Confidentiality Requested:
☑ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1262955

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 # 34192
Name: SandRidge Exploration and Production LLC
Address 1: 123 ROBERT S. KERR AVE
Address 2:
City: OKLAHOMA CITY State: OK Zip: 73102 + 6406
Contact Person: Wanda Ledbetter
Phone: ( 405 ) 429-5500
CONTRACTOR: License # 34464
Name: Lariat Services, Inc. dba Chaparral, Drilling, Fluids
Wellsite Geologist: Bob Wilcox
Purchaser: Targa = Gas, Oil = Plains

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 #:

| 5/2/2015 | 5/26/2015 | 7/19/2015 |
|---|---|---|
| Spud Date or Recompletion Date | Date Reached TD | Completion Date or Recompletion Date |

API No. 15 - 15-077-22146-01-00
Spot Description:
SE - SW - SE - SE Sec. 11 Twp. 34 S. R. 8 ☐ East ☑ West
200 Feet from ☐ North / ☑ South Line of Section
880 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: LeForce 3408 Well #: 1-11H2
Field Name: Wharton
Producing Formation: Mississippi
Elevation: Ground: 1394 Kelly Bushing: 1376
Total Vertical Depth: 4721 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 775 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: 18000 ppm Fluid volume: 4080 bbls
Dewatering method used: Evaporated

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: 09/01/2015
☐ **Confidential Release Date:**
☑ **Wireline Log Received**
☐ **Geologist Report Received**
☐ **UIC Distribution**
**ALT** ☑ **I** ☐ **II** ☐ **III** **Approved by:** NAOMI JAMES **Date:** 09/02/2015

1262955

Operator Name: SandRidge Exploration and Production LLC Lease Name: LeForce 3408 Well #: 1-11H2

Sec. 11 Twp. 34 S. R. 8 ☐ 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:

Array Induction gamma Ray
Spectral Density Dual Spaced Neutron

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

| Name | Top | Datum |
|---|---|---|
| Base Heebner | 3502 | -2126 |
| Cottage Grove | 4105 | -2730 |
| Oswego | 4420 | -3044 |
| Cherokee | 4535 | -3159 |
| Miss Unconformity | 4697 | -3320 |

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 |
|---|---|---|---|---|---|---|---|
| Conductor | 30 | 20 | 75 | 90 | Grout | 10 | None |
| Surface | 12.25 | 9.623 | 36 | 775 | Class A Multi Density | 405 | see report |
| Intermediate | 8.75 | 7 | 29 | 5201 | Class A | 285 | see report |

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 |
|---|---|---|---|
| 1 | 5219-14352 | | |
| | | | |
| | | | |
| | | | |
| | | | |

TUBING RECORD: Size: 4.5 Set At: 14453 Packer At:

Liner Run: ☑ Yes ☐ No

Date of First, Resumed Production, SWD or ENHR. 7/28/2015

Producing Method: ☐ Flowing ☐ Pumping ☐ Gas Lift ☑ Other *(Explain)* ESP

| Estimated Production Per 24 Hours | Oil Bbls. | Gas Mcf | Water Bbls. | Gas-Oil Ratio | Gravity |
|---|---|---|---|---|---|
| | 25 | 206 | 2253 | | |

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)* Frac Sleeve

PRODUCTION INTERVAL:
5219-14352

**Mail to: KCC - Conservation Division, 130 S. Market - Room 2078, Wichita, Kansas 67202**

# Sandridge Energy

DrillRight TECHNOLOGY, INC.

## SECTION DETAILS

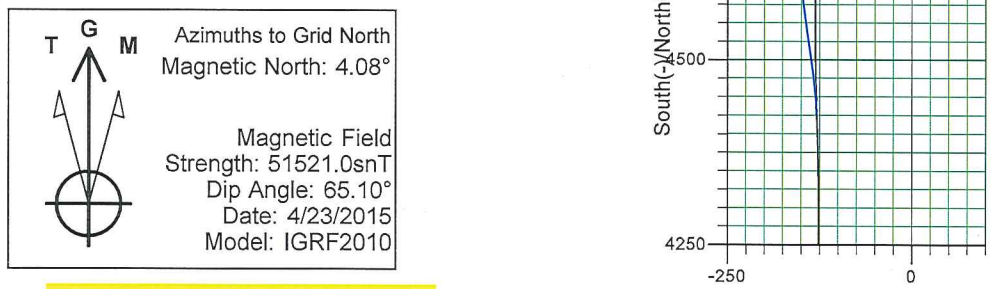
| MD | Inc | Azi | TVD | +N/-S | +E/-W | DIeg | TFace | VSect | Annotation |
|---|---|---|---|---|---|---|---|---|---|
| 8926.0 | 88.80 | 357.80 | 4722.8 | 4426.2 | -128.8 | 0.00 | 0.00 | 4427.5 | Start DLS 12.00 TFO 240.00 |
| 8981.0 | 85.51 | 352.07 | 4725.5 | 4480.9 | -133.6 | 12.00 | 240.00 | 4482.2 | Start DLS 0.00 TFO 171.16 |
| 9051.0 | 85.51 | 352.07 | 4731.0 | 4550.0 | -143.3 | 0.00 | 171.16 | 4551.5 | Start DLS 4.00 TFO 48.82 |
| 9325.1 | 92.75 | 0.31 | 4735.2 | 4823.0 | -161.4 | 4.00 | 48.82 | 4824.7 | Start 300.0 hold at 9325.1 MD |
| 9625.1 | 92.75 | 0.31 | 4720.8 | 5122.7 | -159.8 | 0.00 | 0.00 | 5124.4 | Start DLS 2.00 TFO 180.00 |
| 9747.6 | 90.30 | 0.31 | 4717.5 | 5245.1 | -159.1 | 2.00 | 180.00 | 5246.8 | Start DLS 0.00 TFO 97.00 |
| 14477.6 | 90.30 | 0.32 | 4692.8 | 9975.0 | -133.0 | 0.00 | 97.00 | 9975.9 | TD at 14477.6 |

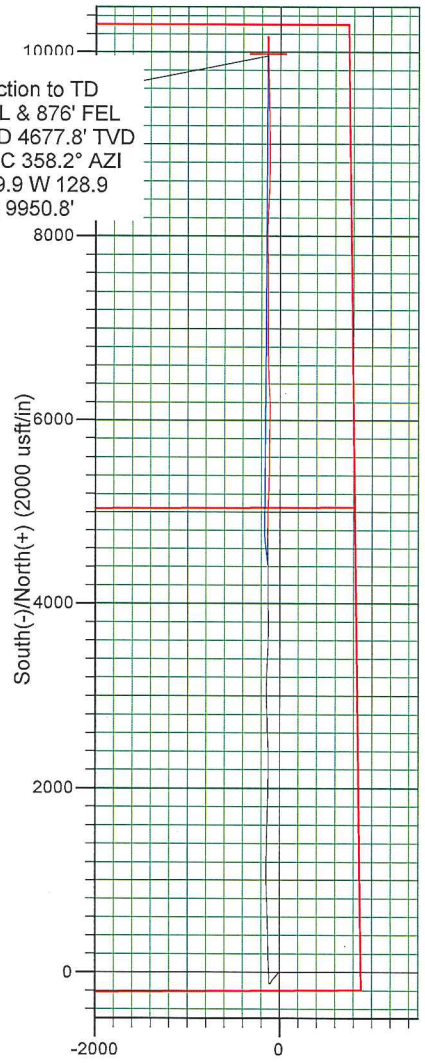
## WELL DETAILS: LeForce 3408 1-11H2

Ground Level: 1376.0

| Northing | Easting | Latittude | Longitude |
|---|---|---|---|
| 156006.00 | 2101948.00 | 37° 5' 40.520 N | 98° 9' 1.762 W |

**Project: Harper County (NAD-27)**
**Site: Sec 11-T34S-R08W**
**Well: LeForce 3408 1-11H2**
**Plan: Plan 051515 A2 ST1 (LeForce 3408 1-11H2/Wellbore #1)**




Projection to TD
356' FNL & 876' FEL
14453' MD 4677.8' TVD
92.0° INC 358.2° AZI
N 9949.9 W 128.9
VS 9950.8'




Azimuths to Grid North
Magnetic North: 4.08°

Magnetic Field
Strength: 51521.0snT
Dip Angle: 65.10°
Date: 4/23/2015
Model: IGRF2010

Target Line: 5-15-15
4735 KBTVD @ 0' VS
90.3° @ 359.24 AZI Plane




Projection to TD
356' FNL & 876' FEL
14453' MD 4677.8' TVD
92.0° INC 358.2° AZI
N 9949.9 W 128.9
VS 9950.8'

SandRidge ENERGY

DrillRight TECHNOLOGY, INC.

# Survey Report

**DRT Job # : DR1505021**

| | |
|---|---|
| **Company:** | Sandridge |
| **Well Name:** | LeForce 3408 1-11H2 |
| **Legals:** | Sec: 11 Township: 34S Range: 08W |
| **County/State:** | Harper KS |
| **Rig Name:** | Lariat 20 |

| Customer Rep | Position |
|---|---|
| Eric Beemer | Engineer |
| Brian Ehrenberg Sr. | Company Man |

| Directional Driller | MWD Operator |
|---|---|
| John Sartori | Jerry Wilkins |
| Scott Graham | Charlie Minyard |

## LeForce 1-11H2 Surveys

| Type | M Depth | Incl. | Azimuth | TVD | North | East | V Section | Dogleg | B Rate | T Rate | Clos Azi | Clos Dist |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TieInPoint | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Survey | 800 | 0.4 | 340.4 | 799.99 | 2.63 | -0.94 | 2.64 | 0.05 | 0.05 | 2.45 | 340.33 | 2.79 |
| Survey | 1166 | 0.1 | 283.7 | 1165.99 | 3.91 | -1.68 | 3.93 | 0.1 | 0.08 | 15.49 | 336.75 | 4.26 |
| Survey | 1530 | 0.2 | 125 | 1529.99 | 3.62 | -1.46 | 3.64 | 0.08 | 0.03 | 43.6 | 338.04 | 3.9 |
| Survey | 1895 | 0.1 | 308.3 | 1894.99 | 3.45 | -1.19 | 3.47 | 0.08 | 0.03 | 48.41 | 340.97 | 3.65 |
| Survey | 1986 | 0.2 | 326.4 | 1985.99 | 3.63 | -1.34 | 3.65 | 0.12 | 0.11 | 19.89 | 339.74 | 3.87 |
| Survey | 2078 | 2.3 | 218.5 | 2077.96 | 2.32 | -2.58 | 2.35 | 2.58 | 2.28 | 117.28 | 311.96 | 3.47 |
| Survey | 2169 | 4.5 | 226.6 | 2168.8 | -1.56 | -6.31 | -1.48 | 2.47 | 2.42 | 8.9 | 256.11 | 6.5 |
| Survey | 2260 | 5.8 | 222.5 | 2259.43 | -7.4 | -12.01 | -7.24 | 1.48 | 1.43 | 4.51 | 238.36 | 14.11 |
| Survey | 2351 | 5.2 | 220.7 | 2350.01 | -13.92 | -17.81 | -13.68 | 0.69 | 0.66 | 1.98 | 231.99 | 22.6 |
| Survey | 2443 | 4.5 | 218.9 | 2441.68 | -19.89 | -22.79 | -19.59 | 0.78 | 0.76 | 1.96 | 228.89 | 30.25 |
| Survey | 2535 | 5.4 | 221.6 | 2533.34 | -25.93 | -27.93 | -25.56 | 1.01 | 0.98 | 2.93 | 227.13 | 38.11 |
| Survey | 2628 | 4.5 | 223.2 | 2625.99 | -31.87 | -33.34 | -31.42 | 0.98 | 0.97 | 1.72 | 226.29 | 46.12 |
| Survey | 2719 | 6.3 | 224.8 | 2716.58 | -38.01 | -39.3 | -37.49 | 1.98 | 1.98 | 1.76 | 225.96 | 54.67 |
| Survey | 2811 | 6.1 | 220.2 | 2808.04 | -45.33 | -46.01 | -44.72 | 0.58 | 0.22 | 5 | 225.43 | 64.59 |
| Survey | 2902 | 5.5 | 220.9 | 2898.58 | -52.32 | -51.99 | -51.63 | 0.66 | 0.66 | 0.77 | 224.82 | 73.76 |
| Survey | 2994 | 4.9 | 224.1 | 2990.2 | -58.47 | -57.61 | -57.7 | 0.72 | 0.65 | 3.48 | 224.58 | 82.08 |
| Survey | 3085 | 5.4 | 214.2 | 3080.83 | -64.8 | -62.72 | -63.96 | 1.12 | 0.55 | 10.88 | 224.07 | 90.18 |
| Survey | 3176 | 5 | 215.1 | 3171.46 | -71.59 | -67.41 | -70.69 | 0.45 | 0.44 | 0.99 | 223.28 | 98.33 |
| Survey | 3268 | 4.3 | 218.8 | 3263.16 | -77.56 | -71.87 | -76.6 | 0.83 | 0.76 | 4.02 | 222.82 | 105.74 |
| Survey | 3359 | 5.3 | 220.9 | 3353.83 | -83.39 | -76.76 | -82.36 | 1.12 | 1.1 | 2.31 | 222.63 | 113.34 |
| Survey | 3450 | 5.1 | 211.7 | 3444.46 | -90.01 | -81.64 | -88.92 | 0.94 | 0.22 | 10.11 | 222.21 | 121.52 |
| Survey | 3542 | 6.5 | 210 | 3535.99 | -98 | -86.39 | -96.85 | 1.53 | 1.52 | 1.85 | 221.4 | 130.64 |
| Survey | 3633 | 4.4 | 208.3 | 3626.57 | -105.54 | -90.62 | -104.33 | 2.31 | 2.31 | 1.87 | 220.65 | 139.11 |
| Survey | 3724 | 5.1 | 201.6 | 3717.26 | -112.37 | -93.76 | -111.12 | 0.98 | 0.77 | 7.36 | 219.84 | 146.35 |
| Survey | 3815 | 4.7 | 211.9 | 3807.93 | -119.3 | -97.22 | -118 | 1.06 | 0.44 | 11.32 | 219.18 | 153.9 |
| Survey | 3876 | 4.5 | 244.7 | 3868.74 | -122.44 | -100.71 | -121.09 | 4.27 | 0.33 | 53.77 | 219.44 | 158.54 |
| Survey | 3907 | 5.5 | 273.7 | 3899.63 | -122.86 | -103.29 | -121.48 | 8.65 | 3.23 | 93.55 | 220.05 | 160.51 |
| Survey | 3937 | 6.7 | 292 | 3929.46 | -122.12 | -106.35 | -120.7 | 7.57 | 4 | 61 | 221.05 | 161.94 |
| Survey | 3967 | 7.2 | 311 | 3959.25 | -120.23 | -109.39 | -118.77 | 7.8 | 1.67 | 63.33 | 222.3 | 162.55 |
| Survey | 3998 | 7.6 | 327 | 3989.99 | -117.23 | -111.97 | -115.73 | 6.75 | 1.29 | 51.61 | 223.69 | 162.11 |
| Survey | 4028 | 7.3 | 346.6 | 4019.74 | -113.71 | -113.5 | -112.19 | 8.49 | 1 | 65.33 | 224.95 | 160.66 |
| Survey | 4059 | 8 | 356.5 | 4050.47 | -109.64 | -114.09 | -108.12 | 4.81 | 2.26 | 31.94 | 226.14 | 158.23 |
| Survey | 4089 | 9.1 | 359.5 | 4080.13 | -105.19 | -114.24 | -103.67 | 3.96 | 3.67 | 10 | 227.36 | 155.29 |
| Survey | 4119 | 10.7 | 359.7 | 4109.69 | -100.03 | -114.27 | -98.51 | 5.33 | 5.33 | 0.67 | 228.8 | 151.87 |
| Survey | 4150 | 12.5 | 1.1 | 4140.05 | -93.8 | -114.22 | -92.28 | 5.88 | 5.81 | 4.52 | 230.61 | 147.8 |
| Survey | 4180 | 15.3 | 1.5 | 4169.17 | -86.59 | -114.05 | -85.07 | 9.34 | 9.33 | 1.33 | 232.79 | 143.2 |
| Survey | 4211 | 18.8 | 0.8 | 4198.8 | -77.51 | -113.88 | -75.99 | 11.31 | 11.29 | 2.26 | 235.76 | 137.76 |
| Survey | 4242 | 22.4 | 359.6 | 4227.82 | -66.6 | -113.85 | -65.08 | 11.69 | 11.61 | 3.87 | 239.67 | 131.9 |
| Survey | 4272 | 25.5 | 358.4 | 4255.23 | -54.43 | -114.07 | -52.91 | 10.46 | 10.33 | 4 | 244.49 | 126.39 |
| Survey | 4302 | 27.6 | 357.4 | 4282.07 | -41.03 | -114.56 | -39.51 | 7.16 | 7 | 3.33 | 250.29 | 121.69 |
| Survey | 4332 | 30.1 | 356.6 | 4308.34 | -26.58 | -115.32 | -25.05 | 8.43 | 8.33 | 2.67 | 257.02 | 118.34 |
| Survey | 4363 | 32.9 | 356.3 | 4334.77 | -10.41 | -116.33 | -8.87 | 9.05 | 9.03 | 0.97 | 264.89 | 116.79 |
| Survey | 4393 | 35.6 | 356.2 | 4359.57 | 6.43 | -117.43 | 7.99 | 9 | 9 | 0.33 | 273.13 | 117.61 |
| Survey | 4423 | 38.3 | 356.2 | 4383.54 | 24.43 | -118.63 | 26 | 9 | 9 | 0 | 281.64 | 121.12 |
| Survey | 4453 | 40.7 | 356.2 | 4406.69 | 43.47 | -119.89 | 45.06 | 8 | 8 | 0 | 289.93 | 127.53 |
| Survey | 4484 | 43.5 | 357.6 | 4429.68 | 64.22 | -121.01 | 65.82 | 9.53 | 9.03 | 4.52 | 297.95 | 136.99 |
| Survey | 4515 | 46.3 | 358.8 | 4451.64 | 86.08 | -121.69 | 87.69 | 9.44 | 9.03 | 3.87 | 305.27 | 149.06 |
| Survey | 4545 | 49.2 | 359.1 | 4471.81 | 108.28 | -122.1 | 109.89 | 9.69 | 9.67 | 1 | 311.57 | 163.2 |
| Survey | 4575 | 52.3 | 359.3 | 4490.79 | 131.51 | -122.42 | 133.12 | 10.35 | 10.33 | 0.67 | 317.05 | 179.67 |
| Survey | 4606 | 55.7 | 358.8 | 4509.01 | 156.58 | -122.84 | 158.2 | 11.05 | 10.97 | 1.61 | 321.89 | 199.01 |
| Survey | 4636 | 59.1 | 358.6 | 4525.17 | 181.84 | -123.41 | 183.46 | 11.35 | 11.33 | 0.67 | 325.84 | 219.76 |
| Survey | 4697 | 62.6 | 359.5 | 4554.88 | 235.1 | -124.29 | 236.73 | 5.88 | 5.74 | 1.48 | 332.14 | 265.93 |
| Survey | 4727 | 62.4 | 358.7 | 4568.73 | 261.71 | -124.71 | 263.34 | 2.46 | 0.67 | 2.67 | 334.52 | 289.9 |
| Survey | 4819 | 61.3 | 358.7 | 4612.13 | 342.81 | -126.55 | 344.46 | 1.2 | 1.2 | 0 | 339.74 | 365.42 |
| Survey | 4849 | 61 | 358.1 | 4626.61 | 369.07 | -127.28 | 370.73 | 2.02 | 1 | 2 | 340.97 | 390.4 |
| Survey | 4880 | 61.6 | 358.4 | 4641.5 | 396.25 | -128.11 | 397.91 | 2.11 | 1.94 | 0.97 | 342.08 | 416.44 |
| Survey | 4910 | 62.9 | 359.6 | 4655.46 | 422.79 | -128.58 | 424.46 | 5.6 | 4.33 | 4 | 343.08 | 441.91 |
| Survey | 4941 | 64.5 | 0.2 | 4669.2 | 450.58 | -128.62 | 452.25 | 5.45 | 5.16 | 1.94 | 344.07 | 468.58 |
| Survey | 4971 | 67.9 | 0.3 | 4681.3 | 478.03 | -128.5 | 479.69 | 11.34 | 11.33 | 0.33 | 344.95 | 495 |
| Survey | 5002 | 71.6 | 359.7 | 4692.03 | 507.11 | -128.5 | 508.77 | 12.07 | 11.94 | 1.94 | 345.78 | 523.14 |
| Survey | 5032 | 75.3 | 359 | 4700.58 | 535.86 | -128.83 | 537.52 | 12.53 | 12.33 | 2.33 | 346.48 | 551.13 |

# LeForce 1-11H2 Surveys

| Type | M Depth | Incl. | Azimuth | TVD | North | East | V Section | Dogleg | B Rate | T Rate | Clos Azi | Clos Dist |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Survey | 5063 | 78.1 | 358.7 | 4707.71 | 566.02 | -129.44 | 567.69 | 9.08 | 9.03 | 0.97 | 347.12 | 580.63 |
| Survey | 5093 | 80.8 | 358.5 | 4713.2 | 595.5 | -130.16 | 597.17 | 9.02 | 9 | 0.67 | 347.67 | 609.56 |
| Survey | 5124 | 84 | 358.1 | 4717.3 | 626.21 | -131.07 | 627.89 | 10.4 | 10.32 | 1.29 | 348.18 | 639.78 |
| Survey | 5177 | 88.8 | 357.8 | 4720.63 | 679.05 | -132.96 | 680.75 | 9.07 | 9.06 | 0.57 | 348.92 | 691.94 |
| Survey | 5239 | 90.2 | 357 | 4721.17 | 740.98 | -135.77 | 742.72 | 2.6 | 2.26 | 1.29 | 349.62 | 753.32 |
| Survey | 5333 | 89.2 | 357.2 | 4721.66 | 834.86 | -140.53 | 836.65 | 1.08 | 1.06 | 0.21 | 350.45 | 846.6 |
| Survey | 5428 | 89.2 | 359.3 | 4722.99 | 929.8 | -143.43 | 931.62 | 2.21 | 0 | 2.21 | 351.23 | 940.8 |
| Survey | 5523 | 89 | 359.3 | 4724.48 | 1024.78 | -144.59 | 1026.61 | 0.21 | 0.21 | 0 | 351.97 | 1034.93 |
| Survey | 5617 | 90.3 | 0.9 | 4725.06 | 1118.77 | -144.43 | 1120.59 | 2.19 | 1.38 | 1.7 | 352.64 | 1128.05 |
| Survey | 5712 | 89.6 | 0.2 | 4725.14 | 1213.76 | -143.52 | 1215.56 | 1.04 | 0.74 | 0.74 | 353.26 | 1222.22 |
| Survey | 5807 | 89.1 | 0.4 | 4726.22 | 1308.76 | -143.02 | 1310.54 | 0.57 | 0.53 | 0.21 | 353.76 | 1316.55 |
| Survey | 5901 | 88.6 | 0.9 | 4728.11 | 1402.73 | -141.95 | 1404.49 | 0.75 | 0.53 | 0.53 | 354.22 | 1409.89 |
| Survey | 5996 | 89.9 | 0.5 | 4729.35 | 1497.71 | -140.79 | 1499.45 | 1.43 | 1.37 | 0.42 | 354.63 | 1504.31 |
| Survey | 6090 | 90.9 | 1.8 | 4728.69 | 1591.69 | -138.9 | 1593.39 | 1.74 | 1.06 | 1.38 | 355.01 | 1597.74 |
| Survey | 6185 | 93 | 2.5 | 4725.46 | 1686.56 | -135.34 | 1688.21 | 2.33 | 2.21 | 0.74 | 355.41 | 1691.98 |
| Survey | 6280 | 91.8 | 0.6 | 4721.48 | 1781.44 | -132.77 | 1783.04 | 2.36 | 1.26 | 2 | 355.74 | 1786.38 |
| Survey | 6374 | 89.4 | 2.4 | 4720.5 | 1875.39 | -130.31 | 1876.95 | 3.19 | 2.55 | 1.91 | 356.03 | 1879.91 |
| Survey | 6468 | 91 | 2.2 | 4720.17 | 1969.31 | -126.54 | 1970.82 | 1.72 | 1.7 | 0.21 | 356.32 | 1973.37 |
| Survey | 6563 | 90.3 | 359.3 | 4719.09 | 2064.29 | -125.3 | 2065.77 | 3.14 | 0.74 | 3.05 | 356.53 | 2068.09 |
| Survey | 6658 | 90.4 | 1.2 | 4718.51 | 2159.28 | -124.88 | 2160.75 | 2 | 0.11 | 2 | 356.69 | 2162.89 |
| Survey | 6752 | 90.3 | 0.6 | 4717.94 | 2253.26 | -123.41 | 2254.7 | 0.65 | 0.11 | 0.64 | 356.87 | 2256.64 |
| Survey | 6847 | 90.7 | 1.1 | 4717.11 | 2348.25 | -122 | 2349.66 | 0.67 | 0.42 | 0.53 | 357.03 | 2351.42 |
| Survey | 6942 | 90.1 | 357.2 | 4716.45 | 2443.21 | -123.41 | 2444.63 | 4.15 | 0.63 | 4.11 | 357.11 | 2446.32 |
| Survey | 7036 | 89 | 357 | 4717.19 | 2537.09 | -128.17 | 2538.57 | 1.19 | 1.17 | 0.21 | 357.11 | 2540.33 |
| Survey | 7131 | 91.3 | 357.7 | 4716.94 | 2631.98 | -132.56 | 2633.51 | 2.53 | 2.42 | 0.74 | 357.12 | 2635.32 |
| Survey | 7225 | 90.4 | 358.2 | 4715.55 | 2725.91 | -135.92 | 2727.47 | 1.1 | 0.96 | 0.53 | 357.15 | 2729.3 |
| Survey | 7319 | 90 | 358.3 | 4715.22 | 2819.86 | -138.79 | 2821.45 | 0.44 | 0.43 | 0.11 | 357.18 | 2823.27 |
| Survey | 7414 | 89.4 | 358.5 | 4715.72 | 2914.82 | -141.44 | 2916.44 | 0.67 | 0.63 | 0.21 | 357.22 | 2918.25 |
| Survey | 7508 | 91.2 | 359.1 | 4715.23 | 3008.79 | -143.41 | 3010.43 | 2.02 | 1.91 | 0.64 | 357.27 | 3012.21 |
| Survey | 7602 | 91.2 | 1.2 | 4713.26 | 3102.76 | -143.16 | 3104.39 | 2.23 | 0 | 2.23 | 357.36 | 3106.06 |
| Survey | 7697 | 89.5 | 2.1 | 4712.68 | 3197.72 | -140.43 | 3199.3 | 2.02 | 1.79 | 0.95 | 357.49 | 3200.8 |
| Survey | 7792 | 89 | 2.5 | 4713.92 | 3292.63 | -136.62 | 3294.15 | 0.67 | 0.53 | 0.42 | 357.62 | 3295.46 |
| Survey | 7886 | 90.4 | 1.7 | 4714.42 | 3386.57 | -133.17 | 3388.04 | 1.72 | 1.49 | 0.85 | 357.75 | 3389.19 |
| Survey | 7981 | 90.4 | 2.1 | 4713.75 | 3481.52 | -130.02 | 3482.94 | 0.42 | 0 | 0.42 | 357.86 | 3483.95 |
| Survey | 8076 | 90.1 | 1.3 | 4713.34 | 3576.47 | -127.21 | 3577.84 | 0.9 | 0.32 | 0.84 | 357.96 | 3578.73 |
| Survey | 8171 | 88.9 | 0.5 | 4714.17 | 3671.45 | -125.71 | 3672.79 | 1.52 | 1.26 | 0.84 | 358.04 | 3673.6 |
| Survey | 8265 | 90.2 | 0.1 | 4714.91 | 3765.44 | -125.22 | 3766.77 | 1.45 | 1.38 | 0.43 | 358.1 | 3767.52 |
| Survey | 8359 | 89 | 0.2 | 4715.56 | 3859.44 | -124.98 | 3860.76 | 1.28 | 1.28 | 0.11 | 358.15 | 3861.46 |
| Survey | 8454 | 90 | 359.5 | 4716.39 | 3954.43 | -125.22 | 3955.74 | 1.28 | 1.05 | 0.74 | 358.19 | 3956.41 |
| Survey | 8548 | 91.3 | 358.5 | 4715.32 | 4048.41 | -126.86 | 4049.74 | 1.74 | 1.38 | 1.06 | 358.21 | 4050.4 |
| Survey | 8643 | 90.9 | 0.9 | 4713.5 | 4143.38 | -127.36 | 4144.7 | 2.56 | 0.42 | 2.53 | 358.24 | 4145.34 |
| Survey | 8737 | 86.8 | 0.4 | 4715.39 | 4237.33 | -126.29 | 4238.63 | 4.39 | 4.36 | 0.53 | 358.29 | 4239.21 |
| Survey | 8831 | 87.7 | 359.4 | 4719.9 | 4331.22 | -126.46 | 4332.52 | 1.43 | 0.96 | 1.06 | 358.33 | 4333.07 |
| Survey | 8926 | 88.8 | 357.8 | 4722.8 | 4426.15 | -128.78 | 4427.47 | 2.04 | 1.16 | 1.68 | 358.33 | 4428.02 |
| Survey | 9021 | 89.4 | 359.6 | 4724.29 | 4521.11 | -130.93 | 4522.45 | 2 | 0.63 | 1.89 | 358.34 | 4523.01 |
| Survey | 9115 | 91.9 | 0.4 | 4723.23 | 4615.1 | -130.93 | 4616.43 | 2.79 | 2.66 | 0.85 | 358.37 | 4616.96 |
| Survey | 9210 | 91.5 | 0.1 | 4720.41 | 4710.05 | -130.52 | 4711.37 | 0.53 | 0.42 | 0.32 | 358.41 | 4711.86 |
| Survey | 9305 | 91.6 | 0.7 | 4717.84 | 4805.01 | -129.86 | 4806.31 | 0.64 | 0.11 | 0.63 | 358.45 | 4806.76 |
| Survey | 9400 | 92.3 | 0.5 | 4714.61 | 4899.95 | -128.86 | 4901.23 | 0.77 | 0.74 | 0.21 | 358.49 | 4901.64 |
| Survey | 9494 | 89.3 | 1.4 | 4713.3 | 4993.92 | -127.3 | 4995.17 | 3.33 | 3.19 | 0.96 | 358.54 | 4995.54 |
| Survey | 9589 | 90 | 2.8 | 4713.88 | 5088.85 | -123.82 | 5090.04 | 1.65 | 0.74 | 1.47 | 358.61 | 5090.36 |
| Survey | 9683 | 88.8 | 2.3 | 4714.86 | 5182.75 | -119.64 | 5183.88 | 1.38 | 1.28 | 0.53 | 358.68 | 5184.13 |
| Survey | 9778 | 89.7 | 1.8 | 4716.1 | 5277.68 | -116.24 | 5278.76 | 1.08 | 0.95 | 0.53 | 358.74 | 5278.96 |
| Survey | 9873 | 90.9 | 2 | 4715.61 | 5372.62 | -113.09 | 5373.65 | 1.28 | 1.26 | 0.21 | 358.79 | 5373.81 |
| Survey | 9967 | 90.8 | 0 | 4714.21 | 5466.6 | -111.45 | 5467.6 | 2.13 | 0.11 | 2.13 | 358.83 | 5467.74 |
| Survey | 10061 | 91.7 | 0.2 | 4712.16 | 5560.57 | -111.29 | 5561.56 | 0.98 | 0.96 | 0.21 | 358.85 | 5561.68 |
| Survey | 10156 | 90.7 | 359.7 | 4710.17 | 5655.55 | -111.37 | 5656.53 | 1.18 | 1.05 | 0.53 | 358.87 | 5656.65 |
| Survey | 10248 | 89.9 | 0.4 | 4709.69 | 5747.55 | -111.29 | 5748.52 | 1.16 | 0.87 | 0.76 | 358.89 | 5748.63 |
| Survey | 10340 | 90.4 | 0.4 | 4709.45 | 5839.55 | -110.65 | 5840.5 | 0.54 | 0.54 | 0 | 358.91 | 5840.6 |
| Survey | 10432 | 89.8 | 0.9 | 4709.29 | 5931.54 | -109.6 | 5932.47 | 0.85 | 0.65 | 0.54 | 358.94 | 5932.55 |
| Survey | 10525 | 91.2 | 2.7 | 4708.48 | 6024.48 | -106.68 | 6025.37 | 2.45 | 1.51 | 1.94 | 358.99 | 6025.42 |
| Survey | 10618 | 90.9 | 0 | 4706.78 | 6117.43 | -104.49 | 6118.28 | 2.92 | 0.32 | 2.9 | 359.02 | 6118.32 |
| Survey | 10710 | 89 | 357.9 | 4706.86 | 6209.41 | -106.18 | 6210.27 | 3.08 | 2.07 | 2.28 | 359.02 | 6210.32 |
| Survey | 10802 | 89.5 | 357.1 | 4708.06 | 6301.31 | -110.19 | 6302.22 | 1.03 | 0.54 | 0.87 | 359 | 6302.27 |
| Survey | 10894 | 89.3 | 356.6 | 4709.03 | 6393.16 | -115.24 | 6394.13 | 0.59 | 0.22 | 0.54 | 358.97 | 6394.2 |
| Survey | 10986 | 89.9 | 357.3 | 4709.67 | 6485.03 | -120.13 | 6486.05 | 1 | 0.65 | 0.76 | 358.94 | 6486.14 |
| Survey | 11078 | 90.9 | 357.9 | 4709.03 | 6576.94 | -123.99 | 6578.01 | 1.27 | 1.09 | 0.65 | 358.92 | 6578.11 |
| Survey | 11171 | 89.6 | 358.6 | 4708.62 | 6669.9 | -126.83 | 6671 | 1.59 | 1.4 | 0.75 | 358.91 | 6671.11 |
| Survey | 11262 | 88.8 | 359.9 | 4709.89 | 6760.88 | -128.02 | 6761.98 | 1.68 | 0.88 | 1.43 | 358.92 | 6762.09 |
| Survey | 11353 | 90.3 | 0.1 | 4710.61 | 6851.88 | -128.02 | 6852.98 | 1.66 | 1.65 | 0.22 | 358.93 | 6853.08 |
| Survey | 11445 | 92.5 | 359.7 | 4708.36 | 6943.84 | -128.18 | 6944.93 | 2.43 | 2.39 | 0.43 | 358.94 | 6945.02 |
| Survey | 11537 | 92.8 | 0.3 | 4704.11 | 7035.74 | -128.18 | 7036.82 | 0.73 | 0.33 | 0.65 | 358.96 | 7036.91 |
| Survey | 11630 | 88.9 | 0.5 | 4702.73 | 7128.71 | -127.53 | 7129.77 | 4.2 | 4.19 | 0.22 | 358.98 | 7129.85 |
| Survey | 11723 | 90.7 | 359.4 | 4703.06 | 7221.7 | -127.61 | 7222.76 | 2.27 | 1.94 | 1.18 | 358.99 | 7222.83 |
| Survey | 11816 | 91.2 | 359.6 | 4701.52 | 7314.68 | -128.42 | 7315.74 | 0.58 | 0.54 | 0.22 | 358.99 | 7315.81 |
| Survey | 11908 | 90.3 | 0.1 | 4700.32 | 7406.67 | -128.66 | 7407.72 | 1.12 | 0.98 | 0.54 | 359 | 7407.79 |
| Survey | 12000 | 90.1 | 0.7 | 4699.99 | 7498.67 | -128.02 | 7499.71 | 0.69 | 0.22 | 0.65 | 359.02 | 7499.76 |
| Survey | 12093 | 91.5 | 359.5 | 4698.69 | 7591.66 | -127.86 | 7592.69 | 1.98 | 1.51 | 1.29 | 359.04 | 7592.74 |
| Survey | 12184 | 90.7 | 358.5 | 4696.94 | 7682.63 | -129.45 | 7683.67 | 1.41 | 0.88 | 1.1 | 359.03 | 7683.72 |
| Survey | 12277 | 90.4 | 358.9 | 4696.05 | 7775.6 | -131.56 | 7776.66 | 0.54 | 0.32 | 0.43 | 359.03 | 7776.71 |
| Survey | 12372 | 92 | 358.4 | 4694.06 | 7870.55 | -133.8 | 7871.63 | 1.76 | 1.68 | 0.53 | 359.03 | 7871.69 |
| Survey | 12466 | 91.6 | 359.8 | 4691.11 | 7964.49 | -135.28 | 7965.58 | 1.55 | 0.43 | 1.49 | 359.03 | 7965.64 |
| Survey | 12560 | 91.9 | 0.7 | 4688.24 | 8058.44 | -134.87 | 8059.52 | 1.01 | 0.32 | 0.96 | 359.04 | 8059.57 |
| Survey | 12654 | 90.9 | 1.7 | 4685.94 | 8152.39 | -132.9 | 8153.44 | 1.5 | 1.06 | 1.06 | 359.07 | 8153.47 |
| Survey | 12749 | 88.3 | 3.2 | 4686.6 | 8247.29 | -128.84 | 8248.27 | 3.16 | 2.74 | 1.58 | 359.1 | 8248.3 |
| Survey | 12844 | 88.7 | 2.7 | 4689.09 | 8342.13 | -123.95 | 8343.04 | 0.67 | 0.42 | 0.53 | 359.15 | 8343.05 |
| Survey | 12938 | 88.5 | 2.1 | 4691.39 | 8436.02 | -120.01 | 8436.87 | 0.67 | 0.21 | 0.64 | 359.18 | 8436.87 |
| Survey | 13032 | 89.9 | 3 | 4692.7 | 8529.91 | -115.83 | 8530.7 | 1.77 | 1.49 | 0.96 | 359.22 | 8530.7 |

## LeForce 1-11H2 Surveys

| Type | M Depth | Incl. | Azimuth | TVD | North | East | V Section | Dogleg | B Rate | T Rate | Clos Azi | Clos Dist |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Survey | 13127 | 88.9 | 1.4 | 4693.69 | 8624.83 | -112.18 | 8625.56 | 1.99 | 1.05 | 1.68 | 359.25 | 8625.56 |
| Survey | 13222 | 87.4 | 359.9 | 4696.76 | 8719.77 | -111.1 | 8720.48 | 2.23 | 1.58 | 1.58 | 359.27 | 8720.48 |
| Survey | 13316 | 87.7 | 0.5 | 4700.78 | 8813.68 | -110.77 | 8814.37 | 0.71 | 0.32 | 0.64 | 359.28 | 8814.38 |
| Survey | 13411 | 88.2 | 0.1 | 4704.18 | 8908.62 | -110.27 | 8909.3 | 0.67 | 0.53 | 0.42 | 359.29 | 8909.3 |
| Survey | 13505 | 89.8 | 359.5 | 4705.82 | 9002.6 | -110.6 | 9003.28 | 1.82 | 1.7 | 0.64 | 359.3 | 9003.28 |
| Survey | 13599 | 91.7 | 359.5 | 4704.59 | 9096.58 | -111.42 | 9097.26 | 2.02 | 2.02 | 0 | 359.3 | 9097.26 |
| Survey | 13694 | 91.7 | 359.4 | 4701.77 | 9191.53 | -112.33 | 9192.21 | 0.11 | 0 | 0.11 | 359.3 | 9192.22 |
| Survey | 13788 | 91.4 | 359.5 | 4699.23 | 9285.49 | -113.23 | 9286.18 | 0.34 | 0.32 | 0.11 | 359.3 | 9286.18 |
| Survey | 13883 | 91.9 | 358.1 | 4696.49 | 9380.43 | -115.22 | 9381.13 | 1.56 | 0.53 | 1.47 | 359.3 | 9381.14 |
| Survey | 13909 | 92.7 | 358.3 | 4695.45 | 9406.4 | -116.04 | 9407.11 | 3.17 | 3.08 | 0.77 | 359.29 | 9407.12 |
| Survey | 14003 | 93.2 | 359.3 | 4690.61 | 9500.25 | -118.01 | 9500.98 | 1.19 | 0.53 | 1.06 | 359.29 | 9500.98 |
| Survey | 14098 | 91.9 | 359 | 4686.39 | 9595.15 | -119.41 | 9595.89 | 1.4 | 1.37 | 0.32 | 359.29 | 9595.89 |
| Survey | 14193 | 90.7 | 358.6 | 4684.23 | 9690.1 | -121.4 | 9690.86 | 1.33 | 1.26 | 0.42 | 359.28 | 9690.86 |
| Survey | 14288 | 91 | 358.4 | 4682.82 | 9785.06 | -123.89 | 9785.84 | 0.38 | 0.32 | 0.21 | 359.27 | 9785.84 |
| Survey | 14382 | 92 | 358.2 | 4680.36 | 9878.98 | -126.67 | 9879.79 | 1.08 | 1.06 | 0.21 | 359.27 | 9879.79 |
| Survey | 14404 | 92 | 358.2 | 4679.59 | 9900.96 | -127.36 | 9901.78 | 0 | 0 | 0 | 359.26 | 9901.78 |
| PrjCalcPnt | 14453 | 92 | 358.2 | 4677.88 | 9949.91 | -128.9 | 9950.74 | 0 | 0 | 0 | 359.26 | 9950.74 |

# LeForce 3408 1-11H2 - Perforations and Shot Density

| Stage Nbr | Date | Type | Top Depth | Top Depth (TVD) | Bottom Depth | Bottom Depth (TVD) | Zone | Shot Density | String Perforated | Fluid Type |
|---|---|---|---|---|---|---|---|---|---|---|
| 34 | July 15, 2015 | Perforated | 5219 | 4721 | 5221 | 4721 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 34 | July 15, 2015 | | 5326 | 4722 | 5328 | 4722 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 34 | July 15, 2015 | Perforated | 5424 | 4723 | 5426 | 4723 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 34 | July 15, 2015 | Perforated | 5628 | 4725 | 5630 | 4725 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 34 | July 15, 2015 | Perforated | 5632 | 4725 | 5634 | 4725 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 33 | July 15, 2015 | Perforated | 5688 | 4725 | 5690 | 4725 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 33 | July 15, 2015 | Perforated | 5772 | 4726 | 5774 | 4726 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 33 | July 15, 2015 | Perforated | 5855 | 4727 | 5857 | 4727 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 33 | July 15, 2015 | Perforated | 5939 | 4729 | 5941 | 4729 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 33 | July 15, 2015 | Perforated | 6022 | 4729 | 6024 | 4729 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 32 | July 15, 2015 | Perforated | 6082 | 4729 | 6084 | 4729 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 32 | July 15, 2015 | Perforated | 6166 | 4726 | 6168 | 4726 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 32 | July 15, 2015 | Perforated | 6250 | 4723 | 6252 | 4722 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 32 | July 15, 2015 | Perforated | 6334 | 4720 | 6336 | 4720 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 32 | July 15, 2015 | Perforated | 6418 | 4721 | 6420 | 4721 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 31 | July 15, 2015 | Perforated | 6478 | 4720 | 6480 | 4720 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 31 | July 15, 2015 | Perforated | 6560 | 4719 | 6562 | 4719 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 31 | July 15, 2015 | Perforated | 6641 | 4719 | 6643 | 4719 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 31 | July 15, 2015 | Perforated | 6723 | 4718 | 6725 | 4718 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 31 | July 15, 2015 | Perforated | 6804 | 4718 | 6806 | 4718 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 30 | July 15, 2015 | Perforated | 6864 | 4717 | 6866 | 4717 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 30 | July 15, 2015 | Perforated | 6948 | 4716 | 6950 | 4716 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 30 | July 15, 2015 | Perforated | 7032 | 4717 | 7034 | 4717 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 30 | July 15, 2015 | Perforated | 7115 | 4717 | 7117 | 4717 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 30 | July 15, 2015 | Perforated | 7199 | 4716 | 7201 | 4716 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 29 | July 15, 2015 | Perforated | 7259 | 4715 | 7261 | 4715 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 29 | July 15, 2015 | Perforated | 7344 | 4715 | 7346 | 4715 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 29 | July 15, 2015 | Perforated | 7429 | 4716 | 7431 | 4716 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 29 | July 15, 2015 | Perforated | 7513 | 4715 | 7515 | 4715 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 29 | July 15, 2015 | Perforated | 7598 | 4713 | 7600 | 4713 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 28 | July 15, 2015 | Perforated | 7658 | 4713 | 7660 | 4713 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 28 | July 15, 2015 | Perforated | 7745 | 4713 | 7747 | 4713 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 28 | July 15, 2015 | Perforated | 7831 | 4714 | 7833 | 4714 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 28 | July 15, 2015 | Perforated | 7918 | 4714 | 7920 | 4714 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 28 | July 15, 2015 | Perforated | 8004 | 4714 | 8006 | 4714 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 27 | July 15, 2015 | Perforated | 8064 | 4713 | 8066 | 4713 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 27 | July 15, 2015 | Perforated | 8147 | 4714 | 8149 | 4714 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |

# LeForce 3408 1-11H2 - Perforations and Shot Density

| Stage Nbr | Date | Type | Top Depth | Top Depth (TVD) | Bottom Depth | Bottom Depth (TVD) | Zone | Shot Density | String Perforated | Fluid Type |
|---|---|---|---|---|---|---|---|---|---|---|
| 27 | July 15, 2015 | Perforated | 8230 | 4715 | 8232 | 4715 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 27 | July 15, 2015 | Perforated | 8312 | 4715 | 8314 | 4715 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 27 | July 15, 2015 | Perforated | 8395 | 4716 | 8397 | 4716 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 26 | July 15, 2015 | Perforated | 8455 | 4716 | 8457 | 4716 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 26 | July 15, 2015 | Perforated | 8540 | 4716 | 8542 | 4715 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 26 | July 15, 2015 | Perforated | 8624 | 4714 | 8626 | 4714 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 26 | July 15, 2015 | Perforated | 8709 | 4714 | 8711 | 4714 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 26 | July 15, 2015 | Perforated | 8793 | 4718 | 8795 | 4718 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 25 | July 15, 2015 | Frac Sleeve | 8925 | 4723 | 8927 | 4723 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 24 | July 14, 2015 | Frac Sleeve | 9151 | 4722 | 9153 | 4722 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 23 | July 14, 2015 | Frac Sleeve | 9374 | 4716 | 9376 | 4716 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 22 | July 14, 2015 | Frac Sleeve | 9599 | 4714 | 9601 | 4714 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 21 | July 14, 2015 | Frac Sleeve | 9828 | 4716 | 9830 | 4716 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 20 | July 14, 2015 | Frac Sleeve | 10058 | 4712 | 10060 | 4712 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 19 | July 14, 2015 | Frac Sleeve | 10287 | 4710 | 10289 | 4710 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 18 | July 14, 2015 | Frac Sleeve | 10516 | 4709 | 10518 | 4709 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 17 | July 14, 2015 | Frac Sleeve | 10744 | 4707 | 10746 | 4707 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 16 | July 14, 2015 | Frac Sleeve | 10966 | 4710 | 10968 | 4710 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 15 | July 14, 2015 | Frac Sleeve | 11194 | 4709 | 11196 | 4709 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 14 | July 14, 2015 | Frac Sleeve | 11414 | 4710 | 11416 | 4709 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 13 | July 14, 2015 | Frac Sleeve | 11640 | 4703 | 11642 | 4703 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 12 | July 14, 2015 | Frac Sleeve | 11869 | 4701 | 11871 | 4701 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 11 | July 14, 2015 | Frac Sleeve | 12096 | 4699 | 12098 | 4699 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 10 | July 14, 2015 | Frac Sleeve | 12322 | 4695 | 12324 | 4695 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 9 | July 14, 2015 | Frac Sleeve | 12545 | 4689 | 12547 | 4689 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 8 | July 14, 2015 | Frac Sleeve | 12775 | 4687 | 12777 | 4687 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 7 | July 14, 2015 | Frac Sleeve | 12994 | 4692 | 12996 | 4692 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 6 | July 14, 2015 | Frac Sleeve | 13217 | 4697 | 13219 | 4697 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 5 | July 14, 2015 | Frac Sleeve | 13435 | 4705 | 13437 | 4705 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 4 | July 14, 2015 | Frac Sleeve | 13664 | 4703 | 13666 | 4703 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 3 | July 14, 2015 | Frac Sleeve | 13892 | 4696 | 13894 | 4696 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 2 | July 13, 2015 | Frac Sleeve | 14120 | 4686 | 14122 | 4686 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |
| 1 | July 13, 2015 | P-Sleeve | 14352 | 4681 | 14354 | 4681 | Miss Lime - Upper | 1 | Production Liner | Fresh Water |

# Hydraulic Fracturing Fluid Product Component Information Disclosure

| | |
|---|---|
| Job Start Date: | 7/13/2015 |
| Job End Date: | 7/15/2015 |
| State: | Kansas |
| County: | Harper |
| API Number: | 15-077-22140-01-00 |
| Operator Name: | SandRidge Energy |
| Well Name and Number: | LeForce 3408 1-11H2 |
| Longitude: | -98.16368958 |
| Latitude: | 37.06572200 |
| Datum: | NAD27 |
| Federal/Tribal Well: | NO |
| True Vertical Depth: | 4,679 |
| Total Base Water Volume (gal): | 3,565,128 |
| Total Base Non Water Volume: | 0 |

## Hydraulic Fracturing Fluid Composition:

| Trade Name | Supplier | Purpose | Ingredients | Chemical Abstract Service Number (CAS #) | Maximum Ingredient Concentration in Additive (% by mass)** | Maximum Ingredient Concentration in HF Fluid (% by mass)** | Comments |
|---|---|---|---|---|---|---|---|
| Water | Archer | Carrier/Base Fluid | | | | | |
| | | | Water | 7732-18-5 | 100.00000 | 94.21541 | None |
| Sand (Proppant) | Archer | Proppant | | | | | |
| | | | Silica Substrate | NA | 100.00000 | 5.40801 | None |
| Hydrochloric Acid (15%) | Archer | Acidizing | | | | | |
| | | | Hydrochloric Acid | 7647-01-0 | 15.00000 | 0.04696 | None |
| | | | Methyl Alcohol | 67-56-1 | 80.00000 | 0.00060 | None |
| | | | thiourea-formaldehyde copolymer | 68527-49-1 | 15.00000 | 0.00011 | None |
| | | | NONYL PHENOL, 4 MOL | 104-40-5 | 10.00000 | 0.00002 | None |
| AIC | Archer | Liquid Acid Iron Control | | | | | |
| | | | Acetic Acid | 64-19-7 | 50.00000 | 0.00053 | None |
| | | | Citric Acid | 77-92-9 | 30.00000 | 0.00032 | None |
| Chemflush | Archer | Enviro-Friendly Chemical Flush | | | | | |
| | | | Hydrotreated Petroleum Distillate | 64742-47-8 | 99.00000 | 0.00056 | None |
| | | | Alcohol Ethoxylate Surfactants | NA | 10.00000 | 0.00006 | None |
| Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS. | | | | | | | |
| | | Other Chemicals | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | Water | 7732-18-5 | | 0.02953 | |
| | | | Aliphatic Hydrocarbon | 64742-47-8 | | 0.01477 | |
| | | | Anionic Polymer | N/A | | 0.01477 | |
| | | | Water | 7732-18-5 | | 0.01058 | |
| | | | Polyol Ester | N/A | | 0.00246 | |
| | | | Oxyalkylated Alcohol | 68002-97-1 | | 0.00246 | |
| | | | Sodium Salt of Phosphate Ester | 68131-72-6 | | 0.00176 | |
| | | | Acrylic Polymer | 28205-96-1 | | 0.00176 | |
| | | | Polyglycol Ester | N/A | | 0.00049 | |
| | | | Water | 7732-18-5 | | 0.00037 | |
| | | | Alcohol Ethoxylate Surfactants | N/A | | 0.00011 | |
| | | | WATER | 7732-18-5 | | 0.00009 | |
| | | | TRADE SECRET | N/A | | 0.00006 | |
| | | | n-olefins | N/A | | 0.00006 | |
| | | | Tetrasodium Ethylenediaminetetraacetate | 64-02-8 | | 0.00005 | |
| | | | Propargyl Alcohol | 107-19-7 | | 0.00004 | |
| | | | ISOPROPANOL | 67-63-0 | | 0.00002 | |
| | | | METHANOL | 67-56-1 | | 0.00002 | |
| | | | Water | 7732-18-5 | | | |
| | | | Acetic Acid | 64-19-7 | | | |
| | | | Cinnamic Aldehyde | 104-55-2 | | | |
| | | | Surfactant | N/A | | | |
| | | | Buffer | N/A | | | |

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

ALLIED
OIL & GAS SERVICES, LLC

SandRidge Energy
Leforce 3408 1-11H
Harper County, KS.

## 1.0 Executive Summary

Allied Oil & Gas Services would like to thank you, for the award of the provision of cementing products and services on the well Dave SWD #3703 1-8 surface casing.

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

Allied started the job testing lines to 2500 psi. After a successful test we began the job by pumping 10 bbls of preflush spacer. We then mixed and pumped the following cements:

84.02 Bbls (255 sacks) of 13.2 ppg Lead slurry:
Class A – 1.85 Yield
2% Calcium Chloride
2% Gypsum
2% NAMS
.25 lb/sk Flocele

32.06 Bbls (150 sacks) of 15.6 ppg Tail slurry:
Class A - 1.2 Yield
2% Calcium Chloride
.25 lb/sk Flocele

The top plug was then released and displaced with 58 Bbls of fresh water. The plug bumped and pressured up to 900 psi. Pressure was released and floats held with .25 bbl back. 40 Bbl circulated to the pit.

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

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

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

EDGE SERVICES
580-254-3216
Woodward, OK

# INVOICE

| DATE | INVOICE # |
|---|---|
| 5/6/2015 | 5640 |

| BILL TO |
|---|
| SANDRIDGE ENERGY, INC.<br>ATTN: PURCHASING MANAGER<br>123 ROBERT S. KERR AVENUE<br>OKLAHOMA CITY, OK 73102 |

| REMIT TO |
|---|
| EDGE SERVICES, INC.<br>PO BOX 609<br>WOODWARD, OK 73802 |

| COUNTY | Start Date | End Date | Work Order | Rig Number | LEASE NAME | Terms |
|---|---|---|---|---|---|---|
| HARPER, KS | 5/4/2015 | | 4171 | LARIAT 20 | LEFORCE 3408 1-11H | Due on rec... |

| Description |
|---|
| DRILLED 90' OF " CONDUCTOR HOLE<br>DRILLED 6' OF 76" HOLE<br>FURNISHED AND SET 6' X 6' TINHORN CELLAR<br>FURNISHED 90' OF 20" CONDUCTOR PIPE<br>FURNISHED MUD, WATER, AND TRUCKING<br>FURNISHED WELDER AND MATERIALS<br>FURNISHED 9 YARDS OF 10 SACK GROUT FOR CONDUCTOR HOLE<br>FURNISHED 4 YARDS OF 10 SACK GROUT FOR MOUSE HOLE<br>FURNISHED GROUT PUMP<br>DRILL MOUSE HOLE<br>FURNISHED 80' OF 16" CONDUCTOR PIPE<br><br>TOTAL BID $9,500.00 |

| | |
|---|---|
| **Sales Tax (6.15%)** | $256.58 |
| **TOTAL** | $9,500.00 |

ALLIED
OIL & GAS SERVICES, LLC

SandRidge Energy
Leforce 3408 1-11H
Harper County, KS.

## 1.0 Executive Summary

Allied Oil & Gas Services would like to thank you, for the award of the provision of cementing products and services on the well Dave SWD #3703 1-8 surface casing.

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

Allied started the job testing lines to 2500 psi. After a successful test we began the job by pumping 10 bbls of preflush spacer. We then mixed and pumped the following cements:

84.02 Bbls (255 sacks) of 13.2 ppg Lead slurry:
Class A – 1.85 Yield
2% Calcium Chloride
2% Gypsum
2% NAMS
.25 lb/sk Flocele

32.06 Bbls (150 sacks) of 15.6 ppg Tail slurry:
Class A - 1.2 Yield
2% Calcium Chloride
.25 lb/sk Flocele

The top plug was then released and displaced with 58 Bbls of fresh water. The plug bumped and pressured up to 900 psi. Pressure was released and floats held with .25 bbl back. 40 Bbl circulated to the pit.

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

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

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

EDGE SERVICES
580-254-3216
Woodward, OK

# INVOICE

| DATE | INVOICE # |
|---|---|
| 5/6/2015 | 5640 |

| BILL TO |
|---|
| SANDRIDGE ENERGY, INC.<br>ATTN: PURCHASING MANAGER<br>123 ROBERT S. KERR AVENUE<br>OKLAHOMA CITY, OK 73102 |

| REMIT TO |
|---|
| EDGE SERVICES, INC.<br>PO BOX 609<br>WOODWARD, OK 73802 |

| COUNTY | Start Date | End Date | Work Order | Rig Number | LEASE NAME | Terms |
|---|---|---|---|---|---|---|
| HARPER, KS | 5/4/2015 | | 4171 | LARIAT 20 | LEFORCE 3408 1-11H | Due on rec... |

| Description |
|---|
| DRILLED 90' OF " CONDUCTOR HOLE<br>DRILLED 6' OF 76" HOLE<br>FURNISHED AND SET 6' X 6' TINHORN CELLAR<br>FURNISHED 90' OF 20" CONDUCTOR PIPE<br>FURNISHED MUD, WATER, AND TRUCKING<br>FURNISHED WELDER AND MATERIALS<br>FURNISHED 9 YARDS OF 10 SACK GROUT FOR CONDUCTOR HOLE<br>FURNISHED 4 YARDS OF 10 SACK GROUT FOR MOUSE HOLE<br>FURNISHED GROUT PUMP<br>DRILL MOUSE HOLE<br>FURNISHED 80' OF 16" CONDUCTOR PIPE<br><br>TOTAL BID $9,500.00 |

| | |
|---|---|
| **Sales Tax (6.15%)** | $256.58 |
| **TOTAL** | $9,500.00 |

## 1.0 Executive Summary

Allied Oil & Gas Services would like to thank you for the award of the provision of cementing products and services on the well Leforce 3408 1-11H intermediate casing.

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

Allied started the job testing lines to 4000 psi. After a successful test we began the job by pumping 30 bbls of spacer. We then mixed and pumped the following cements:

| | |
|---|---|
| 42.39 bbl | 170 Sacks of 13.6 ppg |
| 50/50 Poz:A Slurry - | 1.4 Yield |

2.0% Gel
0.4% FL-160
0.1% SA-51

| | | | | |
|---|---|---|---|---|
| 21.02 | bbl | 100 | Sacks of 15.6 ppg | |
| Class A Slurry - | | 1.18 | Yield | |

0.8% FL-160
0.2% CD-31

The top plug was then released and displaced with 192.5 Bbls of fresh water. The plug did not bump and final lift pressure was 800 psi. Pressure was released and floats held with .25 bbl back to the truck. Well maintained circulation throughout the job.

Due to technical difficulty no chart was taken.

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

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

Conservation Division
266 N. Main St., Ste. 220
Wichita, KS 67202-1513

Kansas
Corporation Commission

Phone: 316-337-6200
Fax: 316-337-6211
http://kcc.ks.gov/



September 02, 2015

Wanda Ledbetter
SandRidge Exploration and Production LLC
123 ROBERT S. KERR AVE
OKLAHOMA CITY, OK 73102-6406

Re: ACO-1
API 15-077-22146-01-00
LeForce 3408 1-11H2
SE/4 Sec.11-34S-08W
Harper County, Kansas

Dear Wanda Ledbetter:

K.A.R. 82-3-107 provides for all completion information to be filed within 120 days of the spud date. Subsection(e)(2) of that regulation states "All rights to confidentiality shall be lost if the filings are not timely."

The above referenced well was spudded on 5/2/2015 and the ACO-1 was received on September 01, 2015 (not within the 120 days timely requirement).

Therefore, your request for confidential treatment of data contained within the ACO-1 filing cannot be granted at this time.

If you should have any questions, please do not hesitate to contact me at (316)337-6200.

Sincerely,

Production Department