

Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1255161
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

- New Well Re-Entry Workover
- Oil WSW SWD SIOW
- Gas D&A ENHR SIGW
- OG GSW Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic Other (Core, Expl., etc.): _____

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

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

- Deepening Re-perf. Conv. to ENHR Conv. to SWD
- Plug Back Conv. to GSW Conv. to Producer
- Commingled Permit #: _____
- Dual Completion Permit #: _____
- SWD Permit #: _____
- ENHR Permit #: _____
- GSW Permit #: _____

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

- Confidentiality Requested
Date: _____
- Confidential Release Date: _____
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT I II III Approved by: _____ Date: _____

1255161

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
Cores Taken	<input type="checkbox"/> Yes <input type="checkbox"/> No			
Electric Log Run	<input type="checkbox"/> Yes <input type="checkbox"/> No			
List All E. Logs Run:				

CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate				
<input type="checkbox"/> Protect Casing				
<input type="checkbox"/> Plug Back TD				
<input type="checkbox"/> Plug Off Zone				

Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD: Size: _____ Set At: _____ Packer At: _____ Liner Run: Yes No

Date of First, Resumed Production, SWD or ENHR. _____ Producing Method:
 Flowing Pumping Gas Lift Other *(Explain)* _____

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
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Summary Report



Sales Order #: 0902401703
 WO #: 0902401703
 PO/AFE #: NA

Crew: _____
 Job Start Date: 5/15/2015

Customer: TAPSTONE ENERGY LLC
 UWI / API Number: 15-077-22106-01
 Well Name: ROGER 19-33-7
 Well No: 1H

Field:
 County/Parish: HARPER
 State: KANSAS
 Latitude: 37.151169
 Longitude: -98.127975
 Sect / Twn / Rng: 30/33/7

Job Type: CMT SURFACE CASING BOM
 Service Supervisor: Nicholas Ralston
 Cust Rep Name: CM
 Cust Rep Phone #:

Remarks:		
The Information Stated Herein Is Correct	Customer Representative Signature <i>Sharon Gray</i>	Date
	Customer Representative Printed Name	

The Road to Excellence Starts with Safety

Sold To #: 372073	Ship To #: 3611528	Quote #: 0022044796	Sales Order #: 0902401703
Customer: TAPSTONE ENERGY LLC		Customer Rep: CM	
Well Name: ROGER 19-33-7	Well #: 1H	API/UWI #: 15-077-22106-01	
Field:	City (SAP): ANTHONY	County/Parish: HARPER	State: KANSAS
Legal Description: NE NW NW NW-30-33S-7W-225FNL-580FWL			
Contractor: NOMAC		Rig/Platform Name/Num: NOMAC 07	
Job BOM: 7521			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX25353		Srvc Supervisor: Nicholas Raiston	
Job			

Formation Name	
Formation Depth (MD)	Top Bottom
Form Type	BHST
Job depth MD	800ft Job Depth TVD
Water Depth	Wk Ht Above Floor
Perforation Depth (MD)	From To

Well Data										
Description	New / Used	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Open Hole Section			12.25				0	800		
Casing	3	9.625	8.921	36	LTC	J-55	0	800		

Tools and Accessories									
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make	
Guide Shoe	9.625			800	Top Plug	9.625	1	HES	
Float Shoe	9.625				Bottom Plug	9.625		HES	
Float Collar	9.625				SSR plug set	9.625		HES	
Insert Float	9.625				Plug Container	9.625		HES	
Stage Tool	9.625				Centralizers	9.625		HES	

Miscellaneous Materials									
Gelling Agt	Conc	Surfactant	Conc	Acid Type	Qty	Conc			
Treatment Fld	Conc	Inhibitor	Conc	Sand Type	Size	Qty			

Fluid Data									
Stage/Plug #: 1									
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	Water Spacer	Water Spacer	10	bbl	8.33			2	
Stage/Plug #: 2									
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
2	Tail Cement	SWIFTCEM (TM) SYSTEM	500	sack	15.1	1.3		4	6.1

2 %		CALCIUM CHLORIDE, PELLET, 50 LB (101509387)							
6.10 Gal		FRESH WATER							
94 lbm		CMT - STANDARD - CLASS A REG OR TYPE I, BULK (100003684)							
0.1250 lbm		POLY-E-FLAKE (101216940)							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft³/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	Displacement	Displacement	59.6	bbl	8.33			6	
Cement Left In Pipe		Amount	45.69ft		Reason		Shoe Joint		
Comment 48 BBLs CMT TO SURFACE									

The Road to Excellence Starts with Safety

Sold To #: 372073	Ship To #: 3611528	Quote #: 0022044054	Sales Order #: 0902406677
Customer: TAPSTONE ENERGY LLC		Customer Rep: Skip	
Well Name: ROGER 19-33-7	Well #: 1H	API/UWI #: 15-077-22106-01	
Field:	City (SAP): ANTHONY	County/Parish: HARPER	State: KANSAS
Legal Description: NE NW NW NW-30-33S-7W-225FNL-580FWL			
Contractor: NOMAC		Rig/Platform Name/Num: NOMAC 07	
Job BOM: 7522			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX25353		Srcv Supervisor: Tyler Provines	
Job			

Formation Name	
Formation Depth (MD)	Top Bottom
Form Type	BHST
Job depth MD	5116ft Job Depth TVD
Water Depth	Wk Ht Above Floor 6
Perforation Depth (MD)	From To

Well Data										
Description	New / Used	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Casing	3	9.625	8.921	36	LTC	J-55	0	800		800
Casing	3	7	6.276	26	LTC	P-110	0	5089	0	4640
Open Hole Section			8.75				800	5116	800	4640

Tools and Accessories									
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make	
Guide Shoe	7	1		5116	Top Plug	7	1	HES	
Float Shoe	7	1			Bottom Plug	7	1	HES	
Float Collar	7	1			SSR plug set	7	1	HES	
Insert Float	7	1			Plug Container	7	1	HES	
Stage Tool	7	1			Centralizers	7	1	HES	

Miscellaneous Materials									
Gelling Agt	Conc	Surfactant	Conc	Acid Type	Qty	Conc			
Treatment Fld	Conc	Inhibitor	Conc	Sand Type	Size	Qty			

Fluid Data									
Stage/Plug #: 1									
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	Mud Flush III (Liquid)	Mud Flush III	10	bbl	8.33			5	
41 gal/bbl		FRESH WATER							

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal	
2	Lead Cement	ECONOCEM (TM) SYSTEM	135	sack	13.6	1.47		5	7.17	
	2 %	BENTONITE, BULK (100003682)								
	0.40 %	HALAD(R)-9, 50 LB (100001617)								
	47 lbm	CMT - STANDARD - CLASS A REG OR TYPE I, BULK (100003684)								
	41.50 lbm	POZMIX A FLYASH (100003690)								
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal	
3	Tail Cement	HALCEM (TM) SYSTEM	90	sack	15.6	1.19		5	5.36	
	0.40 %	HALAD(R)-9, 50 LB (100001617)								
	94 lbm	CMT - PREMIUM - CLASS H REG OR TYPE V, BULK (100003687)								
	5.36 Gal	FRESH WATER								
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal	
4	Displacement	Displacement	191	bbl	8.33			8		
Cement Left In Pipe		Amount	84 ft		Reason			Shoe Joint		
Comment Bumped on calculated displacement, floats held, 1.5bbl back										

Summary Report



Sales Order #: 0902406677
WO #: 0902406677
PO/AFE #: NA

Crew: _____

Job Start Date: 5/20/2015

Customer: TAPSTONE ENERGY LLC
UWI / API Number: 15-077-22106-01
Well Name: ROGER 19-33-7
Well No: 1H

Field:
County/Parish: HARPER
State: KANSAS
Latitude: 37.151169
Longitude: -98.127975
Sect / Twn / Rng: 30/33/7

Job Type: CMT INTERMEDIATE
CASING BOM
Service Supervisor: Tyler Provines
Cust Rep Name: Skip
Cust Rep Phone#:

Remarks:		
The Information Stated Herein Is Correct	Customer Representative Signature <i>[Handwritten Signature]</i>	Date 5/20/15
	Customer Representative Printed Name	

MWD
SURVEYS

Customer: Tapstone Energy
Well: Roger 19-33-7 #1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117715
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: May 16, 2015
Date of Last Survey:



Total Correction: 3.57 East Correction: Grid

Vertical Section Plane: 0.36 Nominal Dip Angle: 65.37 Magnetic Field Strength: 0.515

Measured Depth	Inc.	Azim.	T.V.D.	Ver. Sect.	Coordinates		Closure			DLS	Mtr Yield	Temp (°F)	Date	Time	Flow Rate	Hz	Watts	SNR (Survey)	SNR (Slide)	SNR (Rotate)	Comments	
					+N / -S	+E / -W	Dist.	Angle														
Survey's are tied into: Assume Vertical at Casing Shoe @ 800'																					Date Received:	05/16/15
Company:																						
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
1	917.00	0.90	68.80	916.96	2.65	2.60	6.71	7.20	68.80	0.10	0.00	97 °F	05/16/15	6:24	591 (gpm)	2.5	20	7.7	NA	8.1	First Survey outside Shoe	
2	1106.00	1.00	86.90	1,105.94	3.29	3.23	9.75	10.27	71.66	0.17	0.00	99 °F	05/16/15	7:12	591 (gpm)	2.5	20	8.7	8.9	9.1		
3	1294.00	0.40	83.10	1,293.92	3.47	3.40	12.03	12.51	74.23	0.32	0.00	104 °F	05/16/15	8:09	591 (gpm)	2.5	20	8.6	NA	11	Verify Downlink	
4	1484.00	0.40	38.90	1,483.92	4.08	3.99	13.11	13.70	73.06	0.16	0.00	108 °F	05/16/15	9:25	591 (gpm)	2.5	17	18	NA	19	Downlink to 17 watts	
5	1673.00	0.40	300.60	1,672.91	4.92	4.84	12.96	13.83	69.50	0.32	0.00	113 °F	05/16/15	10:22	591 (gpm)	2.5	12	19	18	NA	Downlink to 12 watts turn rotation control off (alternate packet 1 &9)	
6	1860.00	0.30	273.80	1,859.91	5.28	5.21	11.91	13.00	66.38	0.10	0.00	113 °F	05/16/15	11:26	591 (gpm)	2.5	8	21	NA	19	Downlink to 8 watts (Rotation Control Back on)	
7	2049.00	0.30	291.00	2,048.91	5.49	5.42	10.95	12.22	63.68	0.05	0.00	119 °F	05/16/15	12:28	591 (gpm)	2.5	8	19	16	NA	Downlink to CDS 9	
8	2238.00	0.10	148.50	2,237.91	5.52	5.45	10.57	11.90	62.71	0.20	0.00	122 °F	05/16/15	13:41	591 (gpm)	2.5	8	23	NA	15		
9	2424.00	0.20	115.70	2,423.91	5.24	5.18	10.95	12.11	64.71	0.07	0.00	122 °F	05/16/15	14:51	591 (gpm)	2.5	8	11	NA	13		
10	2612.00	0.00	47.80	2,611.91	5.10	5.03	11.25	12.32	65.89	0.11	0.00	124 °F	05/16/15	15:45	591 (gpm)	2.5	8	7.8	NA	6		
11	2801.00	0.30	165.20	2,800.91	4.63	4.55	11.37	12.25	68.18	0.16	0.00	128 °F	05/16/15	17:02	591 (gpm)	2.5	12	15	NA	9.5	Downlink to 12 watts	
12	2989.00	0.60	122.30	2,988.90	3.63	3.55	12.33	12.83	73.93	0.23	0.00	100 °F	05/16/15	20:00	591 (gpm)	2.5	12	13	NA	10		
13	3176.00	0.50	213.20	3,175.89	2.43	2.35	12.71	12.93	79.54	0.42	0.00	104 °F	05/16/15	21:20	591 (gpm)	2.5	12	16	NA	12		
14	3365.00	0.30	170.70	3,364.89	1.25	1.17	12.34	12.40	84.59	0.18	0.00	117 °F	05/16/15	23:43	591 (gpm)	2.5	12	14	NA	9.4	Downlink to CDS 4	
15	3555.00	0.30	138.00	3,554.89	0.39	0.31	12.75	12.76	88.62	0.09	0.00	117 °F	05/17/15	1:10	591 (gpm)	2.5	12	12	NA	10		
16	3746.00	0.40	182.70	3,745.88	-0.65	-0.73	13.06	13.08	93.20	0.15	0.00	118 °F	05/17/15	2:15	591 (gpm)	2.5	12	14	NA	6		
17	3840.00	2.20	16.10	3,839.87	0.76	0.68	13.54	13.56	87.14	2.76	12.00	124 °F	05/17/15	12:08	513 (gpm)	2.5	14	8.2	8.8	NA		
18	3872.00	6.80	13.80	3,871.76	3.20	3.11	14.16	14.50	77.63	14.38	14.20	122 °F	05/17/15	13:13	415 (gpm)	2.5	14	7.7	7.1	NA		
19	3903.00	11.00	6.60	3,902.38	7.92	7.83	14.94	16.87	62.35	13.99	14.00	124 °F	05/17/15	13:54	415 (gpm)	2.5	14	7.7	7.6	7.8		
20	3934.00	13.90	5.80	3,932.65	14.57	14.47	15.66	21.32	47.25	9.37	13.20	124 °F	05/17/15	14:40	415 (gpm)	2.5	14	7.8	7.8	6.6		
21	3966.00	16.40	6.30	3,963.53	22.89	22.79	16.54	28.16	35.98	7.82	20.00	124 °F	05/17/15	15:28	415 (gpm)	2.5	14	4.1	8	8.1	Downlink to 17 watts	
22	3997.00	17.70	7.10	3,993.17	31.93	31.82	17.61	36.36	28.96	4.26	12.00	126 °F	05/17/15	16:22	415 (gpm)	2.5	17	7.8	7.8	7.7		
23	4029.00	19.70	6.50	4,023.48	42.12	42.00	18.82	46.03	24.13	6.28	23.00	126 °F	05/17/15	17:28	415 (gpm)	2.5	17	7.8	7.9	6.5		
24	4060.00	21.40	5.20	4,052.50	52.95	52.83	19.92	56.46	20.66	5.68	17.60	127 °F	05/17/15	20:10	415 (gpm)	2.5	17	8	7.6	6.6		
25	4090.00	23.50	4.60	4,080.23	64.37	64.24	20.90	67.56	18.02	7.04	21.10	133 °F	05/18/15	2:10	500 (gpm)	2.5	17	9.3	7.7	5.9		
26	4125.00	25.20	3.70	4,112.11	78.77	78.63	21.94	81.64	15.59	4.97	17.40	124 °F	05/18/15	13:03	500 (gpm)						Laid Down EM / Picked up Mud Pulse	
27	4156.00	27.40	2.30	4,139.90	92.49	92.35	22.65	95.09	13.78	7.37	22.80	128 °F	05/18/15	14:00	535 (gpm)							
28	4188.00	29.50	0.90	4,168.04	107.73	107.59	23.07	110.03	12.10	6.89	14.70	131 °F	05/18/15	15:14	535 (gpm)							
29	4219.00	31.10	359.60	4,194.80	123.37	123.22	23.13	125.38	10.63	5.58	21.60	133 °F	05/18/15	16:17	535 (gpm)							
30	4251.00	33.30	358.70	4,221.88	140.41	140.27	22.88	142.13	9.26	7.04	22.50	133 °F	05/18/15	16:58	535 (gpm)							
31	4282.00	35.60	358.30	4,247.44	157.94	157.80	22.42	159.39	8.09	7.46	19.20	133 °F	05/18/15	17:40	535 (gpm)							
32	4313.00	37.80	357.70	4,272.30	176.45	176.32	21.77	177.65	7.04	7.19	20.20	135 °F	05/18/15	18:15	535 (gpm)							
33	4345.00	40.00	357.10	4,297.20	196.52	196.39	20.85	197.49	6.06	6.98	20.30	138 °F	05/18/15	19:30	535 (gpm)							
34	4376.00	41.90	356.70	4,320.61	216.80	216.68	19.75	217.57	5.21	6.19	19.20	140 °F	05/18/15	20:40	535 (gpm)							
35	4407.00	44.50	357.10	4,343.21	237.98	237.86	18.61	238.59	4.47	8.43	23.70	141 °F	05/18/15	21:05	535 (gpm)							
36	4438.00	46.90	358.10	4,364.86	260.13	260.03	17.68	260.63	3.89	8.08	19.20	143 °F	05/18/15	22:35	535 (gpm)							
37	4468.00	48.60	358.60	4,385.03	282.33	282.22	17.04	282.74	3.46	5.80	12.40	145 °F	05/18/15	23:35	535 (gpm)							
38	4499.00	50.40	359.40	4,405.16	305.89	305.79	16.64	306.24	3.11	6.13	19.00	145 °F	05/19/15	0:40	535 (gpm)							
39	4530.00	52.80	358.90	4,424.41	330.18	330.08	16.27	330.48	2.82	7.84	17.30	147 °F	05/19/15	1:20	535 (gpm)							
40	4561.00	55.00	358.20	4,442.68	355.21	355.12	15.64	355.46	2.52	7.33	14.20	149 °F	05/19/15	2:15	535 (gpm)							
41	4592.00	58.00	357.10	4,459.79	381.03	380.95	14.57	381.22	2.19	10.12	22.30	149 °F	05/19/15	3:30	535 (gpm)							
42	4623.00	60.60	356.40	4,475.61	407.63	407.55	13.06	407.76	1.84	8.61	15.70	149 °F	05/19/15	4:10	535 (gpm)							
43	4654.00	62.30	356.50	4,490.43	434.80	434.73	11.37	434.88	1.50	5.49	15.40	149 °F	05/19/15	4:40	535 (gpm)							
44	4685.00	63.10	356.40	4,504.64	462.28	462.23	9.67	462.33	1.20	2.60	0.00	149 °F	05/19/15	5:20	535 (gpm)							
45	4716.00	63.90	356.20	4,518.48	489.95	489.91	7.88	489.97	0.92	2.64	0.00	149 °F	05/19/15	6:13	535 (gpm)							
46	4747.00	64.60	356.00	4,531.94	517.80	517.77	5.98	517.80	0.66	2.33	0.00	149 °F	05/19/15	7:03	535 (gpm)							
47	4778.00	65.10	355.60	4,545.12	545.77	545.75	3.92	545.77	0.41	1.99	0.00	149 °F	05/19/15	8:08	535 (gpm)							
48	4810.00	64.90	355.70	4,558.64	574.67	574.67	1.72	574.67	0.17	0.69	0.00	147 °F	05/19/15	9:03	535 (gpm)							
49	4842.00	64.50	355.60	4,572.32	603.50	603.52	-0.47	603.52	359.96	1.28	0.00	147 °F	05/19/15	10:10	535 (gpm)							
50	4873.00	64.90	355.90	4,585.57	631.44	631.47	-2.55	631.47	359.77	1.56	0.00	147 °F	05/19/15	11:48	535 (gpm)							

MWD
SURVEYS

Customer: Tapstone Energy
Well: Roger 19-33-7 #1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117715
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: May 16, 2015
Date of Last Survey:



Total Correction: 3.57 East Correction: Grid

Vertical Section Plane: 0.36 Nominal Dip Angle: 65.37 Magnetic Field Strength: 0.515

Measured Depth	Inc.	Azim.	T.V.D.	Ver. Sect.	Coordinates		Closure			DLS	Mtr Yield	Temp (°F)	Date	Time	Flow Rate	Hz	Watts	SNR (Survey)	SNR (Slide)	SNR (Rotate)	Comments	
					+N / -S	+E / -W	Dist.	Angle	Angle													
51	4905.00	67.70	357.40	4,598.43	660.68	660.72	-4.26	660.73	359.63	9.75	18.30	149 °F	05/19/15	13:12	535 (gpm)							
52	4935.00	71.00	358.20	4,609.01	688.72	688.76	-5.33	688.78	359.56	11.28	15.40	149 °F	05/19/15	14:42	535 (gpm)							
53	4967.00	74.90	359.00	4,618.39	719.29	719.34	-6.08	719.37	359.52	12.42	18.10	150 °F	05/19/15	16:04	535 (gpm)							
54	4998.00	78.50	359.50	4,625.52	749.45	749.50	-6.47	749.53	359.51	11.72	21.30	151 °F	05/19/15	17:32	535 (gpm)							
55	5029.00	81.80	0.50	4,630.82	779.99	780.04	-6.47	780.07	359.52	11.11	20.20	153 °F	05/19/15	19:00	535 (gpm)							
56	5060.00	84.50	1.90	4,634.52	810.76	810.81	-5.82	810.83	359.59	9.80	20.20	151 °F	05/19/15	20:40	535 (gpm)							
57	5142.00	87.60	3.20	4,640.17	892.49	892.52	-2.18	892.52	359.86	4.10	0.00	140 °F	05/21/15	1:30	246 (gpm)							
58	5173.00	88.40	2.90	4,641.25	923.44	923.46	-0.53	923.46	359.97	2.76	0.00	142 °F	05/21/15	2:40	246 (gpm)							
59	5205.00	89.30	2.20	4,641.89	955.41	955.42	0.89	955.42	0.05	3.56	0.00	142 °F	05/21/15	4:10	246 (gpm)							
60	5237.00	89.80	1.70	4,642.14	987.39	987.40	1.98	987.40	0.11	2.21	0.00	144 °F	05/21/15	6:00	246 (gpm)							
61	5268.00	90.40	1.40	4,642.09	1,018.39	1,018.39	2.82	1,018.39	0.16	2.16	0.00	145 °F	05/21/15	7:12	246 (gpm)							
62	5300.00	90.70	0.80	4,641.78	1,050.38	1,050.38	3.43	1,050.39	0.19	2.10	0.00	147 °F	05/21/15	8:23	246 (gpm)							
63	5331.00	90.80	0.60	4,641.37	1,081.38	1,081.38	3.81	1,081.38	0.20	0.72	0.00	149 °F	05/21/15	9:29	246 (gpm)							
64	5363.00	91.70	0.90	4,640.68	1,113.37	1,113.37	4.23	1,113.37	0.22	2.96	0.00	151 °F	05/21/15	10:24	246 (gpm)							
65	5394.00	91.70	0.90	4,639.76	1,144.36	1,144.35	4.72	1,144.36	0.24	0.00	0.00	152 °F	05/21/15	11:23	246 (gpm)							
66	5426.00	90.90	1.10	4,639.03	1,176.34	1,176.33	5.27	1,176.35	0.26	2.58	0.00	153 °F	05/21/15	12:30	246 (gpm)							
67	5457.00	90.30	0.90	4,638.71	1,207.34	1,207.33	5.81	1,207.34	0.28	2.04	0.00	151 °F	05/21/15	13:44	246 (gpm)							
68	5489.00	90.70	0.90	4,638.43	1,239.34	1,239.32	6.32	1,239.34	0.29	1.25	0.00	149 °F	05/21/15	14:54	246 (gpm)							
69	5520.00	91.30	0.50	4,637.89	1,270.33	1,270.32	6.70	1,270.33	0.30	2.33	0.00	149 °F	05/21/15	15:47	246 (gpm)							
70	5552.00	91.60	0.80	4,637.08	1,302.32	1,302.30	7.06	1,302.32	0.31	1.33	0.00	149 °F	05/21/15	16:44	246 (gpm)							
71	5583.00	91.40	0.80	4,636.26	1,333.31	1,333.29	7.49	1,333.31	0.32	0.65	0.00	149 °F	05/21/15	17:39	246 (gpm)							
72	5615.00	91.00	0.80	4,635.59	1,365.30	1,365.28	7.94	1,365.30	0.33	1.25	0.00	150 °F	05/21/15	18:30	246 (gpm)							
73	5647.00	90.80	0.90	4,635.09	1,397.30	1,397.27	8.41	1,397.30	0.34	0.70	0.00	151 °F	05/21/15	19:30	246 (gpm)							
74	5678.00	91.10	0.50	4,634.58	1,428.29	1,428.27	8.79	1,428.29	0.35	1.61	0.00	151 °F	05/21/15	20:15	246 (gpm)							
75	5710.00	91.40	0.40	4,633.88	1,460.28	1,460.26	9.04	1,460.28	0.35	0.99	0.00	151 °F	05/21/15	21:10	246 (gpm)							
76	5741.00	91.80	0.50	4,633.01	1,491.27	1,491.24	9.29	1,491.27	0.36	1.33	0.00	151 °F	05/21/15	21:45	246 (gpm)							
77	5772.00	92.00	0.70	4,631.99	1,522.26	1,522.22	9.61	1,522.26	0.36	0.91	0.00	153 °F	05/21/15	22:50	246 (gpm)							
78	5802.00	90.80	0.40	4,631.25	1,552.25	1,552.21	9.90	1,552.25	0.37	4.12	0.00	151 °F	05/21/15	23:50	246 (gpm)							
79	5832.00	89.40	0.20	4,631.20	1,582.24	1,582.21	10.06	1,582.24	0.36	4.71	0.00	153 °F	05/22/15	0:35	246 (gpm)							
80	5861.00	88.50	0.10	4,631.73	1,611.24	1,611.21	10.13	1,611.24	0.36	3.12	0.00	153 °F	05/22/15	1:25	260 (gpm)							
81	5892.00	88.30	0.10	4,632.60	1,642.23	1,642.20	10.19	1,642.23	0.36	0.65	0.00	153 °F	05/22/15	2:25	260 (gpm)							
82	5923.00	88.70	0.30	4,633.41	1,673.22	1,673.18	10.29	1,673.22	0.35	1.44	0.00	151 °F	05/22/15	3:30	260 (gpm)							
83	5953.00	89.20	0.30	4,633.96	1,703.21	1,703.18	10.45	1,703.21	0.35	1.67	0.00	151 °F	05/22/15	4:30	260 (gpm)							
84	5983.00	89.90	0.50	4,634.19	1,733.21	1,733.18	10.66	1,733.21	0.35	2.43	0.00	151 °F	05/22/15	5:20	260 (gpm)							
85	6013.00	90.80	0.60	4,634.01	1,763.21	1,763.17	10.95	1,763.21	0.36	3.02	0.00	153 °F	05/22/15	6:02	260 (gpm)							
86	6043.00	91.10	0.80	4,633.51	1,793.20	1,793.17	11.31	1,793.20	0.36	1.20	0.00	151 °F	05/22/15	7:03	260 (gpm)							
87	6073.00	91.30	0.60	4,632.89	1,823.20	1,823.16	11.68	1,823.20	0.37	0.94	0.00	153 °F	05/22/15	7:49	260 (gpm)							
88	6104.00	91.30	0.70	4,632.18	1,854.19	1,854.15	12.03	1,854.19	0.37	0.32	0.00	154 °F	05/22/15	8:42	260 (gpm)							
89	6134.00	91.00	0.90	4,631.58	1,884.18	1,884.14	12.45	1,884.18	0.38	1.20	0.00	154 °F	05/22/15	9:38	260 (gpm)							
90	6164.00	90.90	1.10	4,631.08	1,914.18	1,914.13	12.98	1,914.18	0.39	0.75	0.00	154 °F	05/22/15	10:25	260 (gpm)							
91	6193.00	90.80	1.10	4,630.65	1,943.17	1,943.12	13.53	1,943.17	0.40	0.34	0.00	154 °F	05/22/15	11:25	260 (gpm)							
92	6223.00	90.80	1.20	4,630.23	1,973.16	1,973.11	14.13	1,973.16	0.41	0.33	0.00	154 °F	05/22/15	12:08	260 (gpm)							
93	6254.00	90.60	0.90	4,629.85	2,004.16	2,004.11	14.70	2,004.16	0.42	1.16	0.00	156 °F	05/22/15	13:08	260 (gpm)							
94	6285.00	90.80	1.00	4,629.48	2,035.16	2,035.10	15.22	2,035.16	0.43	0.72	0.00	154 °F	05/22/15	14:08	260 (gpm)							
95	6315.00	91.30	0.80	4,628.93	2,065.15	2,065.09	15.69	2,065.15	0.44	1.80	0.00	154 °F	05/22/15	15:15	260 (gpm)							
96	6346.00	92.00	0.30	4,628.03	2,096.14	2,096.08	15.98	2,096.14	0.44	2.77	0.00	154 °F	05/22/15	15:38	260 (gpm)							
97	6376.00	92.40	0.10	4,626.88	2,126.11	2,126.05	16.09	2,126.12	0.43	1.49	0.00	154 °F	05/22/15	16:52	281 (gpm)							
98	6407.00	92.60	0.10	4,625.53	2,157.08	2,157.02	16.14	2,157.09	0.43	0.65	0.00	158 °F	05/22/15	17:29	264 (gpm)							
99	6437.00	92.60	0.30	4,624.17	2,187.05	2,186.99	16.25	2,187.05	0.43	0.67	0.00	158 °F	05/22/15	18:30	264 (gpm)							
100	6467.00	92.00	0.10	4,622.96	2,217.03	2,216.97	16.35	2,217.03	0.42	2.11	0.00	158 °F	05/22/15	19:15	264 (gpm)							
101	6497.00	91.70	0.30	4,622.00	2,247.01	2,246.95	16.46	2,247.01	0.42	1.20	0.00	158 °F	05/22/15	20:10	264 (gpm)							
102	6527.00	90.60	0.30	4,621.39	2,277.01	2,276.95	16.61	2,277.01	0.42	3.67	0.00	158 °F	05/22/15	20:50	264 (gpm)							
103	6558.00	89.80	0.20	4,621.29	2,308.01	2,307.95	16.75	2,308.01	0.42	2.60	0.00	160 °F	05/22/15	21:30	264 (gpm)							

MWD
SURVEYS

Customer: Tapstone Energy
Well: Roger 19-33-7 #1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117715
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: May 16, 2015
Date of Last Survey:



Total Correction: 3.57 East Correction: Grid

Vertical Section Plane: 0.36 Nominal Dip Angle: 65.37 Magnetic Field Strength: 0.515

Measured Depth	Inc.	Azim.	T.V.D.	Ver. Sect.	Coordinates		Closure			DLS	Mtr Yield	Temp (°F)	Date	Time	Flow Rate	Hz	Watts	SNR (Survey)	SNR (Slide)	SNR (Rotate)	Comments	
					+N / -S	+E / -W	Dist.	Angle														
104	6588.00	89.80	0.70	4,621.39	2,338.00	2,337.94	16.99	2,338.01	0.42	1.67	0.00	158 °F	05/22/15	22:40	264 (gpm)							
105	6617.00	90.30	1.00	4,621.37	2,367.00	2,366.94	17.42	2,367.01	0.42	2.01	0.00	160 °F	05/22/15	23:15	264 (gpm)							
106	6648.00	90.50	1.10	4,621.15	2,398.00	2,397.94	17.98	2,398.00	0.43	0.72	0.00	158 °F	05/22/15	23:55	264 (gpm)							
107	6679.00	90.20	1.20	4,620.96	2,429.00	2,428.93	18.61	2,429.00	0.44	1.02	0.00	158 °F	05/23/15	1:00	264 (gpm)							
108	6709.00	90.50	1.50	4,620.78	2,458.99	2,458.92	19.31	2,459.00	0.45	1.41	0.00	158 °F	05/23/15	2:00	264 (gpm)							
109	6739.00	90.90	1.50	4,620.41	2,488.98	2,488.91	20.10	2,488.99	0.46	1.33	0.00	160 °F	05/23/15	2:35	264 (gpm)							
110	6768.00	90.90	1.60	4,619.95	2,517.97	2,517.89	20.88	2,517.98	0.48	0.34	0.00	160 °F	05/23/15	3:20	264 (gpm)							
111	6798.00	90.70	1.80	4,619.54	2,547.96	2,547.88	21.77	2,547.97	0.49	0.94	0.00	162 °F	05/23/15	4:00	264 (gpm)							
112	6829.00	90.70	1.80	4,619.16	2,578.95	2,578.86	22.75	2,578.96	0.51	0.00	0.00	160 °F	05/23/15	5:05	264 (gpm)							
113	6859.00	90.80	1.50	4,618.76	2,608.94	2,608.84	23.61	2,608.95	0.52	1.05	0.00	160 °F	05/23/15	5:45	264 (gpm)							
114	6890.00	91.10	1.50	4,618.25	2,639.93	2,639.83	24.42	2,639.94	0.53	0.97	0.00	162 °F	05/23/15	6:15	264 (gpm)							
115	6920.00	91.40	1.60	4,617.60	2,669.92	2,669.81	25.23	2,669.93	0.54	1.05	0.00	162 °F	05/23/15	6:56	264 (gpm)							
116	6953.00	92.00	2.00	4,616.62	2,702.89	2,702.78	26.27	2,702.91	0.56	2.18	0.00	162 °F	05/23/15	17:30	264 (gpm)							
117	6984.00	91.30	1.90	4,615.72	2,733.87	2,733.75	27.32	2,733.89	0.57	2.28	0.00	156 °F	05/23/15	18:15	264 (gpm)							
118	7014.00	90.40	2.20	4,615.28	2,763.85	2,763.73	28.40	2,763.87	0.59	3.16	0.00	156 °F	05/23/15	19:00	264 (gpm)							
119	7044.00	90.00	2.10	4,615.17	2,793.83	2,793.70	29.52	2,793.86	0.61	1.37	0.00	158 °F	05/23/15	19:35	264 (gpm)							
120	7074.00	90.00	2.10	4,615.17	2,823.82	2,823.68	30.62	2,823.85	0.62	0.00	0.00	156 °F	05/23/15	20:30	264 (gpm)							
121	7105.00	90.70	1.00	4,614.99	2,854.81	2,854.67	31.46	2,854.84	0.63	4.21	0.00	156 °F	05/23/15	21:10	264 (gpm)							
122	7135.00	90.90	0.50	4,614.57	2,884.81	2,884.67	31.85	2,884.84	0.63	1.79	0.00	158 °F	05/23/15	22:00	264 (gpm)							
123	7166.00	91.10	0.40	4,614.03	2,915.80	2,915.66	32.09	2,915.84	0.63	0.72	0.00	158 °F	05/23/15	23:00	264 (gpm)							
124	7197.00	90.30	0.20	4,613.65	2,946.80	2,946.66	32.26	2,946.83	0.63	2.66	0.00	160 °F	05/23/15	23:45	264 (gpm)							
125	7227.00	90.00	0.10	4,613.57	2,976.80	2,976.66	32.34	2,976.83	0.62	1.05	0.00	160 °F	05/24/15	0:30	264 (gpm)							
126	7257.00	89.40	0.20	4,613.72	3,006.80	3,006.66	32.41	3,006.83	0.62	2.03	0.00	160 °F	05/24/15	1:10	264 (gpm)							
127	7288.00	89.40	0.20	4,614.05	3,037.80	3,037.65	32.52	3,037.83	0.61	0.00	0.00	162 °F	05/24/15	1:45	264 (gpm)							
128	7318.00	89.60	0.60	4,614.31	3,067.80	3,067.65	32.73	3,067.83	0.61	1.49	0.00	162 °F	05/24/15	2:15	264 (gpm)							
129	7349.00	89.80	0.50	4,614.47	3,098.80	3,098.65	33.03	3,098.83	0.61	0.72	0.00	162 °F	05/24/15	2:50	264 (gpm)							
130	7380.00	89.50	0.50	4,614.66	3,129.80	3,129.65	33.30	3,129.83	0.61	0.97	0.00	160 °F	05/24/15	3:20	264 (gpm)							
131	7410.00	89.40	0.20	4,614.95	3,159.79	3,159.65	33.48	3,159.82	0.61	1.05	0.00	162 °F	05/24/15	4:45	264 (gpm)							
132	7440.00	90.20	0.00	4,615.06	3,189.79	3,189.65	33.54	3,189.82	0.60	2.75	0.00	162 °F	05/24/15	5:30	264 (gpm)							
133	7470.00	90.70	359.90	4,614.82	3,219.79	3,219.65	33.51	3,219.82	0.60	1.70	0.00	162 °F	05/24/15	6:13	264 (gpm)							
134	7499.00	91.60	0.10	4,614.24	3,248.79	3,248.64	33.51	3,248.81	0.59	3.18	0.00	164 °F	05/24/15	6:50	264 (gpm)							
135	7529.00	92.00	0.20	4,613.30	3,278.77	3,278.62	33.59	3,278.80	0.59	1.37	0.00	162 °F	05/24/15	8:12	264 (gpm)							
136	7560.00	91.70	0.40	4,612.30	3,309.75	3,309.61	33.75	3,309.78	0.58	1.16	0.00	162 °F	05/24/15	9:04	264 (gpm)							
137	7590.00	89.90	359.90	4,611.88	3,339.75	3,339.60	33.83	3,339.77	0.58	6.23	0.00	162 °F	05/24/15	9:50	264 (gpm)							
138	7620.00	88.60	359.50	4,612.27	3,369.74	3,369.60	33.67	3,369.77	0.57	4.53	0.00	164 °F	05/24/15	10:38	264 (gpm)							
139	7650.00	88.30	359.60	4,613.08	3,399.73	3,399.59	33.44	3,399.75	0.56	1.05	0.00	164 °F	05/24/15	11:46	264 (gpm)							
140	7680.00	89.70	359.40	4,613.60	3,429.72	3,429.58	33.17	3,429.74	0.55	4.71	0.00	164 °F	05/24/15	12:44	264 (gpm)							
141	7711.00	90.80	359.10	4,613.47	3,460.72	3,460.58	32.77	3,460.73	0.54	3.68	0.00	165 °F	05/24/15	13:35	264 (gpm)							
142	7741.00	90.70	358.70	4,613.08	3,490.70	3,490.57	32.19	3,490.72	0.53	1.37	0.00	165 °F	05/24/15	14:36	264 (gpm)							
143	7771.00	90.00	358.50	4,612.89	3,520.69	3,520.56	31.46	3,520.70	0.51	2.43	0.00	165 °F	05/24/15	15:25	264 (gpm)							
144	7801.00	90.10	359.00	4,612.87	3,550.68	3,550.55	30.81	3,550.69	0.50	1.70	0.00	167 °F	05/24/15	16:06	264 (gpm)							
145	7832.00	90.00	359.40	4,612.84	3,581.67	3,581.55	30.37	3,581.68	0.49	1.33	0.00	167 °F	05/24/15	17:02	264 (gpm)							
146	7862.00	89.80	359.00	4,612.89	3,611.66	3,611.55	29.95	3,611.67	0.48	1.49	0.00	167 °F	05/24/15	17:47	264 (gpm)							
147	7892.00	90.10	359.40	4,612.92	3,641.66	3,641.54	29.53	3,641.66	0.46	1.67	0.00	167 °F	05/24/15	18:30	264 (gpm)							
148	7922.00	90.50	359.90	4,612.76	3,671.65	3,671.54	29.35	3,671.66	0.46	2.13	0.00	167 °F	05/24/15	19:30	264 (gpm)							
149	7952.00	89.60	359.90	4,612.73	3,701.65	3,701.54	29.30	3,701.66	0.45	3.00	0.00	167 °F	05/24/15	20:04	264 (gpm)							
150	7983.00	89.00	0.10	4,613.11	3,732.65	3,732.54	29.30	3,732.65	0.45	2.04	0.00	167 °F	05/24/15	21:20	264 (gpm)							
151	8013.00	88.90	0.50	4,613.66	3,762.64	3,762.53	29.46	3,762.65	0.45	1.37	0.00	167 °F	05/24/15	22:05	264 (gpm)							
152	8045.00	89.10	0.30	4,614.22	3,794.64	3,794.53	29.68	3,794.64	0.45	0.88	0.00	167 °F	05/24/15	22:40	264 (gpm)							
153	8076.00	89.00	360.00	4,614.74	3,825.64	3,825.52	29.76	3,825.64	0.45	1.02	0.00	167 °F	05/24/15	23:30	264 (gpm)							
154	8108.00	89.10	359.40	4,615.27	3,857.63	3,857.52	29.59	3,857.63	0.44	1.90	0.00	167 °F	05/25/15	0:30	264 (gpm)							
155	8139.00	89.30	359.60	4,615.70	3,888.62	3,888.51	29.32	3,888.63	0.43	0.91	0.00	169 °F	05/25/15	1:15	264 (gpm)							
156	8171.00	89.40	359.40	4,616.06	3,920.62	3,920.51	29.04	3,920.62	0.42	0.70	0.00	171 °F	05/25/15	2:15	264 (gpm)							

MWD
SURVEYS

Customer: Tapstone Energy
Well: Roger 19-33-7 #1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117715
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: May 16, 2015
Date of Last Survey:



Total Correction: 3.57 East Correction: Grid

Vertical Section Plane: 0.36 Nominal Dip Angle: 65.37 Magnetic Field Strength: 0.515

Measured Depth	Inc.	Azim.	T.V.D.	Ver. Sect.	Coordinates		Closure			DLS	Mtr Yield	Temp (°F)	Date	Time	Flow Rate	Hz	Watts	SNR (Survey)	SNR (Slide)	SNR (Rotate)	Comments	
					+N / -S	+E / -W	Dist.	Angle														
157	8202.00	89.60	359.60	4,616.33	3,951.61	3,951.51	28.77	3,951.61	0.42	0.91	0.00	169 °F	05/25/15	3:05	264 (gpm)							
158	8234.00	89.80	359.70	4,616.50	3,983.61	3,983.51	28.58	3,983.61	0.41	0.70	0.00	171 °F	05/25/15	4:00	264 (gpm)							
159	8265.00	90.20	359.40	4,616.50	4,014.61	4,014.51	28.33	4,014.61	0.40	1.61	0.00	169 °F	05/25/15	4:30	264 (gpm)							
160	8296.00	90.30	359.40	4,616.36	4,045.60	4,045.50	28.01	4,045.60	0.40	0.32	0.00	171 °F	05/25/15	5:40	264 (gpm)							
161	8328.00	89.30	358.80	4,616.48	4,077.59	4,077.50	27.51	4,077.59	0.39	3.64	0.00	171 °F	05/25/15	6:27	264 (gpm)							
162	8359.00	89.20	358.60	4,616.88	4,108.58	4,108.49	26.80	4,108.58	0.37	0.72	0.00	171 °F	05/25/15	7:21	264 (gpm)							
163	8390.00	89.30	358.80	4,617.29	4,139.56	4,139.48	26.10	4,139.56	0.36	0.72	0.00	171 °F	05/25/15	8:05	264 (gpm)							
164	8422.00	89.50	358.60	4,617.62	4,171.55	4,171.47	25.37	4,171.55	0.35	0.88	0.00	172 °F	05/25/15	8:54	264 (gpm)							
165	8453.00	89.60	358.90	4,617.87	4,202.53	4,202.46	24.70	4,202.53	0.34	1.02	0.00	172 °F	05/25/15	9:46	264 (gpm)							
166	8485.00	89.80	358.60	4,618.03	4,234.52	4,234.45	24.00	4,234.52	0.32	1.13	0.00	172 °F	05/25/15	10:36	264 (gpm)							
167	8517.00	90.00	358.60	4,618.09	4,266.50	4,266.44	23.22	4,266.51	0.31	0.63	0.00	172 °F	05/25/15	11:24	264 (gpm)							
168	8549.00	89.90	358.60	4,618.12	4,298.49	4,298.43	22.44	4,298.49	0.30	0.31	0.00	172 °F	05/25/15	12:24	264 (gpm)							
169	8580.00	90.00	358.70	4,618.15	4,329.48	4,329.42	21.71	4,329.48	0.29	0.46	0.00	172 °F	05/25/15	14:02	264 (gpm)							
170	8612.00	89.30	359.40	4,618.34	4,361.47	4,361.42	21.18	4,361.47	0.28	3.09	0.00	172 °F	05/25/15	15:06	264 (gpm)							
171	8643.00	89.40	359.50	4,618.69	4,392.46	4,392.42	20.88	4,392.47	0.27	0.46	0.00	172 °F	05/25/15	15:56	264 (gpm)							
172	8674.00	89.60	359.50	4,618.96	4,423.46	4,423.41	20.61	4,423.46	0.27	0.65	0.00	172 °F	05/25/15	16:42	264 (gpm)							
173	8706.00	89.60	359.40	4,619.19	4,455.45	4,455.41	20.30	4,455.46	0.26	0.31	0.00	174 °F	05/25/15	17:34	264 (gpm)							
174	8737.00	89.80	359.20	4,619.35	4,486.44	4,486.41	19.92	4,486.45	0.25	0.91	0.00	174 °F	05/25/15	18:30	264 (gpm)							
175	8769.00	89.90	359.30	4,619.43	4,518.44	4,518.41	19.50	4,518.45	0.25	0.44	0.00	174 °F	05/25/15	19:35	264 (gpm)							
176	8800.00	90.00	359.40	4,619.46	4,549.43	4,549.40	19.15	4,549.44	0.24	0.46	0.00	174 °F	05/25/15	20:35	264 (gpm)							
177	8831.00	90.00	359.30	4,619.46	4,580.43	4,580.40	18.80	4,580.44	0.24	0.32	0.00	174 °F	05/25/15	21:20	264 (gpm)							
178	8863.00	90.10	359.30	4,619.43	4,612.42	4,612.40	18.41	4,612.44	0.23	0.31	0.00	174 °F	05/25/15	22:15	264 (gpm)							
179	8895.00	90.20	359.20	4,619.35	4,644.42	4,644.40	17.99	4,644.43	0.22	0.44	0.00	174 °F	05/25/15	23:15	264 (gpm)							
180	8926.00	90.30	359.10	4,619.21	4,675.41	4,675.39	17.53	4,675.43	0.21	0.46	0.00	174 °F	05/26/15	0:00	264 (gpm)							
181	8958.00	90.50	359.00	4,618.99	4,707.40	4,707.39	17.00	4,707.42	0.21	0.70	0.00	174 °F	05/26/15	1:00	264 (gpm)							
182	8989.00	90.60	359.00	4,618.69	4,738.39	4,738.38	16.46	4,738.41	0.20	0.32	0.00	174 °F	05/26/15	2:20	264 (gpm)							
183	9020.00	89.90	359.50	4,618.56	4,769.38	4,769.38	16.05	4,769.40	0.19	2.77	0.00	172 °F	05/26/15	3:10	264 (gpm)							
184	9052.00	89.60	359.40	4,618.70	4,801.38	4,801.38	15.74	4,801.40	0.19	0.99	0.00	172 °F	05/26/15	4:10	264 (gpm)							
185	9083.00	89.70	359.20	4,618.89	4,832.37	4,832.37	15.37	4,832.40	0.18	0.72	0.00	174 °F	05/26/15	5:20	264 (gpm)							
186	9114.00	90.10	359.10	4,618.94	4,863.37	4,863.37	14.91	4,863.39	0.18	1.33	0.00	174 °F	05/26/15	6:17	264 (gpm)							
187	9146.00	89.90	358.90	4,618.94	4,895.36	4,895.36	14.35	4,895.39	0.17	0.88	0.00	174 °F	05/26/15	7:25	264 (gpm)							
188	9177.00	89.70	358.80	4,619.05	4,926.35	4,926.36	13.73	4,926.38	0.16	0.72	0.00	174 °F	05/26/15	8:37	264 (gpm)							
189	9209.00	89.60	358.80	4,619.24	4,958.33	4,958.35	13.06	4,958.37	0.15	0.31	0.00	176 °F	05/26/15	9:30	264 (gpm)							
190	9240.00	89.00	358.30	4,619.62	4,989.32	4,989.34	12.27	4,989.35	0.14	2.52	0.00	176 °F	05/26/201	11:00	264 (gpm)							
191	9271.00	89.20	358.10	4,620.11	5,020.29	5,020.32	11.30	5,020.33	0.13	0.91	0.00	176 °F	05/26/15	12:10	264 (gpm)							
192	9303.00	89.60	358.30	4,620.44	5,052.27	5,052.30	10.29	5,052.31	0.12	1.40	0.00	176 °F	05/26/15	12:45	264 (gpm)							
193	9335.00	89.70	358.50	4,620.64	5,084.25	5,084.29	9.40	5,084.30	0.11	0.70	0.00	176 °F	05/26/15	13:20	264 (gpm)							
194	9351.00	89.50	358.40	4,620.75	5,100.24	5,100.28	8.97	5,100.29	0.10	1.40	0.00	176 °F	05/26/15	13:50	264 (gpm)							
PTB	9402.00	89.50	358.40	4,621.20	5,151.21	5,151.26	7.54	5,151.27	0.08	0.00												

MWD
SURVEYS

Customer: Tapstone Energy
Well: Roger 19-33-7 #1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117715
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: May 16, 2015
Date of Last Survey:



Total Correction: 3.57 East Correction: Grid

Vertical Section Plane: 0.36 Nominal Dip Angle: 65.37 Magnetic Field Strength: 0.515

Measured Depth	Inc.	Azm.	T.V.D.	Ver. Sect.	Coordinates		Closure			Mtr Yield	Temp (°F)	Date	Time	Flow Rate	Hz	Watts	SNR (Survey)	SNR (Slide)	SNR (Rotate)	Comments
					+N / -S	+E / -W	Dist.	Angle	DLS											

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					+N / -S	+E / -W	Dist.	Angle	DLS											

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					+N / -S	+E / -W	Dist.	Angle													

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SURVEYS

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PGS Job #: LKS6117715
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: May 16, 2015
Date of Last Survey:



Total Correction: 3.57 East Correction: Grid

Vertical Section Plane: 0.36 Nominal Dip Angle: 65.37 Magnetic Field Strength: 0.515

Measured Depth	Inc.	Azm.	T.V.D.	Ver. Sect.	Coordinates		Closure			Mtr Yield	Temp (°F)	Date	Time	Flow Rate	Hz	Watts	SNR (Survey)	SNR (Slide)	SNR (Rotate)	Comments
					+N / -S	+E / -W	Dist.	Angle	DLS											

MWD
SURVEYS

Customer: Tapstone Energy
Well: Roger 19-33-7 #1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117715
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
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<i>Measured</i>			<i>Coordinates</i>				<i>Closure</i>										<i>SNR</i>			<i>Comments</i>
<i>Depth</i>	<i>Inc.</i>	<i>Azm.</i>	<i>T.V.D.</i>	<i>Ver. Sect.</i>	<i>+N / -S</i>	<i>+E / -W</i>	<i>Dist.</i>	<i>Angle</i>	<i>DLS</i>	<i>Mtr Yield</i>	<i>Temp (°F)</i>	<i>Date</i>	<i>Time</i>	<i>Flow Rate</i>	<i>Hz</i>	<i>Watts</i>	<i>(Survey)</i>	<i>(Slide)</i>	<i>(Rotate)</i>	

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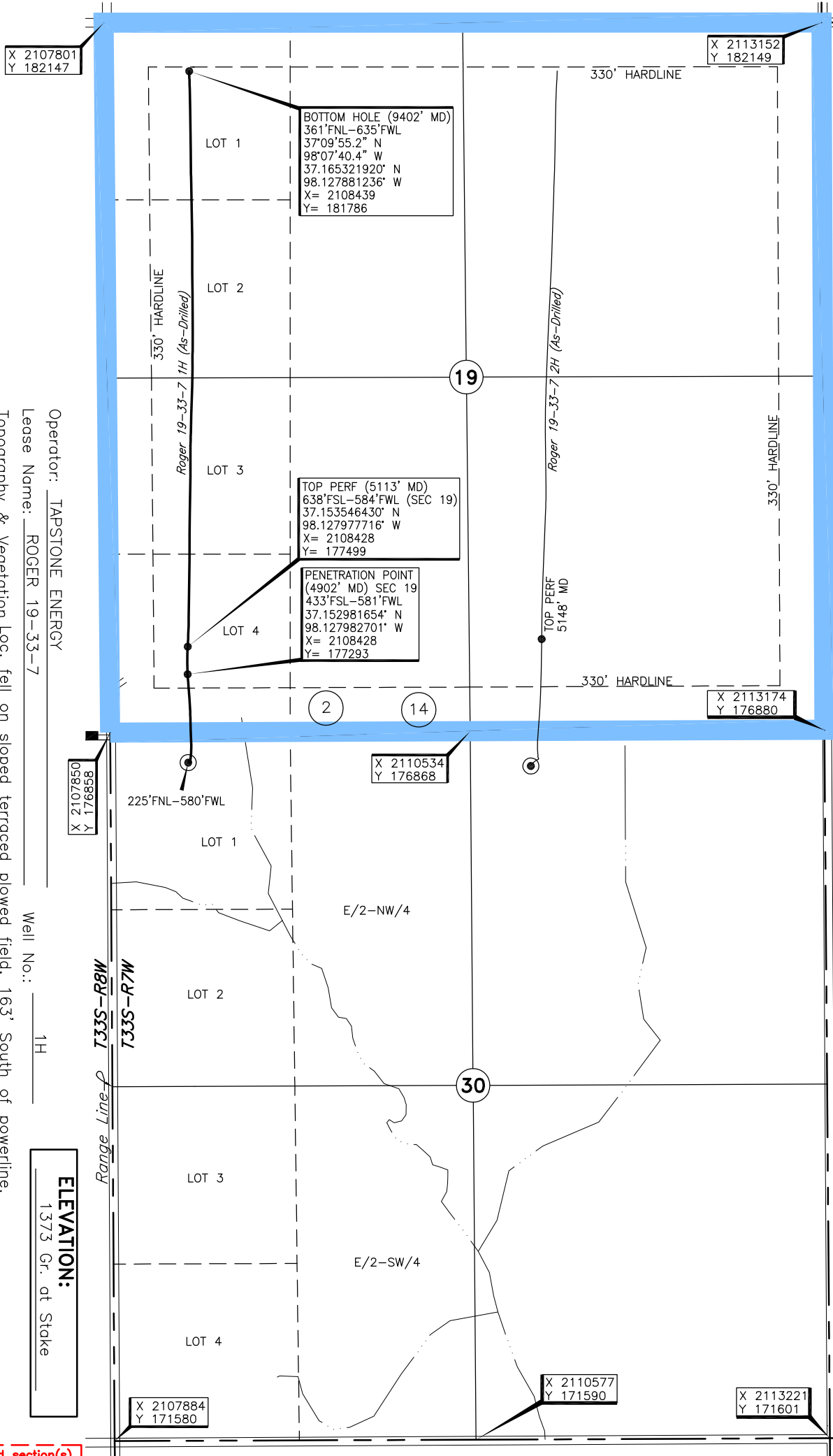
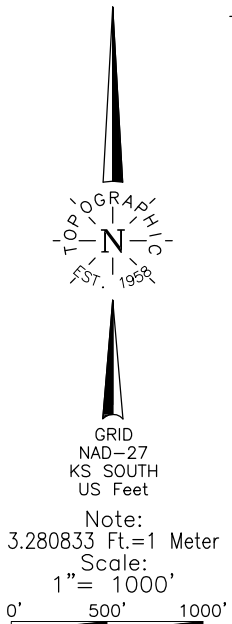
TOPOGRAPHIC LAND SURVEYORS

6709 NORTH CLASSEN BLVD., OKLA. CITY, OKLA. 73116 * LOCAL (405) 843-4847 * OUT OF STATE (800) 654-3219
 Certificate of Authorization No. LS-99, Exp. Dec. 31, 2015

HARPER

County, Kansas

225'FNL - 580'FWL Section 30 Township 33S Range 7W P.M.



A boundary survey of the said section(s) shown hereon was not performed per the request of the operator shown hereon.

245342 Date of Drawing: June 02, 2015

Invoice # 230463A Date Staked: Sep. 11, 2014 JP

This information was gathered with a GPS receiver with ±1 foot Horiz./Vert. accuracy

DATUM: NAD-27
 LAT: 37°09'04.2"N
 LONG: 98°07'40.7"W
 LAT: 37.151174534°N
 LONG: 98.127977643°W
 STATE PLANE
 COORDINATES: (US Feet)
 ZONE: KS SOUTH
 X: 2108432
 Y: 176635

FINAL AS-DRILLED PLAT

AS-DRILLED INFORMATION
 FURNISHED BY TAPSTONE ENERGY