

RECEIVED  
KANSAS CORPORATION COMMISSION

APR 18 2006

CONSERVATION DIVISION  
WICHITA, KS

KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION

WELL COMPLETION FORM

WELL HISTORY - DESCRIPTION OF WELL & LEASE

ORIGINAL

Form ACO-1  
September 1999  
Form Must Be Typed

Operator: License # 33344  
Name: Quest Cherokee, LLC  
Address: 211 W. 14th Street  
City/State/Zip: Chanute, KS 66720  
Purchaser: Bluestem Pipeline, LLC  
Operator Contact Person: Gary Laswell  
Phone: (620) 431-9500  
Contractor: Name: Barton T. Lorenz  
License: 33286  
Wellsite Geologist: n/a

Designate Type of Completion:  
 New Well  Re-Entry  Workover  
 Oil  SWD  SLOW  Temp. Abd.  
 Gas  ENHR  SIGW  
 Dry  Other (Core, WSW, Expl., Cathodic, etc)

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

Operator: \_\_\_\_\_  
Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_  
 Deepening  Re-perf.  Conv. to Enhr./SWD  
 Plug Back \_\_\_\_\_ Plug Back Total Depth \_\_\_\_\_  
 Commingled \_\_\_\_\_ Docket No. \_\_\_\_\_  
 Dual Completion \_\_\_\_\_ Docket No. \_\_\_\_\_  
 Other (SWD or Enhr.?) \_\_\_\_\_ Docket No. \_\_\_\_\_

10/22/04      10/25/04      11/12/04  
Spud Date or      Date Reached TD      Completion Date or  
Recompletion Date                Recompletion Date

API No. 15 - 133-26198-00-00  
County: Neosho  
\_\_\_\_\_ ne \_ se Sec. 1 Twp. 29 S. R. 17  East  West  
1980 feet from S N (circle one) Line of Section  
660 feet from E W (circle one) Line of Section  
Footages Calculated from Nearest Outside Section Corner:  
(circle one) NE SE NW SW  
Lease Name: Taylor, Wayne L. Well #: 1-1

Field Name: Cherokee Basin CBM  
Producing Formation: Riverton  
Elevation: Ground: 975 Kelly Bushing: n/a  
Total Depth: 1112 Plug Back Total Depth: 1106  
Amount of Surface Pipe Set and Cemented at 21.5 Feet  
Multiple Stage Cementing Collar Used?  Yes  No  
If yes, show depth set \_\_\_\_\_ Feet  
If Alternate II completion, cement circulated from 1119  
feet depth to Surface w/ 133 \_\_\_\_\_ sx cmt.  
ALTI WHM 8-25-06

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 No.: \_\_\_\_\_  
Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West  
County: \_\_\_\_\_ Docket No.: \_\_\_\_\_

**INSTRUCTIONS:** An original and two copies of this form shall be filed with the Kansas Corporation Commission, 130 S. Market - Room 2078, Wichita, Kansas 67202, within 120 days of the spud date, recompletion, workover or conversion of a well. Rule 82-3-130, 82-3-106 and 82-3-107 apply. Information of side two of this form will be held confidential for a period of 12 months if requested in writing and submitted with the form (see rule 82-3-107 for confidentiality in excess of 12 months). One copy of all wireline logs and geologist well report shall be attached with this form. ALL CEMENTING TICKETS MUST BE ATTACHED. Submit CP-4 form with all plugged wells. Submit CP-111 form with all temporarily abandoned wells.

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.

Signature: [Signature]

Title: Head of Operations Date: 4/13/06

Subscribed and sworn to before me this 13th day of April,  
2006.

Notary Public: Jennifer R. Ammann

Date Commission Expires: July 30, 2009

JENNIFER R. AMMANN  
Notary Public - State of Kansas  
My Appt. Expires July 30, 2009

**KCC Office Use ONLY**  
N Letter of Confidentiality Received  
If Denied, Yes  Date: \_\_\_\_\_  
 Wireline Log Received  
 Geologist Report Received  
 UIC Distribution

Side Two

Operator Name: Quest Cherokee, LLC Lease Name: Taylor, Wayne L. Well #: 1-1  
 Sec. 1 Twp. 29 S. R. 17  East  West County: Neosho

**INSTRUCTIONS:** Show important tops and base 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. Attach copy of all Electric Wireline Logs surveyed. Attach final geological well site report.

Drill Stem Tests Taken  Yes  No  
*(Attach Additional Sheets)*

Samples Sent to Geological Survey  Yes  No

Cores Taken  Yes  No

Electric Log Run  Yes  No  
*(Submit Copy)*

Log Formation (Top), Depth and Datum  Sample  
 Name Top Datum  
 See attached

RECEIVED  
 KANSAS CORPORATION COMMISSION  
 APR 18 2006  
 CONSERVATION DIVISION  
 WICHITA, KS

List All E. Logs Run:  
 Comp. Density/Neutron Log  
 Dual Induction Log  
 Gamma Ray/Neutron Log

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
Surface	11"	8-5/8"	20#	21.5'	"A"	6	
Production	6-3/4"	4-1/2"	10.5#	1106'	"A"	133	

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	#Sacks Used	Type and Percent Additives
___ Perforate				
___ Protect Casing				
___ Plug Back TD				
___ Plug Off Zone				

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record (Amount and Kind of Material Used)	Depth
4	1048-1052	Acid job, 350 gal 15% acid, KCl .25 gal, Biocide	1048-1052

TUBING RECORD		Size	Set At	Packer At	Liner Run
		2-3/8"	1081.15'	n/a	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Date of First, Resumed Production, SWD or Enhr.		Producing Method			
4/04/05		<input type="checkbox"/> Flowing <input checked="" type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other (Explain)			
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
	n/a	55 mcf	20 bbls		

Disposition of Gas  Vented  Sold  Used on Lease *(If vented, Submit ACO-18)*

METHOD OF COMPLETION  Open Hole  Perf.  Dually Comp.  Commingled  Other (Specify) \_\_\_\_\_

Production Interval \_\_\_\_\_



BARON T. LORENZ #33286  
543-A 22000 Rd.  
Cherryvale, KS 67335  
620-328-4433

DRILLER LOG  
QUEST CHEROKEE, LLC

Wayne Taylor #1-1  
S1, T29, R17E  
Neosho County  
API # 15-133-26198-00-00

0-8	DIRT		10-22-04 Drilled 11" hole and
8-40'	SAND		Set 21.5' of 8 5/8" Surface pipe
40-91	SHALE		Set with 6 sacks of Portland Cement
91-96	LIME		
96-107	SHALE		10-25-04 Started drilling 6 3/4" hole
107-178	LIME		
178-182	SHALE		10-25-04 Finished drilling to T.D. 1112'
182-187	LIME		
187-200	SANDY SHALE		
200-220	SAND		WATER @ 511'
220-227	SHALE		WATER INCREASE @ 980'
227-238	LIME		
238-241	SHALE		485' 3" ON 1/2" ORIFICE
241-253	LIME	62.7 MCF	511' 100" ON 1/2" ORIFICE
253-265	SHALE	77 MCF	561' 8" ON 1" ORIFICE
265-316	LIME	141 MCF	586' 28" ON 1" ORIFICE
316-370	SANDY SHALE	190 MCF	626' 54" ON 1" ORIFICE
370-380	SHALE	181 MCF	636' 17" ON 1 1/4" ORIFICE
380-383	LIME		711' 15" ON 1 1/4" ORIFICE
383-413	SHALE		736' 17" ON 1 1/4" ORIFICE
413-425	LIME		761' 16" ON 1 1/4" ORIFICE
425-431	SHALE		786' 15" ON 1 1/4" ORIFICE
431-438	SAND	340 MCF	836' 60" ON 1 1/4" ORIFICE
438-464	SHALE	822 MCF	887' 13 LBS ON 1 1/4" ORIFICE
464-491	SANDY SHALE	1495 MCF	962' 18 LBS ON 1 1/2" ORIFICE
491-501	LIME		1012' UNABLE TO TEST DUE TO WATER
501-502	COAL LESS THAN 6"	1715 MCF	1112' 22 LBS ON 1 1/2" ORIFICE
502-503	SHALE		
503-539	LIME PINK		
539-541	SHALE		
541-550	LIME		
550-552	BLACK SHALE		
552-561	SHALE		
561-571	SANDY SHALE		
571-592	SAND/ODOR		
592-614	LIME OSWEGO		
614-616	SHALE		
616-619	BLACK SHALE		
619-623	SHALE		
623-628	LIME		
628-630	SHALE		
630-631	COAL LESS THAN 8"		
631-633	SHALE		
633-635	LIME		
635-646	SAND		
646-659	SANDY SHALE		
659-676	SHALE		

RECEIVED  
KANSAS CORPORATION COMMISSION

APR 18 2006

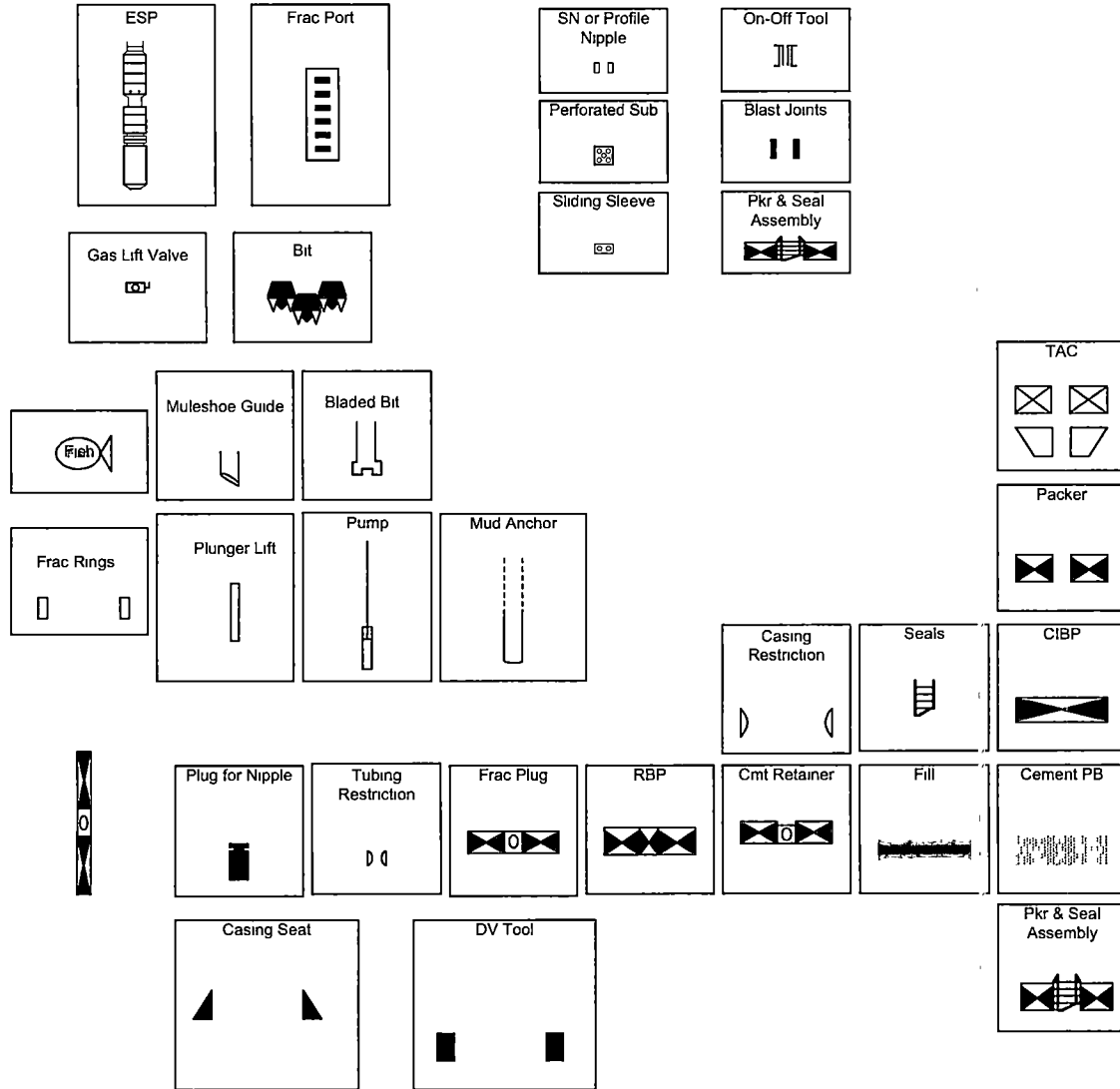
CONSERVATION DIVISION  
WICHITA, KS

# POSTROCK



## LEGEND

PostRock



BARTON T. LORENZ #33286  
543-A 22000 Rd.  
Cherryvale, KS 67335  
620-328-4433

DRILLER LOG  
QUEST CHEROKEE, LLC

Wayne Taylor #1-1  
S1, T29, R17E  
Neosho County  
API # 15-133-26198-00-00

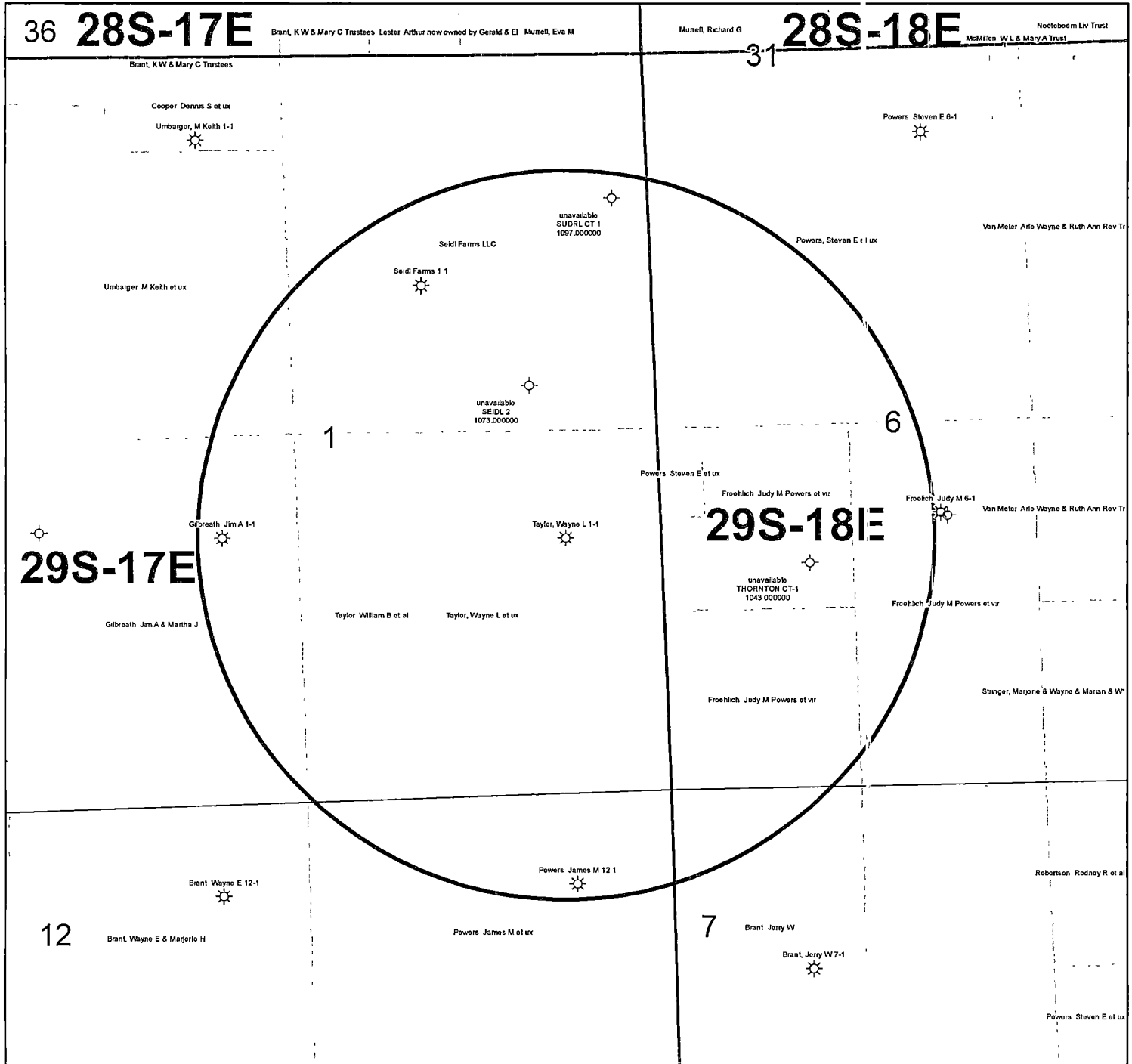
676-686 SANDY SHALE  
686-701 SHALE  
701-702 COAL  
702-720 SHALE  
720-722 LIME  
722-724 SHALE  
724-725 COAL LESS THAN 8"  
725-738 SAND  
738-759 SANDY SHALE  
759-760 COAL  
760-773 SAND  
773-777 SHALE  
777-798 SAND/ODOR  
798-808 SANDY SHALE  
808-818 SHALE  
818-819 COAL LESS THAN 8"  
819-826 SAND  
826-836 SANDY SHALE  
836-853 SAND  
853-861 SANDY SHALE  
861-873 LAMINATED SAND/ODOR  
873-897 LAMINATED SAND  
897-912 SAND  
912-934 SANDY SHALE  
934-960 SAND/ODOR  
960-990 SAND  
990-991 COAL  
991-999 SHALE  
999-1000 COAL  
1000-1042 SHALE  
1042-1044 COAL  
1044-1057 SHALE  
1057-1112 LIME MISSISSIPPI/ODOR

T.D. 1112'

RECEIVED  
KANSAS CORPORATION COMMISSION

APR 18 2006

CONSERVATION DIVISION  
WICHITA, KS



**KGS STATUS**

☉	DA/PA
⊕	EOR
☀	GAS
△	INJ/SWD
●	OIL
★	OIL/GAS
○	OTHER

Taylor, Wayne L 1-1  
 1-29S-17E  
 1" = 1,000'

BEFORE THE STATE CORPORATION COMMISSION OF THE STATE OF KANSAS  
**NOTICE OF FILING APPLICATION**

# Affidavit of Publication

RE: In the Matter of **Postrock Midcontinent Production, LLC** Application for Commingling of Production in the **Taylor, Wayne L 1-1** located in **Neosho County, Kansas**.

STATE OF KANSAS, NEOSHO COUNTY, ss:  
*Rhonda Howerter*, being first duly sworn, deposes and says: That *she* is *Classified Manager* of *THE CHANUTE TRIBUNE*, a daily newspaper printed in the State of Kansas, and published in and of general circulation in Neosho County, Kansas, with a general paid circulation on a daily basis in Neosho County, Kansas, and that said newspaper is not a trade, religious or fraternal publication.

TO: All Oil & Gas Producers, Unleased Mineral Interest Owners, Landowners, and all persons whomever concerned.

Said newspaper is a daily published at least weekly 50 times a year: has been so published continuously and uninterruptedly in said county and state for a period of more than five years prior to the first publication of said notice; and has been admitted at the post office of Chanute, in said county as second class matter.

You, and each of you, are hereby notified that **Postrock Midcontinent Production, LLC** has filed an application to commingle the **Summit, Mulky, Bevier, Croweburg, Fleming, Rowe, Neutral, Riverton and Bartlesville** producing formations at the **Taylor, Wayne L 1-1**, located in the **NESWNESE S1-T29S-R17E, Approximately 1867 FSL & 687 FEL, Neosho County, Kansas**.

That the attached notice is a true copy thereof and was published in the regular and entire issue of said newspaper for 1 consecutive time, the first publication thereof being made as aforesaid on the 16 day of August 2012, with subsequent publications being made on the following dates:

Any persons who object to or protest this application shall be required to file their objections or protest with the Conservation Division of the State Corporation Commission of the State of Kansas within fifteen (15) days from the date of this publication. These protests shall be filed pursuant to Commission regulations and must state specific reasons why granting the application may cause waste, violate correlative rights or pollute the natural resources of the State of Kansas.

\_\_\_\_\_, 2012 \_\_\_\_\_, 2012

\_\_\_\_\_, 2012 \_\_\_\_\_, 2012

*Rhonda Howerter*

All persons interested or concerned shall take notice of the foregoing and shall govern themselves accordingly. All person and/or companies wishing to protest this application are required to file a written protest with the Conservation Division of the Kansas Oil and Gas Commission.

Subscribed and sworn to and before me this 16 day of August 2012

Upon the receipt of any protest, the Commission will convene a hearing and protestants will be expected to enter an appearance either through proper legal counsel or as individuals, appearing on their own behalf.

*[Signature]*  
\_\_\_\_\_  
Notary Public

**Postrock Midcontinent Production, LLC**  
210 Park Avenue, Suite 2750  
Oklahoma City, Oklahoma 73102  
(405) 660-7704

My commission expires: January 9, 2015  
Printer's Fee ..... \$ 70.21  
Affidavit, Notary's Fee ..... \$ 3.00  
Additional Copies ..... \$ \_\_\_\_\_  
Total Publication Fees ..... \$ 73.21

A COPY OF THE AFFIDAVIT OF PUBLICATION MUST ACCOMPANY ALL APPLICATIONS

SHANNA L. GUIOT  
Notary Public - State of Kansas  
My Appt Expires 1-9-15



**AFFIDAVIT**

STATE OF KANSAS \  
- SS.  
County of Sedgwick /

Mark Fletchall, of lawful age, being first duly sworn, deposeth and saith: That he is Record Clerk of The Wichita Eagle, a daily newspaper published in the City of Wichita, County of Sedgwick, State of Kansas, and having a general paid circulation on a daily basis in said County, which said newspaper has been continuously and uninterruptedly published in said County for more than one year prior to the first publication of the notice hereinafter mentioned, and which said newspaper has been entered as second class mail matter at the United States Post Office in Wichita, Kansas, and which said newspaper is not a trade, religious or fraternal publication and that a notice of a true copy is hereto attached was published in the regular and entire Morning issue of said The Wichita Eagle for 1 issues, that the first publication of said notice was

made as aforesaid on the 17th of

August A.D. 2012, with

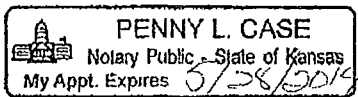
subsequent publications being made on the following dates:

And affiant further says that he has personal knowledge of the statements above set forth and that they are true.

*Mark Fletchall*

Subscribed and sworn to before me this

17th day of August, 2012



*Penny L. Case*  
Notary Public Sedgwick County, Kansas

Printer's Fee : \$139.60

**LEGAL PUBLICATION**  
PUBLISHED IN THE WICHITA EAGLE  
AUGUST 17, 2012 (320122)  
BEFORE THE STATE CORPORATION  
COMMISSION OF THE STATE OF KANSAS  
**NOTICE OF FILING APPLICATION**  
RE: In the Matter of Postrock Midcontinent  
Production, LLC - Application for  
Commingling of Production in the Taylor,  
Wayne L 1-1 located in Neosho County,  
Kansas  
TO: All Oil & Gas Producers, Unleased Mineral  
Interest Owners, Landowners and all  
persons whomsoever concerned.  
You, and each of you, are hereby notified  
that Postrock Midcontinent Production, LLC  
has filed an application to commingle the  
Summit, Mulky, Bevier, Croweburg, Fleming,  
Rowe, Neutral, Riverton, and Bartlesville  
producing formations at the Taylor, Wayne,  
L 1-1, located in the NESWNESE 51-T295-  
R17E, Approximately 1867 FSL & 187 FEL,  
Neosho County, Kansas.  
Any persons who object to or protest  
this application shall be required to file their  
objections or protest with the Conservation  
Division of the State Corporation Commission  
of the State of Kansas within fifteen (15)  
days from the date of this publication. These  
protests shall be filed pursuant to Commission  
regulations and must state specific reasons  
why granting the application may cause waste,  
violate correlative rights or pollute a natural  
resource of the State of Kansas.  
All persons interested or concerned shall  
take notice of the foregoing and shall govern  
themselves accordingly. All persons and/or  
companies wishing to protest this application  
are required to file a written protest with the  
Conservation Division of the Kansas Oil and  
Gas Commission.  
Upon the receipt of any protest, the  
Commission will convene a hearing and  
protestants will be expected to enter an  
appearance either through proper legal  
counsel or as individuals, appearing on their  
own behalf.  
Postrock Midcontinent Production, LLC  
210 Park Avenue, Suite 2750  
Oklahoma City, Oklahoma 73102  
(405) 660-2704  
**A COPY OF THE AFFIDAVIT OF  
PUBLICATION MUST ACCOMPANY ALL  
APPLICATIONS**



**Affidavit of Notice Served**

Re: Application for: APPLICATION FOR COMMINGLING OF PRODUCTION OR FLUIDS AGO-4

Well Name TAYLOR, WAYNE L 1-1 Legal Location: NESWNESE S1-T29S-R17E

The undersigned hereby certifies that he / she is a duly authorized agent for the applicant, and that on the day 18<sup>th</sup> of September, 2012, a true and correct copy of the application referenced above was delivered or mailed to the following parties.

Note: A copy of this affidavit must be served as a part of the application.

Name	Address (Attach additional sheets if necessary)
POSTROCK MIDCONTINENT PRODUCTION ,LLC	210 PARK AVENUE, SUITE 2750, OKLAHOMA CITY, OK 73102-5641

I further attest that notice of the filing of this application was published in the The Chanute Tribune, the official county publication of Neosho county. A copy of the affidavit of this publication is attached.

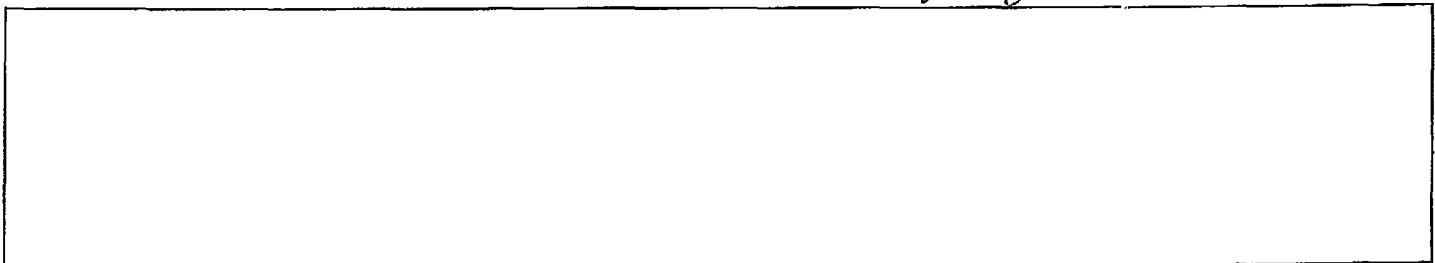
Signed this 18<sup>th</sup> day of September, 2012

[Signature]  
Applicant or Duly Authorized Agent

Subscribed and sworn to before me this 18<sup>th</sup> day of September, 2012



[Signature]  
Notary Public  
My Commission Expires: July 20, 2016



TAYLOR, WAYNE L 1-1-APPLICATION FOR COMMINGLING OF PRODUCTION OR FLUIDS

\_\_\_\_\_

\_\_\_\_\_

Offset Operators, Unleased Mineral Owners and Landowners acreage  
(Attach additional sheets if necessary)

Name:

Legal Description of Leasehold.

POSTROCK MIDCONTINENT PRODUCTION, LLC

POSTROCK HAS LEASED ALL ACREAGE IN THE 1/2

MILE RADIUS

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I hereby certify that the statements made herein are true and correct to the best of my knowledge and belief.

Wayne L Taylor  
Applicant or Duly Authorized Agent

Subscribed and sworn before me this 18<sup>th</sup> day of September, 2012



Jennifer R. Beal  
Notary Public

My Commission Expires: July 20, 2016

\_\_\_\_\_

Conservation Division  
Finney State Office Building  
130 S. Market, Rm. 2078  
Wichita, KS 67202-3802



Phone: 316-337-6200  
Fax: 316-337-6211  
<http://kcc.ks.gov/>

Mark Sievers, Chairman  
Thomas E Wright, Commissioner  
Shan Feist Albrecht, Commissioner

Sam Brownback, Governor

October 3, 2012

Clark Edwards  
PostRock Midcontinent Production LLC  
Oklahoma Tower  
210 Park Ave, Ste 2750  
Oklahoma City, OK 73102

RE: Approved Commingling CO091209  
Taylor, Wayne L. 1-1, Sec. 1-T29S-R17E, Neosho County  
API No. 15-133-26198-00-00

Dear Mr. Edwards:

Your Application for Commingling (ACO-4) for the above described well, received by the KCC on September 18, 2012, has been reviewed and approved by the Kansas Corporation Commission (KCC) per K.A.R. 82-3-123. Notice was examined and found to be proper per K.A.R. 82-3-135a. No protest had been filed within the 15-day protest period.

Based upon the depth of the Riverton formation perforations, total oil production shall not exceed 100 BOPD and total gas production shall not exceed 50% of the absolute open flow (AOF).

**File form ACO-1 upon re-completion of the well to commingle.**

Commingling ID number CO091209 has been assigned to this approved application. Use this number for well completion reports (ACO-1) and other correspondence that may concern this approved commingling.

Sincerely,

Rick Hestermann  
Production Department



KANSAS CORPORATION COMMISSION 1090529  
OIL & GAS CONSERVATION DIVISION

Form ACO-4  
Form must be typed  
March 2009

APPLICATION FOR COMMINGLING OF **Commingling ID # CO091209**  
PRODUCTION (K.A.R. 82-3-123) OR FLUIDS (K.A.R. 82-3-123a)

OPERATOR License # 33343 API No 15 - 15-133-26198-00-00  
Name PostRock Midcontinent Production LLC Spot Description \_\_\_\_\_  
Address 1 Oklahoma Tower NE SW NE SE Sec 1 Twp 29 S R 17  East  West  
Address 2 210 Park Ave, Ste 2750 1867 Feet from  North /  South Line of Section  
City OKLAHOMA CITY State OK Zip 73102 + \_\_\_\_\_ 687 Feet from  East /  West Line of Section  
Contact Person CLARK EDWARDS County Neosho  
Phone (620) 432-4200 Lease Name TAYLOR WAYNE L Well # 1-1

1 Name and upper and lower limit of each production interval to be commingled  
Formation RIVERTON (Perfs) 1048-1052  
Formation SUMMIT (Perfs) 620-624  
Formation MULKY (Perfs) 633-637  
Formation BEVIER (Perfs) 706-708  
Formation CROWEBURG (Perfs) 727-730

2 Estimated amount of fluid production to be commingled from each interval  
Formation RIVERTON BOPD 0 MCFPD 1.6 BWPD 4  
Formation SUMMIT BOPD 0 MCFPD 1.6 BWPD 4  
Formation MULKY BOPD 0 MCFPD 1.6 BWPD 4  
Formation BEVIER BOPD 0 MCFPD 1.6 BWPD 4  
Formation CROWEBURG BOPD 0 MCFPD 1.6 BWPD 4

3 Plat map showing the location of the subject well, all other wells on the subject lease, and all wells on offsetting leases within a 1/2 mile radius of the subject well, and for each well the names and addresses of the lessee of record or operator

4 Signed certificate showing service of the application and affidavit of publication as required in K A R 82-3-135a

**For Commingling of PRODUCTION ONLY, include the following:**

- 5 Wireline log of subject well Previously Filed with ACO-1  Yes  No  
 6 Complete Form ACO-1 (Well Completion form) for the subject well

**For Commingling of FLUIDS ONLY, include the following:**

- 7 Well construction diagram of subject well  
 8 Any available water chemistry data demonstrating the compatibility of the fluids to be commingled

**AFFIDAVIT:** I am the affiant and hereby certify that to the best of my current information, knowledge and personal belief, this request for commingling is true and proper and I have no information or knowledge, which is inconsistent with the information supplied in this application

Submitted Electronically

<b>KCC Office Use Only</b>	
<input type="checkbox"/> Denied	<input checked="" type="checkbox"/> Approved
15-Day Periods Ends <u>10/3/2012</u>	
Approved By <u>Rick Hestermann</u>	Date <u>10/03/2012</u>

*Protests may be filed by any party having a valid interest in the application Protests must be in writing and comply with K A R 82-3-135b and must be filed within 15 days of publication of the notice of application*

	A	B	C	D	E	F	G	H	I	J	K		
1	Produced Fluids #		1	2	3	4	5		Click here to run SSP  Goal Seek SSP		Click		
2	Parameters	Units	Input	Input	Input	Input	Input						Click
3	Select the brines	Select fluid by checking the box(es),	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mixed brine:					Click
4	Sample ID	Row 3						Cell H28 is					Click
5	Date	3/19/2012	3/19/2012	3/14/2012	3/14/2012	1/20/2012	1/20/2012	STP calc. pH.					Click
6	Operator	PostRock	PostRock	PostRock	PostRock	PostRock	PostRock	Cells H35-38					Click
7	Well Name	Ward Feed	Ward Feed	Clnesmith	Clnesmith	Clnesmith	Clnesmith	are used in					Click
8	Location	#34-1	#4-1	#5-4	#1	#2		mixed brines					Click
9	Field	CBM	CBM	Bartles	Bartles	Bartles		calculations.					Click
10	Na <sup>+</sup>	(mg/l)*	19,433.00	27,381.00	26,534.00	25689.00	24220.00	24654.20			Initial(BH)	Final(WH)	SI/SR (Final-Initial)
11	K <sup>+</sup> (if not known =0)	(mg/l)						0.00	Saturation Index values				
12	Mg <sup>2+</sup>	(mg/l)	1,096.00	872.00	1,200.00	953.00	858.00	995.91	Calcite				
13	Ca <sup>2+</sup>	(mg/l)	1,836.00	2,452.00	2,044.00	1920.00	1948.00	2040.23	-0.73	-0.60	0.13		
14	Sr <sup>2+</sup>	(mg/l)						0.00	Barite				
15	Ba <sup>2+</sup>	(mg/l)						0.00					
16	Fe <sup>2+</sup>	(mg/l)	40.00	21.00	18.00	82.00	90.00	50.21	Halite				
17	Zn <sup>2+</sup>	(mg/l)						0.00	-1.77	-1.80	-0.03		
18	Pb <sup>2+</sup>	(mg/l)						0.00	Gypsum				
19	Cl <sup>-</sup>	(mg/l)	36,299.00	48,965.00	47,874.00	45632.00	43147.00	44388.44	-3.19	-3.18	0.00		
20	SO <sub>4</sub> <sup>2-</sup>	(mg/l)	1.00	1.00	8.00	1.00	1.00	2.40	Hemihydrate				
21	F <sup>-</sup>	(mg/l)						0.00	-3.96	-3.90	0.06		
22	Br <sup>-</sup>	(mg/l)						0.00	Anhydrite				
23	SiO <sub>2</sub>	(mg/l) SiO <sub>2</sub>						0.00	-3.47	-3.36	0.12		
24	HCO <sub>3</sub> Alkalinity**	(mg/l as HCO <sub>3</sub> )	190.00	234.00	259.00	268.00	254.00	241.03	Celestite				
25	CO <sub>3</sub> Alkalinity	(mg/l as CO <sub>3</sub> )											
26	Carboxylic acids**	(mg/l)						0.00	Iron Sulfide				
27	Ammonia	(mg/L) NH <sub>3</sub>						0.00	-0.16	-0.22	-0.06		
28	Borate	(mg/L) H <sub>3</sub> BO <sub>3</sub>						0.00	Zinc Sulfide				
29	TDS (Measured)	(mg/l)						72781					
30	Calc. Density (STP)	(g/ml)	1.038	1.051	1.050	1.048	1.045	1.047	Calcium fluoride				
31	CO <sub>2</sub> Gas Analysis	(%)	19.97	18.76	22.41	35.53	33.79	26.16					
32	H <sub>2</sub> S Gas Analysis***	(%)	0.0289	0.0292	0.0296	0.0306	0.0151	0.0269	Iron Carbonate				
33	Total H <sub>2</sub> Saq	(mgH <sub>2</sub> S/l)	1.00	1.00	1.00	1.00	0.50	0.90	-0.74	-0.51	0.23		
34	pH, measured (STP)	pH	5.67	5.76	5.72	5.54	5.55	5.63	Inhibitor needed (mg/L)				
35	Choose one option to calculate SI?	0-CO <sub>2</sub> %+Alk, 1-pH+Alk, 2-CO <sub>2</sub> %+pH	0	0	0	0	0	0	Calcite	NTMP			
36	Gas/day(thousand cf/day)	(Mcf/D)						0	0.00	0.00			
37	Oil/Day	(B/D)	0	0	1	1	1	4	Barite	BHPMP			
38	Water/Day	(B/D)	100	100	100	100	100	500	0.00	0.00			
39	For mixed brines, enter values for temperatures and pressures in Cells (H40-H43)								(Enter H40-H43)		pH		
40	Initial T	(F)	66.0	71.0	70.0	41.0	49.0	60.0	5.69	5.60			
41	Final T	(F)	66.0	71.0	70.0	41.0	49.0	89.0	Viscosity (CentiPoise)				
42	Initial P	(psia)	25.0	25.0	25.0	25.0	25.0	25.0	1.196	0.826			
43	Final P	(psia)	25.0	25.0	25.0	25.0	25.0	120.0	Heat Capacity (cal/ml <sup>o</sup> C)				
44	Use TP on Calcite sheet?	1-Yes,0-No							0.955	0.959			
45	API Oil Grav.	API grav						30.00	Inhibitor needed (mg/L)				
46	Gas Sp.Grav.	Sp Grav						0.60	Gypsum	HDTMP			
47	MeOH/Day	(B/D)	0					0	0.00	0.00			
48	MEG/Day	(B/D)	0					0	Anhydrite	HDTMP			
49	Conc Multiplier								0.00	0.00			
50	H <sup>+</sup> (Strong acid) †	(N)											
51	OH <sup>-</sup> (Strong base) †	(N)											
52	Quality Control Checks at STP:												
53	H <sub>2</sub> S Gas	(%)											
54	Total H <sub>2</sub> Saq (STP)	(mgH <sub>2</sub> S/l)											
55	pH Calculated	(pH)											
56	PCO <sub>2</sub> Calculated	(%)											
57	Alkalinity Calculated	(mg/l) as HCO <sub>3</sub>											
58	ΣCations=	(equiv /l)											
59	ΣAnions=	(equiv /l)											
60	Calc TDS=	(mg/l)											
61	Inhibitor Selection	Input	Unit	#	Inhibitor	Unit Converter (From metric to English)							
62	Protection Time	120	min	1	NTMP	From Unit	Value	To Unit	Value				
63	Have ScaleSoft/Ptzer			2	BHPMP	°C	80	°F	176				
64	pick inhibitor for you?	1	1-Yes,0-No	3	PAA	m <sup>3</sup>	100	ft <sup>3</sup>	3,531				
65	If No, inhibitor # is:	4	#	4	DTPMP	m <sup>3</sup>	100	bbl(42 US gal)	629				
66	If you select Mixed,			5	PPCA	MPa	1,000	psia	145,074				
67	1 <sup>st</sup> inhibitor # is:	1	#	6	SPA	Bar	496	psia	7,194				
68	% of 1 <sup>st</sup> inhibitor is:	50	%	7	HEDP	Torr	10,000	psia	193				
69	2 <sup>nd</sup> inhibitor # is:	2	#	8	HDTMP	Gal	10,000	bbl(42 US gal)	238				
70	Display act. coeffs?	0	1-Yes,0-No	9	Average	Liters	10,000	bbl(42 US gal)	63				
71				10	Mixed								

## Saturation Index Calculations

*Champion Technologies, Inc.*  
(Based on the Tomson-Oddo Model)

**Brine 1:** Ward Feed Yard 34-1

**Brine 2:** Ward Feed Yard 4-1

**Brine 3:** Clinesmith 5-4

**Brine 4:** Clinesmith 1

**Brine 5:** Clinesmith 2

Component (mg/L)	Ratio					Mixed Brine
	20% Brine 1	20% Brine 2	20% Brine 3	20% Brine 4	20 Brine 5	
Calcium	1836	2452	2044	1920	1948	1952
Magnesium	1096	872	1200	953	858	865
Barium	0	0	0	0	0	0
Strontium	0	0	0	0	0	0
Bicarbonate	190	234	259	268	254	253
Sulfate	1	1	8	1	1	1
Chloride	36299	48965	47874	45632	43147	43206
CO <sub>2</sub> in Brine	246	220	264	422	405	401
Ionic Strength	1.12	1.48	1.46	1.38	1.31	1.31
Temperature (°F)	89	89	89	89	89	89
Pressure (psia)	50	50	120	120	120	119

### Saturation Index

Calcite	-1.71	-1.41	-1.48	-1.68	-1.69	-1.69
Gypsum	-3.71	-3.64	-2.82	-3.73	-3.72	-3.69
Hemihydrate	-3.70	-3.65	-2.83	-3.74	-3.71	-3.69
Anhydrite	-3.89	-3.79	-2.97	-3.89	-3.88	-3.85
Barite	N/A	N/A	N/A	N/A	N/A	N/A
Celestite	N/A	N/A	N/A	N/A	N/A	N/A

### PTB

Calcite	N/A	N/A	N/A	N/A	N/A	N/A
Gypsum	N/A	N/A	N/A	N/A	N/A	N/A
Hemihydrate	N/A	N/A	N/A	N/A	N/A	N/A
Anhydrite	N/A	N/A	N/A	N/A	N/A	N/A
Barite	N/A	N/A	N/A	N/A	N/A	N/A
Celestite	N/A	N/A	N/A	N/A	N/A	N/A



