



## **Legacy Reserves**

**Lea County, NM (NAD-27 2015)**

**Lea Unit #32H**

**Lea Unit #32H**

**30-025-42342**

**Lateral #1**

**Design: Lateral #1**

## **Standard Survey Report**

**05 October, 2015**



|                  |                              |                                     |                            |
|------------------|------------------------------|-------------------------------------|----------------------------|
| <b>Company:</b>  | Legacy Reserves              | <b>Local Co-ordinate Reference:</b> | Well Lea Unit #32H         |
| <b>Project:</b>  | Lea County, NM (NAD-27 2015) | <b>TVD Reference:</b>               | KB @ 3673.99usft (McVay 4) |
| <b>Site:</b>     | Lea Unit #32H                | <b>MD Reference:</b>                | KB @ 3673.99usft (McVay 4) |
| <b>Well:</b>     | Lea Unit #32H                | <b>North Reference:</b>             | Grid                       |
| <b>Wellbore:</b> | Lateral #1                   | <b>Survey Calculation Method:</b>   | Minimum Curvature          |
| <b>Design:</b>   | Lateral #1                   | <b>Database:</b>                    | EDM 5000.1 Single User Db  |

|                    |                                      |                      |                |
|--------------------|--------------------------------------|----------------------|----------------|
| <b>Project</b>     | Lea County, NM (NAD-27 2015)         |                      |                |
| <b>Map System:</b> | US State Plane 1927 (Exact solution) | <b>System Datum:</b> | Mean Sea Level |
| <b>Geo Datum:</b>  | NAD 1927 (NADCON CONUS)              |                      |                |
| <b>Map Zone:</b>   | New Mexico East 3001                 |                      |                |

|                              |                                             |                          |                   |
|------------------------------|---------------------------------------------|--------------------------|-------------------|
| <b>Site</b>                  | Lea Unit #32H, Sec 12, T-20S, R-24E, Unit O |                          |                   |
| <b>Site Position:</b>        |                                             | <b>Northing:</b>         | 575,785.60 usft   |
| <b>From:</b>                 | Map                                         | <b>Easting:</b>          | 753,463.00 usft   |
| <b>Position Uncertainty:</b> | 0.00 usft                                   | <b>Slot Radius:</b>      | 13-3/16 "         |
|                              |                                             | <b>Latitude:</b>         | 32° 34' 48.888 N  |
|                              |                                             | <b>Longitude:</b>        | 103° 30' 37.745 W |
|                              |                                             | <b>Grid Convergence:</b> | 0.44 °            |

|                             |               |                            |                                  |
|-----------------------------|---------------|----------------------------|----------------------------------|
| <b>Well</b>                 | Lea Unit #32H |                            |                                  |
| <b>Well Position</b>        | <b>+N/-S</b>  | 0.00 usft                  | <b>Northing:</b> 575,785.60 usft |
|                             | <b>+E/-W</b>  | 0.00 usft                  | <b>Easting:</b> 753,463.00 usft  |
| <b>Position Uncertainty</b> | 0.00 usft     | <b>Wellhead Elevation:</b> | 0.00 usft                        |
|                             |               | <b>Latitude:</b>           | 32° 34' 48.888 N                 |
|                             |               | <b>Longitude:</b>          | 103° 30' 37.745 W                |
|                             |               | <b>Ground Level:</b>       | 3.655.99 usft                    |

|                  |                   |                    |                            |
|------------------|-------------------|--------------------|----------------------------|
| <b>Wellbore</b>  | Lateral #1        |                    |                            |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination (°)</b>     |
|                  | IGRF2015          | 9/2/2015           | 7.14                       |
|                  |                   |                    | <b>Dip Angle (°)</b>       |
|                  |                   |                    | 60.42                      |
|                  |                   |                    | <b>Field Strength (nT)</b> |
|                  |                   |                    | 48,340                     |

|                          |                                |                      |                      |
|--------------------------|--------------------------------|----------------------|----------------------|
| <b>Design</b>            | Lateral #1                     |                      |                      |
| <b>Audit Notes:</b>      |                                |                      |                      |
| <b>Version:</b>          | 1.0                            | <b>Phase:</b>        | ACTUAL               |
|                          |                                | <b>Tie On Depth:</b> | 0.00                 |
| <b>Vertical Section:</b> | <b>Depth From (TVD) (usft)</b> | <b>+N/-S (usft)</b>  | <b>+E/-W (usft)</b>  |
|                          | 0.00                           | 0.00                 | 0.00                 |
|                          |                                |                      | <b>Direction (°)</b> |
|                          |                                |                      | 183.02               |

|                       |                  |                                |                         |
|-----------------------|------------------|--------------------------------|-------------------------|
| <b>Survey Program</b> | Date 10/5/2015   |                                |                         |
| <b>From (usft)</b>    | <b>To (usft)</b> | <b>Survey (Wellbore)</b>       | <b>Tool Name</b>        |
| 100.00                | 5,250.00         | Gyro Survey #1 (Lateral #1)    | VES-ISCWSA-GYRO-3       |
| 5,534.99              | 18,390.00        | TDS MWD Survey #1 (Lateral #1) | MWD                     |
|                       |                  |                                | <b>Description</b>      |
|                       |                  |                                | Biaxial Semi-Cont. Gyro |
|                       |                  |                                | MWD - Standard          |

|                              |                        |                    |                              |                     |                     |                                |                                |                               |                              |  |
|------------------------------|------------------------|--------------------|------------------------------|---------------------|---------------------|--------------------------------|--------------------------------|-------------------------------|------------------------------|--|
| <b>Survey</b>                |                        |                    |                              |                     |                     |                                |                                |                               |                              |  |
| <b>Measured Depth (usft)</b> | <b>Inclination (°)</b> | <b>Azimuth (°)</b> | <b>Vertical Depth (usft)</b> | <b>+N/-S (usft)</b> | <b>+E/-W (usft)</b> | <b>Vertical Section (usft)</b> | <b>Dogleg Rate (°/100usft)</b> | <b>Build Rate (°/100usft)</b> | <b>Turn Rate (°/100usft)</b> |  |
| 0.00                         | 0.00                   | 0.00               | 0.00                         | 0.00                | 0.00                | 0.00                           | 0.00                           | 0.00                          | 0.00                         |  |
| 100.00                       | 0.47                   | 144.04             | 100.00                       | -0.33               | 0.24                | 0.32                           | 0.47                           | 0.47                          | 0.00                         |  |
| 200.00                       | 0.43                   | 134.43             | 200.00                       | -0.93               | 0.75                | 0.89                           | 0.09                           | -0.04                         | -9.61                        |  |
| 300.00                       | 0.46                   | 129.57             | 299.99                       | -1.45               | 1.33                | 1.37                           | 0.05                           | 0.03                          | -4.86                        |  |
| 400.00                       | 0.31                   | 103.04             | 399.99                       | -1.76               | 1.90                | 1.66                           | 0.23                           | -0.15                         | -26.53                       |  |
| 500.00                       | 0.43                   | 98.15              | 499.99                       | -1.88               | 2.54                | 1.74                           | 0.12                           | 0.12                          | -4.89                        |  |
| 600.00                       | 0.19                   | 107.76             | 599.99                       | -1.98               | 3.06                | 1.82                           | 0.24                           | -0.24                         | 9.61                         |  |
| 700.00                       | 0.35                   | 100.72             | 699.99                       | -2.09               | 3.52                | 1.90                           | 0.16                           | 0.16                          | -7.04                        |  |
| 800.00                       | 0.18                   | 98.94              | 799.98                       | -2.17               | 3.98                | 1.96                           | 0.17                           | -0.17                         | -1.78                        |  |
| 900.00                       | 0.21                   | 61.81              | 899.98                       | -2.11               | 4.29                | 1.88                           | 0.13                           | 0.03                          | -37.13                       |  |













**TDS**  
Survey Report



**Company:** Legacy Reserves  
**Project:** Lea County, NM (NAD-27 2015)  
**Site:** Lea Unit #32H  
**Well:** Lea Unit #32H  
**Wellbore:** Lateral #1  
**Design:** Lateral #1

**Local Co-ordinate Reference:** Well Lea Unit #32H  
**TVD Reference:** KB @ 3673.99usft (McVay 4)  
**MD Reference:** KB @ 3673.99usft (McVay 4)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1 Single User Db

**Design Annotations**

| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment              |
|-----------------------------|-----------------------------|-------------------|-----------------|----------------------|
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) |                      |
| 5,250.00                    | 5,248.39                    | 86.49             | 50.35           | TIE-IN to VES Gyro   |
| 18,336.00                   | 11,022.70                   | -7,528.73         | -411.48         | Final MWD Survey     |
| 18,390.00                   | 11,021.29                   | -7,582.66         | -414.02         | Projection to Bit/TD |

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_