



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1234369
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: _____

1234369

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

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

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

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

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

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

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: <input type="checkbox"/> Yes <input type="checkbox"/> No
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Date of First, Resumed Production, SWD or ENHR. _____	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____					
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity	

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

Post Job Report

Tapstone Energy

10/27/2014

Bill #22-34-10 1-H

Barber County, KS





Tapstone Energy
Bill 22-3410 1-H
Barber Co, Kansas.

Table of Contents:

1.0 Executive Summary.....	3
2.0 Job Summary.....	4
2.1 Job Event Log.....	4
2.2 Job Summary Chart.....	5
3.0 Customer Satisfaction Survey.....	6



Tapstone Energy
Bill 22-3410 1-H
Barber Co, Kansas.

1.0 Executive Summary

Allied Oil & Gas Services would like to thank you, for the award of the provision of cementing products and services on the well Bill #22-3410 1-H Surface Casing.

A pre-job meeting was held to discuss job details, review the safety hazards, potential environmental impact and established emergency procedures.

Allied started the job testing lines to 3000 psi. After a successful test we began the job by pumping 10 bbls of preflush spacer. We then mixed and pumped the following cements:

85 Bbls (255 sacks) of 12.7 ppg Lead slurry:
65:35 Class A:Poz Blend - 1.87 Yield
6.0% Gel
2%cc
¼# Floseal

32 Bbls (150 sacks) of 15.6 ppg Tail slurry:
2% cc 1.20 Yeild
¼# Floseal

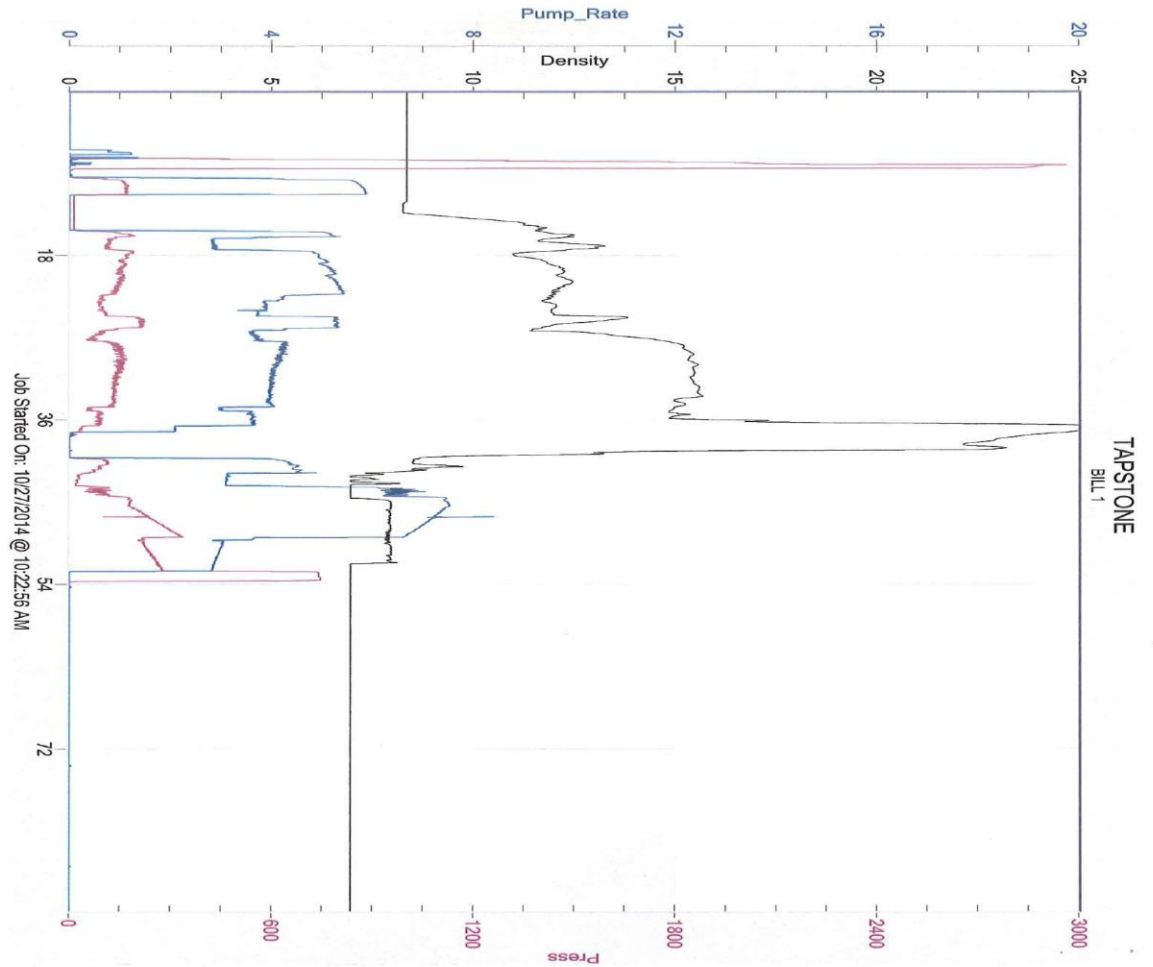
The top plug was then released and displaced with 57 of fresh water. The plug bumped and pressured up to 750 psi. Pressure was released and floats held.

All real time data is shown on the graph in the attachment section.

Allied Oil & Gas Services remains committed to provide operational excellence and superior product performance. All comments and suggestions are greatly appreciated and help us to continue to provide this level of service.

Again we want to thank you for the opportunity to perform these and your future cementing & acidizing service needs.

2.2 Job Summary Chart





Tapstone Energy
 Bill 22-3410 1-H
 Barber Co, Kansas.

3.0 Customer Satisfaction Survey

Customer: Tapstone
 Date: 10/27/14
 Well Name: Bill
 Well Location: Vic Hazelton KS
 Supervisor: Jason
 Equipment Operators: Coy/Andrew



Performance	Customer	
Was the appearance of the personnel and equipment satisfactory?	Yes	No
Was the job performed in a professional manner?	Yes	No
Were the calculations prepared and explained properly?	Yes	No
Were the correct services dispatched to the job site?	Yes	No
Were the services performed as requested?	Yes	No
Did the job site environment remain unchanged?	Yes	No
Did the equipment perform in the manner expected?	Yes	No
Did the materials meet your expectations?	Yes	No
Was the crew prepared for the job?	Yes	No
Was the crew prompt in the rig-up and actual job?	Yes	No
Were reasonable recommendations given, as requested?	Yes	No
Did the crew perform safely?	Yes	No
Was the job performed to your satisfaction?	Yes	No
Customer Signature:		
Date:		
Additional Comments:		



Depend on US

Post Job Report

Tapstone Energy

Bill #22-34-10

11/1/2014

Intermediate Casing

Barber County, KS





SandRidge Energy
Bill #22-34-10 H
Barber County, KS.

Table of Contents:

1.0 Executive Summary.....3

2.0 Job Summary.....4

 2.1 Job Event Log.....4

 2.2 Job Summary Chart.....5

3.0 Customer Satisfaction Survey.....6



SandRidge Energy
Bill #22-34-10 H
Barber County, KS.

1.0 Executive Summary

Allied Oil & Gas Services would like to thank you, for the award of the provision of cementing products and services on the well Bill #22-34-10 Intermediate Casing.

A pre-job meeting was held to discuss job details, review the safety hazards, potential environmental impact and established emergency procedures.

Allied started the job testing lines to 2500 psi. After a successful test we began the job by pumping 20 bbls of preflush spacer. We then mixed and pumped the following cements:

32 Bbls (130 sacks) of 13.6 ppg Lead slurry:
50:50 Class A:Poz Blend - 1.4 Yield
2.0% Gel
0.4% FL-160
0.1% SA-51

19 Bbls (90 sacks) of 15.6 ppg Tail slurry:
Class A - 1.18 Yield
0.8% FL-160
0.2% CD-31

The top plug was then released and displaced with 195.75 Bbls of fresh water. The plug did not Bump. Pressure was released and floats held.

All real time data is shown on the graph in the attachment section.

Allied Oil & Gas Services remains committed to provide operational excellence and superior product performance. All comments and suggestions are greatly appreciated and help us to continue to provide this level of service.

Again we want to thank you for the opportunity to perform these and your future cementing & acidizing service needs.



SandRidge Energy
Bill #22-34-10 H
Barber County, KS.

2.2 Job Summary Chart

Pressure Chart unavailable. Recorder malfunctioned



SandRidge Energy
 Bill #22-34-10 H
 Barber County, KS.

3.0 Customer Satisfaction Survey

Customer: Tapstone Energy
 Date: 11-1-14
 Well Name: B111
 Well Location: 22-34-10 H1
 Supervisor: Clint Symes
 Equipment Operators: Thomas Gibson pump truck / Wayne Ruckler Buller truck



Performance	Customer	
Was the appearance of the personnel and equipment satisfactory?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Was the job performed in a professional manner?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Were the calculations prepared and explained properly?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Were the correct services dispatched to the job site?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Were the services performed as requested?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Did the job site environment remain unchanged?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Did the equipment perform in the manner expected?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Did the materials meet your expectations?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Was the crew prepared for the job?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Was the crew prompt in the rig-up and actual job?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Were reasonable recommendations given, as requested?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Did the crew perform safely?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Was the job performed to your satisfaction?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Customer Signature: <u>Shannon Beaman</u>		
		Date: <u>11-1-14</u>
Additional Comments:		

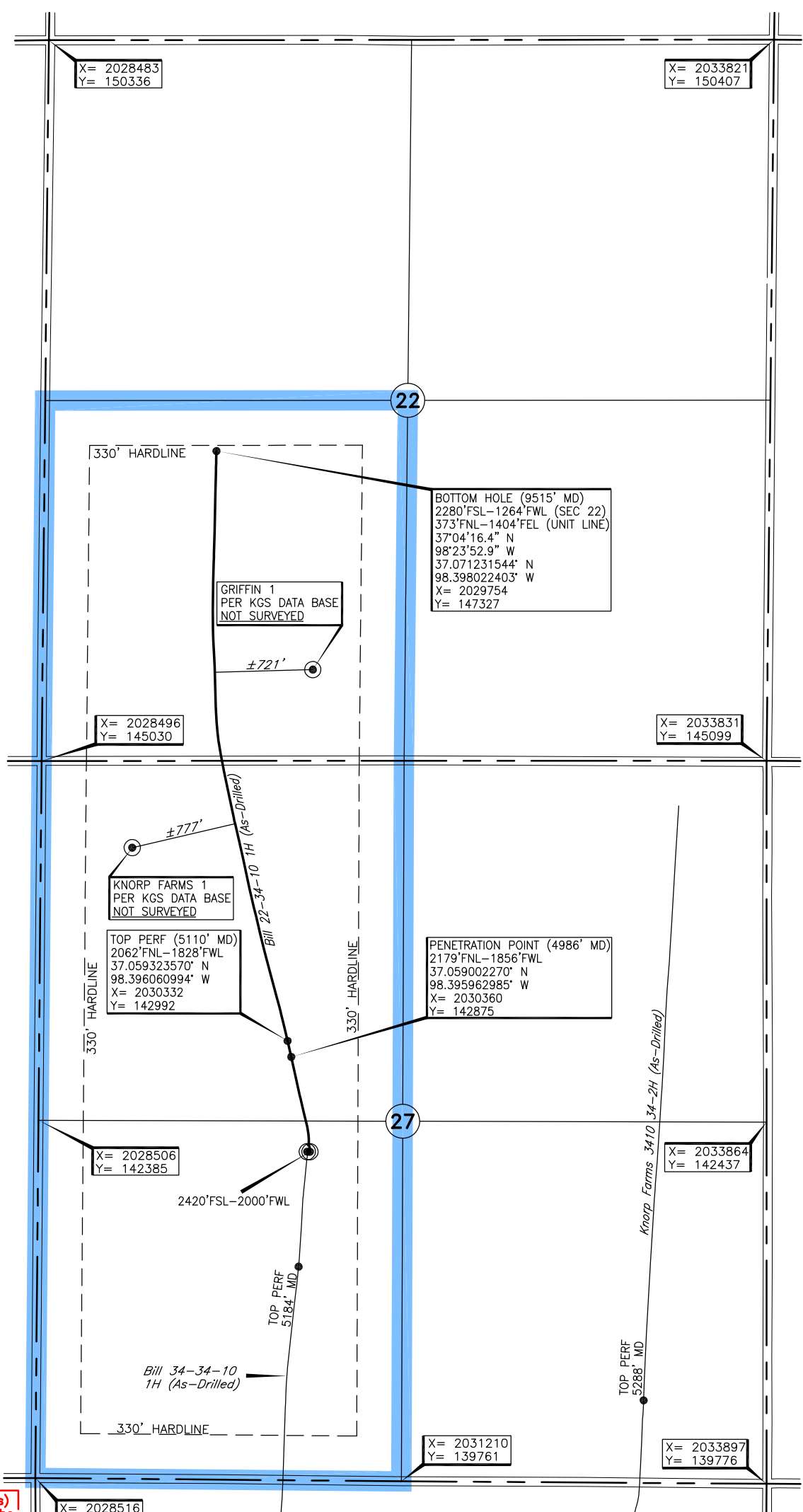
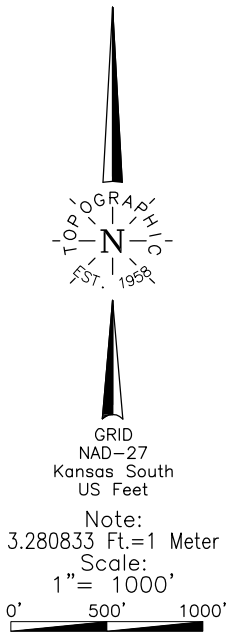
TOPOGRAPHIC LAND SURVEYORS

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

BARBER

County, Kansas

2420'FSL-2000'FWL Section 27 Township 34S Range 10W P.M.



Operator: TAPSTONE ENERGY
 Lease Name: BILL 22-34-10
 Topography & Vegetation Loc. fell in cut field ±170' South of top bank of field drain berm
 Well No.: 1H
 ELEVATION: 1318' Gr. at Stake

Good Drill Site? Yes
 Reference Stakes or Alternate Location Stakes Set None

Best Accessibility to Location From West off county road
 Distance & Direction From Hazleton, KS, go ±2.5 mi., South to the West Quarter corner of Section 27 T34S-R10W

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

This information was gathered with a GPS receiver with ±1 foot Horiz./vert. accuracy.
 DATUM: NAD-27
 LAT: 37°03'25.5"N
 LONG: 98°23'43.7"W
 LAT: 37.057088151°N
 LONG: 98.395464561°W
 STATE PLANE COORDINATES: (US Feet)
 ZONE: KS SOUTH
 X: 2030507
 Y: 142178

234900 Date of Drawing: Nov. 17, 2014
 Invoice # 227629A Date Staked: Aug. 18, 2014 JP

FINAL AS-DRILLED PLAT

AS-DRILLED INFORMATION
 FURNISHED BY TAPSTONE ENERGY

MWD SURVEYS

Customer: Tapstone Energy
 Well: Bill 22-34-10 #1H
 Field/Block: Mississippi Lime
 Co./Parish: Barber Co.
 State: KS

PGS Job #: LKS6114814
 MWD Operator: Ken Mitchell
 Directional Driller: Kyle Underwood
 Date of First Survey: October 28, 2014
 Date of Last Survey: November 9, 2014



Total Correction: 4.46 East Grid

Vertical Section Plane: 351.7 Nominal Dip Angle: 65.07 Magnetic Field Strength: 0.515

Measured		Coordinates				Closure			Vib/Shk			Date	Time	Flow Rate		
Depth	Inc.	Azm.	T.V.D.	Ver. Sect.	+N/-S	+E/-W	Dist.	Angle	DLS	Mtr Yield	Temp (°F)				Color	
Survey's are tied into: MWD										Date Received: 10/28/14						
Company: Pro Directional																
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
1	898.00	0.30	5.90	898.00	2.28	2.34	0.24	2.35	5.90	0.03	0.00	81 °F	Green	10/28/14	4:31	352 (gpm)
2	929.00	0.30	33.50	929.00	2.42	2.49	0.29	2.50	6.76	0.46	0.00	82 °F	Green	10/28/14	5:25	633 (gpm)
3	960.00	0.50	349.10	959.99	2.61	2.69	0.31	2.71	6.66	1.14	0.00	82 °F	Green	10/28/14	5:47	633 (gpm)
4	995.00	1.00	350.40	994.99	3.07	3.14	0.23	3.15	4.27	1.43	0.00	82 °F	Green	10/28/14	8:59	633 (gpm)
5	1027.00	1.50	352.20	1,026.98	3.77	3.83	0.13	3.83	1.96	1.57	0.00	90 °F	Green	10/28/14	9:26	633 (gpm)
6	1058.00	2.30	350.00	1,057.97	4.80	4.84	-0.03	4.84	359.62	2.59	0.00	90 °F	Green	10/28/14	9:39	633 (gpm)
7	1089.00	2.70	354.20	1,088.94	6.15	6.18	-0.21	6.19	358.02	1.42	0.00	91 °F	Green	10/28/14	10:01	633 (gpm)
8	1120.00	2.90	357.40	1,119.90	7.66	7.69	-0.32	7.70	357.59	0.82	0.00	93 °F	Green	10/28/14	10:15	633 (gpm)
9	1151.00	3.10	358.30	1,150.86	9.27	9.31	-0.38	9.32	357.64	0.66	0.00	95 °F	Green	10/28/14	10:40	633 (gpm)
10	1182.00	3.40	355.40	1,181.81	11.02	11.07	-0.48	11.08	357.50	1.10	0.00	97 °F	Green	10/28/14	11:03	633 (gpm)
11	1214.00	3.70	352.40	1,213.75	13.00	13.04	-0.70	13.06	356.95	1.10	0.00	97 °F	Green	10/28/14	11:27	633 (gpm)
12	1246.00	4.00	350.90	1,245.67	15.15	15.16	-1.01	15.20	356.20	0.99	0.00	100 °F	Green	10/28/14	11:46	633 (gpm)
13	1277.00	4.10	350.30	1,276.60	17.34	17.32	-1.37	17.38	355.49	0.35	0.00	100 °F	Green	10/28/14	12:04	633 (gpm)
14	1309.00	4.60	352.60	1,308.50	19.76	19.72	-1.72	19.80	355.00	1.65	0.00	100 °F	Green	10/28/14	12:24	633 (gpm)
15	1340.00	4.90	351.10	1,339.40	22.33	22.26	-2.09	22.36	354.64	1.05	0.00	100 °F	Green	10/28/14	12:39	633 (gpm)
16	1372.00	5.00	351.30	1,371.28	25.09	24.99	-2.51	25.12	354.26	0.32	0.00	102 °F	Green	10/28/14	12:59	353 (gpm)
17	1403.00	5.10	349.80	1,402.16	27.82	27.68	-2.96	27.84	353.90	0.53	0.00	102 °F	Green	10/28/14	13:39	353 (gpm)
18	1466.00	5.30	350.20	1,464.90	33.53	33.31	-3.95	33.54	353.24	0.32	0.00	104 °F	Green	10/28/14	14:43	353 (gpm)
19	1498.00	5.10	352.10	1,496.77	36.43	36.17	-4.40	36.44	353.07	0.82	0.00	102 °F	Green	10/28/14	15:36	353 (gpm)
20	1530.00	4.80	348.90	1,528.65	39.19	38.89	-4.85	39.20	352.89	1.27	0.00	104 °F	Green	10/28/14	16:16	353 (gpm)
21	1561.00	4.00	343.90	1,559.56	41.55	41.21	-5.40	41.56	352.53	2.86	0.00	104 °F	Green	10/28/14	17:06	353 (gpm)
22	1593.00	3.30	329.70	1,591.49	43.51	43.07	-6.17	43.51	351.84	3.56	0.00	102 °F	Green	10/28/14	17:38	353 (gpm)
23	1624.00	3.20	327.20	1,622.44	45.13	44.57	-7.09	45.13	350.96	0.56	0.00	106 °F	Green	10/28/14	18:06	353 (gpm)
24	1655.00	3.10	323.70	1,653.40	46.66	45.97	-8.06	46.67	350.06	0.70	0.00	108 °F	Green	10/28/14	18:37	353 (gpm)
25	1686.00	3.20	324.80	1,684.35	48.17	47.36	-9.05	48.21	349.18	0.38	0.00	108 °F	Green	10/28/14	18:54	353 (gpm)
26	1717.00	2.80	322.30	1,715.31	49.60	48.66	-10.02	49.68	348.37	1.36	0.00	109 °F	Green	10/28/14	17:24	623 (gpm)

MWD SURVEYS

Customer: Tapstone Energy
Well: Bill 22-34-10 #1H
Field/Block: Mississippi Lime
Co./Parish: Barber Co.
State: KS

PGS Job #: LKS6114814
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: October 28, 2014
Date of Last Survey: November 9, 2014



Total Correction: 4.46 East Grid

Vertical Section Plane: 351.7 Nominal Dip Angle: 65.07 Magnetic Field Strength: 0.515

Measured		Coordinates				Closure				Vib/Shk						
Depth	Inc.	Azm.	T.V.D.	Ver. Sect.	+N/-S	+E/-W	Dist.	Angle	DLS	Mtr Yield	Temp (°F)	Color	Date	Time	Flow Rate	
27	1748.00	2.20	319.90	1,746.28	50.76	49.72	-10.86	50.89	347.68	1.96	0.00	111 °F	Green	10/28/14	19:46	623 (gpm)
28	1780.00	1.90	314.40	1,778.26	51.71	50.56	-11.64	51.88	347.04	1.12	0.00	113 °F	Green	10/28/14	20:07	623 (gpm)
29	1811.00	1.90	309.60	1,809.24	52.50	51.25	-12.40	52.72	346.40	0.51	0.00	113 °F	Green	10/28/14	20:25	623 (gpm)
30	1842.00	1.90	315.10	1,840.22	53.29	51.94	-13.16	53.58	345.78	0.59	0.00	115 °F	Green	10/28/14	20:45	623 (gpm)
31	1873.00	1.90	308.00	1,871.20	54.08	52.62	-13.93	54.43	345.18	0.76	0.00	117 °F	Green	10/28/14	21:14	623 (gpm)
32	1904.00	1.10	293.80	1,902.19	54.61	53.05	-14.60	55.03	344.61	2.83	0.00	118 °F	Green	10/28/14	21:36	623 (gpm)
33	1935.00	0.90	281.00	1,933.19	54.84	53.22	-15.11	55.32	344.15	0.96	0.00	120 °F	Green	10/28/14	22:00	654 (gpm)
34	1967.00	1.00	277.40	1,965.18	55.00	53.30	-15.64	55.55	343.65	0.36	0.00	120 °F	Green	10/28/14	22:15	654 (gpm)
35	2030.00	0.30	252.70	2,028.18	55.13	53.33	-16.34	55.77	342.96	1.17	0.00	122 °F	Green	10/28/14	22:57	654 (gpm)
36	2218.00	0.50	153.70	2,216.18	54.27	52.44	-16.45	54.96	342.59	0.33	0.00	126 °F	Green	10/29/14	0:25	654 (gpm)
37	2405.00	0.50	96.20	2,403.17	53.29	51.62	-15.27	53.84	343.52	0.26	0.00	127 °F	Green	10/29/14	1:48	654 (gpm)
38	2594.00	0.50	48.30	2,592.17	53.54	52.08	-13.84	53.89	345.12	0.21	0.00	129 °F	Green	10/29/14	3:09	633 (gpm)
39	2783.00	0.40	35.80	2,781.16	54.46	53.17	-12.84	54.70	346.43	0.07	0.00	131 °F	Green	10/29/14	4:35	633 (gpm)
40	2972.00	0.30	75.30	2,970.16	54.99	53.83	-11.97	55.14	347.46	0.13	0.00	108 °F	Green	10/29/14	8:24	591 (gpm)
41	3158.00	0.60	71.80	3,156.15	55.21	54.26	-10.58	55.28	348.97	0.16	0.00	108 °F	Green	10/29/14	10:26	612 (gpm)
42	3348.00	0.40	64.10	3,346.14	55.59	54.86	-9.03	55.60	350.65	0.11	0.00	117 °F	Green	10/29/14	12:03	612 (gpm)
43	3537.00	0.10	30.80	3,535.14	55.91	55.29	-8.36	55.91	351.40	0.17	0.00	124 °F	Green	10/29/14	13:55	612 (gpm)
44	3725.00	0.30	349.60	3,723.14	56.53	55.91	-8.36	56.53	351.49	0.12	0.00	129 °F	Green	10/29/14	16:17	634 (gpm)
45	3819.00	0.50	261.00	3,817.14	56.77	56.09	-8.81	56.78	351.07	0.61	0.00	131 °F	Green	10/29/14	17:03	634 (gpm)
46	3912.00	1.00	327.10	3,910.13	57.51	56.71	-9.65	57.52	350.34	0.99	12.00	126 °F	Green	10/29/14	19:52	352 (gpm)
47	3943.00	4.00	358.40	3,941.10	58.83	58.02	-9.83	58.84	350.38	10.28	12.00	124 °F	Green	10/29/14	20:56	352 (gpm)
48	3975.00	6.90	3.10	3,972.95	61.82	61.05	-9.76	61.83	350.92	9.16	9.60	124 °F	Green	10/29/14	22:02	352 (gpm)
49	4007.00	10.40	3.40	4,004.58	66.53	65.86	-9.48	66.53	351.81	10.94	10.00	124 °F	Green	10/29/14	22:53	352 (gpm)
50	4038.00	14.00	0.60	4,034.88	72.98	72.40	-9.28	72.99	352.70	11.77	10.50	124 °F	Green	10/29/14	23:48	352 (gpm)
51	4069.00	17.10	359.20	4,064.74	81.21	80.71	-9.30	81.24	353.43	10.07	10.80	124 °F	Green	10/30/14	0:33	352 (gpm)
52	4101.00	19.50	358.50	4,095.12	91.18	90.75	-9.51	91.25	354.02	7.53	10.00	124 °F	Green	10/30/14	1:26	352 (gpm)
53	4133.00	21.40	356.40	4,125.10	102.30	101.92	-10.01	102.41	354.39	6.36	10.00	124 °F	Green	10/30/14	2:14	352 (gpm)
54	4164.00	23.40	354.80	4,153.76	114.08	113.70	-10.93	114.22	354.51	6.74	11.00	124 °F	Green	10/30/14	3:21	352 (gpm)
55	4196.00	25.10	353.00	4,182.94	127.21	126.76	-12.33	127.36	354.44	5.79	9.70	126 °F	Green	10/30/14	4:38	352 (gpm)

MWD SURVEYS

Customer: Tapstone Energy
Well: Bill 22-34-10 #1H
Field/Block: Mississippi Lime
Co./Parish: Barber Co.
State: KS

PGS Job #: LKS6114814
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: October 28, 2014
Date of Last Survey: November 9, 2014



Total Correction: 4.46 East Grid

Vertical Section Plane: 351.7 Nominal Dip Angle: 65.07 Magnetic Field Strength: 0.515

	<i>Measured</i>		<i>Coordinates</i>				<i>Closure</i>			<i>Mtr Yield</i>	<i>Temp (°F)</i>	<i>Vib/Shk</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>Color</i>	<i>Date</i>	<i>Time</i>	<i>Flow Rate</i>
56	4227.00	26.80	350.70	4,210.81	140.78	140.19	-14.26	140.91	354.19	6.37	9.90	126 °F	Green	10/30/14	6:00	352 (gpm)
57	4258.00	28.40	349.20	4,238.28	155.13	154.33	-16.77	155.23	353.80	5.63	10.20	126 °F	Green	10/30/14	7:42	429 (gpm)
58	4288.00	30.40	348.50	4,264.42	169.84	168.77	-19.62	169.91	353.37	6.76	14.00	126 °F	Green	10/30/14	9:11	429 (gpm)
59	4319.00	33.60	347.70	4,290.70	186.23	184.84	-23.01	186.27	352.90	10.41	17.20	126 °F	Green	10/30/14	10:14	429 (gpm)
60	4350.00	36.40	346.40	4,316.10	203.95	202.17	-27.00	203.96	352.39	9.35	15.20	126 °F	Green	10/30/14	11:13	429 (gpm)
61	4381.00	38.20	345.60	4,340.75	222.64	220.40	-31.55	222.64	351.85	6.01	12.40	126 °F	Green	10/30/14	12:23	429 (gpm)
62	4412.00	39.80	345.60	4,364.84	242.04	239.29	-36.40	242.04	351.35	5.16	16.10	126 °F	Green	10/30/14	13:43	429 (gpm)
63	4443.00	41.30	345.80	4,388.40	262.08	258.82	-41.38	262.11	350.92	4.86	18.80	127 °F	Green	10/30/14	14:32	458 (gpm)
64	4474.00	42.80	346.30	4,411.42	282.74	278.97	-46.38	282.80	350.56	4.96	15.30	127 °F	Green	10/30/14	15:57	458 (gpm)
65	4503.00	44.30	346.30	4,432.44	302.63	298.38	-51.12	302.73	350.28	5.17	18.70	127 °F	Green	10/30/14	16:43	458 (gpm)
66	4534.00	46.50	346.20	4,454.20	324.61	319.82	-56.36	324.75	350.01	7.10	18.30	127 °F	Green	10/30/14	17:48	465 (gpm)
67	4565.00	48.80	345.60	4,475.08	347.40	342.04	-61.95	347.60	349.73	7.56	16.00	127 °F	Green	10/30/14	19:08	465 (gpm)
68	4596.00	50.80	345.60	4,495.09	370.94	364.97	-67.83	371.22	349.47	6.45	15.40	129 °F	Green	10/30/14	20:16	465 (gpm)
69	4627.00	52.40	345.40	4,514.35	395.09	388.49	-73.92	395.46	349.23	5.19	13.00	129 °F	Green	10/30/14	21:28	465 (gpm)
70	4658.00	54.40	345.70	4,532.83	419.83	412.59	-80.13	420.30	349.01	6.50	12.70	129 °F	Green	10/30/14	22:45	465 (gpm)
71	4690.00	57.30	346.00	4,550.79	446.18	438.27	-86.60	446.74	348.82	9.10	12.50	129 °F	Green	10/31/14	0:06	465 (gpm)
72	4721.00	60.30	347.10	4,566.85	472.58	464.05	-92.76	473.23	348.70	10.14	12.50	131 °F	Green	10/31/14	0:49	465 (gpm)
73	4753.00	62.90	347.40	4,582.07	500.64	491.50	-98.97	501.37	348.61	8.17	10.00	131 °F	Green	10/31/14	2:07	465 (gpm)
74	4785.00	63.70	347.40	4,596.44	529.15	519.40	-105.21	529.95	348.55	2.50	0.00	131 °F	Green	10/31/14	3:00	465 (gpm)
75	4816.00	64.50	347.40	4,609.98	556.96	546.62	-111.29	557.83	348.49	2.58	0.00	131 °F	Green	10/31/14	3:54	465 (gpm)
76	4847.00	64.80	347.00	4,623.26	584.89	573.94	-117.50	585.84	348.43	1.52	0.00	131 °F	Green	10/31/14	4:50	465 (gpm)
77	4879.00	64.40	347.00	4,636.98	613.70	602.10	-124.00	614.74	348.36	1.25	0.00	133 °F	Green	10/31/14	5:58	465 (gpm)
78	4911.00	64.40	347.00	4,650.81	642.46	630.22	-130.49	643.59	348.30	0.00	0.00	133 °F	Green	10/31/14	6:51	493 (gpm)
79	4942.00	64.80	347.00	4,664.11	670.37	657.51	-136.79	671.59	348.25	1.29	0.00	133 °F	Green	10/31/14	7:56	493 (gpm)
80	4973.00	66.80	346.40	4,676.81	698.53	685.02	-143.30	699.85	348.18	6.69	0.00	133 °F	Green	10/31/14	8:43	493 (gpm)
81	5004.00	71.10	345.60	4,687.95	727.31	713.09	-150.30	728.75	348.10	14.08	14.30	133 °F	Green	10/31/14	9:52	493 (gpm)
82	5035.00	76.00	345.90	4,696.72	756.88	741.89	-157.61	758.45	348.01	15.83	15.80	133 °F	Green	10/31/14	10:57	493 (gpm)
83	5066.00	80.50	346.40	4,703.03	787.08	771.36	-164.88	788.78	347.93	14.60	16.00	133 °F	Green	10/31/14	11:53	493 (gpm)
84	5097.00	82.70	346.70	4,707.56	817.62	801.18	-172.01	819.44	347.88	7.16	18.50	133 °F	Green	10/31/14	12:43	493 (gpm)

MWD SURVEYS

Customer: Tapstone Energy
Well: Bill 22-34-10 #1H
Field/Block: Mississippi Lime
Co./Parish: Barber Co.
State: KS

PGS Job #: LKS6114814
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: October 28, 2014
Date of Last Survey: November 9, 2014



Total Correction: 4.46 East Grid

Vertical Section Plane: 351.7 Nominal Dip Angle: 65.07 Magnetic Field Strength: 0.515

	<i>Measured</i>		<i>Coordinates</i>				<i>Closure</i>			<i>Mtr Yield</i>	<i>Temp (°F)</i>	<i>Vib/Shk</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>Color</i>	<i>Date</i>	<i>Time</i>	<i>Flow Rate</i>
85	5128.00	83.70	346.80	4,711.23	848.29	831.14	-179.06	850.21	347.84	3.24	16.70	135 °F	Green	10/31/14	14:05	493 (gpm)
86	5159.00	85.50	346.40	4,714.15	879.02	861.16	-186.21	881.07	347.80	5.95	17.00	135 °F	Green	10/31/14	15:26	493 (gpm)
87	5248.00	89.50	345.20	4,718.03	967.45	947.34	-208.02	969.91	347.62	4.69	0.00	126 °F	Green	11/02/14	5:47	218 (gpm)
88	5279.00	89.90	345.50	4,718.19	998.26	977.33	-215.86	1,000.89	347.55	1.61	0.00	127 °F	Green	11/02/14	6:22	257 (gpm)
89	5311.00	89.40	345.10	4,718.39	1,030.06	1,008.29	-223.98	1,032.86	347.48	2.00	0.00	127 °F	Green	11/02/14	7:00	246 (gpm)
90	5343.00	89.30	344.90	4,718.75	1,061.84	1,039.19	-232.26	1,064.83	347.40	0.70	0.00	129 °F	Green	11/02/14	7:46	246 (gpm)
91	5375.00	87.70	344.60	4,719.59	1,093.59	1,070.05	-240.68	1,096.79	347.32	5.09	0.00	129 °F	Green	11/02/14	8:33	246 (gpm)
92	5406.00	88.10	344.60	4,720.73	1,124.33	1,099.92	-248.91	1,127.73	347.25	1.29	0.00	129 °F	Green	11/02/14	9:15	246 (gpm)
93	5438.00	88.80	344.70	4,721.59	1,156.08	1,130.77	-257.37	1,159.69	347.18	2.21	0.00	129 °F	Green	11/02/14	9:58	246 (gpm)
94	5469.00	90.40	344.80	4,721.81	1,186.85	1,160.67	-265.53	1,190.66	347.11	5.17	0.00	131 °F	Green	11/02/14	10:40	246 (gpm)
95	5501.00	91.60	344.40	4,721.25	1,218.60	1,191.52	-274.02	1,222.62	347.05	3.95	0.00	131 °F	Green	11/02/14	11:09	246 (gpm)
96	5532.00	91.70	344.00	4,720.36	1,249.32	1,221.34	-282.46	1,253.57	346.98	1.33	0.00	131 °F	Green	11/02/14	11:45	246 (gpm)
97	5564.00	89.80	343.60	4,719.94	1,281.01	1,252.06	-291.39	1,285.52	346.90	6.07	0.00	131 °F	Green	11/02/14	12:15	246 (gpm)
98	5596.00	88.40	343.30	4,720.44	1,312.68	1,282.73	-300.50	1,317.46	346.82	4.47	0.00	133 °F	Green	11/02/14	12:55	246 (gpm)
99	5627.00	88.20	343.50	4,721.36	1,343.34	1,312.43	-309.35	1,348.39	346.74	0.91	0.00	133 °F	Green	11/02/14	13:40	246 (gpm)
100	5659.00	88.10	344.30	4,722.39	1,375.02	1,343.16	-318.22	1,380.34	346.67	2.52	0.00	135 °F	Green	11/02/14	14:14	246 (gpm)
101	5690.00	87.80	344.80	4,723.50	1,405.76	1,373.02	-326.48	1,411.30	346.62	1.88	0.00	135 °F	Green	11/02/14	14:46	246 (gpm)
102	5722.00	88.70	344.90	4,724.48	1,437.52	1,403.89	-334.83	1,443.27	346.59	2.83	0.00	133 °F	Green	11/02/14	15:19	246 (gpm)
103	5754.00	89.40	345.20	4,725.01	1,469.30	1,434.80	-343.09	1,475.25	346.55	2.38	0.00	133 °F	Green	11/02/14	16:14	246 (gpm)
104	5784.00	89.80	345.40	4,725.22	1,499.11	1,463.82	-350.70	1,505.24	346.53	1.49	0.00	133 °F	Green	11/02/14	16:44	246 (gpm)
105	5813.00	88.30	345.00	4,725.70	1,527.92	1,491.85	-358.11	1,534.23	346.50	5.35	0.00	135 °F	Green	11/02/14	17:12	246 (gpm)
106	5843.00	88.00	345.00	4,726.67	1,557.70	1,520.81	-365.87	1,564.20	346.47	1.00	0.00	135 °F	Green	11/02/14	17:53	246 (gpm)
107	5873.00	87.40	345.60	4,727.87	1,587.49	1,549.81	-373.47	1,594.17	346.45	2.83	0.00	135 °F	Green	11/02/14	18:42	246 (gpm)
108	5903.00	88.20	345.80	4,729.02	1,617.30	1,578.86	-380.88	1,624.15	346.44	2.75	0.00	135 °F	Green	11/02/14	20:03	246 (gpm)
109	5933.00	89.20	345.80	4,729.70	1,647.14	1,607.93	-388.24	1,654.14	346.43	3.33	0.00	135 °F	Green	11/02/14	21:02	246 (gpm)
110	5963.00	89.00	346.00	4,730.18	1,676.98	1,637.03	-395.54	1,684.13	346.42	0.94	0.00	135 °F	Green	11/02/14	21:56	246 (gpm)
111	5994.00	89.20	346.20	4,730.66	1,707.83	1,667.11	-402.99	1,715.13	346.41	0.91	0.00	136 °F	Green	11/03/14	7:21	239 (gpm)
112	6023.00	90.00	346.50	4,730.87	1,736.70	1,695.29	-409.83	1,744.13	346.41	2.95	0.00	136 °F	Green	11/03/14	8:07	239 (gpm)
113	6054.00	90.20	346.40	4,730.81	1,767.57	1,725.43	-417.10	1,775.13	346.41	0.72	0.00	133 °F	Green	11/03/14	8:50	239 (gpm)

MWD SURVEYS

Customer: Tapstone Energy
Well: Bill 22-34-10 #1H
Field/Block: Mississippi Lime
Co./Parish: Barber Co.
State: KS

PGS Job #: LKS6114814
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Date of First Survey: October 28, 2014
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Total Correction: 4.46 East Grid

Vertical Section Plane: 351.7 Nominal Dip Angle: 65.07 Magnetic Field Strength: 0.515

Measured Depth	Inc.	Azm.	T.V.D.	Ver. Sect.	Coordinates		Closure			Mtr Yield	Temp (°F)	Vib/Shk Color	Date	Time	Flow Rate	
					+N / -S	+E / -W	Dist.	Angle	DLS							
114	6085.00	87.40	345.70	4,731.46	1,798.41	1,755.51	-424.57	1,806.12	346.40	9.31	0.00	133 °F	Green	11/03/14	9:47	239 (gpm)
115	6115.00	87.20	345.10	4,732.87	1,828.19	1,784.51	-432.12	1,836.08	346.39	2.11	0.00	131 °F	Green	11/03/14	10:45	239 (gpm)
116	6145.00	90.20	345.20	4,733.55	1,857.99	1,813.49	-439.81	1,866.06	346.37	10.01	0.00	131 °F	Green	11/03/14	11:36	239 (gpm)
117	6175.00	90.70	345.50	4,733.32	1,887.80	1,842.52	-447.39	1,896.06	346.35	1.94	0.00	133 °F	Green	11/03/14	12:21	239 (gpm)
118	6205.00	91.90	346.30	4,732.64	1,917.64	1,871.60	-454.70	1,926.05	346.34	4.81	0.00	133 °F	Green	11/03/14	13:19	239 (gpm)
119	6235.00	92.10	346.50	4,731.59	1,947.49	1,900.75	-461.75	1,956.03	346.35	0.94	0.00	133 °F	Green	11/03/14	14:07	239 (gpm)
120	6265.00	91.80	346.80	4,730.57	1,977.36	1,929.92	-468.67	1,986.01	346.35	1.41	0.00	133 °F	Green	11/03/14	14:54	230 (gpm)
121	6295.00	91.40	346.90	4,729.73	2,007.24	1,959.12	-475.50	2,016.00	346.36	1.37	0.00	133 °F	Green	11/03/14	16:08	230 (gpm)
122	6325.00	91.80	347.00	4,728.89	2,037.13	1,988.33	-482.27	2,045.98	346.37	1.37	0.00	133 °F	Green	11/03/14	17:18	230 (gpm)
123	6355.00	92.20	347.10	4,727.85	2,067.01	2,017.55	-488.99	2,075.96	346.38	1.37	0.00	133 °F	Green	11/03/14	17:54	230 (gpm)
124	6386.00	91.60	347.90	4,726.82	2,097.91	2,047.80	-495.69	2,106.94	346.39	3.22	0.00	133 °F	Green	11/03/14	18:45	240 (gpm)
125	6417.00	91.30	348.10	4,726.04	2,128.83	2,078.11	-502.14	2,137.92	346.42	1.16	0.00	133 °F	Green	11/03/14	20:14	240 (gpm)
126	6446.00	89.50	347.50	4,725.83	2,157.76	2,106.46	-508.26	2,166.91	346.43	6.54	0.00	133 °F	Green	11/03/14	21:18	240 (gpm)
127	6476.00	87.60	346.90	4,726.59	2,187.66	2,135.70	-514.91	2,196.89	346.44	6.64	0.00	133 °F	Green	11/03/14	22:37	240 (gpm)
128	6507.00	88.60	346.50	4,727.62	2,218.53	2,165.85	-522.03	2,227.88	346.45	3.47	0.00	133 °F	Green	11/03/14	23:52	240 (gpm)
129	6536.00	90.70	346.40	4,727.80	2,247.40	2,194.04	-528.83	2,256.87	346.45	7.25	0.00	133 °F	Green	11/04/14	0:54	240 (gpm)
130	6566.00	89.60	346.40	4,727.72	2,277.27	2,223.20	-535.88	2,286.87	346.45	3.67	0.00	135 °F	Green	11/04/14	1:56	240 (gpm)
131	6,597.00	90.10	346.40	4,727.80	2,308.14	2,253.33	-543.17	2,317.87	346.45	1.61	0.00	135 °F	Green	11/04/14	3:31	240 (gpm)
132	6,627.00	92.90	346.20	4,727.01	2,337.99	2,282.47	-550.27	2,347.86	346.45	9.36	0.00	133 °F	Green	11/04/14	5:04	240 (gpm)
133	6,657.00	91.20	346.10	4,725.94	2,367.83	2,311.57	-557.45	2,377.84	346.44	5.68	0.00	135 °F	Green	11/04/14	5:51	240 (gpm)
134	6,687.00	88.90	346.20	4,725.92	2,397.69	2,340.70	-564.63	2,407.84	346.44	7.67	0.00	133 °F	Green	11/04/14	7:09	221 (gpm)
135	6,717.00	89.00	346.30	4,726.46	2,427.55	2,369.83	-571.76	2,437.83	346.44	0.47	0.00	133 °F	Green	11/04/14	8:40	228 (gpm)
136	6,748.00	89.60	346.10	4,726.84	2,458.40	2,399.94	-579.15	2,468.83	346.43	2.04	0.00	133 °F	Green	11/04/14	10:28	228 (gpm)
137	6,778.00	92.30	346.40	4,726.35	2,488.26	2,429.07	-586.28	2,498.82	346.43	9.06	0.00	133 °F	Green	11/04/14	11:57	228 (gpm)
138	6,808.00	93.70	347.10	4,724.78	2,518.11	2,458.23	-593.15	2,528.78	346.43	5.22	0.00	133 °F	Green	11/04/14	13:48	228 (gpm)
139	6,837.00	94.40	347.40	4,722.73	2,546.95	2,486.45	-599.53	2,557.70	346.44	2.63	0.00	133 °F	Green	11/04/14	15:04	239 (gpm)
140	6,867.00	95.30	347.70	4,720.19	2,576.76	2,515.63	-605.98	2,587.59	346.46	3.16	0.00	133 °F	Green	11/04/14	16:37	239 (gpm)
141	6,897.00	96.00	347.70	4,717.24	2,606.54	2,544.80	-612.34	2,617.44	346.47	2.33	0.00	135 °F	Green	11/04/14	17:43	249 (gpm)
142	6,927.00	95.60	347.70	4,714.21	2,636.32	2,573.96	-618.70	2,647.28	346.48	1.33	0.00	136 °F	Green	11/04/14	18:40	256 (gpm)

MWD SURVEYS

Customer: Tapstone Energy
Well: Bill 22-34-10 #1H
Field/Block: Mississippi Lime
Co./Parish: Barber Co.
State: KS

PGS Job #: LKS6114814
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: October 28, 2014
Date of Last Survey: November 9, 2014



Total Correction: 4.46 East Grid

Vertical Section Plane: 351.7 Nominal Dip Angle: 65.07 Magnetic Field Strength: 0.515

	<i>Measured</i>		<i>Coordinates</i>				<i>Closure</i>			<i>Mtr Yield</i>	<i>Temp (°F)</i>	<i>Vib/Shk</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>Color</i>	<i>Date</i>	<i>Time</i>	<i>Flow Rate</i>
143	6,957.00	95.90	347.40	4,711.20	2,666.09	2,603.11	-625.13	2,677.12	346.50	1.41	0.00	138 °F	Green	11/04/14	19:49	242 (gpm)
144	6,988.00	95.50	347.30	4,708.12	2,696.85	2,633.21	-631.89	2,707.97	346.51	1.33	0.00	136 °F	Green	11/04/14	20:41	240 (gpm)
145	7,018.00	94.90	347.00	4,705.40	2,726.63	2,662.34	-638.53	2,737.84	346.51	2.23	0.00	138 °F	Green	11/04/14	21:44	240 (gpm)
146	7,048.00	94.20	346.90	4,703.02	2,756.43	2,691.47	-645.28	2,767.74	346.52	2.36	0.00	138 °F	Green	11/04/14	22:56	240 (gpm)
147	7,079.00	93.30	347.10	4,701.00	2,787.26	2,721.61	-652.24	2,798.68	346.52	2.97	0.00	138 °F	Green	11/05/14	0:01	225 (gpm)
148	7,109.00	92.40	347.60	4,699.50	2,817.14	2,750.85	-658.80	2,828.64	346.53	3.43	0.00	138 °F	Green	11/05/14	0:57	242 (gpm)
149	7,140.00	92.40	347.90	4,698.21	2,848.04	2,781.11	-665.38	2,859.60	346.55	0.97	0.00	138 °F	Green	11/05/14	1:48	242 (gpm)
150	7,170.00	92.00	348.50	4,697.05	2,877.96	2,810.46	-671.51	2,889.57	346.56	2.40	0.00	138 °F	Green	11/05/14	3:15	240 (gpm)
151	7,200.00	91.30	348.40	4,696.19	2,907.90	2,839.84	-677.51	2,919.54	346.58	2.36	0.00	138 °F	Green	11/05/14	4:04	240 (gpm)
152	7,230.00	90.50	348.80	4,695.72	2,937.85	2,869.24	-683.44	2,949.52	346.60	2.98	0.00	140 °F	Green	11/05/14	5:03	241 (gpm)
153	7,260.00	90.00	348.90	4,695.59	2,967.81	2,898.68	-689.24	2,979.49	346.62	1.70	0.00	140 °F	Green	11/05/14	5:53	249 (gpm)
154	7,290.00	89.70	349.30	4,695.67	2,997.78	2,928.13	-694.91	3,009.46	346.65	1.67	0.00	140 °F	Green	11/05/14	7:08	249 (gpm)
155	7321.00	89.60	349.40	4,695.86	3,028.75	2,958.60	-700.64	3,040.43	346.68	0.46	0.00	140 °F	Green	11/05/14	8:15	249 (gpm)
156	7351.00	90.20	350.30	4,695.91	3,058.74	2,988.13	-705.93	3,070.38	346.71	3.61	0.00	140 °F	Green	11/05/14	9:22	249 (gpm)
157	7380.00	89.50	351.40	4,695.98	3,087.73	3,016.76	-710.54	3,099.31	346.75	4.50	0.00	140 °F	Green	11/05/14	10:30	249 (gpm)
158	7410.00	88.80	352.60	4,696.43	3,117.73	3,046.46	-714.72	3,129.18	346.80	4.63	0.00	140 °F	Green	11/05/14	11:24	249 (gpm)
159	7440.00	88.30	353.40	4,697.19	3,147.71	3,076.23	-718.37	3,159.00	346.86	3.14	0.00	140 °F	Green	11/05/14	12:25	249 (gpm)
160	7470.00	88.30	353.60	4,698.08	3,177.68	3,106.02	-721.77	3,188.78	346.92	0.67	0.00	140 °F	Green	11/05/14	13:57	249 (gpm)
161	7500.00	89.60	354.20	4,698.63	3,207.65	3,135.85	-724.95	3,218.56	346.98	4.77	0.00	140 °F	Green	11/05/14	15:47	249 (gpm)
162	7530.00	90.60	355.70	4,698.58	3,237.61	3,165.73	-727.59	3,248.27	347.06	6.01	0.00	140 °F	Green	11/05/14	17:06	249 (gpm)
163	7560.00	90.70	356.90	4,698.24	3,267.51	3,195.67	-729.53	3,277.88	347.14	4.01	0.00	142 °F	Green	11/05/14	18:05	249 (gpm)
164	7591.00	91.30	357.10	4,697.69	3,298.37	3,226.62	-731.15	3,308.42	347.23	2.04	0.00	142 °F	Green	11/05/14	18:57	249 (gpm)
165	7623.00	91.30	356.50	4,696.97	3,330.23	3,258.56	-732.94	3,339.97	347.32	1.87	0.00	142 °F	Green	11/05/14	19:38	274 (gpm)
166	7654.00	91.00	355.80	4,696.35	3,361.13	3,289.48	-735.02	3,370.60	347.40	2.46	0.00	142 °F	Green	11/05/14	20:44	274 (gpm)
167	7686.00	90.40	357.10	4,695.96	3,393.02	3,321.42	-737.00	3,402.20	347.49	4.47	0.00	142 °F	Green	11/05/14	21:44	274 (gpm)
168	7718.00	90.30	358.20	4,695.76	3,424.85	3,353.39	-738.31	3,433.71	347.58	3.45	0.00	144 °F	Green	11/05/14	23:01	274 (gpm)
169	7749.00	91.30	358.00	4,695.33	3,455.65	3,384.37	-739.34	3,464.19	347.68	3.29	0.00	144 °F	Green	11/06/14	0:16	225 (gpm)
170	7780.00	91.20	358.70	4,694.65	3,486.43	3,415.35	-740.23	3,494.65	347.77	2.28	0.00	144 °F	Green	11/06/14	1:00	264 (gpm)
171	7812.00	91.10	358.50	4,694.01	3,518.20	3,447.33	-741.01	3,526.08	347.87	0.70	0.00	144 °F	Green	11/06/14	2:18	256 (gpm)

MWD SURVEYS

Customer: Tapstone Energy
Well: Bill 22-34-10 #1H
Field/Block: Mississippi Lime
Co./Parish: Barber Co.
State: KS

PGS Job #: LKS6114814
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: October 28, 2014
Date of Last Survey: November 9, 2014



Total Correction: 4.46 East Grid

Vertical Section Plane: 351.7 Nominal Dip Angle: 65.07 Magnetic Field Strength: 0.515

	Measured		Coordinates				Closure			Mtr Yield	Temp (°F)	Vib/Shk Color	Date	Time	Flow Rate	
	Depth	Inc.	Azm.	T.V.D.	Ver. Sect.	+N/-S	+E/-W	Dist.	Angle							DLS
172	7843.00	91.00	358.00	4,693.44	3,548.99	3,478.31	-741.96	3,556.57	347.96	1.64	0.00	144 °F	Green	11/06/14	3:47	256 (gpm)
173	7875.00	89.50	357.40	4,693.30	3,580.81	3,510.29	-743.24	3,588.11	348.05	5.05	0.00	144 °F	Green	11/06/14	5:16	256 (gpm)
174	7906.00	89.10	357.30	4,693.68	3,611.66	3,541.25	-744.68	3,618.70	348.12	1.33	0.00	144 °F	Green	11/06/14	6:42	256 (gpm)
175	7938.00	89.60	356.60	4,694.04	3,643.52	3,573.20	-746.38	3,650.33	348.20	2.69	0.00	144 °F	Green	11/06/14	8:16	256 (gpm)
176	7969.00	90.00	356.50	4,694.15	3,674.41	3,604.15	-748.24	3,681.00	348.27	1.33	0.00	144 °F	Green	11/06/14	9:34	264 (gpm)
177	8001.00	89.40	356.40	4,694.32	3,706.30	3,636.09	-750.23	3,712.68	348.34	1.90	0.00	144 °F	Green	11/06/14	10:56	264 (gpm)
178	8033.00	89.60	356.40	4,694.60	3,738.19	3,668.02	-752.24	3,744.36	348.41	0.63	0.00	144 °F	Green	11/06/14	13:08	264 (gpm)
179	8064.00	90.30	356.60	4,694.62	3,769.08	3,698.96	-754.13	3,775.06	348.48	2.35	0.00	144 °F	Green	11/06/14	14:58	264 (gpm)
180	8095.00	90.20	356.60	4,694.49	3,799.97	3,729.91	-755.97	3,805.75	348.54	0.32	0.00	144 °F	Green	11/06/14	16:11	264 (gpm)
181	8127.00	90.50	356.80	4,694.29	3,831.85	3,761.86	-757.81	3,837.42	348.61	1.13	0.00	142 °F	Green	11/06/14	17:28	264 (gpm)
182	8164.00	89.00	356.70	4,694.46	3,868.70	3,798.79	-759.91	3,874.05	348.69	4.06	0.00	145 °F	Green	11/07/14	14:19	260 (gpm)
183	8196.00	89.70	357.30	4,694.82	3,900.56	3,830.75	-761.58	3,905.72	348.76	2.88	0.00	144 °F	Green	11/07/14	16:10	260 (gpm)
184	8228.00	90.70	357.70	4,694.71	3,932.40	3,862.72	-762.98	3,937.35	348.83	3.37	0.00	145 °F	Green	11/07/14	18:03	214 (gpm)
185	8259.00	92.20	358.90	4,693.92	3,963.18	3,893.69	-763.90	3,967.92	348.90	6.20	0.00	145 °F	Green	11/07/14	20:25	239 (gpm)
186	8291.00	93.30	359.60	4,692.39	3,994.87	3,925.65	-764.31	3,999.36	348.98	4.07	0.00	145 °F	Green	11/07/14	21:09	240 (gpm)
187	8322.00	93.70	359.90	4,690.49	4,025.50	3,956.59	-764.45	4,029.77	349.06	1.61	0.00	147 °F	Green	11/07/14	21:58	240 (gpm)
188	8354.00	93.80	359.70	4,688.40	4,057.12	3,988.52	-764.56	4,061.14	349.15	0.70	0.00	149 °F	Green	11/07/14	22:30	245 (gpm)
189	8385.00	93.90	359.50	4,686.32	4,087.75	4,019.45	-764.78	4,091.56	349.23	0.72	0.00	149 °F	Green	11/08/14	0:34	267 (gpm)
190	8417.00	93.90	359.90	4,684.14	4,119.37	4,051.38	-764.94	4,122.96	349.31	1.25	0.00	149 °F	Green	11/08/14	2:26	267 (gpm)
191	8448.00	93.70	0.40	4,682.09	4,149.96	4,082.31	-764.86	4,153.35	349.39	1.73	0.00	149 °F	Green	11/08/14	3:41	256 (gpm)
192	8480.00	93.40	0.20	4,680.11	4,181.54	4,114.25	-764.70	4,184.71	349.47	1.13	0.00	149 °F	Green	11/08/14	4:50	256 (gpm)
193	8511.00	92.60	0.20	4,678.49	4,212.16	4,145.21	-764.59	4,215.13	349.55	2.58	0.00	149 °F	Green	11/08/14	6:42	256 (gpm)
194	8543.00	91.40	360.00	4,677.37	4,243.80	4,177.19	-764.53	4,246.57	349.63	3.80	0.00	149 °F	Green	11/08/14	7:39	256 (gpm)
195	8574.00	90.20	0.20	4,676.94	4,274.46	4,208.18	-764.48	4,277.06	349.70	3.92	0.00	151 °F	Green	11/08/14	8:19	256 (gpm)
196	8606.00	90.50	0.60	4,676.74	4,306.09	4,240.18	-764.25	4,308.51	349.78	1.56	0.00	151 °F	Green	11/08/14	8:53	256 (gpm)
197	8637.00	91.10	1.20	4,676.31	4,336.69	4,271.17	-763.77	4,338.92	349.86	2.74	0.00	151 °F	Green	11/08/14	10:01	256 (gpm)
198	8669.00	90.90	1.00	4,675.75	4,368.26	4,303.16	-763.15	4,370.31	349.94	0.88	0.00	151 °F	Green	11/08/14	11:25	256 (gpm)
199	8700.00	89.70	1.10	4,675.59	4,398.84	4,334.16	-762.59	4,400.73	350.02	3.88	0.00	151 °F	Green	11/08/14	12:37	256 (gpm)
200	8732.00	88.40	1.20	4,676.12	4,430.40	4,366.15	-761.94	4,432.13	350.10	4.07	0.00	151 °F	Green	11/08/14	13:37	256 (gpm)

MWD SURVEYS

Customer: Tapstone Energy
Well: Bill 22-34-10 #1H
Field/Block: Mississippi Lime
Co./Parish: Barber Co.
State: KS

PGS Job #: LKS6114814
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: October 28, 2014
Date of Last Survey: November 9, 2014



Total Correction: 4.46 East Grid

Vertical Section Plane: 351.7 Nominal Dip Angle: 65.07 Magnetic Field Strength: 0.515

Measured		Coordinates				Closure			Vib/Shk			Date	Time	Flow Rate		
Depth	Inc.	Azm.	T.V.D.	Ver. Sect.	+N/-S	+E/-W	Dist.	Angle	DLS	Mtr Yield	Temp (°F)				Color	
201	8763.00	88.80	1.10	4,676.87	4,460.97	4,397.13	-761.32	4,462.55	350.18	1.33	0.00	153 °F	Green	11/08/14	14:23	256 (gpm)
202	8795.00	89.40	1.30	4,677.38	4,492.53	4,429.12	-760.65	4,493.96	350.26	1.98	0.00	153 °F	Green	11/08/14	15:59	256 (gpm)
203	8827.00	89.50	1.20	4,677.68	4,524.09	4,461.11	-759.95	4,525.38	350.33	0.44	0.00	153 °F	Green	11/08/14	17:10	256 (gpm)
204	8859.00	89.30	0.90	4,678.02	4,555.66	4,493.10	-759.37	4,556.82	350.41	1.13	0.00	153 °F	Green	11/08/14	18:33	256 (gpm)
205	8890.00	89.00	0.50	4,678.48	4,586.27	4,524.10	-758.99	4,587.32	350.48	1.61	0.00	153 °F	Green	11/08/14	19:53	254 (gpm)
206	8922.00	88.40	0.70	4,679.21	4,617.88	4,556.09	-758.65	4,618.82	350.55	1.98	0.00	154 °F	Green	11/08/14	20:39	254 (gpm)
207	8953.00	88.60	0.90	4,680.02	4,648.48	4,587.07	-758.22	4,649.32	350.61	0.91	0.00	154 °F	Green	11/08/14	21:32	254 (gpm)
208	8984.00	88.80	0.90	4,680.72	4,679.07	4,618.06	-757.73	4,679.81	350.68	0.65	0.00	154 °F	Green	11/08/14	22:22	228 (gpm)
209	9016.00	88.90	0.50	4,681.36	4,710.67	4,650.05	-757.34	4,711.32	350.75	1.29	0.00	154 °F	Green	11/08/14	23:18	256 (gpm)
210	9047.00	88.70	0.20	4,682.01	4,741.31	4,681.04	-757.15	4,741.88	350.81	1.16	0.00	154 °F	Green	11/09/14	0:49	249 (gpm)
211	9079.00	89.00	0.20	4,682.65	4,772.96	4,713.04	-757.04	4,773.45	350.87	0.94	0.00	154 °F	Green	11/09/14	2:22	239 (gpm)
212	9111.00	89.30	0.20	4,683.13	4,804.60	4,745.03	-756.93	4,805.03	350.94	0.94	0.00	154 °F	Green	11/09/14	3:10	239 (gpm)
213	9143.00	88.10	360.00	4,683.85	4,836.25	4,777.03	-756.87	4,836.61	351.00	3.80	0.00	154 °F	Green	11/09/14	4:17	256 (gpm)
214	9174.00	88.00	0.10	4,684.91	4,866.90	4,808.01	-756.85	4,867.21	351.05	0.46	0.00	154 °F	Green	11/09/14	7:19	256 (gpm)
215	9206.00	89.30	0.50	4,685.66	4,898.53	4,840.00	-756.68	4,898.79	351.11	4.25	0.00	154 °F	Green	11/09/14	9:53	256 (gpm)
216	9237.00	90.60	1.00	4,685.69	4,929.15	4,870.99	-756.27	4,929.35	351.17	4.49	0.00	154 °F	Green	11/09/14	10:56	256 (gpm)
217	9269.00	89.70	0.90	4,685.61	4,960.73	4,902.99	-755.74	4,960.89	351.24	2.83	0.00	154 °F	Green	11/09/14	11:51	256 (gpm)
218	9300.00	89.80	1.60	4,685.74	4,991.30	4,933.98	-755.07	4,991.42	351.30	2.28	0.00	154 °F	Green	11/09/14	14:05	256 (gpm)
219	9332.00	90.70	0.90	4,685.60	5,022.86	4,965.97	-754.37	5,022.94	351.36	3.56	0.00	154 °F	Green	11/09/14	15:35	256 (gpm)
220	9364.00	90.60	0.60	4,685.24	5,054.46	4,997.97	-753.95	5,054.51	351.42	0.99	0.00	156 °F	Green	11/09/14	16:37	256 (gpm)
221	9396.00	91.20	0.40	4,684.74	5,086.07	5,029.96	-753.67	5,086.11	351.48	1.98	0.00	156 °F	Green	11/09/14	17:54	256 (gpm)
222	9427.00	90.80	0.60	4,684.20	5,116.70	5,060.96	-753.40	5,116.73	351.53	1.44	0.00	156 °F	Green	11/09/14	19:49	256 (gpm)
223	9460.00	89.70	0.90	4,684.05	5,149.29	5,093.95	-752.97	5,149.30	351.59	3.46	0.00	156 °F	Green	11/09/14	22:51	256 (gpm)
TD	9515.00	89.00	0.90	4,684.68	5,203.58	5,148.94	-752.10	5,203.58	351.69	1.27						

MWD SURVEYS

Customer: Tapstone Energy
 Well: Bill 22-34-10 #1H
 Field/Block: Mississippi Lime
 Co./Parish: Barber Co.
 State: KS

PGS Job #: LKS6114814
 MWD Operator: Ken Mitchell
 Directional Driller: Kyle Underwood
 Date of First Survey: October 28, 2014
 Date of Last Survey: November 9, 2014



Total Correction: 4.46 East Grid

Vertical Section Plane: 351.7 Nominal Dip Angle: 65.07 Magnetic Field Strength: 0.515

<i>Measured</i>			<i>Coordinates</i>				<i>Closure</i>			<i>Vib/Shk</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>Color</i>	<i>Date</i>	<i>Time</i>	<i>Flow Rate</i>

MWD SURVEYS

Customer: Tapstone Energy
 Well: Bill 22-34-10 #1H
 Field/Block: Mississippi Lime
 Co./Parish: Barber Co.
 State: KS

PGS Job #: LKS6114814
 MWD Operator: Ken Mitchell
 Directional Driller: Kyle Underwood
 Date of First Survey: October 28, 2014
 Date of Last Survey: November 9, 2014



Total Correction: 4.46 East Grid

Vertical Section Plane: 351.7 Nominal Dip Angle: 65.07 Magnetic Field Strength: 0.515

<i>Measured</i>			<i>Coordinates</i>				<i>Closure</i>			<i>Vib/Shk</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>Color</i>	<i>Date</i>	<i>Time</i>	<i>Flow Rate</i>

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<i>Measured</i>			<i>Coordinates</i>				<i>Closure</i>			<i>Vib/Shk</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>Color</i>	<i>Date</i>	<i>Time</i>	<i>Flow Rate</i>

MWD SURVEYS

Customer: Tapstone Energy
 Well: Bill 22-34-10 #1H
 Field/Block: Mississippi Lime
 Co./Parish: Barber Co.
 State: KS

PGS Job #: LKS6114814
 MWD Operator: Ken Mitchell
 Directional Driller: Kyle Underwood
 Date of First Survey: October 28, 2014
 Date of Last Survey: November 9, 2014



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