

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1259749  
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: \_\_\_\_\_

1259749



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:  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

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <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> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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# MWD SURVEYS

Customer: Tapstone Energy  
Well: Cartmill 9-34-7 1H  
Field/Block: Cooper Creek  
Co./Parish: Harper County  
State: KS

Pro Job #: LKS6118215  
MWD Operator: Jeff Treille  
Directional Driller: Jared Gooch  
Date of First Survey: June 15, 2015  
Date of Last Survey:



Total Correction: 3.58 East Grid

Vertical Section Plane: 355.67 Nominal Dip Angle: 65.30 Magnetic Field Strength: 0.515

Measured Depth	Coordinates				Closure			Vib/Shk							
	Inc.	Azm.	T.V.D.	Ver. Sect.	+N / -S	+E / -W	Dist.	Angle	DLS	Mtr Yield	Temp (°F)	Color	Date	Time	Flow Rate
<b>Survey's are tied into:</b> Assume vertical at casing shoe @ 814'												<b>Date Received:</b> 06/15/15			
<b>Company:</b>															
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1	831.00	0.4	236.1	830.99	-1.43	-1.62	-2.41	2.90	236.10	0.05	0.00	104 °F	Green	06/15/15	12:25 510 (gpm)
2	894.00	0.8	326.2	893.99	-1.16	-1.38	-2.83	3.15	244.12	1.42	0.00	108 °F	Green	06/15/15	13:05 510 (gpm)
3	957.00	2.7	348.6	956.96	0.70	0.45	-3.37	3.40	277.52	3.15	0.00	111 °F	Green	06/15/15	13:45 510 (gpm)
4	1020.00	4.0	353.6	1,019.85	4.37	4.08	-3.91	5.65	316.24	2.11	0.00	113 °F	Green	06/15/15	14:20 510 (gpm)
5	1083.00	4.6	353.3	1,082.67	9.09	8.78	-4.45	9.84	333.11	0.95	0.00	115 °F	Green	06/15/15	14:50 510 (gpm)
6	1178.00	4.7	353.8	1,177.36	16.78	16.43	-5.32	17.27	342.07	0.11	0.00	118 °F	Green	06/15/15	15:30 510 (gpm)
7	1273.00	4.8	355.5	1,272.03	24.65	24.26	-6.05	25.00	346.00	0.18	0.00	120 °F	Green	06/15/15	16:10 510 (gpm)
8	1368.00	4.2	352.4	1,366.74	32.10	31.67	-6.82	32.40	347.85	0.68	0.00	124 °F	Green	06/15/15	17:10 510 (gpm)
9	1462.00	3.7	350.8	1,460.52	38.55	38.08	-7.76	38.86	348.48	0.54	0.00	127 °F	Green	06/15/15	18:05 510 (gpm)
10	1557.00	4.1	353.2	1,555.30	45.00	44.48	-8.65	45.31	348.99	0.45	0.00	131 °F	Green	06/15/15	19:10 590 (gpm)
11	1652.00	3.7	346.8	1,650.08	51.42	50.83	-9.75	51.76	349.14	0.62	0.00	133 °F	Green	06/15/15	20:00 590 (gpm)
12	1747.00	5.5	353.3	1,744.77	59.00	58.34	-10.99	59.36	349.34	1.97	0.00	135 °F	Yellow	06/15/15	20:57 590 (gpm)
13	1842.00	5.5	351.8	1,839.33	68.09	67.37	-12.17	68.46	349.76	0.15	0.00	133 °F	Green	06/15/15	21:40 590 (gpm)
14	1937.00	5.1	346.1	1,933.92	76.80	75.97	-13.83	77.22	349.68	0.70	0.00	135 °F	Green	06/15/15	22:25 590 (gpm)
15	2030.00	4.7	342.4	2,026.58	84.58	83.62	-15.97	85.13	349.18	0.55	0.00	136 °F	Green	06/15/15	23:30 590 (gpm)
16	2125.00	4.6	353.8	2,121.27	92.18	91.11	-17.56	92.79	349.09	0.98	0.00	136 °F	Green	06/16/15	0:37 590 (gpm)
17	2219.00	4.8	7.5	2,214.96	99.80	98.76	-17.46	100.29	349.98	1.21	0.00	136 °F	Yellow	06/16/15	1:36 590 (gpm)
18	2313.00	4.3	9.6	2,308.66	107.07	106.13	-16.36	107.39	351.24	0.56	0.00	138 °F	Green	06/16/15	2:27 590 (gpm)
19	2405.00	4.0	6.4	2,400.42	113.57	112.72	-15.42	113.77	352.21	0.41	0.00	136 °F	Green	06/16/15	3:37 407 (gpm)
20	2499.00	3.7	359.9	2,494.21	119.81	119.01	-15.06	119.96	352.79	0.56	0.00	131 °F	Green	06/16/15	5:30 407 (gpm)
21	2593.00	3.3	355.0	2,588.04	125.54	124.74	-15.30	125.68	353.01	0.53	0.00	129 °F	Green	06/16/15	6:50 407 (gpm)
22	2687.00	3.3	350.9	2,681.88	130.94	130.11	-15.97	131.09	353.00	0.25	0.00	127 °F	Green	06/16/15	8:15 420 (gpm)
23	2781.00	2.9	3.5	2,775.74	136.00	135.15	-16.25	136.13	353.14	0.84	0.00	126 °F	Green	06/16/15	10:05 420 (gpm)
24	2875.00	3.0	3.0	2,869.62	140.79	139.98	-15.98	140.89	353.49	0.11	0.00	126 °F	Green	06/16/15	11:10 420 (gpm)
25	2969.00	1.9	17.0	2,963.53	144.68	143.93	-15.39	144.75	353.90	1.32	0.00	109 °F	Green	06/16/15	14:45 420 (gpm)
26	3064.00	1.1	59.3	3,058.50	146.55	145.90	-14.15	146.59	354.46	1.38	0.00	115 °F	Green	06/16/15	15:45 420 (gpm)

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Co./Parish: Harper County  
State: KS

Pro Job #: LKS6118215  
MWD Operator: Jeff Treille  
Directional Driller: Jared Gooch  
Date of First Survey: June 15, 2015  
Date of Last Survey:



Total Correction: 3.58 East    Grid

Vertical Section Plane: 355.67    Nominal Dip Angle: 65.30    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
27	3157.00	1.3	163.2	3,151.49	145.92	145.35	-13.07	145.94	354.86	2.04	0.00	122 °F	Green	06/16/15	16:45	420 (gpm)
28	3250.00	1.4	157.0	3,244.46	143.81	143.29	-12.33	143.82	355.08	0.19	0.00	126 °F	Green	06/16/15	17:45	420 (gpm)
29	3343.00	1.3	165.7	3,337.44	141.70	141.22	-11.62	141.70	355.30	0.24	0.00	129 °F	Green	06/16/15	18:31	589 (gpm)
30	3437.00	1.3	169.6	3,431.41	139.59	139.14	-11.17	139.59	355.41	0.09	0.00	133 °F	Green	06/16/15	19:43	589 (gpm)
31	3529.00	1.0	168.6	3,523.40	137.75	137.33	-10.82	137.75	355.50	0.33	0.00	136 °F	Green	06/16/15	20:40	589 (gpm)
32	3624.00	0.5	183.9	3,618.39	136.52	136.10	-10.68	136.52	355.51	0.56	0.00	138 °F	Green	06/16/15	21:26	589 (gpm)
33	3720.00	0.8	228.7	3,714.38	135.70	135.24	-11.21	135.71	355.26	0.59	0.00	126 °F	Green	06/17/15	4:35	589 (gpm)
34	3814.00	0.4	279.7	3,808.38	135.39	134.87	-12.03	135.40	354.90	0.67	0.00	129 °F	Green	06/17/15	6:50	460 (gpm)
35	3845.00	3.5	3.1	3,839.36	136.35	135.83	-12.09	136.37	354.91	11.22	13.90	129 °F	Green	06/17/15	8:30	460 (gpm)
36	3877.00	6.9	1.7	3,871.22	139.23	138.73	-11.98	139.24	355.07	10.63	10.60	131 °F	Green	06/17/15	9:10	460 (gpm)
37	3909.00	9.4	358.8	3,902.90	143.76	143.26	-11.97	143.76	355.22	7.91	11.50	131 °F	Green	06/17/15	9:55	460 (gpm)
38	3940.00	11.6	355.0	3,933.37	149.40	148.90	-12.30	149.40	355.28	7.44	16.40	131 °F	Green	06/17/15	10:40	460 (gpm)
39	3972.00	14.4	354.9	3,964.55	156.60	156.07	-12.93	156.60	355.26	8.75	14.00	133 °F	Green	06/17/15	11:30	460 (gpm)
40	4003.00	16.5	355.8	3,994.43	164.86	164.30	-13.60	164.86	355.27	6.82	11.70	133 °F	Green	06/17/15	12:25	460 (gpm)
41	4035.00	18.5	357.7	4,024.95	174.47	173.90	-14.14	174.48	355.35	6.50	13.00	133 °F	Green	06/17/15	13:10	460 (gpm)
42	4067.00	20.8	357.7	4,055.08	185.23	184.66	-14.57	185.23	355.49	7.19	14.30	135 °F	Green	06/17/15	14:30	460 (gpm)
43	4098.00	23.1	357.8	4,083.83	196.81	196.23	-15.02	196.81	355.62	7.42	13.50	135 °F	Green	06/17/15	15:45	460 (gpm)
44	4129.00	25.9	357.3	4,112.04	209.65	209.08	-15.57	209.65	355.74	9.06	18.60	135 °F	Green	06/17/15	16:45	460 (gpm)
45	4160.00	29.1	355.6	4,139.53	223.96	223.36	-16.47	223.96	355.78	10.63	22.00	136 °F	Green	06/17/15	17:45	460 (gpm)
45	4191.00	32.0	355.1	4,166.23	239.72	239.06	-17.75	239.72	355.75	9.39	19.40	136 °F	Green	06/17/15	18:45	460 (gpm)
46	4222.00	34.5	355.1	4,192.15	256.71	255.99	-19.20	256.71	355.71	8.06	20.80	136 °F	Green	06/17/15	19:30	460 (gpm)
47	4253.00	36.5	356.1	4,217.39	274.71	273.94	-20.58	274.71	355.70	6.72	20.80	136 °F	Yellow	06/17/15	20:20	460 (gpm)
48	4285.00	38.1	356.2	4,242.84	294.10	293.29	-21.88	294.10	355.73	5.00	16.00	136 °F	Yellow	06/17/15	21:30	460 (gpm)
49	4315.00	39.7	356.5	4,266.19	312.94	312.09	-23.08	312.94	355.77	5.37	17.90	136 °F	Green	06/17/15	22:15	460 (gpm)
50	4347.00	41.9	356.8	4,290.41	333.85	332.96	-24.30	333.85	355.83	6.90	18.00	136 °F	Green	06/17/15	23:00	460 (gpm)
51	4379.00	43.8	356.6	4,313.87	355.60	354.69	-25.55	355.61	355.88	5.95	16.00	136 °F	Green	06/17/15	23:40	460 (gpm)
52	4410.00	45.3	355.6	4,335.96	377.35	376.38	-27.04	377.35	355.89	5.34	15.00	136 °F	Green	06/18/15	0:30	460 (gpm)
53	4441.00	46.7	354.2	4,357.49	399.65	398.59	-29.02	399.65	355.84	5.56	19.00	138 °F	Green	06/18/15	1:35	460 (gpm)
54	4472.00	48.1	353.8	4,378.48	422.45	421.29	-31.41	422.46	355.74	4.61	15.00	138 °F	Yellow	06/18/15	2:40	460 (gpm)

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Co./Parish: Harper County  
State: KS

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Date of First Survey: June 15, 2015  
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Total Correction: 3.58 East    Grid

Vertical Section Plane: 355.67    Nominal Dip Angle: 65.30    Magnetic Field Strength: 0.515

Measured Depth	Inc.	Azim.	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							
55	4503.00	50.5	354.8	4,398.69	445.95	444.67	-33.74	445.95	355.66	8.12	16.70	138 °F	Green	06/18/15	3:35	460 (gpm)
56	4534.00	53.3	354.9	4,417.82	470.34	468.96	-35.93	470.34	355.62	9.04	17.00	138 °F	Green	06/18/15	4:30	460 (gpm)
57	4565.00	56.1	355.2	4,435.73	495.63	494.17	-38.11	495.63	355.59	9.07	15.50	138 °F	Green	06/18/15	5:20	460 (gpm)
58	4596.00	58.9	356.4	4,452.38	521.78	520.24	-40.02	521.78	355.60	9.60	16.50	138 °F	Green	06/18/15	7:00	460 (gpm)
59	4627.00	61.0	357.0	4,467.91	548.60	547.03	-41.56	548.60	355.66	6.98	14.40	138 °F	Green	06/18/15	8:00	460 (gpm)
60	4659.00	61.7	357.3	4,483.25	576.68	575.07	-42.96	576.68	355.73	2.34	17.50	138 °F	Yellow	06/18/15	9:10	460 (gpm)
61	4690.00	62.3	357.2	4,497.80	604.04	602.41	-44.27	604.04	355.80	1.96	0.00	140 °F	Green	06/18/15	10:10	460 (gpm)
62	4721.00	63.1	357.3	4,512.02	631.57	629.93	-45.59	631.58	355.86	2.60	0.00	140 °F	Green	06/18/15	11:10	460 (gpm)
63	4752.00	63.6	357.2	4,525.93	659.27	657.60	-46.92	659.28	355.92	1.64	0.00	140 °F	Green	06/18/15	12:00	460 (gpm)
64	4783.00	64.0	357.1	4,539.61	687.07	685.38	-48.31	687.08	355.97	1.32	0.00	142 °F	Green	06/18/15	13:30	460 (gpm)
65	4814.00	64.8	357.4	4,553.01	715.02	713.31	-49.65	715.03	356.02	2.72	0.00	142 °F	Green	06/18/15	14:25	460 (gpm)
66	4844.00	65.3	356.8	4,565.66	742.21	740.47	-51.02	742.23	356.06	2.46	0.00	142 °F	Green	06/18/15	15:30	460 (gpm)
67	4875.00	64.9	355.6	4,578.71	770.33	768.53	-52.89	770.35	356.06	3.74	19.30	144 °F	Green	06/20/15	7:05	460 (gpm)
68	4906.00	65.7	354.1	4,591.67	798.49	796.58	-55.42	798.50	356.02	5.10	12.00	144 °F	Green	06/20/15	8:00	460 (gpm)
69	4938.00	66.6	353.3	4,604.61	827.74	825.67	-58.63	827.75	355.94	3.62	15.00	145 °F	Green	06/20/15	9:30	460 (gpm)
70	4969.00	67.4	353.1	4,616.72	856.25	854.00	-62.01	856.25	355.85	2.65	0.00	144 °F	Green	06/20/15	10:10	460 (gpm)
71	5001.00	68.3	353.0	4,628.78	885.85	883.42	-65.59	885.85	355.75	2.83	0.00	145 °F	Green	06/20/15	11:25	460 (gpm)
72	5032.00	67.6	353.6	4,640.42	914.56	911.96	-68.95	914.56	355.68	2.88	11.60	145 °F	Green	06/20/15	12:30	460 (gpm)
73	5064.00	66.9	354.5	4,652.80	944.06	941.31	-72.00	944.06	355.63	3.39	0.00	145 °F	Green	06/20/15	13:25	460 (gpm)
74	5095.00	67.1	354.8	4,664.91	972.59	969.72	-74.67	972.59	355.60	1.10	0.00	145 °F	Green	06/20/15	14:40	460 (gpm)
75	5126.00	68.6	356.1	4,676.60	1,001.30	998.34	-76.94	1,001.30	355.59	6.20	15.00	147 °F	Green	06/20/15	16:45	460 (gpm)
76	5158.00	70.6	357.2	4,687.75	1,031.29	1,028.28	-78.69	1,031.29	355.62	7.03	14.90	145 °F	Green	06/20/15	18:17	460 (gpm)
77	5189.00	72.8	357.7	4,697.49	1,060.70	1,057.68	-80.00	1,060.70	355.67	7.26	16.00	147 °F	Yellow	06/20/15	19:40	460 (gpm)
78	5220.00	75.3	357.6	4,706.00	1,090.49	1,087.46	-81.22	1,090.49	355.73	8.07	16.60	147 °F	Yellow	06/20/15	21:20	460 (gpm)
79	5251.00	78.5	357.0	4,713.03	1,120.67	1,117.62	-82.65	1,120.67	355.77	10.49	17.30	147 °F	Green	06/20/15	22:47	460 (gpm)
80	5292.00	82.9	356.2	4,719.65	1,161.11	1,158.00	-85.05	1,161.12	355.80	10.90	0.00	147 °F	Green	06/21/15	0:40	460 (gpm)
81	5373.00	88.0	355.7	4,726.08	1,241.83	1,238.51	-90.75	1,241.83	355.81	6.33	0.00	142 °F	Green	06/22/15	12:20	246 (gpm)
82	5404.00	88.0	355.9	4,727.16	1,272.81	1,269.41	-93.02	1,272.81	355.81	0.64	0.00	144 °F	Green	06/22/15	13:30	246 (gpm)
83	5436.00	88.2	355.8	4,728.22	1,304.79	1,301.31	-95.33	1,304.80	355.81	0.70	0.00	145 °F	Green	06/22/15	14:25	246 (gpm)

# MWD SURVEYS

Customer: Tapstone Energy  
Well: Cartmill 9-34-7 1H  
Field/Block: Cooper Creek  
Co./Parish: Harper County  
State: KS

Pro Job #: LKS6118215  
MWD Operator: Jeff Treille  
Directional Driller: Jared Gooch  
Date of First Survey: June 15, 2015  
Date of Last Survey:



Total Correction: 3.58 East    Grid

Vertical Section Plane: 355.67    Nominal Dip Angle: 65.30    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
84	5468.00	89.1	356.4	4,728.97	1,336.78	1,333.23	-97.51	1,336.79	355.82	3.38	0.00	145 °F	Green	06/22/15	15:15	246 (gpm)
85	5499.00	91.0	356.6	4,728.95	1,367.78	1,364.17	-99.40	1,367.78	355.83	6.16	0.00	147 °F	Pink	06/22/15	16:10	246 (gpm)
86	5530.00	91.4	356.1	4,728.30	1,398.77	1,395.10	-101.37	1,398.77	355.84	2.07	0.00	147 °F	Green	06/22/15	17:10	246 (gpm)
87	5562.00	90.8	355.8	4,727.68	1,430.76	1,427.01	-103.63	1,430.77	355.85	2.10	0.00	149 °F	Yellow	06/22/15	18:14	246 (gpm)
88	5593.00	90.7	356.0	4,727.28	1,461.76	1,457.93	-105.85	1,461.77	355.85	0.72	0.00	147 °F	Yellow	06/22/15	19:14	246 (gpm)
89	5625.00	90.0	355.9	4,727.08	1,493.76	1,489.85	-108.11	1,493.77	355.85	2.21	0.00	149 °F	Yellow	06/22/15	18:19	246 (gpm)
90	5656.00	90.4	356.1	4,726.97	1,524.76	1,520.77	-110.27	1,524.76	355.85	1.44	0.00	149 °F	Yellow	06/22/15	21:12	246 (gpm)
91	5687.00	89.6	356.0	4,726.97	1,555.76	1,551.70	-112.41	1,555.76	355.86	2.60	0.00	149 °F	Yellow	06/22/15	22:08	246 (gpm)
92	5717.00	88.1	355.9	4,727.58	1,585.75	1,581.62	-114.53	1,585.76	355.86	5.01	0.00	151 °F	Yellow	06/22/15	23:04	246 (gpm)
93	5748.00	88.0	355.8	4,728.63	1,616.73	1,612.52	-116.77	1,616.74	355.86	0.46	0.00	151 °F	Yellow	06/23/15	0:07	246 (gpm)
94	5778.00	88.2	355.8	4,729.63	1,646.71	1,642.42	-118.96	1,646.72	355.86	0.67	0.00	151 °F	Yellow	06/23/15	0:50	246 (gpm)
95	5808.00	88.7	356.1	4,730.44	1,676.70	1,672.33	-121.08	1,676.71	355.86	1.94	0.00	151 °F	Yellow	06/23/15	1:39	246 (gpm)
96	5839.00	88.8	355.7	4,731.11	1,707.69	1,703.25	-123.30	1,707.70	355.86	1.33	0.00	151 °F	Yellow	06/23/15	2:28	246 (gpm)
97	5870.00	88.1	356.0	4,731.95	1,738.68	1,734.15	-125.54	1,738.69	355.86	2.46	0.00	151 °F	Yellow	06/23/15	3:10	246 (gpm)
98	5900.00	86.8	355.5	4,733.29	1,768.65	1,764.04	-127.76	1,768.66	355.86	4.64	0.00	153 °F	Yellow	06/23/15	4:05	246 (gpm)
99	5931.00	86.8	355.3	4,735.02	1,799.60	1,794.89	-130.24	1,799.61	355.85	0.64	0.00	153 °F	Yellow	06/23/15	5:00	246 (gpm)
100	5962.00	87.5	355.1	4,736.56	1,830.56	1,825.75	-132.83	1,830.57	355.84	2.35	0.00	153 °F	Yellow	06/23/15	5:40	246 (gpm)
101	5992.00	88.2	355.3	4,737.68	1,860.54	1,855.62	-135.34	1,860.55	355.83	2.43	0.00	153 °F	Yellow	06/23/15	6:30	246 (gpm)
102	6022.00	88.4	355.0	4,738.57	1,890.53	1,885.50	-137.88	1,890.53	355.82	1.20	0.00	151 °F	Yellow	06/23/15	9:40	246 (gpm)
103	6052.00	88.6	354.8	4,739.36	1,920.51	1,915.37	-140.54	1,920.52	355.80	0.94	0.00	151 °F	Yellow	06/23/15	10:15	246 (gpm)
104	6082.00	88.8	354.3	4,740.04	1,950.50	1,945.23	-143.39	1,950.50	355.78	1.79	0.00	153 °F	Yellow	06/23/15	11:10	246 (gpm)
105	6113.00	89.0	354.6	4,740.63	1,981.49	1,976.08	-146.39	1,981.49	355.76	1.16	0.00	154 °F	Yellow	06/23/15	12:15	246 (gpm)
106	6143.00	88.8	354.9	4,741.21	2,011.48	2,005.94	-149.13	2,011.48	355.75	1.20	0.00	154 °F	Yellow	06/23/15	13:20	246 (gpm)
107	6174.00	87.7	354.6	4,742.16	2,042.46	2,036.80	-151.97	2,042.46	355.73	3.68	0.00	154 °F	Yellow	06/23/15	14:25	246 (gpm)
108	6204.00	87.7	354.9	4,743.36	2,072.43	2,066.65	-154.71	2,072.43	355.72	1.00	0.00	154 °F	Yellow	06/23/15	15:45	246 (gpm)
109	6234.00	88.0	355.3	4,744.49	2,102.41	2,096.52	-157.27	2,102.41	355.71	1.67	0.00	154 °F	Yellow	06/23/15	16:40	246 (gpm)
110	6265.00	88.3	355.7	4,745.49	2,133.39	2,127.41	-159.70	2,133.39	355.71	1.61	0.00	156 °F	Yellow	06/23/15	17:10	246 (gpm)
111	6295.00	89.5	356.8	4,746.06	2,163.38	2,157.34	-161.67	2,163.39	355.71	5.43	0.00	156 °F	Pink	06/23/15	18:21	246 (gpm)
112	6325.00	91.1	357.0	4,745.91	2,193.38	2,187.29	-163.29	2,193.38	355.73	5.37	0.00	156 °F	Yellow	06/23/15	19:34	246 (gpm)

# MWD SURVEYS

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Field/Block: Cooper Creek  
Co./Parish: Harper County  
State: KS

Pro Job #: LKS6118215  
MWD Operator: Jeff Treille  
Directional Driller: Jared Gooch  
Date of First Survey: June 15, 2015  
Date of Last Survey:



Total Correction: 3.58 East    Grid

Vertical Section Plane: 355.67    Nominal Dip Angle: 65.30    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
113	6356.00	92.1	357.2	4,745.04	2,224.35	2,218.24	-164.86	2,224.36	355.75	3.29	0.00	156 °F	Pink	06/23/15	20:40	246 (gpm)
114	6386.00	91.3	357.1	4,744.15	2,254.33	2,248.19	-166.35	2,254.33	355.77	2.69	0.00	156 °F	Yellow	06/23/15	21:52	246 (gpm)
115	6416.00	90.7	356.9	4,743.63	2,284.32	2,278.14	-167.92	2,284.32	355.78	2.11	0.00	158 °F	Yellow	06/23/15	23:08	246 (gpm)
116	6446.00	90.2	356.8	4,743.39	2,314.31	2,308.10	-169.57	2,314.32	355.80	1.70	0.00	158 °F	Yellow	06/24/15	0:37	246 (gpm)
117	6477.00	90.1	357.3	4,743.31	2,345.30	2,339.05	-171.16	2,345.31	355.81	1.64	0.00	158 °F	Pink	06/24/15	2:12	246 (gpm)
118	6508.00	89.9	357.2	4,743.31	2,376.29	2,370.02	-172.65	2,376.30	355.83	0.72	0.00	158 °F	Yellow	06/24/15	3:41	246 (gpm)
119	6539.00	89.7	357.1	4,743.42	2,407.28	2,400.98	-174.19	2,407.29	355.85	0.72	0.00	160 °F	Yellow	06/24/15	12:25	246 (gpm)
120	6569.00	89.6	357.3	4,743.60	2,437.27	2,430.94	-175.65	2,437.28	355.87	0.75	0.00	162 °F	Yellow	06/24/15	13:45	246 (gpm)
121	6599.00	89.8	357.3	4,743.76	2,467.26	2,460.91	-177.07	2,467.27	355.88	0.67	0.00	163 °F	Yellow	06/24/15	14:50	246 (gpm)
122	6629.00	89.5	357.3	4,743.94	2,497.24	2,490.88	-178.48	2,497.26	355.90	1.00	0.00	163 °F	Yellow	06/24/15	15:30	246 (gpm)
123	6659.00	89.1	357.2	4,744.31	2,527.23	2,520.84	-179.92	2,527.25	355.92	1.37	0.00	163 °F	Yellow	06/24/15	16:30	246 (gpm)
124	6688.00	89.2	357.1	4,744.74	2,556.22	2,549.80	-181.36	2,556.24	355.93	0.49	0.00	163 °F	Yellow	06/24/15	17:25	246 (gpm)
125	6718.00	90.3	356.9	4,744.87	2,586.21	2,579.76	-182.93	2,586.24	355.94	3.73	0.00	165 °F	Pink	06/24/15	18:16	246 (gpm)
126	6748.00	90.6	356.6	4,744.63	2,616.20	2,609.71	-184.63	2,616.23	355.95	1.41	0.00	165 °F	Pink	06/24/15	19:18	246 (gpm)
127	6778.00	91.1	356.5	4,744.19	2,646.19	2,639.65	-186.44	2,646.23	355.96	1.70	0.00	165 °F	Pink	06/24/15	20:13	246 (gpm)
128	6808.00	91.3	356.5	4,743.56	2,676.18	2,669.59	-188.27	2,676.22	355.97	0.67	0.00	165 °F	Pink	06/24/15	21:21	246 (gpm)
129	6839.00	91.5	356.3	4,742.80	2,707.17	2,700.52	-190.21	2,707.21	355.97	0.91	0.00	165 °F	Pink	06/24/15	22:29	246 (gpm)
130	6869.00	91.3	356.3	4,742.07	2,737.16	2,730.45	-192.15	2,737.20	355.97	0.67	0.00	165 °F	Pink	06/24/15	23:38	246 (gpm)
131	6899.00	91.6	356.4	4,741.31	2,767.15	2,760.38	-194.06	2,767.19	355.98	1.05	0.00	167 °F	Pink	06/25/15	0:47	246 (gpm)
132	6930.00	92.0	356.5	4,740.34	2,798.13	2,791.30	-195.98	2,798.17	355.98	1.33	0.00	167 °F	Pink	06/25/15	2:14	246 (gpm)
133	6961.00	92.3	357.2	4,739.17	2,829.10	2,822.23	-197.68	2,829.15	355.99	2.46	0.00	165 °F	Pink	06/25/15	3:22	246 (gpm)
134	6990.00	91.8	357.2	4,738.14	2,858.07	2,851.18	-199.10	2,858.12	356.01	1.72	0.00	165 °F	Yellow	06/25/15	4:14	246 (gpm)
135	7021.00	90.6	356.4	4,737.49	2,889.06	2,882.12	-200.83	2,889.11	356.01	4.65	0.00	167 °F	Yellow	06/25/15	5:28	246 (gpm)
136	7052.00	90.5	355.2	4,737.19	2,920.06	2,913.04	-203.10	2,920.11	356.01	3.88	0.00	167 °F	Pink	06/25/15	6:20	246 (gpm)
137	7082.00	90.7	355.3	4,736.88	2,950.06	2,942.93	-205.58	2,950.11	356.00	0.75	0.00	167 °F	Yellow	06/25/15	7:20	246 (gpm)
138	7112.00	90.6	355.1	4,736.54	2,980.05	2,972.83	-208.09	2,980.10	356.00	0.75	0.00	169 °F	Pink	06/25/15	8:25	246 (gpm)
139	7143.00	90.7	355.8	4,736.18	3,011.05	3,003.73	-210.55	3,011.10	355.99	2.28	0.00	169 °F	Pink	06/25/15	10:00	246 (gpm)
140	7172.00	90.6	355.7	4,735.86	3,040.05	3,032.65	-212.70	3,040.10	355.99	0.49	0.00	154 °F	Yellow	06/25/15	20:24	246 (gpm)
141	7203.00	90.9	355.9	4,735.45	3,071.05	3,063.56	-214.97	3,071.09	355.99	1.16	0.00	156 °F	Yellow	06/25/15	21:24	246 (gpm)



# MWD SURVEYS

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Field/Block: Cooper Creek  
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Date of First Survey: June 15, 2015  
Date of Last Survey:



Total Correction: 3.58 East Grid

Vertical Section Plane: 355.67 Nominal Dip Angle: 65.30 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
142	7233.00	91.5	355.9	4,734.82	3,101.04	3,093.48	-217.11	3,101.09	355.99	2.00	0.00	156 °F	Yellow	06/25/15	22:20	246 (gpm)
143	7264.00	91.4	356.6	4,734.04	3,132.03	3,124.40	-219.14	3,132.08	355.99	2.28	0.00	156 °F	Yellow	06/25/15	23:15	246 (gpm)
144	7294.00	91.3	356.2	4,733.33	3,162.02	3,154.33	-221.02	3,162.07	355.99	1.37	0.00	158 °F	Yellow	06/25/15	23:55	246 (gpm)
145	7325.00	90.7	356.2	4,732.79	3,193.01	3,185.26	-223.08	3,193.06	355.99	1.94	0.00	158 °F	Yellow	06/26/15	0:59	246 (gpm)
146	7355.00	89.9	355.9	4,732.63	3,223.01	3,215.19	-225.14	3,223.06	355.99	2.85	0.00	160 °F	Yellow	06/26/15	1:40	246 (gpm)
147	7385.00	90.2	355.9	4,732.61	3,253.01	3,245.11	-227.29	3,253.06	355.99	1.00	0.00	160 °F	Yellow	06/26/15	2:25	246 (gpm)
148	7414.00	90.9	356.4	4,732.33	3,282.01	3,274.04	-229.24	3,282.06	355.99	2.97	0.00	160 °F	Yellow	06/26/15	3:18	246 (gpm)
149	7445.00	91.0	356.2	4,731.81	3,313.00	3,304.97	-231.24	3,313.05	356.00	0.72	0.00	160 °F	Yellow	06/26/15	4:10	246 (gpm)
150	7476.00	91.2	355.6	4,731.22	3,343.99	3,335.89	-233.45	3,344.05	356.00	2.04	0.00	160 °F	Yellow	06/26/15	5:31	246 (gpm)
151	7506.00	91.3	355.7	4,730.56	3,373.99	3,365.80	-235.73	3,374.04	355.99	0.47	0.00	162 °F	Yellow	06/26/15	6:40	246 (gpm)
152	7536.00	91.8	355.6	4,729.75	3,403.97	3,395.70	-238.00	3,404.03	355.99	1.70	0.00	162 °F	Yellow	06/26/15	7:20	246 (gpm)
153	7566.00	92.1	355.6	4,728.73	3,433.96	3,425.59	-240.30	3,434.01	355.99	1.00	0.00	162 °F	Yellow	06/26/15	8:30	246 (gpm)
154	7597.00	91.8	355.9	4,727.68	3,464.94	3,456.49	-242.60	3,464.99	355.99	1.37	0.00	163 °F	Pink	06/26/15	10:30	246 (gpm)
155	7628.00	90.4	355.9	4,727.08	3,495.93	3,487.40	-244.81	3,495.99	355.98	4.52	0.00	163 °F	Yellow	06/26/15	12:00	246 (gpm)
156	7658.00	89.6	356.0	4,727.08	3,525.93	3,517.33	-246.93	3,525.99	355.98	2.69	0.00	163 °F	Yellow	06/26/15	13:40	246 (gpm)
157	7688.00	89.2	356.2	4,727.40	3,555.93	3,547.26	-248.97	3,555.98	355.99	1.49	0.00	163 °F	Yellow	06/26/15	15:20	246 (gpm)
158	7718.00	89.7	356.3	4,727.68	3,585.93	3,577.19	-250.94	3,585.98	355.99	1.70	0.00	165 °F	Yellow	06/26/15	16:50	246 (gpm)
159	7748.00	90.0	356.5	4,727.76	3,615.92	3,607.13	-252.82	3,615.98	355.99	1.20	0.00	165 °F	Pink	06/27/15	2:41	246 (gpm)
160	7779.00	89.8	356.7	4,727.82	3,646.92	3,638.08	-254.66	3,646.98	356.00	0.91	0.00	165 °F	Yellow	06/27/15	4:10	246 (gpm)
161	7809.00	90.3	356.8	4,727.79	3,676.91	3,668.03	-256.36	3,676.98	356.00	1.70	0.00	171 °F	Yellow	06/27/15	6:07	246 (gpm)
162	7839.00	90.9	356.8	4,727.48	3,706.91	3,697.98	-258.03	3,706.97	356.01	2.00	0.00	171 °F	Yellow	06/27/15	7:15	246 (gpm)
163	7869.00	91.0	356.7	4,726.98	3,736.90	3,727.93	-259.73	3,736.96	356.01	0.47	0.00	171 °F	Yellow	06/27/15	8:15	246 (gpm)
164	7899.00	90.9	356.9	4,726.48	3,766.89	3,757.88	-261.41	3,766.96	356.02	0.75	0.00	172 °F	Yellow	06/27/15	9:25	246 (gpm)
165	7929.00	90.6	357.2	4,726.09	3,796.88	3,787.83	-262.95	3,796.95	356.03	1.41	0.00	156 °F	Yellow	06/27/15	19:47	246 (gpm)
166	7961.00	90.5	356.8	4,725.78	3,828.87	3,819.79	-264.63	3,828.94	356.04	1.29	0.00	162 °F	Yellow	06/27/15	20:36	246 (gpm)
167	7992.00	90.4	356.9	4,725.54	3,859.86	3,850.74	-266.33	3,859.94	356.04	0.46	0.00	163 °F	Pink	06/27/15	21:11	246 (gpm)
168	8024.00	90.6	357.4	4,725.26	3,891.85	3,882.70	-267.92	3,891.93	356.05	1.68	0.00	162 °F	Pink	06/27/15	22:05	246 (gpm)
169	8055.00	91.1	357.1	4,724.80	3,922.83	3,913.66	-269.41	3,922.92	356.06	1.88	0.00	165 °F	Pink	06/27/15	22:42	246 (gpm)
170	8087.00	91.2	356.3	4,724.16	3,954.82	3,945.60	-271.25	3,954.91	356.07	2.52	0.00	165 °F	Yellow	06/27/15	23:25	246 (gpm)

# MWD SURVEYS

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State: KS

Pro Job #: LKS6118215  
MWD Operator: Jeff Treille  
Directional Driller: Jared Gooch  
Date of First Survey: June 15, 2015  
Date of Last Survey:



Total Correction: 3.58 East    Grid

Vertical Section Plane: 355.67    Nominal Dip Angle: 65.30    Magnetic Field Strength: 0.515

Measured Depth	Inc.	Azm.	Coordinates				Closure			DLS	Mtr Yield	Temp (°F)	Vib/Shk Color	Date	Time	Flow Rate
			T.V.D.	Ver. Sect.	+N / -S	+E / -W	Dist.	Angle								
171	8118.00	91.5	356.3	4,723.43	3,985.81	3,976.53	-273.25	3,985.91	356.07	0.97	0.00	163 °F	Pink	06/28/15	0:13	246 (gpm)
172	8149.00	91.4	355.4	4,722.64	4,016.80	4,007.44	-275.49	4,016.89	356.07	2.92	0.00	165 °F	Pink	06/28/15	1:01	246 (gpm)
173	8181.00	92.1	355.5	4,721.66	4,048.78	4,039.32	-278.03	4,048.88	356.06	2.21	0.00	165 °F	Pink	06/28/15	2:01	246 (gpm)
174	8212.00	91.7	355.7	4,720.64	4,079.77	4,070.21	-280.41	4,079.86	356.06	1.44	0.00	165 °F	Pink	06/28/15	3:00	246 (gpm)
175	8244.00	90.2	356.1	4,720.11	4,111.76	4,102.12	-282.69	4,111.85	356.06	4.85	0.00	165 °F	Yellow	06/28/15	3:43	246 (gpm)
176	8275.00	90.3	355.9	4,719.97	4,142.76	4,133.05	-284.86	4,142.85	356.06	0.72	0.00	165 °F	Pink	06/28/15	4:23	246 (gpm)
177	8307.00	90.3	355.9	4,719.80	4,174.76	4,164.97	-287.14	4,174.85	356.06	0.00	0.00	165 °F	Pink	06/28/15	5:22	246 (gpm)
178	8338.00	90.3	355.5	4,719.64	4,205.76	4,195.88	-289.47	4,205.85	356.05	1.29	0.00	165 °F	Pink	06/28/15	6:25	246 (gpm)
179	8370.00	90.4	355.3	4,719.45	4,237.76	4,227.78	-292.03	4,237.85	356.05	0.70	0.00	167 °F	Yellow	06/28/15	7:25	246 (gpm)
180	8401.00	90.1	355.3	4,719.31	4,268.76	4,258.67	-294.57	4,268.85	356.04	0.97	0.00	167 °F	Yellow	06/28/15	8:30	246 (gpm)
181	8433.00	90.4	355.4	4,719.17	4,300.76	4,290.57	-297.17	4,300.84	356.04	0.99	0.00	167 °F	Yellow	06/28/15	9:45	246 (gpm)
182	8464.00	90.3	355.9	4,718.98	4,331.75	4,321.48	-299.52	4,331.84	356.04	1.64	0.00	167 °F	Pink	06/28/15	10:35	246 (gpm)
183	8496.00	90.2	356.1	4,718.84	4,363.75	4,353.40	-301.75	4,363.84	356.03	0.70	0.00	167 °F	Yellow	06/28/15	11:35	246 (gpm)
184	8528.00	90.3	356.0	4,718.70	4,395.75	4,385.32	-303.96	4,395.84	356.04	0.44	0.00	167 °F	Yellow	06/28/15	13:30	246 (gpm)
185	8559.00	90.7	356.0	4,718.43	4,426.75	4,416.24	-306.12	4,426.84	356.03	1.29	0.00	169 °F	Yellow	06/28/15	14:25	246 (gpm)
186	8591.00	90.8	355.9	4,718.01	4,458.75	4,448.16	-308.38	4,458.84	356.03	0.44	0.00	169 °F	Yellow	06/28/15	15:20	246 (gpm)
187	8622.00	90.4	355.8	4,717.69	4,489.75	4,479.08	-310.62	4,489.84	356.03	1.33	0.00	169 °F	Yellow	06/28/15	16:20	246 (gpm)
188	8653.00	90.3	355.3	4,717.50	4,520.75	4,509.98	-313.03	4,520.83	356.03	1.64	0.00	169 °F	Yellow	06/28/15	17:20	246 (gpm)
189	8684.00	90.9	354.9	4,717.17	4,551.74	4,540.87	-315.68	4,551.83	356.02	2.33	0.00	169 °F	Pink	06/28/15	18:05	246 (gpm)
190	8716.00	90.9	354.4	4,716.67	4,583.73	4,572.73	-318.66	4,583.82	356.01	1.56	0.00	171 °F	Pink	06/28/15	19:02	246 (gpm)
191	8748.00	91.0	354.7	4,716.14	4,615.72	4,604.58	-321.70	4,615.80	356.00	0.99	0.00	171 °F	Pink	06/28/15	19:54	246 (gpm)
192	8779.00	91.5	355.3	4,715.46	4,646.71	4,635.45	-324.40	4,646.79	356.00	2.52	0.00	171 °F	Pink	06/28/15	21:03	246 (gpm)
193	8811.00	89.8	354.6	4,715.10	4,678.71	4,667.32	-327.21	4,678.78	355.99	5.75	0.00	171 °F	Pink	06/28/15	22:05	246 (gpm)
194	8843.00	89.0	354.2	4,715.44	4,710.70	4,699.17	-330.34	4,710.76	355.98	2.80	0.00	171 °F	Pink	06/28/15	23:06	246 (gpm)
195	8874.00	89.6	354.6	4,715.82	4,741.69	4,730.02	-333.36	4,741.75	355.97	2.33	0.00	171 °F	Pink	06/29/15	0:01	246 (gpm)
196	8906.00	89.9	354.8	4,715.95	4,773.68	4,761.88	-336.32	4,773.74	355.96	1.13	0.00	171 °F	Pink	06/29/15	1:00	246 (gpm)
197	8938.00	90.0	354.5	4,715.98	4,805.68	4,793.74	-339.30	4,805.73	355.95	0.99	0.00	171 °F	Pink	06/29/15	1:59	246 (gpm)
198	8969.00	90.3	354.4	4,715.90	4,836.67	4,824.60	-342.30	4,836.72	355.94	1.02	0.00	171 °F	Pink	06/29/15	3:00	246 (gpm)
199	9000.00	90.3	354.2	4,715.74	4,867.66	4,855.44	-345.38	4,867.71	355.93	0.65	0.00	171 °F	Pink	06/29/15	3:45	246 (gpm)

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 MWD Operator: Jeff Treille  
 Directional Driller: Jared Gooch  
 Date of First Survey: June 15, 2015  
 Date of Last Survey:



Total Correction: 3.58 East Grid

Vertical Section Plane: 355.67 Nominal Dip Angle: 65.30 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 Color</i>	<i>Date</i>	<i>Time</i>	<i>Flow Rate</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>						
200	9032.00	90.1	353.8	4,715.63	4,899.65	4,887.27	-348.72	4,899.69	355.92	1.40	0.00	171 °F	Pink	06/29/15	4:58	246 (gpm)
201	9064.00	90.8	353.7	4,715.38	4,931.63	4,919.08	-352.21	4,931.67	355.90	2.21	0.00	171 °F	Pink	06/29/15	6:40	246 (gpm)
202	9096.00	91.4	353.9	4,714.76	4,963.60	4,950.88	-355.66	4,963.64	355.89	1.98	0.00	171 °F	Pink	06/29/15	8:00	246 (gpm)
203	9127.00	91.7	354.0	4,713.92	4,994.58	4,981.70	-358.93	4,994.61	355.88	1.02	0.00	171 °F	Pink	06/29/15	9:20	246 (gpm)
204	9156.00	91.7	353.9	4,713.06	5,023.55	5,010.52	-361.98	5,023.58	355.87	0.34	0.00	171 °F	Pink	06/29/15	10:30	246 (gpm)
PTB	9209.00	91.7	353.9	4,711.49	5,076.50	5,063.20	-367.61	5,076.53	355.85	0.00						

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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**

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<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>

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<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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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>

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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>

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<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>

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<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>

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Total Correction: 3.58 East Grid

Vertical Section Plane: 355.67

Nominal Dip Angle: 65.30

Magnetic Field Strength: 0.515

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The Road to Excellence Starts with Safety

Sold To #: 372073	Ship To #: 3665375	Quote #: 0022059416	Sales Order #: 0902494693
Customer: TAPSTONE ENERGY LLC		Customer Rep: BIIL O.	
Well Name: CARTMILL 9-34-7	Well #: 1H	API/UWI #: 15-077-22144-01	
Field:	City (SAP): ANTHONY	County/Parish: HARPER	State: KANSAS
Legal Description: N2 NE NW NE-16-34S-7W-230FNL-1650FEL			
Contractor: NOMAC		Rig/Platform Name/Num: NOMAC 07	
Job BOM: 7521			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX25353		Srvc Supervisor: Juan Becerra	

### Job

Formation Name	
Formation Depth (MD)	Top Bottom
Form Type	BHST
Job depth MD	819ft 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	819		
Casing	3	9.625	8.921	36	LTC	J-55	0	819		

### Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	9.625			819	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 <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	Water Spacer	Water Spacer	10	bbl	8.33			4	
Stage/Plug #: 2									
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
2	Primary Cement	SWIFTCEM (TM) SYSTEM	500	sack	15.1	1.3		4	6.1

2 %	CALCIUM CHLORIDE, PELLET, 50 LB (101509387)
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 ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	Displacement	Displacement	59	bbl	8.33			5	

<b>Cement Left In Pipe</b>	<b>Amount</b>	42 ft	<b>Reason</b>	Shoe Joint
<b>Mix Water:</b> pH ##	<b>Mix Water Chloride:</b> ## ppm		<b>Mix Water Temperature:</b> ## °F °C	
<b>Cement Temperature:</b> ## °F °C	<b>Plug Displaced by:</b> ## lb/gal kg/m <sup>3</sup> XXXX		<b>Disp. Temperature:</b> ## °F °C	
<b>Plug Bumped?</b> Yes/No	<b>Bump Pressure:</b> ##### psi MPa		<b>Floats Held?</b> Yes/No	
<b>Cement Returns:</b> ## bbl m <sup>3</sup>	<b>Returns Density:</b> ## lb/gal kg/m <sup>3</sup>		<b>Returns Temperature:</b> ## °F °C	

**Comment** BUMP PLUG, FLOAT HELD, GOT BACK 30 BBL OF GOOD CEMENT BACK TO SURFACE, RIG USED 100 LBS OF SUGAR, TAKEING BACK ALL EQUIPMENT TO EL RENO

# Summary Report



Crew: \_\_\_\_\_

Sales Order #: 0902494693

WO #: 0902494693

PO/AFE #: NA

Job Start Date: 6/14/2015

Customer: TAPSTONE ENERGY LLC

Field:

Job Type: CMT SURFACE CASING BOM

UWI / API Number: 15-077-22144-01

County/Parish: HARPER

Service Supervisor: Juan Becerra

Well Name: CARTMILL 9-34-7

State: KANSAS

Well No: 1H

Latitude: 37.093507

Cust Rep Name: BILL O.

Longitude: -98.080636

Cust Rep Phone #:

Sect / Twn / Rng: 16/34/7

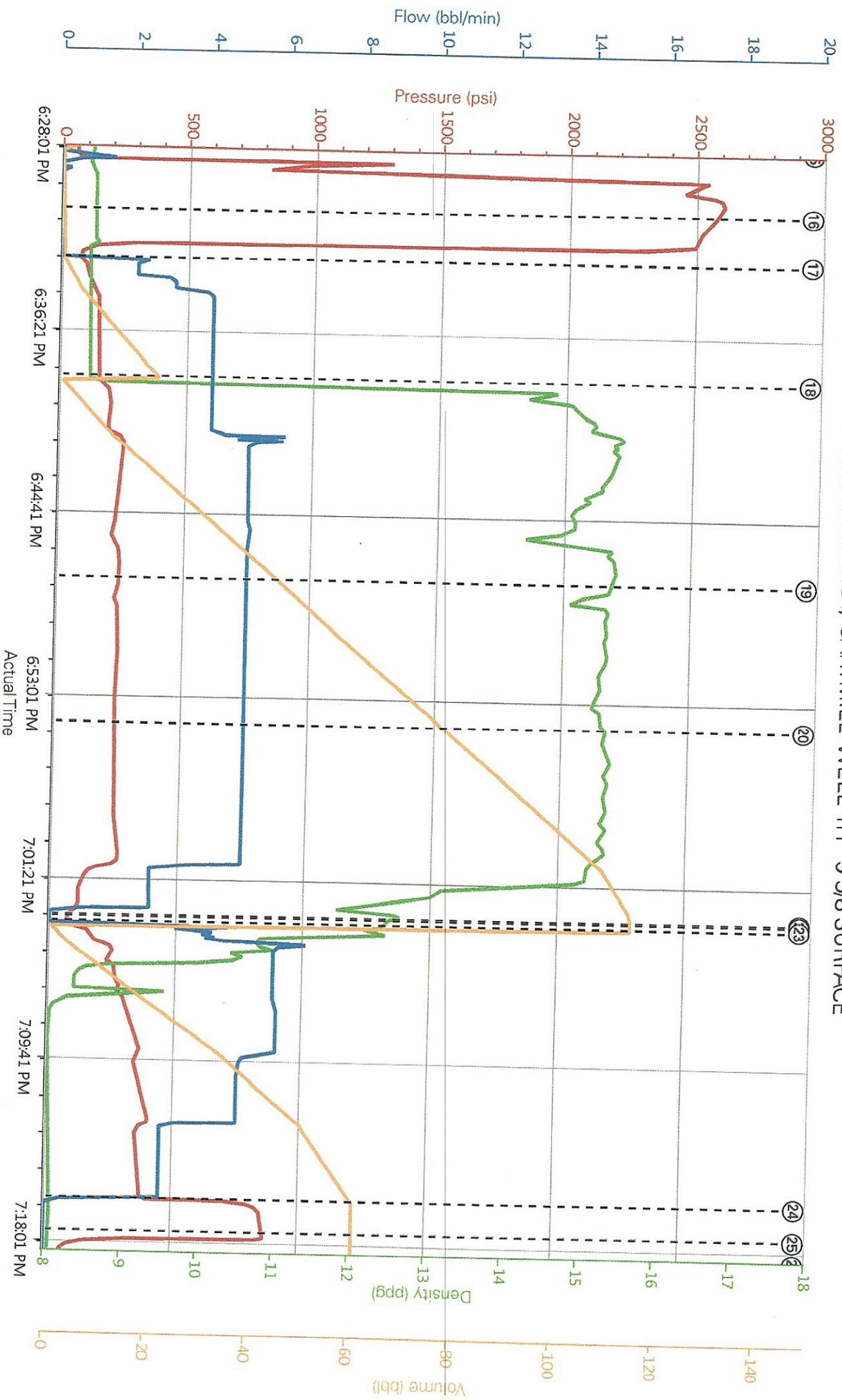
**Remarks:**

*The Information Stated Herein Is Correct*

Customer Representative Signature

Date

Customer Representative Printed Name



— DS Pump Press (psi)   
 — DH Density (ppg)   
 — Comb Pump Rate (bbl/min)   
 — Pump Sig Tot (bbl)

- 15 Start Job
  - 16 Test Lines
  - 17 Pump Spacer 1
  - 18 Pump Cement
  - 19 Check weight
  - 20 Check weight
  - 21 Shutdown
  - 22 Drop Top Plug
  - 23 Pump Displacement
  - 24 Bump Plug
  - 25 Other
  - 26 E
- HALLIBURTON | iCem® Service



The Road to Excellence Starts with Safety

Sold To #: 372073	Ship To #: 3665375	Quote #: 0022058960	Sales Order #: 0902497564
Customer: TAPSTONE ENERGY LLC		Customer Rep:	
Well Name: CARTMILL 9-34-7	Well #: 1H	API/UWI #: 15-077-22144-01	
Field:	City (SAP): ANTHONY	County/Parish: HARPER	State: KANSAS
Legal Description: N2 NE NW NE-16-34S-7W-230FNL-1650FEL			
Contractor: NOMAC		Rig/Platform Name/Num: NOMAC 07	
Job BOM: 7522			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX25353		Srvc Supervisor: Rayland Thompson	

**Job**

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type			BHST 131 degF
Job depth MD	5350ft		Job Depth TVD
Water Depth			Wk Ht Above Floor 4ft
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	814		
Casing	3	7	6.276	26	LTC	P-110	0	5132	0	4576
Open Hole Section			8.75				814	5132		

**Tools and Accessories**

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	7	1		5132	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 <sup>3</sup> /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 <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal	
2	Lead Cement	ECONOCEM (TM) SYSTEM	140	sack	13.6	1.508		5	7.33	
	4 %	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 <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal	
3	Tail Cement	HALCEM (TM) SYSTEM	100	sack	15.6	1.196		5	5.43	
	0.40 %	HALAD(R)-9, 50 LB (100001617)								
	94 lbm	CMT - PREMIUM - CLASS H REG OR TYPE V, BULK (100003687)								
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal	
4	Displacement	Displacement	201	bbl	8.33			5		
<b>Cement Left In Pipe</b>		<b>Amount</b>	85 ft		<b>Reason</b>			Shoe Joint		
<b>Comment</b>										

Event 11	Test Lines	Test Lines	6/21/2015	20:20:56	COM6	20.00	8.39	0.00	46.6	Test Kickouts to 500 psi Test Lines to 5000 psi
Event 12	Pump Spacer 1	Pump Mud Flush III	6/21/2015	20:27:05	COM6	31.00	8.38	0.70	47.2	Pump 10 bbls Mud Flush @ 2bpm Start bringing on CMT up to weight
Event 13	Pump Lead Cement	Pump Lead Cement	6/21/2015	20:33:29	COM6	293.00	13.54	2.00	12.2	Pump 140 sks 38 bbls 13.6# lead cnt starting @ 2bpm until weight was under control
Event 14	Check Weight	Check weight	6/21/2015	20:35:44	COM6	404.00	13.51	4.30	8.6	13.5#
Event 15	Pump Tail Cement	Pump Tail Cement	6/21/2015	20:42:37	COM6	145.00	14.67	2.00	32.0	Pump 100 sks @ 15.6# 21 bbls starting @ 2 bpm until up to weight then brought to 4bpm
Event 16	Check Weight	Check weight	6/21/2015	20:43:08	COM6	147.00	15.20	2.00	1.0	15.6#
Event 17	Clean Lines	Wash-up	6/21/2015	20:52:02	COM6	58.00	15.36	1.10	25.2	Wash up on top of the plug
Event 18	Drop Top Plug	Drop Top Plug	6/21/2015	20:52:43	COM6					Drop 7" top plug
Event 19	Pump Displacement	Pump Displacement	6/21/2015	20:52:51	COM6					Pump 201 bbls Fresh Water with the first 10 bbls used to wash up slowing down @ 185 bbls to 3 bpm to land the plug
Event 20	Other	Other	6/21/2015	21:24:04	COM6					Bottom plug landed
Event 21	Bump Plug	Bump Plug	6/21/2015	21:35:58	COM6					Top Plug landed pressured up to 500# over psi to land
Event 22	Other	Check Floats	6/21/2015	21:37:11	COM6					Floats Held got back 1 1/2 bbls
Event 23	End Job	End Job	6/21/2015	21:49:54	USER	2.00	8.75	0.00	206.6	Pumping complete
Event 24	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	6/21/2015	22:02:00	USER					Discuss rig down with crew members discussed weather the temp outside and to drink lots of water and take breaks

iCem<sup>®</sup> Service

(v. 4.1.107)

Created: Sunday, June 21, 2015

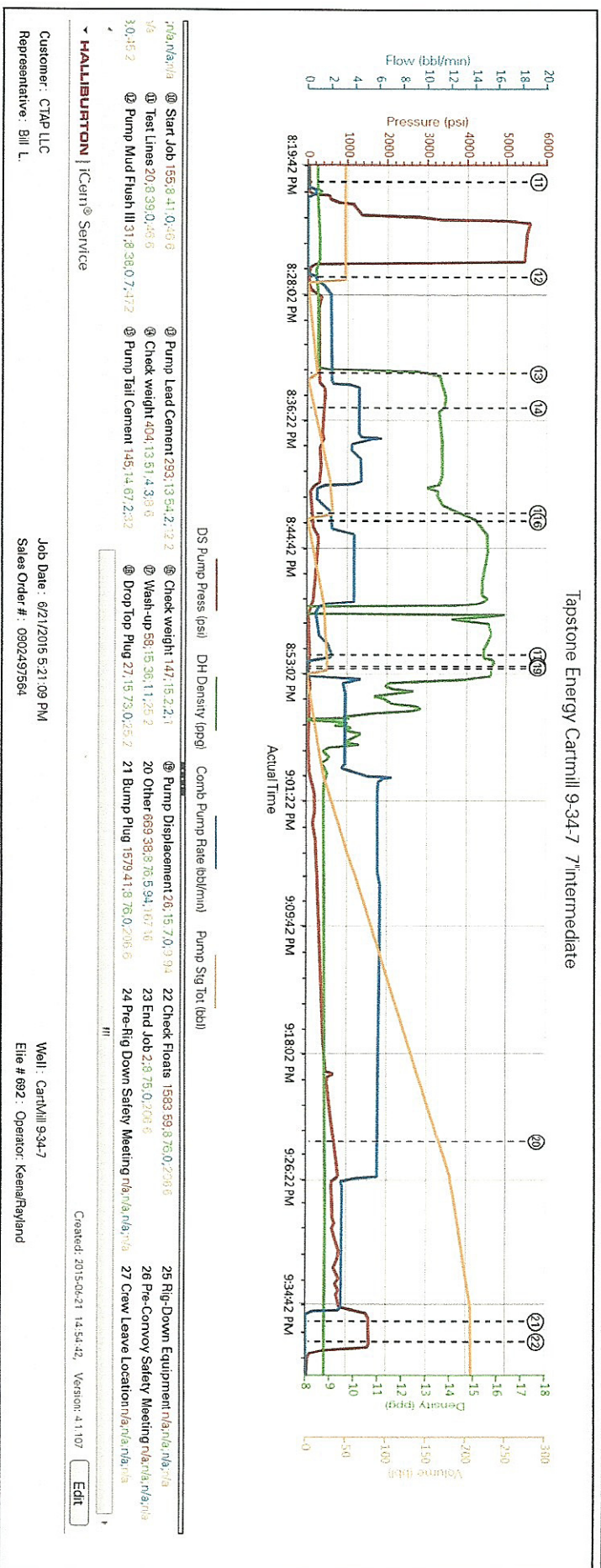
# HALLIBURTON

Customer: CTAP LLC  
Job: 902497564 Tapstone (catrmlj) Inter  
Case: Case 1

Event	25	Rig-Down Equipment	Rig-Down Equipment	6/21/2015	22:15:00	USER	Rig down Halliburton iron & hoses check for all halliburton fittings
Event	26	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/22/2015	00:00:00	USER	Discuss route & hazards on roadways go over DOThrs and everyones fit for duty status
Event	27	Crew Leave Location	Crew Leave Location	6/22/2015	00:15:00	USER	Thank You For Choosing Halliburton Rayland & Crew

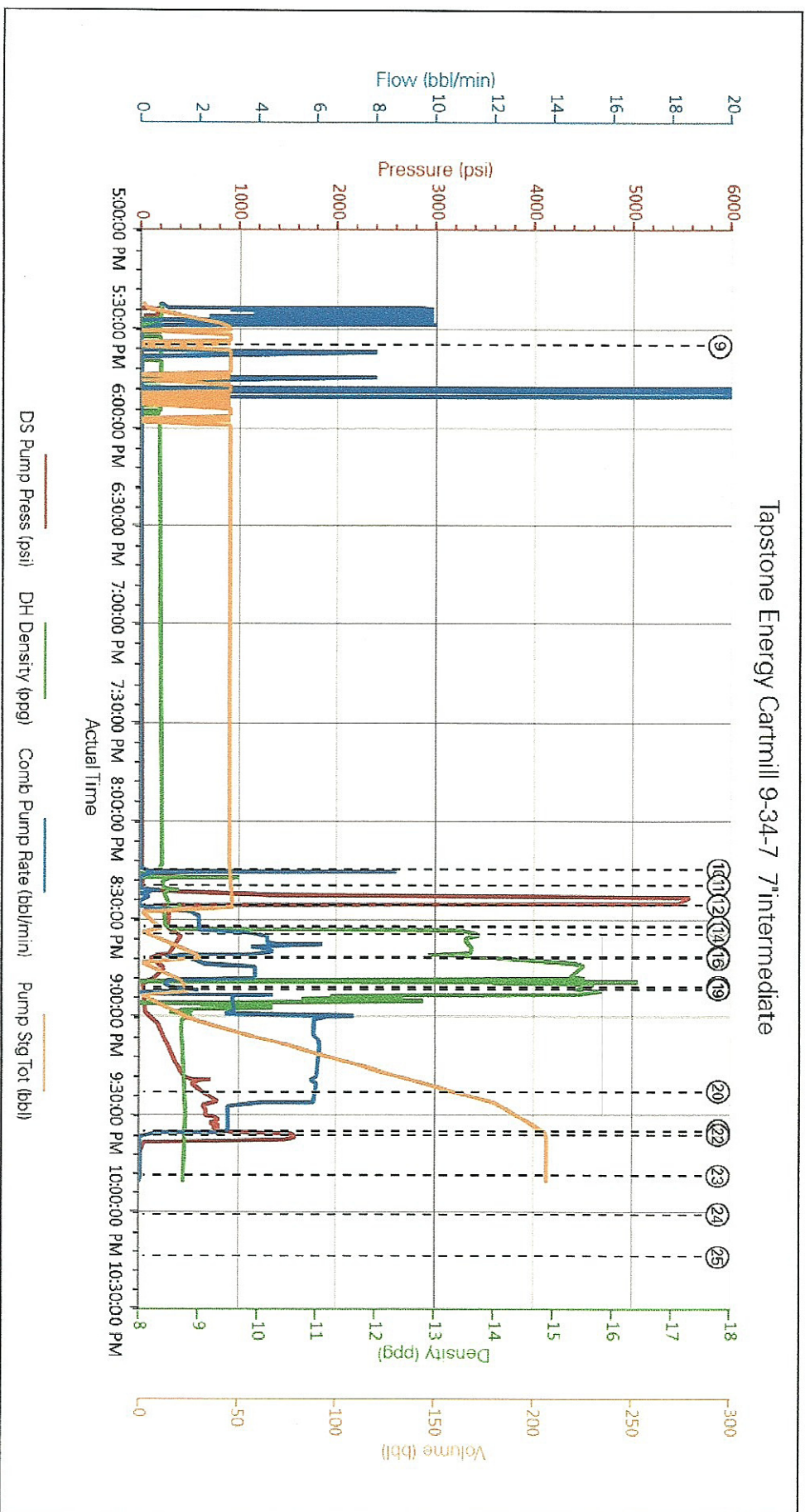
## 2.0 Attachments

### 2.1 Tapstone 7 Inter.png

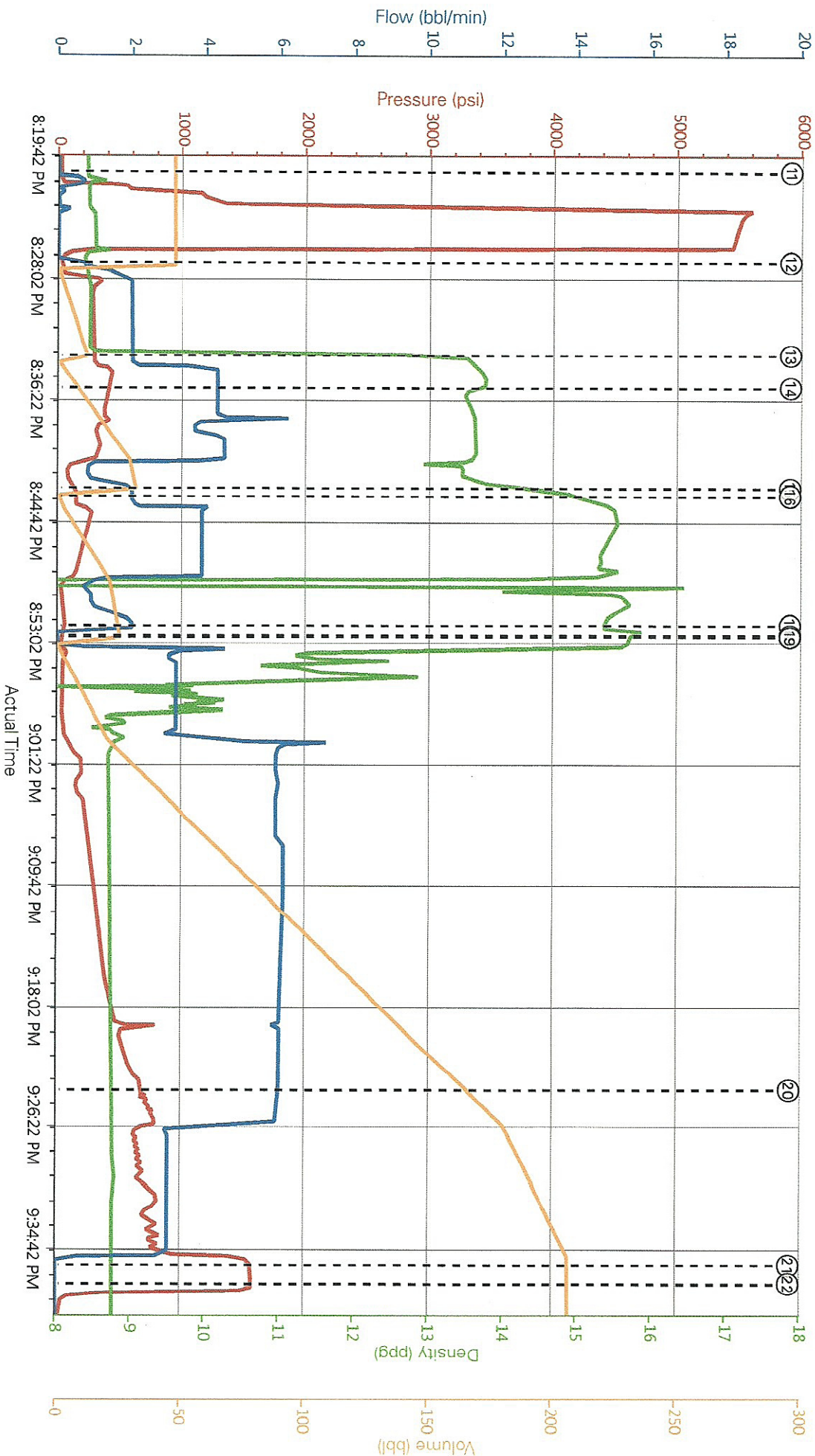


## 3.0 Custom Graphs

### 3.1 Custom Graph



# Tapstone Energy Cartmill 9-34-7 7" Intermediate



⑩ Start Job 155:8.41:0.46:6  
 ⑪ Test Lines 20:8.39:0.46:6  
 ⑫ Pump Mud Flush III 31:8.38:0.7:4:72  
 ⑬ Pump Lead Cement 293:13.54:2:12.2  
 ⑭ Check weight 404:13.51:4.3:8.6  
 ⑮ Pump Tail Cement 145:14.67:2:32  
 ⑯ Check weight 147:15.2:2:1  
 ⑰ Wash-up 58:15.36:1.1:25.2  
 ⑱ Drop Top Plug 27:15.73:0:25.2  
 ⑲ Pump Displacement 26:15.7:0:9.94  
 ⑳ Other 669:38:8.76:5.94:18716  
 ㉑ End Job 2:8.75:0:206.6  
 ㉒ Pump Plug 1579.41:8.76:0:2006.6  
 ㉓ Pre-Rig Down Safety Meeting

DS Pump Press (psi)    DH Density (ppg)    Comb Pump Rate (bbl/min)    Pump Stg Tot (bbl)

Created: 2015-06-21 14:54:42    Version: 4.1:07    Edit:

Customer: CTAP LLC    Representative: Bill L.    Job Date: 6/21/2015 5:21:09 PM    Well: Cartmill 9-34-7  
 Sales Order #: 0902497564    File #: 692    Operator: Keena/Rayland

**TOPOGRAPHIC LAND SURVEYORS**

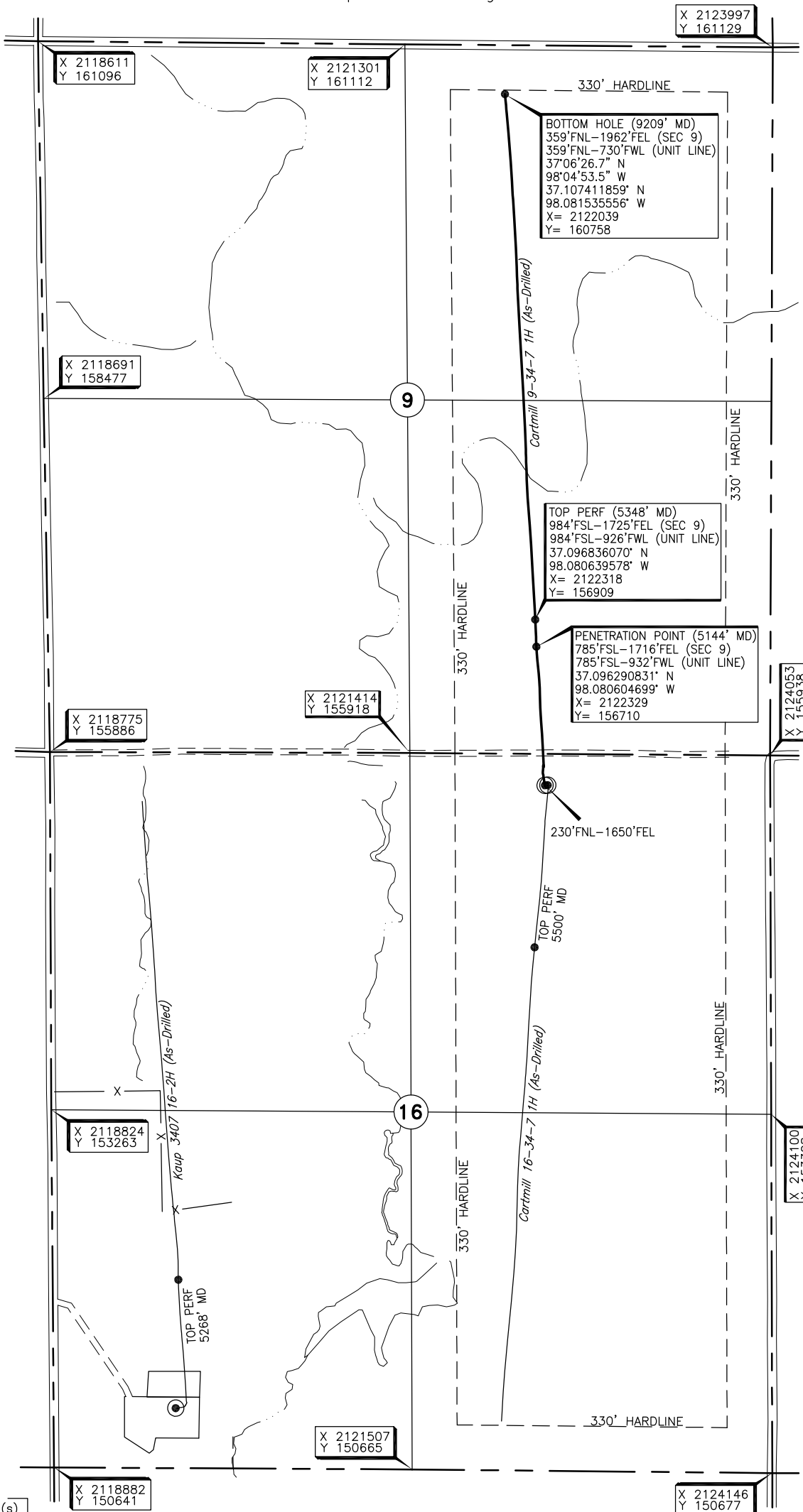
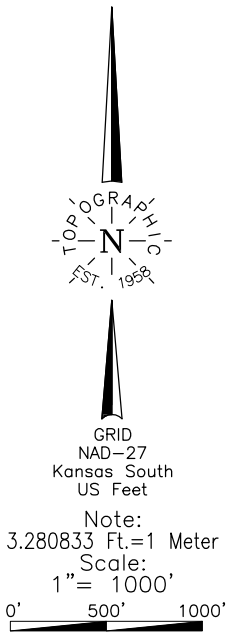
6709 NORTH CLASSEN BLVD., OKLA. CITY, OKLA. 73116 \* LOCAL (405) 843-4847 \* OUT OF STATE (800) 654-3219

Certificate of Authorization No. LS-99, Exp. Dec. 31, 2015

HARPER

County, Kansas

230'FNL - 1650'FEL Section 16 Township 34S Range 7W P.M.



Operator: TAPSTONE ENERGY  
 Lease Name: CARTMILL 9-34-7  
 Topography & Vegetation Location fell in sloped, terraced pasture, ±160' South of drain.  
 Well No.: 1H  
 ELEVATION: 1348' Gr. at Stake  
 Good Drill Site? Yes  
 Reference Stakes or Alternate Location None  
 Stakes Set None  
 Best Accessibility to Location From county road West of well location.  
 Distance & Direction From Hwy Jct or Town From Anthony, KS, go ±2.0 miles West on St. Hwy. 14, then 4.0 miles South, then ±0.5 mile West to the Northeast Corner of Section 16, T34S-R7W.

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

DATUM: NAD-27  
 LAT: 37°05'36.6" N  
 LONG: 98°04'49.3" W  
 LAT: 37.093501784° N  
 LONG: 98.080353212° W  
 STATE PLANE COORDINATES: (US Feet)  
 ZONE: KS SOUTH  
 X: 2122407  
 Y: 155695

247184 Date of Drawing: July 06, 2015  
 Invoice # 242719A Date Staked: April 2, 2015 JP

**FINAL AS-DRILLED PLAT**

AS-DRILLED INFORMATION  
 FURNISHED BY TAPSTONE ENERGY