	
Tax				Tax		Pumptrk Charge	
Discount				Discount		Mileage	
Total Charge				Total Charge		Tax	



# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-1071

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

No. 1960

Cell 785-324-1041

Date	3-10-20	Sec.	2	Twp.	11	Range	21	County	Trego	State	KS	On Location		Finish	3:45 AM
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Location Elis v Co. Line 3 1/2 W S into

Lease	<u>Cook</u>	Well No.	<u>17</u>	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	<u>Discovery #4</u>	Top Stage		Charge To	<u>Patterson Energy</u>
Type Job	<u>Production strings</u>			Street	
Hole Size	<u>7 7/8</u>	T.D.	<u>3730</u>	City	
Csg.	<u>5 1/2</u>	Depth	<u>3729</u>	State	
Tbg. Size		Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Tool	<u>DV Tool</u>	Depth	<u>1526</u>	Cement Amount Ordered <u>325 80/20 EMDC 1/4 #16</u>	
Cement Left in Csg.		Shoe Joint			
Meas Line		Displace	<u>35 1/2 BCL</u>		

**EQUIPMENT**

Pumptrk	<u>17</u> No.	Cement Helper	<u>Craig</u>	Common	<u>325 80/20 QMD</u>
Bulktrk	<u>15</u> No.	Driver	<u>Tim</u>	Poz. Mix	
Bulktrk	<u>9</u> No.	Driver	<u>Lance</u>	Gel.	
		Driver	<u>Michael</u>	Calcium	

**JOB SERVICES & REMARKS**

Remarks:		Hulls	
Rat Hole	<u>30SK</u>	Salt	
Mouse Hole	<u>15SK</u>	Flowseal	<u>75</u>
Centralizers		Kol-Seal	
Baskets		Mud CLR 48	
D/V or Port Collar		CFL-117 or CD110 CAF 38	
		Sand	
		Handling	<u>325</u>
		Mileage	

**FLOAT EQUIPMENT**

		Guide Shoe	
		Centralizer	
		Baskets	
		AFU Inserts	
		Float Shoe	
		Latch Down	

*Thanks*

Pumptrk Charge	<u>production strings top stage</u>
Mileage	<u>34</u>

X Signature Chris W. [unclear]

Tax	
Discount	
Total Charge	

# **Geological Report**

**Cook #17**

400' FNL & 330' FWL

Sec. 2 T11s R21w

Trego County, Kansas



**Patterson Energy, LLC.**

## General Data

Well Data: Patterson Energy, LLC.  
Cook #17  
400' FNL & 330' FWL  
Sec. 2 T11s R21w  
Trego County, Kansas  
API # 15-195-23103-0000

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

Geologist: Jason T Alm

Spud Date: March 5, 2020

Completion Date: March 10, 2020

Elevation: 2071' Ground Level  
2079' Kelly Bushing

Directions: Ellis KS, north to county line, 4¼ miles west, south into location.

Casing: 222' 8 5/8" surface casing  
3728' 5 1/2" production casing

Samples: 10' wet and dry, 3050' to RTD

Drilling Time: 2950' to RTD

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

Drillstem Tests: None

Problems: None

Remarks: None



## Formation Tops

	<b>Patterson Energy, LLC.</b>
	<b>Cook #17</b>
	<b>Sec. 2 T11s R21w</b>
	<b>400' FNL &amp; 330' FWL</b>
<b>Formation</b>	
Anhydrite	<b>1521' +558</b>
Base	<b>1567' +512</b>
Topeka	<b>3092' -1013</b>
Heebner	<b>3298' -1219</b>
Toronto	<b>3320' -1241</b>
Lansing	<b>3336' -1257</b>
BKC	<b>3566' -1487</b>
Arbuckle	<b>3628' -1549</b>
LTD	<b>3728' -1650</b>
RTD	<b>3729' -1651</b>

## Sample Zone Descriptions

- Topeka 30' zone (3118' -1039):**  
 Ls – Fine crystalline, micro-oolitic in part with scattered fair to good pinpoint inter-crystalline and oolitic porosity, light to good oil stain with scattered fair saturation, good show of free oil in sample and cup, good odor, light to fair yellow-green fluorescents.
- LKC C-zone (3375' -1296):**  
 Ls – Fine crystalline, oolitic with fair oolitic and inter-crystalline porosity, light to fair spotted oil stain, few pieces with light spot saturation, show of free oil in sample and in cup, fair odor, fair yellow fluorescents, slightly chalky.
- LKC F-zone (3419' -1340):**  
 Ls –Sl. Dolo – Fine to medium sucrosic-crystalline in part with good inter-crystalline and scattered vuggy porosity, light to good oil stain with scattered fair saturation, good show of free oil, good odor, light to fair yellow fluorescents.

**LKC H-zone****(3474' -1395):**

Ls – Fine to sub-crystalline with scattered poor vuggy and intra-fossil porosity, few pieces with light to heavy oil stain and good saturation, fair show of free oil, light odor, dull yellow fluorescents.

**LKC I-zone****(3495' -1416):**

Ls – Fine to sub-crystalline with poor inter-crystalline and scattered pinpoint vuggy porosity, light to fair oil stain in porosity, slight show of free oil in sample, fair in cup, good odor, light to fair yellow fluorescents.

**Arbuckle****(3628' -1549):**

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

**Structural Comparison**

	<b>Patterson Energy, LLC.</b>	Peel Hardman		Peel Hardman	
	<b>Cook #17</b>	Cook #10		Cook #11	
<b>Formation</b>	<b>Sec. 2 T11s R21w</b>	Sec. 2 T11s R21w		Sec. 2 T11s R21w	
	<b>400' FNL &amp; 330' FWL</b>	NW NW NW		C W2 NW NW	
Anhydrite	<b>1521' +558</b>	NA	<b>NA</b>	1520' +560	<b>(-2)</b>
Base	<b>1567' +512</b>	NA	<b>NA</b>	NA	<b>NA</b>
Topeka	<b>3092' -1013</b>	NA	<b>NA</b>	NA	<b>NA</b>
Heebner	<b>3298' -1219</b>	3302' -1222	<b>(+3)</b>	3303' -1223	<b>(+4)</b>
Toronto	<b>3320' -1241</b>	3324' -1244	<b>(+3)</b>	NA	<b>NA</b>
Lansing	<b>3336' -1257</b>	3341' -1260	<b>(+3)</b>	3342' -1262	<b>(+5)</b>
BKC	<b>3566' -1487</b>	3568' -1488	<b>(+1)</b>	3567' -1487	<b>FL</b>
Arbuckle	<b>3628' -1549</b>	3630' -1550	<b>(+1)</b>	3638' -1558	<b>(+9)</b>

## Summary

The location for the Cook #17 was found via 3-D seismic survey. The new well 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 #17 well.

## Recommended Perforations

### Primary:

Arbuckle Lower	3656' – 3662'
Arbuckle Upper	3631' – 3634', 3636' – 3639'

### Secondary:

LKC I-zone	3499' – 3503'
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### Before Abandonment:

LKC F-zone	3422' – 3425'
Topeka 30'	3119' – 3123'

Respectfully Submitted,

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