

30-025-44411



**HOBBS OCD**

**AUG 14 2018**

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# **Legacy Reserves Operating**

**Lea County, NM**

**Sec 01-T20S-R34E**

**Lea Unit 50H**

**Wellbore #1**

**Design: Wellbore #1**

## **Standard Survey Report**

**19 March, 2018**



## Survey Report

|                  |                           |                                     |                   |
|------------------|---------------------------|-------------------------------------|-------------------|
| <b>Company:</b>  | Legacy Reserves Operating | <b>Local Co-ordinate Reference:</b> | Well Lea Unit 50H |
| <b>Project:</b>  | Lea County, NM            | <b>TVD Reference:</b>               | KB=25 @ 3703.00ft |
| <b>Site:</b>     | Sec 01-T20S-R34E          | <b>MD Reference:</b>                | KB=25 @ 3703.00ft |
| <b>Well:</b>     | Lea Unit 50H              | <b>North Reference:</b>             | Grid              |
| <b>Wellbore:</b> | Wellbore #1               | <b>Survey Calculation Method:</b>   | Minimum Curvature |
| <b>Design:</b>   | Wellbore #1               | <b>Database:</b>                    | EDM 5000.1        |

|                    |                           |                      |                |
|--------------------|---------------------------|----------------------|----------------|
| <b>Project</b>     | Lea County, NM            |                      |                |
| <b>Map System:</b> | US State Plane 1983       | <b>System Datum:</b> | Mean Sea Level |
| <b>Geo Datum:</b>  | North American Datum 1983 |                      |                |
| <b>Map Zone:</b>   | New Mexico Eastern Zone   |                      |                |

|                              |                  |                     |                 |                          |             |
|------------------------------|------------------|---------------------|-----------------|--------------------------|-------------|
| <b>Site</b>                  | Sec 01-T20S-R34E |                     |                 |                          |             |
| <b>Site Position:</b>        |                  | <b>Northing:</b>    | 581,763.70 usft | <b>Latitude:</b>         | 32.596605   |
| <b>From:</b>                 | Map              | <b>Easting:</b>     | 795,728.60 usft | <b>Longitude:</b>        | -103.507304 |
| <b>Position Uncertainty:</b> | 0.00 ft          | <b>Slot Radius:</b> | 13-3/16 "       | <b>Grid Convergence:</b> | 0.45 °      |

|                             |              |                            |                  |                      |                   |             |
|-----------------------------|--------------|----------------------------|------------------|----------------------|-------------------|-------------|
| <b>Well</b>                 | Lea Unit 50H |                            |                  |                      |                   |             |
| <b>Well Position</b>        | +N/-S        | 0.00 ft                    | <b>Northing:</b> | 581,747.80 usft      | <b>Latitude:</b>  | 32.596602   |
|                             | +E/-W        | 0.00 ft                    | <b>Easting:</b>  | 793,828.50 usft      | <b>Longitude:</b> | -103.513474 |
| <b>Position Uncertainty</b> | 0.00 ft      | <b>Wellhead Elevation:</b> | 0.00 ft          | <b>Ground Level:</b> | 3,678.00 ft       |             |

|                  |                   |                    |                    |                  |                       |
|------------------|-------------------|--------------------|--------------------|------------------|-----------------------|
| <b>Wellbore</b>  | Wellbore #1       |                    |                    |                  |                       |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination</b> | <b>Dip Angle</b> | <b>Field Strength</b> |
|                  |                   |                    | (°)                | (°)              | (nT)                  |
|                  | HDGM              | 2/28/2018          | 6.67               | 60.57            | 48,226                |

|                          |                         |               |              |                      |      |
|--------------------------|-------------------------|---------------|--------------|----------------------|------|
| <b>Design</b>            | Wellbore #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)</b> | <b>+N/-S</b>  | <b>+E/-W</b> | <b>Direction</b>     |      |
|                          | (ft)                    | (ft)          | (ft)         | (°)                  |      |
|                          | 0.00                    | 0.00          | 0.00         | 171.30               |      |

|                       |           |                             |                  |                                  |
|-----------------------|-----------|-----------------------------|------------------|----------------------------------|
| <b>Survey Program</b> | Date      | 3/19/2018                   |                  |                                  |
| <b>From</b>           | <b>To</b> | <b>Survey (Wellbore)</b>    | <b>Tool Name</b> | <b>Description</b>               |
| (ft)                  | (ft)      |                             |                  |                                  |
| 100.00                | 5,500.00  | Phoenix Gyros (Wellbore #1) | NS-GYRO-MS       | North sensing gyrocompassing m/s |
| 5,645.00              | 15,019.00 | MWD Surveys (Wellbore #1)   | MWD              | MWD - Standard                   |

|                 |                    |                |                 |              |              |                 |                    |                    |                    |
|-----------------|--------------------|----------------|-----------------|--------------|--------------|-----------------|--------------------|--------------------|--------------------|
| <b>Survey</b>   |                    |                |                 |              |              |                 |                    |                    |                    |
| <b>Measured</b> | <b>Inclination</b> | <b>Azimuth</b> | <b>Vertical</b> | <b>+N/-S</b> | <b>+E/-W</b> | <b>Vertical</b> | <b>Dogleg</b>      | <b>Build</b>       | <b>Turn</b>        |
| <b>Depth</b>    | <b>(°)</b>         | <b>(°)</b>     | <b>Depth</b>    | <b>(ft)</b>  | <b>(ft)</b>  | <b>Section</b>  | <b>Rate</b>        | <b>Rate</b>        | <b>Rate</b>        |
| <b>(ft)</b>     |                    |                | <b>(ft)</b>     |              |              | <b>(ft)</b>     | <b>(°/100usft)</b> | <b>(°/100usft)</b> | <b>(°/100usft)</b> |
| 0.00            | 0.00               | 0.00           | 0.00            | 0.00         | 0.00         | 0.00            | 0.00               | 0.00               | 0.00               |
| 100.00          | 0.40               | 122.88         | 100.00          | -0.19        | 0.29         | 0.23            | 0.40               | 0.40               | 0.00               |
| 200.00          | 0.18               | 67.62          | 200.00          | -0.32        | 0.73         | 0.43            | 0.33               | -0.22              | -55.26             |
| 300.00          | 0.39               | 83.02          | 300.00          | -0.22        | 1.21         | 0.40            | 0.22               | 0.21               | 15.40              |
| 400.00          | 0.37               | 70.53          | 399.99          | -0.07        | 1.86         | 0.35            | 0.09               | -0.02              | -12.49             |
| 500.00          | 0.35               | 359.19         | 499.99          | 0.34         | 2.16         | -0.01           | 0.42               | -0.02              | -71.34             |
| 600.00          | 0.36               | 154.20         | 599.99          | 0.37         | 2.29         | -0.02           | 0.69               | 0.01               | 155.01             |
| 700.00          | 0.40               | 179.19         | 699.99          | -0.27        | 2.43         | 0.63            | 0.17               | 0.04               | 24.99              |
| 800.00          | 0.58               | 223.70         | 799.99          | -0.98        | 2.09         | 1.28            | 0.41               | 0.18               | 44.51              |
| 900.00          | 0.39               | 240.79         | 899.98          | -1.51        | 1.44         | 1.71            | 0.24               | -0.19              | 17.09              |



## Survey Report

**Company:** Legacy Reserves Operating  
**Project:** Lea County, NM  
**Site:** Sec 01-T20S-R34E  
**Well:** Lea Unit 50H  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well Lea Unit 50H  
**TVD Reference:** KB=25 @ 3703.00ft  
**MD Reference:** KB=25 @ 3703.00ft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1

### Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| 1,000.00            | 0.10            | 290.06      | 999.98              | -1.65      | 1.06       | 1.79                  | 0.33                    | -0.29                  | 49.27                 |
| 1,100.00            | 0.44            | 104.55      | 1,099.98            | -1.71      | 1.35       | 1.90                  | 0.54                    | 0.34                   | 174.49                |
| 1,200.00            | 0.54            | 152.64      | 1,199.98            | -2.23      | 1.94       | 2.50                  | 0.41                    | 0.10                   | 48.09                 |
| 1,300.00            | 0.29            | 192.49      | 1,299.98            | -2.90      | 2.10       | 3.18                  | 0.37                    | -0.25                  | 39.85                 |
| 1,400.00            | 0.26            | 148.71      | 1,399.97            | -3.34      | 2.16       | 3.63                  | 0.21                    | -0.03                  | -43.78                |
| 1,500.00            | 0.63            | 190.88      | 1,499.97            | -4.07      | 2.18       | 4.35                  | 0.47                    | 0.37                   | 42.17                 |
| 1,600.00            | 0.49            | 306.14      | 1,599.97            | -4.36      | 1.73       | 4.57                  | 0.95                    | -0.14                  | 115.26                |
| 1,700.00            | 0.21            | 273.91      | 1,699.97            | -4.09      | 1.20       | 4.23                  | 0.33                    | -0.28                  | -32.23                |
| 1,800.00            | 0.41            | 170.95      | 1,799.97            | -4.43      | 1.07       | 4.55                  | 0.50                    | 0.20                   | -102.96               |
| 1,900.00            | 0.90            | 152.62      | 1,899.96            | -5.48      | 1.49       | 5.65                  | 0.53                    | 0.49                   | -18.33                |
| 2,000.00            | 0.96            | 174.06      | 1,999.95            | -7.02      | 1.94       | 7.23                  | 0.35                    | 0.06                   | 21.44                 |
| 2,100.00            | 0.73            | 146.55      | 2,099.94            | -8.38      | 2.38       | 8.64                  | 0.46                    | -0.23                  | -27.51                |
| 2,200.00            | 0.48            | 161.57      | 2,199.93            | -9.31      | 2.86       | 9.63                  | 0.29                    | -0.25                  | 15.02                 |
| 2,300.00            | 0.62            | 169.20      | 2,299.93            | -10.24     | 3.09       | 10.59                 | 0.16                    | 0.14                   | 7.63                  |
| 2,400.00            | 0.80            | 172.98      | 2,399.92            | -11.46     | 3.28       | 11.83                 | 0.19                    | 0.18                   | 3.78                  |
| 2,500.00            | 1.08            | 137.61      | 2,499.91            | -12.85     | 4.00       | 13.31                 | 0.63                    | 0.28                   | -35.37                |
| 2,600.00            | 1.25            | 134.54      | 2,599.88            | -14.31     | 5.41       | 14.97                 | 0.18                    | 0.17                   | -3.07                 |
| 2,700.00            | 1.10            | 121.89      | 2,699.86            | -15.58     | 7.01       | 16.47                 | 0.30                    | -0.15                  | -12.65                |
| 2,800.00            | 1.13            | 128.08      | 2,799.84            | -16.70     | 8.60       | 17.81                 | 0.12                    | 0.03                   | 6.19                  |
| 2,900.00            | 1.72            | 123.61      | 2,899.81            | -18.14     | 10.62      | 19.54                 | 0.60                    | 0.59                   | -4.47                 |
| 3,000.00            | 2.76            | 113.34      | 2,999.74            | -19.92     | 14.08      | 21.83                 | 1.11                    | 1.04                   | -10.27                |
| 3,100.00            | 2.52            | 103.85      | 3,099.63            | -21.40     | 18.43      | 23.95                 | 0.50                    | -0.24                  | -9.49                 |
| 3,200.00            | 2.05            | 82.54       | 3,199.55            | -21.70     | 22.34      | 24.83                 | 0.96                    | -0.47                  | -21.31                |
| 3,300.00            | 1.45            | 74.05       | 3,299.51            | -21.12     | 25.33      | 24.71                 | 0.65                    | -0.60                  | -8.49                 |
| 3,400.00            | 1.43            | 76.24       | 3,399.47            | -20.47     | 27.76      | 24.44                 | 0.06                    | -0.02                  | 2.19                  |
| 3,500.00            | 1.37            | 63.54       | 3,499.44            | -19.64     | 30.04      | 23.96                 | 0.32                    | -0.06                  | -12.70                |
| 3,600.00            | 1.14            | 338.11      | 3,599.43            | -18.19     | 30.74      | 22.63                 | 1.71                    | -0.23                  | -85.43                |
| 3,700.00            | 1.53            | 300.11      | 3,699.40            | -16.60     | 29.21      | 20.82                 | 0.94                    | 0.39                   | -38.00                |
| 3,800.00            | 1.21            | 305.08      | 3,799.37            | -15.32     | 27.19      | 19.26                 | 0.34                    | -0.32                  | 4.97                  |
| 3,900.00            | 1.82            | 297.25      | 3,899.34            | -13.98     | 24.92      | 17.59                 | 0.64                    | 0.61                   | -7.83                 |
| 4,000.00            | 2.23            | 278.03      | 3,999.28            | -12.99     | 21.58      | 16.10                 | 0.79                    | 0.41                   | -19.22                |
| 4,100.00            | 2.10            | 273.88      | 4,099.21            | -12.59     | 17.82      | 15.14                 | 0.20                    | -0.13                  | -4.15                 |
| 4,200.00            | 1.99            | 277.33      | 4,199.14            | -12.24     | 14.27      | 14.26                 | 0.17                    | -0.11                  | 3.45                  |
| 4,300.00            | 2.31            | 286.64      | 4,299.07            | -11.45     | 10.62      | 12.92                 | 0.47                    | 0.32                   | 9.31                  |
| 4,400.00            | 2.14            | 289.58      | 4,399.00            | -10.24     | 6.93       | 11.17                 | 0.20                    | -0.17                  | 2.94                  |
| 4,500.00            | 1.51            | 286.83      | 4,498.94            | -9.24      | 3.91       | 9.72                  | 0.64                    | -0.63                  | -2.75                 |
| 4,600.00            | 0.98            | 317.69      | 4,598.92            | -8.22      | 2.07       | 8.44                  | 0.84                    | -0.53                  | 30.86                 |
| 4,700.00            | 0.60            | 317.30      | 4,698.91            | -7.20      | 1.14       | 7.29                  | 0.38                    | -0.38                  | -0.39                 |
| 4,800.00            | 0.59            | 326.12      | 4,798.91            | -6.39      | 0.50       | 6.39                  | 0.09                    | -0.01                  | 8.82                  |
| 4,900.00            | 0.66            | 327.88      | 4,898.90            | -5.48      | -0.09      | 5.40                  | 0.07                    | 0.07                   | 1.76                  |
| 5,000.00            | 0.47            | 357.42      | 4,998.90            | -4.58      | -0.42      | 4.46                  | 0.34                    | -0.19                  | 29.54                 |
| 5,100.00            | 0.60            | 342.24      | 5,098.89            | -3.67      | -0.59      | 3.54                  | 0.19                    | 0.13                   | -15.18                |
| 5,200.00            | 0.78            | 1.70        | 5,198.88            | -2.49      | -0.73      | 2.35                  | 0.29                    | 0.18                   | 19.46                 |



## Survey Report

**Company:** Legacy Reserves Operating  
**Project:** Lea County, NM  
**Site:** Sec 01-T20S-R34E  
**Well:** Lea Unit 50H  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

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|------------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| 5,300.00                           | 0.49            | 318.47      | 5,298.88            | -1.49      | -1.00      | 1.32                  | 0.54                    | -0.29                  | -43.23                |
| 5,400.00                           | 0.81            | 9.60        | 5,398.87            | -0.47      | -1.16      | 0.29                  | 0.63                    | 0.32                   | 51.13                 |
| 5,500.00                           | 0.94            | 335.33      | 5,498.86            | 0.97       | -1.39      | -1.17                 | 0.53                    | 0.13                   | -34.27                |
| 5,645.00                           | 0.70            | 346.50      | 5,643.85            | 2.91       | -2.09      | -3.19                 | 0.20                    | -0.17                  | 7.70                  |
| <b>First MWD Survey @ 5645' MD</b> |                 |             |                     |            |            |                       |                         |                        |                       |
| 5,834.00                           | 0.70            | 337.10      | 5,832.83            | 5.10       | -2.81      | -5.46                 | 0.06                    | 0.00                   | -4.97                 |
| 6,022.00                           | 0.70            | 38.60       | 6,020.82            | 7.05       | -2.54      | -7.35                 | 0.38                    | 0.00                   | 32.71                 |
| 6,211.00                           | 1.20            | 77.60       | 6,209.80            | 8.38       | 0.11       | -8.26                 | 0.42                    | 0.26                   | 20.63                 |
| 6,399.00                           | 1.50            | 85.90       | 6,397.74            | 8.98       | 4.49       | -8.19                 | 0.19                    | 0.16                   | 4.41                  |
| 6,588.00                           | 2.10            | 115.60      | 6,586.65            | 7.66       | 10.08      | -6.04                 | 0.58                    | 0.32                   | 15.71                 |
| 6,776.00                           | 2.00            | 135.30      | 6,774.54            | 3.84       | 15.49      | -1.45                 | 0.38                    | -0.05                  | 10.48                 |
| 6,964.00                           | 1.90            | 156.20      | 6,962.43            | -1.35      | 19.06      | 4.21                  | 0.38                    | -0.05                  | 11.12                 |
| 7,153.00                           | 1.90            | 167.00      | 7,151.33            | -7.27      | 21.03      | 10.36                 | 0.19                    | 0.00                   | 5.71                  |
| 7,341.00                           | 1.80            | 188.60      | 7,339.23            | -13.22     | 21.29      | 16.29                 | 0.37                    | -0.05                  | 11.49                 |
| 7,530.00                           | 1.60            | 197.60      | 7,528.15            | -18.67     | 20.05      | 21.49                 | 0.18                    | -0.11                  | 4.76                  |
| 7,719.00                           | 2.00            | 223.80      | 7,717.06            | -23.57     | 16.97      | 25.86                 | 0.48                    | 0.21                   | 13.86                 |
| 7,908.00                           | 2.50            | 259.90      | 7,905.92            | -26.67     | 10.63      | 27.97                 | 0.78                    | 0.26                   | 19.10                 |
| 8,096.00                           | 2.00            | 304.80      | 8,093.79            | -25.52     | 3.89       | 25.81                 | 0.95                    | -0.27                  | 23.88                 |
| 8,285.00                           | 1.60            | 306.30      | 8,282.70            | -22.07     | -0.94      | 21.68                 | 0.21                    | -0.21                  | 0.79                  |
| 8,474.00                           | 1.50            | 290.20      | 8,471.63            | -19.66     | -5.39      | 18.62                 | 0.24                    | -0.05                  | -8.52                 |
| 8,662.00                           | 1.70            | 281.40      | 8,659.55            | -18.26     | -10.43     | 16.47                 | 0.17                    | 0.11                   | -4.68                 |
| 8,851.00                           | 2.10            | 269.20      | 8,848.45            | -17.75     | -16.64     | 15.03                 | 0.30                    | 0.21                   | -6.46                 |
| 9,051.00                           | 1.50            | 330.80      | 9,048.37            | -15.52     | -21.58     | 12.07                 | 0.96                    | -0.30                  | 30.80                 |
| 9,130.00                           | 1.90            | 183.80      | 9,127.35            | -15.92     | -22.18     | 12.38                 | 4.13                    | 0.51                   | -186.08               |
| 9,177.00                           | 8.40            | 166.50      | 9,174.14            | -20.04     | -21.42     | 16.57                 | 14.06                   | 13.83                  | -36.81                |
| 9,224.00                           | 14.80           | 166.10      | 9,220.16            | -29.22     | -19.18     | 25.98                 | 13.62                   | 13.62                  | -0.85                 |
| 9,271.00                           | 20.80           | 168.30      | 9,264.89            | -43.23     | -16.04     | 40.30                 | 12.84                   | 12.77                  | 4.68                  |
| 9,319.00                           | 25.40           | 169.50      | 9,309.03            | -61.70     | -12.44     | 59.11                 | 9.63                    | 9.58                   | 2.50                  |
| 9,363.00                           | 29.80           | 165.90      | 9,348.01            | -81.60     | -8.05      | 79.44                 | 10.69                   | 10.00                  | -8.18                 |
| 9,413.00                           | 35.20           | 165.00      | 9,390.17            | -107.59    | -1.29      | 106.15                | 10.84                   | 10.80                  | -1.80                 |
| 9,460.00                           | 40.90           | 166.40      | 9,427.16            | -135.65    | 5.84       | 134.97                | 12.27                   | 12.13                  | 2.98                  |
| 9,507.00                           | 45.60           | 167.30      | 9,461.39            | -167.00    | 13.16      | 167.07                | 10.09                   | 10.00                  | 1.91                  |
| 9,554.00                           | 50.70           | 167.20      | 9,492.74            | -201.14    | 20.88      | 201.98                | 10.85                   | 10.85                  | -0.21                 |
| 9,602.00                           | 55.00           | 167.50      | 9,521.72            | -238.46    | 29.25      | 240.14                | 8.97                    | 8.96                   | 0.63                  |
| 9,649.00                           | 60.00           | 170.80      | 9,546.97            | -277.38    | 36.68      | 279.73                | 12.17                   | 10.64                  | 7.02                  |
| 9,696.00                           | 65.80           | 170.80      | 9,568.37            | -318.66    | 43.37      | 321.55                | 12.34                   | 12.34                  | 0.00                  |
| 9,743.00                           | 71.20           | 170.20      | 9,585.59            | -361.77    | 50.59      | 365.26                | 11.55                   | 11.49                  | -1.28                 |
| 9,791.00                           | 75.00           | 171.70      | 9,599.54            | -407.12    | 57.80      | 411.18                | 8.46                    | 7.92                   | 3.13                  |
| 9,810.00                           | 76.40           | 170.90      | 9,604.23            | -425.32    | 60.59      | 429.59                | 8.42                    | 7.37                   | -4.21                 |
| 9,857.00                           | 80.70           | 172.30      | 9,613.56            | -470.88    | 67.31      | 475.64                | 9.60                    | 9.15                   | 2.98                  |
| 9,904.00                           | 83.50           | 172.00      | 9,620.02            | -516.99    | 73.67      | 522.19                | 5.99                    | 5.96                   | -0.64                 |
| 9,951.00                           | 83.30           | 172.30      | 9,625.42            | -563.24    | 80.05      | 568.87                | 0.76                    | -0.43                  | 0.64                  |
| 9,999.00                           | 85.90           | 172.90      | 9,629.94            | -610.63    | 86.20      | 616.64                | 5.56                    | 5.42                   | 1.25                  |



## Survey Report

**Company:** Legacy Reserves Operating  
**Project:** Lea County, NM  
**Site:** Sec 01-T20S-R34E  
**Well:** Lea Unit 50H  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well Lea Unit 50H  
**TVD Reference:** KB=25 @ 3703.00ft  
**MD Reference:** KB=25 @ 3703.00ft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1

### Survey

| Measured Depth (ft)                          | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N-S (ft) | +E-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|----------------------------------------------|-----------------|-------------|---------------------|-----------|-----------|-----------------------|-------------------------|------------------------|-----------------------|
| 10,018.07                                    | 87.20           | 172.57      | 9,631.09            | -629.51   | 88.61     | 635.67                | 7.02                    | 6.81                   | -1.70                 |
| <b>Enter Section @ 10018.07'MD</b>           |                 |             |                     |           |           |                       |                         |                        |                       |
| 10,046.00                                    | 89.10           | 172.10      | 9,631.99            | -657.17   | 92.33     | 663.58                | 7.02                    | 6.81                   | -1.70                 |
| 10,093.00                                    | 90.40           | 171.50      | 9,632.19            | -703.69   | 99.03     | 710.57                | 3.05                    | 2.77                   | -1.28                 |
| 10,188.00                                    | 89.00           | 169.90      | 9,632.69            | -797.44   | 114.38    | 805.56                | 2.24                    | -1.47                  | -1.68                 |
| 10,282.00                                    | 90.80           | 173.30      | 9,632.85            | -890.41   | 128.11    | 899.54                | 4.09                    | 1.91                   | 3.62                  |
| 10,351.20                                    | 92.18           | 173.59      | 9,631.05            | -959.13   | 136.01    | 968.67                | 2.04                    | 2.00                   | 0.42                  |
| <b>North Hardline Crossing @ 10351.20'MD</b> |                 |             |                     |           |           |                       |                         |                        |                       |
| 10,377.00                                    | 92.70           | 173.70      | 9,629.95            | -984.75   | 138.86    | 994.42                | 2.04                    | 2.00                   | 0.42                  |
| 10,471.00                                    | 92.30           | 172.70      | 9,625.85            | -1,078.00 | 149.98    | 1,088.28              | 1.14                    | -0.43                  | -1.06                 |
| 10,566.00                                    | 91.10           | 172.50      | 9,623.03            | -1,172.16 | 162.21    | 1,183.21              | 1.28                    | -1.26                  | -0.21                 |
| 10,661.00                                    | 90.70           | 172.80      | 9,621.54            | -1,266.37 | 174.36    | 1,278.17              | 0.53                    | -0.42                  | 0.32                  |
| 10,755.00                                    | 89.70           | 172.50      | 9,621.21            | -1,359.60 | 186.39    | 1,372.15              | 1.11                    | -1.06                  | -0.32                 |
| 10,849.00                                    | 90.50           | 172.30      | 9,621.05            | -1,452.77 | 198.82    | 1,466.13              | 0.88                    | 0.85                   | -0.21                 |
| 10,944.00                                    | 91.30           | 172.40      | 9,619.56            | -1,546.91 | 211.46    | 1,561.10              | 0.85                    | 0.84                   | 0.11                  |
| 11,038.00                                    | 90.40           | 170.90      | 9,618.16            | -1,639.90 | 225.11    | 1,655.08              | 1.86                    | -0.96                  | -1.60                 |
| 11,132.00                                    | 89.50           | 171.60      | 9,618.25            | -1,732.81 | 239.41    | 1,749.08              | 1.21                    | -0.96                  | 0.74                  |
| 11,227.00                                    | 91.00           | 170.40      | 9,617.83            | -1,826.63 | 254.27    | 1,844.07              | 2.02                    | 1.58                   | -1.26                 |
| 11,321.00                                    | 91.30           | 171.80      | 9,615.94            | -1,919.48 | 268.81    | 1,938.05              | 1.52                    | 0.32                   | 1.49                  |
| 11,416.00                                    | 90.20           | 170.00      | 9,614.70            | -2,013.27 | 283.84    | 2,033.04              | 2.22                    | -1.16                  | -1.89                 |
| 11,510.00                                    | 90.20           | 170.10      | 9,614.37            | -2,105.86 | 300.08    | 2,127.01              | 0.11                    | 0.00                   | 0.11                  |
| 11,604.00                                    | 89.60           | 170.90      | 9,614.54            | -2,198.57 | 315.59    | 2,221.00              | 1.06                    | -0.64                  | 0.85                  |
| 11,699.00                                    | 89.60           | 170.30      | 9,615.20            | -2,292.29 | 331.11    | 2,315.99              | 0.63                    | 0.00                   | -0.63                 |
| 11,793.00                                    | 89.50           | 169.90      | 9,615.94            | -2,384.88 | 347.27    | 2,409.97              | 0.44                    | -0.11                  | -0.43                 |
| 11,887.00                                    | 88.60           | 169.70      | 9,617.50            | -2,477.39 | 363.91    | 2,503.92              | 0.98                    | -0.96                  | -0.21                 |
| 11,982.00                                    | 90.00           | 171.00      | 9,618.66            | -2,571.03 | 379.83    | 2,598.90              | 2.01                    | 1.47                   | 1.37                  |
| 12,076.00                                    | 90.80           | 171.60      | 9,618.00            | -2,663.94 | 394.05    | 2,692.90              | 1.06                    | 0.85                   | 0.64                  |
| 12,171.00                                    | 90.70           | 171.20      | 9,616.76            | -2,757.87 | 408.26    | 2,787.89              | 0.43                    | -0.11                  | -0.42                 |
| 12,265.00                                    | 91.70           | 171.90      | 9,614.79            | -2,850.83 | 422.07    | 2,881.86              | 1.30                    | 1.06                   | 0.74                  |
| 12,359.00                                    | 92.00           | 171.80      | 9,611.75            | -2,943.83 | 435.39    | 2,975.81              | 0.34                    | 0.32                   | -0.11                 |
| 12,454.00                                    | 93.32           | 170.50      | 9,607.35            | -3,037.59 | 449.98    | 3,070.70              | 1.95                    | 1.39                   | -1.37                 |
| 12,548.00                                    | 94.00           | 170.00      | 9,601.35            | -3,130.04 | 465.87    | 3,164.50              | 0.90                    | 0.72                   | -0.53                 |
| 12,642.00                                    | 94.20           | 170.20      | 9,594.62            | -3,222.41 | 481.99    | 3,258.24              | 0.30                    | 0.21                   | 0.21                  |
| 12,736.00                                    | 92.20           | 170.80      | 9,589.38            | -3,314.97 | 497.48    | 3,352.07              | 2.22                    | -2.13                  | 0.64                  |
| 12,830.00                                    | 91.50           | 171.40      | 9,586.34            | -3,407.79 | 512.01    | 3,446.02              | 0.98                    | -0.74                  | 0.64                  |
| 12,925.00                                    | 91.20           | 171.80      | 9,584.10            | -3,501.74 | 525.89    | 3,541.00              | 0.53                    | -0.32                  | 0.42                  |
| 13,019.00                                    | 92.00           | 171.00      | 9,581.48            | -3,594.65 | 539.94    | 3,634.96              | 1.20                    | 0.85                   | -0.85                 |
| 13,114.00                                    | 91.70           | 171.00      | 9,578.41            | -3,688.43 | 554.79    | 3,729.91              | 0.32                    | -0.32                  | 0.00                  |
| 13,208.00                                    | 91.50           | 171.70      | 9,575.79            | -3,781.32 | 568.92    | 3,823.87              | 0.77                    | -0.21                  | 0.74                  |
| 13,302.00                                    | 90.50           | 171.60      | 9,574.15            | -3,874.31 | 582.57    | 3,917.85              | 1.07                    | -1.06                  | -0.11                 |
| 13,396.00                                    | 90.00           | 170.10      | 9,573.74            | -3,967.11 | 597.52    | 4,011.85              | 1.68                    | -0.53                  | -1.60                 |
| 13,491.00                                    | 92.00           | 170.40      | 9,572.08            | -4,060.72 | 613.60    | 4,106.81              | 2.13                    | 2.11                   | 0.32                  |
| 13,585.00                                    | 90.70           | 170.10      | 9,569.87            | -4,153.33 | 629.52    | 4,200.77              | 1.42                    | -1.38                  | -0.32                 |
| 13,678.00                                    | 91.60           | 170.60      | 9,568.00            | -4,245.00 | 645.10    | 4,293.73              | 1.11                    | 0.97                   | 0.54                  |



## Survey Report

**Company:** Legacy Reserves Operating  
**Project:** Lea County, NM  
**Site:** Sec 01-T20S-R34E  
**Well:** Lea Unit 50H  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well Lea Unit 50H  
**TVD Reference:** KB=25 @ 3703.00ft  
**MD Reference:** KB=25 @ 3703.00ft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1

### Survey

| Measured Depth (ft)                          | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|----------------------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| 13,772.00                                    | 89.40           | 169.50      | 9,567.18            | -4,337.57  | 661.35     | 4,387.70              | 2.62                    | -2.34                  | -1.17                 |
| 13,865.00                                    | 90.80           | 171.20      | 9,567.02            | -4,429.25  | 676.93     | 4,480.68              | 2.37                    | 1.51                   | 1.83                  |
| 13,958.00                                    | 92.30           | 172.80      | 9,564.50            | -4,521.31  | 689.87     | 4,573.64              | 2.36                    | 1.61                   | 1.72                  |
| 14,052.00                                    | 91.80           | 172.40      | 9,561.14            | -4,614.46  | 701.97     | 4,667.55              | 0.68                    | -0.53                  | -0.43                 |
| 14,145.00                                    | 91.90           | 172.80      | 9,558.14            | -4,706.64  | 713.94     | 4,760.48              | 0.44                    | 0.11                   | 0.43                  |
| 14,238.00                                    | 91.10           | 172.40      | 9,555.70            | -4,798.83  | 725.92     | 4,853.42              | 0.96                    | -0.86                  | -0.43                 |
| 14,331.00                                    | 91.50           | 172.30      | 9,553.59            | -4,890.98  | 738.29     | 4,946.38              | 0.44                    | 0.43                   | -0.11                 |
| 14,408.00                                    | 92.80           | 173.40      | 9,550.70            | -4,967.33  | 747.87     | 5,023.30              | 2.21                    | 1.69                   | 1.43                  |
| 14,503.00                                    | 91.80           | 172.30      | 9,546.89            | -5,061.51  | 759.69     | 5,118.18              | 1.56                    | -1.05                  | -1.16                 |
| 14,597.00                                    | 93.50           | 174.10      | 9,542.54            | -5,154.74  | 770.80     | 5,212.02              | 2.63                    | 1.81                   | 1.91                  |
| 14,691.00                                    | 92.80           | 172.10      | 9,537.38            | -5,247.91  | 782.08     | 5,305.83              | 2.25                    | -0.74                  | -2.13                 |
| 14,785.00                                    | 92.60           | 171.10      | 9,532.95            | -5,340.80  | 795.80     | 5,399.72              | 1.08                    | -0.21                  | -1.06                 |
| 14,879.00                                    | 93.50           | 170.90      | 9,527.95            | -5,433.51  | 810.48     | 5,493.59              | 0.98                    | 0.96                   | -0.21                 |
| 14,969.00                                    | 94.90           | 171.00      | 9,521.36            | -5,522.15  | 824.60     | 5,583.34              | 1.56                    | 1.56                   | 0.11                  |
| <b>Final MWD Survey @ 14969'MD</b>           |                 |             |                     |            |            |                       |                         |                        |                       |
| 15,018.89                                    | 94.90           | 171.00      | 9,517.10            | -5,571.25  | 832.37     | 5,633.05              | 0.00                    | 0.00                   | 0.00                  |
| <b>South Hardline Crossing @ 15018.89'MD</b> |                 |             |                     |            |            |                       |                         |                        |                       |
| 15,019.00                                    | 94.90           | 171.00      | 9,517.09            | -5,571.35  | 832.39     | 5,633.16              | 0.00                    | 0.00                   | 0.00                  |
| <b>PTD @ 15019'MD</b>                        |                 |             |                     |            |            |                       |                         |                        |                       |

### Design Annotations

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates |            | Comment                               |
|---------------------|---------------------|-------------------|------------|---------------------------------------|
|                     |                     | +N/-S (ft)        | +E/-W (ft) |                                       |
| 5,645.00            | 5,643.85            | 2.91              | -2.09      | First MWD Survey @ 5645'MD            |
| 10,018.07           | 9,631.09            | -629.51           | 88.61      | Enter Section @ 10018.07'MD           |
| 10,351.20           | 9,631.05            | -959.13           | 136.01     | North Hardline Crossing @ 10351.20'MD |
| 14,969.00           | 9,521.36            | -5,522.15         | 824.60     | Final MWD Survey @ 14969'MD           |
| 15,018.89           | 9,517.10            | -5,571.25         | 832.37     | South Hardline Crossing @ 15018.89'MD |
| 15,019.00           | 9,517.09            | -5,571.35         | 832.39     | PTD @ 15019'MD                        |

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