

Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1247631
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 |
|-----------------------------------|-----------------|---|

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: _____

1247631

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 |
|--|---|

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

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

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

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

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

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

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

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

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

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

MWD SURVEYS

Customer: Tapstone Energy
 Well: Harry 4-35-10 #1H
 Field/Block: Mississippi Lime
 Co./Parish: Barber Co.
 State: KS

PGS Job #: LKS6116214
 MWD Operator: Ken Mitchell
 Directional Driller: Kyle Underwood
 Date of First Survey: December 23, 2014
 Date of Last Survey:



Total Correction: 4.43 East Grid

Vertical Section Plane: 177.4 Nominal Dip Angle: 65.06 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 | |
| Survey's are tied into: Assume Vertical at Casing Shoe @ 807' | | | | | | | | | | | | Date Received: | | | | |
| Company: | | | | | | | | | | | | | | | | |
| 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | |
| 1 | 904.00 | 0.90 | 76.00 | 903.96 | -1.40 | 1.72 | 6.89 | 7.10 | 76.00 | 0.10 | 0.00 | 64 °F | Green | 12/24/14 | 4:05 | 505 (gpm) |
| 2 | 1094.00 | 0.80 | 68.60 | 1,093.94 | -2.13 | 2.56 | 9.57 | 9.91 | 75.01 | 0.08 | 0.00 | 64 °F | Green | 12/24/14 | 5:34 | 584 (gpm) |
| 3 | 1283.00 | 0.90 | 82.70 | 1,282.92 | -2.67 | 3.23 | 12.27 | 12.69 | 75.24 | 0.12 | 0.00 | 82 °F | Green | 12/24/14 | 7:02 | 584 (gpm) |
| 4 | 1473.00 | 1.10 | 97.60 | 1,472.89 | -2.47 | 3.18 | 15.56 | 15.88 | 78.45 | 0.17 | 0.00 | 88 °F | Green | 12/24/14 | 8:22 | 584 (gpm) |
| 5 | 1661.00 | 0.70 | 168.60 | 1,660.87 | -1.02 | 1.82 | 17.58 | 17.67 | 84.10 | 0.58 | 0.00 | 97 °F | Green | 12/24/14 | 10:31 | 584 (gpm) |
| 6 | 1852.00 | 0.60 | 155.40 | 1,851.86 | 1.06 | -0.24 | 18.22 | 18.22 | 90.74 | 0.09 | 0.00 | 104 °F | Green | 12/24/14 | 12:12 | 584 (gpm) |
| 7 | 2040.00 | 0.60 | 143.70 | 2,039.85 | 2.79 | -1.92 | 19.22 | 19.31 | 95.72 | 0.07 | 0.00 | 109 °F | Green | 12/24/14 | 13:46 | 584 (gpm) |
| 8 | 2227.00 | 0.60 | 130.40 | 2,226.84 | 4.28 | -3.35 | 20.54 | 20.81 | 99.26 | 0.07 | 0.00 | 111 °F | Green | 12/24/14 | 15:47 | 584 (gpm) |
| 9 | 2413.00 | 0.60 | 116.80 | 2,412.83 | 5.42 | -4.42 | 22.15 | 22.59 | 101.28 | 0.08 | 0.00 | 117 °F | Green | 12/24/14 | 17:39 | 584 (gpm) |
| 10 | 2600.00 | 0.60 | 109.00 | 2,599.82 | 6.26 | -5.18 | 23.95 | 24.51 | 102.20 | 0.04 | 0.00 | 120 °F | Green | 12/24/14 | 19:28 | 584 (gpm) |
| 11 | 2786.00 | 0.90 | 92.40 | 2,785.81 | 6.75 | -5.56 | 26.33 | 26.91 | 101.92 | 0.20 | 0.00 | 122 °F | Green | 12/24/14 | 20:55 | 584 (gpm) |
| 12 | 2976.00 | 0.80 | 88.50 | 2,975.78 | 6.90 | -5.58 | 29.15 | 29.68 | 100.85 | 0.06 | 0.00 | 127 °F | Green | 12/24/14 | 22:56 | 584 (gpm) |
| 13 | 3164.00 | 0.90 | 82.00 | 3,163.76 | 6.79 | -5.35 | 31.92 | 32.37 | 99.51 | 0.07 | 0.00 | 86 °F | Green | 12/25/14 | 3:07 | 584 (gpm) |
| 14 | 3352.00 | 0.50 | 145.30 | 3,351.75 | 7.34 | -5.81 | 33.85 | 34.35 | 99.75 | 0.43 | 0.00 | 99 °F | Green | 12/25/14 | 5:00 | 584 (gpm) |
| 15 | 3540.00 | 0.60 | 126.60 | 3,539.74 | 8.66 | -7.08 | 35.11 | 35.81 | 101.39 | 0.11 | 0.00 | 104 °F | Green | 12/25/14 | 6:28 | 584 (gpm) |
| 16 | 3729.00 | 0.70 | 112.00 | 3,728.73 | 9.77 | -8.10 | 36.97 | 37.85 | 102.35 | 0.10 | 0.00 | 111 °F | Green | 12/25/14 | 8:32 | 577 (gpm) |
| 17 | 3917.00 | 0.70 | 180.50 | 3,916.72 | 11.39 | -9.68 | 38.03 | 39.24 | 104.28 | 0.42 | 0.00 | 113 °F | Green | 12/25/14 | 11:19 | 387 (gpm) |
| 18 | 3979.00 | 3.90 | 182.50 | 3,978.66 | 13.87 | -12.16 | 37.93 | 39.84 | 107.78 | 5.16 | 10.30 | 111 °F | Green | 12/25/14 | 12:49 | 394 (gpm) |
| 19 | 4010.00 | 6.90 | 183.90 | 4,009.52 | 16.77 | -15.07 | 37.76 | 40.66 | 111.76 | 9.69 | 9.70 | 111 °F | Green | 12/25/14 | 13:56 | 394 (gpm) |
| 20 | 4041.00 | 8.80 | 182.60 | 4,040.23 | 20.98 | -19.30 | 37.53 | 42.20 | 117.22 | 6.16 | 6.10 | 111 °F | Green | 12/25/14 | 14:35 | 394 (gpm) |
| 21 | 4072.00 | 10.60 | 180.70 | 4,070.78 | 26.19 | -24.52 | 37.38 | 44.71 | 123.26 | 5.90 | 9.10 | 111 °F | Green | 12/25/14 | 15:16 | 422 (gpm) |
| 22 | 4104.00 | 12.30 | 180.70 | 4,102.15 | 32.53 | -30.87 | 37.31 | 48.42 | 129.61 | 5.31 | 8.90 | 111 °F | Green | 12/25/14 | 16:30 | 464 (gpm) |
| 23 | 4136.00 | 14.30 | 181.70 | 4,133.29 | 39.88 | -38.23 | 37.15 | 53.31 | 135.82 | 6.29 | 8.80 | 111 °F | Green | 12/25/14 | 17:17 | 464 (gpm) |
| 24 | 4168.00 | 16.20 | 182.10 | 4,164.16 | 48.27 | -46.64 | 36.87 | 59.45 | 141.68 | 5.95 | 8.00 | 111 °F | Green | 12/25/14 | 18:06 | 464 (gpm) |
| 25 | 4198.00 | 18.50 | 182.10 | 4,192.79 | 57.18 | -55.58 | 36.54 | 66.52 | 146.68 | 7.67 | 8.00 | 111 °F | Green | 12/25/14 | 19:31 | 464 (gpm) |
| 26 | 4229.00 | 21.30 | 182.20 | 4,221.94 | 67.70 | -66.13 | 36.14 | 75.36 | 151.34 | 9.03 | 8.00 | 111 °F | Green | 12/25/14 | 20:49 | 464 (gpm) |

MWD SURVEYS

Customer: Tapstone Energy
Well: Harry 4-35-10 #1H
Field/Block: Mississippi Lime
Co./Parish: Barber Co.
State: KS

PGS Job #: LKS6116214
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: December 23, 2014
Date of Last Survey:



Total Correction: 4.43 East Grid

Vertical Section Plane: 177.4 Nominal Dip Angle: 65.06 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> |
| 27 | 4260.00 | 24.80 | 182.50 | 4,250.46 | 79.79 | -78.25 | 35.64 | 85.99 | 155.51 | 11.30 | 9.30 | 111 °F | Green | 12/25/14 | 22:08 | 464 (gpm) |
| 28 | 4292.00 | 28.50 | 183.10 | 4,279.05 | 94.08 | -92.59 | 34.94 | 98.96 | 159.33 | 11.59 | 9.30 | 111 °F | Green | 12/25/14 | 23:27 | 464 (gpm) |
| 29 | 4323.00 | 32.40 | 183.60 | 4,305.77 | 109.70 | -108.27 | 34.02 | 113.48 | 162.56 | 12.61 | 9.30 | 113 °F | Green | 12/26/14 | 12:52 | 464 (gpm) |
| 30 | 4355.00 | 35.60 | 182.90 | 4,332.30 | 127.50 | -126.13 | 33.01 | 130.38 | 165.34 | 10.07 | 9.30 | 113 °F | Green | 12/26/14 | 1:53 | 464 (gpm) |
| 31 | 4387.00 | 37.70 | 182.50 | 4,357.97 | 146.52 | -145.21 | 32.11 | 148.72 | 167.53 | 6.60 | 12.00 | 115 °F | Green | 12/26/14 | 3:01 | 464 (gpm) |
| 32 | 4419.00 | 39.40 | 182.20 | 4,383.00 | 166.38 | -165.13 | 31.29 | 168.07 | 169.27 | 5.34 | 12.00 | 117 °F | Green | 12/26/14 | 4:18 | 464 (gpm) |
| 33 | 4451.00 | 41.20 | 181.30 | 4,407.40 | 187.02 | -185.82 | 30.66 | 188.33 | 170.63 | 5.91 | 12.00 | 117 °F | Green | 12/26/14 | 5:33 | 464 (gpm) |
| 34 | 4482.00 | 42.90 | 180.60 | 4,430.42 | 207.74 | -206.58 | 30.32 | 208.79 | 171.65 | 5.69 | 12.60 | 117 °F | Green | 12/26/14 | 6:28 | 492 (gpm) |
| 35 | 4513.00 | 44.60 | 180.40 | 4,452.81 | 229.15 | -228.01 | 30.13 | 230.00 | 172.47 | 5.50 | 12.20 | 117 °F | Green | 12/26/14 | 7:18 | 492 (gpm) |
| 36 | 4544.00 | 46.40 | 180.00 | 4,474.54 | 251.23 | -250.12 | 30.06 | 251.92 | 173.15 | 5.88 | 12.20 | 117 °F | Green | 12/26/14 | 8:07 | 492 (gpm) |
| 37 | 4575.00 | 48.30 | 179.60 | 4,495.54 | 274.01 | -272.92 | 30.14 | 274.58 | 173.70 | 6.20 | 12.80 | 117 °F | Green | 12/26/14 | 9:13 | 492 (gpm) |
| 38 | 4606.00 | 50.40 | 179.20 | 4,515.73 | 297.51 | -296.44 | 30.39 | 297.99 | 174.15 | 6.84 | 14.10 | 117 °F | Green | 12/26/14 | 10:11 | 492 (gpm) |
| 39 | 4637.00 | 52.40 | 178.70 | 4,535.07 | 321.73 | -320.66 | 30.83 | 322.14 | 174.51 | 6.57 | 13.60 | 117 °F | Green | 12/26/14 | 10:59 | 492 (gpm) |
| 40 | 4667.00 | 54.40 | 178.20 | 4,552.96 | 345.81 | -344.74 | 31.48 | 346.17 | 174.78 | 6.80 | 14.60 | 118 °F | Green | 12/26/14 | 11:44 | 492 (gpm) |
| 41 | 4699.00 | 56.90 | 178.20 | 4,571.01 | 372.22 | -371.14 | 32.31 | 372.54 | 175.02 | 7.81 | 13.90 | 118 °F | Green | 12/26/14 | 12:30 | 492 (gpm) |
| 42 | 4731.00 | 59.30 | 178.10 | 4,587.92 | 399.39 | -398.29 | 33.19 | 399.67 | 175.24 | 7.50 | 13.30 | 118 °F | Green | 12/26/14 | 13:19 | 492 (gpm) |
| 43 | 4763.00 | 61.30 | 178.40 | 4,603.78 | 427.18 | -426.07 | 34.04 | 427.43 | 175.43 | 6.30 | 12.60 | 118 °F | Green | 12/26/14 | 14:37 | 492 (gpm) |
| 44 | 4795.00 | 62.40 | 178.10 | 4,618.87 | 455.39 | -454.27 | 34.90 | 455.61 | 175.61 | 3.54 | 0.00 | 118 °F | Green | 12/26/14 | 15:27 | 492 (gpm) |
| 45 | 4826.00 | 63.20 | 178.30 | 4,633.04 | 482.96 | -481.83 | 35.77 | 483.16 | 175.75 | 2.64 | 0.00 | 120 °F | Green | 12/26/14 | 16:14 | 492 (gpm) |
| 46 | 4857.00 | 63.80 | 177.90 | 4,646.88 | 510.70 | -509.56 | 36.69 | 510.88 | 175.88 | 2.25 | 0.00 | 120 °F | Green | 12/26/14 | 17:03 | 492 (gpm) |
| 47 | 4889.00 | 63.80 | 177.70 | 4,661.00 | 539.41 | -538.25 | 37.79 | 539.58 | 175.98 | 0.56 | 0.00 | 120 °F | Green | 12/26/14 | 17:45 | 492 (gpm) |
| 48 | 4920.00 | 64.00 | 177.40 | 4,674.64 | 567.25 | -566.06 | 38.98 | 567.40 | 176.06 | 1.08 | 0.00 | 122 °F | Green | 12/26/14 | 18:44 | 492 (gpm) |
| 49 | 4951.00 | 64.20 | 177.10 | 4,688.18 | 595.14 | -593.92 | 40.32 | 595.29 | 176.12 | 1.08 | 0.00 | 122 °F | Green | 12/26/14 | 19:39 | 492 (gpm) |
| 50 | 4982.00 | 64.50 | 176.70 | 4,701.60 | 623.08 | -621.82 | 41.83 | 623.23 | 176.15 | 1.51 | 12.00 | 122 °F | Green | 12/26/14 | 20:51 | 492 (gpm) |
| 51 | 5013.00 | 66.40 | 177.00 | 4,714.48 | 651.27 | -649.98 | 43.38 | 651.42 | 176.18 | 6.19 | 12.00 | 118 °F | Green | 12/26/14 | 22:25 | 492 (gpm) |
| 52 | 5044.00 | 69.00 | 177.50 | 4,726.24 | 679.95 | -678.62 | 44.75 | 680.10 | 176.23 | 8.52 | 12.00 | 118 °F | Green | 12/26/14 | 22:25 | 492 (gpm) |
| 53 | 5076.00 | 72.60 | 178.40 | 4,736.77 | 710.17 | -708.82 | 45.83 | 710.30 | 176.30 | 11.56 | 12.00 | 118 °F | Green | 12/27/14 | 1:57 | 492 (gpm) |
| 54 | 5107.00 | 75.70 | 178.60 | 4,745.23 | 739.98 | -738.63 | 46.61 | 740.09 | 176.39 | 10.02 | 12.00 | 118 °F | Green | 12/27/14 | 4:12 | 492 (gpm) |
| 55 | 5138.00 | 78.40 | 179.30 | 4,752.18 | 770.18 | -768.83 | 47.16 | 770.27 | 176.49 | 8.98 | 11.60 | 118 °F | Green | 12/27/14 | 6:56 | 492 (gpm) |

MWD SURVEYS

Customer: Tapstone Energy
 Well: Harry 4-35-10 #1H
 Field/Block: Mississippi Lime
 Co./Parish: Barber Co.
 State: KS

PGS Job #: LKS6116214
 MWD Operator: Ken Mitchell
 Directional Driller: Kyle Underwood
 Date of First Survey: December 23, 2014
 Date of Last Survey:



Total Correction: 4.43 East Grid

Vertical Section Plane: 177.4 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

| | Measured | | Coordinates | | | | Closure | | | Mtr Yield | Temp (°F) | Vib/Shk | | | | |
|----|----------|-------|-------------|----------|------------|-----------|---------|----------|--------|-----------|-----------|---------|--------|----------|-------|-----------|
| | Depth | Inc. | Azm. | T.V.D. | Ver. Sect. | +N / -S | +E / -W | Dist. | Angle | | | DLS | Color | Date | Time | Flow Rate |
| 56 | 5213.00 | 85.80 | 179.70 | 4,762.48 | 844.36 | -843.06 | 47.81 | 844.42 | 176.75 | 9.88 | 0.00 | 122 °F | Green | 12/28/14 | 22:50 | 265 (gpm) |
| 57 | 5245.00 | 87.90 | 179.50 | 4,764.24 | 876.29 | -875.01 | 48.03 | 876.33 | 176.86 | 6.59 | 0.00 | 124 °F | Green | 12/28/14 | 23:20 | 265 (gpm) |
| 58 | 5276.00 | 88.30 | 179.70 | 4,765.27 | 907.25 | -905.99 | 48.25 | 907.28 | 176.95 | 1.44 | 0.00 | 124 °F | Green | 12/28/14 | 23:58 | 255 (gpm) |
| 59 | 5307.00 | 88.50 | 179.80 | 4,766.13 | 938.21 | -936.98 | 48.38 | 938.23 | 177.04 | 0.72 | 0.00 | 126 °F | Green | 12/29/14 | 0:24 | 255 (gpm) |
| 60 | 5337.00 | 88.50 | 179.80 | 4,766.92 | 968.17 | -966.97 | 48.49 | 968.19 | 177.13 | 0.00 | 0.00 | 126 °F | Green | 12/29/14 | 0:28 | 255 (gpm) |
| 61 | 5368.00 | 88.50 | 179.50 | 4,767.73 | 999.14 | -997.96 | 48.68 | 999.15 | 177.21 | 0.97 | 0.00 | 126 °F | Green | 12/29/14 | 1:28 | 255 (gpm) |
| 62 | 5399.00 | 89.10 | 179.70 | 4,768.38 | 1,030.11 | -1,028.95 | 48.89 | 1,030.11 | 177.28 | 2.04 | 0.00 | 126 °F | Green | 12/29/14 | 1:55 | 255 (gpm) |
| 63 | 5429.00 | 89.10 | 179.70 | 4,768.85 | 1,060.08 | -1,058.95 | 49.05 | 1,060.08 | 177.35 | 0.00 | 0.00 | 127 °F | Green | 12/29/14 | 2:20 | 255 (gpm) |
| 64 | 5459.00 | 89.10 | 179.70 | 4,769.32 | 1,090.05 | -1,088.94 | 49.21 | 1,090.05 | 177.41 | 0.00 | 0.00 | 127 °F | Green | 12/29/14 | 3:03 | 255 (gpm) |
| 65 | 5489.00 | 89.20 | 179.50 | 4,769.76 | 1,120.03 | -1,118.94 | 49.42 | 1,120.03 | 177.47 | 0.75 | 0.00 | 129 °F | Green | 12/29/14 | 3:32 | 255 (gpm) |
| 66 | 5519.00 | 89.40 | 179.40 | 4,770.13 | 1,150.01 | -1,148.94 | 49.70 | 1,150.01 | 177.52 | 0.75 | 0.00 | 129 °F | Green | 12/29/14 | 3:56 | 255 (gpm) |
| 67 | 5549.00 | 89.50 | 179.30 | 4,770.42 | 1,179.99 | -1,178.93 | 50.04 | 1,179.99 | 177.57 | 0.47 | 0.00 | 129 °F | Green | 12/29/14 | 4:23 | 255 (gpm) |
| 68 | 5579.00 | 89.50 | 179.80 | 4,770.68 | 1,209.97 | -1,208.93 | 50.28 | 1,209.98 | 177.62 | 1.67 | 0.00 | 131 °F | Green | 12/29/14 | 4:49 | 255 (gpm) |
| 69 | 5640.00 | 89.80 | 179.70 | 4,771.05 | 1,270.91 | -1,269.93 | 50.55 | 1,270.93 | 177.72 | 0.52 | 0.00 | 131 °F | Green | 12/29/14 | 5:36 | 255 (gpm) |
| 70 | 5670.00 | 89.80 | 179.70 | 4,771.16 | 1,300.89 | -1,299.93 | 50.70 | 1,300.92 | 177.77 | 0.00 | 0.00 | 131 °F | Green | 12/29/14 | 6:02 | 255 (gpm) |
| 71 | 5701.00 | 90.00 | 180.00 | 4,771.21 | 1,331.86 | -1,330.93 | 50.78 | 1,331.90 | 177.81 | 1.16 | 0.00 | 133 °F | Green | 12/29/14 | 6:28 | 255 (gpm) |
| 72 | 5731.00 | 90.20 | 179.80 | 4,771.16 | 1,361.83 | -1,360.93 | 50.84 | 1,361.88 | 177.86 | 0.94 | 0.00 | 133 °F | Green | 12/29/14 | 6:59 | 255 (gpm) |
| 73 | 5761.00 | 90.30 | 179.70 | 4,771.03 | 1,391.81 | -1,390.93 | 50.97 | 1,391.86 | 177.90 | 0.47 | 0.00 | 133 °F | Green | 12/29/14 | 7:21 | 255 (gpm) |
| 74 | 5792.00 | 90.40 | 179.70 | 4,770.84 | 1,422.78 | -1,421.93 | 51.13 | 1,422.84 | 177.94 | 0.32 | 0.00 | 133 °F | Green | 12/29/14 | 7:50 | 255 (gpm) |
| 75 | 5823.00 | 89.40 | 179.40 | 4,770.89 | 1,453.76 | -1,452.92 | 51.37 | 1,453.83 | 177.97 | 3.37 | 0.00 | 133 °F | Green | 12/29/14 | 8:18 | 255 (gpm) |
| 76 | 5853.00 | 89.20 | 179.10 | 4,771.26 | 1,483.74 | -1,482.92 | 51.77 | 1,483.82 | 178.00 | 1.20 | 0.00 | 133 °F | Green | 12/29/14 | 8:42 | 255 (gpm) |
| 77 | 5883.00 | 89.20 | 178.80 | 4,771.68 | 1,513.73 | -1,512.91 | 52.32 | 1,513.82 | 178.02 | 1.00 | 0.00 | 131 °F | Green | 12/29/14 | 9:10 | 255 (gpm) |
| 78 | 5914.00 | 88.00 | 178.50 | 4,772.44 | 1,544.71 | -1,543.89 | 53.05 | 1,544.80 | 178.03 | 3.99 | 0.00 | 133 °F | Green | 12/29/14 | 9:39 | 255 (gpm) |
| 79 | 5944.00 | 88.00 | 178.90 | 4,773.48 | 1,574.68 | -1,573.87 | 53.73 | 1,574.78 | 178.04 | 1.33 | 0.00 | 135 °F | Green | 12/29/14 | 10:05 | 255 (gpm) |
| 80 | 5974.00 | 88.10 | 179.20 | 4,774.50 | 1,604.65 | -1,603.85 | 54.22 | 1,604.76 | 178.06 | 1.05 | 0.00 | 133 °F | Green | 12/29/14 | 10:41 | 255 (gpm) |
| 81 | 6004.00 | 88.40 | 179.40 | 4,775.42 | 1,634.62 | -1,633.83 | 54.59 | 1,634.74 | 178.09 | 1.20 | 0.00 | 133 °F | Green | 12/29/14 | 11:40 | 255 (gpm) |
| 82 | 6035.00 | 88.10 | 178.60 | 4,776.37 | 1,665.60 | -1,664.81 | 55.13 | 1,665.72 | 178.10 | 2.76 | 0.00 | 135 °F | Yellow | 12/29/14 | 12:20 | 255 (gpm) |
| 83 | 6066.00 | 88.20 | 178.60 | 4,777.37 | 1,696.57 | -1,695.78 | 55.89 | 1,696.71 | 178.11 | 0.32 | 0.00 | 135 °F | Yellow | 12/29/14 | 13:14 | 255 (gpm) |
| 84 | 6096.00 | 87.80 | 178.20 | 4,778.42 | 1,726.55 | -1,725.75 | 56.72 | 1,726.69 | 178.12 | 1.89 | 0.00 | 135 °F | Yellow | 12/29/14 | 13:46 | 264 (gpm) |

MWD SURVEYS

Customer: Tapstone Energy
Well: Harry 4-35-10 #1H
Field/Block: Mississippi Lime
Co./Parish: Barber Co.
State: KS

PGS Job #: LKS6116214
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: December 23, 2014
Date of Last Survey:



Total Correction: 4.43 East Grid

Vertical Section Plane: 177.4 Nominal Dip Angle: 65.06 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 | 6127.00 | 87.80 | 178.10 | 4,779.61 | 1,757.53 | -1,756.72 | 57.72 | 1,757.66 | 178.12 | 0.32 | 0.00 | 135 °F | Yellow | 12/29/14 | 14:47 | 264 (gpm) |
| 86 | 6158.00 | 88.10 | 176.80 | 4,780.71 | 1,788.50 | -1,787.66 | 59.10 | 1,788.64 | 178.11 | 4.30 | 0.00 | 135 °F | Yellow | 12/29/14 | 15:22 | 264 (gpm) |
| 87 | 6189.00 | 88.10 | 176.50 | 4,781.74 | 1,819.49 | -1,818.59 | 60.91 | 1,819.61 | 178.08 | 0.97 | 0.00 | 135 °F | Yellow | 12/29/14 | 16:24 | 264 (gpm) |
| 88 | 6219.00 | 87.60 | 176.70 | 4,782.87 | 1,849.46 | -1,848.52 | 62.69 | 1,849.58 | 178.06 | 1.79 | 0.00 | 135 °F | Yellow | 12/29/14 | 17:04 | 264 (gpm) |
| 89 | 6249.00 | 87.60 | 176.30 | 4,784.12 | 1,879.43 | -1,878.44 | 64.52 | 1,879.55 | 178.03 | 1.33 | 0.00 | 135 °F | Yellow | 12/29/14 | 18:03 | 264 (gpm) |
| 90 | 6279.00 | 88.40 | 175.90 | 4,785.17 | 1,909.40 | -1,908.35 | 66.56 | 1,909.51 | 178.00 | 2.98 | 0.00 | 136 °F | Yellow | 12/29/14 | 18:52 | 264 (gpm) |
| 91 | 6310.00 | 88.90 | 175.50 | 4,785.90 | 1,940.38 | -1,939.25 | 68.88 | 1,940.48 | 177.97 | 2.07 | 0.00 | 136 °F | Yellow | 12/29/14 | 19:39 | 264 (gpm) |
| 92 | 6340.00 | 89.00 | 175.30 | 4,786.45 | 1,970.36 | -1,969.15 | 71.29 | 1,970.44 | 177.93 | 0.75 | 0.00 | 133 °F | Yellow | 12/29/14 | 22:44 | 264 (gpm) |
| 93 | 6371.00 | 88.70 | 176.00 | 4,787.07 | 2,001.34 | -2,000.06 | 73.64 | 2,001.41 | 177.89 | 2.46 | 0.00 | 135 °F | Yellow | 12/29/14 | 23:32 | 264 (gpm) |
| 94 | 6401.00 | 88.40 | 175.80 | 4,787.83 | 2,031.32 | -2,029.97 | 75.79 | 2,031.38 | 177.86 | 1.20 | 0.00 | 135 °F | Yellow | 12/30/14 | 0:35 | 264 (gpm) |
| 95 | 6431.00 | 87.40 | 176.40 | 4,788.93 | 2,061.29 | -2,059.88 | 77.82 | 2,061.35 | 177.84 | 3.89 | 0.00 | 135 °F | Yellow | 12/30/14 | 1:10 | 264 (gpm) |
| 96 | 6462.00 | 87.50 | 177.00 | 4,790.31 | 2,092.26 | -2,090.80 | 79.61 | 2,092.31 | 177.82 | 1.96 | 0.00 | 135 °F | Yellow | 12/30/14 | 1:38 | 264 (gpm) |
| 97 | 6492.00 | 87.30 | 176.30 | 4,791.67 | 2,122.22 | -2,120.72 | 81.36 | 2,122.28 | 177.80 | 2.42 | 0.00 | 135 °F | Yellow | 12/30/14 | 2:03 | 264 (gpm) |
| 98 | 6522.00 | 87.30 | 176.20 | 4,793.08 | 2,152.18 | -2,150.62 | 83.32 | 2,152.23 | 177.78 | 0.33 | 0.00 | 135 °F | Yellow | 12/30/14 | 2:31 | 264 (gpm) |
| 99 | 6552.00 | 87.30 | 176.00 | 4,794.50 | 2,182.14 | -2,180.52 | 85.36 | 2,182.19 | 177.76 | 0.67 | 0.00 | 135 °F | Yellow | 12/30/14 | 3:11 | 264 (gpm) |
| 100 | 6583.00 | 87.40 | 175.90 | 4,795.93 | 2,213.10 | -2,211.40 | 87.54 | 2,213.14 | 177.73 | 0.46 | 0.00 | 135 °F | Yellow | 12/30/14 | 3:50 | 264 (gpm) |
| 101 | 6614.00 | 87.40 | 176.10 | 4,797.34 | 2,244.06 | -2,242.30 | 89.70 | 2,244.09 | 177.71 | 0.64 | 0.00 | 136 °F | Yellow | 12/30/14 | 4:36 | 264 (gpm) |
| 102 | 6644.00 | 87.60 | 176.10 | 4,798.65 | 2,274.02 | -2,272.20 | 91.74 | 2,274.05 | 177.69 | 0.67 | 0.00 | 136 °F | Yellow | 12/30/14 | 6:01 | 264 (gpm) |
| 103 | 6674.00 | 88.30 | 176.00 | 4,799.72 | 2,303.99 | -2,302.11 | 93.81 | 2,304.02 | 177.67 | 2.36 | 0.00 | 136 °F | Yellow | 12/30/14 | 7:07 | 264 (gpm) |
| 104 | 6704.00 | 88.50 | 176.20 | 4,800.56 | 2,333.97 | -2,332.03 | 95.85 | 2,334.00 | 177.65 | 0.94 | 0.00 | 136 °F | Yellow | 12/30/14 | 8:03 | 264 (gpm) |
| 105 | 6734.00 | 88.60 | 176.30 | 4,801.32 | 2,363.96 | -2,361.95 | 97.81 | 2,363.98 | 177.63 | 0.47 | 0.00 | 136 °F | Yellow | 12/30/14 | 8:53 | 264 (gpm) |
| 106 | 6764.00 | 88.80 | 176.30 | 4,802.00 | 2,393.95 | -2,391.88 | 99.74 | 2,393.96 | 177.61 | 0.67 | 0.00 | 136 °F | Yellow | 12/30/14 | 9:55 | 264 (gpm) |
| 107 | 6794.00 | 88.90 | 176.10 | 4,802.60 | 2,423.93 | -2,421.81 | 101.73 | 2,423.95 | 177.59 | 0.75 | 0.00 | 136 °F | Yellow | 12/30/14 | 11:00 | 264 (gpm) |
| 108 | 6824.00 | 88.30 | 176.30 | 4,803.33 | 2,453.92 | -2,451.74 | 103.72 | 2,453.93 | 177.58 | 2.11 | 0.00 | 138 °F | Yellow | 12/30/14 | 11:56 | 264 (gpm) |
| 109 | 6854.00 | 88.40 | 176.40 | 4,804.20 | 2,483.90 | -2,481.66 | 105.63 | 2,483.91 | 177.56 | 0.47 | 0.00 | 136 °F | Yellow | 12/30/14 | 12:36 | 264 (gpm) |
| 110 | 6885.00 | 88.40 | 176.50 | 4,805.06 | 2,514.88 | -2,512.59 | 107.55 | 2,514.89 | 177.55 | 0.32 | 0.00 | 136 °F | Yellow | 12/30/14 | 13:07 | 264 (gpm) |
| 111 | 6916.00 | 88.30 | 176.20 | 4,805.95 | 2,545.87 | -2,543.52 | 109.52 | 2,545.87 | 177.53 | 1.02 | 0.00 | 138 °F | Yellow | 12/30/14 | 13:46 | 264 (gpm) |
| 112 | 6946.00 | 88.60 | 176.00 | 4,806.77 | 2,575.85 | -2,573.44 | 111.56 | 2,575.85 | 177.52 | 1.20 | 0.00 | 138 °F | Yellow | 12/30/14 | 14:23 | 264 (gpm) |
| 113 | 6976.00 | 88.80 | 176.50 | 4,807.45 | 2,605.83 | -2,603.36 | 113.52 | 2,605.84 | 177.50 | 1.79 | 0.00 | 138 °F | Yellow | 12/30/14 | 15:00 | 264 (gpm) |

MWD SURVEYS

Customer: Tapstone Energy
 Well: Harry 4-35-10 #1H
 Field/Block: Mississippi Lime
 Co./Parish: Barber Co.
 State: KS

PGS Job #: LKS6116214
 MWD Operator: Ken Mitchell
 Directional Driller: Kyle Underwood
 Date of First Survey: December 23, 2014
 Date of Last Survey:



Total Correction: 4.43 East Grid

Vertical Section Plane: 177.4 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

| Measured Depth | Inc. | Azm. | T.V.D. | Ver. Sect. | Coordinates | | Closure | | | DLS | Mtr Yield | Temp (°F) | Vib/Shk | Date | Time | Flow Rate |
|-------------------|---------|-------|--------|------------|-------------|-----------|---------|----------|--------|------|-----------|-----------|---------|----------|-------|-----------|
| | | | | | +N/-S | +E/-W | Dist. | Angle | Color | | | | | | | |
| 114 | 7006.00 | 89.10 | 176.80 | 4,808.00 | 2,635.83 | -2,633.31 | 115.27 | 2,635.83 | 177.49 | 1.41 | 0.00 | 138 °F | Yellow | 12/30/14 | 15:53 | 264 (gpm) |
| 115 | 7036.00 | 89.50 | 177.00 | 4,808.36 | 2,665.82 | -2,663.26 | 116.90 | 2,665.82 | 177.49 | 1.49 | 0.00 | 136 °F | Yellow | 12/30/14 | 16:51 | 264 (gpm) |
| 116 | 7066.00 | 89.20 | 177.50 | 4,808.70 | 2,695.82 | -2,693.22 | 118.34 | 2,695.82 | 177.48 | 1.94 | 0.00 | 136 °F | Yellow | 12/30/14 | 17:33 | 264 (gpm) |
| 117 | 7096.00 | 89.20 | 177.40 | 4,809.12 | 2,725.82 | -2,723.19 | 119.67 | 2,725.82 | 177.48 | 0.33 | 0.00 | 136 °F | Yellow | 12/30/14 | 18:33 | 264 (gpm) |
| 118 | 7127.00 | 88.00 | 177.00 | 4,809.88 | 2,756.81 | -2,754.14 | 121.18 | 2,756.81 | 177.48 | 4.08 | 0.00 | 136 °F | Yellow | 12/30/14 | 19:16 | 264 (gpm) |
| 119 | 7159.00 | 87.50 | 176.30 | 4,811.13 | 2,788.78 | -2,786.06 | 123.05 | 2,788.78 | 177.47 | 2.69 | 0.00 | 138 °F | Yellow | 12/30/14 | 20:04 | 264 (gpm) |
| 120 | 7190.00 | 88.30 | 176.60 | 4,812.27 | 2,819.75 | -2,816.98 | 124.97 | 2,819.76 | 177.46 | 2.76 | 0.00 | 138 °F | Yellow | 12/30/14 | 21:37 | 264 (gpm) |
| 121 | 7222.00 | 88.80 | 176.60 | 4,813.08 | 2,851.74 | -2,848.92 | 126.87 | 2,851.74 | 177.45 | 1.56 | 0.00 | 138 °F | Yellow | 12/30/14 | 22:45 | 264 (gpm) |
| 122 | 7253.00 | 88.90 | 176.90 | 4,813.70 | 2,882.73 | -2,879.86 | 128.62 | 2,882.73 | 177.44 | 1.02 | 0.00 | 138 °F | Yellow | 12/30/14 | 23:19 | 264 (gpm) |
| 123 | 7285.00 | 89.00 | 177.20 | 4,814.29 | 2,914.73 | -2,911.81 | 130.27 | 2,914.73 | 177.44 | 0.99 | 0.00 | 140 °F | Yellow | 12/31/14 | 0:12 | 264 (gpm) |
| 124 | 7316.00 | 89.20 | 177.40 | 4,814.78 | 2,945.72 | -2,942.78 | 131.73 | 2,945.72 | 177.44 | 0.91 | 0.00 | 140 °F | Yellow | 12/31/14 | 1:18 | 264 (gpm) |
| 125 | 7347.00 | 89.40 | 177.50 | 4,815.15 | 2,976.72 | -2,973.74 | 133.11 | 2,976.72 | 177.44 | 0.72 | 0.00 | 138 °F | Yellow | 12/31/14 | 2:29 | 264 (gpm) |
| 126 | 7379.00 | 88.90 | 177.60 | 4,815.63 | 3,008.72 | -3,005.71 | 134.48 | 3,008.72 | 177.44 | 1.59 | 0.00 | 138 °F | Yellow | 12/31/14 | 3:07 | 264 (gpm) |
| 127 | 7411.00 | 89.30 | 178.00 | 4,816.13 | 3,040.71 | -3,037.68 | 135.71 | 3,040.71 | 177.44 | 1.77 | 0.00 | 140 °F | Yellow | 12/31/14 | 3:46 | 264 (gpm) |
| 128 | 7442.00 | 89.80 | 178.60 | 4,816.38 | 3,071.71 | -3,068.67 | 136.63 | 3,071.71 | 177.45 | 2.52 | 0.00 | 140 °F | Yellow | 12/31/14 | 4:50 | 264 (gpm) |
| 129 | 7474.00 | 89.20 | 178.40 | 4,816.65 | 3,103.70 | -3,100.65 | 137.46 | 3,103.70 | 177.46 | 1.98 | 0.00 | 140 °F | Yellow | 12/31/14 | 5:28 | 264 (gpm) |
| 130 | 7506.00 | 89.40 | 178.40 | 4,817.05 | 3,135.69 | -3,132.64 | 138.36 | 3,135.69 | 177.47 | 0.63 | 0.00 | 140 °F | Yellow | 12/31/14 | 6:10 | 264 (gpm) |
| 131 | 7537.00 | 90.00 | 178.30 | 4,817.21 | 3,166.69 | -3,163.63 | 139.25 | 3,166.69 | 177.48 | 1.96 | 0.00 | 140 °F | Yellow | 12/31/14 | 7:27 | 264 (gpm) |
| 132 | 7569.00 | 88.50 | 178.00 | 4,817.63 | 3,198.68 | -3,195.61 | 140.28 | 3,198.68 | 177.49 | 4.78 | 0.00 | 140 °F | Yellow | 12/31/14 | 8:50 | 264 (gpm) |
| 133 | 7600.00 | 87.00 | 177.80 | 4,818.84 | 3,229.65 | -3,226.56 | 141.42 | 3,229.66 | 177.49 | 4.88 | 0.00 | 140 °F | Yellow | 12/31/14 | 9:50 | 264 (gpm) |
| 134 | 7632.00 | 87.00 | 177.70 | 4,820.52 | 3,261.61 | -3,258.49 | 142.67 | 3,261.61 | 177.49 | 0.31 | 0.00 | 140 °F | Yellow | 12/31/14 | 11:16 | 264 (gpm) |
| 135 | 7663.00 | 87.40 | 177.60 | 4,822.03 | 3,292.57 | -3,289.43 | 143.94 | 3,292.58 | 177.49 | 1.33 | 0.00 | 140 °F | Yellow | 12/31/14 | 12:12 | 264 (gpm) |
| 136 | 7695.00 | 87.70 | 177.60 | 4,823.40 | 3,324.54 | -3,321.37 | 145.28 | 3,324.55 | 177.50 | 0.94 | 0.00 | 142 °F | Yellow | 12/31/14 | 13:19 | 264 (gpm) |
| 137 | 7726.00 | 87.60 | 177.80 | 4,824.67 | 3,355.52 | -3,352.32 | 146.52 | 3,355.52 | 177.50 | 0.72 | 0.00 | 136 °F | Yellow | 12/31/14 | 14:42 | 264 (gpm) |
| 138 | 7758.00 | 88.10 | 177.90 | 4,825.87 | 3,387.49 | -3,384.28 | 147.72 | 3,387.50 | 177.50 | 1.59 | 0.00 | 142 °F | Yellow | 12/31/14 | 16:05 | 264 (gpm) |
| 139 | 7789.00 | 88.10 | 177.50 | 4,826.90 | 3,418.48 | -3,415.23 | 148.97 | 3,418.48 | 177.50 | 1.29 | 0.00 | 142 °F | Green | 01/01/15 | 7:33 | 246 (gpm) |
| 140 | 7820.00 | 88.70 | 178.10 | 4,827.77 | 3,449.46 | -3,446.20 | 150.16 | 3,449.47 | 177.51 | 2.74 | 0.00 | 142 °F | Green | 10/01/15 | 8:07 | 246 (gpm) |
| 141 | 7852.00 | 88.60 | 178.10 | 4,828.52 | 3,481.45 | -3,478.17 | 151.22 | 3,481.46 | 177.51 | 0.31 | 0.00 | 142 °F | Green | 01/01/15 | 8:43 | 246 (gpm) |
| 142 | 7883.00 | 88.40 | 178.10 | 4,829.33 | 3,512.44 | -3,509.14 | 152.24 | 3,512.45 | 177.52 | 0.65 | 0.00 | 142 °F | Green | 01/01/15 | 9:34 | 246 (gpm) |

MWD SURVEYS

Customer: Tapstone Energy
 Well: Harry 4-35-10 #1H
 Field/Block: Mississippi Lime
 Co./Parish: Barber Co.
 State: KS

PGS Job #: LKS6116214
 MWD Operator: Ken Mitchell
 Directional Driller: Kyle Underwood
 Date of First Survey: December 23, 2014
 Date of Last Survey:



Total Correction: 4.43 East Grid

Vertical Section Plane: 177.4 Nominal Dip Angle: 65.06 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 | |
| 143 | 7915.00 | 88.40 | 178.10 | 4,830.23 | 3,544.42 | -3,541.11 | 153.31 | 3,544.43 | 177.52 | 0.00 | 0.00 | 142 °F | Green | 01/01/15 | 10:10 | 246 (gpm) |
| 144 | 7947.00 | 88.30 | 177.80 | 4,831.15 | 3,576.41 | -3,573.08 | 154.45 | 3,576.42 | 177.52 | 0.99 | 0.00 | 142 °F | Green | 01/01/15 | 11:20 | 246 (gpm) |
| 145 | 7979.00 | 88.80 | 178.40 | 4,831.96 | 3,608.40 | -3,605.05 | 155.51 | 3,608.40 | 177.53 | 2.44 | 0.00 | 142 °F | Green | 01/01/15 | 12:16 | 246 (gpm) |
| 146 | 8010.00 | 88.90 | 177.90 | 4,832.58 | 3,639.39 | -3,636.03 | 156.51 | 3,639.40 | 177.54 | 1.64 | 0.00 | 142 °F | Green | 01/01/15 | 12:52 | 246 (gpm) |
| 147 | 8042.00 | 89.30 | 177.80 | 4,833.08 | 3,671.38 | -3,668.00 | 157.71 | 3,671.39 | 177.54 | 1.29 | 0.00 | 142 °F | Green | 01/01/15 | 13:56 | 246 (gpm) |
| 148 | 8073.00 | 89.50 | 177.80 | 4,833.41 | 3,702.38 | -3,698.98 | 158.90 | 3,702.39 | 177.54 | 0.65 | 0.00 | 142 °F | Green | 01/01/15 | 14:46 | 246 (gpm) |
| 149 | 8105.00 | 89.90 | 177.30 | 4,833.57 | 3,734.38 | -3,730.95 | 160.27 | 3,734.39 | 177.54 | 2.00 | 0.00 | 142 °F | Green | 01/01/15 | 15:43 | 246 (gpm) |
| 150 | 8136.00 | 90.10 | 176.80 | 4,833.57 | 3,765.38 | -3,761.91 | 161.86 | 3,765.39 | 177.54 | 1.74 | 0.00 | 144 °F | Green | 01/01/15 | 16:19 | 246 (gpm) |
| 151 | 8168.00 | 90.10 | 176.80 | 4,833.52 | 3,797.38 | -3,793.86 | 163.65 | 3,797.39 | 177.53 | 0.00 | 0.00 | 144 °F | Green | 01/01/15 | 17:05 | 246 (gpm) |
| 152 | 8200.00 | 90.60 | 176.60 | 4,833.32 | 3,829.37 | -3,825.80 | 165.49 | 3,829.38 | 177.52 | 1.68 | 0.00 | 144 °F | Green | 01/01/15 | 17:37 | 246 (gpm) |
| 153 | 8231.00 | 90.50 | 177.00 | 4,833.02 | 3,860.37 | -3,856.75 | 167.22 | 3,860.38 | 177.52 | 1.33 | 0.00 | 144 °F | Green | 01/01/15 | 18:15 | 246 (gpm) |
| 154 | 8263.00 | 90.30 | 176.70 | 4,832.80 | 3,892.37 | -3,888.70 | 168.98 | 3,892.37 | 177.51 | 1.13 | 0.00 | 144 °F | Green | 01/01/15 | 18:50 | 246 (gpm) |
| 155 | 8294.00 | 90.10 | 177.10 | 4,832.69 | 3,923.37 | -3,919.66 | 170.66 | 3,923.37 | 177.51 | 1.44 | 0.00 | 144 °F | Green | 01/01/15 | 19:30 | 246 (gpm) |
| 156 | 8325.00 | 89.00 | 176.50 | 4,832.94 | 3,954.36 | -3,950.61 | 172.39 | 3,954.37 | 177.50 | 4.04 | 0.00 | 144 °F | Green | 01/01/15 | 20:30 | 246 (gpm) |
| 157 | 8357.00 | 88.80 | 176.30 | 4,833.55 | 3,986.35 | -3,982.54 | 174.40 | 3,986.36 | 177.49 | 0.88 | 0.00 | 144 °F | Green | 01/01/15 | 21:45 | 246 (gpm) |
| 158 | 8388.00 | 89.20 | 176.30 | 4,834.09 | 4,017.34 | -4,013.47 | 176.40 | 4,017.35 | 177.48 | 1.29 | 0.00 | 144 °F | Green | 01/01/15 | 22:45 | 246 (gpm) |
| 159 | 8420.00 | 89.70 | 176.10 | 4,834.40 | 4,049.33 | -4,045.40 | 178.52 | 4,049.34 | 177.47 | 1.68 | 0.00 | 144 °F | Green | 01/01/15 | 23:50 | 246 (gpm) |
| 160 | 8452.00 | 89.90 | 176.30 | 4,834.51 | 4,081.33 | -4,077.33 | 180.64 | 4,081.33 | 177.46 | 0.88 | 0.00 | 144 °F | Green | 01/02/14 | 0:30 | 246 (gpm) |
| 161 | 8483.00 | 89.80 | 176.60 | 4,834.59 | 4,112.32 | -4,108.27 | 182.56 | 4,112.32 | 177.46 | 1.02 | 0.00 | 145 °F | Green | 01/02/14 | 1:45 | 246 (gpm) |
| 162 | 8515.00 | 89.90 | 176.40 | 4,834.68 | 4,144.32 | -4,140.21 | 184.51 | 4,144.32 | 177.45 | 0.70 | 0.00 | 145 °F | Green | 01/02/14 | 2:40 | 246 (gpm) |
| 163 | 8546.00 | 89.80 | 176.90 | 4,834.76 | 4,175.31 | -4,171.16 | 186.32 | 4,175.31 | 177.44 | 1.64 | 0.00 | 145 °F | Green | 01/02/14 | 4:15 | 246 (gpm) |
| 164 | 8578.00 | 90.00 | 177.10 | 4,834.81 | 4,207.31 | -4,203.11 | 188.00 | 4,207.31 | 177.44 | 0.88 | 0.00 | 145 °F | Green | 01/02/14 | 5:00 | 246 (gpm) |
| 165 | 8610.00 | 89.80 | 177.30 | 4,834.87 | 4,239.31 | -4,235.07 | 189.56 | 4,239.31 | 177.44 | 0.88 | 0.00 | 127 °F | Green | 01/02/14 | 5:44 | 246 (gpm) |
| 166 | 8641.00 | 89.50 | 177.10 | 4,835.06 | 4,270.31 | -4,266.04 | 191.08 | 4,270.31 | 177.44 | 1.16 | 0.00 | 129 °F | Green | 01/02/14 | 6:28 | 246 (gpm) |
| 167 | 8673.00 | 89.40 | 177.00 | 4,835.36 | 4,302.31 | -4,297.99 | 192.72 | 4,302.31 | 177.43 | 0.44 | 0.00 | 131 °F | Green | 01/02/14 | 7:26 | 246 (gpm) |
| 168 | 8704.00 | 89.70 | 177.10 | 4,835.61 | 4,333.31 | -4,328.95 | 194.32 | 4,333.31 | 177.43 | 1.02 | 0.00 | 131 °F | Green | 01/02/14 | 8:24 | 246 (gpm) |
| 169 | 8736.00 | 89.40 | 177.00 | 4,835.86 | 4,365.31 | -4,360.91 | 195.96 | 4,365.31 | 177.43 | 0.99 | 0.00 | 135 °F | Green | 01/02/14 | 9:23 | 246 (gpm) |
| 170 | 8767.00 | 89.00 | 177.50 | 4,836.29 | 4,396.30 | -4,391.87 | 197.45 | 4,396.30 | 177.43 | 2.07 | 0.00 | 136 °F | Green | 01/02/14 | 10:07 | 246 (gpm) |
| 171 | 8799.00 | 88.70 | 177.10 | 4,836.93 | 4,428.30 | -4,423.83 | 198.96 | 4,428.30 | 177.42 | 1.56 | 0.00 | 136 °F | Green | 01/02/14 | 11:11 | 246 (gpm) |

MWD SURVEYS

Customer: Tapstone Energy
 Well: Harry 4-35-10 #1H
 Field/Block: Mississippi Lime
 Co./Parish: Barber Co.
 State: KS

PGS Job #: LKS6116214
 MWD Operator: Ken Mitchell
 Directional Driller: Kyle Underwood
 Date of First Survey: December 23, 2014
 Date of Last Survey:



Total Correction: 4.43 East Grid

Vertical Section Plane: 177.4 Nominal Dip Angle: 65.06 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> |
| 172 | 8831.00 | 89.20 | 177.50 | 4,837.52 | 4,460.29 | -4,455.78 | 200.47 | 4,460.29 | 177.42 | 2.00 | 0.00 | 136 °F | Green | 01/02/14 | 12:03 | 246 (gpm) |
| 173 | 8862.00 | 89.00 | 177.60 | 4,838.01 | 4,491.29 | -4,486.75 | 201.79 | 4,491.29 | 177.42 | 0.72 | 0.00 | 136 °F | Green | 01/02/14 | 13:02 | 246 (gpm) |
| 174 | 8894.00 | 89.40 | 177.00 | 4,838.45 | 4,523.28 | -4,518.71 | 203.30 | 4,523.28 | 177.42 | 2.25 | 0.00 | 138 °F | Green | 01/02/14 | 13:42 | 246 (gpm) |
| 175 | 8925.00 | 88.90 | 176.20 | 4,838.91 | 4,554.28 | -4,549.65 | 205.14 | 4,554.28 | 177.42 | 3.04 | 0.00 | 138 °F | Green | 01/02/14 | 14:48 | 246 (gpm) |
| 176 | 8956.00 | 89.10 | 176.40 | 4,839.46 | 4,585.27 | -4,580.59 | 207.14 | 4,585.27 | 177.41 | 0.91 | 0.00 | 138 °F | Green | 01/02/14 | 15:45 | 246 (gpm) |
| 177 | 8988.00 | 89.30 | 176.80 | 4,839.90 | 4,617.26 | -4,612.53 | 209.03 | 4,617.26 | 177.41 | 1.40 | 0.00 | 138 °F | Green | 01/02/14 | 16:48 | 246 (gpm) |
| 178 | 9018.00 | 88.60 | 176.80 | 4,840.45 | 4,647.25 | -4,642.47 | 210.71 | 4,647.25 | 177.40 | 2.33 | 0.00 | 138 °F | Green | 01/02/14 | 17:30 | 246 (gpm) |
| PTB | 9069.00 | 88.60 | 176.80 | 4,841.70 | 4,698.24 | -4,693.38 | 213.55 | 4,698.24 | 177.39 | 0.00 | | | | | | |

MWD SURVEYS

Customer: Tapstone Energy
 Well: Harry 4-35-10 #1H
 Field/Block: Mississippi Lime
 Co./Parish: Barber Co.
 State: KS

PGS Job #: LKS6116214
 MWD Operator: Ken Mitchell
 Directional Driller: Kyle Underwood
 Date of First Survey: December 23, 2014
 Date of Last Survey:



Total Correction: 4.43 East Grid

Vertical Section Plane: 177.4

Nominal Dip Angle: 65.06

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: Harry 4-35-10 #1H
 Field/Block: Mississippi Lime
 Co./Parish: Barber Co.
 State: KS

PGS Job #: LKS6116214
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 Date of Last Survey:



Total Correction: 4.43 East Grid

Vertical Section Plane: 177.4 Nominal Dip Angle: 65.06 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>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>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>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>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>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>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: Harry 4-35-10 #1H
 Field/Block: Mississippi Lime
 Co./Parish: Barber Co.
 State: KS

PGS Job #: LKS6116214
 MWD Operator: Ken Mitchell
 Directional Driller: Kyle Underwood
 Date of First Survey: December 23, 2014
 Date of Last Survey:



Total Correction: 4.43 East Grid

Vertical Section Plane: 177.4 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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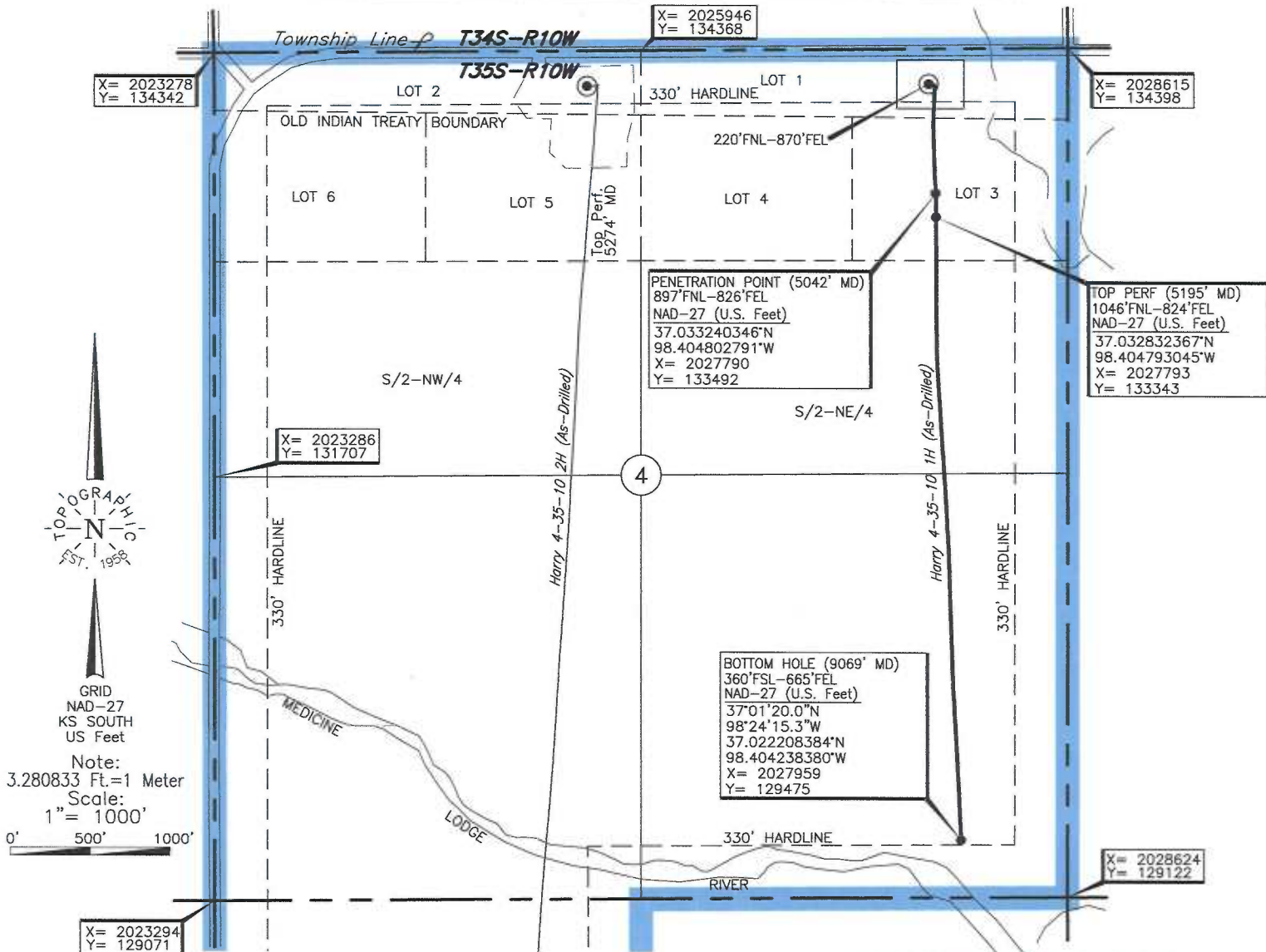
TOPOGRAPHIC LAND SURVEYORS

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

BARBER

County, Kansas

220'FNL - 870'FEL Section 4 Township 35S Range 10W P.M.



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

Operator: TAPSTONE ENERGY

Lease Name: HARRY 4-35-10

Well No.: 1H

ELEVATION:
 1296' Gr. at Stake

Topography & Vegetation Loc. fell in level wheat field, ±240' West of N-S fence

Good Drill Site? Yes

Reference Stakes or Alternate Location
 Stakes Set None

Best Accessibility to Location From North off county road

Distance & Direction
 from Hwy Jct or Town From Kiowa, KS, go ±3.5 mi. East, then ±1.25 mi. North,
then ±1.0 mi. East to the Northeast Corner of Section 4, T35S-R10W.

DATUM: NAD-27
 LAT: 37°02'06.4"N
 LONG: 98°24'17.8"W
 LAT: 37.035098894° N
 LONG: 98.404953400° W
 STATE PLANE
 COORDINATES: (US Feet)
 ZONE: KS SOUTH
 X: 2027746
 Y: 134169

238564 Date of Drawing: Jan. 05, 2015
 Invoice # 227934A Date Staked: Jul. 24, 2014 JGW

FINAL AS-DRILLED PLAT

AS-DRILLED INFORMATION
 FURNISHED BY TAPSTONE ENERGY

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

The Road to Excellence Starts with Safety

| | | | |
|--|--------------------|---------------------------------|---------------------------|
| Sold To #: 372073 | Ship To #: 3606948 | Quote #: 0021972492 | Sales Order #: 0901956645 |
| Customer: TAPSTONE ENERGY LLC | | Customer Rep: LARRY JAMES | |
| Well Name: HARRY 4-35-10 | Well #: 1H | API/UWI #: 15-007-24241-01 | |
| Field: | City (SAP): KIOWA | County/Parish: BARBER | State: KANSAS |
| Legal Description: NE NW NE NE-4-35S-10W-220FNL-870FEL | | | |
| Contractor: NOMAC | | Rig/Platform Name/Num: NOMAC 07 | |
| Job BOM: 7521 | | | |
| Well Type: HORIZONTAL OIL | | | |
| Sales Person: HALAMERICA\HX25353 | | Srvc Supervisor: Robert Husted | |
| Job | | | |

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

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

| Tools and Accessories | | | | | | | | | |
|-----------------------|---------|-----|------|----------|----------------|---------|-----|------|--|
| Type | Size in | Qty | Make | Depth ft | Type | Size in | Qty | Make | |
| Guide Shoe | 9.625 | 1 | HES | 807 | Top Plug | 9.625 | 1 | HES | |
| Float Shoe | 9.625 | | | | Bottom Plug | 9.625 | | HES | |
| Float Collar | 9.625 | 1 | HES | | 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 Fid | 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 ft3/sack | Mix Fluid Gal | Rate bbl/min | Total Mix Fluid Gal | |
| 1 | Water Spacer | Water Spacer | 10 | bbl | 8.33 | | | | | |

| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft3/sack | Mix Fluid Gal | Rate bbl/min | Total Mix Fluid Gal | |
|---------|-------------|------------------------|-----|---------|------------------------|----------------|---------------|--------------|---------------------|--|
| 2 | Lead Cement | EXTENDACEM (TM) SYSTEM | 230 | sack | 12.4 | 2.128 | | 4 | 11.87 | |

| | | | | | | | | | |
|--|---|--|------------|--------------------------------------|--|---------------------------|--------------------------|------------------------------|------------------------------------|
| 0.25 lbm | | POLY-E-FLAKE (101216940) | | | | | | | |
| 3 % | | CALCIUM CHLORIDE, PELLET, 50 LB (101509387) | | | | | | | |
| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft3/sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal |
| 3 | Tail Cement | SWIFTCEM (TM) SYSTEM | 150 | sack | 15.6 | 1.21 | | 4 | 5.43 |
| 94 lbm | | CMT - STANDARD - CLASS A REG OR TYPE I, BULK (100003684) | | | | | | | |
| 2 % | | CALCIUM CHLORIDE, PELLET, 50 LB (101509387) | | | | | | | |
| 0.1250 lbm | | POLY-E-FLAKE (101216940) | | | | | | | |
| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft3/sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal |
| 4 | Displacement | Displacement | 59 | bbl | 8.33 | | | | |
| Cement Left In Pipe | Amount | 42 ft | | | Reason | | | Shoe Joint | |
| Mix Water: | pH ## | Mix Water ## ppm | | | Mix Water Temperature: ## °F °C | | | | |
| | | Chloride: | | | | | | | |
| Cement Temperature: ## °F °C | Plug Displaced by: ## lb/gal kg/m3 | | | Disp. Temperature: ## °F °C | | | | | |
| Plug Bumped? Yes | Bump Pressure: 800 psi | | | Floats Held? Yes | | | | | |
| Cement Returns: 45 bbl | Returns Density: ## lb/gal kg/m3 | | | Returns Temperature: ## °F °C | | | | | |
| Comment FLOATS HELD 1.5 BBLs BACK | | | | | | | | | |

Summary Report



Sales Order #: 0901956645
WO #: 0901956645
PO/AFE #: NA


Crew: _____

Job Start Date: 12/23/2014

Customer: TAPSTONE ENERGY LLC
UWI / API Number: 15-007-24241-01
Well Name: HARRY 4-35-10
Well No: 1H

Field:
County/Parish: BARBER
State: KANSAS
Latitude: 37.035110
Longitude: -98.404945
Sect / Twn / Rng: 4/35/10

Job Type: CMT SURFACE CASING BOM
Service Supervisor: Robert Husted
Cust Rep Name: LARRY JAMES
Cust Rep Phone #:

| Remarks: | | |
|---|---|------------------|
| <i>The Information Stated Herein Is Correct</i> | Customer Representative Signature  | Date 12/23/14 |
| | Customer Representative Printed Name Bob Rudy | |

HALLIBURTON

iCem[®] Service

TAPSTONE ENERGY LLC

For:

Date: Tuesday, December 23, 2014

HARRY 4-35-10 1H

HARRY 4-35-10 1H

Case 1

Sincerely,

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1.2 Stage Summary - Pump Pressure & ECD

1.3 Stage Summary - Pump Rate & Nitrogen Rate

1.4 Shutdown Summary

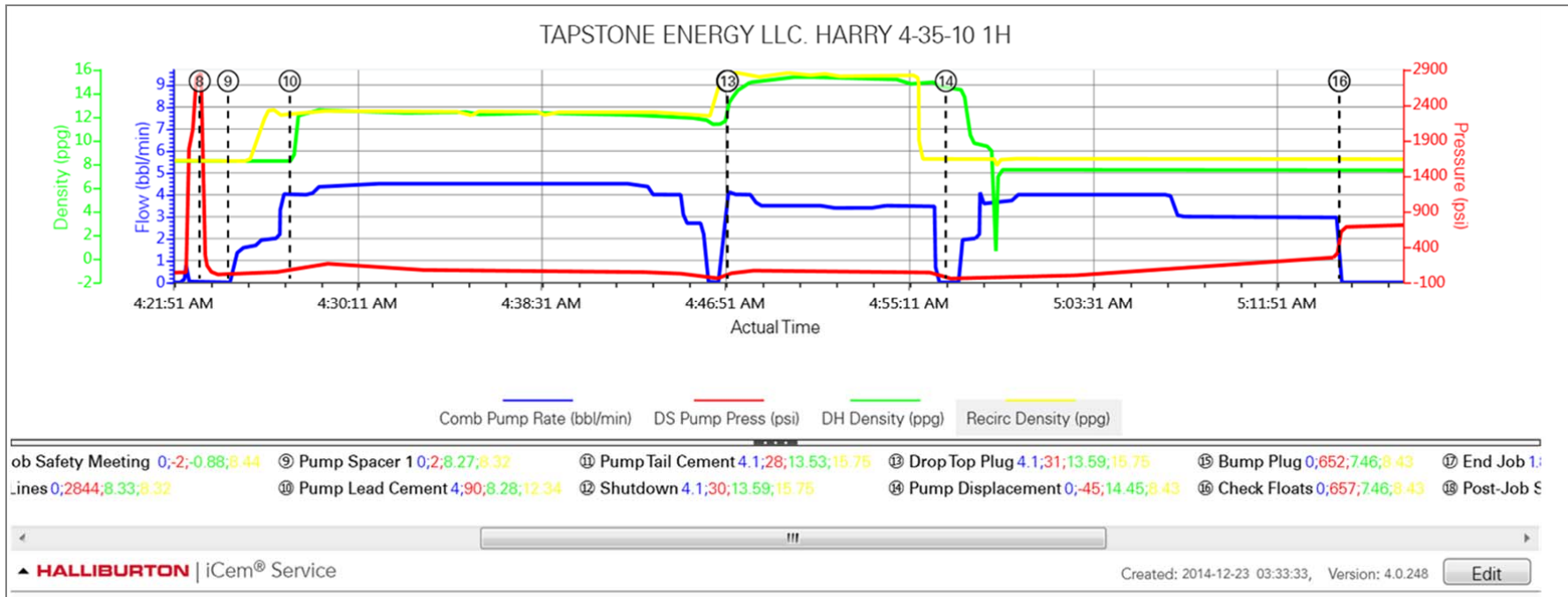
1.5 Job Event Log

| Type | Seq. No. | Activity | Graph Label | Date | Time | Source | Comb Pump Rate (bbl/min) | DS Pump Press (psi) | DH Density (ppg) | Recirc Density (ppg) | Comments |
|-------|----------|---------------------------|---------------------------|------------|----------|--------|-----------------------------|------------------------|---------------------|-------------------------|--|
| Event | 1 | Call Out | Call Out | 12/22/2014 | 18:00:00 | USER | | | | | CALLED OUT BY ARS, OKC,OK |
| Event | 2 | Pre-Convoy Safety Meeting | Pre-Convoy Safety Meeting | 12/22/2014 | 19:00:00 | USER | | | | | DISCUSSED ROUTEE TO LOCATION AND SAFE DRIVING |
| Event | 3 | Depart Home for Location | Depart Home for Location | 12/22/2014 | 19:15:00 | USER | | | | | DEPARTED BLACKWELL YARD |
| Event | 4 | Arrive At Loc | Arrive At Loc | 12/22/2014 | 21:00:00 | USER | | | | | ARRIVED ON LOCATION REQUESTED BY 0000 |
| Event | 5 | Pre-Rig Up Safety Meeting | Pre-Rig Up Safety Meeting | 12/23/2014 | 02:30:00 | USER | | | | | DISCUSSED RIG UP PROCEDURES AND SAFETY |
| Event | 6 | Rig-Up Equipment | Rig-Up Equipment | 12/23/2014 | 03:00:00 | USER | | | | | RIG UP EQUIPMENT |
| Event | 7 | Pre-Job Safety Meeting | Pre-Job Safety Meeting | 12/23/2014 | 04:00:00 | USER | 0.00 | -2.00 | -0.88 | 8.43 | DISCUSSED SAFETY NEAREST HOSPITAL AND JOB PROCEDURES |
| Event | 8 | Test Lines | Test Lines | 12/23/2014 | 04:23:10 | COM4 | 0.00 | 2847.00 | 8.32 | 8.35 | TESTED LINES TO 3000 PSI |
| Event | 9 | Pump Spacer 1 | Pump Spacer 1 | 12/23/2014 | 04:24:27 | COM4 | 0.00 | 2.00 | 8.27 | 8.32 | PUMPED 10 BBLS WATER SPACER |
| Event | 10 | Pump Lead Cement | Pump Lead Cement | 12/23/2014 | 04:27:15 | COM4 | 4.00 | 90.00 | 8.28 | 12.34 | PUMPED 87 BBLS OF LEAD CEMENT @ 12.4 4.5 BBLS 150 PSI |
| Event | 11 | Pump Tail Cement | Pump Tail Cement | 12/23/2014 | 04:47:04 | COM4 | 4.10 | 25.00 | 13.48 | 15.75 | PUMPED 32 BBLS OF TAIL CEMENT @ 15.6 4.5 BBLS 160 PSI |
| Event | 12 | Shutdown | Shutdown | 12/23/2014 | 04:47:05 | USER | 4.10 | 30.00 | 13.59 | 15.75 | SHUTDOWN |
| Event | 13 | Drop Top Plug | Drop Top Plug | 12/23/2014 | 04:47:06 | USER | 4.10 | 31.00 | 13.59 | 15.75 | DROP TOP PLUG |
| Event | 14 | Pump Displacement | Pump Displacement | 12/23/2014 | 04:56:59 | COM4 | 0.00 | -45.00 | 14.44 | 8.39 | PUMPED 59 BBLS OF FRESH WATER DISPLACEMENT CIRCULATED 45 BBLS OF CEMENT TO THE |

| Type | Seq. No. | Activity | Graph Label | Date | Time | Source | Comb Pump Rate (bbl/min) | DS Pump Press (psi) | DH Density (ppg) | Recirc Density (ppg) | Comments |
|---------|----------|--|--|------------|----------|--------|--------------------------|---------------------|------------------|----------------------|---------------------------------------|
| SURFACE | | | | | | | | | | | |
| Event | 15 | Bump Plug | Bump Plug | 12/23/2014 | 05:14:49 | COM4 | 0.00 | 652.00 | 7.46 | 8.43 | BUMPED PULG @ 800 PSI HOLD 5 MINUTES |
| Event | 16 | Check Floats | Check Floats | 12/23/2014 | 05:14:50 | USER | 0.00 | 657.00 | 7.46 | 8.43 | FLOATS HELD |
| Event | 17 | End Job | End Job | 12/23/2014 | 05:24:59 | USER | 1.80 | 61.00 | 7.60 | 8.43 | JOB ACTIVITIES COMPLETE |
| Event | 18 | Post-Job Safety Meeting (Pre Rig-Down) | Post-Job Safety Meeting (Pre Rig-Down) | 12/23/2014 | 05:25:50 | USER | 0.00 | -17.00 | 7.45 | 8.44 | DISCUSSED ROUTE HOME AND SAFE DRIVING |
| Event | 19 | End Job | End Job | 12/23/2014 | 05:27:00 | COM4 | 0.00 | -28.00 | 7.43 | 8.43 | |
| Event | 20 | Rig-Down Equipment | Rig-Down Equipment | 12/23/2014 | 05:30:00 | USER | 0.00 | -27.00 | -1.03 | 8.43 | RIG DOWN EQUIPMENT |
| Event | 21 | Depart Location for Home | Depart Location for Home | 12/23/2014 | 06:30:00 | USER | | | | | DEPRT LOCATION FOR BLACKWELL |
| Event | 22 | Arrive at Home | Arrive at Home | 12/23/2014 | 09:00:00 | USER | | | | | ARRIVED AT BLACKWELL |

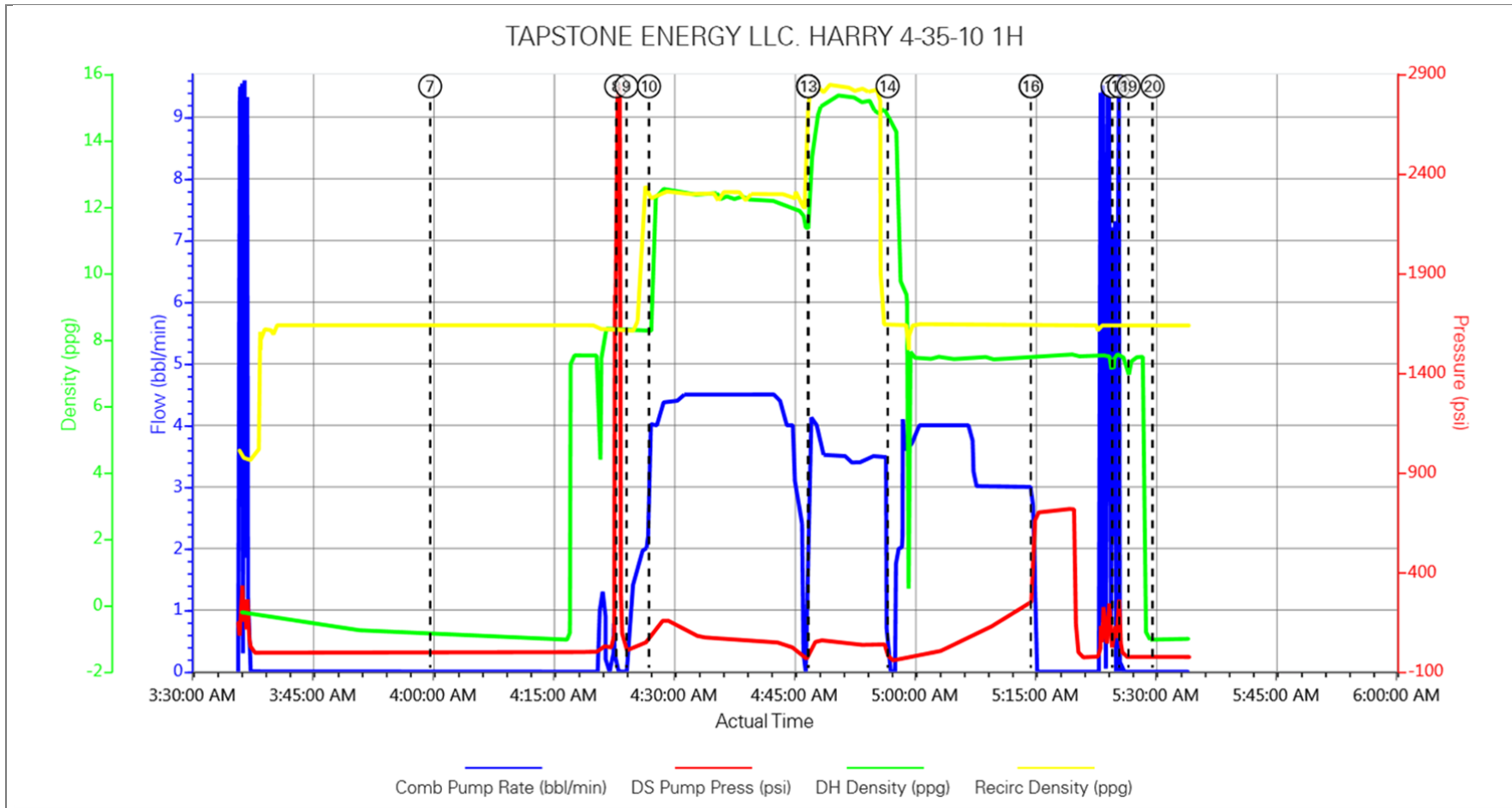
2.0 Attachments

2.1 HARRY 4-35-10 1H.png



3.0 Custom Graphs

3.1 Custom Graph



4.0 Appendix

4.1 One-Minutes Real-Time Data Listing

| Time | Truck 1 Slurry Rate (bbl/min) | Stage Slurry Volume (bbl) | Truck 1 Density (ppg) | Truck 1 Pressure (psi) | Backside Pressure (psi) | Truck 1 Water Rate (bbl/min) |
|----------|----------------------------------|------------------------------|--------------------------|---------------------------|----------------------------|---------------------------------|
| 03:36:11 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 |
| 03:37:50 | 0.00 | 3.7 | -0.32 | 8.00 | -8.00 | 4.10 |
| 03:39:31 | 0.00 | 3.7 | -0.40 | 2.00 | -5.00 | 0.00 |
| 03:41:11 | 0.00 | 3.7 | -0.48 | 1.00 | -1.00 | 0.00 |
| 03:42:51 | 0.00 | 3.7 | -0.46 | 2.00 | -1.00 | 0.00 |
| 03:44:31 | 0.00 | 3.7 | -0.51 | 3.00 | -1.00 | 0.00 |
| 03:46:10 | 0.00 | 3.7 | -0.53 | 3.00 | -2.00 | 0.00 |
| 03:47:51 | 0.00 | 3.7 | -0.62 | 4.00 | -2.00 | 0.00 |
| 03:49:31 | 0.00 | 3.7 | -0.73 | 4.00 | -2.00 | 0.00 |
| 03:51:10 | 0.00 | 3.7 | -0.75 | 5.00 | -2.00 | 0.00 |
| 03:52:51 | 0.00 | 3.7 | -0.77 | 6.00 | -2.00 | 0.00 |
| 03:54:31 | 0.00 | 3.7 | -0.76 | 6.00 | -2.00 | 0.00 |
| 03:56:11 | 0.00 | 3.7 | -0.81 | 6.00 | -2.00 | 0.00 |
| 03:57:50 | 0.00 | 3.7 | -0.81 | 6.00 | -2.00 | 0.00 |
| 03:59:31 | 0.00 | 3.7 | -0.87 | 6.00 | -2.00 | 0.00 |
| 04:01:11 | 0.00 | 3.7 | -0.85 | 6.00 | -2.00 | 0.00 |
| 04:02:50 | 0.00 | 3.7 | -0.86 | 7.00 | -2.00 | 0.00 |
| 04:04:31 | 0.00 | 3.7 | -0.84 | 7.00 | -1.00 | 0.00 |
| 04:06:11 | 0.00 | 3.7 | -0.95 | 7.00 | -1.00 | 0.00 |
| 04:07:51 | 0.00 | 3.7 | -0.95 | 7.00 | -1.00 | 0.00 |
| 04:09:30 | 0.00 | 3.7 | -0.94 | 8.00 | -1.00 | 0.00 |
| 04:11:11 | 0.00 | 3.7 | -1.02 | 8.00 | -1.00 | 0.00 |
| 04:12:51 | 0.00 | 3.7 | -0.99 | 8.00 | -1.00 | 0.00 |
| 04:14:31 | 0.00 | 3.7 | -1.01 | 8.00 | -1.00 | 0.00 |
| 04:16:11 | 0.00 | 3.7 | -1.05 | 8.00 | 0.00 | 0.00 |
| 04:17:51 | 0.00 | 3.7 | 7.51 | 6.00 | -2.00 | 0.00 |
| 04:19:30 | 0.00 | 3.7 | 7.53 | 8.00 | 0.00 | 0.00 |
| 04:21:11 | 1.30 | 4.5 | 8.26 | 42.00 | 34.00 | 0.00 |
| 04:22:51 | 0.00 | 4.8 | 8.30 | 2,774.00 | 2,771.00 | 0.00 |
| 04:24:31 | 0.80 | 4.8 | 8.25 | 12.00 | 2.00 | 0.00 |
| 04:26:10 | 2.00 | 7.6 | 8.27 | 55.00 | 45.00 | 0.00 |
| 04:27:51 | 4.00 | 13.3 | 12.38 | 137.00 | 122.00 | 3.14 |
| 04:29:30 | 4.40 | 20.5 | 12.59 | 136.00 | 150.00 | 3.02 |
| 04:31:10 | 4.50 | 27.9 | 12.46 | 125.00 | 114.00 | 3.10 |
| 04:32:50 | 4.50 | 35.4 | 12.38 | 126.00 | 79.00 | 3.14 |
| 04:34:30 | 4.50 | 42.9 | 12.31 | 140.00 | 70.00 | 3.24 |

| Time | Truck 1 Slurry Rate (bbl/min) | Stage Slurry Volume (bbl) | Truck 1 Density (ppg) | Truck 1 Pressure (psi) | Backside Pressure (psi) | Truck 1 Water Rate (bbl/min) |
|----------|-------------------------------|---------------------------|-----------------------|------------------------|-------------------------|------------------------------|
| 04:36:11 | 4.50 | 50.4 | 12.36 | 139.00 | 59.00 | 3.36 |
| 04:37:50 | 4.50 | 57.9 | 12.20 | 135.00 | 54.00 | 3.60 |
| 04:39:30 | 4.50 | 65.4 | 12.22 | 133.00 | 51.00 | 3.36 |
| 04:41:11 | 4.50 | 72.9 | 12.19 | 138.00 | 51.00 | 2.98 |
| 04:42:50 | 4.40 | 80.4 | 12.18 | 138.00 | 46.00 | 2.76 |
| 04:44:30 | 4.00 | 87.3 | 12.00 | 120.00 | 23.00 | 2.45 |
| 04:46:10 | 0.00 | 91.6 | 11.38 | 50.00 | -37.00 | 1.52 |
| 04:47:51 | 4.00 | 96.1 | 14.86 | 154.00 | 61.00 | 2.29 |
| 04:49:31 | 3.50 | 102.1 | 15.18 | 134.00 | 47.00 | 2.00 |
| 04:51:10 | 3.50 | 108.0 | 15.31 | 136.00 | 47.00 | 1.88 |
| 04:52:51 | 3.40 | 113.7 | 15.19 | 128.00 | 36.00 | 2.07 |
| 04:54:30 | 3.50 | 119.4 | 15.20 | 136.00 | 43.00 | 0.00 |
| 04:56:10 | 3.50 | 125.2 | 14.96 | 133.00 | 39.00 | 0.00 |
| 04:57:50 | 2.00 | 126.6 | 11.39 | 69.00 | -29.00 | 0.00 |
| 04:59:30 | 3.70 | 131.8 | 7.44 | 85.00 | -17.00 | 0.00 |
| 05:01:10 | 4.00 | 138.4 | 7.45 | 80.00 | -13.00 | 0.00 |
| 05:02:50 | 4.00 | 145.0 | 7.43 | 93.00 | 1.00 | 0.00 |
| 05:04:30 | 4.00 | 151.7 | 7.44 | 120.00 | 30.00 | 0.00 |
| 05:06:10 | 4.00 | 158.4 | 7.44 | 160.00 | 60.00 | 0.00 |
| 05:07:50 | 3.00 | 164.3 | 7.44 | 183.00 | 99.00 | 0.00 |
| 05:09:31 | 3.00 | 169.3 | 7.42 | 220.00 | 129.00 | 0.00 |
| 05:11:10 | 3.00 | 174.3 | 7.49 | 260.00 | 174.00 | 0.00 |
| 05:12:50 | 3.00 | 179.3 | 7.45 | 297.00 | 215.00 | 0.00 |
| 05:14:30 | 3.00 | 184.3 | 7.52 | 330.00 | 251.00 | 0.00 |
| 05:16:10 | 0.00 | 184.6 | 7.48 | 784.00 | 708.00 | 0.00 |
| 05:17:50 | 0.00 | 184.6 | 7.51 | 788.00 | 714.00 | 0.00 |
| 05:19:30 | 0.00 | 184.6 | 7.54 | 791.00 | 718.00 | 0.00 |
| 05:21:10 | 0.00 | 184.6 | 7.50 | 41.00 | -29.00 | 0.00 |
| 05:22:50 | 0.00 | 184.6 | 7.51 | 48.00 | -22.00 | 0.00 |
| 05:24:30 | 5.00 | 191.5 | 7.37 | 80.00 | 6.00 | 0.00 |
| 05:26:10 | 0.00 | 197.1 | 7.54 | 42.00 | -26.00 | 0.00 |
| 05:27:50 | 0.00 | 197.1 | 7.51 | 38.00 | -28.00 | 0.00 |
| 05:29:30 | 0.00 | 197.1 | -1.03 | 37.00 | -28.00 | 0.00 |
| 05:31:10 | 0.00 | 197.1 | -1.04 | 37.00 | -27.00 | 0.00 |
| 05:32:50 | 0.00 | 197.1 | -1.11 | 36.00 | -27.00 | 0.00 |
| 05:34:25 | 0.00 | 197.1 | -1.06 | 36.00 | -26.00 | 0.00 |

HALLIBURTON

iCem[®] Service

HALLIBURTON

For:

Date: Sunday, December 28, 2014

harry 4-35-10 1h

Case 1

Sincerely,

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1.0 Job Design

1.1 Time of Stages

| Graph Label | Time (min) | Stage Starts Pumping | Stage Enters Annulus |
|-------------|---------------|-----------------------------|----------------------|
| ① | 0 | Rig-Down Equipment | |
| ② | 0 | Depart Location | |
| ③ | 0 | Arrive At Loc | |
| ④ | 0 | Drop Bottom Plug | |
| ⑤ | 0 | Check Floats | |
| ⑥ | 0 | Pre-Convoy Safety Meeting | |
| ⑦ | 0 | Shutdown | |
| ⑧ | 0 | Safety Meeting | |
| ⑨ | 0 | Rig-Up Equipment | |
| ⑩ | 0 | Pre-Rig Up Safety Meeting | |
| ⑪ | 0 | Pre-Convoy Safety Meeting | |
| ⑫ | 0 | Rig-Up Completed | |
| ⑬ | 0 | Slow Rate | |
| ⑭ | 0 | Pre-Rig Down Safety Meeting | |
| ⑮ | 0 | Call Out | |
| ⑯ | 0 | Rig-Down Completed | |

2.0 Hydraulics Summary

3.0 Temperature Modeling

4.0 Real-Time Job Summary

4.1 Stage Summary - Liquid Volume, Density, & Design Shutdown

4.2 Stage Summary - Pump Pressure & ECD

4.3 Stage Summary - Pump Rate & Nitrogen Rate

4.4 Shutdown Summary

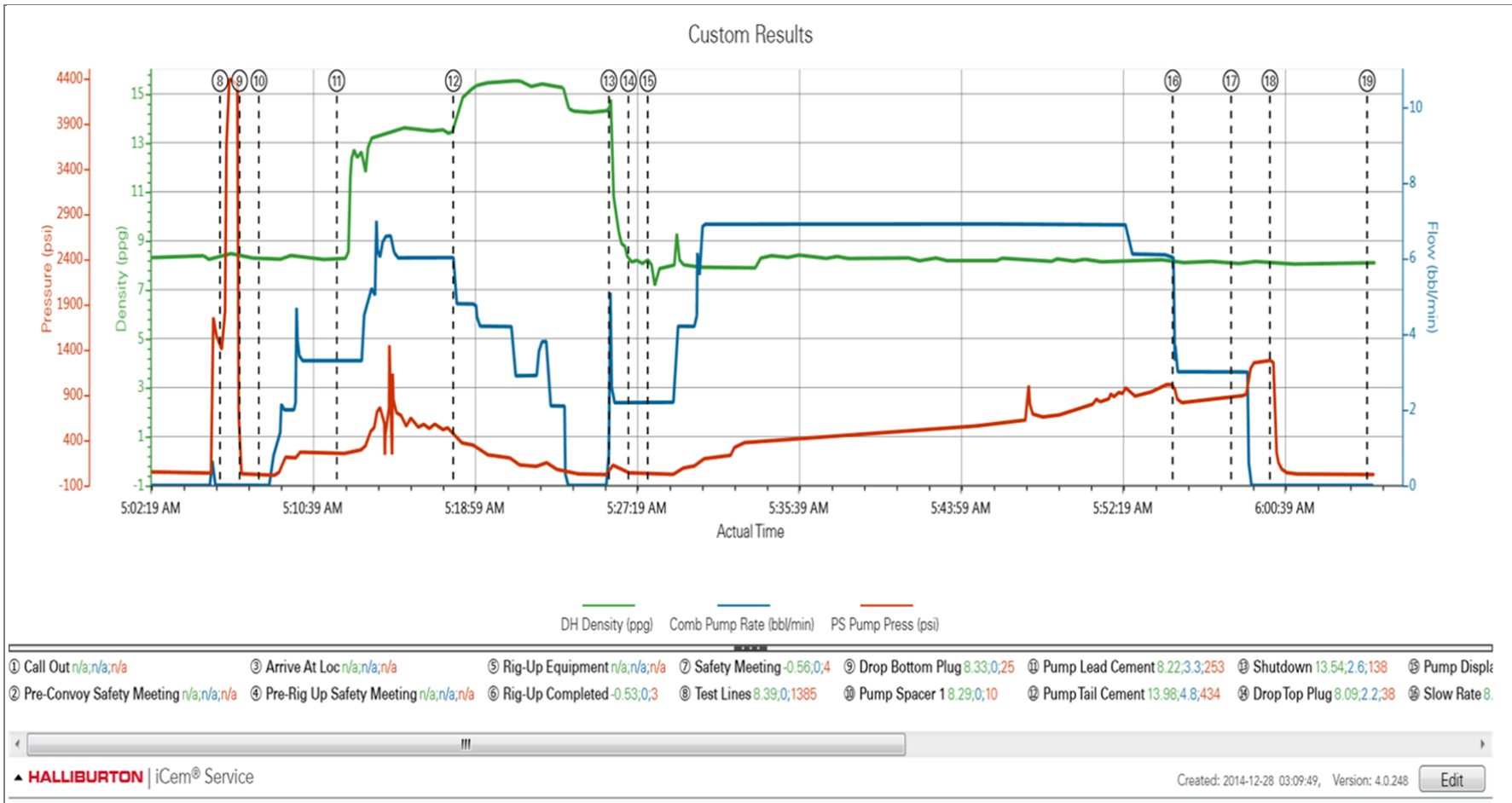
4.5 Job Event Log

| Type | Seq. No. | Activity | Graph Label | Date | Time | Source | DH Density (ppg) | Comb Pump Rate (bbl/min) | PS Pump Press (psi) | Comments |
|-------|----------|---------------------------|---------------------------|------------|----------|--------|---------------------|-----------------------------|------------------------|--|
| Event | 1 | Call Out | Call Out | 12/27/2014 | 17:00:00 | USER | | | | requested on loc at 23:00 |
| Event | 2 | Pre-Convoy Safety Meeting | Pre-Convoy Safety Meeting | 12/27/2014 | 19:30:00 | USER | | | | stay on route |
| Event | 3 | Arrive At Loc | Arrive At Loc | 12/27/2014 | 21:00:00 | USER | | | | arrive on location wait on casing to be run |
| Event | 4 | Pre-Rig Up Safety Meeting | Pre-Rig Up Safety Meeting | 12/28/2014 | 03:00:00 | USER | | | | stay clear of line of fire, watch footing on ice |
| Event | 5 | Rig-Up Equipment | Rig-Up Equipment | 12/28/2014 | 03:10:00 | USER | | | | |
| Event | 6 | Rig-Up Completed | Rig-Up Completed | 12/28/2014 | 04:20:00 | USER | | | | |
| Event | 7 | Safety Meeting | Safety Meeting | 12/28/2014 | 04:35:00 | USER | | | | stay clear on red zone, don't hammer on pressurized iron |
| Event | 8 | Test Lines | Test Lines | 12/28/2014 | 05:06:00 | COM7 | 8.34 | 0.00 | 4500.00 | test low 500 and high 4500 psi |
| Event | 9 | Drop Bottom Plug | Drop Bottom Plug | 12/28/2014 | 05:07:00 | USER | 8.34 | | | drop bottom plug |
| Event | 10 | Pump Spacer 1 | Pump Spacer 1 | 12/28/2014 | 05:08:00 | COM7 | 8.34 | 5.00 | 720.00 | pump 10 bbls mudflush ahead |
| Event | 11 | Pump Lead Cement | Pump Lead Cement | 12/28/2014 | 05:12:00 | COM7 | 13.60 | 6.00 | 800.00 | pump 37 bbls (140sks) lead at 13.6# good returns |
| Event | 12 | Pump Tail Cement | Pump Tail Cement | 12/28/2014 | 05:18:00 | COM7 | 15.56 | 5.00 | 434.00 | pump 19 bbls (90 sks) tail at 15.6# good returns |
| Event | 13 | Shutdown | Shutdown | 12/28/2014 | 05:26:00 | USER | | 0.00 | 38.00 | |
| Event | 14 | Drop Top Plug | Drop Top Plug | 12/28/2014 | 05:27:00 | COM7 | 8.34 | 3.00 | 38.00 | drop top plug |
| Event | 15 | Pump Displacement | Pump Displacement | 12/28/2014 | 05:28:00 | COM7 | 8.34 | 7.00 | 228.00 | pump 195 bbls displacement...good returns |
| Event | 16 | Slow Rate | Slow Rate | 12/28/2014 | 05:55:00 | USER | 8.34 | 3.00 | 890.00 | slow rate to 3 bbls min |
| Event | 17 | Bump Plug | Bump Plug | 12/28/2014 | 05:58:00 | COM7 | 8.34 | 3.00 | 1300.00 | land plug from 890-1300 psi |
| Event | 18 | Check Floats | Check Floats | 12/28/2014 | 06:00:00 | USER | 8.34 | 0.00 | 0.00 | floats holding 1 bbls back |

| Type | Seq. No. | Activity | Graph Label | Date | Time | Source | DH Density (ppg) | Comb Pump Rate (bbl/min) | PS Pump Press (psi) | Comments |
|-------|----------|-----------------------------|-----------------------------|------------|----------|--------|---------------------|--------------------------------|---------------------------|---|
| Event | 19 | Pre-Rig Down Safety Meeting | Pre-Rig Down Safety Meeting | 12/28/2014 | 06:05:00 | USER | | | | watch ice, watch ditches, clear of line of fire |
| Event | 20 | Rig-Down Equipment | Rig-Down Equipment | 12/28/2014 | 06:10:00 | USER | | | | |
| Event | 21 | Rig-Down Completed | Rig-Down Completed | 12/28/2014 | 07:00:00 | USER | | | | |
| Event | 22 | Pre-Convoy Safety Meeting | Pre-Convoy Safety Meeting | 12/28/2014 | 07:05:00 | USER | | | | stay on route |
| Event | 23 | Depart Location | Depart Location | 12/28/2014 | 07:15:00 | USER | | | | |

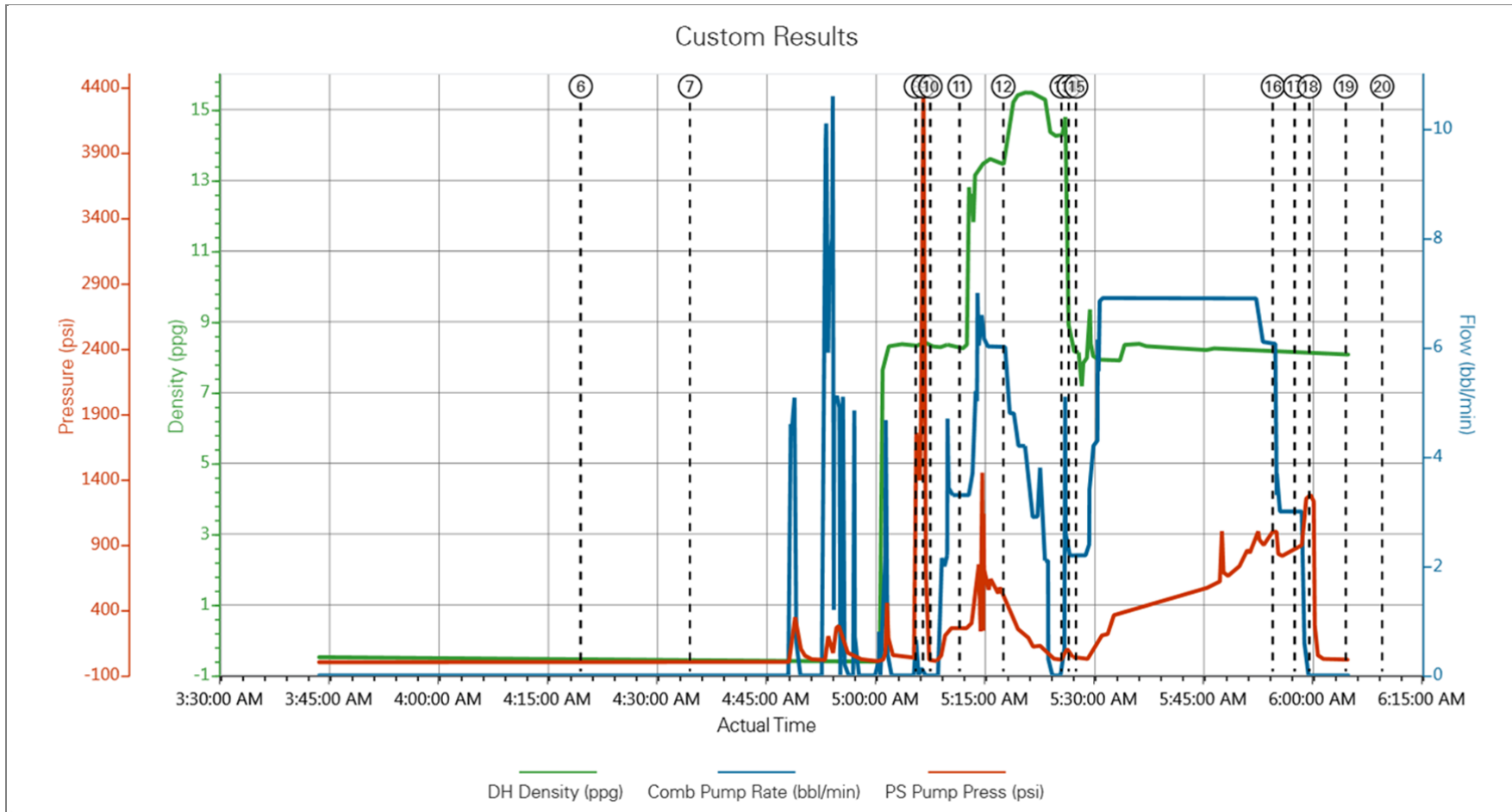
5.0 Attachments

5.1 Case 1-Custom Results.png



6.0 Custom Graphs

6.1 Custom Graph



7.0 Appendix

7.1 One-Minutes Real-Time Data Listing

The Road to Excellence Starts with Safety

| | | | |
|--|--------------------|---------------------------------|---------------------------|
| Sold To #: 372073 | Ship To #: 3606948 | Quote #: 0021972318 | Sales Order #: 0901957667 |
| Customer: TAPSTONE ENERGY LLC | | Customer Rep: Skipper | |
| Well Name: HARRY 4-35-10 | Well #: 1H | API/UWI #: 15-007-24241-01 | |
| Field: | City (SAP): KIOWA | County/Parish: BARBER | State: KANSAS |
| Legal Description: NE NW NE NE-4-35S-10W-220FNL-870FEL | | | |
| Contractor: NOMAC | | Rig/Platform Name/Num: NOMAC 07 | |
| Job BOM: 7522 | | | |
| Well Type: HORIZONTAL OIL | | | |
| Sales Person: HALAMERICA\HX25353 | | Srcv Supervisor: John Marinis | |
| Job | | | |

| | |
|------------------------|----------------------|
| Formation Name | |
| Formation Depth (MD) | Top Bottom |
| Form Type | BHST |
| Job depth MD | 5195ft 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 |
| Casing | 3 | 9.625 | 8.921 | 36 | LTC | J-55 | 0 | 800 | | |
| Casing | 3 | 7 | 6.276 | 26 | LTC | P-110 | 0 | 5195 | 0 | 4752 |
| Open Hole Section | | | 8.75 | | | | 800 | 5195 | 800 | 4752 |

| Tools and Accessories | | | | | | | | | |
|-----------------------|---------|-----|------|----------|--|----------------|---------|-----|------|
| Type | Size in | Qty | Make | Depth ft | | Type | Size in | Qty | Make |
| Guide Shoe | 7 | 1 | | 5195 | | Top Plug | 7 | 1 | HES |
| Float Shoe | 7 | | | | | Bottom Plug | 7 | 1 | HES |
| Float Collar | 7 | 1 | | | | SSR plug set | 7 | | HES |
| Insert Float | 7 | | | | | Plug Container | 7 | 1 | HES |
| Stage Tool | 7 | | | | | Centralizers | 7 | | HES |

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

| Fluid Data | | | | | | | | | | |
|-----------------|------------------------|---------------|-----|---------|------------------------|-----------------------------|---------------|--------------|---------------------|--|
| Stage/Plug #: 1 | | | | | | | | | | |
| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft ³ /sack | Mix Fluid Gal | Rate bbl/min | Total Mix Fluid Gal | |
| 1 | Mud Flush III (Liquid) | Mud Flush III | 10 | bbl | 8.4 | | | | | |
| 41 gal/bbl | | FRESH WATER | | | | | | | | |

| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft ³ /sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal | |
|----------------------------|--------------------|--|-------|---------|---------------------------|--------------------------------|------------------|---------------------|---------------------------|--|
| 2 | Lead Cement | ECONOCEM (TM) SYSTEM | 140 | sack | 13.6 | 1.506 | | 4 | 7.3 | |
| | 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) | | | | | | | | |
| | 4 % | HALLIBURTON GEL, 50 LB SK (100064040) | | | | | | | | |
| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft ³ /sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal | |
| 3 | Tail Cement | HALCEM (TM) SYSTEM | 90 | sack | 15.6 | 1.191 | | 4 | 5.36 | |
| | 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 ³ /sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal | |
| 4 | WATER Displacement | WATER Displacement | 195 | bbl | 8.33 | | | | | |
| Cement Left In Pipe | | Amount | 84 ft | | Reason | | | Shoe Joint | | |
| Comment | | | | | | | | | | |