Confidentiality Requested:
☑ Yes ☐ No

# KANSAS CORPORATION COMMISSION
## OIL & GAS CONSERVATION DIVISION

1253439

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 # 35053
Name: Tapstone Energy, LLC
Address 1: PO BOX 1608
Address 2:
City: OKLAHOMA CITY State: OK Zip: 73101 + 1608
Contact Person: Monica Aguilar
Phone: ( 405 ) 702-5457
CONTRACTOR: License # 34500
Name: Nomac Drilling, LLC
Wellsite Geologist: Tammy Alcorn
Purchaser: Atlas Gas Pipeline

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 #:

| 4/10/2015 | 4/22/2015 | 5/5/2015 |
|---|---|---|
| Spud Date or Recompletion Date | Date Reached TD | Completion Date or Recompletion Date |

API No. 15 - 15-077-22134-01-00
Spot Description:
NE - NE - NW - NE Sec. 35 Twp. 34 S. R. 9 ☐ East ☑ West
250 Feet from ☑ North / ☐ South Line of Section
1580 Feet from ☑ East / ☐ West Line of Section

Footages Calculated from Nearest Outside Section Corner:
☑ NE ☐ NW ☐ SE ☐ SW

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

Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84

County: Harper
Lease Name: Andy 26-34-9 Well #: 1H
Field Name:
Producing Formation: Mississippi Lime
Elevation: Ground: 1269 Kelly Bushing: 1291
Total Vertical Depth: 4645 Plug Back Total Depth: 9435
Amount of Surface Pipe Set and Cemented at: 820 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: 05/29/2015
☑ **Confidential Release Date:** 05/28/2017
☑ **Wireline Log Received**
☐ **Geologist Report Received**
☐ **UIC Distribution**
**ALT** ☑ I ☐ II ☐ III **Approved by:** NAOMI JAMES **Date:** 06/02/2015

[redacted]

1253439

Operator Name: Tapstone Energy, LLC Lease Name: Andy 26-34-9 Well #: 1H

Sec. 35 Twp. 34 S. R. 9 ☐ East ☑ West County: Harper

**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 ☐ Yes ☑ No
*(Attach Additional Sheets)*

Samples Sent to Geological Survey ☐ Yes ☑ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

List All E. Logs Run:

MWD/Gamma Ray

☑ Log Formation (Top), Depth and Datum ☐ Sample

| Name | Top | Datum |
|---|---|---|
| Base Heebner | 3495 | -2204 |
| Lansing | 3812 | -2521 |
| Cottage Grove | 4108 | -2809 |
| Oswego Limestone | 4454 | -3099 |
| Cherokee Group | 4616 | -3207 |
| Verdigris Limestone | 4660 | -3229 |
| Mississippi Lime | 4875 | -3329 |

CASING RECORD ☑ New ☐ 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 |
|---|---|---|---|---|---|---|---|
| Surface | 12.250 | 9.625 | 36.0 | 820 | Cl A | 490 | 2% CC & .125#/sx Poly-E-Flake |
| Intermediate | 8.750 | 7.000 | 26.0 | 5126 | Cl A & Cl H | 230 | .4% Halad 9 |
| Liner | 6.125 | 4.500 | 11.6 | 9442 | None | 0 | None |

ADDITIONAL CEMENTING / SQUEEZE RECORD

| Purpose: | Depth Top Bottom | Type of Cement | # Sacks Used | Type and Percent Additives |
|---|---|---|---|---|
| ☐ Perforate ☐ Protect Casing ☐ Plug Back TD ☐ 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 *(Amount and Kind of Material Used)* | Depth |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| TUBING RECORD: | Size: | Set At: | Packer At: | Liner Run: |
|---|---|---|---|---|
| | 2.875 | 4959 | 4959 | ☑ Yes ☐ No |

Date of First, Resumed Production, SWD or ENHR. 5/23/2015

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:
☐ Vented ☑ Sold ☐ Used on Lease
*(If vented, Submit ACO-18.)*

METHOD OF COMPLETION:
☑ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*
☐ Other *(Specify)*

PRODUCTION INTERVAL:
5126-9445

| | |
|---|---|
| Form | ACO1 - Well Completion |
| Operator | Tapstone Energy, LLC |
| Well Name | Andy 26-34-9 1H |
| Doc ID | 1253439 |

Casing

| Purpose Of String | Size Hole Drilled | Size Casing Set | Weight | Setting Depth | Type Of Cement | Number of Sacks Used | Type and Percent Additives |
|---|---|---|---|---|---|---|---|
| Surface | 12.250 | 9.625 | 36.0 | 820 | Cl A | 490 | 2% CC & .125#/sx Poly-E-Flake |
| Intermediate | 8.750 | 7.000 | 26.0 | 5126 | Cl A & Cl H | 230 | .4% Halad 9 |
| Liner | 6.125 | 4.500 | 11.6 | 9442 | None | 0 | None |
| | | | | | | | |

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015


Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

| Measured Depth | Inc. | Azm. | T.V.D. | Ver. Sect. | Coordinates +N / -S | Coordinates +E / -W | Closure Dist. | Closure Angle | DLS | Mtr Yield | Temp (°F) | Vib/Shk Color | Date | Time | Flow Rate | Hz | Watts | S/N | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Survey's are tied into: Assume Vertical at Casing Shoe @ 820' | | | | | | | Date Received: | 04/11/15 | | | | | | | | | | | |
| Company: | | | | | | | | | | | | | | | | | | | |
| 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | | | |
| 1 | 857.00 | 0.30 | 17.50 | 857.00 | 2.03 | 2.14 | 0.67 | 2.24 | 17.50 | 0.04 | 0.00 | 84 °F | | 04/11/15 | 14:34 | 464 (gpm) | 2.5 | 20 | 7 | Start Transmission @ 20 Watts |
| 2 | 920.00 | 1.50 | 353.00 | 919.99 | 3.00 | 3.12 | 0.62 | 3.18 | 11.32 | 1.96 | 0.00 | 86 °F | | 04/11/15 | 15:04 | 563 (gpm) | 2.5 | 20 | 22 | Verify Downlink |
| 3 | 1015.00 | 2.50 | 343.20 | 1,014.93 | 6.29 | 6.33 | -0.13 | 6.33 | 358.85 | 1.11 | 0.00 | 90 °F | | 04/11/15 | 15:53 | 563 (gpm) | 2.5 | 20 | 19 | |
| 4 | 1109.00 | 2.40 | 344.50 | 1,108.84 | 10.27 | 10.19 | -1.25 | 10.27 | 353.04 | 0.12 | 0.00 | 91 °F | | 04/11/15 | 17:00 | 563 (gpm) | 2.5 | 20 | 31 | |
| 5 | 1204.00 | 3.00 | 356.80 | 1,203.74 | 14.72 | 14.59 | -1.92 | 14.72 | 352.52 | 0.87 | 0.00 | 95 °F | | 04/11/15 | 17:45 | 563 (gpm) | 2.5 | 20 | 17 | |
| 6 | 1299.00 | 2.90 | 2.80 | 1,298.61 | 19.56 | 19.47 | -1.94 | 19.57 | 354.32 | 0.34 | 0.00 | 95 °F | | 04/11/15 | 18:15 | 563 (gpm) | 2.5 | 20 | 12 | |
| 7 | 1393.00 | 2.90 | 359.30 | 1,392.49 | 24.26 | 24.23 | -1.85 | 24.30 | 355.63 | 0.19 | 0.00 | 95 °F | | 04/11/15 | 19:10 | 563 (gpm) | 2.5 | 14 | 16 | Downlink to 14 Watts. |
| 8 | 1488.00 | 2.80 | 3.00 | 1,487.37 | 28.92 | 28.95 | -1.76 | 29.00 | 356.53 | 0.22 | 0.00 | 99 °F | | 04/11/15 | 20:20 | 563 (gpm) | 2.5 | 14 | 18 | |
| 9 | 1583.00 | 2.90 | 334.20 | 1,582.26 | 33.49 | 33.43 | -2.68 | 33.54 | 355.41 | 1.50 | 0.00 | 99 °F | | 04/11/15 | 21:15 | 563 (gpm) | 2.5 | 14 | 18 | |
| 10 | 1677.00 | 2.50 | 333.80 | 1,676.16 | 37.69 | 37.41 | -4.62 | 37.69 | 352.96 | 0.43 | 0.00 | 106 °F | | 04/11/15 | 22:00 | 563 (gpm) | 2.5 | 14 | 16 | |
| 11 | 1772.00 | 3.60 | 343.20 | 1,771.02 | 42.60 | 42.12 | -6.40 | 42.61 | 351.36 | 1.27 | 0.00 | 108 °F | | 04/11/15 | 22:50 | 563 (gpm) | 2.5 | 14 | 17 | |
| 12 | 1866.00 | 3.60 | 343.50 | 1,864.84 | 48.43 | 47.78 | -8.09 | 48.46 | 350.39 | 0.02 | 0.00 | 110 °F | | 04/11/15 | 23:40 | 563 (gpm) | 2.5 | 14 | 18 | |
| 13 | 1961.00 | 2.60 | 359.30 | 1,959.70 | 53.52 | 52.79 | -8.96 | 53.55 | 350.36 | 1.38 | 0.00 | 110 °F | | 04/12/15 | 0:15 | 563 (gpm) | 2.5 | 14 | 17 | |
| 14 | 2053.00 | 2.20 | 355.30 | 2,051.62 | 57.35 | 56.64 | -9.13 | 57.37 | 350.84 | 0.47 | 0.00 | 113 °F | | 04/12/15 | 1:00 | 563 (gpm) | 2.5 | 14 | 17 | |
| 15 | 2147.00 | 2.00 | 350.20 | 2,145.55 | 60.79 | 60.05 | -9.56 | 60.81 | 350.95 | 0.29 | 0.00 | 113 °F | | 04/12/15 | 1:30 | 563 (gpm) | 2.5 | 14 | 18 | |
| 16 | 2241.00 | 1.60 | 20.60 | 2,239.51 | 63.59 | 62.90 | -9.38 | 63.59 | 351.52 | 1.08 | 0.00 | 115 °F | | 04/12/15 | 2:10 | 563 (gpm) | 2.5 | 14 | 18 | |
| 17 | 2337.00 | 1.50 | 17.30 | 2,335.47 | 65.91 | 65.35 | -8.53 | 65.91 | 352.56 | 0.14 | 0.00 | 115 °F | | 04/12/15 | 2:45 | 563 (gpm) | 2.5 | 14 | 15 | |
| 18 | 2430.00 | 1.50 | 18.20 | 2,428.44 | 68.10 | 67.67 | -7.79 | 68.12 | 353.43 | 0.03 | 0.00 | 117 °F | | 04/12/15 | 3:20 | 563 (gpm) | 2.5 | 14 | 16 | |
| 19 | 2523.00 | 0.50 | 265.90 | 2,521.43 | 69.22 | 68.80 | -7.82 | 69.24 | 353.52 | 1.88 | 0.00 | 117 °F | | 04/12/15 | 4:10 | 563 (gpm) | 2.5 | 14 | 16 | |
| 20 | 2617.00 | 0.40 | 279.80 | 2,615.43 | 69.35 | 68.82 | -8.55 | 69.35 | 352.92 | 0.16 | 0.00 | 120 °F | | 04/12/15 | 4:45 | 563 (gpm) | 2.5 | 14 | 15 | |
| 21 | 2710.00 | 0.40 | 263.40 | 2,708.43 | 69.45 | 68.84 | -9.19 | 69.45 | 352.40 | 0.12 | 0.00 | 122 °F | | 04/12/15 | 5:30 | 563 (gpm) | 2.5 | 14 | 16 | |
| 22 | 2898.00 | 0.30 | 242.30 | 2,896.42 | 69.30 | 68.54 | -10.28 | 69.30 | 351.47 | 0.09 | 0.00 | 122 °F | | 04/12/15 | 7:12 | 563 (gpm) | 2.5 | 14 | 9.4 | |
| 23 | 3087.00 | 0.30 | 273.10 | 3,085.42 | 69.22 | 68.33 | -11.21 | 69.25 | 350.68 | 0.08 | 0.00 | 99 °F | | 04/12/15 | 9:54 | 492 (gpm) | 2.5 | 14 | 16 | |
| 24 | 3273.00 | 0.80 | 335.60 | 3,271.41 | 70.56 | 69.54 | -12.23 | 70.61 | 350.02 | 0.38 | 0.00 | 95 °F | | 04/12/15 | 10:58 | 492 (gpm) | 2.5 | 14 | 15 | |
| 25 | 3461.00 | 0.50 | 314.40 | 3,459.40 | 72.46 | 71.31 | -13.36 | 72.55 | 349.39 | 0.20 | 0.00 | 104 °F | | 04/12/15 | 12:06 | 492 (gpm) | 2.5 | 14 | 15 | |
| 26 | 3649.00 | 0.30 | 337.30 | 3,647.40 | 73.58 | 72.34 | -14.14 | 73.71 | 348.94 | 0.13 | 0.00 | 108 °F | | 04/12/15 | 13:25 | 492 (gpm) | 2.5 | 14 | 17 | |
| 27 | 3835.00 | 0.20 | 358.90 | 3,833.39 | 74.38 | 73.11 | -14.33 | 74.51 | 348.91 | 0.07 | 0.00 | 113 °F | | 04/12/15 | 15:21 | 464 (gpm) | 2.5 | 14 | 15 | Downlink Custom 2 (30 Min.) |
| 28 | 3899.00 | 4.90 | 359.50 | 3,897.31 | 77.20 | 75.96 | -14.36 | 77.31 | 349.30 | 7.34 | 12.00 | 113 °F | | 04/12/15 | 16:14 | 440 (gpm) | 2.5 | 14 | 15 | |
| 29 | 3931.00 | 9.20 | 359.30 | 3,929.06 | 81.10 | 79.89 | -14.40 | 81.17 | 349.78 | 13.44 | 13.40 | 113 °F | | 04/12/15 | 17:01 | 440 (gpm) | 2.5 | 14 | 15 | |
| 30 | 3961.00 | 12.70 | 358.10 | 3,958.51 | 86.76 | 85.58 | -14.54 | 86.81 | 350.36 | 11.69 | 11.70 | 115 °F | | 04/12/15 | 17:31 | 440 (gpm) | 2.5 | 14 | 4 | |
| 31 | 3993.00 | 14.80 | 354.20 | 3,989.59 | 94.34 | 93.17 | -15.07 | 94.38 | 350.81 | 7.17 | 16.00 | 115 °F | | 04/12/15 | 18:10 | 500 (gpm) | 2.5 | 17 | 15 | Downlink to 17 Watts. |
| 32 | 4024.00 | 16.80 | 352.20 | 4,019.42 | 102.78 | 101.54 | -16.08 | 102.81 | 351.00 | 6.69 | 16.60 | 117 °F | | 04/12/15 | 18:45 | 500 (gpm) | 2.5 | 17 | 14 | |
| 33 | 4056.00 | 18.30 | 351.70 | 4,049.93 | 112.43 | 111.10 | -17.43 | 112.46 | 351.08 | 4.71 | 15.00 | 117 °F | | 04/12/15 | 19:20 | 510 (gpm) | 2.5 | 17 | 15 | |
| 34 | 4088.00 | 19.50 | 353.00 | 4,080.21 | 122.80 | 121.37 | -18.81 | 122.82 | 351.19 | 3.97 | 11.50 | 117 °F | | 04/12/15 | 20:10 | 510 (gpm) | 2.5 | 17 | 15 | |
| 35 | 4119.00 | 21.20 | 352.70 | 4,109.27 | 133.58 | 132.07 | -20.15 | 133.60 | 351.33 | 5.49 | 12.50 | 120 °F | | 04/12/15 | 20:55 | 510 (gpm) | 2.5 | 17 | 15 | |
| 36 | 4150.00 | 24.10 | 352.80 | 4,137.88 | 145.51 | 143.91 | -21.65 | 145.53 | 351.44 | 9.36 | 18.00 | 120 °F | | 04/12/15 | 20:50 | 510 (gpm) | 2.5 | 17 | 15 | |
| 37 | 4181.00 | 26.50 | 352.20 | 4,165.90 | 158.76 | 157.04 | -23.39 | 158.77 | 351.53 | 7.79 | 17.10 | 122 °F | | 04/12/15 | 23:30 | 510 (gpm) | 2.5 | 17 | 11 | |
| 38 | 4212.00 | 28.00 | 352.30 | 4,193.46 | 172.95 | 171.11 | -25.30 | 172.97 | 351.59 | 4.84 | 18.70 | 122 °F | | 04/13/15 | 0:30 | 510 (gpm) | 2.5 | 17 | 14 | |
| 39 | 4243.00 | 30.00 | 352.60 | 4,220.57 | 187.98 | 186.00 | -27.27 | 187.99 | 351.66 | 6.47 | 19.90 | 122 °F | | 04/13/15 | 1:10 | 510 (gpm) | 2.5 | 17 | 15 | |
| 40 | 4274.00 | 31.60 | 353.40 | 4,247.20 | 203.85 | 201.76 | -29.21 | 203.86 | 351.76 | 5.33 | 18.30 | 122 °F | | 04/13/15 | 2:00 | 510 (gpm) | 2.5 | 17 | 12 | |
| 41 | 4305.00 | 32.90 | 354.00 | 4,273.42 | 220.39 | 218.20 | -31.02 | 220.39 | 351.91 | 4.32 | 20.00 | 124 °F | | 04/13/15 | 2:50 | 510 (gpm) | 2.5 | 17 | 14 | |
| 42 | 4337.00 | 34.80 | 353.50 | 4,299.99 | 238.21 | 235.92 | -32.96 | 238.21 | 352.05 | 6.00 | 19.20 | 124 °F | | 04/13/15 | 3:40 | 510 (gpm) | 2.5 | 17 | 14 | Chk Downlink capability (Good) |
| 43 | 4368.00 | 37.20 | 354.00 | 4,325.07 | 256.42 | 254.03 | -34.94 | 256.42 | 352.17 | 7.80 | 21.00 | 124 °F | | 04/13/15 | 4:20 | 510 (gpm) | 2.5 | 17 | 4 | |
| 44 | 4399.00 | 39.30 | 353.50 | 4,349.41 | 275.61 | 273.11 | -37.03 | 275.61 | 352.28 | 6.85 | 19.30 | 124 °F | | 04/13/15 | 5:00 | 510 (gpm) | 2.5 | 17 | 12 | |
| 45 | 4430.00 | 40.90 | 353.50 | 4,373.12 | 295.57 | 292.94 | -39.29 | 295.57 | 352.36 | 5.16 | 17.80 | 124 °F | | 04/13/15 | 6:00 | 510 (gpm) | 2.5 | 17 | 12 | |
| 46 | 4461.00 | 42.50 | 353.30 | 4,396.27 | 316.19 | 313.43 | -41.67 | 316.19 | 352.43 | 5.18 | 17.80 | 124 °F | | 04/13/15 | 7:00 | 510 (gpm) | 2.5 | 17 | 14 | |
| 47 | 4493.00 | 45.10 | 353.30 | 4,419.36 | 338.33 | 335.42 | -44.25 | 338.33 | 352.48 | 8.13 | 17.30 | 124 °F | | 04/13/15 | 7:55 | 510 (gpm) | 2.5 | 17 | 13 | |
| 48 | 4524.00 | 48.30 | 352.50 | 4,440.62 | 360.89 | 357.81 | -47.04 | 360.89 | 352.51 | 10.49 | 20.30 | 124 °F | | 04/13/15 | 8:48 | 510 (gpm) | 2.5 | 17 | 13 | |
| 49 | 4556.00 | 50.70 | 351.50 | 4,461.40 | 385.22 | 381.90 | -50.43 | 385.22 | 352.48 | 7.87 | 15.70 | 124 °F | | 04/13/15 | 9:46 | 510 (gpm) | 2.5 | 17 | 4 | |
| 50 | 4588.00 | 53.40 | 351.40 | 4,481.08 | 410.44 | 406.85 | -54.18 | 410.45 | 352.41 | 8.44 | 18.00 | 124 °F | | 04/13/15 | 10:37 | 510 (gpm) | 2.5 | 17 | 4 | Downlink to 20 watts |

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

PRODIRECTIONAL

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

| | Measured Depth | Inc. | Azm. | T.V.D. | Coordinates Ver. Sect. | +N / -S | +E / -W | Closure Dist. | Angle | DLS | Mtr Yield | Temp (°F) | Vib/Shk Color | Date | Time | Flow Rate | Hz | Watts | S/N | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | 4619.00 | 56.20 | 352.70 | 4,498.95 | 435.77 | 431.94 | -57.68 | 435.77 | 352.39 | 9.66 | 17.60 | 124 °F | | 04/13/15 | 11:24 | 510 (gpm) | 2.5 | 20 | 8.4 | |
| 52 | 4650.00 | 59.50 | 352.80 | 4,515.44 | 462.01 | 457.97 | -60.99 | 462.02 | 352.41 | 10.65 | 18.30 | 124 °F | | 04/13/15 | 12:14 | 510 (gpm) | 2.5 | 20 | 8.9 | |
| 53 | 4681.00 | 62.20 | 353.10 | 4,530.54 | 489.08 | 484.84 | -64.31 | 489.09 | 352.44 | 8.75 | 0.00 | 124 °F | | 04/13/15 | 12:48 | 510 (gpm) | 2.5 | 20 | 8.8 | Start Tangent |
| 54 | 4712.00 | 63.10 | 352.80 | 4,544.78 | 516.62 | 512.16 | -67.69 | 516.62 | 352.47 | 3.03 | 0.00 | 124 °F | | 04/13/15 | 12:31 | 510 (gpm) | 2.5 | 20 | 8.8 | |
| 55 | 4743.00 | 63.40 | 352.20 | 4,558.73 | 544.30 | 539.61 | -71.31 | 544.30 | 352.47 | 1.98 | 0.00 | 126 °F | | 04/13/15 | 13:58 | 510 (gpm) | 2.5 | 20 | 8.8 | |
| 56 | 4774.00 | 62.90 | 352.20 | 4,572.74 | 571.96 | 567.01 | -75.06 | 571.96 | 352.46 | 1.61 | 0.00 | 127 °F | | 04/13/15 | 14:31 | 510 (gpm) | 2.5 | 20 | 8.4 | |
| 57 | 4805.00 | 62.80 | 352.40 | 4,586.88 | 599.54 | 594.35 | -78.76 | 599.54 | 352.45 | 0.66 | 0.00 | 127 °F | | 04/13/15 | 14:59 | 510 (gpm) | 2.5 | 20 | 8.6 | |
| 58 | 4836.00 | 62.80 | 352.90 | 4,601.05 | 627.11 | 621.69 | -82.28 | 627.11 | 352.46 | 1.43 | 0.00 | 127 °F | | 04/13/15 | 15:37 | 510 (gpm) | 2.5 | 20 | 8.6 | |
| 59 | 4868.00 | 63.20 | 352.60 | 4,615.58 | 655.62 | 649.98 | -85.88 | 655.63 | 352.47 | 1.50 | 0.00 | 126 °F | | 04/13/15 | 16:46 | 510 (gpm) | 2.5 | 20 | 9 | Exit Tangent |
| 60 | 4899.00 | 64.20 | 352.20 | 4,629.32 | 683.41 | 677.52 | -89.56 | 683.42 | 352.47 | 3.43 | 0.00 | 126 °F | | 04/13/15 | 18:30 | 510 (gpm) | 2.5 | 20 | 9.5 | |
| 61 | 4930.00 | 67.90 | 352.30 | 4,641.90 | 711.74 | 705.59 | -93.38 | 711.74 | 352.46 | 11.94 | 19.40 | 126 °F | | 04/13/15 | 19:45 | 510 (gpm) | 2.5 | 20 | 9.8 | |
| 62 | 4962.00 | 71.50 | 352.30 | 4,653.00 | 741.75 | 735.33 | -97.40 | 741.75 | 352.45 | 11.25 | 16.00 | 126 °F | | 04/13/15 | 20:55 | 510 (gpm) | 2.5 | 20 | 9.1 | |
| 63 | 4992.00 | 75.10 | 352.60 | 4,661.62 | 770.48 | 763.81 | -101.17 | 770.48 | 352.45 | 12.04 | 18.90 | 126 °F | | 04/13/15 | 22:00 | 510 (gpm) | 2.5 | 20 | 9 | |
| 64 | 5023.00 | 79.00 | 353.00 | 4,668.56 | 800.68 | 793.78 | -104.96 | 800.68 | 352.47 | 12.64 | 19.30 | 129 °F | | 04/13/15 | 23:45 | 510 (gpm) | 2.5 | 20 | 8.9 | |
| 65 | 5054.00 | 83.10 | 353.00 | 4,673.38 | 831.29 | 824.16 | -108.69 | 831.30 | 352.49 | 13.23 | 18.00 | 129 °F | | 04/14/15 | 1:00 | 510 (gpm) | 2.5 | 20 | 9.7 | |
| 66 | 5086.00 | 86.90 | 352.40 | 4,676.17 | 863.17 | 855.78 | -112.74 | 863.17 | 352.50 | 12.02 | 18.50 | 131 °F | | 04/14/15 | 2:00 | 510 (gpm) | 2.5 | 20 | 8.9 | POOH to run 7 Inch Casing |
| 67 | 5149.00 | 90.60 | 350.60 | 4,677.55 | 926.13 | 918.06 | -122.05 | 926.13 | 352.43 | 6.53 | 0.00 | 127 °F | | 04/15/15 | 7:09 | 225 (gpm) | 2.5 | 20 | 14 | Gap Sub still 18' Inside Casing with Good SNR |
| 68 | 5181.00 | 90.70 | 350.20 | 4,677.18 | 958.11 | 949.61 | -127.38 | 958.11 | 352.36 | 1.29 | 0.00 | 127 °F | | 04/15/15 | 7:41 | 225 (gpm) | 2.5 | 20 | 8.9 | |
| 69 | 5212.00 | 91.20 | 350.30 | 4,676.67 | 989.09 | 980.15 | -132.63 | 989.09 | 352.29 | 1.64 | 0.00 | 127 °F | | 04/15/15 | 8:13 | 225 (gpm) | 2.5 | 20 | 9.4 | Verify Downlink |
| 70 | 5244.00 | 91.30 | 351.00 | 4,675.97 | 1,021.07 | 1,011.72 | -137.83 | 1,021.07 | 352.24 | 2.21 | 0.00 | 127 °F | | 04/15/15 | 8:41 | 225 (gpm) | 2.5 | 20 | 8.7 | |
| 71 | 5276.00 | 90.80 | 351.30 | 4,675.39 | 1,053.05 | 1,043.34 | -142.75 | 1,053.06 | 352.21 | 1.82 | 0.00 | 127 °F | | 04/15/15 | 9:00 | 225 (gpm) | 2.5 | 20 | 8.6 | |
| 72 | 5307.00 | 91.10 | 351.40 | 4,674.87 | 1,084.05 | 1,073.98 | -147.41 | 1,084.05 | 352.18 | 1.02 | 0.00 | 127 °F | | 04/15/15 | 9:24 | 225 (gpm) | 2.5 | 20 | 9.1 | Downlink Restart Dipole |
| 73 | 5339.00 | 91.00 | 351.50 | 4,674.28 | 1,116.04 | 1,105.62 | -152.17 | 1,116.04 | 352.16 | 0.44 | 0.00 | 127 °F | | 04/15/15 | 10:10 | 225 (gpm) | 2.5 | 20 | 13 | |
| 74 | 5371.00 | 90.30 | 352.80 | 4,673.92 | 1,148.03 | 1,137.31 | -156.54 | 1,148.04 | 352.16 | 4.61 | 0.00 | 127 °F | | 04/15/15 | 10:52 | 225 (gpm) | 2.5 | 20 | 20 | Downlink to17 watts |
| 75 | 5402.00 | 90.70 | 352.00 | 4,673.65 | 1,179.03 | 1,168.04 | -160.64 | 1,179.04 | 352.17 | 2.89 | 0.00 | 127 °F | | 04/15/15 | 11:33 | 225 (gpm) | 2.5 | 17 | 21 | |
| 76 | 5434.00 | 91.20 | 352.40 | 4,673.12 | 1,211.03 | 1,199.74 | -164.98 | 1,211.03 | 352.17 | 2.00 | 0.00 | 127 °F | | 04/15/15 | 12:02 | 225 (gpm) | 2.5 | 17 | 20 | |
| 77 | 5465.00 | 91.20 | 351.90 | 4,672.47 | 1,242.02 | 1,230.44 | -169.22 | 1,242.02 | 352.17 | 1.61 | 0.00 | 129 °F | | 04/15/15 | 12:24 | 225 (gpm) | 2.5 | 12 | 21 | Downlink to 12 watts |
| 78 | 5497.00 | 90.60 | 351.00 | 4,671.97 | 1,274.01 | 1,262.08 | -173.97 | 1,274.02 | 352.15 | 3.38 | 0.00 | 129 °F | | 04/15/15 | 12:51 | 250 (gpm) | 2.5 | 10 | 20 | Downlink to 10 watts |
| 79 | 5528.00 | 91.20 | 351.10 | 4,671.48 | 1,305.00 | 1,292.70 | -178.80 | 1,305.01 | 352.13 | 1.96 | 0.00 | 129 °F | | 04/15/15 | 13:37 | 250 (gpm) | 2.5 | 10 | 20 | Downlink to 8 watts |
| 80 | 5560.00 | 92.10 | 351.40 | 4,670.56 | 1,336.98 | 1,324.32 | -183.66 | 1,336.99 | 352.10 | 2.96 | 0.00 | 131 °F | | 04/15/15 | 14:17 | 250 (gpm) | 2.5 | 8 | 20 | |
| 81 | 5592.00 | 92.60 | 351.20 | 4,669.25 | 1,368.95 | 1,355.92 | -188.50 | 1,368.96 | 352.09 | 1.68 | 0.00 | 131 °F | | 04/15/15 | 23:05 | 235 (gpm) | 2.5 | 20 | 8.9 | |
| 82 | 5623.00 | 92.80 | 350.70 | 4,667.79 | 1,399.91 | 1,386.50 | -193.37 | 1,399.92 | 352.06 | 1.74 | 0.00 | 131 °F | | 04/15/15 | 23:45 | 235 (gpm) | 2.5 | 20 | 9.1 | |
| 83 | 5655.00 | 93.10 | 351.00 | 4,666.14 | 1,431.86 | 1,418.05 | -198.45 | 1,431.87 | 352.03 | 1.32 | 0.00 | 131 °F | | 04/16/15 | 0:19 | 260 (gpm) | 2.5 | 20 | 9.4 | |
| 84 | 5686.00 | 92.80 | 352.50 | 4,664.55 | 1,462.81 | 1,448.69 | -202.89 | 1,462.83 | 352.03 | 4.93 | 0.00 | 133 °F | | 04/16/15 | 0:45 | 260 (gpm) | 2.5 | 20 | 9 | |
| 85 | 5716.00 | 91.00 | 352.00 | 4,663.55 | 1,492.79 | 1,478.40 | -206.94 | 1,492.81 | 352.03 | 6.23 | 0.00 | 133 °F | | 04/16/15 | 1:15 | 260 (gpm) | 2.5 | 20 | 8.9 | |
| 86 | 5747.00 | 89.50 | 351.10 | 4,663.42 | 1,523.79 | 1,509.06 | -211.49 | 1,523.81 | 352.02 | 5.64 | 0.00 | 133 °F | | 04/16/15 | 1:36 | 260 (gpm) | 2.5 | 20 | 9.3 | Verify Downlink. |
| 87 | 5778.00 | 88.80 | 350.60 | 4,663.88 | 1,554.78 | 1,539.66 | -216.42 | 1,554.80 | 352.00 | 2.77 | 0.00 | 133 °F | | 04/16/15 | 2:10 | 221 (gpm) | 2.5 | 20 | 9.1 | |
| 88 | 5808.00 | 91.10 | 351.90 | 4,663.90 | 1,584.77 | 1,569.31 | -220.98 | 1,584.79 | 351.98 | 8.81 | 0.00 | 133 °F | | 04/16/15 | 3:01 | 235 (gpm) | 2.5 | 20 | 9 | |
| 89 | 5839.00 | 91.30 | 353.00 | 4,663.25 | 1,615.76 | 1,600.03 | -225.06 | 1,615.78 | 351.99 | 3.61 | 0.00 | 133 °F | | 04/16/15 | 3:31 | 235 (gpm) | 2.5 | 20 | 9.4 | |
| 90 | 5869.00 | 90.90 | 352.10 | 4,662.68 | 1,645.75 | 1,629.77 | -228.94 | 1,645.78 | 352.00 | 3.28 | 0.00 | 135 °F | | 04/16/15 | 4:02 | 239 (gpm) | 2.5 | 20 | 9.3 | |
| 91 | 5900.00 | 90.30 | 351.90 | 4,662.35 | 1,676.75 | 1,660.47 | -233.26 | 1,676.77 | 352.00 | 2.04 | 0.00 | 135 °F | | 04/16/15 | 4:35 | 239 (gpm) | 2.5 | 20 | 9.4 | |
| 92 | 5931.00 | 89.90 | 352.30 | 4,662.30 | 1,707.75 | 1,691.18 | -237.52 | 1,707.77 | 352.01 | 1.82 | 0.00 | 135 °F | | 04/16/15 | 5:24 | 239 (gpm) | 2.5 | 20 | 9.5 | |
| 93 | 5961.00 | 90.00 | 353.10 | 4,662.32 | 1,737.75 | 1,720.93 | -241.33 | 1,737.77 | 352.02 | 2.69 | 0.00 | 136 °F | | 04/16/15 | 6:09 | 239 (gpm) | 2.5 | 20 | 9.4 | |
| 94 | 5991.00 | 90.20 | 353.00 | 4,662.27 | 1,767.75 | 1,750.71 | -244.96 | 1,767.77 | 352.03 | 0.75 | 0.00 | 136 °F | | 04/16/15 | 6:57 | 239 (gpm) | 2.5 | 20 | 9.6 | |
| 95 | 6022.00 | 90.60 | 353.00 | 4,662.06 | 1,798.75 | 1,781.48 | -248.74 | 1,798.76 | 352.05 | 1.29 | 0.00 | 138 °F | | 04/16/15 | 7:48 | 239 (gpm) | 2.5 | 20 | 9.1 | |
| 96 | 6053.00 | 90.70 | 353.20 | 4,661.70 | 1,829.74 | 1,812.25 | -252.46 | 1,829.76 | 352.07 | 0.72 | 0.00 | 138 °F | | 04/16/15 | 8:26 | 239 (gpm) | 2.5 | 20 | 9.4 | |
| 97 | 6083.00 | 90.10 | 352.70 | 4,661.49 | 1,859.74 | 1,842.03 | -256.14 | 1,859.75 | 352.08 | 2.60 | 0.00 | 138 °F | | 04/16/15 | 9:06 | 239 (gpm) | 2.5 | 20 | 9 | |
| 98 | 6113.00 | 89.90 | 353.10 | 4,661.49 | 1,889.74 | 1,871.80 | -259.85 | 1,889.75 | 352.10 | 1.49 | 0.00 | 138 °F | | 04/16/15 | 16:43 | 239 (gpm) | 2.5 | 17 | 13 | |
| 99 | 6143.00 | 89.90 | 353.00 | 4,661.55 | 1,919.73 | 1,901.58 | -263.48 | 1,919.74 | 352.11 | 0.33 | 0.00 | 138 °F | | 04/16/15 | 17:42 | 239 (gpm) | 2.5 | 17 | 14 | |
| 100 | 6173.00 | 90.40 | 352.40 | 4,661.47 | 1,949.73 | 1,931.33 | -267.30 | 1,949.74 | 352.12 | 2.60 | 0.00 | 135 °F | | 04/16/15 | 18:05 | 239 (gpm) | 2.5 | 17 | 9.3 | |
| 101 | 6204.00 | 90.60 | 352.90 | 4,661.20 | 1,980.73 | 1,962.08 | -271.26 | 1,980.74 | 352.13 | 1.74 | 0.00 | 137 °F | | 04/16/15 | 18:45 | 239 (gpm) | 2.5 | 17 | 8.7 | |
| 102 | 6233.00 | 90.60 | 352.20 | 4,660.89 | 2,009.73 | 1,990.83 | -275.02 | 2,009.74 | 352.13 | 2.41 | 0.00 | 135 °F | | 04/16/15 | 19:39 | 239 (gpm) | 2.5 | 17 | 8.2 | |
| 103 | 6264.00 | 90.80 | 353.00 | 4,660.52 | 2,040.73 | 2,021.57 | -279.01 | 2,040.73 | 352.14 | 2.66 | 0.00 | 137 °F | | 04/16/15 | 20:25 | 239 (gpm) | 2.5 | 17 | 8.9 | |

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015


Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

| | Measured Depth | Inc. | Azm. | T.V.D. | Coordinates Ver. Sect. | Coordinates +N / -S | Coordinates +E / -W | Closure Dist. | Closure Angle | DLS | Mtr Yield | Temp (°F) | Vib/Shk Color | Date | Time | Flow Rate | Hz | Watts | S/N | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 104 | 6294.00 | 90.90 | 352.90 | 4,660.07 | 2,070.72 | 2,051.34 | -282.69 | 2,070.73 | 352.15 | 0.47 | 0.00 | 137 °F | | 04/16/15 | 21:15 | 239 (gpm) | 2.5 | 17 | 4.3 | |
| 105 | 6324.00 | 90.80 | 353.60 | 4,659.63 | 2,100.71 | 2,081.13 | -286.22 | 2,100.72 | 352.17 | 2.36 | 0.00 | 137 °F | | 04/16/15 | 21:50 | 239 (gpm) | 2.5 | 17 | 13 | |
| 106 | 6355.00 | 90.70 | 353.30 | 4,659.22 | 2,131.70 | 2,111.92 | -289.76 | 2,131.71 | 352.19 | 1.02 | 0.00 | 137 °F | | 04/16/15 | 23:45 | 239 (gpm) | 2.5 | 17 | 8 | |
| 107 | 6385.00 | 91.00 | 353.50 | 4,658.77 | 2,161.69 | 2,141.72 | -293.20 | 2,161.70 | 352.20 | 1.20 | 0.00 | 137 °F | | 04/17/15 | 0:26 | 239 (gpm) | 2.5 | 17 | 4.8 | |
| 108 | 6415.00 | 90.90 | 352.90 | 4,658.28 | 2,191.69 | 2,171.51 | -296.76 | 2,191.69 | 352.22 | 2.03 | 0.00 | 137 °F | | 04/17/15 | 1:15 | 239 (gpm) | 2.5 | 17 | 6.3 | |
| 109 | 6445.00 | 90.80 | 352.40 | 4,657.83 | 2,221.68 | 2,201.26 | -300.59 | 2,221.68 | 352.22 | 1.70 | 0.00 | 140 °F | | 04/17/15 | 2:24 | 239 (gpm) | 2.5 | 17 | 9 | Verify Downlink |
| 110 | 6476.00 | 90.60 | 352.00 | 4,657.45 | 2,252.68 | 2,231.97 | -304.80 | 2,252.68 | 352.22 | 1.44 | 0.00 | 140 °F | | 04/17/15 | 3:17 | 239 (gpm) | 2.5 | 17 | 8.8 | |
| 111 | 6506.00 | 90.50 | 352.50 | 4,657.17 | 2,282.68 | 2,261.69 | -308.85 | 2,282.68 | 352.22 | 1.70 | 0.00 | 140 °F | | 04/17/15 | 4:07 | 239 (gpm) | 2.5 | 17 | 9.3 | |
| 112 | 6536.00 | 91.00 | 352.20 | 4,656.77 | 2,312.68 | 2,291.42 | -312.84 | 2,312.68 | 352.23 | 1.94 | 0.00 | 140 °F | | 04/17/15 | 5:05 | 239 (gpm) | 2.5 | 17 | 9 | |
| 113 | 6566.00 | 91.10 | 351.70 | 4,656.22 | 2,342.67 | 2,321.12 | -317.04 | 2,342.67 | 352.22 | 1.70 | 0.00 | 140 °F | | 04/17/15 | 5:55 | 239 (gpm) | 2.5 | 17 | 9.2 | |
| 114 | 6597.00 | 91.00 | 351.40 | 4,655.65 | 2,373.66 | 2,351.78 | -321.59 | 2,373.66 | 352.21 | 1.02 | 0.00 | 140 °F | | 04/17/15 | 7:08 | 239 (gpm) | 2.5 | 17 | 9.4 | POOH / Downlink to 4 watts conserve battery |
| 115 | 6627.00 | 90.60 | 351.70 | 4,655.24 | 2,403.66 | 2,381.45 | -326.00 | 2,403.66 | 352.21 | 1.67 | 0.00 | 140 °F | | 04/17/15 | 15:23 | 239 (gpm) | 2.5 | 12 | 8.9 | Downlink from surface 14 watts to on bottom 12 watts |
| 116 | 6657.00 | 90.40 | 351.30 | 4,654.97 | 2,433.65 | 2,411.12 | -330.44 | 2,433.66 | 352.20 | 1.49 | 0.00 | 140 °F | | 04/17/15 | 16:38 | 239 (gpm) | 2.5 | 10 | 9.1 | Downlink to 10 watts |
| 117 | 6688.00 | 91.00 | 351.70 | 4,654.60 | 2,464.65 | 2,441.78 | -335.02 | 2,464.65 | 352.19 | 2.33 | 0.00 | 138 °F | | 04/17/15 | 18:00 | 229 (gpm) | 2.5 | 10 | 9.1 | |
| 118 | 6718.00 | 91.90 | 352.30 | 4,653.84 | 2,494.64 | 2,471.47 | -339.19 | 2,494.64 | 352.19 | 3.61 | 0.00 | 138 °F | | 04/17/15 | 19:25 | 232 (gpm) | 2.5 | 10 | 9 | POOH / Downlink to 4 watts conserve battery |
| 119 | 6748.00 | 91.90 | 351.30 | 4,652.84 | 2,524.62 | 2,501.15 | -343.47 | 2,524.62 | 352.18 | 3.33 | 0.00 | 138 °F | | 04/18/15 | 2:47 | 232 (gpm) | 2.5 | 10 | 7.7 | |
| 120 | 6779.00 | 91.70 | 351.90 | 4,651.87 | 2,555.60 | 2,531.80 | -347.99 | 2,555.61 | 352.17 | 2.04 | 0.00 | 138 °F | | 04/18/18 | 4:00 | 232 (gpm) | 2.5 | 10 | 9 | |
| 121 | 6809.00 | 91.70 | 351.00 | 4,650.98 | 2,585.58 | 2,561.46 | -352.45 | 2,585.59 | 352.17 | 3.00 | 0.00 | 138 °F | | 04/18/15 | 5:00 | 235 (gpm) | 2.5 | 10 | 9..3 | |
| 122 | 6840.00 | 91.30 | 351.00 | 4,650.17 | 2,616.57 | 2,592.06 | -357.30 | 2,616.57 | 352.15 | 1.29 | 0.00 | 138 °F | | 04/18/15 | 6:10 | 235 (gpm) | 2.5 | 10 | 9.1 | |
| 123 | 6871.00 | 91.50 | 350.60 | 4,649.41 | 2,647.55 | 2,622.66 | -362.25 | 2,647.56 | 352.14 | 1.44 | 0.00 | 138 °F | | 04/18/18 | 7:28 | 235 (gpm) | 2.5 | 10 | 8.9 | Verify Downlink |
| 124 | 6901.00 | 91.70 | 351.00 | 4,648.57 | 2,677.52 | 2,652.26 | -367.05 | 2,677.54 | 352.12 | 1.49 | 0.00 | 138 °F | | 04/18/15 | 8:49 | 235 (gpm) | 2.5 | 10 | 9.1 | |
| 125 | 6932.00 | 91.80 | 351.20 | 4,647.62 | 2,708.50 | 2,682.87 | -371.84 | 2,708.52 | 352.11 | 0.72 | 0.00 | 136 °F | | 04/18/15 | 9:51 | 232 (gpm) | 2.5 | 10 | 9.1 | |
| 126 | 6963.00 | 91.20 | 353.10 | 4,646.81 | 2,739.49 | 2,713.57 | -376.08 | 2,739.50 | 352.11 | 6.43 | 0.00 | 136 °F | | 04/18/15 | 10:55 | 232 (gpm) | 2.5 | 8 | 9.1 | Downlink to 8 watts |
| 127 | 6993.00 | 90.10 | 353.30 | 4,646.47 | 2,769.48 | 2,743.36 | -379.63 | 2,769.50 | 352.12 | 3.73 | 0.00 | 136 °F | | 04/18/15 | 11:55 | 232 (gpm) | 2.5 | 8 | 8.9 | |
| 128 | 7024.00 | 90.60 | 353.60 | 4,646.28 | 2,800.48 | 2,774.15 | -383.16 | 2,800.49 | 352.14 | 1.88 | 0.00 | 136 °F | | 04/18/15 | 13:14 | 232 (gpm) | 2.5 | 8 | 9 | |
| 129 | 7055.00 | 91.10 | 354.50 | 4,645.82 | 2,831.46 | 2,804.98 | -386.38 | 2,831.47 | 352.16 | 3.32 | 0.00 | 134 °F | | 04/18/15 | 14:20 | 232 (gpm) | 2.5 | 8 | 8.9 | |
| 130 | 7085.00 | 91.60 | 356.20 | 4,645.12 | 2,861.41 | 2,834.87 | -388.81 | 2,861.41 | 352.19 | 5.91 | 0.00 | 134 °F | | 04/18/15 | 15:30 | 232 (gpm) | 2.5 | 8 | 8.6 | |
| 131 | 7115.00 | 91.10 | 356.30 | 4,644.41 | 2,891.33 | 2,864.80 | -390.77 | 2,891.33 | 352.23 | 1.70 | 0.00 | 134 °F | | 04/18/15 | 17:05 | 232 (gpm) | 2.5 | 8 | 6.9 | |
| 132 | 7145.00 | 89.70 | 355.90 | 4,644.20 | 2,921.26 | 2,894.73 | -392.81 | 2,921.26 | 352.27 | 4.85 | 0.00 | 126 °F | | 04/19/15 | 2:00 | 221 (gpm) | 2.5 | 10 | 9.2 | Downlink from surface 12 watts to on bottom 10 watts |
| 133 | 7175.00 | 90.00 | 355.10 | 4,644.28 | 2,951.21 | 2,924.64 | -395.16 | 2,951.21 | 352.31 | 2.85 | 0.00 | 128 °F | | 04/19/15 | 3:00 | 215 (gpm) | 2.5 | 10 | 9.3 | |
| 134 | 7206.00 | 90.50 | 355.60 | 4,644.14 | 2,982.17 | 2,955.53 | -397.68 | 2,982.17 | 352.34 | 2.28 | 0.00 | 131 °F | | 04/19/15 | 3:50 | 215 (gpm) | 2.5 | 10 | 8.8 | |
| 135 | 7236.00 | 90.40 | 355.10 | 4,643.91 | 3,012.12 | 2,985.43 | -400.11 | 3,012.13 | 352.37 | 1.70 | 0.00 | 133 °F | | 04/19/15 | 5:00 | 215 (gpm) | 2.5 | 10 | 8.8 | |
| 136 | 7266.00 | 90.90 | 355.40 | 4,643.57 | 3,042.08 | 3,015.33 | -402.59 | 3,042.09 | 352.40 | 1.94 | 0.00 | 136 °F | | 04/19/15 | 5:55 | 215 (gpm) | 2.5 | 10 | 9.1 | |
| 137 | 7296.00 | 91.80 | 355.20 | 4,642.86 | 3,072.03 | 3,045.22 | -405.05 | 3,072.04 | 352.42 | 3.07 | 0.00 | 136 °F | | 04/19/15 | 6:59 | 215 (gpm) | 2.5 | 10 | 9 | |
| 138 | 7327.00 | 92.60 | 355.80 | 4,641.67 | 3,102.96 | 3,076.10 | -407.48 | 3,102.97 | 352.45 | 3.22 | 0.00 | 136 °F | | 04/19/15 | 7:50 | 225 (gpm) | 2.5 | 10 | 9.1 | |
| 139 | 7357.00 | 93.20 | 356.40 | 4,640.15 | 3,132.86 | 3,105.99 | -409.52 | 3,132.87 | 352.49 | 2.83 | 0.00 | 136 °F | | 04/19/15 | 8:41 | 225 (gpm) | 2.5 | 10 | 9.1 | |
| 140 | 7387.00 | 91.90 | 355.40 | 4,638.82 | 3,162.77 | 3,135.89 | -411.66 | 3,162.79 | 352.52 | 5.47 | 0.00 | 138 °F | | 04/19/15 | 9:49 | 225 (gpm) | 2.5 | 10 | 9.5 | |
| 141 | 7418.00 | 89.30 | 355.40 | 4,638.49 | 3,193.72 | 3,166.78 | -414.15 | 3,193.75 | 352.55 | 8.39 | 0.00 | 136 °F | | 04/19/15 | 10:59 | 225 (gpm) | 2.5 | 10 | 9.2 | |
| 142 | 7448.00 | 88.90 | 355.80 | 4,638.96 | 3,223.66 | 3,196.69 | -416.45 | 3,223.70 | 352.58 | 1.89 | 0.00 | 136 °F | | 04/19/15 | 12:20 | 225 (gpm) | 2.5 | 10 | 9 | |
| 143 | 7478.00 | 88.80 | 355.60 | 4,639.57 | 3,253.60 | 3,226.60 | -418.70 | 3,253.65 | 352.61 | 0.75 | 0.00 | 136 °F | | 04/19/15 | 13:26 | 225 (gpm) | 2.5 | 10 | 9 | Downlink to 8 watts |
| 144 | 7508.00 | 88.90 | 356.10 | 4,640.17 | 3,283.54 | 3,256.51 | -420.87 | 3,283.60 | 352.64 | 1.70 | 0.00 | 136 °F | | 04/19/15 | 14:30 | 225 (gpm) | 2.5 | 8 | 9.6 | |
| 145 | 7538.00 | 89.30 | 355.90 | 4,640.64 | 3,313.47 | 3,286.44 | -422.96 | 3,313.54 | 352.67 | 1.49 | 0.00 | 136 °F | | 04/19/15 | 15:27 | 225 (gpm) | 2.5 | 8 | 9.7 | |
| 146 | 7568.00 | 89.30 | 355.70 | 4,641.01 | 3,343.42 | 3,316.35 | -425.16 | 3,343.50 | 352.69 | 0.67 | 0.00 | 136 °F | | 04/19/15 | 16:21 | 225 (gpm) | 2.5 | 8 | 9.8 | |
| 147 | 7598.00 | 89.80 | 355.00 | 4,641.24 | 3,373.37 | 3,346.25 | -427.59 | 3,373.46 | 352.72 | 2.87 | 0.00 | 136 °F | | 04/19/15 | 17:25 | 225 (gpm) | 2.5 | 8 | 10 | |
| 148 | 7629.00 | 90.50 | 354.90 | 4,641.16 | 3,404.34 | 3,377.13 | -430.32 | 3,404.44 | 352.74 | 2.28 | 0.00 | 136 °F | | 04/19/15 | 18:30 | 225 (gpm) | 2.5 | 8 | 10 | |
| 149 | 7659.00 | 91.00 | 353.80 | 4,640.77 | 3,434.32 | 3,406.98 | -433.27 | 3,434.42 | 352.75 | 4.03 | 0.00 | 136 °F | | 04/19/15 | 19:30 | 225 (gpm) | 2.5 | 8 | 10 | |
| 150 | 7689.00 | 90.50 | 352.90 | 4,640.38 | 3,464.31 | 3,436.78 | -436.74 | 3,464.42 | 352.76 | 3.43 | 0.00 | 136 °F | | 04/19/15 | 20:05 | 225 (gpm) | 2.5 | 8 | 10 | |
| 151 | 7719.00 | 90.90 | 352.80 | 4,640.01 | 3,494.31 | 3,466.54 | -440.48 | 3,494.42 | 352.76 | 1.37 | 0.00 | 136 °F | | 04/19/15 | 21:15 | 225 (gpm) | 2.5 | 8 | 10 | |
| 152 | 7750.00 | 91.40 | 352.00 | 4,639.39 | 3,525.30 | 3,497.27 | -444.58 | 3,525.41 | 352.76 | 3.04 | 0.00 | 138 °F | | 04/19/15 | 22:05 | 225 (gpm) | 2.5 | 8 | 10 | |
| 153 | 7780.00 | 91.20 | 352.60 | 4,638.71 | 3,555.29 | 3,526.99 | -448.60 | 3,555.40 | 352.75 | 2.11 | 0.00 | 138 °F | | 04/19/15 | 23:00 | 225 (gpm) | 2.5 | 8 | 10 | |
| 154 | 7810.00 | 91.40 | 351.90 | 4,638.03 | 3,585.28 | 3,556.71 | -452.64 | 3,585.39 | 352.75 | 2.43 | 0.00 | 138 °F | | 04/19/15 | 23:50 | 225 (gpm) | 2.5 | 8 | 10 | |
| 155 | 7841.00 | 91.60 | 352.20 | 4,637.21 | 3,616.27 | 3,587.40 | -456.93 | 3,616.38 | 352.74 | 1.16 | 0.00 | 138 °F | | 04/20/19 | 0:43 | 225 (gpm) | 2.5 | 8 | 10 | |
| 156 | 7871.00 | 91.40 | 352.00 | 4,636.43 | 3,646.26 | 3,617.10 | -461.05 | 3,646.37 | 352.74 | 0.94 | 0.00 | 138 °F | | 04/20/15 | 1:50 | 225 (gpm) | 2.5 | 8 | 11 | |

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

| | Measured Depth | Inc. | Azm. | T.V.D. | Coordinates Ver. Sect. | Coordinates +N / -S | Coordinates +E / -W | Closure Dist. | Closure Angle | DLS | Mtr Yield | Temp (°F) | Vib/Shk Color | Date | Time | Flow Rate | Hz | Watts | S/N | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 157 | 7902.00 | 91.40 | 351.80 | 4,635.67 | 3,677.25 | 3,647.78 | -465.42 | 3,677.35 | 352.73 | 0.64 | 0.00 | 138 °F | | 04/20/15 | 3:30 | 225 (gpm) | 2.5 | 8 | 11 | |
| 158 | 7932.00 | 90.70 | 351.10 | 4,635.12 | 3,707.24 | 3,677.44 | -469.87 | 3,707.34 | 352.72 | 3.30 | 0.00 | 140 °F | | 04/20/15 | 4:45 | 225 (gpm) | 2.5 | 8 | 10 | |
| 159 | 7962.00 | 89.30 | 350.60 | 4,635.12 | 3,737.23 | 3,707.06 | -474.64 | 3,737.32 | 352.70 | 4.96 | 0.00 | 140 °F | | 04/20/15 | 6:00 | 225 (gpm) | 2.5 | 8 | 10 | Downlink to 4 watts to conserve battery while POOH |
| 160 | 7994.00 | 90.10 | 350.00 | 4,635.29 | 3,769.21 | 3,738.60 | -480.04 | 3,769.30 | 352.68 | 3.12 | 0.00 | 138 °F | | 04/20/15 | 14:34 | 225 (gpm) | 2.5 | 6 | 8.9 | Downlink to 6 watts |
| 161 | 8025.00 | 90.40 | 350.20 | 4,635.15 | 3,800.19 | 3,769.14 | -485.37 | 3,800.26 | 352.66 | 1.16 | 0.00 | 138 °F | | 04/20/15 | 15:12 | 225 (gpm) | 2.5 | 6 | 9.1 | |
| 162 | 8057.00 | 90.60 | 350.70 | 4,634.88 | 3,832.17 | 3,800.70 | -490.68 | 3,832.24 | 352.64 | 1.68 | 0.00 | 138 °F | | 04/20/15 | 16:24 | 225 (gpm) | 2.5 | 6 | 9.1 | |
| 163 | 8089.00 | 91.00 | 350.80 | 4,634.43 | 3,864.16 | 3,832.28 | -495.82 | 3,864.22 | 352.63 | 1.29 | 0.00 | 138 °F | | 04/20/15 | 16:52 | 225 (gpm) | 2.5 | 6 | 9.2 | |
| 164 | 8120.00 | 90.90 | 351.80 | 4,633.91 | 3,895.15 | 3,862.92 | -500.51 | 3,895.21 | 352.62 | 3.24 | 0.00 | 138 °F | | 04/20/15 | 17:24 | 225 (gpm) | 2.5 | 6 | 9 | |
| 165 | 8152.00 | 90.30 | 352.50 | 4,633.58 | 3,927.14 | 3,894.61 | -504.88 | 3,927.20 | 352.61 | 2.88 | 0.00 | 138 °F | | 04/20/15 | 17:59 | 225 (gpm) | 2.5 | 6 | 8.9 | |
| 166 | 8184.00 | 90.00 | 352.50 | 4,633.50 | 3,959.14 | 3,926.34 | -509.05 | 3,959.20 | 352.61 | 0.94 | 0.00 | 138 °F | | 04/20/15 | 19:00 | 225 (gpm) | 2.5 | 6 | 9.4 | |
| 167 | 8215.00 | 90.50 | 352.00 | 4,633.36 | 3,990.14 | 3,957.06 | -513.23 | 3,990.20 | 352.61 | 2.28 | 0.00 | 138 °F | | 04/20/15 | 19:50 | 225 (gpm) | 2.5 | 6 | 9.1 | |
| 168 | 8247.00 | 91.10 | 352.10 | 4,632.91 | 4,022.14 | 3,988.75 | -517.66 | 4,022.20 | 352.61 | 1.90 | 0.00 | 140 °F | | 04/20/15 | 20:30 | 225 (gpm) | 2.5 | 6 | 8.9 | |
| 169 | 8278.00 | 91.30 | 352.30 | 4,632.26 | 4,053.13 | 4,019.45 | -521.87 | 4,053.19 | 352.60 | 0.91 | 0.00 | 140 °F | | 04/20/15 | 21:21 | 225 (gpm) | 2.5 | 6 | 9.7 | |
| 170 | 8310.00 | 90.60 | 352.80 | 4,631.73 | 4,085.13 | 4,051.18 | -526.01 | 4,085.18 | 352.60 | 2.69 | 0.00 | 140 °F | | 04/20/15 | 22:00 | 225 (gpm) | 2.5 | 6 | 9.7 | |
| 171 | 8341.00 | 90.60 | 352.30 | 4,631.41 | 4,116.13 | 4,081.91 | -530.03 | 4,116.18 | 352.60 | 1.61 | 0.00 | 142 °F | | 04/20/15 | 22:55 | 225 (gpm) | 2.5 | 6 | 9.1 | |
| 172 | 8373.00 | 90.20 | 351.50 | 4,631.19 | 4,148.12 | 4,113.59 | -534.54 | 4,148.18 | 352.60 | 2.80 | 0.00 | 142 °F | | 04/20/15 | 23:40 | 225 (gpm) | 2.5 | 6 | | |
| 173 | 8404.00 | 89.80 | 351.70 | 4,631.19 | 4,179.12 | 4,144.26 | -539.07 | 4,179.17 | 352.59 | 1.44 | 0.00 | 142 °F | | 04/21/15 | 0:18 | 225 (gpm) | 2.5 | 6 | 9.4 | |
| 174 | 8436.00 | 90.00 | 352.40 | 4,631.24 | 4,211.12 | 4,175.95 | -543.50 | 4,211.17 | 352.58 | 2.28 | 0.00 | 142 °F | | 04/21/15 | 1:00 | 225 (gpm) | 2.5 | 6 | 9.1 | |
| 175 | 8467.00 | 90.10 | 352.30 | 4,631.21 | 4,242.12 | 4,206.68 | -547.62 | 4,242.17 | 352.58 | 0.46 | 0.00 | 140 °F | | 04/21/15 | 1:42 | 225 (gpm) | 2.5 | 6 | 9.6 | |
| 176 | 8499.00 | 89.60 | 352.10 | 4,631.30 | 4,274.12 | 4,238.38 | -551.97 | 4,274.17 | 352.58 | 1.68 | 0.00 | 138 °F | | 04/21/15 | 2:55 | 225 (gpm) | 2.5 | 6 | 10 | |
| 177 | 8530.00 | 91.00 | 351.70 | 4,631.14 | 4,305.12 | 4,269.07 | -556.33 | 4,305.17 | 352.58 | 4.70 | 0.00 | 136 °F | | 04/21/15 | 4:00 | 225 (gpm) | 2.5 | 6 | 9.7 | |
| 178 | 8562.00 | 92.60 | 352.10 | 4,630.13 | 4,337.10 | 4,300.73 | -560.84 | 4,337.15 | 352.57 | 5.15 | 0.00 | 136 °F | | 04/21/15 | 4:55 | 225 (gpm) | 2.5 | 6 | 9.4 | |
| 179 | 8593.00 | 93.10 | 352.00 | 4,628.59 | 4,368.06 | 4,331.40 | -565.12 | 4,368.11 | 352.57 | 1.64 | 0.00 | 133 °F | | 04/21/15 | 6:00 | 225 (gpm) | 2.5 | 6 | 9 | |
| 180 | 8625.00 | 92.00 | 351.60 | 4,627.17 | 4,400.03 | 4,363.04 | -569.68 | 4,400.07 | 352.56 | 3.66 | 0.00 | 133 °F | | 04/21/15 | 7:36 | 225 (gpm) | 2.5 | 6 | 9 | |
| 181 | 8656.00 | 91.00 | 351.10 | 4,626.35 | 4,431.01 | 4,393.68 | -574.34 | 4,431.06 | 352.55 | 3.61 | 0.00 | 133 °F | | 04/21/15 | 8:24 | 225 (gpm) | 2.5 | 6 | 9 | |
| 182 | 8688.00 | 91.20 | 350.60 | 4,625.74 | 4,463.00 | 4,425.26 | -579.43 | 4,463.04 | 352.54 | 1.68 | 0.00 | 133 °F | | 04/21/15 | 8:50 | 225 (gpm) | 2.5 | 6 | 9.5 | Verify downlink Custom 2 (30 Min) |
| 183 | 8719.00 | 89.50 | 350.00 | 4,625.55 | 4,493.98 | 4,455.82 | -584.65 | 4,494.01 | 352.52 | 5.82 | 0.00 | 133 °F | | 04/21/15 | 9:45 | 225 (gpm) | 2.5 | 6 | 9 | |
| 184 | 8751.00 | 89.60 | 348.70 | 4,625.80 | 4,525.93 | 4,487.26 | -590.57 | 4,525.96 | 352.50 | 4.07 | 0.00 | 131 °F | | 04/21/15 | 10:42 | 225 (gpm) | 2.5 | 6 | 9.3 | |
| 185 | 8782.00 | 88.90 | 348.70 | 4,626.21 | 4,556.87 | 4,517.66 | -596.64 | 4,556.89 | 352.48 | 2.26 | 0.00 | 131 °F | | 04/21/15 | 11:34 | 225 (gpm) | 2.5 | 6 | 9.6 | |
| 186 | 8814.00 | 89.60 | 349.70 | 4,626.63 | 4,588.82 | 4,549.09 | -602.64 | 4,588.83 | 352.45 | 3.81 | 0.00 | 131 °F | | 04/21/15 | 12:43 | 225 (gpm) | 2.5 | 6 | 9.7 | |
| 187 | 8845.00 | 89.30 | 349.10 | 4,626.92 | 4,619.78 | 4,579.56 | -608.34 | 4,619.79 | 352.43 | 2.16 | 0.00 | 131 °F | | 04/21/15 | 13:30 | 225 (gpm) | 2.5 | 6 | 9.6 | |
| 188 | 8877.00 | 90.20 | 349.50 | 4,627.06 | 4,651.73 | 4,611.00 | -614.28 | 4,651.74 | 352.41 | 3.08 | 0.00 | 131 °F | | 04/21/15 | 14:18 | 225 (gpm) | 2.5 | 6 | 9.7 | |
| 189 | 8908.00 | 91.40 | 351.30 | 4,626.63 | 4,682.71 | 4,641.56 | -619.45 | 4,682.72 | 352.40 | 6.98 | 0.00 | 131 °F | | 04/21/15 | 15:07 | 225 (gpm) | 2.5 | 6 | 9.6 | |
| 190 | 8940.00 | 89.60 | 349.50 | 4,626.35 | 4,714.69 | 4,673.11 | -624.79 | 4,714.69 | 352.38 | 7.95 | 0.00 | 131 °F | | 04/21/15 | 15:41 | 225 (gpm) | 2.5 | 6 | 9.5 | |
| 191 | 8971.00 | 89.20 | 349.10 | 4,626.68 | 4,745.64 | 4,703.57 | -630.54 | 4,745.65 | 352.36 | 1.82 | 0.00 | 131 °F | | 04/21/15 | 16:09 | 225 (gpm) | 2.5 | 6 | 8.9 | |
| 192 | 9003.00 | 90.00 | 349.00 | 4,626.90 | 4,777.59 | 4,734.99 | -636.62 | 4,777.59 | 352.34 | 2.52 | 0.00 | 131 °F | | 04/21/15 | 17:03 | 225 (gpm) | 2.5 | 6 | 9.9 | |
| 193 | 9034.00 | 91.10 | 349.00 | 4,626.60 | 4,808.54 | 4,765.42 | -642.53 | 4,808.54 | 352.32 | 3.55 | 0.00 | 129 °F | | 04/21/15 | 17:44 | 225 (gpm) | 2.5 | 6 | 9.2 | |
| 194 | 9066.00 | 90.70 | 349.50 | 4,626.10 | 4,840.49 | 4,796.85 | -648.50 | 4,840.49 | 352.30 | 2.00 | 0.00 | 127 °F | | 04/21/15 | 18:13 | 225 (gpm) | 2.5 | 6 | 9.4 | |
| 195 | 9097.00 | 90.90 | 349.90 | 4,625.67 | 4,871.45 | 4,827.35 | -654.04 | 4,871.45 | 352.28 | 1.44 | 0.00 | 124 °F | | 04/21/15 | 19:00 | 225 (gpm) | 2.5 | 6 | 9.1 | |
| 196 | 9129.00 | 90.90 | 351.70 | 4,625.16 | 4,903.44 | 4,858.93 | -659.16 | 4,903.44 | 352.27 | 5.62 | 0.00 | 120 °F | | 04/21/15 | 19:45 | 225 (gpm) | 2.5 | 6 | 9.7 | |
| 197 | 9160.00 | 90.70 | 351.40 | 4,624.73 | 4,934.43 | 4,889.59 | -663.71 | 4,934.43 | 352.27 | 1.16 | 0.00 | 113 °F | | 04/21/15 | 20:35 | 225 (gpm) | 2.5 | 6 | 10 | |
| 198 | 9192.00 | 90.00 | 351.10 | 4,624.54 | 4,966.43 | 4,921.22 | -668.58 | 4,966.43 | 352.26 | 2.38 | 0.00 | 100 °F | | 04/21/15 | 21:12 | 225 (gpm) | 2.5 | 6 | 10 | |
| 199 | 9223.00 | 89.60 | 351.20 | 4,624.64 | 4,997.42 | 4,951.85 | -673.35 | 4,997.42 | 352.26 | 1.33 | 0.00 | 102 °F | | 04/21/15 | 22:30 | 211 (gpm) | 2.5 | 6 | 9.6 | |
| 200 | 9255.00 | 90.80 | 351.80 | 4,624.53 | 5,029.42 | 4,983.50 | -678.08 | 5,029.42 | 352.25 | 4.19 | 0.00 | 97 °F | | 04/21/15 | 23:15 | 211 (gpm) | 2.5 | 6 | 9.5 | |
| 201 | 9286.00 | 91.20 | 352.90 | 4,623.99 | 5,060.41 | 5,014.22 | -682.21 | 5,060.41 | 352.25 | 3.78 | 0.00 | 97 °F | | 04/21/15 | 23:52 | 211 (gpm) | 2.5 | 6 | 9.6 | |
| 202 | 9318.00 | 90.30 | 351.40 | 4,623.57 | 5,092.41 | 5,045.91 | -686.58 | 5,092.41 | 352.25 | 5.47 | 0.00 | 97 °F | | 04/22/15 | 0:30 | 211 (gpm) | 2.5 | 6 | 9.7 | |
| 203 | 9350.00 | 89.60 | 351.50 | 4,623.60 | 5,124.40 | 5,077.56 | -691.33 | 5,124.40 | 352.25 | 2.21 | 0.00 | 95 °F | | 04/22/15 | 1:15 | 211 (gpm) | 2.5 | 6 | 9.3 | |
| 204 | 9381.00 | 91.30 | 351.80 | 4,623.36 | 5,155.40 | 5,108.23 | -695.84 | 5,155.40 | 352.24 | 5.57 | 0.00 | 95 °F | | 04/22/15 | 1:53 | 211 (gpm) | 2.5 | 6 | 9.4 | |
| 205 | 9398.00 | 90.70 | 351.40 | 4,623.06 | 5,172.39 | 5,125.04 | -698.32 | 5,172.40 | 352.24 | 4.24 | 0.00 | 95 °F | | 04/22/15 | 2:15 | 211 (gpm) | 2.5 | 6 | 9.3 | |
| PTB | 9445.00 | 90.70 | 351.40 | 4,622.49 | 5,219.38 | 5,171.51 | -705.35 | 5,219.39 | 352.23 | 0.00 | | | | | | | | | | |

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015

Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015


Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015


Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015


Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# MWD

# SURVEYS

Customer: Tapstone Energy
Well: Andy 26-34-9#1H
Field/Block: Mississippi Lime
Co./Parish: Harper Co.
State: KS

PGS Job #: LKS6117515
MWD Operator: Ken Mitchell
Directional Driller: Kyle Underwood
Date of First Survey: April 11, 2015
Date of Last Survey: April 22, 2015


Total Correction: 4.23 East Correction: Grid

Vertical Section Plane: 352.3 Nominal Dip Angle: 65.06 Magnetic Field Strength: 0.515

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

# TOPOGRAPHIC LAND SURVEYORS

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

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

HARPER County, Kansas

250'FNL – 1580'FEL Section 35 Township 34S Range 9W P.M.

TOPOGRAPHIC EST. 1958

GRID
NAD-27
Kansas South
US Feet

Note:
3.280833 Ft.=1 Meter

Scale:
1"= 1000'

0' 500' 1000'

Operator: TAPSTONE ENERGY

Lease Name: ANDY 26-34-9 Well No.: 1H

Topography & Vegetation Loc. fell in sandy hilly pasture, ±360' East of pipeline, ±232' South of pipeline

Good Drill Site? Yes

Best Accessibility to Location From SW off lease road

Distance & Direction from Hwy Jct or Town From Oklahoma-Kansas State Line on St Hwy. 58, go ±1.1 mi. North on county road to lease road East, then ±3.4 mi. NE – North on lease road to the location in the NE/4 of Sec. 35-T34S-R9W

Reference Stakes or Alternate Location Stakes Set None

**ELEVATION:** 1269' Gr. at Stake

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

X 2071352
Y 145177

X 2065954
Y 145179

X 2068653
Y 145178

330' HARDLINE

±612'

EXISTING WELL
ELLER 1
X= 2069705
Y= 144838

BOTTOM HOLE (9445' MD)
360'FNL-2260'FEL (SEC 26)
360'FNL-437'FWL (UNIT LINE)
37°03'50.9" N
98°15'47.6" W
37.064144404° N
98.263218781° W
X= 2069094
Y= 144818

330' HARDLINE

Andy 26-34-9 1H (As-Drilled)

26

X 2065999
Y 142540

330' HARDLINE

PENETRATION POINT (4875' MD)
406'FSL-1661'FEL (SEC 26)
406'FSL-1007'FWL (UNIT LINE)
37.051739280° N
98.261138417° W
X= 2069713
Y= 140303

TOP PERF (5126' MD)
645'FSL-1692'FEL (SEC 26)
645'FSL-977'FWL (UNIT LINE)
37.052396213° N
98.261245754° W
X= 2069681
Y= 140542

X 2066044
Y 139901

X 2071376
Y 139895

X 2068710
Y 139898

250'FNL-1580'FEL

TOP PERF
5330' MD

330' HARDLINE

1H (As-Drilled)

35

X 2066078
Y 137237

330' HARDLINE

Andy 26-34-9

X 2071417
Y 137226

330' HARDLINE

X 2066112
Y 134573

X 2068785
Y 134565

X 2071459
Y 134558

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

DATUM: NAD-27
LAT: 37°02'59.8"N
LONG: 98°15'39.0"W
LAT: 37.049936415° N
LONG: 98.260847072° W
STATE PLANE COORDINATES (US FEET):
ZONE: KS SOUTH
2069799
139646

243636 Date of Drawing: Apr. 28, 2015
Invoice # 240475A Date Staked: Feb. 17, 2015 JP

# FINAL AS-DRILLED PLAT

AS-DRILLED INFORMATION
FURNISHED BY TAPSTONE ENERGY

HALLIBURTON

# Cementing Job Summary

*The Road to Excellence Starts with Safety*

| | | | |
|---|---|---|---|
| **Sold To #:** 372073 | **Ship To #:** 3652070 | **Quote #:** 0022027948 | **Sales Order #:** 0902307153 |
| **Customer:** TAPSTONE ENERGY LLC | | **Customer Rep:** Bill | |
| **Well Name:** ANDY 26-34-9 | **Well #:** 1H | | **API/UWI #:** 15-077-22134-01 |
| **Field:** UNDESIGNATED | **City (SAP):** WALDRON | **County/Parish:** HARPER | **State:** KANSAS |
| **Legal Description:** NE NE NW NE-35-34S-9W-250FNL-1580FEL | | | |
| **Contractor:** NOMAC | | **Rig/Platform Name/Num:** NOMAC 07 | |
| **Job BOM:** 7521 | | | |
| **Well Type:** HORIZONTAL OIL | | | |
| **Sales Person:** HALAMERICA\HX25353 | | **Srvc Supervisor:** John Marinis | |

## Job

| | | | |
|---|---|---|---|
| **Formation Name** | | | |
| **Formation Depth (MD)** | **Top** | **Bottom** | |
| **Form Type** | | **BHST** | |
| **Job depth MD** | 826ft | **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 | | 826 | Top Plug | 9.625 | 1 | HES |
| Float Shoe | 9.625 | | | | Bottom Plug | 9.625 | | HES |
| Float Collar | 9.625 | 1 | | | 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 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 | Tail Cement | SWIFTCEM (TM) SYSTEM | 490 | sack | 15 | 1.319 | | 5 | 6.25 |

| | | |
|---|---|---|
| 2 % | | CALCIUM CHLORIDE, PELLET, 50 LB (101509387) |
| 6.25 Gal | | FRESH WATER |
| 94 lbm | | CMT - STANDARD - CLASS A REG OR TYPE I, BULK (100003684) |
| 0.1250 lbm | | POLY-E-FLAKE (101216940) |

| Fluid # | Stage Type | | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft3/sack | Mix Fluid Gal | Rate bbl/min | Total Mix Fluid Gal |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Displacement | | Displacement | 60.3 | bbl | 8.33 | | | | |

| Cement Left In Pipe | Amount | 42 ft | Reason | Shoe Joint |
|---|---|---|---|---|

**Comment**

HALLIBURTON

iCem® Service

## 3M COMPANY - ACCOUNTS PAYABLE

**For:**
Date: Tuesday, April 14, 2015

**1H**
ANDY 26-34-9/ 1H
TAPSTONE ANDY
Job Date: Tuesday, April 14, 2015

Sincerely,
**ROBERT DAVIS**

| 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 | ECONOCEM (TM) SYSTEM | 140 | sack | 13.6 | 1.505 | | 5 | 7.29 |
| 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 ft3/sack | Mix Fluid Gal | Rate bbl/min | Total Mix Fluid Gal |
|---|---|---|---|---|---|---|---|---|---|
| 3 | Tail Cement | HALCEM (TM) SYSTEM | 90 | sack | 15.6 | 1.191 | | 5 | 5.36 |
| 0.40 % | | HALAD(R)-9, 50 LB (100001617) | | | | | | | |
| 94 lbm | | CMT - PREMIUM - CLASS H REG OR TYPE V, BULK (100003687) | | | | | | | |
| 5.36 Gal | | FRESH WATER | | | | | | | |

| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft3/sack | Mix Fluid Gal | Rate bbl/min | Total Mix Fluid Gal |
|---|---|---|---|---|---|---|---|---|---|
| 4 | Displacement | Displacement | 193 | bbl | 8.33 | | | 6.5 | |

| | | | | | |
|---|---|---|---|---|---|
| **Cement Left In Pipe** | **Amount** | 42 ft | **Reason** | | Shoe Joint |
| **Mix Water:** | pH ## | **Mix Water Chloride:** | ## ppm | **Mix Water Temperature:** | ## °F °C |
| **Cement Temperature:** | ## °F °C | **Plug Displaced by:** | ## lb/gal kg/m3 XXXX | **Disp. Temperature:** | ## °F °C |
| **Plug Bumped?** | Yes/ | **Bump Pressure:** | 1250 psi MPa | **Floats Held?** | Yes |
| **Cement Returns:** | ## bbl m3 | **Returns Density:** | ## lb/gal kg/m3 | **Returns Temperature:** | ## °F °C |

**Comment** 1 BBL BACK ON FLOATS

HALLIBURTON

# Cementing Job Summary

*The Road to Excellence Starts with Safety*

| | | | |
|---|---|---|---|
| **Sold To #:** 372073 | **Ship To #:** 3652070 | **Quote #:** 0022028335 | **Sales Order #:** 0902315362 |
| **Customer:** TAPSTONE ENERGY LLC | | **Customer Rep:** BRET GRAY | |
| **Well Name:** ANDY 26-34-9 | **Well #:** 1H | | **API/UWI #:** 15-077-22134-01 |
| **Field:** UNDESIGNATED | **City (SAP):** WALDRON | **County/Parish:** HARPER | **State:** KANSAS |
| **Legal Description:** NE NE NW NE-35-34S-9W-250FNL-1580FEL | | | |
| **Contractor:** NOMAC | | **Rig/Platform Name/Num:** NOMAC 07 | |
| **Job BOM:** 7522 | | | |
| **Well Type:** HORIZONTAL OIL | | | |
| **Sales Person:** HALAMERICA\HX25353 | | **Srvc Supervisor:** Robert Davis | |

## Job

| | | | | |
|---|---|---|---|---|
| **Formation Name** | | | | |
| **Formation Depth (MD)** | **Top** | 800 | **Bottom** | 5131 |
| **Form Type** | | | **BHST** | |
| **Job depth MD** | 5131ft | | **Job Depth TVD** | 4566 |
| **Water Depth** | | | **Wk Ht Above Floor** | 5 |
| **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 | 5131 | 0 | 0 |
| Open Hole Section | | | 8.75 | | | | 800 | 5131 | 800 | 4655 |

## Tools and Accessories

| Type | Size in | Qty | Make | Depth ft | | Type | Size in | Qty | Make |
|---|---|---|---|---|---|---|---|---|---|
| Guide Shoe | 7 | | | 5131 | | Top Plug | 7 | 1 | HES |
| Float Shoe | 7 | | | | | Bottom Plug | 7 | 1 | HES |
| Float Collar | 7 | | | | | 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 | | 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 | Mud Flush III (Liquid) | Mud Flush III | 10 | bbl | 8.4 | | | 3 | |
| 41 gal/bbl | | FRESH WATER | | | | | | | |