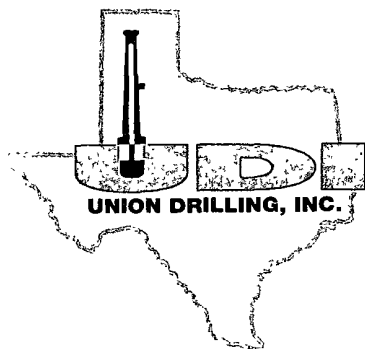




Well Name & Number: Road Lizard 5 Federal Com #2H

API Number: 30-015-39283

Location: 1,715' FNL & 2,220' FEL, Lot G, Sec. 5, Township 23S, Range 29E,  
Eddy County, New Mexico

Operator: COG Operating, LLC

Drilling Contractor: Union Drilling, Inc.

The undersigned hereby certifies that he is an authorized representative of the drilling Contractor who drilled the above described well and that deviation survey tests were conducted and he obtained the following results:

#### RECORD OF INCLINATION

| *11 Measured Depth<br>(feet) | 12 Course Length<br>(Hundreds of feet) | *13 Angle of Inclination<br>(Degrees) | 14 Displacement per<br>Hundred Feet<br>(Sine of Angle X100) | 15 Course Displacement<br>(feet) | 16 Accumulative<br>Displacement (feet) |
|------------------------------|----------------------------------------|---------------------------------------|-------------------------------------------------------------|----------------------------------|----------------------------------------|
| 614                          | 614                                    | .5                                    | 0.87                                                        | 5.36                             | 5.36                                   |
| 1524                         | 910                                    | 1                                     | 1.75                                                        | 15.88                            | 21.24                                  |
| 2424                         | 900                                    | 1.62                                  | 2.83                                                        | 25.45                            | 46.69                                  |
| 3110                         | 686                                    | .25                                   | 0.44                                                        | 2.99                             | 49.68                                  |
| 3837                         | 727                                    | .5                                    | 0.87                                                        | 6.34                             | 56.02                                  |
| 4532                         | 695                                    | .5                                    | 0.87                                                        | 6.06                             | 62.09                                  |
| 5226                         | 694                                    | .75                                   | 1.31                                                        | 9.08                             | 71.17                                  |
| 5890                         | 664                                    | .25                                   | 0.44                                                        | 2.90                             | 74.07                                  |
| 6615                         | 6615                                   | 1                                     | 1.75                                                        | 115.45                           | 189.52                                 |
| 7564                         | 949                                    | 2.73                                  | 4.76                                                        | 45.21                            | 234.74                                 |
| 8069                         | 505                                    | 2.04                                  | 3.56                                                        | 17.98                            | 252.72                                 |
| DIRECTIONAL                  |                                        |                                       |                                                             |                                  |                                        |
| TOOK OVER                    |                                        |                                       |                                                             |                                  |                                        |

Drilling Contractor: Union Drilling, Inc.

By:

Jim Mayfield  
Jim Mayfield

Title: Division Manager

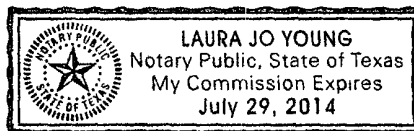
Subscribed and sworn to before me this 25<sup>th</sup> Day of October, 2011.

Laura Jo Young  
Notary Public

My Commission Expires: July 29, 2014

COUNTY OF TAYLOR )

STATE OF TEXAS )



# COG OPERATING

Culebra Bluff  
Eddy County, NM  
Road Lizard 5 Federal Com #2H  
VH - Job #32K0911920

Survey: Actual

## SDI Standard Survey Report

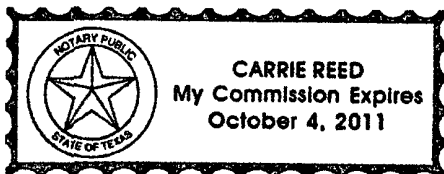
This survey is correct to the best of my knowledge and is supported by actual field data.

Richard

Notarized this date 4th of October, 2011.

Carrie Reed

Notary Signature  
County of Midland  
State of Texas



**Scientific Drilling International, Inc.**  
SDI Standard Survey Report



|                  |                               |                                     |                                     |
|------------------|-------------------------------|-------------------------------------|-------------------------------------|
| <b>Company:</b>  | COG OPERATING                 | <b>Local Co-ordinate Reference:</b> | Well Road Lizard 5 Federal Com #2H  |
| <b>Project:</b>  | Culebra Bluff                 | <b>TVD Reference:</b>               | WELL @ 0 0usft (Original Well Elev) |
| <b>Site:</b>     | Eddy County, NM               | <b>MD Reference:</b>                | WELL @ 0 0usft (Original Well Elev) |
| <b>Well:</b>     | Road Lizard 5 Federal Com #2H | <b>North Reference:</b>             | Grid                                |
| <b>Wellbore:</b> | VH - Job #32K0911920          | <b>Survey Calculation Method:</b>   | Minimum Curvature                   |
| <b>Design:</b>   | VH - Job #32K0911920          | <b>Database:</b>                    | EDM-Regulatory                      |

|             |                                      |               |                |
|-------------|--------------------------------------|---------------|----------------|
| Project     | Culebra Bluff                        |               |                |
| Map System: | US State Plane 1927 (Exact solution) | System Datum: | Mean Sea Level |
| Geo Datum:  | NAD 1927 (NADCON CONUS)              |               |                |
| Map Zone:   | New Mexico East 3001                 |               |                |

|                       |                 |              |                 |                   |                  |
|-----------------------|-----------------|--------------|-----------------|-------------------|------------------|
| Site                  | Eddy County, NM |              |                 |                   |                  |
| Site Position:        |                 | Northing:    | 486,485 38 usft | Latitude:         | 32° 20' 13 338 N |
| From:                 | Lat/Long        | Easting:     | 601,240 90 usft | Longitude:        | 104° 0' 19 945 W |
| Position Uncertainty: | 0 0 usft        | Slot Radius: | 13-3/16"        | Grid Convergence: | 0.18 °           |

|                      |                                                  |          |                     |                 |               |                  |
|----------------------|--------------------------------------------------|----------|---------------------|-----------------|---------------|------------------|
| Well:                | Road Lizard 5 Federal Com #2H, Directional (DDC) |          |                     |                 |               |                  |
| Well Position        | +N/-S                                            | 0 0 usft | Northing:           | 486,485 38 usft | Latitude:     | 32° 20' 13.338 N |
|                      | +E/-W                                            | 0 0 usft | Easting:            | 601,240 90 usft | Longitude:    | 104° 0' 19 945 W |
| Position Uncertainty |                                                  | 0 0 usft | Wellhead Elevation: | usft            | Ground Level: | 0 0 usft         |

|           |            |                      |             |           |                |
|-----------|------------|----------------------|-------------|-----------|----------------|
| Wellbore  |            | VH - Job #32K0911920 |             |           |                |
| Magnetics | Model Name | Sample Date          | Declination | Dip Angle | Field Strength |
|           |            |                      | (°)         | (°)       | (nT)           |
|           | IGRF2010   | 9/27/2011            | 7 76        | 60 21     | 48,633         |

|                   |                      |        |        |                   |
|-------------------|----------------------|--------|--------|-------------------|
| Design            | VH - Job #32K0911920 |        |        |                   |
| Audit Notes:      |                      |        |        |                   |
| Version:          | 1 0                  | Phase: | ACTUAL | Tie On Depth: 0 0 |
| Vertical Section: | Depth From (TVD)     | +N/-S  | +E/-W  | Direction         |
|                   | (usft)               | (usft) | (usft) | (°)               |
|                   | 0 0                  | 0 0    | 0 0    | 178 00            |

|                |         |                               |            |             |  |
|----------------|---------|-------------------------------|------------|-------------|--|
| Survey Program |         | Date                          | 10/23/2011 |             |  |
| From           | To      |                               |            |             |  |
| (usft)         | (usft)  | Survey (Wellbore)             | Tool Name  | Description |  |
| 100 0          | 8,117.0 | Actual (VH - Job #32K0911920) | Keeper     | Keeper Gyro |  |

| Measured Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | True Vertical<br>Depth | North/South<br>(usft) | East/West<br>(usft) | Closure Azimuth<br>(°) | Closure Distance<br>(usft) |
|--------------------------|--------------------|----------------|------------------------|-----------------------|---------------------|------------------------|----------------------------|
| 0 0                      | 0 00               | 0 00           | 0 0                    | 0 0                   | 0 0                 | 0 00                   | 0 0                        |
| 100 0                    | 0 24               | 196 13         | 100 0                  | -0 2                  | -0 1                | 196 13                 | 0 2                        |
| 200 0                    | 0 43               | 231 15         | 200 0                  | -0 6                  | -0 4                | 212 65                 | 0 8                        |
| 300 0                    | 0 53               | 158 91         | 300 0                  | -1 3                  | -0 5                | 202 27                 | 1 4                        |
| 400 0                    | 0 61               | 168 16         | 400 0                  | -2 3                  | -0 3                | 186 54                 | 2 3                        |
| 500 0                    | 0 62               | 179 94         | 500 0                  | -3 3                  | -0 1                | 182 57                 | 3 3                        |
| 600 0                    | 0 76               | 186 04         | 600 0                  | -4 5                  | -0 2                | 182 76                 | 4 5                        |
| 700 0                    | 0 72               | 164 29         | 700 0                  | -5 8                  | -0 1                | 181 17                 | 5 8                        |
| 800 0                    | 0 71               | 195 16         | 800 0                  | -7 0                  | -0 1                | 180 90                 | 7 0                        |
| 900 0                    | 0 87               | 194 49         | 900 0                  | -8 3                  | -0 5                | 183 18                 | 8 3                        |
| 1,000 0                  | 1 22               | 219 29         | 999 9                  | -9 9                  | -1 3                | 187 64                 | 10 0                       |
| 1,100 0                  | 1 41               | 229 13         | 1,099 9                | -11 5                 | -2 9                | 194 29                 | 11 9                       |

**Scientific Drilling International, Inc.**  
SDI Standard Survey Report



|                  |                               |                                     |                                     |
|------------------|-------------------------------|-------------------------------------|-------------------------------------|
| <b>Company:</b>  | COG OPERATING                 | <b>Local Co-ordinate Reference:</b> | Well Road Lizard 5 Federal Com #2H  |
| <b>Project:</b>  | Culebra Bluff                 | <b>TVD Reference:</b>               | WELL @ 0 0usft (Original Well Elev) |
| <b>Site:</b>     | Eddy County, NM               | <b>MD Reference:</b>                | WELL @ 0 0usft (Original Well Elev) |
| <b>Well:</b>     | Road Lizard 5 Federal Com #2H | <b>North Reference:</b>             | Grid                                |
| <b>Wellbore:</b> | VH - Job #32K0911920          | <b>Survey Calculation Method:</b>   | Minimum Curvature                   |
| <b>Design:</b>   | VH - Job #32K0911920          | <b>Database:</b>                    | EDM-Regulatory                      |

| Survey                   |                    |                |                        |                       |                     |                        |                            |  |
|--------------------------|--------------------|----------------|------------------------|-----------------------|---------------------|------------------------|----------------------------|--|
| Measured Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | True Vertical<br>Depth | North/South<br>(usft) | East/West<br>(usft) | Closure Azimuth<br>(°) | Closure Distance<br>(usft) |  |
| 1,200 0                  | 1 39               | 228 74         | 1,199 9                | -13 1                 | -4 8                | 200 00                 | 14 0                       |  |
| 1,300 0                  | 1 46               | 237 17         | 1,299 8                | -14 6                 | -6 8                | 204 82                 | 16 1                       |  |
| 1,400 0                  | 1 24               | 239 14         | 1,399 8                | -15 8                 | -8 8                | 208 91                 | 18 1                       |  |
| 1,500 0                  | 0 90               | 238 67         | 1,499 8                | -16 8                 | -10 4               | 211 63                 | 19 7                       |  |
| 1,600 0                  | 0 97               | 223 56         | 1,599 8                | -17 8                 | -11 6               | 213 06                 | 21 3                       |  |
| 1,700 0                  | 1 16               | 225 18         | 1,699 8                | -19 2                 | -12 9               | 213 97                 | 23 1                       |  |
| 1,800 0                  | 0 95               | 230 02         | 1,799 8                | -20 4                 | -14 3               | 214 95                 | 24 9                       |  |
| 1,900 0                  | 0 56               | 244 82         | 1,899 7                | -21 1                 | -15 3               | 215 96                 | 26 1                       |  |
| 2,000 0                  | 0 47               | 237 65         | 1,999 7                | -21 6                 | -16 1               | 216 78                 | 26 9                       |  |
| 2,100 0                  | 0 69               | 164 66         | 2,099 7                | -22 4                 | -16 3               | 216 10                 | 27 7                       |  |
| 2,200 0                  | 1 29               | 147 37         | 2,199 7                | -23 9                 | -15 5               | 213 04                 | 28 5                       |  |
| 2,300 0                  | 1 34               | 149 53         | 2,299 7                | -25 9                 | -14 3               | 209 03                 | 29 6                       |  |
| 2,400 0                  | 1 96               | 144 76         | 2,399 7                | -28 3                 | -12 8               | 204 31                 | 31 0                       |  |
| 2,500 0                  | 2 78               | 144 68         | 2,499 6                | -31 6                 | -10 4               | 198 16                 | 33 3                       |  |
| 2,600 0                  | 2 10               | 144 20         | 2,599 5                | -35 1                 | -7 9                | 192 69                 | 36 0                       |  |
| 2,700 0                  | 1 61               | 133 19         | 2,699 4                | -37 6                 | -5 8                | 188 80                 | 38 0                       |  |
| 2,800 0                  | 0 90               | 132 58         | 2,799 4                | -39 0                 | -4 2                | 186 15                 | 39 3                       |  |
| 2,900 0                  | 0 81               | 125 09         | 2,899 4                | -40 0                 | -3 1                | 184 37                 | 40 1                       |  |
| 3,000 0                  | 0 61               | 137 57         | 2,999 4                | -40 8                 | -2 1                | 182 97                 | 40 8                       |  |
| 3,100 0                  | 0 83               | 148 88         | 3,099 4                | -41 8                 | -1 4                | 181 89                 | 41 8                       |  |
| 3,200 0                  | 0 45               | 152 87         | 3,199 4                | -42 8                 | -0 8                | 181 11                 | 42 8                       |  |
| 3,300 0                  | 0 44               | 135 49         | 3,299 4                | -43 4                 | -0 4                | 180 50                 | 43 4                       |  |
| 3,400 0                  | 0 41               | 116 87         | 3,399 4                | -43 8                 | 0 2                 | 179 73                 | 43 8                       |  |
| 3,500 0                  | 0 46               | 167 62         | 3,499 4                | -44 4                 | 0 6                 | 179 21                 | 44 4                       |  |
| 3,600 0                  | 0 30               | 136 42         | 3,599 4                | -45 0                 | 0 9                 | 178 88                 | 45 0                       |  |
| 3,700 0                  | 0 48               | 132 21         | 3,699 4                | -45 4                 | 1 4                 | 178 27                 | 45 5                       |  |
| 3,800 0                  | 0 32               | 115 17         | 3,799 4                | -45 8                 | 1 9                 | 177 58                 | 45 9                       |  |
| 3,900 0                  | 0 35               | 88 88          | 3,899 4                | -45 9                 | 2 5                 | 176 89                 | 46 0                       |  |
| 4,000 0                  | 0 44               | 115 57         | 3,999 3                | -46 1                 | 3 1                 | 176 10                 | 46 2                       |  |
| 4,100 0                  | 0 32               | 114 08         | 4,099 3                | -46 4                 | 3 7                 | 175 38                 | 46 5                       |  |
| 4,200 0                  | 0 33               | 135 12         | 4,199 3                | -46 7                 | 4 2                 | 174 86                 | 46 9                       |  |
| 4,300 0                  | 0 34               | 177 08         | 4,299 3                | -47 2                 | 4 4                 | 174 65                 | 47 4                       |  |
| 4,400 0                  | 0 25               | 121 84         | 4,399 3                | -47 6                 | 4 6                 | 174 45                 | 47 8                       |  |
| 4,500 0                  | 0 46               | 168 34         | 4,499 3                | -48 1                 | 4 9                 | 174 20                 | 48 4                       |  |
| 4,600 0                  | 0 29               | 193 71         | 4,599 3                | -48 8                 | 4 9                 | 174 25                 | 49 0                       |  |
| 4,700 0                  | 0 46               | 158 94         | 4,699 3                | -49 4                 | 5 0                 | 174 22                 | 49 6                       |  |
| 4,800 0                  | 0 45               | 196 68         | 4,799 3                | -50 1                 | 5 0                 | 174 28                 | 50 4                       |  |
| 4,900 0                  | 0 51               | 165 97         | 4,899 3                | -50 9                 | 5 0                 | 174 37                 | 51 2                       |  |
| 5,000 0                  | 0 77               | 183 48         | 4,999 3                | -52 0                 | 5 1                 | 174 42                 | 52 3                       |  |
| 5,100 0                  | 0 84               | 164 08         | 5,099 3                | -53 4                 | 5 2                 | 174 39                 | 53 7                       |  |
| 5,200 0                  | 0 43               | 180 56         | 5,199 3                | -54 5                 | 5 4                 | 174 29                 | 54 8                       |  |
| 5,300 0                  | 0 57               | 168 53         | 5,299 3                | -55 4                 | 5 5                 | 174 28                 | 55 6                       |  |
| 5,400 0                  | 0 43               | 174 66         | 5,399 3                | -56 2                 | 5 7                 | 174 24                 | 56 5                       |  |
| 5,500 0                  | 0 62               | 180 85         | 5,499 3                | -57 1                 | 5 7                 | 174 30                 | 57 4                       |  |

**Scientific Drilling International, Inc.**  
SDI Standard Survey Report



|                  |                               |                                     |                                     |
|------------------|-------------------------------|-------------------------------------|-------------------------------------|
| <b>Company:</b>  | COG OPERATING                 | <b>Local Co-ordinate Reference:</b> | Well Road Lizard 5 Federal Com #2H  |
| <b>Project:</b>  | Culebra Bluff                 | <b>TVD Reference:</b>               | WELL @ 0 0usft (Original Well Elev) |
| <b>Site:</b>     | Eddy County, NM               | <b>MD Reference:</b>                | WELL @ 0 0usft (Original Well Elev) |
| <b>Well:</b>     | Road Lizard 5 Federal Com #2H | <b>North Reference:</b>             | Grid                                |
| <b>Wellbore:</b> | VH - Job #32K0911920          | <b>Survey Calculation Method:</b>   | Minimum Curvature                   |
| <b>Design:</b>   | VH - Job #32K0911920          | <b>Database:</b>                    | EDM-Regulatory                      |

| Survey                   |                    |                |                        |                       |                     |                        |                            |  |
|--------------------------|--------------------|----------------|------------------------|-----------------------|---------------------|------------------------|----------------------------|--|
| Measured Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | True Vertical<br>Depth | North/South<br>(usft) | East/West<br>(usft) | Closure Azimuth<br>(°) | Closure Distance<br>(usft) |  |
| 5,600 0                  | 0 42               | 192 81         | 5,599 3                | -58 0                 | 5 6                 | 174 48                 | 58 3                       |  |
| 5,700 0                  | 0 70               | 191 77         | 5,699 3                | -59 0                 | 5 4                 | 174 76                 | 59 2                       |  |
| 5,800 0                  | 0 60               | 187 88         | 5,799 3                | -60 1                 | 5 2                 | 175 05                 | 60 3                       |  |
| 5,900 0                  | 0 56               | 210 82         | 5,899 3                | -61 0                 | 4 9                 | 175 42                 | 61 2                       |  |
| 6,000 0                  | 0 89               | 188 97         | 5,999 3                | -62 2                 | 4 5                 | 175 85                 | 62 4                       |  |
| 6,100 0                  | 0 72               | 197 97         | 6,099 3                | -63 6                 | 4 2                 | 176 22                 | 63 7                       |  |
| 6,200 0                  | 0 78               | 205 55         | 6,199 2                | -64 8                 | 3 7                 | 176 72                 | 64 9                       |  |
| 6,300 0                  | 0 69               | 196 61         | 6,299 2                | -66 0                 | 3 2                 | 177 18                 | 66 1                       |  |
| 6,400 0                  | 1 16               | 206 13         | 6,399 2                | -67 5                 | 2 6                 | 177 77                 | 67 5                       |  |
| 6,500 0                  | 0 97               | 210 22         | 6,499 2                | -69 1                 | 1 8                 | 178 54                 | 69 1                       |  |
| 6,600 0                  | 1 16               | 213 22         | 6,599 2                | -70 7                 | 0 8                 | 179 37                 | 70 7                       |  |
| 6,700 0                  | 1 44               | 247 31         | 6,699 2                | -72 0                 | -0 9                | 180 74                 | 72 0                       |  |
| 6,800 0                  | 1 90               | 248 18         | 6,799 1                | -73 1                 | -3 6                | 182 84                 | 73 2                       |  |
| 6,900 0                  | 2 44               | 255 91         | 6,899 1                | -74 3                 | -7 2                | 185 57                 | 74 6                       |  |
| 7,000 0                  | 3 08               | 270 17         | 6,998 9                | -74 8                 | -12 0               | 189 11                 | 75 7                       |  |
| 7,100 0                  | 3 42               | 275 43         | 7,098 8                | -74 5                 | -17 6               | 193 33                 | 76 6                       |  |
| 7,200 0                  | 3 32               | 281 19         | 7,198 6                | -73 6                 | -23 5               | 197 67                 | 77 3                       |  |
| 7,300 0                  | 2 90               | 289 10         | 7,298 5                | -72 3                 | -28 7               | 201 65                 | 77 7                       |  |
| 7,400 0                  | 2 62               | 281 72         | 7,398 3                | -71 0                 | -33 3               | 205 15                 | 78 4                       |  |
| 7,500 0                  | 2 74               | 273.06         | 7,498 2                | -70 4                 | -37 9               | 208 33                 | 79 9                       |  |
| 7,600 0                  | 2 89               | 274 78         | 7,598 1                | -70 0                 | -42 8               | 211 45                 | 82 1                       |  |
| 7,700 0                  | 2 59               | 271 85         | 7,698.0                | -69 8                 | -47 6               | 214 32                 | 84 4                       |  |
| 7,800 0                  | 2 30               | 270 82         | 7,797 9                | -69 6                 | -51 9               | 216 68                 | 86 8                       |  |
| 7,900 0                  | 2 04               | 260 18         | 7,897 8                | -69 9                 | -55 6               | 218 51                 | 89 4                       |  |
| 8,000 0                  | 1 96               | 259 36         | 7,997 8                | -70 5                 | -59 1               | 219 94                 | 92 0                       |  |
| 8,100 0                  | 1 82               | 257.87         | 8,097 7                | -71 2                 | -62 3               | 221 19                 | 94 6                       |  |
| 8,117 0                  | 1 80               | 252 04         | 8,114 7                | -71 3                 | -62 8               | 221 37                 | 95 0                       |  |



**Scientific Drilling**  
Directional Drilling Operations

Project: Culebra Bluff  
Eddy County, NM  
Well: Road Lizard 5 Federal Com #2H  
Wellbore: VH - Job #32K0911920  
Design: VH - Job #32K0911920

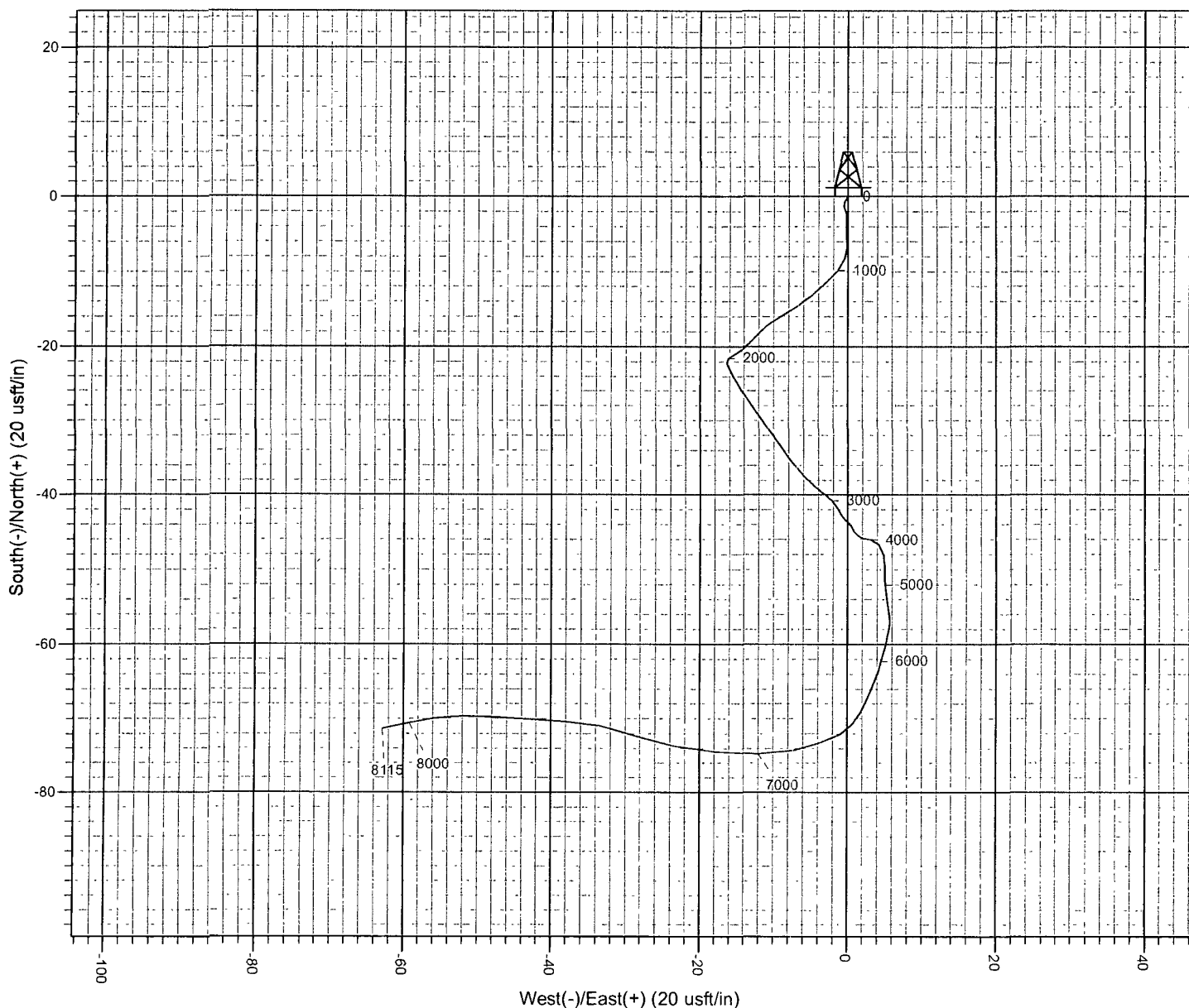


Azimuths to Grid North  
True North -0 17°  
Magnetic North 7 58°

Magnetic Field  
Strength 48633 3snT  
Dip Angle 60 21°  
Date 9/27/2011  
Model IGRF2010

WELL DETAILS: Road Lizard 5 Federal Com #2H  
WELL @ 0.0usft (Original Well Elev)  
Ground Level: 0.0

| +N/-S | +E/-W | Northing  | Easting   | Latitude         | Longitude        | Slot |
|-------|-------|-----------|-----------|------------------|------------------|------|
| 0.0   | 0.0   | 486485 38 | 601240.90 | 32° 20' 13.338 N | 104° 0' 19.945 W |      |



PROJECT DETAILS: Culebra Bluff  
Geodetic System: US State Plane 1927 (Exact solution)  
Datum: NAD 1927 (NADCON CONUS)  
Ellipsoid: Clarke 1866  
Zone: New Mexico East 3001  
System Datum: Mean Sea Level

SITE DETAILS: Eddy County, NM  
Site Centre Latitude: 32° 20' 13.338 N  
Longitude: 104° 0' 19.945 W  
Positional Uncertainty: 0.0  
Convergence: 0.18  
Local North: Grid

# PathFinder Energy Services, Inc.

## Survey Report

COG OPERATING, LLC  
ROAD LIZARD 5 FED #2H  
CULEBRA BLUFF; BONE SPRING  
Rig:UDI 216  
PathFinder Office Supervisor: STEVE BIBB  
PathFinder Field Engineers: CHARLIE SANDIFER  
ZACH

Survey Horiz. Reference:WELLHEAD  
Ref Coordinates: LAT:32.20.13.3378 N LON:104.0.19.9449 W  
GRID Reference:NAD83 new mexico east Transverse Mercator  
Ref GRID Coord: X: 642576.2300 Y: 486501.4700  
North Aligned To:TRUE NORTH  
Total Magnetic Correction: 7.58°EAST TO TRUE  
Vertical Section Plane: 178.00  
Survey Vert. Reference: 21.00' Kelly Bushing To Ground  
Altitude:3014.10' Ground To MSL

Survey Calculations by RX5 V6.03E using Minimum Curvature

| Measured<br>Depth<br>(ft)             | Incl<br>(deg) | Drift<br>Dir.<br>(deg) | TVD<br>(ft) | Subsea<br>Depth<br>(ft) | Vertical<br>Section<br>(ft) | TOTAL<br>Rectangular Offsets<br>(ft) (ft) |         | Closure<br>Dist Dir<br>(ft) (deg) |        | DLS<br>(dg/100ft) | TEMP<br>(F) |
|---------------------------------------|---------------|------------------------|-------------|-------------------------|-----------------------------|-------------------------------------------|---------|-----------------------------------|--------|-------------------|-------------|
| 8117.00                               | 1.80          | 252.04                 | 8114.71     | 8093.71                 | 69.12                       | 71.36 S                                   | 62.81 W | 95.06@                            | 221.35 | 0.00              | 0.00        |
| TIED INTO DDC MWD SURVEYS @ 8143' MD. |               |                        |             |                         |                             |                                           |         |                                   |        |                   |             |
| 8143.00                               | 1.90          | 252.60                 | 8140.70     | 8119.70                 | 69.35                       | 71.61 S                                   | 63.61 W | 95.79@                            | 221.61 | 0.39              | 0.00        |
| 8175.00                               | 3.00          | 224.90                 | 8172.67     | 8151.67                 | 70.06                       | 72.37 S                                   | 64.71 W | 97.08@                            | 221.80 | 4.96              | 0.00        |
| 8206.00                               | 6.60          | 195.80                 | 8203.56     | 8182.56                 | 72.32                       | 74.66 S                                   | 65.77 W | 99.49@                            | 221.38 | 13.67             | 0.00        |
| 8237.00                               | 11.30         | 186.40                 | 8234.17     | 8213.17                 | 77.02                       | 79.39 S                                   | 66.59 W | 103.62@                           | 219.99 | 15.83             | 0.00        |
| 8269.00                               | 15.80         | 179.50                 | 8265.28     | 8244.28                 | 84.48                       | 86.87 S                                   | 66.90 W | 109.64@                           | 217.60 | 14.92             | 0.00        |
| 8300.00                               | 20.30         | 178.90                 | 8294.74     | 8273.74                 | 94.08                       | 96.47 S                                   | 66.76 W | 117.32@                           | 214.68 | 14.53             | 0.00        |
| 8331.00                               | 23.90         | 179.50                 | 8323.46     | 8302.46                 | 105.74                      | 108.13 S                                  | 66.60 W | 127.00@                           | 211.63 | 11.64             | 0.00        |
| 8363.00                               | 27.40         | 178.30                 | 8352.30     | 8331.30                 | 119.59                      | 121.98 S                                  | 66.33 W | 138.84@                           | 208.54 | 11.06             | 0.00        |
| 8394.00                               | 31.10         | 176.40                 | 8379.35     | 8358.35                 | 134.73                      | 137.10 S                                  | 65.61 W | 151.99@                           | 205.57 | 12.30             | 0.00        |
| 8425.00                               | 35.00         | 175.10                 | 8405.33     | 8384.33                 | 151.62                      | 153.96 S                                  | 64.35 W | 166.86@                           | 202.68 | 12.79             | 0.00        |
| 8457.00                               | 38.30         | 175.70                 | 8431.00     | 8410.00                 | 170.70                      | 172.99 S                                  | 62.82 W | 184.05@                           | 199.96 | 10.37             | 0.00        |
| 8488.00                               | 40.70         | 176.90                 | 8454.92     | 8433.92                 | 190.40                      | 192.67 S                                  | 61.56 W | 202.26@                           | 197.72 | 8.12              | 0.00        |
| 8519.00                               | 43.30         | 178.00                 | 8477.95     | 8456.95                 | 211.14                      | 213.39 S                                  | 60.64 W | 221.84@                           | 195.86 | 8.72              | 0.00        |
| 8550.00                               | 46.40         | 178.70                 | 8499.93     | 8478.93                 | 233.00                      | 235.24 S                                  | 60.01 W | 242.78@                           | 194.31 | 10.13             | 0.00        |
| 8582.00                               | 50.20         | 178.70                 | 8521.21     | 8500.21                 | 256.89                      | 259.12 S                                  | 59.47 W | 265.86@                           | 192.93 | 11.88             | 0.00        |
| 8613.00                               | 53.80         | 178.10                 | 8540.29     | 8519.29                 | 281.31                      | 283.54 S                                  | 58.78 W | 289.57@                           | 191.71 | 11.71             | 0.00        |
| 8644.00                               | 57.40         | 177.40                 | 8557.80     | 8536.80                 | 306.89                      | 309.09 S                                  | 57.78 W | 314.45@                           | 190.59 | 11.76             | 0.00        |
| 8676.00                               | 61.50         | 176.80                 | 8574.07     | 8553.07                 | 334.44                      | 336.61 S                                  | 56.38 W | 341.30@                           | 189.51 | 12.91             | 0.00        |
| 8707.00                               | 64.50         | 177.00                 | 8588.14     | 8567.14                 | 362.05                      | 364.19 S                                  | 54.89 W | 368.30@                           | 188.57 | 9.69              | 0.00        |
| 8739.00                               | 67.20         | 177.80                 | 8601.23     | 8580.23                 | 391.24                      | 393.35 S                                  | 53.57 W | 396.98@                           | 187.75 | 8.74              | 0.00        |
| 8770.00                               | 69.70         | 178.00                 | 8612.61     | 8591.61                 | 420.07                      | 422.16 S                                  | 52.51 W | 425.42@                           | 187.09 | 8.09              | 0.00        |
| 8802.00                               | 72.30         | 178.30                 | 8623.03     | 8602.03                 | 450.33                      | 452.40 S                                  | 51.53 W | 455.33@                           | 186.50 | 8.17              | 0.00        |
| 8833.00                               | 75.10         | 178.00                 | 8631.73     | 8610.73                 | 480.08                      | 482.14 S                                  | 50.57 W | 484.78@                           | 185.99 | 9.08              | 0.00        |
| 8864.00                               | 77.50         | 177.40                 | 8639.07     | 8618.07                 | 510.19                      | 512.23 S                                  | 49.36 W | 514.60@                           | 185.50 | 7.97              | 0.00        |

# PathFinder Energy Services, Inc.

## Survey Report

COG OPERATING, LLC  
ROAD LIZARD 5 FED #2H  
CULEBRA BLUFF; BONE SPRING  
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| Measured<br>Depth<br>(ft) | Incl<br>(deg) | Drift<br>Dir.<br>(deg) | TVD<br>(ft) | Subsea<br>Depth<br>(ft) | Vertical<br>Section<br>(ft) | TOTAL<br>Rectangular Offsets<br>(ft) (ft) |         | Closure<br>Dist Dir<br>(ft) (deg) | DLS<br>(dg/100ft) | TEMP<br>(F) |
|---------------------------|---------------|------------------------|-------------|-------------------------|-----------------------------|-------------------------------------------|---------|-----------------------------------|-------------------|-------------|
| 8896.00                   | 79.70         | 176.80                 | 8645.40     | 8624.40                 | 541.56                      | 543.55 S                                  | 47.78 W | 545.65@ 185.02                    | 7.12              | 0.00        |
| 8926.00                   | 82.60         | 177.40                 | 8650.01     | 8629.01                 | 571.19                      | 573.16 S                                  | 46.28 W | 575.02@ 184.62                    | 9.87              | 0.00        |
| 8958.00                   | 86.20         | 177.40                 | 8653.13     | 8632.13                 | 603.03                      | 604.97 S                                  | 44.83 W | 606.62@ 184.24                    | 11.25             | 0.00        |
| 9017.00                   | 89.70         | 178.60                 | 8655.25     | 8634.25                 | 661.98                      | 663.88 S                                  | 42.78 W | 665.26@ 183.69                    | 6.27              | 0.00        |
| 9079.00                   | 89.80         | 178.50                 | 8655.52     | 8634.52                 | 723.98                      | 725.86 S                                  | 41.21 W | 727.03@ 183.25                    | 0.23              | 0.00        |
| 9142.00                   | 89.50         | 178.30                 | 8655.90     | 8634.90                 | 786.98                      | 788.84 S                                  | 39.45 W | 789.82@ 182.86                    | 0.57              | 0.00        |
| 9205.00                   | 89.00         | 178.40                 | 8656.73     | 8635.73                 | 849.97                      | 851.80 S                                  | 37.63 W | 852.64@ 182.53                    | 0.81              | 0.00        |
| 9267.00                   | 89.30         | 178.20                 | 8657.64     | 8636.64                 | 911.96                      | 913.77 S                                  | 35.79 W | 914.47@ 182.24                    | 0.58              | 0.00        |
| 9331.00                   | 89.80         | 179.70                 | 8658.15     | 8637.15                 | 975.95                      | 977.76 S                                  | 34.62 W | 978.37@ 182.03                    | 2.47              | 0.00        |
| 9394.00                   | 90.70         | 179.90                 | 8657.87     | 8636.87                 | 1038.92                     | 1040.75 S                                 | 34.40 W | 1041.32@ 181.89                   | 1.46              | 0.00        |
| 9457.00                   | 90.60         | 178.40                 | 8657.16     | 8636.16                 | 1101.90                     | 1103.74 S                                 | 33.47 W | 1104.25@ 181.74                   | 2.39              | 0.00        |
| 9520.00                   | 90.60         | 176.30                 | 8656.50     | 8635.50                 | 1164.89                     | 1166.67 S                                 | 30.55 W | 1167.07@ 181.50                   | 3.33              | 0.00        |
| 9583.00                   | 89.40         | 176.20                 | 8656.50     | 8635.50                 | 1227.86                     | 1229.53 S                                 | 26.43 W | 1229.81@ 181.23                   | 1.91              | 0.00        |
| 9647.00                   | 88.80         | 175.60                 | 8657.50     | 8636.50                 | 1291.81                     | 1293.36 S                                 | 21.86 W | 1293.54@ 180.97                   | 1.33              | 0.00        |
| 9710.00                   | 88.70         | 176.50                 | 8658.88     | 8637.88                 | 1354.75                     | 1356.19 S                                 | 17.52 W | 1356.31@ 180.74                   | 1.44              | 0.00        |
| 9773.00                   | 90.20         | 178.50                 | 8659.48     | 8638.48                 | 1417.74                     | 1419.12 S                                 | 14.77 W | 1419.20@ 180.60                   | 3.97              | 0.00        |
| 9836.00                   | 90.60         | 178.20                 | 8659.04     | 8638.04                 | 1480.74                     | 1482.10 S                                 | 12.96 W | 1482.15@ 180.50                   | 0.79              | 0.00        |
| 9899.00                   | 89.90         | 177.60                 | 8658.77     | 8637.77                 | 1543.74                     | 1545.05 S                                 | 10.65 W | 1545.09@ 180.39                   | 1.46              | 0.00        |
| 9962.00                   | 89.40         | 177.20                 | 8659.15     | 8638.15                 | 1606.74                     | 1607.99 S                                 | 7.79 W  | 1608.01@ 180.28                   | 1.02              | 0.00        |
| 10026.00                  | 88.80         | 177.10                 | 8660.16     | 8639.16                 | 1670.72                     | 1671.90 S                                 | 4.61 W  | 1671.91@ 180.16                   | 0.95              | 0.00        |
| 10089.00                  | 88.30         | 177.40                 | 8661.75     | 8640.75                 | 1733.69                     | 1734.81 S                                 | 1.59 W  | 1734.81@ 180.05                   | 0.93              | 0.00        |
| 10152.00                  | 88.00         | 177.50                 | 8663.79     | 8642.79                 | 1796.66                     | 1797.71 S                                 | 1.21 E  | 1797.71@ 179.96                   | 0.50              | 0.00        |
| 10215.00                  | 88.80         | 177.70                 | 8665.55     | 8644.55                 | 1859.63                     | 1860.63 S                                 | 3.85 E  | 1860.64@ 179.88                   | 1.31              | 0.00        |
| 10278.00                  | 89.10         | 177.70                 | 8666.70     | 8645.70                 | 1922.62                     | 1923.57 S                                 | 6.38 E  | 1923.58@ 179.81                   | 0.48              | 0.00        |
| 10341.00                  | 89.40         | 177.00                 | 8667.52     | 8646.52                 | 1985.61                     | 1986.50 S                                 | 9.29 E  | 1986.52@ 179.73                   | 1.21              | 0.00        |
| 10404.00                  | 89.10         | 176.10                 | 8668.35     | 8647.35                 | 2048.58                     | 2049.38 S                                 | 13.08 E | 2049.42@ 179.63                   | 1.51              | 0.00        |
| 10436.00                  | 88.70         | 175.50                 | 8668.96     | 8647.96                 | 2080.55                     | 2081.28 S                                 | 15.42 E | 2081.34@ 179.58                   | 2.25              | 0.00        |
| 10467.00                  | 88.40         | 176.80                 | 8669.75     | 8648.75                 | 2111.53                     | 2112.20 S                                 | 17.50 E | 2112.28@ 179.53                   | 4.30              | 0.00        |

# PathFinder Energy Services, Inc.

## Survey Report

COG OPERATING, LLC  
ROAD LIZARD 5 FED #2H  
CULEBRA BLUFF; BONE SPRING  
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| Measured<br>Depth<br>(ft) | Incl<br>(deg) | Drift<br>Dir.<br>(deg) | TVD<br>(ft) | Subsea<br>Depth<br>(ft) | Vertical<br>Section<br>(ft) | TOTAL<br>Rectangular Offsets<br>(ft) (ft) |         | Closure<br>Dist Dir<br>(ft) (deg) |        | DLS<br>(dg/100ft) | TEMP<br>(F) |
|---------------------------|---------------|------------------------|-------------|-------------------------|-----------------------------|-------------------------------------------|---------|-----------------------------------|--------|-------------------|-------------|
| 10499.00                  | 88.50         | 178.10                 | 8670.61     | 8649.61                 | 2143.51                     | 2144.16 S                                 | 18.93 E | 2144.24@                          | 179.49 | 4.07              | 0.00        |
| 10531.00                  | 89.40         | 178.80                 | 8671.20     | 8650.20                 | 2175.51                     | 2176.14 S                                 | 19.79 E | 2176.23@                          | 179.48 | 3.56              | 0.00        |
| 10562.00                  | 90.10         | 178.40                 | 8671.34     | 8650.34                 | 2206.50                     | 2207.13 S                                 | 20.55 E | 2207.23@                          | 179.47 | 2.60              | 0.00        |
| 10594.00                  | 90.00         | 177.90                 | 8671.31     | 8650.31                 | 2238.50                     | 2239.12 S                                 | 21.58 E | 2239.22@                          | 179.45 | 1.59              | 0.00        |
| 10657.00                  | 90.60         | 177.70                 | 8670.98     | 8649.98                 | 2301.50                     | 2302.07 S                                 | 24.00 E | 2302.19@                          | 179.40 | 1.00              | 0.00        |
| 10720.00                  | 90.80         | 178.00                 | 8670.21     | 8649.21                 | 2364.50                     | 2365.02 S                                 | 26.37 E | 2365.17@                          | 179.36 | 0.57              | 0.00        |
| 10783.00                  | 89.80         | 177.30                 | 8669.88     | 8648.88                 | 2427.49                     | 2427.96 S                                 | 28.95 E | 2428.14@                          | 179.32 | 1.94              | 0.00        |
| 10846.00                  | 89.10         | 176.30                 | 8670.48     | 8649.48                 | 2490.48                     | 2490.86 S                                 | 32.46 E | 2491.07@                          | 179.25 | 1.94              | 0.00        |
| 10910.00                  | 90.60         | 177.60                 | 8670.65     | 8649.65                 | 2554.46                     | 2554.77 S                                 | 35.87 E | 2555.02@                          | 179.20 | 3.10              | 0.00        |
| 10973.00                  | 90.30         | 177.20                 | 8670.16     | 8649.16                 | 2617.46                     | 2617.70 S                                 | 38.73 E | 2617.99@                          | 179.15 | 0.79              | 0.00        |
| 11036.00                  | 89.60         | 176.30                 | 8670.21     | 8649.21                 | 2680.44                     | 2680.60 S                                 | 42.30 E | 2680.93@                          | 179.10 | 1.81              | 0.00        |
| 11099.00                  | 90.60         | 177.00                 | 8670.10     | 8649.10                 | 2743.42                     | 2743.49 S                                 | 45.98 E | 2743.87@                          | 179.04 | 1.94              | 0.00        |
| 11162.00                  | 90.60         | 178.40                 | 8669.44     | 8648.44                 | 2806.42                     | 2806.43 S                                 | 48.51 E | 2806.85@                          | 179.01 | 2.22              | 0.00        |
| 11225.00                  | 90.70         | 179.40                 | 8668.73     | 8647.73                 | 2869.40                     | 2869.42 S                                 | 49.72 E | 2869.85@                          | 179.01 | 1.59              | 0.00        |
| 11288.00                  | 91.20         | 178.70                 | 8667.68     | 8646.68                 | 2932.38                     | 2932.40 S                                 | 50.76 E | 2932.84@                          | 179.01 | 1.37              | 0.00        |
| 11351.00                  | 91.40         | 178.40                 | 8666.25     | 8645.25                 | 2995.36                     | 2995.36 S                                 | 52.36 E | 2995.82@                          | 179.00 | 0.57              | 0.00        |
| 11415.00                  | 89.70         | 176.90                 | 8665.64     | 8644.64                 | 3059.36                     | 3059.30 S                                 | 54.98 E | 3059.80@                          | 178.97 | 3.54              | 0.00        |
| 11509.00                  | 90.60         | 179.10                 | 8665.39     | 8644.39                 | 3153.35                     | 3153.24 S                                 | 58.26 E | 3153.77@                          | 178.94 | 2.53              | 0.00        |
| 11572.00                  | 90.90         | 179.80                 | 8664.57     | 8643.57                 | 3216.32                     | 3216.23 S                                 | 58.87 E | 3216.77@                          | 178.95 | 1.21              | 0.00        |
| 11636.00                  | 89.40         | 178.70                 | 8664.40     | 8643.40                 | 3280.31                     | 3280.22 S                                 | 59.70 E | 3280.76@                          | 178.96 | 2.91              | 0.00        |
| 11699.00                  | 88.50         | 177.20                 | 8665.55     | 8644.55                 | 3343.29                     | 3343.17 S                                 | 61.96 E | 3343.74@                          | 178.94 | 2.78              | 0.00        |
| 11762.00                  | 89.30         | 177.30                 | 8666.76     | 8645.76                 | 3406.27                     | 3406.08 S                                 | 64.98 E | 3406.70@                          | 178.91 | 1.28              | 0.00        |
| 11825.00                  | 90.50         | 178.10                 | 8666.87     | 8645.87                 | 3469.27                     | 3469.03 S                                 | 67.51 E | 3469.69@                          | 178.89 | 2.29              | 0.00        |
| 11888.00                  | 91.00         | 178.90                 | 8666.05     | 8645.05                 | 3532.26                     | 3532.00 S                                 | 69.16 E | 3532.68@                          | 178.88 | 1.50              | 0.00        |
| 11952.00                  | 90.80         | 178.40                 | 8665.04     | 8644.04                 | 3596.25                     | 3595.98 S                                 | 70.66 E | 3596.67@                          | 178.87 | 0.84              | 0.00        |
| 12015.00                  | 89.40         | 177.40                 | 8664.93     | 8643.93                 | 3659.25                     | 3658.93 S                                 | 72.97 E | 3659.66@                          | 178.86 | 2.73              | 0.00        |
| 12078.00                  | 89.00         | 176.90                 | 8665.81     | 8644.81                 | 3722.23                     | 3721.85 S                                 | 76.10 E | 3722.62@                          | 178.83 | 1.02              | 0.00        |
| 12141.00                  | 88.20         | 176.30                 | 8667.35     | 8646.35                 | 3785.20                     | 3784.72 S                                 | 79.84 E | 3785.56@                          | 178.79 | 1.59              | 0.00        |

# PathFinder Energy Services, Inc.

## Survey Report

COG OPERATING, LLC  
ROAD LIZARD 5 FED #2H  
CULEBRA BLUFF; BONE SPRING  
RIG:UDI 216

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| Measured<br>Depth<br>(ft)                | Incl<br>(deg) | Drift<br>Dir.<br>(deg) | TVD<br>(ft) | Subsea<br>Depth<br>(ft) | Vertical<br>Section<br>(ft) | TOTAL<br>Rectangular Offsets<br>(ft) (ft) |          | Closure<br>Dist Dir<br>(ft) (deg) |        | DLS<br>(dg/100ft) | TEMP<br>(F) |
|------------------------------------------|---------------|------------------------|-------------|-------------------------|-----------------------------|-------------------------------------------|----------|-----------------------------------|--------|-------------------|-------------|
| THE FOLLOWING ARE PATHFINDER MWD SURVEYS |               |                        |             |                         |                             |                                           |          |                                   |        |                   |             |
| 12275.00                                 | 88.60         | 176.70                 | 8671.09     | 8650.09                 | 3919.10                     | 3918.41 S                                 | 88.02 E  | 3919.40@                          | 178.71 | 0.42              | 151.62      |
| 12306.00                                 | 89.50         | 177.30                 | 8671.61     | 8650.61                 | 3950.09                     | 3949.37 S                                 | 89.64 E  | 3950.38@                          | 178.70 | 3.49              | 155.24      |
| 12338.00                                 | 90.30         | 177.10                 | 8671.66     | 8650.66                 | 3982.09                     | 3981.33 S                                 | 91.20 E  | 3982.37@                          | 178.69 | 2.58              | 155.24      |
| 12369.00                                 | 89.90         | 176.80                 | 8671.61     | 8650.61                 | 4013.08                     | 4012.28 S                                 | 92.85 E  | 4013.36@                          | 178.67 | 1.61              | 155.24      |
| 12401.00                                 | 89.10         | 175.90                 | 8671.89     | 8650.89                 | 4045.06                     | 4044.22 S                                 | 94.89 E  | 4045.33@                          | 178.66 | 3.76              | 155.24      |
| 12432.00                                 | 88.80         | 176.40                 | 8672.46     | 8651.46                 | 4076.04                     | 4075.14 S                                 | 96.97 E  | 4076.30@                          | 178.64 | 1.88              | 155.24      |
| 12464.00                                 | 88.60         | 176.20                 | 8673.18     | 8652.18                 | 4108.02                     | 4107.07 S                                 | 99.03 E  | 4108.26@                          | 178.62 | 0.88              | 155.24      |
| 12496.00                                 | 90.40         | 176.80                 | 8673.46     | 8652.46                 | 4140.01                     | 4139.00 S                                 | 100.99 E | 4140.24@                          | 178.60 | 5.93              | 155.24      |
| 12527.00                                 | 91.80         | 177.50                 | 8672.87     | 8651.87                 | 4171.00                     | 4169.96 S                                 | 102.53 E | 4171.22@                          | 178.59 | 5.05              | 155.24      |
| 12559.00                                 | 91.80         | 177.20                 | 8671.86     | 8650.86                 | 4202.98                     | 4201.91 S                                 | 104.01 E | 4203.20@                          | 178.58 | 0.94              | 155.24      |
| 12590.00                                 | 91.70         | 176.70                 | 8670.91     | 8649.91                 | 4233.96                     | 4232.85 S                                 | 105.66 E | 4234.17@                          | 178.57 | 1.64              | 155.24      |
| 12622.00                                 | 91.50         | 176.60                 | 8670.02     | 8649.02                 | 4265.94                     | 4264.78 S                                 | 107.52 E | 4266.14@                          | 178.56 | 0.70              | 155.24      |
| 12653.00                                 | 91.20         | 177.10                 | 8669.29     | 8648.29                 | 4296.92                     | 4295.73 S                                 | 109.23 E | 4297.12@                          | 178.54 | 1.88              | 155.24      |
| 12685.00                                 | 91.20         | 176.80                 | 8668.62     | 8647.62                 | 4328.91                     | 4327.68 S                                 | 110.93 E | 4329.10@                          | 178.53 | 0.94              | 155.24      |
| 12717.00                                 | 90.40         | 176.50                 | 8668.17     | 8647.17                 | 4360.90                     | 4359.62 S                                 | 112.80 E | 4361.08@                          | 178.52 | 2.67              | 155.24      |
| 12748.00                                 | 90.40         | 176.40                 | 8667.96     | 8646.96                 | 4391.89                     | 4390.56 S                                 | 114.72 E | 4392.06@                          | 178.50 | 0.32              | 155.24      |
| 12811.00                                 | 90.10         | 176.20                 | 8667.68     | 8646.68                 | 4454.86                     | 4453.43 S                                 | 118.78 E | 4455.01@                          | 178.47 | 0.57              | 158.85      |
| 12875.00                                 | 90.40         | 176.90                 | 8667.40     | 8646.40                 | 4518.84                     | 4517.31 S                                 | 122.64 E | 4518.97@                          | 178.44 | 1.19              | 158.85      |
| 12938.00                                 | 90.40         | 176.50                 | 8666.96     | 8645.96                 | 4581.82                     | 4580.20 S                                 | 126.26 E | 4581.94@                          | 178.42 | 0.64              | 158.85      |
| 13001.00                                 | 90.30         | 176.20                 | 8666.58     | 8645.58                 | 4644.79                     | 4643.07 S                                 | 130.27 E | 4644.90@                          | 178.39 | 0.50              | 158.85      |
| 13064.00                                 | 89.60         | 175.20                 | 8666.63     | 8645.63                 | 4707.74                     | 4705.89 S                                 | 135.00 E | 4707.83@                          | 178.36 | 1.94              | 158.85      |
| 13127.00                                 | 89.80         | 175.60                 | 8666.96     | 8645.96                 | 4770.67                     | 4768.69 S                                 | 140.05 E | 4770.75@                          | 178.32 | 0.71              | 155.24      |
| 13191.00                                 | 91.00         | 176.90                 | 8666.52     | 8645.52                 | 4834.64                     | 4832.55 S                                 | 144.23 E | 4834.70@                          | 178.29 | 2.76              | 151.62      |
| 13254.00                                 | 90.70         | 177.00                 | 8665.58     | 8644.58                 | 4897.62                     | 4895.45 S                                 | 147.59 E | 4897.68@                          | 178.27 | 0.50              | 151.62      |
| 13317.00                                 | 90.60         | 176.80                 | 8664.87     | 8643.87                 | 4960.61                     | 4958.36 S                                 | 150.99 E | 4960.65@                          | 178.26 | 0.35              | 151.62      |
| 13380.00                                 | 90.70         | 176.70                 | 8664.15     | 8643.15                 | 5023.59                     | 5021.25 S                                 | 154.56 E | 5023.63@                          | 178.24 | 0.23              | 151.62      |
| 13443.00                                 | 90.50         | 175.60                 | 8663.49     | 8642.49                 | 5086.55                     | 5084.10 S                                 | 158.79 E | 5086.58@                          | 178.21 | 1.77              | 151.62      |

# PathFinder Energy Services, Inc.

## Survey Report

COG OPERATING, LLC  
ROAD LIZARD 5 FED #2H  
CULEBRA BLUFF; BONE SPRING  
RIG:UDI 216

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| Measured<br>Depth<br>(ft) | Incl<br>(deg) | Drift<br>Dir.<br>(deg) | TVD<br>(ft) | Subsea<br>Depth<br>(ft) | Vertical<br>Section<br>(ft) | TOTAL<br>Rectangular Offsets<br>(ft) (ft) |          | Closure<br>Dist Dir<br>(ft) (deg) |        | DLS<br>(dg/100ft) | TEMP<br>(F) |
|---------------------------|---------------|------------------------|-------------|-------------------------|-----------------------------|-------------------------------------------|----------|-----------------------------------|--------|-------------------|-------------|
| 13507.00                  | 89.70         | 175.20                 | 8663.38     | 8642.38                 | 5150.48                     | 5147.90 S                                 | 163.93 E | 5150.51@                          | 178.18 | 1.40              | 148.01      |
| 13570.00                  | 89.80         | 177.10                 | 8663.66     | 8642.66                 | 5213.45                     | 5210.75 S                                 | 168.16 E | 5213.46@                          | 178.15 | 3.02              | 148.01      |
| 13633.00                  | 89.60         | 177.00                 | 8663.99     | 8642.99                 | 5276.44                     | 5273.67 S                                 | 171.40 E | 5276.45@                          | 178.14 | 0.35              | 151.62      |
| 13696.00                  | 90.50         | 178.30                 | 8663.93     | 8642.93                 | 5339.43                     | 5336.61 S                                 | 173.98 E | 5339.45@                          | 178.13 | 2.51              | 151.62      |
| 13759.00                  | 90.70         | 178.50                 | 8663.27     | 8642.27                 | 5402.43                     | 5399.59 S                                 | 175.74 E | 5402.44@                          | 178.14 | 0.45              | 151.62      |
| 13822.00                  | 90.20         | 177.00                 | 8662.78     | 8641.78                 | 5465.42                     | 5462.53 S                                 | 178.21 E | 5465.44@                          | 178.13 | 2.51              | 151.62      |
| 13886.00                  | 90.70         | 177.70                 | 8662.27     | 8641.27                 | 5529.42                     | 5526.46 S                                 | 181.17 E | 5529.43@                          | 178.12 | 1.34              | 155.24      |
| 13949.00                  | 90.80         | 177.20                 | 8661.45     | 8640.45                 | 5592.41                     | 5589.39 S                                 | 183.98 E | 5592.42@                          | 178.11 | 0.81              | 151.62      |
| 14012.00                  | 90.30         | 177.00                 | 8660.84     | 8639.84                 | 5655.40                     | 5652.31 S                                 | 187.16 E | 5655.41@                          | 178.10 | 0.85              | 151.62      |
| 14076.00                  | 90.00         | 176.00                 | 8660.68     | 8639.68                 | 5719.38                     | 5716.19 S                                 | 191.07 E | 5719.38@                          | 178.09 | 1.63              | 151.62      |
| 14138.00                  | 89.90         | 176.30                 | 8660.73     | 8639.73                 | 5781.34                     | 5778.05 S                                 | 195.23 E | 5781.35@                          | 178.06 | 0.51              | 151.62      |
| 14202.00                  | 89.60         | 176.30                 | 8661.01     | 8640.01                 | 5845.31                     | 5841.91 S                                 | 199.36 E | 5845.32@                          | 178.05 | 0.47              | 151.62      |
| 14265.00                  | 89.40         | 175.70                 | 8661.56     | 8640.56                 | 5908.27                     | 5904.76 S                                 | 203.76 E | 5908.27@                          | 178.02 | 1.00              | 151.62      |
| 14328.00                  | 89.30         | 176.90                 | 8662.28     | 8641.28                 | 5971.24                     | 5967.62 S                                 | 207.82 E | 5971.24@                          | 178.01 | 1.91              | 151.62      |
| 14392.00                  | 89.30         | 176.40                 | 8663.06     | 8642.06                 | 6035.22                     | 6031.51 S                                 | 211.56 E | 6035.22@                          | 177.99 | 0.78              | 151.62      |
| 14455.00                  | 89.10         | 177.40                 | 8663.94     | 8642.94                 | 6098.20                     | 6094.41 S                                 | 214.97 E | 6098.20@                          | 177.98 | 1.62              | 151.62      |
| 14518.00                  | 90.40         | 177.90                 | 8664.21     | 8643.21                 | 6161.20                     | 6157.35 S                                 | 217.55 E | 6161.20@                          | 177.98 | 2.21              | 151.62      |
| 14581.00                  | 90.70         | 178.10                 | 8663.61     | 8642.61                 | 6224.19                     | 6220.31 S                                 | 219.75 E | 6224.19@                          | 177.98 | 0.57              | 155.24      |
| 14644.00                  | 90.60         | 177.70                 | 8662.89     | 8641.89                 | 6287.19                     | 6283.27 S                                 | 222.06 E | 6287.19@                          | 177.98 | 0.65              | 155.24      |
| 14707.00                  | 90.40         | 177.20                 | 8662.34     | 8641.34                 | 6350.18                     | 6346.20 S                                 | 224.86 E | 6350.18@                          | 177.97 | 0.85              | 155.24      |
| 14771.00                  | 90.10         | 177.00                 | 8662.06     | 8641.06                 | 6414.17                     | 6410.12 S                                 | 228.10 E | 6414.17@                          | 177.96 | 0.56              | 155.24      |
| 14834.00                  | 90.10         | 177.40                 | 8661.95     | 8640.95                 | 6477.17                     | 6473.04 S                                 | 231.18 E | 6477.17@                          | 177.95 | 0.64              | 155.24      |
| 14895.00                  | 89.70         | 177.60                 | 8662.06     | 8641.06                 | 6538.17                     | 6533.98 S                                 | 233.84 E | 6538.17@                          | 177.95 | 0.73              | 155.24      |
| 14959.00                  | 90.90         | 177.60                 | 8661.72     | 8640.72                 | 6602.16                     | 6597.93 S                                 | 236.52 E | 6602.16@                          | 177.95 | 1.88              | 155.24      |
| 15021.00                  | 90.80         | 177.40                 | 8660.80     | 8639.80                 | 6664.15                     | 6659.86 S                                 | 239.22 E | 6664.16@                          | 177.94 | 0.36              | 155.24      |
| 15084.00                  | 90.60         | 177.70                 | 8660.04     | 8639.04                 | 6727.14                     | 6722.80 S                                 | 241.92 E | 6727.15@                          | 177.94 | 0.57              | 155.24      |
| 15148.00                  | 90.10         | 177.70                 | 8659.64     | 8638.64                 | 6791.14                     | 6786.75 S                                 | 244.48 E | 6791.15@                          | 177.94 | 0.78              | 155.24      |
| 15211.00                  | 89.50         | 177.30                 | 8659.86     | 8638.86                 | 6854.14                     | 6849.69 S                                 | 247.23 E | 6854.15@                          | 177.93 | 1.14              | 155.24      |

# PathFinder Energy Services, Inc.

## Survey Report

COG OPERATING, LLC  
ROAD LIZARD 5 FED #2H  
CULEBRA BLUFF; BONE SPRING  
RIG:UDI 216

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| Measured<br>Depth<br>(ft)       | Incl<br>(deg) | Drift<br>Dir.<br>(deg) | TVD<br>(ft) | Subsea<br>Depth<br>(ft) | Vertical<br>Section<br>(ft) | TOTAL<br>Rectangular Offsets<br>(ft) (ft) |          | Closure<br>Dist Dir<br>(ft) (deg) |        | DLS<br>(dg/100ft) | TEMP<br>(F) |
|---------------------------------|---------------|------------------------|-------------|-------------------------|-----------------------------|-------------------------------------------|----------|-----------------------------------|--------|-------------------|-------------|
| 15274.00                        | 89.70         | 176.60                 | 8660.30     | 8639.30                 | 6917.13                     | 6912.59 S                                 | 250.58 E | 6917.13@                          | 177.92 | 1.16              | 155.24      |
| 15337.00                        | 89.20         | 175.50                 | 8660.91     | 8639.91                 | 6980.09                     | 6975.44 S                                 | 254.92 E | 6980.10@                          | 177.91 | 1.92              | 158.85      |
| 15400.00                        | 90.30         | 175.90                 | 8661.18     | 8640.18                 | 7043.03                     | 7038.26 S                                 | 259.65 E | 7043.05@                          | 177.89 | 1.86              | 155.24      |
| 15463.00                        | 90.60         | 176.20                 | 8660.69     | 8639.69                 | 7106.00                     | 7101.11 S                                 | 263.99 E | 7106.01@                          | 177.87 | 0.67              | 158.85      |
| 15527.00                        | 90.00         | 176.00                 | 8660.35     | 8639.35                 | 7169.96                     | 7164.96 S                                 | 268.34 E | 7169.98@                          | 177.86 | 0.99              | 158.85      |
| 15590.00                        | 89.60         | 175.90                 | 8660.57     | 8639.57                 | 7232.92                     | 7227.80 S                                 | 272.79 E | 7232.95@                          | 177.84 | 0.65              | 158.85      |
| 15653.00                        | 90.70         | 176.00                 | 8660.41     | 8639.41                 | 7295.88                     | 7290.64 S                                 | 277.24 E | 7295.91@                          | 177.82 | 1.75              | 158.85      |
| 15716.00                        | 90.80         | 176.00                 | 8659.58     | 8638.58                 | 7358.83                     | 7353.48 S                                 | 281.63 E | 7358.87@                          | 177.81 | 0.16              | 158.85      |
| 15779.00                        | 90.60         | 175.90                 | 8658.81     | 8637.81                 | 7421.79                     | 7416.32 S                                 | 286.08 E | 7421.84@                          | 177.79 | 0.35              | 158.85      |
| 15843.00                        | 90.00         | 175.40                 | 8658.48     | 8637.48                 | 7485.73                     | 7480.14 S                                 | 290.94 E | 7485.79@                          | 177.77 | 1.22              | 158.85      |
| 15906.00                        | 91.00         | 176.30                 | 8657.93     | 8636.93                 | 7548.68                     | 7542.97 S                                 | 295.49 E | 7548.75@                          | 177.76 | 2.14              | 158.85      |
| 15969.00                        | 89.80         | 178.00                 | 8657.49     | 8636.49                 | 7611.67                     | 7605.88 S                                 | 298.63 E | 7611.74@                          | 177.75 | 3.30              | 158.85      |
| 16032.00                        | 89.40         | 177.80                 | 8657.93     | 8636.93                 | 7674.67                     | 7668.84 S                                 | 300.94 E | 7674.74@                          | 177.75 | 0.71              | 158.85      |
| 16095.00                        | 89.40         | 177.70                 | 8658.59     | 8637.59                 | 7737.67                     | 7731.79 S                                 | 303.41 E | 7737.74@                          | 177.75 | 0.16              | 158.85      |
| 16159.00                        | 89.40         | 177.70                 | 8659.26     | 8638.26                 | 7801.66                     | 7795.73 S                                 | 305.98 E | 7801.74@                          | 177.75 | 0.00              | 162.46      |
| 16222.00                        | 89.00         | 177.40                 | 8660.14     | 8639.14                 | 7864.65                     | 7858.67 S                                 | 308.67 E | 7864.73@                          | 177.75 | 0.79              | 162.46      |
| 16285.00                        | 88.40         | 177.30                 | 8661.57     | 8640.57                 | 7927.63                     | 7921.58 S                                 | 311.58 E | 7927.71@                          | 177.75 | 0.97              | 162.46      |
| 16380.00                        | 88.10         | 176.70                 | 8664.47     | 8643.47                 | 8022.57                     | 8016.41 S                                 | 316.55 E | 8022.66@                          | 177.74 | 0.71              | 162.46      |
| 16443.00                        | 89.10         | 177.40                 | 8666.01     | 8645.01                 | 8085.55                     | 8079.31 S                                 | 319.79 E | 8085.63@                          | 177.73 | 1.94              | 162.46      |
| 16505.00                        | 90.20         | 178.50                 | 8666.39     | 8645.39                 | 8147.54                     | 8141.26 S                                 | 322.01 E | 8147.63@                          | 177.73 | 2.51              | 155.24      |
| 16568.00                        | 90.80         | 179.00                 | 8665.84     | 8644.84                 | 8210.53                     | 8204.25 S                                 | 323.38 E | 8210.62@                          | 177.74 | 1.24              | 158.85      |
| 16632.00                        | 89.90         | 178.90                 | 8665.45     | 8644.45                 | 8274.52                     | 8268.23 S                                 | 324.56 E | 8274.60@                          | 177.75 | 1.41              | 162.46      |
| 16695.00                        | 89.80         | 179.00                 | 8665.61     | 8644.61                 | 8337.51                     | 8331.22 S                                 | 325.71 E | 8337.59@                          | 177.76 | 0.23              | 162.46      |
| STRAIGHT LINE PROJECTION TO BIT |               |                        |             |                         |                             |                                           |          |                                   |        |                   |             |
| 16805.00                        | 89.80         | 179.00                 | 8666.00     | 8645.00                 | 8447.50                     | 8441.21 S                                 | 327.63 E | 8447.56@                          | 177.78 | 0.00              | 162.50      |