

### KANSAS CORPORATION COMMISSION OIL & GAS CONSERVATION DIVISION

Form ACO-4 Form must be typed March 2009

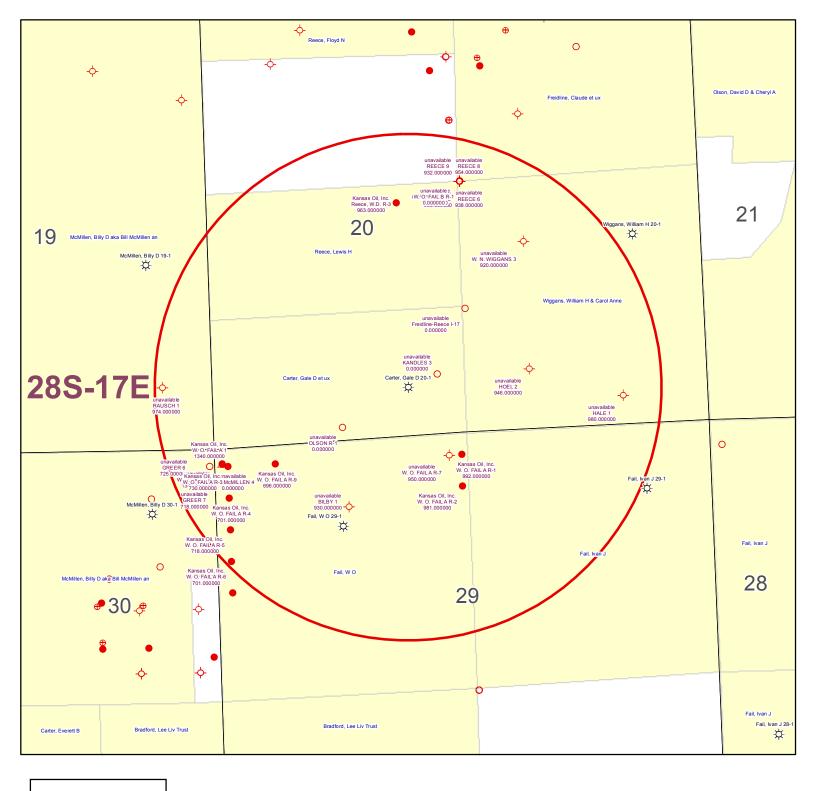
#### APPLICATION FOR COMMINGLING OF Commingling ID#\_ PRODUCTION (K.A.R. 82-3-123) OR FLUIDS (K.A.R. 82-3-123a)

OPERA	TOR: License #	API No. 15				
Name:_		Spot Description: _				
Address	31:		_ Sec Twp	_S. R East West		
Address	3 2:		Feet from No	orth / South Line of Section		
City:	State: Zip:+		Feet from Ea	ast / West Line of Section		
Contact	Person:	County:				
Phone:	()_	Lease Name:	Wel	II #:		
1.	Name and upper and lower limit of each production interval to	be commingled:				
	Formation:	(Perfs):				
	Formation:	(Perfs):				
	Formation:	(Perfs):				
	Formation:	(Perfs):				
	Formation:	(Perfs):				
2.	Estimated amount of fluid production to be commingled from e					
	Formation:			BWPD:		
	Formation:	BOPD:	MCFPD:	BWPD:		
	Formation:			BWPD:		
	Formation:	BOPD:	MCFPD:	BWPD:		
	Formation:	BOPD:	MCFPD:	BWPD:		
<ul><li>□ 3.</li><li>□ 4.</li></ul>	Plat map showing the location of the subject well, all other well the subject well, and for each well the names and addresses of Signed certificate showing service of the application and affide	of the lessee of record or ope	erator.	ses within a 1/2 mile radius of		
For Cor	mmingling 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	<del>_</del>				
0.	Complete Form 7000 F (World Completion Tollin) for the Subject	won.				
For Con	mmingling of FLUIDS ONLY, include the following:					
7.	Well construction diagram of subject well.					
8.	Any available water chemistry data demonstrating the compat	ibility of the fluids to be com-	mingled.			
current in mingling	VIT: I am the affiant and hereby certify that to the best of my nformation, knowledge and personal belief, this request for compistrue and proper and I have no information or knowledge, which sistent with the information supplied in this application.	Sı	ubmitted Electron	nically		
KCC	C Office Use Only			it in the application. Protests must be te filed wihin 15 days of publication of		
∐ De	enied Approved	the notice of application.				

Date: \_

Approved By:

15-Day Periods Ends: \_\_



### **KGS STATUS**

- ◆ DA/PA
- EOR
- **⇔** GAS
- △ INJ/SWD
- OIL
- **♦** OIL/GAS
- OTHER

Carter, Gale D 20-1 20-28S-17E 1" = 1,000'

-	Α	В	С	D	Е	F	G	Н	1		K
1	Produced Fluids #	В	1	2	3	4	5	11	•	<u> </u>	
	Parameters	Units	Input	Input	Input	Input	Input		Click he	re	Click
3	Select the brines	Select fluid		Ī		V	Ī	Mixed brine:	to run SS	-	
4	Sample ID	by checking						Cell H28 is	to ruii oc	•	Click
5	Date	the box(es),	3/19/2012	3/4/2012	3/14/2012	1/20/2012	1/20/2012	STP calc. pH.	<b>————</b>		
6	Operator	Row 3	PostRock	PostRock	PostRock	PostRock	PostRock	Cells H35-38			Click
7	Well Name		Ward Feed	Ward Feed	Clinesmith	Clinesmith	Clinesmith	are used in	Goal Seek	SSP	
8	Location		#34-1	#4-1	#5-4	#1	#2	mixed brines	0.00		Click
9	Field		CBM	CBM	Bartles	Bartles	Bartles	calculations.			
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
11	K <sup>+</sup> (if not known =0)	(mg/l)						0.00	Saturation Index	values	(Final-Initial)
	Mg <sup>2+</sup>	(mg/l)	1,096.00	872.00	1,200.00	953.00	858.00	995.91		lcite	
	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
	Sr <sup>2+</sup>		1,050.00	2,432.00	2,044.00	1720.00	1740.00				0.13
	Ba <sup>2+</sup>	(mg/l)						0.00	Da	rite	
.,		(mg/l)						0.00			
	Fe <sup>2+</sup>	(mg/l)	40.00	21.00	18.00	82.00	90.00	50.21		lite	
	Zn <sup>2+</sup>	(mg/l)						0.00	-1.77	-1.80	-0.03
18	Pb <sup>2+</sup>	(mg/l)						0.00	Gyp	sum	
19	Cl	(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	Hemil	ıydrate	
21	F.	(mg/l)						0.00	-3.96	-3.90	0.06
	Br'	(mg/l)						0.00		ydrite	
	SiO2	(mg/l) SiO2						0.00	-3.47	-3.36	0.12
_	HCO3 Alkalinity**	(mg/l as HCO3)	190.00	234.00	259.00	268.00	254.00	241.03		estite	
	CO3 Alkalinity	(mg/l as CO3)	170.00	434.00	237,00	200.00	234.00	241.03	Cen		
	Carboxylic acids**	(mg/l)						0.00	Inor 6	Sulfide	
27	Ammonia	(mg/L) NH3						0.00	-0.16	-0.22	-0.06
_											-0.00
	Borate	(mg/L) H3BO3						0.00	Zinc	Sulfide	
	TDS (Measured)	(mg/l)	4.040	4.0=4				72781	~		
	Calc. Density (STP) CO <sub>2</sub> Gas Analysis	(g/ml)	1.038 19.97	1.051 18.76	1.050 22.41	1.048 35.53	1.045	1.047	Calcium	fluoride	
	- ,	(%)		0.0292			33.79	26.16	I C.	-l	
	H <sub>2</sub> S Gas Analysis*** Total H2Saq	(%)	0.0289	1.00	0.0296	0.0306	0.0151 0.50	0.0269	-0.74	rbonate -0.51	0.23
_	_	(mgH2S/l)	1.00 5.67	5.76	1.00 5.72	1.00 5.54	5.55	5.63		eeded (mg/L)	0.23
34	pH, measured (STP)	pH 0-CO2%+Alk,	5.07	5./0	5.72	5.54	5.55	5.03	Calcite	NTMP	
	Choose one option								Calcite	NIMI	
35	to calculate SI?	2-CO2%+pH	0	0	0	0	0				
36	Gas/day(thousand cf/day)	(Mcf/D)						0	0.00	0.00	
	Oil/Day	(B/D)	0	0	1	1	1	4	Barite	BHPMP	
	Water/Day	(B/D)	100	100	100	100	100	500	0.00	0.00	
	For mixed brines, enter val			mag in Calle (H	(40 H42)						
-	Initial T			` .		44.0	40.0	(Enter H40-H43)		Н	
		(F)	66.0	71.0	70.0	41.0	49.0	60.0	5.69	5.60	1
	Final T	(F) (F)	66.0 66.0	71.0 71.0	70.0 70.0	41.0	49.0	60.0 89.0	5.69 Viscosity (	5.60 CentiPoise)	
42	Final T Initial P	(F) (F) (psia)	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0	5.69 Viscosity ( 1.196	5.60 CentiPoise) 0.826	
42 43	Final T Initial P Final P	(F) (F) (psia) (psia)	66.0 66.0	71.0 71.0	70.0 70.0	41.0	49.0	60.0 89.0	5.69 Viscosity ( 1.196 Heat Capaci	5.60 CentiPoise) 0.826 ty (cal/ml/ <sup>0</sup> C)	
42 43 44	Final T Initial P Final P Use TP on Calcite sheet?	(F) (F) (psia) (psia) I-Yes;0-No	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0 120.0	5.69 Viscosity ( 1.196 Heat Capaci 0.955	5.60 CentiPoise) 0.826 ty (cal/ml/ <sup>0</sup> C) 0.959	
42 43 44 45	Final T Initial P Final P	(F) (F) (psia) (psia)	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0	5.69 Viscosity ( 1.196 Heat Capaci 0.955	5.60 CentiPoise) 0.826 ty (cal/ml/ <sup>0</sup> C)	
42 43 44 45 46	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav.	(F) (F) (psia) (psia) I-Yes;0-No API grav.	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0 120.0	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor no	5.60 CentiPoise) 0.826 ty (cal/ml/ <sup>0</sup> C) 0.959 eeded (mg/L)	
42 43 44 45 46 47 48	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav.	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0 120.0 30.00 0.60	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D)	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0 120.0 30.00 0.60	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00	
42 43 44 45 46 47 48 49 50	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG//Day Conc. Multiplier H* (Strong acid) *	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D)	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0 120.0 30.00 0.60	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) † OH (Strong base) †	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D) (N)	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0 120.0 30.00 0.60	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) † OH* (Strong base) † Quality Control Checks at	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (N) (N) STP:	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0 120.0 30.00 0.60	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51 52 53	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) † OH* (Strong base) † Quality Control Checks at H <sub>2</sub> S Gas	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D) (N) (N) STP:	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0 120.0 30.00 0.60	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51 52 53 54	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. API Oil Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) † OH (Strong base) † Quality Control Checks at H <sub>2</sub> S Gas Total H2Saq (STP)	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D) (N) (N) STP: (%) (mgH2S/I)	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0 120.0 30.00 0.60	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51 52 53 54 55	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) * OH' (Strong base) * Quality Control Checks at H <sub>2</sub> S Gas Total H2Saq (STP) pH Calculated	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D) (N) (N) STP: (%) (mgH2S/l) (pH)	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0 120.0 30.00 0.60	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51 52 53 54 55 56	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. API Oil Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) † OH (Strong base) † Quality Control Checks at H <sub>2</sub> S Gas Total H2Saq (STP)	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D) (N) (N) STP: (%) (mgH2S/I)	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0 120.0 30.00 0.60	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) * OH* (Strong base) * Quality Control Checks at H <sub>2</sub> S Gas Total H2Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated ECations=	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D) (N) (N) STP: (%) (mgH2S/I) (pH) (%) (mg/I) as HCO3 (equiv./I)	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0 120.0 30.00 0.60	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) * OH (Strong base) * Quality Control Checks at H <sub>2</sub> S Gas Total H <sub>2</sub> Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated SCations= EAnions=	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D) (N) STP: (%) (mgH2S/I) (pH) (%) (mg/l) as HCO3 (equiv./I) (equiv./I)	66.0 66.0 25.0	71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	60.0 89.0 25.0 120.0 30.00 0.60	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) * OH* (Strong base) * Quality Control Checks at H <sub>2</sub> S Gas Total H2Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated ECations= ECations= Calc TDS=	(F) (F) (Psia) (psia) (1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D) (N) (N) STP: (%) (mgH2S/I) (pH) (%) (mg/I) as HCO3 (equiv./I) (equiv./I) (mg/I)	66.0 66.0 25.0 25.0	71.0 71.0 25.0 25.0	70.0 70.0 25.0 25.0	41.0 25.0 25.0	49.0 25.0 25.0	60.0 89.0 25.0 120.0 30.00 0.60 0	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) † OH* (Strong base) † Quality Control Checks at H <sub>2</sub> S Gas Total H2Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated \$\textit{\Sigma}\$ (STP) Exhions= \$\textit{\Sigma}\$ (STD)= Inhibitor Selection	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D) (N) (N) STP: (%) (mgH2S/I) (pH) (%) (mg/I) as HCO3 (equiv./I) (equiv./I) (mg/I) Input	66.0 66.0 25.0 25.0 0 0	71.0 71.0 25.0 25.0	70.0 70.0 25.0 25.0	41.0 25.0 25.0	49.0 25.0 25.0	60.0 89.0 25.0 120.0 30.00 0 0	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite 0.00	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) † OH (Strong base) † Quality Control Checks at H <sub>2</sub> S Gas Total H2Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated ECations= EAnions= Calc TDS= Inhibitor Selection Protection Time	(F) (F) (Psia) (psia) (1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D) (N) (N) STP: (%) (mgH2S/I) (pH) (%) (mg/I) as HCO3 (equiv./I) (equiv./I) (mg/I)	66.0 66.0 25.0 25.0	71.0 71.0 25.0 25.0	70.0 70.0 25.0 25.0	41.0 25.0 25.0 Unit Converter	49.0 25.0 25.0	60.0 89.0 25.0 120.0 30.00 0.60 0	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 60 61 62 63	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) † OH (Strong base) † Quality Control Checks at H <sub>2</sub> S Gas Total H2Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated \$\textstyle \text{Calcite}\$ acid \$\text{Lacite}\$ acid \$\text	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D)  (N) (N) STP: (%) (mgH2S/I) (pH) (%) (mg/I) as HCO3 (equiv./I) (equiv./I) (mg/I) Input 120	66.0 66.0 25.0 25.0 0 0	71.0 71.0 25.0 25.0 4 1 1 2	70.0 70.0 25.0 25.0 25.0 Inhibitor NTMP BHPMP	41.0 25.0 25.0 Unit Converter From Unit	49.0 25.0 25.0 25.0 (From metric Value 80	60.0 89.0 25.0 120.0 30.00 0.60 0	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite 0.00	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) † OH (Strong base) † Quality Control Checks at H <sub>2</sub> S Gas Total H2Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated 2Cations= £Anions= Calc TDS= Inhibitor Selection Protection Time Have ScaleSoftPitzer pick inhibitor for you?	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (N) (N) STP: (%) (mgH2S/I) (pH) (%) (mg/I) as HCO3 (equiv./I) (equiv./I) (mg/I) Input 120	66.0 66.0 25.0 25.0 0 0 0	# 1 2 3	Inhibitor NTMP BHPMP PAA	Unit Converter From Unit C m³	49.0 25.0 25.0 25.0 (From metric Value 80 100	60.0 89.0 25.0 120.0 30.00 0.60 0	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite 0.00  Value 176 3,531	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) † OH (Strong base) † Quality Control Checks at H <sub>2</sub> S Gas Total H2Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated \$\textstyle \text{Calcite}\$ acid \$\text{Lacite}\$ acid \$\text	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D)  (N) (N) STP: (%) (mgH2S/I) (pH) (%) (mg/I) as HCO3 (equiv./I) (equiv./I) (mg/I) Input 120	66.0 66.0 25.0 25.0 0 0	71.0 71.0 25.0 25.0 4 1 1 2	70.0 70.0 25.0 25.0 25.0 Inhibitor NTMP BHPMP	41.0 25.0 25.0 Unit Converter From Unit	49.0 25.0 25.0 25.0 (From metric Value 80	60.0 89.0 25.0 120.0 30.00 0.60 0	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite 0.00  Value 176 3,531 629	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) † OH (Strong base) † Quality Control Checks at H <sub>2</sub> S Gas Total H <sub>2</sub> Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated \$\mathbb{\text{Catluated}}\$ Alkalinity Caclulated \$\mathbb{\text{Catluated}}\$ Eanions= Calc TDS= Inhibitor Selection Protection Time Have ScaleSoftPitzer pick inhibitor for you? If No, inhibitor # is:	(F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (N) (N) STP: (%) (mgH2S/I) (pH) (%) (mg/I) as HCO3 (equiv./I) (equiv./I) (mg/I) Input 120	66.0 66.0 25.0 25.0 0 0 0	71.0 71.0 25.0 25.0 1 1 1 2 3 4	Inhibitor NTMP BHPMP PAA DTPMP	Unit Converter From Unit °C m³ m³ MPa	49.0 25.0 25.0 25.0 (From metric Value 80 100 1,000	60.0 89.0 25.0 120.0 30.00 0.60 0 0 To Unit °F ft³ bbl(42 US gal) psia	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite 0.00  Value 176 3,531 629 145,074	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) * OH (Strong base) * Quality Control Checks at H <sub>2</sub> S Gas Total H2Saq (STP) pH Calculated Alkalinity Caclulated Alkalinity Caclulated ECations= ZAnions= Calc TDS= Inhibitor Selection Protection Time Have ScaleSoftPitzer pick inhibitor for you? If No, inhibitor # is: If you select Mixed,  1st inhibitor # is:	(F) (F) (Psia) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (N) (N) STP: (%) (mgH2S/I) (pH) (%) (mg/I) as HCO3 (equiv./I) (equiv./I) (mg/I) Input 120  1 4	0 0 0 Unit min 1-Yes;0-No #	## 1 2 3 4 5 6	Inhibitor NTMP BHPMP PAA DTPMP PPCA SPA	Unit Converter From Unit  °C  m³  m³  MPa  Bar	49.0 25.0 25.0 25.0 	60.0 89.0 25.0 120.0 30.00 0.60 0 0 To Unit "F ft <sup>3</sup> bbl(42 US gal) psia	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite 0.00  Value 176 3,531 629 145,074 7,194	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 44 45 46 47 48 49 50 51 52 53 54 55 56 60 61 62 63 64 65 66 67 68	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) † OH (Strong base) † Quality Control Checks at H <sub>2</sub> S Gas Total H <sub>2</sub> Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated Alkalinity Caclulated ECations= EAnions= Calc TDS= Inhibitor Selection Protection Time Have ScaleSoftPitzer pick inhibitor for you? If No, inhibitor # is: If you select Mixed,	(F) (F) (Psia) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (N) (N) STP: (%) (mgH2S/I) (pH) (%) (mg/l) as HCO3 (equiv./I) (equiv./I) (mg/l) Input 120  1 4 1 50	0 0 0 Unit min 1-Yes;0-No #	## 1 2 3 4 4 5 6 6 7	Inhibitor NTMP BHPMP PAA DTPMP PPCA SPA HEDP	Unit Converter From Unit  C  m³  m³  MPa  Bar  Torr	49.0 25.0 25.0 25.0 25.0 Value 80 100 1,000 496 10,000	60.0 89.0 25.0 120.0 30.00 0.60 0 0 To Unit °F ft³ bbl(42 US gal) psia psia psia	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite 0.00  Value 176 3,531 629 145,074 7,194 193	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
42 44 45 46 47 48 49 50 51 52 53 54 55 56 60 61 62 63 64 65 66 67 68 69	Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) * OH* (Strong base) * OH* (Strong base) * Ouality Control Checks at H <sub>2</sub> S Gas Total H2Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated ECations= EAnions= Calc TDS= Inhibitor Selection Protection Time Have ScaleSoftPitzer pick inhibitor for you? If No, inhibitor # is: If you select Mixed,  1st inhibitor is: % of 1st inhibitor is:	(F) (F) (Psia) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (N) (N) STP: (%) (mgH2S/I) (pH) (%) (mg/I) as HCO3 (equiv./I) (equiv./I) (mg/I) Input 120  1 4	0 0 0 0 Unit min 1-Yes;0-No # # %	## 1 2 3 4 5 6	Inhibitor NTMP BHPMP PAA DTPMP PPCA SPA	Unit Converter From Unit  °C  m³  m³  MPa  Bar	49.0 25.0 25.0 25.0 	60.0 89.0 25.0 120.0 30.00 0.60 0 0 To Unit "F ft <sup>3</sup> bbl(42 US gal) psia	5.69 Viscosity ( 1.196 Heat Capaci 0.955 Inhibitor ne Gypsum 0.00 Anhydrite 0.00  Value 176 3,531 629 145,074 7,194	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	

### **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

			Ratio			
	20%	20%	20%	20%	20	
Component (mg/L)	Brine 1	Brine 2	Brine 3	Brine 4	Brine 5	Mixed Brine
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

# KANSAS CORPORATION COMMISSION OIL & GAS CONSERVATION DIVISION

# ORIGINA Form ACO-1 September 1999 April Must Be Typed

# **WELL COMPLETION FORM**

### **WELL HISTORY - DESCRIPTION OF WELL & LEASE**

Operator: License # 33344	API No. 15 - 205-26580-00-60
Name: Quest Cherokee, LLC	County: Wilson
Address: 211 W. 14th Street	
	660 feet from (S) N (circle one) Line of Section
City/State/Zip: Chanute, KS 66720  Purchaser: Bluestem Pipeline, LLC  Operator Contact Person: Jennifer R. Ammann  Phone: (620 ) 431-9500	1980 feet from E /(W) (circle one) Line of Section
Operator Contact Person: Jennifer R. Ammann	Footages Calculated from Nearest Outside Section Corner:
Phone: (620 ) 431-9500	(circle one) NE SE NW SW
	Lease Name: Carter, Gale D. Well #: 20-1
Contractor: Name: Michael Drilling	Field Name: Cherokee Basin CBM
Wellsite Geologist. Ken Recoy	Producing Formation: Multiple
Designate Type of Completion:	Elevation: Ground: 882 Kelly Bushing: n/a
New Well Re-Entry Workover	Total Depth: 1108 Plug Back Total Depth: 1101.88
Oil SWD Temp. Abd.	Amount of Surface Pipe Set and Cemented at 23 Feet
✓ Gas ENHR SIGW	Multiple Stage Cementing Collar Used?
Dry Other (Core, WSW, Expl., Cathodic, etc)	If yes, show depth setFeet
If Workover/Re-entry: Old Well Info as follows:	If Alternate II completion, cement circulated from 1101.88
Operator:	feet depth to surface w/ 160 sx cmt.
Well Name:	Alt2-Dig-12/4/8
Original Comp. Date: Original Total Depth:	Drilling Fluid Management Plan (Data must be collected from the Reserve Pit)
Deepening Re-perf Conv. to Enhr./SWD	Chloride contentppm Fluid volumebbls
Plug Back Plug Back Total Depth	Dewatering method used
Commingled Docket No	
Dual Completion Docket No	Location of fluid disposal if hauled offsite:
Other (SWD or Enhr.?) Docket No	Operator Name:
5/12/06	Lease Name: License No.:
8/12/06         5/13/06         5/22/06           Spud Date or         Date Reached TD         Completion Date or	Quarter Sec Twp S. R   East   West
Recompletion Date Recompletion Date	County: Docket No.:
per oper - Diglicic	
Kansas 67202, within 120 days of the spud date, recompletion, workove Information of side two of this form will be held confidential for a period of 1	the Kansas Corporation Commission, 130 S. Market - Room 2078, Wichita, or or conversion of a well. Rule 82-3-130, 82-3-106 and 82-3-107 apply. 2 months if requested in writing and submitted with the form (see rule 82-3-and geologist well report shall be attached with this form. ALL CEMENTING Submit CP-111 form with all temporarily abandoned wells.
	te 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: Sumpy K. Ammann	KCC Office Use ONLY
Title: New Well Development Coordinator Date: 9/8/06	Letter of Confidentiality Received
Subscribed and sworn to before me this Stay of September	If Denied, Yes Date:
20 00	, Wireline Log Received
A. TERE	RA KLAUMAN Geologist Report Received
Notary Public: Notary Pu	blic-State of Kansas UIC Distribution
Date Commission Expires: 8-4-20/6 My Appt. Expires	X-4-2010 J

Operator Name: Qu	est Cherokee, LL	.C	Leas	se Name:	Carter, Gale	D.	Well #: 20-1	I	•
Sec. 20 Twp. 2			est Coun	nty: Wilso	on				
INSTRUCTIONS: S tested, time tool ope temperature, fluid red Electric Wireline Log	n and closed, flowin covery, and flow rate	g and shut-in pres s if gas to surface	sures, whether test, along with	shut-in pre	essure reached	static level, hyd	rostatic pressure	es, botto	m hole
Drill Stem Tests Take		_ Yes _✓	No	<b></b> ✓L	.og Format	tion (Top), Depth	and Datum		Sample
Samples Sent to Ge	ological Survey	☐ Yes 🗸	] No	Nam See	e attached		Тор	i	Datum
Cores Taken Electric Log Run (Submit Copy)			No No						
List All E. Logs Run:									
Compensated Den: Gamma Ray CCL Dual Induction Log									
			ASING RECORD	-	ew Used ermediate, produ	ction, etc.			
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.		eight s. / Ft.	Setting Depth	Type of Cement	# Sacks Used		and Percent
Surface	12-1/4	8-5/8"	20#		23	"A"	4		***************************************
Production	6-3/4	4-1/2	10.5#		1101.88	"A"	160		one the manner to the
		ADDE	FIONAL CEMENT	TING / SO	LIEEZE RECOR	<u> </u>			
Purpose:  Perforate Protect Casing Plug Back TD Plug Off Zone	Depth Top Bottom	Type of Ceme		ks Used			Percent Additives		
Shots Per Foot		ION RECORD - Brid		oe		acture, Shot, Ceme		·d	Depth
4	1023-1025/976-	Footage of Each Inte	avai Feliorated		<u> </u>	obls 2%kd water, 459bbls wat		)# 20/40 sand	1023-1025/976-97
4	772-774/733-73				400gal 15%HCLw/ 45 b	bts 2%kcl water, 600bbts wate	er w/ 2% KCL, Blockle, 12100	0# 20/40 sand	970-972
									714-716
4	644-648/632-63	6			400gal 15%HCLw/ 55 to	bis 2%kci water, 582bbts wate	er w/ 2% KCL, Blocide, 12000	0# 20/40 sand	644-648/632-63
TUBING RECORD	Size	Set At	Packer	r At	Liner Run	Yes 🗸 N	lo		beautiful to the second
	3/8 rd Production, SWD or	1031.46 Enhr. Produc	n/a cing Method	Flowin	lg (√) Pump			er (Explain	)
Estimated Production Per 24 Hours	Oil	Bbis. Ga		Wat 25bb	er	Bbls.	Gas-Oil Ratio		Gravity
Disposition of Gas	n/a METHOD OF	COMPLETION	101	2000	Production Inte	erval			
Vented ✓ Sold	_	Оре	en Hole 📝 Pe	erf.	Dually Comp.	Commingled		·····	



DATE

### 211 W. 14TH STREET, CHANUTE, KS 66720 620-431-9500

# TICKET NUMBER 1518

FIELD TICKET REF #

TOWNSHIP

SECTION

FOREMAN Crois Portine-

RANGE

COUNTY

\*\*TREATMENT REPORT & FIELD TICKET CEMENT

WELL NAME & NUMBER

May 27,06	Carter (	eli D.	20.1		20	28 17	Us /384
FOREMAN /	TIME	TIME	LESS	TRUCK	TRAILER	TRUCK	EMPLOYEE
OPERATOR	IN IN	OUT	LUNCH	#	#	HOURS	SIGNATURE
Croig Good-	1:15	5:30		901746		4.25	landon
J							
							***
			<u> </u>				İ
/	1	/ 3/		IOLE DEDTIL 110	<b>7</b> 9 6461	NO CIZE & MEICHT	111" x 112 F
OB TYPE longs	HOLE	SIZE <u>6</u> /	<u>'/</u>	HOLE DEPTH // C	CASI	NG SIZE & WEIGHT	44 170.
				TUBING			
LURRY WEIGHT_	<u>/%5</u> SLURF	Y VOL	\	NATER gal/sk	CEM	ENT LEFT in CASING	<u> </u>
DISPLACEMENT /	7.57 DISPLA	ACEMENT PSI		VIIX PSI	RATE	4.5	
REMARKS:							
Roy I said	e at prem o	reland	swent to	Surface T	A-1. Hed Cein	new head a	Smood
O - V A	, , , , , , , , , , , , , , , , , , ,	2/1 10/10/2	10000	160 secti	ef coment	Flashed in	Wr. The
2 SOCII OT	901, 70 Dem	- 1 DI	1/.) .	100 (35())	ST CEMPRI.	FIGSHER STOOL	77.
Wiper plug	to bottom:	50 € 1 100	Et shee.	M.,			3-3-1-12
	1011.8	8 F	7+41/12 C	rasing			
	5		entrali	zers	Supplied	<u>ب</u> ط	
	4	kc C	asing 1	roctor	Quest		
	- 4	1	, ,	reilor		48 #	
	1 2	6	3.00/0-	3/2 + 3'		RECEIV ANSAS CORPORATIO	A COMMISSION
					K	ansas corporativ	1.00
	<u> </u>	10	7 /2 /W/p	erplya L'/e		SEP 11	2006
	<u> </u>	<u> </u>	loatshot	4/2	<u></u>		
						CONSERVATION WICHITA.	
ACCOUNT	OLIANITITY or I	INITO		DESCRIPTION OF SE	EDVICES OR PRODITI		TOTAL
CODE	QUANTITY or I	UNITS		DESCRIPTION OF SE	ENVICES ON FRODO		AMOUNT
		Fo	oreman Pickup				
		C	ement Pump Truc	k			
		В	ılk Truck		· ·		
1104		· Po	ortland Cement	atheres -			
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1126			WC - Blend Cem	7 11 19 1	PPILE	<del>"</del> ,	
1110			ilsonite —		usalida	100/	
	1		o-Seal		m JULICIO		
1107			remium Gel				
1118							i
1215A			GL-Glingto /				7 19
1111B			odium Silicate				
1123			ity Water			·········	- 48
			ansport Truck				<del> </del>
			ansport Trailer				
		80	) Vac				

ATED OIL WELL SERVICES, INC. 884, CHANUTE, KS 66720 431-9210 OR 800-467-8676

TICET NU	MBER	0711	1
LOCATION	BU		
FOREMAN_	Oelf (	sel-	
KET	000		

# TREATMENT REPORT & FIELD TICKET CEMENT

	•			O = 17. E : 1	•			
DATE	CUSTOMER#	WELL	NAME & NUME	BER	SECTION	TOWNSHIP	RANGE	COUNTY
5-22-06		CARTER.	GAle D.	#20-1	20	2.8	/7	Wilson
CUSTOMER .	1105+ (	herokee			TRUCK#	DRIVER	TRUCK #	DRIVER
MAILING ADDRE					497/799	Chancer On them?		
CITY		STATE	ZIP CODE	1	7 1 17 1 17	Bruce		
JOB TYPE		HOLE SIZE			1/08		VEIGHT 4	
CASING DEPTH	<u> </u>	SLURRY VOL			sk	CEMENT LEFT in		
DISPLACEMEN		DISPLACEMENT						
REMARKS:				<del></del>		<u></u>		<u> </u>
<del></del>								
				<del></del>				

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
5401	/	PUMP CHARGE LONGSTRING		800.00
5406	124	MILEAGE		31.50
5407	MIN	BULK TRAILER		275,00
550/c	4 HR	TRANSPORT		392.00
1/04	1605x 15 )40A	Cene +		1804.80
1110	165x 800 #	GILSONITE X		368.00
1102	6s> 300#	CALCIUA	4	192.00
1107A	35× 120#	pheno seal	7	120.00
1/23	5800 GAR	pheno sere	<u> </u>	74.24
5422	1/22'	FOOTAGE		187.34
111813	45x 000	Gol , &	Z	28 22
5609	1 Um	Dung Tex (week)		152.00
		,		
				162.98
	<u> </u>		SALES TAX	10A.18

TOTAL 4587, 8

TITLE\_\_

AUTHORIZATION\_\_\_\_\_

DATE\_\_\_

# Michael Drilling, LLC P.O. Box 402 Iola, KS 66749 620-365-2755

Company:

Quest Cherokee LLC

Address:

9520 North May Ave, Suite 300

Oklahoma City, Oklahoma 73120

Ordered By: Donnie Meyers

Date:

05/13/06

Lease:

Carter, Gale D.

County: Wilson

Well#:

API#:

15-205-26580-00-00

# **Drilling Log**

FEET	DESCRIPTION	FEET	DESCRIPTION
0-5	Overburden	615	Gas Test 22" at1/4" Choke
5-23	Lime	627-629	Shale
23-130	Sandy Shale	629-634	Black Shale
130-180	Lime	634-642	Lime
180-191	Sandy Shale	636	Gas Test 20" at 1/4" Choke
191-212	Lime	642-644	Black Shale
212-250	Shale	644-646	Coal
250-264	Lime	646-660	Shale
264-322	Shale	657	Gas Test 46" at 1/4". Choke
322-340	Lime	660-680	Sand
340-400	Shale	680-711	Shale
400-402	Black Shale	711-713	Coal
402-412	Lime	713-730	Shale
412-417	Shale	730-731	RECEIVED  Lime KANSAS CORPORATION COMMISSIO
417-457	Lime and Shale	731-733	Coal SFP 1 1 2006
457-520	Sand	733-738	Shale CONSERVATION DIVISION
520-535	Shate	738-740	Coal WICHTA, KS
535-542	Lime	740-745	Shale
542-544	Coal	745-748	Coal
544-570	Lime	748-783	Sand
570-573	Bluck Shale	783-800	Sandy Shale
573-607	Sandy Shale	800-802	Coal
607-608	Coal	802-832	Shale
608-627	Lime	832-834	Coal

# Michael Drilling, LLC P.O. Box 402 Iola, KS 66749 620-365-2755

Comp	oany:

Quest Cherokee LLC

Address:

9520 North May Ave, Suite 300

Oklahoma City, Oklahoma 73120

Ordered By: Donnie Meyers

Date:

05/13/06

Lease: Carter, Gale D.

County: Wilson Well#: 20-1

API#: 15-205-26580-00-00

# **Drilling Log**

FEET	DESCRIPTION	FEET	DESCRIPTION
834-860	Shale		
860-861	Coal		
861-885	Shale		
885-935	Sand		
935-960	Shale		
<del>96</del> 0-968	Sand		·
968-971	Coal		
971-976	Shale		
976-978	Coal		:
978-1019	Shale		
983	Gas Test 43" at1/4" Choke		
1019-1021	Coal		
1021-1033	Shale	<u> </u>	
1031	Gas Test 43" at 1/4" Choke		
1033-1108	Missippi Lime		
1083	Gas Test 43" at 1/4" Choke		
1108	Gas Test 43" at1/4" Choke		
1108	тр		
	Surface 23'		
		<b> </b>	
		][	

## **POSTROCK**



# **Current Completion**

**WELL** Carter, Gale D 20-1

: Cherokee Basin

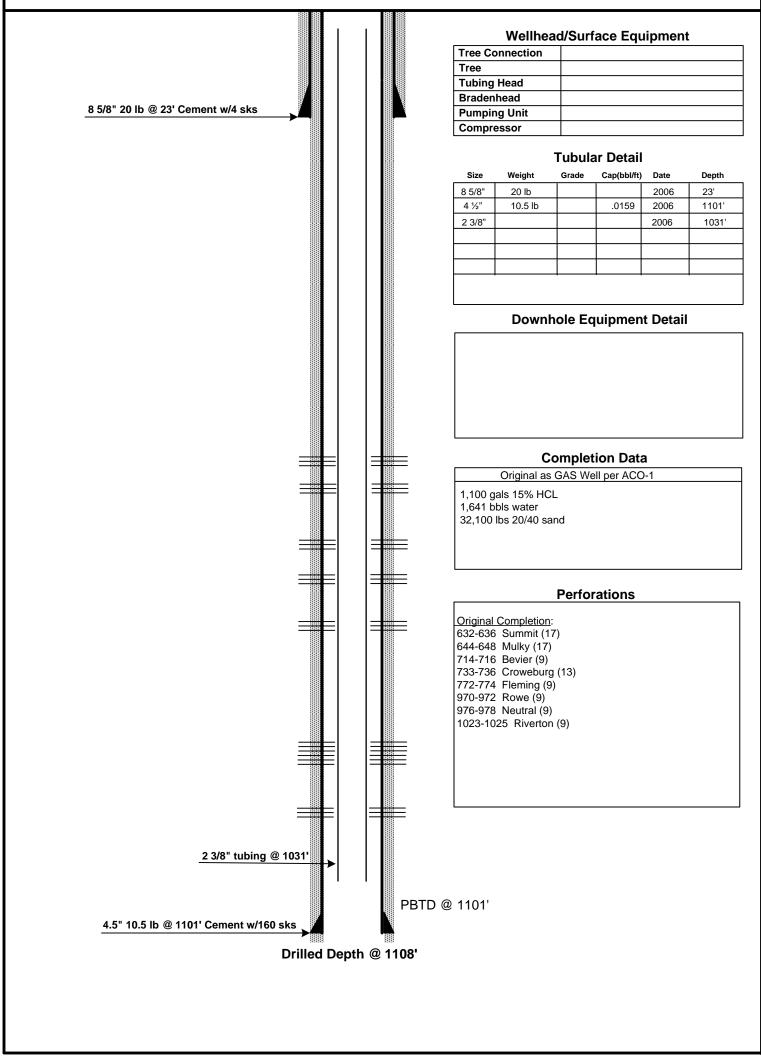
**STATE** : Kansas **COUNTY** : Wilson

**FIELD** 

SPUD DATE: 5/12/2006 COMP. Date : 5/22/2006 API: 15-205-26580-00-00

**LOCATION: 20-28S-17E (SE, SW)** 

**ELEVATION: GL - 882'** 



PREPARED BY: POSTROCK

APPROVED BY: \_

**DATE:** July, 2012

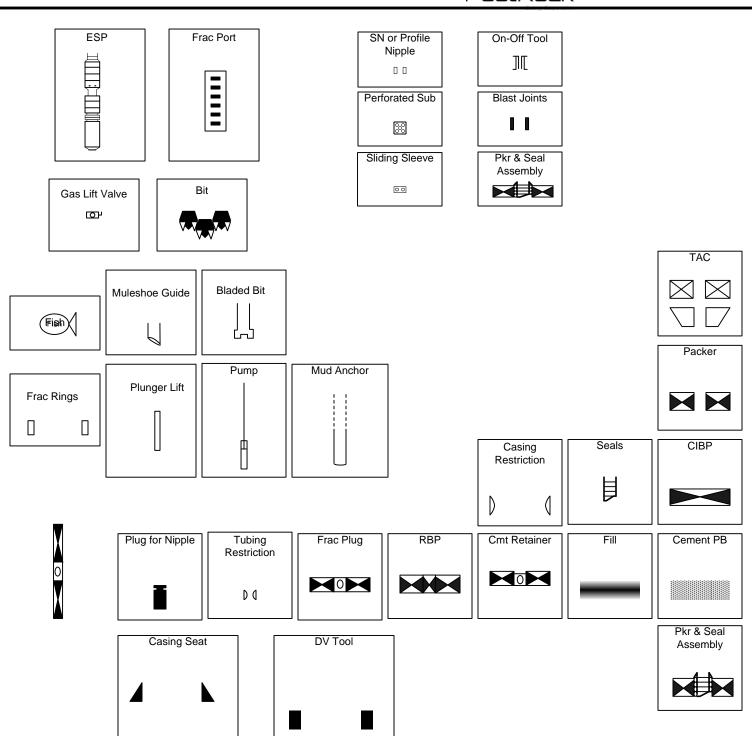
DATE:\_

# **POSTROCK**



### **LEGEND**

# PostRock<sup>®</sup>



#### 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 11th 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.

Subscribed and sworn to before me this

13th day of August, 2012

PENNY L. CASE 回向 Notary Public - State of Kansas My Appt. Expires

Notary Public Sedgwick County, Kansas

Printer's Fee: \$139.60

PUBLISHED IN THE WICHITA EAGLE
AUGUST 11, 2012 (3200866)
BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF CANASS
NOTICE OF FILING APPLICATION
RE: In Ihe Matter of Postrock Midcontinent
Production, LLC Application for
Commingting of Production in the Carter,
Gale, D 20-1 located in Wilson County,
Kansas.

Commingling of Production in the Carter, Gale, D. 20-1 located in Wilson County, Kansas.

TO: All Oil: & Gas Producers, Unleased Mineral interest Owners, Landowners, and all persons whomever concerned. You, and each, of you, are hereby notified that Postrock Midcontinent Production, LLC has filed an application to commingle the Summit, Multy, Bevier, Croweburg, Fleming, Rowe, Neutral, Riverton and Squirrel producing formations at the Carter, Gale D 20-1, located in the NW SE SE SW, S20-T285-RIJE, Approximately 507, FSL & 2042 FWL, Wilson County, Kansas.

Any persons who oblect to or protest inis application shall be required to file their objections or protest with the Conservation Division 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.

All persons interested or concerned shall take notice of the foregoing and shall govern themselves accordingly. All person and/or companies wishing to protest hits 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.

counsel or as individuals, appearing on their own behalf. Postrock Midcontinent Production, LLC

Postrock Midconninent Fraudcing
210 Park Avenue, Suite 2750
Oklahoma City, Oklahoma 73102
(405) 660-7704
A COPY OF THE AFFIDA
PUBLICATION MUST ACCO
ALL APPLICATIONS

### PROOF OF PUBLICATION

# STATE OF KANSAS Wilson County - SS

JOSEPH S. and RITA M. RELPH, of lawful age, being duly sworn upon oath that they are the Owners and Publishers of the WILSON COUNTY CITIZEN:

THAT said newspaper has been published at least weekly fifty (50) times a year and has been so published for at least five years prior to the first publication of the attached notice:

THAT said newspaper is a general circulation on a daily, or weekly, or monthly, or yearly basis in;

WILSON COUNTY, KANSAS and is NOT a trade, religious or fraternal publication and has been PRINTED and PUBLISHED in Wilson County, Kansas.

THE ATTACHED was published on the following dates in a regular issue of said newspaper:

1st publication was made on the $\frac{1}{\sqrt{27}}$	$\mathcal{W}_{ ext{day of}}$
	<u> +.20 12</u>
2nd publication was made on the	
3rd publication was made on the	
4th publication was made on the	day of
	20
5th publication was made on the	day of
	20
6th publication was made on the	day of
TOTAL PUBLICATION FEE: \$ 3 (Signed) Syshological 14	7.29.3
(Signed) Syshol Relsh	-
Subscribed and sworn to before me, this	the day of
<i></i>	
Rita M. Keeper	(Notary Public)
My commission expires Quy-30	2014

U

(Published in the Wilson County Citizen on Monday, August 13, 2012.)

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 Carter, Gale D 20-1 located in Wilson County, Kansas.

TO: All Oil & Gas Producers, Unleased Mineral Interest Owners, Landowners, and all persons whomever 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 Squirrel producing formations at the Carter, Gale D 20-1, located in the NW SE SE SW, S20-T28S-R17E, Approximately 507 FSL & 2042 FWL, Wilson 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 the natural resources of the State of Kansas.

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.

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) 660-7704 511 сру.



Rita M. Relph **NOTARY PUBLIC** State of Kansas STATE OF KANSAS My Commission Expires

### CARTER, GALE D 20-1

1 NAME & UPPE	R & LOWER LIMIT OF EACH PROD	DUCTION INT	ERVAL TO BE	COMMING	LED			
FORMATION:	ROWE		(PERFS):	970 -	972			
FORMATION:	NEUTRAL	_	(PERFS):	976 -	978			
FORMATION:	RIVERTON	_	(PERFS):	1023 -	1025			
FORMATION:	SQUIRREL	_	(PERFS):	663 -	669			
FORMATION:			(PERFS):					
FORMATION:		<u>_</u>	(PERFS):	-				
FORMATION:			(PERFS):					
FORMATION:			(PERFS):	-				
FORMATION:		_	(PERFS):	-				
FORMATION:			(PERFS):	-				
FORMATION:			(PERFS):	-				
FORMATION:			(PERFS):					
FORMATION:	MOUNT OF FLUID PRODUCTION 1  ROWE  NEUTRAL	ГО ВЕ СОММ —	BOPD:	0	ERVAL MCFPD: _ MCFPD:	1.62	BWPD:	2.5
FORMATION:		_	BOPD:	0	_	1.62	BWPD:	2.5
FORMATION:	RIVERTON	_	BOPD:	0	MCFPD:	1.62	BWPD:	2.5
FORMATION: FORMATION:	SQUIRREL	0	BOPD: BOPD:	3	MCFPD: _		BWPD: BWPD:	20
FORMATION:		0	BOPD:		MCFPD:		BWPD:	
FORMATION:		0	BOPD:		MCFPD:		BWPD:	
FORMATION:		0	BOPD:		MCFPD:		BWPD:	
FORMATION:		0	BOPD:		MCFPD:		BWPD:	
FORMATION:		0	BOPD:		MCFPD:		BWPD:	
FORMATION:	-	0	BOPD:		MCFPD:		BWPD:	
FORMATION:		0	BOPD:		MCFPD:		BWPD:	

Affidavit of Notice Served				
Re: Application for: APPLICATION FOR COMMINGLING OF PRODUCTION OR FLUIDS ACO-4				
Well Name: CARTER, GALE D 20-1 Legal Location: NWSESESW S20-T28S-R17E				
The undersigned hereby certificates that he I she is a duly authorized ag	gent for the applicant, and that on the day			
	ced 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)			
KANSAS OIL, INC	16716 WICHITA RD, CHANUTE, KS 66720			
KANSAS OIL, INC	107 10 WICHTARD, CHARGIE, NO 00720			
C K REECE	315 LAMBETH RD, WATERLOO, IA 50701			
LYLE M GREER	1019 N STEUBEN, CHANUTE, KS 66720			
I further attest that notice of the filling of this application was published in t	the THE WILSON COUNTY CITIZEN , the official county publication			
of WILSON	county. A copy of the affidavit of this publication is attached.			
Signed this	2012			
Signed tills day or,	Al l olo			
	Applicant or Duly Authorized Agent			
Subscribed and sworn	are odd			
JENNIFER R. BEAL				
OFFICIAL MY COMMISSION EXPIRES	Notary Public Sunfue Beal  My Commission Expires: Quely 30, 30/6			
7-20-2014				
My Commission Expires:				

# CARTER, GALE D 20-1-APPLICATION FOR COMMINGLING OF PRODUCTION OR FLUIDS

set Operators, Unleased Mineral Owners and Landown	ners acreage	
ach additional sheets if necessary)		
Name:	Legal Description of Leasehold:	
EE ATTACHED		
eby certify that the statements made herein are true and corre	ect to the best of my knowledge and belief.	
	Chil Ehr	
	Applicant or Duly Authorized Agent	
Cultinavith and a	and sworn before me this August day of AUGUST .2	012
Subscribed 8	and sworn before the this,	
JENNIFER R. BEAL	Child & Rush	
SEAL MY COMMISSION EXPIRES	Notary Públic /	
7-20-0011		
0000	My Commission Expires:	
	•	

### CARTER, GALE D 20-1

# 20-28S-17E

per TO dtd 11.19.06

S2NW4 less 4 acre tract C.K. Reece

315 LAMBETH RD

Waterloo, IA 50701

per TO dtd 11.19.06

4 acre tract in S2NW4

Lyle M. Greer

1019 N Steuben

Chanute, KS 66720

### CARTER, GALE D 20-1

LEGAL LOCATION	SPOT	CURR_OPERA
S20-T28S-R17E	NW NE NE SW	Kansas Oil, Inc.
S29-T28S-R17E	NW NW NW	Kansas Oil, Inc.
S29-T28S-R17E	NE NE NE NW	Kansas Oil, Inc.
S29-T28S-R17E	SE NE NE NW	Kansas Oil, Inc.
S29-T28S-R17E	NW NW NW NW	Kansas Oil, Inc.
S29-T28S-R17E	N2 NW NW	Kansas Oil, Inc.
S29-T28S-R17E	SW NW NW	Kansas Oil, Inc.
S29-T28S-R17E	SW SW NW NW	Kansas Oil, Inc.
S29-T28S-R17E	N2 NW NW	Kansas Oil, Inc.

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 Sam Brownback, Governor

September 11, 2012

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

RE: Approved Commingling CO081232

Carter, Gale D. 20-1, Sec. 20-T28S-R17E, Wilson County

API No. 15-205-26580-00-00

Dear Mr. Edwards:

Your Application for Commingling (ACO-4) for the above described well, received by the KCC on August 27, 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 CO081232 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