

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)

OPERATOR: License #		API No. 15				
Name:_		Spot Description:				
Address 1:			_ Sec Twp	_S. R East West		
Address	2:		Feet from No	orth / South Line of Section		
City:		<u> </u>	Feet from Ea	ast / West Line of Section		
Contact	Person:	County:				
Phone:	()					
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:			BWPD:		
	Formation:	BOPD:	MCFPD:	BWPD:		
	Formation:	BOPD:	MCFPD:	BWPD:		
	Formation:	BOPD:	MCFPD:	BWPD:		
□ 3.□ 4.	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 affida	of the lessee of record or ope	erator.	ses within a 1/2 mile radius of		
<i>For Cor</i> ☐ 5.	mmingling of PRODUCTION ONLY, include the following: Wireline log of subject well. Previously Filed with ACO-1:	Vos. No				
_						
<u> </u>	Complete Form ACO-1 (Well Completion form) for the subject	weii.				
For Cor	nmingling of FLUIDS ONLY, include the following:					
	Well construction diagram of subject well.					
8.	Any available water chemistry data demonstrating the compati	ibility of the fluids to be comr	mingled.			
	-					
current i mingling	VIT: I am the affiant and hereby certify that to the best of my nformation, knowledge and personal belief, this request for comistrue and proper and I have no information or knowledge, which sistent with the information supplied in this application.	Sı	ubmitted Electron	nically		
	C Office Use Only			t in the application. Protests must be e filed wihin 15 days of publication of		

Date: _

Approved By:

15-Day Periods Ends: _



Wellbore Schematic

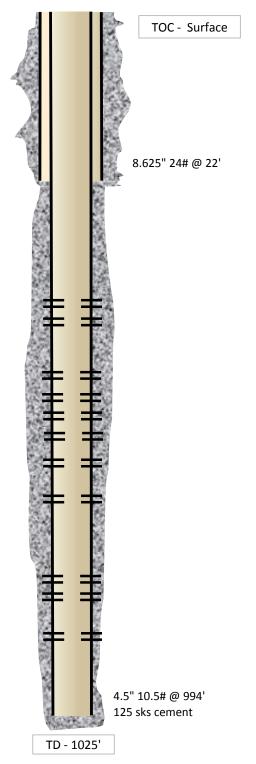
WELL: McCoy Virginia 30-2

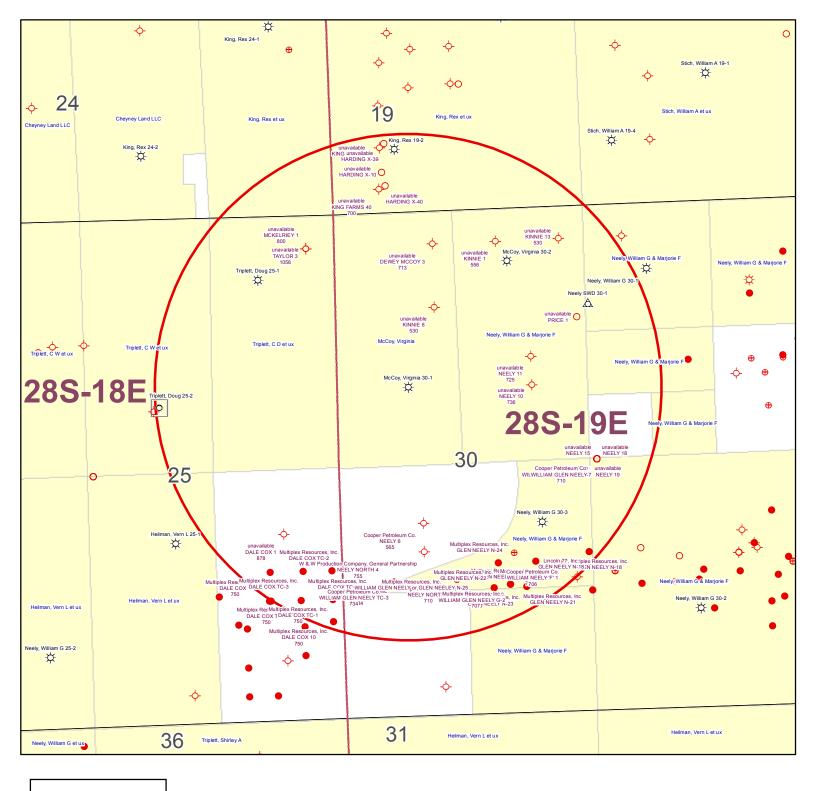
SSI: 624810 **API:** 15-133-27242

LOCATION: NE NW Sec. 30 28S-19E

COUNTY: Neosho STATE: Kansas

	STATE: Kansas
Casing	8.625" 24# @ 22' 4.5" 10.5# J-55, 4.05" ID w/ 0.0159 bbl/ft capacity @ 994'
Perforations	Original Perfs: 3/10/08 - Riverton 897-900' (13) - Neutral 847-849' (9) - Rowe 841-843' (9) - Weir 743-745' (9) - Tebo 695-697' (9) - Fleming 652-654' (9) - Fleming 635-637' (9) - Croweburg 597-600' (13) - Bevier 572-574' (9) - Mulky 488-492' (17) - Summit 476-480' (17)
Completions	Spud Date: 10/23/07 RNV Completion: 3/10/08 - 300 gals 15% HCl - 11.7 BPM - 2,800# 20/40 - 518 bbls fluid FTW Completion: 3/10/08 - 400 gals 15% HCl - 12 BPM - 2,400# 20/40 - 385 bbls fluid BCFFTW Completion: 3/10/08 - 400 gals 15% HCl - 18.5 BPM - 3,100# 20/40 - 406 bbls fluid SM Completion: 3/10/08 - 400 gals 15% HCl - 15 BPM - 5,500# 20/40 - 608 bbls fluid





KGS STATUS

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

McCoy, Virginia 30-1 30-28S-19E 1" = 1,000'

	Α	В	С	D	Е	F	G	П	ı	ı	К
1	Produced Fluids #	C	1	2	3	4	G 5	Н	<u> </u>	J	1 N
	Parameters	Units	Input	Input	Input	Input	Input		Click he	ro	Click
3	Select the brines	Select fluid					7	Mixed brine:	to run S		
4	Sample ID	by checking					<u> </u>	Cell H28 is	to run se		Click
	Date	the box(es),	3/19/2012	3/4/2012	3/14/2012	1/20/2012	1/20/2012	STP calc. pH.	—		
6	Operator	Row 3	PostRock	PostRock	PostRock	PostRock	PostRock	Cells H35-38			Click
	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			Click
	Field		CBM	CBM	Bartles	Bartles	Bartles	calculations.		<u> </u>	
		(mg/l)*	19,433.00	27,381.00	26,534.00	25689.00	24220.00	24654.20	Initial(BH)	Final(WH)	SI/SR
	K ⁺ (if not known =0)	(mg/l)						0.00	Saturation Index	values	(Final-Initial)
	Mg^{2+}	(mg/l)	1,096.00	872.00	1,200.00	953.00	858.00	995.91	Ca	lcite	
13	Ca ²⁺	(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 ²⁺	(mg/l)						0.00	Ba	rite	
15	Ba ²⁺	(mg/l)						0.00			
16	Fe ²⁺	(mg/l)	40.00	21.00	18.00	82.00	90.00	50.21	Ha	alite	
	Zn ²⁺	(mg/l)						0.00	-1.77	-1.80	-0.03
	Pb ²⁺							0.00		osum	0.02
	Cl.	(mg/l) (mg/l)	36,299,00	48,965,00	47,874.00	45632.00	43147.00	44388.44	-3.19	-3.18	0.00
	SO ₄ ²		1.00	1.00	8.00	1.00	1.00	2.40		-3.18 nydrate	0.00
-	F.	(mg/l)	1.00	1.00	8.00	1.00	1.00			·	0.04
21	n ·	(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	Cele	estite	
-	CO3 Alkalinity	(mg/l as CO3)									
	Carboxylic acids**	(mg/l)						0.00		Sulfide	
27	Ammonia	(mg/L) NH3						0.00	-0.16	-0.22	-0.06
28	Borate	(mg/L) H3BO3						0.00	Zinc	Sulfide	
29	TDS (Measured)	(mg/l)						72781			
	Calc. Density (STP)	(g/ml)	1.038	1.051	1.050	1.048	1.045	1.047	Calcium	fluoride	
	CO ₂ Gas Analysis	(%)	19.97	18.76	22.41	35.53	33.79	26.16			
	H ₂ S Gas Analysis***	(%)	0.0289	0.0292	0.0296	0.0306	0.0151	0.0269		arbonate	
-	Total H2Saq	(mgH2S/l)	1.00	1.00	1.00	1.00	0.50	0.90	-0.74	-0.51	0.23
34	pH, measured (STP)	pH 0-CO2%+Alk,	5.67	5.76	5.72	5.54	5.55	5.63		eeded (mg/L)	
	Choose one option								Calcite	NTMP	
35	to calculate SI?		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	ВНРМР	
38	XXX / III		100	100	100	100	100	500	0.00	0.00	
	Water/Day	(B/D)								**	-
	For mixed brines, enter val	ues for tempera	tures and pressi	ures in Cells (H	(40-H43)	A1 A	40.0	(Enter H40-H43)	p	H 5.60	
40	For mixed brines, enter val Initial T	ues for temperat	tures and pressu	ures in Cells (H 71.0	(40-H43) 70.0	41.0 41.0	49.0 49.0	(Enter H40-H43) 60.0	5.69	5.60	
40 41	For mixed brines, enter val Initial T Final T	(F) (F)	tures and pressu 66.0 66.0	res in Cells (H 71.0 71.0	70.0 70.0	41.0	49.0	(Enter H40-H43) 60.0 89.0	5.69 Viscosity (5.60 CentiPoise)	-
40 41 42	For mixed brines, enter val Initial T Final T Initial P	(F) (F) (psia)	66.0 66.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 60.0 89.0 25.0	5.69 Viscosity (1.196	5.60 CentiPoise) 0.826	
40 41 42 43	For mixed brines, enter val Initial T Final T	(F) (F) (psia) (psia)	tures and pressu 66.0 66.0	res in Cells (H 71.0 71.0	70.0 70.0	41.0	49.0	(Enter H40-H43) 60.0 89.0	5.69 Viscosity (1.196	5.60 CentiPoise)	-
40 41 42 43 44	For mixed brines, enter val Initial T Final T Initial P Final P	(F) (F) (psia) (psia)	66.0 66.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 60.0 89.0 25.0	5.69 Viscosity (1.196 Heat Capaci 0.955	5.60 CentiPoise) 0.826 ity (cal/ml/ ⁰ C)	
40 41 42 43 44 45 46	For mixed brines, enter val Initial T Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav.	ues for tempera (F) (F) (psia) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav.	66.0 66.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 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/°C) 0.959 eded (mg/L) HDTMP	
40 41 42 43 44 45 46 47	For mixed brines, enter val Initial T Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day	ues for tempera (F) (F) (psia) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D)	66.0 66.0 25.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 60.0 89.0 25.0 120.0	5.69 Viscosity (1.196 Heat Capaci 0.955 Inhibitor no Gypsum 0.00	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 eded (mg/L) HDTMP 0.00	
40 41 42 43 44 45 46 47 48	For mixed brines, enter val Initial T Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day	ues for tempera (F) (F) (psia) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav.	66.0 66.0 66.0 25.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 60.0 89.0 25.0 120.0	5.69 Viscosity (1.196 Heat Capaci 0.955 Inhibitor no Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
40 41 42 43 44 45 46 47 48	For mixed brines, enter val Initial T Final T Initial P Final P Use TP on Calcite sheet? API Oil Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier	ues for tempera (F) (F) (psia) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D)	66.0 66.0 25.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 60.0 89.0 25.0 120.0	5.69 Viscosity (1.196 Heat Capaci 0.955 Inhibitor no Gypsum 0.00	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 eded (mg/L) HDTMP 0.00	
40 41 42 43 44 45 46 47 48 49 50	For mixed brines, enter valinitial T 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) *	ues for tempera (F) (F) (psia) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D)	66.0 66.0 25.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 60.0 89.0 25.0 120.0	5.69 Viscosity (1.196 Heat Capaci 0.955 Inhibitor no Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
40 41 42 43 44 45 46 47 48 49 50 51	For mixed brines, enter valinitial T 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) †	ues for tempera (F) (F) (psia) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D) (N)	66.0 66.0 25.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 60.0 89.0 25.0 120.0	5.69 Viscosity (1.196 Heat Capaci 0.955 Inhibitor no Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
40 41 42 43 44 45 46 47 48 49 50 51	For mixed brines, enter valinitial T 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	ues for tempera (F) (F) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (N) (N) STP:	66.0 66.0 25.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 60.0 89.0 25.0 120.0	5.69 Viscosity (1.196 Heat Capaci 0.955 Inhibitor no Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
40 41 42 43 44 45 46 47 48 49 50 51 52 53	For mixed brines, enter valinitial T Final T Initial P Final P Final P Grav. Gas Sp.Grav. MeOH/Day MEG/Day Conc. Multiplier H* (Strong acid) † OH (Strong base) † Quality Control Checks at H ₂ S Gas	ues for tempera (F) (F) (psia) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D) (N)	66.0 66.0 25.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 60.0 89.0 25.0 120.0	5.69 Viscosity (1.196 Heat Capaci 0.955 Inhibitor no Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55	For mixed brines, enter valinitial T 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 ₂ S Gas Total H2Saq (STP) PH Calculated	ues for tempera (F) (F) (psia) (psia) (1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D) (N) (N) STP: (%) (mgH2S/I) (pH)	66.0 66.0 25.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 60.0 89.0 25.0 120.0	5.69 Viscosity (1.196 Heat Capaci 0.955 Inhibitor no Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56	For mixed brines, enter valinitial T 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 ₂ S Gas Total H2Saq (STP) pH Calculated PCO2 Calculated	ues for tempera (F) (F) (psia) (psia) (psia) 1-Yes;0-No API grav. Sp.Grav. (B/D) (B/D) (N) (N) STP: (%) (mgH2S/I) (pH) (%)	66.0 66.0 25.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 60.0 89.0 25.0 120.0	5.69 Viscosity (1.196 Heat Capaci 0.955 Inhibitor no Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57	For mixed brines, enter valinitial T 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 ₂ S Gas Total H2Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated	(F) (F) (psia) (1-Yes;0-No API grav. Sp.Grav. (B/D) (N) (N) (STP: (%) (mgH2S/I) (pH) (%) (mg/I) as HCO3	66.0 66.0 25.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 60.0 89.0 25.0 120.0	5.69 Viscosity (1.196 Heat Capaci 0.955 Inhibitor no Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58	For mixed brines, enter valinitial T 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 ₂ S Gas Total H2Saq (STP) pH Calculated PCO2 Calculated	ues for tempera (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)	66.0 66.0 25.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 60.0 89.0 25.0 120.0	5.69 Viscosity (1.196 Heat Capaci 0.955 Inhibitor no Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59	For mixed brines, enter valinitial T 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 ₂ S Gas Total H2Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated 2Cations=	ues for tempera (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	66.0 66.0 25.0 25.0	71.0 71.0 71.0 25.0	70.0 70.0 25.0	41.0 25.0	49.0 25.0	(Enter H40-H43) 60.0 89.0 25.0 120.0	5.69 Viscosity (1.196 Heat Capaci 0.955 Inhibitor no Gypsum 0.00 Anhydrite	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
40 41 42 43 44 45 46 47 50 51 52 53 54 55 56 67 57 58 60 61	For mixed brines, enter valinitial T 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 ₂ S Gas Total H2Saq (STP) pH Calculated Alkalinity Caclulated Alkalinity Caclulated EXCations= EXAnions= Calc TDS= Inhibitor Selection	(F)	66.0 66.0 25.0 25.0	71.0 71.0 71.0 25.0	40-H43) 70.0 70.0 25.0 25.0	41.0 25.0 25.0 Unit Converter	49.0 25.0 25.0	(Enter H40-H43) 60.0 89.0 25.0 120.0 30.00 0.60 0	5.69 Viscosity (1.196 Heat Capaci 0.955 Inhibitor no Gypsum 0.00 Anhydrite 0.00	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
40 41 42 43 44 45 46 47 50 51 52 53 54 55 56 57 58 60 61 62	For mixed brines, enter valinitial T Final T Initial P Final 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 ₂ S Gas Total H2Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated ECations= EAnions= Calc TDS= Inhibitor Selection Protection Time	ues for tempera (F) (F) (psia) (psia) (1-Yes;0-No API grav. Sp.Grav. (B/D) (N) (N) STP: (%) (mgH2S/I) (pH) (%) (mg/l) as HCO3 (equiv./I) (mg/l)	tures and press 66.0 66.0 25.0 25.0	# 1	40-H43) 70.0 70.0 25.0 25.0 Inhibitor NTMP	41.0 25.0 25.0 Unit Converter	49.0 25.0 25.0 25.0	(Enter H40-H43) 60.0 89.0 25.0 120.0 30.00 0.60 0	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	
40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 67 58 59 60 61 62 63	For mixed brines, enter valinitial T Final T Initial P Final 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 ₂ S Gas Total H2Saq (STP) pH Calculated PCO2 Calculated Alkalinity Caclulated ECations= EAnions= Calc TDS= Inhibitor Selection Protection Time Have ScaleSoftPitzer	(F)	tures and press 66.0 66.0 25.0 25.0 0 0	# 1 2	40-H43) 70.0 70.0 25.0 25.0 Inhibitor NTMP BHPMP	41.0 25.0 25.0 25.0 Unit Converter From Unit	49.0 25.0 25.0 25.0 (From metric Value 80	(Enter H40-H43) 60.0 89.0 25.0 120.0 30.00 0.60 0 0 to English) To Unit	Value	5.60 CentiPoise) 0.826 ty (cal/ml/°C) 0.959 ceded (mg/L) HDTMP 0.00 HDTMP	
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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 ₂ 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

CONFIDENTIAL

KANSAS CORPORATION COMMISSION OIL & GAS CONSERVATION DIVISION

ORIGINAL 1/24/10

Form ACO-1 September 1999 Form Must Be Typed

WELL COMPLETION FORM

WELL HISTORY - DESCRIPTION OF WELL & LEASE

Operator: License # 33344	API No. 15 - 15-133-27242-0000
Name: Quest Cherokee, LLC	County: Neosho
Address: 211 W. 14th Street	NE_NW_Sec. 30 Twp. 28 S. R. 19
City/State/Zip: Chanute, KS 66720 CONFIDENTIAL	550 feet from S / N circle one) Line of Section
Purchaser: Bluestem Pipeline, LLC	1800 feet from E (circle one) Line of Section
Purchaser: Bluestern Pipeline, LLC Operator Contact Person: Jennifer R. Ammann JAN 2 4 2008	Footages Calculated from Nearest Outside Section Corner:
Phone: (620) 431-9500 VCC	(circle one) NE SE NW SW
Contractor: Name: TXD	Lease Name: McCoy. Virginia Well #: 30-2
License: 33837	Field Name: Cherokee Basin CBM
Wellsite Geologist: Ken Recoy	Producing Formation: Not yet complete
Designate Type of Completion:	Elevation: Ground: 910 Kelly Bushing: n/a
New Well Re-Entry Workover	Total Depth: 1025 Plug Back Total Depth: 994
Oil SWD SIOW Temp. Abd.	Amount of Surface Pipe Set and Cemented at 22 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 994
Operator:	feet depth to surface w/ 125 sx cmt.
Well Name:	
Original Comp. Date: Original Total Depth:	Drilling Fluid Management Plan AHTI NJ 4-6 09 (Data must be collected from the Reserve Pit)
Deepening Re-perf Conv. to Enhr/SWD	Table Made to consider the Made to the
Plug Back Plug Back Total Depth	Chloride content ppm Fluid volume bbls
Commingled Docket No.	Dewatering method used
Dual Completion Docket No	Location of fluid disposal if hauled offsite:
Other (SWD or Enhr.?) Docket No	Operator Name:
	Lease Name: License No.:
10/23/07	Quarter Sec Twp S. R
Recompletion Date Recompletion Date	County: Docket No.:
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, er or conversion of a well. Rule 82-3-130, 82-3-106 and 82-3-107 apply. It months if requested in writing and submitted with the form (see rule 82-3-111) and geologist well report shall be attached with this form. ALL CEMENTING Submit CP-111 form with all temporarily abandoned wells.
All requirements of the statutes, rules and regulations promulgated to regula herein are complete and correct to the best of my knowledge.	ate the oil and gas industry have been fully complied with and the statements
instelli are complete and confect to the best of my knowledge.	
Signature: Genoufu K. Elmmann	KCC Office Use ONLY
Title: New Well Development Coordinator Date: 1/24/08	Letter of Confidentiality Received
7 th	If Denied, Yes Date:
_	Wireline Log Received KANSAS CORPORATION COMMISSION
20_08.	Geologist Report Received
Notary Public: Dura Klauman	UIC Distribution FEB 0 1 2008
Date Commission Expires: 8-4-3010	CONSERVATION DIVISION
TERRA Notary Publi My Appt. Expires	A KLAUMAN WICHITA, KS
My Appt. Expires	8-4-2010

Operator Name: Que	est Cherokee, LL	.c	Lease Nar	me: McCoy. Virgi	inia	Well #: 30-2	· · · · · · · · · · · · · · · · · · ·
ec. 30 Twp. 2	8 S. R. 19	✓ East	County: _N	eosho			d
ested, time tool oper emperature, fluid rec	and closed, flowing covery, and flow rate	and base of formations g and shut-in pressures ss if gas to surface test, final geological well site	s, whether shut-it along with final	n pressure reached	l static level, hydr	ostatic pressure	s, bottom hole
rill Stem Tests Take		Yes No	i	Log W Format			Sample
amples Sent to Geo	ological Survey	Yes No		Name [#] ///See attached	A!	Тор	Datum
ores Taken	·	Yes No		CC			•
lectric Log Run (Submit Copy)	,	Yes No					
st All E. Logs Run:							
Compensated Dual Induction		CASIN	G RECORD [New Used	ction, etc.		
Purpose of String	Size Hole Drilled	Size Casing	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percen
Surface	12-1/4	Set (In O.D.) 8-5/8**	22	22	"A"	5	Additivos
Production	6-3/4	4-1/2	10.5	994	"A"	125	
	,	ADDITION	AL CEMENTING A	SQUEEZE RECOR	RD.		
Purpose: Perforate Protect Casing Plug Back TD Plug Off Zone	Depth Top Bottom	Type of Cement	#Sacks Use	od .	Type and	Percent Additives	
Shots Per Foot		TION RECORD - Bridge P			acture, Shot, Ceme		d Depth
1	Waiting on Pipli		enorated	,	Ambani ana Kina or i	Material Coopy	
ļ							
1							
TUBING RECORD	Size	Set At	Packer At	Liner Run	☐Yes · ☐ N	lo.	
2-3 Date of First, Resumer	3/8"	Waiting on Pipeline Enhr. Producing N	n/a Method			<u></u>	•
Date of Flist, Nesulie	a Froduction, SWD or	Lini.		lowing Pum	ping 🔲 Gas l	Lift Othe	er (Explain)
Estimated Production Per 24 Hours	Oil n/a	Bbls. Gas	Mcf	Water	Bbls.	Gas-Oil Ratio	Gravity
Disposition of Gas	METHOD OF	COMPLETION		Production Int	erval		
Vented Sold	Used on Lease	Open Ho		Dually Comp.	Commingled		
gangerer (j. 1987) 1 de f. 19 1 de februari			RA KLAU JA	TER Legacy P.			

FORMATION:	FLEMING	(PERFS):	652 -	- 654			
FORMATION:	FLEMING	(PERFS):	635 -	- 637			
FORMATION:	CROWEBURG	(PERFS):	597 -	- 600			
FORMATION:	BEVIER	(PERFS):	572 -	- 574			
FORMATION:	MULKY	(PERFS):	488 -	492			
FORMATION:	SUMMIT	(PERFS):	476 -	480			
FORMATION:	CATTLEMAN	(PERFS):	665 -	- 667			
FORMATION:	CATTLEMAN	(PERFS):	672 -	- 676			
FORMATION:		(PERFS):	-	-			
FORMATION:		(PERFS):	-	-			
FORMATION:		(PERFS):	-	-			
FORMATION:		(PERFS):	-	-			
2 ESTIMATED A	MOUNT OF FLUID PRODUC	CTION TO BE COMMINGLED FROM E	EACH INT	ERVAL			
2 ESTIMATED A FORMATION:		CTION TO BE COMMINGLED FROM E BOPD:	EACH INT	ERVAL MCFPD:	7.91	BWPD:	3.64
	FLEMING				7.91 7.91	BWPD:	3.64 3.64
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FORMATION: FORMATION:	FLEMING FLEMING	BOPD: BOPD:	0	MCFPD:	7.91	BWPD:	3.64
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MCCOY, VIRGINIA 30-1 - APPLICATION FOR COMMINGLING OF PRODUCTION OR FLUIDS Offset Operators, Unleased Mineral Owners and Landowners acreage (Attach additional sheets if necessary) Legal Description of Leasehold: SEE ATTACHED I hereby certify that the statements made herein are true and correct to the best of my knowledge and belief. Applicant or Duly/Authorized Agent day of JUNE Subscribed and sworn before me this 294 2012 DENISE V. VENNEMAN Notary Public MY COMMISSION EXPIRES July 1, 2012 My Commission Expires:

MCCOY, VIRGINIA 30-2 OFFSET OPERATORS, UNLEASED MINERAL OWNERS AND LANDOWNERS ACREAGE

S	POT	LEGAL LOCATION	CURR_OPERA
		S30-T28S-R19E	Cooper Petroleum Co.
S	W NE NE	S30-T28S-R19E	MSG Resources Inc.
S	W NE NE	S30-T28S-R19E	MSG Resources Inc.
Λ	IE SW NE	S30-T28S-R19E	MSG Resources Inc.

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 McCoy, Virginia 30-2 located in Neosho 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 Riverton, Neutral, Rowe, Weir, Tebo, Fleming, Croweburg, Bevier, Mulky, Summit and Cattleman producing formations at the McCoy, Virginia 30-2 located in the NE NW, S30-T28S-R19E, Approximately 550 FNL & 1800 FWL, 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 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

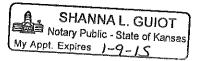
A COPY OF THE AFFIDAVIT OF PUBLICATION MUST ACCOM-PANY ALL APPLICATIONS

Affidavit of Publication 🐝

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.

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.



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 n1tice was

made as aforesaid on the **2nd** of

July 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

2nd day of July, 2012

PENNY L. CASE Notary Public - State of Ka My Appt. Expires o

Notary Public Sedgwick County, Kansas

Printer's Fee: \$132.40

LEGAL PUBLICATION

PUBLISHED IN THE WICHITA EAGLE

PUBLISHED IN THE WICHITA EAGLE
JULY 2, 2012 (3194135)
BEFORE THE STATE CORPORATION
COMMISSION OF THE STATE OF KANSAS.
NOTICE OF FILING APPLICATION
RE: In the Matter of Postrock Midconfinent
Production, LLC Application for
Commingling of Production in the
MCCoy, Virginia 30-2 located in Neosho
County, Kansas:
TC: All Oil & Gas Producers, Unleased Mineral
Interest Owners, Landowners, and all

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 Riverton, Neutral, Rowe, Welr, Tebo, Fleming, Croweburg, Bevier, Mulky, Summit and Cattleman producing formations at the McCoy, Virginia 30-2 located in the NE.NW, S30-7285-R19E, Approximately 550 FNL & 1800 FWL, 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, why granting the application may cause waste, violate correlative rights or pollute the natural resources of the State of Kansas.

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All persons inferested or concerned shall take notice of the foregoing and shall govern themselves accordingly. All person and/or companies wishing to profest this application are required to file a written profest with the

are required to file a written profest with the Conservation Division of the Kansas Oil and Gas Commission.

Upon the receipt of any profest, the Commission will convene a hearing and profestants will be expected to enter an appearance either through proper legal coursel or as Individuals, appearing on their own behalf.

Postrock Midconfinent Production, LLC 210 Park Avenue, Suite 2750 Oklahoma City, Oklahoma 73102

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

July 18, 2012

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

RE: Approved Commingling CO071219

McCoy, Virginia 30-2, Sec.30-T28S-R19E, Neosho County

API No. 15-133-27242-00-00

Dear Mr. Edwards:

Your Application for Commingling (ACO-4) for the above described well, received by the KCC on July 10, 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 CO071219 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